

# RADIO AMATEUR

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Station  
VK2CC**

JANUARY 1992

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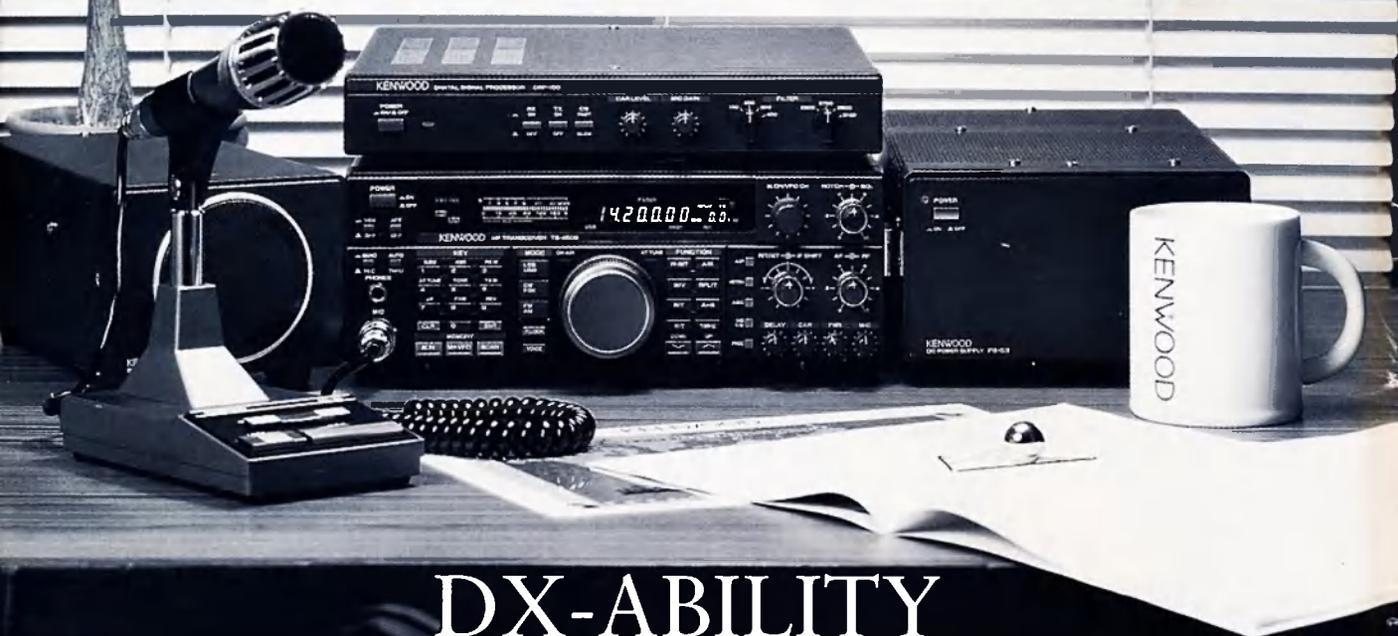
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THE WIA RADIO AMATEUR'S JOURNAL

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### Cover

Photo: Snapper Island VK2CC club station of the NSW chapter of the RNARS. For the full story, see Snapper Island on p24. Photo by Dave Stevens.

# EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

## Lies, Damned Lies and?

Yes, I am going to produce some statistics? Even so, in spite of the quotation borrowed as a title (was it Winston Churchill?) I found these figures very revealing. While I hoped they might serve to support the claim I had in mind, I was nevertheless surprised to find how strongly they did support it.

"Stop talking in riddles," I hear you say. "Come to the point, and stop beating around the bush!" Right, here goes. Every year, early in December, we start hearing from people who have just received their WIA subscription notice. And some we don't hear from at all! Most of you, solid, reliable, public-spirited people that you are, simply send in a cheque and that's that. Some

enclose a note, usually to the effect that the cost of belonging to the WIA keeps on getting higher and higher, and they don't know if they can keep it up much longer. And some just quietly disappear from the list of members.

So I thought I would do a little historical research to confirm (or otherwise) whether in fact WIA subscriptions are rising faster than they should. Essentially, it has been Executive policy for many years that subs should rise no faster than the Consumer Price Index. Not having immediate access to these figures, I chose my own cheque-book records as an alternative. I found I had all my records intact, back to 1974. Until 1987, when I retired, I was a middle-level employee of the Common-

wealth Public Service, at the top of the pay range for my classification, thus receiving no annual increment other than a CPI adjustment. Upon retirement, my pay dropped to about half what it had been till then, but is still adjusted annually in accordance with the declared CPI.

My cheque-book also recorded the amount of each year's WIA sub, so it was easy to work out as a yardstick figure the sub amount as a percentage of two weeks' pay. Until retirement, this percentage was never more than 6.3 (in 1976), nor less than 4.1 (in 1974). As a percentage of retirement income, it rose to 9.5 in 1988, and peaked at 10.8 in 1990, falling to 10.7 in 1991 and 10.5 this year. So, for those whose income is tied to CPI, the WIA is actually costing less than last year, and that was cheaper than the year before!

I know many people are not fortunate enough to receive

CPI adjustments. Many people are not even fortunate enough to have a job in this current recession. The WIA does offer membership at concession rates to those in financial difficulty. But, even at full rates, the WIA is as much a bargain as always, and steadily improving. You can't afford not to belong!

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## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society — Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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**General Manager and Secretary: Bill Roper VK3ARZ**

### EXECUTIVE

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# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## Exams Update

After just two months of operation, while still running in parallel with the old system of examinations, WIA Exam Service has registered 170 accredited examiners, with more applications being received every day, and examinations material has been supplied to examiners for a total of 326 separate exam subjects.

It has been interesting to analyse the examination results and find that the pass rates in some subjects are lower than expected. For example, only a 30.2% pass

rate in AOCPP theory, 50% in Regulations, 25.8% in AOCPP Morse Receiving, and 33.3% in NAOCP Morse Receiving.

These results suggest that many candidates are ill-prepared for the examinations. Or it may be that they are just "having a go" for familiarisation with the system, and not expecting to pass. It is of course early days yet for any definitive analysis of examination statistics, but it is a concerning trend. Examiners intending to run examinations during the holiday season should allow plenty of time when applying to WIA Exam Service for examination ma-

terials. In the past few weeks we have found that Australia Post is often taking more than a week for delivery of interstate certified mail, and expect this to become worse as the season becomes busier. In order to minimise the delay between examiners sending off an order to WIA Exam Service for examination material and receiving the material in the post, particularly for those located in the more distant areas from Melbourne, orders for material can now be sent by fax. A faxed order must, however, include complete credit card debit details and authority.

## Examination Question Banks

The October 1991 quar-

terly Executive meeting set up an examinations sub-committee to maintain and extend the question banks and to monitor examination material production. Under the agreement on examinations between the DoTC and the WIA all additions to the question banks must be approved by at least three educationally qualified persons.

The committee will also remove from the existing question banks some questions which have caused concern. Members' questions will be welcomed by the sub-committee, especially if they relate to the areas of need listed in the Education Notes column on page 47 of the December 1991 issue of *Amateur Radio* magazine. At present questions on basic calculations

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer Christopher Davis VK1DO Jan Bunell VK1BR Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours) Roger Henley VK2ZIG Bob Lloyd-Jones VK2YEL Bob Taylor VK2AOE Mon-Fri 1100-1400 Wed 1900-2100	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours Jim Linton VK3PC Barry Wilson VK3XV Rob Hailey VK3XLZ 0630-1530 Tue & Thur	1.840MHz AM, 3.615 SSB, 7.065 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President Secretary Treasurer John Aarase VK4QA Bob Lees VK44ER Eric Fittock VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz 52.525 regional 2m repeaters and 1296, 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$86.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (06) 352 3428	President Secretary Treasurer Rowland Bruce VK5OU John McKellar VK5BJM Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.00 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 386 3888	President Secretary Treasurer Cliff Bastin VK6LZ John Far nan VK6AFA Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 436.525MHz Country relays 3582, 147.350(R) Busseton 146.900(R) Mt William (Bunbury) 147 225(R) 147 250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 3.560 at 1930 hrs	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne Tas 7015	President Secretary Treasurer Tom Allen VK7AL Ted Beard VK7EB Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

of power, Ohms law, components in series or parallel or conversion of units are not needed.

The aim of the sub-committee is to build up each question bank to a minimum of 1500 to 2000 good questions.

## Packeteers - You Are What You Write

A small monthly publication from the ARRL entitled **QEX: The ARRL Experimenters' Exchange** primarily provides a venue for documenting advanced technical work in the amateur radio field. It also provides a medium for exchange of ideas between amateur experimenters. A long letter from Lee W2QNL about what is appearing on packet bulletin boards was published in the November 1991 issue of **QEX** and makes interesting and thought provoking reading.

The letter is too long to quote fully, but the following comments are worthy of consideration. Lee is concerned about the "everyday loading of any discussion material on PBBSs", the "lack of observance of the rules of common sense as applied to discussion or debate in general", and those amateurs who "create a piece of writing 'live' at the keyboard and put it 'on line' without taking the time to cool down and rethink the product of their haste and/or passion".

Further on Lee writes "The requirements for accuracy are less stringent on the phone bands than when you commit your thoughts to paper or CRT". And "People who have little experience with vocal debate will prudently hesitate to give speeches off the cuff, but, strange to say, seated at a world-embracing packet keyboard, with no one looking over their shoulder, they suddenly become expert at what to write about. It's similar to the mental change that overcomes meek people who turn into raging ogres when behind the wheel of a powerful car. Demons on the loose!"

Are Australian packet

users guilty of not pausing to think about the material they are putting up on packet BBSs? What do you think?

## Pervasive Technology

Talking about the ARRL publication, **QEX**, an editorial in the June 1991 issue by Paul Rinaldo W4RI discusses the term "pervasive technology" which means a gadget so ubiquitous that everyone not only has one, but knows how to use it and cannot remember not having one since birth. Things like the telephone, and radio broadcasting for most people.

After discussing future candidates for pervasive technology rating, such as VCRs and cellular telephones, the editorial queries what pervasive technology there could be in amateur radio (handhelds? packet?), and then develops the argument to ask some questions:

*Should amateur radio equipment be designed for maximum ease of operation, with the technology hidden, thus making it possible for a greater number of people to make use of them? Or, should we recognise that amateur radio is a technical avocation and let the technology hang out there so amateurs will know what's going on inside the boxes? If it's there to see, touch and feel, isn't it more likely that amateurs would get ideas on how to improve things? Is more progress made by improving the mainstream systems or by innovative advancements in the state-of-the-art in experimental technology?*

What do you think?

## New Callsign Prefixes for Japan

As we all know Japanese callsigns usually begin with "J". DXers will know that as from April last year new callsign prefixes in the "7K1 to 7N1" prefix block were issued to amateurs in the Tokyo area. However, news from JARL advises that as from August

this year that block was full, and now the prefix block "7K2 to 7N4" has been allocated.

## Japanese Radio Stations

The October 1991 issue of **The JARL News** contains some interesting statistics. As at 30th June 1991 there were 6,652,060 radio stations in Japan. The largest group consists of 1,638,912 stations for personal use, followed by 1,405,377 representing stations for telecommunication business. The third largest group in classification by use is 1,124,018 amateur radio stations.

The potential for QRM in Japan must be incredible, particularly compared to Australia with 17,572 licensed radio amateurs operating in a country many times the land area of Japan.

## 1991 Ross Hull Contest

The 1991 - 1992 Ross Hull Memorial VHF-UHF Contest runs from 20th December 1991 until January 12th 1992, but even if you missed the start of the contest it is not too late, as the score is calculated on the entrant's best seven days, which need not be consecutive.

Also, the 1992 VHF-UHF Field Day Contest has been moved forward from the Australia Day weekend to coincide with the last weekend of the Ross Hull Contest which is the 11th & 12th January 1992

The rules for both contests were published in the December 1991 issue of *Amateur Radio* magazine on page 42. Why not take advantage of the summer propagation conditions and the extra activity on VHF/UHF during these contests? And don't forget to submit your logs in good time.

## VHF Communications Magazine

This English language ver-

sion of the German publication **UKW-BERICHT** covers VHF, UHF and Microwaves, and is a must for all serious users of the spectrum above 50 MHz. Current subscribers to this quarterly magazine have been reminded that their subscription renewals for 1992 are now due.

Any members wishing to subscribe to VHF Communications for the first time should contact the WIA Executive Office at PO Box 300, Caulfield South, 3162, no later than 31st January 1992 to ensure receipt of all four 1992 issues on time.

Subscription rates for 1992 are \$35.00 (surface mail) or \$48.00 (airmail) direct from the UK.

## WARC 92 and 40 Metres

Many agenda items for WARC 92 could have an impact on amateur radio. However, to many amateurs around the world the most critical area is in relation to the 40 metre band. In view of the agenda item calling for the expansion of HF broadcasting allocations, the IARU believes that this may be the one issue where amateurs have the most to lose.

The IARU position on this issue is quite clear: **The amateur service requires a worldwide allocation of 300 kHz of bandwidth in the vicinity of 7 MHz.**

The IARU, and all amateur delegates at WARC 92, will be supporting and pushing for this proposal. However, if it is successful, it could take up to 10 years or more before the 300 kHz area was cleared for exclusive amateur use.

## WIA DoTC Liaison

An important role of the Federal body of the WIA is liaison and negotiation with the central office of the Department of Transport and Communications in Canberra. Communication with DoTC Canberra has improved con-

siderably over the past 12 months, and many outstanding matters have been satisfactorily concluded.

As part of the continuing dialogue, an informal meeting was held in the Executive Office between the WIA's General Manager and David Hunt, Manager Licensing from DoTC in Canberra.

Sixteen items were on the agenda and most were satisfactorily progressed as a result of the meeting. Of particular interest is the negotiations in regard to deregulation of the amateur service in Australia, particularly in regard to repeaters and packet radio.

## 1991 AR Awards

Amateur Radio magazine is a magazine of the members, for the members, of the organisation which represents the Australian amateur service both nationally and internationally.

Quite a few of the interesting and original articles which appear in Amateur Radio are republished in overseas publications. But being published in Australia, and possibly overseas, is not the only accolade for which authors of articles submitted to Amateur Radio magazine become eligible.

Each year the WIA Publications Committee selects winners of the three annual

magazine awards. With the wide range of quality articles which appeared in our magazine during the 12 issues published during 1991, the task of the Publications Committee was not an easy one.

However, after much deliberation, the following winners were selected.

The **Al Shawsmith Journalistic Award**, presented for the article on a radio theme considered best to display literary merit, was awarded to Marilyn Williams. The winning article *How to Occupy the XYL So You Can Enjoy Urunga* appeared in the August 1991 issue of Amateur Radio, commencing on page 27. Marilyn receives an en-

graved wall plaque as well as a cheque for \$100.00.

The **Technical Award**, for the best technical article published during the year, was awarded to Bill Magnusson VK3JT for his 10 part series *Getting Started with Amateur Radio Satellites* which was published in the January to November issues of Amateur Radio magazine, excluding the February issue. Bill receives a cheque for \$100.00.

The **Higginbotham Award**, for meritorious service to amateur radio generally, was awarded to Drew Diamond VK3XU for his *splendid and continuing efforts in encouraging "homebrew" construction*. Drew also receives a cheque for \$100.00.

## WIA Exam Service Accredited Examiners

(Listed in Postcode order)

Below is a list of examiners accredited by WIA Exam Service to conduct radio amateur examinations using WIA Exam Service examination materials.

The list is published in postcode order to assist candidates to determine the examiner closest to their location. This list was up-to-date as at 9th December 1991, but more applications to become an accredited examiner are being received every day.

Accredited examiners will not only provide advice and assistance about examinations, but also about "how to become a radio amateur", to all interested enquirers in their locality. The DoTC and WIA Exams Service direct all such enquiries to accredited examiners in the area in which the enquirer lives.

Examiner	Examination Business Name	Postal Address and Telephone Number
Jim Jones VK5JF	Darwin Amateur Radio Club Inc	GPO Box 3583, Darwin, 0801. Tel 089 46 6101 (BH)
Barrie Burns VK8DI	Darwin Amateur Radio Club Inc	1 Kerin Pl, Rapid Creek, 0810. Tel 089 85 1068 (AH)
Spud Murphy VK8ZWM	Darwin Amateur Radio Club Inc	139 Lee Pt Rd, Wagaman, 0810. Tel 089 46 5887 (BH)
Henry Newland VK8HN	Darwin Amateur Radio Club Inc	GPO Box 717, Darwin, 0810. Tel 089 81 8444 (BH)
Trevor Connell VK8CO	Darwin Amateur Radio Club Inc	PO Box 40441, Casuarina, 0811. Tel 089 27 9256 (AH)
Richard Hand VK8AZ	Gove Amateur Radio Group	PO Box 211, Nhulunbuy, 0881. Tel 089 87 3148 (AH)
Eric Van De Weyer VK2KUR	WARS Examinations	PO Box 131, Watsons Bay, 2030. Tel 02 318 6138 (BH)
George Voron VK2BGV	international ARC	2 Griffith Avenue, Roseville, 2069. Tel 02 417 1066
Sam Voron VK2BVS	international ARC	2 Griffith Avenue, Roseville, 2069. Tel 02 417 1066
Cec Purvis L20997	WIA NSW Division	PO Box 1066, Parramatta, 2124. Tel 02 649 9234
Terry Ryeland VK2LUX	WIA NSW Division	PO Box 1066, Parramatta, 2124. Tel 02 689 2417 (BH)
Bob Girdo VK2RG	West Ham Examinations	13 Iris St, Sifton, 2162. Tel 02 644 9193 (AH)
Wayne Brack VK2WDL	Bankstown Amateur Radio Club	54 Hillard St, Wiley Park, 2195. Tel 02 743 8417 (BH)
Paul Phelan VK2KYO	St George ARS Inc	PO Box 530, Engadine, 2233. Tel 02 521 3053 (AH)
Paul Smith VK2ZSA	St George ARS Inc	PO Box 530, Engadine, 2233. Tel 02 520 7323 (AH)
Ean Young VK2FSO	St George ARS Inc	PO Box 530, Engadine, 2233. Tel 02 580 5329 (AH)
Fred Lawler VK2SI	Westlakes Amateur Radio Club	PO Box 77, Warners Bay, 2282. Tel 049 64 8018 (BH)
Greg Smith VK2GJS	Westlakes Amateur Radio Club	PO Box 77, Warners Bay, 2282. Tel 049 41 3468 (BH)
Frederick Eade VK2AEE	Frederick William Eade	276 Park Ave, Kotara, 2289. Tel 049 57 5131
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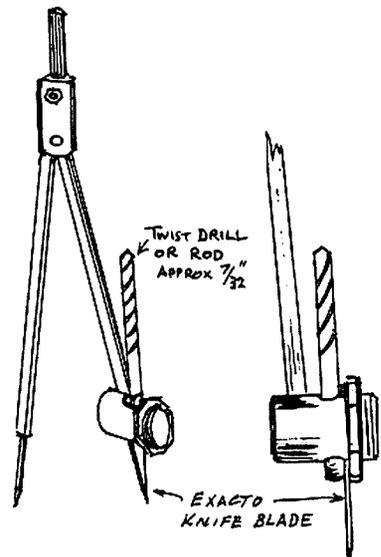
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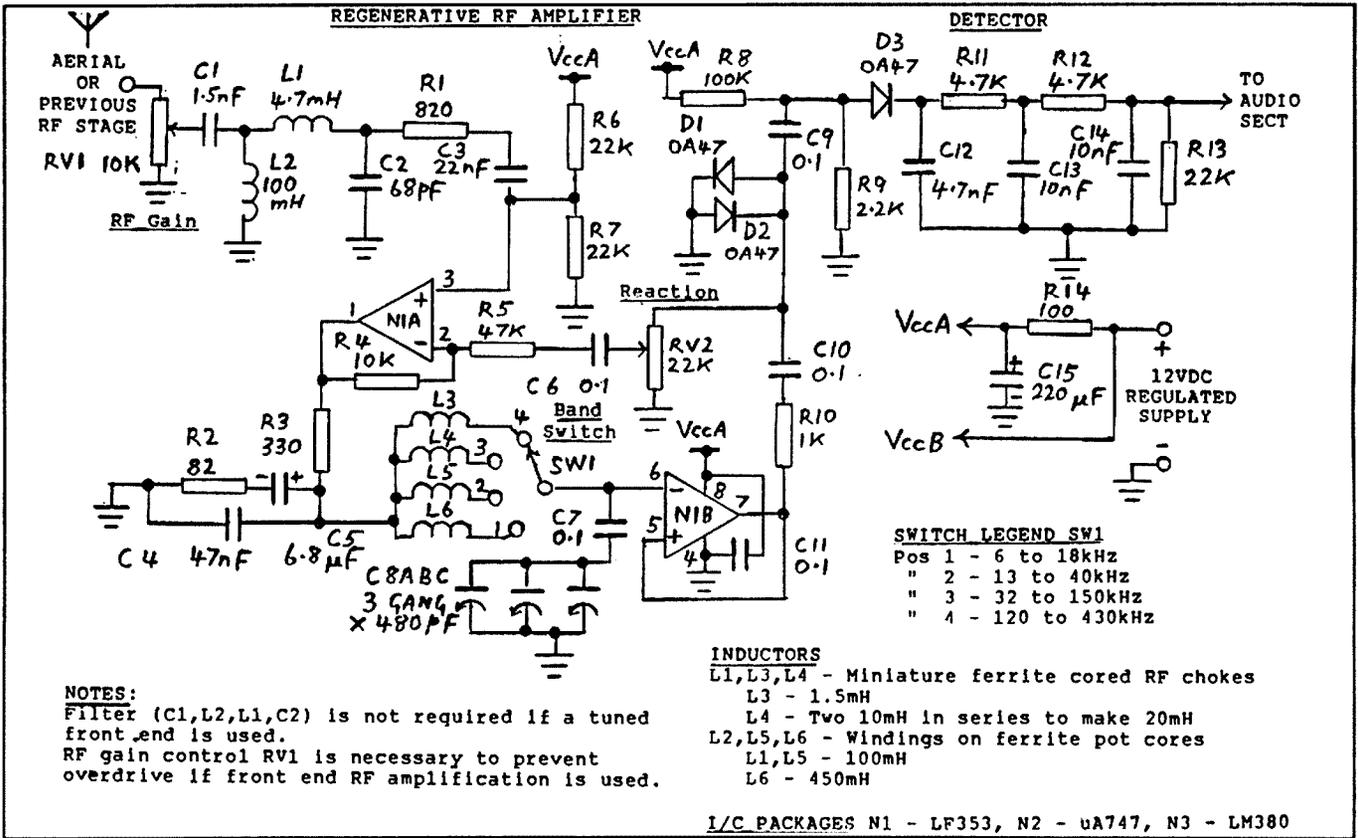
PETER SPENCER VK5KKBK

# Disk Cutter

I thought of this idea on a recent occasion when I wished to make a paper disc for use on an instrument dial which required hand calibration. I hit upon the idea of using an ordinary school compass and fitting an Exacto knife blade to it so I could use the device for cutting out a clean, perfectly round dial. The twist drill worked perfectly as a "packer". The flat nut on the compass presses flush on the knife blade and holds it securely. The idea works well and I have used it several times since with good results. Using a sharp blade, it is possible to cut a circle out of fairly heavy material.

ar





VLF-LF Receiver - Regenerative RF Section

# A Simple Regenerative VLF-LF Receiver

LLOYD BUTLER VK5BR  
 18 OTTAWA AVENUE  
 PANORAMA 5041

## Introduction

**I**N AN EARLIER ISSUE OF *Amateur Radio*, I described a superheterodyne receiver for the VLF-LF bands. This was followed by a series of articles on front end tuning and loop aerials for these bands. Now I will describe a more basic form of VLF-LF receiver.

In earlier days of radio, quite successful reception of low frequency radio waves was achieved with a single valve stage as a regenerative amplifier-detector and a valve audio amplifier. At low frequencies, a modest value of Q factor in a single tuned circuit achieved workable station selectivity which was further improved

by regeneration to increase the effective Q and further reduce the circuit bandwidth. Furthermore, by increasing the regeneration to the point of oscillation, a beat frequency was produced to enable reception of CW signals (or radio teletype if used today). As the voltage magnification of a tuned circuit is equal to Q, the regeneration also improved the sensitivity of the receiver well beyond that achievable with its single RF stage as a straight amplifier.

The receiver I will describe is based on the above principles but is designed around more modern solid state amplifier packages. It tunes between 10kHz

and 430kHz with quite reasonable selectivity. A selectable audio bandpass filter is included to improve the reception of narrow band signal modes in the VLF region.

## Circuit Description

The regenerative RF section of the receiver is shown in figure 1A. The single tuned circuit is made up of the paralleled sections of 3 gang tuning capacitor C8 and one of the switched inductors L3, L4, L5, or L6. The tuned circuit is connected within the closed loop containing the two amplifiers of an LF353 integrated circuit package. These are JFET amplifiers

with a gain-bandwidth product of 4 MHz. Amplifier N1B is connected as a voltage follower which, with its high input resistance, prevents loading of the tuned circuit thus allowing its high Q factor to be realised. Positive feedback, or regeneration, is fed via the inverting input of N1A. The level of feedback is controlled by the setting of the reaction control RV2. The input signal is fed to the non-inverting input of N1A and combined with the regenerated signal within the amplifier. The combined signal is injected into the tuned circuit across C4. The capacitance value of C4 is large by comparison with that of the tuning capacitance and hence the injected signal source resistance has little effect on the circuit Q. The injected signal can be considered to be applied in series with the tuned circuit and whilst its developed voltage across C4 is small, it is multiplied by the circuit Q at the input of N1B.

Additional loop gain is provided by N1A and with phase reversals at N1A and at the point of injection, the circuit can be made to oscillate when the reaction control RV1 is advanced to the critical point. The circuit is different from the accepted method of applying regeneration via the RF transformer in which one winding is used for the tuned circuit, a second winding for the feedback signal and a third for the input signal. One reason for avoiding this method was to make use of single winding inductors which were on hand. The additional

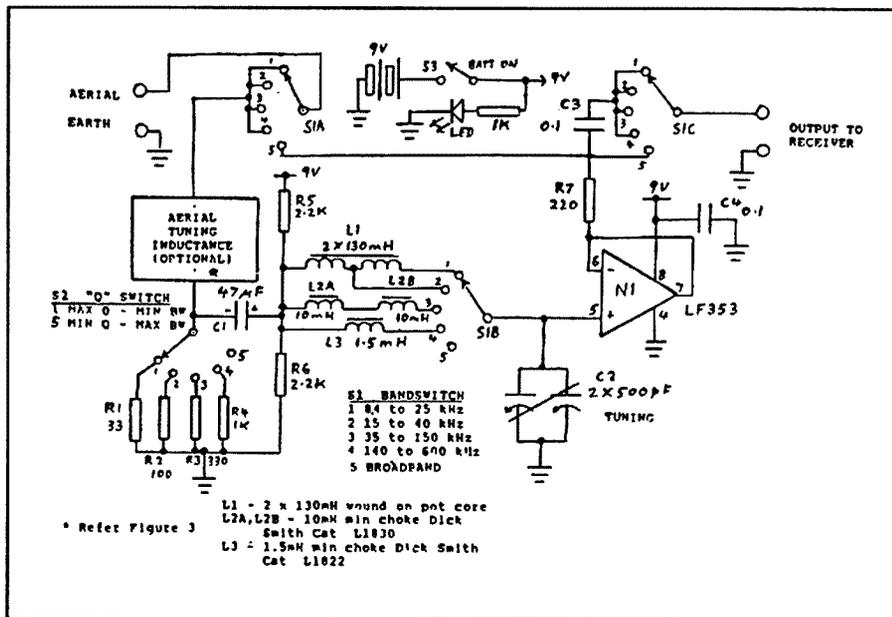


Figure 2: VLF-LF Front end tuner (AR July 1990)

windings would have meant making special transformers for the job. There are also some operational advantages in using the circuit of figure 1A. One problem in coupling an aerial directly into the tuned circuit is that when regeneration is set for oscillation, the whole thing works as a small transmitter, radiating a signal via the aerial and causing interference to others. Another problem is the changed loading on the tuned circuit for

different lengths of aerial and the interaction it causes with the setting of the reaction control. By injecting the input signal and the feedback signal via different inputs of N1A, both these effects are avoided.

Some specific components in the circuit require explanation. Diodes D1 and D2 limit the amplitude of oscillation when the circuit is set in the oscillating or beat frequency mode. The curved characteris-

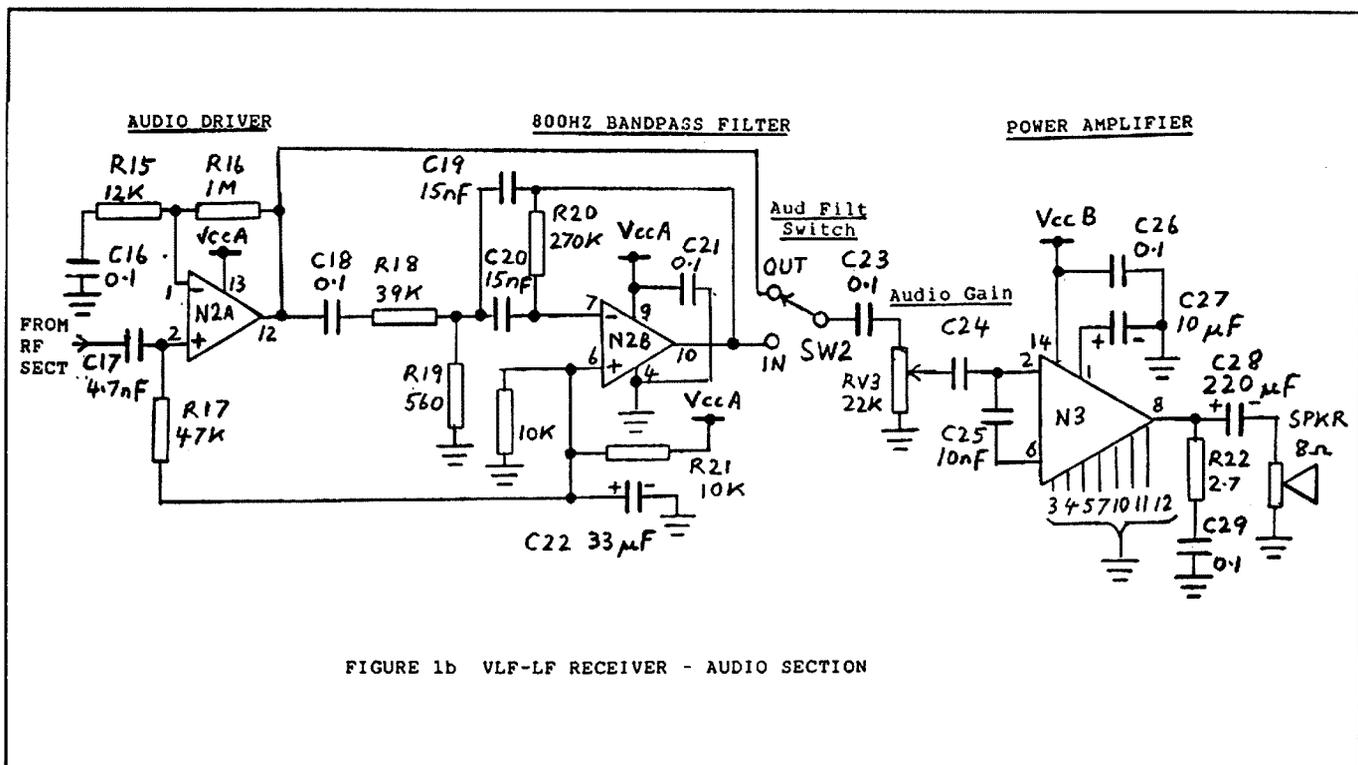


FIGURE 1b VLF-LF RECEIVER - AUDIO SECTION

tic of the diodes also give a more gentle slide into oscillation when RV2 is advanced.

Initially, when using the input directly connected to a long aerial, I had some problems with local broadcast station pick-up and low frequency power mains generated noise. Components L1 and C2 make up a low pass filter which attenuates signals above 400 kHz and eliminates the broadcast station interference. The mains generated noise was considerably reduced by the addition of R2 across capacitor C4 to limit the impedance of the tuned circuit injection point. Without this addition, the reactance of C4 at very low frequencies became very high, allowing a high level of noise at these frequencies to be injected. High pass filter C1, L2 further attenuates low frequencies below 10kHz. If the regenerative circuit is preceded by a tuned stage, rather than directly connected to an aerial, filter components C1, L2, L1, C2 can be omitted.

RF gain control RV1 is included to reduce the input level on strong signals when the input is driven from a previous RF stage. If the circuit is connected directly to an aerial, the level is lower and RV1 is not necessary.

Diode D3 and low pass filter C12, R11, C3, R12, C14 form the detector circuit. At very low frequencies (near 10kHz) the RF signal frequency approaches the frequency spectrum of the audio amplifier with a consequent tendency for the whole RF-audio link to become unstable. The second section of filtering, R12, C4, was found necessary to control this problem. There is a small positive bias applied to the detector diode via resistor R8. This shifts the diode operating point further up its characteristic curve to improve the receiver sensitivity on weak signals.

## The Audio Section

The detected output is fed to the input of the audio section of the receiver (figure IB). Device N2 is a  $\mu$ A747 dual operational amplifier package. N2A is used as an audio driver which feeds the power amplifier N3. Operation of the audio filter switch SW2 connects in a 800Hz band-pass filter formed by N2B and its associated circuit components. This type of filter, which requires only one amplifier unit, was described by Gilbert Griffith VK3CQ in Pounding Brass, *Amateur Radio*, February 1989 and credited to Gary Bold ZL1AN in *Break In*. Using the component values shown in figure IB, the filter centre frequency is 800Hz with a bandwidth of 84Hz (as measured). The centre frequency and bandwidth can be altered, if required, by altering the val-

ues of R19, R20, C19 & C20. The design formulae for these are included in Gilbert's article.

With the high noise level at VLF, the audio filter is a desirable addition to restrict the detected noise when receiving morse or radio teletype signals in the VLF band. To use the filter, the beat

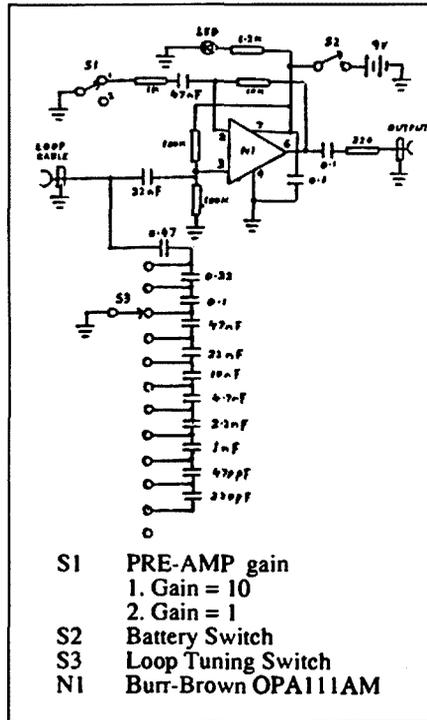


Figure 3: Loop aerial tuning & pre-amp circuit (AR Aug 1990)

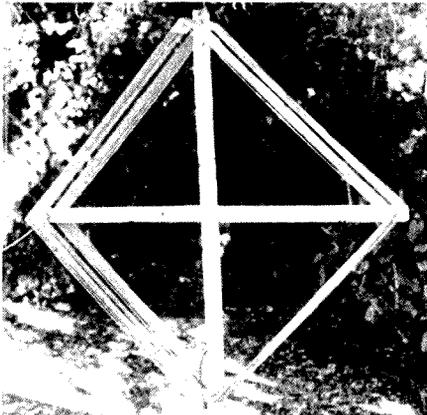


Figure 4: 20 Turn Loop Aerial

frequency is set to 800Hz. With the regenerative RF circuit, this is achieved by offsetting the tuning 800Hz from the received signal frequency. In actual fact, there are two tuning positions, one below the signal frequency and one above the signal frequency. You pick the one which gives the least interference from adjacent signals or noise. This characteristic of the regenerative circuit which gives

two tuning positions is very noticeable at VLF. For a 800Hz beat note, the two tuning positions are 1600Hz apart. At a typical frequency of 16kHz, this represents a tuning shift of 10% of the operating frequency.

The speaker is driven by power amplifier type LM380 (N3). This IC is available in either a 14 pin version or the smaller 8 pin version. I used the 14 pin version because I happened to have one already wired up with associated components on a board. (In my superhet receiver, AR Dec 1989, I did in fact use the 8 pin version).

The DC load current for the LM380 swings between 10mA and 150mA, depending on the audio power level. Hence the DC power supply to the receiver must be well regulated. The remainder of the receiver load is only 5mA and this is decoupled from the supply by R14 and C15. Even with this decoupling, instability can occur between the audio and RF sections if the supply regulation is inadequate. The nominal supply voltage is 12 but any voltage between 10 and 15 can be used.

## Performance

Sensitivity of the receiver referred to its input was measured in terms of minimum discernible signal level using a calibrated signal generator as the source. Below the point of oscillation in the regenerative circuit, the measurements were carried out with the signal generator carrier modulated with tone at 30%. At the point where oscillation just commenced (the most sensitive state), unmodulated carrier was used to beat with the internal oscillation.

With no regeneration, ie the reaction control set to zero, the minimum discernible signal level was found to be around 500 microvolts. With the reaction control set just below the point of oscillation, the figure improved to around 50 microvolts. At the point of oscillation, carrier could be detected at 3 microvolts. Sensitivity is much the same over the tuning range except that it drops above 300 kHz due to the effect of filter C1-L2. In practical terms, the receiver detects quite weak signals in the beat frequency mode. For AM signals, the receiver is less sensitive. It can receive more localised Non-Directional Beacons quite well but requires some RF pre-amplification for weaker stations.

The 3dB bandwidth was measured at input frequencies of 20kHz, 100kHz and 350kHz. The bandwidth with no regeneration measured 270Hz at 20kHz, 2.6kHz at 100kHz and 4.9kHz at 350kHz. This implies a circuit Q factor of 70 at 20kHz, 38 at 100kHz and 70 at 350kHz.

Increasing the regeneration to just below the point of oscillation, the bandwidth improved to 12Hz at a centre frequency of 20kHz, 100Hz at 100kHz and 157Hz at 350kHz. The regeneration thus increased the effective Q to 1700 at 20kHz, 1000 at 100kHz and 2200 at 350kHz.

Bandwidth measurement at the point of oscillation was not attempted as this appeared to be rather difficult to resolve. In any case, I have already pointed out that, in the beat frequency mode, the tuned circuit is offset from the incoming frequency.

In the beat frequency mode, the receiver strongly receives VLF-LF stations such as Omega around 11 to 13kHz, the North West Cape on 23.3kHz and Belconnen Navy Station on 44kHz. However, there is some limitation on adjacent channel rejection. Firstly there are two signal frequencies which can beat with the internal oscillation, one above and one below the oscillation frequency. If one of these is the desired signal frequency, the other could correspond to an adjacent operational signal frequency. Secondly, although, the tuned circuit has high effective Q and narrow 3dB bandwidth, being a single circuit the slope of the sides of its resonance curve is not as steep as that of a ceramic filter in an IF channel or even a number of cascaded tuned circuits.

## Components

Apart from some of the inductors, commonly available components are used in the receiver. For the lower values of inductor, miniature ferrite RF chokes up to 10mH are obtained from Dick Smith Electronics stores. The larger inductors can be wound on almost any form of ferrite pot core but one can often find ready wound units which have been discarded from other electronic equipment. There is no need to be too fussy about the precise value of inductance. The frequency band coverage for each band switch position can always be juggled around the inductors and tuning capacitor which are on hand. Old broadcast receiver tuning gangs with sections paralleled are ideal for VLF-LF tuning and these often change hands at amateur radio buy and sell marts. I must say that a lot of my odd components come from just that source.

## Pre-amplification & Tuning

The performance of the regenerative receiver, both in sensitivity and adjacent channel rejection, can be improved by the addition of a sharply tuned RF amplifier, in front of the receiver. I described such a tuner (figure 2) in *Amateur Radio*, July 1990 and this unit has been used in conjunction with the regenerative receiver

to make it, in terminology, a TRF receiver. The front end is tuned to the incoming signal frequency and this provides rejection of an adjacent channel, mentioned as being a possible nuisance when operating in the beat frequency mode. Furthermore, the additional gain in the front end improves the sensitivity and hence the reception of weak signals. With the increased signal level, RF gain control RV1 is necessary to reduce the level of strong signals and prevent overload.

With the RF front end in circuit, minimum discernible signal level is around 3 to 5 microvolts for the regeneration set just below the point of oscillation. At the point of oscillation, the figure is less than 1 microvolt.

One difficulty with the separate front end tuner is manually tracking the two tuned circuits when scanning the band. By using identical tuning inductors and variable capacitors in the two tuned circuits, one could mechanically gang the two tuning capacitors (each of which is already several ganged sections paralleled). Of course in the beat frequency mode, the regenerative tuned circuit must be offset in frequency from that of the front end. To adjust for this, a small manually controlled variable capacitor across one of the two tuned circuits might be needed. It would also allow manual correction of any small tracking error.

## Loop Aerial

The receiver works very well connected to a tuned loop aerial via the loop pre-amplifier (figure 3) which I described in *Amateur Radio*, August 1990. I recommend a loop aerial of 20 turns of at least 1mm diameter wire spaced 1cm apart on a 0.8metre square frame (refer figure 4). Used with circuit of figure 3, the loop can be brought to near resonance over the full tuning range of the receiver. The large wire diameter is important. The greater the wire diameter, the higher is the Q to produce higher loop sensitivity.

I found that, provided the loop aerial

was directed towards the source of signal, the signal received was stronger and less noisy using this loop than using my long wire aerial.

## Summary

Whilst the simple single tuned circuit regenerative receiver has been discarded as obsolete for high frequency operation, it can provide quite good signal selectivity at very low frequencies. In beat frequency operation (for CW or teletype) its tuned circuit must be offset in frequency to produce the beat note and the disadvantage of this is discussed in the text. Accepting that there is some limitation on its ability to receive weak AM signals and on its ability to reject strong adjacent signals, the receiver described works quite well. These limitations can be largely corrected by using a sharply tuned RF pre-amplifier in front of the receiver. Good performance can also be obtained using a high Q tuned loop aerial system such as that described.

This simple receiver is hardly in the category of a high rating unit but if you are interested in learning a little about what signals appear on the VLF-LF bands, it might be adequate to satisfy your curiosity.

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3. Lloyd Butler VK5BR - VLF-LF and the Loop aerial - *Amateur Radio*, Aug 1990.
4. Gilbert Griffith VK3CQ - Audio Filter - Pounding Brass - *Amateur Radio*, Feb 1989.

Note: References 1,2 & 3 are also reprinted in the 1991 Winter and Spring issues of USA journal *Communications Quarterly*..

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# ELF and Epidemiology

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## Background

**T**HERE HAS BEEN A LOT written on the possible harmful effects from Extremely Low Frequency, usually associated with fields from power lines. Some articles which review scientific studies on the effects of ELF are quite definite about the links between harm and ELF. In some instances the reviewers have been more definite in their claims than the original scientific researcher whom they were reviewing.

Thus one often reads that "there is growing evidence" about the links between ELF and childhood cancers. I am not quite sure it is correct to say that "there is growing evidence". Perhaps it is more accurate to say there is a "growing awareness" that there *could* be a link.

It is thus advisable to read the *original* scientific studies (as published in reputable scientific journals) to see exactly what the authors have concluded. This may often be difficult, due to the complexity of the study and the reader's lack of familiarity with the topic covered.

The tools used to establish links between such things as ELF and harm to health are basically epidemiological studies and biological experimentation (often on animals).

In the case of biological experiments, work is being done by several researchers, including Dr Ross Adey (an Australian working in the USA), and readers are referred to his and other scientific publications (Adey, 1988).

The purpose of this article is to deal with one of the basic statistical techniques used in an epidemiological "Case-Control" study.

## Epidemiology

Although there are formal definitions of epidemiology, it is essentially the study of the patterns and causes of diseases in human populations. Epidemiological studies can be both descriptive (patterns of disease) and analytical (causes of disease).

Analytical epidemiological studies

**"Epidemiology is the study of the patterns and causes of diseases in the human population. Writing as a fellow amateur, VK6LT takes a careful look at current research into the health effects of Extremely Low Frequency (ELF) electromagnetic radiation, in particular from power distribution. He shows that there is more than one point of view about this controversial topic..."**

**The purpose of this article is to give a brief description of some techniques used in epidemiology in determining whether or not there are health effects arising from a particular agent (such as Extremely Low Frequency — ELF). In particular one of the basic statistical techniques used in some studies will be dealt with. Where applicable, the "Case-Control" study of electrical wiring configurations and childhood cancers by Wertheimer and Leeper (1979) will be used as an illustrative example.**

have been used to try to determine whether ELF is associated with an increased occurrence of childhood cancers. For instance, Wertheimer and Leeper (1979) looked at childhood cancers in relation to electrical wiring configurations. In this study, the authors classified the wiring used to distribute electricity to homes as High Current Configuration (HCC) or Low Current Configuration (LCC). These broad classifications were made on the basis of the likely current flow in the distribution lines.

For a current carrying conductor, the electric field is dependent on the voltage and the magnetic field depends on the current. Thus, for a given wiring configuration, the electric field is reasonably constant, while the magnetic field varies with the amount of current flowing.

HCC and LCC are measurements of exposure. Analytical epidemiological studies also aim to measure *outcome* (eg death due to cancer) and to compare exposure in those people with different outcomes, or to compare outcomes when exposure is known.

One strategy used in epidemiology to

measure exposure and outcome is the so-called "cohort study". The cohort study measures outcome when exposure is known. In this type of study a large group of individuals (a cohort) is selected and classified according to whether or not each person has been exposed. For example, if it were possible, we could randomly select a large number of people and classify them according to whether they lived near an HCC or an LCC. We could then follow their health progress for their entire lifetime (assuming they did not change their address and hence their classification) and "see" if the HCC group had a greater rate of disease outcome (eg cancer) than the LCC group.

While this strategy has a reasonable degree of accuracy, there are some obvious drawbacks, including the expense of such a study and the great deal of time that elapses before meaningful data are available (eg waiting for people to get cancer or to die from cancer).

Another type of strategy is the "Case-Control" study. The case-control study measures exposure when outcome is known. This technique may not be as accurate as the cohort study in determining risk but results can be obtained in a much shorter time and it is less expensive to carry out. The technique basically involves identifying persons with a specific outcome, for instance, those who have died of a particular disease (the cases) and matching each case with a similar person (or control). The cases and controls can then be compared to "see" if there were differences in exposure to a particular agent.

As Wertheimer and Leeper (1979) used a case-control strategy for their study, it will be useful to go through some of their techniques to illustrate just what is involved. The cases consisted of all persons (under 19 years old) who had died of cancer in Colorado in the period 1950-1970 and had a Colorado birth certificate and address in the greater Denver area in 1946-1973. Controls for these cases were the next Denver area birth certificates, chosen by birth month and county and also others from the alphabetical list

of Colorado births. Ideally, the controls should represent the same population as that from which the cases were drawn.

There were 109 cases who had a stable residence before death from cancer, that is, they lived at the same address from birth to death. This meant that the degree of exposure to any agents was more likely to be consistent over their lifetime compared with someone who was constantly "moving house". These cases were age-matched with 128 persons who were still alive and who had not moved house since their birth.

Having established the cases and controls, the authors then classified them according to whether they lived near an HCC or LCC. Of the cases, 48 were classified as living near an HCC and 61 lived near an LCC. Of the controls, 26 lived near an HCC and 102 lived near an LCC.

For convenience, this classification is often presented as a "Contingency Table" such as illustrated in Table 1.

Table 1 — Contingency Table

Residence	Cases (%)	Controls (%)	Totals
Near HCC	48 (44%)	26 (20%)	74
LCC	61 (56%)	102 (80%)	163
Totals	109 (100%)	128 (100%)	237

From the contingency table, when the numbers are expressed as a percentage, it "looks" as though a greater proportion of cases than controls lived near an HCC (44% vs 20%), but this could just be due to chance. We need a statistical test of the likelihood that this is due to chance.

To assess the role of chance we calculate the "expected" numbers ( $X_e$ ) in the contingency table. The "expected" number is based on the assumption that there is no effect of wiring configurations on death due to cancer. This can be calculated from the formula:

$$X_e = \text{row (total)} \cdot \text{column (total)} / \text{overall (total)}$$

Thus, the expected number ( $X_e$ ) for the first column and first row of the contingency table is:

$$X_e = 74 \cdot 109 / 237$$

$$= 34.03$$

ie 34 (if rounded to whole numbers)

Table II shows the contingency table with the expected numbers in brackets.

Table II — Contingency Table with Expected Values

Cases	Controls	Totals	
HCC	48(34)	26(40)	74
LCC	61(75)	102(88)	163
Totals	109	128	237

It is now necessary to see just how different the actual numbers ( $X_a$ ) are from the expected numbers ( $X_e$ ). Are these numbers drawn from the same popula-

tion, or is there very little probability of this? This can be done using a "chi-squared" test.

Briefly, the technique requires us to form a so-called "Null Hypothesis". In this case, the null hypothesis is that there is no difference between cases and controls as far as HCC and LCC exposure is concerned. We can then "accept" or "reject" the hypothesis at a predetermined level of significance (usually 5%). That is, if there is 5 percent chance (or less) that the observed numbers could come from the same population as the expected numbers, we will reject the null hypothesis and conclude that the observed and expected numbers come from different populations. In effect, we conclude that the difference between the observed and expected numbers has, at most, a one in 20 chance (5%) of being due to chance.

The differences between the actual numbers and the expected numbers are used as a basis to calculate a "chi-squared" value. A parameter known as the "number of degrees of freedom" (DOF) is also required. On the basis of the number of degrees of freedom and the calculated "chi-squared" value, a table (which represents the area under the chi-squared curve) can be consulted. If the chi-squared value calculated is greater than the value from the table, we reject the null hypothesis and conclude that the difference between the observed and expected numbers is unlikely (ie less than 5%) to be due to chance.

As we have seen, the expected value is given the symbol  $X_e$ . The actual value is denoted  $X_a$ . Thus, for the first element in the contingency table,  $X_a=48$  and  $X_e=34$ .

2. The chi-squared value is found by summing all values of  $(X_a - X_e)^2 / X_e$ .

This is shown in Table III.

Table III - Chi-Square Determination

$X_a$	$X_e$	$(X_a - X_e)^2 / X_e$	Yates Correction $(X_a - X_e - 0.5)^2 / X_e$
48	34	5.74	5.34
26	40	4.88	4.54
61	75	2.62	2.42
102	88	2.22	2.06
TOTALS (Chi-squared)		15.46	14.36

From Table III, the value of chi-squared is 15.46. It is also possible to compute chi-squared using a correction for small numbers. This is known as the Yates' correction. If the Yates' correction is applied a value of 14.36 is obtained for chi-squared.

The number of degrees of freedom (DOF) is found from the formula:

$$\text{DOF} = (\text{number of rows} - 1) \times (\text{number of columns} - 1)$$

Thus, in this instance, the number of degrees of freedom is 1.

When the chi-squared table is consulted for the above data, it turns out that the value of 14.36 corresponds to an insignificant area under the chi-squared curve. The interpretation of this is that the null hypothesis should be rejected. This means, in effect, that there is a high probability that there is a difference between cases and controls in terms of HCC and LCC classification. Expressed another way, a greater proportion of those who died of cancer had a residence near a HCC compared with those still alive. Also, the chi-squared test tells us that the possibility of this occurring by chance is most unlikely.

## Conclusions

Just what can be inferred from such a study? Can we say the HCC *caused* the cancer? Not really. We *can* say that in *this* study for Denver, there appears to be a correlation between HCC and cancer deaths. It may turn out, however, that there could be other factors which can account for this correlation. For example, the HCCs might also be associated with busy highways where there are higher than normal levels of lead in the air (Gordon, et al 1990). We don't have enough information to *know* the cause, only to be aware of the possibility of some link. This awareness should be enough to recommend further research, and perhaps a cohort study.

It is worth bearing in mind that no magnetic fields were actually measured in the Wertheimer-Leeper study. The HCC and LCC classifications were based on average likely magnetic fields in the absence of actual in-house measurements.

Caution should also be used when interpreting the results, for although the "number crunching" is valid (it is so easy to do statistics these days with the various computer packages which are available), there are many sources of potential error, such as in the choosing of controls and so-called "confounding" errors (ie effects of additional variables that might be responsible for the apparent association).

In a review of some of the latest research, Repacholi (1990) discusses a similar case-control study done in New York by Stevens (1987). The Stevens' analysis indicated that there was no association between HCC and cancer. When Wertheimer and Leeper later regrouped the data, however, a weak linkage was indicated. This post-study analysis was, in turn, later criticised by the original researcher (Stevens)

The point I am trying to get across is that there is currently no simple "black" or "white" answer to the question of whether ELF is "dangerous" or not. The

early epidemiological studies have told us that there is a possibility of some association between ELF and cancer and that therefore more detailed research is required. This is now occurring and we will be able to make better judgements in about four years time when more research results are to hand.

Some researchers (such as D Savitz, as quoted in the press) have indicated that the preliminary results indicate that if there is any association between ELF and cancer, it is likely to be weak.

Research into the effects of ELF is reviewed by an international body of expert members who form the Interna-

tional Non-ionising Radiation Committee (INIRC, 1990), under the auspices of the World Health Organisation (WHO). This committee has formulated guidelines for public and occupational exposure to ELF fields. For public exposure up to 24 hours per day, these guidelines are  $5\text{kVm}^{-1}$  for the electric field and  $0.1\text{mT}$  for magnetic flux density.

Thus, in order to keep informed on this matter, it is advisable to read the INIRC guidelines. Also, where possible, one should read the *original* scientific studies written by the scientists who have actually carried out the research work published in reputable scientific jour-

nals.

#### Acknowledgement

I would like to express my appreciation for the considerable help given me by Dr Heath Kelly on the epidemiological aspects in this article.

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## More on the Small Transmitting Loop Aerial

Addendum to the Article in November 1991 Issue of *Amateur Radio*.

LLOYD BUTLER VK5BR 18 OTTAWA AVENUE, PANORAMA 5041

### Anomaly in Formulae

A list of design formulae for the transmitting loop aerial was included in the article. Please note that the formula quoted for the tuning capacitor  $C_t$  actually refers to the total capacitance needed to tune the loop and hence the distributed capacitance  $C_d$  must be subtracted to determine the capacitance added.

### Radiation Pattern

In the text of the article, I stated that I was a little confused at finding the directivity of the loop to be different from that expected. My initial tests were carried out by moving an oscillator source around the loop and observing the output level change in a receiver connected to the loop. The signal was radiated directly from the oscillator tuning coil and I have since realised that this gave an anomalous result. Normal response from a small loop is maximum signal in line with the plane of the loop and minimum signal at right angles to that plane. I have more recently assembled a field strength measuring instrument using the rod as an aerial. I am pleased to report that using the rod in the vertical plane, the measurements conform to this pattern and there is no longer any confusion.

It is interesting that at a radiation angle of 0 degrees, the radiation pattern is bi-directional with vertical polarisation. Two sharp nulls occur at right angles to the plane of the loop but these gradually disappear as the ra-

diation angle is increased. At 90 degrees, the radiation pattern is almost non-directional with horizontal polarisation. At intermediate angles, there is a mixture of both vertical and horizontal polarisation.

### Response Close To Ground

Trevor Smith VK2ECU sent me a copy of an article on the early Army Transmitting Loop written by Kenneth H Patterson in *Electronics*, August 1967. This draws attention to a very important feature of the loop. A horizontally polarised wave reverses phase when it is reflected from the earth. Because of this, the ground reflected wave tends to cancel the direct wave and hence a horizontally polarised aerial mounted near ground level has very poor low angle radiation. On the other hand, a vertically polarised wave does not change phase on reflection and it reinforces the direct wave. At low radiation angles, a loop aerial is vertically polarised and hence it can be mounted close to the ground and still give good low angle radiation. A good low conductivity ground might even improve the low angle signal.

So here is an added bonus. Not only is the transmitting loop physically small but it does not need to be mounted on a high mast or tower. In fact it could almost be mounted in any reasonable position and give good performance radiating both high and low angle radiation with a mixture of both forms of polarisation.

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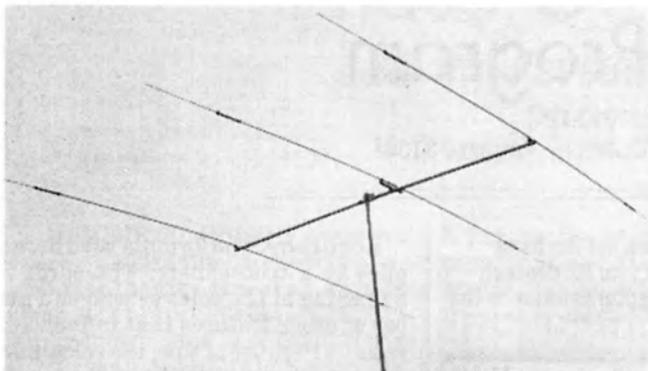
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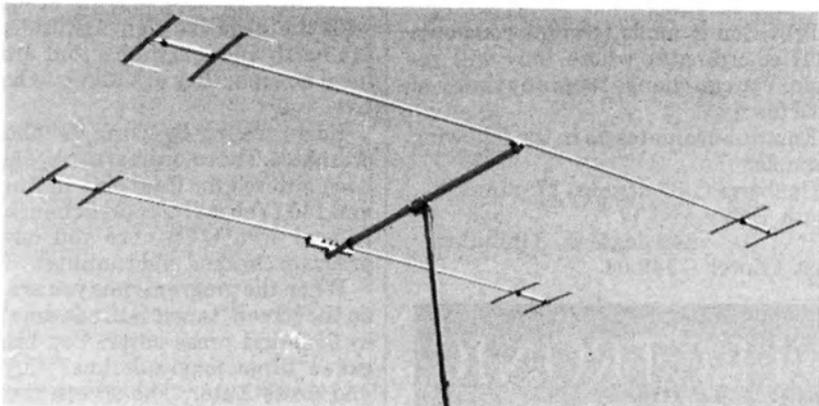
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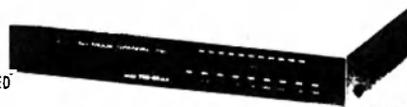
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# A Great Circle Distance Program

W MIDDLETON VK3IT  
22 BELMONT ROAD, SOUTH CLAYTON, VICTORIA 3136

**G**IVEN THE LATITUDE AND longitude co-ordinates for any two places on earth, this program will calculate the distance between them and the bearing from one to the other with reference to true north.

Degrees minutes and seconds (dms) are keyed in and converted to radians as the program runs.

Provision is made to enter your own QTH co-ordinates where they will remain. You can change them any time you need to.

Enter co-ordinates as in the following example:

Canberra 35 degrees 17 minutes  
South Enter -35.17  
149 degrees 8 minutes  
East Enter -149.08

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**If you have a need to work out the beam heading and distance to your DX contact, VK3IT has a simple computer solution to the problem.**

London 51 degrees 30 minutes North  
Enter 51.3 .6 minutes West Enter .06

NB: All latitudes that are south and longitudes that are east are designated with the negative sign. Latitudes that are north and longitudes that are west have no sign; they are taken to be positive.

Begin testing by using the above co-ordinates. The co-ordinates have already been entered for Canberra in lines 110 and 140. (You will of course change these to your own QTH once you have the program checked and running).

When the program runs you are asked on the screen "target latitude dms?" Key in 51.3 and press enter. You are then asked "target longitude dms?" Key in .06 and press Enter. The screen then displays "Distance in kilometres" 16969.0855 followed by "Bearing degrees" 316.016713.

*(This degree of precision is not justified by the input data - Ed)*

If everything checks out, you can now type in your own QTH co-ordinates in lines 110 and 140 and proceed to select any target (destination) you wish.

## Definitions

Formula:

$$\cos d = (\sin a \sin b + \cos a \cos b \cos f)$$

$$\cos c = (\sin b - \sin a \cos d) / (\cos a \sin d)$$

*a = QTH latitude*

*b = target latitude*

*longs = QTH longitude*

*longf = target longitude*

*f = target longitude minus QTH longitude*

*(longf - longs)*

*d = distance along the path in radians of arc*

*c = bearing from north if sin f is negative otherwise bearing is 360 - c degrees (line 270)*

*dms = degrees minutes seconds*

*north and west dms are positive, south and east are negative.*

**Accuracy:** The formula used here applies to a true sphere. The earth has flattening at the poles as well as a number of other features that influence the results. Because of this, the calculations can result in an error of up to 0.5 per cent.

The results apply to terrestrial distance and direction. In reality, a radio wave will skip over a much longer distance and its direction will deviate at times, off course due to ionospheric conditions.

Nevertheless the program should meet the needs of most radio amateurs except possibly when claiming a VHF-UHF record.

**Caution:** When typing in the long line 270 be sure not to press the Enter key until the whole line has been typed in.

Take care in typing punctuation marks and brackets.

GL es 73.

Print "Distance and Bearing Program  
GRTCRCL.BAS910616".

110 n = -35.17

120 GOSUB 300

130 a = t

140 n = -149.08

150 GOSUB 300

160 longs = t

170 Input "target latitude dms"; n

180 GOSUB 300

190 b = t

200 Input "target longitude dms"; n

210 GOSUB 300

220 longf = t

230 f = longf - longs

240 d =

ACOS((SIN(a)\*SIN(b)+COS(a)\*COS(b)\*COS(f))

250 c = ACOS((SIN(b)-SIN(a)\*COS(d))/

(COS(a)\*SIN(d)))

260 Print "Distance in

kilometres" d \* 6366.70702

270 If SIN(f) < 0 then print " Bearing

degrees" c \* 57.2957795 else print "Bearing

degrees" 360 - c \* 57.2957795

280 End

290 Rem: Subroutine to convert degrees

minutes seconds to radians

300 u = FIX(n)

310 v = n - (u)

320 w = ROUND(v,7)

330 x = w \* 100

340 y = FIX(x)

350 z = (x - (y)) \* 100

360 t = (u \* 3600 + y \* 60 + z) / 206264.806

370 Return

ar

# Two Half Waves in Phase On 30 metres

## An Old Favourite Resurrected.

DES GREENHAM VK3CO

16 CLYDESDALE COURT, MOOROPNA, VICTORIA, 3629.

**I**T IS SOME TIME NOW since we were granted a small frequency allocation in the 30 metre band, namely from 10.1 to 10.15MHz.

The 30 metre band is a particularly good band with generally low noise and ideal propagation characteristics for communication covering the Australian continent.

Many people have attempted to use 30 metres by tuning their existing 40 or 80 metre dipoles using an antenna tuning unit, with doubtful success.

Perhaps the simplest resonant antenna is the basic dipole constructed from wire and fed with normal coaxial cable such as RG-58 or RG-8 direct or via a 1/1 "Balun" transformer. Either way this works well and will provide good results. The antenna length should be 14.02metres (46 ft) overall with a small insulator in the centre to provide the feed point. See figure 1.

The antenna length can be adjusted symmetrically to achieve a 50 ohms centre impedance match. Alternatively, an antenna tuning unit can be used to produce a 50 ohm load for the transceiver.

It should be appreciated that the "natural" impedance of a dipole can also vary over a wide range depending on antenna height. Textbooks suggest it can be from 30-120 ohms with the "true" average impedance around 75 ohms.

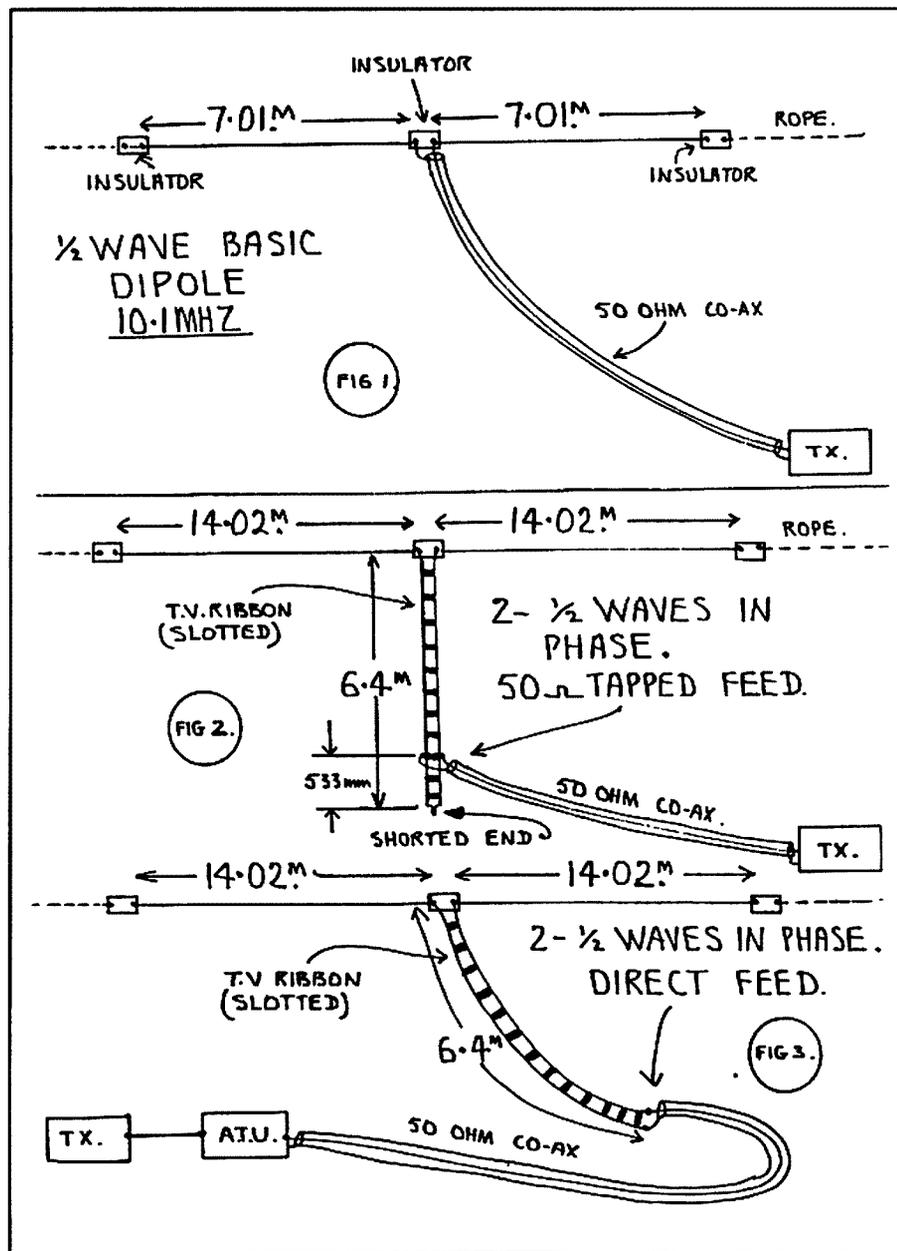
Nevertheless, either way will give good results on this band. This was proved last year when a regular "net" on 10.120MHz was maintained every afternoon between several base stations in Victoria and NSW, and mobile winter tourists travelling north to Cairns. For the entire winter there was not one day when we could not receive good signals from all stations. This year we have started our net again as the first of our migratory "Mexicans" wend their way to Far North Queensland to enjoy the winter warmth.

In an attempt to improve signals from Victoria to Far North Queensland, your scribe, a very old-timer, decided to explore what could be done to achieve some antenna gain with the minimum of cost.

Back in the early days, just post-war

before beams were the fashion, it was common to use fixed wire beams on HF arrays like the W8JK, Lazy H, etc were frequently used. One popular antenna

with reasonable gain and simple construction was the "2 Half Waves in Phase" system. This is a particularly simple antenna producing some broadside gain



and yet not too directional to prevent general coverage. It was decided to try this out on 30 metres. In "olden times", we always used spaced wire feeders to feed the antenna - these were commonly known as "Zepp" feeders and used wooden or plastic spreaders. Today, with slotted plastic TV ribbon being readily available and cheap, it was decided to use this product. Not knowing the propagation factor of slotted ribbon, the theoretical quarter-wave length of 7.01m (23ft) was cut and then coupled to a Dip Meter to check the correct length for a quarter-wave. It was found that the correct length is 6.40m (21ft). This is connected as a stub at the centre of the two half-wave antennas and with the end of the TV ribbon shorted, we have our complete "2 half waves in phase" array. In the old days we would feed this antenna using a series resonant tuned tank circuit and link coupling to the transmitter. Today, with SWR meters and 50ohm coaxial

cable being generally used, it was decided to move the feed point up the quarter-wave section and find, by experiment, the 50ohm point. (Fig 2). After a considerable time and with large quantities of TV ribbon chopped up and mutilated, the correct point was found!! This point is 533mm (21") from the bottom or shorted end. At this point the SWR was approximately 1.3 over the 10MHz band. This point is "50ohms" in this particular case, but will vary considerably with antenna height. At this location, the antenna was horizontal but only seven metres above ground. For different heights, the matching point will have to be found experimentally. The performance of the antenna is very good with reports generally being 2-3S points stronger than the original dipole antenna at the same height. For those who possess a good antenna tuning unit and do not wish to experiment with the tapping point, the coaxial cable can be fed directly into the end of

the TV ribbon. (Fig 3).

The ATU can then transform the impedance to 50ohms for the transceiver. Performance either way has been compared and found to be substantially the same. With an antenna of this type there are a few precautions that must be observed. The TV ribbon quarter-wave section is NOT operating in its "300ohm" mode. It is a 10MHz transformer with low impedance and high current at the bottom, and high impedance, high voltage, and low current at the top.

It must be kept clear of metallic objects and kept out in the clear. If it needs to be supported anywhere, TV type stand offs should be used. The theoretical gain of the antenna is 3-6dB depending on what reference is used. In practice, reports prove the antenna to be very effective. It is easily constructed with no major capital outlay!!

ar

# Antenna & Ionosphere in Partnership.

ROBERT R MCGREGOR VK3XZ 2 WILTSHIRE DRIVE, SOMERVILLE, VICTORIA, 3912

**H**AROLD VK3MI MADE a fine contribution (AR-91) in so clearly outlining what radiation pattern is achieved with a low horizontal antenna and thus, on 80m, good coverage for the important 500km radius area; the one in which any amateur is most likely to be involved in an emergency.

The radiation resistance of Hertz (dipole) antennas falls to a low value as height is reduced and can be difficult for a feeder to match. There are however, alternatives. From these I suggest the 3/4 wavelength consisting of a half wave horizontal section connected to a 1/4 wave vertical section and tuned against ground. For this application the vertical section can be reduced to 1/8 or 1/10 wavelength. This section will also radiate at a 10 to 50 degree vertical angle, filling in where the horizontal section radiation diminishes.

This arrangement is a short antenna to be tuned against ground, series L. As Harold so truly remarks, earth systems are very variable. Typically there would be 10ohms radiation resistance, 10ohms resistance in the series L and 30ohms in the earth - these are poorish figures. Efficiency,  $10/(10+10+30) = 20\%$ , ie -7dB, a definite 'S' point. Matching? This example produces (conveniently) 50ohms, BUT, in reality you must tune the antenna,

**"Here are some more antenna ideas from VK3XZ, which remind us that dipoles are not the only solution to antenna problems.."**

it is not broadband.

The total resistance can be 'trimmed' for better feeder matching by adding series or shunt resistances. For modest differences a series 10ohms would compensate for a better ground (at the expense of some efficiency).

Sand and clay locations can benefit from insulated radials. Best results are with 1/4 waves but I found that even 20 or 30 feet assisted on 160 and 80. Reel them in for lawn cutting and especially on wash days! Materials? Well I used some split "figure of 8" flat twin. However, the outer shield of old coax, salvaged house wiring or damaged flexibles will perform okay.

For those on salt marshes or on boats, Ron VK3AFW describes how to construct matching transformers for low ratios in AR May 91. Using a 4:5 ratio of turns gives an impedance ratio of 16:25; or approximately 1:1.5. This will match 30 to 45ohms, reversed, 75 to 50ohms. It does require winding a bundle of 9 wires which do not group very well. Making up 3 groups of three wires and then twisting these groups together could be easier. When selecting the wires to series be sure to include at least one wire from each 'three'. Another approach is to wind each 'three' on 120 degrees of the toroid.

This method would simplify the series connections. What is your verdict, Ron + Ron?

Now for some suburban and traveler's specials :-

Try a 20m top with a 5m vertical section. Use series C to tune 40 and series L for 80; more L for 160. On 20 the top is a full wave 1/4 wave above earth with the classic pattern plus that for a 1/4 wave vertical. This antenna can be tuned up on any wavelength but certain frequencies could send you back to the handbook for technical refreshment!

Construction? Most suburbanites have at least one 20m fence. Three fishing poles will provide a 'flat' top. Angle the vertical section as a guy and use a cord at the other end. No wire please! This is not gale resistant but the wind is slower at 5m! It is readily packed for transport and can be carried over ditches, fences or down to the beach.

If your interest is in something smaller, a 10m top and 5m vertical can have a part trimmed for zero reactance on your frequencies. For use on land rather than on a boat, carry three 5m radials to spread around the earth pin. Always use an earth pin for static drainage and to provide a 'DC' earth for the rig. Don't forget the series C for 40 or the L for 80 - Happy travelling and a safe return.

ar

# A 24 Hour EST/UTC Clock

TONY ZUIDERWYK VK3ZMP  
75 WILLIAM HOVELL DRIVE  
ENDEAVOUR HILLS, 3802

**A** CLOCK IS ONE OF THE few station accessories that may be classified as essential. A clock suitable for the purpose should be reasonably accurate, easy to read and provide an indication of local and UTC time in 24 hour format. In addition I required a clock to be mains independent for field days and blackouts and not to cause any RFI as some multiplexed digital displays do. The clock to be described satisfies these requirements and has the added bonus of being homebrew.

This project is based on a 24 hour version of the analogue quartz clock modules available from most electronic component suppliers. These modules are powered by a 1.5 volt size AA battery and come complete with a range of hands. All that is needed is a clock face and a suitable enclosure.

A 24 hour clock face is reproduced, actual size, in figure 1. The dimensions of the face allow the use of a Horwood type 34/3/D instrument case measuring 100mm x 75mm x 75mm. Figure 2 is the UTC conversion face that fits concentrically with the figure 1 face. Together they provide a quick conversion between EST and UTC, in this case a 10 hour shift; summer time requires the inner UTC face to be rotated one hour.

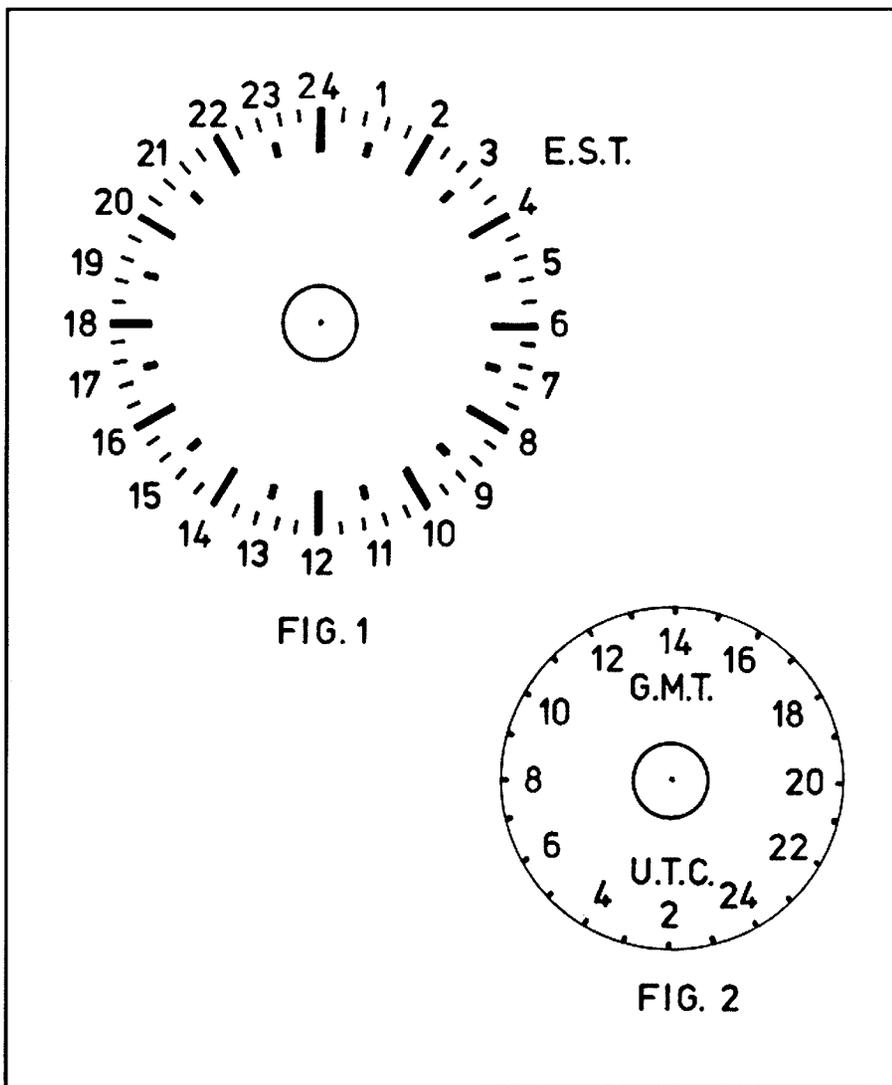
The following steps may be used as a guide to assembly of the project:

1. Select one of the removable panels to be the front face and drill a 10mm hole in its centre.

2. This front face panel needs to be recessed into the case approximately 18mm to allow the installation of a perspex dust cover and clearance for the hands. Four new countersunk holes in the case and matching screws will be required to secure this panel.

3. Figure 1 and 2 need to be photocopied and cut out to size. Laminating the paper with clear Contact will give the faces added body and permanence.

4. The clock hands supplied should be cut to 23mm for the hour hand and 29mm for the minute and second hands. The width of the hands need pruning to approximately 2mm.



5. An optional perspex dust cover may be cut to fit just inside the front of the extruded aluminium case and shallow tapped secured holes provided to coincide with the existing holes in the case.

6. Final assembly requires a 4mm spacer between the clock module and the rear of the front panel. This may be fabricated out of scrap aluminium and a 10mm hole drilled to clear the module's mounting bush.

Finishing and refinements are left to the individual constructor. I found that covering the case with black Contact resulted in a professional looking finish.

Reading the time on an analogue 24 hour clock can be a bit confusing at first as the relative positions of the hands are different to the more familiar 12 hour clock face. Mastering the skill, you might say, takes a little time!

ar

# Sniffer for Two-Metre Fox Hunting

IAN STIRLING VK3MZ

169 GLENDALE RD, RINGWOOD NORTH 3134

**T**HE MOST EXCITING part of hidden transmitter direction finding or fox-hunting is closing in for the kill. This is where a lightweight beam antenna and simple receiver are required to perform the close in DFing, and is frequently performed on foot. This article describes a simple receiver, which may be used in conjunction with a two or three-element beam for the last few hundred metres of DFing a 2m band transmitter.

Over the past 10 years of participating in the monthly Melbourne fox-hunts I have experimented with numerous sniffer receiver designs. I have also received many requests for sniffer circuit boards. With the growth in popularity of fox-hunting the demand for sniffer boards seems never-ending and I am regularly asked if I can supply "just one more board". To satisfy this demand I have had a quantity of PCBs produced by a commercial PCB manufacturer. Ordering details are given at the end of the article.

The requirements of a sniffer receiver are to provide sufficient sensitivity to allow DFing a 2-watt fox from up to, say, 500 metres away, but with sufficient gain control to permit DFing to within a metre or less of the transmitter. This design achieves this by having an RF gain stage and a large amount of post detector audio gain. Minimum discernible signal level is below 20 $\mu$ V. The gain of the RF and audio stages are controlled by a single pot and the amount of gain reduction permits DFing right up to the transmitter.

This receiver also has what is affectionately known as whoopie mode. The detected signal is fed to an audio VCO and, as the antenna is waved about, the VCO will give a whooping sort of noise. The highest pitch indicating the direction of maximum signal strength and the direction to run in. The regular Melbourne fox transmitter is amplitude modulated with a tone, and DFing can be achieved by noting the direction of loudest received tone. In situations where there are multiple signals arriving via reflection paths, the whoopie is able to distinguish the strongest signal, which

cannot be done so easily if relying on volume. This is because the human ear is very sensitive to even minor differences in pitch, but fairly insensitive to small differences in volume. The whoopie mode gives a clearer indication of the beam maximum and is also used if the fox transmitter is an unmodulated carrier.

This design has been given the label Mk2, because it is a development from a design that I distributed to other foxhunters through the North Eastern Radio Group. Over 50 of the Mk1 PCBs were made by the NERG, and requests were received from amateurs in all states and NT. Suggested improvements have been incorporated in this version. The updated design requires only a single 9v battery, does not require coil formers and it all goes on a single-sided PCB which is a little smaller than the previous design.

## Circuit Description.

The stage associated with Q1 is an RF amplifier. The gain of this stage is controlled by the voltage of gate 2 in respect to the source. The source is maintained at approximately +3 volts by the zener diode D4. With the wiper of the gain control pot RV4 at the maximum position the voltage of gate 2 is about two volts above the source voltage and the stage has a gain of the order of 20dB. When the gain control wiper is in the minimum position gate 2 is at earth potential and therefore three volts negative in respect to the source. The stage now has attenuation of the order of 20dB.

RF from the Q1 stage is then detected by D1 and D2, and then amplified by op-amp IC1. The gain of IC1 is also controlled by RV4. The gain of this stage is set by the ratio of R9 to the drain-source resistance of Q2. In the maximum position the gain is of the order of 500 depending on the characteristics of Q2. In the minimum position of RV4 the wiper is grounded and transistor Q2 is approaching cut-off because the current through R10 and D3 biases the gate of Q2 negative with respect to the source which is at about +3.3 volts. The stage gain is thus now approaching unity.

The use of Q2 as a variable resistor enables the RF and AF gain to be controlled by a single gang potentiometer. It also allows component placement flexibility because the potentiometer leads are decoupled, and pick-up of signals on the wires to the pot is not a problem.

The output from IC1 contains tone information if the carrier is amplitude modulated, and a DC component which is proportional to the received signal strength. From here the signal can go straight to the audio power amplifier IC3 for tone reception or via the VCO for whoopie mode reception.

## Construction Notes

Assembly is straightforward, as the PCB is screen printed to assist with component placement. The holes are drilled to accept common size components. The order of assembly does not matter but it is usually easier if the low profile components are soldered in first, such as resistors, diodes and IC sockets (if used). Then the capacitors, coils and trim pots. The two coils sit on the board horizontally. Solder the transistors in last and keep the handling of the semiconductor devices to a minimum to avoid static electricity damage. The BF981 is inserted with the writing visible on the top side. Attach hook up wire leads and connect to the off board components such as the switches, gain control pot, antenna connector, battery clip, speaker or headphone socket. Prepare a metal box to accept the hardware and complete the assembly. The printed board assembly and other hardware will just squeeze into a 12 0x65x4 0 mm diecast box but these boxes are expensive and the budget-conscious should look for alternatives.

My 14-year-old son assembled and tested one of these sniffers and used it very effectively at the last meeting. He took about five hours to construct the unit. I expect that more experienced constructors will complete the unit in just a few hours.

## Set Up and Adjusting

The input must be terminated by connecting a low impedance source such as

the antenna or a signal generator if one is available. The Q1 stage will oscillate if the RF input is not terminated in a low resistive source. The diodes are sensitive to light, and adjustment must be carried out away from bright sources of light, or the diodes can be painted.

Set the Gain Control RV4 to the maximum gain position, ie fully clockwise. Measure the voltage on D4 in respect to ground. The voltage here should be 3.3V approx. Adjust the offset-null RV1 so that the output on pin 6 of IC1 is the same as the voltage measured on the zener diode D4, a whisker more, if anything. Set switch SW2 to the whoopie position and adjust the audio threshold RV2 to produce an audio tone of approximately 100Hz. Set SW2 to the tone or modulation position. A hissing sound should be heard.

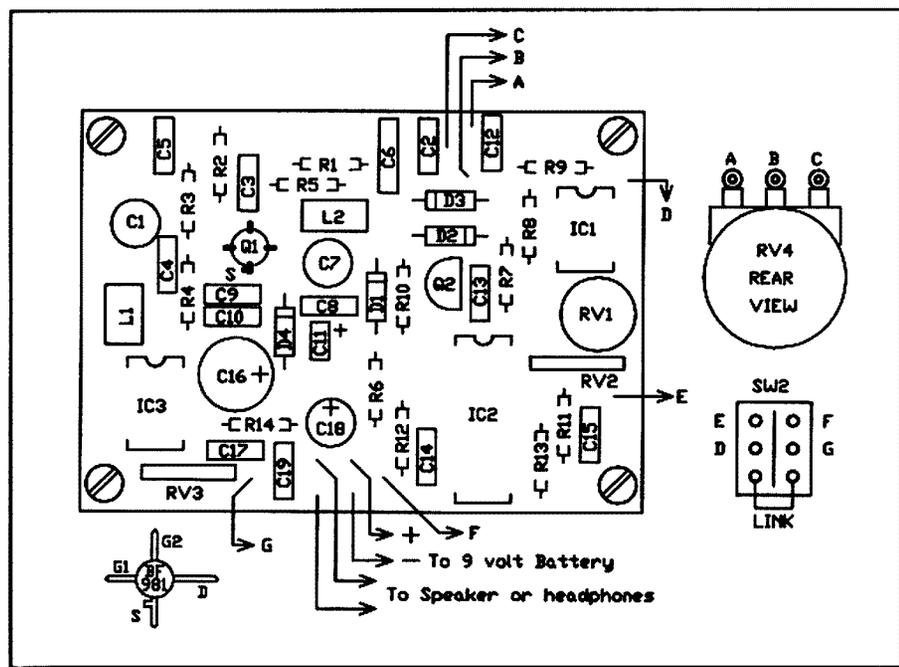
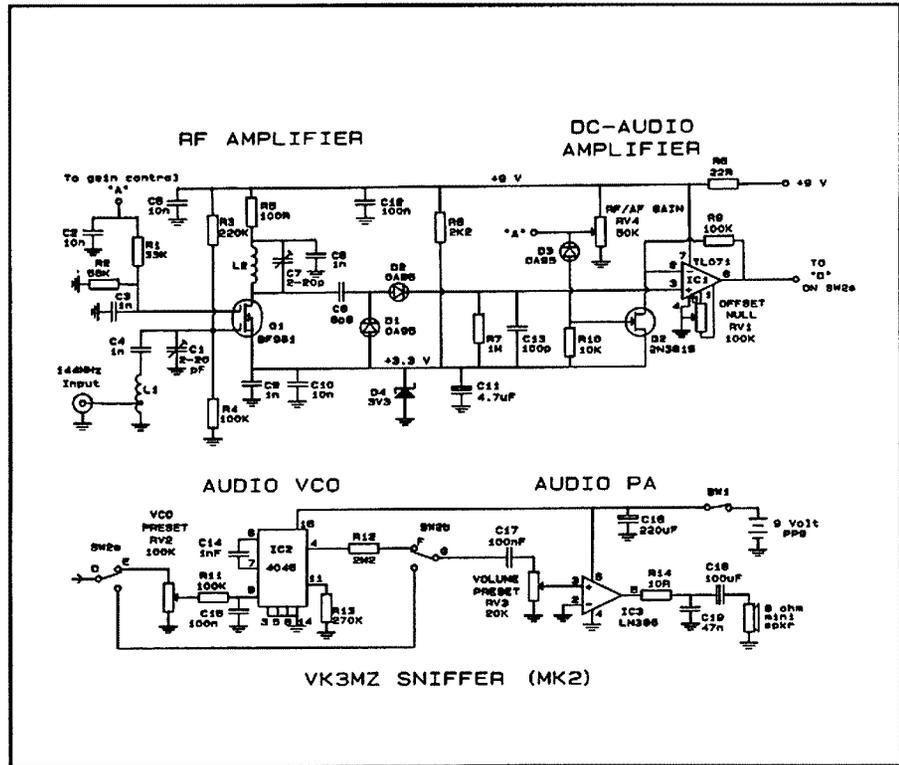
If assembly and adjustment have been carried out correctly to this point the gain control will have the following effect. With no RF signal applied and the input terminated, switch to the tone position and adjust the RF/AF gain control from counter-clockwise to fully clockwise. The speaker output will go from zero to a definite hissing or white noise sound in the fully clockwise position. In the whoopie position the speaker output will go from the approximate 100Hz as set before, and increase slightly as the gain control is rotated from counter-clockwise to fully clockwise. The RF amplifier can now be tuned for maximum sensitivity.

If a signal generator is available then set up an AM signal on 144MHz and peak C1 and C7 for maximum received and reduce the signal to the minimum discernible level and repeat C1 and C7. Verify that the whoopie facility functions correctly by switching the signal on and off. Adjust the volume pre-set to a comfortable level and away you go!

Otherwise, if a signal generator is not available then a hand-held or similar transmitter and an assistant are required. Connect the antenna to the receiver, set the sniffer to the whoopie mode and the gain control to mid position. Key the transmitter and peak C1 and C7 for highest whoopie pitch. Some adjustment of the gain control may be required to allow peaking to occur. Move away from the transmitter to the point where the gain control is at the maximum position and a small increase in pitch is noticed as the transmitter is switched on and off. Re-peak C1 and C7 and the unit is now ready for hunting.

### PCB Ordering

The PCB is single sided and the dimensions are 77x55mm. The component overlay is screen printed on the top side



Lay out of Sniffer components on board

and the tracks are pre-tinned. The board is fully drilled to accept common-size components.

PCBs can be obtained by sending a remittance of \$8.00 and a self-addressed and stamped envelope to the author at 169 Glenvale Rd, Ringwood North, Vic 3134.

### Component Sourcing

It is very rare to walk into one component shop and buy all the parts for a project. This project is no exception. I purchased components from the following suppliers: Stewart Electronic Components, 44 Stafford St, Huntingdale 3166. The Electronic Component Shop,

289 Latrobe St, Melbourne, 3000; Dick Smith, 141 Maroondah Hwy, Ringwood 3134.

## Parts List

### Resistors: 1/4 Watt

R1 33K  
R2 56K  
R3 100K  
R5 100R  
T6 2K2  
R7 1M  
R8 22r  
R9 100k

R10 10k  
R11 100k  
R12 2m2  
R13 270k  
R14 104

### Potentiometers

RV1 100K cermet, vertical adjust (horiz mount)  
RV2 100K horizontal adjust (vert mount)  
pin spacing 5mm (0.2 inch)  
RV3 20K same style as RV2  
RV4 50K log pot

Capacitors: Disk ceramic unless otherwise stated.

C1 2-20pF Trimmer, 2 pin, 5mm hole spacing, Philips (red) or Murata (red)  
C2 10n  
C3 1n  
C4 1n  
C5 10n  
C6 1n  
C7 same as C1  
C8 6p8  
C9 1n  
C10 10n  
C11 4.7µF, 16V tantalum  
C12 100n, monoblock  
C13 100p  
C14 1n  
C15 100n monoblock

C16 220 µF, 16V electrolytic  
C17 100n monoblock  
C18 100 µF, 16V electrolytic  
C19 47n greencap

### Inductors

L1 and L2, four-and-three-quarter turns of 20SWG formed on a 5mm or 3/16-inch drill bit. Space the turns evenly to give a length of 8mm. L1 is wound clockwise, L2 is wound anti-clockwise. L1 is tapped one turn from the "cold" end ie, nearest to IC3.

### Semi-Conductors

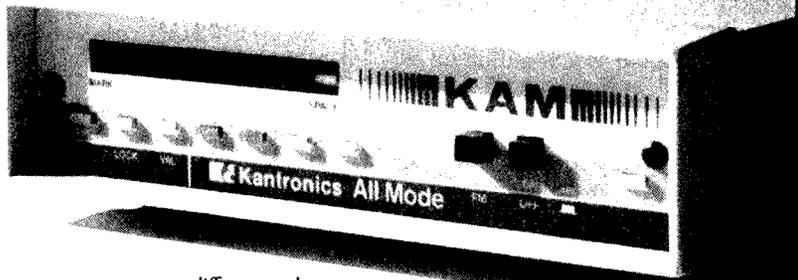
D1, D2, D3 OA95 etc, germanium point contact diode  
D4 3V3 400mW zener diode  
Q1 BF981 MOSFET  
Q2 2N3819 J-FET  
IC1 TL071 or LM351 low noise op-amp  
IC2 CD4046 PLL  
IC3 LM386N-1 audio amp (8 pin)

### Miscellaneous

SW1 single pole switch (supply on/off)  
SW2 DPDT, slide or toggle switch  
Battery clip for 9v battery (PP9)  
head phone socket or miniature speaker  
Metal box to suit  
Antenna socket, hook-up wire, machine screws and nuts ar

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# For the discerning amateur - the Kantronics All Mode Data Controller



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\* Requires Hostmaster II software and IBM-PC type computer

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# Mini Equipment Review

RON FISHER, VK3OM

**T**HIS MONTH, WE LOOK at another useful accessory from the Dick Smith catalogue. This one is from the Yaesu range and will complement your FT-23/411 and 470 hand held transceivers.

## The Yaesu CA-2 Desk Top Stand

What's the first thing that happens when you stand your hand-held transceiver on the desk? I can tell you from experience, it will fall over and either bend your telescopic antenna or scratch your new desk microphone or worse, both of the above.

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The Yaesu CA-2 Desk Top Stand Cat D-3355 is available from most Dick Smith outlets at \$39.95.

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# SOME THINGS HAVE NO COMPARISON

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**AT YOUR NEWSAGENT EVERY MONTH**

# Snapper Island: Part of Sydney's Maritime History.

CASEY W SCHREUDER VK2CWS  
SECRETARY NSW CHAPTER RNARS

**T**HEREMARKABLE HISTORY of tiny Snapper Island began on the morning of 9th September 1914 almost five thousand miles away on the turbulent sea near the Cocos Islands in the Indian Ocean. Two cruisers - the *Emden* of Germany and the HMAS *Sydney* of Australia engaged one another in battle. When the pall of combat cleared the *Emden*, after several hours of battle, lay in ruins on the rocks. Its victor became the first of the Royal Australian Navy to engage an enemy in battle.

It has been described as the last gentlemanly sea battle. When it was over the officers and crew of the German ship were transported to the *Sydney* without scorn or ceremony and, in the best story-book fashion, the Australian Captain put his arm around his counterpart's shoulder and allowed him the privilege of keeping his sword. To the crew of the *Sydney* it seemed the battle had created a bond of sorts between the opposing sides.

These events had an indelible effect on 16-year-old Arnold Mellor, who was serving as the Captain's signal boy on the Australian ship. Some years later, he was instrumental in establishing a Cadet Training Unit, which was to become a living memory to HMAS Sydney. The Unit blossomed at first, but after only seven years declined to a perilously low ebb. A close friend of Mellor, Leonard Forsyth, offered to take over. The new leadership had an immediate impact. The boys raised money - penny by penny - and numbers increased. By the following year - 1929 - a new headquarters for the Unit was built at Drummoyne and officially named "Sydney Training Depot".

Training boys in the art of seamanship, even on a voluntary basis, is an expensive undertaking, and by the middle of 1930 the training depot was facing a crisis. The rent and rates on the HQ at Drummoyne was becoming too costly and the group was advised to find alternative accommodation. About 200 metres off the shore of Drummoyne, between the Iron Cove Bridge and Cockatoo Island, was a rocky island of no more than a few hundred square metres, covered in lantana and infested by rats. The islet was

known as "Snapper Island" - sometimes spelled as Schnapper Island, but had also been known as "Flea", "Mosquito", "Cat", or "Rat" Island. This gives one an insight into the environmental condition of the Island.

The Federal Government granted the Drummoyne Cadets the use of the Island in 1932, and work commenced on the building of a depot. 1000 tons of rock had to be blasted from the top of the island to create a level surface. Much of the rock was then used to build a sea wall around the island. In less than eight months 50 boys, most no older than 15, worked in their spare time to build a wall 90 m in length two and a half metres high and nearly two metres thick. Without financial assistance or outside help, the boys constructed a wharf, a guardroom and then reclaimed one thousand square metres of sea bed by building out to a reef. By the end of 1932 a signal station and other main buildings were erected and the island began to take shape and design of a proper training "ship".

In 1930 the HMAS *Sydney* was sold for scrap to Japan and in the following year was docked for the last time at Cockatoo Island for dismantling. Leonard Forsyth paid 30 pounds for the right to salvage whatever he could from the doomed ship and he and his cadets retrieved hundreds of items from cabin doors to cutlery. Thus began the Snapper Island Museum which, from modest beginnings, has developed into a first rate Naval Antiquarium.

The depot was officially opened on 26 November 1932 by Sir Charles Cox on behalf of the Minister of Defence, but it was not until 1937 that the Sydney Training Depot received full recognition as an independent Sea Cadet Unit. At the outbreak of World War 2 Snapper Island was voluntarily handed over to the Naval Authorities for use as a depot to accommodate Naval Guards, but the Island did not lose its individuality, however, as a number of boys and an officer were also taken over by the Navy to convey the guards to and from the Island. On 1 November 1942, Snapper was taken over by the US Forces as a seamanship school for its Ship and Guncrew No 1 Command.

For the next 20 weeks soldiers were trained as seaman gunners for the American Merchant and small ships and later that year the island was used as a small craft engineering school for the AIF.

In 1944 the Maritime Royal Artillery Unit of the British forces requested permission to use part of the establishment as a billet and club. On 22 January, 1946 the island was returned to Forsyth's control.

Among the most valuable of the Museum's possessions is the first Blue Ensign ever flown on an Aussie warship and the first piece of artillery owned by the RAN. Among cannonballs and shells outside the museum building stands a ship's gun, cast in 1733.

The museum has four annexes all of which have been opened since 1975, the most recent one being the "Naval Sub Branch RSL" annexe which shows models and all types of small craft used by the RAN and the RN.

The Snapper Island Cadets are responsible for the upkeep of several boats including 3 whalers and a motor launch. They are taught naval flag signalling and are instructed in radio theory and morse code, which will lead, we hope, to several cadets joining the ranks of radio amateurs. It was with great pleasure that we saw Chief Petty Officer Mick pass his Novice Licence recently.

The New South Wales Chapter of the Royal Naval Amateur Radio Society operates from Snapper Island using the Club Station call VK2CC, every Saturday from 1000 EST till approximately 1700 EST on all bands including the WARC bands, CW on the even hours UTC and SSB on the odd hours UTC. It would only be fitting to issue an award called "The HMAS Sydney Award" which requires a contact with VK2CC plus four different NSW Chapter members or alternatively six NSW Chapter members. Further details will be gladly supplied by any RNARS NSW member. We are of course always on the look out for new members and invite any interested ex-RAN, ex-RN, ex-MN (of any nationality) and of course serving members of any of the above to join the RNARS.

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# The R L Drake Company. 45 Years Young (1988)

BILL FROST WD8DFP (ORIGINALLY PUBLISHED IN THE DRAKE COMPANY PUBLICATION).  
SUBMITTED WITH THE AUTHOR'S PERMISSION BY JOHN WEIR VK3ZRV PO Box 469 ELTHAM 3095

**T**HE R L DRAKE Company was founded by Robert Lloyd Drake the eldest son of four children and also the father of four children. Born in Cincinnati, Ohio, he attended the University of Cincinnati after graduating from high school. At that time, the university was a city college and he lived at home while attending college.

Graduating in the early 30's, Mr Drake was first employed by Dayrad (Dayton Radio Co) in the Engineering department. He later went to work for Bendix Corp in their Aviation department. Mr Bill Lear, of Lear Jet fame, hired Mr Drake to work for his company, Learavia, in the Engineering department.

In 1943 Mr Drake decided to start his own company and leave his secure position at Learavia. He gathered three other people to help him design, and build his products. One of these individuals was Katherine "Katy" Quake, who is still a valued employee of the company. The company began at 11 Longworth Street in Dayton, Ohio. The upper level of the building was rented to a manufacturer of coat hangers.

The products at the time were low and high pass filters for amateur and military use. The filters for amateur use were a part of the company's product line for over forty years. A tank jamming device was also produced for the US military. The military also wanted a filter designed to eliminate the jamming, but this could not be done due to the method Mr Drake had designed. He had a difficult time convincing the government that it could not be done. The tank jamming equipment was successfully used in major events of WW2 such as Normandy Beach on June 6, 1944.

The recession that followed WW2 meant hard times for everyone, the R L Drake Co included. The company survived by continuing the production of filters and by doing small jobs for larger companies. This included making lamps for S S Kresge (of K-Mart fame) spring contacts for GE, coils and chokes for Delco, and communication cables for airplanes.



*Courtesy R. L. Drake Co.*

*Drake Model 1-A receiver.*

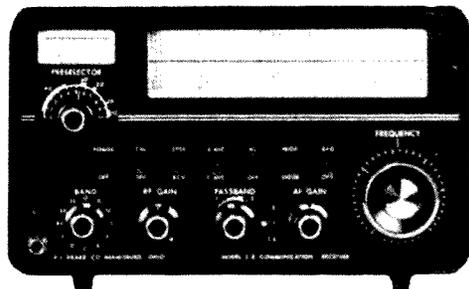
Ten years later, in 1953, the company, now 10 or 12 employees, moved to Miamisburg in the once famous Baum Opera House, later to become the home of Star City Marine. If you stand in Market Square and catch the sun right you can still see Baum Opera House showing through the paint on the building.

The product line now included more accessories for amateur radio operators, such as Q-Multipliers for HRO and National receivers, product detectors for Collins Radio receivers, and the High Patch phone patch.

Being an amateur operator himself (W8CYE), Mr Drake had modified his own Hammarlund receiver for sideband reception. However he was not happy with the receiver's performance and knew he could design a "better mouse trap".

During a bad case of "hives", partially due to worry over the survival of the company and its employees, he began the design of the 1-A receiver at home. The receiver was long, thin and tall like a mailbox, but was destined to be the first receiver to be designed solely for single sideband reception. All other receivers for amateur use received only on AM or were old military AM receivers, which were then modified by the amateur for SSB reception.

Unsure that he could mass produce such a product, let alone finance it, he



*Drake model 2-B receiver.*

offered his design to well known receiver manufacturers such as National, Hammarlund, and Hallicrafters. After many letters back and forth and unable to reach a decision, the turning point came when "Gibby" of Universal Service in Columbus Ohio ( a well known amateur radio supplier and friend of Mr Drake) said "You build'em and I'll take the first hundred". Hyde "Rube" Rubel of SREPCO, another Amateur Radio supplier, also supported the 1-A concept and urged production of the first single sideband receiver.

The first ten or so 1-A receivers were built at the old Baum Opera House, then in 1958 the company moved to the present 540 Richard Street address as more room was needed. The production of the 1-A was then put into full force. The 1-A design was based on a simple to operate concept, no bells, no whistles, easy to service, high quality, and high performance. Cosmetically, it was very plain, the front panel was black, the cabinet was black, and it was soon dubbed "The Black Box" among amateurs. Receivers prior to the 1-A were large, bulky, had large knobs, large meters, and were often called "Boat Anchors".

The 1-A receiver was a success, as it was well received by amateur radio operators. However, amateurs wanted a receiver that had both modes of reception, AM and SSB, built with the per-

formance of the 1-A. AM was still the most popular mode of communication among amateurs. Thus the 2-A receiver was designed and produced. It was soon followed by the design of 2-B receiver. Mr. Drake offered his 2-B design to radio receiver manufacturers such as Globe Radio and Hallicrafters, as he felt uneasy about increasing the size of the company. Unable to come to terms, it was decided in 1961, to proceed and build the 2-B under the R L Drake Co name.

In 1963, the company introduced its first transceiver and named it the TR-3. The TR-3 was a tube type unit, as were all Drake products at that time. It used a 9.0 MHz IF, tube type VFO (Variable Frequency Oscillator), and three 12JB6's as the final output tubes. The sensitivity was excellent and power output ran 300 watts PEP. The demand for the TR-3 was tremendous and its popularity grew as did the name Drake.

In 1965, the Inland Testing Laboratory (a division of Cook Electric, Chicago, Ill) was purchased by Mr Drake. The name was changed to Dayrad, a name familiar to Mr Drake as helping him get a start in his earlier years. Unfortunately, a few years later, the equipment was sold and the company dissolved, as there was not enough work to keep the employees busy. Some employees were transferred to the Miamisburg plant.

Then in 1966, a completely new line was designed and introduced, which became known around the world as the "Drake Twins". The receiver was the R-4 and the mating transmitter was the T4X. Also produced were accessories such as the W-4 wattmeter, the MN-4 matching network, the MS-4 speaker, and the AC-4 power supply. The R4-A soon replaced the R-4 receiver and the L-4 linear amplifier was introduced along with the MN-2000 matching network. The L-4 and the MN-2000 proved to be two of the most desired products by amateurs around the world. These two products are still sought after by amateurs today.

Shortly after the R4-A had reached the market, the company was approached by Radio New York Worldwide to build a low cost International Shortwave Broadcast Receiver for their own use. The SW-4 was designed primarily from the R4-A and was to receive AM only. The front panel stated "Designed especially for Radio New York Worldwide". Again, not wanting to expand beyond the company's means, the design was offered to RCA, who, at the time was a leader in communications type receivers. RCA was at the time producing the CRM-R6A receiver for the world communications market and declined the offer. The SW-4A short

wave receiver soon followed the SW-4 with several improvements and with more solid state devices being used instead of tubes.

The C-4 station console was introduced in 1966 and was another first in amateur radio equipment. The unit was engineered and designed by Ronald E Wysong, who was later to succeed Peter W Drake as President and CEO of the R L Drake Co. The unit housed a phone patch, rotor control, wattmeter, equipment control switch, ID timer, 24 hour clock, remote antenna selector and it could also control power to other units in the "Ham Shack". Thus turning off the C-4 could turn all of the amateur's equipment off.

Also in the year 1966, Ron Wysong was interested in cameras and photography as a personal hobby. He learned that printed circuit boards involved photography and negatives. He persuaded the company to invest in the first steps towards a printed circuit department. He made an etching table out of plywood and 2X4's, mounted a motor to vibrate the table top, and was soon making progress. The first printed circuit board to be used in a product was the audio board of the R4-B receiver. This was the start of the PC Fabrication Department.

In the year 1967, the 2-C receiver and the 2N1CW transmitter were introduced which filled the need of a good low cost novice station for many beginning amateurs. The TR-4 transceiver replaced the TR-3 with several improvements, including a solid state VFO, and a BFO circuit.

The R4-B, T4XB and the L4B were improved versions of earlier products and were introduced in late 1967. The production rate was averaging four to six units per day of most products. More room was needed and an addition was made to the building to provide office space, an Engineering Department and a lunch room area. The Engineering Department was sharing space with the Machine Shop in a small building across the railroad tracks from the main plant, and so the additions gave the entire building to the Machine Shop.

The SPR-4 was introduced in 1970 as a replacement for the ever-popular SW-4A. The receiver was all solid state, could receive both SSB and AM and crystals could be added to extend the listening range to meet the needs of the owner. The two metre FM (frequency modulation) band was gaining in popularity and the ML-2 two metre FM transceiver was introduced. This was the first unit to be imported and sold bearing the R L Drake Co name. This led to the import of the TR22 portable transceiver and the TR22M transceiver. The TR22M was a marine FM transceiver which allowed the com-

pany to enter the marine communications market. The introduction of the TRM single sideband transceiver followed and its use ranged from small shrimp boats to the large oil tankers. The TR22C was imported to replace the TR22, which was later replaced by the TR33C. All three units required crystals for each channel, unlike the synthesized handheld units of today.

The DSR-1 receiver was introduced in late 1971. It covered the complete HF spectrum and used 'nixie' tubes for the digital display. It also allowed reception of independent sideband as well as single sideband and AM. It was followed by the MSR-1, a 19 inch rack-mount commercial type receiver. The MSR-1 was used aboard ocean-going ships as the main receiver. The DSR-2, MSR-2, and the MSR-FMP succeeded the DSR-1 and MSR-1. These units contained gold plated switch contacts to minimize contact failure in the salty air.

The ever popular C-Line was introduced in 1973 to replace the B-Line Twins. The C-Line units made use of more solid state components, a dual dial VFO, a plug-in antenna change over relay in the T4XC, and crystal filters replaced the old reliable PBT (passband tuner) in the R4-C. The R4-C receiver and the T4XC transmitter are still sought after by many amateurs and held as prize possessions by others. Accessories included the TC-2 two metre transverter and the SC-2 receiving converter, the TC-6 six metre transverter and SC-6 receiving converter as well as the TR-6 six metre transceiver.

The SSR-1 receiver was imported and added to the shortwave receiver line as a low cost unit covering the complete spectrum from broadcast band to 30MHz. A whip antenna and a compartment for eight "D-Cell" dry batteries made it portable.

In 1975 amateur radio operators across the world were in deep mourning as word spread that R L Drake Sen had passed away. They had lost a very dear friend, a fellow amateur, and a pioneer of a amateur radio. The operation and management of the company was turned over to Peter W Drake, as Mr Drake had been training his son to assume his position for some time.

Drake amateur radio equipment can be found in every part of the globe. If the equipment is not there, the name Drake is known and respected. Amateur radio operators come in all walks of life and at one time or another have owned, wanted, or used a piece of radio gear made in Miamisburg, Ohio. King Hussein of Jordan has used Drake gear, as well as Barry Goldwater, Roy Neal and Ronnie Milsap.

The amateur radio station aboard the "Queen Mary" was once a complete line of Drake equipment. The R L Drake Co radio equipment has been used in hot air balloon flights trying to fly non-stop across the country or around the world. An around the world attempt on a sailing yacht used Drake gear, the details of which were outlined in an issue of the Smithsonian Magazine. The non-stop flight of the Voyager space craft was aided with Drake gear. Many far away and remote islands have been temporary home of DX-peditions using Drake gear to contact their fellow amateurs. A complete 7-line system was taken to China as international goodwill by a Californian University. Famous amateurs who were Drake users include James Stewart, Chet Atkins, Joe Walsh and astronauts Owen Garriot and Tony England. Marlon Brando, at one time, wanted to use Drake amateur radio equipment as a communications link on his island.

In the year 1977, land was purchased in Franklin Ohio, just off Route 123, to build a new production facility. The production facility was to be completed in three phases. The first phase of the building provided 42,500 square feet and was completed in 1978. The Machine shop, PC fabrication department, production lines, and component assembly lines were moved to this new facility. The office staff, Sales department, Engineering department, and the Service department remained at the Miamisburg plant.

Production now included the TR-7, a completely solid state transceiver and a companion receiver, the R-7. Complementary accessories included the L-7 linear amplifier, WH-7 wattmeter, and the MN-2700 matching network, to mention a few. The UV-3 was introduced in 1978, and was another first in amateur radio. It was a single unit housing a 146 MHz band, 220 MHz band and a 450 MHz band FM transceiver all in a compact, rugged package. It was designed for mobile or base station use. The MRT-55, designed from the UV-3, proved to be a viable product in the marine market, and led to the production of the MRT-55. The RR-3 was introduced in 1981 to replace the RR-2 which had replaced the RR-1 earlier. The RR-1 had gained popularity as being a very reliable, low cost secondary receiver aboard ocean going ships.

The TR-4310 transceiver and the R-4245 receiver were also introduced as primary units for ocean going ships. These were redesigned TR-7 and R-7 respectively with a VRTO (variable rate tuning oscillator), full transmit coverage, and with all crystal filters installed. They

were also standard 19 inch rack mount units built for rugged duty. Radio Monaco at one time used four complete rack mounted stations, consisting of the TR-4310, R4245, L-77 and MN-4438. The L-77 and the MN-4438 were built on the lines of the L-7 and the MN-2700 with a face lift to match the TR-4310 and R-4245.

In the year 1981, it was decided to enter the home satellite receiver market. This meant a completely new product, which means engineering time, drawings, PCB layouts, ordering parts, market analysis, marketing forecasts and advertising brochures, all of which take time. It is usually two years or more before all of the pieces fit together and a product is actually on the shipping dock. The ESR-24 design and production set new standards, as it was in shipping within eight months. Design of the ESR-24 began in May, the first prototype unit was shown at the Omaha, Nebraska home satellite show in August, and the first units were shipped in November of 1981. The ESR-24 was the first cosmetically appealing, professionally built consumer receiver. The competition units were either built in a back room or a garage. It was designed especially for the home dish owner. It soon became a leader in a very new and exciting market.

The ESR-24 brought new fame to the company, so instead of offering the design to other manufacturers, the company was actually approached by other manufacturers to produce receivers under their name. The OEM accounts included, Channel Master, Winegard, Connifer and National Microtech. In July of 1983, the upper level of a building in Springboro Pike was leased to the company. The office staff, Sales staff and Engineering Department were moved to this new address to become the Corporate Office. This provided the much needed room for all departments, which were expanding rapidly. The second phase of the Franklin plant became a reality in 1984. An addition of 50,000 square feet was added, which gave an overall building size of 92,500 square feet. This addition provided the much needed room to move the Engineering department into the same building with the Production department as well as providing more area for production lines. The PCB Fabrication department now occupied 11,000 square feet of the building. Its waste water treatment plant could treat 80 gallons a minute, removing all heavy metals, and automatically adjust the pH balance properly before being released.

The postponed, but eventual decision was made to cease production of amateur radio equipment, as the market had all

but disappeared, there was a lack of FCC deregulation, the foreign competition was increasing more and more and the dollar was strong. The home satellite receiver market was also a very young, but promising market which required the company's full attention.

The ESR-240 receiver replaced the ESR-24 in November of 1983. The receiver was much like the ESR-24, but it had infrared remote control, a built in polarity circuit to control the polarotor and other improvements. The ESR-224 receiver was introduced as a low end receiver and was replaced with the ESR-324 in January of 1984. The ESR-24 remains as the most popular low end receiver to date for the company. The ESR-240A followed the ESR-240 in October of 1984 and was produced until April 1985.

A 10 foot non-mesh dish was designed and packaged as UPS shippable. The dish was also packaged with the ESR-324 receiver and APS-24 positioner and marketed by a Curtis-Mathis Home Entertainment Centre. The APS-24 antenna positioner was designed as a companion to the satellite receivers and was well accepted by the market. It was replaced by the APS-24A in March 1984 which was produced until November 1986 when it was replaced by the APS-24B. The APS-24B is currently in production. The ESR-2220 was produced for commercial installations such as small cable companies. Its design was based on the ESR-24 with changes making it suitable for commercial applications. It, like all commercial units, is supplied in a 19 inch rack cabinet for easy mounting. The ESR-2240 receiver and the VM-2410 video modulator were produced in March 1984 for the commercial market replacing the ESR-2220. The ESR-1240 is a redesign of the ESR-324 block receiver for 19 inch rack mounting. Both the ESR-2240 and ESR-1240 receivers together with the VM-2410 video modulator are current production units.

The year 1985 was a very exciting year for the company. In November, INC magazine recognized the R L Drake Co as one of the fastest growing private companies of the country. The country was ranked 380 out of 500 companies. The ESR-424 receiver and the APS-424 antenna positioner were also introduced in 1985. The receiver was available in two models, single conversion and block. Both units were microprocessor based, which was a new design concept for the Engineering department. These were also used in the Black Widow System, which was a complete satellite system including the dish, cables, etc.

*To be Continued*



This quarterly publication, especially covering VHF, UHF and Microwaves, is essential reading for the serious VHF/UHF enthusiast.

The original is published in German by Terry Bitton, OHG, and the English language version is published by Mike Gooding, G6IQM.

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# The Story of Stephen Frith

PART 2

H KARL SAVILLE, VK5AHK 1290 NORTH EAST ROAD, TEA TREE GULLY 5091.

## Introduction

**I**N PART 1 OF THE STEVEN Frith Story I thought the use of the Morse code for the disabled would be of interest to radio amateurs in general. I would now like to develop the Stephen Frith Story and spell out in more detail, and in chronological order, the work as it was carried out. My hope is that it will encourage and help other amateurs who may want to do this sort of work for the disabled.

I must at this stage point out that Steven has since told me that his name is Stephen — not Steven — so I must in future be more careful and use his right name.

Stephen was admitted to the Regency Park Home for Crippled Children when he was one year old. As mentioned in Part 1, he was completely helpless, unable to use his arms or legs, and unable to talk.

While at the Regency Park Home he was taught to read, but was not taught to spell. When he was about five years old, Linda, his future wife, arrived at the Regency Park Home. Linda had a difficult birth which left her completely helpless but she can talk, although with some difficulty, and she went further in her education than Stephen. They were brought up together and they have developed a special kind of body language, which is quite uncanny at times.

Stephen was about 17 when he was transferred to the Home for Incurables in Fisher Street, Adelaide. This name was later changed to the Julia Farr Centre. Linda arrived at the Julia Farr centre some time later, and through the good services of my friend Morry, and urged on by Linda, she and Stephen were married in 1988. It was a great occasion, and the wedding service was held in the Julia Farr chapel. I should mention that Morry, and it is his wish that I do not give his surname, spends all his spare time helping the disabled.

It was Morry who asked me to help

Stephen. I had retired from working at Woomera in 1973 and, having been in electronics all my working life, I surrounded myself with all the latest electronic gadgetry, took up amateur radio, computer programming, video etc, and was having a good time in my retirement. Then, about three years ago, I began to have feelings of guilt. I was very healthy, had a wonderful wife and family, grandchildren and great-grandchildren, and yet I felt something was missing; I ought to be giving instead of taking. I knew my brain was still functioning as it had when I was in the workforce, but I was too old to get a job. Surely there was someone out there whom I could help instead of just amusing myself day in and day out. I thought of Meals on Wheels as a way out of my dilemma. Then, up popped Morry. I didn't know him then.

He had been speaking to my wife and it was she who had told him I was interested in computers, and so he appeared on our doorstep and asked if I would help his friend.

The problem was explained to me and it was just the very thing I was looking for. I could use my knowledge to actually help someone. There must be thousands of people like me, healthy, retired and with plenty of experience and knowledge that just cannot be tapped because we are too old.

## Meeting Stephen

A date was arranged and off we went to see Steve, as I knew him then. As we went into the room on the seventh floor of the Julia Farr Centre building, the male ward nurse came over to Morry to find out why we had come along and, when he knew what I was proposing to do he said, "You are wasting your time. Steve has been assessed by professionals as incurable."

I met Stephen's mother, Lois, and I told her what I was trying to do and she was very sceptical. She had heard it all before.

## Problems

The first thing I did was to find out whether Stephen could operate a switch, and how. He could not control his arms, hands, or feet, but I thought he might be able to operate a switch with his chin.

I suppose, because I was a radio amateur, it was logical that I would use the Morse code as a means of communication for Stephen, and for the following three weeks I attempted to teach Stephen the Morse code, with a buzzer and chin switch. We would spend at least two hours a day and it was during the very hot weather in January 1989. At the end of each two hour session Stephen would be in a real sweat, but he worked very hard and by the end of the three weeks had memorized the 26 letters and 10 numbers. I had set up a large card, on the wall with the character codes on it, so that he could study and memorize them, and for his training sessions I would write on a card, in large letters, a four or five letter word and underneath each letter the corresponding Morse code symbol. In this way Stephen would know what the code was for each letter, but he was very slow at the beginning as he had very poor control of his neck muscles but he got better as the days wore on.

Initially his timing was very bad and he could hardly differentiate between a dot and a dash, but I found that if I counted for him, while he was operating the switch, he was able to give a reasonable sounding dot and dash sound. I would say "Press, Off" for a dot and "Press, one two three Off" for a dash. This helps him a lot and I can only assume that because Stephen had never spoken and not lived in the so called real world he had not developed a time sense. I know myself I used to develop photographic negatives and I became quite good at counting seconds. I find myself counting seconds at all odd times, and like most people I can judge how long it is going to take me to do a certain job. Stephen has had no need to develop a timing sense and so he would find it very hard to produce the dot, dash, and interval timing requirements of the Morse code. He also suffers from muscular spasms and at anytime he can get locked into a position where, he is unable to press the switch, or he cannot release it.

## Introduction to a Computer

After about a month I felt that Stephen was ready to go on to a computer. I had been busy programming a Microbee computer with a program which I thought would be suitable for him.

It used a moving cursor, (8), which moved from the bottom left of the screen to the right. Above the moving cursor were several commands equally spaced across the screen:

DOT PRINT DASH DELETE MENU

As the cursor comes under each command it pauses for 3 seconds, and then moves on to the next command. In this way Stephen can select any command by pressing the switch during the pause period. If the DOT command is selected, the word DOT is printed on the line above the commands. The cursor returns to the left hand side and starts to move across again. Further DOT or DASH words appear as they are selected. Each time a selection is made the cursor returns to the left hand side to repeat the scan. Finally, when all the dot and dash code elements for a particular letter, has been assembled, the PRINT command is selected and a decoding routine in the computer prints out the appropriate character, in extra large letters. It can be a very slow process for a severely disabled person to print out a message onto the screen but a slow system must be better than no system, and it was not long before Stephen printed out onto the screen, the word "MARIA". I looked at him and jokingly said surely you haven't got another girlfriend, and Linda, his wife, said, "Maria is my second name". This was a very dramatic and emotional experience. It was the very first time that Stephen had been able to tell somebody something that they did not know. I hadn't known what Linda's second name was, and here was Stephen, whom the professionals had assessed as incurable, telling me that his wife's second name was Maria. Linda said "I see it but I do not believe it".

Stephen needs about 3 seconds pause at the commands when selecting the letters, but it is very easy, computer wise, to speed up or slow down the action as desired.

## Phrases

Communication speed can be greatly increased by using phrases instead of building up a sentence letter by letter. Phrases, such as "I want a drink" etc. can be stored in the computer's memory, and can be displayed as quick as selecting a single letter. Where it may take about 30 seconds to display a single letter, a phrase of several words can be displayed in the same time. Up to about 100 phrases can easily be stored in the computer. These are displayed in lists of six phrases and any one can be accessed by selecting a single letter. The letters with the minimum Morse elements are used to save time. A sample list of phrases would look like:

- E. change list
- T. I WANT A DRINK
- A. I AM HUNGRY
- I. IT IS COLD IN HERE
- N. I AM UNFOMFORTABLE
- M. SWITCH THE RADIO OFF
- D. TURN THE VOLUME DOWN
- S. Back to the menu.

If, for example, the phrase "IT IS COLD IN HERE" is chosen, this could be displayed in large letters by selecting two DOTS, and then then the command PRINT. The list can be changed by selecting one DOT and then PRINT. Each new list is preceded by the same letters: ETAINMDS

Used in conjunction with a word dictionary, individual words or names can be added to any phrase as required. One such phrase can be:

I HAVE A PAIN IN MY  
to which can be added, from the word dictionary, say, ARM etc.

## Considerations

Giving a computer to a person who has never spoken before can be very exciting but when you consider that that person may be left for long periods day after day, a word processor program, on its own, could become very boring. It is therefore necessary to provide some stimulation in the form of computer games. And it is here that you see the disabled really enjoy themselves. Having watched other people playing games, on the television, etc it becomes very exciting indeed for them to be able to participate in some game of skill.

Unfortunately I have not found a source of computer games for the severely disabled and I have had to invent games or program known games into the computer myself.

There are many skill games that can be adapted for use in a computer. Tic Tac Toe or Noughts and Crosses, Pacman, Snakes and Ladders, Guess the Number game where the computer 'thinks' of a number and you have to guess what that number is. Stephen has these plus an electric wheelchair simulator, a helicopter shootout game, a drawing program, and a four function calculator.

## Programming requirements

When programming for the disabled great care must be taken to ensure that it is simple to use. It must be bug proof. It must be autostarting, as soon as the power is switched on. The operator must be able to get from one program to another. They cannot depend on the nursing staff to change programs, or recover a crashed program.

They are on their own and the programmer must realise this and program accordingly. The disabled person will be spending long hours on his own and so the computer and programming must be reliable.

Fortunately I have found the 32KROM-based Microbee to be ideal for this work and because most people want disc computers these days the old Microbee can be bought reasonably cheap on the second hand market.

ar

# Radio Volunteers Help Severely Disabled People

GEORGE WINSTON AM BE TAD EXECUTIVE ENGINEER

**B**ERYL IS THE WIFE OF A sheep farmer in the Central West of New South Wales. She is a quadriplegic and spends a great deal of time alone while husband John is out in the paddocks on his motorbike mustering and fence mending. Beryl has, on occasion, had to cope with emergencies such as falling out of her wheelchair. Then she just had to wait until John's return as there was no way for her to contact him.

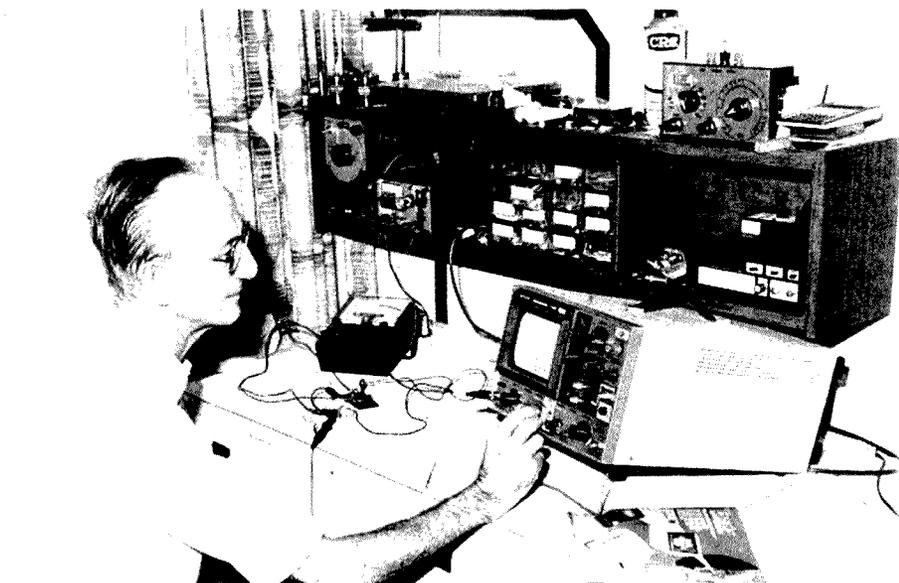
Enter an extraordinary group of helpers called Technical Aid to the Disabled (TAD). Comprising tradesmen, engineers and technicians of every description. TAD numbers 300 volunteers in NSW. In Beryl's case, Robert, a senior Telecom engineer, accepted the challenge of giving Beryl a communication channel with her husband.

Robert chose CB radio as the best medium. Because Beryl could not carry a CB transmitter on her wheelchair, a link was required and Robert added to the transmitter a tuned circuit which responds to a whistle. He also modified the output to emit a coded signal to prevent interference from other CB signals.

Beryl wears the whistle on a cord around her neck and blows it whenever she needs to call John home.

John's CB receiver is usually mounted on John's motorcycle or tractor. It is modified to receive only the coded signal emitted by Beryl's transmitter and is fitted with a relay and a hooter powerful enough to be heard above the noise of the engine. John cannot speak to Beryl but when he hears the hooter he knows that she needs help. The receiver has had to be reinforced to prevent physical damage from falls and bumps and has been repaired several times by TAD volunteers. John can now work in the paddocks all day, confident that his wife can contact him in case of trouble.

In NSW, TAD volunteers help over a thousand people with disabilities every year when equipment is needed and no commercial item can be found to do the job. Engineers, technicians and tradesmen can be TAD volunteers. Access to a



*Alan Every, an electronics engineer, uses his skills to devise one-off equipment for people with disabilities.*

suitable workshop is essential. Cost of materials is reimbursed to the volunteer.

Volunteers have the satisfaction of knowing they have helped others and of exercising their technical ingenuity. Further volunteers are always welcome.

TAD branches operate in nine NSW regional centres, in the ACT and sister organisations exist in every state except for the Northern Territory. TAD can be contacted on (02) 808 2022 or by mail at PO Box 108, Ryde NSW 2112. ar

## Commonwealth Contest

It appears that the HF Contests Committee of the RSGB are having difficulty in getting both the rules of the 1992 Contest and the results of the 1991 one into their own magazine because of space restraints by the Editor of Rad Com.

For the last 30 or so years, BERU has been held on the second full week-end in March, and in 1992 will be from 1200Z on Saturday 14 March to 1200Z on Sunday 15 March.

The JA contest mentioned in December AR will again clash with, and make things difficult for Commonwealth contacts. Representations for a change in the date of this contest have been made to the magazine which sponsors it, direct and through IARU but with no result.

An appeal is made to all VK's for a maximum effort to ensure that this 61 year old contest BERU does not disappear under the weight of Japanese pile-ups on the rest of the world.

Rules will appear in February AR, and 1991 results as soon as received.

Add to Contest Calendar

March 14-15 Commonwealth Contest

ar

# My First Ship

BOB CLIFTON, VK5QJ  
4 WEST TERRACE, BEAUMONT 5066

**I**N THE EARLY WAR YEARS at the age of 19 I left Adelaide to join the Marconi Radio School in Melbourne with Ray Bennet (VK5RM) and settled in under the principal, Cec Bardwell (VK2IR).

Like Ray, I had been involved in the Army call up earlier, but had been given the green light to attend the course to become a Ship's Radio Officer, with the proviso that should I fail one of the exams I would be back quick smart into Khaki. With that sort of encouragement success was never in doubt!

After getting my Second Class Certificate, I was all ready for the big adventure, "but not so" said Cec "You are not going anywhere until you get your First" so back to the drawing board for another three months.

Eventually I was told to report in to Geelong to join a Norwegian Tanker the 'Ora' as second RO. It was with some trepidation that I approached the oil terminal, and not a little awe as I took a long look at my first ship.

She was big for those days, about 16,000 tons and quite new, built in 1938 with a crew of about 30 Norwegians and Danes.

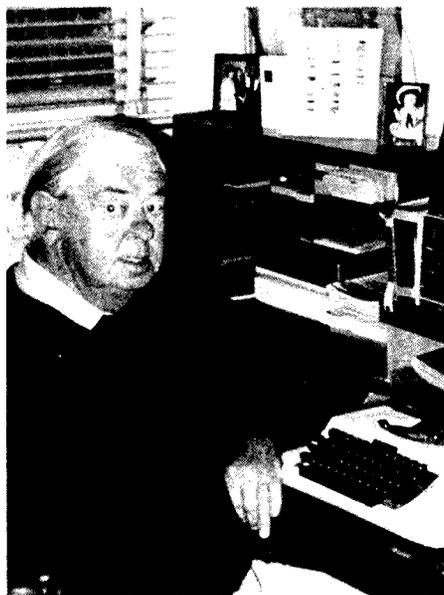
I wondered what I had got myself into, just a kid, no sea experience, no languages, and had never seen the inside of a ships radio station.

I went up the gangway clutching my meagre belongings, and after negotiating myriads of pipes and pumps on the tank deck found myself face to face with a burly three striper, who turned out to be the Chief Officer.

He spoke good English and took me up to my cabin located below the bridge, which was quite luxurious, having been occupied in peacetime by the owner from time to time.

Later in the afternoon I met the Captain and the Chief RO who was about 40 and had my first introduction to the Radio Room located off the Chart Room.

The gear was modern and very impressive consisting of Norwegian Marconi medium and short wave transmitters of 1kW and two receivers, the main being



VK5QJ in the Shack

an RCA AR88 LF Tuning from 73 kHz through to 30.500 MHz, plus Echo sounder, DF and Auto Alarm. In addition we had emergency battery power from a bank of batteries located on monkey island and two lifeboat portable transmitters kept in the Radio Room.

As we had only two ROs the watches were torrid and tiring with six on and six off, particularly in the Persian Gulf where we sweated in 130 degree heat in a box surrounded by concrete blocks ostensibly to offer some protection from shrapnel.

Watchkeeping was for the most part pretty boring, with listening on 500 kHz for distress traffic, taking time signals for the bridge, believe it or not from Germany on HF, and monitoring broadcasts for Allied Merchant Shipping at fixed times for messages to individual ships, which we had to acknowledge on HF as quickly as possible, and only at night, to avoid enemy HF direction finders on submarines or surface raiders.

The only other times the transmitters were used was when the ship was passing from one grid sector to another so that

the Admiralty knew at all times our approximate location.

We sailed to Melbourne and Sydney where the remaining petrol was discharged and the tanks opened up to degas the fumes. Always a dicey operation with no smoking anywhere on the ship or in the vicinity.

Being a new chum I was constantly cornered by off duty officers who wandered into the radio room for "English lessons" as they wanted to improve their vocabulary so they could chat up the "nice girls" in Sydney... their favourite port! I suggested they could get some lessons from the English DEMS Gunners berthed aft, but they complained they couldn't understand the Pommie accents.

Prior to sailing from Sydney I asked the Second Mate where were we going. He told me to keep my eyes open, but if we started loading wheat in sacks into the forepeak we were off to the bloody Persian Gulf... If no wheat it would be San Diego or San Pedro in the States.

Forty eight hours later we sailed with the wheat direct to Abadan.

The trip was uneventful, no other ships were sighted, but the Japanese subs were prowling the Indian Ocean and the Gulf entrance and we picked up a number of calls from ships attacked in the Bay of Bengal and off Colombo. There was nothing we could do but to log the call and hope the coast stations had picked it up.

The "Old Man" was a very tough old Viking and scared the hell out of everybody. Even though the deck space was very limited he insisted that one whole deck on the port side was *verboten* to any of the officers, and reserved for his sole use. My cabin porthole looked out on this hallowed ground and I would see him pacing for hours puffing on a Chesterfield.

As Norway was under complete control by the Nazis he had no contact with the owners and was God! I remember on one occasion our entire stock of American cigarettes, purchased in the States the previous trip, was flogged in Bombay and substituted for hundreds of cartons of

Suez cigarettes. A few of us gave up smoking at that time!

We carried about 6 million gallons of high octane gasoline either loaded in Abadan or Bahrein and made several trips to Bombay, the Middle East ports and Massawa in the Red Sea. We were one of the ships in Massawa after the Italian capitulation and the port was a graveyard of bombed out wharves and sunken ships littering the harbour. The city however seemed to have escaped the worst and the restaurants and the Lido served up magnificent food, in addition to offering fabulous swimming in the pool and hot baths...a real taste of Roman indulgence. It was like escaping from a concentration camp for a few hours at least.

Although the dining saloon amidships would comfortably seat all of the officers, only the Chief Officer and Chief Engineer were allowed in this Holy of Holies. We lesser beings were seconded to a mess above the engine room aft where a Chinese cook, who wouldn't have lasted five minutes in a Kings Cross hash house, dished up a mess of fish soup, scouse, and fiery curry all laced with, caraway seeds for virtually every meal. I would have given a month's pay (little as it was) for some ham and eggs or roast beef and pud, but things were to change.

Tension started to build up always after loading in the Gulf, because with the tanks topped and low in the water, we would head towards Banda Abbas, the narrowest passage leading into the Gulf of Oman. A Royal Navy old liner, converted to a communications centre was permanently anchored there; its function being to arrange convoys (if you were lucky) and provide up to the minute (hopefully) news of enemy activity outside the Gulf.

The submarines would sneakily let the empty tankers through, and wait for the loaded ones to come out so it was a bit of Russian Roulette who was going to cop it, especially if you were heading for Australia because most of the convoys were formed for ships heading for the middle east.

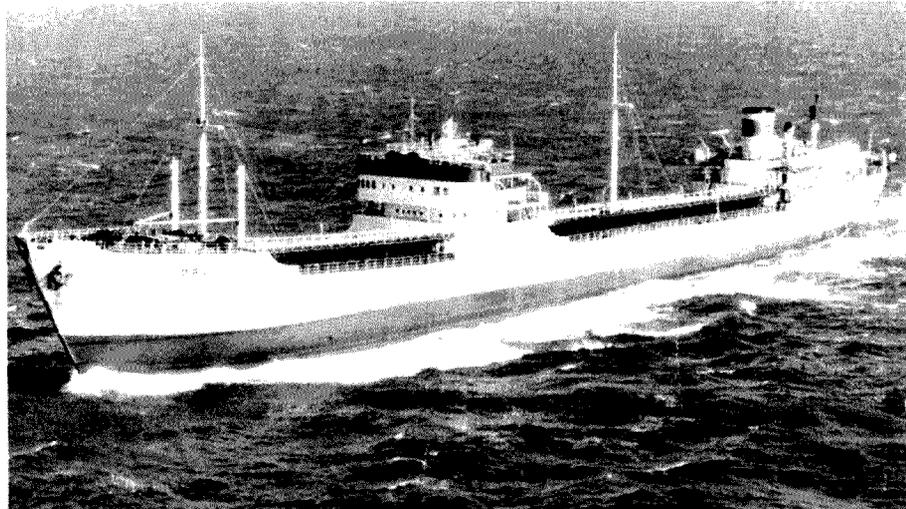
After about a year between India and Suez we loaded for Melbourne, leaving the sea snakes and bum boats which are prolific in the Gulf and hoped to make it home in one piece. Incidentally, one could buy a Persian Carpet to cover a lounge floor for a carton of American cigarettes from these boats. They wouldn't give me a door mat for a crate of Suez!

We cleared Banda Abbas in good weather, passed through the Arabian Sea into the Indian Ocean, well south of Colombo when on the night watch I took

down and decoded a long message from the NOIC in Ceylon. It appeared that Ceylon had not had radio contact with a ship called the *Fort Buckingham* for some time, en route to South Africa from Madras, and assumed she had been lost to enemy action in an area we were due to pass through in three days. We were ordered to make a search for the survivors.

In the meantime Catalinas presumably from Colombo were seen in the area making sweeps whilst we had lookouts constantly on monkey island hoping for a sighting.

At dawn on the third day a Catalina circled the ship signalling with an Aldis lamp that they had spotted two rafts, and gave us the position some six hours away. I had taken the message because the Chief RO was lacking in English.



*The Norwegian tanker Ora – Bob's first ship.*

We found the rafts containing about 15 Lascars and 4 white officers which had been followed by a group of about ten large sharks which came alongside the "Ora". I estimated them to be at least 18 feet long. The second mate shot at them with a 303 to clear them away whilst we helped the men up a Jacob's ladder.

Whilst they appeared to be in reasonable shape, five of the Lascars died on board from exposure within a few hours, after 16 days on rafts.

The officers were bedded down in various cabins and out came the goodies kept by the "Old Man" from the "First Class Saloon". Tinned fruit, ham, eggs, American cookies, soups and even ice-cream.

We hadn't seen the like of it for 12 months, and I appreciated the comments of one of the rescued apprentices who said we lived like kings and he was going to sign up on a Scandinavian next time!

The sequel to this saga was, we trans-

ferred the survivors to a RN destroyer a few days later and then proceeded to Sydney where I signed off, even though she was off to the States on the next trip.

Forty seven years later I was curious about the officers we had rescued, and so I wrote to the "Seabreezes" magazine in England asking that they make mention in their Contact Wanted section that any survivors of the *Fort Buckingham* might like to get in touch with me as I was on the ship that rescued them so long ago after being torpedoed.

To my surprise I received a letter from a relation of the Captain of the *Fort*, stating the the master was a Captain Murdo MacLeod DSC from The Isle of Lewis, Western Isles Scotland. He was lost when the ship went down in six minutes. He was aged 60.

He had a most distinguished record

being Commodore of the PQ18 Convoy to Russia in 1942 in which they suffered huge losses in ships in atrocious weather but accounted for over 20 German planes and two submarines.

It seems ironic that after surviving the hazards of the North Atlantic and Russian Convoys throughout the War, he was to perish in the warm waters of the Indian Ocean in 1944. Three Radio Officers were also lost.

I finished my seagoing career on many ships of the Union Steamship Coy, and finally swallowed the anchor after a brief stint on ships of the Blue Star Line in 1950, carrying refrigerated produce and about 15 passengers to the UK in the *Brisbane Star*, and bringing back hundreds of British migrants to Australia on the *Empire Star*. Now I'm quite happy pounding brass on 20 metres.

ar

# Garnish DX Club A Piece of "The Rock"

BILL WILSON VO1TX PO Box 36 GARNISH, NFLD, CANADA  
(SUBMITTED BY RON CHURCHER VK7RN)

**T**HE GARNISH DX Club is offering exclusive to those Amateurs world-wide who have worked the club call VO1GDX or VO1TX, (Club call custodian) ex V06TX, VE3OZT/VO1, an opportunity to purchase a piece of "The Rock", as Newfoundland is often called by native Newfoundlanders and others!

Imagine the envy of your friends, when you boast about the vacation "spot" you own in picturesque Garnish, situated on the shore of Fortune Bay! Filled with Lobster, Cod and other species of sea life, the bay also offers spectacular sun-sets.

Within walking distance flows the lovely Garnish River, where fantastic fly-fishing for mighty Atlantic Salmon, Brown and Rainbow Trout are available to the ardent fishermen. Number "ponds" or lakes as they are called "Down South", provide excellent Sport Fishing in both winter and summer.

Just minutes away from your "Spot", by ATV (All Terrain Vehicle, not Amateur TV) hunt for Moose, Black Bear or Rabbits, with gun or camera, truly an outdoorsmans Paradise! Slightly further afield there are herds of majestic Caribou roaming the barrens.

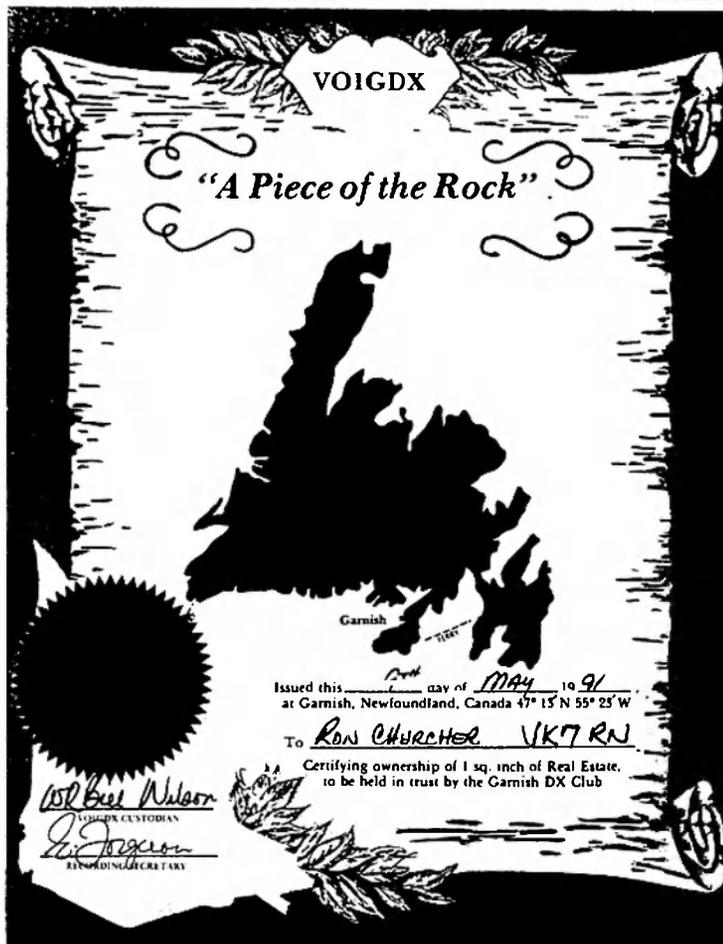
Excellent DX location, work the world from right here in Garnish or travel a few miles to FPland, St Pierre, delightful French Islands just a short boat ride from Garnish. Or maybe a journey to VO2Land Labrador (Zone 2) awaits the avid DXer. Even Marconi recognized the DX advantage, "The Rock" offers. After all he originated DXing with his First Ever DXpedition back in 1901 from Signal Hill!

You would expect to pay a bundle for all the preceding. Not So! Your very own Vacation "Spot" can be yours now for the Unbelievably Low Price of only \$ 10.00 US or \$12.00 Canadian! No the computer is not out of Whack! \$10.00 US or \$ 12.00 Canadian!

You will receive the following:

- Full Colour 8 1/2 x 11" Certificate or Deed (to one square inch of Real Estate held in trust by VO1TX and the club. This attractive certificate is suitable for framing.
- Full Colour 5 X 7" Photo View of Garnish
- Membership in the Garnish DX Club, wallet sized ID. Please include 15 IRCs, or Money Order, or Cash payable to WR Wilson, in appropriate amount with your order and mail to The Garnish DX Club PO Box 36, Garnish Nfld, Canada A0E 1T0. Please allow 6-8 weeks for delivery. All Postage and Handling charges are included in the price.

Proceeds from this sale will further Club projects such as DXpeditions to FPland, VO2land and the Club Repeater and Satellite systems. We invite your participation.



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# Remembrance Day Contest Healesville Amateur Radio Group

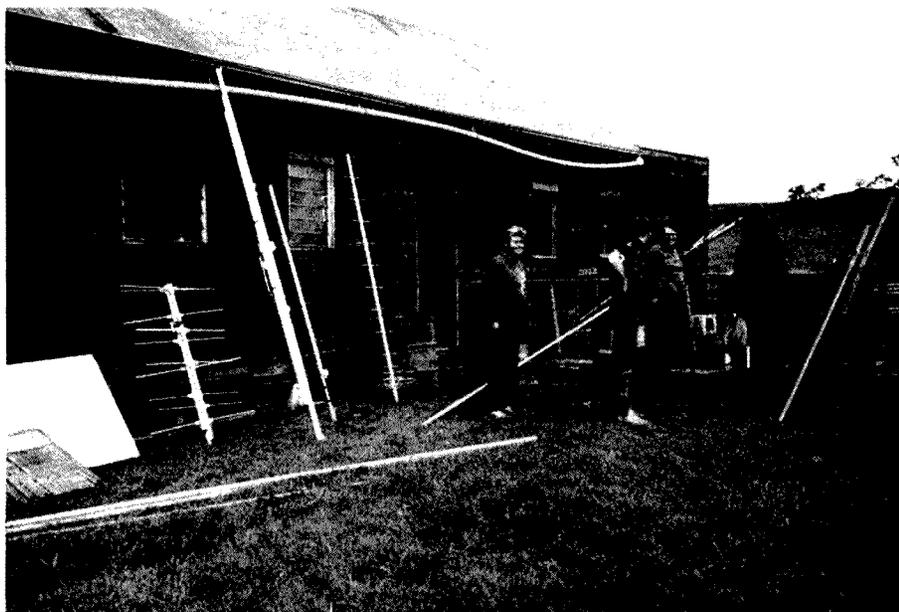
DEREK THURGOOD VK3DD  
PO BOX 234 YARRA GLEN 3755

**H**EALESVILLE AMATEUR Radio Group is a relatively small club (approx 40 members) and only about 4 years young. As a young club we see contests as an ideal way to involve new and younger members, some of whom are still studying for their licence, in the various aspects of operating radios under various conditions.

Some contests are conducted from the Club rooms in the centre of Healesville and others are operated from a field location. The RD contest is one that we have decided should be operated from a field location. However bearing in mind the time of year and likely weather patterns we took the soft option and set up for 1991 in a shearing shed on a farm at Acheron some 70km North of Healesville just outside Alexandra.

Setting up commenced on 3rd August when a group of members, Derek (VK3DD) Graeme (VK3GPT) Lynn (VK3DKE) Gavin (VK3TLN) Telford (VK3TWJ) and Telford's XYL Dot visited the property in question to assess the lay of the land for antenna set up and to start cleaning the shearing shed to ensure that there was room for those who attend on the weekend of the contests to have somewhere to put their heads down (if required).

Murphy's Law states that "if something can go wrong it will" and we decided to get rid of Mr Murphy early. Those of us who travelled up to Alexandra from Healesville on 3rd of August arrived at the appointed meeting place to find....nothing! The local club member had thought that we knew where the property was and was waiting patiently for us there. With the usual cool aplomb of Amateurs we cleverly called him on the local repeater and the usual club simplex frequency but...Murphy again! he had his rig on but was nowhere near it. Anyway, after a short drive in to Alexandra Graeme found out where we were supposed to be, and after losing only 40 minutes or so we were busily inspecting the shearing shed and doing a bit of housework.



*Hardworking HARG members in deep thought about antenna location*

Much discussion and sorting of equipment saw a keen bunch of HARG members heading for Acheron on the contest weekend.

We departed the clubrooms at Healesville at about 0930 (local) on the Saturday and travelled in cool, cloudy conditions to Acheron. The weather cleared somewhat when we crossed the ranges and a fine outlook seemed assured.

On arrival at the property vehicles were unloaded and gear sorted out. The first task was laying out the various antennas (12 in all!) However, when the time came to run the coax someone (notice I didn't use any names Grae....!) sheepishly indicated that the cables and connectors were stored very safely in a equipment cupboard back at the club (luckily we were only about an hour away from there!)

Finally we had antennas up and rigs on - we had in fact set up two stations - one for HF and another for VHF/UHF - VK3GH & VK3GHA respectively.

Antennas in the air above the shearing

shed were:- 80m inverted vee 20m inverted vee, 40m dipole, delta loops for 10,15 & 20m, 6m beam and vertical, 2m beams (2) and vertical and a 70 cm beam - quite a sight connected to a shearing shed (I wonder why we didn't see any farm animals!)

At the appointed time operation commenced on HF (TS930S) with myself (VK3DD) operating and Allan (VK3QL) pencilling. VHF/UHF was shared around with Lynn (VK3DKE), Graeme (VK3GPT), and Steve (VK3TSR) trying hard to make a few contacts from what turned out to be a not very suitable location for these bands - oh well, it was fun trying anyway!

Whilst the HF station saw many members operating it was soon obvious that Bruce (VK3ZUQ) was both adept and keen to be the "penciller" for the weekend (perhaps he gained his experience with a bookmaker?!)

During the course of the weekend a rather large, warm fire was lit a little way from the shed and barbecues were not the order of the day on Saturday

night and Sunday — many thanks to Carol, Dot and Joan.

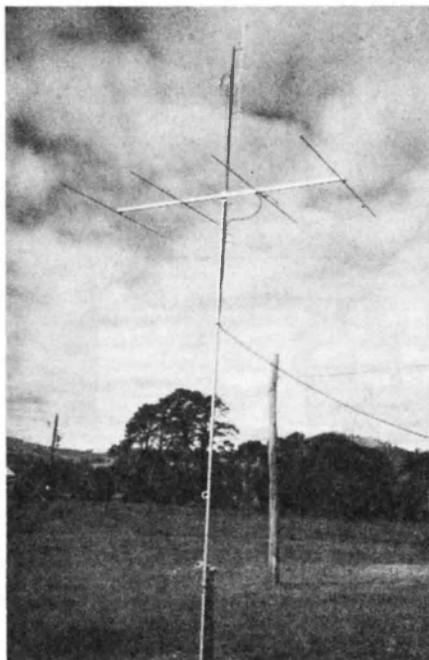
During the weekend we had a fairly solid core of stayers with others attending at various times with a visit from the local press late on Sunday.

Those attending the weekend were: — Graeme (3GPT) and Carol, Derek (3DD), Lynn (3DKE), Steve (3TSR), Allan (3QL), Bruce (3ZUQ), Colin and Joan, Telford (3TWJ) and Dot, (plus 1st harmonic Dave), Neale (3BOS) and Lisa, Ken (3TKQ), Gavin (3TLN) and John (apologies to anyone missed).

Total contacts were in the order of 390 on HF and 40 on VHF/UHF (at the time of writing, logs have not been checked).

The weekend was enjoyed by all those present notwithstanding the cool overnight temperature — minus 1 with a white frost on Sunday morning.

What have we learned from the weekend? — Well we have discovered that taking contests out into the field has a very positive effect on attendance — large numbers (from memory the last contest at the club had a roll-up of 5) From this



6m beam with 2m vertical

viewpoint the weekend was a resounding success. Dare I say more trips of this nature are guaranteed? We also found that various members fall quite naturally into various roles — even those who simply helped set up and then just watched seemed to enjoy it. We discovered a “natural” log-keeper for future events (Bruce doesn’t seem to need any sleep so I guess we will have to operate all night in future!), — he also doubles as a teller of well-timed jokes learned, no doubt, over his 80 plus years in a variety of situations!

In closing this somewhat rambling diatribe I must express sincere thanks to all who attend, all stations contacted, the cooks and bottlewashers, the mysterious “gnome” who kept my Port glass reasonably well filled and last but by no means least a very warm thanks to Brian with whose help and hospitality we wouldn’t have had a shed from which we operate. I think Brian also found out just how “mad” Amateurs can be.

See you all next year!  
73 de Derek (VK3DD)

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## BOOK REVIEW

# Radio in Australia

BY JOHN POTTS

ISBN 0 86840 331 8. New South Wales University Press, Sydney 1989.

Reviewed by Colin MacKinnon VK2DYM

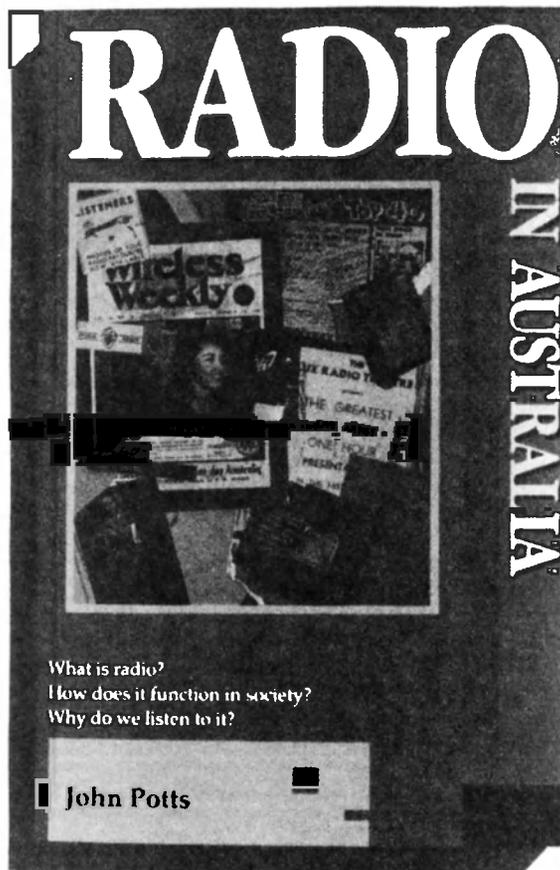
Subject: Social aspects of radio as a communication medium.

John’s book has little to do with the dry, technical history of radio but I include it because it gives a perceptive insight into what funny people we radio freaks are.

Amateurs look upon ham radio as a hobby, a means of communication with kindred souls or a technical pursuit. John examines radio as a social phenomenon and shows how it has shaped community attitudes and in turn has been cultivated to meet community expectations. The book briefly covers the period from about 1900 when the very few amateurs of that time communicated with each other mostly for technical experiments, to the 1920’s when commercial broadcasting made radio listening a public pastime. The book continues through to the present day, studying such aspects of modern radio as “talk-back” radio and, as James Dibble put it at the launch of the book — “Insult radio”. This publication of 190 pages is worth reading to understand how others perceive radio in our society, and perhaps what they think of “hams”. John finds that we are commonly portrayed as “anachronistic amateur operators, derided in trade journals as eccentric loners”.

There are a number of black and white illustrations taken from early magazines and used to demonstrate the changing focus of radio over the years.

The book is A5 in size and is currently available from ABC bookshops or via NSW University Press at a price of \$19.95.



# YOU'LL APPRECIATE THE QUALITY... YOU'LL LOVE THE PRICE!



## FT-747GX BUDGET H.F. TRANSCEIVER

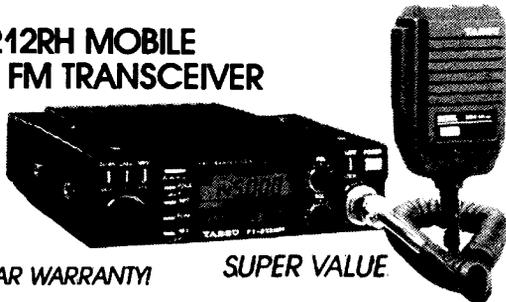
The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts of PEP output on all 1.8-30MHz amateur bands, and general coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and easy to read digital display, dual operator selectable tuning steps for each mode, dual VFO's for split frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM, and narrow 500Hz CW IF filters are also fitted as a standard feature. Includes Yaesu MH-1 hand microphone. See ARA Review — Vol 11, Issue 11.

Cat D-2930

2 YEAR WARRANTY!

**\$1199**

## FT-212RH MOBILE 2M FM TRANSCEIVER



2 YEAR WARRANTY!

**SUPER VALUE**

With 45 watts output over the 144-148MHz range, a rugged diecast chassis for superb RF isolation, extensive use of surface mount components, and a large back-lit LCD with bargraph PO/S-meter. The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. Features include 5 selectable tuning steps, a total of 21 memories (18 general purpose, one CALL-channel, and 2 sub-band limit memories for band scanning), inbuilt C.T.C.S.S. encode, as well as a variety of scanning functions. The FT-212RH comes with a mobile mounting bracket, convenient MH-14A8 microphone, and DC power lead.

Cat D-3494

**\$499**

## Our Most Rugged HF Mobile Transceiver! ALL MODE HF TRANSCEIVER FT-757GX II

Ready for action! Whether in a demanding H.F. mobile situation, or at home in the shack, the FT-757GX II won't let you down.

Based on its popular predecessor, it features the heavy duty diecast heatsink and rugged metal chassis of the earlier 757GX, but has been upgraded to offer a number of new features. These include...

- All mode operation — SSB, CW, AM, FM(160m-10m)
- 100 watt output on SSB, CW, FM (25W AM) at 100% duty cycle
- High performance general coverage receiver — 150kHz to 30MHz
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- Includes MH-1 hand microphone.

Cat D-3492

2 YEAR WARRANTY!

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## FT-4700RH DUALBAND MOBILE FM TRANSCEIVER



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Features 50 watts output on 2m, and 40 watts output on 70cm (430-450MHz), with Full-duplex crossband operation or dual-band reception modes, you can listen for calls on both bands simultaneously, or work someone on one band while listening on the other. The optional YSK-4700 extension cable allows the main body of the transceiver to be installed remotely, while the front panel mounts conveniently on the dashboard. The amber back-lit LCD shows both VHF and UHF frequencies and signal strengths, and all controls are back-lit for clear readability, with a dimmer switch for nighttime viewing. A total of 20 memories and 5 selectable tuning steps make frequency selection easy, while the advanced scanning features allow quick detection of signals on either, or both bands.

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Cat D-3301 YSK-4700  
extension cable \$49.95!

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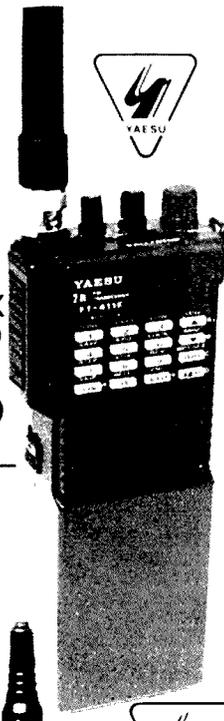
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## FT-411E ENHANCED 2m HANDHELD

Our best 2m handheld! The enhanced FT-411E now provides both improved receiver sensitivity and better rejection of out-of-band signals, whilst retaining its compact size (55 x 155 x 32mm) and ease of use. The multi-function back-lit keypad allows fast frequency entry, plus programming of the 49 tuneable memories, setting of the programmable 'power saver' system and a host of other convenient functions. The microprocessor control system also features 2 VFOs, rotary dial tuning in 5 selectable tuning

steps, a back-lit 6 digit LCD screen with bar-graph P0/S-meter, and a range of scanning features including busy channel, band, selective memory scanning and priority monitoring. VOX (Voice Operated Tx) circuitry allows hands free operation with the optional YH-2 headset. The FT-411E is supplied with an ultra long-life 7.2V 1000mAh Nicad battery pack, carry case, belt clip, 'rubber duckie' antenna and approved AC charger. Cat D-3350



\* SPARE BATTERY OFFER  
**2 YEAR WARRANTY**

### Specifications:

Frequency Coverage: 144-148MHz  
Channel Steps: 5, 10, 12.5, 20 & 25kHz  
Supply Voltage: 5.5-15V DC  
Output Power: 2.5W @ 7.2V  
Current Consumption-  
Stand-by (with 1 sec. save): 7mA  
Receive: 150mA  
IF Frequencies: 21.4MHz, 455kHz  
Sensitivity (12dB SINAD): Better than 0.158uV

\* BONUS CA-2 DESK  
CHANGING STAND  
SAVE \$39<sup>95</sup>

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*Ultra Compact*

## FT-23R 2m HANDHELD

The FT-23R is an ultra-compact (just 55 x 139 x 32mm) microprocessor controlled handheld transceiver that offers extremely rugged construction and exceptional ease of use. It covers 144-148MHz and features 10 memories, 6 digit LCD with P0/S-meter, band/memory/priority scanning, 1MHz up/down stepping, repeater reverse operation,

selectable tuning/scanning steps, diecast receiver casing, FNB-10 600mAh NiCad Battery pack giving 2.5 watts output and rubber gasket seals around all external controls and connectors. It comes with a mini 'rubber duckie' antenna, carry case, belt clip, and approved AC charger. Cat D-3490

**2 YEAR WARRANTY**

\* BONUS FBA-17 DRY CELL CASE,  
SAVE \$19<sup>95</sup>

**\$369**

\* SPARE BATTERY OFFER

### Specifications:

Frequency Coverage: 144-148MHz  
Channel Steps: 5, 10kHz, 1MHz  
Supply Voltage: 6-15V DC  
Current Consumption-  
Stand-by: 19mA  
Receive: 150mA  
Sensitivity (12dB SINAD): Better than 0.25uV

*2m & 70cm In One!*

## FT-470 DUAL-BAND HANDHELD

Dual-band performance at its best! The FT-470 is a very easy to use handheld transceiver that offers a high degree of flexibility through the use of a sensible microprocessor control system to provide both 2m and 70cm operation in one compact unit. Dual independent IF circuits allow several functions to be performed simultaneously, including dual-band reception, and full cross-band operation. The FT-470 also has 21 tuneable memories and 2 VFOs per band, plus inbuilt C.T.C.S.S. (tone squelch) with a paging facility and a wide variety of scanning functions. A

back-lit LCD screen shows a 5.5 digit frequency display on both bands simultaneously and bargraph P0/S-meter lets you know exactly what you're doing. A programmable 'power-saver' system helps maximise battery life, allowing squelched receive current of as low as 7mA. The FT-470 comes with an ultra-high capacity 7.2V 1000mAh NiCad battery pack, carry case, belt-clip, dual band antenna and approved AC charger. Cat D-3360

### Specifications:

Frequency Coverage: 144-148MHz, 430-450MHz  
Output Power: 2.3W (both bands, 7.2V)  
Supply Voltage: 5.5 to 15V DC  
Current Consumption  
Stand-by (with 1 sec. save): 8mA (each band)  
Receive: 150mA (each band)  
Sensitivity (12dB SINAD): Better than 0.158uV (both bands)  
Size: 55 x 180 x 32mm

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BATTERY OFFER

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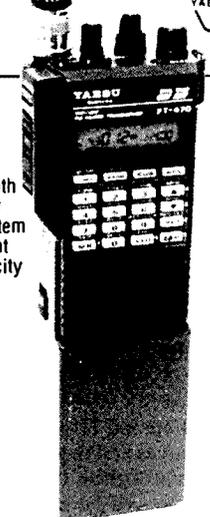
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# AWARDS

STEVE GREGORY VK3OT - ASSISTANT TO FEDERAL AWARDS MANAGER

## DXCC Standings list updated 1/11/91

### DXCC Open/Mixed Tallies

322/373	VK6RU	302/348	VK2EO
322/342	VK6HD	300/330	VK3XB
322/330	VK3AKK	298/322	VK4RF
321/367	VK6MK	297/345	VK4FJ
321/355	VK5WO	286/326	VK3YD
321/330	VK30T	280/303	VK3KS
319/363	VK4KS	278/313	VK7LZ
319/361	VK3YL	278/295	VK6HD
317/350	VK4RF	276/303	VK2APK
314/329	VK3AMK	275/317	VK6RU
313/318	VK7BC	261/263	VK3AKK
312/314	VK3YJ	259/291	VK3RJ
311/324	VK4AK	238/260	VK3TL
310/349	VK4SD	223/243	VK5WO
308/345	VK7LZ	213/220	VK7BC
308/330	WA3HUP	211/220	VK3JI

### DXCC SSB/Phone Tallies

304/321	VK5WV	322/373	VK6RU
302/339	VK3XB	322/335	VK6HD
299/323	VK4PX	322/330	VK3AKK
299/310	VK1ZL	321/363	VK4LC
295/299	VK3CQN	321/352	VK5WO
293/309	VK4BG	320/366	VK6MK
292/294	VK2AKP	319/371	VK5MS
291/309	VK4UC	319/339	VK6LK
290/314	VK2SG	318/360	VK4LC
287/312	VK2APK	318/327	VK30T
287/289	VK6RO	317/333	VK4RF
		314/329	VK3AMK
		314/326	VK6NE
		314/315	VK3OYL
		313/350	VK5AB
		312/314	VK3YJ
		310/314	VK3CSR

### DXCC Standings List. CW

311/357	VK2QL
304/340	VK3YL

309/324	VK4VC
309/321	VK4AK
308/319	VK3QI
306/326	VK7LZ
305/321	VK5XN
305/311	VK3RF
305/310	VK3AWY
305/308	VK3WJ
304/321	VK5WV
304/307	VK6AJW
304/306	VK3YZ
303/309	VK7BC
303/307	VK6HE
300/343	VK4FJ
299/300	VK1ZL
294/308	VK1WB
294/328	VK2APK
292/312	VK4PX
290/294	VK6YL
288/333	VK3JA
287/292	VK6IR
287/290	VK6IH
287/289	VK6RO
286/311	VK3JI

285/291	VK7AE
285/290	VK2DU
284/290	VK3DU
280/293	VK5OU
278/279	VK5EE
276/298	VK3KS
274/275	VK3VU
267/271	VK3CYL
266/278	VK5LC
265/281	VK2AAK
265/270	VK5RX
257/258	VK3DP
256/298	VK3NC
254/274	VK2SG
254/256	VK3GI
252/277	VK3TL
246/261	VK3VQ
245/256	VK3VK
245/260	VK3JI
225/240	VK3VO
220/222	VK5BO
212/213	VK6YF
202/205	VK6NAT
200/201	VK4DD

## QSP

Congratulations to the new place getters in the Top Ten and in the 300-up tally. Countries are as hard to get on HF as they are on six metres Hi!

Graeme VK6RO has become the first qualifier for 24MHz DXCC in Australia, in amongst his 6m country chasing.

There are at least five stations above 80 countries on six and heading for DXCC; who will be the first Australian qualifier? There are 15 in USA and about 10 in JA.

## Some Notes:

VR1 British Phoenix Islands became T31 Central Kiribati  
 VR1 Gilbert and Ocean Islands became T30 Western Kiribati Tarawa.  
 VR3 Fanning and Christmas (Line Islands) became T32, East Kiribati.  
 VR1 Funafuti Atoll (Ellis Islands) became T2 Tuvalu.  
 T33 is where the Banabans were resettled.  
 KH1 Canton Island is also known as British Phoenix and counts as two countries.  
 V51 is the old ZS3, and either prefix counts for same piece of dirt.  
 ZS9 is Walvis Bai on the Namibian coast and is a DXCC county.  
 ZS1 Penguin Island has status, country No 323.

FO5 Marquesas is an outer group 350 miles from Tahiti and has no status.  
 KH5J Jarvis as activated by AH3C counts as part of Palmyra at the moment.  
 There is no action on Abu Ail.

Your 7O and 4W country counts are deleted and you have to make a new contact. Germany East is gone with the wall, so your country totals are now one less.

73 from Steve VK3OT, assistant to the DXCC Awards Manager ar

# CONTESTS

(INFORMATION PROVIDED BY RELEVANT CONTEST MANAGERS)

## DX Alerting Clusters & Contests A New Aid for Contesters(?)

Appearing in various magazines is a new technique describing "DX Alerting Clusters", which is used to give contesters and DXers alike information of some value to their operations. Reprinted below from the IARU Region 1 Contest Newsletter is an explanation of this "aid".

### 1. Introduction

The rapid spread of packet radio using digital techniques and the use of DX Alerting Clusters within Regions 1 and 2 has raised a number of problems for contest organisers. While it is only a minimal interest at present within Region 3 for the use of Alerting Clusters, it seems possible that some clusters will eventually be established in areas of high amateur population. For those who may not be familiar with the way the clusters operate, the following may be of help.

### 2. History

Packet Radio Alerting Clusters evolved in the USA from a system developed by AK1A to

enable packet radio users to connect together in an "open conference" mode to exchange information. In the USA, the packet conference concept quickly became used for the passing of DX alerts comprising calls and frequencies. Working with DX and contest operators, expanded and revised the software to enable other packet operators to set up similar "open conference" stations (known as nodes), which could be linked together as a cluster. From this early beginning, the packet radio cluster system became a reality and there are now DX alerting clusters operating throughout the USA and Europe.

### 3. Method of Operation

All clusters operate in a similar manner, although there are some minor differences dependent on the way they are set up. In the UK there is one cluster operation with eight interconnected nodes, which will allow several hundred connected stations to use the facilities at the same time. The service area of the cluster is quite large and, by the use of digipeating through other packet radio stations, amateurs throughout England and Wales can use the cluster. Each user links

into the nodes via their own personal computer and a simple TNC (Terminal Node Controller), through a conventional FM transceiver operating in the 144MHz or other VHF band. Additional nodes are planned to extend the coverage and to provide facilities for more users.

### 4. How the Cluster is Used

As the nodes are interlinked, any information inputted by a user to any one of the nodes is displayed on the screen of every other user who is connected to the cluster. Although the main traffic through the cluster is DX Alerts, there are a number of other facilities available to the users. These include access to a wide range of databases covering such items as propagation forecasts, lists of QSL managers, DXCC and other prefix lists etc. It is possible to make announcements and to "talk" to any other connected user (in real time).

### 5. Contest Considerations

While the rules for most multi-operator contests allow the use of external prefix or country alerting nets, the same does not apply in regard to single-operator events where most organisers specify that no assistance of any kind is permitted. In the past, the illegal use of such nets in single-operator contests has not been a worry to contest organisers as it was necessary for the operator to monitor

the net while working the contest. This was not an easy task and even if the entrant cheated by using the nets, it was very doubtful if any advantage was gained. The development of real time computer logging programs by K1EA and others, coupled with the use of alerting clusters, has changed the position. The K1EA program includes two facilities which are causing concern to contest organisers of single-operator contests. The first is a very fast checking feature which compares the prefix which has been entered into the computer with those already logged. The second is an interface for packet cluster alerts, which are fed into the checking feature and automatically filtered so only those that are "wanted" (not previously worked) are displayed on the computer screen. Such information can be of considerable assistance to the contest entrant during any event that uses Country or Prefix Bonus or Multipliers. For example, during the 1990 CQWW Phone contest, over 2000 different alerts were displayed over the UK Cluster. A similar situation was noted during the 1991 RSGB 7MHz and Commonwealth and the ARRL and WPX contests.

#### 6.0 Changes to Contest Rules

The use of cluster information by a single-

operator entrant in an event where the rules prohibit assistance, is a serious form of cheating. While the call signs of cluster users are automatically recorded and this information can be made available to the contest organisers, this is not foolproof. If an entrant is determined to cheat, it is already clear that some entrants have found ways to avoid the call sign being recorded. The question that is facing contest organisers is how to deal with the use of clusters during a contest. Some Societies (including DARC), have already decided to allow their use without restriction. Others (including ARRL) have introduced a new Single-Operator Assisted Section which allows the use of cluster information. A number of other Societies have maintained the "no assistance" rule, but are taking a long hard look at the position. A number of other actions are being taken and various checks have been introduced. The IARU Region 1 Contest Sub-Group is keeping the situation under review and will be pleased to exchange views and provide assistance to any contest organiser in Region 3.

NEIL PENFOLD VK6NE  
FEDERAL CONTEST CO-ORDINATOR

## Ross Hull Contest and VHF-UHF Field Day

Full rules were published last month, and by the time you read this the contest will be well under way. If you haven't joined in yet, there is plenty of time — you only need to score your best seven days.

A reminder about recommended frequencies — please avoid using DX calling frequencies for local contest operation. There is plenty of space for all, so there is no need to form a queue on the one frequency.

I hope everyone has earmarked the weekend of 11-12 January. This is the last weekend of the Ross Hull Contest and a final chance to boost your score. It is also the weekend of the VHF/UHF Field Day, and any contacts can be counted for both contests. The Field Day scores are based on locator squares, so it will be a good opportunity to collect squares for the Grid Square Award as well.

Logs for the Ross Hull Contest should be received by 17 February, and Field Day logs by 24 February. Early logs will be much appreciated. The results of both contests will be published in the April issue.

JOHN MARTIN VK3ZJC  
ar

## VHF/UHF — AN EXPANDING WORLD

ERIC JAMIESON VK5LP — PO Box 169 MENINGIE 5264

#### All times are UTC

50.053 JA5FFJ Japan  
50.0775 VK4BRG Sarina  
50.085 3D2FJ Fiji  
50.095 C21?? Nauru

### Six Metres

Further to last month's note, Stephen Pall VK2PS writes to say that Brian C21BR had to delay operating on six metres due to illness but should be okay now. The beacon frequency is fixed at 50.095 but the call sign is not known.

### The Sarina Report

Ever-faithful Ron VK4BRG continues to supply information re activity from the northern areas of Queensland. As with other VK4s, he has had much US propagation but so far has missed out on Europe this time.

25/10: 0059-0112 2xW7 Washington State;  
26/10: 2155 1xW6 Washington State, 2244-2321 6xW6; 27/10: 0012 KH3AF plus KH6 beacon, 0014 K6STI; 29/10: 2012 KP2/CT1BOH, 2015 KP4EIT, 2029-2222 35xWs in W1, W2 and VE3 areas (see below for further information).

5/11: 2351-2353 3xW4 Florida; 6/11: 12xW Florida, Georgia, Alabama, Kentucky; 7/11 2120-2248 4xKL7 all Anchorage; 9/11: 2106 to 0308; 10/11: 136xW in W4, W5, W6, W7, W9,

W0 extending from Oregon to Florida, Illinois to Arizona! 10/11: 0031 TI2NA, 0052 HK4BHA, both mixed in with the W stations, 0935 P29ZGD and P29PL, 1209 VS6BG, 1921-1952 6xW, Nevada, Colorado, Oregon, 2142 ZK1CG, 2159-2232 3xTI, 2256 FO5DR; 11/11: 0018 K7ICW, 0159 K6MYC, 0231 AL7C.

Ron said the list above was the result of some fantastic propagation conditions. He has his solar-powered three-to-four watt beacon running on a temporary frequency of 50.0775. Today (21/11), it has been audible at Meningie from before 0000 to at least 0700 with signals peaking 559. Ron is also pushing up his country score very well, so there may be an exodus of operators from VK5 to Sarina!

As mentioned above, the following is an elaboration of events on 29/10 when Ron had his best-ever 6m opening to W1, W2 and VE3 areas. On 29/5/90 he had worked WA2BPE and W2CNS, both in the western part of New York State, plus openings to Washington DC and southern Pennsylvania areas. He considered these to be exceptional and wondered whether it would be possible for propagation to extend to the north-east. It did!

As a prelude, on 29/10 at 2012 the band opened to KP2/CT1BOH US Virgin Islands and KP4EIT in Puerto Rico. At 2029 that propagation shifted to Louisiana and Florida, then westwards to Texas and Arizona. After

working 18 stations the band closed at 2055.

Via 28.885 Ron learned that W2CAP/1 and K6STI were checking the path from Cape Cod to southern California on 50.100. A minute later he heard W2CAP/1 at 539 and called for a two-way QSO with signals peaking to S7. Then he was called by K1IKN on SSB. Ron said he had difficulty in writing his call into the log, as his hand was still shaking after the CW contact! After settling down he went on to have 35 QSOs in the W1, W2 and VE3 areas. The footprint extended from FN03 in the west to FN41 and FN42 in the east and FN25 in the north to FN30 in the southern extremity. During the 55 minutes opening he worked four VE3s.

The footprint at this end appeared to be relatively narrow in the north/south direction, but extending east to FK8 and 3D2. These countries had propagation east to VE1YX in Nova Scotia. The new 3D2FJ beacon was copied for 45 minutes by VE1YX and probably in W1 and W2.

Ron found a degree of pleasure in providing the first VK contact for some DX stations after so many years, one nominating a period of 30 years to work VK! After adding Rhode Island, Massachusetts, New Jersey and Connecticut, Ron's US state tally is now 37 worked and 32 confirmed, but believes the remaining New England states will be difficult to obtain.

### First New Zealand to Europe

Via Ron VK4BRG comes a report from Martin ZL1ANJ regarding some outstanding contacts from NZ to Europe and Africa.

A series of major solar events in early November caused temporary loss of HF propagation with accompanying geo-magnetic storms and mid-latitude aurora effects. These were short-lived and the 6m band opened on Saturday 9/11 with propagation to the USA.

From 0914 on 10/11 seven QSOs were made by ZL2KT, ZL2TPY, ZL2UBG and ZL4AAA with IK4XCC, IK4BHO and YU3ZV. These contacts were the first ZL to Europe via six metres and were made possible with the help of an Es link from ZL to VK4, and from there to Europe by F2.

The next morning (UTC) from 2000 to 2100 about 45 QSOs were made by ZL operators to the north-east states and provinces of North America. Several SSB and CW contacts were made with VE1, VE3, Maine, Massachusetts, New Hampshire and Vermont. It is very rare for contacts from ZL to these areas.

On 11/11 at 1817 ZL1ANJ worked CN2JP and CN8ST in Morocco on SSB, followed at 1825 by ZL1AKW to CN2JP and at 1905 by ZL4AAA to the same station, both using CW. These contacts were the first ZL to Africa contacts on six metres; as a result, some operators may now have WAC. The ZL to CN2 QSOs were made shortly after ZL sunrise and were long-haul F2 contacts via Central America at 90 degrees beam heading.

## South Australia

This state has not shared on a scale by comparison with most other states where contacts to Europe and USA are concerned. Hugh VK5BC on 7/11 worked SM7AED, SM7SCJ and heard OZ1DJJ; 11/11 around 0000 ZL4AAA, ZL2AGI, KN5S and heard TI2NA. Col VK5RO on 7/11 between 0943 and 0947 worked G2BIR at 559 in the four-minute opening! 9/11: KH3OT; 10/11: WA6BYA, NZ5C and heard CN4ST talking to "Mario". 11/11: W7HWL, M70B, WX7R.

Other snippets from SA. At Meningie JAs have appeared at some time on every day throughout November, often to 5x9. 3/11: 0045, V73AT. 9/11: another aurora, from 0400, also KI6KY, 2300 W5. 10/11: 0152 WD5K, 0250 WA6BYA; VK4s were available all day with the new VK4BRG beacon churning away until late in the evening. 18/11: all JA beacons in, plus a new one JA5FFJ on 50.053. Es to VK1, 2, 3, 4, 6, 7 and ZL. 22/11: 1000 VK6RO and others 5x9, 2300 VK4DDC calling Central and South America. 23/11: much Es to VK2, 4, 6 and 8 with VK8GF 5x9+ for an hour or more mid-afternoon. The beacon VK8VF is not on 50.056 but 50.0572. The Es between VK5 and VK4 was still extremely strong after 1030. A DU1 called CQ for a long time from 1000, but no takers.

Brisbane stations have been involved as follows — 8/11: OH1, 9/11: 0658 four OHs to Brisbane and Townsville. 2300: W5 to VK2, 3, 4, 5, 8 and JA. Brisbane Stations worked W4, 5, 6, 7, 8, 9 and 0, TI2NA, KL7 and VK9ND. Said to be the best US opening since 1957!

10/11: VK4s all day: 2230 VK4DDG to WA7, 2248 VK4KJL calling to South America and Caribbean and soon after was joined by VK4APG, VK4ZNC, VK4DDG and VK4KK. 11/11 was a red-letter day. 0020 VE7XF at 5x9, 0022 JD1 (this one also into Melbourne, 0241 NQ4V, W4FX, ZK1CG, OE6LOG, HK4, TI2NA; 0900 YU3EA, YU3ES, I4I, IS0GY, 1207 VS6BG.

Due to space limitations I am holding over until next month a more detailed description of the stations worked in Brisbane (VK4) and Hamilton (VK3) during October/November. They will not be published for anyone to pick to pieces, but as an indication of the variations which can take place over a distance of perhaps 1500km.

## Victoria

Despite the many US stations worked from Brisbane, great conditions also prevailed in southern areas, particularly at VK3OT in Hamilton who also had a red-letter day on 11/11 when he worked 20 stations in Washington State, two Illinois, two Indiana, one Missouri, one North Dakota, two Arizona, two Oregon, three Montana, nine California, one South Dakota, two Utah, two Indiana, one Nevada, two Texas, four New Mexico, one Washington, two VE7, two Mexico, two KH6, AL7C, JD1BFI — all between 2130 and 0430; 0828-0912 YU3 and OE3. Quite a day's work! The story continues. 16/11: AH6LM, five KH6, NL7NO. 17/11: 0900 PA, G3, OH2, FC. VK5BC and VK3LK worked PA0LFB.

## The Hargraves Report

Nev VK2QF missed JT1CO on 10/10 at 0345. On 18/10 there were many indicators for a band opening which culminated at 0831 in working DL8HCZ, from then until 0958 on CW he worked SM7AED, OZ1LO, OZ8RW, SM7FJE, SM7SCJ, SM7BAE, OZ2LD, DL8HCZ (SSB), PA2VST, PA0LSB and PA3BFM. This gave Nev WAC. 27/10: 0300 JAs; 29/10: 0830 JAs and ZLs.

11/11: 0907 SV1UN, 0926 weak CW built up to be CN2JP but no QSO. 12/11: 0906 CN2JP (Joel N6AMG); 15/11: 0826-0930 OE2UKL, DL1OJ, DL7AV, heard FC1JG, IV3VFP, PA0HIP. 2215 AL7FH. 16/11: 0100 KH6IJ, JAs, 0548 KH6HH, AH6LM, 0900 I4XCC, YU3ZV; 17/11: 0924 9H1BT, 9H1GR.

Nev said he believes he was ably assisted by Es in working Europe, as often he could hear VK6 and VK8 on Es while they were working Europe.

## Tasmania Briefly

Maurice VK7SA advises that Frank VK7ZMF, from his central highlands estate, reports openings to ZL on 2/11 and 5/11; 3/11 to 7/11 JAs; 9/11: VK1, 2, 3, 4, 5 and 7; 16/11: KH6VP, NI6E, KH6HH plus JAs, ZL and VK2. This was considered one of the better openings for some time in the far south. On 12/11 W stations were heard but not worked; 16/11 heard VS6SIX. Thanks Maurice.

## Living with DX in Karratha

Karratha is a small town in the north-west of Western Australia and I would be happy to be living there at the moment! It is the home town of Steve VK6PA, who has left his mark in Europe and a few other places. He first came on six metres towards the end of 1990 and, for the first few months, worked VKs and JAs. Since 1/3/91 he has worked 44 countries on five continents, lacking only South America for WAC.

His first rig was an Icom three-watt portable with a vertical antenna and he worked many JAs. Soon he changed to a TS680S and a 100-watt amplifier feeding a six-element beam at 15 metres. He was immediately swamped by hundreds of JAs, and it took him about nine days to work all JA prefixes.

During October he had 16 days of European openings and worked hundreds of stations all over central Europe, with more than 100 grid squares in IO, IN, IM, JP, JM and KM. Steve says his contact with ZA1ZJ in Albania would be the best this spring. He waited six days before his luck changed and the band opened to Albania. At the same time he worked 4X1IF in Israel. If nothing else, Steve has kept VK on the minds of European operators, thus making it possible for more amateurs here to share the contacts when they become available. I only wish he would send a few European countries down to me!

## Rockhampton

Lyn VK4ALM at Rockhampton had a great opening to Europe on 19/10, working 17 stations in G and four in PA, between 0806 and 0938. He said there may have been other countries in the crush but he never had time to look for them! The band was full of G, PA, JA plus TV crud.

On 9/11 and 10/11 Lyn had an excellent opening to the USA working 27 stations plus HK4, from 2140 on 9/11 to 0226 on 10/11. On 11/11 from 0000 to 0250 KN5S and JD1BFI; 12/11 2200-2250 TI2HL, 3D2AA, TI2NA TI2KD and VK9ND — five countries in two to three hours.

## Top Country Count

Bill Tyan W3XO/5 and his column "The World Above 50MHz" shows in his Six Metres Standings List that at 5/9/91 there were 49 stations claiming to have worked at least 100 countries, with 46 having confirmed that number. Heading the list of confirmations is JA4MBM with 125, W5FF 115, K5FF, 115, W2CAP/1 109, VE1YX 108, K8WKZ 105, G4AHN 102, W4CKD/8, WA1OUB 104, KITOL 102, K5CM, LU3EX 101, N5KW, JA1BK, KA1PE 100 and with W3XO/5 nearly there with 99! Then follow 15 JAs on 100.

## The G4UPS Report

Ted Collins G4UPS sends the following report for October 1991.

George PA0FM will operate at P43FM from the island of Aruba to the end of March 1992. QSL via his home address.

From Albania ZA1A was active on six metres until the end of November — on 5/10 he worked 14 countries.

Peter PY5CC has a permit for his CW keyer — PY5XX. QSL route: Peter Z Sprengel, PO Box 7, Matinhos, PR 83260, Brazil.

Hans 9X5NH in Rwanda had his first QSO on 5/10, to ZS. The next day he worked I, YU and 9H and was heard in G land.

Tarik CN8ST in Morocco has K8EFS as his QSL manager.

Bill Wiseman KM1E will be in the Bahamas from 1/12/91 to mid-January 1992 and using the callsign C6A/KM1A. QSL route via his home callsign — Bill Wiseman, PO Box 120, Woolwich, ME 04579, USA.

What is believed to be the first-ever BV-Europe contact on 50MHz took place on 19/10 with BV2DP working SV, 9H and I from around 0920.

Also on 19/10 the first-ever opening between Europe and Macao to Jose XX9JN from 0938. QSL via KU9C. Jose worked about 20 G stations amongst the many countries he worked during the opening. XX9SW is also operational from Macao. The VS6SIX beacon was audible at 569, as was VS6WV.

According to Jose EA4CGN it is now anticipated the first permits to allow 6m operation from Spain will be issued November/December.

## Comment

With the advent of some very good Es propagation during the past couple of weeks, many VK signals are easily monitored here and it has been possible to observe the operating habits of stations, especially from VK2 and VK4.

I am pleased to report there now appears to be a much improved degree of discipline in operating procedures. In many cases, when a contact is initiated on 50.110 the participants immediately move to a frequency higher in the band to conduct the contact, and this is to be commended. We can only hope those who are the exceptions will eventually learn that Es contacts are not acceptable on the overseas DX calling frequency of 50.110MHz.

## Auroral Propagation

Chas VK3BRZ and Ron VK3AFW have both written with an account of the auroral opening on 9/11. The first comes from Chas VK3BRZ.

Chas fired up on two metres just before 2200 for the usual aircraft enhancement signals, but found VK1BG there with much auroral garble to his signal. Swinging the antenna from the north-east to south he found the signals peaked in the south-east (145 degrees) rather than the usual south. A contact was made on phone using ESP to fill in the gaps. He then worked VK1VP and heard

VK2ZAB and VK2FLR, but local 144.1 QRM prevented QSOs.

Throughout the morning both VK7 6m beacons were strong, also the Wagga Ch 0 sound carrier. Arie VK3AMZ reported ZL TV carriers and heard both the Sydney and Canberra 2m beacons. At 0530 the aurora was still strong. Still peaking south-east, VK2DVZ in Taree showed on two metres with a big signal. A phone call to Daryl VK2MZ at Forster allowed another 2m contact. Both VK2FLR and VK2ZAB returned to the scene and contact was made with VK2FLR. Contacts were made with VK5ACY and VK7XR, and VK3AM was heard in Brisbane by VK4KZR, but no contact.

Those involved included VK3s AMZ, AFW, DUT, BDL, XRQ, TU and BRZ. At darkness the clouds departed and so did the aurora. Chas worked four call areas and the longest distance worked by aurora to VK2DVZ. He says there should be plenty of auroral activity in February; so far there has been at least one aurora per week since September.

Pointers to a likely aurora come from the WWV solar-geomagnetic report at 15 and 45 minutes past the hour. An announcement of a geomagnetic storm and a K index above four can mean an imminent aurora. Check the Tasmanian beacons on 52.370 and 52.470 and Mount Gambier 144.550. Auroras occur in both the day and night. The use of medium speed CW, about 10wpm, is preferred, but SSB can be used with difficulty. While the bulk of the work with auroras is on six and two metres, it should also be possible to work on 70cm.

Ron VK3AFW, referring to the aurora on 9/11, said Arie VK3AMZ observed the 2m band started coming to life at 1830 and Ian VK1BG phoned for a contact at 2200, and until the band closed at 2240 Ron had worked VK1VP and VK2FLR on CW and VK1BG on SSB. A strong signal was heard from VK2ZAB with no contact. VK3XRS was also enjoying the conditions.

Activity recommenced around 0500 with contacts to VK3AJH Portland, VK3ZQB Port Fairy (who was strong enough for an attempt on 432.1 without result), VK7DC Burnie, VK1BG and VK1VP Canberra, VK2DVZ Taree, VK2MZ, VK5ACY Kangaroo Island, VK2FLR. VK7XR was worked on the direct path at 0730 for Ron's last contact. The following morning, 10/11, the 2m band was quiet, but around 2050 Noel VK3AUG in Frankston worked VK3BRB in Mildura for a good distance contact.

## Aircraft Enhancement

This mode continues to provide reliable, if short, contacts between VK3 and VK1 and sometimes VK2 on 144 and 432MHz. Doug VK3UM has best results working the VK2s. Newcomers include Ted VK2ARA on 4/10 and Chris VK1DO on 5/10. Both the above plus VK3ELV worked Bill VK5ACY on 19/10 by

this mode.

Via aircraft enhancement on 10/11 at 2139 Ron VK3AFW worked Ian VK1BG on 144.2 and 432.2. At 2142 Ron worked Eddie VK1VP; at 2145 his first 70cm QSO with Gordon VK2ZAB. The enhancement was produced by an Ansett Airlines 727 flying at 41,000 feet.

Ron VK3AFW and Andrew VK7XR are presently using 3695kHz as a VHF liaison frequency and 7040kHz for a "wash-up" after aircraft enhancement contacts. Others are invited to join in.

Tropospheric contacts have continued daily between VK3AFW and VK7XR, mostly on CW. On 11/9 Joe VK7JG was 559. On 2/10 at 1215 Peter VK3XRQ and Ray VK3ACR worked VK7XR. At 1256 VK3AFW gave VK7XR his first 70cm contact to VK3 and repeated the exercise again the next day. Norm VK3DUT copied VK2YOS 400km north of Sydney on 2/10 but no contact.

## Meteor Scatter

On 2/11 VK4KZR conducted tests with Ian VK1BG via this mode but no QSO resulted. Ron VK3AFW copied two complete sets of callsigns from VK4KZR with many other short pings, one giving a signal rise to S9.

## 1296 to Albany

It has been reported that on 21/11 at 1330 (midnight local) Ron VK5KJL in Adelaide had a contact with Wally VK6WG in Albany on 1296MHz with signals to 5x9+ over the 1900km path. That's a good effort and shows dedication to be able to initiate a contact at that time of night.

## Closure

Considerable information arrived on my desk this month, and much time was spent ensuring everyone was given some coverage without repetition. I hope I have not missed anyone; and, thanks.

Closing with two thoughts for the month: "Beauty contests didn't start in Hollywood or Miami. They began when the second woman arrived on earth," and "In an argument it's hard to beat the man with the lowest temperature." All the best for 1992 and 73 from The Voice by the Lake.

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Sign up a new  
WIA member  
today - use the  
form on the  
reverse of the AR  
address flysheet

# AMSAT

BILL MAGNUSSON VK3JT - 359 WILLIAMSTOWN RD YARRAVILLE 3013

## National Co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

Please take note of the AMSAT information nets:

### AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z

on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz.

At present 7.064MHz is used.

### AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

## AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia

GPO Box 2141

Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

Sunday Evening Net: Please note the change in time. Due to a large number of requests, and after much discussion, Graham has decided to change the starting time of the net to 0900z. Forty metres will continue to be used but watch for a possible change to 80 metres if propagation is not satisfactory at the earlier time.

## RS10/11 and RS12/13

These satellites continue to give excellent service with good contacts being made. Regulars still complain of rather poor usage with only a sprinkling of stations operating on most orbits. These are excellent satellites for beginners, requiring only basic equipment to get quite good results.

## 30 Years of Oscars

Doesn't time fly? This month sees the 30th anniversary of the launch of Oscar-1 on 12 December 1961. Those who go back that far will recall the hi, hi, hi beacon which pro-

pelled amateur radio into the space age. Compare that with a current amateur radio satellite like UO-14 with its 9600 baud BBS and complex telemetry and control systems. We've come a long way, baby, but it's well to recall that we were just as enthralled by the performance of Oscar-1. Where will the next 30 year take amateur radio satellites?

## MIR Report

After a period of sparse activity Sergie seems to be becoming more active. Several good voice contacts have been heard. Peter VK3CPO reports he has recently uploaded a message to the PMS after quite a bit of trying. There have been rumours of the packet system causing interference to other equipment on board. This could account for the somewhat reduced packet activity recently. Signals have not been as strong as normal lately. There is some indication that the amateur radio antenna may be shielded by a recent additional structure. Let's hope these problems are fixable.

## Oscars 24 and 14

These satellites continue to give excellent service, with many new files appearing each day. Some small software changes are being planned to improve the performance even further. Watch for possible slight changes in operating procedures. These will be advertised well in advance.

## Microsat Gateways

I mentioned a couple of months ago that there were at that stage 20 or so gateway stations set up world-wide to automatically feed BBS-type messages through the digital microsats and UoSats. These gateway stations are set up by satellite operators who interface their satellite digital communication station with their terrestrial packet station. With automatic antenna tracking and automatic file transfer facilities, such a gateway station can be very efficient. A terrestrial packet user in the vicinity of a gateway station can forward mail to that station addressed to an overseas station "via satellite" and it will be automatically forwarded via one of the amateur radio packet satellites to the appropriate gateway station overseas. The mail will then flow on to the destination station by normal terrestrial packet means. The more gateway stations we have, the more efficient the system becomes. The network has now been expanded to 24 stations. They are KI6QE, NL7NC, VE8DX, WAOPTV, KF4WQ, LU8DYF, ON4KVI, ZS1ABM, JA6FTL, W0SL, ZL2AMD, NU9H, W5ERO, KB4TM, EA6IC, SV8RV, NR3U, LU1ESY, YB0QC, VK5ZK, LU7ABF, OH6KG, EA8RT, 4X1AS. As you can see, the stations are well spread out around the world and we in Oceania are well represented. A packet BBS message is doing the rounds presently showing details of how to use this system, including those all-

## Satellite Activity for August to October 1991

### 1. Launches

The following launching announcements have been received:

Int'l No	Satellite	Date	Launch Nation	Period min	App km	Prg km	Inc deg
1991-							
061A	IRS-1B	29 Aug	India	102.7	915	859	99.2
062A	SOLAR-A	30 Aug	Japan	98.0	795	526	31.3
063A	STS-48	12 Sep	USA	95.4	553	538	56.9
063B	UARS	15 Sep	USA	96.2	575	574	57.0
064A	COSMOS 2155	13 Sep	USSR	23h56m	35850		1.3
065A	MOLNIYA 3-41	17 Sep	USSR	12h17m	40859	464	62.7
066A	COSMOS 2156	19 Sep	USSR	89.6	369	176	68.1
067A	ANIK-E1	26 Sep	Canada	35952	268	4.0	
068A	COSMOS 2157						
to		28 Sep	USSR	114.0	1438	1431	82.6
068F	COSMOS 2162						
069A	SOYUZ TM-13	02 Oct	USSR	90.2	312	276	51.6
070A	FOTON 4	04 Oct	USSR	90.6	417	223	62.8
071A	COSMOS 2163	09 Oct	USSR	89.3	331	174	64.8
072A	COSMOS 2164	10 Oct	USSR	94.5	720	290	74.0
073A	PROGRESS M-10	17 Oct	ussr	91.2	360	304	51.6
074A	GORIZONT 24	23 Oct	USSR	24h07m	36003		1.4

### 2. Returns

During the period 116 objects decayed, including the following satellites:

1971-059A	METEOR 1-9	27 Aug		
1975-056A	COSMOS 744	12 Oct		
1986-017DV	MAK-1	18 Oct		
1990-022A	COSMOS 2060 01 Sep			
1991-034A	SOYUZ TM-12	10 Oct		
1991-057A	PROGRESS M-9		30 Sep	
1991-058A	RESURS-F13	20 Aug		
1991-063A	STS-48	18 Sep		
1991-070A	FOTON 4	20 Oct		

Bob Arnold VK3ZBB

important hierarchical addresses. Using these gateway stations to forward messages via satellite usually results in 24-hour forwarding, and 24-hour turnaround is becoming common, particularly if the originating sta-

tion and the destination station are both in VHF or UHF range of gateway stations. Of course you can do it yourself with even quick turnaround time if you have a satellite station, but this service is provided by the satel-

lite gateway operators to allow those with only normal terrestrial packet facilities to forward messages overseas by amateur radio satellite.

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## HOW'S DX

STEPHEN PALL VK2PS - PO Box 93, DURAL 2158

... and a happy new year to you all. Let's wish each other good health, good propagation, less interference by individuals and authorities and, above all, plenty of new DX!

My new year's resolution is to continue to give our readers the most up-to-date DX news based on the quality and quantity of the information which reaches my desk and ear each month.

It is now more than two years since this column has acquired a set format. During this time I have received many letters, with very few exceptions, complimentary about the contents of this column. However, not one of the letter-writers commented about the usefulness of publishing the RTTY News. Please tell me, is the brief RTTY information of any benefit to you? If you are an RTTY enthusiast I am sure you receive each week the extensive RTTY Bulletin of VK2SG which goes around the world making, it seems to me, this subsection unnecessary.

There is another angle to this question. There are so many DX happenings these days that the length of the column is growing from month to month. I fully sympathise with our Managing Editor's feelings when he tells me he is aiming for a well-balanced issue of the magazine each month. So, before I leave the RTTY News out of the column, I am asking for your comments. Please grab a piece of paper and send me a note and tell me what to do? Tell me: how can I retain all the news in this column in a more compact form?

### The Bangladeshi Saga — S2

The much-awaited activity from Bangladesh by Jim Smith VK9NS and Kirsti Smith VK9NL did not eventuate. Jim and Kirsti were in Bangladesh. Kirsti returned from there after 10 days; Jim returned, as planned, after four weeks in Dhaka.

The following is a summary of the events which took place over there. I had a long discussion with Ken VK5QW who knew some of the details of the past few weeks.

After the 28 August decision by the Bangladesh authorities to introduce amateur radio, the outside world felt that amateur activity from that country would start shortly. The president of BARL, Saif, and the secretary Nazim, were allocated the S21A and S21B callsigns.

The block of "Z" suffixes was apparently allocated to visiting foreign amateurs. This is

how Jim and Kirsti got their S21ZA and S21ZB callsigns. Shortly after arrival, Jim discovered that being allocated a callsign in Bangladesh, for which the applicant pays the once-only sum of Tk100 (taka is the name of the local currency, about \$30.00), does not mean the person is now allowed to operate amateur radio. A licence has to be obtained for the equipment to be used, which costs Tk5000 annually. Jim also discovered the rules and regulations for the licensing and for the use of amateur equipment have not yet been finalised by the local authorities, who suddenly saw a number of problems in connection with the activity of visiting foreign amateur radio operators. The problem of "monitoring and security" has raised its ugly head again. The authorities are convinced that, for security reasons, they have to monitor all amateur traffic originating in the country.

There is also a local belief that visiting foreign radio amateurs will make so many contacts initially that, for the next two or three years, no other outside amateur might want to contact that country. Jim wonders who are the persons who were instrumental in floating these ideas to the local authorities.

After callsigns were allocated to two of their own nationals, the BTTB office was

swamped with applications. About 10 expatriates who had been working in Bangladesh for several years past, and some 15 local nationals and some foreigners have also applied for callsigns and licensing. No wonder the BTTB office is now under stress. Whilst in Dhaka, Jim attended about a dozen meetings with various government officials and interested parties concerned with setting up the infrastructure for amateur radio activity. Among others, the following subjects were discussed: (a) reciprocal licensing with USA, UK and Australia; (b) amateur radio qualification standards; (c) amateur radio licensing standards; (d) security — this includes security checks on foreign visiting radio amateurs, and matters connected with passports and visas; (e) monitoring radio amateur activity on a 24-hour basis. There was even a suggestion to designate two localities only from which visiting foreign amateurs could operate, as this would make the physical monitoring easier for the authorities; (f) problem of the controlling and supervising of the importation and transit of amateur equipment. Out of the 18 points discussed, about one third was aimed at foreign radio amateurs. These and other recommendations have now been submitted to the Bangladeshi Government Security Branch and a reply is expected some time in December.

I said this in last year's December issue at the end of the news dealing with Bangladesh: The mystery of the East has engulfed ama-



The "gang" on Fraser Island. L to R: Jim VK4RJF, Art VK4LAC, Bob VK4ERW, Kerry VK4MZ, Jim VK4WJB and Gray (seated) VK4OH.

teur radio again. I would rephrase this sentence now as follows: The mystery of the East and amateur radio politics have muddled the case of amateur radio again.

## Albania — ZA

After the successful activity of ZA1A and the various other groups ZA1QA, ZA1HA, ZA1DX, ZA1'ZXV, ZA1ZMX and ZA1ZXV, the following stations were also active for a short period (QSL info in brackets): ZA0RS (HA0DU), ZA0DXC (PO Box 79, Paks 703, Hungary), ZA1SXB (JH1EDB), ZA1ZGV (JR6GV), ZA1ZSW (op was W7SW but QSL goes to: IOJBL), ZA1ZJ (JA1HGY), ZA1ZLZ (JI1DLZ), ZA1ZPL (JK1OPL), ZA1ZST (JF1IST).

After the big rush of the foreign operators, the world now awaits the appearance of the local operators with the call sign suffixes starting from ZA1TAA to ZA1TAL.

uninhabited island, and the only installation presently on the island is an automatic unattended navigational light, operated and maintained by the United States Coast Guard. Landing on the island from a boat is accomplished by jumping onto a wire rope ladder which dangles about 40 feet from a cantilever catwalk. Randy N0TG returns to the island again for a week starting on 17 January. There will be four operators: Randy N0TG/KP1, Bob KW2P/KP1 and Larry K5MK/KP1. This is the second trip by Randy; the first one took place in 1978. Activity will be on 10-160m, including the WARC bands on CW and SSB.

To pay for the very expensive boat and shipping costs, the group is seeking donations. For a \$5.00 donation, you will receive your beam heading chart based on your QTH (both long and shortpath heading). Send your request and donation to Randy Rowe N0TG,

frequencies: 3.5, 7, 14, 21, 28, 144, 432 and 1296MHz. The mobile expedition is already on its way. The present tentative route is USSR, Turkey, Iran, India, Pakistan and Myanmar. Last report heard them operating as UA/HA5BUS.

## Future DX Activity

- \* Lanny W5BOS and Bob W5KNE (editor of *QRZ DX*) will be active from Christmas Island in the Indian Ocean from 11-24 February.
- \* Expect to work Bob 9K2ZZ from Kuwait, where he will be for the next three to four years.
- \* Ron ZL1AMO will be active from Kermadec Islands (ZL8) in March 1992. He is very confident of obtaining permission to activate this DX country. However, the \$20,000 transportation cost poses some problems. Donations will be appreciated to the following address: Kermadec DX Expedition, c/o Ron Wright ZL1AMO, 28 Chorley Ave, Massey, Henderson, Auckland 1208, New Zealand.
- \* South Sandwich DXpedition. This will now take place from 21 March to 4 April. Planned operation will be for 14 days from 160m to 10m, SSB, CW, RTTY — also 6m and 2m EME. So far, seven of the planned operators have already committed themselves by contributing \$5000 each. Private donations should be sent to Gerry Branson AA6BB, 93787 Dorsey Lane, Junction City, OR, 97448 USA. South Sandwich was third on the 1991 most wanted countries list, after Albania and Burma.
- \* Qatar — A7. A71CH is a new active amateur on the bands. QSL to: Khalid, PO Box 1156, Doha, Qatar. Mozambique — C9. C9RZZ is activated again by SM7DZZ. He was heard on 14250 at 1545 UTC. QSL to: SM7DZZ.
- \* Jose CE9GEW was heard operating from South Shetland Island. QSL to: Jose Garcia, PO Box 74D, Punta Arenas, Chile.
- \* Iraq now has five individual amateur stations in addition to the usual club station: YI1BGD.



Fraser Island in action. L to R: Kerry VK4MZ and Gray VK4OH in a happy mood after 3547 contacts.

## British Novice Activity — 2

The first British novice licensees have appeared on air. The following are the prefixes used: 2E (England), 2M (Scotland), 2W (Wales), 2D (Isle of Man), 2J (jersey), 2U (Guernsey), 2I (N Ireland). The frequencies and modes allowed to be used: 1.950-2MHz (CW, SSB, RTTY, data), 3565-3585kHz (CW), 10130-10140 (CW), 21100-21149, 28100-28190, 28225-28300 (on all these frequencies (CW, RTTY and data) and 28300-28500 (CW, SSB).

## Navassa Island DXpedition — KP1

Navassa Island, 18°N, 75°W, lies about 90 miles south of Cuba, 75 miles north-east of Jamaica and 30 miles west of Haiti. It is an

2120 Reverchon Drive, Arlington, TX, 76017 USA.

## The Hungarian Bus Expedition — HG5BUS

The name of the Globex Foundation (PO Box 49, Budapest 1311, Hungary) has appeared several times on the news in the past few months. It is a group of Hungarian amateurs (Gabi HG5BKG, Pista HG5CHI and Imre HA5HO) who have obtained a bus which is fitted out with HF, VHF and UHF equipment and various antenna systems. The group intends to travel around the world in about 17 months, expecting to cover 72,000km, and to have more than 100,000 QSOs during this period. They will be operating CW, SSB, FM, RTTY, AMTOR and packet on the following

## The Fraser Island Adventure — OC-142

The nine-day activity by the Hervey Bay Amateur Radio Club from this, the world's largest sand island, was a great success. VK4CHB portable was on the air 24 hours a day from the Orchid Beach resort, which is on the northern tip of the island. (See *AR* Nov 1991). After a ferry trip from the mainland to the island, and a further four hours four-wheel-drive up north, the group of adventurous amateurs, including Jim VK4AJF, Art VK4LAC, Bob VK4ERW, Kerry VK4MZ, Jim VK4WBJ, led by Gray VK4OH, finally arrived at its destination. They settled in a five-roomed house which was about 20 metres

away from the cliff high-water mark and proved to be a wonderful spot for DX. Beam antennas for the various higher bands were soon erected, including six and two metres, together with dipoles for 80, 40 and WARC bands. There were four stations, two TS680s and two TS440s. The first contact was at 0701 UTC on 31 October with W8ZBK, and the final contact was at 1408 UTC on 8 November. A total of 3547 contacts were made into 105 countries, all States of the USA and all continents. The group made such an impression on the management of the resort, it decided to give reduced rates to any radio amateur operator visiting the resort from any place in the world. So, if you are in that part of the world, you better take a copy of your amateur licence and a copy of this article with you and enjoy your stay there.

## Interesting QSOs and QSL Information

Note: Callsign, name, frequency, mode, UTC, month.

- \* TF3DX-14033-CW-0900-Oct. QSL to: Vilhjalmur Thor Kjartansson, Njorvasundi 4, IS-104, Reykjavik, Iceland.
- \* A22GH-Gerry-21205-SSB-0635-Oct. QSL to: R G Heslop, Fairways, Meadow Drive, Bude, Cornwall, GX25-8HZ, UK.
- \* VP8CGQ-Peter-21175-SSB-0955. QSL to: PO Box 260 CGQ, Port Stanley, Falkland Islands.
- \* XX9SW-Steve-14210-SSB-1054-Oct. QSL to: S M Wheatley, PO Box 5953, Parsippany, NJ 07054, USA.
- \* VP2/VE7YL-Elizabeth-21020-CS-0253-Nov. QSL to: Elizabeth Lorraine Anderson, 1211, 3 Rd, Richmond, BC, V7A 1X3.
- \* HS0ZAA-John-14023-CW-1050-Oct. QSL to: NY2E, A B Gill, 85 St Andrews Place, Yonkers, New York, 10703 NY, USA.
- \* AD1S/KH9-14027-CW-1045-Oct. QSL to: Oklahoma DX Association, PO Box 88, Welston, OK 74881, USA.
- \* HR2BDC-Dean-21205-SSB-0542-Nov. QSL to: PO Box 7373 Eagle Pass, TX 78853, USA.
- \* HS1ZEB-Jodi-14227-SSB-Nov. QSL to: PO Box 678, Bangkok 10501, Thailand.
- \* ZF8AA-Ron-14199-SSB-1211-nov. QSL to: N8AG Arthur Geyer, 860 S Main St, Milford, MI 48042, USA.
- \* P29WK-George-14226-SSB-1201. QSL to: Pono. QSL to: PO Box 625, Wewak, East Sepik Province, PNG.
- \* FG/F6AUS-Serge-14226-SSB-1126-Oct. QSL to: F6AUS Serge Soulet, Box 54, F-79400, Saint Maixent, I Ecole, France.
- \* 5V7JG-Gerard-14222-SSB-0602-Nov. QSL to: F6AJA Jean Michel Duthilleul, 515 Rue De Petit Hem, Bouvignies, F-59870, Marchiennes, France.
- \* YJ0AJU-Ken-14009-CW-1233-Nov. QSL to: WA6ZEF Kenneth D Watson Sr, 1248

North Cypress Ave, Ontario CA91762, USA.

## RTTY News

Quite a lot of RTTY news. Here is a small sample as supplied by Syd VK2SG. Please note my comments about the usefulness of this news at the beginning of this column. You should expect some RTTY activity from Cliperton Island and South Sandwich Island in March this year.

- \* 8P9HR-21081-1224Z. QSL to: KB4AI.
- \* HI8AX-14082-0640Z. QSL to: Box 115, Santo Domingo, Rep of Dominicans.
- \* ZA0DXC-14086-1116Z. QSL to: Box 79 Paks 7031, Hungary.
- \* Z21HJ-21085-1950Z. QSL to: Box 395 Highland, Harare, Zimbabwe.
- \* ZA1ZDB-14083-1530Z. QSL to: JH1EDB.
- \* XQ0X-14090-0018Z. QSL to: CE3ESS.
- \* TA5C-28082-1214Z. QSL to: Box 73, Adana, Turkey.
- \* VQ9QW-21085-1728Z. QSL to: Cdr Webb USN, Diego Garcia, GPO AP 96464, USA.
- \* S79PDL-21085-1857. QSL to: Box 448, Victoria, Seychelles.

ZA1A made 1328 RTTY contacts with 63 countries. The bulk of the contacts were with Europe, North America and Asia. Africa had three, South America nine and Oceania 11 contacts.

## From Here and There and Everywhere

- \* Jean Claude of Crozet FT4WC, gives his QSL manager as F6GVH (see July '91 AR). However, the correct address of G6GVH is: Godefert Michel, PO Box 35, Villemandeur, 45700 France, and not the address which is shown in the 1991 International Callbook.
- \* Brian C21BR will be at Nauru for the next 18 months. He and Reuben C21RK have decided they will bring up to date the Nauru Amateur Radio Club and station (C21NI) records, including the outstanding QSL cards, by going through the old logbooks left behind by various guest operators, some of whom never QSLed under their own cards. At present there are only three active operators on the island: C21RK, C21JM and C21BR.
- \* Austin VK5WO received a fax not so long ago from Karl P7KM, who is the QSL manager for the May 1991 St Peter and Paul DXpedition. Karl has indicated that he will complete all the outstanding cards for the expedition, and will send all the VK cards in bulk to Austin, who will then post them directly to the different VK stations who are waiting on these cards.
- \* Barry VK2AAB advised me that he was and is still getting cards addressed to VK0AC for an 1986 activity. Barry says he was never the QSL manager for VK0AC and therefore cannot reply to cards sent to

him.

- \* If you QSL direct to South Africa (ZS), do not include IRCs for return postage as they are not accepted at the RSA post offices.
- \* The 6m band comes into regular usage by the Czechoslovakian stations as from 15 December 1991.
- \* The extinguishing of the last of the 727 burning oil wells in Kuwait was celebrated by special event stations activated in the early part of November. 9K0ZZ and 9K0LW were worked by some VK amateurs. QSL to: Kuwait Amateur Radio Society, c/o 9K2RA.
- \* Lloyd and Iris Colvin started their usual annual amateur radio safari. They were heard from Thailand as HS0ZAP in the middle of November. QSL to: YASME Foundation, Box 2025, Castro Valley, CA 94546, USA.
- \* The first radio amateur to become a cardinal is Roger Mahony, W6QYI. He was elevated to this high post in the Catholic Church hierarchy on 28 June.
- \* The Chad Ministry of Telecommunications has announced that amateur radio is legal again in that country as from 9 July 1991.
- \* Bulgarian stations have been allowed to use the 18 and 24MHz bands since 1 July last year.
- \* If you worked XE2/IK1EDC station, do not send IRCs. The local post office does not accept them.
- \* Bill VK4CRR advises that he has been appointed as QSL manager for the following Kiribati stations: T32LN, T30DP and T30RT. Send your cards with SASE to: W Horner, 26 Iron St, Gympie, Qld 4570.
- \* If you worked 4T0SL on 3 November, the activity was from San Lorenzo Island, off the coast of Peru (no IOTA number yet). QSL to: OA4ED.
- \* If you listen to the SEANET check-ins at 1200 UTC on 14320, you will find a lot of interesting callsigns. The other day there were quite a number from Thailand, West and East Malaysia, Singapore, Sri Lanka and Indonesia.
- \* SEANET 1992. For the first time the international annual convention of the South East Asia Net will be held outside Asia. It will be held in Darwin, and congratulations to the VK8 amateurs for securing the November 1992 meeting for their city.

## QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager and his call; OP=operator or callsign.

Direct cards: KP2A/KP5 (2M FM MGR WA2NHA), FT4WG (2M FM MGR F6GVH), T31AF (7M FM MGR DL2MDZ).

Bureau cards: ZB2IW (1Y 1M FM OP),

VP2EY (11M FM MGR HB9SL), 4M5T (12M FM MGR YV 5JBI), 9V1JY (12M FM OP), IZ0MR/90 (13M FM MGR IOJBL), IQ5AP (12M FM MGR IK5HHA).

## Thank You

Thank you to all who helped me in this issues, especially to: VK2AAB, VK2DID, VK2LEE, VK2KFU, VK2QL, VK2SG,

VK3DD, VK4CRR, VK4DA, VK4OH, VK5QW, VK5WO, C21BR, F6GVH, and the following publications: *QRZ DX*, *The DX Bulletin* and the *DX News Sheet*. Good DX and 73 ar

## REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS - 21 WATERLOO CRS, LESMURDIE 6076

### Making Changes

Have you ever wanted to change some aspect of amateur radio? Say a particular regulation prevented you from doing something, and by changing this regulation it would be to the betterment of amateur radio.

The changes I refer to are not personal changes. For example, changing the beacon segments or the number of repeater channels to bring about a better way of doing things. This happens all the time and the WIA spends a lot of its time doing just that. An environment that provides the best for all amateurs. A tall order.

Having played a part in bringing about some changes in the repeater scene over many past years, perhaps this may be of interest to any amateur wanting to know how do you change regulations. First, let me say I have some idea, but it is a long path from start to finish. There are areas in which I could stand corrected.

Before you start, it is important to stress that bringing about changes to amateur regulations is a slow process. Even simple changes such as slightly increasing the beacon segment on six metres can take a long time. This delay from start to finish, however, should not be seen as a bad thing. It is important that changes are thoroughly thought out, and all those it will affect given time to comment. Rapid change can cause problems, as many regulations in amateur radio are complex.

One area of confusion I have with regulation changes is: do you bother to go national and bring about an official Australia-wide

change, with all the delays that are incurred, or do you seek a locally negotiated change, one that your state DoTC and the WIA sanction? I say this because repeater regulations vary from state to state. For example, one type of repeater linking is allowed in some states and not in others. Our opinion in the West is to bring about national changes so that uniformity exists all the way. This approach at times has been to our demise in the West. If you wish to see a national change to a regulation, let's explore how to go about it.

It is assumed the change you want to bring about is a good logical one and will benefit amateur radio. The time has come to make a change, be it small, to amateur radio. Usually change is mooted at club level first. Your idea is presented at a club meeting and gains acceptance. It now becomes the policy of the club to pursue this issue. Next, the issue is written up and presented to the local WIA. If the State WIA supports the idea, it has now become your state's WIA policy. Note it does not have to be voted on by the members of the local WIA, only the council. Now is the time to go Federal. Your local WIA councillor now takes the issue to the next Federal WIA meeting and tries to convince the other Federal Councillors to vote in favour.

When your local councillor has to represent concepts to others, it is hoped this person is an expert and understands your ideas. This person is the one who not only has to sell your idea, but also needs to be able to answer difficult questions about the submission. Situations that were not thought about in the

original submission may crop up. This is a tall order. Well thought out and presented submissions are crucial to success for your idea.

However, as the issue may be a complex technical one, the Councillors may now hand it on to FTAC for a recommendation. FTAC may then find it necessary to seek wider comment from other amateurs.

Your proposal may end up back with you for further consultation. Often little or no input is received from other states and FTAC and the WIA have little extra to go on.

If, after all this time, the submission is now passed and becomes WIA policy, your original idea may now be the new way of doing things. Congratulations! However, this may not be the end of the road by a long way. Not all changes in amateur radio can be brought about by the WIA. Many changes can occur only with the approval of DoTC.

Your submission may now have to be presented and sold to DoTC. This process adds further delay to an already long time having passed from your first presenting your idea to your local club for support.

All this time going by can be frustrating, but this is what the democratic process is all about; rapid, quickly thought-out changes would not be good for amateur radio.

The one area where the system has limitations is, as I have already said, your Federal Councillor and sometimes others selling your idea. No one can be an expert on all aspects of our hobby, so do your homework and present a well thought-out submission.

This description may help you to understand the process of bringing about change. The old often-heard saying, "Why don't they do something about it?" should be rewritten to say, "Why don't you make the start, put it in writing and start the process moving?" ar

## FTAC NOTES

JOHN MARTIN, VK3ZJC FTAC CHAIRMAN

### New VK5 Six-Metre Record

All of the 6m state records set during the last cycle have now fallen. The last to go was the VK5 record set by VK5KK and XE1GE in 1979. The new VK5 record is 16116km, set by VK5LP and P43AS. Congratulations to Eric on this new record.

### Thanks

I would like to extend many thanks to those amateurs who have written with information and helpful comments as requested at times during 1991. Thanks also to the RAC repre-

sentatives in each Division for maintaining the flow of information. They are Darryl Falow VK1DF, Tim Mills VK2ZTM, David Tilson VK3UR, Bill Sebbens VK4XZ, Bob Allan VK5BJA, Glenn Thurston VK6ZGT and Andrew Perkins VK7KAP.

Thanks also to other members of FTAC's advisory panel for their help: Lyle Patison VK2ALU (microwaves), Doug McArthur VK3UM (EME), Tim Mills VK2ZTM (beacons), Barry White VK2AAB (repeaters and packet radio), Will McGhie VK6UU (repeaters), and Peter Hallgarten VK3AVE (packet

radio).

Finally, my thanks to Bill Roper, the Federal Executive office staff, and editor Graham Thornton, for their friendly assistance at all times.

AMATEUR  
RADIO  
Helping our  
Community

## SPOTLIGHT ON SWLING

ROBIN L HARWOOD VK7RH - 52 CONNAUGHT CRES, WEST LAUNCESTON 7250

Well, another year has arrived! After the tumultuous events of 1991, it is impossible to predict what will happen over the next 12 months. The major activity this year will be the World Administrative Conference (WARC), which will be held in Barcelona next month. The shape of HF allocations, particularly for broadcasting and amateur services, will be decided there.

As I mentioned last month, there is less pressure now, particularly in Europe and North America, for increased allocations to the broadcasting sector, because of cutbacks, and the end of jamming has uncluttered the spectrum.

However, the Asian, African and Latin American nations could possibly push for increased access, as the major broadcasters dominate the existing spectrum.

It is official — the Soviet Union is no more. A new name for those republics wishing to join in the confederation of sovereign republics has been decided. Yet it looks as if each republic is becoming increasingly independ-

ent of this loose confederation. This will mean those republics which have not yet got an international service will rapidly do so. Radio Moscow, as the voice of the central government in Moscow, will continue, although the individual voices of the various republics will possibly speak with more confidence and authority than that of Radio Moscow.

Deutsche Welle in Cologne, Germany, recently commenced utilising Soviet Far Eastern sites to broadcast its programming into Asia. Tune to 7380kHz at 1100 UTC and you will hear their Japanese programming. The site of the sender is believed to be at Irkutsk in eastern Siberia. Before the 1100 transmission, Radio Moscow's programming in Japanese is heard, and again at 1200. The DW Japanese transmissions are also heard at 1100 on 13760kHz from senders within Germany.

Incidentally, Kol Israel has resumed its relay of the morning English language news from Jerusalem. It is on at 0500 UTC on 11588kHz. It may well be on other Kol Israel

frequencies, but I haven't had the time to check on these.

Radio New Zealand International has been very interesting of late, with the recent introduction of Japanese on the weekends at 1100 UTC. The single frequency of 9700kHz is easily heard in Australia. The 17770kHz channel is usually readable, but is prone to rapidly fade out, due to the recent solar disturbances.

I have occasionally had enquiries from various individuals regarding the shortwave frequencies of Radio Fiji. It is about 20 years or so since they were operational on HF, and there are no plans to reactivate these. Fiji is mainly on MW and FM. The Hindi program on 774kHz rarely makes it over 3LO in Melbourne here during the evening hours. Other channels suffer the same problem from Australian MW outlets.

Don't forget that Radio Nederlands has its annual Bloopster tribute on "Media Network" on Thursday 2 January. It will be on the usual RN outlet of 11895kHz. It is on at 0750, 0850 or 0950 UTC. That's all for this month. Don't forget, if you have any news, you can send it to the above address, or via Packet to VK7RH @ VK7BBS.

ar

## WARC 92 UPDATE

DAVID WARDLAW VK3ADW — WIA WARC CO-ORDINATOR

### WARC-92 WARC for Dealing with Frequency Allocations in Certain Parts of the Spectrum

Malaga-Torremolinos, February/March 1992

We are now just one month away from WARC92. The first ITU Administrative Radio Conference since WARC-79 that has had the reallocation of radio frequency spectrum on its agenda.

While WARC 79 examined the whole radio frequency spectrum, WARC 92 will be looking only at reallocation in limited designated parts of the spectrum.

It has been said that with the current restructuring studies that are taking place within the ITU that this could be the last of the WARC's as we know them.

### Here is a Review of Actions that have been Carried Out in Order to Protect the Interests of the Amateur and Amateur Satellite Service Against the Pressures that Appeared to be Mounting

It was considered of major importance that the amateur and amateur satellite services present a unified front internationally, and this is done through the IARU International

Secretariat, which co-ordinated the three regional organisations and provided material assistance for national amateur societies.

Participation in national preparation for WARC-92 if possible was considered very important for the amateur and amateur satellite service.

The IARU, at its Regional Conferences, has for many years been updating its policy as to the spectrum requirements of the amateur and amateur satellite services. Also at these conferences the current ITU climate in regard to possible Administrative Radio Conferences, which may affect the amateur service, is checked.

When WARC-92 and its provisional agenda were announced it was apparent that although the amateur service was not specifically mentioned on the agenda that this was a WARC at which the amateur and amateur satellite services were going to have to take a defensive position because of the frequencies and services involved.

It was known that a number of services that were seeking additional allocations had their eyes on some amateur spectrum.

Particularly on HF, the international broadcasting interests have for many years been after more spectrum around about 7MHz. In 1979 they failed, but indicated they would try again at the next conference that was compe-

tent, that is to say one that covered reallocation of HF spectrum on its agenda. WARC 92 fits the bill.

There are also a number of amateur and amateur satellite bands in the 1-3GHz region, a frequency range which is included on the agenda.

There are also many amateur and amateur satellite bands above 20GHz, another part of the spectrum on the agenda of the conference. While not heavily used at the present, could be very important in the future.

The IARU, realising the importance of well-documented information supporting the amateur satellite services, gathered together experts. These experts put together a considerable amount of material which was made available to all Member Societies.

In regard to the HF spectrum, this material pointed the IARU policy in regard to the 7MHz band and the essential need for access to 300kHz for the amateur service. This goal has been maintained in Region 2 but, unfortunately, not in Regions 1 and 3. Throughout the lead-up to WARC-92 the IARU has emphasised this policy.

In the spectrum above 1GHz, the IARU has stressed the importance of maintaining satisfactory sharing arrangements that already exist and also the increasing needs of the amateur satellite service.

The International Radio Consultative Committee (CCIR) of the ITU was given the task of preparing a technical and operational basis for WARC-92. This was done through a number of working parties. The IARU pro-

vided input documents and representation where appropriate. These input documents were produced by international co-operation between experts in the field.

At WARC-92 an experienced team will represent the IARU, which has observer status, being a recognised international organisation.

Observers from international organisations, while they do not have the privileges as delegates from ITU member nations, can participate by invitation.

Here in Australia the WIA has participated fully in preparation for WARC-92 with membership of the Australian Preparatory Group for WARC-92. The work of the APG to

cover the agenda of WARC-92 was carried out by three major committees.

In relation to the amateur and amateur satellite services, three major areas of concern have been addressed.

Firstly, the problem of the non-uniformity of the amateur allocation between the three regions at 7MHz. Australia is in favour of harmonisation, but does not support an increase in the allocation to HF broadcasting.

Secondly, the allocation 2300-2450MHz which is currently shared with a number of other services which, although not ideal, allows those interested to make use of this part of the spectrum. The amateur satellite service is planning to make more use of its allocation

of 2400-2450MHz. Australia is proposing no change in this part of the spectrum.

Thirdly, there is the desire for frequencies for wind profiler radars in the 400MHz region. These vertically pointing radars would cause severe interference to amateur satellite uplinks. They, however, could share with terrestrial amateurs on a geographic basis. Australia proposes that the matter be considered by a future WARC.

The matter of low earth orbiting satellites seeking an allocation alongside the 144MHz band does not appear to be a problem, but this matter will be watched carefully at the conference.

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## POUNING BRASS

GILBERT GRIFFITH VK3CQ - 7 CHURCH ST BRIGHT 3741

Continuing on from last month where we featured the Marconi School's method of learning the code, this month I will be giving parts of the manual as regards learning the sending of code. As far as I am aware, the sending test still requires the use of a hand key, not paddles etc. So the old rules and methods for learning sending should still apply. A word of warning, though, should this be the case. Don't start using paddles until after you have passed your exam.

### "... Sending

Before commencing to send, the student must see that he fully understands what is required. The Morse key is usually adjusted so that one sheet of ordinary paper can just be placed between the contacts without tearing. The spring tension should be sufficient only to return the key to the "up" position with the fingers lightly resting on the knob. It will be seen from this that the amount of effort involved in sending is only that necessary to move the contact the distance of the thickness of one sheet of paper against a very light spring action. Sending is not hard work — do not make it such.

Before commencing practice, see that the key is properly adjusted as to gap and tension. Sit erect at a table with the back resting on the chair support, and the feet and legs in the same position as for receiving. All body muscles should be relaxed and kept relaxed, except for the slight wrist action, during the whole practice period. The table should be of sufficient height to allow the hand to rest on the top of the key with the wrist slightly arched so that when the key is depressed the forearm will lie parallel to the floor. The key should be firmly fixed on the edge of the table directly opposite the right hand, the right upper arm hanging loosely from the shoulder and directly under the shoulder with the elbow close to the body. Sit sufficiently far from the table for the tips of the fingers only to rest on the knob of the

key. Form the right hand into an arch and lightly rest the tips of the first and second fingers on the top of the knob, with the ball of the thumb on the left-hand side of the knob, the third and fourth fingers hanging loosely down, but never touching the bar of the key. In this position, the wrist should be slightly arched and above the level of the elbow. Do not grasp the key tightly, as this tenses the arm muscles.

Sending with the left hand is not permitted as all telegraph installations are equipped for right-hand sending. A left-handed person can send with the right hand if he practises right-hand sending from the start. (Note: I think one should learn to send with one's non-writing hand now we don't have to work in a telegraph office. It makes note-taking much easier. Gil).

To make a "dit" drop the wrist down level to the elbow, bringing the lower arm parallel with the floor — then return immediately to the "up" position. For a dit the key is not held down; the action is a continuous one, down and up. To make the "dah" drop the wrist in the same manner as for the dit, but on this occasion leave it down for a period equal to three dits before returning it to the normal position. Do not use any force in these movements and, above all, avoid nerve sending (ie with the fingers only) of exaggerated wrist action. A beginner may experience difficulty in judging the time for dahs, therefore it is good practice to sing the symbols when sending, in a similar manner to that used in earlier receiving practice. This will give rhythm, which is all-important in Morse sending.

In sending, the right elbow must not move, but remain close to the body and relaxed. Avoid lifting the elbow away from the body, otherwise the student is supporting the whole weight of his arm, and the muscles of both the forearm and upper arm will be contracted, resulting in fatigue.

This will be very noticeable if the sender is

nervous, particularly in tests.

### Sending Practice

The student should now practise holding the key and forming dits and dahs. A good exercise is to form 20 dits, then 20 dahs, keeping uniform formation and speed (singing will help). Practise this until able to switch from dits to dahs and vice versa without hesitation or loss of rhythm. Next comes the formation of letters. It is of the greatest importance to remember that the symbols constituting letters and figures are made with an even, continuous flow. They must not become jerky, uneven or running into each other, otherwise they become unreadable. The component dits and dahs or the Morse symbol for a letter are sent as a continuous symbol. In other words, there is no conscious space between the dits and dahs in one letter or numeral. It is equally important to observe the correct spacing between the symbols of one letter and those of the next, and also that between the last symbol of the last letter in one word and the first symbol of the first letter in the next word.

The following are general rules for spacing and length of symbols:

- (1) A dah is equal to three dits.
- (2) The space between symbols which form the same letter is one dit.
- (3) The space between two letters is equal to three dits.
- (4) The space between two words is equal to five dits.

(Note from Gil: see how spaces feature in three out of four rules!)

It is better at first to exaggerate the spacing between letters and words; in other words, pause after completing each letter, keeping the pause between words comparatively long. As accurate formation of letters is obtained and speed increased, these spaces can be reduced to their proper size and a rolling or rhythmic formation obtained.

A common fault to be avoided is to run from one letter to the next without pause, particularly when the preceding letter ends with a dit or dits, or is a T or M. If a student experiences difficulty in spacing between letters, he should

practise sending at about five words per minute, by making the symbols for the letter, then removing his hand from the key, touching the table and returning immediately to the key and forming the next letter. In following this procedure an easy rhythmic speed of five words per minute is obtained.

This should not be continued indefinitely, but merely as an aid to obtaining the correct spacing at slow speeds. At faster speeds the movement of the hand to the table and back would create a space out of proportion to the speed of the symbol. Once the student advances to about 10 words per minute, his fingers should not leave the key until the transmission is complete.

The following exercises are suggested at this stage:

Practise five dits 20 times, five dahs 20 times alternately.

Practise d'dah 20 times and dah dit 20 times alternately.

Practise five dits and five dahs alternately 20 times.

Practise d'dah dit 20 times, and dah d'dah 20 times alternately.

Practise dah d'dah dit 20 times, and dah d'dah dah 20 times.

Practise the word the 20 times and moy 20 times alternately.

Practise each letter of the alphabet five times.

Practise each figure five times.

When formation is satisfactory the student

may follow the exercises herein, not passing on to the next exercise until satisfied that the formation of all letters and figures and spacing in the previous exercises are satisfactory.

## General Notes on Sending

Accuracy is the watchword. Never practise at high speed. Sending practice is muscular exercise, and must be taken as such; therefore practise at a steady pace, only occasionally speeding up for short periods. Students should not attempt to test themselves. No sender can fairly do this, for while concentrating on the clock sending is neglected.

The exercises which followed in the booklet are mainly five-letter groups such as EISH5, TMO0 etc, much the same as I experienced on a teaching cassette which I used to learn Morse. Even if you practise receiving plain English because you know it will be used in the exam, you will notice if you check some of the past exams that the words used are often selected to trap the unwary who try to journalise (ie, recognise and write down the word before all the letters have been sent). This is the most common way of causing a loss of concentration, which is often indicated by a complete lapse of memory when trying to decode the next letter or two. I am sure we have all had the experience, but if you follow the above rules, you should not have that problem in the exam.

Experienced Morse operators will agree with me when I say there will come a time,

perhaps after many years of operating using Morse, that you will be able to concentrate on other tasks while listening to Morse conversations and, without consciously "copying", you will be able to follow the conversation even when you appear to have missed whole phrases at a time. You will be able to unconsciously recognise the sender as a personalised character (ie a "mate"), by the "accent" of his code sending. I don't know whether a study has ever been made of this subject, but by calling it an "accent" I refer to slight differences in spacing, rhythm, the way in which errors are corrected (or not), words used, grammar, spelling, signal strength, tone, fading, etc, etc.

If you have had this experience I would like to hear from you with your comments and ideas. It is an uncanny feeling to switch on the rig and overhear a conversation in code and immediately know for sure who is talking to whom. It can happen in the space of one "over" or even less. How does our brain do it? Why do we enjoy a code conversation with one operator and, on the other hand, sometimes shy away from a conversation with another?

So, experienced Morsiacs, your task is to have a little think about how all these processes work for you, and write your observations down and send them to me.

Don't wait for next month, try to do it today.

73

ar

## INTRUDER WATCH

GORDON LOVEDAY VK4KAL - AVIEMORE, RUBYVALE 4702

The Bandung IARU Conference of R-3 is over, but the monitoring service is not. It may be news to those amateurs using 18MHz band, which became exclusive to us in 1989, that two TAFF Newsagency stations and an Argentinian weatherfax station have failed to vacate this band. A footnote to the ITU radio regulations permits the USSR to use this band! It appears their usage does not conform with the power limitations of the regulations.

An interesting trial is being run by the NZART Monitoring Service (it will be worth looking into in VK) by circulating the monthly summary of intruder reports on the New Zealand packet network, as an effective way of both informing amateurs about intruding signals and encouraging them to report non-amateur signals they hear in our bands.

A breakdown of reports for 1990 from Bill VK2COP.

WIA	JARL	NZART	Total
403	1062	429	1894 (3144 in 1989)

The format of 1989 has been changed to reflect more selectivity in reporting intrusions, so the smaller 1990 figure does not indicate a lessening of intrusions into the amateur bands, the breakdown of total:

WIA input represents 21.28% of total  
JARL input represents 56.07% of total  
NZART input represents 22.65% of total

The monitoring system must continue to be seen to exist, if only for its deterrent value. However, I think all in the monitoring service are agreed that the intruders will always be with us, in one form or another. My thanks to Bill VK2COP for his sterling work as R-3 Co-ord.

Most amateurs will be aware that the allocation of distinctive callsigns, which signify the country of the station using the callsign, is a matter covered by the International Radio Regulations (Article 25).

The military services of many countries use tactical callsigns which do not conform with the ITU allocations. These should still be recorded as the callsign of the intruder, even when it is clearly a tactical call. Over a period of time, the same callsigns recur and may be pieced together with other clues to provide the origin and identity of the station. One may also find, by listening to a station using these tactical calls, references to other frequencies.

Monitoring these other frequencies often rewards the patient listener with the true ID

or callsign of the station which uses only the tactical callsign when operating in the amateur band. It should be noted by monitors that not all countries are members of the ITU. Non-members are not allocated blocks of callsigns and must of necessity invent their own. Also, some members of the ITU may, for some purposes, ie military operations, adopt their own series of callsigns. A few follow: CP95 Adm VTN/CQ5-VTN, both these the location is Hanoi, as is F9T, HZV, VRQ. Then we have RCF with a stack from Moscow URS! Z3N used to connect with Y5K in East Germany! A lot of these are so-called diplomatic stations. I can give more examples if required.

The spuri of 21480, has a tx site at SERPUKHOV (54°25'N x 37°40'E). Comment. As there are no known fundamental h/cast frequencies on the 28-29.7MHz band, those heard are harmonics. Check them out with your pocket calculator and let your co-ordinator know.

Our thanks to VKs: 2PS, 2GDF, 4BG, 4AKX, 4BHL, 4BTW, 4BTW, 4BXC, 4CAS, 6RO, 6XW, 6BWI and 7RH.

73, VK4KAL

**Tell the advertiser you  
saw it in the WIA  
Amateur Radio magazine!**

Freq	Date	Time	Z	Mode	ID	Remarks	Freq	Date	Time	Z	Mode	ID	Remarks
3530	280991	1315		J3E		Broadcast Asian	14095	271091	1300		A1A	VPC	Calling BFC (VRQ clone)
7000	2409	1148		J3E/U		Sev stns in Indonesian language	14103.5	1710	1212		XXX		515Hz Jammer
7003	161091	1300		A1A	"V"	"V" Beacon	14140.5	041091	1230+		B9W		250Hz & F1B MN radio em freq (6)
7008	0510	2325		F1B		Hi-speed RTTY. No sh given	14165	mni	mni		A1A	P8U	P7A de P8U QRK? K (3)
7008.3	130791	0942		A1A	4F2F	"8MYC de 4F2F"	14168.5	0210	0510+		f1b		7hrs 250Hz tfc & txt of MNR (3)
7010	0310	1045		F1B		7011/7012 QSY to clear freq (14)	14168.5	161091	0950+		XXX		4hrs. Suspect non-amateur USR? (3)
7014/16	161091	1240		J3E		Asian r/telephone	14192	3009	0935+		A1A	MNY-	Y5JJK, 6UN7, 1CNV, FBTG, VY9U &
7015.1	2610	1150		J3/U		Sev stns, Indonesian (?)	YJ5B (6)						
7020	2809911020			J3E		B/caster, no other details!!!	14211.5	0410	1040		2/F1B		2ch x F1B not F7B, 250Hz USR (8)
7039	2210	0947		A1A		25wpm "712ROQ FMCAE DEG"	14212	1510	1035		F1B		1000Hz + NON (11)
7041.5	0410	1235		F1A		RTTY 1kHz "A47 UDNA 76 6AN4"	14215	011091	1000		A1A	P7A	ex CQ5 P9K de P7A QSV K (16)
7042.5	2509912247			F1A	UHF3	1kHz shift(?) Idles aft ID							Bracketed figures = no of times logged for DoTC
7049.7	0410	1240		A3E		"Sing-song" music V/announcer	14217	021091	0645+		MXD	UMS	7hrs F1B, NON, F1CW MNRadio
14011.7	261091	0740		F1B		1000Hz/75N encrypted							Reply often on VLF 16.5KHz, NON holds freq for F1B of 250Hz (18)
14012	0810	1120		F1B		1000Hz/2hrs logged (3)	14218	mni	mni		F1B		8hrs 500Hz/CW rmls (15)
14014	2709	0545		J3E		B/caster, Indonesian lang	14228	231091	1140-55		A1A		7XWX "HNGT de 7XWX Marine???
14026.5	111091	1000+		AC3		Wx fax/120rpm drum sp/2kHz w (4)	18075	2410	1213		A3E		No ID or info at this stage
14035	2710	0919+		J3E/?		Rad telep/indo military net?	21031.5	2409			MXD	M N R	18hrs CW tfc is UUNS (41)
14044+	mnl	mni		J3E/?		24hrs 2ch r/telephone (37)	21283.5	dly	mni		MXD	M N R	12hrs F1B most used 250Hz tfc
14047	131091	1050		J3E/L		Radio telephone Asian? (4)							from shore stns to sea vessels
14055.8	2710	1251		J3E/L		Indonesian Navy? M&F voices	21330	011091	1100		A3E	R/Moskva	USR (42)
14058+/-	dly	mnl		AC3		24hrs/Ch Helsekreiber (44)	21342.5	2309	0800+		R7B		Spurri of 21575 (9)
14060.5	dly	dly		A1A	VRQ	5ltr & news in English (48)	21347.5	2409	0440		A3C		Gr of 3XR7B F1B/250Hz (9)
14075/6	dly	mni		A1A	VRQ	mny freq to 14165 (10)	21396	071091	0400+		A3E	R/Moskva	24hrs. Wx fax USR (34)
14092	011091	0930+		A1A	RGT77	Probs with Xmission, chirps (4)							ID-1020z, Russian prog (5)

Callsigns VBX/NZB/VPC/KFB — all from same source, freq 17070-14103 (38)

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## KNUTSHELL KNOWLEDGE

GRAHAM THORNTON VK3IY

A brief overview of what other magazines have to say. The information given below has been supplied to the WIA free of charge by Thornton Publishing. Your divisional library may have copies of the references quoted.

### Amplifiers

#### Landwehr Masthead Preamplifiers.

(Product Review) Peter Hart G3SJK, RadCom vol 67 No 11 Nov 1991 pp 47 - 48. il photos. A report is given on Landwehr 145MAS (2m) and 435MA (70cm) masthead amplifiers, including measured performance.

### Antennas

#### ATUs

BNC Connectors Handle Switching in a Flexible Antenna Tuner. Zack Lau KH6CP1, QST vol LXXV No 10 Oct 1991 pp 31 - 32. il ccts, diag and photo. A variable capacitor, a roller inductor and a tapped inductor may be used in various L network configurations. Selection is made by plugging a shorted BNC plug into one of four sockets. A design is given for a home-brew insulated shaft coupler.

Low-Pass Antenna Tuner. J Frank Brumbaugh KB4ZGC, 73 issue #373 Oct 1991 pp 46, 73. il cct. A T circuit, with series inductive arms and a shunt capacitor, is used as an antenna tuner. This arrangement has the advantages of also acting as a low pass filter to reject harmonics, and an earthed rotor shaft for the capacitor. The unit can also be used as an L circuit with either inductive or capacitive input. Each of the two inductors has independently selectable switched taps. It is suitable for an unbalanced antenna or feeder.

### Miscellaneous

Curtains for You. James D Cain K1TN, QST vol LXXV No 10 Oct 1991 pp 26 - 30. il diags, graph and photo. Design details are given for an 8 element Sterba array for use on 10m. The theoretical bidirectional gain is 8 dBd. It is claimed that element length is not critical for this antenna.

Match Bandwidth of Resonant Antenna Systems. Frank Witt A11H, QST vol LXXV No 10 Oct 1991 pp 21 - 25. il cct, diag and graphs. A deliberate mismatch between line and antenna increases the bandwidth of the system as seen from the sending end. The greater the inherent line loss, the more pronounced this effect becomes. By adopting this technique, the line loss over most of the band can be reduced.

### VHF/UHF

Reception - A Function of Radiating Structures. B N Jansen, RadZS vol 45 No 9 Sept 1991 pp 4, 6 - 7. il diags and graphs. An experiment is described where the polar patterns in the horizontal plane are compared for  $\sqrt{4}$  and  $5/8$  monopole antennas. The two antennas are compared at each of six positions on an Opel Monza motor vehicle; two on the bonnet, two on the roof and two on the boot. It is apparent that the pattern for the  $5/8$  antenna is less critical with respect to position on the car - the worst case being a loss of 6dB in one direction. The  $\sqrt{4}$  antenna, however, showed a worst case attenuation of 12dB.

Simple Gain Antenna for 903 MHz. Phil Salas AD5X, 73 issue #373 Oct 1991 pp 25, 27. il diags. A modification to a Radio Shack U-75 UHF corner reflector beam with seven directors is described, together with an appropri-

ate coax balun. Adjustment details are also given.

### Electronic Devices

#### Timers

First Steps in Home Construction (7). (555 Timer) John Case GW4HWR, RadCom vol 67 No 11 Nov 1991 pp 34 - 36. il ccts, cmpts, pcb and photo. An introduction to the use of prototype boards is presented, with the use of a 555 timer. Suggested applications are given for a 1 - 8 min on-timer, a tone generator and a pulse generator.

### Filters

A Simple VHF/UHF Diplexer. David C Jenkins WB6RBE, QST vol LXXV No 10 Oct 1991 pp 18 - 20, 25. il cct, diags and photo. A low-pass and a high-pass filter act to combine the output of a 2m and a 70cm transceiver into a single feedline and dual-band antenna. The unit can also be used as a divider, feeding each output from a dual-band transceiver to its appropriate antenna.

### Narrow Band Modes

An Optical, Through-the-Air Digital Communication Modem (1). Lawrence E Foltzer, QEX #117 Nov 1991 pp 3 - 8. il ccts and photos. The hardware and software for an optical digital link are discussed in detail. An LED transmitter, using a peak current of 200mA, gives a range of up to 660 feet using 1.2 inch diameter lenses. It is claimed that baud rates as high as 62,500 are possible with the technique described.

### Receivers

#### Home Brew

The Sudden Receiver. Rev George Dobbs G3RJV, 73 issue #373 Oct 1991 pp 8, 10, 12. il ccts, cmp, diag, pcb and photo. A simple DC receiver is described which can be made to cover any amateur band between 160 and

20m. NE602 and LM386 ICs are used.

### Product Review

**The Drake R8 Receiver.** Bill Clarke WA4BLC, 73 issue #373 Oct 1991 pp 50 - 51. A qualitative review is given for this receiver, which operates from 100kHz to 30MHz. The manufacturer's performance specifications are quoted. A computer connection is provided.

### Transceivers

#### Miscellaneous

**Microprocessor Repeater Controller (1).** John Bednar WB3ESS, 73 issue #373 Oct 1991 pp 28, 30, 32, 34, 36, 38. il cct, cmp, pcb and photo. An 8749H single-chip microprocessor is used to control repeater functions. Some of these functions may be controlled by the user; others are reserved for 'superuser' activation only. It is claimed that this low cost controller contains most of the necessary facilities for a modern system.

### Product Reviews

**Kenwood's TH-77A Dual-Band Walkie.** Michael Geier, 73 issue #373 Oct 1991 pp 42, 44 - 45, 47. il photo. A review of this rig is given without laboratory comparison of specifications.

**Yaesu FT-650 6/10/12-Meter Transceiver.** Jon Bloom KE3Z, QST vol LXXV No 10 Oct 1991 pp 33 - 36. il graphs and photo. A Review is given of this equipment, complete with laboratory measurements.

### Transmitters

#### QRP

**A 10m Sideband Transmitter.** Bruce Auld NZ5G, 73 issue #373 Oct 1991 pp 14, 16, 18, 20 - 22, 24. il ccts, cmps, diags, pcbs and photo. A design is given for a 10m double sideband transmitter. Power output is 1W. Full construction and adjustment procedure is described. The equipment consists of three

modules: VFO, balanced modulator and power amplifier.

### Glossary of Abbreviations

il The article contains illustrations, a list of which follows.

- cct A circuit diagram
- cmp A component layout drawing
- EA *Electronics Australia*
- diag A mechanical drawing
- pcb A master drawing from which printed circuits may be produced
- QSTVE *QST Canada*
- RadCom *Radio Communication*
- RadZS *Radio ZS*
- 73 *73 Amateur Radio Today*

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## DIVISIONAL NOTES

### 5/8 wave

ROWLAND BRUCE VK5OU

Well, I have just managed to find the typewriter under the boxes of Christmas cards — mine, and those which I write on behalf of Council to our many volunteers who all help to keep the WIA working. There are about 65 this year, including office bearers, broadcast relayers and the Morse practice team. (Of course, this doesn't include Council members).

It is good to note a couple of new names on the list. Tony Hurren VK5PBH has been filling in as a 2m relay operator this year, and I'm told will probably be a regular member of the team next year. Dean Whitehorn VK5ZDW has apparently been helping with ESC for several months, and his help has been greatly appreciated by Mark and David; so, welcome, and thanks to you both.

Alan Roocroft and his wife Mee Wah have now been doing the QSL Bureau for a few months, and are probably wondering how George and Thelma Luxon managed to do it for 25 years! Alan's recent comments on the broadcast are worth repeating and will make their lives a little easier.

Do sort your cards into countries.

Do write the callsign on the back top right-hand corner.

Do check with rarer DX that they have a bureau which to QSL through (or perhaps they have a QSL Manager).

Do collect your cards regularly if you are an avid DXer, or have someone collect them for you (you could save Alan from getting a hernia from carting those boxes around!)

And, last but not least, if it isn't already too late, save any cards you may be holding until the end of January, so Alan and Mee Wah can have a well-earned break, and the PO box won't be overflowing when he gets back.

The fees for 1992 for this Division have

been set as follows:

- Full members \$70
- Pensioners/students \$56
- Family member (without AR) \$42

(anyone can nominate not to have AR, if they wish)

### Repeater News

The Port Augusta ARC is planning to build a 2m repeater to be sited on Mt Arden.

I believe the Elizabeth ARC is now doing a relay on Sunday mornings (of the WIA broadcast) through its new 70cm repeater.

If these, or any other, clubs would like to have information published in this column, I would love to hear from you. If you get your copy to me by the first of each month (except for Jan 1993 copy, which needs to be with me by 24 Nov '92) I will put it in the next edition.

### Diary Dates

28 Jan — General Meeting Night (usually this had traditionally been a Buy & Sell night, but I've been wrong before!!)

ar

## CLUB CORNER

### Hervey Bay ARC

After a successful 8 days on Fraser Island IOTA OC 142, it was back to Hervey Bay for the November Examinations.

Another first for the club and for Hervey Bay our first lady operator — Liz White nov VK4LIZ my XYL so very proud, other passes and subjects as follows.

VK4LAC AOCPT, VK4NBB AOCPT/MS/MR, VK4KAM 10WPM/S/R. Colin Reeves complete NAOCP, Mike Barrows NOOCP/T/R, Veronica Tessemer AOCPT/R/5WPM S/R, Tony Haste AOCPT/R, John Hunter NAOCP T/R, Ritsie Zeeman AOCPT/10 WPM, Jim

White AOCPT 10WPM/S/R.

Also on 24 November a combined BBQ was held at Hervey Bay Club Rooms, members from Bundaberg, Gympie, Maryborough and Hervey Bay clubs attending with a terrific day had by all.

The club's monthly meetings are now held on the third Monday in each month at our club rooms, Dayman Park Hervey Bay. All visitors to Hervey Bay are welcome. Hope all had a wonderful Christmas.

73 Jim White VK4AJF

Secretary, PO Box 829, Hervey Bay, Q'ld. 4655

ar

## Stolen Equipment

Stolen from Dick Smith's Bendigo store: Yaesu scanning receiver, model number FRG9600, serial number 5N120767.

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WLA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

### Remembrance Day Trophy

The ultimate location of the RDC trophy may, hopefully, be in the War Memorial Museum, Canberra, safe from theft.

The museum is itself a place of remembrance, visited by thousands of the public every year. With the trophy strategically placed so as to be easily inspected by visitors, with complementary historical information nearby, I know of no better way of informing the general public about the role of radio amateurs in defence of freedom and our country.

The provision of a replica for use by the winning Division would facilitate the implementation of this proposal.

G HARMER VK4XW  
35 RUTLAND ST  
COORPAROO 4151

### Even Trees Unnecessary?

I refer to your item concerning "Tree Antennas" on page 23 of November '91.

VK5RK tells me he tried this and was able to work to JA and other remote spots.

This brought to mind that some 40 years ago, when I lived at Largs Bay, I was able to contact a VK2 station who, after receiving my signal report, asked that I might QRX. I obliged, and he called me again.

It turned out he was using a folded dipole, lying on the ground, and had moved it around 90 degrees to see what the result was.

There was a difference of two S points in the two signals.

My only comment is, "If this is so, why do we need either masts (and/or towers) or, for that matter, even trees?"

Obviously, what you find works satisfactorily is what you should use.

My present 14MHz antenna is a ground plane, standing on the verandah roof—about 10 feet above ground. A single insulator and 250lb breaking strain nylon fishing line supports the mast (antenna) to my entire satisfaction.

Yes, I do have other radiation systems such as coax dipoles, as well as a 66ft-long wire for other frequencies.

I am left to wonder "Why?"

TOM LAIDLER VK5TL  
18 ALBION AVE  
GLANDORE 5037  
ar

## SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES MUST BE NO LONGER THAN 200 WORDS.

### Don Finlayson

Listener No L70166

Don passed away suddenly on 2 October, aged 80. He made his first crystal set at the age of 10. Later he studied for four years by correspondence to gain his Radio Technician Certificate. He was self-employed for many years and gained a wonderful reputation as a friendly repairman who took great pride in his work. He was middle-aged when television arrived, but went back to school with great glee to learn about the new medium and mastered it very well.

He was always an avid listener to amateur radio operators and, prior to his death, was planning to become an operator himself. He had also enrolled for a seminar on CD players, ever anxious to learn about a new technology. The other great love of his life was Scouting.

In his younger days he founded troops in many Tasmanian towns such as Longford, Cressy, Deloraine, Margate. The Law and Promise were the essence of his love—love of

God, Queen and Country; a friend to all, thrifty and honest.

In later life, the skills he learnt at Rostrum helped him express these ideals, and he became an excellent public speaker. Only a few weeks before he died he replied to a toast at a Scout Reunion and a stranger remarked he had never seen a man with so much enthusiasm.

A fitting tribute to a wonderful character.

MIKE EDEN VK7ME  
ar

We regret to announce  
the recent passing of:

Laurie Meek VK4ALZ

## Morseword No 58

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Across:

- 1 Appears
- 2 Frosts
- 3 Graded
- 4 Spasms
- 5 Mink
- 6 Leaves
- 7 Platform
- 8 Likeness
- 9 Cover
- 10 Old form of "have"

Down

- 1 Stitches
- 2 Run away
- 3 Copied
- 4 Large rabbit
- 4 Caresses
- 6 German boy's name
- 7 Nullify
- 8 Touch
- 9 Meaning
- 10 Bedding

Audrey Ryan 1991

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**We need the numbers to protect our  
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# HAMADS

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● **AIDON FERROMAGNETIC CORES:** For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please... 14 Boonyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

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● **GEAR OF Russell VK3CZ (deceased).** Tx Rx IC730 80m-10m (WARC), \$550, complete with power supply & desk mike. FT290 2m TxRx with mike, \$400. UNIDEN 2020 TxRx 80m-10m, with tuner & speaker, \$450. JOHNSON VIKING RANGER Tx & power supply, as is, \$100. Forest Phone 1825 kHz, as is, \$45. LINEAR amp 80m-10m Barker & Williamson, \$350. KINGSLEY RxAR7, \$150. AR88 Rx 540kHz-32MHz, ext sprk, \$150. SWR BRIDGE VG2 dual meters, \$30. TILT OVER Tower, 45' approx (buyer to remove), \$250. THREE-ELEMENT HF beam (buyer to remove), \$125. CRO Hameg HM107-3', \$25. FREQUENCY METER elect Aust. not working, \$40. KEY SPEED mechanical Vibroplex, \$60. SIGNAL GENERATOR Heathkit 100kHz-160MHz, \$50. 8AMP power supply, \$75. FREQ METER BC221-AK125-20,000kHz, \$40. FREQ METER Gertsch FM-3, \$30. STC VHF TxRx & 1 spare (parts), \$50. ANTENNA TUNER with SWR bridge, \$50. Q MULTIPLIER QF71 Heathkit, \$15. METER 30V & 300µA Gene Swedish, \$25. PARABOLIC DISH 6' dia approx, \$50. YAGI X Beam, not complete (VHF), \$50. There are numerous other bits & pieces at reasonable prices. Items listed are on sale from the QTH of VK3GZ Saturday 16 Jan '92 from 9am-5pm. Prior enquiries to Jack VK3EB. Phone (03) 862 1769.

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● **The RAAF Williams Amateur Radio Club VK3APP at the Laverton Base will be conducting classes for prospective radio amateurs and those who wish to upgrade their existing qualifications during 1992.** The club is planning classes in the following sequence: AOCPP/NAOCPP morse code; pre-novice theory preparatory course; NAOCP theory; and an AOCPP theory course. Enquiries to Mr Neil Trainor (03) 369 1010.

ICOM IC730 HF txcvr 10-80m w/mic & manual, VGC, S/N 12640, \$700. Kevin VK3CKL QTHR (03) 792 9503.

● **YAESU FT101B txcvr, mic handbook, 4 spare finals,** \$400. Shure 444 mic, \$50. Kyoritsu SWR meter, \$25. Sangean world radio ATS803A (retails \$299), \$150. Arthur VK3ENT QTHR (053) 32 8184.

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## WANTED — VIC

● **HQ1 or ALTRON 3-element mini beam,** condition not important. Basically needed as addition to present 2-element HQ1. VK3EAZ Evan (03) 799 1140.

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● **MANUAL for Hallicrafters SX25 RX copy or original.** Will reimburse costs. Bruce VK3WL 8 Walwa Place, Werribee 3030. (03) 741 1127, (03) 741 7654.

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## WANTED — WA

● **RESISTORS 10 470 ohm five watt carbon please.** VK6NTJ Terry QTHR.

## WANTED — TAS

● **YG3395C CW filter for Kenwood TS520S.** Clanie VK7HC QTHR (004) 31 8211.



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\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

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State: .....


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Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 58

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Across: 1 seems; 2 ices; 3 rated; 4 fits; 5 fur; 6 goes; 7 dais; 8 image; 9 hide; 10 hast

Down: 1 sews; 2 flee; 3 aped; 4 hare; 5 pats; 6 Kurt; 7 negate; 8 feel; 9 sense; 10 sheet

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## VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards  
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VK2	PO Box 73 Teralba NSW 2284
VK3	Inwards — GPO Box 757G Melbourne Vic 3001 Outwards — 40G Victory Blvd, Vic 3147
VK4	GPO Box 638 Brisbane Old 4001
VK5	PO Box 10092 Gouger St Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
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# RADIO AMATEUR

FEBRUARY 1992

RRP \$3.25

Reference  
Data Issue



THE WIA RADIO AMATEUR'S JOURNAL

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May	6/4/92	8/4/92

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The QTH of Hartmut 9X5HG near Kigali, Rwanda. Photo by courtesy of Stephen Pall VK2PS.

# EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

## Feedback

So far, I have received four written comments on my editorial last month (Lies, Damned Lies and ??). Two are from migrants (or at least visitors) which is itself an interesting statistic. The full quotation is "There are lies, damned lies, and then there are statistics". Colin N4SOI (giving a VK2 address) tells us who. Not Winston Churchill, but someone who occupied the same Prime Ministerial chair some 75 years earlier, Benjamin Disraeli. Thanks for the info, Colin!

The other migrant is VK4CGO (he didn't give his first name) who was a ZL and NZART member from about 1947 until moving to VK4 a few years ago. He and Owen VK2DMY were not happy with the theme that WIA member-

ship is becoming cheaper in terms of inflated dollars (measured by CPI). The VK4 disliked but could not alter the political and economic trends he observed in ZL and now sees in VK, realising that they are probably world-wide. In fact, the only country still booming seems to be Japan; and that is only because of ingenuity and productivity demonstrably better than the rest of the world.

Unfortunately, Owen was even more unhappy, and described my efforts as "ill-considered, epitomising the elitist, bureaucratic and self-righteous attitude of the Executive of the WIA". He suggested that my personal background did not "reflect the average Australian amateur". He preferred "more logical and commercial values when as-

sessing value for money". CPI is apparently not good enough. And, finally, he wanted to see more advertising in AR, thus reducing its cost to members.

Others may agree with Owen, so I have decided to comment here rather than in the limited space of a footnote in "Over to You". What is ill-considered in a statement of fact? Am I elitist because I have an indexed pension? We radio amateurs are one in every thousand of the population. Most of us have at least some background in electronics. Many of us (I guess between 30 and 50 percent) have tertiary qualifications. Collectively, are we not ourselves an elite?

What is a bureaucracy? Macquarie gives four definitions, which all add up to government by officials without responsibility. The WIA is not a government, but we do continuously negotiate with government bodies, which respond much more co-opera-

tively to a well-organised representative body. Yes, we are representative, and mostly without being paid for it. Personally, I give about 25 or 30 hours of my time every month, plus over 300km of travelling, to the WIA, without one cent of payment. I joined the WIA in 1945 and was first licensed in 1947. I have been on Executive since 1983. Am I a bureaucrat? If I am self-righteous, have I no good reason for it? I guess I am not "the average Australian amateur". Most would not be so altruistic. My position as Executive Editor is open to anyone who feels they can do better.

More advertising in AR would permit a larger magazine or subscriptions being kept lower. No argument! But in the present economic climate advertisers are struggling to stay in business. Advertising must reach more customers to pay for itself.

*Continued on page 16*

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society — Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

Registered Executive Office of the WIA: 3/105 Hawthorn Road, Caulfield North, Vic 3161

All mail to: PO Box 300, Caulfield South, Vic 3162. Telephone: (03) 528 5962

Fax: (03) 523 8191

Business Hours: 9.30am to 3.00pm on weekdays

**General Manager and Secretary: Bill Roper VK3ARZ**

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# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## Spread Spectrum Transmissions

DoTC in Canberra recently advised the WIA they had received a request from one of their State offices for an interpretation of the requirements of RIB 71 para 39 with respect to spread spectrum transmissions.

Canberra advised the DoTC State office that spread spectrum transmissions are to be considered as wide band emissions and, as such, are governed by paragraph 39 of the RIB. This means that spread spectrum modulation

is only permitted above 420 MHz.

This interpretation is agreed to by the WIA.

## JOTA 1991

The report on the 34th Jamboree on the Air, held over the weekend of 19-20th October 1991, was received recently in the Executive Office. Once again the figures are impressive.

In Australia 653 stations operated, on behalf of 970 Scout groups and 913 Guide units, enabling a total of over 25,000 young participants to

make over 10,000 contacts. Comparison with figures from recent years shows that despite all the other attractions available, amateur radio is still high on the interest list of these young people.

Surely JOTA must be one of amateur radio's best recruiting and public relation events.

## Congratulations to JM1UXU

The Japanese Amateur Radio League recently reported that the 4th Class Order of the Sacred Treasure was conferred upon Masayoshi Fujioka, JM1UXU, Secretary of the IARU Region III, in recognition of his contributions towards telecommunications and his activity

in WARC's and other ITU conferences.

Masayoshi was re-elected Secretary of IARU Region III for a further 3-year term at the IARU Conference in Bandung late last year.

## Amateur Radio Delivery Problems

Amateur Radio magazine delivery to members is still suffering some minor problems. The mailing house machine is again occasionally inserting two address fly sheets in the one package.

A number of November issue deliveries were affected, and it seems that this fault recurred with some of the January 1992 issue. Once again, thank you to those

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8625 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley VK2ZIG Secretary Bob Lloyd-Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 26.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) \$86.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Halley VK3XLZ Office hours 0630-1530 Tue & Thur	1.840MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 146.700 FM (R) MT. Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Old 4001 Phone (07) 284 9075	President John Aarssen VK4QA Secretary Bob Lees VK4ER Treasurer Eric Fitzcock VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz 52.525 regional 2m repeaters and 1298. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (06) 352 3428	President Rowland Bruce VK5OU Secretary John McKellar VK5BJM Treasurer Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.625, 438.425 (NT) 3.555M 148.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farran VK6AFA Treasurer Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 436.525MHz. Country relays 3.562, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfame Tas 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700MHz FM (VK7RH-T) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobar) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).			

Note: All times are local. All frequencies MHz.

Membership Grades Full (F) Pension (G) Needy (N) Student (S) Non receipt of AR (X)  
Three-year membership available to (F) (G) (X) grades at fee x 3 times

members who have notified the Executive office of extra fly sheets received with their copy of the magazine, thus enabling us to forward magazines to those members who missed out.

## Parliamentary Report on RF Spectrum

As previously reported, some months ago the WIA made a submission to the House of Representatives Standing Committee on Transport, Communications and Infrastructure concerned with their inquiry into Management of the Radio Frequency Spectrum. The Committee called for initial inputs from the community and, having digested those, together with verbal evidence, posed a long series of questions for further consideration and written response. The WIA also responded to that extensive question list.

The WIA received copies of the written submissions, 75 in all, together with transcripts of the verbal evidence and now the final report.

The Committee's Conclusions and Recommendations are extensive, however they may be summarised as follows:

### Conclusions

Spectrum management objectives must be clearly defined, accurate and relevant. They must take into account the immediate demands and the potential for rapid changes in technology and service innovations in the future.

The objectives should not impede the achievement of the broader communications policy objectives of government.

The objectives should define spectrum management from an operational perspective with a view to maximising the availability of spectrum to all users for all purposes. The two significant objectives from an operational perspective are dynamic and technical efficiency.

The spectrum manager should continue to be respon-

sible for ensuring observance of Australia's obligations with regard to the international planning process.

### Recommendations

There are six spectrum management objectives: dynamic efficiency, technical efficiency, provision for public and merit goods (we amateurs fit in here), allocation to highest value uses, international agreements and an equitable system of charges.

With regard to charges, actual cost recovery is recommended with clear identification of any taxation component. A means of recovering economic rent of the spectrum should be formulated.

In fine tuning aspects of the current spectrum management system, DoTC audit of spectrum utilisation, by monitoring both of frequency bands and congested use locations, is recommended. This is to be associated with extensive data bases, termination of frequency registration certificates and private sector frequency coordination services.

It is recommended management be by a mixed market and administrative system and the tradeability of spectrum resources be introduced for commercial users. Non-commercial users should have the option to retain the current administrative system or convert to the tradeable one. Auditing of spectrum use for public sector users should be introduced and tradeable spectrum should not be perpetual but have a fixed term tenure like a lease.

### How could this affect us as radio amateurs?

Firstly we need to become more efficient in using spectrum; perhaps our band planning needs to be more timely with unused spectrum from obsolescent modes recycled. This can be achieved by flexible multi-use or layered band plan allocations.

We should anticipate user pays cost recovery of management of our allocations and, coupled with that, more frequency coordination action on

our part. Incidentally, that coordination must extend beyond our allocations for issues such as site compatibility.

Finally we must use our frequencies, for they are likely to be monitored for occupancy more frequently by automated means.

### More on Harry

The 100th Birthday of Harry Angel VK4HA, was featured in an article in the December 1991 issue of Amateur Radio magazine. Harry's birthday attracted quite a lot of media attention in VK4, including the use of the cover of the December 1991 issue of our magazine on at least one television station, and interviews with Harry himself. Great publicity for amateur radio!

### Radiocommunications and EMI/EMC Standards

The DoTC has requested input from the WIA towards establishment of Departmental standards policy, following a conference in Sydney in November. Two discussion papers "New Approaches to Radiocommunications Standards Setting Policy" and "Electromagnetic Compatibility Standards" were provided.

According to the DoTC these papers "are intended to promote discussion on new policy approaches which could have a significant effect on radiocommunication services and wider industry. Given the potentially far-reaching effects of such standards, it will be necessary to have a clear view of the overall objectives that are to be achieved. The intention of this consultation process is to ensure that the outcome is a responsive and effective standards framework based upon an appropriate balance of statutory controls and self-regulatory arrangements to facilitate the effective operation of electronic communications systems, to encourage the development of new

services and technologies, and to provide positive incentives for the most economically efficient uses of the radio frequency spectrum, to the social and economic benefit of the Australian community."

The papers stress the need for Australia both to have input to establishment of international standards, and to conform to those standards for the sake of both manufacturers and consumers. They also suggest possible procedures for demonstration of compliance, auditing of performance, and phasing in of new regulations.

The WIA has long advocated the establishment of, and adherence to, standards, especially with regard to EMI/EMC. The papers have been circulated to a number of WIA representatives for their comments and preparation of a response to DoTC. Unfortunately, as often happens at this time of year, the response time is unrealistically brief - we received the letter on 8th January, and the deadline for responses is 30th January!

### Channel 5A Problems

A note of concern from John Martin VK3ZJC, the WIA FTAC Chairman.

"I have recently noticed strong QRM on the lower end of the 2 metre band. This is due to an ABC TV translator 100 km away changing over to stereosound. The second audio sub-carrier is on 143.990 MHz, and with 50 kHz deviation it extends well into the 2 metre band. This situation will become more serious as all ABC stations change over to stereo, and it will be particularly severe in areas such as Newcastle. I believe the 5A station there has a 25 kHz positive offset, therefore the second audio carrier is on 144.015 MHz. There will also be a parallel situation on 6 metres with Channel O stations radiating signals within our exclusive 52 - 54 MHz allocation.

I would appreciate any information from amateurs on

TV stereo interference. Amateurs living in Channel 5 areas may also be able to advise whether their local TV stations are radiating interference in the 108 MHz aircraft band."

Radio amateurs who wish to supply information should send it to John care of the Executive Office.

## SEANET 1992

The Darwin Amateur Radio Club will be hosting the 20th Annual South East Asia Net Convention at the Beaufort Hotel in Darwin from 29th October to 1st November 1992. DARC will be arranging accommodation packages from five star quality downwards. Make a note in your diary now for the 29th October to the 1st November 1992. More details in future WIANEWS.

## Improper Use of the Amateur Bands

Following discussion and a Resolution at the International Amateur Radio Union meeting in Bandung late last year, the IARU Administrative Council has produced a special issue of its Calendar to outline the IARU position on the growing problem of improper use of the amateur bands.

Most cases of improper use can be categorised as either - 1. "Intruders" operating contrary to the Table of Frequency Allocations and causing inter-

ference as a result;  
2. Unlicensed stations; or  
3. Satellites launched for non-amateur purposes but using Amateur Satellite allocations, or amateur satellites being used for non-amateur purposes.

The Calendar emphasises that the first step must always be to bring the offenders to the notice of the local administration, except perhaps where the interference is readily traced to a fault in the transmitter. In this case, the technical staff responsible for the transmitter may be contacted direct.

The IARU is not a police force, and has no authority to enforce agreements between nations on telecommunication matters. It can, however, help to "educate" administrations and encourage them to take corrective action. In a situation where complaints by a member-society cannot be resolved with the local administration, the regional IARU Monitoring Service coordinator may assist in approaching the administration.

The IARU Monitoring Service is a network of amateur stations who document the operation of unauthorised stations in our bands. There is always room for more interested amateurs to join this activity.

## International Representation Fund

WARC 92 will convene in

Torremolinos in Spain on 3rd February 1992, so by the time members read this, the WIA delegates, David Wardlaw and Ron Henderson, as members of the Australian Government team, will be on their way.

The preparations for this WARC have been prolonged and intense, as well as expensive. The WIA is very appreciative of those who have made donations to the International Representation Fund to help cover these expenses.

The fund is financed chiefly from membership fees (\$2.00 per year of your subscriptions - \$1.60 if you are a concessional member - goes to this fund) but it has been very pleasing to receive extra donations both from members and non-members.

WARC 92 is just one of many situations where the WIA is attending as the representative of all Australian amateurs, non-members as well as members, and presenting the case for retention or extension of privileges for the whole service.

Donations received since the last acknowledgment in this magazine include-  
Mackay AR Association  
RAAF Williams ARC  
Qantas ARC  
R Cortis VK2XRC  
D Rosenfield VK3ADM  
G Muirhead VK4WEM  
H Hoover W6ZH  
R Huey VK2AHU  
D Friend VK4OE  
L Schmidt VK4JZ  
R Harris VK5RR  
G Percy VK5OR

R Tulloch VK4BF  
Orange ARC  
G Selwood VK2KJX  
H O'Brien  
D Clarke VK2K??  
V Marsden VK2EVM  
P Gammie VK2MHN  
F Hoy  
E Hicks VK2VOH

Although the expenses will reduce for a while after WARC 92, the fund will still be maintained as a separate budget item because international activities and needs are ongoing. Donations will continue to be welcome, and non-members donating to this fund can be assured that all such donations are committed to works for the benefit of all amateurs.

## Celebratory Prefix for Finland

A recent fax received from the Finnish Amateur Radio League (SRAL) announced that the Finnish Telecommunication Centre has given all Finnish amateur radio operators permission to use the OG prefix, rather than the usual OH prefix, for the whole of 1992. This is to celebrate the 75th anniversary of Finnish independence.

A special award has been issued by SRAL. To obtain the "Suomi 75 vuotta" award you need contacts with 75 amateur radio stations. More details may be obtained from the SRAL Awards Manager, Mr Jukka Kovanen, Varuskunta Rak 47 as 11, SF-11310 Riihimäki, Suomi-Finland. ar

# Australian Radio — The Technical Story, 1923-83

WINSTON T MUSCIO ISBN 0 949924 82 2. KANGAROO PRESS, SYDNEY, 1984

SUBJECT: TECHNICAL HISTORY OF RADIO BROADCAST EQUIPMENT IN AUSTRALIA



Winston joined STC in 1933 and stayed with that company till his retirement in 1980. He held senior engineering and management positions during the company's development of broadcast and commercial radio equipment, and during WW2 he was involved in military radio production. His book has detailed background and technical information on many of the radio transmitters and receivers build by AWA, STC and Philips.

There are chapters on broadcast receivers, broadcast transmitters, communications transmitters and receivers and mobile radio systems. In addition, he covers

audio, recording and tape equipment. The emphasis is naturally on STC designs.

For amateurs, the STC AMR-300, AWA AMR-100 and Kingsley AR7 communications receivers are mentioned, as are military sets such as the WS Type 109, AT14 and AT20 etc. The author admits his effort is not a complete history, but, for the technical historian, it is a valuable reference.

Size is A5 and it comprises 244 pages, with several photos, circuit diagrams and charts. Original price was \$32, and it is now about \$20 in the second-hand bookshops.  
Colin MacKinnon VK2DYM ar

# The Diamond Antenna

BET WARD-COTTAGE No 36 EVENTIDE HOME  
CAMPBELL ST ROCKHAMPTON 4700

**F**OR THOSE NEEDING AN antenna for the HF bands to fit in a restricted space, maybe the "Diamond" offers the solution ...

This article was originally developed so that amateur radio operators could enjoy their hobby even though they lived in situations where it is not possible to erect the more conventional type of aerial.

Like quite a few "hams", I live in an "old crocks' home" and, in many cases, a proposal to use a sizeable radio aerial brings cries of protest and usually permission to erect one is refused. Thus, most of the amateurs are limited to 2m and/or 70cm.

The aerial is quite small in size and is, in the old imperial terms, approximately 2ft square and designed to fit onto the normal barge mount as used to mount TV antennas on the fascia board of a house, as the enclosed sketches will show. It can also be mounted on the front end of a caravan, taking up little space. It is so unobtrusive that little or no comment is aroused. For portable and emergency operations, a short mast about 12ft long is quite okay, so if your main aerial is damaged by wind etc, you can be back on the air within a very short time. At this QTH it can be erected in about 20 minutes.

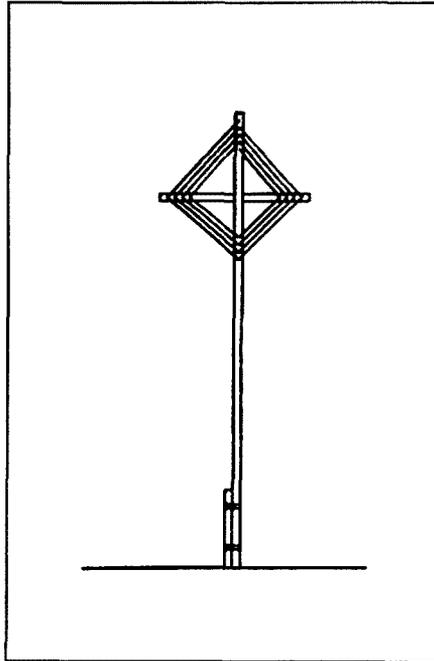
The cost to construct is quite reasonable, and should be around \$20 to \$25, including new wire (insulated is best).

The aerial uses a single wire feeder and should be coupled to the TX via an antenna tuner when an SWR of 1:1 can be expected.

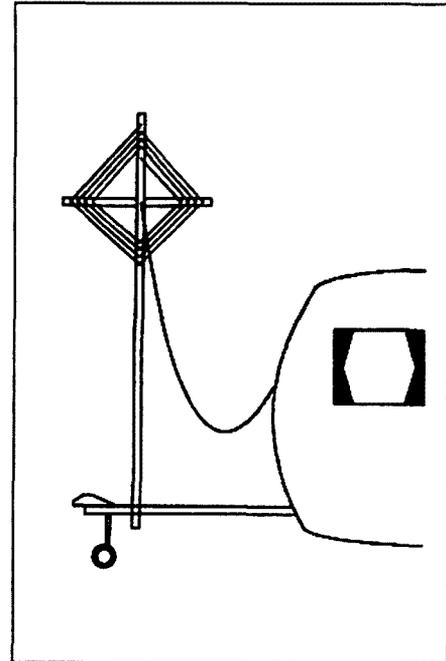
For the frame you will require 7½ feet of 1"-square timber; about four dozen non-ferrous nails with reasonable size heads each ¾" long; and 75ft of insulated wire. One waterproof connector is needed to attach the feeder.

The winding is in the form of a spiral; not the more usual form of inductor. The feeder is connected to the end of the winding nearest to the centre of the cross, and the connector is mounted on the lower arm of the framework. I think the sketches will make all things fairly clear.

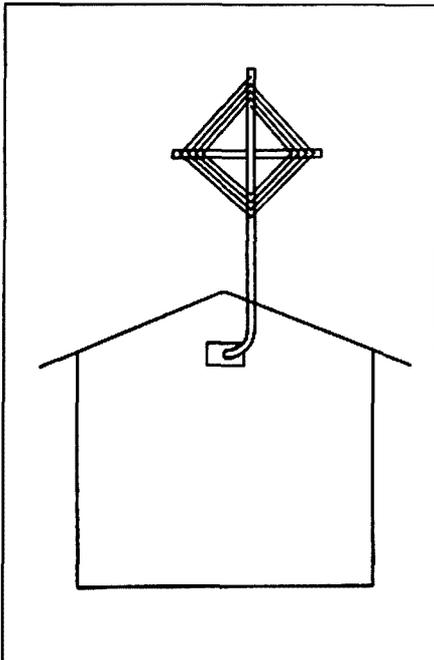
In the first model, the wire used was white figure 8 split down to make single



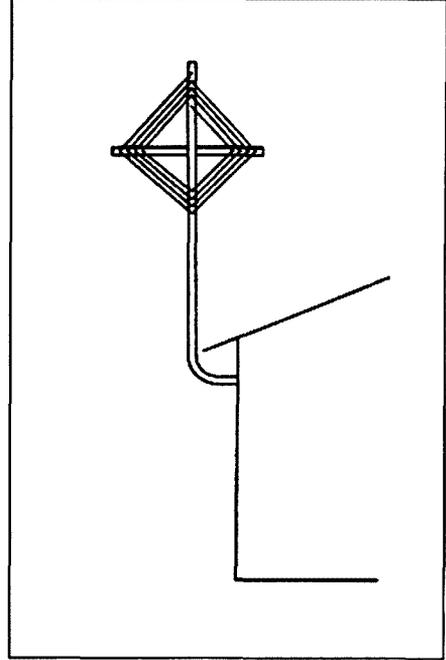
*On short pole which is supported by 4ft piece of pipe etc driven about 12" into the ground.*



*Front end of caravan.*



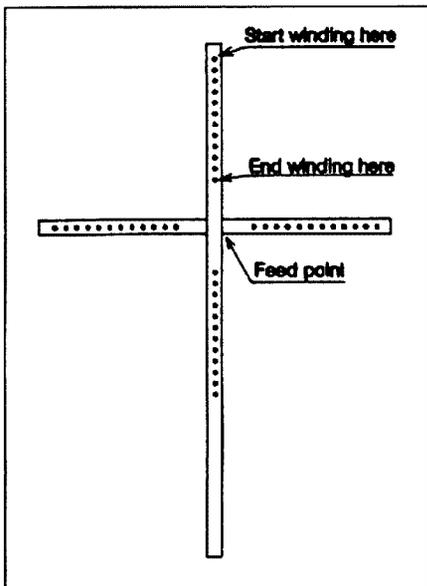
*This is a good position.*



*This is okay, but roofing tends to affect radiation somewhat.*

conductor. That was what I had on hand. Later, the wire was changed to medium duty wire 10/0.25 with black plastic covering.

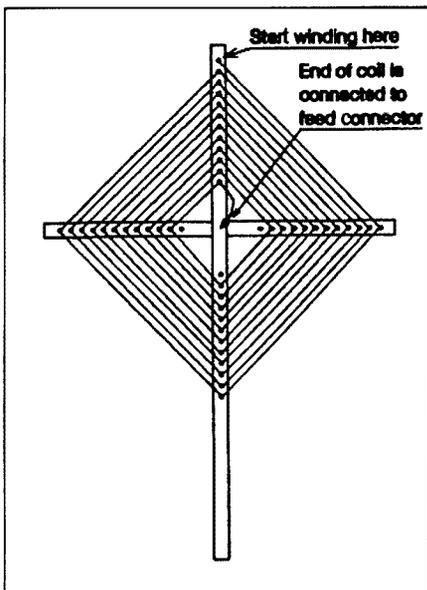
ar



Middle joint is normal halved-in joint. Very easy to do. Timber should be made waterproof with Estapol or similar suitable paint.

The small nails are put as shown. The first one is 1" in from the end of the arm, and all the others are spaced 1/2" apart.

It is a good idea to put 12 nails in each row. This will take about 85ft of wire. You can remove any unused ones or leave them in. If this stub end is too large to fit into the top of the barge mount, suitably sized "U" clips can be used.



This drawing is not to scale, but does show the winding. I found it easiest to start from the outside and wind towards the centre.

# Technical Correspondence

## Improved Great Circle Bearing Program

I HAVE BEEN experimenting with the Great Circle distance and bearing program submitted by VK3IT in the January issue and have made a few modifications that others may find useful. For a start, my version of Basic (GW-Basic v.3.2) does not support the ACOS or the ARCCOS command, so it was necessary to use the ATN command as at lines 160 and 190. Incidentally, the manual omitted the "minus" sign after the initial bracket, and I found it was required by using log tables. Remember them? Next, I thought it would be unusual to know a co-ordinate, particularly an overseas one, down to seconds (one minute of latitude is about 2km), so the conversion of seconds to radians came out. Then I truncated the distance and bearing to whole numbers (the PRINT USING command). Finally I reduced the accuracy of the conversion factors to more common or garden values, and found it made a difference of 1km in the distance from here to London. Incidentally, I rearranged the lines 240-270 (original program) because I was being told I had a problem with the bearing calculation before the distance result had been printed and so had no indication whether the distance calculation was right (it wasn't).

I hope the above is of some interest and that VK3IT forgives me for tampering with his work. The alterations are not meant to be a criticism in any shape or form.

J H Knowles VK3JK  
PO Box 11, Yinnar 3869

## More on Element Phasing

Des Greenham has revived a most versatile antenna that, using tuned feeders, can be used efficiently over two to three octaves. The basic idea is credited to Franklin, who arranged many half waves, connected together with quarter-wave stubs, in a line to form a broadside array. This is still an excellent method, set up vertically, of obtaining a high-gain omnidirectional antenna with a low angle of radiation suitable for 28MHz and higher. In that application, end feed at the bottom is usually preferred.

Back to Des' antenna; another dB or

two can be obtained by making the elements five-eighths wavelength. This will also improve its efficiency at 7MHz and it will be quite usable at 3.5. The pattern changes and breaks up if five-eighths is exceeded. This was the antenna issued with the Army "portable" 5kW SWB 8. Links in the elements allowed for several bands to cover 2-22MHz.

Robert R McGregor VK3XZ  
2 Wiltshire Drive  
Somerville 3912

## Heading Finder

I was interested in the article by VK5BFB and VK5JG in the December '91 issue of *Amateur Radio* (page 21) on the modified globe heading finder.

I have used a similar model for some 20 years and, within a second, can find any direction, long or short path.

The construction needs only two additional holes drilled in the globe and a marking pen for markings as follows. (No special skill required, and takes only 20 minutes at most).

- 1) Take any globe out of the usual holder pins at North and South Poles.
- 2) Drill two new holes in the globe, one at your QTH, and the second directly opposite.
- 3) Clip the globe back into the original holder but positioned now in the new holes.
- 4) Take a marker, hold it on the globe-holder centre (0) and turn the globe, marking a ring around it (your new equator).
- 5) Position the North Pole on the globe under the half-round holder and mark this point as "N" on the new equator.
- 6) Turn the globe through 180 degrees and mark "S".
- 7) Follow this procedure until you have marked on your new equator on the globe: N, NE, E, SE, S, SW, W, NW, turning it clockwise at the top, and there is your direction finder.

The area under the half circle holder is short-path. Opposite is long-path.

PS: If you use the globe frequently, fit two metal eyelets in the new holes and they will never wear out.

John Kramreiter VK3DCJ  
7 David St  
Knoxfield 3180

ar

# Random Radiators

RON FISHER VK3OM AND RON COOK VK3AFW

## Restricted Space Antennas

**J**IM VK2DJM, WHO RESIDES in a retirement village at Ballina, reports on his present antenna system. He had tried to use a commercial vertical, but was unable to get it to tune properly and concluded it was faulty. Unfortunately, when it was shipped back to the agent, thieves struck and half the antenna disappeared in transit.

Now Jim is not easily discouraged, so he cut a dipole for 14.028 MHz and installed it on the outside wall of his unit, using nails, egg insulators and picture-frame wire. It is only about 15 cm (six inches) below the gutter and clears the brick wall by about 3 to 5 cm (one or two inches). In plan view it looks like a square ring, with a gap on one side. It is

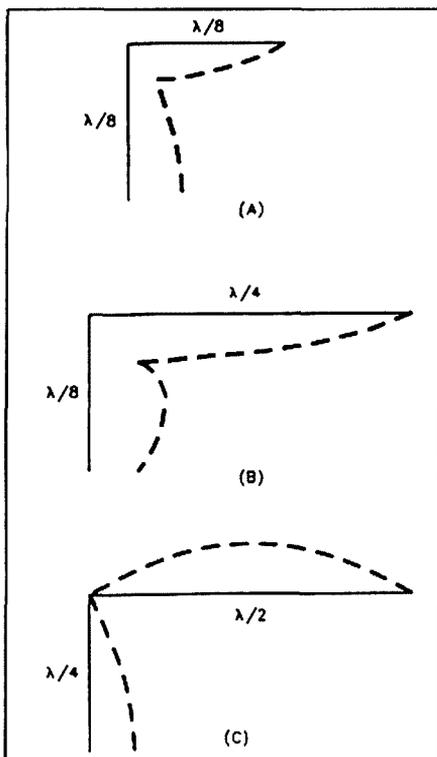
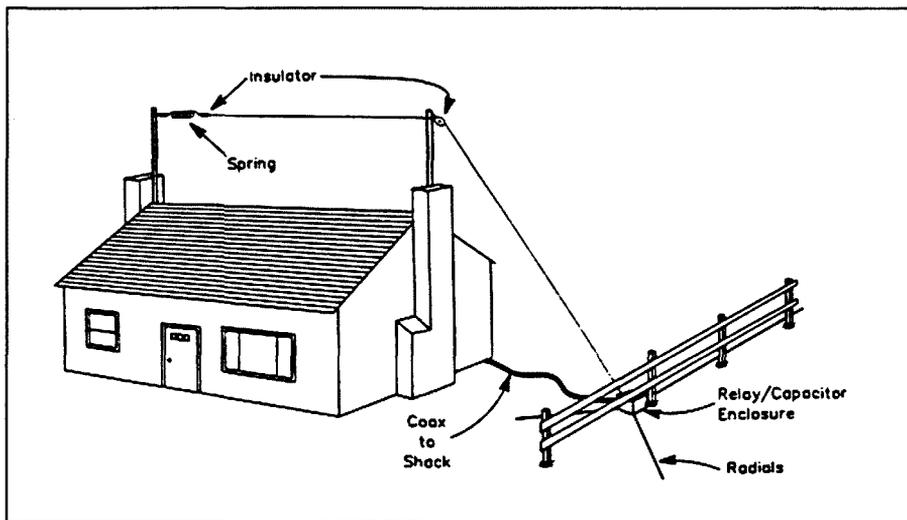


Fig 1 — At A, the basic inverted L commonly used on the lower frequency ham bands. The dotted line represents current distribution. The  $3/8$ -wavelength inverted L shown at B features a more favourable current distribution. At twice the fundamental (C), the antenna at B acts as a  $3/4$ -wave. Note the two current maxima. The antenna behaves like a quarter-wave vertical end-feeding a half-wave dipole.

fed with 75 ohm coax - I can't recall if he used a balun or not.

He had immediate success, receiving reports of 579 to 599 from all around the globe. With the aid of an antenna tuner, he has also been able to operate on 18, 21, 25 and 28 MHz. To date there have been no TVI problems.

So, don't neglect the humble wire dipole, don't be concerned if it has to be bent to fit your situation, and don't dismiss the possibility of working DX with an antenna as low as two and a half metres (about 8 feet).

## Another Wire Special

The July 1991 issue of QST contains a good article by Dennis AE6C, on a multi-band inverted L antenna. With combined vertical and horizontal radiating sections both local and DX operation is achieved, the horizontal section giving high angle radiation for locals and the vertical section giving low angle radiation for DX. It is cheap and simple to build and is capable of operation on two or more bands.

The disadvantages are the need for an efficient earth or counterpoise and the need to use a matching unit.

Dennis suggests using a total wire length of  $3/8$  wavelengths on 80 metres, 96 feet total length, with 64 feet (nominal) of this arranged horizontally. The horizontal section can be supported by masts fixed to the ends of the house. If your house is not 64 feet overall, you can reduce the horizontal section by up to 15

feet, indeed Dennis used 50 feet for this part. Alternatively, try a diagonal or use a mast fixed to a fence post. In practice, if the horizontal section is between 50 feet and 70 feet in length, no significant problems will arise. The 'vertical' section need not be vertical and Dennis suggests sloping it etc. So long as the total length is about 96 feet there is nothing critical about the relative lengths of the vertical and horizontal sections.

The vertical (sloping section) will work better if it is well clear of buildings and trees, and the horizontal section should be as high as can be arranged. Due to the length of the 'vertical' section, the maximum height will be about 35 feet.

Because there is no coax feeder to support, the masts used can be of quite light construction. Painted timber would be ideal. Don't overlook the possibility of using one or two trees to hold up the wire. A bit of a slope on the horizontal section won't matter.

For earthing, Dennis used an 8 foot (2.4m) long earth stake in part of the garden watered by an in-ground sprinkler. This is supplemented by three radials, two less than 20 feet long and one about 100 feet long which snakes along the side fence. While the antenna will work with only the earth stake, the addition of buried radials up to 20 feet long or an insulated counterpoise system will improve the antenna efficiency, particularly if it is to be used on 160 metres.

The feed impedance will be about 100 ohms on both 80 and 40 metres. A remote

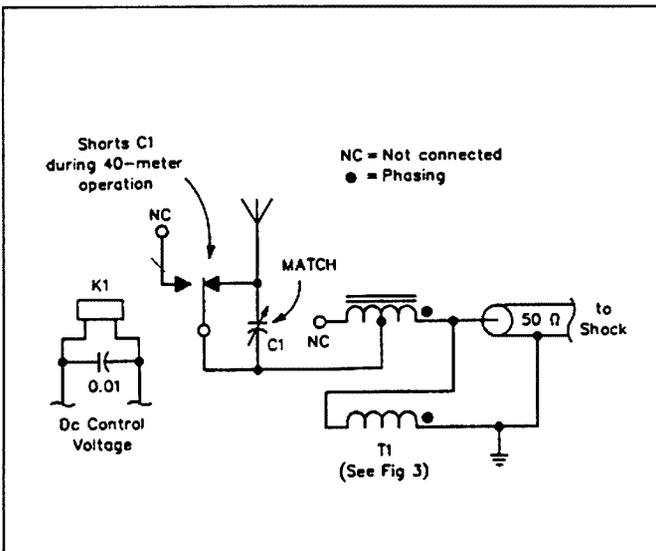


Fig 2 — The resonating, impedance-matching and band-switching circuitry required at the base of the inverted L, assuming a 50-Ω coaxial feed, no antenna tuner and a limited ground-radial system. See text for details and other feeding options. Fig 3 shows details of T1.

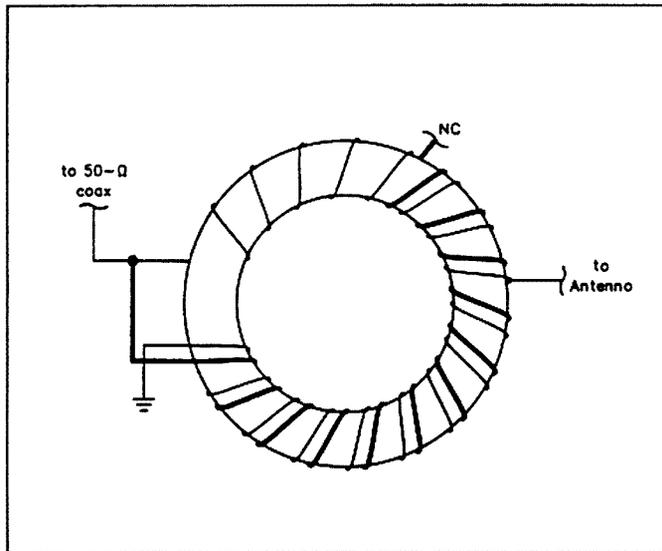


Fig 3 — Winding details for constructing broadband bifilar transformer T1. You can use an Amidon FT-240-61, FT-240-43 or T-200-2 core. The primary is 16 turns of no 14 enameled wire, and the secondary is 10 turns of no 14 enameled wire tapped at about the eighth turn from the feed-line end.

antenna tuner could be used to match to 50 ohm line which could be buried for the run back to the shack.

Dennis used a tapped bifilar transformer and a capacitor to achieve good matching on 80 metres. On 40 metres the capacitor is shorted by a relay, and the transformer provides an adequate match. Details are given in the article.

I suggest that a length of 75 ohm coax could be used with matching achieved by an ATU in the shack. The SWR on the 75 ohm coax should not exceed 3:1 approximately across either band and should be about 1.3:1 at resonance on 40 metres. No significant losses will occur with such an arrangement. Whatever arrangement is used, don't forget to seal the coax connections (and external match unit if used) against ingress of water.

The antenna can be used as a short top

loaded vertical on 160 metres but it is not resonant and needs a series inductor switched in at the base of the 'vertical' section. The feed resistance will be perhaps 15 to 20 ohms. It is 3/8 wavelengths long on 80 metres and the feed impedance is reactive, appearing as about 100 ohms resistance plus some series inductance. On 40 metres it is 3/4 wavelengths long and should be resonant in the band with a resistance of about 100 ohms.

Unfortunately on 20 metres it is 3/2 wavelengths long and has a high feed impedance which would require a different matching arrangement. On 15 metres the antenna is 9/4 wavelengths long and should be resonant at or just below the bottom of the band. The feed resistance would be more than 100 ohms but should be manageable with an indoor ATU and the 75 ohm coax suggested.

Dennis does not consider using the antenna on any frequency other than 160, 80 or 40 metres and suggests a double size unit if 160 metres is to be used often. Yet the system should operate quite well on 80, 40 and 15 metres, and with reduced performance on 160 metres with an indoor ATU. If an ATU is installed at the end of the 'vertical' section, (commercial, weatherproof, remotely operated ATUs are around) then all HF bands could be used.

Copies of the original article may perhaps be obtained from the WIA.

73 from the two Rons. ar

(Illustrations from Dennis Monticelli AE6C 'A Simple Effective Dual-Band Inverted-L Antenna' QST Vol LXXV No 7 July 1991 pp38-39.)

## TRY THIS

# Morse Key Holder

PETER SPENCER V5K BK

Having built a nice new operating desk for my gear, I was rather loath to screw the key down to the desk top.

After some thought, I tried securing the key base with four pieces of double-sided adhesive pad material which is sold for the purpose of fixing pictures to a wall or other similar uses. This has worked very well and the key is as solid as a rock.

My desk is covered with a material similar to Laminex, and is quite smooth, so I imagine the pads would adhere quite well to most similar materials. Should it be necessary, at any time, to remove the key, the pads can be removed with any common solvent such as Shellite or X55. If necessary, a trim knife can be used to cut judiciously through the thickness of the pads. Removal of the pads leaves no trace of any marks, and the desk surface is preserved.

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# The RL Drake Company: 45 Years Young (1988)

BILL FROST WD8DFP. SUPPLIED BY JOHN WEIR VK3ZRV  
(CONTINUED FROM JANUARY ISSUE)

**T**HE COMPANY CONTINUED TO produce satellite equipment for other manufacturers under their names. Receivers at this time were

being shipped at a rate in excess of 10,000 units per month. A peak occurred when 19,000-plus units were shipped in one month.

The European home satellite market was just beginning, with only a couple of satellites reaching Europe. This market beckoned for a well engineered, quality product. The call was answered with the ESR-424E, APS-424E, ESR-324E and the APS-24E. These units were well established in the USA and, with a few minor changes, to meet the European requirements, were soon in much demand by overseas distributors. The 424 series units were updated and improved in 1986 and became the 524 series.

Single conversion was losing out to the block type units and were dropped as an alternative model. The ESR-524 receiver was the top-line receiver until the announcement of the ESR-924i. This imported receiver was introduced in 1986 as the company's first integrated receiver.

It housed the receiver, antenna positioner and included stereo sound. On-screen graphics were added later to the ESR-924i to make it even more popular. The ESR-324B was given new life with a redesign, and the announcement was made on the release of the ESR-324S which included stereo, and the ESR-324i, which included stereo and the antenna positioner. Both units were met with great acceptance by the marketplace. These units are still a part of the company's product line.

In January 1987, and again in January 1988, the company was named by the Greater Dayton 100, as being among the top 100 largest, closely held companies in the Dayton area, based on product sales and employees. In September 1987, the Service department received a plaque and honours for being the top service department in the TVRO industry, and for having a quick and speedy parts department. The honours were received from the Electronic Technician Association Inc.

The ESR-2400 was introduced in 1987 as the company's first IRD (Integrated

Receiver Decoder) receiver. The unit contains stereo audio, antenna positioner (pot or pulse type), C band or Ku band compatibility, on-screen graphics, infrared remote control, and the video cypher II (tm) decoder model. The ESR-2400 is the ultimate receiver and an example of the R L Drake Co engineering department's excellent expertise. The ESR-2024 was later introduced as a little brother to the ESR-2400. It had a few less bells and whistles, but it still retained the same high quality. These two units are the company's top guns for today; however a relentless competitor expects to take over as number one in the industry. The R L Drake Co and its employees do not intend to let that happen.

An R L Drake Co "Made in America", product is beyond ultimate!

Compiled and written by Bill Frost (WB8DFP) Service Department Manager R L Drake Co.

*First printed in Printed Circuit, the in-house publication of the R L Drake Co  
Miamisburg Ohio USA.*

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## For the discerning amateur - the Kantronics All Mode Data Controller

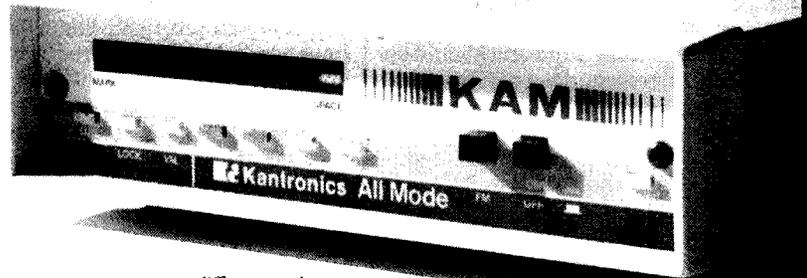
When the power, flexibility, and performance to do your best with today's digital modes is what you need — then their can only be one answer — the KAM.

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\* Requires Hostmaster II software and IBM-PC type computer



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# Amateur Radio in China

(With some emphasis on 6 metres.)

RON GRAHAM VK4BRG PO BOX 323 SARINA 4737

**M**Y RECENT VISIT TO China, together with three other VK amateurs, was primarily to participate in a Radio Direction Finding competition in Nanjing. We also had the opportunity to visit four Club Stations and meet a number of Chinese Amateurs.

Four prefixes were noted to be in use; BY for Club Stations, BZ for Individual Calls, BT for Special Events, and BR for repeaters. At this stage in time, no "individual" (private call holder) has equipment at home. Consequently, their operating is done from a club station where they can use their Individual or the Club callsign.

I noted QSL cards being sorted and it appears that most Individual call holders use their Club mailing address and that they are responsible for their own QSL'ing. One of the Club's Directors handles the cards sent to the Club call. From my observations, log keeping appeared to be of a satisfactory standard.

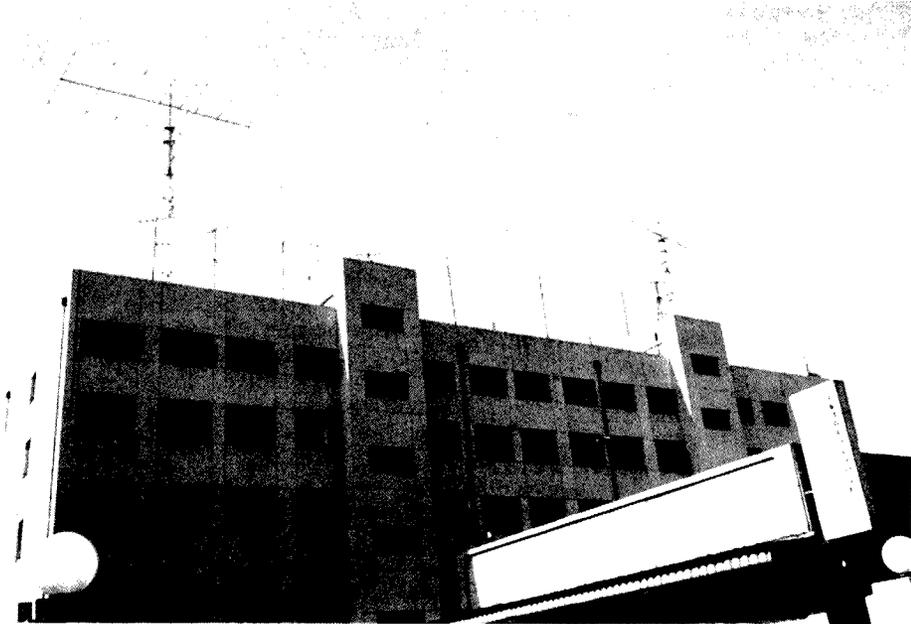
## Licences

There are four licence classes with 1st Class being the highest and demanding a 90 character per minute (CPM) morse ability. The 2nd Class licence has a morse requirement of 80 CPM and the 3rd Class 70 CPM. I understood, though there was some language difficulty, that both the transmitting and receiving morse tests were for a duration of ten minutes each... a long period by our standards. There is a graded technical examination for the above licences. The 4th Class licence is for SWL's and no call sign is available.

Apparently there are 30 to 40 each 1st and 2nd Class licences in the whole country. When I enquired about the number of 3rd and 4th Class licence holders, the answers were "many" and "many many" respectively... guess we draw our own conclusions!

## Beijing

In Beijing we visited BY1PK and, as this station is in the national capital, the fact that it seems the best equipped is no coincidence. The station is on the top



*Antennas on the roof of BY1PK Beijing. The two HF Beams are obvious, the wire cage antenna between them is used on 40m. Under the right hand HF Beam are the 2m and 70cm satellite antennas.*

floor of a four storey building with the antennas on the roof. Two HF stations with associated beams...one station is dedicated to packet. A satellite station (Mode B) and the 2 metre repeater (BR1PK) are also installed. The 6 metre equipment consists of a TS-670 feeding a manually rotatable 6 element yagi about 3 metres above the roof. It was noted that when the beam is facing the east, it is firing into a concrete structure on the roof. The 6 metre rig had been disconnected, but was soon reconnected when I showed interest. A few CQ calls were made, but no response. One of the Club directors told me that they have only ever worked JA on 6m and he seemed fairly well convinced that they were too far north to enjoy any other worthwhile propagation. Naturally, it was difficult to convince them otherwise, however, the subsequent contact between VK4JH and Mongolia may help the argument. To my way of thinking Beijing lies nicely be-

tween Mongolia and Japan, so it should be workable, at least from this part of the world. The fact that the 6 metre rig was disconnected and that Kang, BZ4SAA, said BY1PK was not very active on 6, indicates they need some more inspiration regarding 6 metres!

## Other Clubs

We next visited Nanjing, the venue for our Radio Direction Finding activities. The Club had a special call, BT4RDF, organised for the duration of the above activities and is set up for HF operation including packet. No 6 metre activity is possible in Nanjing due to the band being occupied by TV.

To assist readers with their geography, Nanjing is 300 km west of Shanghai. The next Club visited, Zhenjiang, is about 70 km east of Nanjing and is part of a complex known as the "Childrens' Palace". This complex seems to me to be dedicated to both general education and

# Bringing Amateur Radio to (Adelaide) Camp Quality 1991

CHUCK WAITE VK5CQ, GPO Box 222, ADELAIDE 5001

many extra curricular activities of which amateur radio is one. The station, also on the top floor of a 3 storey building with the antennas on the roof, is equipped for HF and 6 metres. The 6m station has the advantage of a 150 watt amplifier. There had been a problem with the 6 element 6m beam, and as an in-line SWR/power meter is permanently connected, I observed that the SWR was quite low and the amplifier was delivering 100 watts.

The Director of the station is retired from the army where he was the chief instructor in radio signalling. His wife, an English teacher, and his two sons, one of whom is soon to graduate in electronics, were all present and they all hold amateur licences. The Director prefers CW operation and was not aware of the 50.110 calling frequency or the 28.885 liaison frequency. I did note in the 6 metre log book contacts with 3D2PO and VK8ZLX on the 26th July.

About 150km further east we visited BY4SZ in Suzhou where Kang BZ4SAA is the Director. Kang is well known in VK as he has supplied most of us with China on 6 metres. He has acquired some nice equipment for the club. an FT-ONE was feeding a TL-922 linear on HF. A Henry 2K4 linear and a 5 KVA mains power stabiliser looked very impressive. The station also has a small HF rig which has been used on DX-peditions. A TS-600 or a FT-726 and a 5 element yagi are used on 6 metres and Kang is expecting, from a JA8 friend, a 500 watt amplifier due next year. QSL'ing may be a little slow from this station as Kang explained that the post office is quite a distance away, so they only clear it once per month.

So the club is the centre of amateur radio activity in China and it is pleasing to note the emphasis on getting the young people involved. Actually, the clubs are under the control of the "Chinese Radio Sports Association" (CRSA) with the club Directors being paid by, and the clubs operating within, a budget provided by the CRSA. Nevertheless, most club equipment has apparently been donated by Japanese sources, and a little from American sources.

## Six Metre Possibilities

From the accessibility of China on 6 metres, particularly from the US and a lot of the Pacific, I was thinking that area around Guangzhou (Canton) could be the most practical. This area as well as being fairly well south, is close to the well established paths to Hong Kong and Manila. However, from what I could learn, there is no 6 metre activity and, indeed, no club activity, in that area. Possibly this could be followed up with some of the VS6 amateurs, some of whom may have contacts in that area. ar

## Amateur Radio at Camp Quality '91

**C**AMP QUALITY IS A week of quality camping activities for children who have — or have had — cancer. Camp Quality '91 was a week of good fun for campers and volunteers alike, under the caring administration of its Director, Dr. Keith Bailey.

We in the Amateur Radio community are proud to have been among the many volunteers who helped make this year's camp a success for its campers.

Below is a report of some of the events that comprised our work, our experiences on-camp, and some of our joys resulting from the same.

## What Happened at Camp this Year?

Camp Quality '91 provided activities (from Sunday 29 September through Friday 4 October) for about 60 children and a like number of their adult companions. In addition, some day-campers joined in the activities when their schedules and conditions permitted.

We amateurs, like other volunteers, participated on a part-time basis, fitting our program of activities into a busy camp schedule.

## Antenna & Station Setup

On Sunday afternoon, while the children, their companions and camp staff were settling into their dormitories, we began the work of setting-up and testing our antennas and stations.

Station equipment, comprising a Kenwood TS-820 and ICOM-based voice packet stations covering 160-10, six and two metres, was supplied by the WIA and Chuck VK5CQ, respectively. Thanks to Murray, VK5ZQ for testing and arranging transport for the WIA's transceiver.

The Adelaide Hills Amateur Radio Society (AHARS) supplied a portable three-element beam for the traditional DX-bands, 20, 15 & 10 metres, in the form of a TH3jr, as well as a team (comprising Geoff VK5TY, Christine VK5CTY, John VK5CSH and Brian VK5NOS) to set it up. The team did a good job, as our

first contact confirmed: Korea on the first call!

Shep, VK5DC, supplied a tape-doublet (a nifty Hy-Gain TD-1), which we used along with cable supplied by Morris VK5KWM for our evening inter-camp contacts on 80 metres. With the help of Tony VK5PBH, and the AHARS team, this antenna was soon in place on the spire, overlooking the building in which our station was set up.

## Electronic Kit-Building

For many of the children, technology has come to play an unusually large part in their lives, mainly in the form of instruments of examination or treatment. At the suggestion of Kevin Johnson (Camp Quality's Registrar), we offered each camper the chance to experience technology from a new perspective.

At Camp Quality's several technology sessions, our campers could get a feeling of being in control of technology for a change: building up an electronic kit from the component level gave them that feeling — along with a good helping of "I can do it!" when — at last — the assembled kit worked.

Most of the children built up two kits and — with the help of an "Elmer" or two from our team — experienced the satisfaction of success from each one.

This year's kits included a Morse Code trainer and a wireless microphone, as well as two LED-based toys.

We did our part to encourage our campers to get "on-the-air" — one way or another.

Thanks to one of our number, who thought to bring along sheets with the Morse Code! Several of the children expressed interest in Morse that was enhanced by a quick show-and-tell and reinforced by their being able to take along one of these sheets.

In fact, one of the day-campers told me he had gone to the library (the day after our Morse Code show-and-tell) to find a book from which he could learn more about Amateur Radio!

Lest I forget to thank the team of "Elmers" — both OM & YL alike — I'd like to mention those who assisted at the

kit-building sessions this year:

We were very pleased to have a roster of YLs along, members of the Australian Ladies Amateur Radio Association (ALARA): Denise VK5YL, Meg VK5AOV, Christine VK5CTY, and Paddy VK5ZYB.

Among the OMs were: Ray, VK5BT, Chuck VK5CQ, Rex VK5HO, Ron VK5RV, Lloyd VK5TP, Ron VK5VH, Murray VK5ZQ, Dave VK5CJE, Les VK5KLH, Morris VK5KWM, Norm VK5ZBO, and Grant VK5ZWI, as well as Cameron from the RAAF (whom we hope will become a licensed amateur in future).

## Those Spontaneous Radio Hams!

Our team really showed its spontaneity this year. When something was needed, it was there, even it had not been specifically arranged in advance.

If something seemed to go amiss in a kit, a solution was soon found.

Individuals came up with at least three designs for mountings or cases for the assembled kits. As a result, the Morse Code trainer ended up being far more durable, and the frequency of the wireless microphone was much more stable in the new design.

There were also at least two awards made to campers, of prizes created and provided by our team members.

Norm VK5ZBO, brought along a toy acrobat — which he had hand-crafted in wood — that aroused curiosity, as each child who saw it perform tried to figure out just how it worked. It was Norm's pleasure to award it as a prize to camper Paul, who managed to build up all four of the electronic kits with success!

We were also pleased to find among our number author Ron Holmes VK5VH, who presented a copy of his book *The Magic of Mr Ree* — about a radio ham in Mt Gambier — to our camper Adam, who lives in that part of South Australia. (Adam's voice was to be heard, on 80 metres, talking to his parents, via the Club Station VK5SR).

## A Hobby that Keeps You in Touch

When you think about it, Amateur Radio is also a great hobby for someone whose treatment may include periods away from friends or school. It can provide contact with other people when travel may be difficult or impossible.

Needless to say, we hope that some of our campers will eventually join our number in the fraternal hobby of Amateur Radio. To this end, we offered our campers a look at several of the operating modes and sides of our hobby.

## Amateur Radio Station Show & Tell

We purposely chose to locate the amateur station in the same room where kit-building was going on; the idea was to try to arouse curiosity in the station, by letting the campers listen to ongoing QSOs while they were assembling their kits. It worked!

Even those who chose not to talk "on the air" gave the receiver a try, some even managing to develop skills in tuning in SSB signals on HF.

## Our Chat with England

On Monday afternoon, Dave VK5CJE helped us by sharing his weekly schedule with England. Of course, Monday's weather was so sunny and warm that many of the campers chose to go swimming rather than partake of this warm conversation between friends, but it was good to make the connection for those who did partake.

## Campers Chat with Family Back Home

It has become a tradition at Camp Quality to try to connect some of the campers with their families back home; this year we connected some of those who came from the Mt Gambier area, with parents and a sister there, thanks to VK5SR (with VK5SI operating). It was a real joy to see our campers' eyes light up when they recognised their parents' voices on the radio!

## Chats with Camp Quality — Victoria

This year, some of the campers from Adelaide went to the Camp Quality held in Victoria; so, it was good to make contact with Warren, operating VK3CVQ there, so we could put some of our campers in touch with their friends in Victoria.

For those readers who have raised children through the teenage years, you can imagine what it sounded like; for the rest of us, it seemed to be more good fun for our campers!

## Putting the Camp's Video-Recordist into Contact with "The Old Country"

One afternoon, 20 metres opened into Europe. Soon, I managed to contact hams in Italy, in which the camp's video-recordist had been born. Of course, by the time I found him, this Italian station was nowhere to be heard ...

But there were more IKs where he'd come from and we contacted the next one! Imagine his surprise when I put someone on the mike "to surprise him" by speak-

ing excellent Italian!

As it turned out, this short QSO also aroused the interest of our recordist in Amateur Radio. He returned later that same evening to ask about the equipment and amateur licence examinations.

## Linking Up with a Space Station

On Wednesday — a day we were not originally planning to be at Camp Quality — I received a very unusual message on my pager:

02/10-09:17 Soviet cosmonauts can be contacted 11:32 to 11:42 — azimuth 307-130, Max elevation 65 degrees — tonight. Would you call them; they're waiting for your call. From Maggie VK3CFI.

PS "FREE-YO" is Russian for "OVER" Being open to a change of schedule, I contacted a neighbour, Collin VK5EB, who is active in amateur space communications. After running a PC-based satellite orbit modelling program, Collin confirmed there was indeed a chance to contact a space station that would be passing over Adelaide later that evening.

With this in mind, I rang Denise VK5YL (who had already volunteered to round up an additional Morse Code trainer kit for a camper to build on Friday) to ask if she or her OM, David VK5RN had any extra coaxial cable for the antenna that we would need to reposition for the link-up. Thanks to David, for making up the needed length, and to Denise for constructing the base needed for the antenna we were to use.

The link-up went smoothly, and our camper Gabi had a nice chat with each of the cosmonauts in the space station during its 10-minute window over Camp Quality, as was to be heard in the following week's WIA Broadcast.

Should I admit that I — a radio amateur, with years of experience in over three countries now — actually "choked up" when we first made contact with the space station? Excitement can really be contagious!

## Connecting with Victoria on Packet

Meg VK5AOV demonstrated how digital modes work, by connecting to VK3JAV on two metres via VK5RAD, VK5KAU, VK5RPM and VK5RPG. As a result, some lucky campers had "digital QSOs" with amateurs in Victoria on Friday morning.

(Of course, I managed also to read my mail during my stay at Camp Quality.)

## Meeting South Australia's Governor

Although originally planned for the benefit of the campers, some of us had the chance to meet the Governor of South

Australia, Dame Roma Mitchell, during her visit to Camp Quality on Tuesday afternoon.

As a newcomer to Australia (and, in particular, to South Australia), I felt honoured to be able to meet our Governor and tell her of Amateur Radio and the technology sessions at this year's Camp Quality.

As it turned out, her nephew was among the campers who had expressed interest in learning the Morse Code, after one of the technology sessions.

### Possible Improvements

Looking back over our week at Camp Quality '91, I think it's fair to say that things went pretty well as planned, and yet there were a few things which could have been improved. By way of suggestion for next year, we offer these reflections:

First, it was very good having our team members monitoring our HF contacts from their home-stations, so we would know when the two Camp Quality stations had doubled. Thanks to Dave VK5CJE, and Murray VK5ZQ.

But it would have been nice to have made a kind of announcement (say, on two metres) of our active operating frequencies, so that others could have enjoyed monitoring our inter-camp or space

station contacts, as well. Perhaps a message to a known packet-BBS would be a good way to share such details.

Next, it might have been nice to have a team hat or T-shirt such as the Robin Hood Archery Association had, so we could be identified as hams.

Of course, it would have been nice if more of us had worn hats, if only to help those who'd lost hair from treatments feel better about wearing their hats ... Next year, maybe we'll have a team cap!

I suppose we could have done better to chat with Camp Quality in Victoria before the campers' families in Mt Gambier, due to the time difference and the number of campers involved. Perhaps the solution would be to arrange more specific skeds in advance.

Last, but not least, as one who was encouraged to taste the Vegemite at lunch, albeit in a circle of fellow amateurs, I thought it would have been nice if someone else had also put a bit of this salty spread on their bread as well. Oh well, I suppose every newcomer must be initiated ...

### Thanks, All, for a Job Well Done!

Needless to say, we couldn't have done it without the fine support and efforts of the organisations and individuals involved. I've tried to mention, above, as

many as our records and memory let us connect with specific tasks, but some may have inadvertently been omitted.

To those who helped with Camp Quality '91, I'd like to express my appreciation, and relay that of the campers and staff, for a job well done!

It was sure a lot of fun, but I'm sure we also did some good up in Mylor!

Charles M Waite, M Sc, is a licensed radio amateur (VK5CQ in Australia, WG3L in USA), Member, Wireless Institute of Australia (WIA) — SA Division; Life Member, American Radio Relay League (ARRL); Technical Member, Technical Aid to the Disabled (TAD); Coordinator of Technology Activities for Camp Quality '91. Mr Waite is a permanent resident of Australia, who arrived in mid-April 1991. He is presently seeking to apply his talents in the computer/communications field here. E-Mail Address: VK5CQ @ VK5WI, SA,AUS,OC. Pager: 016 889 105. Postal address: GPO Box 222, Adelaide SA 5001.

ar

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# The History of DX

JA GAZARD VK5JG

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**R**ADIO AMATEURS HAVE always needed a measure of the performance of their equipment, and from the start of amateur radio the obvious measure has been the distance over which signals could be heard. In the early days these were small. A history of amateur radio in USA, *Two Hundred Meters & Down*, shows the relative performances with different sizes of spark transmitters as follows:

Spark coil	1"	2"	4"	6"	10"	15"
Miles	1/4-3/4	5-10	10-20	15-30	50-75	75-100

If the spark coil was replaced by a 1/4kW transformer 100 miles could readily be obtained. The history also relates that in 1914 the 1kW input spark transmitter of H P Maxim, a leading amateur, had a range of 100 miles.

Today these distances seem incredibly small, but it must be remembered that the wavelength was around 200 metres; spark-generated transmission was very inefficient and spread its energy over a very wide band; the receiver was a detector only, with no amplification; and the aerials were untuned random wires.

After a new contact, an amateur could locate the new station on the map and scale off the distance in miles. Efforts were continually made to increase distance and, in morse code, the word "distance" was frequently used and was abbreviated, first to "d" and then to "DX", and this term has remained in use to this day, although it now has a wider meaning than distance in miles.

As improvements were made to equipment, distances improved considerably. In 1917, a special relay from the east coast to the west coast of USA was made in four steps, the longest of which was 1040 miles. Early in 1921, attempts were made to send signals across the Atlantic. In the first attempt times were set for Americans to transmit and Britons listened. There were a large number of British listeners, all using radiating regenerative receivers which caused great interference and jammed the transmission. Another test was held later in the year, and this time an expert American, Paul Godley, was sent over to Scotland and set up his receivers in a tent on the east coast near Ardrossan. This time, in 10 days of listening, more than 30 Americans were heard by Godley. Several British amateurs also heard the trans-Atlantic signals, but there was no two-way

working.

By this time some valves, ranging in power from five watts to 250 watts, had become available to amateurs, and some amateurs used valve transmitters in these tests. Although the valve transmitters had less power than the spark transmitters, two thirds of the stations heard used valves, and thus the superiority of the valve stations was demonstrated, and in a year or two spark was no longer used by amateurs.

At about this time, to escape the interference on the 200m band, amateurs began moving into the higher frequencies, and it was not long before it was discovered that much greater DX was possible on these frequencies. By 1924 the phenomenon of reflections from the ionosphere was understood, and inter-continental contacts were being made. Although the effect of sunspots was not known at the time, a sunspot peak occurred in 1925, and new records were made in DX working. Any country in the world could be reached on 40 or 20 metres, and DX was not longer measured in miles but rather in places (countries).

In April 1926 the American Radio Relay League (ARRL) began giving awards called WAC (Worked all Continents) to amateurs who made two-way contacts with all six continents. This was not easy to achieve at first, because there were few amateurs in Asia and South America but, by 1935, more than 1500 WAC certificates had been issued. Shortly after, the ARRL introduced the DX Century Club, membership of which was given to

amateurs who made two-way contact with 100 countries. This feat is very much more difficult than WAC obviously, and can be achieved only by very special effort. The WIA now has a similar award.

Amateurs who have worked 100 countries have not stopped there, and some have worked more than 350 countries. This requires extreme dedication. Amateurs have made new countries available by visiting countries where there are no amateurs and setting up stations there. They have also set up stations on small uninhabited islands away from the mainland to provide extra countries.

DX has always been a big feature of amateur radio. It is fascinating to find that you can communicate by voice or by code with random people on the other side of the world, and most amateurs have enjoyed working DX at some time. Because the majority of early radio amateurs were English speaking, English has become the common language of amateur radio. Amateurs speaking other languages can learn the few English words necessary to make contact by listening on the bands. This is most easy on CW, where an abbreviated language sometimes called CW English has developed, and it is interesting to hear, for example, a Spanish amateur using this language when in contact with a Russian.

With DXCC scores at over 350 countries, there must be very few, if any, left, and now there is a new competition: the five-band DXCC — 100 countries on each of the five bands: 80, 40, 20, 15 and 10. ar

## KK3K and WB6LYI in OSCAR DXpedition

Lambda Amateur Radio Club President Jim Kelly KK3K of Philadelphia, PA and Vice-President Don Bledsoe WB6LYI of Long Beach, CA, will begin the first OSCAR operation next March from VP2E (Anguilla) and VP2V (the British West Indies). Their operating schedule for AMSAT OSCAR-13 runs 10-16 March 1992.

Don will begin the DXpedition operation from Anguilla as VPW3/WB6LYI during 10-13 March. Jim will operate as VP2V/KK3K from Tortola, 13-16 March. Neither of these DX countries has been on the air on OSCAR-13 before, so they anticipate there will be numerous stations attempting to work them when they come on the air, especially since they will be operating for such short periods of time at each DX location.

ar



Northern Corridor Radio Club member, Graeme Wilson VK6BSL helps out while Leon Young of the 1st Mullaloo Scout Group talks to fellow Scouts in Hobart, Tasmania, during last year's JOTA. Photo by the author.



Brownies from 1st Pinaroo Scout Group shown here with Bill Billington VK6UE were among the many Cubs, Scouts and Guides taking part in this year's JOTA. Photo by the author.

# Scouts on the Air

CLIFFORD YOUNG VK6ZIZ, PO Box 280, HILLARYS 6025

**M**EMBERS of Perth's Northern Corridor Radio Club were among the hundreds of radio amateurs around Australia who turned out in force to help in the recent Jamboree of the Air (JOTA).

One of the club's members, Graeme Wilson VK6BSL, spent more than seven hours helping local Scouts, Cubs and Guides to contact other Scout groups and amateur operators as far away as Texas. However most contacts were closer to home and included Queensland, Victoria, South Australia and Tasmania and also North and South Island, New Zealand.

Although Graeme concentrated on the HF bands, other members helped out on mobile and handheld VHF.

As in previous years, permission was given by DoTC to link repeater networks across Australia through the communications satellite, AUSSAT, over the JOTA weekend. This boosted VHF activity between the states and New Zealand considerably and radio amateurs taking part in JOTA weren't the only ones to take advantage of the opportunity.

Thanks must go to all those who helped make this year's JOTA a success. Events like this not only provide a useful service but also give wide exposure to amateur radio. Remember, many of today's operators first became interested in the hobby through events such as JOTA.

JOTA was held on the weekend of 19-20 October 1991.

## Editors Comment

(Continued from page 2)

Every new member makes things better for all the rest. It's positive feedback, either way, as I explained at some length in my November 1988 editorial entitled (would you believe?) "Positive Feedback". After 3-1/2 years I guess I can use the same word again!

And the fourth letter of comment? It was from my good friend and fellow "bureaucrat" Ron VK1RH. He was disappointed that last month's statistics were not a distillation of a magazine space usage survey by Graham Thornton late last year. There's time for that; perhaps next month?

Incidentally, reviewing my index to the 84 editorials I have written since 1984, I see that five contained the word "future" in the title. From here on, the words "feedback" and "future" are forbidden in the heading to these comments. Good words, but suffering a little from overwork! Does the same go for editors?

ar

# YAESU FT-990 HF ALL-MODE TRANSCEIVER

Take a look at the all-new Yaesu FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000... and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.

**\$3295**

Cat D-3260



## Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

## Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

## Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

## Convenience Features

- A highly efficient AC switch-mode power supply is built-in! It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF shift, IF notch, IF bandwidth and SCF audio controls.
- An adjustable noise blanker, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.



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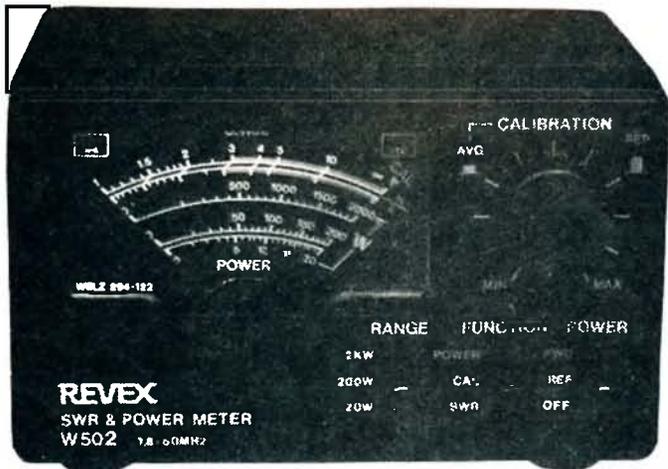


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## GOSFORD 1992 FIELD-DAY

HURRY! Don't miss Dick Smith Electronics at the annual C.C.A.R.C. Field Day, on the Central Coast. You'll find a comprehensive display of Yaesu transceivers and accessories, antennas, coax switches and lots more. Check out our incredible 'Show Specials' and ex-demo equipment. It's all priced to clear, so see you there!

**Where** — Showground Road, Gosford  
**When** — Sunday 23rd of February  
**Time** — Gates open 8am



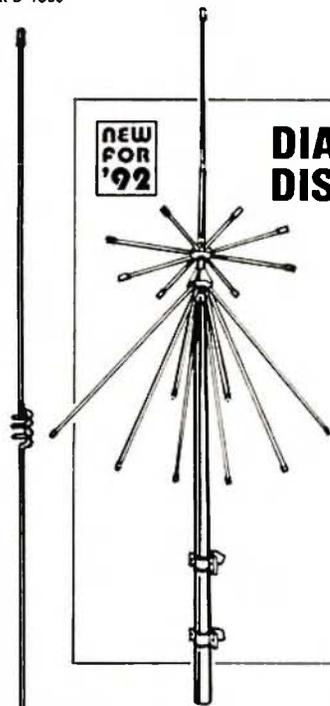
## HF/6m POWER/SWR METER

A superb wideband SWR/Power meter which boasts quality Japanese construction and a truly accurate PEP metering circuit (unlike many other so called PEP monitor systems). The Revex W502 features solid construction with an all-metal case and a large back-lit meter... and it covers the 1.8 to 60MHz range with less than 0.1dB insertion loss. With 20W, 200W and 2kW power ranges and LED indicators which show average or PEP operation.

Requires 13.8V DC @ 200mA power supply.

Cat D-1360

**\$199**



## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware and instructions.

Cat D-4840



**\$169**

## ST-7500 2m/70cm MOBILE ANTENNA

NEW FOR '92

At last, a high performance dualband mobile antenna at a down to earth price. The ST-7500 is just 1metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality Japanese construction together with a tiltable whip structure make this an ideal antenna for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended).

Cat D-4810

**\$79<sup>95</sup>**

## DIAMOND VHF/UHF BASE STATION ANTENNAS

These high quality, vertically polarised base station antennas are ideal for the discerning Amateur operating on the 2m, 70cm or 23cm bands. They're beautifully constructed Diamond brand antennas from Japan which provide high gain for maximum range. Constructed from robust F.R.P. tubing for excellent all-weather operation, with ground-plane radials for a clean radiation pattern.

### 2m ANTENNA F23A

Frequency: 144 — 148MHz  
Gain: 7.8dB  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 4.53m  
Type: 3 x  $\frac{3}{8}$   $\lambda$  co-linear

Cat D-4850

**\$199**

### 2m/70cm ANTENNA X-200A

Frequency: 144 — 148MHz, 430 — 450MHz  
Gain: 6dB on 2m, 8dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 180km/h  
Length: 2.5m  
Type: 2 x  $\frac{3}{8}$   $\lambda$  (2m), 4 x  $\frac{3}{8}$   $\lambda$  (70cm)

Cat D-4860

**\$199**

### 2m/70cm ANTENNA X-500A

Frequency: 144-148MHz, 432-450MHz  
Gain: 8.3dB on 2m, 11.7dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 5.2m  
Type: 3 x  $\frac{3}{8}$   $\lambda$  (2m), 8 x  $\frac{3}{8}$   $\lambda$  (70cm)  
Connector: N-type socket

Cat D-4865

**\$279**

### 23cm ANTENNA F-1230A

Frequency: 1260 — 1300MHz  
Gain: 13.5dBi  
Max. Power: 100W  
Max. Wind Speed: 144km/h  
Length: 3.06m  
Type: 25 x  $\frac{1}{2}$   $\lambda$  co-linear  
Connector: N-type socket

Cat D-4870

**\$239**

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## 2m 1/2 WAVE BASE STATION ANTENNA

—MOBILE ONE

An outstanding value for money, compact, Australian made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection and comes with a 5 year warranty.

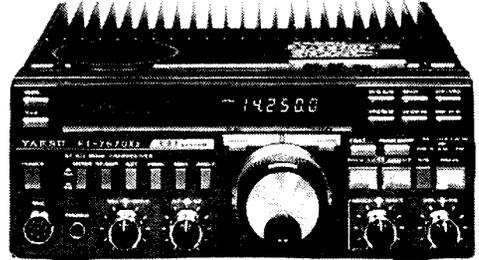
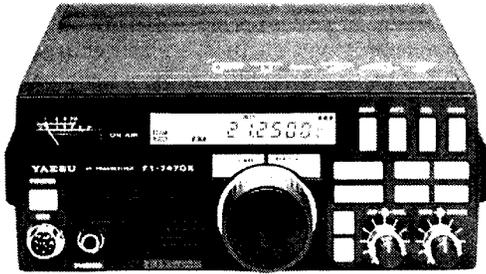
Cat D-4820

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## FT-747GX BUDGET H.F. TRANSCEIVER

The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts of PEP output on all 1.8-30MHz amateur bands, and general coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and easy to read digital display, dual operator selectable tuning steps for each mode, dual VFO's for split frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM, and narrow 500Hz CW IF filters are also fitted as a standard feature. Includes Yaesu MH-1 hand microphone. See ARA Review — Vol 11, Issue 11.

Cat D-2930

**2 YEAR WARRANTY!**

**\$1199**

## FT-212RH MOBILE 2m FM TRANSCEIVER



**2 YEAR WARRANTY!**

With 45 watts output over the 144-148MHz range, a rugged diecast chassis for superb RF isolation, extensive use of surface mount components, and a large back-lit LCD with bargraph PO/S-meter. The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. Features include 5 selectable tuning steps, a total of 21 memories (18 general purpose, one CALL-channel, and 2 sub-band limit memories for band scanning), inbuilt C.T.C.S.S. encode, as well as a variety of scanning functions. The FT-212RH comes with a mobile mounting bracket, convenient MH-14A8 microphone, and DC power lead.

Cat D-3494

**SUPER VALUE \$499**

## Our Most Rugged HF Mobile Transceiver! ALL MODE HF TRANSCEIVER FT-757GX II

Ready for action! Whether in a demanding H.F. mobile situation, or at home in the shack, the FT-757GX II won't let you down. Based on its popular predecessor, it features the heavy duty die-cast heatsink and rugged metal chassis of the earlier 757GX, but has been upgraded to offer a number of new features. These include...

- All mode operation — SSB, CW, AM, FM(160m-10m)
- 100 watt output on SSB, CW, FM (25W AM) at 100% duty cycle
- High performance general coverage receiver — 150kHz to 30MHz
- Dual VFO's with single button VFO/memory swap functions
- Memories store freq. and mode, plus provide band scanning.
- Inbuilt 600Hz CW IF filter, IF shift and IF notch filters, variable noise blanker, Speech Processor, iambic CW keyer, and SWR meter.
- Includes MH-1 hand microphone.

Cat D-3492

**2 YEAR WARRANTY!**

**SAVE \$100 \$1695**

## FT-4700RH 2m/70cm MOBILE FM TRANSCEIVER



**2 YEAR WARRANTY!**

Features 50 watts output on 2m, and 40 watts output on 70cm (430-450MHz), with Full-duplex crossband operation or dual-band reception modes, you can listen for calls on both bands simultaneously, or work someone on one band while listening on the other. The optional YSK-4700 extension cable allows the main body of the transceiver to be installed remotely, while the front panel mounts conveniently on the dashboard. The amber back-lit LCD shows both VHF and UHF frequencies and signal strengths, and all controls are back-lit for clear readability, with a dimmer switch for nighttime viewing. A total of 20 memories and 5 selectable tuning steps make frequency selection easy, while the advanced scanning features allow quick detection of signals on either, or both bands.

Cat D-3300

Cat D-3301 YSK-4700  
extension cable \$49.95!

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# The Story of Stephen Frith

PART 3 - BY H KARL SAVILLE VK5AHK

## Introduction

**T**HE ESSENTIAL FEATURES OF any communication device for the disabled must be speed of access and ease of operation.

However, it is not easy to devise a quick communication system for a disabled person who cannot use his hands. I had been asked to help Stephen, but had no previous experience to fall back on and, as far as I knew at the time, there was little or no written information available. I had to experiment and work on any ideas that might come to me. And, out of this came the realisation that to help the severely disabled you have to spend a lot of time studying their capabilities and their reaction to the communication system you intend to use. The system should be made to suit the operator and not the operator made to suit the system.

## Access Methods

The Morse code is excellent for communication with a switch (key) but the operator must be able to send at a fair speed and with good rhythm. And, because the average person cannot read a Morse code message, a decoder is necessary for translation. The computer is ideal for this purpose but, unfortunately, Stephen's poor co-ordination and lack of timing skill make it impossible for him to use the system as it was intended.

As stated in Part 2 I used a scanning system to enable him to access the individual dots and dashes and assemble them until the required dots and dashes were ready to be printed and, although he used this system for several months, it proved to be too slow. It would take, for example, 20 seconds or more to print out the letter A. It was a time of experimentation and it did provide Stephen with a means of communication. Communication speed would be much faster when using phrases, however.

Comparison tests between the two systems showed that a straight scanning system was faster than the Morse code scanning system. To print out an A would take about six seconds with the normal scanning system, and it was time to make a change. And this would also provide a cleaner and clearer screen presentation, by removing the cursor and function items from the bottom of the screen.

I found that there are two main scanning methods of accessing and display-

ing characters on the display screen. There are possibly more, but I have come into contact with only two so far. For convenience I call the first one **scanning**, and the other **stepping**.

## Scanning

Scanning is, in this case, the sequential selection of an option from a list of options. Unfortunately, the more options there are the longer it takes to scan the whole list. If the options are the letters of the alphabet (and numbers), there will be a total of 36 options, and these are displayed in a list or grid pattern of six rows of six columns.

In addition to the characters, there are other very necessary options which must be included, such as:

A **space** option to separate words.

A **delete** option to remove wrong letters.

And a **menu** option so it is possible to leave the program and go to another.

Other options may have to be used as required, such as a printer etc.

## Presentation

In order to fit the extra options in a 6x6 grid we can use the capital letters I and O for 1 and 0, thus leaving two spare spaces in the grid which can be used for the space and delete options.

The menu option can be accessed by returning the program to menu each time the space option is accessed. The **printer** option is accessed at the menu.

A cursor, an arrow character, moves, or scans down the left-hand side of the screen and pauses at each row of the display list in turn. Each row is identified by a buzz sound. One buzz for row 1, two for row 2, and so on. In this way the operator can keep track of each row even if he is distracted for some reason.

Table 1: Display List

→	Space	A	B	C	D	Delete
	E	F	G	H	I	J
	K	L	M	N	O	P
	Q	R	S	T	U	V
	W	X	Y	Z	2	3
	4	5	6	7	8	9

I do not claim this as the best arrangement, but just one of a number of possible ways.

If the switch is activated while the cursor is indicating a row, the cursor changes direction and scans along the row, pausing for three seconds at each option. Pressing the switch, during the

pause period, will print out the indicated option, in oversized characters, in the lower half of the screen, or act accordingly in the case of space or delete.

On completion of an option the cursor returns to the top left-hand position.

## Stepping

The stepping system is the reverse of scanning in that the cursor is made to move by the switch and does not move by itself.

The stepping method is considerably faster than normal scanning, but it requires more skill and co-ordination from the operator. The cursor is initially stationary and sits above the display. When the switch is pressed and released the cursor steps down to the first row and, each time the switch is pressed and released the cursor steps down a further row. When the cursor reaches the required row, and if the switch is not pressed, the cursor will, after a pause of three seconds, print out the first option on that row. If the switch had been pressed before the pause time of three seconds had expired, the cursor would have stepped to the second option on that row, and so on.

With the stepping system, if the switch is not pressed before the pause time of three seconds, the option indicated by the cursor is carried out. If the operator can manage this method it is possible to select the most remote character on the display grid (the character 9) in about 12 seconds. This is assuming six moves down, three seconds wait to enter the bottom row, then six moves along and finally three seconds wait before printing out the figure 9. It would take 36 seconds to print out the same character using the scanning method.

If we assume the average time to access a letter for the scanning method is  $36/2 = 18$  seconds, a five-letter word would take about 70 seconds.

The stepping method average is  $1/2 = 6$ , and this would give about 30 seconds for a five-letter word, or approximately two words a minute.

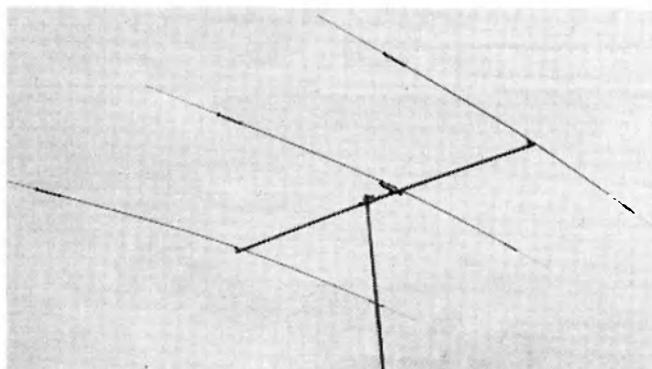
## The Switch

A lot of programming attention has to be made to get correct switch operation. In the scanning mode, the pause period is made by a count loop of 1000, which takes about three seconds, and on reaching

*Continued on Page 32*

# TET-Emtron

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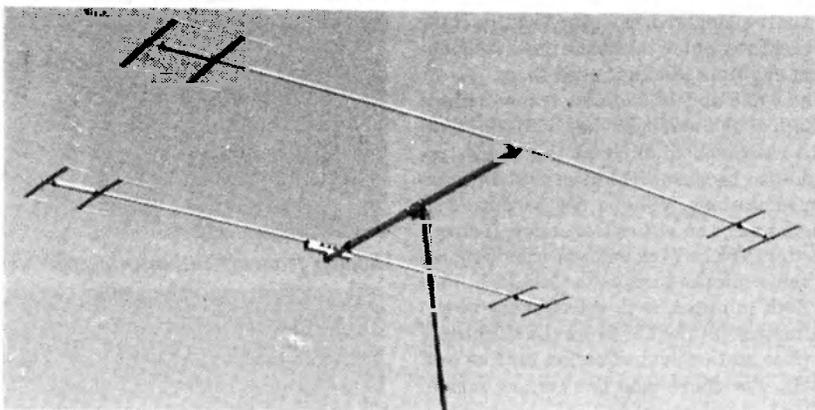
Band .....	14, 21, 28MHz
Gain .....	6, 6.2, 7 dBd
F/B Ratio .....	21, 15, 16 dB
Power .....	2 KW PEP
Max Ele. Length .....	13m
Weight .....	12.5kg

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FREQUENCY .....	14 21 28MHz
ELEMENT LENGTH .....	5.0m
BOOM LENGTH .....	2.0
GAIN .....	4/6/6 dB
FRONT TO BACK RATIO .....	12-20dB
FEED IMPEDANCE .....	50ohm
TURNING RADIUS .....	2.74m
WIND SURFACE .....	0.25m
WEIGHT .....	9.1kg
VSWR 21 28MHz less than 1.5:1 across band	
14MHz 150 kHz less than 1.5:1	
250 kHz less than 2.0:1	



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# New Frequencies for VNG

MARION LEIBA VK1VNG, VK1BNG HONORARY SECRETARY VNG USERS CONSORTIUM  
26 FIMISTER CIRCUIT, KAMBAH ACT 2902

**A**USTRALIA'S STANDARD frequency and time signal service has undergone frequency changes. VNG ceased broadcasting on 15MHz at 0700 UTC on 6 May 1991. The aerial was modified and the transmitter tuned for 16MHz, and transmission on this new frequency started at 0000 UTC on 8 May 1991. The alterations to the frequency synthesiser and antenna were made by the staff at Llandilo.

VNG has also been licensed on 8.638 and 12.984MHz. These are on loan from the Royal Australian Navy and we are very grateful. It must be remembered, however, that the Navy reserves the right to take back these frequencies at any time should it need them.

The 8.638 and 12.984MHz transmissions are both double sideband, but with the bandwidth restricted to 3kHz at the Navy's request. Also, because of the international spectrum allocations, VNG is not permitted to transmit voice on either frequency. Instead, the letters VNG are transmitted in slow morse six times a minute during the 15th, 30th, 45th and 60th minutes, with a frequency of approximately 400Hz. These are the minutes of the voice station identification on five and 16MHz. For those who don't know morse, VNG is "... — — — —".

The frequency synthesisers for 8.638 and 12.984MHz were built in the geology department of the University of Tasmania in Hobart by Vagn Jensen VK7VJ, the director of the Tasmanian seismograph network. Vagn also designed the synthesisers.

VNG started transmitting on 8.638 and 12.984MHz at 0006 UTC on 3 July 1991, and transmission on 10MHz ceased on 2 July 1991. On 3 July, VNG was also officially opened by the chairman of the National standards Commission, Professor Julian Goldsmid. About 50 people from government organisations and the VNG Users Consortium attended the ceremony. The aerial used for the 5MHz transmission is a Wells quadrant. The other frequencies are radiated from delta-matched quadrants with a single strand of wire on each arm. Recent reception reports have been received from overseas on the three higher frequencies, with particularly enthusiastic comments on the 16MHz transmissions which have been those most commonly reported from around the world. Reception of 5MHz outside Australia and New Zealand is rarely mentioned nowadays, though reports on this frequency were received in 1988-89 when it was VNG's only transmission.

VNG's transmission schedule is: 5.000MHz,



*Scenes from official opening of VNG in transmitter hall at Llandilo, 3 July 1991.*



*Vagn Jensen VK7VJ arriving Llandilo with the frequency synthesiser for 8.638 and 12.984MHz on 1 July 1991.*

8.638MHz, 12.984MHz: continuous;  
16.000MHz: 2200-1000 UTC.

The power is: 5.000 and 8.638MHz: 10kW;  
12.984MHz; 3kW; 16.000MHz; 5kW.

**Location:** International Transmitting Station, Civil Aviation Authority, Llandilo, New South Wales, Australia, 33 42 52 S, 150 47 33 E.

**Transmitters:** STC HF broadcast transmitters. The VNG transmitters and standard frequency and time signal equipment are owned by the National Standards Commission.

**Emission:** Double-sideband full-carrier amplitude modulation 5.000 and 16.000MHz: 6K00B9W; 8.638 and 12.984MHz: 3K00A1A.

**Licensed Power:** 5.000, 8.638 and 12.984MHz: 10.kW; 16.000MHz: 5kW.

**Power in Use:** 5.000 and 8.638MHz: 6kW; 12.984MHz: 3kW; 16.000MHz: 5kW

**Aerials:** 5MHz is radiated from a Wells quadrant aerial. 8.638, 12.984 and 16MHz are radiated from delta-matched quadrant aerials with a single strand of wire on each arm.

**Transmission Schedule:** 5.000, 8.638, 12.984MHz: continuous; 16.000MHz: 2200-1000 UTC.

**Frequency Loan:** 8.638 and 12.984MHz are on loan from the Royal Australian Navy.

**Voice Station Identification Announcement — Broadcast on 5 and 16MHz only:** Given during the 15th, 30th, 45th and

*Continued on Page 32*

# Australian VHF-UHF Records

Div	From	To	Date	Distance
<b>8 METRE BAND</b>				
<b>SHORT PATH</b>				
VK1	VK1RX	KP4A	08/04/91	18082.0
VK2	VK2JSR	FC1BYM	06/02/91	17184.4
VK3	VK3OT	G4UPS	19/02/91	16921.8
VK4	VK4AYX	DL3ZM/YV5	18/03/81	15582.0
VK5	VK5LP	P43AS	26/03/89	16116.0
VK6	VK6RO	G18DYZ	26/02/90	14904.1
VK7	VK7IK	W4EQM	27/04/90	15343.0
VK8	VK8RH	8R1AH	02/04/89	18857.9
<b>LONG PATH</b>				
VK2	VK2BBR	6W1OC	02/03/91	21384.0
VK3	VK3OT	9Q5EE	06/04/91	27186.0
VK4	VK4BJE } VK4KHZ }	6W1OC	02/03/91	21754.0
VK6	VK6JQ	TL6MB	03/04/91	28397.0
VK7	VK7IK	W4EQM	27/04/90	15343.0
DIG	VK2BBR	JH1WHS	28/04/91	7320.0
MOB	VK4ZAV	FMSWO	06/04/91	16242.9
<b>2 METRE BAND 144 - 148 MHz</b>				
VK1	VK1VP	VK4ZSH	14/12/83	936.4
VK2	VK2ZRU	VK6AOM	13/12/88	2697.9
VK3	VK3YLR/3	VK6KZ/6	23/01/80	2784.2
VK4	VK4BFO	J17DMB	15/04/91	6783.0
VK5	VK5ZEE	ZL1HH	15/01/86	3458.8
VK6	VK6KZ/6	VK3YLR/3	23/01/80	2784.2
VK7	VK7ZAH	VK4ZAV	01/01/87	1910.0
VK8	VK4ZSH/8	JA7OXL	24/10/82	6480.9
EME	VK3AMZ	VE1BVL	22/06/91	17683.6
MOB	VK3KAJ/M	VK6BE	25/01/86	2224.5
DIG	VK3ZJC	VK3ZQB	28/11/90	266.6
<b>70 cm BAND 420 - 450 MHz</b>				
VK1	VK1VP	VK2ZPT	14/06/85	286.4
VK2	VK2ZAB	ZL1AKW	13/01/88	2299.8
VK3	VK3ZBJ	VK6KZ/6	23/01/80	2715.9
VK4	VK4ZSH/4	ZL2TPY	13/01/88	2401.9
VK5	VK5NY	VK7JG	21/05/85	995.0
VK6	VK6KZ/6	VK3ZBJ	23/01/80	2715.9

As at 6 January 1991  
 Abbreviations:  
 EME National EME records  
 ATV National ATV records  
 DIG Digital Modes records  
 MOB National mobile records  
 National records shown in bold type.

Div	From	To	Date	Distance
VK7	VK7JG	VK5NY	21/05/85	995.0
EME	VK8ZT	K2UYH	29/01/83	18726.4
ATV	VK3ZPA/T	VK7EM/T	13/12/72	413.0
MOB	VK3KAJ/M	VK6BE	25/01/86	2224.5
DIG	VK3ZJC	VK3ZQB	28/11/90	266.6
<b>50 cm BAND 576 - 685 MHz</b>				
VK2	VK4ZRF/2	VK4ZSH/4	11/12/81	255.4
VK3	VK3ZBJ	VK3KAJ/5	25/02/89	382.9
VK4	VK4ZRF/4	VK4ZSH/4	07/12/81	377.6
VK6	VK3KAJ/5	VK4ZSH/4	25/02/89	382.9
VK8	VK6KZ/6	VK6HK	16/01/83	196.4
MOB	VK3KAJ/M	VK3ZBJ	26/02/89	122.5
<b>23 cm BAND 1240 - 1300 MHz</b>				
VK1	VK1VP/1	VK4ZSH/2	01/02/91	243.2
VK2	VK2BDN	ZL1AVZ	09/12/82	2132.7
VK3	VK3ZBJ	VK6WG	18/03/88	2449.3
VK4	AX4NO/4	AX4ZT/2	12/04/70	402.0
VK5	VK5MC	VK6KZ/6	23/01/80	2289.4
VK6	VK6WG	VK3ZBJ	18/03/88	2449.3
VK7	VK7ZAH	VK3AKC	17/02/71	439.0
EME	VK3AKC	W2NFA	06/10/73	16713.0
MOB	VK3KKW/M	VK3ZJC/M	16/09/89	137.6
<b>13 cm BAND 2300 - 2450 MHz</b>				
VK2	VK2ZAC/2	VK2BON/2	19/05/73	159.9
VK3	VK3ZHP	VK7HL	12/01/85	427.3
VK6	VK6QR	VK6WG	17/02/78	1885.5

Div	From	To	Date	Distance
VK6	VK6WG	VK5QR	17/02/78	1885.5
VK7	VK7HL	VK3ZHP	12/01/85	427.3
ATV	VK3YTV/3	VK3ZBJ	26/01/91	117.8
<b>9 cm BAND 3300 - 3800 MHz</b>				
VK2	VK2AHC/2	VK2SB/2	16/01/77	114.1
VK3	VK3KAJ/3	VK3ZBJ	25/01/88	244.3
VK6	VK6QH	VK6WG	25/01/88	1885.5
VK8	VK6WG	VK6QR	25/01/88	1885.5
<b>6 cm BAND 5650 - 5850 MHz</b>				
VK1	VK4ZSH/1	VK1VP/2	13/08/90	66.8
VK2	VK4ZSH/2	VK4ZBW/4	29/04/90	144.3
VK3	VK4ZSH/3	VK3ZBJ	14/04/90	89.8
VK4	VK4ZSH/4	VK4ZBW/4	22/04/90	173.4
VK6	VK5NT	VK5ZD/5	12/11/89	176.4
<b>3 cm BAND 10 - 10.5 GHz</b>				
VK2	VK2AHC/2	VK2SB/2 }		
	VK2ZND/2 }	12/04/75	114.1	
VK3	VK3KAJ/3	VK3ZBJ/3	08/02/88	252.1
VK4	VK4ZNC/4	VK4ZSH/4	09/11/81	170.6
VK5	VK5NT/5	VK5ZD/5	10/06/90	214.6

NOTES  
 VK2AHC is now VK5ZO; VK3YLR is now VK3KAO; VK3ZPA is now VK3KAL; VK3AKC: R. Wilkinson (deceased); VK2BDN: R. Norman (deceased);  
 VK7ZAH: K. Henricks (deceased).  
**TO APPLY FOR A RECORD**  
 Details required are: date, time, frequency, mode, signals reports, and some details of equipment used. Original OSL cards may be supplied, or certified copies. Station locations MUST be in degrees, minutes, and seconds, or marked clearly on "Nat-map" 1:100,000 or lighter scale maps. All maps, OSL cards etc. will be returned to the claimants.  
 Send applications to the Chairman, Federal Technical Advisory Committee, PO Box 300, Caulfield South, Vic 3162.

# Australian Beacons

Freq	Call	Serv Area	Loc	ST	Notes
<b>HF Bands</b>					
3.699	VK2RCW	Sydney	QF56	O	(1)
28.260	VK5WI	Adelaide	PF95	O	
28.262	VK2RSY	Sydney	QF56	O	
28.264	VK6RWA	Perth	OF76	O	
28.265	VK4RIK	Cairns	QH23	O	
28.266	VK6RTW	Albany	OF84	O	
28.266	VK8VF	Darwin	PH57	O	
28.270	VK4RTL	Townsville	QH30	O	
<b>6 Metre Band</b>					
50.043	VK6RAS	Alice Sp	PG66	?	(3)
50.0535	VK3SIX	Wannoo	QF02	O	
50.056	VK8VF	Darwin	PH57	O	
50.057	VK7RSB	Hobart	QE37	O	
50.066	VK6RPR	Perth	OF76	O	
50.0775	VK4BRG	Sarina	QG48	O	
52.200	VK6VF	Darwin	PH57	O	
52.300	VK2RBH	Broken Hill	QF06	P	
52.320	VK6RTT	Wickham	QG89	O	
52.325	VK2RHV	Newcastle	QF57	O	
52.330	VK3RGL	Geelong	QF22	O	
52.345	VK4ABP	Longreach	QG26	O	
52.350	VK6RTU	Kalgoorlie	PF09	L	
52.370	VK7RST	Hobart	QE37	O	
52.410	VK1RCC	Canberra	QF44	P	
52.420	VK2RSY	Sydney	QF56	O	
52.425	VK2RGB	Gunnedah	QF59	O	
52.435	VK3RMV	Hamilton	OF12	?	
52.440	VK4RTL	Townsville	QH30	O	
52.445	VK4RIK	Cairns	QH23	O	
52.445	VK4RBM	Mackay	QG48	T	
52.450	VK5VF	Adelaide	PF95	O	
52.460	VK6RPH	Perth	OF76	O	
52.465	VK6RTW	Albany	OF84	O	
52.470	VK7RNT	Launceston	OE38	O	

Please advise any additions or corrections to the Chairman, WIA Federal Technical Advisory Committee, PO Box 300, Caulfield South, Vic 3162.

Freq	Call	Serv Area	Loc	ST	Notes
52.485	VK6RAS	Alice Sp	PG66	O	(3)
<b>2 Metre Band</b>					
144.022	VK8RBS	Busselton	OF76	O	
144.400	VK4RTT	Twmba	QG62	O	
144.410	VK1RCC	Canberra	QF44	O	
144.420	VK2RSY	Sydney	QF56	O	
144.430	VK3RTG	Melbourne	QF22	O	
144.435	VK3RMV	Hamilton	OF12	?	
144.445	VK4RIK	Cairns	QH23	O	
144.445	VK4RTL	Townsville	QH30	O	
144.445	VK4RBM	Mackay	QG48	T	
144.650	VK6RTU	Kalgoorlie	PF09	O	
144.450	VK5VF	Adelaide	PF95	P	(4)
144.465	VK6RTW	Albany	OF84	O	
144.470	VK7RMC	Launceston	OE38	O	
144.480	VK8VF	Darwin	PH57	O	
144.485	VK8RAS	Alice Sp	PG66	O	
144.530	VK3RGG	Geelong	QF22	?	
144.535	VK3RGI	Gippsland		L	
144.550	VK5RSE	Mt Gamb	OF02	O	
144.600	VK6RTT	Wickham	QG89	?	
144.800	VK5VF	Adelaide	PF95	O	(4)
144.950	VK2RCW	Sydney	QF56	O	(2)
144.950	VK3RCW	Melbourne	QF22	O	(2)
145.000	VK6RPH	Perth	OF76	O	
<b>70 cm and Higher Bands</b>					
432.066	VK6RBS	Busselton	OF76	?	
432.160	VK6RPR	Perth	OF76	O	

Freq	Call	Serv Area	Loc	ST	Notes
432.410	VK1RBC	Canberra	QF44	O	
432.410	VK8RTT	Wickham	QG89	?	
432.420	VK2RSY	Sydney	QF56	O	
432.430	VK3RTG	Melbourne	QF22	L	
432.435	VK3RMV	Hamilton	OF12	?	
432.440	VK4RSD	Brisbane	QG62	O	
432.445	VK4RIK	Cairns	QH23	O	
432.445	VK4RTL	Townsville	QH30	O	
432.445	VK4RBM	Mackay	QG48	T	
432.450	VK3RAI	Malboume	QF22	O	
432.465	VK6RTW	Albany	OF84	?	
432.480	VK8R77	Darwin	PH57	P	
432.530	VK3RGL	Geelong	QF22	T	
432.535	VK3RMB	Ballarat	QF12	O	
432.545	VK4RAR	Rockton	QG56	O	
432.565	VK6RTU	Kalgoorlie	PF09	?	
1296.196	VK8RBS	Busselton	OF76	O	
1296.410	VK1RBC	Canberra	QF44	O	
1296.420	VK2RSY	Sydney	QF56	O	
1296.440	VK4RSD	Brisbane	QG62	O	
1296.445	VK4RIK	Cairns	QH23	O	
1296.480	VK6RPR	Perth	OF76	O	
2304.420	VK2RSY	Sydney	QF56	P	
2304.445	VK4RIK	Cairns	QH23	O	
2306.440	VK4RSD	Brisbane	QG62	O	
10300.0	VK6RUF	Perth	OF76	?	
10366.0	VK3RQZ	Melbourne	QF22	T	
10445.0	VK4RIK	Cairns	QH23	O	

Notes:  
 (1) CW practice beacons.  
 (2) CW practice beacons - FM mode.  
 (3) To move from 52.485 to 50.043.  
 (4) To move from 144.800 to 144.450.

# List of Acronyms

## Amendments and Additions

Many letter combinations have been used in *Amateur Radio* and elsewhere for many years, sometimes without explanation. To disperse the log, we published a list in February 1991 (pp27-32). It contained a few errors and also left out some well-known acronyms. You may like to update your original list by inserting the following alterations.

Amend 1991 list as follows:

AARPC "Postcode" not "Postcode"  
 ARCOT The word "Club" has been omitted (after "Radio")  
 B-MAC "Satellite" not "satellite"  
 CGA "Graphics" not "Graphic"  
 JMFD "John" not "Joyn"

MF "MHz" not "Mitz"  
 PCA "Closest" not "Closest"  
 RED Should be REF  
 SECAM "Memoirs" not "Memorie"  
 SELCAL Delete last L (ie not SELCALL)  
 SRJ "Savez" not "Saves"  
 TRAC Close bracket after "Turkey"  
 UTC "Universe" not "Universa"  
 Add to 1991 list as follows:  
 AOC after "Air Officer Commanding" add "Aeronautical Operational Control"  
 ATC Air Traffic Control (after ASEAN)

DME Distance Measuring Equipment (after DMA)  
 EBU European Broadcasting Union (after EARS)  
 GPS Global Positioning System (after GOES)  
 ICAO International Civil Aviation Organisation (after IC)  
 MDRC Moorabbin & District Radio Club (after MCW)  
 PROM Programmable read only memory (after PNGARS)  
 SARL add "(also Sarawak)"  
 SRSAT Satellite Aided Rescue Satellite (after SARL)  
 TVRO Television Receive Only (after TVI)  
 TWT Travelling Wave Tube  
 VOR VHF Omnidirectional Range (after VOA)

# Stolen Equipment Register

The Stolen Equipment Register is one of many services offered to members by the Wireless Institute of Australia. It has now been in operation since 1980, and is maintained on a computer database in the Executive Office. At regular intervals, updates of the complete list, sorted into categories of: Equipment Manufacturer/Model, Owner, Date Stolen are distributed to each Division. Members wanting to take advantage of the

register, either to publicise the theft of their equipment or to check equipment they are about to purchase, may contact their Division, or write or telephone the Executive Office. Any telephone reports of stolen equipment must be followed immediately by written confirmation of the details. For maximum efficiency, these details should include: Manufacturer's name; model; type of equipment; serial number; date stolen; owner's name,

address and call sign; any distinguishing features or modifications; police contact (if any). When equipment is recovered, it is important that you advise the Executive Office as soon as practicable. This list is the most up-to-date information we have at the time of going to press, but is based entirely on information received from you, the member. Would all readers please check this list and immediately advise if there are any amendments.

MFIR	MODEL	DESCRIPTION	SERIAL NUMBER	OWNER	DATE STOLEN	COMMENT
AEA	PAKRATT	MULTIMODE TNC	19092	VK3XBE	28.07.91	
ALINCO	ALD24T	2M/70CM MOBILE RIG	10107310	VK2TPH	21.01.91	DIPLEXER FITTED 2 ANTENNA CABLES
AZDEN	PCS-3000	2M FM MOBILE	36738	VK2KCV	01.06.87	NO MICROPHONE - NO BRACKET
BELCON	LS-202E	2M M/MODE H/HELD	401992	VK3YYD	07.11.90	
BWD	804	DC-10MHZ SCOPE	51767	VK2ZQW	11.01.90	
COMMODORE	1541 II	DISK DRIVE	-	VK5ALE	03.04.91	ENGRAVED L.E.P.A.R.C.
	64	COMPUTER	-	VK5ALE	03.04.91	ENGRAVED L.E.P.A.R.C.
DAIWA	2M 70 CM	CROSSNEEDLE SWR MTR	-	VK3XBE	28.07.91	
	CN-620A	SWR/POWER METER	-	VK2DQP	16.09.91	
	CNW-419	ANTENNA TUNER	-	VK3XBE	28.07.91	
DICK SMITH		AUDIO GENERATOR	-	VK2XJC	15.05.85	
	EXPLORER	70CM FM TRANSCEIVER	-	VK2KUR	24.09.84	EXTENSIVE MODIFICATIONS
	T-2000	SOLDERING STATION	-	VK2DQP	16.09.91	
DRAKE	TR-7	HF TRANSCEIVER	2333	VK2AML	16.05.90	OWNERS NAMES ENGRAVED
DRESSLER	EVV2000	2M PRE-AMP	1027	VK2XJC	15.05.85	
ELECTROPHONE	TX470T	UHF TRANSCEIVER	50600672	VK6ZPL	11.04.87	
EMTRONICS		NOISE BRIDGE	EM342	VK4AAE	27.10.89	
GALAXY	5	HF TRANSCEIVER	5672V2118	VK3UB	06.06.87	REMOTE VFO
	5	HF TRANSCEIVER	5503V1309	VK3UB	06.06.87	REMOTE VFO
GCOL	GV-16	2 M FM HANDHELD	-	VK3JDO	17.11.89	WITH ANTENNA
GME	TX472S	40 CH UHF T/CEIVER	912 48058	VK3KLF	14.06.90	
	TX830	40 CH AM CB	8770556	VK4IS	15.06.90	
GOODWILL	GFC8055F	DIGITAL FREQ COUNTER	2020452	VK2IT	07.06.91	
HOME BREW	-	ANTENNA TUNING UNIT	-	VK2DQP	16.09.91	
	-	ELECTRON MORSE KEYS	-	VK2DQP	16.09.91	
	-	SPEAKER MIC	-	VK5ZGB	16.12.89	
ICOM	HM4G	2M FM HANDHELD	23186	VK2FZH	09.06.89	WITH BP3 AND BC25E
	IC02A	2 M FM HANDHELD	29906249	VK5ZGB	16.12.89	
	IC02AT	2 M HAND HELD	406070630	VK2OG	08.10.91	
	IC044	70 CM FM HANDHELD	-	VK5ZGB	16.12.89	
	IC1271A		001396	VK3XBE	28.07.91	
	IC202	2M SSB TRANSCEIVER	5144	VK4ZSH	03.09.85	
	IC202	2M SSB TRANSCEIVER	03482	VK3ZY	11.06.87	
	IC202	2M SSB TRANSCEIVER	41013616	VK3ZBI	01.10.85	
	IC211	2M M/MODE T/CEIVER	6804309	VK3BRV	17.10.84	
	IC211	2 M TRANSCEIVER	-	VK2IT	07.06.91	WITH MICROPHONE
	IC215	2M FM PORT T/CEIVER	05156	VK2AMX	20.11.84	
	IC22	2M FM TRANSCEIVER	12266	VK3BLC	29.04.85	
	IC22	2M FM TRANSCEIVER	12467	VK1TR	06.02.90	NO POWER PLUG/DIAL LAMP UNUSUAL
	IC22	2M FM TRANSCEIVER	10918	VK3XD	08.02.90	
	IC22A	2M FM TRANSCEIVER	FALLEN OFF	VK3YY	21.06.87	EARLY MODEL - 22 CHANNELS
	IC22A	2M FM TRANSCEIVER	8853	VK3ZU	03.05.84	
	IC22A	2M FM TRANSCEIVER	3402112	VK2ZIG	01.07.87	
	IC22A	2M FM TRANSCEIVER	1914	VK4ZSH	03.09.85	
	IC22S	2M FM TRANSCEIVER	11912	VK2ETJ	06.03.88	PRE-AMP, SOCKET
	IC22S	2M FM TRANSCEIVER	14957	VK3DYZ	11.09.84	
	IC22S	2M FM TRANSCEIVER	07570	VK3KJA	14.12.87	DIGITAL READOUT
	IC22S	2M FM TRANSCEIVER	15674	VK2CIB	11.02.89	
	IC22S	2M FM TRANSCEIVER	14727	VK3ME	14.06.85	
	IC255A	VHF TRANSCEIVER	10306425	VK3KLF	14.06.90	
	IC25A	2M FM TRANSCEIVER	03831	VK2DPM	04.11.84	VFO MODIFIED
	IC271A	2M ALL MODE TRCVR	27402603	VK3XBE	28.07.91	
	IC280	TRANSCEIVER	02592	VK2BVW	30.03.88	
	IC290A	ALL MODE TRANSCEIVER	001532	VK3YFA	01.11.90	
	IC290H	ALL MODE TRANSCEIVER	17701965	VK3ZBI	01.10.85	
	IC290H	ALL MODE TRANSCEIVER	17703342	EMTRONICS	17.02.86	
	IC2A	2M FM HANDHELD	04484	VK1MX	21.01.85	VINYL CASE
	IC2A	2M FM HANDHELD	12213837	VK5ABY	22.12.88	
	IC2A	2M FM HANDHELD	12209700	VK2AHF	08.09.87	

	IC2A	2M FM HANDHELD	12213630	VK3YOD	02.12.83	SPARE BATTERY PACK
	IC2A	2M FM HANDHELD	29901052	VK2CKD	05.02.86	-
	IC2GAT	2M FM HANDHELD	06616	VK3JDO	17.11.89	WITH BP70, BC36, BPSA X 2
	IC3200	2M/70CM TRANSCEIVER	01046	VK2CIM	02.06.87	-
	IC45A	70CM FM TRANSCEIVER	18351005	VK3KJC	22.02.84	MEMORY BACKUP UNIT
	IC45A	70CM FM TRANSCEIVER	01876	VK2DPM	04.11.84	-
	IC471A	70 CM TRANSCEIVER	20801900	VK3XBE	28.07.91	-
	IC490A	70CM TRANSCEIVER	18101192	VK3BVO	01.03.83	-
	IC4E	70CM H/H TRANSCEIVER	18103021	VK3YOD	02.12.83	SPARE BATTERY PACK
	IC4E	70CM H/H TRANSCEIVER	-	VK2KZZ	16.08.87	CALLSIGN ENGRAVED
	IC502	6M SSB TRANSCEIVER	00618	VK3ZJY	11.06.87	-
	IC551	6M ALL MODE T/CEIVER	01273	VK4ZSH	03.09.85	INCLUDING FM, VOX
	IC551	6M ALL MODE T/CEIVER	9401253	VK3ZBI	01.10.85	-
	IC551D	6M TRANSCEIVER	99003678	VK3YSG	01.01.84	-
	IC560	6M TRANSCEIVER	01153	VK3MT	01.02.90	ENGRAVED SECURITY NO. T-00510
	IC560	6 M TRANSCEIVER	02057	VK2IT	07.06.91	WITH MICROPHONE
	IC701	HF TRANSCEIVER	8001039	VK2777	15.02.88	-
	IC701PS	POWER SUPPLY	7800978	VK2777	15.02.88	-
	IC720A	HF TRANSCEIVER	06242	VK4ZSH	03.09.85	-
	IC721	HF TRANSCEIVER	003663	A. WOJNAR	02.07.90	TRANSCEIVES ALL RFDS FREQUENCIES
	IC730	HF TRANSCEIVER	13806798	MELB UNIV	18.09.85	HOME BREW POWER SUPPLY
	IC735	HF TRANSCEIVER	36304455	ELECTRONICS	17.02.86	-
	IC745	HF TRANSCEIVER	-	VK3XBE	28.07.91	-
	ICP520	POWER SUPPLY	10101966	VK3YSG	01.01.84	-
	ICR70	COMMS RECEIVER	18503539	VK3XBE	28.07.91	-
	ICR7000	COMMS RECEIVER	002670	VK3XBE	28.07.91	-
	PS30	POWER SUPPLY	20302017	VK3XBE	28.07.91	-
	SM6	DESK MICROPHONE	20507750	VK3XBE	28.07.91	-
KDK	2025 MK II	2M TRANSCEIVER	-	VK2ETJ	06.03.88	DEFUNCT FINAL
	FM2025 MK 2	2M FM TRANSCEIVER	A5020	VK2AML	03.07.88	SHARPE MICROPHONE
	MULTI 7	2M HANDHELD	-	VK2TJB	09.02.88	DRIVERS LICENCE NO. ENGRAVED
KENWOOD	309 VFO	VFO TO SUIT TR7200G	440168	VK5ALE	03.04.91	-
	AT180	ANTENNA TUNER	0020450	VK2777	11.11.87	-
	AT200	ANTENNA TUNER	820049	VK2DCB	16.06.84	-
	DG5	DIGITAL DISPLAY	730475	VK2DCB	16.08.84	-
	DM81	GRID DIP OSCILLATOR	4020163	VK2KLF	10.06.89	STENCILLED IN 20MM BRIGHT YELLOW
	LF-30A	LOW PASS FILTER	-	VK2ADP	16.09.91	-
	MC 50	MICROPHONE	-	VK2DOP	16.09.91	-
	MC-50	DESK MICROPHONE	N/A	VK5ABY	22.12.88	-
	MS1	MOBILE MOUNT	-	VK5BJA	30.05.89	-
	PS430	POWER SUPPLY	-	VK3CLV	16.12.91	-
	SMC/3C	H/HELD MIC & SPEAKER	-	VK2PRK	25.07.91	-
	SP520	SPEAKER	-	VK2DCB	16.08.84	-
	TM201B	VHF TRANSCEIVER	7011611E	VK3CLV	16.12.91	-
	TM221A	2M FM TRANSCEIVER	8110722	VK2CCD	09.04.88	-
	TM221A	2M FM TRANSCEIVER	8022541	VK3ZJY	11.06.87	-
	TM231A	2M FM TRANSCEIVER	0051016	VK4IS	27.07.90	-
	TM441A	432 MHZ FM TRANS	8010370	VK4IS	27.07.90	-
	TR2400	2M FM HANDHELD	0061950	VK2DPM	28.08.84	-
	TR2400	2M FM HANDHELD	0061928	VK2PJ	20.04.85	CALLSIGN ENGRAVED
	TR2500	2M FM HANDHELD	3040009	VK2ZQC	29.05.85	MICROPHONE AND CHARGER
	TR2500	2M FM HANDHELD	3033045	VK2DYW	18.02.87	-
	TR2800A	2M HANDHELD	7030631	VK5AAR	03.10.86	-
	TR2800A	2M HANDHELD TCVER	5060934	VK2KLF	10.06.89	MISSING HAND STRAP
	TR2800A	2M HANDHELD	5060695	VK5BJA	30.05.89	INCLUDING RUBBER DUCK ANTENNA
	TR7200G	2M TRANSCEIVER	111048	VK5ALE	03.04.91	-
	TR751A	2M ALL MODE T/CEIVER	7050512	VK3KJY	25.02.90	GREY MIC - DCL MODEM BOARD
	TR7850	2M FM H/HELD T/CEIVR	202080	VK2DED	06.03.84	"N" CONNECTOR
	TR7850	2M FM H/HELD T/CEIVR	M 2020561	VK2ALK	22.10.88	-
	TR7850	2M FM H/HELD T/CEIVR	1111125	VK2CCK	07.02.86	-
	TR7950	2M FM TRANSCEIVER	4010747	VK2TVG	08.08.85	-
	TR9000	2M ALL MODE T/CEIVER	1020527	VK2KAH	03.01.87	ADDITIONAL MEMORY SWITCH
	TR9000	2M ALL MODE T/CEIVER	1050780	VK3YSG	01.01.84	-
	TS120S	HF TRANSCEIVER	950819	VK2777	11.11.87	-
	TS120V	HF TRANSCEIVER	0061224600	VK2VWN	03.05.85	MT35 MICROPHONE
	TS130S	HF SSB TRANSCEIVER	1090168	VK5ABY	22.12.88	-
	TS130S	HF TRANSCEIVER	40401C8	VK2BVW	30.03.88	-
	TS130SE	HF TRANSCEIVER	2060697	VK2KAH	03.01.87	-
	TS430S	HF TRANSCEIVER	4010322	VK2XJC	15.05.85	INCLUDING FM, FILTER
	TS440S	HF TRANSCEIVER	0060078	VK2FIT	01.07.90	-
	TS440S	HF TRANSCEIVER	7090271	VK2FIT	24.10.89	WITH PS50 PSU & MC85 DESK MIC
	TS440S	HF TRANSCEIVER	0101192	VK3NFG	14.10.90	STOLEN FROM VEHICLE IN PERTH
	TS440S	HF TRANSCEIVER	7031310	VK6ID	25.08.91	-
	TS440S	HF TRANSCEIVER	R 7060309	VK3CLV	16.12.91	SP40 SP50 EXTERNAL SPEAKERS
	TS520	HF TRANSCEIVER	010296	VK2ZQW	11.01.90	-
	TS520S	HF TRANSCEIVER	820972	VK2DCB	16.08.84	-
	TS520S	HF TRANSCEIVER	?	VK2FZH	09.06.89	STICKER FROM "TURKEY RADIO"
	TS520SE	HF TRANSCEIVER	8850	VK5ALE	03.04.91	-
	TS670	6M & HF TRANSCEIVER	-	VK2ZXC	28.06.90	-
	TS700A	2M ALL MODE T/CEIVER	350409	VK3ZJY	11.08.87	-
	TS930S	HF TRANSCEIVER	3050176	VK7JG	13.01.83	-
	TV506	6M CONVERTER	720089	VK2ZQW	11.01.90	-
	VFO520	EXTERNAL VFO	-	VK2DCB	16.08.84	-
KING AIR	AIRCRAFT BAN	TRANSCEIVER	-	VK6ID	25.08.91	-
KYOKUTO	FM144	VHF FM TRANSCEIVER	8296	VK2ZQW	11.01.90	-
LYOTO	FM144-10	2M FM TRANSCEIVER	5027	VK2KUR	24.09.84	CALLSIGN ENGRAVED
LEADER	LSG11	SIGNAL GENERATOR	0041244	VK3KJA	14.12.87	-
	LSG16	SIGNAL GENERATOR	1081098	VK3YSG	01.01.84	MISC BITS ALSO
MWAVE MODULE	MM1-432-50	70 CM 50W AMPLIFIER	-	VK3XBE	28.07.91	-
MICROWAVE	40W-144 MHZ	2M LINEAR AMPLIFIER	-	VK2ZQW	11.01.90	-
MIRAGE		2M 150W AMPLIFIER	-	VK3XBE	28.07.91	-
		2M 60W AMPLIFIER	-	VK3XBE	28.07.91	-
PACCOM	DR200	DUAL PORT TNC	2231	VK2RDX	27.05.91	RELAY IN BOX IN DC SUPPLY LINE
PACCOMM	TINY 2	TNC	15359	VK5ALE	03.04.91	WITH MANUAL
PHILLIPS	323	UHF CB HANDHELD	-	VK6ID	25.08.91	2 OFF CH 17 AND 20
	FM321	70CM FM TRANSCEIVER	156	VK2IT	07.08.91	WITH MICROPHONE
	SXA	UHF CB HANDHELD	-	VK6ID	25.08.91	2 OFF CH 17 AND 20
PHILLIPS	828	2M FM TRANSCEIVER	44982	VK4IS	15.08.90	10 CHANNELS - 3 FITTED
	FM828	VHF TRANSCEIVER	-	VK5ALE	03.04.91	1 CHANNEL 147.575
PRESIDENT	HR2510	AM TX MOD FOR CB	95000177	F CARMICHAEL	05.91.00	SCRATCHES/NO POWER CORD
REALISTIC		SCANNING RECEIVER	-	VK6ID	25.08.91	BNC SOCKET
	AX190	HF RECEIVER	500111	VK3KJA	14.12.87	-
	SP190	SPEAKER ENCLOSURE	20-5191	VK3KJA	14.12.87	-
REGENCY	HX2000	HANDHELD	-	DSE VIC	13.05.85	-
SAIKO	SC7000	SCANNER	-	VK2XJC	15.05.85	BNC ANTENNA SOCKET
SONY	2001D	COMMUNICATIONS RECVR	?	VK2FZH	09.06.89	BROKEN ANTENNA
STANDARD	C520	2M & 70 CM HANDHELD	F140629	ANDREWS COMM	18.02.90	STOLEN AT GOSFORD FIELD DAY
STC	MT36	SWR BRIDGE	-	VK2RDX	27.05.91	-
	MTR25 191B	VHF TRANSCEIVER	-	VK2RDX	27.05.91	CTCSS AND TIMER UNITS FITTED
	MTR25 191D	UHF TRANSCEIVER	-	VK2RDX	27.05.91	CTCSS AND TIMER UNITS FITTED
SWAN	MB40	40 M MOBILE T/CEIVER	16471	VK2IT	07.08.91	-
TELEQUIP*	551	OSCILLOSCOPE	-	VK4AAE	27.10.89	-

TEMPO	1S	2M HANDHELD	012240	VK3UB	08.08.87	-
THORN		B&W TV	107512	VK2XJC	15.05.85	MOD FOR COMPUTER
TOKYO	HL160V	2M POWER AMPLIFIER	829331	VK2XJC	15.05.85	-
	HL86V	6M POWER AMPLIFIER	819595	VK2XJC	15.05.85	-
	HL90U	70CM POWER AMP	8304246	VK2XJC	15.05.85	-
TONO	THETA 550	KEYBOARD TERMINAL	821485	VK3XBE	28.07.91	-
TRIO	CS1560A2	CRO	10-20171	VK3YSG	01.01.84	-
UNIDEN	2020	HF TRANSCEIVER	50808009	VK2KSY	18.09.85	-
VIBROPLEX	-	MORSE KEY	-	VK2DQP	18.09.91	-
WELZ	SP200	SWR/PWR METER	800384	VK2XJC	15.05.85	-
YAESU	FAS14R	REMOTE ANT SEL	140138	VK3KJA	14.12.87	-
	FC707	ANTENNA TUNER	11140775	VK2DBB	28.04.86	-
	FC707	ANTENNA TUNER	1N180265	VK4AAE	27.10.89	-
	FC707	ANTENNA TUNER	11140765	VK3DHF	01.06.87	-
	FC707	ANTENNA TUNER	1L170088	VK2CFC	08.09.91	-
	FL2010	2M LINEAR AMPLIFIER	1L031300	VK3DKO	25.08.68	MOUNTED IN CRADLE
	FP707	POWER SUPPLY	4C050487	VK4AAE	27.10.89	-
	FP707	12V 20 AMP P/SUPPLY	1H120548	VK5ABY	22.12.86	-
	FP707	POWER SUPPLY	1L150598	VK2CFC	08.09.91	-
	FRA7700	ACTIVE ANTENNA	2H050293	VK2???	11.11.87	-
	FRG7	HF RECEIVER	299L26099	VK3ZLY	28.07.83	-
	FRG7	HF RECEIVER	8HH210882	VK2IT	07.08.91	-
	FRG7700	RECEIVER	2K210752	VK2???	11.11.87	-
	FRG7700	RECEIVER	3M280983	VK2XPU	01.08.69	-
	FRG9600	SCANNING RECEIVER	5 N 120787	DICK SMITH	01.11.91	STOLEN FROM BENDIGO VIC STORE
	FRT7700	ANTENNA TUNER	2K070479	VK2???	11.11.87	-
	FT101B	HF TRANSCEIVER	83L102373	VK3KJA	14.12.87	-
	FT101B	HF TRANSCEIVER	320378	VK2IT	07.08.91	WITH DESK MICROPHONE
	FT101E	HF TRANSCEIVER	8G350283	VK2SS	29.06.84	-
	FT101E	HF TRANSCEIVER	7K/301042	VK5EZ	08.07.89	-
	FT101E	HF TRANSCEIVER	8L370414	VK3DYZ	11.09.84	-
	FT101E	HF TRANSCEIVER	8J361432	VK2DQP	18.09.91	-
	FT102	HF TRANSCEIVER	3K090835	VK2FLM	23.12.90	ENGRAVED NO B62075 YM-36 MIC
	FT107M	HF TRANSCEIVER	11110012	VK2ALN	03.03.87	-
	FT200	HF TRANSCEIVER	2K332252	VK3DYZ	11.09.84	-
	FT207R	2M HANDHELD	1D132704	VK2ETJ	08.03.88	-
	FT207R	2M FM HANDHELD	10132725	VK2EMC	04.03.85	BATTERY COVER MISSING
	FT208R	2M FM HANDHELD	3N350964	VK2CBA	30.07.85	-
	FT208R	2M FM HANDHELD	4E382078	VK2PJ	29.03.89	FAULTY VCO
	FT208R	2M HANDHELD TRCVR	-	VK3XBE	28.07.91	-
	FT209R	2M FM HANDHELD	4L08245	DSE VIC	13.05.85	-
	FT209RH	2M FM HANDHELD	4K050638	VK3CE	01.01.85	BLUE VINYL CASE
	FT209RH	2M FM HANDHELD	5K190401	VK2HW	21.02.86	LEATHER CASE
	FT212RH	2 M TRANSCEIVER	1C630020	VK2XMM	01.07.91	-
	FT224	-	6G307290	VK3QV	28.05.87	-
	FT230	2M FM TRANSCEIVER	-	VK2EOD	18.08.87	-
	FT230R	2M FM TRANSCEIVER	4H081794	DSE VIC	13.05.85	-
	FT23R	2M FM HANDHELD	QD071763	DSE BOX HILL	18.09.91	-
	FT290R	2M FM TRANSCEIVER	2D100942	VK3DKO	25.08.68	CALLSIGN ENGRAVED
	FT290R	2M FM TRANSCEIVER	5G450018	VK7HW	18.04.66	MOBILE BRACKET
	FT290R	2M FM TRANSCEIVER	4E380554	VK3KGH	01.08.65	VINYL CASE
	FT290R	2M FM TRANSCEIVER	3C280713	VK2EGD	12.11.86	-
	FT290R	2M FM TRANSCEIVER	1L081321	VK3KJC	22.02.84	-
	FT290R	2M FM TRANSCEIVER	SF 280702	VK4AAE	27.10.89	COMPLETE WITH NICADS
	FT290R	2M FM TRANSCEIVER	1M061340	VK2VE	04.01.87	OWNERS NAME
	FT470	DUAL BAND HAND HELD	9L150788	DICK SMITH	31.06.90	STOLEN FROM BOURKE ST MELB STORE
	FT4700RH	VHF/UHF TRANSCEIVER	9C212240	VK3EMJ	18.07.91	NO MICROPHONE OR POWER LEAD
	FT480R	2M ALL MODE T/CEIVER	1H12069	VK1ZUR	29.05.84	-
	FT620	6M TRANSCEIVER	010489	VK4ZSH	03.09.85	-
	FT680R	HF TRANSCEIVER	3H060202	VK2XJC	15.05.85	-
	FT7	HF TRANSCEIVER	8K110846	VK2IV	04.11.88	DIAL ILLUMINATION MODIFICATION
	FT7	HF TRANSCEIVER	6I090726	VK2KSY	16.09.85	-
	FT7	HF TRANSCEIVER	6I090839	VK3BYK	28.08.83	-
	FT7	HF TRANSCEIVER	-	VK2PRK	25.07.91	-
	FT707	HF TRANSCEIVER	-	VK4AAE	27.10.89	ID "NSW 718610" ENGRAVED ON BACK
	FT707	HF TRANSCEIVER	1D161414	VK3DHF	01.06.87	-
	FT708R	70CMS FM HANDHELD	2J181463	VK2PJ	29.03.89	-
	FT708R	70CM FM HANDHELD	1H010946	VK2PJ	20.04.85	CALLSIGN ENGRAVED
	FT757GX	T/CVR & YM38 MIC	3N040371	VK2DBB	28.04.86	CALL SIGN ENGRAVED
	FT757GX	HF TRANSCEIVER	4J121785	VK2CFC	08.09.91	RF AMP NOISY - REQUIRES SERVICE
	FT780R	70CM TRANSCEIVER	1J061616	VK3ZBI	01.10.85	-
	FT780R	70CM TRANSCEIVER	3F070521	VK2XJC	15.05.85	-
	FV101	EXTERNAL VFO	1E353	VK3KJA	14.12.87	-
	FV707DM	EXTERNAL DIGITAL VFO	0L060097	VK4AAE	27.10.89	-
	Y901P	MONITORSCOPE	9L030072	VK1ZVR	15.12.84	INCLUDING MODULES
	YC355D	200MHZ FREQ COUNTER	-	VK2ZQW	11.01.90	-
	YP150	DUMMY LOAD/PWR METER	-	VK3XBE	28.07.91	-
	YP150	DUMMY LOAD	81090469	VK2DCB	18.08.84	-

# Band Plans

HF band plans are as in the 1992 Australian Radio Amateur Call Book. VHF band Plans have minor changes due to adoption of new 50 MHz beacon policy last October.

On 50 MHz, beacon frequencies within the DX window (50.05 - 50.200 MHz) are reserved for use within the eastern states. Beacons in VK5, VK6 and VK8 may operate below 50.05 MHz, or in the beacon segment beginning at 50.250 MHz. At 50 MHz, beacon spacing may be as close as 1 kHz. See AR December 1991 pp 45 - 46.

AR

# Australia Repeater Listing

This list has been updated with information supplied by Divisions, repeater groups and individuals. Please send any additions or corrections to the Chairman, WIA Federal Technical Advisory Committee, PO Box 300, Caulfield South, Vic 3162.

**LEGEND:**

Status: O operating T testing P planned ? unknown  
 A licence application pending L licensed but not currently on air  
 ERP: Effective radiated power (watts) HASL: Height above sea level (metres)  
 T/O: Timeout in minutes SP: Sponsor or licensee  
 Note: See footnotes at the end of the listing.

## Voice Repeaters - 10 Metre Band

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
29.820	29.520	VK2RUW	Wollongong	O	50	771	5.0	NIL
29.820	29.520	VK5RLZ	Adelaide	L	50	82		SEL
29.840	29.540	VK3RHF	Melbourne	O		600	2.5	VTF(15)
29.860	29.560	VK4RCC	NW Brisbane	P	10			QCG(27)
29.860	29.560	VK6RHF	Perth	P				WRG

## Voice Repeaters - 6 Metre Band

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>New South Wales</b>								
53.550	52.550	VK2RAY	Albury	P				NTC
53.550	52.550	VK2RIC	Lismore-Casino	P				NSU
53.550	52.550	VK2RSJ	Sydney West	A				NSJ
53.575	52.575	VK2RJB	Illawarra	P				NJB
53.575	52.575	VK2RTM	Tamworth	P				NTM
53.625	52.625	VK2RSN	Newcastle	O		400		NAU
53.675	52.675	VK2RMB	Sydney	P		150		NMW
53.650	52.650	VK2RWI	Sydney	L	10	420	3.5	NWI
<b>Victoria</b>								
53.550	52.550	VK3RMH	Melbourne	O				VNE
53.575	52.575	VK3RDD	Dandenong	O				VGG
53.675	52.675	VK3RTN	Melbourne	O	25	1500	2.5	VSG(1)
53.900	52.900	VK3RMS	Melbourne	O	80	600	2.5	VWI
53.975	52.975	VK3RGM	Mansfield	O	25	1800	2.5	VSG(5)
<b>Queensland</b>								
53.725	52.725	VK4RGA	Central Old	L	25	1010	5.0	QGL
53.725	53.125	VK4RIK	Cairns	P		460		QTR
53.775	52.775	VK4RAF	Mackay	T	15	330		QDW
<b>Western Australia</b>								
53.800	52.800	VK6RTH	Perth	O	10	230	4.0	WRG(10)
<b>Tasmania</b>								
53.825	52.825	VK7RMD	NW Tasmania	T	30	600	5.0	TNA

## Voice Repeaters - 2 Metre Band

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>ACT and New South Wales</b>								
146.825	146.025	VK2RBB	Byron Bay	O	10	150	3.0	NSU
146.825	146.025	VK2RLD	SW Sydney	O	10	330	4.5	NLI
146.850	146.050	VK2RCH	Coffs Harbour	O		300	3.0	NCH
146.850	146.050	VK2RDX	W Blue Mtns	O	50	1362	3.5	NSG
146.850	146.050	VK2RMI	Inverell	O	10	660	4.0	NNW
146.875	146.075	VK2RCV	Grafton	O	30	110	3.0	NSU
146.700	146.100	VK2RAO	Orange	O	50	1417	3.0	NOA
146.700	146.100	VK2RMU	Ulladulla	O	35	152	2.5	NMS
146.700	146.100	VK2RPM	Port Macquarie	O	50	552	3.5	NOX
146.725	146.125	VK2RAG	Gooford	O	40	318	3.0	NCC
146.750	146.150	VK2RFS	Far South Coast	O	10	870	3.5	NFS
146.750	146.150	VK2RTM	Tamworth	O	20	1430	3.0	NTM
146.750	146.150	VK2RWG	Wagga	O	25	490	3.0	NWG
146.775	146.175	VK2RTZ	Newcastle	O	10	400	3.0	NWE
146.800	146.200	VK2RCC	Coonabarabran	O	80	1100	3.5	NOR
146.800	146.200	VK2RIC	Lismore	O	15	85	3.0	NSU
146.800	146.200	VK2RLE	Sydney	O	100	240	3.5	NSG
146.800	146.200	VK2RTD	Tumut	O	38	830	4.0	NTU
146.825	146.225	VK2RET	Taree	O	25	435	3.0	NTR
146.825	146.225	VK2RHR	S. Highlands	O	10	862	3.0	NSO
146.850	146.250	VK2RAB	NW NSW	O	10	1225	4.0	NTM
146.850	146.250	VK2RAW	Illawarra	O	120	780	4.0	NIL
146.850	146.250	VK2RGF	Griffith	O	15	450	2.5	NGR
146.875	146.275	VK2RMB	Sydney	O	50	150	3.0	NMW
146.900	146.300	VK1RAC	Canberra	O	60	870	4.0	AWI
146.900	146.300	VK2RAN	Newcastle	O	70	300	5.0	NHB
146.900	146.300	VK2RRT	Condobolin	O	10	441	5.0	NAL
146.925	146.325	VK2RGR	Sydney North	O	10	30	2.5	NGA
146.950	146.350	VK1RGI	SE NSW	O	50	1770	3.0	AWI
146.950	146.350	VK2RNE	Glenn Innes	O	10	1503	4.0	NNW
146.975	146.375	VK2RAN	Newcastle	O	25	300	10	NHB(MM)
147.000	146.400	VK2RCN	Port Macquarie	A				NOX
147.000	146.400	VK2RWI	Sydney	O	120	240	3.5	NWI
147.025	147.825	VK2ROT	Sydney	O	20	90	3.0	NOT

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
147.050	147.850	VK2RBM	Blue Mtns	O	20	900	3.5	NBM
147.075	147.875	VK2RCZ	West Sydney	A	20	150	3.0	NCA
147.075	147.875	VK2RPW	Waikanae	A	25	1450	2.0	NWR
147.100	147.700	VK2RWM	Grenfell	O	70	575	3.0	NCW
147.100	147.700	VK2RWN	Nowra	P				
147.100	147.700	VK2RZL	Upper Hunter	L	10	800	3.0	NWE
147.125	147.725	VK2RWS	WICEN Portable	O				NWW
147.150	147.750	VK2RWS	Sydney	O	10	140	30s	NWW
147.175	147.775	VK2RWS	WICEN Portable	O				NWW
147.200	147.800	VK2RSD	Nowra	O	10	600	4.0	NSH
147.200	147.800	VK2RWH	Hunter-Scone	O				NWW
147.225	147.825	VK2RST	Sydney	O	10	25	4.0	NGA(SV)
147.225	147.825	VK2RYL	Rylstone	A				NSG
147.250	147.850	VK2RNS	Sydney	O	50	225	3.5	NHO
147.275	147.875	VK2RFT	Forster	P	10	85	3.0	NGL
147.275	147.875	VK2RIL	Wollongong	O	1005	410	4.0	NIL(RV)
147.275	147.875	VK2RMO	Tamworth	A				NTM
147.300	147.900	VK2RTS	Blue Mtns	O	25	370	5.0	NSA
147.350	147.950	VK2RBO	Cooranbong	A				
147.375	147.975	VK2RGL	Bulahdelah	O	25	650	3.0	NGL
147.375	147.975	VK2R??	Batemans Bay	P				
147.925	147.325	VK2RGN	Goulburn	O	20	750	3.0	NGN
<b>Victoria</b>								
146.650	146.050	VK3REG	E Gippsland	O	40	560	2.5	VWE(2)
146.650	146.050	VK3RGV	Shepparton	O	80	800	3.5	VWI
146.700	146.100	VK3RML	Melbourne	O	100	600	2.5	VWI
146.700	146.100	VK3RNC	Corryong	O	40	40	2.5	VWI
146.700	146.100	VK3RON	Ouyen	O	40	40	2.5	VWI
146.750	146.150	VK3RBA	Ballaarat	O	15	750	3.0	VWI
146.775	146.175	VK3RUG	Alexandra	O	50	650	2.5	VSG(5)
146.800	146.200	VK3RLV	Latrobe Valley	O	80	730	2.5	VWE(4)
146.800	146.200	VK3RMA	Mildura	O	50	50	2.5	VWX
146.850	146.250	VK3RMM	Melbourne	P				VWI
146.850	146.250	VK3RHO	East Victoria	O	30	1882		
146.850	146.250	VK3RSB	Benalla	O	80		2.5	VWI
146.900	146.300	VK3RBS	Ballaarat Nth	O	30		2.5	VWI
146.900	146.300	VK3REB	Bairnsdale	O	30		2.5	VWI(2)
146.900	146.300	VK3RSH	Swan Hill	O	80	80	2.5	VS
146.950	146.350	VK3RWZ	Grampians	O	50	1170	2.5	VWZ
146.975	146.375	VK3RSR	Portable	O	<20	adj		YSA
147.000	146.400	VK3RGL	Geelong	O	180	400	2.5	VWI
147.000	146.400	VK3RNE	Wodonga	O	100	1158	2.5	VWY(14)
147.025	147.825	VK3RGS	Toora	O	60		2.5	VWI(4)
147.025	147.825	VK3RMC	Charlton	P				VWI
147.050	147.850	VK3RCG	E suburbs	P				VCG
147.050	147.850	VK3RGO	Omeo	O	40	1221	2.5	VWI(2)
147.050	147.850	VK3RVL	Rivervale	O	20	25	2.5	VWI
147.050	147.850	VK3RWL	Warmambool	O	40		.5	VWI
147.075	147.875	VK3RCR	Melbourne	O				
147.100	147.700	VK3RPP	Bright	O	5		2.5	VWI(14)
147.100	147.700	VK3RSG	S. Gippsland	O	40		3.0	VWI
147.100	147.700	VK3RWA	Ararat	P	30	878	2.5	VWI
147.125	147.725	VK3RGC	Geelong	O	40		2.5	VWI
147.150	147.750	VK3RCV	Bendigo	O	40	730	3.0	VWM
147.150	147.750	VK3REM	Mallacoota	P		388		VWI
147.175	147.775	VK3REC	Melbourne	O	40	800	2.5	VEC
147.225	147.825	VK3RWG	W Gippsland	O	20	1583	2.5	VWE
147.250	147.850	VK3RMM	Melbourne	O	100	1011	2.5	VWV
147.275	147.875	VK3ROW	Otway Ranges	O				VWI
147.300	147.900	VK3RWP	Portable	O	20			VWV
<b>Queensland</b>								
146.825	146.025	VK4RGT	Gladstone	O	10	212	2.0	QGL
146.825	146.025	VK4RGY	Gympie	O	20	498	4.0	QGY
146.850	146.050	VK4ROM	Roma	O	30	550		QRM
146.875	146.075	VK4RET	Daiby	O	60	1145	5.0	QDA
146.875	146.075	VK4RTA	Altherton Tland	O	75	1170		QTB
146.700	146.100	VK4RAR	Rockhampton	O	50	606	4.0	QWC
146.700	146.100	VK4RAT	Townsville	O	100	584	4.5	QTO
146.700	146.100	VK4RGC	Gold Coast	O	50	1040		QGC
146.700	146.100	VK4RMI	Mt Isa	O	20	500	3.5	QMI
146.725	146.125	VK4RSB	Bowen	O	50	20		QBW
146.750	146.150	VK4RDD	Toowoomba	O	30	715	4.5	ODD
146.775	146.175	VK4RDY	Mackay/R'lon	P		820		QMK
146.800	146.200	VK4R						

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
146.850	146.250	VK4RHT	Mareeba	P	10	990	5.0	QTB
146.850	146.250	VK4RSC	Sunshine Coast	O	40	450		QSC
146.875	146.275	VK4RBS	Redlands	O	25	70	3.5	QB
146.875	146.275	VK4RCH	Chinchilla	O	150	340		QCC
146.900	146.300	VK4RAI	Ipswich	O	70	120	4.5	QIP
146.900	146.300	VK4RGA	Central Old	O	100	1010	4.0	QGL
146.925	146.325	VK4RHR	Cent Old	O				OCH(9)
146.925	146.325	VK4RRC	Redcliffe	O	25	520		QRC
146.950	146.350	VK4RBD	Blackwater	O	25			OCH(9)
146.950	146.350	VK4RCA	Calms	O	100	1650	4.0	OCA
146.950	146.350	VK4RGG	Gold Coast	O	50	25	5.0	QGC
146.975	146.375	VK4RRR	Sarina	O	50	600	3.0	OCH(9)
147.000	146.400	VK4RBN	Brisbane	O	60	630	2.0	QBV
147.000	146.400	VK4RMK	Mackay	O	25	320	5.0	QMK
147.125	147.725		WICEN Portable	P				QWW
147.150	147.750	VK4RAG	Brisbane	O	80	90	3.5	QWW
147.150	147.750	VK4RWI	WICEN Portable	O	50			QWW
147.175	147.775	VK4RWM	Ipswich WICEN	O	10		1.0	QIP
147.175	147.775		WICEN Portable	P				QWW
147.300	147.900	VK4RQT	Brisbane	O	50	630	3.5	QTV
147.625	147.025	VK4RMV	Miriam Vale	O	25	5.0		QMO(13)
147.650	147.050	VK4RBT	Brisbane	O	50	233	4.5	QAR(RV)
147.675	147.075	VK4RBT	Brisbane	O	50	233	4.5	QAR(RV)
147.825	147.225	VK4REG	Brisbane	O	50	50	4.5	QRX(28)
147.650	147.250	VK4RCB	Collinsville	O				QBV
147.950	147.350	VK4RII	Burdekin	L	30	218		QTO
147.975	147.375	VK4RWB	Biolela	O	25			QBL(27)
<b>South Australia</b>								
146.625	146.025	VK5RLZ	Elizabeth	P	30	73	4.0	SEL
146.650	146.050	VK5RNC	Naracoorte	O	25	80	2.5	SWI
146.700	146.100	VK5RMN	Port Pirie	O	55	730	5.0	SWI(3)
146.750	146.150	VK5RAC	Lower Eyre Pen	O				SWI
146.800	146.200	VK5REP	Mid Eyre Pen	O	60	500	4.0	SWI(3)
146.825	146.225	VK5RBV	Barossa Valley	O	100	400	3.5	SBA
146.850	146.250	VK5RHO	Adelaide	O	50	410	3.5	SWI
146.900	146.300	VK5RMG	Mt Gambier	O	25	100	5.0	SWI
147.000	146.400	VK5RAD	Adelaide	O	50	610	3.5	SWI
147.925	147.325	VK5RLD	Riverland	O	25	86	5.0	SWI
147.625	147.825	VK5RBB		O				SBA(24)
<b>Western Australia</b>								
146.625	146.025	VK6R??	Stirling	P				WRG
146.625	146.025	VK6RAT	Rottnest Is.	L				WRG
146.650	146.050	VK6RBY	Bunbury	O	25	20	5.0	WSW
146.675	146.075	VK6RNR	Northampton	O	25	280	4.0	WGE
146.675	146.075	VK6RCA	Whim Creek	O	20	220		WNW
146.700	146.100	VK6RAP	Perth	O	40	360	4.0	WRG
146.700	146.100	VK6RWR	Wickham	T	20			WNW
146.725	146.125	VK6RAL	Albany	O				WSG
146.750	146.150	VK6RLM	Perth	O	20	300	4.0	WRG
146.750	146.150	VK6RES	Esperanza	P				WES
146.800	146.200	VK6RTH	Perth	O	60	230	4.0	WRG
146.800	146.200	VK6RWP	Exmouth/Pt Hed	O	20			WNW(11)
146.825	146.225	VK6RAA	Albany	O	40	430	3.0	WSG
146.850	146.250	VK6REX	North West	O	20	3853.0		WNW(22)
146.850	146.250	VK6RKB	Kambalda	O	30			WGO
146.875	146.275	VK6RSR	Perth-Fremantle	P				WSR
146.900	146.300	VK6RMW	Bunbury	O	20	520	4.0	WRG
146.950	146.350	VK6RPD	Fremantle	O	10	65	3.0	WRG
146.950	146.350	VK6RSG	Goldsworthy	O	20			WNW
146.975	146.375	VK6REE	Portable (sec)	O	20		4.0	WRG
147.000	146.400	VK6REE	Portable (pri)	O	20		4.0	WRG
147.000	146.400	VK6RAW	Kalanning	O	25	400	5.0	WKA
147.000	146.400	VK6RAK	Kalgoorlie	O	40	400	5.0	WGO
147.000	146.400	VK6RGN	Gerakiton	O	16	400	5.0	WGE
147.000	146.400	VK6RNV	Pt Hedland	O	20			WNW(11)
147.100	147.700	VK6RWC	Perth	O				WSA(29)
147.125	147.725	VK6RHB	Gin Gin	P				WKA
147.150	147.750	VK6RMJ	Manjimup	P				WSW
147.175	147.675	VK6RIC	Portable emerg	O				WWW
147.200	147.800	VK6RCT	Cataby	O	10	200	4.0	WRG
147.225	147.825	VK6RHW	Toodyay	O	30	450	3.0	WRG(12)
147.250	147.850	VK6RMS	Boddington	O	20	630	4.0	WRG
147.275	147.875	VK6RWM	Wyalkatchem	O	20	400	4.0	WRG(12)
147.300	147.900	VK6REN	Eneabba	P				WRG
147.325	147.925	VK6RKL	Kellerberrin	P	25	400	4.0	WRG(12)
147.350	147.950	VK6RBN	Busselton	O	10	130	4.0	WRG
<b>Tasmania</b>								
146.625	146.025	VK7RMD	NW Tasmania	O	30	600	5.0	TWU
146.700	146.100	VK7RHT	Hobart	O	80	1310	2.5	TWS
146.750	146.150	VK7RNV	NW Tasmania	O	30	160	5.0	TWU
146.900	146.300	VK7REC	East Coast	O	10	970		TEC(DV)
147.000	146.400	VK7RAA	Launceston	O	60	1400		TWN
147.075	147.675	VK7RWC	West Coast	O	20	1200	3.0	TWC
147.250	147.850	VK7RAF	Hobart	O	25	900	3.0	TMF
<b>Northern Territory</b>								
146.650	146.050	VK8RMS	Gove	O	25	150		SGR
146.700	146.100	VK8RDA	Darwin	O	15	200	8.5	SDA
146.950	146.350	VK8RCA	Alice Springs	O	25	300	3.0	SWI
147.000	146.400	VK8RTE	Darwin	O	15	350	8.5	SDA

## Voice Repeaters - 70 cm Band

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>ACT and New South Wales</b>								
438.025	433.025	VK2RCH	Coffs Harbour	P				NCH
438.025	433.025	VK2RTH	S Highlands	O	40	827	2.0	NSO(21)
438.075	433.075	VK2RAG	Gosford-Wyong	O	120	323	3.0	NCC
438.125	433.125	VK2RMU	Milton	O	18	330	3.0	NMS
438.175	433.175	VK2RMB	Sydney	O	5	150	3.0	NMW
438.175	433.175	VK2RNT	Armidale	O				3.0
438.225	433.225	VK2RPW	Walcha	A	25	1450	2.0	NWR
436.225	433.225	VK2RUW	Illawarra	O	230	801	4.0	NIL
436.275	433.275	VK2RWS	Sydney WICEN	O	2	140	30s	NWW
436.325	433.325	VK2REE	Taree	O	4	930	3.0	NTR
436.325	433.325	VK2RWM	Greenfell	P	25	575	3.0	NCW
436.375	433.375	VK1RIR	Canberra	O	60	790	3.5	AWI
436.375	433.375	VK2RUT	Sydney West	O	15	500	3.0	NBM
436.425	433.425	VK2RCN	Port Macquarie	A				NOX
436.425	433.425	VK2RUH	Sydney	O	25	100	4.0	NSG
436.475	433.475	VK2RRS	Sydney North	O	10	50	4.0	NGA
436.525	433.525	VK1RGI	SE NSW	O	60	1770	3.5	AWI
436.525	433.525	VK2RPM	Port Macquarie	L	10	552	3.0	NOX
436.525	433.525	VK2RWI	Sydney	O	46	240	3.5	NWI
436.575	433.575	VK2RAY	Albury	A				NTC
436.625	433.625	VK2RGN	Goulburn	O	10	750	3.5	NGN
436.625	433.625	VK2RUM	Newcastle	O	5	50	3.0	NAG
436.675	433.675	VK2RAN	Newcastle	O	80	300	5.0	NHB
436.675	433.675	VK2RSC	Lismore	O	10	300	3.0	NSU
436.675	433.675	VK2RTW	Wagga	?	10	300	4.0	NWG
436.725	433.725	VK2RIL	Illawarra	O	25	400	4.0	NIL
439.275	434.275	VK2RSD	Nowra	P		600		NSH
439.375	434.375	VK2RTM	Tamworth	P				NTM
439.425	434.425	VK2RCZ	West Sydney	A	20	150	3.0	NCA
439.575	434.575	VK2RJB	Jervis Bay	P				NJB
439.950	434.950	VK2RAG	Gosford	A		318		NCC
<b>Victoria</b>								
438.025	433.025	VK3RCC	Melbourne	O	10	30		VWI
438.075	433.075	VK3RMU	Melbourne	O	200	1028	2.5	VSG(1)
438.175	433.175	VK3RUG	Eildon	O	80	650	2.5	VWI
438.225	433.225	VK3ROU	Melbourne	O	100	600	2.8	VWI
438.275	433.275	VK3RWE	Portable	O				VWW
438.375	433.375	VK3RGU	Gippsland	O	60		4.0	VWE
438.425	433.425	VK3RCU	Bendigo	O				VWI
438.475	433.475	VK3RBU	Ballarat	T	40		2.5	VWI
438.525	433.525	VK3RAD	Melbourne	O	80	100	2.5	VSG(1)
438.525	433.525	VK3RNU	Wangaratta	O	60	1051	2.5	VWI
438.525	433.525	VK3RRU	Mildura	O	20		2.5	VWI
438.625	433.625	VK3RWI	Portable	O	5			VWW
438.675	433.675	VK3RWU	Grampians	O	100	1170	3.0	VWI
438.700	433.700	VK3REO	Melbourne	O		348	4.5	VNL(30)
438.750	433.750	VK3RHF	Melbourne	O		600	2.5	VWF(15)
439.275	434.275	VK3RMM	Melbourne	O	100	1011	3.0	VWW
439.325	434.325	VK3RRM	Melbourne NW	O		673	4.5	VNL
439.375	434.375	VK3RSE	Melbourne	O				VSU
439.425	434.425	VK3ROU	NE Victoria	O		800		VWI
439.575	434.575	VK3RGL	Geelong	O	60	400	2.5	VWI
439.675	434.675	VK3RZU	Mansfield	T		1800		VWI
439.725	434.725	VK3RPU	Melbourne	O	40		2.5	VWI
439.875	434.875	VK3RSU	Shepparton	L				VWI
<b>Queensland</b>								
438.025	433.025	VK4RTQ	Brisbane	O	50	500		QTV
438.075	433.075	VK4RSC	Sunshine Coast	O	20	450		QSC
438.225	433.225	VK4RAT	Townsville	O	10	584	4.5	QTO
438.225	433.225	VK4RDG	Cent Old Coast	O	25	608		QCD
438.225	433.225	VK4RGC	Gold Coast	O	50	500	3.5	QGC
438.325	433.325	VK4RCC	Redcliffe	O	25	230	4.5	QRC
438.375	433.375	VK4RWM	Ipswich	O	5	60		QIP
438.425	433.425	VK4RMU	Mackay	O	150			QMK
438.475	433.475	VK4RXX	Brisbane	O			4.5	QRX(28)
438.500	433.500	VK4RHR	Clermont	O	50	520		QCH
438.500	433.500	VK4RXG	Brisbane	O		233		QFX(28)
438.525	433.525	VK4RBC	Brisbane	O	20	560	2.0	QBV
438.625	433.625	VK4RAG	Brisbane	O	20	90		ORG
438.625	433.625	VK4RWI	Portable	L	50			QWW
438.675	433.675	VK4RBU	Bundaberg	O	10	620		QBU
438.700	433.700	VK4RET	Dalby	O	12	1145	5.0	QDA
438.825	433.82							

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>Western Australia</b>								
438.225	433.225	VK6RTH	Perth	O	40	230		WRG(10)
438.525	433.525	VK6RUF	Perth	O	5	360		WRG(12)
438.675	433.675	VK6RBN	Bueselton	P	40	130		WRG
<b>Tasmania</b>								
438.500	433.500	VK7RIN	Central Tas	O	25	1200		TAR
438.550	433.550	VK7RAB	NE Tasmania	O	8	1190		TWN
438.800	433.800	VK7RTC	Hobart	O	8		2.5	TAR
438.650	433.650	VK7RAC	NW Tasmania	O	3	150	2.5	TWU
<b>Northern Territory</b>								
438.275	433.275	VK8RDU	Darwin	O	8	200	3.0	SDA

**Voice Repeaters - 23 cm Band**

1281.100	1293.100	VK2RJB	Jervis Bay	P				NJB
1281.750	1293.750	VK2RWI	Sydney	O	10	240	3.0	NWI
1281.777	1293.777	VK3RJM	Melbourne	P		1028		VWI
1281.850	1293.850	VK4REX	Maleny	O	10	525	5.0	QGX(8)
1281.250	1293.250	VK5RWH	Adelaide	O	50	200	3.0	SST

**ATV Repeaters**

<b>ACT and New South Wales</b>								
428.250	444.250	VK2RTW	Wagga	O	10	300	30	NWG
444.250	1250.000	VK2RWI	Sydney	P				NWI
579.250	426.250	VK2RTN	Newcaaste	O				NLH
579.250	426.250	VK2RTS	Springwood	O	300	370	3.0	NSA
579.250	444.250	VK2RTG	Gosford	O	90	220		NCC
579.250	444.250	VK2RTV	Sydney	O	100	60		NGA
1250.000		VK2RAG	Gosford	O		313		NCC
<b>Victoria</b>								
579.250	426.250	VK3REX	Swan Hill	?				
579.250	426.250	VK3RMZ	Bendigo	O		730		VWM
579.250	444.250	VK3RNE	Wodonga	O		1158		VWY
579.250	444.250	VK3RTV	Melbourne	O		600		VWI
<b>Queensland</b>								
444.250	1250.000	VK4RAT	Townsville	P	20	584		QCG(23)
579.250	444.250	VK4RTV	Brisbane	O	100	140		QTV
1250.000	579.250	VK4RRP	SW Brfs/lpswich	P	10	186		QTV(25)
<b>South Australia</b>								
444.250	426.250	VK5RCN	Cent. North	O	10	400	30	SCN(6)
579.250	426.250	VK5RTV	Adelaide	O	200	200	30	STV(7)
1246.250	444.250	VK5RWH	Southern Vales	P	40	200	30	SSC
<b>Western Australia</b>								
579.250	444.250	VK6RAP	Perth	T	30	360		WRP
<b>Tasmania</b>								
426.250	444.250	VK7RMD	NW Tasmania	O	5	600	30	TNA
579.250	444.250	VK7RAE	Devonport	O	5	220	30	TNA

**Packet Radio Repeaters**

NOTE: In New South Wales and Victoria, a number of packet systems are to move from 147 MHz to the new 144.700 - 144.925 MHz packet segment. For these repeaters, the first two columns of the list below show the current and proposed new frequencies. For other states, these columns may list two frequencies, for those systems with dual frequency access.

Current	New	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>ACT and New South Wales</b>								
144.700		VK2RAY	Albury	P				NTC
144.725		VK2RGI	Gian Innes	A				
144.750		VK2RPG	Goulburn	O		750		NGN
144.750		VK2RTM	Tamworth	O		1430		NTM
144.775		VK2RWG	Wagga	P				
144.800		VK1RGI	SE NSW	O	60	1770		AWI(17)
144.800		VK2RMB	Sydney	O	25	150	10s	NMW
144.825		VK2R77	Bathurst	P				
144.825		VK2RCC	Coonabarabran	O		1100		NOR
144.825		VK2RFS	Bega	P		870		
144.850		VK2RPP	Monteagle	A				NGN
144.850		VK2RWI	Sydney	O	10	240	30s	NWI
144.875		VK2RCN	Mid North Coast	A				NOR
144.900		VK2RPH	Sydney	O	10	200		NHO
144.925		VK2RET	Taree	P				NTR
144.925		VK2RPS	Mittagong	O	50	827		NSO
145.050		VK2RPL	Lismore	O	25	85	3.0	NSU
147.575	144.700	VK2RAB	Tamworth-Narr.	O		1225		NTM
147.575	144.875	VK2RAO	Orange	O	20	1417	30s	NOA
147.575	144.775	VK2RAW	Illawarra	O	100	780	4.0	NIL(16)
147.575	144.900	VK2RCH	Coffs Harbour	O		300		NCH
147.575	144.725	VK2ROX	Blue Mtns West	O	20	1362	3.5	NSG
147.575	144.925	VK2RET	Taree	P				NTR
147.575	144.825	VK2RGF	Griffith	O		450		NGR
147.575	144.850	VK2RLO	Guyra	O				NSU
147.575	144.900	VK2RMU	Milton	O				NMS
147.575	144.875	VK2RPL	Lismore	O	25	85	3.0	NSU
147.575	144.875	VK2RPM	Port Macquarie	O		552		NOX
147.575	144.825	VK2RPN	Newcastle	O	10	400		NWE(16)
147.575	144.775	VK2RPW	Walcha	O		1450		NWR

Current	New	Call	Service Area	S	ERP	HASL	T/O	Sp
147.575	144.875	VK2RSD	Nowra	O		600		NSH
147.575	144.750	VK2RTM	Tamworth	O		1430		NTM
147.600	144.700	VK2RAG	Gosford-Wyong	O	50	313	3.0	NCC(16)
438.875		VK2RAP	Lismore	?	25	85	3.0	NCC
439.075		VK2RAG	Gosford	O		313		NCC
<b>Victoria</b>								
144.700		VK3RPW	WICEN Portable	O	45			VWW
144.725		VK3RPW	WICEN Portable	O	45			VWW
144.750		VK3RPW	WICEN Portable	O	45			VWW
144.775		VK3RPW	WICEN Portable	O	45			VWW
144.800		VK3RPK	Melbourne	L	25	240		VWI
144.800		VK3RPW	WICEN Portable	O	45			VWW
144.825		VK3RPW	WICEN Portable	O	45			VWW
144.850		VK3RPW	WICEN Portable	O	45			VWW
144.875		VK3RPW	WICEN Portable	O	45			VWW
144.900		VK3RPP	Melbourne	O	25	100		VWI
144.900		VK3RPW	WICEN Portable	O	45			VWW
144.925		VK3RPW	WICEN Portable	O	45			VWW
147.575		VK3RPW	WICEN Portable	O	45			VWW
147.575	144.925	VK3RCU	Bendigo	O	25	527		VWI
147.575	144.825	VK3RGU	E Gippsland	T				VWE
147.575	144.875	VK3RGV	Shepparton	O	25	800		VWI
147.575	144.725	VK3RNU	Melbourne	O	25	1028		VWI
147.575	144.725	VK3RNU	Wodonga	O	25	1051		VWI
147.575	No VHF	VK3RPA	Melbourne	O	10	83		VWI
147.575	144.500	VK3RPC	Ballarat	O	20	741		VWI
147.575	144.850	VK3RPG	Grampians	O		1170		VWI
147.575		VK3RPM	Bendigo	L	25	240		VWI
147.575	144.925	VK3RPN	NE Vic	O		1840		VWI
147.575	144.900	VK3RPO	NW Vic	L	25			VSR
147.575		VK3RPS	Melbourne	O	25	320		VWI
147.575	144.725	VK3RRU	Mildura	L	25			VWI
147.600	No VHF	VK3RPA	Melbourne	O	45	83		VWI
147.600	144.750	VK3RPC	Ballarat	O	20	741		VWI
147.600		VK3RPS	Melbourne	O	25	320		VWI
<b>Queensland</b>								
147.600		VK3RPW	WICEN Portable	O	45			VWW
147.600		VK3RUG	Eildon/Alexandra	O				
434.200		VK3RPG	Melbourne	L	25	240		VWI
439.050	—	VK3RPA	Melbourne	L	83			VWI
439.050	434.050	VK3RPS	Melbourne	L	25	320		VWI
439.075		VK3RPP	Melbourne	L	25	100		VWI

Freq 1	Freq 2	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>Queensland</b>								
144.700		VK4RWI	WICEN Portable A	A				QWW
144.750	144.900	VK4RHR	Clermont	O				QCH
144.800		VK4RAR	Rockhampton	O		600		OWC
144.825	147.600	VK4RZA	Gold Coast	O	50	940		ODG
144.825	147.600	VK4RZE	Toowoomba	O	50	700		ODG(49)
144.825	147.600	VK4RZD	Darling Downs	O	25			ODG(49)
144.850	147.600	VK4RZB	Briabane	O	50	230		QDG
144.900		VK4RAT	Townsville	O		584		OTO
144.900		VK4RBD	Blackwater	O				QCH
144.900		VK4RBU	Bundaberg	O	20	620		QBU
144.900		VK4RCA	Cairns	O		1650		OCA
144.900		VK4RGA	Gladstone	O	25	1010		QGL
144.900		VK4RMK	Mackay	O	25	320		OMK
144.900		VK4RTA	Atherton T'land	O				QTB
144.900		VK4RZM	Moranbah	O	25	600		QCH
144.900		VK4RIK	Cairns	P	120	480		QTR
144.900	147.600	VK4RZC	Sunshine Coast	O	50	470		QDG(49)
144.950		VK4RWH	Ipswich	O				OIP
144.950		VK4RWM	Ipswich	O				QIP
144.975		VK4RZS	Sunshine Coast	O	25			OSC
145.050		VK4RBT	Brisbane	O	50	233		QAR
145.100		VK4RPK	Nth Brisbane	O	25			QRX(50)
<b>South Australia</b>								
144.900		VK5RSV	Adelaide	O		200		SWI
147.575		VK5LZ	Adelaide	O				SEL
147.575		VK5RBP	Barossa Valley	O				SBA
147.575		VK5RPM	Port Pirie	O		730		SWI(31)
147.575		VK5RPM	Millicent	O	100	225		SER
147.575		VK5ZLW	Adelaide	O		610		(26)
147.600		VK5RPG	Adelaide	O				
<b>Western Australia</b>								
144.750		VK6RTR	Pinjarra	O	25	410		WWA
144.800		VK6RAT	Rottnest Is	P	25			WRD
144.825		VK6RTH	Perth	T	25	230		WRD(19)

Freq 1	Freq 2	Call	Service Area	S	ERP	HASL	T/O	Sp
144.850		VK8RAA	Albany	O	10	430		WSG
144.650		VK8RAP	Perth	O		360		WRD(19)
144.850		VK6RAW	Katanning	O	25	400		WKA
144.850		VK8RBN	Busselton	O	25	130		WRD
144.850		VK6RCA	North West	O	20	220		WNW
144.850		VK6RFH	Perth	O	25			WDC
144.850		VK6RMS	Boddington	O	25	630		WRD(19)
144.875		VK6BBS	Perth	O		360		WTT
144.875		VK6RAP	Perth	O	25	380		WRD
147.050		VK6TTY	Perth	O		360		WRD(20)
<b>Tasmania</b>								
147.575		VK7RIT	Hobart	O	10	1310		TWI
147.575		VK7RTY	N Tasmania	O		1400		TWI
<b>Northern Territory</b>								
147.600		BBS	Alice Springs	O		300		SAL

## RTTY Repeaters

Output	Input	Call	Service Area	S	ERP	HASL	T/O	Sp
<b>New South Wales</b>								
146.675	146.075	VK2RTY	Sydney	O	40	72	10	NAN
146.975	146.375	VK2RAN	Newcastle	O	10	300	5.0	NLH(RV)
147.275	147.875	VK2RIL	Wollongong	O	10	396	4.0	NIL(RV)
439.325	434.325	VK2RTY	Sydney	P	40	72	10	NAN
<b>Victoria</b>								
147.325	147.925	VK3RBB	Gippsland	?	20	730	10	VWI
147.350	147.950	VK3RTY	Melbourne	O		600		VWI
<b>Queensland</b>								
147.650	147.050	VK4RBT	Brisbane	O	50	233	4.5	QAR(RV)
147.675	147.075	VK4RBT	Brisbane	O	50	233	4.5	QAR(RV)
<b>South Australia</b>								
146.675	146.075	VK5RSV	Adelaide	O	25	200	10	SSC(16)
<b>Western Australia</b>								
147.050	147.650	VK6RTY	Perth	O	15	360	10	WRD(20)

## Repeater Notes

- VK3RTN 53.675 and VK3RAD 438.525 are linked - 123 Hz access. VK3RUG to be added to the link.
- VK3REG 146.650, VK3REB 146.900 and VK3RGO 147.050 are to be linked.
- VK5RMN 146.700 and VK5REP 146.800 are to be linked.
- VK3RGS 147.025 and VK3RLV 146.600 are to be permanently linked.
- VK3RGM 53.975 and VK3RUG 146.775 are linked - 123 Hz access.
- VK5RCN can be linked to VK5RTV on command: control link 147.3. Link video input 579.25, extra audio input 147.3.
- VK5RTV can be linked to VK5RCN on command: control link 147.3. Link video input 444.25, extra audio input 147.4. SSTV input 147.350.
- VK4REX 1281.650 and 439.900 are permanently linked.
- A signal on either input is retransmitted on both outputs.
- VK4RBD 146.950, VK4RHR 146.925 and VK4RRR 146.975 are linked by VK4REB.
- VK6RTH 53.800 and VK6RTH 438.225 are permanently linked.
- VK6RWP 146.800 and VK6RNV 147.000 are to be linked.
- VK6RHW 147.225 and VK6RWM 147.275 are permanently linked. VK6RWM 147.275 is to be linked to VK6RKL 147.325.
- VK4RBU 146.800 and VK4RMV 147.625 have DTMF command link.
- VK3RNE 147.000 and VK3RPB 147.100 are to be linked.
- VK3RHF ten metre repeater link on 438.750 also operates as a repeater in its own right. Tone access 141.3 Hz.
- To remain on 147 MHz until Channel 5A closes.
- 4800 baud.
- VK5RSV has packet gateway to VK5WI BBS.
- VK6RAP 144.650, VK6RTH 144.825 and VK6RMS 144.850 are to be linked.
- VK6TTY and VK6RTY are linked RTTY/packet repeater and bulletin board.
- After 15 seconds of inactivity, a carrier of at least 2 seconds duration is required to regain access.
- Off air for extensive repairs.
- FM in, VSB AM out.
- Experimental simplex link which operates with VK5RBP (147.575).
- VK4RRP is an FM ATV intransitor for VK4RTV.
- Call sign to be changed to VK5RAD.
- CTCSS 88.5 Hz.
- CTCSS 91.5 Hz.
- CTCSS 77 Hz.
- CTCSS 123 Hz. VK3REQ 438.700 to be linked to VK3RRM 434.325.
- Directional beam, aimed south.
- MM Multimode repeater.
- DV Data/voice repeater.
- RV RTTY - voice repeaters.
- SV SSTV - voice repeater.

# Index of Beacon and Repeater Sponsors

ACT		NWG	Wagga ARC	OGC	Gold Coast ARS	WRG	WA Repeater Group
AWI	WIA ACT Div	NWI	WIA NSW Div	OGL	Gladstone ARC	WRP	WARG/WPT
<b>New South Wales</b>							
NAD	Amidale DARC	NWR	Walcha Radio Grp	OGX	Gold Coast R Exp Grp	WSA	WA Signals ARG
NAG	Newcastle ATV Grp	NWW	VK2 WICEN	OGY	Gympie ARC	WSG	Southern Elec Grp
NAU	Newc ATV/UHF Club	Victoria		QIP	Ipswich RC	WSR	Southern River Grp
NAL	Albert ARC	VBA	Baliarat AR Group	QMI	Mt Isa DARG	WSW	Southwest ARG
NAN	ANARTS	VEC	Camb. Gr. School	QMK	Mackay ARC	WTT	Think Tank
NBM	Blue Mountains ARC	VEG	EMDRC	QMO	Monto ARC	VWH	WA VHF Group
NCA	Chillay ARC	VGG	Gippsland Gate RC	ORC	Redcliffe RC	WWA	Western ARS
NCC	Central Coast ARC	VNE	North East ARG	ORG	Radio Amateurs' Grp	WWI	WIA WA Div
NCH	Coffs Harbour DARC	VNL	News Links ARG	ORM	Roma DARS	WWK	Wickham ARC
NCW	Central West ARC	VSA	Vic Scout Assoc	ORX	Radio Exp. Group	WWW	VK6 WICEN
NFS	Far Sth Coast ARC	VSG	Six Metre Rep Grp	QSC	Sunshine Coast ARC	<b>Tasmania</b>	
NGA	Gladesville ARC	VSH	Swan Hill DARC	QTB	Tableland REC	TAR	Amateur Radio Assoc
NGL	Great Lakes RC	VSR	Sunraysia ARG	QTI	Thursday Is RC	TEC	East Coast ARC
NGN	Goulburn ARC	VST	SE UHF Repeater Grp	QTO	Townsville ARC	TMC	Aust Maritime Coll.
NGR	Griffith ARC	VTF	10m FM Group	QTR	Old Tropical VHF Ass.	TMF	Mt Faulkner Rep Grp
NGU	Gunnedah ARC	VWE	WIA Eastern Zone	QTV	SEQ ATV Group	TNA	NW ATV Group
NHB	Hunter Branch RG	VWI	WIA Vic Div	OWC	WIA Cent Old Branch	TWC	West Coast Grp
NHO	Hornsby DARC	VWM	WIA Midland Zone	QWI	WIA Qld Div	TWI	WIA Tas Div
NIL	Illawarra ARS	VVW	VK3 WICEN	QWP	Welpa RC	TWN	WIA Northern Branch
NJB	Jervis Bay Rp Grp	VWX	WIA NW Zone	QWW	VK4 WICEN	TWS	WIA Southern Branch
NLH	Lower Hunter ARC	VWY	WIA NE Zone	South Australia and N.T.			
NLI	Liverpool ARC	VWZ	WIA Western Zone	SAL	Alice Springs ARC	TWU	WIA NW Branch
NMS	Mid Sth Coast ARC	Queensland		SBA	Barossa ARC	TWW	VK7 WICEN
NMW	Manly-Warringah DRC	QAR	QAR DATA	SCN	Cent North ATV Grp		
NINW	Northwest ARG	OBA	Brisbane ARC	SDA	Darwin Cent		
NOA	Orange ARC	QBL	Biloela DRC	SEL	Elizabeth ARC		
NOR	Orana Region ARC	OBU	Bundaberg ARC	SER	SE Radio Group		
NOT	OTC ARG	OBV	Brisbane VHF Group	SGR	Gove Repeater Grp		
NOX	Oxley Region ARC	QBW	Bowen RAG	SSC	South Coast ARC		
NSA	Sydney ATV Group	QBY	Bayside ARS	SST	Southern ATV Group		
NSG	St George ARS	OCA	Caimes ARC	STV	SA ATV Group		
NSH	Shoalhaven ARC	OCC	Chinchilla RC	SWI	WIA SA Div		
NSJ		OCD	Cent Old Dig Grp	<b>Western Australia</b>			
NSO	Sih Highlands ARC	QCG	Commex Group	WDC	WAADCA		
NSU	Summerland ARC	QCH	Cent Highlands ARC	WES	Esperance ARS		
NTC	Twin Cities REC	QCO	Cooloola ARC	WGE	Geraldton ARC		
NTM	Tarnworth ARC	QCU	Cunningham RC	WGO	Goldfields ARC		
NTR	Taree ARC	ODA	Dalby DARC	WKA	Katanning ARC		
NTU	Turnut DARC	ODD	Darling Downs RC	WNW	ARS of NW Aust		
NWE	Westlakes ARC	ODG	Old Digital Group	WPT	Perth TV Group		
		QDW	Walleroo Group	WRD	WARG/WAADCA		

# WIA Videotape Program Title Listing

as of 1/1/92

SUPPLIED BY JOHN INGHAM VK5KG  
FEDERAL VIDEOTAPE CO-ORDINATOR

See note	TITLE (In chronological order within each subject grouping)	Lecturer	Prod.	Approx Dur.	Col B&W	Year Prod	Description Other Information
			<b>AMATEUR RADIO - HISTORIC INTEREST</b>				
	Wireless Telegraphy - circa 1910			10mins	B&W	1910	Archive material courtesy David Wardlaw VK3ADW
o	Amateur Radio - TV Pilot		WIA NSW	30mins	B&W	1968	Archive material courtesy TEN channel 10
o	Opening of Burey Griffen Bldg - SA HO		VK5KG	50 mins	Col	1977	Archive material
	ATV in Australia 1978 - made for British ATV Club		VK5KG	30mins	Col	1978	Archive material
	ATV in United Kingdom 1978 - reply from BATC		G8CJS	30mins	Col	1978	Archive material
	ATV in Australia 1980/81 - Made for British ATV Club		VK5KG	60mins	Col	1980	Clips from ATV Groups in VKs 2,3,4,5 & 7
	History of ATV in South Australia		VK5KG	30mins	Col	1980	Archive material, still building
	ATV in United Kingdom 1978/81		G8CJS	30mins	Col	1981	Remake of their previous effort
o	CQ ATV DX International 1983		WB2LLB	60mins	Col	1983	ATV in USA and Europe
	High Definition TV Tutorial	Don Fink	WB2LLB	60mins	B&W	1983	A look at what is to come in Broadcast TV
	ATV Hamfest, York Pennsylvania, Sept.'83	Various	WB2LLB	6hrs	Col	1983	Various ATV technical lectures from USA
	Opening of Amateur Radio House - NSW HQ		VK2BDN	1' 42"	Col	1983	Archive material
	VK2 75th Aniv. Seminar Keynote Speeches		WIA NSW	2' 15"	Col	1983	Dr. David Wardlaw & State Manager DOC
	ATV in Victoria, 1984		VK3AHJ	54mins	Col	1984	Courtesy of "The Roadshow Gang"
o	Heard Island Dxpediton		oh 2,7, 9,10	20mins	Col	1984	Archive material; NO LOAN OR COPY AVAILABLE
	Heard Island Dxpediton	VK2BCC	WIA NSW	60mins	Col	1980	Raw Unedited; from 1986 VK2 Seminar
			<b>AMATEUR RADIO - PROMOTIONAL</b>				
o	The Ham's Wide World		ARRL	27mins	Col	1969	Superseded by "The World of Amateur Radio"
	This is Amateur Radio		ARRL	15mins	Col	1970	Pitched at teenagers
	Moving Up to Amateur Radio		ARRL	11mins	Col	1975	Pitched at CBers
o	7J1RL DXpedition		JARL	60mins	Col	1976	General Amateur Radio Interest; LOAN ONLY
	This Week has 7 Days looks Into Amateur Radio		HSV7	25mins	Col	1978	Pitched at taena; includes some ARRL footage
o	The World of Amateur Radio		ARRL	26mins	Col	1978	Superseded by "The New World of Amateur Radio"
	Amateur Radio - The National Resource of Every Nation		VK5KG	8mins	Col	1979	Encapsulates AR; good for public exhibitions
	The New World of Amateur Radio		ARRL	28mins	Col	1988	Supersedes "The World of Amateur Radio"
			<b>ANTENNAS</b>				
	G8CJ's Aerial Circus	G8CJ	WIA	90mins	B&W	1977	THE Definitive Antenna Lecture; LOAN ONLY
	Wire Antennas	VK5RG	VK5KG	40mins	B&W	1978	Antennas for HF and Antenna Tuners
w	Loaded Wire Antennas	VK5NN	VK5KG	50mins	Col	1980	Using Inductive and Capacity loaded Antennas
	Antennas and Directivity	VK2BBF	OTC	73mins	Col	1985	Lecture given to a group of Radio Amateurs
	Antenna Rotator Systems	VK5AIM	VK5KG	50mins	Col	1986	Servicing the several different types
	Broadband Antennas	VK5RG	VK5KG	62mins	Col	1986	Includes terminated antennae
			<b>ATV - ACTIVITY</b>				
	Hello from America! - Made for British ATV Club		WB0OCD	100min	Col	1988	Clips from ATV Groups in the USA
	ZL ATV Activity		ZL1ABS	62mins	Col	1986	"VCR QSO" from ZL1ABS
	VKS ATV Call-in		VKSZBD	89mins	Col	1990	Made for VK4XRL who had recently visited
			<b>ATV - GENERAL INTEREST</b>				
	Low Definition Television	Chris Long	VK5KG	26mins	Col	1982	Re-creation of TV as transmitted by Baird
	Model Aero-Nautical Mobile ATV	VK5GO	VK5KG	6mins	Col	1983	ATV camera & TX mounted in a model aeroplane
	VK5RCN - Aust.'s first wind powered ATV repeater.	VK5KAU	VK5KG	61mins	Col	1986	Tour of VK5RCN by Barry Bryant (silent key)
	Australian TV History - The Untold Story	Chris Long	VK5KG	56mins	Col	1988	Lecture to Radio Amateurs Old Timars Club
	Australian TV History - Part 2	Chris Long	VK5KG	49mins	Col	1988	Technical slides not used in the above
	The Development of the TV Test Card	George Hersee	G8PTH	43mins	Col	1988	Made for BATC by the BBC Training Dept
NEW	TV for Amateurs		BATC	19mins	Col	1990	Excellent introduction to ATV
NEW	The first nation-wide ATV AUSSAT TX		Gladesville ARC	2hours	Col	1990	Noisy off-satellite but interesting
			<b>ATV - TECHNICAL</b>				
o	The Signal to Noise Story	VK3ATY	VK3AHJ	45mins	Col	1982	Superseded by "UHF Pre-amplifiers" (below)
	UHF Preampifiers	VK3ATY	VK3AHJ	45mins	Col	1983	Explanation and demo. of low noise preamps
	Getting Started in Amateur Television	VK5KTV	VK5KG	55mins	Col	1983	How to set up an ATV station
	Tasting ATV Transmitters	VK5KG	VK5KG	50mins	Col	1983	How to correctly measure ATV systems
			<b>COMPUTERS</b>				
	Demo. of VK5RTV's Micro-Computer Controller #1	VK5KG	VK5KG	10mins	Col	1979	First u-Computer controlled repeater in VK
o	Understanding Micro-Processors	VK5PE	VK5KG	80mins	Col	1980	A somewhat dated technical description
o	An ATV Hamshack Micro-Computer	VK3AHJ	VK3AHJ	10mins	Col	1981	Describes now unavailable microcomputer kit
	Getting Started in Amateur Micro-Computers	VK5IF	VK5KG	33mins	Col	1983	Demo. of hard- & software for Amateur Radio
			<b>DATA TRANSMISSION</b>				
	Getting Started in Amateur RTTY	VK5JM	VK5KG	65mins	Col	1983	RTTY using Teletypes and Micro-Computers
	Amateur Packet Radio	VK5AGR	VK5KG	60mins	Col	1984	Theory and Demonstration.
	Packet Radio - 10 months on	VK2KYJ VK2AAB	WIA NSW	65mins	Col	1985	Raw Unedited; from 75 aniv. VK2 Seminar
w	X25 Protocols and Packet Switching	VK2ZXB	OTC	47mins	Col	1986	Lecture given to a group of Radio Amateurs
			<b>MICROWAVE TECHNIQUES</b>				
	Introducing Microwaves	VK5ZO	PJ Video	74mins	Col	1988	Dee Clift gives a "Nuts & Bolts" technical lecture
			<b>PROPAGATION</b>				
	Getting Started in Understanding the Ionosphere	VK5NX	VK5ZBD	50mins	Col	1983	How the Ionosphere aids HF communication
	VHF Signal Enhancement by Aircraft	VK2ZAB	WIA NSW	70mins	Col	1986	Raw Unedited; from 1986 VK2 Seminar
			<b>SATELLITES</b>				
o	Getting Started in Amateur Satellites	VK5HV/VK5AGR	VK5KG	80mins	Col	1983	Superseded (see below)
o	An Introduction to Amateur Satellites (Pt 1)	VK5AGR	VK5KG	60mins	Col	1984	An overview of Amateur Satellite working
o	Micro-Computer Aids to Satellite Tracking (Pt 2)	VK5AGR	VK5KG	30mins	Col	1984	Programs for tracking & decoding telemetry
	Using Phase III Amateur Satellites	VK5HI	VK5KG	90mins	Col	1984	History, construction & use of high orbit sats.
	The Amsat Oscar Phase 3 Story	DJ4ZC	VK5KG	60mins	Col	1985	Dr. Karl Meinzer "The Father of Oscar" inc film of

Antennas for Satellite	WIA NSW	75mins	Col	1986	launch. Raw Unedited; from Dr Trevor Bird's 1986 VK2 Seminar	
<b>SPACE - GENERAL INTEREST</b>						
Apollo 13 Disaster	VK5JM	VK5KG	90mins	Col	1980	Australian tracking procedure aaved Apollo 13
SSTV Pictures from Space - Voyager		VK5KG	15mins	Col	1983	SSTV pix converted from Salum fly past
Aussat - Australia's Domestic Comma. Satellite	VK5JM	VK5KG	82mins	Col	1984	Technical description of services offered
Amateur Radio's Newest Frontier		ARRL	28mins	Col	1985	Amateur Radio in Space; General P.R.
Working W5LFL in orbit from VK1ORR	Richard Elliot		23mins	Col	1986	Raw Unedited actuality footage
<b>MISCELLANEOUS</b>						
An Auxiliary Battery Charger	VK5NX	VK5KG	30mins	Col	1981	Charging a second mobile battery
Lecture - Winning Foxhunts	VK5TV	VK5KG	45mins	Col	1981	How to do it from one who haal
Getting Started in Amateur Construction	VK5AIM	VK5KG	50mins	Col	1983	Mechanical hints for novice constructors
The Communications. Consequences of Nuclear War	Dr. John Coulter	VK5ZBD	60mins	Col	1983	Why your gear may not survive even if you do!
The Far Eastern Broadcasting Company		VK5KG	60mins	Col	1984	How a Short Wave Broadcaster operates
The Aust. "Over the Horizon Radar"	Dr. Phil Whitham	VK5KG	60mins	Col	1984	How the "Australian Woodpecker" works
What to Expect when the RI Calle		VK5KG	34mins	Col	1984	by Geof Carter - a Dept of Comms. Field Officer
Doppler Direction Finding for Foxhunters	VK2BYY	WIA NSW	43mins	Col	1985	Raw Unedited; from 75 aniv. VK2 Seminar
Fitting BNC Connectors		OTC	7mins	Col	1985	Correct Assembly of Crimp type BNC plugex
Handling Static Sensitive P.C.Bs.	Paul Tardent	OTC	6mins	Col	1986	Improving reliability of Printed Ccte.
Extra License Grades	VK2ZTB	WIA NSW	70mins	Col	1986	Raw Unedited; from 1986 VK2 Seminar
Thick Film Modules	VK5DI	VK5KG	45mins	Col	1986	Description of modules available from VK5 WIA
Quartz Crystals	VK5GL	VK5GL	108min	Col	1986	Clem Tilbrook gives a "Nuts & Bolts" expert technical lecture

NOTE: "©" = Copyright; no copy service.. "O" = Optically Converted to PAL from NTSC by WB2LLB; noticeable flicker. "w" = available ONLY to Radio Clubs Affiliated with the WIA as per agreement with OTC "o" = program now out of date Standard Formats: "Video-8" & "VHS" both Standard and Long Play, & "Beta"; - please specify when ordering.

## New Frequencies for VNG

Continued from page 22

60th minutes without interruption to the time signals. The speech is "notched" to allow seconds markers to continue and has spectral components around 1000Hz removed to avoid erroneous operation of tuned relay time circuits. The text of the normal announcement is: "This is VNG, Llandilo, New South Wales, Australia on 5, 8.638, 12.984 or 16MHz. VNG is an Australian standard frequency and time signal service. Enquiries may be directed to: VNG Users Consortium, GPO Box 1090, Canberra, ACT, Australia 2601.

The announcer is Graham Connolly, an amateur radio operator (callsign VK2BL) and retired ABC radio news-reader.

**Morse Station Identification — Broadcast on 8.638 and 12.984MHz Only:** Given during the 15th, 30th, 45th and 60th minutes without interruption to the time signals. VNG is transmitted in slow Morse at a frequency of approximately 500Hz up to six times per minute. Brokenidents may occur at the beginning and end of the minute.

**VNG Funding:** AUSLIG (the Australian Surveying and Land Information Group of the Department of Administra-

tive Services) has undertaken to fund VNG for at least five years from June 1989, provided it gets adequate cost recovery from users. This may be achieved by purchasing bulletins from AUSLIG or by making donations payable to the VNG Users Consortium.

**Reception Reports:** Written reports or cassette tapes should be sent to the VNG Users Consortium. Reports should be sufficiently detailed to permit verification. Tape recordings can be very short provided VNG is recognisable. Tapes will not be returned unless requested. QSL folders will be issued if reports are valid, but return postage would be appreciated from those other than financial contributors to VNG's running costs.

**Time Code:** The time code format incorporates time of day and day number of year information in binary-coded-decimal (BCD) form, and the method of encoding complies with CCIR recommendations for time codes. The BCD time code transmission takes place between seconds marker 20 and seconds marker 46.

## The Story Of Stephen Frith

Continued from Page 20

1000, the cursor scans to the next option and again enters the count loop and so on. When the switch is pressed, the program jumps out of the count loop and stops, and does not proceed until the switch is released. In this way, if Stephen has a spasm while he is pressing the switch or for some reason cannot release the switch, the program "waits" for him.

### General Hints

Programs should be ready to run as soon as power is applied. The only attention needed from the nursing staff is to switch on the mains power. From then on the programs should be under the complete control of the operator.

I have found the Microbee 32K ROM-based computer to be more than adequate for this work. This model is easy to program, and what is very important, very cheap to buy on the second-hand market. All my latest programs are put into EPROMS and there are spaces for at least five on the Microbee memory board. I have fitted a new Basic ROM to the memory board, which passes computer control to the first EPROM when first switched on. The keyboard now has no role to play and could be removed, making the computer dedicated and virtually a black-box.

In the next and final instalment, Part 4, I will give some details of the effects that adding a speech synthesiser has made to Stephen's computer system. ar

# AWARDS

JOHN KELLEHER VK3DP - FEDERAL AWARDS MANAGER

Activity in the awards area has been most encouraging, and I am pleased to report that with your participation, help and sometimes timely advice, I have made a success of this otherwise "binding" job, and turned a "chore" into a meaningful pleasure. The backlog of applications has been removed, and correspondence is now on a weekly basis.

This office handles all awards from IARU-affiliated countries, but not from CQ magazine. The latter are dealt with by Bill Vogel, whose address was published earlier.

The most popular awards so far processed have been for WAVKCA, WAS (USA) and WAC (USA), along with upgrades for DXCC, but very few for the actual DXCC. A DXCC standings list is shown below.

## DXCC Standings list updated 1/2/92

DXCC Open/  
Mixed Tallies

322/373	VK6RU	280/303	VK3KS
322/342	VK6HD	278/313	VK7LZ
322/330	VK3AKK	278/295	VK6HD
321/367	VK6MK	276/303	VK2APK
321/363	VK3YL	275/317	VK6RU
321/355	VK5WO	261/263	VK3AKK
321/330	VK30T	259/291	VK3RJ
319/363	VK4KS	238/260	VKETL
317/350	VK4RF	237/248	VK5WO
314/329	VK3AMK	213/220	VK7BC
313/318	VK7BC	211/220	VK3JI
312/314	VK3YJ		
311/324	VK4AK	DXCC SSB/ Phone Tallies	
310/349	VK4SD		
308/345	VK7LZ	322/373	VK6RU
308/330	WA3HUP	322/372	VK5MS
306/316	VK3QI	322/353	VK5WO
306/356	VK4FJ	322/342	VK6LK
304/321	VK5WV	322/335	VK6HD
302/339	VK3XB	322/330	VK3AKK
299/323	VK4PX	321/363	VK4LC
299/310	VK1ZL	321/367	VK6MK
295/299	VK3CQN	318/327	VK30T
293/309	VK4BG	317/333	VK4RF
292/294	VK2AKP	314/329	VK3AMK
291/309	VK4UC	314/326	VK6NE
290/314	VK2SG	314/315	VK3DYL
287/312	VK2APK	313/350	VK5AB
287/289	VK6RO	312/314	VK3YJ
		310/314	VK3CSR
		309/324	VK4VC
		309/321	VK4AK
		309/313	VK3CSR
		308/319	VK3QI
		306/326	VK7LZ
		305/321	VK5XN
		305/311	VK3RF
		305/310	VK3AWY
		305/308	VK3WJ

DXCC Standings  
List. CW

311/357	VK2QL		
304/340	VK3YL		
302/348	VK2EO		
300/330	VK3XB		
298/322	VK4RF		
297/345	VK4FJ		
286/326	VK3YD		

Tables shown are reproduced from Edmund T Tyson N5JTY "Conversion Between Geodetic and Grid Locator Systems" QST January 1989.

305/308	VK6AJW	278/279	VK5EE
304/321	VK5WV	276/298	VK3KS
304/307	VK6AJW	274/275	VK3VU
304/306	VK3YZ	267/271	VK3CYL
303/309	VK7BC	266/278	VK5LC
303/307	VK6HE	265/281	VK2AAK
300/343	VK4FJ	265/270	VK5RX
299/300	VKVK1ZL	257/258	VK3DP
299/300	VK3DYL	256/298	VK3NC
294/308	VK1WB	254/274	VK2SG
294/328	VK2APK	254/256	VK3GI
292/312	VK4PX	252/277	VK3TL
290/294	VK6YL	246/261	VK3VO
288/333	VK3JA	245/256	VK3VK
287/292	VK6IR	245/260	VK3JI
287/290	VK6IH	225/240	VK3VQ
287/289	VK6RO	224/225	VK2CKW
286/311	VK3JI	220/222	VK5BO
285/291	VK7AE	212/213	VK6YF
285/290	VK2DU	202/205	VK6NAT
284/290	VK3DU	200/201	VK4DD
283/286	VK5OU		

In the previous issue, the rules for the WIA grid square award were published. Now I will attempt to simplify the actual procedure of determining your own grid square. Bear in mind that the WIA GSA only requires verified contacts in a two-degree by one-degree area.

## The Maidenhead Locator System

The earth's surface is divided into 324 "fields", each 20 degrees (longitude) by 10 degrees (latitude). Each field is divided into  $10 \times 10 = 100$  "squares", each two degrees (longitude) by one degree (latitude). It is upon the latter you will operate. Start by finding your latitude and longitude from a local area map.

The first character (always a letter) specifies *longitude* in 20-degree increments. The second character (also a letter) specifies *latitude* in 10-degree increments. The third and fourth characters are digits in the range 0 through 9. The third character divides *longitude* lines into two-degree increments. The fourth character divided *latitude* zones into one-degree increments.

The following tables should assist you in determining your actual "grid square".

Table 1  
1st Longitude  
Character

Degrees  
Longitude

-180	A
-160	B
-140	C
-120	D
-100	E
-80	F
-60	G
-40	H
-20	I
0	J
+20	K
+40	L
+60	M
+80	N
+100	O
+120	P
+140	Q
+160	R
+180	

Letter

Table 2  
2nd Longitude  
Character

Degrees  
Longitude

-20	0	0
-18	1	+2
-16	2	+4
-14	3	+6
-12	4	+8
-10	5	+10
-8	6	+12
-6	7	+14
-4	8	+16
-2	9	+18
0		+20

Number

# CONTESTS

(INFORMATION PROVIDED BY RELEVANT CONTEST MANAGERS)

**Table 4**

**1st Latitude Character**

Degrees Latitude

-80	A
-80	B
-70	C
-60	D
-50	E
-40	F
-30	G
-20	H
-10	I
0	J
+10	K
+20	L
+30	M
+40	N
+50	O
+60	P
+70	Q
+80	R
+90	

Letter

**Table 5**

**2nd Latitude Character**

Degrees Latitude

-10	0	+0
-9	1	+1
-8	2	+2
-7	3	+3
-6	4	+4
-5	5	+5
-4	6	+6
-3	7	+7
-2	8	+8
-1	9	+9
0		+10

Number

Lettering of longitude begins at 180 degrees west (A) and carries on through the prime meridian and so to 180 degrees east (R). For latitude, lettering begins at 90 degrees south (A) and continues to 90 degrees north (R).

If you have any difficulty, this office has a worldwide locator chart. Just write to the awards manager with SASE. I also have a short BASIC program for determining the six-digit maidenhead locator. ar

## 1992 John Moyle Contest Rules

*Phil Rayner VK1PJ*

Once again those who enjoy a weekend in the bush should be planning for the John Moyle field day. This year, as promised, there are no rule changes. The helpful hints received last year showed that there is nothing basically wrong with the rules. However, I would suggest that operators not only read and familiarise themselves with these rules, but they should also read the comments printed with last year's results.

There promises to be quite a bit of activity on the DX front this year with the John Moyle Field Day taking place on the same weekend as the Japan DX contest. Both six metres and HF should be interesting, with maybe even a bit of DX on two metres. When making repeat contacts with stations in the Japan DX contests, please remember they cannot count repeat contacts, hence they may be a bit reluctant to make another contact.

I hope to be on air the weekend prior to the contest — family commitments permitting — to help anyone with rule interpretation etc. Please, if you do have any complaints, submit them by phone or with your entry. My planned schedule is 14.275MHz at 1200 EST and 3.570MHz 2100 EST (approx) Sunday 8 March 1992. The 80m meeting will commence when the VK1 Award Net finishes, on the same frequency as the VK1 Award Net. This is an experiment to try to improve the contest. If it helps, I will do my utmost to continue the practice. For those who do not have HF call-signs, I am sure you can find a way of joining one of the nets, maybe as a second operator. If anyone would like to contact me privately, my home phone number is (062) 29 3260 and at work (062) 80 5966. My home address is in the callbook. Best of luck. See you all on air. I hope to be one of the operators at the VK1 WIA station. Don't worry, I get someone else to check any entry I am involved with.

### *AIM*

1. To encourage portable operation on the amateur bands and is intended to help amateurs become familiar with portable operation and thus assist in training them for emergency situations. The rules therefore have been designed to encourage all amateurs to operate in the field.

### *Contest Period*

1. From 0100 UTC 14 March 1992 to 0759 UTC 15 March 1992. It is intended that this contest shall take place on the third weekend in March each year.

### *Sections*

3. All entries are to consist of one choice from each of the following: eg six-hour, portable, single op, phone, VHF:  
a. 24 or six-hour operation;

- b. portable, home or receiving station;
- c. single or multiple operator;
- d. phone, CW or open mode;
- e. HF, VHF/UHF or ALL bands

### *Scoring*

4. For valid contacts:
- a. Portable HF stations score two (2) points per contact;
  - b. home HF stations score two (2) points for contacts with portable stations and one (1) point for contacts with home stations;
  - c. all contacts on the 50MHz band score as for HF;
  - d. the following scores may be claimed by portable stations operating on 144MHz and higher:
    - (1) 0 to 49km score two (2) points per contact;
    - (2) 50 to 99km score ten (10) points per contact;
    - (3) 100 to 149km score twenty (20) points per contact;
    - (4) 150km and greater score thirty (30) points per contact; and
    - (5) For each of the 144MHz and higher contacts, the details of the respective station locations are to be supplied. Such details must include either latitude and longitude references for each station or some satisfactory proof showing the distance over which the QSO was conducted. These details must be shown on the summary sheet.

### *Log Submission*

5. Each log must be accompanied by a summary sheet that provides the following information: call sign, name, address, section entered, number of contacts and claimed score.
6. The summary sheet should also note the equipment used, station location and, for multiple operator stations, a list of all call signs that operated the station together with their signatures.
7. The summary sheet shall include the following declaration signed by the operator or, in the case of a multiple operator station, one of the licensed amateurs who operated the station: "I hereby declare that this station was operated in accordance with the rules and spirit of the contest."
8. Logs should be forwarded to The John Moyle Contest Manager, PO Box 315, Fyshwick ACT 2609 Australia. Logs are to be postmarked no later than 30 April 1992.
- ### *Certificates and Trophy*
9. At the discretion of the contest manager, certificates will be awarded to the winner

of each portable section. The six-hour certificate cannot be won by a 24-hour station.

10. The President's Cup will be awarded to the Australian station with the highest CW score. The recipient shall be presented with an individually inscribed wall plaque as permanent recognition.

#### **Disqualification**

11. General WIA contest disqualification criteria as published will apply to this contest. Untidy, illegible and messy logs will automatically be disqualified.

#### **Definitions**

12. A portable station is one which operates from a power source which is independent of any permanent installation, ie batteries, portable generators, solar and wind power.
13. The size of any portable station shall be restricted to approximately that of an 800m diameter circle.
14. A single operator station is one where all operating of the transmitting apparatus is done by one operator only.
15. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use any callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multi-operator entry.
16. A multiple operator station is a station operated by more than one operator.
17. Only one callsign may be used from a multiple operator station.
18. Multiple operator stations may use only one transmitter on a given band at any one time, regardless of the mode in use.
19. Multiple operator stations are to use a separate log for each band.
20. A club, group or organisation, by default, is considered a multiple operator entry.
21. No apparatus may be given to help the single operator prior to and during the contest. The practice of clubs or groups providing massive logistic support for a single operator is totally against the spirit of the contest. Offenders will be disqualified and possibly banned from participation in the contest for a period of up to three years.
22. SSB, FM and AM all count as phone.
24. CW and RTTY are both regarded as CW.
25. It is not expected that any other modes would be used in this contest, but if they are, they shall be regarded as CW.
26. All amateur bands may be used with the exception of the 10, 18 and 24MHz bands.
27. Cross-band contacts are not permitted, except by satellite repeater systems.
28. Cross-mode contacts are not permitted.
29. Contacts made via terrestrial repeater systems are not permitted. However, repeaters may be used to arrange a contact on a simplex frequency.
30. Portable stations are permitted to make repeat contacts and claim the appropriate

points, provided that at least three (3) hours have elapsed since the previous contact with that station on the same band and mode.

31. Home stations may not claim any points for repeat contacts.
32. Stations are to exchange ciphers consisting of the RS/RST and a number commencing at 001 and incrementing by one (1) after each contact.
33. Portable stations shall add the letter "P" to their own cipher, eg 59001P for the first contact.
34. Multiple operator stations are to commence each band with 001.
35. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for home stations, unless the receiving station is portable.
36. The practice of selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest and shall result in immediate disqualification. The period of operation commences with the first contact on any band or mode and finishes either six or 24 hours later.

## **Commonwealth Contest 1992 — Rules**

1. **General:** The Commonwealth Contest is intended to promote contacts between stations in the British Commonwealth and Mandated Territories.
2. **Eligible entrants:** Licensed radio amateurs within the British Commonwealth or British Mandated Territories. Single operator entries only will be accepted and entrants may not receive any assistance whatsoever during the contest, including the use of spotting nets or other assistance in finding new bonuses. Entries will not be accepted from Headquarters stations, nor from stations using GB or other special event callsigns, or operating maritime or aeronautical mobile.
3. **When:** 1200 GMT Saturday 14 March 1992 to 1200 GMT Sunday 15 March 1992.
4. **Sections:** (a) multi band  
(b) single band  
Single band entrants should claim points for contacts made on one band only, but are requested to submit details of QSOs made on other bands, for adjudication purposes. Multi band entries will not be eligible for single band awards.
5. **Frequencies/mode:** CW only in the 3.5, 7, 14, 21 and 28MHz bands. Entrants should operate in the lower 30kHz of each band, except when contacting novice stations operating above 21030 and 28030kHz. Crossband contacts will not count for points or bonuses.
6. **Contest Exchange:** RST and serial number, commencing with 001.
7. **Scoring:** Contacts may be made for points

with any station using a British Commonwealth prefix (see accompanying list), except those within the entrant's own call area. Note that for this contest, the entire UK counts as one call area, and therefore UK stations may not work each other for points. Each completed contact scores five points, with a bonus of 20 points for each of the first three contacts with each Commonwealth Call Area, on each band.

8. **Headquarters Stations:** A number of Commonwealth Society HQ stations (although not eligible as entrants) are expected to be active during the contest and will send HQ after their serial number to identify themselves. Every HQ station counts as an additional call area (and therefore attracts the 20-point bonus) and entrants may contact their own HQ stations for points and bonuses.
9. **Logs:** Separate logs are required for each band. Entries should be typed or written in ink on one side only of standard (A4) size paper or pre-printed log sheets, and should contain 40 QSOs per page. Columns to be headed: Time GMT; callsign of station worked; RST and serial number sent; RST and serial number received; bonus points; points claimed. Computer-generated logs are welcomed provided they are formatted as above. Duplicate contacts must be clearly marked and not claimed for points. Each unmarked duplicate contact found for which points have been claimed will result in the deduction of 55 points. Entries containing more than five such duplicates will be liable to disqualification. Each entry must be accompanied by a cover sheet indicating the section entered and the scores claimed on each band (also don't forget details of equipment, and your correspondence address!). Entrants making more than 80 QSOs are requested to include a checklist of the callsigns appearing in the log, sorted into alphabetical order and with either the serial number sent or the time of contact beside the callsign.
10. **Declaration:** Each entry must be accompanied by the following declaration, signed and dated: "I declare that this station was operated strictly in accordance with the rules and spirit of the contest, and I agree that the decision of the Council of the RSGB will be final in all cases of dispute."
11. **Address for logs:** RSGB HF Contests Committee: c/- S V Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, UK.
12. **Closing date for logs:** Logs should be posted to arrive before 19 April 1992. Overseas entrants are advised to forward their logs by airmail, as late entries may be treated as checklogs.
13. **Awards:**
  - (a) Multi band — The Senior Rose Bowl will

# VHF/UHF – AN EXPANDING WORLD

ERIC JAMIESON VK5LP – PO Box 169 MENINGIE 5264

be awarded to the overall leader, and the runner-up will be awarded the Junior Rose Bowl. The Col Thomas Rose Bowl will be awarded to the highest placed UK station. Certificates of Merit will be awarded to the third-placed entrant overall, and to the leading station in each call area.

(b) Single band — Certificates of Merit will be awarded to the leading overseas and UK entrants on each band.

## Receiving Contest

Rules may be obtained from VK3ZC QTHR.

## Call Areas

The following call areas are recognised for the purpose of scoring in the 1992 Commonwealth Contest:

A2, A3, AP, C2, C5, C6.

G, GB, GD, GI, GJ, GM, GU, GW (all one area).

H4, J3, J6, J7, J8.

P2, S7, T2, T30, T31, T32, T33.

V2, V3, V4, V5, V8.

VE1, CY0 (Sable), CY0 (St Paul), VE2, 3, 4, 5, 6, 7, 8.

VY1 (Yukon).

VK1, 2, 3, 4, 5, 6, 7, 8, VK9L, 9M, 9N, 9X, 9Y, 9Z.

VK0 (Heard), VK0 (Macquarie), VK0 (Antarctica).

VO1, VO2.

VP2E, VP2M, VP2V, VP5, VP8 (Falklands), VP8 (S Georgia), VP8 (S Sandwich), VP8 (S Shetland), VP8 (Antarctica), VP9, VQ9, VR6, VS6.

VU, VU4 (Andaman), VU7 (Laccadive).

YJ, Z2, ZB2, ZC4, ZD7, ZD8, ZD9, ZF, ZK1(N), ZK1(S), ZK2, ZK3, ZL0, 1, 2, 3, 4, 5, 7, 8, 9, 3B67, 3B8, 3B9, 3DA.

4S, 5B4, 5H, 5N, 5W, 5X, 5Z.

6Y, 7P, 7Q, 8P, 8Q, 8R.

9G, 9H, 9J, 9L.

9M2, 9M6/9M8, 9V, 9Y.

GB5CC, RSGB, HQ Station, VK3WIA, VIA HQ.

All calls operated from Commonwealth controlled areas of the Antarctic, VK0, VP8, ZL5 etc, count as one call area.

## BERU 1991

A coverage of the 1991 results should appear in *March Amateur Radio*, but it seems 9H1EL, ZD8VJ and VE7CC took out the major placings, while VK6LW 5, VK2APK 6, VK2BF 7 and VK4XA were the leading VKs.

## RD Results — Corrections

VK3EDF 16, should be in VK3 VHF section.

VK4ZGL 30, should be in VK4 VHF section.

VK7SA 88, delete entry.

ar

All times are UTC

## Some New Beacons

Freq	Call sign	Location	Grid square
50.015	PJ4B	Bonaire	FK52
50.015	4N3SIX	Slovenia	JN76**
50.018	V51VHF	Namibia	JG87
50.019	P29BPL	Papua NG	QI30
50.027	9H1SIX	Malta	JM75*
50.057	VK7RSB	Hobart	QE37**
50.092	HC2FG	Ecuador	EI97*

\*indicates the beacon has been reactivated

\*\* indicates a new beacon

There are no 2m beacons active in Melbourne except VK3RCW on 144.950, the CW training beacon. The Ballarat beacon on 432.535 is the only one operational on 70cm in VK3. VK6RTW on 52.565 is QRT.

432.450 VK5VF Mount Lofty PF95. This new beacon has a power of four watts ERP from a 6dB gain antenna with its main power concentrated from about 280 degrees through south to the south-east, and uses FSK keying. It provides a very strong signal at Meningie over the 120km path.

1296.450 VK5VF Mount Lofty PF95 is another new beacon with about one watt to a four-times waveguide radiator. At the time of writing no signal report is available as it will not be installed until 11/1/92. The present VK5 6m and 2m beacons have been taken out of service for upgrading after performing faithfully for more than 25 years.

## Six Metres in Europe

Ted Collins G4UPS has advised the following: VK stations worked into Europe on 4, 5, 7, 10, 11, 12, 13, 15, 17, 18, 20, 21, 24, 25, 27 November, with those most heard being VK3OT, VK6PA, VK7JQ, VK8ZLX, VK8RH, VK2QF and some VK4s.

Ted adds the following items of interest: French Guyana has a new station, FY3FV — QSL direct to Box 999, 97300 Cayenne, French Guyana. Also, for PJ9EE, QSL via YB3CN. New station in Morocco is CN8BA in IM63. QSL direct to Mohamed Bouhannana, 114 Rue Chabab A Al Alia, Mohammedia, Morocco. 9X5NH is now operating from Rwanda.

SM7AED advised that Estonian operators now have access to six metres, and SM7FJE has already heard ES5IT. Cedric CT3FT from Madeira will activate six metres on receipt of a transverter from the UK. Czechoslovakia has been granted access to six metres from 15/12/91, with possible restrictions to some OKI and OK2 operators due to TV stations. (Subsequent information tends to indicate that the start-up date for OK1 and OK2 was, in fact, 1/1/92 ... 5LP). QSL route for OE2UKL is Kurt Ullmann, Sonnenweg 13, A-5162 Obertrum a See, Austria. From Malawi 7Q7TT in KH74 is

now active, also 7Q7CM, 7Q7LA and 7Q7RM. A possible new station from Cuba is CO7RG. Joel CN2JP reported that on 15/11 at 1800 he had a 6m CW QSO with JW0A in Svalbard via the South Pole!

Don PY5ZBU has now confirmed 131 countries on six metres. He struck misfortune when he lost more than 100 QSL cards en route to the ARRL for the first ever DXCC on six metres. How discouraging. (Maybe VK operators should deliver their cards personally to the ARRL when their time arrives ... 5LP).

One comment by G4UPS which appealed to VK5LP for its fairness and consideration for others less fortunate, was that on 2/11 he heard CX8BE, LU8AJK, LU8AHW, LU3DCA, LU7DZ, HC5K, HC1BI, PZ1AP, 9Y4VU, PT9FH and several weak PU/PY stations and PY5CC at 5x9. "As I had worked most of these stations before, I left them alone." Very commendable!

At 1125 on 2/11 9H1CG worked KP2A, KP4 and PJ9. 8/11 at 1120 5V7JG (Togo) and TU2OJ (Ivory Coast) both 5x9 working into Europe. 14/11 at 1422 XN1YX turned out to be VE1YX using a special prefix. 17/11 at 1909 G4UPS worked 9J2HN in Zambia at 559.

There are now 127 Swedish stations on the current list with prefixes SK0, SM0, SM1, SM2, SM3, SM4, SM5, SM6, SK7, SM7, SI8 and SJ9. Information from SM7AED and G4UPS.

## More from Europe

There seems little doubt that if you want to work consistent 50MHz DX, you should move to Europe, or at least the British Isles! Did you know that at least 120 countries have been worked on 50MHz so far from the UK? The way they do it is this typical example from Geoff GJ4ICD on Jersey Island for 2/11/91 who says 1100 UTC: *What an opening! FY7 beacon in at 9+. The band was open from 1100 to 1430 when I went QRT, all signals were S9++ even the Ws via scatter; worked lots of PYs 2, 5, 7, 9. LU, PT9FH, PP5WL, PJ9EE, HI8A, VE1YX, W1JR, P43AS, PJ4/WA3LRO, PJ2KI, TI2HL, PJ2BR, K1JRW, N3BBI, W4s, W2s, CX8BE, many many LUs, HC5K, CN8ST, 9L1, YV4DDK, YV4AB, KP4EOR, KP4EIT, KC5M and missed CE, CP6, YN and YS! Does the man have time to eat? ... 5LP.*

Geoff had good propagation to extended parts of the world on almost every day through November, although he considered three of his October contacts as outstanding — 14/10 to VK2FLR, which gave him the British Isles distance record of 16235km; 18/10 to VK5NC and VK3LK. On 31/10 he worked ZA1ZLZ and ZA1ZDB in Albania for a GJ first and a new

country. (Note: Unfortunately, it seems likely these contacts will not be counted for DXCC as ZA1A was the only station permitted operation from Albania and this was limited to 20 metres. There may be more on this later ... 5LP).

Other bits from Geoff GJ4ICD and *The UK Six Metre Group Newsletter* include that Gerrard 5V7JG from Togo came on six metres for the first time on 21/9/91, and that day worked 9H1, SV, TA, I, A22 and PY. He runs 25 watts to a five-element beam. On 28/9/91 Gerrard made 270 QSOs with Europe, and during his first week on the air worked 20 DXCC countries in three continents! He expects to operate from there until February 1992.

Julio D44BC has indicated he will try to be more active on six metres in future. Edgardo YS1ECB from El Salvador is still active and has been working the TE path to South America. As Dave 9L1US has left Sierra Leone, that leaves the Radio Club beacon 9L1SL only. Dave will reappear in Botswana in February 1992, but will be a long way from A22BW.

There seems to be a difference of opinion between the ARRL and the RSGB Awards Managers over 5NO, 3X1 and TK. The ARRL will accept them, but the RSGB will not! Ian G4OUT says that no foreign nationals visiting TK (Corsica) and operating from there will count for any 50MHz awards, as no PTT permits were issued. IT9 (Sicily) is acceptable to the RSGB but not the ARRL.

The absolute dedication to amateur radio and six metres in particular is shown by the fact that Lawrence GJ3RAX and Geoff GJ4ICD between them have undertaken the construction of five 50MHz beacons, and have also requested the return of several beacons which are no longer in use so they may be deployed elsewhere.

*The UK Six Metre Group Newsletter* says there are now 45 countries in Europe activated on six metres with 16 countries yet to be permitted operation. Six metres from Poland seems some distance away. LA/3A2 (Monaco) has been worked on six, and there is a possibility HA (Hungary) may yet come on.

## The Australian Scene

As reported above, a limited number of Australian amateurs has been sharing in F2 DX contacts entering from both sides of the country. There were many openings to Europe during November, with these tapering off in December, but not entirely disappearing.

On 26/12 Steve VK3OT worked YU and SM, and from then through to 6/1 to him there have been almost nightly occurrences of small openings to Europe, perhaps for half an hour or so from about 0830, a typical one being on 6/1 to Finland when Steve worked OH3MM, a much sought after contact with the President of the Finland Amateur Radio Society. There

was also an OG1 which appeared to be a prefix for a special occasion. VK3LK and VK5BC have been heard sharing these contacts, which at times were made difficult due to the number of VK stations on Es using the 50.110 DX calling frequency.

During November there have been some good Es openings. VK4, 6, 7 and 8 have been prominent in VK5, especially on 26/12 at 0130 when VK8ZLX was heard with a rock crushing signal! On 11/11 VK5RO worked W5 and W7; on 17/11 VK5BC worked PA0 and ON4. On 4/12 KH7 Kure Islands was worked by VK3, 4 and three VK6s. On 15/12 VK4s spread over most of their eastern coastline were working ZLs. JAs were still almost a daily occurrence into VK5, mostly around 0200, but not for long periods.

On 4/1 for most of the day Es provided VK1, 2, 3, 4, 6, 7 and 8. On 6/1 ZL2TPY and others were involved in a big opening to W when many states were worked.

## Two Metres and Above

There have been some good 2m contacts. On 3/12 VK5ZVS using 10 watts FM from Whyalla contacted VK7NRC. VK5AKK on 23/12 heard the Sydney beacon VK2RSY at 0916, and on 24/11 at 0908 heard the Cairns beacon VK4RIK. On 4/12 he had a good contact with VK6AS at Esperance.

Mark VK5EME reports active stations during the past month have included VK5s AKK, AKM, RO, ZDR, AVQ, PO, ACY, NC and EME and VK5KK from 29/12. With the start of the Ross Hull Contest on 22/12, contacts were exchanged with VK5ZVA at 0730 on 144 and 432; 1030 VK5PO portable at Kapunda, 144 and 432, then same with VK5AKK. At 1050 VK5AKM on 144, 432, 1296 and 2304, followed by VK5ACY and VK5EN on 144. On 23/12 from 1030, 144 contacts with VK5MC, VK5AVQ, VK5PO, VK5ZGC, VK5ACY and VK5KAF (both on Kangaroo Island), VK5ZPS and VK5NC.

A big surprise awaited VK5ZDR, VK5AKK and VK5EME who were home on Christmas Day when, between 0640 and 0710 144MHz opened to VK4 (up to 2000km) with 5x9 signals to VK4s QV, TDR, LE, ZWH, ZDO, DH, ACE and VK3ZQB, followed later at 1209 with VK5AKK on 144, 432 and 1296.

From 26/12 Mark VK5EME decided to operate portable from a high site at Summertown in the Mount Lofty Ranges, taking equipment with him to work on 144, 432, 1296 and 2304MHz! From 0442 he worked VK5s AVQ, ZDR, RO, AIM, ZYK and VK3AOS, all on 144 and 432, plus VK5AVQ on 1296. Similar results on 27/12, plus VK3YLV also on 1296.

Obviously by 28/12 Mark had stirred the pot somewhat and was amazed at the number of VK3s who had come out of the woodwork to work him. He had contacts, mostly on 144 from 2123 with VK3s YLV, UM, AOS, AFW, DUQ, LK, DUT, BRZ, TG, AIH, AMZ, AXH

and VK7XR on 144 and 432 and VK7DC on 432. VK5NY and VK5NC were there also, the latter on 144, 432 and 1296. VK3s YLV, AFW and AOS were also on 432. From 0932 a string of VK5s were worked, including VK5AKK on 2304.

VK5EME's final effort was on 29/12 from 2249 to 2336 to VK3AUG, VK3UM, VK3AOS and VK5s NC, NY, DK, AVQ, ACY, AKK and from 0916 VK5s ZBK, AKK, AIM, AVQ, AKM and KK, the last two being worked on four bands.

During years past VK5LP has operated portable on many occasions, and I know the logistics required to set up a station to work on four bands. Each day it took Mark VK5EME three quarters of an hour to travel to his chosen site, then set up his gear and be operational, preferably by 2100 UTC or 7.30am local time, then pack up and go home after 10pm local and do the same thing again the next day. That's dedication, and I am glad to note he was rewarded with some good contacts on all bands.

## EME News

Doug VK3UM reports on his 70cm EME activities for 23 and 24/11/91. Faraday rotation locked him out of the European window. Despite this, his final tally was 68 contacts which included 14 initials, bringing his initials tally to 164.

New stations worked on 23/11 between 1115 and 1329 were N2IQU, AA4TJ, ZL3AAD, N7ART, W0KJY, W7HAH, K3EAV, KB0HH, WA6BJE, WA9FWD and from 1755 to 1851 OK1KIR, JR4AEP, DL9KR, F1FEN and DL9EBL. On 24/11 at 1236 K5AZU, 1308 KB4WM and 1858 F2TU. Signal levels were between 439 and 569, which seems to indicate reasonable conditions.

Doug recently used fine emery paper to polish the elements of his array and immediately ran into complaints from the golfers next to his property who claimed the glare from the aluminium was upsetting their view of the course. A new course rule was added to allow for a ball drop without penalty to avoid the glare! Did you know VK5LP is less than 200 metres from a golf course but I don't have such a large array!

## General and Closure

This month there is a lot of news from overseas, particularly Europe, and there will be again next month. I consider it more valuable at the moment to tell readers what is still around to be worked rather than reporting VK contacts to countries already worked, although VK reports are always welcome. Because of their locations, G4UPS and GJ4ICD have already worked hundreds of stations, and are now prepared to do more listening on six metres and report what new stations may be appearing in the future, and for this we should thank them.

Two thoughts for the month: "I don't want

everyone to like me; I should think less of myself if some people did" and "You can tell more about a person by what he says about others than you can by what others say about him".

73 FROM THE VOICE BY THE LAKE

## 50-54 MHz DX Standings

DXCC countries based on information received up to 20 December 1991. Crossband totals are those not duplicated by two-way contacts. A callsign cannot be displaced from its existing position except by another with a higher confirmed number.

Column 1: 50/52MHz two-way confirmed contacts

Column 2: 50/52MHz two-way claimed as worked but not confirmed

Column 3: Crossband 50/52MHz to 28MHz confirmed

Column 4: Crossband 50/52MHz to 28MHz worked

Column 5: Countries heard on 50/52MHz

Callsign	1	2	3	4	5
VK4ZJB	84	86			4
VK30T	78	81			
VK4BRG	78	82			
VK20F	67	74			
VK4ALM	65	67			
VK2BA	62	63		4	
VK4ZAL	58	64			
VK8ZLX	45	60		1	
VK3AMK	45	47			
VK8BG	42	42			13
VK6HK	41	42			4
VK5RO	39	48		3	
VK3AWY	34	36			9
VK5LP	32	33			
VK3NM	31	34			
VK3AUI	31	31			
VK6RO	31	32		1	12
VK2DDG	25	26		2	13
VK4KHZ	23	34			
VK3XQ	23	25			2
VK6PA	23	43			
VK4TL	22	23			
VK2KAY	21	23			
VK2BNN	20	21			
VK9LG	20	20			
VK4BJE	19	25			
VK4KAA	19	20			
VK7JG	18	20			2
VK3TU	17	19			
VK2ZRU	16	19			4
VK4ZSH	16	16			
VK9LE	14	14			
VK6OX	10	10			1
VK5KL	06	11		1	16

Overseas			
JA2TTO	48	48	6
YJ8RG	25	25	

The next list is planned for the August 1992 issue. Copy, additions or alterations to me by 15 June, please.

As in the past, where I believe a situation determines, I reserve the right to seek confirmation of any claimed QSLs. In the meantime, I thank those contributors who continue to support their claims with photocopies of QSLs or have them certified by other amateurs. It helps!

ar

## FTAC NOTES

JOHN MARTIN VK3ZJC FTAC CHAIRMAN

### Data Base

This issue contains an updated version of the beacon and repeater data base. Most of the changes since the list was last published in the Call Book have been to the VK2 and VK4 lists. I would be grateful if all beacon and repeater licensees could check the information in this issue and notify any changes or corrections to me as soon as possible. Please send details to FTAC, PO Box 300, Caulfield South, Vic 3162. Alternatively, any information can be sent by packet to VK3ZJC@VK3BBS.

### Channel 5A Raises its Second Ugly Head

I have recently noticed strong QRM on the lower end of the 2m band. This is due to an ABC TV translator 100km away changing

over to stereo sound. The second audio sub-carrier is on 143.990MHz, and with 50kHz deviation it extends well into the 2m band.

This situation will become more serious as all ABC stations change over to stereo, and it will be particularly severe in areas such as Newcastle. I believe the 5A station there has a 25kHz positive offset, therefore the second audio carrier is on 144.015MHz.

There will also be a parallel situation on six metres, with Channel 0 stations radiating signals within our exclusive 52-54MHz allocation.

I would appreciate any information on TV stereo interference from readers. Amateurs living in Channel 5 areas may also be able to advise whether their local TV stations are radiating interference in the 108MHz aircraft band.

ar

## ALARA

JENNY ADAMS VK3MDR

*Belated New Year's greetings to all. Somehow, in the Christmas season, I missed the deadline (now they are written on the calendar). Welcome to new members Maxie DJ4YL, Pixie K2KPC, Irene Wilson, Vicki VE7DKS, and rejoining by Joy VK4JOY.*

*Start saving, as we now have a date for the ALARAMEET. It is to be on 2-3 October 1993, and will be held in Castlemaine, Victoria. From Jenny VK5ANW:*

### Stop-Off in New Zealand

On the way back to Australia from our UK/

USA trip, my daughter, Wendy, and I had a six-hour stop-over in Auckland between flights. I had earlier suggested that perhaps some of the New Zealand YLs might like to come out and meet us, but had been put off by someone who told me "it would be too hard getting in and out through Customs". So, you can imagine my surprise when, at about 7.30am on Thursday 1 October, I was paged and told to pick up a telephone. The voice at the other end informed me there was a lady with him with whom I had spoken on "ham radio", and the next moment I was talking



L to R: Cecilia ZL1ALK, Jenny VK5ANW, and Alma ZL1WA at Auckland Airport on 3 October 1991.

with Alma ZL1WA. Alma said that Celia ZL1ALK was also on her way so, at that point, I decided perhaps I had better make the effort and find out how to get through Customs. With the help of several very nice officials we were soon face to face with Alma and Celia.

After a cup of coffee, Celia presented me with a WARO teaspoon, before having to head off to work. Alma then suggested that as we still had three and a half hours to go, we might like to take a drive around Auckland's suburbs to break the monotony of sitting in the airport. To this we readily agreed, and were soon enjoying some of their magnificent views. All too soon we were heading back to the airport, where Alma gave Wendy and me each a calendar with views of NZ, and a map of Auckland so we could see where we had been. I would like to convey my thanks to Alma and Celia for getting up at that unearthly hour and giving us a pleasant and unexpected end to our wonderful trip.

*Marie VK5BMT, our president, enjoyed her wandering around Australia, and for the records a few more faces to put to call signs with whom you may have made contact.*

*The 16th Australian Scout Jamboree held in Ballarat has just finished. My husband Philip VK3JNI worked in Supply & Transport, and it was terrific to be able to talk to him*



*L to R: Mavis VK3BIR, Maria VK5BMT and Coral VK8KCH pictured at Hibiscus Shopping Centre, Darwin, on 4 September 1991.*

*on 80 metres most evenings. Yet another great reason for being an amateur radio operator. I don't as yet have a report on the Jamboree amateur station VK3SBJ.*

*Till next month, with more on the Jamboree.*

33/73  
ar

## AMSAT

**BILL MAGNUSSON VK3JT - 359 WILLIAMSTOWN RD YARRAVILLE 3013**  
**PACKET VK3JT @ VK3BBS**

### National Co-ordinator

Graham Ratcliff VK5AGR

PACKET VK5AGR @ VK5WI Please take

note of the AMSAT information nets:

AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.

AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

**AMSAT Australia Newsletter and Computer Software:**

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows: AMSAT Australia, GPO Box 2141, Adelaide 5001

The newsletter provides up-to-date infor-

mation on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

### AO-10 Anniversary

Veteran amateur radio spacecraft Oscar-10 was launched in June 1983. Despite a lot of drama it's still going strong. So, what's the anniversary? Read on. Known as phase 3B during design and construction, it followed the disastrous launch of phase 3A which ended upon the sea-bed taking a lot of broken hearts and dreams with it. Fortunately those in charge, being made of stern stuff, saw to it that 3B (Oscar-10) went ahead and the launch was successful. The whole amateur radio satellite community breathed a sigh of relief. Oscar-10 had a design life of about five years. It was a wonderful device. I can remember working it near apogee, 38000km away with only 100 milli-watts of uplink power into a 20-turn helix on the 70cm band! It became apparent soon after launch, however, that the main memory chip was gradually being corrupted by radiation. Due to a problem during final positioning its orbit wasn't ideal and it was spending more time than was intended in and around the Van Allen belt. As time went on,

less and less memory was available to the control stations, and by December 1986 the spacecraft was virtually out of control. No transponder schedule could be implemented, and control stations could only sometimes command the mode B transponder on and off. But that was over five years ago. No-one suspected that Oscar-10 would still be operating in 1992, but it is, and the fifth anniversary of that event is well worth celebrating. The mode B transponder switches itself on and off as power becomes available. Twice a year, the sun angles are favourable and the old veteran springs into life for three months or so. James Miller's extrapolation of the last known attitude allows us to have a pretty good idea of squint angles and, from observations by Graham VK5AGR, it appears that at most times the omni-directional antennas are in operation. Excellent contacts can still be made via Oscar-10; not half bad from a spacecraft that's been out of control for five years.

### AO-21 Problems

The "user pays" principle strikes again:

Oscar-21/RS-14/Radio-M1/Rudak-2 (let's just call it AO-21), a joint project of Amsat-DL and Amsat-U, was launched on 29 January 1991 from Plesetzsk, USSR. It is a "sub-tenant" (I guess that means that it's bolted on) to a GEOS class Russian geological and scientific research satellite which is called "INFORMATOR-1". Until recently all Russian military and civilian satellites were controlled from a main command centre under military

control. Now it seems the centre has been converted into a civilian organisation, and it has to be — wait for it — cost efficient. This means that control has to be paid for by the user. AO-21 has been placed in DUTY mode with only a CW beacon operating on 145.948MHz. The controllers are refusing to command any part of INFORMATOR-1 until the user pays, and that includes AO-21. Amsat-U an Amsat-DL are in discussion with authorities to resolve this problem. Stay tuned and keep your fingers crossed!

## UoSAT-2 (UO-11) Report

UO-11 bulletins have returned. It was carrying a Christmas greetings message in December. Several times recently it has been switched to full-time telemetry frames. Using a program like DTLM and a G3RUH demodulator, it's fascinating to watch the engineering data being updated in real time as the satellite goes over your QTH. You can tell exactly when it makes the transition from daylight to darkness or vice-versa, as it often does in VK. Now there's a very real check of your tracking software and hardware. You can confirm the tumble rate given in the diary data or watch the 60 analogue and 96 digital channels being constantly read and updated on the telemetry stream. Since there are a number of formats and you're never quite sure just what type of telemetry is going to come over, it's wise to record the audio signal whilst decoding for playing back several times through the demodulator after the pass. Signals from UO-11 are strong enough to receive on a non-directional antenna if you have a quiet location. Beacons are on 145.825MHz, 435.025MHz and 2401.5MHz. On one occasion during our January mountaintop expedition the telemetry indicated that all three

beacons were commanded on at the same time. This is unusual. The 435MHz signal was very strong. We had no gear for listening on 2.4GHz, so I can't comment on signal strength etc. Can anyone help?

## Siderial Times

Some early tracking programs, particularly those based on Dr Tom Clark's "Basic orbits", require a variable called GMST or GST or G2 to be updated each year. This is the Greenwich Mean Siderial Time calculation. It is used to compute Earth-based co-ordinates

from right ascension figures. The value of GST for 1992, Jan 0, 00:00 UTC is 0.27477847. I can give you a listing of a basic program to calculate these figures if you contact me.

The next few years are as follows:  
 1993GMST = 0.276853278  
 1994GMST = 0.276190177  
 1995GMST = 0.275527075

It's a figure derived from the difference between the Earth's rotation rate in respect to the Sun and the background starfield. Don't be alarmed! We aren't slowing down that much. The figure oscillates around a mean over a period of several years. Our real slow-down rate is very much less than that.

## Satellite Activity for October/November 1991

### 1. Launches

The following launching announcements have been received:

Intl No	Satellite	Date	Launch Nation	Period min	Apog km	Prg km	Inc deg
1991							
075A	INTELSAT VI F-1	Oct 29	USA	716.1	35738	453	4.4
076A	USA-72	Nov 08	USA				
077A	COSMOS 2165	Nov 12	USSR	113.9	1436	1396	82.6
077B	COSMOS 2166	Nov 12	USSR	114.0	1440	1408	82.6
077C	COSMOS 2167	Nov 12	USSR	113.9	1437	1402	82.6
077D	COSMOS 2168	Nov 12	USSR	113.8	1434	1392	82.6
077E	COSMOS 2169	Nov 12	USSR	113.8	1432	1385	82.6
077F	COSMOS 2170	Nov 12	USSR	113.8	1432	1385	82.6
078A	COSMOS 2171	Nov 20	USSR				
079A	COSMOS 2172	Nov 22	USSR				
080A	STS-44	Nov 24	USA				

### 2. Returns

During the period 57 objects decayed, including the following satellites:

1972-011A	COSMOS 476	Oct 25
1987-012A	ASTRO-C	Nov 01
1991-047B	LOSAT-X	Nov 15
1991-066A	COSMOS 2156	Nov 17

BOB ARNOLD VK3ZBB  
ar

## HOW'S DX

STEPHEN PALL VK2PS - PO Box 93, DURAL 2158

In the "good old days", say 30 years ago, DXing was a pleasure. One chased a few rare ones here and there, as individual nets, lists and DXpeditions were rare. Today, DXing is still a pleasure, but it is really hard work. Both the DX station and the ever-increasing number of DXers are under pressure and strain. The magical number of DXCC countries — 323 at present — chased by the many thousands of hopefuls and their sometimes undisciplined behaviour, sometimes questions the value of these contacts. Today, expeditions go to the remotest and most hazardous places on Earth in the name of "DXing". Transport, equipment, power, fuel, food, even weapons (for "protection") etc have to be organised. These expeditions cost tens of thousands of dollars and sometimes even hundreds of thousands of dollars. Voluntary donations and contributions, in both equipment and cash,

are eagerly sought. QSLing must be direct, with appropriate return postage and the occasional "green" stamp. However, there is no guarantee that one gets a return card on every occasion, as many DXers can attest. One can be considered to be lucky if his or her return rate reaches 80 percent.

Why all this rush? All this eagerness? All this waiting? Why all the bleary eyes of the sleepless nights? Just to get a piece of printed paper which says that we worked 300 DX countries, or our name will now appear on an honour roll? To whom do we want to prove this fact? To ourselves? Most unlikely! One should know how many DX countries one has worked and, after all, there are the cards to prove it! To prove it to others: friends and other DXers; to the world? To make others jealous?

It is a sorry state of affairs and sign of changing times that today human endeavour

and striving for excellence are not recognised, except when one has a piece of paper to prove it!

## Albania — ZA

I was about to forward the material for this issue to the editor, when mail brought a letter which throws some new light on the activity of the ZA1HA station. The six-page letter, which is actually a description of their trip and experiences in Albania, was written by Dodi HA6NF, one of the operators of the station ZA1HA. Space does not permit publication of the letter in full, but here are a few facts in contrast to questionable rumours.

The ZA1HA operation was the result of a joint written declaration of co-operation and a binding contract between the Hungarian Amateur Radio Society (MRASZ) and the Albanian Radio Amateur Society. This document was signed and ratified back in October 1990, after lengthy negotiations which began almost a year previously. In this document, the MRASZ accepted responsibility to build a complete amateur radio station in ZA land

and to train Albanian operators on the site. In return, the Albanians agreed to facilitate the operation of the HA DXpedition in ZA. It is now history that the international expedition ZA1A started the Albanian operation one week before the Hungarians. (See AR March, Nov and DEC 1991 issues).

The ZA1HA group was allocated a QTH by the Albanian officials, following a discussion with Mr Agim Zeka, Assistant Minister of Culture, Youth and Sport in Tirana, who has been working on this project since 1990, and Mr Myftar Fana, President of the Albanian Radio Amateur Society. According to HA6NF, the ZA licences which were issued to the Hungarians by the Ministry of Culture, Youth and Sport were the first original licences issued to foreign amateurs — the licences issued by the Albanian PTT came later.

According to other sources, independent of HA6NF, the Albanian Council of Ministers has now taken away the right from the Albanian PTT to issue amateur licences and ordered the army not to hinder amateur activities. Again others stress that, according to present Albanian law, the Ministry of Culture, Youth and Sport is the only authority to issue amateur licences.

The ZA1HA team kept its part of the bargain. They trained operators and left behind a complete working amateur radio club station, which is still in use and which had its licence issued by the same authority as ZA1HA.

HA6NF concludes his letter with the following: "You should know and understand and please tell everybody that Albania is *not the place* where you could operate a radio transmitting station *without a licence!*"

There is now a big question mark hanging in the air: Why has the DXCC Board not yet approved the various Hungarian ZA operations? The activity took place in September/October last year, and we are writing now in February 1992. All the necessary documentation is with the DXCC Committee awaiting a decision. When will that be forthcoming?

## Sydney City Sesquicentenary — VI150SYD

This is a special event station operated on behalf of the VK2 Division of the WIA during 1992. It will show up on various frequencies at various times, including "nets".

On 20 July 1842 the town of Sydney was elevated from the status of a town — held since 1788 — to that of a city. Throughout 1992, Sydney will celebrate the 150th anniversary of this important milestone in the history of the city with various activities.

The VK2 Division of the WIA, with headquarters in the City of Parramatta, which is part of the greater Sydney metropolis, will participate in these celebrations by activating the special event station: VI150SYD.

The preferred route for all QSL cards will be by direct mail to: WIA Special Event Sta-



*Some of the operators of ZA1HA. L to R: Otto HAIAD, Janos HA8UB, Gyuri Hagnd, Geza HA4XG and Dodi HA6NF.*

tion, PO Box 1066, Parramatta, NSW 2124, Australia. VK stations should send a SASE; DX stations should include also one IRC or one "green" stamp for return postage. Those who QSL via the Bureau should send their cards to the QSL Manager: VK2WI.

## South Sandwich — VP8

The latest bulletin on this expedition (22 March to 6 April) arrived mid-December. Seven operators are already on the roll; the remaining three will be selected in the next few weeks. All of them have extensive DX, contest, Antarctic and Arctic experience. All the required paperwork was submitted and approved by the ARRL. The ship, *Abel J*, an American research and scientific vessel, is already on its way with the amateur equipment. This ship is now headed into the Antarctic. The team will leave London on 9 March and will sail for the South Sandwich group on 14 March, where it expects to land on Thule Island. There will be four complete HF stations, three linear amplifiers, nine antennas for various bands, three power generators and over 800 gallons of fuel. It is planned to operate from 160m through to 10m and possibly on six, in the SSB, CW and RTTY modes.

The total cost of the expedition is \$104,000; each operator is contributing \$5000 — the balance has to come from donations from the amateur community. If you have never contributed to such an expedition, please con-

sider doing so now. Send your donation to: Gerry Branson AA6BB, 93787 Dorsey Lane, Junction City, Oregon 97448, USA. The expedition is well aware of the needs of the VK-ZL-Pacific area amateurs, and promised to visit the various nets for this purpose (21205 and 14222). Let's give them a helping hand by digging deep into our pockets.

QSL route: CW and RTTY QSLs go to: KA6V, and SSB QSLs go to: AA6BB. Computer processing is planned, so please do not make multiple contacts on the same band and in the same mode.

## Thailand — HSOZAP

In a note received from Thailand from Lloyd W6KG and Iris W6QL, they advise about their successful operation from Bangkok, as HSOZAP. John HSOZAA was instrumental in getting the reciprocal licence for Iris and Lloyd, being the custodian of the club station HS0AC. Vikrom HS1HB, President of RAST, was also a great help. The Colvins were operating from the club station using their equipment and the club antenna systems. They made 1500 contacts with 120 countries. After attending the SEAnet convention in Chiangmai, they proceeded to Vietnam and then to Cambodia, where they started operating as XU8KG.

QSL for HSOZAP and XU8KG goes to: YASME Foundation, PO Box 2025 Castro Valley, CA 94546 USA.

## Mount Athos — SV/A

This religious community on the shores of the Aegean Sea (see AR January 1991) is recognised as a separate country for DX, and has only one officially approved resident operator: The Monk Apollo, SV2ASP/A, Monastery Dochieriou, GR 63087, Dafni, Greece. Visiting amateurs must obtain a permit from the Council of Government of the Holy Community of Mt Athos. This is rarely given. In April last year, Baldur, a well known German DXer, operated as SY/DJ6SI from Mt Athos, using his universal European CEPT licence. Ever since that operation, there has been a dispute in DX circles whether Baldur had legal permission to operate or not.

In the beginning, the DXCC Desk of the ARRL approved the activity. In August last year the acceptance of Baldur's cards was suspended pending additional information. At the end of October, the DXCC resumed the acceptance of the SY/DJ6SI cards. In November the Monk Apollo, who usually was quite active on the European DX net, became "inactive". Rumours have it that the Chief Abbot of the Holy Community has placed a "no activity" restriction on the monk until the DXCC decision is reversed. Depending from where the rumour originates, one can hear the following "news": allegedly the Greek Ministry of Transport and Telecom was reported to have said that CEPT licences are not valid on Mt Athos. Others say — and this cannot be

verified — that Baldur had permission to operate CB radio from Mt Athos for a family emergency situation; yet again others say the Monk Apollo has written a letter to an important DX Association saying he is absent from the bands “protesting” (against) the recognition of the invalid emission of DJ6SI by ARRL from Mt Athos without the permission of the Holy Community.

On 14 December Apollo made a brief appearance on the EU-DX Net and more or less repeated his protest, but did not take part in the net and stopped transmitting.

It seems the DXCC committee has a number of problems on its hands. It has to resolve the Mt Athos problem and also has to decide whether it will accept the various Hungarian operations in Albania.

However, the basic unanswered question remains: If it is so easy (or “difficult”) to obtain permission to operate from Mt Athos, why did the Greek DXers not use the opportunity in the past to do so?

## Future DX Activity

\* Jon VK4CY was operating again from his home QTH: Lamb Island from 30 December to 18 January, and hopes to operate from there around Easter, mid-winter and spring from the VK4 location. Jon at present is employed in the Sydney area and can be reached on the 2m and 70cm repeaters as VK2CCY.

\* Dwight EL2W is now active. He was heard on 18MHz. QSL to: Dwight, Radio Station ELWA, Box 192, Monrovia, Liberia, W Africa.

\* The Hungarian boys with their bus (HA5BUS) were active on CW from Tehran for five days as EP/HA5BUS. They are now proceeding to India.

\* VK0WD Wayne (VK7WD) — who is on board the supply ship *Icebird* calling at the Casey base and at Macquarie Island — is “icebound” and might not be able to operate due to lack of time. The ship is stuck in solid ice six metres thick; the weather is bad and, at the time of writing, his expected time of arrival at Macquarie is not known. (*Ship now free. Ed*)

\* Graham VK0NE is now on Casey Base in Antarctica. QSL to: VK9NS.

\* The American/Vietnam XV0 DXpedition has been called off because of licensing difficulties.

\* Toensten SM7NFB, who will be in Vietnam for two years, is active as XV7TH. QSL to: SK7AX.

## interesting QSOs and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

\* HS0ZAA-John-21004-CW-0810-Nov. QSL to: KM1R: MJ Castellano, 631 Great Hill Rd, Guildford, CT-06437, USA.

\* YA2CW - Jacky - 21014 - CW - 0545 - Nov QSL to: F2CW Jacky Calvo, Le Bois de E'ssard, F-16200, Nercillac, France.

\* JT1AA-Gan-14009-CW-1210-Dec. QSL to: Gan, Box 138, Ulan Bator 23, Mongolia.

\* CN2AQ-21039-CW-0830-Dec. QSL to: Sjoerd Quast, Route de Rabat, PK 18500, Box 40, Tangier, Morocco.

\* 7P8SZ-14030-CW-2235-Dec. QSL to: Ray, Box 333, Masero 100, Lesotho.

\* J28FO-28010-CW-1220-Oct. QSL to: F6FNU Antoine Baldeck, BP14, F-91291, Arpajon, Cedex, France.

\* 9J2SZ-21009-CW-1315-Oct. QSL to: SP8DIP Tad Pawlasek, U1 Alexandra Szymanskiiego 36, M10, 23-200 Krasnik Lubelski, Poland.

\* T20VJ-14007-CW-1323-Nov. QSL to: G4ZVJ Andy Chadwick, 3 Park Villas, Monkhouse, Cheadle, Staffs ST10 1HZ, England.

\* Z2AHS-14009-CW-0430-Nov. QSL to: Box 4119, Harare, Zimbabwe.

\* ZK2JD-John-14226-SSB-1113-Nov. QSL to: John Duncan, PO Box 37, Niue via New Zealand.

## RTTY News

As usual, Syd VK2SG has sent me quite a list of RTTY contacts going back five weeks. Here are a few interesting ones, but please note the change of format: UTC, QRG, call, mode, QSL info.

\* 1001-21087-CU3EM-Paul Borges, Box 158, Angra City, Azores.

\* 0332-14082-QX0X.

\* 1122-21083-5V7RC. QSL to: OZ1LLC.

\* 0035-14082-VP25EHF. QSL to: KA3DBN.

\* 0209-21072-TY1PS-ARQ.

\* 2141-14085-J68AS. QSL to: N9AG.

\* 0011 14085 TJ1MR QSL to F6FNU

\* 2325-21081-J37MB. QSL to: VE7YL.

\* 0618-14074-5N8AL. QSL to: DJ2VJ.

\* 1534-29089-ZD8LII. QSL to: Steve Hodgson, PO Box 2, Ascension Island, Atlantic Ocean.

Have you sent me a note about the usefulness of this section of the DX column? (See AR Jan 1992).

## From Here and There and Everywhere

\* Australia Post has presented a New Year's gift to those who use its services. Overseas air mail rates to all places in the Pacific Basin and nearby Asia have been increased. Ask for details from your friendly neighbourhood post office.

\* Peter VE8PW (AR Nov '91) advised on his Christmas card that he will be in VE3 for a few months before going up north again to Zone 2.

\* Unconfirmed rumours have it that cards for the MV Island (4J1FS) are being processed and will be posted soon.

\* Jack T30JH, after a short visit to the

Federates States of Micronesia, callsign used: V63JH, returned to Tarawa. Whilst in Ponape, he made about 1000 QSOs, mostly six metres, the majority of them JAS.

\* Jeane Claude FT4CW of Crozet has closed his station and returned to France. The new team at Crozet does not have an amateur operator.

\* The powerful religious broadcaster HCJB, near Quito Ecuador, celebrated its 60th anniversary on Christmas Day 1991. Beside the religious side of things, the station also features DX programs, news and cultural information and even has a weekly radio amateur segment on its program. Among its broadcast personnel there are a number of amateurs. It is not well known that the cubical quad so widely used by radio amateurs was invented by Clarence Moore, an HCJB engineer, in 1939 to overcome the problems of broadcasting in rarified air at 9300 feet in the Andes. The station's 12 high-powered transmitters were reduced to a mere 1.5kW on 6 December, from 2100 UTC to 0300 UTC on 8 December, to allow the organisation to celebrate this occasion on the amateur bands, activating the special call HC60JB. If you were lucky enough to work them, send your card with return postage to: HCJB, Casilla 17-01-00691 Quito, Ecuador, South America.

\* The documentation for Romeo's XY0RR DXpedition has been approved by the DXCC Desk.

\* The former “East” German “Y” prefixes will be used until the end of 1992.

\* Jack T30JH was probably the last foreign operator who was able to use the C21NI club-station facilities on 3 November last. Jack advises that the activity from C21NI has been suspended and might not resume. The main reason is the abuse of the QSL route by many visiting foreign operators, the majority of whom never left a photocopy of their logbook behind as stipulated on their licence permits. This caused a big problem for the secretary of the club station, who is desperately trying to sort out the multitude of thousands of cards which arrived and are still arriving at the island.

The Nauruan Government will change the telecommunication laws in 1992, and will consider the proposal that visiting amateurs should be issued with a licence starting with the C20 prefix, and the licence will be valid only during their stay on the island. The licence fee for visitors will reflect a more modern and realistic approach in money terms.

\* Dodi HA6NF advised that 90 percent of the direct QSL cards received by HA6KNB for the ZA1HA operation were posted before the end of December.

\* Bill Vogel, formerly VK5NVW, advises

that he has acquired a full call: VK5IE. Bill is the contact person for the "CQ" Awards in Australia. Bill's new call sign will not be in the callbooks for a while. Please use his address as shown in the old callbooks (1979-1992) under his old call sign of VK5NVW.

## QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager and its call;

OP=operator and/or its call.

Bureau cards received: SV1AEU/5 (2Y FM OP), AP2HA (2Y FM OP), ZC4ESB (1Y 11M FM OP), A41JV (2Y FM OP), VP5B (10M FM OP), JT1BH (9Y FM OP), PJ8T (1Y 11M FM MGR K4PI), FO4NS (8M FM OP FD1PLR), HC2HVE (5M FM OP), OF4JK (4Y FM OP).

Direct cards received: ZA1A (4W FM MGR NCDXF), V63JH (7W FM OP), ZA1HA (14DAYS FM OP:HA6NF), VI2RC (3DAYS FM OP VK2DEJ).

## Thank You

Thank you to all my helpers, especially to: VK2DID, VK2KFU, VK2SG, VK4CY, VK4DA, VK4OH, VK5QW, VK5WO, VK6NE, VK8KV, VK9NS, HA6NF, HS0ZAP, T30JH, VE8PV, ZL2VS, and the following publications: *QRZ DX*, *The DX Bulletin* and the *DX News Sheet*.

Good DX and 73

ar

## EDUCATION NOTES

**BRENDA EDMONDS VK3KT - PO Box 445 BLACKBURN 3130.**

Since I did not manage to have any Education Notes in the January issue (sorry, but a holiday trip intervened) I will now wish all readers all the best for 1992, and look forward to hearing of many more successful candidates at both the initial and the upgrading attempts.

At this time of the year I expect many clubs and groups are planning or starting courses to help new recruits enter the hobby. I have been interested to hear from the WIA Exam Service that most of the applicants for accreditation as examiners are coming as nominations from radio clubs or societies. This is a very pleasing indication of the strength and dedication of the clubs.

However, it does not give any indication of the clubs which are providing classes or other

assistance to prepare students for the examinations.

I would like to appeal once again to all those who are arranging any sort of class, course, discussion group, personal tutoring or other assistance to inform their respective Divisions of this fact. Give the Division either the full information of what is arranged, or at least a contact name and address for some member who is prepared to explain what is available.

At the Federal level, all those who enquire about the Amateur Service or the WIA receive a letter and leaflet which give basic information and then direct the enquirer to the appropriate Division. It is most important that the Divisions should be able to follow up by providing information about the location of clubs

and the availability of assistance to those who have no contacts of their own.

I have often thought it would also be useful for each Division to have records of members who would be prepared to "sponsor" new recruits by allowing them to visit the shack, talk about amateur radio and ask questions as they try to learn. It would be especially helpful to potential amateurs in areas without local active clubs, or beyond the reach of organised classes. As in most aspects of amateur radio, the urban operators have better access to facilities provided by the Divisions and clubs.

There are many possible candidates, in both remote areas and more populous regions, whose interest is being damped by the inability to get information and help when they are needed. In many cases the help is there, but that is not much use if the candidates cannot find out about it. Please publicise what you have to offer. 73 Brenda

ar

## SPOTLIGHT ON SWLING

**ROBIN L HARWOOD VK7RH - 52 CONNAUGHT CRES, WEST LAUNCESTON 7250**

Events in Europe and the former Soviet Union continue to dominate on shortwave. We are already in the second month, and the continuing inter-communal conflict in the Balkan regions shows no signs of letting up. I believe that monitors in central Europe have been able to follow developments on HF and VHF. At this stage, it is hard to predict what is going to happen, but clearly radio will be involved.

As well, the USSR ceased to exist on 31 December 1991. It was replaced by the Commonwealth of Independent States, a loose confederation of sovereign republics. The largest of these is Russia, then Kazakhstan and Ukraine follow in size. It is anticipated that each former Soviet republic will quickly develop its own external radio service. The future of Radio Moscow is still uncertain, as I write this in early January. The Russian Republic will probably absorb this operation, and senders which formerly carried this station, but happen to be located in other republics, could carry different programming in future. I believe also that Cuba has ceased to relay Radio Moscow programming to North

America, although Radio Havana programs are still being broadcast via European sites on HF.

Since the formation of the CIS, private and independent broadcasters have dramatically increased, especially in Russia and the Ukraine. Some are even leasing former Soviet HF senders, yet many are simply hiring air time from the existing domestic networks.

Deutsche Welle in Cologne, Germany, commenced broadcasting via relays in Siberia, late last year. Signals have been good here. The Japanese service is heard on 7380 at 1100 to 1150 UTC. As well, the German service is on 7340 between 1000 and 1400 UTC. Beijing also utilises European sites to relay its programs. I expect these will con-

tinue, although the co-operative arrangements were made with Soviet authorities.

However, I expect that Russian sites will be mainly employed. Other republics, such as the Ukraine and the Central Asian republics could be sensitive about relaying foreign broadcasters.

I also expect that we could have a lot of new prefixes on amateur radio during the next 12 months. If the six republics making up Yugoslavia become independent nations, there will be six new countries on the DXCC. The former Soviet republics did count as separate DXCC listings, but they presumably will want to remove signs of the former Soviet call sign structure. Also I have noticed that Japan has seemingly exhausted its J suffixes and has commenced using alphanumeric call signs from its ITU allocations.

Well, that is all for this month. Until next time, the very best of listening and 73.

ar

**Help stamp out stolen equipment - always include the serial number of your equipment in your Hamad**

# POUNDING BRASS

GILBERT GRIFFITH VK3CQ - 7 CHURCH ST BRIGHT 3741

If you think Morse Code is just something nasty that has been imposed upon amateurs by some mysterious "them" in order to make the acquisition of a callsign more difficult, you are probably missing out on more than half the fun that can be gained from our hobby. Morse may be commercially obsolete at present, but simple economics will ensure that the code remains a useful means of communication. This aside from the fact that the code is probably still the most reliable form of long-distance communication, makes the knowledge of the code and its use so important for amateurs. It is common knowledge amongst Morsiacs that it takes more skill to operate CW than SSB (for example). This means, unfortunately, that it is more difficult to get started than yakking into a microphone, or typing into a computer. Still, "mastering the art is 10 times easier than learning to talk, and you did that when you were two years old" (ARRL Handbook).

Let's assume you have been taking notice of the past two month's articles and have had time to practise, and now it can be said you know the code. As everyone who has ever sat an exam will know, this is not really enough "knowledge" to make passing the examina-

tions easy. So, what needs to be done before you are sure you can pass?

Remember, the exam is nothing like what is experienced 'on-air', but is still run as if one were applying for a position as a PMG telegraphist. This means that being able to copy other amateurs' conversations is not necessarily good enough. In my opinion, unless you are going for the new United Kingdom Novice test (which uses typical QSO lingo), you need to be able to copy plain English language, without interference or noise, at 12wpm with no errors, if you want to pass 10wpm with ease. You don't need a lot of experience of operating on-air. Some people with very bad nerves will need a bit more leeway, but 15wpm should be the maximum you let yourself become accustomed to, or you will find the test is too slow and you may make simple mistakes about the ends of words. I am sure the best way to achieve this is by using a computer, followed by cassette tapes, and finally WIA Slow Morse broadcasts. All that is really required is motivation and practice. If you have a problem with motivating yourself, consider the efforts of those who have gone before; people with no interest in amateur radio have, in wartime, learned the code in

days, thanks to another motivating force, and I'm sure this would apply to many people reading this column.

Possibly this is why many people are becoming attracted to QRP (low power) and home-brewing, because once we know what is possible with (say) one watt CWDX, it is a strong motivation or challenge to achieve the goal oneself, and there are many who enjoy building a rig from the meanest junk box available, and who can hope to realise a goal of 100 countries using that rig. I know that, prior to my becoming involved in amateur radio, I would have thought such a feat impossible, but now I know I could do it too, if I put in the required effort. This means you could too!

I wonder if it could be done without using Morse code?

I wonder what the absolute minimum cost would be?

I wonder in how short a time could one do it?

Following receipt of a suggestion by the U-QRP Club (USSR), the G-QRP Club has received unanimous support from major QRP clubs around the world for adoption of the new operating signal, "72", meaning "wishing you good QRP", to be used in contacts between low power stations. (MM #21).

72 Gil VK3CQ  
ar

# REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS - 21 WATERLOO CRS, LESMURDIE 6076

## Linking Interface

There may be a few repeater clubs out there contemplating how to link their repeater to another repeater. Perhaps there have already been discussions on how to link your repeater to another. A few of you may have discovered it is not as easy as was perhaps first thought.

This month's Repeater Link contains a simple block diagram of the basic logic that may be of interest to you. It is all hardware based, as I have no experience on micro-control of repeaters.

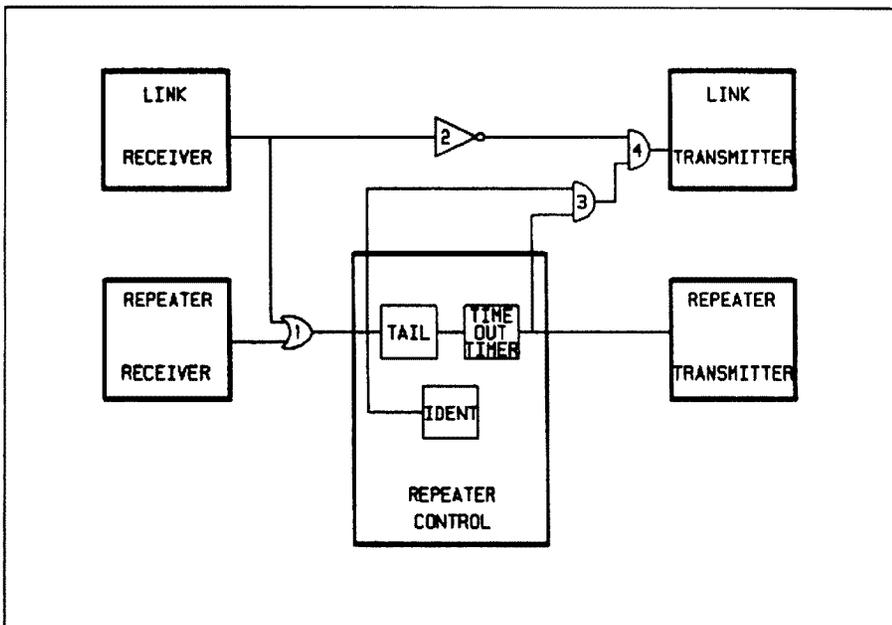
What I set out to do was take an existing repeater and find the simplest way to interface it with a simplex link. All repeaters that are hardware based have a similarity about them. There is a receiver connected to a control board that connects to a transmitter. These are the lower three boxes in the diagram: repeater receiver, repeater control and repeater transmitter. What is shown in this diagram is the switching logic only — no audio paths are shown.

The mute control located in the repeater receiver activates the control board logic; that sets in operation the carrier tail and the time-

out timers. The output of the control board then turns the repeater transmitter on and off.

The logic symbols as shown 1 to 4 have all been added with the main intention of minimising the amount of change to the existing repeater. The way the repeater now operates is as follows:

All logic levels are such that high is operate and low is non-operate. For example, when the mute is open (signal received) the output



from the mute is high.

OR Gate 1 commons the link and repeater mute outputs so that either receiver activates the control board. There is no interaction between the mutes, the OR gate takes care of that. The output of the OR gate feeds the tail and time-out timers. As can be seen, the repeater control board does double duty now as the time-out (and, by the way, the CW ident as well) timer is used for the repeater and the link. The logic feed to the link transmitter is via gates 3 and 4. AND gate 3 requires the mute of either receiver to be open and the time-out timer not to have timed out. This is the normal operation when an incoming signal is received. Note that one of the inputs to AND gate 3 is before the tail-timer. This means there will be no carrier tail on the link transmitter, a desirable situation for smother operation (you do not hear two mute tails in series when linked).

AND gate 4 prevents the link transmitter transmitting when the link receiver mute opens. This would happen because the control board does not know which mute is open, and a logic signal is sent to the link transmitter to turn on. This in turn turns the link receiver off, and the whole link system toggles back and forth.

Inverter 2 (to maintain our high logic on) and the AND gate 2 prevent the link toggling back and forth. The link mute must be low (no incoming link signal) to feed a high via inverter 2 to AND gate 4 for the link transmitter to turn on.

This logic diagram is the concept only, and would have to be adapted to suit your repeater. However, this design has been built and is running under test at the moment. What it does show is that minimal changes to the existing repeater are required. The repeater's control board does all the timing. The

final design also uses the repeater ident control to place identification on the link transmitter as well.

A future article in Repeater Link will present the audio side of things. This also uses the audio processing in the repeater to minimise the extra circuitry in the link transceiver.

A total of seven connections between the repeater and the link are used in the final design. Features like CTCSS encode on the repeater are fed to the link. No extra CTCSS encoder is needed. The DTMF decoder in the repeater is also shared by the link system, so that DTMF control over the linked system can be achieved via the link or the repeater.

The overall design is too complex to present in all its detail, but a few of the design concepts may help. You may be able to improve and adapt these ideas.

If you have any ideas on linking logic that you would like to share, send them to me. ar

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## INTRUDER WATCH

GORDON LOVEDAY VK4KAL - AVIEMORE, RUBYVALE 4702

Date	Time Z	Freq	ID	Mode	Traffic & Comments
221091	1105+	7002.5	V	A1A	Beacon (16)
dly	0850+	7008.5	MNR	F1B	Moscow Nav R/250Hz 3rd cypher (21)
121191	1015	7009	—	2xF1B	Not F7B, also 7012, 250Hz shift
221091	mni	7011.5	—	F1B	250Hz shift (4)
0211Dly	mni	7048/9	UHF3	F7B	Also F1CW, 5 fig blocks (16)
Dly	mnl	7065	—	Mxd	A2, F1B, F1CW, R7B, mcw in 5 fig blocks
131191	0956+	14010	—	J3E/U	B/C Male voices, Indonesian
do	1013	14007	—	J3E/U	Same as above (3)
261191	0945	14035	—	J3E/U	B/C stn M&F Indonesian language (3)
111191	0912	14037	—	A3E	B/C with male voices
Dly	mni	14046+	—	Mxd	Rad teleph + NON & F1B
This frequency varies from 14044.2 to 14046.84					
Dly	mni	14058	—	AC3	Also heard on 14033/4 (37)
291191	1036	14058	—	NON	Timing pulse — 84 per min (10)
151191	0946	14067.3	—	AC3	Fax & carrier pulse/backwave
081191	0935	14068	VBT	A1A	Wrk VPO, 5ltr code
Dly	mni	14070	VRQ	A1A	+ VPO, VBX, Viet text (17)
Dly	mni	14075	VRQ	A1A	Also on 14095, 14100 & 14203 (50)
Dly	mni	14095	VPC	A1A	+RG777, NBC, all Viet news agency (27)
081191	1130+	14123.8	RBPP	A1A	Clg RES3, UOJ51, RCJC
081191	0940	14126	—	F1B	1000hz shift (17)
301091	0525	14140	ULY4	A1A	Fxd naval stn Alexandrovsk (7)
031191	0920+	14177	UID80	F1A	UZZ44 de UID80 ZBR K (7)
Dly	1000+	14210+	P7A	A1A	VRQ clone 14215, 14225 also (28)
041191	1100	14214	VVH	F1B	500Hz shift (4)
221091	mni	14217.5	UMS	F1B	Also 14211.5 250Hz (49)
Dly	0932+	14250	—	NON	Steady carrier only (10)
151191	1205	18075	—	A3E	Commercial B/C stn, no other info
0211+	1130+	18080	Rad Moscow	A3E	B/C stn ID at 1300Hz (8)
041191	1033	18118	BQG	A1A	CQ de BQG, repeat many times
Dly	mni	21031.5	MNR/ums	Mxd	Tfc to UMS 250Hz (31)
281091	0640	21031.5	UMS	F1B	Urgent typhoon active near Manila
01 1191	1320/50	21080	UMS	J3E	Com Hotel net/3 stns/tmf supply list
Not clear where this transm originated, not stated if hrd, maybe once only, check.					
241191	0446	21242	—	F3	TV B/C V wide signal
291091+	0400+	21250	—	R7B	4kHz wide
Dly	mni	21283.5	UMS (MNR)	Mxd	Tfc to UUMS, typhoon warning, F1B (33)
Dly	0500/10	21322	P7A	A1A	VRQ clone, mnay P stns active (27)
mni	mni	21347.5	UMS (MNR)	Mxd	F1B 250Hz/AC3 120rpm Wx/HSR Nav (8)
281091	0920+	21355.5	MNR	F1B	Popular frequency for this stn for yrs (6)

Many "hit and run" stations on 21342.5, 21344.5, 21348.5 (all USSR with .5 ID) mixed modes used. Also a "numbers" station again heard on 21350 on 231091 at 1135ZA3E. Female, flawless English, each number group repeated twice; uses this frequency often.

My thanks this month to VKs 2PS, 4BG, 4AKX, 4BHJ, 4BTW, 4BXC, 4CAS, 4EKA, 5TL, 6RO and VK6XW.

Many nuisance stations are being noted on 28-29MHz, but insufficient info is being given. Mostly PON stations, commercial broadcasters, but no information to make a positive ID. Keep with them. ar

# KNUTSHELL KNOWLEDGE

GRAHAM THORNTON VK3IY

*A brief overview of what other magazines have to say. The information given below has been supplied to the WIA free of charge by Thornton Publishing. Your divisional library may have copies of the references quoted.*

## Amplifiers

### Linear RF

**A Simple 10-Meter Sideband Amplifier.** Bruce Auld NZ5G, 73 issue #374 Nov 1991 pp 52, 54, 56. il ccts, cmp, diags and pcb. A circuit is given which provides 10W PEP output for 1.25W drive. The power device is a single 2SC1969 transistor.

### Power

**RF Power Amplifiers and the Conjugate Match.** Warren Bruene W5OLY, QST vol LXXV No 11 Nov 1991 pp 31-32. il ccts and graphs. A report on a quite elaborate experiment is given. Tests on three correctly adjusted output stages shows that the resistance looking back into the transmitter is not equal to the load resistance seen by the transmission line.

## Antennas

### Mechanical

**Strengthening the Cushcraft 40-2CD.** Dave Leeson W6QHS, QST vol LXXV No 11 Nov 1991 pp 36 - 42. il diags and photo. The resistance to wind and ice load is increased by insertion of tubing inside the elements to improve the section modulus. Strengthening modifications to the boom are also described.

### Miscellaneous

**'My Feedline Tunes My Antenna'** Byron Goodman W1DX, QST vol LXXV No 11 Nov 1991 pp 33 - 35. il diags. An elementary dissertation is given on the true meaning of characteristic impedance of a transmission line and its SWR. Tuned transmission lines are distinguished from non-resonant lines used with resonant antennas.

### Multiband

**The Heli-Hat Antenna.** J Frank Brumbaugh KB4ZGC, 73 issue #374 Nov 1991 pp 32, 35. A 15 turn helix, 18" high, is capped by a circular disk 18" in diameter. A series variable capacitor combines with an adjustable tap on the helix to form an L network tuner. The antenna described is usable from 10 to 17m. A single quarter wave radial is required for each band.

**Challenger DX-VI.** Peter Hart G3SJJ, RadCom vol 67 No 12 Dec 1991 pp 51 - 53. il diags and photos. An evaluation is given of this GAP Antenna Products' multiband vertical antenna; performance is compared to a Butternut HF6V-X vertical antenna.

**The Solarcon A-99 Antenna.** Bill Clarke

**WA4BLC, 73 issue #374 Nov 1991 p 36.** il diag. A review is given of this commercial vertical antenna, which works on 10 to 17m.

## Audio

**Voice ID on a Chip.** Bill Brown WB8ELK, 73 issue #374 Nov 1991 pp 11-12, 61. il cct, cmp and pcb. A device is presented which allows two voice messages to be recorded and replayed at will. 8 seconds are provided for each message. The circuit is based on ISD1016 analogue storage IC. The electrically erasable storage is non-volatile.

## Computers

### Accessories

**Computer Interface.** Greg Smith, EA vol 53 No 11 Nov 1991 p 72. il cct. An I/O data device which uses the computer parallel port to communicate.

### Miscellaneous

**Computer Remote Control of an Amateur Station.** Larry Amodeo W2AX and Jack L Schultz W2GGE, QST vol LXXV No 11 Nov 1991 pp 25 - 30. il ccts and photos. Block diagrams are given to describe the remote operation of an amateur station in Vermont from New York via the telephone network. A Kenwood TS-940S, a linear amplifier and an antenna rotator are all remotely controlled, with indicating information displayed at the controlling end. A PC is required at each end, together with ancillary equipment such as modems.

**Using Your PC to Control Radio Gear (2).** Tom Moffat VK7TM, EA vol 53 No 12 Dec 1991 pp 94 - 99, 109. il cct and photos. A hardware interface unit is supplied to connect Icom transceivers to any computer with an RS232 port. Software listings are given in 'C' to permit control and readout of frequency.

An appropriate software disk (Aust\$25) and a kit for the interface (Aust\$35) is available from High-Tech Tasmania, 39 Pillinger Drive, Ferntree Tasmania 7054 Australia.

### Software

**Textloader for Technical Software Morse Tutor.** James Hossack GM3DKW, RadCom vol 67 No 12 Dec 1991 p 54. A program, written in Basic, is provided to enable any text to be added to this commercial tutor.

## Electronic Devices

### Automotive

**Car Vandalism Detector.** Bob Parker, EA vol 53 No 12 Dec 1991 p 83. il cct. A sharply filtered microphone amplifier is used as a detector of fast rise-time high frequency sounds, typical of those produced by coins scraping on paintwork, and other acts of vandalism.

**Digital Tacho.** Jeff Monegal, EA vol 53 No 12 Dec 1991 pp 72-77. il ccts, cmps and photos. The distributor points are used as the source of RPM information. The signal frequency is multiplied to give a satisfactory gating period; provision is made to cater for four, six and eight cylinder engines. A digital read-out displays from 0 to 9990 RPM. A kit is offered for construction of the device.

**Turbo Timer.** N C Albrechtesen, EA vol 53 No 12 Dec 1991 p 82. A 555 timer is arranged to maintain a diesel engine at idling speed for a preset time after the ignition switch is opened. This allows the engine to cool.

### Temperature Control

**Temperature Controller.** R W Phelps, EA vol 53 No 12 Dec 1991 p 83. il cct. A small mass whose temperature is to be controlled is thermally connected to a 2N3055 transistor. The base emitter voltage of this transistor is used as the temperature sensing element, and is compared to a preset voltage. An error signal switches collector current on or off in the sensing transistor, heating or cooling the controlled mass. It is claimed that 50°C can be maintained to within  $\pm 0.2^\circ\text{C}$  by this method.

### Timers

**Experimenting with Electronics.** Delay Switch. Peter Murtagh, EA vol 53 No 12 Dec 1991 pp 69 - 70, 101. il cct, cmps, pcb and photos. A simple two transistor circuit actuates a relay for a preset time period, initiated by pressing a push-on switch. Delay is adjustable from 4 to 200 seconds with circuit provided, but can be extended four fold by component substitution.

### Propagation

**Propagation Broadcasts and Forecasts Demystified.** Russ Healy NJ2L, QST vol LXXV No 11 Nov 1991 pp 20 - 24. il graph. An account is given of the meaning and significance of propagation data broadcast by WWV and WWVH. The relevance of solar flux, sunspot number, K index, and A index to amateur band propagation is discussed.

## Power Supplies

**Nicad Charger.** Bernie.... ZS1BW, RadZS vol 45 No 10 October 1991 p 10. il cct and graph. Charging from a relatively high voltage via a series resistor gives a substantially constant charging current. A nomograph is supplied to calculate the value of resistance for a given charging voltage for each cell voltage. The information is extracted from Elektor July/Aug 1978.

**Secrets of Simple DC-DC Converters - 2.** Andrew Pierson, EA vol 53 No 12 Dec 1991 pp 134 - 137. il ccts and graphs. In this part, design procedure is given for blocking oscillators, with emphasis on efficiency and regulation. The construction of suitable transformers is also considered.

## Receivers

**SSB Receiver for the 80m Amateur Band (2).** Leon Williams VK2DOB, *EA* vol 53 No 12 Dec 1991 pp 84 - 88. il cmp, diags, pcb and photos. The construction details are given in this part, together with the testing and alignment procedure. Directions are given for making a case from sheet aluminium.

## Technology

**Basic Steps Toward Tracing and Eliminating Power-Line Interference.** Max Trescott K3QM, *QST* vol LXXV No 11 Nov 1991 pp 43 - 46. il ccts and graphs. A general discussion is given on the causes and consequences of corona discharge and spark gap noise in power lines. Techniques are described for identifying noise sources within the home, and along power lines.

## Test Equipment

**Sweep Oscillator.** Peter Buckman, *EA* vol 53 No 12 Dec 1991 p 82. il cct. An audio sweep generator is described. Used with a CRO, it displays frequency response directly. A CRO triggering output is provided.

**Using an Oscilloscope as a General Purpose Tester.** Mike Dawson G3TCL, *RadCom* vol 67 No 11 Nov 1991 p 52. il cct, cmp and diags. A simple attachment for an oscilloscope is described. A 6V 50 Hz signal is applied to the device under test. A signal

proportional to the applied voltage is fed to the X amplifier, and a voltage proportional to load current to the Y amplifier. A variety of Lissajous type patterns is obtained, depending on the circuitry between the test probes. Semiconductor junctions give characteristic figures, depending on their nature. Capacitors, inductors and resistors can be distinguished, and an estimate made of their value.

**Model 3500 Frequency Counter.** (Product Review) Larry R Antonuk WB9RRT, *73* Issue #373 Nov 1991 pp 30 - 31. il photo. A review is given of this counter which is made by Startek International Inc. The frequency range is 10Hz to 3.5GHz.

**Portable Frequency Counters.** Gordon West WB6NOA, *73* issue #374 Nov 1991 pp 15 - 16. A review is given of the applications of small hand-held frequency counters. A list of manufacturers is supplied.

**First Steps in Home Construction (8).** John Case GW4HWR, *RadCom* vol 67 No 12 Dec 1991 pp 32 - 34. il ccts, cmp, diags and photo. A timer is described which is used in parallel with a PTT switch for mobile operation. The timer sounds after two minutes of transmission time, as a precaution against 'timing out' a repeater.

## Transceivers

**Yaesu FT-990 160 - 10 Meter Transceiver.** (Product Review) James W ('Rus')

Healy NJ2L, *QST* vol LXXV No 11 Nov 1991 pp 47 - 50. il graphs and photo. A review is given of this equipment comparing laboratory measurements to specifications. A contrast is made with some of the features of the FT-1000.

## Transmitters

**CW Transmitter for the 3.5MHz Novice Band.** Steve Price G4BWE, *RadCom* vol 67 No 12 Dec 1991 pp 46 - 48. il ccts and photo. A 1W CW transmitter is described, with a choice of up to four switch-selectable crystals. A sidetone generator is included in the design.

### Glossary of Abbreviations

il The article contains illustrations, a list of which follows.

cct	A circuit diagram
cmp	A component layout drawing
EA	<i>Electronics Australia</i>
diag	A mechanical drawing
pcb	A master drawing from which printed circuits may be produced
QSTVE	<i>QST Canada</i>
RadCom	<i>Radio Communication</i>
RadZS	<i>Radio ZS</i>
73	<i>73 Amateur Radio Today</i>

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## DIVISIONAL NOTES

### VK2 NOTES

TIM MILLS VK2ZTM

May 1, on behalf of the council and office bearers of the VK2 Division, wish all members a happy new year.

A new year brings a rash of Divisional activity leading up to the AGM which will be held on Saturday 2 May 1992. The closing date for Council nominations and agenda items will be 2pm on Wednesday 18 March 1992 at the registered office. The new Divisional year commenced on 1 January.

Nineteen-ninety-two is a special year for New South Wales, being both the 150th anniversary of Sydney being elevated to the status of a city, and Local Government being established. To mark the year-long celebrations, a special callsign has been made available — VI150SYD. It will be available for use by clubs, groups or individuals upon application to the Divisional office by writing to: Special Callsign, PO Box 1066, Parramatta NSW 2124. QSL reports should also be sent to this address. Include a self-addressed stamped envelope for a direct reply. The VK2WI broadcast will keep you informed.

A couple of years ago, changes were made to the Divisional Conference of Clubs meet-

ings, replacing them with regional meetings. Matters and agenda items processed by these meetings were submitted to a State conference held at Parramatta on 7 December 1991. The minutes will find their way back to the clubs in the regions. During the early part of this year, regional meetings will need to be held with new matters being raised. The next State regional delegates' meeting with Divisional Council is scheduled for 3 May.

The Central Coast ARC Field Day will be held at the Gosford Showground on Sunday 23 February. The Gladesville ARC is hopeful of four test transmissions this year. The tentative date for the first is 26 February. The first Trash and Treasure will be at Parramatta, Sunday afternoon 2 February. The balance of these events for 1992 will be held on the last Sunday of the odd-numbered months. February is likely to be the next time the rejuvenated Sydney fox hunts are conducted. While it may be a while since fox hunts were held in Sydney, they have been regular features in the country, like the Urunga Convention over the Easter weekend, the Oxley Region in June or at intervals at Orange.

## New Members

A warm welcome is extended to the following who joined the Division towards the end of last year.

M R Cheesman	Assoc	Kensington
A J Clancy	VK2GPN	Spit Junction
S Cobcroft	Assoc	Bangalow
P N Duff	VK2JQE	Toukley
A J Farrow	VK2TJF	Castle Hill
M Frazer	VK2XWS	Manly Vale
R H Gandevia	VK2VN	Randwick
P E Garbutt	VK2GAI	Lapstone
F Leaver	VK2SU	Yenda
A Montanari	VK2GMM	Maroubra
R W Parks	VK2GRP	Karuah
L Pollack	VK2NM	Lyndhurst
A Roberts	VK2GPO	Ultimo
D M Symons	Assoc	Tumut
N W Turner	Assoc	Narooma
L T White	VK2GNJ	Narromine

February is also the starting date for the next classes being held at Parramatta on Monday nights. Contact the office at Parramatta via the methods shown in the page AR directory.

## Divisional Exams

The NSW Division has scheduled four exams for this year. The first will be held at Parramatta on Sunday afternoon 1 March. The closing date for applications is 13 February. All enquiries to the VK2 office by one of the methods shown in the directory of page 3 of AR. The other dates for 1992 are set down for 24 May, 30 August and 8 November.

## Diary

The office needs an update on club and group details at regular intervals. Keep us informed on meetings, classes, exams and field events, as well as office bearers, so your

club can be assisted whenever enquiries are received.

## QSL Bureau

A reminder that you must register with the Bureau your requirements re handling of any cards for your callsign/s received at the Bureau. The data bank was completely re-programmed last year, with most amateurs providing input. A few appear to have missed providing these details, judging by the comments that "I have not been getting any cards from the Bureau" on-air or to the office. Even if you don't want to collect cards, please advise, so the storage does not get jammed again. Check with your local club if it receives a bulk clearance of cards from the Bureau. Otherwise you should contact the Divisional office to register. No enquiries to the Bureau, other than sending in cards for outward despatch.

## VK3 NOTES

JIM LINTON VK3PC

## Threats to Repeater Network

The Victorian Government's push for microeconomic reform, its policy of full cost recovery, and privatisation of infrastructure are all threats to the repeater network.

The WIA Victoria Council has been monitoring developments in government policy for the past 18 months to see if they will have an effect on the hobby of amateur radio.

Since voice repeaters were first permitted in Victoria they have been placed on select mountain tops to provide a very good coverage. This was achieved only due to WIA Victoria being recognised by government bodies and agencies as a responsible and worthwhile organisation. We have also received excellent inside help from a few of our members employed by particular government bodies and agencies. WIA Victoria has developed a high degree of mutual understanding and co-operation with a number of the government bodies. They have been willing hosts to WIA Victoria repeaters on their communication sites — and on some installations they shared the use of our equipment. But the long-established arrangements which have made this possible are now in doubt.

## Some Repeaters May Have to Close

Two policies initiated recently by the financially strapped Victorian Government are of grave concern. The first is its direction to government agencies, like the Department of Conservation and Environment, for them to raise revenue. This could mean WIA Victoria being asked to pay thousands of dollars rent a year for mountain-top sites.

Already a bill of \$1500 has been received — and the WIA Victoria Council will do its best

to seek a review of the decision to charge us such a high rent. We simply cannot afford such amounts which, if applied to various repeater sites, could send us broke.

The WIA Victoria Council is carefully considering its options and may have to abandon some of the lesser used repeater sites. This is a reluctant step obviously — but may have to be taken during this year.

## Privatisation Threat to Repeaters

We thought the cost recovery policy imposed by the Victorian Government was the worst possible threat to the repeater network. But even worse is the real prospect of the Victorian Government selling all of the communications networks operated by government bodies and agencies.

The Ministry for Finance has targeted for privatisation the more than 30 separate radiocommunication networks. These include those run by emergency services, public transport, Education Department, Sheriff's Office, VicRoads, power, gas and water utilities, Department of Conservation and Environment — to name a few. The privatisation of these networks seems certain to affect the WIA Victoria repeater network which shares sites with them.

The government called for expressions of interests in November from private companies to take over all of its radio networks. The government is looking for the private sector to buy up all of the equipment including 15,000 mobile radios, remote sites and towers. It has received about 20 expressions of interest. The government intends to call tenders soon and hopes to have the privatisation of the networks in place by the middle of the year. Privatisation is certain to see extensive rationalisation of the current 30 networks over a number of years into a single integrated network using the digital technology.

The Finance Ministry is still evaluating the huge savings it expects to make by turning over the on-going operation of the networks to a single private communications company. The Ministry is also considering the loss of jobs in the public service sector and the industrial relations implications of its plan.

The WIA Victoria Council is very concerned about the future of amateur repeater installations on those government sites once they are privatised.

## 5/8 wave

JENNIFER WARRINGTON VK5ANW

Isn't it always the way? You do the work and somebody else gets the credit! Well, perhaps it wasn't credit, but if you have any complaints about last month's column, direct them to me; *Rowland* was not to blame despite the fact that *his name* appeared instead of *mine!* (Apologies Jenny — Ed).

It isn't very pleasant to announce that someone has become a Silent Key, but it is even worse to discover that the person you have been talking about is actually alive and well. I will only say that I thought I had heard the news from a very reliable source and, of course, having been away for a couple of months, assumed it must have happened while I was away. Anyway, I am pleased to tell you that Gordon Goldsmith VK5HM (Hotel Motel as he has always been known) is not a Silent Key, although he has been quite ill for a couple of months. Gordon is currently residing at the Sunny Dale Rest Home, 247 Military Rd, Semaphore. If you would like to visit Gordon, it is suggested that you first ring the home on 49 4744. I am sure he would like to hear from some of his old friends.

## WIA Exams

The next WIA Exam will be held on Saturday 29 February 1992. The closing date for application will be Sunday 14 February. For more information ring the Examinations Officer, Don McDonald VK5ADD, on 276 1251.

## RTTY Gateway

I understand VK5RSV is now a RTTY Gateway carrying both RTTY and packet. This meant that RTTY users can now get on to packet (clever people down there at South Coast ARC). If you would like more information contact Grant VK5ZWI or Andrew VK5EX.

It's that time again! What time? Why, the time when Council looks for nominees for the 1992 Council Election. If you feel you have something to contribute to the running of the organisation, please let a member of Council know now.

## Diary Dates

Tuesday 23 February, General Meeting, 7.45pm, Burley Griffin Building, 34 West Thebarton Rd, Thebarton.

## VK6 NOTES

HARRY ATKINSON VK6WZ

*Dateline — Esperance WA*

Preparing these notes has been a hassle this month — strange location, strange typewriter, and all office files and telephone hundreds of kilometres distant. It also differs from those heady days of the '50s and '60s when divisional notes sometimes ran to a whole page, and sometimes included the odd "feud" across state borders. In my case, I banded friendly insults with VK5PS (the late Warwick Parsons) across the VK5/VK6 border. It was never my good fortune to meet "Pansy" but we corresponded occasionally and swapped cards at Christmas time. If he were with us now he'd no doubt tell us all that BBS meant "best broadcasting station", which was

his description of his place of employment — a certain South Australian commercial station.

It was announced in December that WICEN's application to the state government for a grant of \$3000 for equipment had been turned down.

Next month's notes will list the award winners in VK6 for 1991. 73 to all VK6WZ

## VK7 NOTES

TED BEARD VK7EB

All members please note: The Annual General Meeting of the VK7 Division shall be held at the registered office of the Institute, 105 New Town Road on 28 March 1992, commencing at 2pm.

All Notices of Motion for the AGM must be received by the Secretary not less than 28 days prior to the meeting, and must be signed by at least three (3) members.

Nomination of Candidates for election to Council must be received by the Secretary, in writing, not less than 21 days before the AGM.

Not less than 10 days before the AGM, should an election be necessary, a ballot paper shall be posted to each member of the division, and is to be returned to the Secretary prior to the commencement of the AGM.

Proxies are to be deposited at the registered office of the Institute, 105 New Town Road, Hobart, at least 24 hours before the time appointed for the meeting.

All the above items are in accordance with the Articles of Association.

E A BEARD VK7EB  
VK7 DIVISIONAL SECRETARY  
ar

## Murphy's Corner

Corrections — Simple Regenerative VLF-LF Receiver — *Amateur Radio* January 1992  
Circuit diagram page 8

Please note that the inputs 5(+) and 6(-) to voltage follower stage N1B are shown incorrectly connected and should be transposed.

Survival Radio, *AR* Dec '91. Please note that the decoupling resistor for ZN414, shown as 220k, should have been 220 ohms.

The parts list for Drew Diamond's three-band multiplier CW transmitter in December 1991, page 13, has errors in the resistor values. All resistors between, but not including, R2 (1kohm) and R8 (100k pot) have been incorrectly listed as ohms, but should be kilohms (kohm). Values, ranging from 1.5k to 220k, are shown correctly on the circuit diagram. Also Q<sub>1</sub> is listed as a 2N222, but should be 2N2222.

## CLUB CORNER

The Gosford Field Day is a long-running and popular annual event on the amateur radio calendar. The next field day will be held at the Gosford Showground on Sunday 23 February 1992, commencing at 8am. This will be the 35th year of the event.

As usual, the well known suppliers of electronic equipment, components and books will be attending the event. These companies will have their latest products on display and for sale, and many of these companies will have items at special field-day prices.

The organiser, the Central Coast Amateur Radio Club, has kept the format of the day in line with the changing face of amateur radio. In recent years, seminars on a wide range of topical and interesting lectures and equipment displays have been arranged. Some attractions, however, have remained unchanged and ever-popular; among these is the sale of the many thousands of new and used surplus equipment items known as *disposals*, with many bargains going up for grabs.

Last year, a popular flea market was arranged for those who wanted to sell their surplus equipment, from trestles, the trailers, or from the boots of their cars. The organisers expect the flea market will boom this coming field day, with even more vendors than last year.

### Other Gosford Field Day attractions include:

ALARA stand  
WIA Historian stand  
QSL Bureau  
WIA Educational Service stand  
WICEN display  
Amateur television displays  
Packet radio displays  
Ladies' stall  
Complimentary bus tour of the central coast  
Free tickets to the nearby reptile park  
Free shuttle bus from Gosford railway station.

More than 1400 people have attended each of the past few Gosford field days; this one will be bigger than ever, so don't miss it. Mark 23 February 1992 down for the Gosford field day, and start gathering those items you want to sell at disposals or the flea market.

### 1992 Gosford Field Day Preview

Amateur radio operators, their families, friends and those interested in amateur radio are invited to attend the 1992 Gosford Field Day which will be held on Sunday 23 February 1992 at the Gosford Showground. Gates open at 8am in wet or fine weather. All displays are under cover.

Registration: Adults — \$6.00. Pensioners — \$3.00. Children (under 12) — free

A special group concession will also be available on application.

### Proposed Program Sunday 23 February 1992

0800 to 1300 Registration  
0800 to 1700 Tea and coffee available in dining room  
0800 Flea market open  
0930 Disposals booking-in closes (Dwyer Pavilion)  
1000 Disposals open (entry southern end of Dwyer Pavilion)  
1200 Bus tour departs  
1200 Various seminars commence  
1330 Drawing of raffle. Check at "information" for winners.

A field day information service will be provided on the Gosford 2m repeater (6725) on Saturday afternoon and Sunday morning using the callsign VK2AFY/P.

**Trains:** Sydney and Newcastle trains will be met by a courtesy bus which will run between Gosford railway station and the Showground between 8am and 10.30am. Return transport may be arranged at the information booth.

**Parking:** Plenty of off-street parking is available at the Showground.

**Accommodation:** Accommodation is usually scarce on the central coast at field day time, and early booking is advised.

**Catering:** Tea, coffee and biscuits available free of charge in the dining room from 8am to 3pm. Take-away food can also be purchased in the Showground.

**Calls Present:** Bring your QSL cards for the "calls present" boards.

**Disposals:** Disposals forms and lot numbers may be obtained at the Showground on Saturday afternoon 22 February 1992. Items for disposals may be booked in on Saturday 22 February between 2pm and 4pm, or on Sunday 23 February before 9.30am. Please note that 9.30am is the cut-off time for disposals booking-in, and late arrivals may be refused. Improperly tagged or catalogued items will be refused.

**Flea Market:** For those who wish to bypass disposals and sell their own equipment, trestles will be available in the flea market.

Information on group concessions, trade displays, flea markets, disposals, programs or any other field day information can be obtained by writing to:

*The Field Day Committee*  
*Central Coast Amateur Radio Club Inc*  
*PO Box 252,*  
*GOSFORD NSW 2250*  
*Bob Fitzgerald VK2XRF*  
*Gosford Field Day Committee Secretary*  
ar

### Stolen Equipment

Stolen from L J van de Pavert VK3CLV: 1 Kenwood TS440S HF transceiver, serial number R706039;  
1 Kenwood TM201B VHF transceiver, serial number 7011611E;  
1 Kenwood PS430 power supply;  
1 Kenwood SP40 external speaker;  
1 Kenwood SP50 external speaker.

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

### Amateurs in History

Historians at the Geelong and Warrnambool campuses of Deakin University are putting together a biographical dictionary of the Western District of Victoria as a major new historical project. This dictionary of Geelong and Western District people from all walks of life will be the basis of a substantial history of the region and a valuable resource for future historians.

Amateur radio operators have played a significant part in not only communications and emergency services, but also in the whole range of social and cultural activities since Marconi et al let us, a wide social spectrum, loose on the unsuspecting radiospectrum. We want to invite amateurs with links to Geelong and the Western District of Victoria to take part in the project by nominating "silent keys", amateur or not, you feel have contributed to the region in any significant way.

There are always some people who stand out in memory. This is as true of amateurs as of any group of people. But we don't want to miss the unsung people who have contributed

to the making of the community. As amateurs distributed through the community we are particularly well placed to make our contribution to the community's memory bank. I suppose it is a pity we have to have a silent-key-only limit, but our turn will come.

We will be pleased to give more information on the project and send nomination forms to any amateurs who would like to communicate with either:

Ros Lewis (052) 47 1592 or  
Ann Chandler (052) 47 1695  
Centre for Australian Studies  
Faculty of Humanities  
Deakin University  
Geelong 3217  
Ros Lewis VK3NJU/YMR

### Monopole or Unipole?

The old saying that "a rose by any other names smells the same" certainly applies to my "unipole" antenna described in October AR. Peter VK4KIP took me to task in December '91 AR re the naming of this antenna — he claims it should have been a "monopole"!!

After I read Peter's comments, my initial reaction was "so, what's the big deal?" — would Peter with his academic purism rename the popular "Slim Jim" antenna a "Thin James"? At this stage, I decided to consult my trusty Oxford dictionary. Here I found that a two-wheel cycle is known as a "bicycle", and a one-wheel machine can be a "monocycle" or a "unicycle" — either name applies. I concluded, therefore, that my antenna can be known as a "monopole" or a "unipole".

So, Peter, if the term "unipole" offends your Latin/Greek derivation, I suggest you buy some "white-out" and correct the article in your edition of AR — I will not be offended by the change!

Des Greenham VK3CO  
16 Clydesdale Crt  
Mooroopna 3629

### Spaced Out?

In reference to Gilbert's article under "Pounding Brass" (AR Jan 1992), please note that a word space is seven dits, not five as stated. Refer to any handbook for confirmation. With a poor "fist" and/or poor reception, five dits could be indistinguishable from a letter space of three dits.

David Horsfall VK2KFU  
PO Box 257  
Wahroonga 2076 ar

## SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES MUST BE NO LONGER THAN 200 WORDS.

### We regret to announce the recent passing of:

Dr W J Hart	VK2YQ
Mr Jimmy Jones	VK2AUX
Mr F H Browne	VK3DKO
Mr R A Gorman	VK3YIB
Mr Kelvin Lee	VK3ZSO
Mr Peter Boddington	VK4BMP
Mr W A Wallace	VK4KHZ
Mr M J Brunger	VK5OS
Mr R K Knott	VK5AFB
Mr Harold Pain	VK6ABH
Mr G E Brown	VK6BBZ

### Peter Boddington VK4BMP

It is with deep regret that we record the passing of Peter on 25 October 1991, aged 61 years. He is survived by his brother David and sister Mary Ruth Cooper, both residing in the Sydney area.

Peter held a First Class Commercial Ticket and, after eight years in commercial broadcasting, accepted a position in the radiation and electronics laboratory of the Ranger Uranium Mine. Peter left in 1968 to take up the position of Base Administrator with the Royal Flying Doctor Service at Mount Isa until he retired in 1981. In the 12 years with

RFDS, Peter became greatly respected by the people of the north-west Outback.

In his retirement, Peter took up a small property 25km from Mount Isa, known as the Melaleucas, where he built with his own hands a very fine homestead designed with special attention to coping with the harsh climate. The complete complex was powered by solar energy, and the power for amateur activities also came from this source.

Peter passed away on his beloved Melaleucas, with his special friend of long standing, Mary Elizabeth, at his bedside on Saturday evening 26 October 1991. He was buried there on the property in the presence of many friends.

At the Flying Doctor base in Mount Isa, a melaleuca tree has been planted as a memorial to a fine man.

Noel Lynch VK4BNL  
Basil Pointon VK5BK  
John Martin VK4MX

### Jimmy Jones VK2AUX

With sadness, I report the sudden death of our friend Jimmy Jones VK2AUX. Jim died Tuesday 17 December 1991 at the age of 37 years.

He was a member of the Blue Mountains Amateur Radio Club Inc since 1977 and par-

ticipated in many club activities and served as the club QSL manager since joining the club. Jim has been a member of the WIA for several years and attended many AGMs and assisted the QSL bureaux on behalf of the Blue Mountains club. Jim's other major activity was Scouting, which he combined with his hobby of radio. He enjoyed showing Scouts the way of amateur radio during many hours of JOTA activities.

He first obtained his novice licence VK2PBU, and when he operated the local Blue Mountains weekly 80m net he was known as VK2 Pretty Blue Undies. Jim upgraded his call to a combined licence VK2JBU, and it was only six weeks ago he passed his morse exams and realised his ambition of an unrestricted licence. Jim had reserved the callsign VK2AUX with DoTC for about a year. He had the pleasure of using his new callsign up to the day he died.

Jim will be sadly missed by his parents and many friends throughout the Blue Mountains and radio world.

Terry Ryeland VK2UX.

### Charles Frederick Peddell VK2XO

Chas Peddell passed away on 3 May 1990 in his 84th year, after a period of ill health.

After service in the RAN as a Leading Telegraphist, he joined DCA as an Aeradio Operator on 1 April 1940. His first posting was to Cloncurry during the hectic war years, when accommodation was scarce and primi-

tive. Jack Faulkner VK2AZP recalls Chas and his wife living in less than ideal conditions, made habitable by Charlie's ingenuity.

Next transfer was to Kempsey. During the devastating floods of the early 1950s, Chas was highly commended by civil authorities for maintaining communications with the outside world, when all else failed. Ron O'Brien the-then Senior Technician, set up his 3BZ equipment using borrowed and acquired crystals and batteries. At Sydney, Brisbane, Coffs Harbour, Lord Howe Island and other units, he held various operating and supervisory positions. He was the last OIC of the Liverpool HF Direction Finding Station prior to its closure in 1954.

He was an outgoing, likable person who, on quiet night shifts, could hold an audience on any subject from religion to automobiles, and, of course, "ham" radio. At times he proudly displayed an injured finger gained whilst assisting Francis Chichester lift his aircraft from the water at Jervis Bay.

After retirement in 1971, he continued to enjoy his radio until failing hearing made it too difficult.

D Reynolds VK2ANW

### John Rooks VK2BDD

John passed away on 18 December 1990 after a lifetime devoted to the advancement of radio communications.

The year 1920 saw a 16½-year-old John

join the RN at Plymouth, and commence training as a telegraphist using crystal receivers and spark transmitters. Whilst serving in the Mediterranean, he was chosen to serve aboard the Admiral's yacht HMS *Bryony*, and became involved in ionospheric studies in conjunction with radio pioneer, Marconi. Communication testing and monitoring became a feature of his duties as the RN re-equipped with valve-type equipment.

In 1928, John volunteered for an exchange posting with the RAN, arriving here in HMAS *Canberra* on her delivery voyage. On completion of his service he was discharged and joined the then-DCA in 1934. He commissioned the Department's first station at Holbrook, and later became involved in the acceptance, installation and maintenance of transmitters, receivers and DF equipment.

In 1950 he was engaged in the semi-automation of the Sydney Centre. After transferring to Townsville in 1956 as supervisor, he remained there until retirement on 10 July 1969, when he returned to Sydney. He was a sensitive, caring person who remained a "ham" throughout, but in recent years only monitored the bands.

The writer last saw John at the Aeradio 50th anniversary luncheon, where he enjoyed himself immensely and re-lived some of his past achievements.

D Reynolds VK2ANW

### Max Brunger VK5OS

Max passed away on 6 November 1991, aged 65 years, after contracting leukemia.

Max was a good family man and member of his church community, and was a conscientious employee of Carr Fasteners for 46 years, having recently retired from his senior position in manufacturing quality control. He served in the RAAF during WW2. Max had been an amateur radio operator for 35 years and greatly enjoyed this hobby. He also enjoyed sailing Heron class yachts, often in company with his family.

VK5OS was initially active on 7MHz in the days of AM and valves, and became known as "Old Socks" because of his callsign. He built most of his own gear and earned fame for his 807 driver into a 7C5 power amp valve transmitter — which really worked well.

Max was organiser of the CW Operators QRP Club and had been a foundation member (No 2) when it was formed in 1983. The cheery and helpful voice of Max controlling the CW Ops 3.5MHz SSB net on Friday evenings will long be remembered.

Max was a gentleman in the full meaning of the term and will be sadly missed. Deepest sympathy is extended to his wife Roma and family.

Don Callow VK5AIL

ar

## A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (N.S.W. Division) conducts a Bridging Correspondence Course for the AOCF and LAOCF Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor  
WIA  
PO Box 1066  
Parramatta NSW 2124  
(109 Wigram Street, Parramatta)  
Phone: (02) 689 2417

11am to 2pm Monday to Friday  
7 to 9pm Wednesday

## Morseword No 59

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

### Across:

- 1 Nude
- 2 Expectorated
- 3 Scene
- 4 Tick over
- 5 Drink noisily
- 6 365 days
- 7 Sink or \_\_\_\_\_
- 8 Scoff
- 9 Whiff
- 10 Prolonged attack

### Down:

- 1 Soft cheese
- 2 Keep back
- 3 Conceited
- 4 Diet
- 5 Enjoy
- 6 Hot lollies
- 7 Road
- 8 Sketched
- 9 Shell
- 10 Fruit

© Audrey Ryan 1992

# HF PREDICTIONS

ROGER HARRISON VK2ZTB, THE APOGEE GROUP

I must first offer my apologies for the non-appearance of the predictions since September last year. We moved home and business on the 1st of September, just on deadline for the October issue.

The computer system I was then using to run the Graph-DX software suffered a breakdown (probably unrelated to the move), then I spent the next eight weeks mostly away from home, travelling interstate (on business) and overseas (for the Institute); it was an incredibly busy period. Work commitments have taken up my time since, plus a substantive overhaul of our computer systems has meant volunteer "work" has necessarily taken a "back seat".

But, that's now behind me, and the predictions return. So, for those just encountering the charts for the first time, and for those who've forgotten in the mean time, read on to find out what they can do for you and how you can use them.

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the

five bands from 14 to 28

MHz. The UTC hour is the first column, the second column lists the predicted MUF (maximum usable frequency), the third column the signal strength in dB relative to 1 µV (dBu) at the MUF. The fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency, as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 µV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point 'standard' where S9 is 50 µV at the receiver's input and the S-meter scale is 6dB/S-point.

µV in 50 Ohms	S-points	dB(µV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.2	S1	-14

The tables are generated by the Graph-DX program, assuming 100 W transmit power output, modest beam antennas (e.g. three-element

Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

**VK EAST.** The major part of NSW and Queensland.

**VK SOUTH.** Southern-NSW, VK3, VK5 and VK7.

**VK WEST.** The south-west of West Australia.

Likewise, the overseas terminals cover substantial regions; e.g.

"Europe" covers most of western Europe and the UK.

Graph-DX is written in the C language and runs on any IBM PC

AT/XT or compatible computer with EGA, Hercules or VGA adapter and screen. Professional and Amateur versions are available.

Enquires to FT Promotions, PO Box 306, Woollahra NSW 2025.

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 13.3	-1	10.1	0	1	-4	-15	-29	
2 12.5	-10	9.6	-4	-2	-6	-16	-30	
3 16.2	-4	12.6	-10	-1	-1	-6	-14	
4 23.3	3	18.0	-20	-3	2	3	0	
5 30.2	5	23.2	-29	-6	2	6	6	
6 32.1	7	24.4	-33	-7	2	7	8	
7 31.4	7	24.7	-31	-6	2	7	8	
8 30.3	8	24.7	-26	-3	4	8	8	
9 29.0	9	24.1	-15	2	8	10	9	
10 27.5	11	22.2	-4	9	13	13	10	
11 26.0	14	20.8	9	16	17	15	11	
12 24.5	17	19.6	20	23	21	17	10	
13 23.0	20	18.9	30	28	25	18	11	
14 23.1	23	18.3	37	32	27	19	10	
15 22.2	24	18.0	39	33	26	18	8	
16 21.0	25	16.4	39	32	25	15	5	
17 19.9	24	15.4	39	31	23	12	1	
18 18.5	27	14.3	38	28	20	8	-4	
19 17.3	28	13.3	36	26	16	4	-10	
20 17.6	28	13.4	36	26	17	5	-9	
21 20.3	25	15.9	37	30	23	13	2	
22 18.2	21	14.1	26	21	15	5	-6	
23 17.2	16	13.3	17	15	10	1	-10	
24 15.9	9	12.0	8	8	3	-6	-18	

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 13.8	3	10.6	4	3	-3	-15	-29	
2 12.8	-6	9.9	-2	-1	-6	-17	-31	
3 16.9	-1	12.5	-8	0	0	-5	-13	
4 24.4	4	18.9	-19	-1	3	4	1	
5 29.0	6	23.8	-28	-5	2	6	6	
6 28.7	5	23.5	-31	-7	1	5	5	
7 28.5	5	23.3	-31	-7	1	5	5	
8 28.0	5	22.8	-29	-6	2	5	5	
9 27.2	6	22.0	-23	-3	4	6	5	
10 25.9	8	20.9	-13	3	7	8	5	
11 24.1	10	19.4	-1	9	11	9	5	
12 22.3	13	17.9	11	16	14	10	3	
13 20.5	18	16.3	23	21	17	9	0	
14 19.3	23	15.4	32	25	18	8	-4	
15 18.4	24	14.5	34	25	16	5	-8	
16 17.5	26	13.8	34	24	15	1	-13	
17 16.9	27	13.1	34	23	13	-1	-17	
18 16.1	27	12.5	33	21	10	-5	-21	
19 15.4	28	11.8	31	19	7	-9	-27	
20 15.0	28	11.4	31	17	5	-11	-30	
21 15.9	26	11.9	31	20	9	-6	-23	
22 18.3	22	13.6	30	23	15	4	-8	
23 19.5	18	14.7	24	21	15	6	-5	
24 16.9	13	12.8	14	12	6	-3	-16	

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 12.5	10	9.6	9	0	-12	-30	...	
2 11.7	0	9.0	2	-4	-14	-31	...	
3 15.2	1	11.3	0	2	-2	-12	-25	
4 21.9	5	17.0	-7	4	5	3	-3	
5 28.3	6	21.3	-15	1	6	8	6	
6 28.4	7	22.3	-20	-1	5	8	7	
7 28.3	6	22.9	-22	-2	4	7	6	
8 28.1	6	22.8	-21	-1	5	7	6	
9 27.6	7	22.5	-18	0	6	8	6	
10 26.7	8	21.7	-12	3	8	8	6	
11 25.4	9	21.1	-3	8	11	10	6	
12 24.0	13	19.4	10	16	15	12	6	
13 22.5	17	18.1	23	22	19	12	4	
14 21.0	21	16.8	33	27	21	12	1	
15 20.3	23	16.1	35	28	21	10	-1	
16 19.6	24	15.5	36	28	19	8	-4	
17 18.8	25	15.2	36	27	18	6	-7	
18 17.9	26	14.0	36	25	15	2	-12	
19 17.1	26	13.2	34	23	12	-1	-17	
20 16.0	27	12.3	32	20	8	-7	-24	
21 15.2	27	11.5	31	17	5	-12	-31	
22 15.7	27	11.9	32	19	7	-9	-27	
23 17.5	23	13.2	32	21	11	-3	-18	
24 15.2	19	11.5	21	11	1	-15	-32	

## VK EAST - MEDITERRANEAN

## VK STH - MEDITERRANEAN

## VK WEST - MEDITERRANEAN

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 12.4	-6	9.4	-2	0	-4	-14	-27	
2 12.6	-2	9.5	1	0	-4	-15	-29	
3 12.6	1	9.4	4	1	-5	-17	-32	
4 11.9	5	9.2	7	1	-8	-22	...	
5 10.9	8	8.5	8	-1	-13	-30	...	
6 11.1	15	8.7	11	0	-13	-33	...	
7 13.2	22	10.5	20	9	-3	-19	-38	
8 17.3	23	13.8	29	21	12	0	-13	
9 18.8	21	14.3	25	22	17	9	0	
10 18.0	14	13.6	12	14	11	4	-4	
11 18.8	7	14.9	0	6	6	2	-5	
12 17.8	0	14.1	-9	0	2	-1	-7	
13 16.9	-6	13.6	-16	-3	-1	-3	-9	
14 16.2	-10	12.6	-19	-5	-2	-4	-9	
15 15.4	-15	11.8	-21	-6	-3	-5	-10	
16 14.7	-18	11.2	-21	-7	-4	-6	-11	
17 14.3	-20	10.7	-21	-7	-4	-6	-11	
18 15.1	-17	11.3	-22	-7	-4	-5	-10	
19 17.4	-10	13.7	-25	-8	-3	-3	-7	
20 20.4	-4	15.8	-27	-9	-3	-2	-4	
21 17.7	-6	13.6	-20	-5	-2	-3	-8	
22 15.3	8	11.7	-13	-3	-2	-6	-13	
23 13.9	-9	10.5	-8	-1	-3	-9	-18	
24 12.9	-9	9.8	-6	-1	-4	-12	-23	

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 12.1	-8	9.2	-2	-1	-7	-17	-31	
2 12.0	-4	9.2	0	-1	-8	-20	-35	
3 12.0	0	9.2	3	0	-9	-22	-39	
4 11.4	4	8.8	5	-2	-12	-29	...	
5 10.5	7	8.2	6	-5	-19	-39	...	
6 10.6	13	8.4	8	-5	-20	-41	...	
7 12.4	20	9.8	16	3	-10	-30	...	
8 15.7	23	12.5	26	16	5	-9	-25	
9 19.7	20	14.5	29	23	16	6	-5	
10 17.8	19	13.2	22	18	12	3	-7	
11 15.9	12	12.2	12	11	5	-3	-15	
12 16.5	6	11.5	3	6	3	-3	-13	
13 15.6	-2	11.0	-5	1	0	-6	-14	
14 15.0	-9	10.4	-12	-2	-2	-6	-14	
15 14.2	-15	9.9	-14	-4	-3	-7	-14	
16 13.7	-19	9.6	-16	-5	-3	-7	-14	
17 13.5	-21	9.5	-17	-5	-4	-7	-14	
18 14.4	-18	10.2	-19	-6	-4	-6	-12	
19 16.3	-13	11.3	-24	-8	-4	-5	-9	
20 19.2	-7	13.8	-28	-9	-4	-3	-6	
21 16.6	-10	12.9	-21	-6	-3	-5	-10	
22 16.4	-13	11.2	-14	-4	-3	-7	-15	
23 13.2	-14	10.1	-9	-2	-4	-10	-20	
24 12.3	-13	9.4	-5	-2	-5	-14	-26	

UTC	MUF	dBu	FOT	14.2	18.1	21.2	24.9	28.5
1 11.7	-20	9.0	-8	-4	-8	-16	-27	
2 11.7	-16	9.0	-6	-4	-9	-18	-31	
3 11.6	-12	9.0	-4	-4	-10	-20	-34	
4 11.0	-10	8.6	-2	-5	-12	-25	...	
5 10.2	-8	8.0	0	-7	-17	-35	...	
6 10.3	-3	8.1	1	-7	-10	-36	...	
7 11.9	6	9.4	6	-2	-12	-29	...	
8 14.9	11	11.8	12	6	-1	-13	-29	
9 18.5	14	14.8	18	14	8	0	-11	
10 20.3	16	15.3	20	18	14	7	-1	
11 16.6	12	12.8	13	11	6	-3	-14	
12 15.6	6	12.0	4	5	1	-6	-17	
13 17.4	1	11.9	-5	1	1	-4	-11	
14 16.3	-6	11.1	-13	-3	-3	-6	-13	
15 15.5	-12	10.7	-18	-6	-5	-8	-14	
16 14.8	-17	10.1	-20	-8	-6	-8	-14	
17 14.0	-21	9.6	-20	-8	-6	-9	-15	
18 13.5	-24	9.3	-20	-8	-6	-9	-15	
19 13.3	-27	9.2	-21	-9	-7	-10	-17	
20 14.2	-22	9.8	-22	-8	-6	-8	-14	
21 15.9	-15	10.9	-24	-9	-6	-8	-13	
22 13.9	-20	10.8	-18	-7	-6	-9	-16	
23 12.7	-23	9.8	-15	-6	-7	-12	-21	
24 11.9	-23							

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	15.7	6	11.0	5	6	1	-7	-19	1	16.8	12	11.5	11	10	5	-4	-16	1	15.5	17	11.6	19	13	5	-8	-23
2	17.2	6	13.1	0	6	5	-1	-9	2	17.9	11	13.5	8	11	8	1	-7	2	17.2	15	13.1	15	14	9	0	-11
3	17.0	1	12.9	-5	2	2	-2	-10	3	20.7	9	16.1	1	9	9	5	0	3	19.8	12	15.6	8	13	11	5	-2
4	19.5	2	14.7	-12	0	3	1	-4	4	24.7	8	17.5	-5	6	7	7	3	4	24.6	11	18.8	1	11	12	10	6
5	24.2	4	17.0	-18	-1	3	3	1	5	25.5	6	18.2	-13	3	7	7	4	5	26.8	8	19.8	-5	8	11	10	6
6	24.9	3	17.4	-20	-2	2	3	1	6	25.6	6	18.3	-14	1	6	6	1	5	26.8	7	22.0	-8	5	9	9	6
7	25.0	4	17.5	-20	-2	3	4	1	7	25.6	6	18.3	-14	1	5	6	1	6	26.5	7	21.7	-10	4	8	8	5
8	25.0	4	17.5	-18	-1	4	4	2	8	25.5	6	18.1	-13	1	6	6	3	8	26.4	7	21.5	-10	4	8	8	5
9	23.8	5	17.4	-12	2	5	5	1	9	25.2	6	17.9	-10	3	7	7	3	9	25.9	7	21.1	-8	5	8	8	4
10	22.3	7	17.4	-5	5	7	5	0	10	24.2	8	17.1	-4	6	9	7	3	10	25.2	8	20.5	-5	7	9	8	4
11	20.6	8	16.5	0	8	8	3	-3	11	22.7	9	16.0	1	9	10	6	1	11	24.0	9	19.8	1	10	11	8	3
12	18.9	10	15.1	7	10	8	1	-7	12	20.8	10	14.6	7	11	10	5	-2	12	22.4	11	18.0	8	13	12	8	1
13	17.8	13	14.1	13	13	8	0	-10	13	19.1	12	13.4	12	13	10	2	-7	13	20.7	14	16.6	16	17	14	7	-2
14	16.9	17	13.3	19	15	8	-2	-15	14	17.6	16	12.3	19	15	9	-1	-13	14	19.0	18	15.2	23	19	13	4	-7
15	16.1	22	12.6	25	17	8	-4	-19	15	16.4	21	11.4	25	17	8	-4	-19	15	17.9	22	14.2	29	21	13	1	-12
16	15.4	25	12.0	28	18	7	-7	-24	16	15.5	24	10.7	28	17	6	-9	-26	16	17.0	25	13.4	31	22	12	-1	-17
17	14.7	27	11.3	28	16	5	-11	-29	17	14.9	26	10.3	28	16	4	-12	-31	17	16.2	26	13.1	32	20	10	-5	-22
18	14.1	29	10.7	28	15	2	-15	-35	18	14.0	28	9.8	27	13	0	-18	-38	18	15.5	28	12.1	32	19	7	-8	-26
19	13.7	30	10.3	14	0	0	-17	-38	19	13.7	29	9.6	27	12	-1	-20	-40	19	14.9	29	11.5	31	17	5	-18	-31
20	14.5	29	9.9	29	16	3	-14	-33	20	13.6	29	9.6	27	12	-2	-21	-41	20	14.2	30	10.9	30	15	2	-16	-37
21	13.7	25	9.4	24	11	-1	-18	-38	21	13.6	29	9.6	27	12	-2	-21	-41	21	13.9	30	10.5	29	14	0	-19	-41
22	13.2	19	9.1	17	7	-3	-20	-39	22	14.1	23	9.8	23	12	0	-16	-35	22	14.7	29	11.0	31	17	4	-13	-32
23	13.0	13	9.0	12	5	-5	-20	-39	23	13.8	18	9.7	17	9	-2	-17	-35	23	15.2	27	11.6	30	18	7	-9	-26
24	13.8	8	9.6	8	5	-2	-15	-30	24	14.8	14	10.4	14	9	1	-12	-27	24	14.7	22	11.1	23	14	3	-11	-29

**VK EAST - AFRICA**

**VK STH - AFRICA**

**VK WEST - AFRICA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	31.8	13	25.0	4	16	19	19	17	1	26.0	10	20.8	0	11	13	12	7	1	29.9	14	23.8	9	18	20	19	16
2	31.8	12	24.2	2	15	18	18	16	2	26.6	10	21.6	-2	10	12	12	8	2	30.2	13	24.4	5	16	19	18	15
3	31.8	12	24.8	2	14	18	18	16	3	26.8	10	22.2	-3	9	12	12	8	3	30.9	13	23.5	3	15	18	18	15
4	32.2	13	24.5	3	15	18	19	16	4	26.9	10	22.2	-2	10	12	12	8	4	30.9	13	23.7	2	15	18	18	15
5	32.8	13	25.0	5	17	20	20	18	5	26.6	10	21.8	0	11	13	12	8	5	31.2	13	23.7	3	15	18	18	15
6	33.2	15	25.8	10	20	23	22	20	6	26.3	11	21.6	5	13	15	14	8	6	31.6	13	24.2	6	17	20	20	13
7	32.0	16	26.1	16	24	25	25	21	7	25.5	13	21.1	9	16	16	14	8	7	32.4	15	25.0	10	20	22	22	19
8	29.7	20	24.0	38	36	33	28	22	8	24.9	14	20.2	17	20	19	14	8	8	31.5	16	25.4	16	23	25	23	20
9	28.3	21	22.8	41	37	33	27	20	9	23.7	19	19.2	32	29	24	16	7	9	30.7	17	24.9	26	29	28	25	20
10	27.4	21	21.9	43	38	33	26	19	10	22.2	21	17.9	36	30	23	14	3	10	29.3	20	24.4	42	38	34	29	22
11	27.1	22	21.5	44	39	34	26	19	11	20.7	22	16.6	37	29	20	9	-3	11	28.0	21	22.6	44	39	34	28	20
12	27.1	22	21.5	44	39	34	26	19	12	19.2	23	15.3	36	26	16	3	-11	12	26.6	22	21.3	45	39	33	26	17
13	26.6	22	21.0	46	40	34	26	18	13	18.3	23	14.6	35	24	14	-1	-17	13	25.4	22	20.3	45	38	32	23	14
14	25.7	23	20.8	46	39	33	25	16	14	17.6	24	13.9	35	22	11	-5	-22	14	24.9	23	19.8	45	38	31	22	13
15	23.9	23	18.7	44	37	30	21	11	15	16.8	24	13.3	33	20	7	-9	-28	15	24.3	23	19.2	45	37	30	21	11
16	22.4	24	17.4	43	35	27	17	5	16	16.1	25	12.6	31	17	4	-14	-35	16	23.4	23	19.0	44	36	29	19	8
17	20.6	25	15.9	41	32	23	11	-1	17	15.4	25	12.0	30	14	0	-20	-40	17	22.0	23	17.2	42	33	25	15	-3
18	18.7	25	14.4	38	27	17	3	-11	18	14.6	25	11.2	27	10	-6	-28	-40	18	20.7	24	16.1	41	31	22	10	-3
19	17.8	25	13.7	36	24	12	-3	-20	19	14.0	26	10.9	25	6	-10	-34	-40	19	19.2	24	14.8	39	28	17	4	-11
20	15.9	25	12.3	31	17	4	-14	-35	20	14.1	25	10.9	24	6	-11	-35	-40	20	18.7	24	13.6	35	23	11	-5	-23
21	19.5	20	14.7	30	13	15	-4	-9	21	16.9	20	12.6	27	17	6	-9	-27	21	15.9	25	12.3	31	16	1	-18	-40
22	27.1	16	21.0	23	25	24	19	13	22	20.6	14	15.7	19	18	13	5	-5	22	19.3	22	15.0	34	25	16	2	-12
23	30.7	15	24.9	14	18	23	21	18	23	23.8	12	18.4	10	16	15	11	4	23	25.0	16	19.3	22	24	21	16	9
24	30.9	14	24.9	8	18	20	20	17	24	25.5	11	20.0	4	13	14	12	7	24	28.6	15	22.4	15	21	22	19	15

**VK EAST - ASIA**

**VK STH - ASIA**

**VK WEST - ASIA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	33.6	25	27.8	29	34	35	33	31	1	24.4	14	20.2	19	21	19	12	4	1	28.3	11	22.5	3	14	16	14	11
2	34.1	25	28.1	30	35	35	34	31	2	24.5	14	20.8	19	22	19	13	5	2	28.9	11	23.4	3	13	16	15	11
3	33.9	25	27.8	31	36	36	34	31	3	24.6	14	20.6	21	22	20	13	5	3	28.9	11	21.5	4	14	16	15	12
4	33.5	26	27.5	33	37	37	35	32	4	24.5	15	20.3	23	24	20	14	5	4	28.9	12	23.7	6	15	17	16	12
5	32.8	26	26.8	37	39	38	36	32	5	24.4	16	20.0	27	26	22	15	6	5	28.6	12	23.4	10	18	19	17	12
6	31.6	28	25.6	42	42	40	37	32	6	24.0	18	19.4	34	30	24	16	6	6	28.4	14	23.2	16	22	21	18	14
7	30.1	30	24.4	49	46	43	38	33	7	23.0	20	18.2	39	32	25	15	3	7	27.9	16	22.7	24	26	25	20	15
8	28.5	31	23.0	51	47	43	37	31	8	21.2	23	16.8	41	32	23	11	-2	8	26.8	19	21.6	33	31	28	27	15
9	26.8	32	21.5	52	47	42	36	29	9	19.2	25	15.2	39	28	18	4	-11	9	25.0	21</						

# HAMADS

## TRADE ADS

● WEATHER FAX programs for IBM XT/ATs. RADFAX \$35, is a high resolution shortwave weatherfax, Morse & RTTY receiving program. Needs CGA, SSBhf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SAT-FAX \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card, & 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) + documentation, add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Qld 4005. Ph (07) 356 2785.

● BENCHER IAMBIC PADDLES reduced to clear. \$170 for the chrome-plated model, limited stocks. Profoto Group, PO Box 501, Fyshwick ACT 2609. Phone (06) 260 4009, fax (06) 280 7250.

## FOR SALE — NSW

● YAESU FT101E transceiver, cooling fan, spare finals. KENWOOD AT200 antenna tuner. \$600 the lot, no offers. Phil (02) 44 2703.

● YAESU FL2100B linear amp 1200W PEP input, spare tubes, GC, sell for best offer over \$800. YAESU FTV650 8m transverter for FT101, 200, 560, 400 etc. Never used, \$150. VK2HL (02) 971 9795.

● YAESU FL2100 linear amp, \$600. Len VK2BNL (02) 484 2749.

● ICOM IC-32AT HT dual-band 2m/70cm, s/n 03353, incl wall charger, plus BP-7 450mAh spare battery, BP-4 battery case, CP-11 cigarette lighter cable, with orig packing, VGC, \$475. Edgar VK2RH (045) 87 7600 (BH), (045) 75 1945 (AH).

● KENWOOD TS680S HF txvr, mint cond, manual, all access, s/n 909325. Of no further use. Excellent rig, \$1500. All VK2UC QTHR (066) 21 5222 PM.

● DECEASED ESTATE: YAESU FT101B trans (c/w mike & earphones), \$400; TRIO 9R-59DS rec, \$100; YAESU FC-700 antenna tuner, \$225; EDDYSTONE 770 R/1 rec, \$50; DICK SMITH M9546 power supply (0-20v, 0-2amp), \$30; 10ghz horn antenna, \$20; ESCORT digital EDM168 multimeter, \$40; TECH TE15 GDO (transistronised), \$60; EA project audio OSC, \$20; DICK SMITH Q-1136 multimeter, \$30; 3x829 transmitting tubes (with 2x ceramic sockets), \$40. Prices ONO. Chris (02) 484 8753. (Transmitting gear to licensed amateurs only).

● 1991 AMATEUR CALLBOOK, International and North American listings, in GC, both volumes \$73 incl postage. Steve VK2PS (02) 654 1809.

● KENWOOD TS-120V HF txvr, VGC, with MC-30 mike, MB-120 mobile mount, \$475 ono. Phil VK2NPL (045) 87 7302 AH.

## FOR SALE — VIC

● TH3JR HIGAIN antenna, 3-element 10, 15, 20m with balun and connecting coax cable, \$250. 50ft two-section crank-up tower with rotator, \$750. All on site for removal. John not QTHR for VK3NF (03) 802 1849.

● TONO 7000E comms unit for RTTY CW ASCII instr and service manuals and cable, \$465 EC. (055) 23 1025.

● YAESU earphones YH-55 Impedance 8 ohms, as new cond, Roth VK3BG (03) 725 3550.

● MFJ941D 1.8-30MHz ATU 4-1 balun. Ant switch, EC, \$180. HL37V 2M 30w amp, Rx preamp, EC, \$150. TRS80 mod 2000 Tandy computer. 10mB hard drive, 5.25 floppy, GC, \$150. Yaesu

YD148 desk mic, GC, \$50. Damiaw VK3EHP QTHR (053) 52 4183.

● COMM RX REALISTIC DX200 1.5-30MHz, \$150. Programmable Scanner, REALISTIC PRO2020, \$175 (dec'd estate), both with manuals & boxes. Recent amateur radio exam course of instruction. Two books & audio tape, \$17. VK3AFO QTHR (060) 24 2537.

● FIVE-ELEMENT linear loaded tribander by Werner Wulf, \$350. DAIWA ant tuner, CNW518. Rated 2.5kW S/N EO6026, \$350. Bill (052) 63 2423.

● TRANPRO AUSTRALIA VALVE TESTER type No 862, with sub board in lid with extra sockets. Instr manual, valve charts in GWO, \$100. Also TAYLOR VALVE TESTER, Windsor model 45C instr manual, valve charts, in GWO, \$120 plus freight. Bill VK3BWS QTHR (052) 29 3337.

● POWER SUPPLY 13.8V 30 Amps at 50%. Heavy duty, weights 16kg. English made, \$225. Ron VK3OM QTHR (059) 44 3019.

● KENWOOD R5000 HF communications receiver 10kHz-30MHz, two filters fitted YK88A-1 YK88SN still under warranty, \$1420. MONITORSCOPE YO-100, in as new cond, \$310. Harry VK3AXJ QTHR (03) 802 5704.

● The RAAF Williams Amateur Radio Club VK3APP at the Laverton Base will be conducting classes for prospective radio amateurs and those who wish to upgrade their existing qualifications during 1992. The club is planning classes in the following sequence: AOC/NAOCP Morse code; pre-novice theory preparatory course; NAOCP theory; and an AOC/NAOCP theory course. Enquiries to Mr Neil Trainor (03) 369 1010.

● MFJ1278 TNC Multimode with greyscale modem and 2400bps board. Incl Multicom s/ware, \$550. Damien VK3CDI (054) 27 3042.

● YAESU FT101E mods to RF & PS boards, good finals, manual & cct notes, VGC, S/N 305177, \$400. YAESU FT101B (Mk II) complete RX/TX alignment, near-new finals, GC, with manual s/n 310005, \$350. Chris VK3JEG QTHR (03) 557 5180 home (03) 660 2977 bus.

● MALDOL HS-260 Power SWR HF/VHF meter 12watt and 120watt ranges, \$50. HI-MOUND HK-708 Morse key, \$20. Paul VK3EPO (059) 81 1771.

● YAESU FT290R 2M all mode base/portable c/w leather carry case, nicads, original packing and manual, as new cond, \$480 ono. David VK3DPM (03) 598 1015.

● Yaesu FL2100 HF Linear in new condition. Genuine VIBRO-PLEX jewelled movement bug key chrome plated, a collector's item. Offers on both of these considered. Don VK3ADI QTHR or BH (03) 882 0020.

## FOR SALE - OLD

● REALISTIC AX190 ham brand communication receiver SSB & AM, sep speaker, \$150. VK4ADS (07) 379 8245.

● YAESU FT290R s/n 2M220355. Nicads charger, soft carry case, \$450. WESTERN Peak Power meter, 50 to 150MHz, 5/20/200 watts, \$60. OSKER BLOCK RF pwr & SWR meter 420-450MHz 5/25/125 watts, \$30. MAST TOP AMP VHF/UHF, \$35. Two B&W VIDEO CAMERAS, \$30 & \$35. G4ENA fast/slow scan converter, all boards assembled, in case, requires leads between panel & boards, \$100. Norm VK4ZFO QTHR (077) 79 4641.

● CLASS 1.5 (50ua) MF105L 100x75mm meters 3 scales, \$28. POWER TRANS 240volt-18v @ 25A continuous rating, \$25. (25a transistor for use with above, \$20). Boxer 100mm 240volt fan, \$15. ANDREW 44ASW N male connectors, \$22. 12v-220v relays, \$5 ea. VK4DY QTHR.

● YAESU FT747 s/n 8G070357 YAESU FT757 ATU s/n 9J490001 has 16 months mft own guarantee, all with manuals. Phone Steve, on (072) 61 1711 from 6-7pm with your offers, please.

## FOR SALE — SA

● Y 11/3219 ENGLISH ELECTRIC (4/125A new in cartons, \$45 ea. 4/C x 5000, 4CX/3500, 4/CX x 1000, new with sockets, best offer. Also have the above as rebuilt tubes. SWAN ASTRO 150 s/n A150-668, with matching PS, in EC, \$600. VK5FR QTHR (082) 95 2331.

● YAESU YO-101 monitor scope, \$250. AEA CP-1 CW/RTTY/AMTOR computer patch interface, full instructions and software for C64, \$250. TONO THETA-9000E ASCII CW RTTY computer, \$350. All in VGC. VK5XW QTHR (08) 331 7576.

## FOR SALE — WA

● YAESU FT-101Z(D) plus FTV250 and FTV-650B transvertors, \$750; KW2000/A U/S \$100; DICK SMITH 50MHz counter, \$80; LEADER DIPMETER LDM-815, \$80; PSUs 2x13.8v, \$40 ea. (09) 399 1808.

## WANTED — NSW

● YAESU FTV-707 2m transverter module for FTV-707 or FTV-107R. Dan VK2GG QTHR (049) 73 3616.

● CIRCUIT OR DIAGRAM for handheld YAESU FT202, all costs paid. Bruno VK2BPO QTHR (02) 713 1831.

● JOB WANTED in Sydney. Two-way radio or anything electronic. Ring Vic VK2EVD (02) 772 2411.

● ICOM R7000 or AR3000, all mode RX or similar to 1.5GHz, any cond. Neville VK2QF QTHR (063) 73 8624, Hargraves, NSW 2850.

● HF TxRx suitable for mobile or portable, with or without AC power supply, TS120S, IC730, FT301 or similar. Details to Roger VK2AIV QTHR (042) 34 1431.

## WANTED — VIC

● COLLINS KWM2A T/S or late model S line equip. Must be in EC, will pay top price. Rob VK3JE (060) 37 1262 OR (03) 584 5739.

● TRANSFORMER 1000V, 300-400ma. Also Electrolytic Capacitors 300-400 volt 200 µf. Damiaw VK3EHP QTHR (053) 52 4183.

## WANTED — QLD

● KENWOOD comms rcvr QR666 CCT diagram and op manual. Photocopies OK, will pay costs. VK4DUP QTHR (078) 91 2419.

## WANTED — SA

● IC225 2m tvr, not working, consider any cond. VK5BGZ Keith BH (08) 259 5363, AH (08) 280 7430.

## WANTED — WA

● TS430S TXCVR in original cond. Frank VK6ZR QTHR (09) 276 1357.

● CIRCUIT DIAGRAM, schematic or photocopy of IC255A 2m radio, will reimburse any costs. Terry VK6NTJ QTHR.

# Kuwait National and Liberation Day Award

On 25 February every year the State of Kuwait used to celebrate its national day. From this year onward the event's name will be National and Liberation Day. To mark this auspicious event, Kuwait Amateur Radio Society is delighted to announce an international contest for Kuwait National and Liberation Day Award. The contest is open to both licensed radio amateurs and SWL, according to the following rules and regulations:

1. Contacts may be conducted on any

band and any mode from 3-30MHz.

2. The contest will start at 0000 GMT on 25 February every year and will end at 2400 GMT at the end of February.

3. There will be two call signs in use: 9K2RA-NL and 9K2.-NL.

4. To qualify for the award the contestant is required to secure at least three points by making two calls with KARS station (9K2RA-NL) and one call with any other Kuwaiti amateur station, the call letters of which are added to (9K2.-NL) for instance:

9K2DR-NL.

5. The participant must submit a certified copy of the logbook along with five IRCs or \$US3.

6. There is no deadline for submitting applications, which should be addressed to: The Award Manager, Kuwait Amateur Radio Society, PO Box 5240 Safat 13053, Kuwait. Tel: 965 533 3762. Fax: 965 531 1188.

ar

## The "160" Have a Go (again) Activity

Due to multiple requests to "do it again", again, Hastings Branch 13 has set up the following event for your participation. Get a branch group together and borrow a tower or crane, or something at home (an 80m dipole works fine) and come up on 160m. International and national advertising is occurring, so once again good re-

sults for your effort are assured.

Previously we have "done it" in October '89 and June '91, so we have chosen March '92 this time to provide variation in time of year (season) and experience. Considerable ZL and VK support was forthcoming last time (without the pressure of a contest, just to "have a go", so join us this time for an exclusive expe-

rience.

- 1840 kHz +/-10kHz
- 2000 — 2400+ NZT
- 20 and 21 March 1992
- SSB and CW
- 73s ZL2BEI (branch call sign)
- David Walker ZL3DK

ar

# Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State: .....


Not for publication:

Miscellaneous

For Sale

Wanted

Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 59

Page 51

	1	2	3	4	5	6	7	8	9	10
1	—	.	.	.	—	.	—	.	.	.
2	.	.	.	.	—	—	.	—	—	—
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10	.	.	.	.	.	.	—	—	.	.

Across: 1 bare; 2 spat; 3 view; 4 idle; 5 lap; 6 year; 7 swim; 8 sneer; 9 waft; 10 siege.

Down: 1 brie; 2 save; 3 vain; 4 fare; 5 like; 6 mints; 7 street; 8 drew; 9 pod; 10 pear

### TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

### VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the boxholder or seller of the goods.

**TYPESETTING :** Magazine Graphics  
PO Box 72  
Caulfield Sth, 3162  
Ph: 528 1033

**PRINTING:** Industrial Printing  
Richmond

**MAIL DISTRIBUTION:** R L Polk &  
Co Pty Ltd  
PO Box 140,  
Collingwood,  
Vic. 3066  
Tel:(03) 417 5161

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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## HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information  
about the WIA.

Mr, Mrs, Miss, Ms:.....

.....

Call Sign (if applicable):.....

Address: .....

.....

.....

State and Postcode:.....

# WIA Slow Morse Transmissions

VK2BWI nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699kHz and 144.950MHz 5wpm, 8wpm, 12wpm

VK3RCW Continuous on 144.950MHz 5wpm, 10wpm

VK4WIT Monday at 0930 UTC on 3535kHz

VK4WCH Wednesday at 0930 UTC (0830 UTC daylight saving) on 3535kHz

VK4AV Thursday at 0930 UTC on 3535kHz

VK4WIS Sunday at 0930 UTC (0830 UTC daylight saving) on 3535kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555MHz





**IC-751A**

# Our Base Units Have So Many Features, These Pictures Speak Louder Than Words.



**IC-970A/H**

**O**ur features speak volumes. Rather than write hundreds of words to introduce the new IC-970A/H (pictured above) and some of our other base units, we'd like you to phone us free on (008) 338 915.

We'll provide you with detailed brochures and the name of your nearest authorised Icom dealer. Alternatively, you can write to Reply Paid 1009 Icom Australia Pty Ltd P.O. Box 1162 Windsor Victoria 3181. Telephone (03) 529 7582 A.C.N. 006 092 575

# RADIO AMATEUR

Disneyland  
Special Event

MARCH 1992

RRP \$3.25



THE WIA RADIO AMATEUR'S JOURNAL

# KENWOOD



## DX-ABILITY

Kenwood's TS-450S/TS-690S HF Transceivers Answer the Call

*Wherever you are, whatever the situation, you can always count on Kenwood's TS-450S and TS-690S for tough, dependable performance. Products of world-famous Kenwood engineering, these versatile HF transceivers are designed for SSB, CW, AM, FM and FSK modes of operation on all Amateur bands, including the WARC bands. To further enhance capabilities, choose the optional DSP-100 Digital Signal Processor. The AT-450 Automatic Antenna Tuner is built into the TS-450S, and is available as an internal option for the TS-690S. Along with multi-function operation and the highest levels of quality and performance, both models offer yet another advantage: ultra-compact dimensions ideal for DXpeditions and mobile use.*

Enjoy all the advantages of these superior features:

- Superior receiver dynamic range of 108dB
- Kenwood's exclusive AIP (Advanced Intercept Point) system
- General coverage receiver
- Automatic antenna tuner (TS-450S only)
- Inbuilt automatic ATU option (TS-690S only)
- Ultra-compact design
- Excellent split frequency operation
- CW pitch and CW reverse mode selection
- Digital bar meter and multi-function LCD display
- IF shift circuit
- Dual-mode noise blanker (pulse or 'woodpecker')
- 1Hz fine tuning
- 100 memory channels
- 100 watts output on all HF bands
- 50 watts output on 50 to 54 MHz six metre band (TS-690S only)

## HF TRANSCEIVER TS-450S/TS-690S HF TRANSCEIVER

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.  
(INCORPORATED IN N.S.W.)

8 Figtree Drive, Australia Centre, Homebush, N.S.W. 2140  
Phone (02) 746 1519, (02) 746 1888, Fax (02) 746 1509  
Call now for further information and the name of your nearest authorised Kenwood dealer.

Kenwood Electronics Australia Pty Ltd only warrants products purchased from their authorised Australian dealers.

Please phone, mail or fax for information

Name.....  
Address.....  
..... Postcode.....  
Publication..... Issue.....  
Model.....



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weekdays

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	Editorial	Hamads
April	9/3/92	11/3/92
May	6/4/92	8/4/92
June	11/5/92	13/5/92

Delivery of *AR*: If this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA.  
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### Cover

**DISNEY "HAMS"** — Beloved Disney characters Mickey Mouse and Goofy get ready for the Disney Amateur Radio Special Event commemorating the opening of the Euro Disney Resort in France. The radio clubs at Disneyland, Walt Disney World, Tokyo Disneyland and the Queen Mary and Spruce Goose Entertainment Centre will be joined by the Paris-based Radio Club de St Maur from 0000 on 4 April to 2400 on 5 April in celebration of the 12 April opening of Euro Disney. For full story see page 17. Photo by courtesy The Walt Disney Co.

# EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

## Magazine Statistics

About a year ago, a sub-committee comprising four members of the Publications Committee prepared a report on the amount of space which should on average be given in AR to the various columnists, general interest and technical authors. The report was based on extensive interviews with amateur colleagues and fellow members of a number of radio clubs. From this was produced a set of guidelines as to how many pages (or fraction of a page) should appear on each topic in an average issue.

Graham VK3IY has taken this a stage further, and produced a set of statistics for the issues from January to November 1991. In the form of histograms, one sheet shows the number of magazine pages

used each month in the four categories Technical, General Interest, Columns and Advertising. Another two sheets show, month by month, the number of pages used by each column or category of article or item.

Summing up the first sheet for the whole 11 months, we find that Technical absorbed 143 pages, General Interest 55, Columns 219 and Advertising 70 pages. As percentages of the total 487 pages, these work out to 29.4, 11.3, 45.0 and 14.4 respectively.

From the second set of histograms, it appears that most categories averaged fairly close to their specified guideline size over the full period. Awards, for example, exceeded its guideline of one page in three issues, but was well under this in three other is-

ues. Categories which regularly exceeded their guidelines were Contests, How's DX and AMSAT (but note that a different AMSAT columnist took over in October, and column size has diminished). Guidelines were not specified for some categories, eg WARC news, WICEN or Education.

What does all this mean? To me, it means that over all we are managing to produce a reasonably balanced mixture of material for you to read. If there is any readjustment needed, perhaps we should try to increase the Technical component at the cost of columnists' space. But which columns? Ultimately, it's all up to you, our readers, to let us know if you would like to see any changes.

On a different note, we have received a letter from Paul, a VK6 who is not otherwise identified, commenting on my January editorial. Normally, anonymous contributions are ignored, but in this case there

are good reasons why the writer does not want to be revealed. He represents a category at which I hinted with the words "many people are not even fortunate enough to have a job".

Paul has several tertiary qualifications and is obviously young and energetic. He has applied for more than 300 jobs but is still unemployed. He cannot afford a WIA sub, and has difficulty with rent, electricity, etc, not to mention food and clothing.

I am very much aware that Paul is not an isolated case. Our present national state of depression is partly due to international factors, but even so I feel that our Australian political masters (who are supposed to be our representatives!) have a great deal to answer for. How much longer must we all wait before some semblance of prosperity returns?

ar

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society — Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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**General Manager and Secretary: Bill Roper VK3ARZ**

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Intruder Watch:	Gordon Loveday	VK4KAL	WICEN:	Leigh Baker	VK3TP

# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## WIA Representing All Amateurs

During February 1992, the WIA members of the Australian government team, David Wardlaw VK3ADW and Ron Henderson VK1RH, are in Torremolinos, Spain, representing the Australian amateur radio service at the World Administrative Radio Conference, WARC 92.

Even though David and Ron are representing the whole of the Australian amateur radio service, the multi thousand dollar costs for their attendance at these vital discussions for several weeks are

being paid by just 39 percent of Australian radio amateurs. Yes, that is correct! The members of the WIA, plus a small handful of non-members who have made donations to the WARC 92 fund, are paying to protect the frequencies and privileges of the whole Australian amateur radio service.

Think about that for a moment! And think about why that other 61% of licensed radio amateurs in Australia are not doing their bit to help protect this great leisure time activity of amateur radio!

It is not only in international affairs that the WIA

represents the whole of the Australian amateur radio service. The WIA is continually dealing with the Department of Transport and Communications, negotiating for better conditions and privileges. Again, these negotiations are not just for the benefit of WIA members, but for the whole Australian amateur radio service.

As part of the vastly improved relationship between the DoTC and the WIA in the past 12 months, Bill Roper VK3ARZ, the WIA General Manager and Secretary, visited Canberra on Friday 17th January 1992. Very useful discussions were held with the Director, Licensing Operations, David Hunt, a key figure in the recently improved performance of the DoTC in

relation to the amateur service. After the meeting with David and several of his staff, another meeting was held with the Director, Regulatory, Alan Jordan, where the main topic of discussion was amateur exams.

Many issues are under discussion with the DoTC at present. Here are reports on just a few.

## Deregulation of Licence Conditions

As has been previously reported, the WIA has lodged a submission with the DoTC recommending a streamlining of the amateur service regulations, particularly in relation to repeaters, beacons, packet, RTTY and club stations.

The preliminary findings

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Secretary Treasurer Christopher Davis VK1DO Jan Burrell VK1BR Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Panamatta NSW (PO Box 1066) Panamatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Secretary Treasurer (Office hours) Roger Henley VK2ZIG Bob Lloyd-Jones VK2YEL Bob Taylor VK2AOE Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Secretary Treasurer Office hours 0830-1530 Tue & Thur Jim Linton VK3PC Barry Witton VK3XV Rob Hailey VK3XLZ	1.840MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 146.700 FM (R) MT. Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Old 4001 Phone (07) 284 9075	President Secretary Treasurer John Aarsse VK4QA Bob Lees VK4ER Eric Fittock VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Secretary Treasurer Rowland Bruce VK5OU John McKellar VK5BJM Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Secretary Treasurer Cliff Bastin VK6LZ John Farnan VK6AFA Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525MHz. Country relays 3582, 147.350(R) Busseton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfame Tas 7015	President Secretary Treasurer Tom Allen VK7AL Ted Beard VK7EB Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).			
Note: All times are local. All frequencies MHz.			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

response received from the DoTC is very encouraging, and is being closely examined by specialists in all areas under discussion. Included in the letter accompanying the preliminary findings were the following comments:

*The proposals for change put forward by the WIA have shown a very responsible approach to the administration of the service. All those involved in the process are to be congratulated.*

and:

*I agree entirely with the premise from which the WIA's work commenced, that is, the Amateur Radio Service is an experimental service that should be subject to as few regulations as possible in order to encourage that experimentation. In this regard, the WIA has a very important role to play in administering the service.*

Although negotiations are still at an early stage for such a revolutionary proposal of change to the amateur service regulations, the WIA is confident that the outcome will be what Australian amateurs want, particularly for the special interest groups who feel that the current regulations bureaucratically and unnecessarily hinder development of their particular interest in amateur radio.

## Code Free Novice Licence

As previously reported, the WIA lodged a submission with the DoTC in September 1991 asking for the introduction of a "code-free" Novice licence. This proposal has been WIA policy for some time, and seeks a new "entry level" grade of licence where the requirements are Novice level theory and regulations only.

Discussions with the DoTC reveal that this proposal is proceeding on course, and the WIA expects a decision by the middle of 1992.

Incidentally, it is interesting to note that one of the difficulties being faced in the possible introduction of this

new grade of licence is what callsign block to allocate to it. The VK? prefix callsigns with AA to ZZZ suffixes are steadily running out, and there does not seem to be room for a suffix block for a new licence grade. Does this mean a prefix other than VK?

## Modifications to Amateur Equipment

There has been a lot of discussion recently about modification of amateur transceivers for use in other services, such as marine and land mobile. Several qualified people have expressed their concern to the WIA about the fact that modified amateur equipment being used in other services could endanger lives.

There are obvious pitfalls when using amateur equipment in other services in that it is not purpose designed for, say, marine use. Also, the confusing complexity of controls when used by a non-amateur in an emergency, can be life threatening.

Because of the continuing complaints being received, the WIA recently asked the DoTC for clarification of the legal implications of such modifications and use. The reply received from the Director, Licensing Operations, David Hunt, states:-

*The operation of radiocommunications equipment for services operating on frequencies outside the Amateur bands is generally covered by Ministerial standards made under the Radiocommunications Act and by equipment specifications authorised by the Department.*

*As a condition of all licences (for non-amateur services) it is a requirement that any equipment meet the appropriate Ministerial standard or equipment specification for the service and frequency band concerned.*

*Under the current provisions of the Radiocommunications Act, in respect of Ministerial standards, where any standard is in place, it is an offence to use equipment that*

*does not meet the requirements of the standard. For example, there are Ministerial standards for land Mobile and CBRs equipment, if the amateur equipment were to be used for providing these services then a breach of the Act would occur.*

*If unapproved equipment is used in any licensed service, amateur service excepted, the licensee of the service would be liable to a breach of licence conditions, for which substantial penalties apply. Essentially the provisions of the Act relate to the use of approved equipment, and in cases where unapproved equipment is used, the licensee or user of the equipment could be liable to regulatory action by the Department. There are provisions in the legislation which also address the situation where equipment conforming to a Ministerial standard is modified.*

*The Department takes a serious view of modifications to equipment. If people choose to modify equipment, then they should check with the Department first to ensure that the modification will not cause a departure from the approved technical criteria for the service in which the equipment is to be used.*

There it is. Bewarned! The use of modified amateur transceivers in other communications services could not only be possibly life-threatening under certain circumstances, but is also illegal!

## Going Overseas?

Some WIA members, when seeking a reciprocal licence in another country, have encountered problems with the other country's administration because the Australian licence certificates and licence renewals are generated by computer and so are not signed by an issuing officer.

After representations by the WIA, the DoTC has now advised that any amateur wishing to go overseas may make an appointment with the staff at any DoTC State or District

office, and the authorised staff will be happy to endorse the original copy of any licence certificate or current licence renewal notice.

## Special Event Callsigns

As has previously been reported, any group or individual may apply to the DoTC for use of the "VI" prefix as part of a special event callsign for occasions of special state or local significance. The DoTC will determine, in conjunction with the applicant, whether the occasion warrants the use of such a special callsign.

Recently, an incident occurred where the applicant for a special event callsign wanted to use three numerals in the callsign, and wanted the callsign immediately. The WIA Executive Office was asked to intercede, which it did successfully, but this prompted the need to further clarify the rules governing special event callsigns. The response from the DoTC Director, Licensing Operations, is as follows:

*The Department is able to issue special callsigns for use by amateur special event stations with minimal delay and at no extra cost provided the callsign meets the standard template incorporated within the International radio regulations. The regulations define the amateur callsign allocation as follows:*

*(1) one character and a single digit followed by a group of not more than three letters, or*

*(2) two characters and a single digit followed by a group of not more than three letters.*

*For Australia the allotted call sign blocks conform to (2) above.*

*ie xx0A - xx9Z  
xx0AA - xx9ZZ  
xx0AAA - xx9ZZZ  
xx = VK, VI and AX*

*Where the proposed callsign is outside the above convention, it is necessary for the Department to seek the approval of the International Frequency Registration Board*

of the ITU. This can take a considerable time. I am conscious of a number of precedents that have been set in the past but we do need to consult with the IFRB before any decision is made. In these cases it would be wise if applicants for special call signs (not fitting the approved blocks) provide 12 months notice of their requirements.

There it is. If you are contemplating applying for a special event call sign, and you want a special call sign that does not fit the standard call sign template, you must make application to the DoTC preferably 12 months before the event.

## On-Frequency Repeaters

Amateur radio is breaking new ground all the time with new methods for improving communication. That is the way it should be, but often these advances are not covered in the amateur service regulations.

One such case recently is the use of on-frequency repeaters for the electronic storing and forwarding of messages on the same radio frequency. When the DoTC approached the WIA about the use of on-frequency repeaters, the matter was referred to the WIA Federal Technical Advisory Committee (FTAC).

John Martin VK3ZJC, the Chairman of FTAC, promptly provided a set of recommendations, and these were submitted to the DoTC. The Director, Licensing Operations from DoTC in Canberra recently responded, endorsing the WIA recommendations as follows:

### Attended operation

1. Where the on-frequency repeater forms part of a normal amateur station, it must be operated in accordance with the licence conditions for that station, including the need for the licensed operator of the station to be present and correctly identify all transmissions.

### Unattended operation

2. Where it is intended to operate any on-frequency re-

peater in the unattended mode, it should be operated in accordance with the licence conditions of the Amateur service covering non-attended operation. A separate repeater station licence will be necessary.

The operation of on-frequency repeater stations for the purposes of electronically storing and forwarding of messages should be consistent with the licensing and band planning arrangements for repeater stations in the Amateur service.

## Why Hasn't My Article Been Printed?

As has previously been stated, the supply of articles for Amateur Radio magazine varies from month to month in type, quality and quantity. Editorial policy overall is to present a balance of technical and general interest articles, in the approximate order in which they have arrived, and still have room for the regular columnists. This may be modified when the actual setting out of the proofs occurs - a longer article may have to be held over, or a short one taken out of order to fill a space.

A good cover photo may be held over until space can be allocated to the accompanying story. In addition, delays may occur if the article requires artwork or extensive editing of the language used.

If you have submitted an article some time back and it has not appeared yet, please be patient. You have not been forgotten.

## Meeting of Federal Council

The now familiar quarterly "mini Convention" joint meeting of Federal Councillors from all Divisions, plus all Executive members, took place at the Federal Office over the weekend of 8th - 9th February 1992. As well as a full agenda of items for discussion, arrangements had been made for an extensive informal debate about the future of the

WIA to occupy most of the Saturday afternoon.

Saturday morning was mostly spent on routine financial performance reports, accounts for payment, membership statistics, correspondence, outstanding Council motions, etc. It was noted that for the first time in many years, if ever, the total number of amateur licensees in Australia appears to have decreased over a one year period (from June 1990 to June 1991). The latest figures, to 31st December, give a total of 18372 (including repeaters), but over the past six months DoTC has changed the basis for their statistics by removing licences temporarily suspended or inactive.

### SWOT Analysis

The acronym stands for Strengths, Weaknesses, Opportunities and Threats. Extensive discussion (perhaps "brainstorm" would be a better word) allowed the 17 attendees to consider how a range of topics applied to the WIA and possible actions on each.

The discussion leader ("facilitator"), a business colleague of the Federal President, had no prior knowledge of amateur radio, but has professional experience in marketing for a large business organisation. Some time was needed to "familiarise the facilitator" with the complexities of our multi-tiered structure (Federal, Divisions, affiliated clubs) and our unique capability for rapid intercommunication between individual members.

### Members Perceptions

A number of interesting "conclusions" arose from the SWOT session. Although amateurs share certificate and licence requirements, in many respects the average amateur is a "loner", having little need for team work. But, because of the complexity of the regulatory structure, a management body is necessary. Inevitably, this body serves the interests of non-members as well as members in many of its activities, but the infrastructure provided appears

largely "invisible" to the non-members, who see little point in supporting the WIA when they have access to benefits such as international representation and liaison with DoTC without being members.

Essentially the WIA was seen as "selling insurance" against loss of amateur frequencies. When there is little threat in this area, there is little incentive to pay a premium for it. We have "done our job too well", the danger is past, the infrastructure is free to all, so our numbers are falling. Is this bad?

We must balance the need for a membership proportion high enough to be representative with the relative costs of recruiting new members or spending more on existing members. The WIA, with about 37 percent of VK licensees, still compares favourably with the ARRL (22%) and JARL (16%), the two countries highest in amateur populations. It was agreed eventually that increased membership was desirable, but only if it could be achieved cost-effectively.

### WIA Structure

The future role of the WIA and possible re-organisation was discussed. Some competition (rivalry? power struggle?) between Divisions and Federal (some Divisions more than others) and between Divisions is longstanding. The word "paranoid" was heard at one stage. The local responsibilities of Divisions versus the national and international scope of Federal activities, were pointed out.

A need for some re-structuring, including a review of the Articles of Association, was identified. Should the WIA set itself up as an exclusive club with a long waiting list for membership, so that those able to afford it would be "breaking their necks to get in"? This idea seemed to have only little support! However, in any case, the benefits of membership should be obvious to potential members. Here the local clubs are often more obvious than the amor-

phous "behind the scenes" WIA, which no longer even holds Divisional meetings in VK2, 3 and 4.

#### Membership

Figures show that many new licensees join the WIA for a year or two and then "drop out". This may be due to temporary pressure of other interests, with later rejoining, but there is need to examine this trend. Some such resignees have been persuaded to rejoin.

#### Availability of services

Some Divisions provide more services than others, depending on their resources available. Federal Office receives many enquiries from people who cannot reach their Division by telephone. The topic of "customer service" was debated for at least an hour. The seven autonomous Divisions and Federal all had different views of the issues and their degrees of satisfaction. Since the WIA is funded by its members is it therefore obliged to provide a service to them? Service to country members was queried. Divisions denied that these members received less service than city members.

#### Publicity

It was agreed that the WIA needs to do more to "raise its profile" to all amateurs, not just members. Some suggestions were:

- \* for WIA sponsored repeaters, a voice ident naming the WIA;
- \* an 008 prefix phone number to a WIA central office;
- \* employment of a professional marketing consultant;
- \* extension of publicity displays at radio stores, DoTC offices etc (this is already being implemented widely in VK4);
- \* extension of the present "low key" WIA publicity via the WIA Exam Service;
- \* a marketing message on the blank side of WIA letters;
- \* corporate sponsorship.

Some Divisions already use some of these measures. Some, eg the 008 number or the Exam Service, were thought to be possible sources

of misunderstanding. Most were in favour of reducing the services available to non-members, but this could also introduce problems.

### Other Meeting Agenda Items

#### Ron Wilkinson Award

Each February Federal Executive decides the recipient of the Ron Wilkinson Achievement Award for notable achievement in any field of amateur radio. The winner this year is Maggie Iaquinto, VK3CFI, for her highly successful assistance to and packet communications with the Russian spacecraft MIR, and her involvement of her high school students. The two other nominees Joe Nevin, VK6ZTN (for work with packet repeaters) and Len Vermeulen, VK3COD, (for long service in providing Morse practice transmissions) were both awarded the President's Commendation.

As has been foreshadowed for over a year, the appointment of a full-time paid editor is under consideration. At the October 1991 meeting Roger Harrison, VK2ZTB, was asked to report to Executive on the practicalities of possible schemes. Roger, who has considerable experience in this area, provided a verbal report noting that suitable people for the job are very few, and that the salary level is considerably more than the present editorial and typesetting costs.

Current policy and implementation by Federal Office in recruiting new members was discussed.

A report on WICEN presented by the Federal WICEN Co-ordinator, highlighted the differences in organisation from Division to Division and the need for a better emergency channel in the 80 metre band. The present 3600 kHz frequency suffers badly from interference from home stations who may be unaware that a WICEN station is trying to use the channel.

General Business included

a motion of appreciation and commendation by VK1, endorsed by VK4, to the General Manager and staff for the introduction and quality of materials of the WIA examination service. This caused some discussion and comparison between Divisional Councillors as to how each state is handling the new system.

Highlights only have been presented in this report. To cover the whole 15 hours or so of meeting time in full detail would probably require more than a full issue of Amateur Radio magazine. However, it is hoped that the report gives some idea of what was involved in a very busy and tiring weekend.

### International Reply Coupons

Several members have at times complained about lack of information on the purchase or redemption of IRCs at their local Post Office.

We have been able to clarify this situation by reference to the Australia Post "International Post" Guide booklet, the latest edition of which became effective from 1st January 1992.

I quote the relevant paragraph, so that amateurs encountering problems can refer the postal staff to section 10.23 in their own handbook.

#### 10.23 INTERNATIONAL REPLY COUPONS

*International reply coupons are a means by which the sender of a letter overseas can ensure that the addressee does not have to pay the postage on the replying letter. International Reply coupons may be sent to all countries.*

*The sender encloses the Reply Coupon with his letter. One coupon is exchangeable at any Post Office of the other country, for one or more postage stamps, representing the minimum postage prepayable on an unregistered letter sent abroad by Air Mail to the most distant zone from that country.*

*In countries whose regula-*

*tions so permit, Reply Coupons may also be exchanged for postal stationery.*

*People receiving International Reply Coupons from abroad may exchange them for postage stamps or postal stationery at any Australian Post Office. A stamp or stamps equal in value to the postage, assessed at the Zone 5 rate (see the Postal Charges booklet), payable on a letter lodged for Air Mail carriage will be issued for each International Reply Coupon present for exchange."*

According to the Postal Charges booklet, effective January 1992, page 30, the cost of the IRCs is \$1.35 each.

So there it is. If you have any hassles at your local post office with IRCs, you can now assist the post office clerk by directing them to their own reference manual.

Thanks are due to Brenda Edmonds VK3KT and Bill Rice VK3ABP for their assistance in compiling WIANEWS for this month.

Bill Roper VK3ARZ  
ar

# BACK ISSUES

of AR available to WIA members

10 randomly selected back-issues of our choice, between Jan 1969 to Dec 1987, available for \$17.50

Price includes postage.

AR back issues PO Box 300 Caulfield South Vic. 3162

# WIA Videotape Library

The annual listing of the WIA Videotape library was published on page 31 of the February 1992 issue of Amateur Radio magazine. Unfortunately, the details of how to use the library were accidentally omitted from that issue of the magazine. Please read the information below in conjunction with the videotape listing in last month's edition of Amateur Radio.

Now every radio club can provide its member with quality technical lectures on subjects covering the whole range of Amateur Radio activities by taking advantage of the WIA Federal Videotape Library. You'll find this a boon particularly if yours is a country club which often has difficulty obtaining a variety of expert lecturers for its regular meetings. (Individual Amateurs and Librarians should take note of the duplication fees at the end of this article.)

For radio clubs affiliated with the WIA it's inexpensive and easy. Here's how it works. For those titles which the WIA has placed in the public domain, all you have to do is supply the WIA Video Co-ordinator (address above) with...

- a list of requested titles,
- a blank videocassette,
- a "VCB" Postpak,
- and enclose your address and stamps for return postage.

The program is then free for your use in the support of Amateur Radio in your area, including duplication and transmission over Amateur Television if you wish.

Those programs which are copyright are indicated by the \_ symbol and are available only ON LOAN. To obtain any Loan Item supply the WIA Video Co-ordinator (address above) with...

- your requested title,
- information about your preferred VCR format,
- enclose your address and stamps for postage to you,
- and a statement signed by a responsible member of your club that "I undertake that while (program title) is assigned to me, I will not allow it to be copied or transmitted by any means whatsoever, and that I will return the same promptly after showing".

Note: the WIA does not hold a licence from the copyright owners of certain titles; therefore no loan or copy service is available for those so marked; they are held for WIA Archive purposes only.

The present "preferred VCR format" is Standard Play VHS (with "Long Play" and HiFi Sound available on request plus Betamax and Video8 cassettes). For estimation of postage, a 3 hour VHS cassette measures 200 x 100 x 30mm and weighs 350gm.

A note to individual amateurs. From the inception of the WIA Federal Video Service cassettes were freely available to all comers. However, in order to stem the rising tide of requests for copies of programs from individual amateurs (some of whom asked for over 10 hours of programs at a time) there is now a duplication fee (payable in advance) of \$2 per hour or part thereof to individuals. Isolated or disadvantaged individual amateurs will however continue to receive free concession.

A note to librarians. A number of educational institutions have already availed themselves of the of the WIA technical lecture tapes. A duplication fee of \$10 per hour or part thereof is payable in advance by all institutions not affiliated to the WIA.

Finally, a note regarding cassette quality. The WIA Videotape Co-ordinator reserves the right to refuse to copy onto inferior quality video tape. Video dubbing is a real-time, one-at-a-time operation and in the past low quality tape has been the cause of many lost hours due to clogged heads etc. Label laws prevent publication of a list of manufactures of suspect tape, however most of the well known brand names are acceptable; in particular use only those tapes bearing the official "VHS" logo.

John Ingham, VK5KG, Federal Videotape Co-ordinator, 37 Second Ave Sefton Park SA 5083

ar

## TRY THIS

# CW Trainer

There is a rehash of a CW Trainer program for the Commodore 64 that I wrote which was published in various forms in AR in the '80s, which I thought some may find a refreshing change from the various on-air CW training. Having this program allows you to practise at any time that suits you.

The program, written in Commodore BASIC, generates random Morse in "word groups" from two to seven characters long. The student may choose the speed in wpm, select either letters only or letters and numbers and decide the number of characters to be sent in a "test".

While the CW is being sent, the screen blanks and, on completion of the test, the screen displays the characters for checking.

Those of you who would question whether, say, the 10wpm speed is perfect when you hear it, should alter the value 400 in line 230.

If a greater number, say 500, is used, the CW slows down; whereas if a lower number, say 350, is substituted, the CW speeds up. It may be that the BASIC in the many models of the C64 runs at different speeds, thus causing the variations reported in similar programs using this timing logic.

Neil Cornish VK2KCN, 56 Sherwin Avenue, Castle Hill 2154. (02) 634 1882

```
10 REM RANDOM MORSE 64. NEIL CORNISH VK2KCN
20 PRINT"WELCOME TO RANDOM MORSE!"
30 PRINT:PRINT"YOU MAY SELECT LETTERS ONLY. OR."
40 PRINT"A MIXTURE OF LETTERS & NUMBERS"
50 PRINT:INPUT"ENTER L OR N":XX$
60 IFXX$<>"L"&NDX$<>"N"THEN$0
70 PRINT:PRINT"YOU MAY SELECT THE NUMBER OF CHARACTERS"
80 INPUT"TO BE SENT, ENTER A NUMBER < 250":AS
90 IFA<230THEN$0
100 XX=36:IFXX$="L"THENXX=26
110 DIMA$(XX),B$(XX),C$(100),D$(100)
120 A$="ABCDEFGHIJKLMNPQRSTUWXYZ0123456789"
130 PORT=1TOXX:AS(T)=MID$(A$,T,1)
140 HEAD$=""NEXTT
150 PRINT:PRINT"INITIALISING - PLEASE WAIT!"
160 Q=INT(RND(O)*6)+2
170 PORT=1TOQ
180 L=INT(RND(O)*XX)+1:A=A+1
190 C$(C)=C$(C)+A$(L)
200 D$(D)=D$(D)+B$(L)+"2"
210 NEXTT:C=C+1
220 IFA<ATHEN160
230 PRINT:INPUT"ENTER SPEED IN WPM":P:P=400/P
240 PRINT:PRINT"PRESS [SHIFT] FOR CW !":WAIT653.1
250 POKES265,PEEK(153265)AND239
260 PORT=1TOC:PRINT$(T):NEXTT
270 GOSUB290:POKES265,PEEK(153265)OR16
280 PORT=8TOB+24:POKET,0:NEXTT:END
290 GOSUB380:POKX=1TOC
300 FORY=1TOLEN(D$(X)):IFR=2*PTHEN450
310 R=P*VAL(MID$(D$(X),Y,1)):IFR=2*PTHEN450
320 GOSUB420
330 FORZ=1TOP:NEXTZ
340 NEXTY
350 FORZ=1TO7*P:NEXTZ
360 NEXTX
370 RETURN
380 S=54272
390 POKES+3,0:POKES+6,240:POKES+1,47
400 POKES,100:POKES+3,8:POKES+2,0
410 POKES+21,200:POKES+22,30:RETURN
420 POKES+4,65:POKES+24,47
430 PORT=1TOR:NEXTT
440 POKES+4,64:RETURN
450 FORZ=1TOR:NEXTZ:GOTO340
460 DATA13,3111,3131,311,1,1131,331,1111
470 DATA11,1333,313,1311,33,31,333,1331,3313
480 DATA313,111,3,113,1113,133,3113,3133,3113
490 DATA33333,13333,11333,11133,11113
800 DATA1111,31111,33111,33311,33331
```

# Two-Tone Testing with a Cheap Oscilloscope

S J HUTCHINSON VK2FFF 72 BRINAWA ST MONA VALE 2103

VK2FFF presents an idea for monitoring your RF envelope on a simple oscilloscope.

## Introduction

I WAS CONTEMPLATING building a linear amplifier so I decided to assemble the gear required for two-tone audio testing. I already had a cheap 75mm oscilloscope and a heavy-duty oil-filled dummy load, so I proceeded to build the audio generator outlined in recent copies of the *ARRL Handbook*.

The oscilloscope has the limitation of a 5-6MHz bandwidth. It was bought from Jaycar in kit form and is still available from DSE in completed form. On testing, using my FT-757GX transceiver, the equipment worked well at 3.5MHz. It was difficult to tell on 7MHz if the bandwidth limitation was evident, but on the higher frequency bands severe distortion took place.

## Modifications to CRO

How to solve the bandwidth problem? Friend Dave VK2IJ suggested the direct application of the two-tone modulated RF signal to the vertical deflection plates (Y plates) of the oscilloscope, bypassing the Y amplifiers.

The vertical sensitivity of the CRO was measured at 17V per cm, without amplification. The graticle covers 4.8cm, so a signal of about 80V peak-to-peak was required for a full picture. How to generate an 80V peak-to-peak balanced signal? "Test Equipment for the Radio Amateur", second edition, page 9-3, gave the answer. A sample of the transmitter RF output is fed to a balanced tuned circuit resonant at the frequency of interest and feeding the Y plates from the high RF potential ends of the circuit.

Figure 1 shows the pick-up unit used to sample the RF output of the transmitter. A single turn loop in the centre of a wire joining the two UHF sockets is coupled to a two-turn loop which feeds the tuned circuit. Figure 2 shows the tuning unit circuit diagram. L1, the coupling winding, is specified at two turns with coupling initially adjustable, and L2 to resonate with C1 for the band required. C1 is specified as a 50pF + 50pF two-gang capacitor.

## Construction

For the pick-up unit, a 120x40x65mm diecast box was used with two SO-239 sockets. The sockets were linked by a length of 12 B&S wire with a single turn loop in the centre. A two-turn coupling loop, with one end grounded to the box, was taken to a BNC socket to feed the tuning unit. (The single turn loop and resultant impedance "bump" could be avoided, if desired, by the use of a capacitance divider between the 12 B&S wire and the box). The pick-up was installed

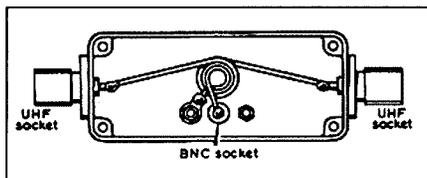


Figure 1. RF pick-up unit.

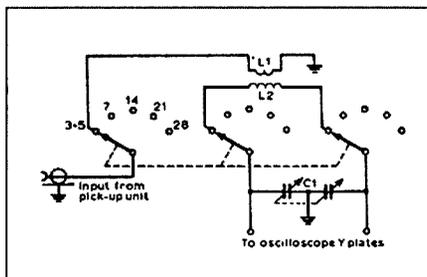


Figure 2. Tuning unit circuit diagram.

in the transceiver output feeder and produced about 0.5V peak-to-peak at 100 watts carrier output.

The junk box provided a 30pF + 30pF two-gang capacitor, a four-pole five-position wafer switch and a selection of Amidon L-43 coil forms, complete with adjustable cup cores and shield cans. A coil was wound for 3.5MHz and a "lash up" constructed. The cover was taken off the CRO and the Y plates were disconnected from the Y amplifiers and provided with one-megohm resistors for a DC path to ground. The lash up was tested and provided about 40 percent of full vertical deflection on a 100W two-tone test. The number of coupling turns (L1) was increased from two to four on the 3.5MHz coil. This gave a deflection of

about 65 percent at 100 watts, which was satisfactory. At 400 watts, deflection would be about 130 percent, and the tuning capacitor (C1) could be used as a "vertical amplitude" control to bring the picture back on scale.

Some thought was given to the final placement of the pick-up unit and the tuning unit. The relationship of the tuning unit to the CRO seemed to be critical. The capacity of the leads from the tuning unit to the Y plates and the capacity of the Y plates themselves would form part of the tuned circuit. Too much capacity would degrade the L/C ratio, and lack of symmetry might cause imbalanced voltages. Fifty Hertz pick-up had to be avoided, and it should be a simple matter to return the CRO to normal use. Therefore, the tuning unit would be installed as close to the Y plates as practicable.

It was decided to place the CRO at a convenient eye-level location on the operating desk. This would require about one metre of RG-58 coaxial cable from the pick-up unit to the tuning unit. A 28MHz tuning coil was installed in the lash up, and the effect of the coax on the signal amplitude was found to be minimal.

Turning to the construction of the tuning unit, the CRO was examined and there was no room on the front panel for extra controls. Accordingly, the tuning unit would have to be external to the CRO housing and be mounted on top as close to the front as possible, provided this obeyed the criterion of close coupling to the Y plates.

The CRO cover can best be described as an inverted, square-cornered U. It was removed and a bracket of 2mm aluminium sheet, 110mm wide and 140mm deep, was fixed under the rear flange using countersunk screws. Two pairs of RCA sockets were installed on the bracket. One pair was wired to the outputs of the Y amplifier, and the other pair to the Y plates. The latter wires were quite short and direct. The cover was drilled to accommodate the four sockets and replaced. A pair of self-tapping screws through the cover and into the bracket rendered the latter rigid (Figure 3).

A 120mm x 95mm x 50mm diecast

aluminium box housed the tuning unit and was painted to match the CRO. The front of the box carried the tuning and bandswitch controls. On the rear were mounted a BNC socket for the pick-up signal, and two RCA sockets for the Y plate signals, directly in line with the matching sockets on the CRO cover.

The sockets and controls were installed, and coils were mounted on a piece of Veroboard and wired to the switch. The coils were wound with 7x0.05mm Litz wire which was to hand. However, it was soon found that adequate deflection could be achieved very readily and was a function of the number of coupling turns (L1) and the Litz wire was not necessary. To maintain a balanced output, an effort was made to wind the secondary coils (L2) symmetrically. This was not possible for the lower frequency coils which were in several layers due to the very small formers. Similarly, the primary coils (L1) were wound midway on top of the secondary coils. In practice it was found one could depart from these desirable features without upsetting the balance of the outputs.

For those who might wish to use such coils, the following are the winding data:

Band MHz	Former	L1 turns	L2 turns
3.5	Amidon L-43-2	4	95
7	Amidon L-43-2	3	48
14	Amidon L-43-6	3	26
21	Amidon L-43-6	3	18
28	Amidon L-43-6	3	14

Should coverage of 1.8MHz and the WARC bands be required, an extra switch position and coil will be needed for the former. A wider capacity range for C1 than 30pF + 30pF should accommodate the WARC bands.

The completed tuning unit box was mounted to the top of the CRO with the front edge set back about 25mm behind the front of the CRO. The pick-up signal required about one metre of RG-58 coax, as mentioned before. The output connections to the Y plates were made using pairs of RCA plugs and very short (about 50mm) lengths of miniature (RG-174) coax.

### Focus

Having disconnected the Y amplifiers and grounded the Y plates through one-megohm resistors, the focus was poor. Readjusting the focus control improved it somewhat, but not back to the original condition. This effect was attributed to the removal of about +100v at the DC coupled Y amplifiers from the Y plates. The problem was eventually solved by the removal of the one-megohm resistors, thus letting the Y plates float. The tuning coil maintained both Y plates at

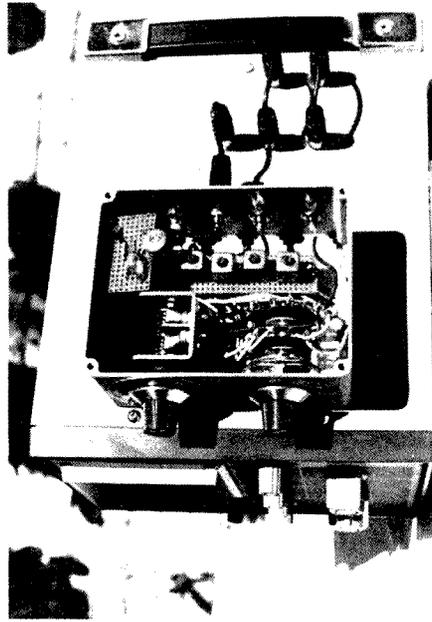


Figure 5. Interconnections.

the same DC potential and thus the trace remained in the centre of the screen. (The vertical shift control was not operative with the Y amplifiers disconnected).

### Synchronisation

It was recognised that a synchronisation (sync) signal would have to be provided. This locks the sweep frequency and prevents the picture drifting across the screen. The CRO obtains "internal" sync from the Y amplifier chain or "external" sync from an external source for which a terminal is provided. It was thought that, as the Y amplifiers were not in use, it would be necessary to use the external sync facility. To this end, a third RCA socket was provided on the rear of the tuning unit.

The incoming pick-up signal was temporarily connected to the external sync

terminal. With such a low amplitude (0.5V peak-to-peak at 100 watts) it was doubtful this would work. Surprisingly, it did work up to 21MHz, but the stability was poor. The pick-up signal was then connected to the input of the Y amplifiers and the sync switched to internal. This was better due to the limited bandwidth of the amplifiers.

For synchronisation, the component of interest is the audio envelope, and half of the envelope should suffice. A simple detector circuit was built on a scrap of Veroboard (Figure 4). The pick-up signal was fed to it, and the output connected to the Y amplifiers. Excellent sync was obtained on all bands with vertical gain adjusted to suit.

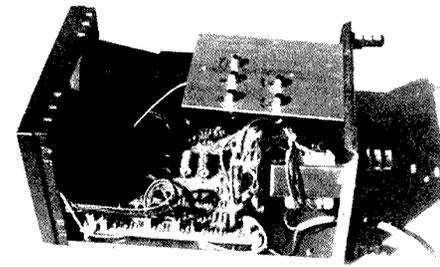


Figure 3. Socket bracket mounted inside CRO.

The above was made permanent by mounting the detector inside the tuning unit. The pick-up signal was connected to it and the detector output connected to the third RCA socket on the rear of the unit. A matching RCA socket was mounted on the bracket supporting the Y plate and Y amplifier socket. This socket was wired internally to the "vertical input" terminal of the CRO. The two RCA sockets were again connected by a short lead and the two RCA plugs (Figure 5).

This completed the construction. To revert to normal operation of the CRO,

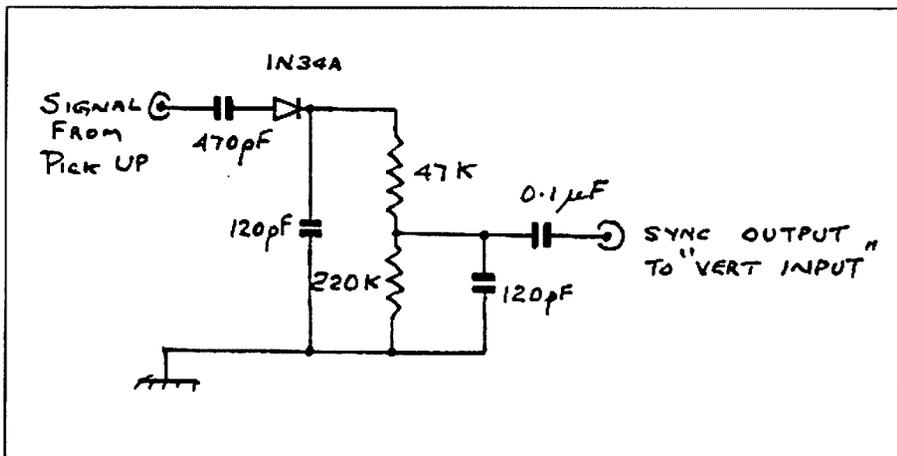


Figure 4. Detector circuit.



Figure 6. Complete unit.

all that is required is to switch the two Y plate jumper leads from the tuning unit to the Y amplifiers.

The sync lead is unplugged from the tuning unit. Figure 6 shows the completed unit, and Figure 7 the pick-up unit.

The circuit board to the left-hand side of Figure 7 is for another project.

### Operation

This interesting station adjunct was

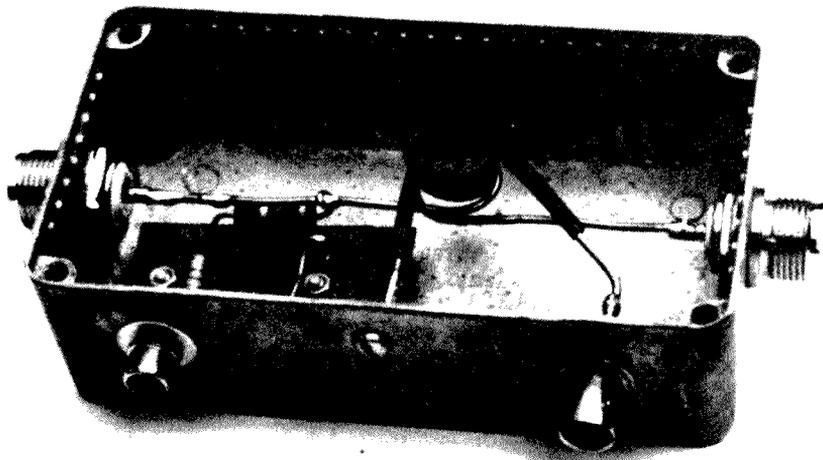


Figure 7. Pick-up unit.

first used to test the FT-757GX transceiver. It showed that increasing microphone drive so that the ALC needle moved off the zero produced little or no more power, as expected.

However, there was a danger that "flat-topping" could occur, particularly on the higher frequency bands.

At a later date, the equipment proved invaluable to test the home-brew linear. The limitations of the linear could be de-

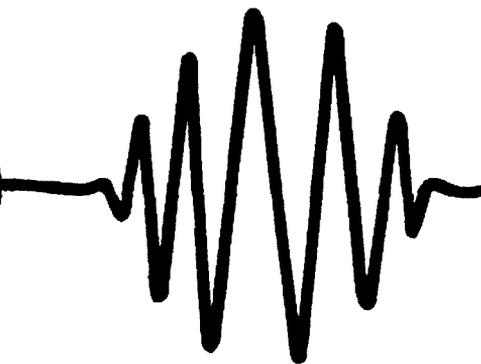
defined and an appreciation gained of the effects of incorrect tuning and loading and of over-driving.

The CRO is always switched on when operating, with the sweep frequency such that the trace is more or less stable and the voice pattern defined.

Maybe I kid myself, but it is comforting to see the voice peaks climbing freely and not "clipping". It also impresses visitors!

ar

# amateur radio action



“ Ηουσε αδωερτισεμεντι Π φορ Αματευρ Ραδιο Αχτιον μαγαζινε το απεαρ ιν ΩΙΑ φορναλ Αματευρ ΡαδιοΠ. ”

For subscription details to just about anywhere, phone Grant Manson on (03) 601 4222.

*If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.*

Member CE 0000

# Mobile Operation

GRAEME McDIARMID VK3NE 10 WOODSTOCK DRIVE TULLAMARINE 3043

**L**AST YEAR CHANGES WERE made to the Victorian legislation restricting the use of a radio transmitter while driving a vehicle.

With the introduction of the Cellular Radio Telephone service, there was pressure for an amendment to the legislation. The new mobile telephones were capable of "hands-free" operation, but in Victoria it was still illegal for the driver to use them while the vehicle was in motion. The particular piece of legislation governing the use of mobile transmitters was the result of a private member's bill following a road fatality where it was established that the use of a radio was a factor in the incident. The wording was very clever. The holding of a microphone was not an offence in itself. The "crime" was committed when using a microphone coupled to a radiating transmitter (the actual wording makes reference to a microphone, telephone handset or similar device).

How does this affect the amateur? Basically it means we can now transmit while driving a vehicle.

While I have not seen the changes, the following information is based on advice received:

- It is legal to transmit from a moving vehicle if:
  - you do not hold the microphone
  - you do not have to hold the PTT
- Headsets with microphone may not be used because:
  - the earpiece(s) may interfere with your hearing
  - the lead and unit may become a hindrance in an emergency situation, ie the lead could become tangled in the steering wheel or gear lever.
- A boom microphone without earpieces or a microphone clipped to a seat belt or to clothing could also be considered a hindrance in an emergency.
- Bear in mind that a large or heavy microphone could become a missile in an accident. A unit the size and weight of those used for mobile telephones may set a precedent for all users. (Australian Design Rules, ADRs, apply to the interior of all new vehicles; any additional object may be illegal).
- A charge of dangerous driving could still be laid if a police officer considered you were not paying sufficient at-

tention to your driving, ie driving through a busy intersection while talking.

- Just in case you have been put right off the idea, read number 1 again.

Well, it seems that what a lot of people have been doing illegally for years may now be able to be done within the law.

A word of warning, though, it won't be me sitting in judgment if you are apprehended. It doesn't take a QC to figure out that a defence plea of "VK3NE said it would be all right" won't help very much in court.

**The foregoing material is supplied for information only.** Remember, it is your responsibility to comply with the road laws.

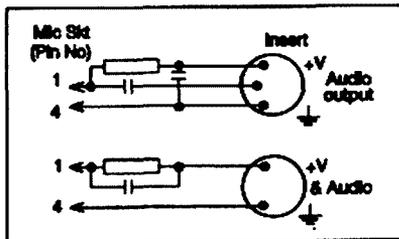
Now, if you have read this far and would like to try constructing a microphone for hands-free use, I have some circuits and information for you to try out.

A small electret insert is available from many of the usual bits suppliers. Most of them have the normal omni-directional unit. Jaycar in A'Beckett Street also has a unidirectional unit which may help reduce background noise.

Electret inserts have a very low power requirement and this means it is very easy to supply power as shown below. They come with two or three connections; both are suitable.

## 1. Icom transceivers with a four-pin microphone socket

Power is available on pin 1 (via a 4.7k res from +9v rails)

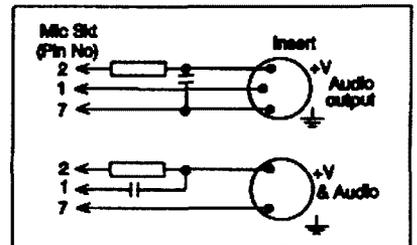


91/036 fig 1

Resistor value is not critical; it will need to be chosen to suit the insert. Don't exceed manufacturer's voltage recommendation. One insert required 4.7k to give approximately four volts at insert. Capacitors are 3µF/16 volts. Tantalum or electrolytic are okay.

## 2. Icom transceivers with an eight-pin microphone socket

Power is available on pin 2 (+8 volts)



91/036 fig 2

R and C values same as for four-pin socket.

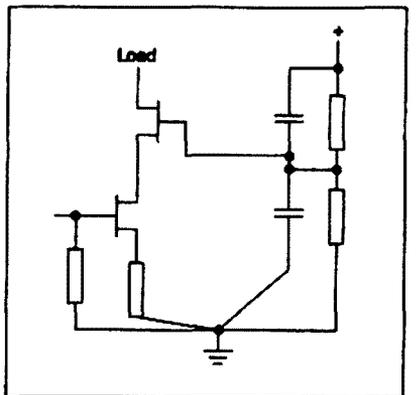
## 3. Other makes of transceivers

The previous circuits can be applied to any other makes. A quick check of the circuit will soon tell you if there is power already there or if there is a spare pin you could use. If your transceiver has a four-pin microphone socket and you have already used the spare pin for something else (aux radio, squelch signals, discriminator O/P etc) you may consider adding the components to the circuit board to do it the "Icom way".

The small current that flows through a dynamic insert because of the 4.7k resistor won't upset the insert (or the audio).

## Icom Circuit (IC 22S)

R139 (4.7K) provides +9 volts  
C166, R140 and C165 form a low pass filter



91/173 fig 1

## Construction

If you use a 1/8W resistor and a small capacitor they will fit inside the cover of



# Magnetic Loop for 14 to 29MHz

K R (DICK) HARVEY VK2BKH 7A/28 WOODS PDE FAIRLIGHT 2094

**T**HIS LOOP HAS BEEN IN operation for more than a year giving consistently good results. No claim is made that it is the ultimate possible, as much has been learned by its construction and use. The writer can recommend it in its present form as a worthwhile alternative for a dipole, being of particular value where space is limited, as is the case of the writer, living in a home unit.

The design is based on an article in the English magazine *Ham Radio Today* of December '89, written by G6VS. Much additional aid has been provided by letter and per CW from G4FM. Also, the *ARRL Antenna Handbook* of '88, chapter 5, has been very useful and is recommended reading for would-be "loopers".

Generally speaking, small antennas make use of loading coils to achieve resonance. If a large capacitor is used instead of coils together with a low-loss conductor formed into a loop, much greater efficiency is obtained (Ref *ARRL H/B*).

Having a radiator length of 102 inches of 3/4-inch copper pipe bent to make a circle of approximately 31 inches (depending on gap) and tuned with a capacitor of approximately 125 + 125pF, this loop covers from 14-29MHz.

On air, the writer finds the loop compares favourably with his multiple (five band) dipoles. The radiator length, slightly less than 1/4 wavelength on 29MHz, is the optimum for that band, so the loop's efficiency will be greatest at that frequency, dropping off at 14MHz where, of course, the length will be about 1/8 wavelength (Ref *ARRL H/B*). If maximum performance is desired on 14MHz, the loop diameter should be increased to approximately four feet. Coverage then would be from 14-7MHz.

Construction should be clear enough from the diagrams and photos, but the writer has found it would have been better to have terminated the ends of the loop on the same side of the mounting base as the capacitor. This then would bring the gap under the weather cover, obviating the need for the external canopy at the back of the box as shown. More importantly, shorter connections to the

capacitor would ensue.

The key to an efficient loop is to keep all resistance, both DC and RF, to a minimum. The lower the resistance, the higher the Q factor becomes, which in turn determines the bandwidth and the terminal voltages at the ends of the loop. So all connections should be as short and as perfect as possible (Ref G6VS).

Ideally, the copper tubing should be polished and given several coats of clear marine varnish to avoid losses (Ref I1ARZ).

The capacitor must be a split-stator to avoid the resistance introduced by the rotor connection of a standard one. Change of capacity is still obtained, the two halves being in series.

Special vacuum capacitors are made for this use. A much cheaper option is to replace the aluminium plates of a conventional capacitor with copper ones, soldering the ends of all plates together to avoid losses (Ref *ARRL*). The author has done this, but found no measurable improvement. The use of copper did seem, however, to maintain the efficiency against the gradual deterioration by weathering effects. Also connections to the capacitor can then be made by soldering. If only indoor use is envisaged, the

aluminium plates would suffice.

Plate spacing is also very important, as very high RF voltages are generated at the gap in the loop. With 100 watts to the loop, voltages of 6000-7000 are encountered (Ref G6VS). Minimum spacing for 100 watts usage should be .080 inches (Ref *ARRL H/B*).

In the writer's case, the final capacitor was found by trial and error, changing spacing and number of plates until the desired tuning range was obtained. Some trimming of the radiator length was also necessary. The *ARRL* graph shown here (not available at the time) should be of assistance as a guide, noting it was compiled using an octagonal loop made of nominal 3/4-inch pipe (USA) which has an actual OD of 0.90 inches.

In regard to the use or not of the octagonal shape (Ref *ARRL* and G6VS). Round is the preferred shape as it encloses the maximum area for a given circumference, but the use of the octagonal would incur only a small loss and may be easier for some readers to construct. For example, G6VS made his by using a blow lamp to solder seven 45° Yorkshire fittings (ex-plumber's supplier) with eight short straight lengths of pipe interposed to make the octagon.

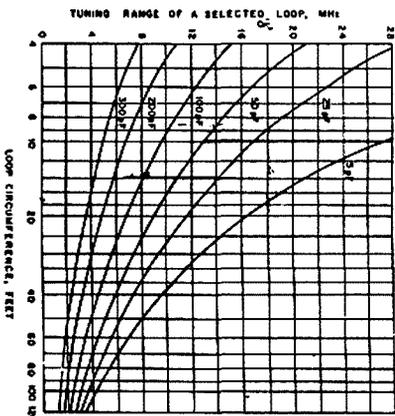
The author found the round shape not very difficult to make, as the stores mostly carry their pipe stock in big spiral coils. With this as a starting point, the pipe was filled with sand, well tamped down, and bent around a wooden former to size and shape.

Both gamma and half-Faraday loop coupling work equally well. The writer prefers the loop at it seems less affected by nearby metallic objects.

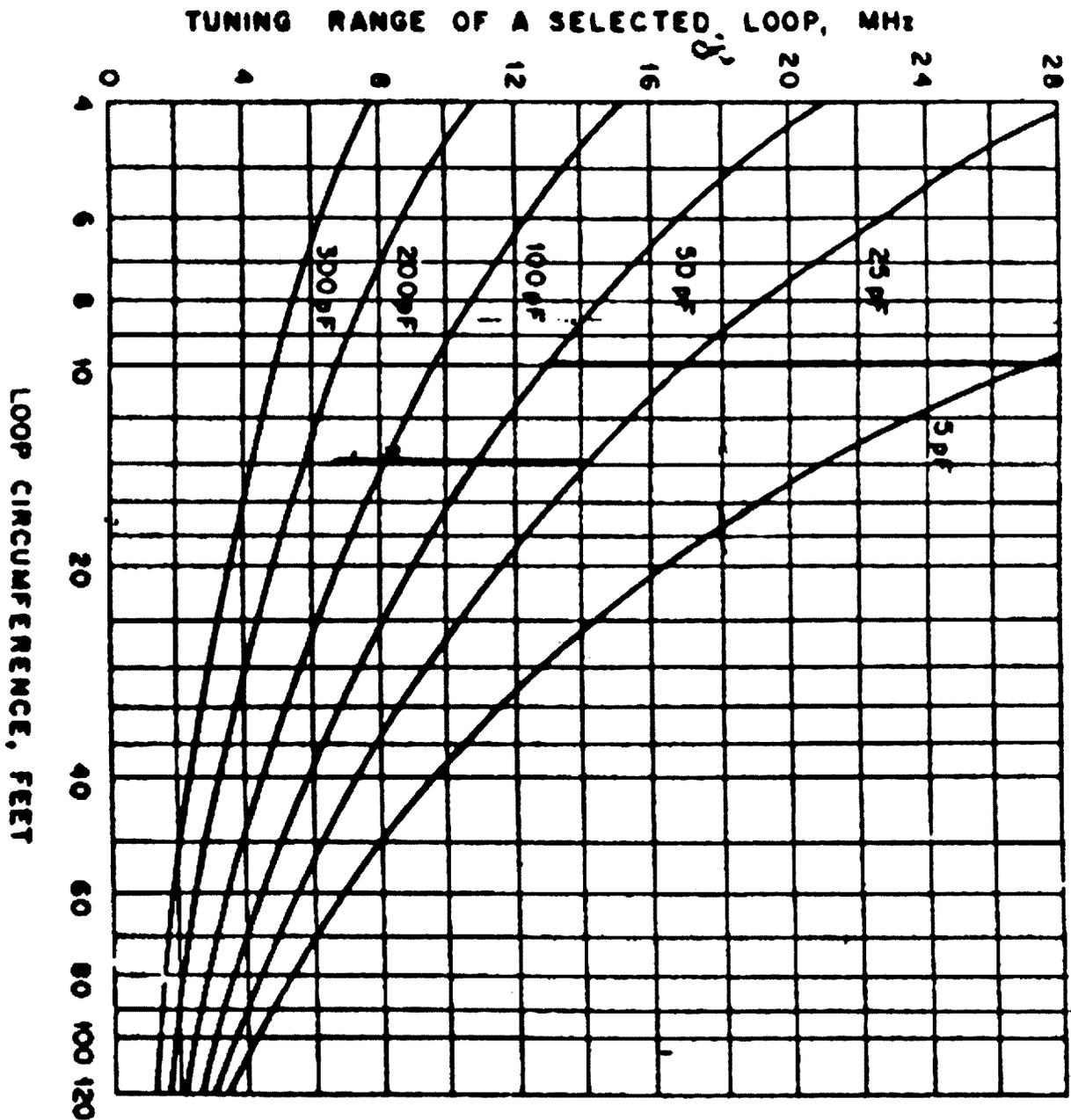
SWRs of 1:1 were readily obtained on 14/18/21MHz, rising to 1.4: on 24 and 28MHz.

In regard to the remote-control mechanism, there are commercial units using stepper motors with integral gear trains available from the USA and the UK, at a price.

For the home-brewer it will be largely a matter of personal ingenuity as to what items can be adapted to get the very slow speed of capacitor rotation needed. Pos-



Frequency tuning range of an octagonal-shaped loop using 3/4-inch copper water pipe, for various values of tuning capacitance and loop circumference. (Courtesy *ARRL Handbook 1988*).



*Frequency tuning range of an octagon-shaped loop using 3/4-inch copper water pipe, for various values of tuning capacitance and loop circumference. (Courtesy ARRL Handbook 1988).*

sible sources are small computer motors with built-in gears, electric car aeri- als and even rotisserie motors.

In the writer's case, a small 6-12V DC motor (supplied from a variable power pack) drives a gear-chain removed from a discarded electric can-opener. This goes through a Meccano worm and gear-wheel combination (relics of boyhood days) to connect to the shaft of the capacitor.

A potentiometer is also coupled to the capacitor spindle (see diagram). The resistance of the potentiometer is such that when in series with a 1.5V cell and suitable meter (say 0 to 1mA), there is a full-scale reading at one end of the potentiometer's rotation, going down to zero at the other end. The potentiometer is then aligned with the capacitor so zero is read on the meter when the plates are in full mesh, going up to full-scale when the plates are fully out.

The meter can then be calibrated to show the various bands. The meter and battery are, of course, in the shack in a control box containing also a small PB On/Off switch to activate the motor, and a DPDT switch to provide forward and reverse motion.

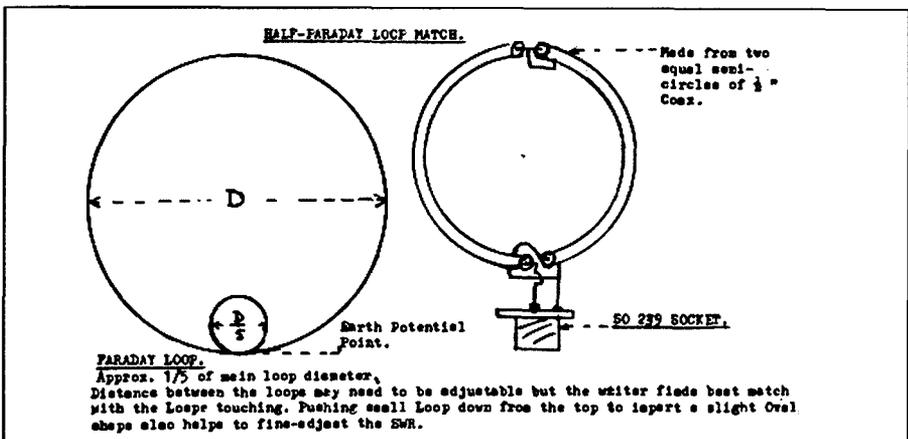
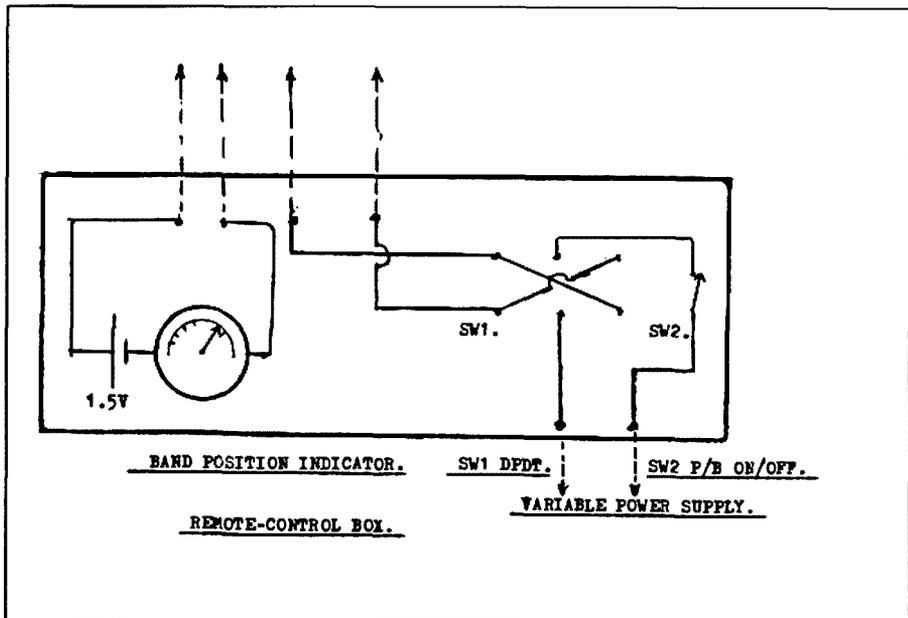
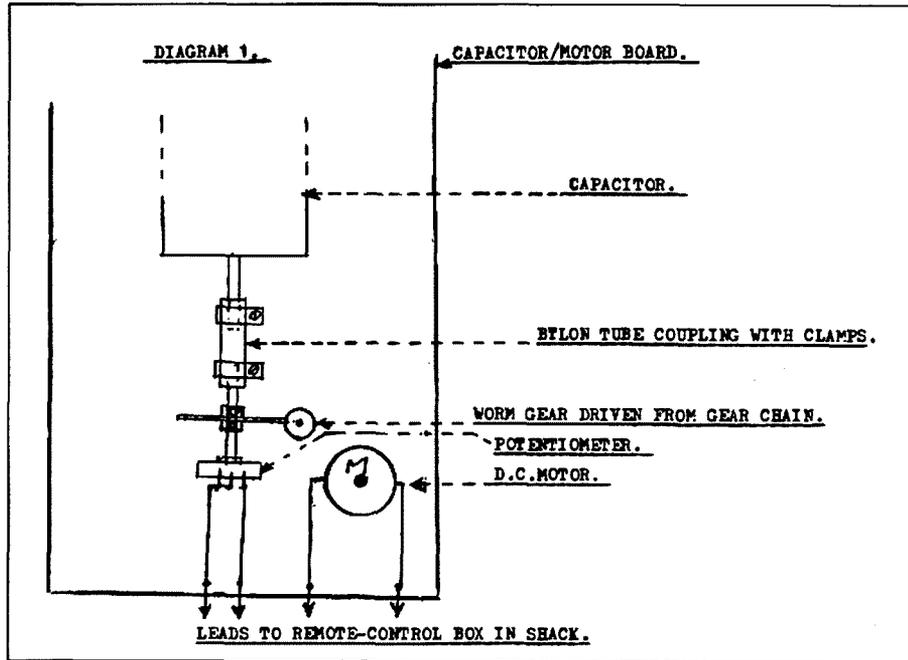
The variable voltage supply allows control over the speed of tuning. With this arrangement it takes about 20 seconds to rotate the capacitor plates from one end to the other using highest voltage. Having located the desired band the voltage is reduced to obtain the very slow speed necessary to tune exactly to minimum SWR.

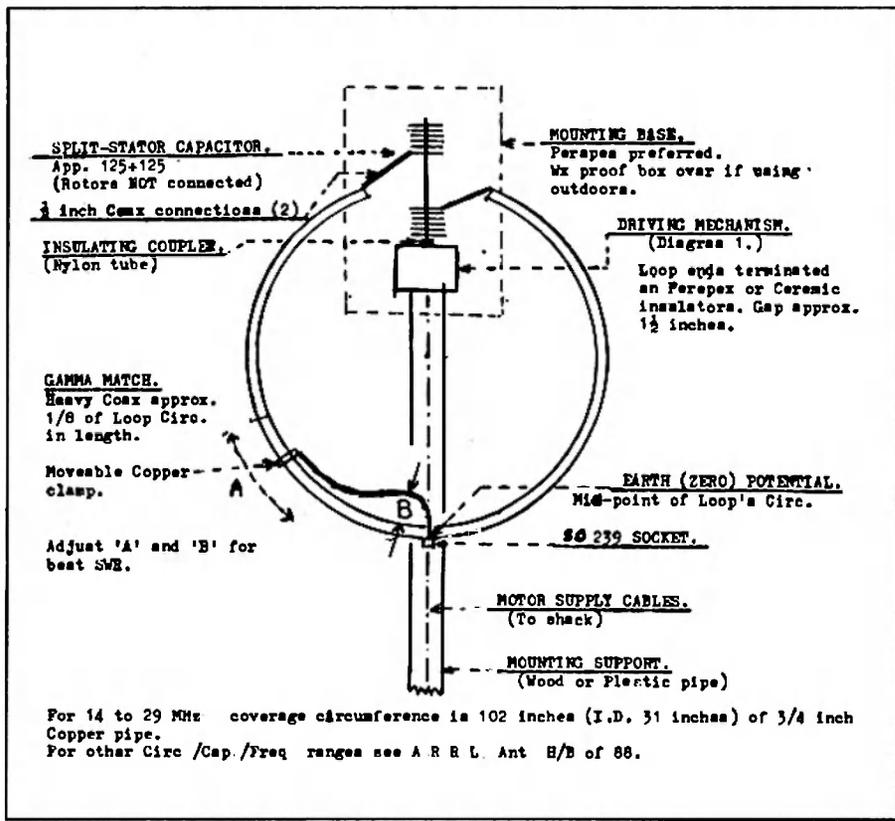
The exact centre of the loop's circumference is at zero (earth) potential so there is no need to insulate the loop from the mounting mast at this point.

No earth is necessary, nor is great height. G4FM, who has been worked many times, has his loop up 7ft from ground, surrounded by thick stone-wall buildings, and it out-performs his Butternut vertical which is up 30ft.

Loop radiation pattern is with the main two lobes lying in the plane of the loop (opposite of dipoles) so it is bi-directional. A rotator would be advantageous, but not essential, with the broad coverage obtained. Loops have low, medium and high angles of radiation so can replace both verticals and dipoles.

Magnetic loops can also be used in the horizontal position, in which case they become omni-directional with low angle of radiation. This appears to be the preferred position in the USA, where advertisements show commercial models such as the IsoLoop and Comloop in the horizontal mode. Tests by the writer using the loop this way were disappointing. It appears great height is necessary (Ref ARRL H/B).





roof, then over a 6ft-high safety fence to reach the outer area. Wind resistance is another consideration.

Actually this apparently favourable take-off is nullified to some extent by the fact that the loop is surrounded by big metal pipes, masonry walls enclosing clothes hoists, lead flashing around parapets, and is rather close to an array of multiple dipoles. In fact, the reference dipoles have a much clearer take-off, being another 17 feet higher at the peaks.

Initial tune-up would be to put the rig on receive at 21MHz, then to rotate the capacitor until a sharp increase in noise level indicates resonance. Then switch to transmit and, with a low-power carrier, again rotate the capacitor at very slow speed, backwards and forwards, until minimum SWR is obtained. The positions of the other bands are then easy to find in like manner. The face of the meter can then be calibrated to suit.

Unfortunately the author has no instrumentation with which to measure the high RF voltages at the gap in the loop which would be an indication of its performance. Instead the following criteria were used:

1. SWR
2. Field-strength readings under controlled and repeatable conditions.
3. Comparative F/S readings with dipoles.
4. Bandwidth as an indicator of Q. B/W is taken as twice the change in frequency to go from a SWR of 1:1 to a SWR of 1.5:1 (Ref G4FM).

B/W readings obtained in the writer's case were on 14MHz-24kHz; 18MHz-44kHz; 21MHz-68kHz.

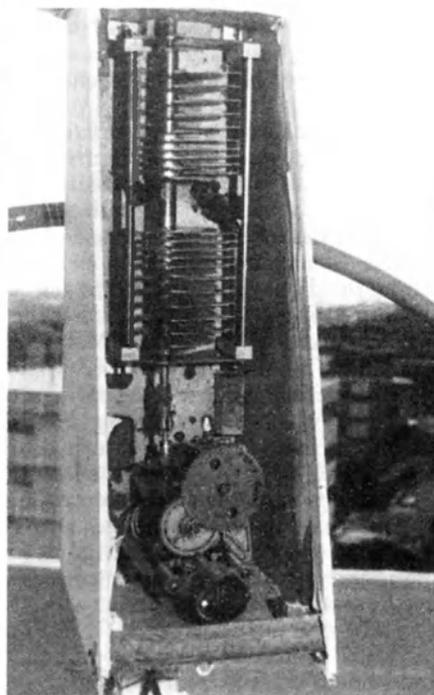
To summarise, in the writer's opinion, the magnetic loop is a very worthwhile small antenna. It requires no earth or radials, and takes up very little space. In comparison to other small antennas such as a whip it is more efficient, as no loading coils are involved.

In the USA, controversy has risen from claims made by the makers of commercial magnetic loops such as the Isopole and the Isolop that their loops have a gain over a dipole. Evidently it is possible to prove this is theoretically impossible. Be that as it may, the writer tends to agree with G6VS and say that in his experience a well-built loop can perform equally as well as a dipole.

Finally, consideration should be given to a mono-band version where the radiator could be made the optimum length and smaller, cheaper capacitors used. For the very narrow WARC bands even fixed tuning with simple home-made capacitors is a possibility, thus doing away with the remote-control mechanism.



Dick VK2BKH with the complete loop.



The split stator capacitor and slow motion drive assembly inside housing.

In the author's case, living in a high-rise block of home-units, the flat concrete roof used as an antenna farm is approximately 100 feet above ground level, an ideal take-off for any antenna. The loop's

rather low mounting height (six inches) is dictated by the need to keep its size down to manageable proportions as it has to be carried up two flights of stairs, through narrow doorways to reach the

# VK Novice, R D John Moyle FD Contest Programs

CRAIG PRICE VK7VEE

4 REBECCA COURT

PROSPECT 7250

AND

BOB RICHARDS VK7NRR

PO Box 168

LAUNCESTON 7250

(ADAPTED FROM A PROGRAM WRITTEN BY NEIL CORNISH VK2KCN)

**I**N THE JUNE 1984 ISSUE of *AR*, there appeared an article by Neil Cornish VK2KCN entitled "A Computer Program for the VK Novice Contest".

Although originally written for the Commodore C64, we have successfully re-written the program in GW BASIC for IBM compatibles. After testing, we found it would run equally well under BASICA.

In addition, shortly after the program originally came out, Bob modified it to use in the RD Contests. Both Craig and Bob until now have used the novice and RD programs with great success and enjoyment.

## About the Programs

Throughout the programs, REM statements have been used. **Do not** remove them unless you know what you are doing, as the program uses some of these lines in GOTO and GOSUB statements.

## Overview

As already mentioned, Neil wrote the original program that we have adapted for use in the NOVICE, RD and John Moyle contests. Neil's program did not have DISKSAVE, and it was longer than the present program we adapted. A modification was made after the program came out, making the duplicate checking simpler and adding the disk save feature.

As before, or for those of you who have not seen the original program, the program will do your duplicate checking, automatically generate the number to be sent, calculate the points scored for that contact, save each contact to disk as you finish the contact, and print your contest log as you go. It will even tally your point score at the end of each page, and at any time during the contest you can use the option on the main screen to bring up your progressive score.

At the end of the contest all you have to do is fill in the PAGE ..... OF ..... PAGES, run the file COVERPGE,PRN, put it all in an envelope and send it off to the Contest Manager.

Another feature just added allows for

re-contacts to be made after a set time has elapsed. (Introduced with the 1990 Novice Contest).

## The Screens

There are four screens in the program.

The first screen allows you to input the callsign you will be used during the contest. It will then ask you if you wish to recall a previously saved log. (This will not apply to the first use in any contest, so the answer will be "N"). You will then be asked if you would like to save your log to disk. (A good idea if you have a power failure or you need to turn off your computer). Next, you will be asked if you require a print-out. (You would normally answer "Y" to this, but we have included the option so the program can be tested without the need to waste a lot of paper). Finally, you are given the chance to input the time lapsed allowed for repeat contacts.

The second screen allows you to select the mode you wish to use. The Novice Contest allows only CW or phone, so you can select only one of these. But the other contests catered for allow all modes (or those most commonly used).

The third screen allows you to select the **band** you wish to operate on. For the Novice Contest only 3.5MHz, 21MHz and 28MHz are shown, but for the RD Contest and the John Moyle Field Day, all six HF bands are shown. If you change bands during the contest you are returned to this screen so you can make a new choice.

The fourth screen is the **main screen**. The information on this screen will remain throughout the contest as a guide to the options available to you whilst working the stations you are in contact with. It also tells you if DISK SAVE is ON/OFF, LOG PRINT is ON/OFF and what band and mode you are currently using.

## What to do if the Power Fails

If the power fails or the program crashes (hopefully, neither will happen), the following procedure **must** be used **before** you use the recall option on the first screen.

Using a text editor, you will see the file,

in the case of the Novice Contest, the file named NOVCON, looking like this:

VK1AA	15900159003	08:01	2
VK2BBB	15900259004	08:01	2
VK3CCC	15900359002	08:02	2
VK4DD	15900459001	08:02	2
VK5EEE	15900559005	08:02	2
VK6FFF	15900659002	08:05	2
VK7NNN	15900759003	08:06	5
VK8SAA	25900859014C	08:07	10

(here the power failed)

Edit the file by putting the last contact number (referring to the example above) 8 plus a \* as the last line of the file as follows:

VK8SAA	25900859014C	08:07	10
8*			

Having done this, re-save the file, boot the program as normal, and when asked if you want disk recall type "Y" and continue to answer each prompt as you would if commencing the contest.

## What to Do if You Close and Exit the Program During the Contest

If you do this only once during the contest there is no problem.

If you do this two or more times you will have to edit the file as if you had a power failure, only this time the file will look like this:

VK1AA	15900159003	08:01	2
VK2BBB	15900259004	08:01	2
VK3CCC	15900359002	08:02	2
VK4DD	15900459001	08:02	2
4*			
VK5EEE	15900559005	08:02	2
VK6FFF	15900659002	08:05	2
VK7NNN	15900759003	08:06	5
VK8SAA	25900859014C	08:07	10
8*			

What you must now do is delete the **previous** file ending, ie 4\*, so the file looks like this:

VK1AA	15900159003	08:01	2
VK2BBB	15900259004	08:01	2
VK3CCC	15900359002	08:02	2
VK4DD	15900459001	08:02	2
VK5EEE	15900559005	08:02	2
VK6FFF	15900659002	08:05	2
VK7NNN	15900759003	08:06	5
VK8SAA	25900859014C	08:07	10
8*			

Re-save the file and proceed to re-boot the program, recall the file within the program and continue with the contest.

You will have to do this each time, after the second time, that you used the close file and exit option.

### Some of Neil's Original Comments

The program follows the VK Novice Contest rules and prints the log accordingly (see example). As is the way with most contest QSOs, all contacts are five and nine. Purists may write their own sub-routine to give varying signal reports. CW operators are catered for within the program when the mode is selected from the second screen.

The program is fairly forgiving if you make typing errors in the callsign. Typing the \* symbol at the end of the input of either the callsign or the number received will abort the entry.

For those who wish to have all three programs in their disk library, we will be bringing out versions for the RD Contest and the John Moyle Field Day Contest as the time approaches. These versions will only be as line deletions, line attractions or new lines to be entered into this listing. The line numbering has been kept the same in all three programs so this can be achieved.

Due to the space required to reproduce the program here, and the time needed to key it in, it is available only on disk, for \$5.00. This amount will cover the cost of the disk and postage. The disk is obtainable by writing to:

Bob Richards VK7NRR  
PO Box 168  
LAUNCESTON 7250.

The disk will contain all three programs.

### Future Development

Bob and Craig hope to be able to produce amendments to this program to enable it to be used with stations going portable for the John Moyle Contest. This will apply only to the VHF section, as distance comes into consideration under the existing rules.

### Finally

Bob and Craig would like to thank Neil Cornish VK2KCN once again for his efforts with the original program, and look forward to hearing from those who would like to use these programs.

Good luck and happy contesting! ar

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Radio magazine.**

### VK Novice Contest 1991

Callsign: VK7NRR

Category: HF

Section: Transmitting phone — Novice/Full Call

Date	UTC	Band	Mode	Callsign	TX No	RX No	Points
05-01	08:18	3.5MHz	SSB	VK1ABC	59001	59002	2
05-01	08:19	3.5MHz	SSB	VK2DEF	59002	59004	2
05-01	08:19	3.5MHz	SSB	VK3GHI	59003	59006C	10
05-01	08:19	3.5MHz	SSB	VK4JKL	59004	59008	5
05-01	08:19	3.5MHz	SSB	VK5MNO	59005	59010	5
05-01	08:20	3.5MHz	SSB	VK6PQR	59006	59012	5
05-01	08:20	3.5MHz	SSB	VK7STU	59007	59014C	10
05-01	08:20	3.5MHz	SSB	VK8VWX	59008	59016	5
05-01	08:20	3.5MHz	SSB	VK9YZ	59009	59018	2

# Disney Amateur Radio Clubs to Celebrate Opening of Euro Disney Resort

In commemoration of the April opening of the spectacular Euro Disney Resort, located just outside of Paris, France, the Disney Amateur Radio Clubs will operate their third international "special event station" on April 4 and 5.

In addition, the four Disney clubs, which are located at Disneyland in Anaheim, Calif (N6MM), Walt Disney World in Orlando, Flax (WA4ABQ), Tokyo Disneyland (JL1YZB) and the Queen Mary & Spruce Goose Entertainment Center in Long Beach, Calif (W6RO), will be joined by the Radio Club de St Maur in Paris, France (FF6KMX).

Stations will be operating SSB on 14.250, 21.325 and 28.450 plus or minus. Operating hours for the commemorative special event station will

be from 0000 on April 4 to 2400 on April 5.

This is the third special event organized by the Disney radio clubs. During the inaugural event, in honor of Disneyland's 35th Anniversary in 1990, more than 2000 contacts were made with other radio operators. In September of 1991, the first international special event station which commemorated Walt Disney World's 20th Anniversary resulted in 6800 contacts from operators all over the world.

Stations contacting one of the Disney Special Event stations should send their SASE and QSL with QSO number to:

Disneyland Amateur Radio Club  
Box 3232  
Anaheim, CA 92803

**Sign up a new WIA  
member today -  
use the form on the reverse of  
the AR address flysheet.**

# The MFJ-207 SWR Analyser

RON FISHER VK3OM.

**T**HE MFJ207 IS A HAND-HELD battery operated SWR indicator covering a range of 1.8 to 30MHz in five switched bands. A tuning control and a calibrated scale allows the actual frequency to be set to a fair degree of accuracy. An SO-239 connector on the top of the unit provides for input either directly from the antenna under test or from the antenna via its normal feeder system. A meter then indicates the actual SWR. The MFJ207 is designed to operate with 50 ohm coaxial lines only. For antenna experimenters it would seem to be a dream come true, so let's see what makes it work and see how well it works in practice. The first part of the question has to be answered more on the basis of how I think it works, as no circuit diagram is supplied with the otherwise good instruction book. A band-switched VFO supplies a small amount of power to a bridge circuit. One side of the bridge goes to the output connector, and when this is connected to a 50 ohm antenna system the bridge is balanced and the SWR meter reads zero which indicates a 1:1 SWR. In actual fact there is about 0.01 watts delivered to the antenna which can be heard over a surprising distance with an effective antenna. However, it is unlikely to cause any interference unless you have an amateur living next door. The MFJ207 is powered by an internal 9V battery or from an external power supply via a connector mounted on the top of the cabinet near the SO-239 connector. There is also an RCA connector here to provide output to an external frequency counter or receiver for calibration.

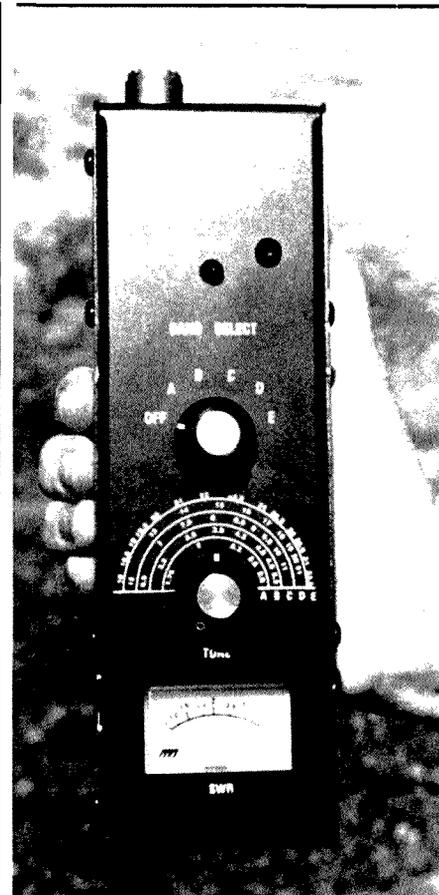
## The MFJ207 in operation.

The first thing is to get the battery into the cabinet. This requires the removal of eight screws. The battery is held inside with a metal clip. While fitting the battery, I decided to measure the current drain. It was 40mA. On this basis, the specified alkaline-type battery is definitely required to hold up under the rather high drain. I had a standard 9V battery available, so put it in to see how it would work. The first test was on a 50 ohm dummy load and the unit performed in copybook style. The meter indicated 1:1 over the whole frequency range. Connecting it to actual antennas was not quite as satisfactory. I firstly checked the SWR on my standard SWR meter and



*Top view showing antenna input, RF out to counter or receiver and the DC input socket.*

then tuned the MFJ across the the frequency. There was certainly a dip on the meter, but the actual SWR reading was usually higher than the reading on the standard meter. On this basis, you would need to do the final adjustments using your normal meter. It was about this time I noted that the meter off-tune reading was dropping rapidly from full scale. So much for cheap 9V batteries. I remembered the DC connector on top; no trouble I'll connect a DC power supply for the rest of the tests. But the connector is not marked for polarity and there would be a better than 50 percent chance that whichever way I connected it, it would be the wrong way. Again, without a circuit diagram it could be hard to work out. The instruction book was no help either, it only tells you to use a particular MFJ DC supply which presumably has a connector on it wired the right way. So, back to another standard 9V battery. If the MFJ was to be used outside at the antenna, calibration would be a problem. Two factors come into this. Firstly, there is no pointer on the tuning control, only a mark on the skirt of the knob, so it's hard to tell where the knob is relative to the calibrated scale. Also, this is a direct drive with no vernier action. Secondly, there is some hand-capacity effect, which shifts the actual frequency to some extent, particularly on the highest frequency range. On the first point, I note in Stewart's latest catalogue that the MFJ207



*The MFJ-207 SWR Analyser.*

is now fitted with a vernier drive, so this should overcome most of the problems here. However, I believe that in the near future an upgraded model will be available with a built in LCD frequency readout. I look forward to seeing this.

## The MFJ207 Conclusions.

I would have to say that MFJ have a great idea in the 207. It, however, is lacking in a few vital areas as mentioned above. Most of them could be put right with very little trouble. From an operational point of view, the instruction book is very well written and the SWR/coax loss chart should be studied by all antenna constructors. At \$219, the MFJ207 SWR Analyser is a most useful addition to any antenna experimenter's shack. Our MFJ207 was supplied by Stewart Electronic Components, 44 Stafford Street, Huntingdale, Victoria 3166.

ar

# The Criss Cross HF Antenna

CLIVE J COOKE VK4CC, PO Box 161, BRIBIE ISLAND 4507

**T**WO INVERTED VEE-TYPE antennas suspended at right angles to each other from a central pole and fed in parallel at the apex is not, of course, a new idea. According to William Orr in one of his antenna books, WA4LCO achieved the difficult five-band DXCC award using such an arrangement for his antenna which consisted of leg lengths of 66ft (20.1m) and a parallel tuned ladder feedline of the same length. The supporting central wooden pole was 50 feet (13.3m) high.

The achievement by WA4LCO is, of course, to be commended, but it would be of interest to know if his task might have been easier if, instead of feeding the system as shown in Figure 1, the arrangement adopted in the Criss Cross antenna had been used. Comparison between Figure 1 and Figure 2, that of the Criss Cross feeder arrangement, will show that with the former, an instantaneous negative-negative-positive-positive polarity would exist at the end of the legs, resulting in a bi-directional radiation pattern. A negative-positive-negative-positive polarity exists with the Criss Cross leading to a reasonable omni-directional pattern, horizontally polarised because of the E field between adjacent legs.

The Criss Cross design, believed to be original, was used by me several decades ago at Macquarie Island when I was serving as radio supervisor in one of Australia's Antarctic research expeditions, when I was required to arrange communications with terminals other than that to which our main HF antenna system was directed. The 70ft (21.8m) central metal pole became available for my use when a fire destroyed the ionospheric recorder associated with the antenna supported by that pole. Therefore, using the original wire, leg lengths of about 100ft (31.2m) sloping down to about a 10ft (3.1m) ground level resulted. The four poles for that purpose were already in position for the antenna which was previously directed vertically for ionospheric soundings.

An open wire transmission line suspended on telephone poles was tuned with an efficient antenna tuner so that any one of the available HF frequencies assigned for our use could be used with the antenna and, to my delight, the performance of the Criss Cross was so much better than our other antennas that

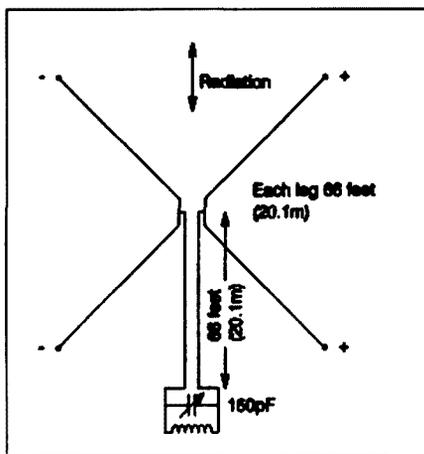


Figure 1

henceforth it was the only one used. Considering I had earlier made a Lazy H antenna suspended between two 70ft (21.8m) poles for use on our most-used 7MHz band frequency for communication with Sydney, it was indeed a surprise for that antenna to have fallen into disuse. On the ham bands, mostly 20 metres, using the Criss Cross in the limited free time available, I was able to provide a new country to several thousand DXers on CW.

I would appreciate any feedback on the Criss Cross if anyone has the real estate to try one. There would seem to be no reason why the dimensions used by WA4LCO could not be adopted using the feed point connections of the Criss Cross.

Not only did I use the name Criss Cross because it aptly describes the shape of the antenna as seen from above, but, have a look at my name and callsign, and you will note a common thread.

More recently, I once again captured the thrill of the use of the antenna even though it was scaled down to fit into a small relocatable home site and suspended at the apex at a mere 25ft on an earthed aluminium pole. Each of the two inverted Vees is 66ft total length, thus being 33ft per sloping leg. It is fed with the 8ft of 450 ohm ladder line terminated in a 4:1 step-down balun into a short length of coaxial line. A Yaesu FC102 antenna tuner is used with which to resonate the system. I appreciate these might not be optimum dimensions, but as the ATU handles the tuning (now that about 8ft of the original length of 450 ohm line was removed to obtain reso-

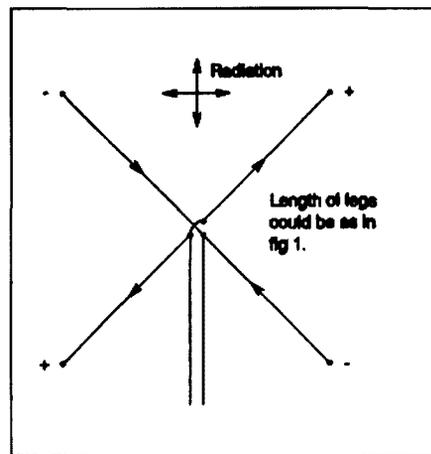


Figure 2

nance on 7MHz), I am tempted to leave it as it is.

Users of the G5RV type of antenna in its various forms such as described in July 1987 AR, might care to position a second wire at right angles to that now in use, and change the feedline connections to conform to that used in the Criss Cross.

Operationally the antenna surpasses my actual expectations, equal in performance to a two-element triband Yagi, which I admit is not as high as it perhaps should be, but which, until the Criss Cross came into being, was my main DX antenna. The reference antenna on 7MHz and the WARC bands is a 50ft-long VK Caltenna, which shows the Criss Cross is about three "S" points better throughout. The best band on the VK Caltenna is 3.5MHz, as it will be understood that the Criss Cross is too short for practical use on that band.

The DX performance of the Criss Cross verifies that in effect it is two W8JK type low-angle radiators (180 degree phasing between opposite "bent" dipoles) which are at right angles to each other and fed with a common feedline. This will be apparent by studying the instantaneous polar diagrams. It is great not having to be concerned about which path is the correct one to use and, unless I can improve on the triband Yagi, the Criss Cross is now my main antenna.

I would be interested in reports of its use and, of course, egotistical as I am, would have no objection to its name being abbreviated to "CC" as is already being done by my DX friends in comparative tests. Good hunting. ar

# Living with Lan-Link

A Share-ware Computer Program for IBM & Compatibles for Packet Radio

D W AVARD VK4ADY @ VK4CXX, 11 JAMES ST, LAIDLAY 4341

**T**HIS COULD JUST AS EASILY be called "Living with Packet" as the two arrived at the same time in my radio shack. My terminal node controller is a PacComm TNC 320, and these are the only packet systems I have used, so no comparisons are offered against them. For other key bashers or phone fanatics, operating packet radio meant learning their two languages, plus improving my typing speed at the keyboard. If this 61-year-old can do it, so can you!

Let me say here and now, I love Lan-Link. I was told I would either loathe it or like it, and it has been touch and go as to which way I was going. The author, Joe Kasser, very clearly states in the book that comes with the program, that it defines the menu functions and not how to use it! In version 1.59 (my registered copy) there are three appendices in which he outlines three specific "how to" areas; I hope there are more to come.

*My experiences have been:*

## 1) Fitting the Program to Your Equipment and Preferences

There are seven "xxx.SYS" files that configure the program to your station according to the TNC you have. (I'm told that my TNC 320 needs the TNC2.SYS file).

These files are arranged in three parts. The first part is commands, mainly to the program, about your station: its callsign, equipment, local BBS, computer files etc. These commands are fixed, only the options are variable.

The second part is a list of 28 entries of figures specifying the coded colours of various parts of the monitor display. These commands are fixed, only the options are variable.

The third part is a list of changes to the "DEFAULT" values of whatever commands your TNC recognises, that you would like it to use, ie, it is all variable and under your control.

So this configuration of ".SYS" file contains primarily the values that define your packet station whenever you switch it on. The latter part especially for the first time use. Thereafter, when you switch off, the values in the computer are stored in the battery-backed RAM in the TNC for re-loading into the computer at next switch-on.

## Lan-Link Main Menu

```
ESC — A QUICK
      — B BBS
      — C CALLS
      — D EDIT
      — E EVENTS
      — F FILES
      — H HELP (F/K)
      — J JUMP TO DOS
      — K LAN-LINK
      — L LOG
      — M MESSAGES
      — N TNC
      — Q OSCAR
      — P PARAMETERS
      — Q Q CODES
      — S COMMUNICATIONS
      — T TERMINAL
      — X EXIT L-L
```

The author suggests you change as a minimum, the callsign, before running the program on air.

Floppy disk in place, start the program with keystrokes LAN-LINK ENTER. Then, when the packet display comes up, Status window across the top, OUTGOING TEXT window across the bottom, type ESC P 2 YOURCALLSIGN (in capital letters) then ENTER to put your callsign in the program; then ENTER twice more to finish the options for now; then U to amend the file on the floppy disk. Now key ALT X, then Y to exit the L-L pro-

gram and get back to DOS; then re-load the amended L-L program and your callsign will appear in the Status window.

You can now see his pre-set variations on the program behaviour, from the TERMINAL menu. At switch-on, in that topmost window, the Status window, along with the six-digit clock and your callsign, you will see "DEFAULT" signifying that the values stored in the battery-backed TNC RAM have been set into your computer.

Entering the TERMINAL menu, ESC T will show you options like E-EVERYTHING, T-TRAFFIC, S-SOLO etc, where specific variations to the .SYS file values have been programmed to quickly allow the selection of different display behaviour. As you press a key to make a selection, watch the changes pass through the bottom window (OUTGOING TEXT)..... BUT, that is dependent on there being a "1" at line 34 of the .SYS file. (Took me a while to understand this).

At any time you can re-run that latter third part of the .SYS file to restore those initial values, by the command "INITIALISE" strokes ESC N I.

At switch-on I make it a habit to set the TNC clock to the computer clock with the strokes ESC N D, then the "packets" and files can be time tagged as required.

## 2) Editing the Operating Files

Editing, or directly changing the entries in L-L files like the .SYS file, is readily done with the built-in EDITOR.

The EDIT menu ESC D allows you to directly select some files or spell out the titles of others for editing. The changed file is "saved" with CTRL K CTRL D. The Editor commands are listed on pages 42 and 43 of the book.

When changes to file parameters are made at the keyboard from various menus, they may be valid only while the equipment is switched on. Because they may not be automatically saved at switch-off. I'm not sure how many are saved with the U (Update) in the PARAMETERS menu.

Be aware that some commands are stored in more than one place at the one time, eg, the "Connect Text" (CText in my TNC language) can exist in four different forms at the same time.

1. "Permanently" in the third part of the .SYS file (which is loaded into the

- computer at "INITIALISE" ESC N I).
2. Temporarily in the computer RAM by direct entry from the keyboard in the TNC menu ESC N T "Change CText".
  3. In the TNC battery-backed RAM, which holds whatever was in the computer at the time of last switch-off, for re-loading to the computer at the next switch-on.
  4. The fourth one is nothing; the default value stored in the TNC ROM! You get this if you remove the battery from the TNC RAM or give the TNC a RESET command.

Which one you get is under your control only if you realise it.

(Joe Kasser says read the L-L book; but there is a lot more to remember).

One thing is that, in general, when L-L files are amended, like the .SYS file at the beginning of this article when your call replaced G8BTB; the modified file bears the name of the old file, which in turn has been renamed "filename.BAK" so it can be recalled if necessary. I like this idea, but it needs watching, otherwise your directory of files grows and grows. For instance, when editing a capture to disk (YYMMDD.RUN) file to extract, say a BBS bulletin, you can end up with YYMMDD.RUN and YYMMDD.BAK files! The EDIT menu allows for easy file deletion/erasure, ESC D E filename ENTER.

### 3. Software/Hardware Interface

With the application of a universal control program like L-L to a specific item of hardware like a TNC320, it's not surprising if there are some gaps or overlaps at the edges.

The command ECHO is a "gap", and in this situation there are two ECHO commands.

The keyboard ECHO ON/ECHO OFF commands are used to control the TNC function of showing on the upper screen what is typed at the keyboard, and have

nothing to do with the ECHO ON/OFF toggle in the PARAMETERS menu, which controls the display of computer-generated commands and files in the OUTGOING TEXT WINDOW (remember line 34 of the .SYS file?)

And, with the TNC320 Personal Message System, a gap situation means that the usual TNC commands are entered at the keyboard with normal behaviour because there is not a menu option for this TNC320 function in the TNC2.SYS file.

### 4. The List of Common Calls

This is stored beginning at line 44 of the .SYS file, one call sign per line. NB: There must be at least one entry. Apart from viewing it in the FILES menu ESC F V, it is available when:

these keystrokes — for — these commands

ESC C C ENTER	CALL/CONNECT TO
ESC C E	ENTER CALL
ALT C then ENTER	CONNECT TO
ESC P 4	ENTER COMMON CALLS

are made.

Whenever the list is displayed in these four ways a flashing cursor is at a blank line heading the list for a new entry to be added.

Any permanent changes to the list need to be recorded in the modified .SYS file. Easiest done in the PARAMETER menu ESC P U. But, be aware that each time this is done, the list is inverted! If you like to keep your display of calls in the same order, this can be done by invoking the list, ESC P 4 then updating the .SYS file, without any change, before making the change and saving it on a second update.

### 5. Menu Behaviour

The menus are deceptively similar; they look alike, but operate in five different ways.

- 1: Display only (no actions) — Help & Q CODES

- 2: Direct selection of a highlighted keyboard character — QUICK, CALL, EDIT, EVENT, FILES, JUMP TO DOS, LAN-LINK, MESSAGE, TNC, OSCAR, PARAMETER (numeric options), COMMUNICATIONS, and EXIT

- 3: Toggle a flag to the opposite state shown — PARAMETER (alpha options)
- 4: Toggle a flag to the state shown — TERMINAL
- 5: Edit keys — LOG

Menus exit with either the SPACE or ESC keys as defined at the screen bottom line, some with a sound.

6. FOUL-UPS I HAVE SEEN (Caused!)

1. Selecting Change Colours ESC P 8 with a monochrome monitor caused the program to hang up. CTRL C returns you to DOS.

2. Trying to change Baud Rate with a TNC 320 connected (fixed at 1200) returns Greek characters and rubbish. Switch off and remove the battery from the TNC RAM to clear the system.

7. I'D LIKE TO KNOW

The interpretation of the "Debug or state sequence numbers" of the Miscellaneous Flag ESC P +, pages 21 and 87.

8. THE FUTURE

I hope that more of the obscure points of L-L are made known by others who have used it longer than me, to make it easier for us all to use.

I hope more users of L-L will register their copies, of whatever version, with the author, that he may be encouraged to make packet radio more enjoyable for us all. (They'll get the latest version, too).

Acknowledgments are due to the operators who have encouraged me, with their advice and experience, to press on with L-L.

ar

## Novice Licence for 12th Birthday

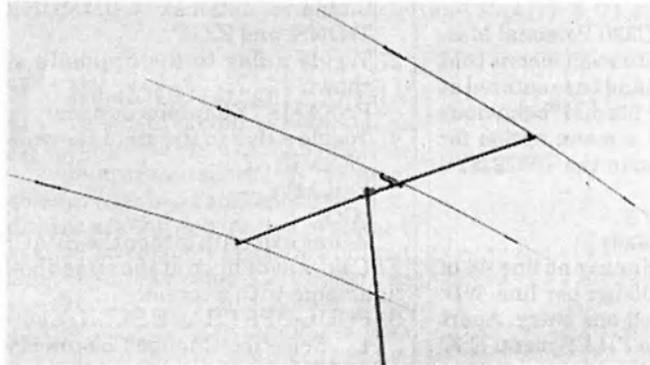
We would like to congratulate James Brinkhoff VK7PAN of Kelso, who passed his NAOCP exams on 20 November 1991 and received his licence on 10 December, comfortably in time for his 12th birthday on 20 December. Congratulations James! We hope to have a more detailed story (perhaps even a cover photo!) in a later issue of AR.

ar

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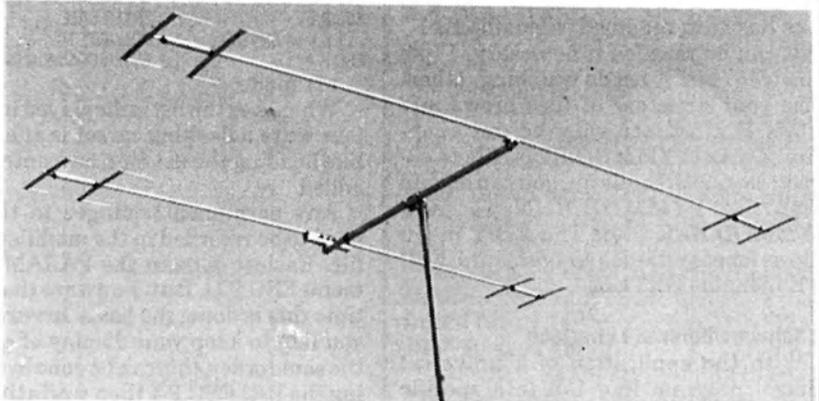
Band .....	14, 21, 28MHz
Gain .....	6, 6.2, 7 dBd
F/B Ratio .....	21, 15, 16 dB
Power .....	2 KW PEP
Max Ele. Length .....	1.3m
Weight .....	12.5kg

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PRICE \$375

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ELEMENT LENGTH .....	5.0m
BOOM LENGTH .....	2.0
GAIN .....	4/6/6 dB
FRONT TO BACK RATIO .....	12-20dB
FEED IMPEDANCE .....	50ohm
TURNING RADIUS .....	2.74m
WIND SURFACE .....	0.25m
WEIGHT .....	9.1kg
VSWR 21 28MHz less than 1.5:1 across band	
14MHz 150 kHz less than 1.5:1	
250 kHz less than 2.0:1	



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# The Lions Roar in Brisbane

A Report on VI4ILC established by Brisbane North Radio Club at the 74th International Lions Convention

MIKE HOWARD VK4BTS (c/o BNRC PO Box 78 CHERMSIDE 4032)

**W**HEN 35,000 LIONS INVADE a city, their roars are certain to be heard a long way off. Brisbane was no exception and amateur radio was there to greet the Lions and spread the message of their convention far and wide via the medium of amateur radio.

Lions Clubs International is the world's largest and most active community service organisation operating in 171 countries with more than 1.4 million members.

The Lions International movement began in Chicago on the 7 June 1917 when its founder, insurance salesman, Melvin C Jones, dreamt of creating an organisation to serve the community and mankind. Today, throughout the world, Lions Clubs participate in many activities, initiating service projects in their own communities as well as banding together to work on global concerns. The organisation provides funds for medical research, education programmes, relief to lesser developed countries and disaster areas, and recreation and youth support activities. In Australia, common activities include fund-raising campaigns for drug awareness, homes for the elderly, education, medical research and natural disasters, such as the Newcastle earthquake relief - to name a few. The 1991 International Convention, the first to be held in the southern hemisphere, was staged in Brisbane from 17 June 1991 for a one-week period.

The purpose of the convention was to gather Lions from all over the world to attend the Annual General Meeting of the Association. More than 39,000 clubs were eligible to send delegates to participate which involves the election of officers and the installation of the International President for the next year.

There are two aspects to the staging of an international Lions Convention:

The first involves the opening and closing sessions, elections, night shows and a ladies' fashion show. Seminars, forums and workshops relative to community life are also included.

The second aspect is tourism oriented, and includes visits to local attractions, pin trading, shopping and participating in local entertainment.

With Brisbane expecting about 35,000



Pat VK4PT and Ted VK4KRR, two of the operators for VI4ILC.

attendees, it was a perfect opportunity to show these visitors what **amateur radio** is all about.

It was on Friday evening, 14 June 1991 (two days prior to the commencement of the convention), in the normal course of the Brisbane North Radio Club's monthly meeting, that Chairman Paul VK4BGT asked if there was any further business. Laurie VK4BLE enquired whether an amateur radio station was to be set up for the Lions Convention. This question set the ball rolling.

Mike VK4BTS then addressed the meeting explaining what was happening within the grounds of the Brisbane Entertainment Centre for "Lions". It was agreed by the members to request approval from the Brisbane Entertainment Centre for "Lions". It was agreed by the members to request approval from the Brisbane City Council Lions Convention Host Committee to man an amateur radio station in the grounds.

At 1900 hours Saturday evening contact was made and, by 1915 hours, approval was given.

The President of the BNRC, Paul VK4BGT, was informed and, within a couple of hours, the tent, equipment, antennas etc had been arranged.

Thanks to News Editor, Bud VK4QY, for managing to have the club's activities

mentioned on Sunday morning's WIA news, at very short notice.

By Sunday evening, thanks to Eddie VK4ABX, Bill VK4AZM and Laurie VK4BLE, the tent and the TH3Jnr had been erected, power connected, and all was ready for operation. Club members were contacted by phone and a roster drawn up to staff the station from 0900-1800 local time Monday to Friday. Club members called in to a special net on 28.420MHz at 1930 Sunday to finalise the details.

The DoTC would not have been aware of the activities taking place, but on the Monday morning it was aware that the Brisbane North Radio Club VK4WIN was operating portable at the Lions Convention at the Brisbane Entertainment Centre. Shortly afterwards we were told by David VK4KLV that the DoTC had issued a stamp series commemorating the special call sign VI4ILC. Display materials showing various aspects of amateur radio were supplied by WIAQ.

Monday arrived. The Brisbane Entertainment Centre, Australia's foremost multi-purpose entertainment complex which is the venue for the Brisbane Bullets, major concerts and exhibition/trade events, was about to be besieged by thousands of Lions. The day was, by far, one of the busiest days of the week, with

estimated numbers of 10,000 plus.

Paul VK4BGT, Doug VK4XX, Ken VK4AKQ, Laurie VK4BLE, Kevin VK4AKK, Maria VK4CKK, Alf VK4OL and Mike VK4BTS made the Monday a great start, operating on:

- a) HF via a TH3 Jr, three-element tribander;
- b) 2m via a home-brewed Slim Jim;
- c) RTTY via HF

The Brisbane North Radio Club operators sparked off a week of huge pile ups.

Laurie VK4BLE worked Europe and State-side long path that afternoon — what a pile up! When he was told it was time to go, would he shift? — No way. He was having too much fun! Monday afternoon also saw another good exercise being done for amateur radio. Australia Post issued a stamp series commemorating the golden days of radio. As part of a WIAQ display at the Brisbane GPO, David VK4KLV conducted a conversation via the VK4RAG repeater with Paul VK4BGT at the VI4ILC site. Paul, using a 2m handheld radio, operated from the Entertainment Centre's roof, 23 metres above the ground. This two-way communication was put to air on the Garry Fleets afternoon show on local ABC radio station 612 4QR.

Throughout the week, Cress VK4AK, Ted VK4KRR, Noel VK4BIF, John VK4APZ, Graham VK4BGC, Bob VK4ACL, Richard VK4KEZ, Eddie VK4ABX, Bruce VK4AMV, Ken VK4AKQ and Trevor VK4ATS worked on phone and CW. Doug VK4XX RTTY, and our ladies, Pat VK4PT and Bev VK4NBC, certainly tempted many to their sets.

For 40m and 80m operations, a long, long wire was thrown up — we could not let DX operators be the only ones in on this special event station. Australians were to have their fair slice of the cake too.

All bands for novice and full call were used by both CW and phone.

Tuesday was taken up by a Lions Parade in the city which attracted a huge crowd and lasted for approximately four hours.

The Wednesday, not only for Lions attendees but for radio conditions, proved to be a great day. Laurie VK4BLE and Mike VK4BTS went into the night. The dampness of being located next to the lake certainly brought the temperature down. thanks go to Alison (Laurie's XYL) for supplying the thick jackets and blankets which helped them survive.

The atmosphere was like Expo '88. Although we didn't get 35,000 people into the tent, they certainly saw the beam!

The number of visitors to the tent was tremendous. There was certainly a good

number of licensed operators who called in, including those from interstate and many overseas countries. There were a large number of non-amateurs wondering what we were doing. They were certainly enlightened by the time they left! A good number of those we felt genuinely would be pursuing the hobby further.

Altogether, 800 contacts were made by the operators using VI4ILC, and QSL cards will be forwarded via the bureau.

All in all, it was a great week. Praise should go to the BNRC members for the way they all pulled together so successfully.

It was certainly a coup for amateur radio to have 35,000 people in an area where a station was operating. How could you not fail to show the world what this

hobby is all about! It is the rare combination of communication, friendships, education and, as we are all aware, an interesting pastime.

The weather for the convention was warm and sunny. Locals and visitors alike enjoyed the open-air activities, including our own off-duty operators who fell to the temptations of sampling the "shrimp on the barbie" and Bundaberg's non-alcoholic "punch". Bev, Eddie and Ted certainly made the rounds! At 1600 hours Friday, rain started to fall just as 6000 Lions departed from their last function at the Centre, as if in sympathy with all the Lions who were saddened that one of their greatest conventions ever was about to close.

ar



*Location of the radio shack beside the lake.*



*Part of the crowd at the convention.*

# A History of the Ionospheric Prediction Service and the Radio Amateur

FRANK HINE VK2QL 30 ABBOTSFORD RD HOMEBUSH 2140

**I**NITIALY, MY FIRST knowledge of the IPS was received during WW2 when the RAAF sent me to Port Pirie as Signals Officer. In the office was a document from the IPS known as Series P. In it they invited comment from anybody with problems. One night we experienced poor propagation to aircraft on an exercise. I wrote to IPS and advised them of the problem. They acknowledged receipt and added it was the only report received. They supplied predictions to RAAF units that were involved in radio communications. I was at Wagga later and we had a 24-hour circuit to Air Force HQ. We had predictions to permit 24-hour communications. It was normal to change to the evening frequency as predicted. One day, the HQ station did not change, so I requested a change. They said "no". Half an hour later, all communication was lost and did not come back for two hours, on the night frequency.

After the war, I came back to Sydney and joined the team doing the Sunday broadcast. One day, propagation was very poor, country stations had difficulty copying VK2WI, and I also had difficulty reading them. During the week, I asked IPS if it would supply Dural with a forecast for the broadcast. It was agreed that the WIA would be added to their list. At odd times on the Sunday morning, I would get a phone call from IPS, "was there a broadcast, as no reply". But there was only one on duty at IPS, and he either rang too early or the operator was late. There never was a missed broadcast.

As time went on, the IPS segment in the weekly broadcast was increased. If the amateur band was disturbed, I would ring a friend at IPS and ask, "Who pulled the plug out?" and he would give me the details. At that time, the NSW Division held its meeting at Crows Nest, with occasional lectures. Mr Cook agreed to give lectures to the meeting. It came time for Mr Cook to retire from IPS. I rang him on the date he was leaving, to thank him for all he had done for the WIA. His reply was, "As far as I am concerned, you are the WIA." IPS propagation information is now able to be found on telephone (02) 414 8330. I have never had a request to

IPS refused, and there have been many.

After the war, there was an intruder on the 14MHz band. I contacted Mr McCue at IPS and let him hear it. He asked me to tape it and send it to him. He called back and said it contained intelligence, but he would investigate further. A couple of days later, he rang and said it was an American station, and it had been directed to close. They were never heard again.

A friend of mine in Brazil, interested in propagation, said he was going on a trip to PY0, and could I get a prediction from there to Australia? The prediction was in the mail two days later, with a request to know how it went. Unfortunately, the sponsor withdrew.

Quite early in my amateur career, a friend N4AR was interested in propagation, and it was arranged with IPS that I receive long and short path predictions to Kentucky. These were sent to him on receipt on 7MHz CW. Another, who was in Zurich, told me the IPS prediction he was getting on 28MHz was predicting closure two hours earlier than in fact. I mentioned this to IPS and was asked to submit a full report. This was done by HB9QO. They checked and, as a result, amended their predictions.

In 1950-1960 I obtained predictions for various overseas areas, and I used to make these up in graph form for inclusion in *Amateur Radio*. Unfortunately, the cost of the blocks for them to be continued was too high. In 1966, I was requested by the Publications Committee to write an article for *Amateur Radio* on how to read the predictions. This was done, and, for the article, the NSW Divi-

sion awarded me the Adams Trophy. Being transferred from time to time, I could not keep handling the predictions for AR, but they were continued by Len Poynter VK3ZGP. I continued with articles on propagation which were discussed with Mr McCue. Len included with his predictions information from Zurich Observatory.

One day, I happened to be listening to Radio Australia, and it said the propagation forecast was coming on. This was the first time I had heard it, so I told a lot of my overseas contacts about it. Unfortunately, to their sorrow, Radio Australia discontinued the propagation report.

The name has been changed to IPS and Space Services. Periodically they provide courses of training, and various organisations are sent details of the course. I do not know if other WIA Divisions receive copies, but the NSW Division and I get them. Due to illness, I am now unable to go.

The courses run by IPS and Space Services are on ASAPS (Advanced Stand Alone Prediction System). Hardware required: IBM PC XT/AT or compatible; 512K hard disk; EGA/VGA and maths coprocessor recommended; Hard copy predictions now cost \$350 per copy. The address of IPS Radio and Space Services is PO Box 1548, Chatswood 2057. At present the predictions are being handled by the Apogee Group and VK2ZTB. The full IPS report is given on all VK2WI broadcasts, both day and night. The frequencies used are listed in AR each month

ar

**Remember to leave a three second break between overs when using a repeater.**

# Oceania Commodore Library — Information for the User

JOHN BEARSBY VK6YBP PO Box 404 FREMANTLE 6160

**T**HE OCEANIA COMMODORE Library was formed because of a need to distribute uncorrupted programs for the C64/C128. This avoids clogging HF networks with multi-part bulletins of text files or programs that may take valuable air time and in the process lose only one character and thus render the program useless. This would require the entire program to be sent again and create more holdups of personal mail and other bulletins of interest to amateurs.

In March 1991, the library was formed and the first bulletins were issued. Since then, many requests from all over the world have been received for programs and information on how the library operates and how to obtain programs. Also, requests for technical assistance are received to solve problems with modems, wiring to the computer, and hints on getting the best out of computer pro-

grams. Updates on digiprom and other software becoming available as people are hearing more about the Oceania Commodore Library.

The library is available to all amateurs and is a non-profit service to those who wish to utilise it and obtain programs for their own use.

This service is run on a cost basis and is self-supporting. Improvements in the running of the library are made as is necessary, and any donations of software, postage stamps, disks or other materials go towards acquiring more software.

The library only has public domain, freeware and shareware programs, as well as the digicom program, which is copyright but for free distribution.

There is no cost for the programs supplied by the library, only for the cost of the medium (disk), packaging and postage.

For further information on ordering, please read the how to order information which is available on request if not on your local bulletin board, club newsletter or magazine, at your local hamfest or radio club library.

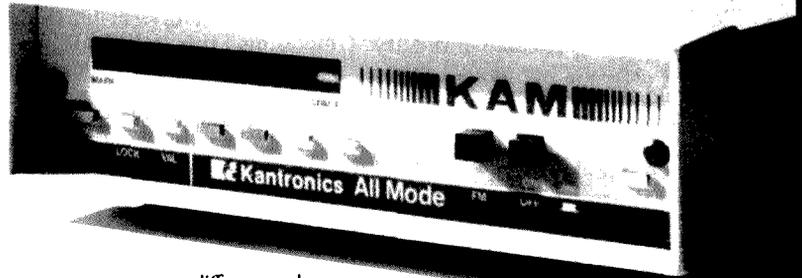
If you require any assistance whatsoever, please don't hesitate to contact the library by packet: VK6YBP @ VK6XPS, or by mail: The Oceania Commodore Library, PO Box 404, Fremantle 6160.

All enquiries are welcome. Orders will take priority over requests for information only, but will be answered in order of arrival. Please allow 14 to 21 days for a reply. See next page for list of programs available.

I look forward to being of assistance to you if at all possible.

Best wishes to you from the Oceania Commodore Librarian.

## For the discerning amateur - the Kantronics All Mode Data Controller



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With dual radio ports, one especially tailored for VHF/UHF operation and the other especially for HF use, the KAM offers more flexibility than any other multi-mode data controller on the market. Advanced single chip modem technology for VHF packet with the option of a 2400bps upgrade gives you tremendous performance. Sophisticated, computer controlled, filter and threshold demodulator technology for RTTY, AMTOR, NAVTEX and CW gives you direct control over what is happening without sacrificing the user friendliness of this unique product.

What's more you can even operate different modes on VHF and HF simultaneously\*, so you can keep track of your friends on 2 metre packet while you work the AMTOR DX on 20 metres!

- Software carrier detect for reliable open squelch operation.
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- RTTY/ASCII provide user definable Mark & Space tones.
- MYAUTOST command allows for unattended operation.

\* Requires Hostmaster II software and IBM-PC type computer

- Personal Packet Mailbox has programmable size, reverse forwarding, TO field editing, mail waiting indicator.
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Greetings to all C64 users. Here is the start of the listings for the Oceania Commodore Library.

Please watch for further bulletins as they will be under the same heading as this one: C64LIB.

Thank you and I hope these are of assistance to you.

Catalogue D is the last in the series of listings, as that is all the programs on hand at the present time; so now it is up to you.

If you see a program listed and you have some documentation for it, would you be kind enough to donate it to the library so other users may also have a copy of this material to help them with their copy of the program.

The library needs your assistance to build up the stock of programs, so if you have any you would like to donate, please

### Catalogues A & B

Disk information:

F/S — Program requires full side of disk.

D/S — Program requires both sides of disk.

Please note: Disks will be notched (both sides used) unless otherwise stated with order.

Program documentation:

N/A Not available

N/R Not required

O/D On the disk

S/S Single sheet

M/S Multi-page document @ 50¢ each

Please ensure your order is correct before sending.

Size	Program Name	Brief Description	Documentation
44	1-40 EL YAGIS	for that antenna farm you want	N/R
35	2 EL QUAD	good gain antenna	N/R
27	2 WIRE ANTENNAS	hf or vhf	N/R
75	ANTENNA DESIGNS		N/R
153	ANTENNA PROGRAM	various design types	N/R
6	BEAM LOBE ANGLE	know your antenna radiation pattern	N/R
5	DELTA LOOP ANTENNA	for the larger back yard	N/R
4	DIPOLE ANTENNAS	for single elements	N/R
9	GAMMA MATCH DES	for single elements	N/R
15	HAM ANTENNAE	various	N/R
15	HAM ANTENNAE	various	N/R
4	HELIX ANTENNAE	for satellite work	N/R
3	HF DIPOLE DESIGN	very simple program	N/R
20	LOADED DIPOLE	very simple program	N/R
42	LOG BEAM ANTENNA	good design program	N/R
17	LOG-PERIODICS	good design program	N/R
10	LONG LOOP YAGIS	for uhf/shf	N/R
14	LPDA	another log periodic design	N/R
50	NBS STANDARD OES	proven designs	N/R
17	POWER DIVIDERS	make your own home brew	N/R
2	SINGLE EL DESIGN	driven element design	N/R
3	SLIM JIM	for small space and ease of construction	N/R
3	t match	antenna matching system	N/R
29	VERTICAL ANTENNA	for the mobile or home	N/R
26	WIRE ANTENNAS	various	N/R
10	YAGI + BALUN DES	very useful balun info	N/R
27	ANTENNA SCALER	scale your old antenna to a new freq	N/R
0	YAGI DESIGN	first class vhf/uhf design	F/S N/R

End of antenna programs.

### Catalogue B

Size	Program Name	Brief Description	Documentation
2	AC POWER COST	calculate your power bill	N/R
3	AIR CONDITION	keep cool with this one	N/R
2	BASE CONVERSION	from 2 to 20	N/R
34	C/L CONVERSION	good for coil designing	N/R
24	CAD TRANSFORMERS	build basic supplies	N/R
2	CAPACITOR CALC	parallel, series etc	N/R
10	CIRCUIT ANALYSIS	for digital CCTs	N/R
4	COAX DIPOLE	for portable use	N/R
5	COIL CALC	coil design	N/R
2	DIVIDER L/C	divider networks	N/R
20	ELEC FORMULAS	various, excellent	N/R
17	ENG 555	timer CCTs	N/R
14	FORMULA	various ohm law	N/R
5	H/F L/P FILTERS	this will help stop tv	N/R
5	HIGH PASS FILTER	for the tv	N/R
2	LOW PASS FILTER	another one	N/R
6	MICROSTRIP CALC	for uhf	N/R
4	NETWORK PROGRAM	resistor networks	N/R

feel free to do so.

If you read my "how to order" bulletin it will advise of a free pick of the library programs in return for your donation of programs not already listed. If you donate any software, please ensure the copy you are providing is a good working copy of the program by running and checking it. This is most important as I cannot accept programs that won't run because they simply were not copied error-free. It is best to verify all copied programs. Please help me provide a better listing and service for everyone.

Cheers de John VK6YBP @ VK6XPS  
Oceania Commodore Librarian

4	OHM'S LAW	short version	N/R
4	POLYNOMIAL PROG	for the experts	N/R
6	REFLECT VSWR	chart conversion	N/R
7	RES PI-ATN N/W	useful for tuning up rigs	N/R
41	RESISTANCE-PROG	excellent	N/R
46	SMITH CHART V2.0	more for the experts	N/R
2	VECTOR ADD PROG	more for the experts	N/R

End of formulae.

### Catalogues C & D

Disk information:

F/S — Program requires full side of disk.

D/S — Program requires both sides of disk.

Please note: Disks will be notched (both sides used) unless otherwise stated with order.

Program documentation:

N/A Not available

N/R Not required

O/D On the disk

S/S Single sheet

M/S Multi-page document @ 50¢ each

Please ensure your order is correct before sending.

Size	Program Name	Brief Description	Documentation
46	BM V2.2	bit machiner	
32	BM-MANUAL	+ + program manual	
13	CALL BOOK	fairly easy to run	N/A
49	CONTEST LOG II	another good log prg info not really req	N/A
74	DA	directory manipulation and more	N/A
26	DISK ORGANISER	does many things	N/R
6	DISK RENAME	does many things	N/R
4	DISK RESTORER	restore scratch files	N/R
11	DX BEAM HEADINGS	directional info	N/A
8	EDIT	scratches unwanted prg & files	N/R
11	FILE PARAMETERS	lists details of files + prg/s on disk	N/R
19	FILE PROTECT	write + unwrite-protect a disk	N/R
21	FILE RENAME	saves lots of time	N/R
8	FILE RESTORER	for single files (similar to disk restore	N/R
49	HETI VHF C. V2.0	new contest program from YU	O/D
23	HETI MANUAL	manual for above	
37	JACKET MAKER	makes a disk cover with program printout	N/R
41	NEW RD	contesters log program	N/R
40	RD CONTEST LOG	contesters log program	N/A
6	SCRATCH FILES	ditto	N/A
8	UNSCRATCH	ditto	N/R
0	DIGICOM 3.51A	new hf version, unaffected by noise.	F/S O/D

Note: The Oceania Commodore Library is an official Digiprom Copier, authorised by the JSM Group, authors of Digiprom.  
End of utilities.

### Catalogue D

Size	Program Name	Brief Description	Documentation
48	COSMOS CONV	converts amsat data to uosat format	N/R
92	COCMOS V2.6	main program for tracking	N/R
4	KEPCONV MANUAL	manual for above	
61	KEPCONV V2.3	provides data for tracking	O/D
34	LOCATOR C64	bearings program	N/R
8	SIDEREAL TIME2	use with satellite tracking progs	N/R
19	PLAN10/80	oscar tracker, 80col, use with screen 80	N/A
22	PLAN10/40P	40 column version of above	N/A
11	SUN LOCATION	ditto	N/A
56	UOSAT11/DECODE	decoder program; no inf as yet	N/R
33	COSMOS 2.DAT	data file for cosmos program above	N/R

End of satellite programs.

Commodore Oceania Net Library  
Library Ordering Information

## How to Order

Disk size catered for: 5.25 inch 660 blocks per side

Cost: \$3.00 each

Disk price **includes** disks, packaging and postage. Overseas orders: prices are in \$US, except NZ — you can send Oz notes.

At this time, programs are (not compressed). In this case, the sizes you see on the various lists are those you should consider when you make up your program order.

**Do not** send me blank disks — the above price **includes** the disks. I am not allowed to make any profit to conform with the permission granted by DoTC. This service will be run on the same basis as the IBM Library of VK2BBD Les. I handle only programs/files for the C64/128. If you have any queries re IBM files/programs, please send a message to Les VK2BBD @ VK2BBD, NSW.AUS.OC.

When making up your order for the library, consider these points:

1. Disks can contain only 660 blocks per side.

2. If you have programs totalling 700 blocks for sending on a 660 block per side capacity disk — sorry! That will use two sides — whichever way you juggle it. Better to find some more programs to fill the disk usefully — I don't mind. The same rules apply to **all** disks.
3. **Any** station thinking I am making a profit on this service, please let me know where I am going wrong, as I haven't yet made that grade! **This is a non-profit service to amateurs, not a business.**
4. Having seen the library lists, if you have **FREEWARE/SHARE** programs which you think would be useful additions to this library, please feel free to send them on to me. I usually offer you free choice of the library for such donations — this is the way the system improves. Please provide the instructions or manuals, if available, or, if a short file can be included for the recipient, this will help greatly.
5. Any suggestions for improving this library format would be welcomed. I

am open to ideas for improvement or change ...

6. Bulletins will be sent out approximately every four months with updates when new software or updated versions arrive, and are available to order.
7. Please send me your software donations as soon as possible, and help me to provide a service that is second to none.
8. If you send me a letter requesting information, please include a normal business-sized envelope to put the information in, and a stamp to cover return postage. I simply do not have the funds to cover these postage costs.
9. Disclaimer. All care taken, but no liability will be accepted.

Mail address:

John Bearsby,

PO Box 404

FREMANTLE 6160..

Via packet: VK6YBP @ VK6XPS.  
#PER.#WA.AUS.OC.

CHEERS DE JOHN VK6YBP,  
OCEANIA COMMODORE LIBRARIAN.

ar

## New APLINK Service: VK1BBS

RICHARD JENKINS VK1RJ PO Box 101 CHARNWOOD 2615

**A** new APLINK service for users of VHF packet and HF AMTOR has been established in Canberra. APLINK is a bulletin board and mailbox system providing an automatic interchange of mail between the national packet network and an AMTOR station on HF Radio. On the packet side it looks very similar to the packet BBSs you are used to. On AMTOR it's a fully functional mailbox with private messages, bulletins and store and forward facilities to both networks.

This system was developed for those amateurs in rural areas of south-eastern Australia who are unable to access the national packet network. It provides these stations with a mailbox and forwarding facilities. Coverage area is the south-east of Australia for AMTOR and the Canberra region for VHF packet. The system allows for automatic forwarding of messages via VK1KCM's bulletin board to the packet network.

VK1BBS is currently an experimental service using low power (30 watts) and a dipole antenna on 40 metres. The system may be accessed by calling VK1BBS on AMTOR ARQ

mode with a Selcal of VBBS. The carrier frequency is 7035kHz (tuning frequency 7037.1kHz LSB). On the packet side, VK1BBS operates on 147.575MHz and can be reached via VK2RPT-1 for those outside the Canberra region.

While this system is experimental, the sysops will be analysing its use and exploring enhancements to the services provided. Hours of operation may vary due to these developments. However, the sysops will endeavour to keep the system online from 8am to 7pm.

Comments on the services provided by this system would be greatly appreciated. Should you require further information or wish to provide any comments, the sysops Gavan VK1EB and Richard VK1RJ may be contacted by forwarding mail to VK1BBS @ VK1BBS. ACT.AUS.OC. or by writing to:

SYSOP VK1BBS

PO Box 101

CHARNWOOD 2615.

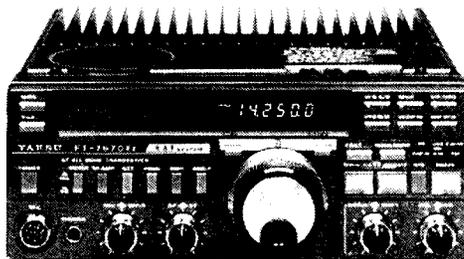
So, how about it? Make a new year's resolution and give AMTOR a go. Everyone is welcome at VK1BBS!

ar

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**AR Articles, PO Box 300  
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# BEAT THE PRICE HIKE!



## FT-747GX BUDGET H.F. TRANSCEIVER

The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts of PEP output on all 1.8-30MHz amateur bands, and general coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and easy to read digital display, dual operator selectable tuning steps for each mode, dual VFO's for split frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM, and narrow 500Hz CW IF filters are also fitted as a standard feature. Includes Yaesu MH-1 hand microphone.

Cat D-2930

**2 YEAR WARRANTY!**

**\$1199**

## Our Most Rugged HF Mobile Transceiver! FT-757GX II ALL MODE HF TRANSCEIVER

Ready for action! Whether in a demanding H.F. mobile situation, or at home in the shack, the FT-757GX II won't let you down. Based on its popular predecessor, it features the heavy duty die-cast heatsink and rugged metal chassis of the earlier 757GX, but has been upgraded to offer a number of new features. These include...

- All mode operation — SSB, CW, AM, FM(160m-10m)
- 100 watt output on SSB, CW, FM (25W AM) at 100% duty cycle
- High performance general coverage receiver — 150kHz to 30MHz
- Dual VFO's with single button VFO/memory swap functions
- Memories store freq. and mode, plus provide band scanning.
- Inbuilt 600Hz CW IF filter, IF shift and IF notch filters, variable noise blanker, Speech Processor, iambic CW keyer, and SWR meter.
- Includes MH-1 hand microphone.

Cat D-3492

**2 YEAR WARRANTY!**

**SAVE \$100 \$1695**

## FT-212RH MOBILE 2m FM TRANSCEIVER



**BUY  
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With 45 watts output over the 144-148MHz range, a rugged diecast chassis for superb RF isolation, extensive use of surface mount components, and a large back-lit LCD with bargraph PO/S-meter. The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. Features include 5 selectable tuning steps, a total of 21 memories (18 general purpose, one CALL-channel, and 2 sub-band limit memories for band scanning), inbuilt C.T.C.S.S. encode, as well as a variety of scanning functions. The FT-212RH comes with a mobile mounting bracket, convenient MH-14A8 microphone, and DC power lead.

Cat D-3494

**2 YEAR WARRANTY!**

**\$499**

## FT-4700RH 2m/70cm MOBILE FM TRANSCEIVER



**OUR  
BEST  
EVER  
PRICE**

**2 YEAR WARRANTY!**

Features 50 watts output on 2m, and 40 watts output on 70cm (430-450MHz), with Full-duplex crossband operation or dual-band reception modes, you can listen for calls on both bands simultaneously, or work someone on one band while listening on the other. The optional YSK-4700 extension cable allows the main body of the transceiver to be installed remotely, while the front panel mounts conveniently on the dashboard. The amber back-lit LCD shows both VHF and UHF frequencies and signal strengths, and all controls are back-lit for clear readability, with a dimmer switch for nighttime viewing. A total of 20 memories and 5 selectable tuning steps make frequency selection easy, while the advanced scanning features allow quick detection of signals on either, or both bands.

Cat D-3300

Cat D-3301 YSK-4700  
extension cable \$49.95

**\$899**



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### Important Notice

*The Aussie dollar is dropping in value, so don't miss your opportunity for a quality Yaesu rig while they're still at these great value prices.*

**DICK SMITH  
ELECTRONICS**

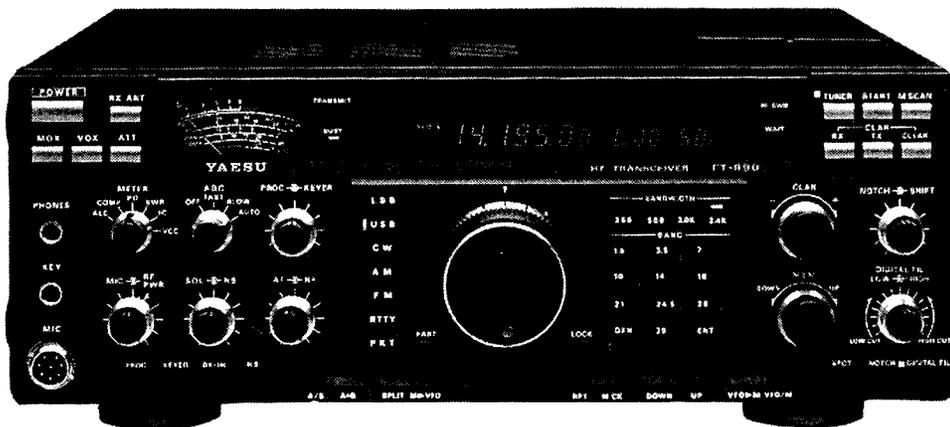


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# The Tradition Continues...

## YAESU FT-990 HF ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000... and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.



Cat D-3260

**\$3295**

### Designed For Easy Operation

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### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of you transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

### Convenience Features

- A highly efficient AC switch-mode power supply is built-in. It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF shift, IF notch, IF bandwidth, and SCF audio controls.
- An adjustable noise blander, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.

#### STORE LOCATIONS:

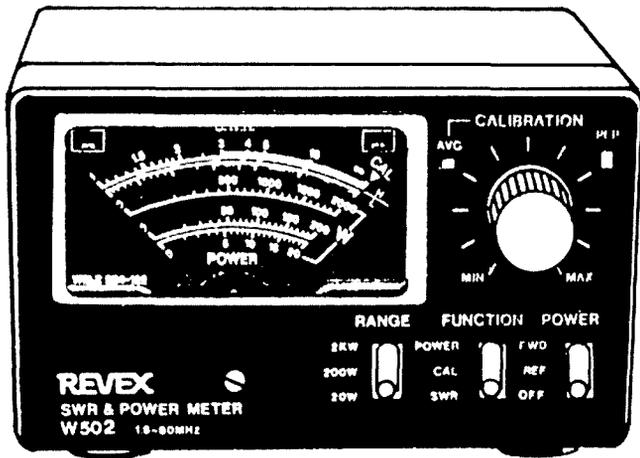
**NSW** • Albury 21 8399 • Bankstown Square 707 4888 • Blacktown 671 7722 • Brookvale 905 0441  
• Bendi 387 1444 • Campbelltown 27 2199 • Chatswood Chase 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 6633 • Hurstville 580 8622 • Kotara 56 2092  
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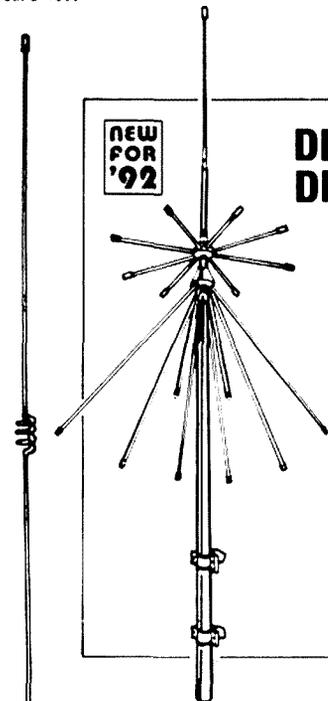


## HF/6m POWER/SWR METER

A superb wideband SWR/Power meter which boasts quality Japanese construction and a truly accurate P.E.P. metering circuit (unlike many 'other' so called P.E.P. monitor systems). The Revex W502 features solid construction with an all-metal case and a large back-lit meter... and it covers the 1.8 to 60MHz range with less than 0.1dB insertion loss. With 20W, 200W and 2kW power ranges and LED indicators which show average or P.E.P. operation. Requires 13.8V DC @ 200mA power supply.

Cat D-1360

**\$199**



NEW FOR '92

## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese disccone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware and instructions.

Cat D-4840



**\$169**

## ST-7500 DUALBAND MOBILE ANTENNA

NEW FOR '92

At last, a high performance dualband mobile antenna at a down to earth price. The ST-7500 is just 1metre long and uses a ground independant design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality Japanese construction together with a tiltable whip structure make this an ideal antenna for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended).

Cat D-4810

**\$79<sup>95</sup>**

## DIAMOND VHF/UHF BASE STATION ANTENNAS

These high quality, vertically polarised base station antennas are ideal for the discerning Amateur operating on the 2m, 70cm or 23cm bands. They're beautifully constructed Diamond brand antennas from Japan which provide high gain for maximum range. Constructed from robust F.R.P. tubing for excellent all-weather operation, with ground-plane radials for a clean radiation pattern.

### 2m ANTENNA F-23A

Frequency: 144 — 148MHz  
Gain: 7.8dB  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 4.53m  
Type: 3 x  $\frac{3}{8}$   $\lambda$  co-linear  
Cat D-4850



**\$199**

### 2m/70cm ANTENNA X-200A

Frequency: 144 — 148MHz, 430 — 450MHz  
Gain: 6dB on 2m, 8dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 180km/h  
Length: 2.5m  
Type: 2 x  $\frac{3}{8}$   $\lambda$  (2m), 4 x  $\frac{3}{8}$   $\lambda$  (70cm)  
Cat D-4860

**\$199**

### 2m/70cm ANTENNA X-500A

Frequency: 144-148MHz, 432-450MHz  
Gain: 8.3dB on 2m, 11.7dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 5.2m  
Type: 3 x  $\frac{5}{8}$   $\lambda$  (2m), 8 x  $\frac{5}{8}$   $\lambda$  (70cm)  
Connector: N-type socket  
Cat D-4865

**\$299**

**Limited Stocks!**

### 23cm ANTENNA F-1230A

Frequency: 1260 — 1300MHz  
Gain: 13.5dBi  
Max. Power: 100W  
Max. Wind Speed: 144km/h  
Length: 3.06m  
Type: 25 x  $\frac{1}{2}$   $\lambda$  co-linear  
Connector: N-type socket  
Cat D-4870

**\$249**

**Limited Stocks!**

## 2m 1/2 WAVE BASE STATION ANTENNA

—MOBILE ONE

An outstanding value for money, compact, Australian made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection and comes with a 5 year warranty.

Cat D-4820

**\$49<sup>95</sup>**



B1297/LB

# AWARDS

JOHN KELLEHER VK3DP - FEDERAL AWARDS MANAGER

## The Holyland Award Scheme

The "Holyland Award" is a special plaque issued by the Israel Amateur Radio Club (IARC) to both licensed radio amateurs and SWLs. The plaque is awarded for achieving basic requirements after 1 January 1992. Stickers will be attached to the basic award after improving the achievements. QSL cards are not required, only log entries!

## Basis of the Award

The award scheme is based on the geographical and administrative division of the Holyland. The country is divided geographically, by the Survey of Israel Department, into a grid system resulting in squares of 10x10km. These squares are defined by a letter and two numbers which are relevant coordinates, ie E-14, H-08 etc.

The country is divided for administrative purposes into 23 regions. The boundaries of these regions are drawn arbitrarily. An "area" is made up from the square and the region. For example: E-14-TA (Tel-Aviv), G-18-JS (Jerusalem) etc. The area is the basis for the Holyland Award Scheme.

## Claim and Record Book

To help with the logging and for claiming purposes, a special record book is produced. The book includes:

- Detailed aims, explanations and requirements of the Holyland Award Scheme
- A list of regions and squares within the region
- A summary of achievement for claiming purposes

In addition to the book, the following items are available: country road maps, scale of 1:250,000. A list of settlements and its location square. Price for only the book — \$10. Price for the book with the additional material — \$18. The book and the additional material are obtainable from: M Webman 4X4JU, #14 Degel Reuven St, 49402 Petah Tiqwa, Israel.

## The Scheme

**Awards and Stickers:** The award is given for working or hearing stations in the Holyland areas. There are two categories: (a) amateurs working in the Holyland; (b) amateurs around the globe.

In the (b) category, 100 areas from 13 regions are required for the basic award. Additional 12 areas, plus one extra region, are required per sticker.

**Expedition and Mobile Trophy:** A specially engraved trophy will be awarded for activating 100, 200, 300 and 400 different areas — available to all radio amateurs working DX while operating mobile or portable in the Holyland.

**Operating Frequencies:** To concentrate the effort, specific frequencies are recommended for the Holyland Scheme. Mobile and portable stations will use the following frequencies +/- QRM: 28.655, 21.320, 14.265, 7.060MHz.

**Holyland Contest:** A contest is held annually. The first contest will take place in April 1992, starting Saturday the 18th 1800 UTC, and ending Sunday the 19th 1800 UTC. More details are given in the amateur radio

press and on request from the contest manager, IARC, PO Box 4099, 61 040 & Tel-Aviv, Israel. (SASE required).

## Invitation

The Israel Amateur Radio Club invites you, among all other radio amateurs in the world, to participate in the "Holyland Award" program. We hope you will find interest in expanding your geographical knowledge of the Holyland and create friendship with radio amateurs operating here. The beautiful award will be the right completion for your participation and, we hope, will give you much pleasure.

We here are making all efforts to increase the activity of radio amateurs in the country, and encourage mobile and portable operation. If you have a plan to visit the Holyland in the near future and wish to operate your radio station here, mobile or fixed, you can take part in the "Holyland Expedition & Mobile" plan and win the trophy. The IARC, with great pleasure, will assist all radio amateurs who wish to operate in the Holyland.

We hope to see you among the radio amateurs taking part in the Holyland Award program.

*(See Holyland DX Contest on page 33 of this issue for definition of regions and areas — Ed)*

Overseas award hunters have shown interest in some awards which are not within the scope of the Federal Awards Manager. However, since I am always ready to please, and since AR enjoys world-wide popularity, here is the information I have been able to unearth.

## Zone 29 Award

25 stations in Zone 29 after 1.1.52. \$A5 to WIA (VK6 Division), PO Box 10, West Perth 6782. ar

# CONTESTS

(INFORMATION PROVIDED BY RELEVANT CONTEST MANAGERS)

## Results — Commonwealth Contest 1991

John Tutton VK3ZC

Band conditions across Australia during the 1991 Commonwealth Contest (BERU) were reasonably good, and probably had a lot to do with an increase in the number of VKs submitting logs — from 30 to 37 — so it looks as if we have negotiated a deep trough and are now on the way up again, hopefully before long to exceed our record of 66 set in 1984.

The contest is under a two-pronged assault. Firstly from the John Moyle contest which is in progress for a large part of the time, but which may bring more VKs and ZLs

on to the bands, and secondly from the Japanese 59 Magazine contest which covers the whole 24 hours (and more). See "RSGB Comment". Could we ask that John Moyle entrants make out a second log for BERU contacts? VK3ZC QTHR would be pleased to forward it for you.

Kevin Smith VK6LW, taking advantage of the Westralian Effect", was fifth overall, and winner for VK, again topping 6000 but failing, by only 51 points, to match his record score in 1990. Dieter Kiesewetter VK2APK, sixth overall, made a late run to edge out VK2BW into seventh place. The thoughts of many VKs' "who's this 2BW chap" were answered

when he turned out to be ex-G3PEK, a BERU man of long-standing.

The absence of a VE from the top two places was quite something, and 9H1EL, second back in 1980, is to be congratulated on his fine win. One wonders how many east-coast VKs worked, or even heard, ZK8VW.

We were again able to put on the air a HQ station, VK3WIA, and the contact and bonus points from it, GB5CC and P29CAS were much appreciated. The operating was shared by Geoff Hudson VK3VR and Greg Williams VK3VT.

## Top Ten

1	9H1EL	6866	6	VK2APK	5235
2	ZD8VJ	6765	7	VK2BJ	5155
3	VE7CC	6689	8	G3FXB	5055
4	VE3EJ	6495	9	G4BUO	4915
5	VK6LW	6139	10	G3MXJ	4595

### Australian Scores

5	VK6LW	6139	65	VK3AOR	1630
6	VK2APK	5235	66	VK3BXA	1540
7	VK2BJ	5155	67	VK6RU	1510
11	VK4XA	4530	70	VK7FN	1425
15	VK5GZ	3515	75	VK5ZN	1275
16	VK5BN	3445	79	VK7RY	1205
21	VK3ZC	2995	84	VK4TT	1170
26	VK8HA	2700	86	VK6RZ	1095
29	VK3MJ	2645	94	VK2AIC	940
32	VK2DID	2550	96	VK3IT	880
33	VK4XW	2430	97	VK7RO	865
36	VK6BB	2273	107	VK7GB	641
45	VK2ETM	2120	111	VK3CW	615
36	VK3DNC	2110	116	VK3XF	550
54	VK5AGX	1880	117	VK3J1/2	485
55	VK8KV	1786	119	VK5HO	400
57	VK6HQ	1750	122	K3XB	250
61	VK6AJ	1695	126	VK3KS	175
62	VK4OD	1685			

### Other Pacific Area Scores

14	ZL1AIZ	3905	81	ZL2TX	1185
18	P29PL	3095	91	ZL1BSG	975
25	ZL1HV	2722	98	ZL2BCH	830

ZL equalled its recent high of five entries, but quite a few others were active. Most of the old stalwarts from a number of Commonwealth countries VE, VO, 9J2, 5Z4, A22, ZB2 and Z2 were around, and YU400/5B4 scored 1395 with a single-band entry.

VK5AGX and VK3XB were winners of the overseas single-band certificate for 14 and 7MHz respectively. Twenty-six of the 126 entrants submitted logs for only single-band operation — maybe that was why some areas were difficult to find on some of the bands.

### RSGB Comments

The 1991 Commonwealth Contest was, as always, a close-run battle, but this year saw a very welcome change at the top with both first and second places going to “new” entrants. Jeff Morris 9H1EL made excellent use of his three monoband Yagis and LF verticals to take overall first place, collecting the leading band scores on 20m and 10m in the process. Andy Chadwick ZD8VJ, operating in only his second Commonwealth Contest (with a more modest three-element tribander and doublet at 25 feet, but an eminently collectable call-sign) pushed hard throughout but, in the end, fell short by the narrowest of margins. Positions amongst the leading VE, VK and G stations show the now-familiar pattern, winners being Lee Sawyer VE7CC, Kevin Smith VK6LW and Al Slater G3FXB (back home to reclaim the Colonel Thomas Rose Bowl from G4BUO!). In the single-band category, the most remarkable result was achieved by Peter Hobbs G3LET, who was the only monoband entrant to win his band outright. The one and only entry in the receiving section was a fine effort from the now sadly departed “Brad” Bradbury BR51066 ... the committee was saddened to hear of Brad’s death, especially as he was unaware of his latest win.

For the second time the Commonwealth Contest was fought under extremely difficult conditions of interference due to clashing with another CW contest run by the Japanese 5-9 magazine which has “camped” on the Commonwealth date established more than 50 years. This made it all the harder for the Commonwealth DX with exotic call signs, and the high scores in the table are a tribute to the remarkable endurance of those brave souls who battled on through the QRM. Seriously though, this clash of dates is proving to be a real problem. The RSGB has made a number of representations directly to the magazine, and also via IARU and JARL, for the event to be moved to a recognised IARU “slot”, but so far with no good result. Both societies are continuing the lobby, and we can only suggest all participants write directly to the editor of the magazine and to the IARU Region 3 chairman to demonstrate the strength of feeling concerning this.

All amateurs throughout the Commonwealth are cordially invited (and heartily encouraged) to enter the next RSGB Commonwealth Contest, to be held on 14-15 March 1992. Here’s hoping for a bumper entry next year!

### The Holyland DX Contest — Israel 1992 Rules

The aim: To promote contacts between radio amateurs around the globe and Israeli hams.

To aid amateurs to achieve the different Israeli Awards and to introduce the new “Holyland Award”.

1. Eligibility: All licensed amateurs and SWLs worldwide.

2. Object: To contact as many different Israeli amateur radio stations on as many bands, and from as many “areas”, as possible in both modes, CW and SSB.

3. Contest Period: Starting Saturday 18 April 1992, 1800 UTC, ending Sunday 19 April 1992, 1800 UTC.

4. Categories: 1. Single operator — all bands.

2. Multi operator — single transmitter — all bands.

3. Shortwave listeners.

5. Modes: SSB and CW.

6. Bands: 1.8, 3.5, 7, 14, 21, 28MHz. According to the IARU Region-I recommendations: 3.50-3.56, 3.60-3.65, 3.70-3.80, 14.00-14.06, 14.125-14.300, 21.00-21.08, 21.20-21.40, 28.00-28.10, 28.50-28.80MHz.

7. Exchange: Worldwide stations send RS(T) + QSO number starting with 001. Israeli stations give RS(T) and area.

8. Valid Contact: The same station may be contacted in both CW and SSB on each band. It is thus possible to make up to 12 valid QSOs with the same station if worked in CW and SSB on each band. Neither cross-mode nor cross-band contacts are permitted.

9. QSO Points: 2 points for each QSO on

1.8-3.5-7MHz. 1 point for each QSO on 14-21-28MHz.

10. Multipliers: One multiplier for each area per band worked.

11. Scoring: Multiply total number of QSO points by number of multipliers.

12. Logsheets:

A. Separate logs for each band and mode.

B. Each entry shall report: time, call sign, RS(T), area received and points.

C. SWLs shall report on Israeli stations only: time, call sign, stations worked, RS(T), area sent, and points.

13. Scoresheet:

A. A summary sheet shall list number of multiplier and points scored from each band worked. Total multipliers and points plus the computation of total score.

B. Declaration of compliance with rules of contest and own radio amateur licence.

C. Entries must be postmarked not later than 31 May 1992 and sent to: Contest Manager, Israel Amateur Radio Club, Box 4099, Tel Aviv 61040.

14. Awards:

A. A trophy for the overall winner in each category.

B. A plaque for each continental winner in each category.

C. Certificates will be awarded to the top scorers in each country, provided a minimum of 50 valid QSO points have been reached.

15. Special Operation: Israeli mobile or portable stations may move and change their location during the contest into five different areas, restricted to an operating time of at least one full hour per area. The operation from each area gives that station the status of a different station with another call, thus giving additional contest points and multipliers. To identify its different location/area those stations will change their call signs by adding a number after their prefix. For example, 4X4JU will use 4X41JU, 4X42JU, 4X45JU or 4X6JS will use CX61JS, 4X62JS etc.

### Explaining the Multipliers

1. The square system

The country is divided geographically, by the Survey Department of Israel, into a grid system resulting in squares of 10x10km.

North-to-south co-ordinates are identified by numbers, while west-to-east co-ordinates are identified by letters. The square is defined through the combination of the relevant co-ordinates, ie E14.

2. The administrative system

The country is divided into 23 administrative regions.

Here is a list of the regions and their respective abbreviations:

Akko	AK
Ashgelon	AS
Azza	AZ
Beer Sheva	BS
Bethlehem	BL

Hadera HD  
Haifa HF  
Hagolan HG  
Hasharon HS  
Hebron HB  
Jenin JN  
Jerusalem JS  
Kinneret KT  
Petah Tiqwa PT  
Ramallah RA  
Ramla RM  
Rehovot RH  
Shekhem SM

Tel Aviv TA  
Tulkarm TK  
Yarden YN  
Yizreel YZ  
Zefat ZF

### 3. The Areas

An area is made up from the 10x10km grid reference square and the region. For example: E14TA, H08HF.

The area is the basis for the Holyland Award and the Holyland DX Contest. For that purpose the area must contain land, and only that land or any waterway in that area is

considered to be the area.

### 4. Maps

The Israel Survey Department has printed the following maps:

5.1) Country road map with a 1:250.000 scale, comprising two sheets.

5.2) Country road map with a 1:100.000 scale, comprising six sheets.

5.3) Region map with a 1:250.000 scale, comprising two sheets.

BEST 73s AND SHALOM  
CONTEST COMMITTEE OF IARC  
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## VHF/UHF – AN EXPANDING WORLD

ERIC JAMIESON VK5LP - PO Box 169 MENINGIE 5264

### All times are UTC Six Metre Beacons

Freq	Callsign	Location	Grid Square
50.000	GB3BUX	England	IO93
50.005	ZS2SIX	South Africa	KF25
50.009	JA2IGY	Japan	PM84
50.012	OZ4VM	Denmark	JO46
50.015	SZ2DH	Greece	KM27
50.015	V51VHF	Namibia	JG87
50.015	PJ4B	Bonaire	FK52
50.016	4N3SIX	Slovenia	JN76
50.016	JA6YBR	Japan	PM51
50.018	V5AVHF	Namibia	JG87
50.019	P29BPL	Papua NG	QI30
50.020	GB3SIX	England	1073
50.020	CX1CCC	Uruguay	
50.021	OZ7IGY	Denmark	JO55
50.022	FR5SIX	Reunion Is	LG78
50.0245	ZP5AA	Paraguay	GG14
50.025	YV4AB	Venezuela	FK50
50.025	OH1SIX	Finland	KP11
50.025	6Y5RC	Jamaica	FK17
50.026	JA7ZWA	Japan	QM07
50.029	CT0WW	Portugal	IN61
50.0325	ZD8VHF	Ascension Island	II22
50.032	ZS5SIX	South Africa	KG50
50.033	LU8YYO	Argentina	FF50
50.035	ZB2VHF	Gibraltar	IM76
50.035	ZS3VHF	South Africa	JG87
50.035	V73AT	Marshall Is	RJ38
50.039	FY7THF	French Guyana	GJ35
50.040	VO1ZA	Newfoundland	GN37
50.040	SV1SIX	Athens	KM17
50.041	F05DR	Tahiti	BH52
50.042	GB3MCB	England	IO70
50.043	ZL3MHF	Aylesbury	RE66
50.044	JR7YAG	Okinawa	PL36
50.044	OX3VHF	Greenland	GP60
50.045	YV4ZZ	Venezuela	FK60
50.046	VK8RAS	Alice Springs	PG66
50.047	JA7YLL	Japan	QM08
50.048	TG4BFK	Guatemala	
50.049	JG1ZGW	Japan	
50.050	GB3NHQ	England	IO91
50.050	ZS6DN	South Africa	KG44
50.050	VE7SIX	Canada	DN09
50.051	LA7SIX	Norway	JP99
50.0525	ZL3MHB	Greymouth	RE57
50.053	JA5FFJ	Japan	
50.053	VK3SIX	Hamilton	QF02
50.056	VK8VF	Darwin	PH57
50.057	VK7RSB	Hobart	QE37
50.057	TF3SIX	Iceland	HP94
50.060	GB3RMK	Scotland	IO77
50.060	PY2AA	Brazil	GG66
50.061	KH6HME	Hawaii	BK29
50.0625	GB3NGI	North Ireland	IO65
50.064	GB3LER	Shetland (GM)	IP90

50.064	WD7Z	Arizona	EL59
50.0655	GB3IOJ	Jersey	IN89
50.065	NB30/1	Rhode Island	FN41
50.066	VK6RPH	Perth	OF78
50.069	K6FV	Woodside	CM87
50.070	EA3VHF	Spain	JN01
50.073	KH6HI	Hawaii	BL01
50.073	ZS4SA	South Africa	KG33
50.075	VS6SIX	Hong Kong	OL72
50.0775	VK4BRG	Sarina	QG48
50.078	PT7BCN	Brazil	HI06
50.079	TI2NA	Costa Rica	EJ79
50.080	HC8SIX	Galapagos Is	EI59
50.080	SK6SIX	Sweden	JO57
50.082	VE1MUF	New Brunswick	FN66
50.082	HC6SIX	Galapagos Is	EI59
50.085	9H1SIX	Malta	JM75
50.085	3D2FJ	Fiji	
50.086	VE2STL	Quebec	FN46
50.0865	LU1MA	Argentina	FF87
50.090	KJ6BZ	Johnston Island	AK56
50.091	9L1US	Sierra Leone	IJ38
50.092	W5GTP	Louisiana USA	EM40
50.092	HC2FG/B	Ecuador	EI97
50.100	5H1HK	Tanzania	
50.110	A61XL	United Arab Emir	LL74
50.120	457EA	Sri Lanka	MJ96
50.314	FX4SIX	France	JN06
50.321	ZS5SIX	South Africa	KG50
50.490	JG1ZGW	Tokyo	PM95
50.499	5B4CY	Cyprus	KM64
50.904	ZS1STB	South Africa	KF05
51.020	ZL1UHF	Nihotupa	RF73
51.030	ZL2MHB	Napier	RF80
52.100	ZK2SIX*	Niue	AH50
52.510	ZL2MHF	Mount Climie	RE78
52.325	VK2RTV	Newcastle	QF57
52.330	VK3RGL	Mount Anakie	QF22
52.345	VK4ABP	Longreach	QG26
52.370	VK7RST	Hobart	QE37
52.420	VK2RSY	Sydney	QF56
52.425	VK2RGB	Gunnedah	QF59
52.440	VK4RTL	Townsville	QH30
52.445	VK4RMB	MacKay	QG48
52.450	VK5VF	Mount Lofty	PF95
52.470	VK7RNT	Launceston	QE38

\*Has anyone heard this beacon?

### Beacon Notes

According to *The West Australian VHF Group Bulletin*, VK6RTT on 52.320 is off the air until further notice. The same source says the Perth beacons are located at the QTH of Bob VK6KRC and operate on 50.066, 144.460, 432.160 and 1296.480. There will be more information later on a beacon for 10.4GHz.

John VK3ZJC says Queensland DoTC has licensed VK4RMB as beacons in MacKay on 52, 144 and 432, all operating on .445 in competition with similar frequencies for beacons in Cairns and Townsville. Could be interesting in the event of a general tropo opening in northern Queensland!

All four VK5 beacons are now operational from Mount Lofty using the callsign VK5VF on 52.450, 144.450, 432.450 and 1296.450MHz, and all have been heard in Albany, Western Australia, a distance of 1880km, by Wally VK6WG, who finds the 1296 beacon to be particularly useful, alerting him to openings across the Great Australian Bight to VK5 and points beyond, and also warning of the potential for contacts on 2304MHz and above. The four beacons are radiating very well and cover the 120km path to VK5LP at Meningie to provide S9+30dB signals constantly on the first three bands, and a steady S9 on 1296, without the use of any masthead preamps! Thanks to VK5AVQ and VK5KK for their work on the beacons.

Can anyone inform me whether any or all of the Cairns beacons signing VK4RIK are operational please?

### News from Europe

First from Ted Collins G4UPS: In Lithuania, a club station LY2WR has been issued with a special experimental permit which expires in April 1992. However, it is understood that by then six metres will probably be a general allocation.

Ted says start-up time for OK (Czechoslovakia) Class A stations was 14 December 1991 with a maximum power limit of 25 watts and OK2PZW, OK1DIG and OK3LQ were first off the rank from 0001 UTC!

It appears a DXpedition to the South Sandwich Islands is being planned for two weeks from 14 March. The callsign will be VP8SSI and the QSL route for CW and RTTY is KA6V, and for SSB via AA6BB. The islands are included in the British Falkland Islands.

From the Republic of Russia, a 6m operator has appeared — Andy RA3TES. He lives in Arzamas, located to the east of Moscow and on the Trans-Siberian Railway in Grid Square LO15.

For anyone fortunate enough to work

HS5SEA the QSL route is RAST, GPO Box 2008, Bangkok 10501, Thailand. QSL route for 9J2HN in Zambia is JH8BKL, Katsuhide Kawase, 9-1655, Shinkai, Teshio, Hokkaido, 098-33, Japan. No direct cards to Zambia, please.

Ted G4UPS sends a daily report of what was worked or heard in G land from 1/12 to 31/12, and this comprises three typewritten pages! A summary of this indicates the following call signs: ZD8VHF/B, 4N2SIX/B, HC5K, CN8ST to VE, KP2A to EA8/DJ30S, VE1BVL, K1TOL, KM1H, PT7NK, PA0LSB, GM4ISM, OK2PZW, K1IKN, VE1YX, YU3ZV, YU3GO, FC1JG, OE9EMI, YT3ET, DJ9WH, F8OP, OE2UKL, I2FHW, YU3IT, OK3LQ, VE3, WAI0UB, 4X1IF, P43FM, HC2FG, YV5ZZ, KP2A, PZ1AP, PZ1EL, N4EJW, W1, 2, 3, 4, 8, 9L1SL/B, PJ9EE, FY7/B, KP4EIT, VE1BVL, VO1QF, VO1ZA/B, KJ4E, W5HUQ/4, EA8/DJ30S, VK3OT (25/12), VS6BG, OZ4VV, W1GCI, K1IKN and DL9RDG.

Geoff Brown GJ4ICD from Jersey, in his January report, also quotes an amazing mixture of Es and F2 contacts. 1/1: Es to OH, SM3, SM0, LY2WR, ES5MC; 2/1: F2 to TI2, YV, P43 all S9; 3/1: 9L1SL/B, FY7/B. Es to DL, CN8, OE, PA, OZ, ON, LA, I, YU, OE — open all day.

4/1 was a special day. Worked at S9 were KP2A, HC1BI, NP4NP, KP4A, P43FM, KP4EIT, W1s, W4s, KM1E/C6A. Then Es to DL, PA, ON, OZ, OK1DIG (this one giving Geoff 118 countries), then a big opening to W4, 5, 6, 7 and 0. (We in VK seem to be living in the wrong hemisphere ... VK5LP).

5/1: Is to IT9, 9H, 17, 18, 9H1SIX; 6/1: F2 and Es to WO, 1, 2, 3, 4, 5, 7, 8 and 9! 7/1: P43FM, YV4AB, KP2A, W1, 2, 3, 4, 5, 9, HI8A, KM1E, VE1, VE3 and 9H1 again; 8/1: W1, VE, ZS6WB; 9/1: VE, W1, W2; 10/1: VE, W1, W4; 11/1: big USA opening to W1, 2, 3, 4, 5, 8, 9, 0; 12/1: YU, CN8ST, CN8BA, ZB2/B.

What we in VK need to keep in mind is that the above two reports for December/January in Europe are equivalent to June/July here, so the European operators have not only been treated to the usual mid-winter Es but have had F2 openings as well, which would not be very common on such a scale as reported.

## The Australian Scene

On six metres, from 7/1 Es opening across Australia have dominated the band, with a number of days being similar to 14/1 when VK5 worked or heard VK1, 2, 3, 4, 5, 6, 7 and 8. On 7/1 there were several solar flares between 0850 and 0905 At 0800 VK3OT and VK5BC were calling Europe. On 12/1 from 0900 to 1030 Don VK6HK worked 21 stations on CW in OZ, PA, G, SM, LA and OH. On the same occasion Wally VK6KZ worked two OH stations, others sharing the opening were Graham VK6RO and Wayne VK6WD, but results are not known. Don said all the stations worked were located very close to a sharply defined "range arc" from Perth, with

little variation in Great Circle path distance. Bearing variation to each station appears to have been about 10 degrees, similar to previous openings. The grand "pooled" total of countries where propagation has occurred to or from Perth at last count on 5/11/91 was 56 countries.

A correction to last month's report when I said VK3OT had worked Europe on 26/12. In fact, it was 25/12, and even on Christmas Day the Hamilton rig is not permitted to cool down too far! Steve worked IK1EGC, IK2GSO, SM6CMU and IS0LYN. On 6/1 he worked OK3CFK, OH3MM and OG1ZAA; 7/1 heard OH2TI, SM7AED and LA9ZV. 8/1 and 11/1 video heard on 48.2402, 48.2396, 48.2500, 48.2604, 49.7600, 49.7604 between 0745 and 0945, with liaison on 28.885 and CW calling on 50.110 and 50.107 from VK3OT and VK3LK, also VK5BC. Ray VK3LK on 4/12/91 worked KH6JEB/KH7; 6/1/92 OG1ZAA (special prefix for OH); 7/1 OH2TI and SM7AED.

Daily Es openings occurred between VK5 and VK4 from 7/1 through 30/1 when Es contacts became scarce; there was also a complete absence of F2 signals from then until at least 4/2, due to solar blackouts. JAs heard at 0300 on 21/1 and at 1100 on 29/1. ZL2KT worked VK5RO and VK4ASL on 23/1 at 1010. VK4s working VK1, 2 and 3. 27/1 at 0900 video on 48.2 was weak, but strengthened at 0955 — VK2QF, VK3OT and VK5BC calling Europe on CW.

On 28/1 Steve VK6PA in Karratha worked 42 stations between 1108 and 1217 UTC, which is quite late. Countries/stations worked were P6FEF and DJ1OJ on CW at 559. On SSB with signals up to 5x9 were DK5UG, PA2HJS, LX1JX, ON1ANI, G7EXO, PA0HIP, SM7AED and OZ1FDH. At 1330 all the JA beacons were being heard. The following day on 29/1 the band opened again to VK6PA from Europe between 1114 and 1221, and those worked included ON4GG, G7EXO, OZ1BVW, GJ4ICD, GW3MFY, PA0HIP, F1FHI, OK1DIG, ES5PC (both new countries), DL8HCZ, SM6CKU, OH2LQO and JH4UCM. (My thanks to Steve VK5ZBK for selecting this information sent via packet.

Peter VK8ZLX on 28/1 worked ON4GG at 1135. On 29/1 from 1101 he called in vain for half an hour to contact CU1EZ, but he seemed occupied working Europeans. Peter said the openings to VK6PA were now only infrequently being heard in Alice Springs.

## On Higher Bands

Not everything has been happening on six metres, and a number of operators have been having a good time on 144, 432, 1296 and 2304MHz. It all started with a rare 144MHz tropo opening to Perth on 19/1 at 2250 between VK5NY and VK6HK, VK6AKT, VK6KZ and VK6KRC, with signals 5x2/3. It appears VK5AKK was unable to work the VK6s, but VK5ACY may have been more fortunate. VK5LP was away in Adelaide!

On 29/1 a large high pressure system settled in the Great Australian Bight, with a pressure gradient of 1018 millibars; this, together with the reception of the Albany beacon VK6RTW on 144.465MHz, plus reception of repeaters from various centres in VK3, 5 and 6, was sufficient to alert the ever-watchful operators that it was time to turn on the transmitters. A large coastal duct/inversion had established itself, and at first contacts were confined to those stations near the coast rather than those inland, but they were to have their share later.

From the VK5LP log Wally VK6WG was first worked on 144 at 2324 at 5x7, on 432 at 2325 5x7, 1296 at 2327 was a doubtful contact — both parties heard one another at 4x1, but not sufficiently to claim a contact. At 2351 on 144 Bob VK6BE was 5x2 and Bill VK6AS also 5x2, so it was obvious the best had passed. On 30/1 at 0923 Brian VK6YAU was 5x7 on 144 and 5x8 on 432. At 0930 I copied a brief 5x4 burst from VK6YAU on 1296, but Brian was having trouble copying me. At 0943 Bob VK6BE was 5x4 on 144 and 5x7 on 432. At 1008 VK6YAU had risen to 5x9 on 144. At 1040 the beam was swung from the west to south-east to work Trevor VK5NC in Mount Gambier on 144 at 5x5 and 432 5x6, but nothing on 1296. At 1101 Frank VK6DM was too weak to work, but at 1105 Wally VK6WG returned to the fray and was 5x6 on 144 and 5x9 on 432, but we still could not make it on 1296, both running 10 watts.

The next morning (30/1 UTC) at 2320 on 144, VK3BFY in Shepparton was heard but not worked, at 2339 VK3DUT was up to 5x8. That night at 0950 another try on 1296 to VK6WG failed, but Wally was 5x8 on 432. On the same band at 1006 VK6YAU was 5x9 and VK6DM 5x5. At 1135 VK6WG was 5x7 on 432. The next morning the VK6 opening had virtually disappeared.

Others involved on 29/1 were John VK5KAF on Kangaroo Island, who worked VK7XR 5x2 at 1004 and appears to have been the only one to do so! VK7XR was too weak here. Roger VK5NY from his mountain-top mansion was unable to share in the early part of the opening, as his elevation was too high, but he eventually made amends and had many contacts to the VK6s on 144 and 432 and VK3BFY, VK3DUT, VK3AUG, VK3AFW, VK3AUI and others on 144. The VK6s were also worked by VK5KAF, VK5ACY, VK5AKK, VK5ZBK, VK5EME, VK5AKM, VK5KK, and there were probably others I did not hear. At one stage during all the happenings, with his 130 watts on 1296, Keith VK5AKM landed a 5x9 signal at VK6WG, but had difficulty copying Wally's 10 watts. Goes to show you can actually brute-force a signal through! All the distances between VK5 and the VK6s in Albany would be in excess of 1800km.

However, on 31/1 the night owls were to receive a treat. Between 1200 and 1320 on 2304.17MHz a contact took place between

VK5AKM and VK6WG, with signals 569 and 529, actually good enough for SSB copy. At the same time 1296 was around S5. Listening in was David VK5KK. David later reported an interesting phenomenon in that he and VK5AKM, 40km distant, were able to work one another at 5x1 using side scatter on 2304MHz, as both had their antennas pointed west.

## Auroral Opening

After three days of dead silence on six metres due to solar flares and others recovering from the many hours of activity on 144, 432 and 1296, an auroral opening occurred on 3/2 between 0730 and about 0940. I was alerted by phone calls from VK5NC and VK3OT, but managed to work only VK5NC and VK3BRZ, with the antenna at 155 degrees, the garbled

signals peaking to S5. The aurora suited those further to the south-east than my location, with Trevor VK5NC, between 0730 and 0940, working VK7XR, VK7ZMF, VK7ZJG, and VK3s YJR, XRS, BRZ, BDL, DUT, AFW, ELV, UM, AMZ, AKK, ALZ, VK1VP and VK5LP. These contacts were on 144MHz, 432 and 1296 were tried, with indifferent results. VK3OT worked several stations on six metres.

After the aurora, Trevor VK5NC reported excellent conditions to VK3 and VK7, and worked on 144 VK3XEX, VK3UM, VK3AUI and VK7XR, the last also being worked on 432MHz. All signals were 5x9. Trevor also reported on an unusual contact with John VK3YTV over a distance of 400km with 5x9 signals on 432MHz. Apparently at an earlier stage, John had had a tree fall on the guy wires to his tower, and this caused consider-

able damage. However, he had been able to re-erect his 1296 dish fitted with a 432 dipole, and it was with this set-up he had worked Trevor.

## Closure

No more room exists for me to report some small amounts of information I am holding—maybe next month. This may be the last time for a while the full 6m beacon list will be published so I suggest you look after it! Closing with two thoughts for the month: *There may be something in the idea of reincarnation. Some women of 35 can personally remember things that happened 45 years ago and Most people would be glad to tend to their own business if the government would give it back.*

73 FROM THE VOICE BY THE LAKE  
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## HOW'S DX

STEPHEN PALL VK2PS - PO Box 93, DURAL 2158

Space does not permit me to go into lengthy polemics about amateur radio politics.

It is sufficient to say that DXpeditioning, the kind where one goes to a country with no previous amateur activity, is fraught with danger, physically, politically — as in diplomacy — and politically again — as in amateur radio politics.

Without pointing the bone at anyone, I can think of at least half a dozen instances in the past two years where amateur radio politics raised its ugly head again and again. Wealthy nations (read influential amateur groups) apply various methods to induce previously hostile government administrations to lean towards them and allow the practice of amateur radio, if not for the whole population, at least for the individuals themselves, so they can claim they were the "first" who put XYZ DX country on the DXCC map.

The attitudes and methods aided by other interested parties create a "cargo cult" mentality among the less developed countries and will not — in the end — bring friendship and international goodwill to those who call themselves radio amateurs, especially not to those who are the new inexperienced practitioners of the art in these underdeveloped countries.

Do we let selfishness, vanity, envy, greed and many others of the so-called "deadly sins" overcome the joy of friendship, co-operation and helpfulness of the amateur radio spirit?!! You shall be the judge!

## Albania — ZA

The past operations of the various Hungarian groups in Albania are continually on the boil. Snippets of information are coming through the mail from the various sources, mostly independent of each other. I have to stress that none of this news has been confirmed by others; however, certain core infor-

mation is appearing in all the accounts. Depending from where it originates, some of it, or all of it, can be true or it could be just hearsay.

However, here are the main points, and it is for you, the reader, to decide what you want to believe. The callsign of the club station established by the ZA1HA group on 19 October last year is: ZA1FD, and is located in the town of Elbasan, which is situated about 54km from Tirana in a south-easterly direction. The station is in one room of a sports complex. The reader should remember that the licence of ZA1HA was issued by the Albanian Ministry of Culture, Youth and Sport. The equipment donated by the ZA1HA group consists of one FT757GX, one FL2100Z, a three-element tribander beam rotator and recently added various pieces of "fox hunting" equipment.

Incidentally, two members of the original HA Albanian team, HA4YD and HA6NF, were back in Albania from 30 January until 7 February, and were active again as ZA1HA (QSL to Radio Club Salgotarjan-HA6KNB, PO Box 115, H-3101 Salgotarjan, Hungary). The frequency was 14195 at around 0530 UTC, calling exclusively for VK, ZL and Oceania. This latest visit is still in the spirit of the contract between the Hungarian and Albanian radio amateur societies which provides for further training in radio directional finding, an activity commonly called "fox hunt" in Australia. It is also known that a meeting was held on 4 February in Tirana, which was attended by 17 leaders of various amateur groups, to discuss the future of amateur radio in Albania.

There are three operators at the club station ZA1FD, and so far they have achieved about 350 QSOs, mostly with European countries in the CW mode. They are still begin-

ners, therefore tolerance and helpful goodwill should be extended to them by the DX fraternity. On 4 February, ZA1FD appeared on 14195kHz at around 0630 UTC. The operator was Fatos, a local Albanian who expertly handled the SSB QSOs under the guidance of Dodi HA6NF. Unfortunately, propagation was not the very best, so many VKs, ZLs did not make the longpath to Elbasan. If you want to QSL ZA1FD send your card direct (there is no QSL bureau in ZA). The address given was c/ - P T T Elbasan, Albania. The two Hungarians, HA4YD and HA6NF, proceeded to Tirana on 5 February to assemble and put on air the second club station, for which the equipment was left behind last year by the other Hungarian group, which operated under the callsign ZA1Q. Incidentally, you might remember the station ZA0RS? This was the Hungarian Contest team with 11 Hungarian operators in Albania. This team took part on 26-27 October in the CQ WW DX Phone Contest. The team made a total of 12673 QSOs and finished up with 19,767,769 points. Interesting thought: if the Hungarian ZA activities will not be recognised by the DXCC, will this make the contest QSOs of the other DX stations invalid?

A separate letter from the operators of ZA1QA throws further light on the somewhat confused amateur radio situation in Albania. It appears there are two Albanian radio amateur societies with very similar names. The older association, AARA, has been active since 1960 under the collective name of a sporting association and has approximately 2300 members. (The reader is again reminded that under the former socialist regimes in Eastern Europe amateur radio was considered to be a sport and, as such, was under the umbrella of sport ministries and various semi-defence organisations).

The members of this group are very knowledgeable in Morse code and have substantial knowledge of the international Q code. The association possesses two club stations, one of them is ZA1FD. The other, newer, group is

called The Albania Amateur Radio Association and was established with the help of the ZA1A team and had about 25 members as at September last year. Most of its members are the employees of the Albanian PTT. The guest licence No 1 of ZA1A was given to Martti Lane OH2BH by this association as shown on a facsimile copy on page 4, November 1991 issue of CQ magazine. This second association (the new one) has also a club station with one of the transmitters operating. This was donated by a Japanese amateur equipment manufacturer.

Incidentally, according to various DX news bulletins, the following Albanian stations were heard operating recently: ZA1TAE (CW 10MHz Jan), ZA1TAJ (CW 10MHz Jan), ZA1TAF (CW 14MHz Jan), ZA1BM (CW 14MHz Jan), ZA1TAH (28899kHz Jan), ZA1TAD (CW 14MHz), ZA1TAG (CW 14MHz) and ZA1ZOU operated by PA0LOU in December on 21MHz.

The full name of the "Quick Aid" foundation, sponsor of the ZA1QA call, is the St Lazarus Quick Aid Foundation, a humanitarian organisation which works in Eastern Hungary, the former USSR, Romania and Albania, to assist the needy in these countries with medicine, food and clothing. They also have an emergency team of doctors to be sent to any location world-wide. The organisation is using amateur radio to assist with communications, and relies totally on generous donations. If you feel you can assist, send your donation to: National Savings Bank, Budapest, Hungary, a/c no BO65678, MNB 449-98008, or to the Quick Aid QSL Service: PO Box 5, KOMORO, H-4622, Hungary. The ZA1QA activity, according to the information on their QSL card, generated more than 70,000 QSOs, and they express their thanks to Mr Agin Zika, Assistant Minister of Culture Youth and Sports, Tirana, to the Albanian Government, to the embassies of the two nations in each other's capital, and to the Albanian Health Ministry for providing the site of the Central Hospital for their QTH.

Are you confused as I am when you read this news? I was just finishing this article when I heard the unconfirmed and welcome news that the DXCC has finally recognised the Hungarian amateur activities in Albania as a valid operation. Good news, indeed, but one will wonder for a long time what took them so long to arrive at this happy decision? I have a feeling we will never find out!

## A Travelogue — HA5BUS

The Hungarian radio amateur bus made more than 11,500 contacts as EP/HA5BUS. They were active from India as VU/HA5BUS and hope to be in Bangladesh by the middle of February. It is not yet known whether they will be active as S2/HA5BUS. They expect to travel through 35 countries before they return home.

## Postal Difficulties — CIS

CIS is the present temporary English abbreviation for the independent states which were formerly in the Soviet Union. Ed Kritsky NT2X published a lengthy article in various DX outlets about the state of radio amateur mail in these states, which he describes in one word: bad! Due to deteriorating living and economic conditions, amateur mail is pilfered and destroyed by "expert" postal and custom employees. Ed gives the following advice: a) avoid flashy envelopes and stamps. Use franking labels and plain envelopes; b) do not use any call signs on outside of envelopes. Do not use the words "radio" or "club" or other sticker displaying amateur radio; c) seal envelopes with synthetic glue; do not rely on the glue on the envelope; d) use transparent tape to seal seams; e) use Russian manufactured envelopes; f) avoid sending currency; use IRCs instead. Do not fold envelopes inside other envelopes; g) use registered mail if you can afford it. All good and sound advice. On our part we want to mention that the economic climate is not the best in any of the former "eastern bloc" countries and one should not be surprised if mail deliveries will deteriorate also in those countries.

The radio amateur world has to learn and appreciate the fact that the definitions of democracy, personal freedom and the security of the mail differ greatly from country to country.

## Clipperton Island — FO0

According to the latest news the group organising the DXpedition has received landing permission and the licence permits six stations with the call FO0CI. A \$10,000 deposit was paid and a contract signed for the transportation with the 85ft twin screw "M/V Cherokee Geisha". Seven operators are already fully committed and have paid their contribution. The party should board the boat at Cabo San Lucas around 2 March. They expect to spend a total four days on the sea, including the selection of landing spot and unloading of equipment. They intend to start operating on 7 March on a 24-hour basis. The total cost of the DXpedition is more than \$60,000. However, there is still a doubt whether the expedition leaves for Clipperton or not. On 4 February there was a general appeal over the air for at least one more participant, as two of the previously committed operators have fallen by the wayside due to sudden family problems.

## South Sandwich island — VP8

The final update information just arrived on my desk. The activity will be from 21 March to 5 April. The eight-man operating team will leave the Falkland Islands on 14 March. The trip to South Sandwich will take seven days. All the equipment is safely on Falklands. The transport ship is already

operating in the Antarctic region. The press release ends with the plea: CW and RTTY QSLs go to KA6V and SSB QSLs go to AA6BB. Please include generous \$\$\$ contributions with all QSLs.

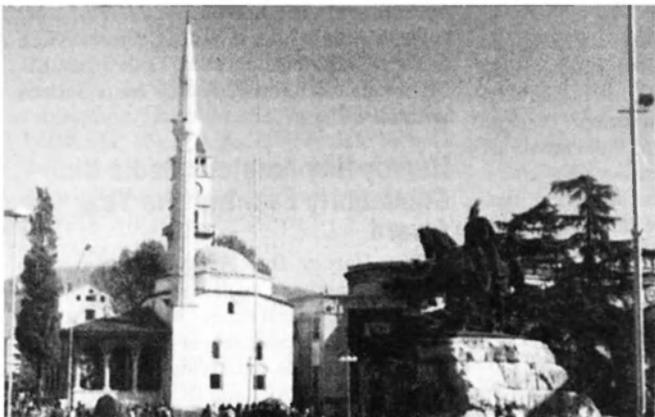
## Hervey Bay Amateur Radio Club Community Event of the Year Award

The Hervey Bay Amateur Radio Club VK4CHB has been mentioned on the pages of this column several times (July, Aug, Nov '91 and Jan '92AR). Besides operating from Fraser Island as portable, satisfying those who were chasing the IOTA Island OC-142, their most remarkable activity was activating the special event station VI4HBW in August last year. This happened during the "Festival of Whales", a community activity lasting several months. The club made 6692 contacts with more than 100 DXCC countries in a period of 30 days, working 24 hours on all bands. It was a very satisfying task, which made the members of the club and their president Gray Taylor VK4OH very proud. The community at Hervey Bay and the Hervey Bay City Council especially recognised their efforts by awarding them "The Australia Day Community Event of the Year Award" for "outstanding contribution to the community in the year".

To the knowledge of the club and other amateurs, this is the first time an amateur radio club activity has been recognised officially and an award made by any government or semi-government body. Well done, boys and girls of Hervey Bay; one would think you will never have any problems in the future in erecting a tower for your Yagis! (See citation in box on page 39).

## Future DXpeditions

- \* The activity from Macquarie Island VK0WD did not eventuate. After many days of being "icebound", the boat "Icebird" made a dash to Macquarie, off-loaded stores and exchanged personnel in record time and departed to other Antarctic bases.
- \* According to the *QRZ DX Bulletin*, Lee WW5B and other operators are making plans to operate from Albania from 20-28 July. Lee notes that "we have been assured by the Albanian Sports Federation that our permit will be forthcoming and have "inside" help from an Albanian citizen who is pushing for us on that end".
- \* The ZL8 Kermadec DXpedition to be undertaken by ZL1AMO has been cancelled due to lack of adequate funds.
- \* Jack T30JH will be actively, mostly on 18 and 24MHz, for about six weeks starting March 1992.
- \* Keep a sharp ear for another planned Russian DX activity from Afghanistan under the call sign YA5MM. The main organisers of the expedition are UT4UX



Main square of Tirana.



Castle of Kruja.

and UJ8MM. The expedition will take place, if funds permit, during the 1992 ARRL CW Contest, 15-16 February, and two or three weeks intense activity on the bands with a projected 25,000 QSOs. The DXCC quickly accredited the proposed operations conditional upon documentation (visa, rubber stamps) proving that the activity in fact takes place from inside Afghanistan. The budget of the expedition is \$9000.

Taking into consideration the present value of the rouble, unless there are substantial donations from outside sources in hard currency, there is a considerable doubt about the materialisation of this expedition.

## Interesting QSOs and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

- \* VR6BX-Brian-21019-CW-0800-Dec. QSL to: Brian, Box 21, Pitcairn Island.
- \* 9N1HMB-21008-CW-0745-Dec. QSL to: JR7LVK Norikazu Kudoh, 4 Takajyomachi, Hirosaki 036, Japan.
- \* 5R8GW-14027-CW-0820-Jan. QSL to: F6FNU Antoine Baldeck, Box 14, F91291

Arpajon, Cedex, France.

- \* 7P8SR-Ray-14030-CW-2015-Jan. QSL to: Ray, PO Box 333, Maseru, 100 Lesotho.
- \* XT2BW-14027-CW-0815-Jan. QSL to: WB2YQH R E Nadolny, 135 Whetstone Dr, West Seneca, NY 14224, USA.
- \* J88BW-14183-SSB-1020-Nov. QSL to: Bill, PO Box 206 Kingston, St Vincent.
- \* JW1UW-Bjorn-14226-SSB. QSL via LA1UW via Bureau, or to Bjorn Gjerde, Askegaardsvn 1, N2859 Norde Toten, Norway.
- \* XU8KG-14030-CW-0305-Jan. QSL to: Yasme Foundation, Box 2025, Castro Valley, CA 94546, USA.
- \* ZD8OK-14023-CW-2034-Jan. QSL to: GW0FJT J Hanson, Rhoslywyd, Talley, Llandeilo, Dyfield, UK.
- \* N9MDW/5N6-14222-SSB-0607-Jan. QSL to: Clyde N Zimelman, PO Box 601, Jos, Nigeria.
- \* 3D2JU Toruma Isl-14145-SSSB-0951-Feb. QSL to: DF2UU, Hans Joachim Peter, Hartbergstr 8, D-7570, Rastatt, Germany.
- \* V6EYL-Yarl-14262-SSB-0807-Jan. QSL to: PO Box 687, Yap via Guam, Zip FM 6947 Fed States of Micronesia.
- \* HF0POL-Zbig-21002-CW-2353-Jan. QSL to: SP9DWT via Bureau.

## RTTY News

Do you remember my note in January and February AR about the usefulness of this section of the DX column? So far I've received only two replies. Barbara, XYL of Brian V85EB, said they both find the notes useful; Jim VK8KV, being a CW man, does not think so. The result? We will continue for the time being until readers' opinion will change to a positive direction.

Here are the pickings from the list submitted by Syd VK2SG.

- \* 0734-14070-A92FG. QSL to: Box 11134, Manama, Bahrain.
- \* 1425-28086-9K2TC. QSL to: Box 25281, Sufat, Kuwait.
- \* 1728-28086-7Z2AB. QSL to: AA0BC. 0720-14085-SV0DV/9. QSL to: WB4TDB
- \* 2107-14085-PJ9BT. QSL to: W1AX.
- \* 1143-14091-XX9AX. QSL to: N6LVY.
- \* 1700-28089-C9RTC. QSL to: IK4QUIZ.
- \* 1058-21089-7Q7BW. QSL to: N5MHZ.
- \* 0355-14084-KN2P/KP1. QSL to: N0TG.
- \* 1941-14084-9K2ZZ. QSL to: W8CNL.

## From Here and There and Everywhere

- \* Australia Post had a problem with Christmas and post-Christmas mail. A letter posted on 9 January in Darwin reached me on 4 February. Is this a record?
- \* VU2LX advises that his DX bureau is no longer functioning, therefore please QSL direct.
- \* The net operating on 14226.5 at 1100 UTC has "divorced" itself from the "Family Hour" name, and is now called "The Southern Cross DX Net", still concentrating on VK, ZL, Pacific, North and South America, and on the South East Asia area.
- \* A number of Russian cities have changed their names back to pre-1918. Leningrad became St Petersburg, and Sverdlovsk is now called Ekaterinburg.
- \* Bernhard DL2GAC is on a five-month IOTA trip among the Pacific Islands. He will be active as VU2BMS (Jan-Feb), 8Q7CQ (16 Feb), 9M2QR (19 Feb), then he will travel to 9V1, DU, C21, H44 & P29.



New face of Tirana.

# Citation by Hervey Bay City Council

*Australia Day — 26 January 1992  
Community Event of the Year Award*

The Australia Day Council this year announced expansion of the Australia Day Citizen Awards with the inclusion of the "Community Event of the Year" Award. Like its companion awards, it recognises outstanding contributions to the community in the year. The object of the award is to have a community reflect on its achievements and feel good about them.

The inaugural recipient of the "Community Event of the Year Award" recognising the impressive special event is the Hervey Bay Amateur Radio Club Incorporated. The club operators ran the Special Event Radio Station VI4HBW to promote Hervey Bay as a tourist destination, with two-way contacts to 6692 other operators worldwide.

At a meeting in February 1991, a group of ham radio enthusiasts decided to stage a special event to coincide with the Annual Whale Festival in Hervey Bay, the theme the club members used being "Amateur Radio Talks to the World about Hervey Bay". During the following six months, all amateur radio magazines throughout the world, including Australia, were notified of the coming event and of the "Humpback Whale Award" (designed by the Hervey Bay Amateur Radio Club). This award was intended to be available to any amateur in the world confirming two-way contact with the Special Event Radio Station VI4HBW.

On 1 August 1991, Hervey Bay amateur radio operators commenced transmission, operating 24 hours a day. The first 10 days of transmission were from the Condor Lakes Shopping Centre. This

was incorporated with a static display to the public, showing operating procedures and radio equipment. Eleven working stations were provided by the members for this special event, and for the remainder of August the club members continued transmissions 24 hours a day from their home stations.

During this period 100 countries were contacted and each amateur operator was eligible to apply for the "Humpback Whale Award". This award proved to be highly sought after by amateur radio operators and has created worldwide interest in Hervey Bay.

The value to the community of Hervey Bay is not to be expressed in dollars but as a positive step towards the strengthening of the fabric of society in the city of Hervey Bay. The special event captured the imagination and attention, not only of the citizens of Hervey Bay, but also of a worldwide international audience, comprising many countries and many races. The enormous amount of work put in by members of the club is a tribute to their organisational skills and showed the ability to turn an amateur radio club into a very valuable part of the infrastructure of the city of Hervey Bay.

I know that the community recognises the Special Event Radio Station VI4HBW carried out by the Hervey Bay Amateur Radio Club is one to be proud of, and join in the congratulations on being the recipient of the "Community Event of the Year" Award for 1991.

Alderman F H Kleinschmidt  
Mayor  
ar

## Harry Angel VK4HA Remembers

Harry would like to thank all those who took the time to write or call him on the occasion of his recent 100th birthday. The day was a great social success, with all three commercial TV networks giving good coverage on their six-o'clock news broadcasts. One channel even used the front cover of *AR* as a headline. Ben Humphreys, Member for Griffith, attended, as did representatives of the City Council and several members of the Divisional Council, and the day was very well organised by members of the local RSL.

Harry, his daughter Lillian and all his family would like to specially thank the following amateurs who sent cards:

VI88ACT.

VK2s: BAG, VI, FMT, CMV, AZS, AWA, WOZ, UW, OX, TB, FLG, RE, ARS, CHO, AJO, HH, NW, AVU, AXZ, FJW, XO, AOB, ETF, EK, LS, AJE, AA, OQ, XM, AHJ, AYF, JY, OI, KMS, ZW, NZW, DZF, ALS, FLG, LT, PS, ETW, ADU, GFO, WR, KQV and DR.

VK3s: CAP, NX, PL, HS, MX, AJL, UJ, DVT, EQO and ALP.

VK4s: PJ, AGZ, BET, FUQ, WC, CNP, RU, WY, FJ, BHS, WB, AG, MV, YD, ZB, WK, EQ, BQ, US, OS, ABX, BGC, DLH, ARB, BKM, BIF, HO, EG, ZAL, NB, COP, NRG, CC, DW, DX, OL, BRZ, CJ, BAY, KO, UB, AQA, ZRU, UR, MU, ZB, CAF, WY, KLY, BIL, NBC, ATS, YRW, BLE, ACL, KLV and the WIAQ through the Secretary, Bob VK4ER.

VK5s: CH, ACW, HC and ADQ.

VK6HM, VK6VB and his XYL, VK7CK, VK7PP, VK8NUE and VK8HA.

Special thanks to GW3NNF, DL8NU, JH8JOM, JA8PGU, JA8EQL, JARL, the Philippine Amateur Society, Manila DX Club, ORARI, the Chinese Radio Sports Association, Bill Roper on behalf of the WIA and the South-East Queensland ATV Group. There were also many others received which Lillian believed were from amateurs, but the senders didn't include a callsign. To all of you who were missed, sincere thanks.

Harry would also like to thank all those who contacted him by radio on his birthday:

Coral Coast Net —

VK2s: AVU, AXZ, FJW, XO, AIB, ETF, EK, LS, BAG, CVT, UI, FMT, CMV, AZS, AWA, BZA, UW, OX, FLG, RE, ARS, CHO, AJO, HH.

VK3CAG.

VK4s: FC, WR, BQ, WK, ZB, YD, MU, WB, BHS, FJ, WY, RU, CNP, NN, EF, AG, ZU, BET, FUQ, WC, WOZ, TB, PJ, LT and EQ.

VK5CH.

Via other bands: VK2s AVS, YI, ABS, BX, TT, ABM/M, CC, SM, BII, LS, ZW, AFU, ETW.

VK4s: BQ, WB, BHS, WY, BU, WB, UB, CJ, KRR, PT, CHO, ZB, OL, CGF, XAF, JHM, JI, OX, AAE, AG, VAS, YC, EZ, QY, BIF, XN, MWK, XAR, KGA, QV, NX, LBS, EKA, BSH, ALN, AGY, KH, BGC, NB, CSS, WD, AGS, KA, LO and FJ.

David VK4KLV ar

- \* There is a mystery about the CW operation of PY0SR which took part in May 1991 on St Peter and Paul Rocks. The QSL manager for the CW operation was PP5JD. Apparently nobody yet has received any reply QSL card for the CW contact. It is rumoured, and this cannot be verified, the cards will be returned by the bureau, which route might take years to complete. On the other hand, cards for the SSB contact of PY0SK came through via PS7KM Karl and Austin VK5WO. (See Jan '92 AR).
- \* During 1992, some Canadian stations will use the VC500 prefix celebrating the 500th anniversary of the discovery of the Americas by Columbus.
- \* Kare LA2GV will be active from Berkner

Island (78.3S and 48.0 W IOTA AN14) from January until April this year as 3A2GV.

- \* Hank OH2TW is active as 7P8FE. He will be in Lesotho for the next three years. QSL to: OH3GZ.

### QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager and his call, OP=operator and/or call.

Direct: JW1UW (3W FM MGR LA1UW), J88BW (4W FM OP), 7P8EG (8W FM MGR KOJZM), HZ1AB (16W FM MGR K8PYD), XV2A (5M FM MGR JJ1TBB), FT4YD (8M FM MGR FD1NZO), ZA1QA (1M FM MGR QUICK AID QSL SERVICE), 9M2ZU/N4ZUV (7D FM OP), ZA1HA (3W FM MGR HA6KNB).

Bureau: 4X10Z (17M FM OP), ZS5ABW (14M FM OP), OH2AP/0JO (1Y4M FM OP), TR1G (1Y 4M FM MGR AK1E), KP4KC (2Y 5M FM OP), WB 3KBZ/VP9 (2Y 2M FM MGR KG8U), VI91AG (5M FM VK1 MGR), CX6CV (2Y 8M FM OP), HK0LIT (1Y 11M FM OP), 3D2EA (1Y 11M FM OP), ZP5ZR (1Y 6M FM OP), HC10T (4Y FM OP), SV1LK (1Y 6M FM OP).

### Thank You

Thank you to all my helpers, but especially to: K2DID, VK2KFU, VK2SG, VK3DD, VK3VNU, VK4DA, VK4OH, VK8KV, VK9NS, V85EB, F9MD, and the following publications: *QRZ DX*, *The DX Bulletin* and the *DX News Sheet*. Good DX and 73 ar

## EDUCATION NOTES

**BRENDA EDMONDS VK3KT - PO Box 445 BLACKBURN 3130.  
WIA FEDERAL EDUCATION CO-ORDINATOR**

I write this just after having spent two days at a quarterly meeting of the Executive which I attend as minute secretary. Naturally, in such a position, I do not have a lot of input to the formal business of the meeting (although at times it is an effort not to add my comments). But, in the breaks, I catch up on what is happening in education in the Divisions, and I was, of course, very interested in discussions on the progress of WIA Exam Service and the facilities provided by the Divisions.

It was very pleasing to find that in most Divisions, clubs planning examinations are talking to each other and arranging to share the examination load. In this way, three or four neighbouring clubs can provide a monthly examination service for a large area without any club having to manage more than three or four events per year.

I did not hear, though, if this co-operation is being extended to the courses and classes as well. Classes for some years traditionally have

begun in February or March for an August or November examination. I would hope the new system of examination more or less on demand would encourage the providers to consider arranging them end to end — eg, one club's course running from February to July, another's starting in August to pick up those who have been shown they need more instruction. Or perhaps one club could hold an upgrading course late in the year for those who wish to go on straight away. There is no need to stay with the traditional three hours one night a week. There may be a market for a short intensive course of, say, three weekends in a row, with an examination one evening in the following week. Whatever your plans in regard to courses, please be sure to inform your Division of them, so enquiries can be directed when received.

Are the clubs and examiners sharing other resources as well? Are they notifying their neighbours of their strengths as well as their

needs? It is very important for newcomers to the hobby or to some particular aspect of it — newly licensed operators, class members, persons moving to new districts or experienced operators wishing to try a new specialty — to be able to find contacts within their interest groups. The whole hobby has always relied on the newcomer being able to learn from the more experienced operator. Does each Division or club have a register of "experts" in the special-interest groups (packet, satellite, RTTY, DX, UHF, fox-hunting ... there are dozens) who are willing to help the newcomers along? And do they have a system for informing members that these resources exist? I know this assistance is available — in most cases a plea on the local repeater will generally get results — but I am sure a more structured system would benefit many enquiries, and also save the Divisions and club secretaries a lot of time.

One obvious conclusion from this weekend's meeting and other sources is that the WIA is not meeting the needs of the newer recruits as well as it should. We cannot afford for new members to be lost simply because no one bothered to make them welcome. ar

## AMSAT

**BILL MAGNUSSON VK3JT - 359 WILLIAMSTOWN RD YARRAVILLE 3013  
PACKET VK3JT @ VK3BBS**

National Co-ordinator  
Graham Ratcliff VK5AGR

PACKET VK5AGR @ VK5WI Please take note of the AMSAT information nets:

AMSAT AUSTRALIA net:  
Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.

AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

### AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software

service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia  
GPO Box 2141  
Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

### ABC Radio Interview

Congratulations to Maggie VK3CFI on her recent interview on ABC radio. The subject matter, of course, was the Russian space station MIR. She gave a good general account

of day-to-day life on board for the cosmonauts and how they divided their "days" into working time and recreational time.

Maggie dispelled some of the recent rumours regarding their well-being and the ongoing amateur radio activity. In the short time she had available, Maggie told how she had developed a close bond with the cosmonauts and how she'd been able to talk with them by voice and by computer about their families and friends and their interests back home. Listeners would have been left with a good impression of amateur radio and our connections with operations like MIR and the American space shuttle. Good work, Maggie!

## Russian Cosmonauts' QSL Address

Cards and letters etc for U5MIR Sergei, U7MIR Anatoly and U4MIR Aleksandr may be directed to either Boris Stepanov, PO Box 679, 107207 Moscow Russia, or Valery Agabekov, PO Box 1, 375600 Yessentuki Russia. For QSL, don't forget to include SASE and IRCs. The present crew is scheduled to return towards the end of March. The new crew is reported to be Aleksandr (Sasha) Viktorenko as Flight Commander, Aleksandr Kaleri as Flight Engineer, and a German cosmonaut. Viktorenko has been on MIR two or three times before, with a total of six months on the space station. Musa Manarov is reported to be in Japan at the time of writing. Thanks to Maggie VK3CFI for the above news items.

## Instantrak and Those "New" Keps

Much has been written lately about the change in the NASA 2 line keps format. Don't panic! If, like most people, you get your keps from a local BBS, they will probably have been modified back to the original format well before we see them in Oz. If your auto-update routine accepts them they'll be okay. If it bombs out, replace all the + signs with spaces during the editing. If you find this a bit tedious, use the AMSAT format keps. IT accepts either. There's a fix in the pipeline in the form of a "binary patch" which, when loaded, will attach itself to IT and do its thing every time you use auto-update. Evidently the format change caught quite a few users (not necessarily amateurs) by surprise.

## Weather Satellites

Although not amateur satellites, these birds have a strong following among the amateur fraternity. They offer excellent avenues for experimentation and really good results cannot be achieved without a lot of effort. If there's enough interest I could include a paragraph on weather satellites from time to time. I know a couple of amateurs who are very active in that area. I'm sure they could provide info on the latest activity if I asked them nicely. Let's have some feedback.

## RS-10/11/12/13 Report

My chief spy tells me there has been a welcome increase in activity on the RS satellites. Even some "rare DX" in the form of Groote Eylandt. Three or more states and ZL have been heard on some evening and daytime passes. Bill VK3WEG (my spy) also reported that the beacon and robot frequencies appeared to be reversed on one occasion recently when he tried to operate. Moral: listen on both and try uplinking on both if you find the robot is not answering. As I've said before, these birds provide an excellent way of getting your feet wet on amateur radio satellites. A recent packet bulletin from G3IOR indicates many European amateurs are having a lot of suc-

cess with "over the horizon" contacts using RS/12 on mode KT. Good CW contacts have been reported across the north pole when the satellite is as much as 45 degrees below the horizon. Translating that into our part of the world means that contacts into Asia, Japan, the Pacific Islands and even South America over the South Pole should be possible. I'd like to hear of any success in this area. Mode KT uses 15 metres up and 10 metres down. In Europe the frequencies 21.214MHz up and 29.414MHz down are used for calling when looking for this type of contact. Might be a good idea to stick to the same frequencies here (you never know your luck).

ar

## Satellite Activity for November/December 1991

### 1. Launches

The following launching announcements have been received:

Intl No	Satellite	Date	Launch Nation	Period min	Apog km	Prg km	Inc deg
1991 —							
081A	COSMOS 2173	27 Nov	USSR	104.8	1030	965	82.9
082A	USA-73	26 Nov	USA	101.9	870	846	98.9
076C	USA-74	08 Nov	USA				
083A	EUTELSAT-II F3	07 Dec	ESA	996.4	41008	12347	17.0
080B	USA-75	24 Nov	USA	Deployed from STS0-44			
076D	USA-76	08 Nov	USA				
076E	USA-77	08 Nov	USA				
084A	TELECOM-2A	16 Dec	ESA	764.8	35769	6910	1.9
084B	INMARSAT-2 F3	16 Dec	ESA				
085A	Unknown	17 Dec	USSR				
086A	INTERCOSMOS 25	18 Dec	USSR	121.7	3080	440	82.5
087A	RADUGA 28	19 Dec	USSR	24h 32m	36500		1.5

### 2. Returns

During the period 31 objects decayed including the following satellites:

1981-060A	MOLNIYA 1-50	14 Dec
1981-115A	BHASKARA 2	30 Nov
1991-071A	COSMOS 216307	Dec
1991-080A	STS-44	01 Dec

### 3. Notes

1991-086A INTERCOSMOS 25 also carried a Czech subsatellite called Magion 3.  
Bob Arnold VK3ZBB

## ATN ANTENNAS & Accessories

56 Campbell St, Birchip Vic 3483  
(PO Box 80)  
Phone: (054) 92 2224  
Fax: (054) 92 2666.

We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc to suit your application. Three of our log periodics provide continuous coverage from 13-30MHz, including WARC frequencies, and replace outdated tri-banders.

Now in use in 29 overseas countries and six continents.

- Create rotators, coax cables & non-conducting guy/halyard materials.
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- Hard-drawn copper antenna wire.
- Aust/NZ distributor for Create antennas/rotators & Phillystran (Kevlar) non-conducting guying materials.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 AR).
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR metres by Diamond to 1300MHz 5 models. All in stock.

# REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS - 21 WATERLOO CRS, LESMURDIE 6076

## Link Thoughts

A recent get-together of our local repeater club devoted the whole meeting to linking. It was a real think session on where the club was going on this issue. The following is the result of several hours of discussion.

The most interesting point at the meeting was the concept of a cell. A cell was defined as any number of repeaters that are all within radio range of each other. As the accompanying diagram shows, repeaters 1, 2 and 3 form a cell, as do 4, 5 and 6. A UHF signal from any one site can be received at any other site in that cell.

This cell situation occurs often. When linking several repeaters together, it is not necessary to use different link frequencies between each repeater if they are all within radio range. Not only does this save on spectrum space, but also on hardware.

This concept of using the same link frequency for all links within the same cell has many advantages. Only one link transceiver is required at each site. Any link signal transmitted at any site is received at all other sites within the cell. A minimum amount of equipment is required at each site, a big plus for amateur installations with limited resources.

To link cells, a repeater in one cell must be

within radio range of a repeater in the other cell. In the diagram, sites 3 and 4 are within radio range of each other and on a separate UHF link frequency link cells.

Other combinations of link frequencies could be used within the cell concept. One such combination results in one less link transceiver required. The diagram shows a link idea you may not have thought of and may suit a linking situation in your area.

## 1992

Nineteen-ninety-two may well be the year that fundamental changes to amateur radio regulations take place and, in particular, repeater regulations.

The WIA has before DoTC recommendations to liberalise many aspects of repeater regulations. These changes are not more regulations to overcome regulation anomalies that already exist, but fundamental changes. Instead of being regulated on the maximum number of repeaters that can be linked and how they can be linked, amateurs would prefer to decide for themselves.

For a hobby that is part of the rapidly changing electronic world we live in, fine detail regulations have a detrimental result to amateur radio.

about phone patch was interesting, as it indicated the true facts are not known by some amateurs.

The point was being made that as Australian amateurs have had phone patch privileges for several years now, why are there no repeaters connected to the telephone network? Such systems as there are in the States, where amateurs can make a phone call via their local repeater using a DTMF keypad.

The answer is Australian amateurs may have phone patch, but not on our repeater network. A specific regulation prohibits connecting the telephone network to any repeater. The correct term is actually AUTOPATCH, as the system is automatic. Unlike phone patch on HF, where an amateur is in attendance and in complete control at all times, autopatch on a repeater is automatic. The difference, however, between the two is probably not why Australian amateurs do not have autopatch. If anyone out there knows why autopatch is prohibited in Australia, please let me know so I can pass the information on to others.

Further on the same point, is phone patch from an amateur's station via a repeater legal? The regulation against autopatch may spill over into this mode of operation as well. If phone patch via a repeater is legal, could a form of autopatch be provided via a repeater to an amateur's QTH connected to the telephone system?

The more you delve into the world of regulations, the stranger the world becomes ...

ar

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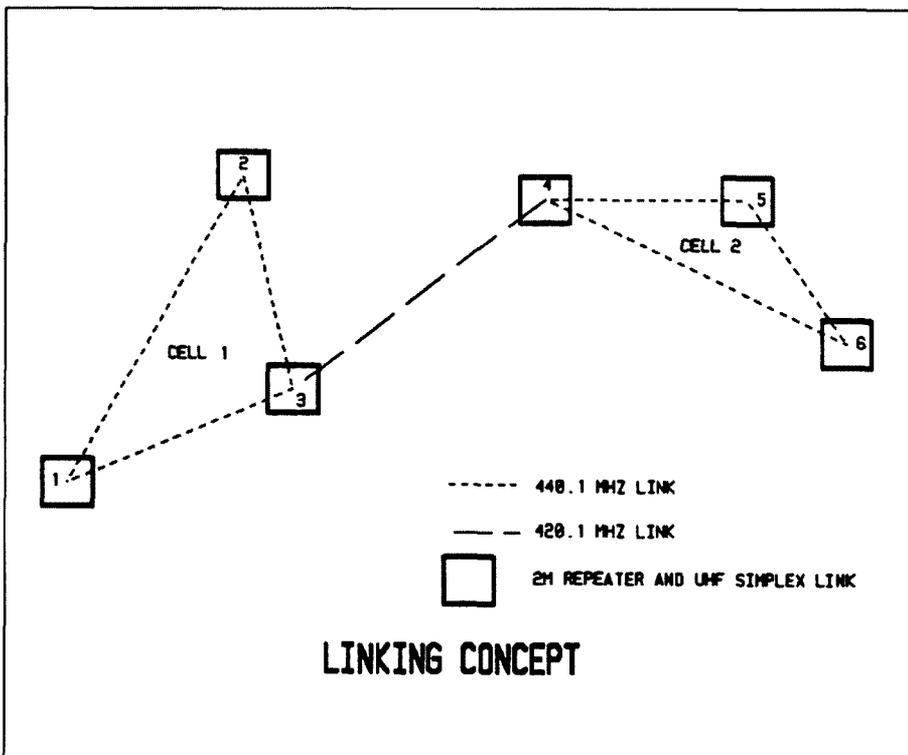
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## Phone Patch

A recent conversation on a local repeater



## SPOTLIGHT ON SWLING

ROBIN L HARWOOD VK7RH - 52 CONNAUGHT CRES, WEST LAUNCESTON 7250

In late January, a new clandestine station commenced broadcasting. It is located in Arawa, Bougainville and is called simply "Radio Free Bougainville" and operated by the secessionist government, which has declared its independence from Papua-Nuigini. It can be heard on 3880kHz from 0700 to sign-off at 1130 UTC. It is on AM. Signals are weak and the power is estimated to be between 500 to 1000 watts, although it also has stated it will be on USB, between 21450 and 21500kHz. Presumably they are using amateur radio transceivers.

This isn't surprising, as a Sydney ham has been involved in the establishment of the station and has been observed working a string of JAs on 15 metres under the callsign of CIA from "Free Bougainville". Many VKs and ZLs are naturally wary and cautious, as CIA is a pirate station, and the DoTC regulations are straightforward that contact with pirate or unlicensed stations on the amateur bands is prohibited.

The Papua-Nuigini Government has formally protested to the Australian Government over the actions of an Australian amateur in Bougainville, which is a province of Papua Nuigini. Bougainville as an independent state has not been recognised by any

national government or international agency.

It was 67 years ago that the BBC commenced broadcasting from Daventry, both on MW and with the Empire Broadcasting Station on shortwave. Callsign then was 5XX. On 29 March, the Daventry site is to permanently close, and amateurs in the UK have obtained permission from the BBC to utilise the current arrays, before they are pulled down. A special events station — GB67XX — will be operational on 4 and 5, and again on 11 and 12 April. No set frequencies have yet been announced. Incidentally, the Daventry senders are on a very historic archaeological site, and ownership of the land will revert to a historic trust which is preserving it. However, one mast will remain to indicate that shortwave broadcasts commenced there.

Don't forget that the next broadcasting period — the M period — commences on the first Sunday in March. However, most European broadcasters make their alterations on 29 March, when continental Europe goes on to Daylight Saving Time.

The BBC World Service has introduced a third release of its "Newshour" program, at 0500 UTC. This sees the demise of "24 Hours", although "The World Today" continues, but is now transmitted at 0615 UTC. Swiss Radio

International in Berne has reorganised this program output. The three languages of the Confederation — French, Italian and German — will have two separate streams: one for Swiss travelling abroad, and the other for expatriate Swiss. As well, SRI has axed programs in Esperanto. This leaves Radio Beijing and Vatican Radio as the only international broadcasters in Esperanto.

I have been testing the Digitor A-4338 four-band digital world band radio. This pocket radio is phase locked and is very compact and well presented. There are five presets on each of the four bands, making 20 in all. There are two shortwave bands — from 3.2 to 7.3MHz and 9.5 to 21.75MHz, plus MW and FM. It runs on 4.5 volts DC at 300Ma.

There is an AC/DC jack. The radio also has an inbuilt clock. On performance, I was very surprised at the sensitivity and selectivity of this small set, although it seems to work better in the evening hours. When the bands are dead, hooking it up to an external aerial brought in signals the telescopic whip couldn't pick up. Yet, when there were strong signals present, the set easily cross-modulated and one quickly reverted to the telescopic whip. The set doesn't have a BFO for resolution of SSB signals. The set was reasonably priced and would be ideal as a portable back-up.

That is all for now. Until next month, good listening.

ar

## POUNDING BRASS

GILBERT GRIFFITH VK3CQ - 7 CHURCH ST BRIGHT 3741

### Q&Z Code Book

If you, like me, occasionally have trouble remembering your Q codes, there is a publication available containing all the current Q and Z codes. This English language, 82-page booklet by PA0BFN and PA3ALM is a handy reference book for every shack, and its intention is to stimulate greater use of the codes. While today's Q code takes up 36 pages, the original 1912 version is contained on one page. QSB meant "is my tone bad?" or "is my spark bad?"; QRG was "What (shipping) line do you belong to?"; QRZ, "Are my signals weak?"; and QSL, "Did you get my receipt?". A lot of changes have taken place since 1912 and, of course, amateurs have adapted many of the codes for their own use.

The Z code is hardly known by amateurs today, although there are still some examples in the *RSGB Radio Communications Handbook*. There are 23 categories covering every type of signal, from various aspects of aviation, to meteorology, general traffic and "various". This last category includes ZUF1, "Air raid warning"; ZUF2, "Air raid in progress"; and ZUF3, "all clear". I hope we won't

have to use any of these particular signals, but there are certainly a number of Z codes which could be revived for amateur use with advantage.

*The Q & Z Code Book* is currently still available (it was first published sometime prior to 1987) from Dick Kraayveld PA3ALM, Merellaan 8, 3145 XE Maassluis, Netherlands. Payment is in banknotes only, and cost is \$US10 for seemail and \$US12 for airmail.

### Sending Morse

The heart of the telegraph code is timing. Each element, dit, dah and space, must be proportioned reasonably well in order to be intelligible. And, unless the letters are separated by the proper space, how can we tell for sure what letters they are? Words run together put a heavy burden on the writer in order to decipher them don't they? By contrast, the well sent, properly proportioned signals stand out like landmarks of clarity.

Let's look at the problem of distorted code a bit more fully, and from the intelligibility aspect. Most of us can read sending where the dits are too fast for the dahs — that is, the

dahs are disproportionately long. They are a bit distracting, but not incomprehensible. On the other hand, there are those who make their dahs so short that at times they sound like dits — and that is troublesome; we can misunderstand.

While it can be annoying, the occasional miss-spelled word or abbreviation can usually be understood, and all of us slip up this way at times. It is no major stumbling block. And we sometimes send too many dits for characters like S, H and 5, B and H etc. These are forgivable slips and, in most cases, can be correctly understood.

But it is a lack of spacing of letters within words (and calls) and between words that causes most of our problems. Leave out the space between TT and it becomes M; similarly, spacing errors can make ST sound like V (and vice versa), G lime ME, C like NN. This list is long. Does this happen because of wrong initial learning of each character as a distinct unit in itself? Or is it misplaced haste that leads to running letters together? Haste that leads to this leads only to unintelligibility.

Perhaps the commonest fault with spacing concerns the need to keep words separate. I sense at times this is due to undue hurry to get the thought across. But, in so doing, the receiver is deprived of the key element in his reading and understanding — where each

word begins. English is not an easy language to decipher when its word-beginnings are not marked.

Maybe we can all profit (including new learners) from some drills in sending. Many years ago Walter Candler recommended the following to help us develop a good timing sense:

**Drill 1:** Send the letter S, counting the dits as you send them, then keep counting up to, say, 12 and, without hesitating, send a second S, and so on until you have sent 20 or 25 of them. Gradually speed this up by dropping out one count, until normal letter spacing is reached (the length of one dah). Try it with the letter O etc. Both drills may be speeded up as you send faster, keeping the same spacing proportions.

**Drill 2:** Take a simple sentence, sending it first with wider than normal spacing between the letters and words, and then gradually

shorten these spaces to the normal length, being very careful to keep the letters and words distinct, eg, if a single dash represents longer spacing between letters, and a double dash a longer spacing between words, it would go like this: g-o-o-d—s-p-a-c-i-n-g—i-s—e-a-s-y—t-o—r-e-a-d, etc. Then gradually bring it to normal.

A keyboard and an iambic keyer will always make perfect characters with proper proportions between and among the internal parts. What is sent may be wrong, but it will be properly made wrongness. But, with an ordinary hand key or semi-automatic key, there will always be some evidence of one's individuality. Let's not let it get out of hand. After all, the purpose of the code is to convey intelligence, not to present the listener with a puzzle.

Let's not burden the listener with more than the QRM and QRN he is probably strugg-

ling with, by making our message garbled! As someone noted, well sent code comes through interference much better than poorly sent code.

I noticed in Over-to-You for February that David VK2KFU has reminded everyone that the word spacing for Morse characters is seven dot lengths. I must admit that when I wrote the article for January I did not notice the discrepancy between what was taught by the Marconi school way back then, and current practice. Not that I try to keep my own sending to such close tolerances; I find the spacing required depends much more on the conditions on air at the time, speed of operation etc.

Here is a sending exercise passed on to me by Allen VK2ALC, who says, "The ex-PMG-telegraphist in 6 Div Sigs made us practise—  
POSSESSES POSSESSES MORE ESSES  
THAN ANY OTHER WORD POSSESSES.

73, GIL AR

## INTRUDER WATCH

GORDON LOVEDAY VK4KAL - AVIEMORE, RUBYVALE 4702

Have you advised DoTC of your new address?

### IARUMS Summary

December 1991

Freq	UTC	Date	Mode	ID	"X"	Comments
7002.5	1128	251191	A1a	V	17	Beacon Vladivostock
7008.5	1030+	251191	F1B	MNR	16	+A1A 250Hz 3rd Register, USR
7013.5	1000+	251191	3xR7B		4	
7038	0900	051291	A2A	VT8	4	Russian morse mixed cypher
7039.5	mni	0212	F1B		13	250Hz RTTY 3rd Register USR
7048/9	mni	251191	F1CW	UHF3	17	+F7B Blocks of 5 figures USR
14002	1830+	271191+	N0N		8	S9+ in VK5 continuous
14045	0920+	mni	N0N		8	Guard carrier for R/telef, +B9W
14046+	mni	dly	J3E/L		17	2ch x LSB R/Fone + 1 ch carrier
14058+/-	mni	dly	AC3		27	Fax China Henschreiber type
14070	1030+	0212	A1A	VBX		
14075/85	0130+	2312+/-	A1A	VBX	12	Clones of VRQ Vietnam
14073/5	mni	dly	A1A	VRQ	61	Many fake callsigns in this group
14075	1200	291291	A2A	VRQ	1	New mode copies this group?
14075	0130/33	dly	A1A	KFB	30	CQ de KFB see above "family"
14076	mni	dly	A1A	AF1W	2	Same family as 2 following!
14092	021291	0820+	A1A	RGT77	5	Coded messages
14100	1112	0930+	A1A	NZB	14	Coded messages
14220-14140-14165 & 14177, with c/signs "rmks/PR2/P8U & UID80 seem to originate (after cross-checking) from VRQ territory, with little hope of removing.						
14210/5	1000	271191	A1A	P7A	8	P9K de P7A (more of the same)
14211.5	mni	251191	2x F1B		20	Not F7B + mided modes + b/caster USR
18075	1236	121291	A3E		5	B/caster talk in Russian
18080	1258	2812	A3E	RMosc	15	R Mosc JAMMING "R Free Europe" s/ freq
18090	1215	041291	A3E		3	European b/cast, music, voice, weak
21031.5/21283.5	daily	mx	UMS		52	MNR 250Hz 5 fig to UUMS & UUUUMS!
21405	0550	231291	A3E		25	Com b/caster
24925	1206	2212	J3E/L		2	Russian military
29228	1059	211291	A3E	BBC		World Service BBC/time pips 1100

My thanks this month to VKs 4AKX, 4BHJ, 4BTW, 4BXC, 4EKA, 5TL, 6RO, 6XW and 6BGF.

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## A Call to all Holders of a Novice Licence

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# KNUTSHELL KNOWLEDGE

GRAHAM THORNTON VK3IY

A brief overview of what other magazines have to say. The information given below has been supplied to the WIA free of charge by Thornton Publishing. Your divisional library may have copies of the references quoted.

## Antennas

### Multiband

AI's W8JK. William Skidmore VE3AUI, *QSTVE* Dec 1991 pp 3 - 4, 15. il diag. A forty foot long W8JK with 10 foot spacing is described. Good results are reported from 20 to 10 metres.

### Product Review

ZD Engineering Hardline Matching Transformers. Larry RAntonuk WB9RRT, *73* issue #375 Dec 1991 pp 29 - 30. il photos. A review of quarter wave matching transformers used to convert low attenuation 75\_ hardline CATV cable to 50\_.

### VHF/UHF

The Quag-V. Leonard Shick WB3AYW, *73* issue #375 Dec 1991 pp 36, 38, 40. il diags, graphs and photos. The driven element and reflector are both constructed as double quads bent at right angles about their centre conductor. If dipole directors are added, the feed point resistance drops from 75\_ to 50\_. A 10 MHz bandwidth is obtained.

## Audio

A Quality Desk Mike for Under \$25. Ron Klimas WA1VRH, *QST* vol LXXV No 12 Dec 1991 pp 26 - 28. il cct, graph and photos. An active microphone, based on an electret element, is designed for optimum speech response. Built-in operational amplifiers provide both gain and filtering.

Chip Talker. Joe Jarrett K5FOG, *QST* vol LXXV No 12 Dec 1991 pp 17 - 22. il ccts and photos. A record/playback device is designed to transmit recorded speech. An ISD IC is used to directly record signals in audio, not digital, form. A maximum duration of 20 seconds is provided; this may be sub-divided. The memory is non-volatile, and will remain up to 10 years independent of DC power.

## Narrow Band Modes

The BayCom Packet System. (Product Review) Dick Goodman WA3USG, *73* issue #375 Dec 1991 pp 20 - 21. il photos. A simple modem is available from A & A Engineering which, when used with appropriate software, enables a computer to use packet without a TNC.

An Optical, Through-the-Air Digital Communications Modem (2). Lawrence E Foltzer, *QEX* #118 Dec 1991 pp 3 - 7. il diag, pcb and photos. Details of the construction of the complete equipment, including the lenses, is given in this part. The factors determining

the choice of components are discussed.

Voice Mailbox at the UHF/VHF Conference in Weinheim. Don Moe DJ0HC/KE6MN (Translator), *QEX* #118 Dec 1991 pp 8 - 11. il diag, cct and photos. A translation is given of an article in *cq-DL* November 1991, which was written by Johannes Kneip DG3RBU, and Florian Radlherr DL8MBT. The development of a digital voice mailbox is described. A design is presented for an interface so that an AT PC can be used to digitise the voice signals, and the converse. A technique of progressive slope detection is used for A to D conversion.

## Power Supplies

The 'Cheap and Simple' Power Supply Revisited. Vern A Weiss WA9VLK/G0NBZ *73* issue #375 Dec 1991 pp 66, 68. il ccts. A modification to a previously described power supply with the same title is presented. It is capable of 25A output at 13.8 volts. Regulating the output voltage, instead of the bases of the output transistors, eliminates the 0.4V drop under full load experienced with the previous design. (Editorial Note - Figure 2 appears to be wrong'y drawn. The output transistors are shown as PNP instead of the ubiquitous 2N3055s specified in the text. In addition, the emitters and collectors seem to have been transposed. The 0.25 $\Omega$  current sharing resistors should, of course, be in the emitter leads. An intending constructor would be wise to consult later issues of *73* for an update.)

## Receivers

Computerized Tuning for Ramsey Receiver Kits. Mike Gray N8KDD, *73* issue #375 Dec 1991 pp 42, 44. il cct, cmp, photo and pcb. A DAC is used to convert computer output to a voltage suitable for the varactor tuning diodes of Ramsey kits. A design is given for an interface to achieve computer control of frequency.

## Technology

The Double-Tuned Circuit: An Experimenter's Tutorial. Wes Hayward W7ZOI, *QST* vol LXXV No 12 Dec 1991 pp 29 - 34. il ccts, graphs and photos. A dissertation is given on the design and adjustment of double-tuned circuits. Graphs are given to illustrate the effects of undercoupling, overcoupling and critical coupling. Practical considerations are considered for both HF and VHF.

## Transceivers

Going Mobile (1). Steve Ford WB8IMY, *QST* Vol LXXV No 12 Dec 1991 pp 23 - 25. Tips are given for VHF/UHF installations in motor vehicles. Hand-helds, with or without amplifiers, are considered for this applica-

tion.

The Ramsey 2 Meter Transceiver Kit. Rick Littlefield K1BQT, *73* issue #375 Dec 1991 pp 18 - 19. il photos. A review is given for this kit produced by Ramsey Electronics. It is PLL synthesised from 144 to 148 MHz, with a power output of 5W.

The Yaesu FT-990. Bill Clarke WA4BLC, *73* issue #375 Dec 1991 pp 32, 34. il photo. A review is given of this transceiver without laboratory measurements.

## Transmitters

The Simple TX TX. (Texas Transmitter) Bruce O Williams WA6IVC, *73* issue #375 Dec 1991 pp 10, 12, 14. il cct, cmp, pcb and photo. A design is given for a crystal controlled CW transmitter which provides about 2W output. Component substitution allows operation on any band between 20 and 80m.

### Glossary of Abbreviations

il The article contains illustrations, a list of which follows.

cct A circuit diagram  
cmp A component layout drawing  
EA *Electronics Australia*  
diag A mechanical drawing  
pcb A master drawing from which printed circuits may be produced  
*QSTVE* *QST Canada*  
*RadCom* *Radio Communication*  
*RadZS* *Radio ZS*  
*73* *73 Amateur Radio Today*

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# DIVISIONAL NOTES

## VK2 NOTES

TIM MILLS VK2ZTM

### Annual General Meeting

Members are reminded that the 1991/92 AGM will be held on Saturday 2 May 1992 at Parramatta. Agenda items and nominations close at the same time, which is 2pm on Wednesday 18 March 1992. These must be received at the registered office, 109 Wigram St, Parramatta by this time. The formal notice of the AGM and annual report will be included as an insert in the April issue of *Amateur Radio*.

### VK2WI Dural

With work scheduled to be carried out on one of the Dural towers, the 80, 40 and 30m antennas are in the process of being relocated. While this will place the main lobes in different directions, signals should still reach most regions. The IPS forecasts for March indicate the optimum working frequency to most points of VK2 will be about 10MHz, hence our transmission on this frequency, morning and night, should provide the best signal. In the short time since the start of this year, the OWF has risen about 2-1/2MHz. The January charts showed that 7MHz was closest to the OWF.

### Happenings

The VK2 class for the year commenced early last month. Conducted each Monday evening, it is scheduled to run until November.

There is still time for anybody with some understanding of electronics to join the class. The class is held in the library at Parramatta. Contact the Divisional office by one of the methods listed on page 3 for further details.

The next Divisional exam will be conducted at Parramatta on Sunday 24 May.

Well, the Gosford Field Day is over for another year, but don't forget the Urunga Convention over Easter, or the Oxley Region Field Day at Port Macquarie on the June long weekend. Both hold good foxhunts, and the Sydney types may have had some practice since the start of this year's activities on 1 March.

A reminder that the VK2 office holds VHS copies of the Federal videotapes as listed on pages 31/32 of last month's *AR* this year. VI150SYD for the 150th birthday of the City of Sydney, details from the office. The other is VK2RC, being operated by John VK2DEJ for the 200th birthday of the founding of Ryde on Sydney's lower North Shore.

### Divisional Services

One of the services provided by the NSW Division is the venue for the bi-monthly Trash

and Treasure events. The car park at the rear of Amateur Radio House, 109 Wigram St, Parramatta, is the location. The time is the last Sunday afternoon of the odd-numbered months, except when this is on a long weekend. The next T&T will be the end of this month, Sunday 29 March. The gates open at 2pm. Sellers are admitted at 1pm to set up their stands. There is a table or space hire of \$5 to members and \$10 to non-members.

At intervals the Division has some surplus equipment and joins in the selling. Surplus copies of magazines from the library are bundled up and sold off, the proceeds going back to the library to assist with its operation.

The afternoon is also a social event as the attendance usually runs to a few hundred over the couple of hours the event takes.

The dates for the balance of the year are 31 May, 26 July, 27 September and 29 November.

## VK4 NOTES

DAVID JONES VK4KLV

All amateurs are cordially invited to attend the VK4 Special Activities Day, to be held in the Kathleen Room of the Staff Club, St Lucia Campus of the University of Queensland, on Saturday 4 April.

The day's activities will commence with an opening and displays at 10am local, and at 10.30am there will be a lecture on TCP/IP. The guest speaker will be Andy Joyce VK4KIV. After his hands-on lecture, lunch will be served in the seminar rooms until 1300, when we will conduct a Regional Amateur Conference. This conference is open to any and all attendees, and the agenda subjects are as published in February *QTC*. Any subject may be raised from the floor, time permitting. Afternoon tea will follow at approximately 1500, and at 1530, our special guest Bill Roper VK3ARZ will conduct a Q And A session based entirely on what you want to hear about.

At 1630, the 1992 Annual General Meeting of the VK4 Division will be conducted. Nominations are now being called for election to the Divisional Council, and a form for this purpose was published in February *QTC*. Following the AGM, more general talks will take place, finishing off any unfinished subjects from the RAC.

Finally, we round out the day from 1830 with a dinner to celebrate the 80th anniversary of the formation of the original organisation which subsequently became the WIA/Q. During dinner, we will be joined by David Jull MP, Member for Fadden and Mrs Jull. David has supported and attended several Radio Club Conferences, and has assisted us on many occasions.

The total fees for the day's activities, in-

cluding all meals (but not drinks) is \$35, or \$20 for the dinner alone. All interested in attending should contact David Jones VK4KLV (QTHR 1992) on (07) 2051561.

## 5/8 wave

JENNIFER WARRINGTON VK5ANW

### Volunteers Anonymous

When I recently handed over to Rowland VK5OU the list of names of volunteers to whom the Christmas cards are sent, I think he was surprised and impressed at the number of people involved. In fact, he was so impressed he read out the list on the broadcast; so, for those of you who missed it, here at least are the current Slow Morse panel operators and the relay operators.

#### Slow Morse Panel

Wayne Kingscott VK5AC  
Trevor Howard VK5BWF  
Ron Vernon VK5AAC  
Emlyn Jones VK5AEJ  
John Ruston VK5ARK  
Kingsley Braver VK5NOU  
Ivan Smith VK5PAW

(The last three are at Renmark, and Trevor is in Port Lincoln. So, as you can see, distance is no barrier to volunteering for this job, if you'd like to help).

#### Broadcast Relay Personnel

160 Metres  
Hans Smit VK5YX  
Merv Millar VK5MX  
Ron Coat VK5RV  
Clarrie Castle VK5KL  
John Scougall VK5YY  
Bill Walker VK5WW

80 Metres  
John Butler VK5NX  
Ron Vernon VK5AAC  
Bernie Samels VK5ABS

40 Metres  
Murray Burford VK5ZQ  
Ron Kelton VK5ZR  
Ross Dow VK5KF

20 Metres  
Ross Delon VK5AG  
Charlie Baldacchino VK5ACF  
Colin Taylor VK5CE

10 Metres  
Chris Owen VK5UH  
Adelaide Hills ARS VK5BAR

6 Metres  
Bob Wake VK5KZZ  
Ross Cunningham VK5KMH  
Peter McGregor VK5APA

2 Metres  
Chris Whitehorn VK5PN  
Garry Percy VK5OR  
Tony Hurren VK5PBH  
Bill Wardrop VK5AWM (doesn't get a card as he's on Council)

Mac McKinnon VK5AM (Mid-North Repeater)  
Graham Johnston VK5SU (Mid-North Repeater)  
Henry Andersson VK8HA (Darwin)  
Frank Turnham VK8FT (Darwin)  
South East Radio Group VK5SR (Mount Gambier)  
Naracoorte ARC VK5ARN (Naracoorte Repeater)

70cm  
 Barry Chammen VK5KCCX (Barossa Repeater)  
 Steve Bigg VK5BCD (Barossa Repeater)  
 Elizabeth ARC VK5LZ (Elizabeth Repeater)

Amateur Television  
 Greg Weaver VK5ZBD

Reserve Helper on Several Bands  
 Jack Crawford VK5AHI

You may realise from the names and call-signs that many of these amateurs do other jobs for the Institute as well. We can never have too many volunteers, and I happen to know that Chris VK5PN is looking for operators on several bands, including two metres. Chris is the broadcast relay co-ordinator, so if you can help, please ring him on 261 3221.

If any of the information I've given is not correct, particularly from the country areas, would you please let Rowland or me know.

**Diary Dates**

24 March General Meeting  
 31 March Buy and Sell Night

**VK6 NOTES**

HARRY ATKINSON VK6WZ

The 1991 Amateur of the Year is Laurie Del VK6ZLD who received the honour for having "worked tirelessly as an approved examiner and, over the past two years, has enabled many amateurs to upgrade their class of licence, as well as having provided the path on which many newcomers have entered our hobby". The quote is from Divisional minutes.

Other presentations made at the December meeting were to successful participants in the Annual WA Eighty Metre Contests. Place-getters were (CW): VK6s PGG, BN and AFW. (Phone): BN, BGF and DE.

Because of family movements taking place earlier than originally planned, John VK6GU has handed in his resignation as a councillor of the VK6 Division and also as book sales officer. Until an official announcement is made as to John's successor, address your bookshop queries to Box 10, West Perth 6872, or by phone to the secretary (09) 388 3888.

We wish John and his XYL Hope much enjoyment and safe travel in the next few years as they swap their delightful hillside QTH at Armadale for a home on wheels—and a long, leisurely safari revisiting old haunts and renewing friendships.

**Annual General Meeting  
 Notice of AGM**

It is hereby notified that the Annual General Meeting of the West Australian Division of the Wireless Institute of Australia will be held on 21 April 1992 following the General Meeting which commences at 8pm. The meeting will be held at the Westrail Centre, East Perth.

**Agenda**

1. Consideration of the Council's Annual Report
2. Consideration of the Financial Report
3. Consideration of other Reports
4. Election of Office Bearers, viz President and Vice-President of the Division and seven other Councillors

5. Election of two Auditors
6. Appointment of a Patron
7. General Business which has been duly notified

Notice of motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting and must be signed by at least three members.

Nomination of a candidate for election to Council must be received by the Secretary in writing not less than 42 days prior to the meeting, with an intimation that such candidates are willing to act. A candidate may submit a statement not exceeding 200 words outlining his or her case for election, and experience. Each nomination shall be signed by two members proposing the candidate.

Candidates must possess a current amateur licence.

**Proxies**

Any financial member entitled to vote may appoint a proxy, who must also be a financial member entitled to vote, to speak and vote on his/her behalf. Each such proxy must be in the hands of the Secretary prior to the meeting and be in the following form:

I, ....., a member of the Institute, hereby appoint ....., also a member of the Institute, to act for me as my proxy and in my name to do all things which I myself being present could do at the meeting of the Institute held on

Signed:

Witness:

Date:

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**CLUB CORNER**

**Riverland Radio Club**

The Riverland Radio Club held its Christmas party at the historic Overland Corner Hotel on 14 December. The group of 33 enjoyed the atmosphere of the hotel created by the old building.

The hotel regained its licence on 5 July 1991 after almost 100 years. After dinner the group retired to a houseboat moored nearby, owned by Tony Hutchinson VK5ZAI.

**Radio Amateurs Old Timers Club**

The Radio Amateurs Old Timers Club was founded in 1975 to form a link among amateurs who had been on the air for 25 years or more. Membership is open to those who have held a licence or who have been qualified to hold a licence for 25 years or more. As of now, that means qualification prior to 1967.

So it's not just a group of old fogies!

Membership subscription is \$10 each year,

payable by 30 June. Membership application forms can be obtained from the club secretary Harold Hepburn VK3AFQ, 4 Elizabeth St, East Brighton 3187.

A monthly broadcast and call-back started in 1978 and continues on the first Monday of each month except January.

The aim is to give details of members' activities plus other items of topical or historic interest.

Time and frequencies are as follows:

10am Melbourne time. 144.570MHz FM and 7.060mHz SSB

11am Melbourne time. 14.050MHz SSB beaming north

12 noon Melbourne time. 14.150MHz SSB beaming west.

A magazine, OTN, began publication once per year in 1985. The next issue is due out in early March.

With regret the committee has had to decide not to send it to members who have not

renewed their subscription this year. Members in different stages get together for lunches or dinners from time to time. The next luncheon in Melbourne will be on Wednesday 18 March at the Bentleigh Club, which has proved a popular venue in the past. Cost will be \$20 plus refreshments. Snow Campbell VK3MR will be telling of some of his radio activities during the years he spent as a prisoner of war in Germany.

ar

**Don't buy stolen equipment - check the serial number against the WIA stolen equipment register first.**



Steve VK2DU (r) about to sample a more traditional "home-brew" developed in the shack of Peter VK2ETK (l).



Colin VK2JCD (l) explaining some new ideas for his next project to Gio VK2FJP (r).



Nick VK2AOH (r) demonstrating to John VK2XRE (l) the QRP CW transceiver he designed.

(Photos by John Meagher VK2AMV)



Peter VK2ETK (l) discussing some of the finer points of a high power modulator designed and built by Peter VK2ALL (r) for his proposed 160m transmitter.

## Orange & District ARC

Home-Construction of Amateur Gear is not Forgotten at Orange

The "art" of home-brewing is as old as amateur radio itself and has, until relatively recently, been the only method by which amateurs were able to get themselves on the air.

Home building is still an important part of amateur radio and is especially important to those amateurs who do not have kilo-dollar budgets to buy commercial gear, or who are exploring the microwave regions of the bands, or those who are developing new communications techniques.

Remember, building your own gear is a privilege available to the amateur radio service!

The Orange Amateur Radio Club has for many years encouraged home construction by holding an annual home-brew competition, but interest and enthusiasm have waned in the past year or so. Following some discus-

sions, it was decided to change the format of the evening, so the emphasis was on participation rather than competition.

Members were asked to bring along any project which they had been working on — be it simple or complex, fully working or still under construction, their own design or a kit. They were encouraged to show others with less experience what can be done and how to do it.

The result was the best attended meeting for as long as most people could remember. Everyone got some new ideas and learned a few new "tricks of the trade". But, most of all, everyone had fun!

Bruce Carroll VK2DEQ, President  
PO Box 1065  
ORANGE 2800

Ian Jones (l), who is studying for his amateur exams, examines an HF regen receiver constructed by Peter VK2EPD (r).



# QSLs from the WIA Collection

KEN MATCHETT VK3TL HON CURATOR, WIA QSL COLLECTION  
4 SUNRISE HILL ROAD, MONTROSE 3765. PH: (03) 728 5350

## Liechtenstein — Fairytale Principality

This land-locked country lying between Austria and Switzerland is the fourth smallest country in Europe. It has an area of 160 sq km, which makes it about 1/15th the size of the ACT. The country is a constitutional monarchy, the Prince living in a fairytale castle in the capital, Vaduz. Liechtenstein was ruled by various noble families during the Middle Ages but assumed its political identity through the Holy Roman Emperor, Charles VI in the early 1700s. Ever since 1923 it has had particularly strong economic and political ties with Switzerland. It uses the Swiss franc as its currency and its foreign policy and diplomatic relations are handled by that country. It therefore comes as no surprise that in the field of amateur radio close ties exist between the two countries. Previously having an economy based upon agriculture, the post-war period has seen a major change towards industrialisation. Other sources of income are in the sale of postage stamps and the fact that the country is one of the business world's favourite income-tax havens. Like Switzerland, Liechtenstein remained neutral in World War 2 (as it had in WW1). After Germany's defeat in 1945, Nazi sympathisers who had supported incorporation of the principality into the Third Reich were prosecuted and sentenced.

Being so small and, in a way, isolated, few non-Europeans know of the country's existence. The writer visited Liechtenstein just after the war's end and confesses to have known only of the country's issue of postage

stamps which, at that time, were much in demand by philatelists. Women's rights to vote were introduced as recently as 1983 whilst a referendum in December '85 rejected the notion of incorporating equality between the sexes into the country's constitution.

### HE1CE

The first indication of Liechtenstein as a DX country was an ARRL listing printed in the periodical *Radio* in January 1937. Although Switzerland is listed under the HB prefix, no separate one appears after Liechtenstein. In early DX listings the practice of listing countries without prefix was not uncommon since at that time there was great debate over what exactly constituted a DX "country". As amateur activity in countries such as Liechtenstein, Aden, Libya and Syria increased so these demanded DX country status sometimes long before the ITU was prepared (or ready) to allocate them an official callsign prefix.

The first amateur radio activity from Liechtenstein occurred shortly before the outbreak of World War 2 when Swiss amateurs used the HB1 prefix in place of HB9 for portable operation. In the October 1939 edition of *QST* we read that Liechtenstein is "closely allied to Switzerland and since it is under Swiss radio regulations Swiss amateurs can operate portable there".

The first listing of a Liechtenstein prefix came in 1938 when *QST*, in its June edition, listed the ITU prefix allocation HEA-HEZ. This new allocation does not seem to have been associated specifically with Liechtenstein. The official ITU listing under Switzerland once more indicates the very close relationship between the two countries. They both share the same national society viz Union Schweizerischer Kurzwellen Amateure (Un-

ion of Swiss Shortwave Amateurs). However, they do have separate licensing administrations. It was as late as February 1947 that we saw separate DX country listings complete with allocated prefix. In that month *QST* published its "Official List for ARRL DX Contest and the Post-War DXCC". Liechtenstein was listed followed by the prefix HE1. The QSL shown, HE1CE was for a QSO between Frank Bech HB9CE operating portable in Liechtenstein in December 1947, and VK3BZ operated by the late Morrie Morris of Parkdale. This QSL would be one of the earliest for a QSO with Liechtenstein. The WIA Collection also contains the QSL of HB9EO operating in Liechtenstein as HE1SO in September 1949. Today the old HE prefix is being used by Swiss shortwave listeners.

### HE9LAA

In its May 1951 edition, *QST*, it was reported that Liechtenstein was using the HE9L prefix in lieu of HE1. This was incorrect information. Actually Swiss stations portable in Liechtenstein were still using their call followed by the prefix HE, eg HB1MX/HE operated from Liechtenstein in November '54. The HE9L prefix referred to was being used by Liechtenstein nationals. *QST*, in its June '55 edition, reported this fact, adding that HE9LAA seemed to be the only one operating. The QSL shown is from the operator of that station and was sent to station G3HDA operated by Mike Bazley (now VK6HD) in January 1952. The WIA Collection also contains QSLs of HE9LAC, another Liechtensteiner who operated in the 1950s.

In the mid 1950s, another change in the Liechtenstein prefix took place. Swiss portable stations in Liechtenstein started using an HB1 call followed by the letters FL rather than the letters HE. For example, HB9ZJ operated in September '57 as HB1ZJ/FL. The writer's first CW QSO with Liechtenstein in early 1962 was with the station HB1ZT/FL (Home call HB9ZT). The use of such a prefix led to some confusion, many DX stations believing they had contacted an African station.

<b>LIECHTENSTEIN</b>		
WAC	ARRL - USKA - RSGB	DX-CC
<b>HE1CE</b>		
PORTABLE		
CONFIRMING QSO WITH VK3BZ SIGS WRL 568 ON 4/12/47 MC 14	HUGO BECH LA 10001 HB9CE HADI NERSER 68 ZURICH SWITZLD. <i>Frank</i>	

<b>LIECHTENSTEIN</b>		
HUGO HILTI, SCHAAN 376 FÜRSTENTUM LIECHTENSTEIN		
RADIO - STATION		
<b>HE9LAA</b>		
To Radio <i>G3HDA</i>	Confirming our lone QSO on <i>74</i> mc	
at <i>1355</i> GMT, <i>16.1.</i>	195 2. Ur RST <i>59 +</i> Mod. Conds	
Input <i>40</i> Watts	PSE TNX QSL	Mnl tnx fr nice QSO as good luck
Antenna: <i>20m</i>	via USKA or direct	73 <i>Hugo</i>

The November 1957 edition of *QST* pointed out that "HB1 stations with /FL appendages are not operating portable in French Somaliland, fellows. It's a devastatingly ambiguous designator for Swiss visitors to Liechtenstein". Few radio amateurs at the time (unless they were German speaking) realised that FL was the abbreviation for Fuerstentum Liechtenstein (Principality of Liechtenstein).

## HBOGJ

In 1965, DX country listings started to show the newly allocated prefix prefix HB0 for Liechtenstein. Although regarded as fairly rare in the early post-war period, a considerable increase in the number of DXpeditions by other than Swiss nationals in recent years has reduced the demand for activation from Liechtenstein. Swiss nationals such as HB9GJ continued to use the HB0 prefix (HB0GJ), whilst other nationals such as YT3AM used the form HB0/YT3AM. Considerable activity in the 1970s and '80s by a few Liechtensteiners themselves, especially Frank HB0NL, Werner HB0BFN, Hugo HB0LL and Rene HB0BLC, lowered markedly Liechtenstein's place in the most-wanted DX countries list during that period.

## Author's note

It would be greatly appreciated if radio amateurs throughout Australia could donate a few of their hard-earned QSL cards to the WIA Collection. We have developed an excellent QSL collection of pre-war, rare DX, pictorial and special-issue cards over the past few



years as a record of DX activity, but we need to keep things going. All QSLs are very welcome. Please contact the author, Hon Curator VK3TL Ken Matchett, 4 Sunrise Hill Rd, Montrose 3765. Telephone (03) 728 5350 for any details of parcel post or rail transport (costs refunded). We need your help.

## Thanks

The WIA would like to thank the following for their kind donation of QSL cards towards the Collection:

Alan VK5ZN  
Mike VK6HD  
Frank VK2QL  
Ken VK5IT  
Arthur VK3VQ  
Len VK3LK  
Roy VK6BO  
Bob VK5QJ via Ray VK5RK  
Paul 3B8AD.

Also thanks to George Le Grand, widower of Phyl VK4CPL, for the thoughtful donation of Phyl's fine collection of QSL cards. **ar**

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

## Nostalgic Memory of an Early Era

On Sunday 19 January I was reading VE2RO in QSO with VK2DQR who told the VE that he was using a three-tube TRF receiver home-brew, and the transmitter used a 6L6 in the final.

He remarked that many old timers had rigs like this. It was great fun, but parts were getting hard to get. He was a new ham, but liked old gear. VE2RO remarked he had used a similar rig from 1935 until 1947.

How many old timers can remember their old gear? At the moment I am in the process of building a pre-war Jones ultra gainer receiver.

CLARRY CASTLE VK5KL  
29 TURNBULL RD  
ENFIELD 5085

## Clear for Takeoff?

Radio amateurs are certainly quick to point out the facts when other fields of endeavour

loosely describe us as "CBers" or question our competence. It is indeed a rare event when we need a correction. Nevertheless, the aviation fraternity would not be amused to read page 26 of last August's *AR*, where an aircraft "was cleared for takeoff from the Mount Gambier airport by Civil Aviation's Flight Service Centre in Adelaide." Mount Gambier airport doesn't require takeoff clearances, and even if it did, Flight Service aren't the people who give them. It's a pity that such a worthy story started off on the wrong foot. It would be good if, when checking articles like this for publication in *AR*, an aviation-literate person could proof-read the drafts to make sure the flying bit is as accurate as the radio bits. (Okay, I'll volunteer if nobody else does).

Otherwise, the magazine is excellent. Please keep up the good work.

GARETH DAVEY VK2ANF  
PO Box 1367  
DEE WHY 2099

## Subs and CPI

In regard to the cost of WIA membership and *AR*, I feel I must contradict the statement made by the editor in the January issue of *AR* that it has been Executive policy not to increase the fees in excess of the CPI.

My records show that I paid \$25 in 1985, \$38 for 1989, and now \$58 for 1992. The overall increase amounts to 13 percent per year, and 15 percent per year between 1989 and 1992. These figures are well and truly in excess of the increase in living costs.

I still pay my subscription, although my pension income has nowhere near increased at the rate of the subscription fee. How long I can keep it up I don't know, much as I appreciate *AR* and the efforts of the WIA on behalf of its members.

GEORGE CRANBY VK3GI  
PO Box 22  
WOODEND 3442

(Actually subs rose by less than CPI each year until 1990. It was then necessary to raise them well above CPI in a "one-off" jump, or the WIA would have "gone broke". — Ed)

**ar**

# SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES  
MUST BE NO LONGER THAN 200 WORDS.

The WIA regrets to announce the recent passing of:

R B (Beauch)	Digby	VK2GK
R L (Lindsay)	Douglas	VK2ON
R N (Noel)	Jackson	VK3CNJ
H (Harry)	Fuller	VK3HF
C A (Christopher)	Pearce	VK3KEP
A T (Alf)	Goebly	VK4AAG
M G H	Rowe	VK4YR
R (Bob)	Stancliffe	VK5VG
H R (Ross)	Dowsett	VK6RD
B	Brown	VK6RR

## Ross Dowsett VK6RD

Ross passed away suddenly on 10 January after 40 years of amateur radio activity.

Ross, who was married with three children, first became interested in radio as a schoolboy when he built his first crystal set.

When the Second World War started, Ross volunteered for the Army, where he became Sergeant Armourer.

In this capacity, Ross re-designed the mechanism on a heavy-calibre weapon which had the habit of jamming. This re-design was incorporated into the future manufacture of this very popular weapon, and no doubt saved many lives as a result.

Ross's interest in radio during the war never wavered, and he regularly went into enemy lines with another army mate and radio enthusiast Tom Allen, and together they stole radio parts from the Japanese.

Ross eventually was wounded by shrapnel and was repatriated to Heidelberg Hospital in Melbourne.

Ross first became licensed in 1952 and built most of his equipment from parts which he managed to bring back from New Guinea.

When the Scout jamborees were commenced, Ross became involved and had been running the yearly Scout jamboree at Gill Creek, Albany, for the past 15 years.

Ross was one of life's quiet achievers and will be sadly missed by all who knew him.

JOHN DOWSETT VK6UD

## R B Digby VK2GK (ex)

Beauch died 11 January, three days short of his 80th birthday. He was first licensed in the 1930s. He was an officer in 2/1 Battalion 6th Division and, after North African service, was captured in Crete. After WW2 he maintained his service interest, and rose to Lieutenant-Colonel in the CMF. At age about 40 he undertook the E&C course at North Sydney Technical College and was a Senior Technical Officer with AWA until retirement.

He moved to Cooranbong, NSW, a few years ago, but by then his health was failing

and he was too sick and too weary to unpack his gear and set up a new station. He let his call sign lapse and donated his equipment to the local radio club when he moved to the ex-Servicemen's home at Bolton Point, NSW.

We were related; he was my XYL's brother-in-law. I remember him as an upright and generous man with a great love for our hobby.

W A EASTERLING VK4BBL

## R L Douglas VK2ON

Lindsay died on 1 January. I first met him in 1941 when he was a Junior RMO at Prince Alfred Hospital, Sydney. He joked that if the war hadn't curtailed his amateur activities he'd probably never have got through medicine. He served in RAAF Medical and, after the war, as a GP at Dapto, NSW, before specialising in ophthalmology.

He lived at Gosford, NSW, where he practised. He wrote several articles for AR. He pushed the Commonwealth Government for FM broadcasting and, after the experimental station on 90MHz was set up at North Sydney, described a suitable rhombic antenna in AR.

Our first QSO was on 40 metres in 1950, and the next on two metres 20 years later. He and his XYL visited me last year, and he looked okay; not that much older than me, and his death was an unpleasant surprise.

W A EASTERLING VK4BBL

## Harold S Fuller VK3HF

Harold was a member of the Amateur Radio Old Timers' Club. I have known Harry for the past 19 years and consider him to have been a remarkable man in the field of radio.

In the mid-1920s he was the radio operator on the General Australia McKay Aerial Survey expedition, of which he told me many stories. He is the third recorded European to climb Ayers Rock. He made a wire recorder (on display in the Science Museum, Melbourne) in the 1940s, the first in Australia. He was chief engineer and manager (for a short time) of 3YB Warrnambool.

G A TONZING

## Noel Jackson VK3CNJ

Noel was a member of the Eastern and Mountain District Radio Club.

He started his early life on a poultry farm and answered the call to arms during World War Two. He quickly established himself as a "Mr Fixit", and in all ways was a very practical person. He was active in his church and his Army Association.

To me he was "BP, a silent achiever" who, when he saw a need, went about making good the fault. His willingness to give his time in

It is always a very sad occasion when one's close friends pass away. Often fellow amateurs are asked to help in the disposal of radio equipment, thus taking a lot of the worry from the family of the deceased. As well as equipment there is frequently considerable quantities of paperwork such as notes, logbooks and periodicals. Frequently too, there is a box or two of QSL cards that have been received over the years. More often than not these are consigned to the local tip. There would be little doubt that the deceased would have preferred that some use could have been found for such cards. Fortunately there is a use and this lies in the building up of the WIA's own QSL Collection as an historic record of amateur radio, of which DXing is an important part.

If you are called upon to help with a deceased amateur's estate would you spare a thought towards saving such QSLs from destruction? Please contact the Hon Curator of the WIA QSL Collection Ken Matchett VK3TL, at 4 Sunrise Hill Rd, Montrose 3765, or telephone (03) 728.5350 for details of parcel post or rail dispatch (costs refunded). Your help would be greatly appreciated.

repairing toys and radios endeared him to many young people, including his grandchildren.

In mid-life Noel qualified as an electronics instructor, and spent 12 years at RMIT, which he claimed were amongst the happiest of his working life.

Noel encouraged members of his family to study for their amateur licences, and he had regular skeds with his two sons.

To Noel's wife Joy VK3PJJ, sons Peter VK3KPJ and Philip VK3PDJ, Frank and daughter Esther, we express our deepest sympathies.

GEOFF ATKINSON VK3YFA

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PO Box 300,  
Caulfield South, 3162.**

# HF PREDICTIONS

ROGER HARRISON VK2ZTB

GENEROUSLY SUPPLIED BY THE APOGEE GROUP FREE TO THE WIA

Solar Cycle 22 is now definitely on the wane having gone through a what appears to have been a "double-humped" maxima, first peaking in late 1989, dipping in the last quarter of 1990, then peaking again (albeit, a slightly lower 'peak') in the last quarter of 1991. The solar cycle last exhibited a double-humped maxima back in 1947, 44 years ago, when I had my first birthday.

The forecast yearly-smoothed sunspot number for March, used to generate this month's predictions, is 100. The actual yearly-smoothed sunspot number was last at this value back in May 1988. Solar cycle 20 peaked in 1970 at just over 100. The bands aren't dead yet, by a long way!

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28MHz. The UTC hour is the first column, the second column lists the

predicted MUF (maximum usable frequency), the third column the signal strength in dB relative to 1uV (dBU) at the MUF. The fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency, as it is more generally known. The signal strengths are all shown in dB relative to a reference of 1uV in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point 'standard' where S9 is 50 uV at the receiver's input and the S-meter scale is 6dB/S-point.

μV in 50 Ohms	S-points	dB(μV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	-2
0.39	S2	-8
0.2	S1	-14

The tables are generated by the Graph-DX program, assuming 100 W transmit power output, modest beam antennas (eg three-element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

**VK EAST.** The major part of NSW and Queensland.

**VK SOUTH.** Southern-NSW, VK3, VK5 and VK7.

**VK WEST.** The south-west of West Australia.

Likewise, the overseas terminals cover substantial regions; eg "Europe" covers most of western Europe and the UK. Graph-DX is written in the C language and runs on any IBM PC AT/XT or compatible computer with EGA, Hercules or VGA adapter and screen. Professional and Amateur versions are available. Enquires to FT Promotions, PO Box 306, Woollahra NSW 2025.

ar

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1 15.2	3	11.6	1	4	0	-8	-19		1 15.6	8	12.0	7	7	2	-7	-19		1 14.2	14	10.9	14	7	-3	-17	-35	
2 14.3	-4	10.8	-5	0	-2	-10	-20		2 14.5	0	11.0	-1	2	-2	-10	-22		2 13.3	5	10.1	5	1	-7	-21	-36	
3 18.1	-1	13.6	-13	-1	1	-2	-8		3 18.5	1	14.4	-9	1	2	-1	-8		3 16.8	4	13.3	0	4	1	-6	-17	
4 25.3	4	19.4	-23	-3	2	4	3		4 26.1	5	20.1	-20	-1	4	6	4		4 23.6	6	18.2	-8	4	7	5	1	
5 37.1	6	25.0	-31	-6	2	7	8		5 30.1	6	25.2	-28	-5	3	6	6		5 29.1	7	22.1	-16	1	7	9	7	
6 33.1	7	27.1	-33	-7	2	7	9		6 29.9	5	24.7	-30	-7	1	5	6		6 29.4	6	24.6	-20	0	6	8	7	
7 32.5	7	26.4	-31	-6	2	7	9		7 29.8	5	24.4	-30	-7	1	5	6		7 29.3	6	23.9	-21	-1	5	7	7	
8 31.1	7	25.0	-25	-3	5	8	9		8 29.2	5	23.6	-27	-5	2	6	6		8 29.2	6	23.9	-20	-1	5	8	7	
9 29.3	9	24.7	-15	2	8	10	9		9 28.0	6	22.4	-20	-1	5	7	6		9 28.6	7	23.2	-17	0	6	8	7	
10 27.5	10	21.8	-4	9	12	12	9		10 26.1	7	20.6	-10	4	8	8	5		10 27.4	7	22.0	-11	4	8	9	6	
11 25.3	13	20.1	7	15	16	13	9		11 23.8	9	18.8	0	9	11	8	3		11 25.7	9	21.7	-1	9	11	10	6	
12 23.4	15	18.6	16	20	18	13	7		12 21.4	12	16.9	10	14	12	7	0		12 23.8	12	18.9	9	15	14	10	4	
13 22.4	19	17.7	26	25	21	14	6		13 19.0	16	15.0	19	17	12	3	-8		13 21.8	15	17.3	20	20	16	9	0	
14 21.4	22	17.0	33	28	22	14	4		14 17.6	20	13.9	26	19	11	-1	-15		14 19.8	19	15.7	28	23	16	6	-5	
15 20.4	24	16.2	36	29	22	12	1		15 16.4	24	13.0	29	19	9	-5	-22		15 18.8	22	14.9	32	24	15	3	-10	
16 19.2	25	15.1	36	28	20	9	-3		16 15.5	25	12.2	29	17	5	-11	-29		16 17.9	23	14.2	33	23	13	0	-15	
17 18.3	26	14.2	36	27	18	6	-7		17 14.9	27	11.7	29	15	3	-14	-34		17 17.0	25	13.5	32	21	11	-4	-20	
18 17.0	27	13.1	35	24	14	0	-14		18 14.3	28	11.1	28	13	0	-19	...		18 16.2	26	12.7	32	19	8	-8	-26	
19 15.4	29	11.9	32	20	8	-7	-24		19 13.6	28	10.5	26	10	-4	-24	...		19 15.5	26	12.1	30	17	4	-12	-31	
20 15.5	29	11.9	32	20	9	-6	-24		20 12.9	29	9.9	24	7	-8	-30	...		20 14.5	27	11.2	28	13	0	-19	...	
21 18.4	26	14.5	35	26	18	6	-7		21 13.8	29	10.5	27	11	-3	-22	...		21 13.4	28	10.3	28	10	-4	-28	...	
22 18.3	23	14.2	29	23	16	6	-6		22 16.5	24	12.4	29	19	9	-5	-22		22 13.8	28	10.5	26	10	0	-25	...	
23 17.0	17	13.1	19	16	10	0	-11		23 18.5	21	14.3	26	22	16	6	-5		23 16.4	25	12.9	31	19	8	-7	-25	
24 18.1	12	13.9	10	12	9	1	-8		24 19.0	16	14.6	18	17	12	4	-6		24 16.3	22	12.6	26	18	8	-5	-20	

## VK EAST - MEDITERRANEAN

## VK STH - MEDITERRANEAN

## VK WEST - MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1 14.4	2	9.6	2	3	0	-9	-20		1 13.4	-2	9.2	0	1	-4	-13	-26		1 12.9	-12	9.0	-8	-4	-7	-14	-25	
2 14.0	5	9.5	5	3	0	-10	-23		2 13.1	2	9.1	3	1	-5	-16	-31		2 12.6	-10	8.8	-5	-3	-7	-17	-29	
3 13.9	8	9.6	8	6	0	-11	-25		3 12.9	6	9.1	6	2	-6	-19	-35		3 12.4	-6	8.8	-2	-2	-6	-19	-33	
4 13.2	11	9.2	11	6	-2	-16	-31		4 12.2	9	8.7	9	1	-9	-25	...		4 11.7	-3	8.5	0	3	-11	-24	...	
5 12.3	15	8.7	14	4	-6	-22	...		5 11.5	13	8.3	10	-1	-14	-32	...		5 11.1	-1	8.1	2	4	-14	-30	...	
6 12.8	22	9.2	19	8	-4	-21	...		6 12.0	20	8.8	15	2	-12	-32	...		6 11.5	5	8.5	5	-3	-13	-30	...	
7 15.1	24	11.0	26	16	6	-8	-24		7 13.9	24	10.3	23	11	-1	-19	-38		7 13.3	10	10.0	9	3	-6	-20	-37	
8 19.2	21	14.0	29	23	16	7	-4		8 17.4	20	12.9	26	19	10	-1	-14		8 16.4	13	12.3	15	11	4	-7	-20	
9 18.5	18	14.2	20	19	15	7	-2		9 19.9	18	13.8	24	21	15	6	-3		9 19.8	14	14.8	18	16	11	3	-6	
10 17.4	12	13.3	9	11	9	2	-6		10 17.7	14	12.2	16	14	8	-1	-12		10 21.2	14	14.9	18	17	14	7	0	
11 17.1	5	13.5	0	5	3	-2	-10		11 15.9	9	11.0	8	7	3	-6	-18		11 16.8	10	13.0	9	9	5	-2	-12	
12 15.9	-2	12.5	-7	0	0	-5	-13		12 14.8	1	10.1	0	2	-1	-10	-21		12 15.7	3	11.8	0	3	0	-6	-16	
13 14.9	-9	11.8	-12	-2	-2	-6	-14		13 13.8	-6	9.4	-5	0	-3	-11	-21		13 15.8	-2	10.7	-6	0	-2	-8	-17	
14 14.3	-14	11.2	-15	-4	-3	-7	-14		14 13.2	-13	9.1	-8	-2	-4	-11	-21		14 14.6	-10	9.8	-11	-4	-5	-10	-19	
15 13.6	-19	10.5	-15	-4	-3	-7	-14		15 12.4	-19	8.7	-10	-3	-4	-11	-20		15 13.6	-16	9.3	-14	-5	-6	-11	-19	
16 13.0	-22	9.9	-15	-4	-4	-8	-15		16 11.9	-35	8.4	-19	-11	-12	-18	-29		16 13.0	-22	8.8	-15	-6	-6	-11	-19	
17 12.3	-31	9.3	-18	-8	-7	-12	-20		17 11.4	...	8.2	-28	-18	-19	-27	-38		17 12.3	-36	8.4	-23	-13	-13	-18	-27	
18 13.2	-21	9.9	-15	-4	-4	-7	-15		18 12.4	-35	9.0	-22	-12	-12	-17	-27		18 11.8	...	8.2	-28	-17	-18	-24	-34	
19 15.6	-12	12.3	-19	-6	-3	-5	-11		19 14.5	-16	9.9	-18	-5	-4	-6	-13		19 11.3	...	8.0	-34	-22	-23	-30	...	
20 20.0	-3	15.2	-24	-6	-1	-1	-4		20 18.1	-8	13.4	-24	-8	-3	-4	-8		20 12.2	...	8.8	-26	-15	-15	-20	-29	
21 20.6	0	14.0	-20	-4	0	0	-3		21 19.1	-5	13.3	-24	-7	-2	-2	-6		21 14.3	-19	9.6	-20	-8	-6	-9	-15	
22 17.8	-1	12.0	-12	-1	0	-2	-8		22 16.6	-7	11.5	-16	-4	-2	-5	-11		22 16.0	-13	11.2	-22	-8	-6	-8	-13	
23 16.1	-1	10.9	-6	1	0	-4	-12		23 15.1	-7	10.4	-10	-2	-2	-7	-15		23 14.5	-15	10.1	-17	-6	-5	-9	-17	
24 15.0	0	10.1	-1	2	0	-4	-17		24 14.0	-5	9.6	-5	0	-3	-10	-21		24 13.4	-15	9.3	-12	-5	-6	-12	-21	

## VK EAST - EUROPE L.P.

## VK STH - EUROPE L.P.

## VK WEST - EUROPE L.P.

APOGEE ARTS

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1 14.0	7	10.2	7	4	-3	-14	-32		1 14.9	13	10.1	13	8	0	-13	-29		1 13.5	19	10.3	18	8	-3	-20	-39	
2 15.7	6	12.1	4	6	3	-5	-15		2 15.9	11	12.1	11	10	5	-4	-16		2 15.6	15	11.9	16	12	5	-7	-21	
3 15.3	1	11.7	-1	3	0	-4	-16		3 18.9	10	18.2	1	10	11	8	3		3 18.4	13	14.6	12	13	10	2	-7	
4 18.1	2	13.7	-6	2	3	-1	-8		4 24.7	8	18.2	1	10	11	8	3		4 24.1	12	18.7	6	14	14	11	5	
5 23.6	5	18.1	-13	1	5	4	1		5 26.1	7	19.3	-6	6	9	8	4		5 27.7	8	20.8	-1	10	12	11	7	
6 25.8	4	18.7	-15	0	4	1	1		6 26.7	6	19.4	-9	4	8	7	4		6 27.7	7	23.2	-5	7	10	10	4	
7 25.7	4	19.0	-15	0	4	5	2		7 26.8	6	19.3	-10	4	8	7	4		7 27.6	7	22.9	-7	6	10	9	6	
8 24.0	5	18.9	-12	2	6	6	2		8 26.4	6	18.9	-8	5	8	7	4		8 27.5	7	22.5	-6	6	10	9	6	
9 24.0	6	18.7	-7	5	7	5	1		9 25.8	7	18.2	-4	7	9	8	4		9 27.1	7	21.9	-5	7	10	9	5	
10 22.0	7	17.3	0	7	8	4	-1		10 24.2	8	17.0	0	9	10	7	2		10 25.9	8	20.7	-1	9	11	9	4	
11 19.8	8	15.6	4	9	7	1	-6		11 22.3	9	15.6	6	11	10	6	-1		11 24.2	10	20.5	5	12	12	9	3	
12 17.6	10	13.9	10	10	6	-2	-13		12 20.0	11	13.9	11	13	9	2	-7		12 22.1	12	17.5	12	15	13	7	-1	
13 16.6	13	12.8	14	11	4	-6	-20		13 17.8	14	12.3	16	13	7	-3	-15		13 19.9	14	15.7	18	17	12	4	-7	
14 15.1	19	11.9	20	12	3	-11	-27		14 16.0	17	11.0	20	13	4	-9	-25		15 17.7	19	14.0	24	18	10	-1	-15	
15 14.2	24	11.2	24	12	0	-16	-36		15 14.6	23	10.0	24	12	0	-17	-36		15 16.3	24	12.8	29	18	8	-7	-24	
16 13.6	27	10.6	25	11	-2	-20	...		16 13.6	25	9.3	23	6	9	-30	...		16 15.2	26	12.0	29	16	4	-13	-31	
17 13.0	28	10.1	24	9	-3	-25	...		17 12.9	27	9.0	23	6	9	-30	...		17 14.3	28	11.3	28	14	0	-18	-39	
18 12.4	30	9.5	23	7	-9	-31	...		18 12.0	29	8.5	21	2	-15	-39	...		18 13.7	29	10.8	27	12	-2	-22	...	
19 11.8	31	8.9	22	4	-13	-37	...		19 11.7	30	8.3	20	0	-18	...	...		19 13.1	30	10.2	26	9	-6	-27	...	
20 12.6	30	8.9	24	7	-9	-31	...		20 11.4	30	8.2	18	-1	-20	...	...		20 12.5	30	9.6	24	6	-10	-33	...	
21 12.6	28	8.3	21	3	-13	-34	...		21 12.4	29	8.8	22	4	-12	-35	...		21 11.9	31	9.1	22	3	-14	-38	...	
22 11.5	21	8.1	15	0	-15	-38	...		22 12.2	27	8.6	20	3	-13	-35	...		22 12.8	30	9.7	25	8	-8	-30	...	
23 11.0	14	7.8	10	-3	-17	-39	...		23 11.7	21	8.4	15	0	-15	-37	...		23 13.6	29	10.4	27	12	-2	-21	...	
24 11.9	8	8.6	8	0	-11	-29	...		24 12.7	16	9.2	14	3	-9	-27	...		24 12.8	25	9.8	21	7	-6	-27	...	

**VK EAST - AFRICA      VK STH - AFRICA      VK WEST - AFRICA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1 32.8	13	27.1	5	17	20	20	18		1 26.7	10	21.7	1	12	14	12	8		1 30.5	13	24.4	10	19	21	19	16	
2 32.3	12	25.9	3	15	19	19	17		2 27.4	10	22.7	-1	10	13	12	8		2 31.0	13	25.2	6	17	19	19	16	
3 32.5	12	24.9	2	15	18	19	17		3 27.7	10	23.4	-2	10	13	12	9		3 31.4	13	26.0	4	16	19	19	16	
4 32.8	13	27.3	3	16	19	19	17		4 27.8	10	23.2	-1	10	13	12	9		4 31.5	13	25.1	3	15	18	18	16	
5 33.6	13	27.8	6	18	21	21	19		5 27.6	10	22.0	0	12	14	13	9		5 31.7	13	26.4	4	16	19	19	17	
6 34.4	14	27.9	11	21	23	23	21		6 27.4	11	22.4	4	14	15	14	9		6 32.6	14	26.9	7	18	21	20	18	
7 33.1	15	26.6	17	24	25	24	21		7 26.8	12	21.7	10	17	17	15	10		7 33.4	14	27.4	11	20	23	22	20	
8 31.5	16	26.5	28	30	29	26	21		8 25.6	14	20.5	18	21	20	15	8		8 32.8	15	26.6	17	24	25	24	20	
9 30.2	20	24.1	45	40	36	30	23		9 23.9	19	18.9	33	30	25	16	7		9 31.4	16	25.3	26	28	28	25	21	
10 28.4	20	22.7	45	40	36	30	23		10 21.9	20	17.1	37	30	22	12	0		10 29.8	20	25.0	45	40	36	29	22	
11 27.0	21	21.5	45	39	33	26	17		11 19.9	21	15.8	36	26	17	4	-10		11 28.2	20	22.5	45	40	34	27	20	
12 26.3	21	20.9	46	39	33	25	16		12 17.9	22	14.2	34	22	10	-5	-22		12 26.3	21	20.9	45	38	32	24	15	
13 25.6	22	20.3	45	38	32	23	14		13 16.8	23	13.3	32	18	5	-12	-32		13 24.6	21	19.5	44	37	30	20	10	
14 24.5	22	19.6	44	37	30	21	11		14 15.9	24	12.6	30	15	0	-19	...	14 23.7	22	18.8	44	36	28	18	8		
15 22.7	23	17.9	44	34	27	16	5		15 15.1	24	11.9	27	11	-5	-26	...	15 22.9	22	18.1	43	34	26	16	5		
16 21.3	23	16.7	41	32	23	12	0		16 14.5	24	11.4	25	7	-9	-32	...	16 21.8	22	17.4	42	32	24	13	0		
17 19.5	24	15.2	39	28	18	5	-9		17 13.9	24	10.8	23	4	-14	-38	...	17 20.5	23	16.1	40	30	20	7	-6		
18 17.2	25	13.3	35	22	10	-6	-24		18 13.1	25	10.1	20	-1	-21	...	18 19.3	23	15.1	38	27	16	2	-13			
19 16.5	26	12.7	34	20	7	-10	-30		19 12.2	25	9.4	15	-8	-31	...	19 17.8	23	13.9	35	22	11	-5	-23			
20 15.9	26	12.3	32	17	4	-15	-36		20 12.8	25	9.0	18	-3	-24	...	20 16.0	24	12.4	31	16	1	-18	...			
21 14.4	20	15.3	31	24	15	3	-10		21 15.2	22	11.5	25	10	-4	-24	...	21 15.7	24	12.1	30	14	0	-20	...		
22 27.6	16	21.5	22	25	24	20	14		22 19.7	13	15.2	17	16	10	0	-11		22 18.6	22	14.7	34	23	13	-1	-7	
23 31.4	14	25.2	14	22	23	22	18		23 23.7	11	18.5	11	16	14	9	2		23 22.2	15	18.8	22	23	20	14	6	
24 31.7	13	25.8	9	19	21	20	17		24 25.9	11	20.7	5	14	15	12	7		24 28.6	14	22.6	15	21	22	19	14	

**VK EAST - ASIA      VK STH - ASIA      VK WEST - ASIA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1 34.5	24	29.1	30	35	36	34	31		1 24.4	14	20.2	19	21	19	12	4		1 29.0	10	23.5	6	15	17	15	11	
2 35.0	24	29.2	31	36	36	35	32		2 24.5	14	20.8	19	22	19	13	5		2 29.7	10	24.7	5	15	17	16	12	
3 34.9	24	28.9	33	37	37	35	32		3 24.6	14	20.6	21	22	20	13	5		3 30.0	10	22.5	6	14	18	16	12	
4 34.6	25	28.3	35	38	38	36	32		4 24.5	15	20.3	23	24	20	14	5		4 30.0	11	25.1	9	17	19	17	13	
5 33.9	25	27.5	39	40	39	36	33		5 24.4	16	20.0	27	26	22	15	6		5 29.8	12	24.7	13	20	20	18	14	
6 32.4	27	26.0	45	44	42	38	33		6 24.0	18	19.4	34	30	24	16	6		6 29.7	13	24.3	21	25	24	20	15	
7 30.5	29	24.2	51	47	43	38	33		7 23.0	20	18.2	39	32	25	15	3		7 29.0	15	23.2	29	30	27	22	16	
8 28.5	30	22.6	52	47	43	37	30		8 21.2	23	16.8	41	32	23	11	-2		8 27.0	18	21.4	35	33	29	22	14	
9 26.2	32	20.8	52	46	41	34	27		9 19.2	25	15.2	39	28	18	4	-11		9 24.7	21	19.6	41	35	29	20	11	
10 24.2	33	19.1	51	45	39	32	23		10 17.3	27	13.7	37	24	12	-4	-23		10 22.3	23	17.6	41	33	26	16	5	
11 23.0	34	18.2	51	44	38	30	20		11 15.7	28	12.4	33	18	3	-16	-38		11 20.0	25	15.8	40	30	22	10	-3	
12 21.9	35	17.3	50	43	36	27																				

# HAMADS

## TRADE ADS

● **WEATHER FAX** programs for IBM XT/ATs. RADFAX \$35, is a high resolution shortwave weatherfax, morse & RTTY receiving program. Needs CGA, SSBhf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SATFAX \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card, & 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) & documentation, add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Old 4005. Ph (07) 35 82785.

● **AMIDON FERROMAGNETIC CORES:** For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Electronic Components, ACT, Truscott Electronics, Melbourne.

## FOR SALE — ACT

● **SATELLITE DIVERSITY RECEIVER** system, AM, FM 2-channel 130-140MHz with combiner, signal calibrator in 8ft rack with 1kVa transformer, \$400. **TWO ELECTRAC AM, PM** phase lock loop demodulators and combiner, 3.25MHz IF for above receiver, or use separately, also in 8ft rack, \$200. **MODEL 28 RO TTY** in cabinet and spares, EC, \$40. All complete with manuals. Neil VK1ZT QTHR (08) 286 3018.

## FOR SALE — NSW

● **YAESU MUSEN YO-100** monitor scope with all cables, \$250. Serial #51-206382. QTHR VK2BKS Box 809, Young NSW.

● **AVO MODEL 8MK IV** multimeter, near new, \$200. Used condition \$110. **WHEATSTONE BRIDGE** Master Instruments, near new, \$125. **AVO Valve Tester MK IV, GC**, \$150. **BWD CRO** model 502, \$130. VK2ZHS QTHR.

● **DRAKE STATION COMPLETE T4XC — R4C — MS4** speaker power supply, EC and working order, manuals, spares, \$700 firm. Also matching 6M equip, \$150. See write-up articles AR Jan/Feb 1992. Max VK2GE (085) 855 732.

● **SMORGASBORD** of amateur radio gear, test equipment and electronic paraphernalia at the Urunga radio convention this Easter, 18-19 April. VK2DMS.

## FOR SALE — VIC

● **DRAKE TR7 TRANSCEIVER**, DRAKE heavy duty power supply, plus optional extras. **COLLINS 30L1** linear amp, 8 spare tubes; **HYGAIN 204BA** 4-element 20m beam, 2 HAM2 rotators; **HEATH** monitorscope & PEP power/SWR meter; **HELL** mike, test instruments; **BENCHER** paddle, keyer, textbooks etc. 60ft self-supporting SKYNEEDLE type tiltable mast. Bob VK3SK QTHR (03) 527 1861.

● **TOWER 60ft** crank-up telescopes down to 20ft with base plate and fittings, \$400 ono. Ian VK3AYK QTHR (03) 428 5383 BH, (03) 523 9405 AH.

● **YAESU FT101ZD** mint cond, \$750; **YAESU FL2100B**, not working, 1 valve out, \$300; **DICK SMITH** high power 80m transverter, \$100. VK3BAS John QTHR (057) 52 2056.

● **YAESU FT230 2m FM** xcvr 25 watts output, 2 VFOs, 10 memories, EC with book mounting bracket etc, \$325. Ron VK3OM QTHR (059) 44 3019.

● **RADIO TOWER 90ft** Hills galv winch-up tilt-over type, complete with cables, turnbuckles etc. Ready to erect; can arrange freight, GC, \$750. Rob VK3JE (080) 37 1282 or (03) 584 5737.

● **RTTY AND CW SYSTEM** includes Sinclair ZX spectrum computer modems, interface, power supplies, tape recorder, programs and manuals, in good working order, \$250. VK3AVH (059) 84 3897.

● **KENWOOD TS830S** transceiver, serial #26001, with MCS0

desk mike and manual. EC, \$900. Jack QTHR (055) 66 5117.

● **KENWOOD TS-120S 100W PEP SSB** mobile HF transceiver with VFO-120 external VFO and workshop manual, \$550. Chaa VK3BRZ (052) 82 3167 AH.

## FOR SALE — OLD

● **YAESU FT7** converted for Yaesu FTV700 transverter, \$450; **YAESU FTV700** transverter, \$150; **YAESU 52MHz** transverter module, \$150; **YAESU 144MHz** transverter module, \$150; handbooks, cables, 12V DC input. Excellent performer. Package price \$675. Gordon VK4WF (07) 862 1239 or (07) 356 8638.

● **DRAKE TR4C RV4C** combo, VGC. Manuals, 300w 80-10, \$500; **KW E-Z** match ATU, \$120; **CODEN HF** ATU, \$120. Box 793, Warwick 4370. VK4CMY.

● **AOCPC COURSE** commencing 14 March 1992 at 9am, Townsville Amateur Radio Club, upstairs SES HQ, Green St, West End. Contact Peter Harding, (077) 73 3467 AH.

## FOR SALE — WA

● **KENWOOD TS680S HF100W** 6m 10w, GC, mike & book, \$1350. **KENWOOD AT250** auto tuner, \$375; **ICOM 70cm 04AT/SE** HH speaker/mic charger battery case, \$225. VK7JWL/8 (09) 345 1404.

## FOR SALE — TAS

● **DAIWA 100W** ANTENNA TUNER cross needle with WARC

bands, \$150; **MFJ SWL** receiver lunar 20dB preamp, \$130 ono. Phil VK7PU (004) 31 3020.

## WANTED — VIC

● **NUMBER 19 ARMY RADIO SET** in reasonable cond. Ian VK3AYK QTHR (03) 428 5383 BH, (03) 523 9405 AH.

● **KENWOOD TS130V** (low power version of TS130 series). VK3CCE QTHR (03) 509 1720.

● **STEEL CASE** to suit the TCA Navy Rx, type 16303, and a **DUAL CRYSTAL** in a glass (7 pin) envelope, type Marconi SR290 for the same receiver. Also receiver for spares. W Babb VK3AOB (03) 337 4902.

● **WANTED URGENTLY** BY COLLINS COLLECTOR KWM2A round emblem, pay up to \$1300 for axc unit. Also 75S3C and 32S3A in EC. Pay up to \$1000 ea. Bob VK3JE (080) 37 1282 or (03) 584 5737.

● **KENT STRAIGHT HAND KEY** GC. David VK3DNG East Kaw. (03) 859 4898.

## WANTED — OLD

● **BEARCAT 300** scanner handbook and circuit. Will cover costs of photocopying. VK4NE QTHR.

## Morseword No 60

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

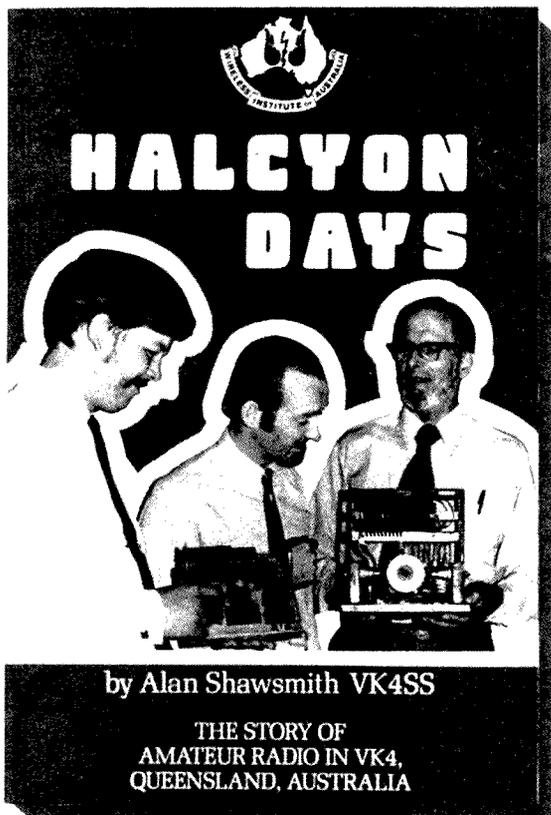
Across:

- 1 Give medicine to
- 2 Clothing fastener
- 3 Peru capital
- 4 Shoot
- 5 Alcoholic drinks
- 6 Cabbage
- 7 Young Arnold
- 8 Dredge
- 9 South African money
- 10 Reach

Down:

- 1 Entrances
- 2 Tepid
- 3 Huge
- 4 Boyfriend
- 5 Hard of hearing
- 6 Arid
- 7 Fairs
- 8 Military vehicle
- 9 Roster
- 10 Handle

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# Halcyon Days

*The Story of Amateur Radio in VK4, Queensland, Australia*

Alan Shawsmith VK4SS

ISBN 0 9596161 6 0. Boolarong Publications, Brisbane, 1987

**Subject: Amateur radio history in Queensland**

Alan's important chronicle of VK4 amateur history was reviewed in *Amateur Radio* magazine of January 1988, so I will deal with it here only briefly. It is a worthy successor to *A History of Radio in South Australia, 1897-1977* but, whereas that book included commercial activities, Alan deals exclusively with amateur history. He has excellent short biographies of many of the early VK4 amateurs, some with photos; information on radio clubs, and a useful but incomplete section on Australian wireless magazines. There is information on the activities of the WIA and the QRTL which complements my recent articles in *AR*.

*Halcyon Days* is 178 pages in A5 size. Price was \$12, and it may just still be available via the WIA, Queensland Division.

VK2DYM  
ar

## Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in *AR*, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State: .....


Not for publication:

Miscellaneous

For Sale

Wanted

Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 60

Page 54

	1	2	3	4	5	6	7	8	9	10
1	—	.	.	—	—	.	.	.	.	.
2	—	—	.	.	.	.	—	—	.	.
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6	—	.	—	—	—	—	.	.	.	.
7	.	—	.	—	.	.	.	.	.	.
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9	.	—	.	.	.	.	.	.	.	.
10	—	—	—	—	—	—	.	.	.	.

Across: 1 dose; 2 zip; 3 Lima; 4 fire; 5 gins; 6 kale; 7 Arnie; 8 sift; 9 rand; 10 attain.

Down: 1 gates; 2 warm; 3 vast; 4 beau; 5 deaf; 6 dry; 7 fetes; 8 jeep; 9 list; 10 feel.

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about the WIA.

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and Outwards unless otherwise stated.

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VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Blvd, Ashburton Vic 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger St Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
VK8	C/o H G Andersson VK8HA Box 619 Humpty Doo NT 0836
VK9/VK0	C/o Neil Penfold VK6NE 2 Moss Court Kingsley WA 6026

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The following items are available from your Division's Bookshop  
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	Price to Members		Ref	Price to Members
<b>ANTENNA BOOKS</b>					
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Antenna Compendium Vol 1 ARRL	BX163	\$19.80	Morse Code 6 Tapes 13-20 WPM Code Course - Gordon West	8X231	\$63.90
Antenna Compendium Vol 2 & Software ARRL	BX294	\$32.40	Morse Code 6 Tapes 5-13 WPM Code Course - Gordon West	BX230	\$63.90
Antenna Compendium Vol 2 ARRL	BX292	\$21.60	Morse Code 6 Tapes Novice Code Course - Gordon West	BX229	\$63.90
Antenna Handbook - Orr - 1988	BX217	\$23.00	Morse Code Tapes Set 1: 5-10 WPM - ARRL	BX331	\$16.70
Antenna Impedance Matching - ARRL - 1989	BX257	\$27.00	Morse Code Tapes Set 2: 10-15 WPM - ARRL	BX332	\$16.70
Antenna Note Book W1FB - ARRL - 1987	BX179	\$18.00	Morse Code Tapes Set 3: 15-22 WPM - ARRL	BX333	\$16.70
Antenna Pattern Worksheets Pkt of 10 - ARRL	BX211	\$5.40	Morse Code Tapes Set 4: 13-14 WPM - ARRL	BX334	\$16.70
Antennas 2nd ed John Kraus - 1988	BX259	\$93.60	Morse Tutor 5.25 inch IBM Disk	BX187	\$16.70
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Reflections - Transmission lines The Book - ARRL - 1990	BX348	\$36.00	Operating Manual - RSGB - 1985 3rd Edition	BX359	\$25.20
Simple Low Cost Wire Antennas	BX218	\$23.00	Passport to World Band Radio 1991	BX346	\$30.60
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Smith Charts Stand Scale 1 SET Co-or. PK of 10	BX900	\$5.90	Prefix Map of The World	BX234	\$7.20
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Vertical Antenna Handbook - Lee - 1990	BX284	\$16.70	Transmitter Hunting - TAB - 1987	BX222	\$32.30
Vertical Antennas - Orr - 1988	BX220	\$21.10			
Yagi Antenna Design - ARRL - 1986	BX164	\$27.00	<b>PACKET RADIO BOOKS</b>		
<b>ATV BOOKS</b>					
The ATV Compendium - BATC	BX270	\$14.20	AX.25 Link Layer Protocol - ARRL	BX178	\$14.40
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Advanced Morse Tutor - 5.25 Inch Disk	BX328	\$36.00	<b>WIA MEMBERS SUNDRIES</b>		
Morse Code 2 Tapes Novice Code Course - Gordon West	BX228	\$17.90	Log Book Covers		\$16.00
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**IC-R7100**



**IC-R100**



**IC-R72**



**IC-R1**

# RADIO AMATEUR

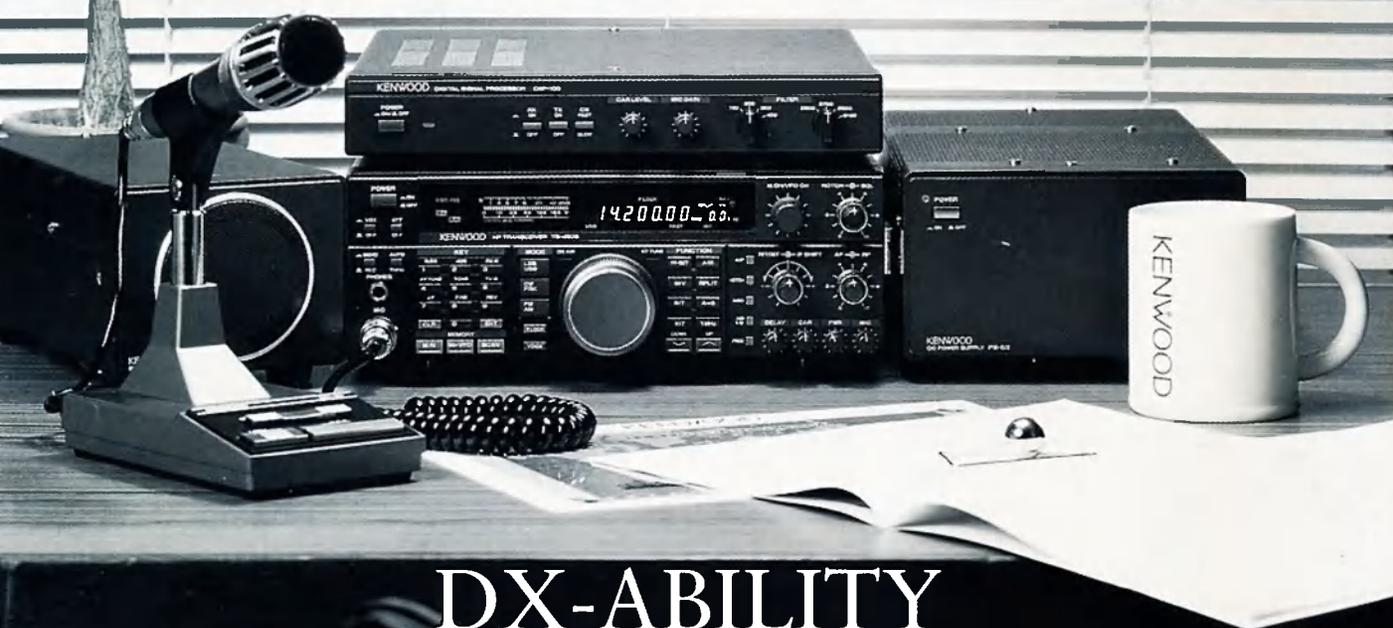
APRIL 1992

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THE WIA RADIO AMATEUR'S JOURNAL

# KENWOOD



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Model.....



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May	6/4/92	8/4/92
June	11/5/92	13/5/92
July	8/6/92	10/6/92

Delivery of AR: If this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA.  
Wireless Institute of Australia 1992

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### Cover

Four-bay stack of loop Yagis in position on Mt Skene 1990/91 expedition. Shown L to R: Huntly VK3ZE, Bill VK3JT, Dick VK3ARR, Misky VK3WEG(2) and Bill VK3WEG(1). For full story see "The Loop Yagi Antenna" on page 9. Photo Bill Magnusson VK3JT.

## EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

### Murphy or Sod?

It has been said that Murphy's Law and electronics were made for each other. Also known as Sod's Law, it says "If anything can go wrong, it will!" Someone else said that Murphy was an optimist! Incidentally, if your name is Murphy (and I have known several delightful Murphys) please substitute the alternative name. I know no-one named Sod!

The law seems to apply well to electronics, but in the past week or two, I have been its victim with more mechanical items, too. I now risk the displeasure of the General Manager, who has some sort of phobia about any mention in *AR* of my sailing. Sorry, Bill, but all that I am going to describe happened *not during*, but before the annual Marlay

Point Overnight Sailing Race. Not much about amateur radio, but perhaps interesting?

A week before the race, the first item of trailer-sailer preparation was the outboard motor. For safety, boats are not allowed to start without a motor. If used, the boat is disqualified! In our little 4hp job the water pump was not working. The last new impeller was several years ago. Probably disintegrated. Take it apart. Sure enough: shreds of synthetic rubber. Buy and fit a new one. Not simple; needs tools and techniques that one seems to forget! Eventually installed, but it doesn't work! Many hours later, all sorts of tests and checks, it slowly "comes good". Maybe bits of the old impeller had blocked a pipe?

Almost ready, trailer coupled up and out in the street. Last minute items fixed. Car now hard to start, blows black smoke and won't idle. Flooded carburettor? Automatic choke not working? No idea! It too "came good" by itself! Worrying, but no further problem until we arrived at Marlay Point (near Sale) with about one hour to sunset and 26 hours to race start time. Start rigging boat. Why is the headsail furler badly bent? Did we drive under a low tree? Temporary repairs.

After raising the mast, transfer radio from car to boat to contact Ron VK3OM (at Paynesville, where the race will finish, 50km farther east) on 2m FM. No go! Antenna cable shorted! Fortunately only a few wisps of wire where they shouldn't be at the back of a BNC connector. Fix that; communication restored. XYL and I have comfortable night aboard boat, still on trailer in car park.

Next morning, second crew member arrives from Melbourne; we finish rigging. Move off to the launch ramp. "Hey, you've got a loose trailer wheel!" A hub bearing has fallen to bits! Both wheels were okay when we left home. So, before XYL can drive trailer on to Paynesville, the hub must be fixed. Not a rare boat-trailer problem, so we have spares.

From here on Murphy seemed to forget us. Except for just one thing. If there's anything our boat handles worse than light airs, it's a strong head-wind. Guess what? Light airs for the first 15 hours, then strong head-wind. Slowest race ever. We had no hope of finishing before the time limit, so retired. The outboard ran for three hours to bring us in.

It had been a very trying weekend.

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## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society — Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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General Manager and Secretary: Bill Roper VK3ARZ

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# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## WARC 92 Over

The World Administrative Radio Conference 1992, or WARC 92 for short, is now over. 1109 delegates, representing 119 countries and other organisations, met in Torremolinos, Spain for several weeks to hammer out agreements affecting the use of the radio spectrum.

The Australian amateur radio service was ably represented by the two WIA delegates, David Wardlaw VK3ADW and Ron Henderson VK1RH, who were an important part of the 22 member official Australian

government delegation. The presence of the two WIA delegates was financed by the International Representation component of WIA membership subscriptions.

Many national delegations contained radio amateurs. Indeed the expression "amateur radio mafia" was often heard in jest! Over 100 identified themselves to the International Amateur Radio Union (IARU) team, and 245 delegates attended the IARU reception on the evening of 13th February.

Naturally, the world amateur radio service was also represented by the IARU that,

as a recognised international organisation, was invited to participate in the WARC by the International Telecommunications Union, the WARC 92 convening body.

The IARU team had representatives from all three regions, Europe/Africa, the Americas and the Oceania/South East Asia area. Having observer status with no ties to any national delegation the IARU team was able to move about delegations spreading the amateur theme of 300 kHz world wide at 7 MHz.

The WARC spent much of the first week setting up committees, presenting national proposals and identifying issues of conflict for debate. By the second week most working groups had been set up and team members were

busy listening to other nation's views and presenting ours.

While there were six committees in all, the two of most importance covered the greatest number of conflicting proposals, Frequency Allocations and Regulations. The two WIA representatives concentrated on these, David on frequency matters and Ron on regulations. Each committee in turn had several working groups concentrating on different aspects.

As was expected, it soon became obvious that the main frequency allocation issues of concern to the amateur service were the high frequency broadcasting pressures on the 7 MHz band and concerns about operating frequencies for wind profiling radars.

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO B ox 1066) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley VK2ZIG Secretary Bob Lloyd-Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Hailey VK3XLZ Office hours 0830-1530 Tue & Thur	1.840MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 146.700 FM (R) MT. Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President John Aarsse VK4QA Secretary Bob Lees VK4ER Treasurer Eric Fittock VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Rowland Bruce VK5OU Secretary John McKellar VK5BJM Treasurer Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farnan VK6AFA Treasurer Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525MHz. Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfame Tas 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).			

Note: All times are local. All frequencies MHz.

Membership Grades  
Full (F) Pension (G)  
Needy (G) Student (S)  
Non receipt of AR (X)

Three-year membership available to (F) (G) (X) grades at fee x 3 times

Also, a new issue of potential concern arose concerning low earth orbit satellites and the frequencies next to the 144 MHz band.

Microwave allocations up to 3 GHz were considered in working group, but little attention was paid to the amateur allocation at 2300 to 2450 MHz.

The Russian Federation put up a proposal for a "secondary" allocation in the 74 to 84 GHz range for a "Space Research (space-to-earth) Service" that would straddle the amateur/amateur satellite allocations at 75.5 to 76 (exclusive PRIMARY) and 76 to 81 GHz (shared secondary). This was also considered in a working group.

By week three the WARC was down to serious negotiating with long sessions, some running to 11 pm and extra meetings all day Saturday. One Australian, who chaired a working group, lost his weekend when opposing parties to an important issue sought his presence on Sunday. The difficulty was that there is just not enough spectrum space for all the demands that were being made.

Most of the week 4 business was carried out in the plenary sessions, where all documents submitted are required to have two readings.

WARC 92 finally closed a little after midnight on Tuesday 4th March 1992. Its last business session met almost continuously from 9.30 am on Monday morning 2nd March until 7.30 am on the Tuesday morning. The difficult issues for resolution involved the 1.5 GHz band and consequential changes to the 2.5 GHz band.

The final band plan tables for these bands were not available in the Final Acts as distributed. However, it is believed a compromise had been reached with the major proponents each gaining something and also making significant sacrifices. Those interests were the Mobile Satellite Service, Broadcasting Satellite Service, and a future land mobile personal

communications service. Airborne personal communications, that is telephones in aircraft, were also involved.

In the minds of some delegates, the conclusion of the conference left something to be desired. It is uncertain whether those final band plans and their associated footnotes received the requisite consideration at two plenary readings before the closure of the proceedings. Much work has been placed upon the secretariat to reconstruct from their notes, agenda papers, official precis and tape recordings, the actual decisions made.

For us amateurs the WARC was, as expected and advised in WIA communications to members, essentially a defensive exercise. Early hopes for harmonising the 7 MHz amateur band world wide with a 300 kHz allocation were not achieved. However, taking note of the mood of the conference when an extension plan for HF broadcasting was hammered out as a compromise package, we did well to survive with no change to existing allocations. A positive step was made when WARC 92 made a formal recommendation to examine harmonisation of 7 MHz in the future.

The next band of interest is 50 MHz, where wind profiling radars were considered for an allocation. Incidentally, this applied also for the 400 MHz and 1 GHz profile radars. The WARC made a recommendation to request CCIR to study these radars.

Moving up in frequency we will, in due course, have new services either side of the 2 metre band. The bands 135 - 138 MHz and 148 - 149.9 MHz were allocated to low earth orbit satellite communications. Perhaps they will be better bed fellows than the 148 MHz pagers!

Near the 420-450 MHz amateur bands several changes are proposed such as space to space communications about 410 MHz for spacecraft to spacecraft and space station short range communications. It is also expected

that sharing around 420 - 440 MHz will increase.

Sharing changes are also occurring with the 2300 MHz and the 76 GHz bands.

In summary, amateurs world-wide must now look forward to their objectives for the future, develop plans, and act with one consolidated and united voice through the IARU. With limited agenda or specialised WARCs to be held in the future every two years, the amateur service actions must be continuous with attention to amateurs interests.

That brief report on WARC 92 was compiled from continuous information received by fax from the two WIA representatives attending the WARC. When all the dust settles, and now that David Wardlaw and Ron Henderson have returned to Australia, a more detailed report will be published in Amateur Radio magazine.

### **Yet Another Amateur in Space**

A note from the ARRL advises that another Space Shuttle astronaut, Mission Specialist Kathy Sullivan, has qualified for an amateur licence by passing the no-code Technician examination. She was scheduled to fly in March aboard STS-45, with three other licensed amateurs in its crew.

### **Morse Code**

The ARRL newsletter also advised that the FCC, the USA equivalent of the DoTC, amended its rules on January 16th 1992 to implement the Global Maritime Distress and Safety System. This new system eliminates manual Morse code for international distress communications in favour of digital and satellite techniques.

This will obviously be another effective argument for those who want to see compulsory Morse Code qualifications removed from the amateur service HF licensing requirements. However, as previously advised, that move,

which can only be approved at a WARC, still seems to be some years away.

### **Have You Paid Your Licence Renewal?**

Recent discussions with the DoTC revealed the fact that each month all expired and non-renewed licences are transferred to an "in-active, unpaid" category for a 12 months before being cancelled.

However, while in that category, they can be reissued if another amateur specifically requests the particular call-sign. Please be warned about this, especially holders of the prized "two letter" calls. It is very easy to forget when the renewal is due, but the effects may be almost immediate and unpleasant.

The WIA is negotiating further with DoTC in an attempt to change this practice, not only for the sake of the amateurs who may lose long-standing call signs, but to reduce the confusion that occurs if call signs change too abruptly.

The message is - keep your present address current with the DoTC, and pay your licence renewal as soon as you receive the account!

### **Reciprocal Licensing**

At the IARU Region III Conference, held last October in Bandung, a member of the WIA delegation received a request about reciprocal licensing with Indonesia.

During WARC 92 a WIA member of the Australian Delegation had an opportunity to speak with an Indonesian Posts and Telecommunications official and to an ORARI member on the Indonesian delegation.

The situation with Indonesia is that short term visitors cannot obtain licences. However, persons satisfying the one year residency requirement are able to apply. Under these circumstances it seems worthwhile for the WIA to request DoTC to approach their Indonesian counterparts

seeking reciprocal licensing arrangements. The contacts made at WARC 92 should ease that approach.

At the same IARU Region III Conference several other national amateur radio societies made overtures concerning reciprocal licensing. The WIA has now written to the Radio Society of Sri Lanka, the Korean Amateur Radio League and the Philippines Amateur Radio Association confirming our wish to seek reciprocal licensing. When their written agreement is received formal approaches will be made to the DoTC. Again, contacts made at WARC 92 with senior officials in the administrations of Korea and Sri Lanka should help progress.

## Computer Virus

The Executive Office of the WIA uses five computers in a LAN network. Much of the information provided to Divisions, received from DoTC, to and from the Amateur Radio printers, and to and from members, is transferred using floppy disks.

The WIA computers are regularly checked for computer virus infection, and every floppy disk received in the office is checked before use.

A member reported last week that a floppy disk, sent to him in October last year, was infected with the "Stoned" virus. He was quite certain that the virus could not have infected the disk, or his computer, from any other source than the floppy disk received from the Executive Office.

Full checks were carried out on each computer, and on each of several hundred floppy disks in the office. No virus, thank heavens! However, where did the virus come from. We don't know, but it sure points up how easy it can be for a virus to sneak into your computer system. I hope you always virus check any floppy disk before you use it.

## WIA ACCREDITED EXAMINERS

(Listed in Postcode order)

Below is a list of examiners accredited by WIA Exam Service to conduct radio examinations using WIA ExamService examination materials.

The list is published in postcode order to assist candidates to determine the examiner closest to their location. This list was up-to-date as at 13 March 1992, but more applications to become an accredited examiner are still being received.

Accredited examiners will not only be able to provide advice and assistance in relation to examinations, but also about "how to become a radio amateur", to all interested enquirers in their locality. The DoTC and WIA Exam Service direct all such enquiries to accredited examiners in the area in which the enquirer lives.

Jim Jones VK5JF	Darwin Amateur Radio Club Inc	GPO Box 3583, Darwin,	0801. Tel 089 46 6101 (BH)
Barrie Burns VK8DI	Darwin Amateur Radio Club Inc	1 Kerin Pl, Rapid Creek,	0810. Tel 089 85 1068 (AH)
Spud Murphy VK8ZWM	Darwin Amateur Radio Club Inc	139 Lee Pt Rd, Wagaman,	0810. Tel 089 46 5887 (BH)
Henry Newland VK8HN	Darwin Amateur Radio Club Inc	GPO Box 717, Darwin,	0810. Tel 089 81 8444 (BH)
Trevor Connell VK8CO	Darwin ARC Inc	PO Box 40441, Casuarina,	0811. Tel 089 27 9256 (AH)
Richard Hand VK8AZ	Gove Amateur Radio Group	PO Box 211, Nhulunbuy,	0881. Tel 089 87 3148 (AH)
Grant Hinchcliffe VK2GIX	WARS Examinations	72 Vine St, Chippendale,	2008. Tel 02 319 1913 (AH)
Eric Van De Weyer VK2KUR	WARS Examinations	PO Box 131, Watsons Bay,	2030. Tel 02 318 6138 (BH)
Rick Cummins VK2QU	WARS Examinations	1493 Anzac Pde, Little Bay,	2036. Tel 02 661 3816 (AH)
George Voron VK2BGV	International ARC	2 Griffith Avenue, Roseville,	2069. Tel 02 417 1066
Sam Voron VK2BVS	International ARC	2 Griffith Avenue, Roseville,	2069. Tel 02 417 1066
Barry Gammage VK2GAM	WIA NSW Division	PO Box 1066, Parramatta,	2124. Tel 02 727 7338
Cec Purvis L20997	WIA NSW Division	PO Box 1066, Parramatta,	2124. Tel 02 649 9234
Terry Ryeland VK2UX	WIA NSW Division	PO Box 1066, Parramatta,	2124. Tel 02 689 2417 (BH)
Bob Girdo VK2RG	West Ham Examinations	13 Iris St, Sefton,	2162. Tel 02 644 9193 (AH)
Wayne Brack VK2WDL	Bankstown Amateur Radio Club	54 Hillard St, Wiley Park,	2195. Tel 02 743 8417 (BH)
Paul Phelan VK2KYO	St George ARS Inc	PO Box 530, Engadine,	2233. Tel 02 521 3053 (AH)
Paul Smith VK2ZSA	St George ARS Inc	PO Box 530, Engadine,	2233. Tel 02 520 7323 (AH)
Ean Young VK2FSO	St George ARS Inc	PO Box 530, Engadine,	2233. Tel 02 580 5329 (AH)
Leon Brett VK2BLV	Central Coast ARC Inc	87 Albany St, East Gosford,	2250. Tel 043 24 1649
Bill Scovell VK2FKE	Central Coast ARC Inc	13 Tulani Ave, Daleys Point,	2257. Tel 043 43 2339
Jim Wing VK2MSB		10 Victory Street, Cooranbong,	2265. Tel 049 77 1507 (AH)
Peter Browne VK2GFE		PO Box 77, Warners Bay,	2282. Tel 049 58 2832 (AH)
Maurice Jones VK2CD		PO Box 77, Warners Bay,	2282. Tel 049 49 8786
Fred Lawler VK2SI	Westlakes Amateur Radio Club	PO Box 77, Warners Bay,	2282. Tel 049 64 8018 (BH)
Greg Smith VK2GJS	Westlakes Amateur Radio Club	PO Box 77, Warners Bay,	2282. Tel 049 41 3468 (BH)
Dave Myers VK2DFL	Wicen (NSW) Inc	61 Fern St, Arcadia Vale,	2283. Tel 049 75 1136
Frederick Eade VK2AEE	Frederick William Eade	276 Park Ave, Kotara,	2289. Tel 049 57 5131
George Hombusch VK2FCC	Tamworth Radio Club Inc	PO Box 4, Tamworth,	2340. Tel 067 65 9351 (BH)
Neville Pratt VK2FNP	Tamworth Radio Club Inc	PO Box 4, Tamworth,	2340. Tel 067 65 4099
Allan Walker VK2ZJW	Tamworth Radio Club Inc	PO Box 4, Tamworth,	2340. Tel 067 64 1878
Val Birks VK2TB	Armidale & District ARC	Lot 79 Invergowrie Rd, MSF 2002	
Roger Chubb VK2FGE	Armidale & District ARC	Armidale,	2350. Tel 067 75 2224
Niel Cunningham VK2RD	Oxley Amateur Radio Club	21 Tuncredi St, Armidale,	2350. Tel 067 72 7840 (AH)
Bob Colsell VK2AWA	Coffs Harbour & District ARC	259 Hastings River Dve, Pt Macquarie,	2444. Tel 066 83 6380
Peter McAdam VK2EVB	Coffs Harbour & District ARC	PO Box 655, Coffs Harbour,	2450. Tel 066 52 6135
Hans Schumacher VK2DGV	Coffs Harbour & District ARC	PO Box 655, Coffs Harbour,	2450. Tel 066 52 7160
John Williams VK2BU1	Coffs Harbour & District ARC	PO Box 655, Coffs Harbour,	2450. Tel 066 51 2020 (AH)
Gerry Cresswell VK2IGC	Summerland Amateur Radio Club	PO Box 655, Coffs Harbour,	2450. Tel 066 53 8313
Ken Hore VK2HE	Summerland Amateur Radio Club	PO Box 524, Lismore,	2480. Tel 066 63 1410 (AH)
Leith Martin VK2EA	Summerland Amateur Radio Club	PO Box 524, Lismore,	2480. Tel 066 21 8242 (BH)
Peter Richens VK2FSD	Summerland Amateur Radio Club	PO Box 524, Lismore,	2480. Tel 066 24 2550 (AH)
John Toland VK2XKX	Summerland Amateur Radio Club	PO Box 91, Lismore Heights,	2480. Tel 066 24 3211 (BH)
Rick Virtue VK2EJV	Summerland Amateur Radio Club	101 College St, Lismore,	2480. Tel 066 21 2933 (AH)
James Glenn VK2AIQ	Summerland Amateur Radio Club	90-92 James St, Dunoon,	2480. Tel 066 89 5137 (BH)
Errol Chittick VK2EGC	24 Tweed Broadwater Vill, Tweed	Heads South,	2486. Tel 075 24 9772
Phil Evans VK2KEV	Tweed Valley ARC	C/- 9 Grevilla Ave, Bogangar,	2488. Tel 066 72 3237 (AH)
LLoyd Martin VK2BYU	Tweed Valley ARC	C/- 9 Grevilla Ave, Bogangar,	2488. Tel 066 76 1671 (AH)
David Blunn VK2DDJ	Tweed Valley ARC	C/- 9 Grevilla Ave, Bogangar,	2488. Tel
John Bogdanski VK2FEX	Shoalhaven Amateur Radio Club	PO Box 230, Nowra,	2541. Tel 044 64 1056
Tony King VK2FBD	Shoalhaven Amateur Radio Club	PO Box 230, Nowra,	2541. Tel 044 21 0670
Alex Thuma VK2ATY	Goulburn Amateur Radio Soc	RMB 247 Mayfield Rd, Tarago,	2580. Tel 048 29 4433 (AH)
Mike Morrissy VK1RI	Goulburn Amateur Radio Soc	26 William St, Goulburn,	2580. Tel 048 21 9256 (AH)
Neill Pickford VK1KNP	WIA ACT Division	32 Lonsdale St, Braddon,	2601. Tel 06 248 9600 (BH)
Christopher Davis VK1DO	WIA ACT Division	GPO Box 600, Canberra,	2601. Tel 06 274 8422 (BH)
Rob Apathy VK1KRA	WIA ACT Division	123 Hawkesbury Cres, Farrer,	2607. Tel 018 62 5027
Berry Busch VK2GDV	Twin Cities R & E Club Inc	5 Wrixon St, Latham,	2615. Tel 06 254 2982
Terry Clark VK2ALG	Twin Cities R & E Club Inc	355 Wilson St, Albury,	2640. Tel
Vic Hearne VK3CQP	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640. Tel 060 25 3292
Alan James VK2FIZ	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640. Tel
Greg Sargeant VK2EXA	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640. Tel 060 25 1117 (AH)
Graeme Scott VK2KE	Twin Cities R & E Club Inc	PO Box 396, Albury,	2640. Tel 060 21 5438 (AH)
David Ashley VK2JDA	Wagga Amateur Radio Club Inc	PO Box 396, Albury,	2640. Tel 060 21 3655 (BH)
Harley Davison VK2AHD	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650. Tel
John Eyles VK2BXD	Wagga Amateur Radio Club Inc	18 Warrawang St, Wagga,	2650. Tel 069 21 1004 (AH)
Mike McDonnell VK2DAI	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650. Tel 069 22 2363 (BH)
		PO Box 294, Wagga Wagga,	2650. Tel

Terry Clark VK2ALG

**WIA Accredited Examiners (Cont)**

Sid Ward VK2SW	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650.	Tel 069 22 6082
Peter Watson VK2APW	Wagga Amateur Radio Club Inc	PO Box 294, Wagga Wagga,	2650.	Tel
Rex Black VK2YA	Education Service Wagga Wagga	562 Koorngal Rd, Wagga Wagga,	2659.	Tel 069 22 4691
Pixie Chapple VK2KPC	St John Ambulance ARC	231 Shepherd St, St Marys,	2760.	Tel 02 623 5663 (AH)
Leon McHugh VK2FLI	Chiffley Amateur Radio Club	PO Box 280, Mt Druitt,	2770.	Tel 02 625 9646
Dave Pola VK2BDP	Chiffley Amateur Radio Club	PO Box 280, Mt Druitt,	2770.	Tel 02 628 9247 (AH)
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## Build Yourself an An-Egg-oic Chamber

Does your shack have bare walls and poor acoustics? Do other radio amateurs tell you to switch off your speech processor when you know you're not using one? Do you use CW only, so you don't have to hear complaints about your audio quality?

The usual remedy is to put curtains on the walls to absorb those unwanted echoes, but they're expensive. There is a cheap, easy and environmentally friendly way around the problem: egg cartons!

While visiting my local club (Manly-Warringah Radio Society), I paid a visit to the brick-walled offices of the Royal Volunteer Coastal Patrol in the same building.

All along the walls were colourful, recycled cardboard egg cartons. Sure enough the acoustics there are much better than in the radio clubrooms. They act as wonderful acoustic (or should that be egg-oustic!) baffles.

I just wonder how many RVCP members suffer from high cholesterol ... (or more likely, lowered cholesterol! - Ed).

Richard Murnane VK2SKY  
7/15 Grafton Cres, Dee Why 2099

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**Help stamp out  
stolen equipment**

-  
**keep a record of  
all your  
equipment  
serial numbers  
in a safe place.**

# The Loop Yagi Antenna

BILL MAGNUSSON VK3JT, 359 WILLIAMSTOWN RD, YARRAVILLE 3013

**T**HIS ANTENNA FIRST received widespread attention in the 1970s when it was detailed in the *RSGB's VHF/UHF Manual*. It's a development from the well-known cubical quad and sometimes called the quad-Yagi. It's not to be confused with the Quagi antenna, which is nothing more than a Yagi with a quad-driven element. Some featured a quad reflector as well. The Quagi never really took off, as its results didn't justify the extra trouble in construction and adjustment.

The loop Yagi, however, proved to be a top performer, and achieved great popularity, particularly among the Melbourne ATV fraternity which found it to be much more effective than the long Yagis and 88-element J-beams of the day. The loop Yagi's advantages are high gain, wide bandwidth, sharp front lobe, minimum side and back lobes, ease of construction and matching and repeatability of performance. Unlike a lot of antennas, its radiation pattern seems to be much the same in both the horizontal and vertical planes.

It proved a worthy competitor for the multi-element phased array, popular at the time which, although marginally better in performance, is much more difficult to construct and maintain. The multi-element phased array will be the subject of a later article. It's definitely worthwhile considering as a UHF DX antenna.

The loop Yagi became the "industry standard" for the ATV group and other amateurs heavily involved in UHF DX.

Many avid UHF DXers still rely on the proven performance of these remarkable antennas. Being constructed in closed loops and entirely at DC earth potential, they are inherently very quiet listening antennas. They are robust and virtually impervious to the elements. There are many loop Yagi antennas still working perfectly today after 10 or more years of trouble-free service.

A new generation of amateurs has hit the scene since those days, and many will be experimenting on VHF and UHF. The purpose of the article is to rekindle interest in this type of antenna.

Loop Yagis can be made as long as construction techniques allow. Dick VK3ARR and I have built 426MHz loop Yagis as long as 10 metres, with 35 or more elements, for use on our ATV moun-

taintop expeditions. As with all Yagis, doubling the boom length doubles the gain. That's about an extra 3dB. They can be very effectively stacked, using standard stacking distances for Yagis based on aperture, which of course is related to boom length.

The standard version at 1296MHz has 34 elements on a 2.7m boom. The original article claims a gain of 22dBd. A very respectable figure. Although it would be hard to duplicate this at 435MHz, the proof of the pudding is in the eating, and they do perform remarkably well on the 70cm band with boom lengths around 4-5m. Of course, you can stack shorter antennas to give similar performances to longer booms.

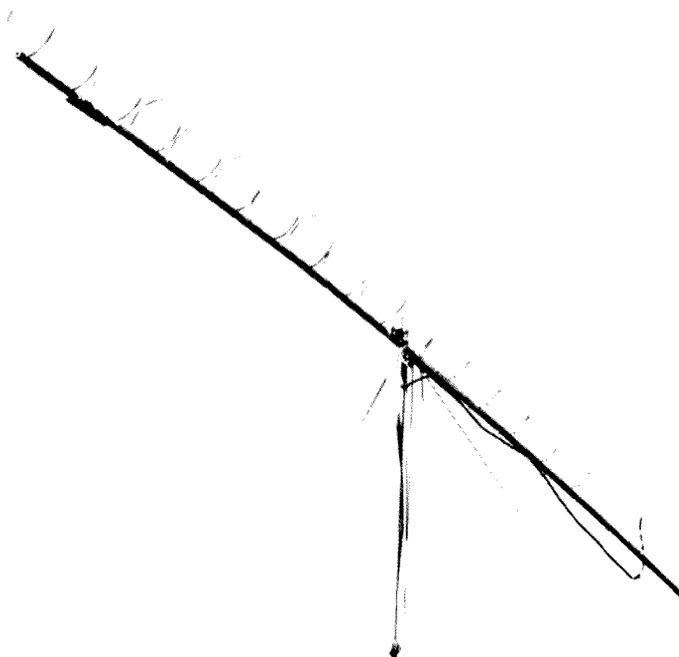
The antenna consists of a screen mesh reflector and circular (loop) elements. The loop elements, ie reflector, driven element and directors, are all screwed to a metal boom, making the whole device very robust and entirely at DC earth potential. The method of feed removes one of the problems of Yagi antennas, ie what to do with the feedline so as not to distort the radiation pattern. Many home constructors and purchasers of commercial beams overlook this important factor. The cost of neglecting this point is likely to be a distorted front lobe and

many randomly located side lobes. By bringing the feedline out through the boom, the loop Yagi neatly solves this problem. The boom may be bolted directly to a metal mast with no ill effects. Obviously it will need a stand-off if mounted for horizontal polarisation.

Figure 1 shows the general arrangement of the boom and elements. You'll notice there are two reflectors: a loop reflector and a screen reflector. Don't be tempted to leave one out.

Figure 3 shows the general arrangement of the driven element. This is the only part of the antenna where special care is required. If you follow the instructions exactly, the antenna should exhibit an excellent match to 50 ohm co-ax over a wide frequency range.

As an example, for the past 10 years or so I have been taking a loop Yagi belonging to George VK3LA up to Mt Skene on our annual ATV and satellite expedition. It is cut for 426.25MHz, the local simplex ATV frequency. It seems to work equally well from that frequency right up to 435.1 for use with the Oscar satellites. It has a 1:1 VSWR over most of this range, rising to only 1.1:1 at 435.1MHz. It was constructed from the data shown in this article, without any cutting or trimming. It worked first time and it's still working



Loop Yagi used for the 1987 Mt Skene expedition.

perfectly. The photograph shows the antenna on site during the 1987 Mt Skene expedition.

A major activity of the 1990/1991 Mt Skene expedition was the construction of a stack of four such antennas. The stack is featured on this month's front cover. The antennas and framework were built from scratch at the mountaintop campsite. They were built, erected, tested and used for ATV back to Melbourne. The construction crew consisted of Dick VK3ARR, Huntly VK3ZE, Dave VK3TKJ, Graeme VK3NE, Bill VK3WEG and myself. The system was fed through my homemade four-port power divider, and when connected we couldn't measure *any* reflected power. Needless to say, the stack worked very well indeed.

Loop Yagis can be constructed for any frequency, but of course the sheer physical size makes them a bit unworkable on two metres. We built a 10-element, 2m version for Mt Skene in 1985/6, but the results didn't justify going any further. It worked quite well, but was just too cumbersome. They really shine in the region from 300MHz to 2.5GHz. It's possible, with care, to get one going very nicely on 2.4GHz. A stack of four such antennas is still merely tabletop size! On the 70cm band it would be hard to find a better antenna. On 23cm they are equal in performance to a well-illuminated four-foot dish. Four of them in a stack should equal an eight-foot dish. Quite a performance.

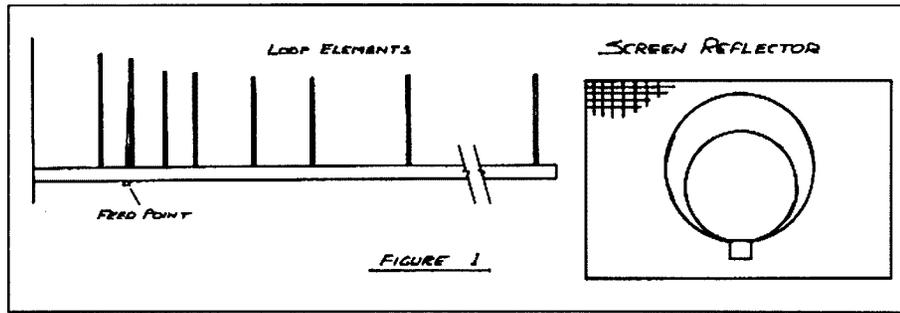
The computer program in Table 1 can be used to calculate the element sizes and spacings and other construction details which are proportional to wavelength. The program is written in a "Basic" which should run on IBM-PCs. It will be uploaded to the VKNET BBS system. Look for LOOPYAGI.BAS in the files. I have a more comprehensive program for BBC micros. If you have a "beeb" don't hesitate to contact me, QTHR. The program will accept any frequency, even silly ones. The scaling should be accurate enough between 100MHz and 2.5GHz. I've got silly stoppers and graphics etc in the original, but figure 4 and the BBS versions have been stripped down for publication.

Table 2 shows a sample printout for 432.150MHz and 1296.250MHz. You can use the details to construct loop Yagis for those frequencies.

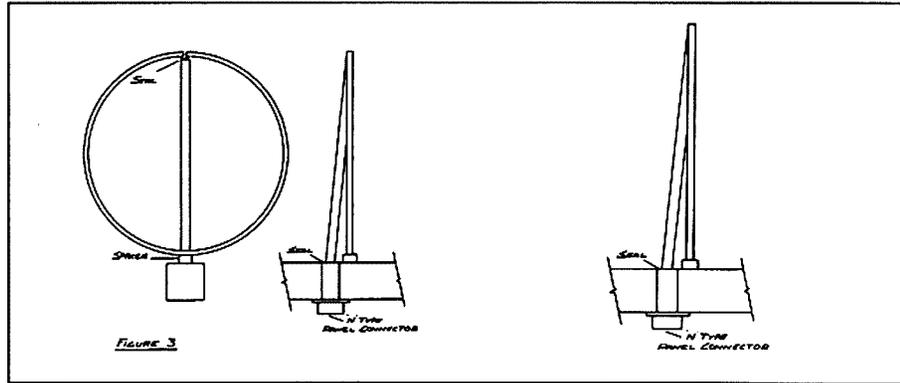
Now some construction notes ...

### 1. The boom

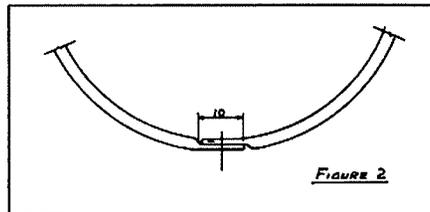
This is best made from square section aluminium tubing. The size will depend on the frequency. Twenty-five millimetres or one-inch-square is suitable for 70cm but, for 23cm antennas and beyond 3/4-



General arrangement of boom and elements.



General arrangement of the driven element.



Method of construction for reflector and directors.

inch or 1/2-inch should be okay. Don't make it too small in section as the feed line passes through the boom and this may weaken it if its section is too small. Longer loop Yagis may require the boom to be held straight with nylon guys or strengthened by doubling up on thickness near the centre. It's very important that the boom does not droop down at the ends. Make sure you seal the ends with plastic or rubber caps and silicone sealant.

### 2. The elements

Apart from the driven element, all others are made from small diameter aluminium tubing, 5mm down to 3mm diameter, depending on the frequency. The RSGB article uses 3/16" by 20 SWG metal strips for the elements. This will work well at frequencies above 1GHz, but at lower frequencies the strips tend to vibrate in the wind, causing annoying noises and premature failure due to crack-

ing. It's probably best to stick to small-diameter tube. The loop reflector and directors are made as shown in Figure 2. Add 10mm to the calculated circumference to get the total length of each element. Then squash 10mm at each end flat in a vice or with a hammer. Be careful to keep the two flats in line. A hole is drilled in each flattened end so the distance between the holes is exactly the required element circumference. The elements can be formed into their final circular shape by hand bending around a suitable size circular object, eg a jam tin or piece of pipe. If you're making a number of antennas involving lots of elements you may like to construct a bending jig to do this job. The elements can be screwed or pop riveted directly onto the boom. The entire antenna can be painted with zinc chromate when finished, so it's not a bad idea to put a spot of zinc chromate under each screw when mounting the elements. All directors are the same circumference. After director 4, all spacings are the same. This makes extending the boom length a breeze.

### 3. The driven element

Refer to Figure 3. The driven element is made from flattened copper tube the same diameter as the other elements. There's nothing magic about copper's conductivity or anything like that, it's just that it's easier to solder and we need to connect the feedline to it. Begin by

flattening your copper tube. It will probably be necessary to anneal (soften) the tube before you flatten it. This can be done by passing it through a gas flame on the kitchen stove. It's not absolutely necessary to flatten the tube, but a flattened tube is easier to mount at the bottom and make connections to at the top. And it won't fill up with water! Carefully measure the circumference and cut exactly to length. You don't have to add a bit like you do on the other elements. Then drill a 1mm hole as close as possible to each end. These are for soldering the co-ax. It's probably best to drill the mounting hole in the centre after you bend the tube into a circle. That way it won't kink when you make the bend. Leave a 2mm gap at the top.

Now this next bit is very important. The driven element has to be deformed (squashed) into an ellipse. The distance from the mounting hole to the feed point is made slightly shorter than the width. See Figure 3. The exact difference is calculated by the computer program. It amounts to about 0.025 of a wavelength. The driven element is mounted on a metallic spacer to raise the centre back to where it would have been if the driven element was a perfect circle. A small scrap piece of aluminium will do the job here.

#### 4. The feed arrangements

The co-ax is brought down from the top of the driven element and through a hole in the boom as close as possible to the bottom centre of the driven element. The outer braid has to be bonded to the bottom centre of the driven element. (See Figure 3). This is best accomplished by mounting an "N" type panel connector (or BNC for smaller booms) through the boom from the bottom. A piece of 50ohm co-ax goes up to the feed point where it is carefully trimmed and soldered across the gap using the 1mm holes as anchors. Make sure all holes in the boom are sealed with silicone sealant. The actual feed point can be sealed with a small blob of 732 RTV. Use the type which is marked non-corrosive on the tube. It is easily identified. It does *not* smell like vinegar. The "N" type or BNC connector protruding from the bottom of the boom makes a very convenient way of connecting and dressing the feed line without it getting tangled up in the antenna and affecting the radiation pattern. Remember "N" type connectors are waterproof, BNC connectors are not. If you use a BNC, you'll have to seal it for a permanent installation. You don't have to use a connector there, but if you just bring the co-ax through the boom you'll need to remove a bit of the outer plastic insulation and bond the

outer conductor of the co-ax to the bottom centre of the driven element by soldering.

#### 5. The screen reflector

This is made from a rectangular piece of galvanised mesh at lower frequencies, or expanded aluminium at higher frequencies. See Figure 1.

Its sizes and position of mounting are calculated in the computer program. It's fixed to the end of the boom by small brackets. You can reinforce the edges with thin aluminium strips or by folding them over.

#### 6. References and acknowledgments

The original article can be found on pages 8.48 to 8.49 of the *RSGB VHF/UHF Manual*, 3rd edition, by Evans and Jessop.

Thanks to George VK3LA for a lifetime of experience and many hours spent devising the best way to construct these antennas. The master.

Thanks to Dave VK3TKJ for help in translating the program from the original BBC Basic to IBM.

Thanks to Dick VK3ARR for encouragement during long construction sessions in his school science lab, very frequently going into the wee small hours.

#### Table 2. Sample printouts for 432.150 and 1296.250 MHz.

Required frequency of operation in MHz 432.150

Circumference of reflector	29.00 inches or 736.60mm
Circumference of driven el	27.68 inches or 703.08mm
Circumference of directors	27.74 inches or 626.43mm
Screen to reflector	9.30 inches or 236.14mm
Reflector to driven element	2.85 inches or 72.36mm
Driven element to director 1	3.36 inches or 85.31mm
Director 1 to director 2	2.49 inches or 63.22mm
Director 2 to director 3	5.34 inches or 135.59mm
Director 3 to director 4	5.34 inches or 135.59mm
All other director spacing	10.68 inches or 271.18mm
Width of screen mesh	16.63 inches or 422.35mm
Height of screen mesh	13.60 inches or 345.56mm

Screen mounting hole centre is 2.02 inches or 51.00mm from bottom of mesh.  
Overall boom length, including allowance at end = 318 inches or 8077mm.  
The driven element is deformed into an ellipse 0.76 inches or 19.20mm less in height than width and spaced 0.38 inches or 9.60mm above the boom.

Required frequency of operation in MHz	1296.250.
Circumference of reflector	9.67 inches or 245.57mm
Circumference of driven el	9.23 inches or 234.40mm
Circumference of directors	8.25 inches or 209.51mm
Screen to reflector	3.10 inches or 78.72mm
Reflector to driven element	0.95 inches or 24.13mm
Driven element to director 1	1.12 inches or 28.44mm
Director 1 to Director 2	0.83 inches or 21.08mm
Director 2 to director 3	1.78 inches or 45.20mm
Director 3 to director 4	1.78 inches or 45.20mm
All other director spacing	3.56 inches or 90.41mm
Width of screen mesh	5.54 inches or 140.80mm
Height of screen mesh	4.54 inches or 115.20mm

Screen mounting hole centre is 0.67 inches or 17.00mm from bottom of mesh.  
Overall boom length including allowance at end = 106 inches or 2692mm.  
The driven element is deformed into an ellipse 0.25 inches or 6.40mm less in height than width and spaced 0.13 inches or 3.20mm above the boom.

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10 REM loop yagi calculator by Bill Magnusson VK3JT.
20 CLS
30 INPUT "Required frequency of operation in mHz. ";F
40 F1 = 435.5:R = 28.776853:DE = 27.467451:D = 24.55109:SR = 9.225258:SDE = 2.8270952
50 SD1 = 3.3325964:SD2 = 2.4699884:SD3 = 5.2970836:SD4 = SD3:SD5 = 10.594167
60 SL = 16.5:SW = 13.5:SH = 2:SQ = 0.75:SP = 0.375
70 L1 = (F1*R)/F:L2 = (F1*DE)/F:L3 = (F1*D)/F:L4 = (F1*SR)/F:L5 = (F1*SDE)/F
80 L6 = (F1*SD1)/F:L7 = (F1*SD2)/F:L8 = (F1*SD3)/F:L9 = (F1*SD4)/F:L10 = (F1*SD5)/F
90 L11 = (F1*SL)/F:L12 = (F1*SW)/F:L13 = (F1*SH)/F:L14 = (F1*SQ)/F:L15 = (F1*SP)/F
100 BL = L4 + L5 + L6 + L7 + L8 + L9 + (L10*27) + (L4/10)
110 PRINT STRINGS(79,"")
120 PRINT USING "CIRCUMFERENCE OF REFLECTOR = ###.## inches or #####.## mm";L1,(L1*25.4)
130 PRINT USING "CIRCUMFERENCE OF DRIVEN EL = ###.## inches or #####.## mm";L2,(L2*25.4)
140 PRINT USING "CIRCUMFERENCE OF DIRECTORS = ###.## inches or #####.## mm";L3,(L3*25.4)
150 PRINT USING "SCREEN TO REFLECTOR DIST. = ###.## inches or #####.## mm";L4,(L4*25.4)
160 PRINT USING "REFLECTOR TO DR ELEMENT = ###.## inches or #####.## mm";L5,(L5*25.4)
170 PRINT USING "DR ELEMENT TO DIRECTOR 1 = ###.## inches or #####.## mm";L6,(L6*25.4)
180 PRINT USING "DIRECTOR 1 TO DIRECTOR 2 = ###.## inches or #####.## mm";L7,(L7*25.4)
190 PRINT USING "DIRECTOR 2 TO DIRECTOR 3 = ###.## inches or #####.## mm";L8,(L8*25.4)
200 PRINT USING "DIRECTOR 3 TO DIRECTOR 4 = ###.## inches or #####.## mm";L9,(L9*25.4)
210 PRINT USING "OTHER DIRECTOR SPACING = ###.## inches or #####.## mm";L10,(L10*25.4)
220 PRINT USING "WIDTH OF SCREEN MESH = ###.## inches or #####.## mm";L11,(L11*25.4)
230 PRINT USING "HEIGHT OF SCREEN MESH = ###.## inches or #####.## mm";L12,(L12*25.4)
240 PRINT STRINGS(79,"")
250 PRINT USING "Screen mounting hole centre is ###.## inches or #####.## mm from bottom of mesh.";L13,(L13*25.4)
260 PRINT USING "Overall boom length including allowance at end = #####.## inches or #####.## mm";BL,(BL*25.4)
270 PRINT USING "The driven element is deformed into an ellipse ###.## inches or
###.## mm less in height than width.";L14,(L14*25.4)
280 PRINT USING "It is spaced ###.## inches or #####.## mm above the boom on a metallic spacer.";L15,(L15*25.4)
290 PRINT STRINGS(79,"")
300 END

```

Table 1. Computer program to calculate element dimensions and spacings.

# The Compact CMOS Super Keyer II

KAROL NAD VK2BQQ, GPO BOX 3209, SYDNEY 2001

**H**ERE IS A TERRIFIC IDEA that can be accomplished with little effort and virtually below \$150, and with positive and negative keying outputs.

Interested in a simple but exciting keyer for CW operation? I have got news for you. I recently completed a keyer known as the CMOS Super Keyer II which appeared in November 1990 *QST*.

After using this rather interesting keyer for a while I thought it would be good to share some of my experiences and impressions with others.

## The Keyer

The CMOS Super Keyer II offers a host of features previously not found in morse keyers. But the original circuit has one drawback! The output keying is taken from Q1 which will handle low-voltage and positive keyline transceivers only, and lack of side tone volume control. Therefore, only one solution remained: to modify and implement the circuit.

At the output of Q1 (junction of R16, R18 and R17) a logic level of about 10mV represents the key-down state. This output produces enough current to turn on Q3 and the rest of the keying-interface circuit. See circuit diagram Fig 1.

This remarkable one IC keyer provides:

- An iambic keyer with dot and dash memories.
- Character and real time messages.
- Message loop capacity.
- Contest serial number.
- Adjustable weighting.
- TX key-down function.
- Keyer-status inquiry function.
- Selectable automatic character spacing.
- Input queue to store multiple message activation, and many more.
- Four 48-character messages.
- Analogue and digital speed control.
- Message break-in to allow for paddle inserted text.

How does the Compact CMOS Super Keyer II provide all this? Commands are sent to the keyer in morse code using the paddle. A detailed explanation of the operation and all features of keyer is given in November 1990 *QST*.

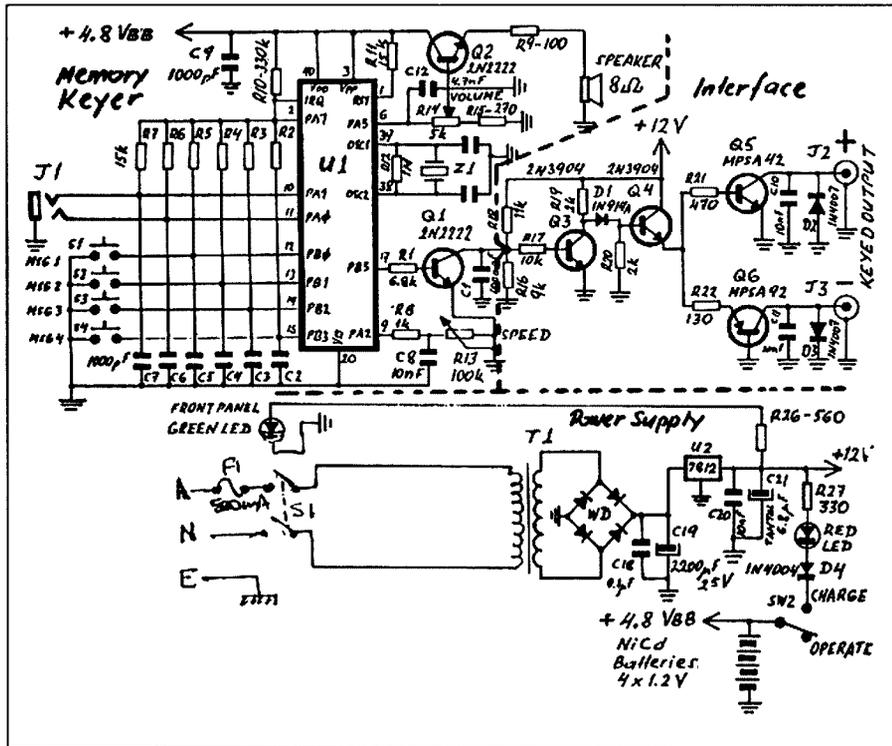


Figure 1

## Parts: Keyer

The PC board and associated components are available as a partial kit from Idiom Press, Box 583, Deerfield 60015, USA. The price is \$US45 and \$US5 for surface-mail foreign orders. The rest of the parts are obtainable from several sources. Diecast box, part number 26827PSL, \$14.11 from Farnell Electronics, 72 Ferndell St, Chester Hill, NSW 2162.

S1-24 SPST push-button switch p nr 275-1566 from Tandy. Speaker C-2222, stereo and plug and two RCA sockets from DS Electronics. Linear potentiometers R13-100k and R14-5k from David Reid Electronics, 127 York St, Sydney. Other components not supplied with the keyer are: C12-4.7nF, R15-270 Ohm 1/4W.

## Interface

The keying interface will key virtually any modern or vintage transceiver. Use the positive keyed output jack to key cathode keyed and most transistor keyed transceivers. Use the negative keyed

output jack to key grid block keyed transceivers. Please note that transistors Q5 and Q6 are of a type capable of withstanding - or + 300V in the KEY-UP condition, and 200mA in the KEY-DOWN position for the positive output, and 30mA for the grid block. If you connect your transmitter key input to the wrong keyed output, either the transmitter will not key, or it will be keyed continuously. To correct the situation, simply plug the output line into other output jack. No damage should occur to either the transceiver or the keyer if you connect it to the wrong keyed output jack.

## Parts: Keying Interface

Q3, Q4-2N3904, Q5-MPSA42, Q6-MPSA92 from Farnell Electronics. R16-R22 1/4W 1% from David Read Electronics. PC board p nr 276-159 from Tandy Electronics.

## Power Supply

Regulated and battery DC supplies assure the performance of the keyer is not affected by variation in line voltage

and drop-out. Use a shielded diecast box and the filter in the primary circuit of T1 for 100 percent RF immunity. These precautions may not always be required, but it is safest to put in, rather than having to add it on later.

A built-in rechargeable battery buffers the complete data memory system, thus maintaining all stored data and settings. During the use of the keyer the batteries are trickle charged at a rate 12mA via R27, with D4 isolating the batteries from the rest of the circuit. The keyer can be used with SW2 at either position.

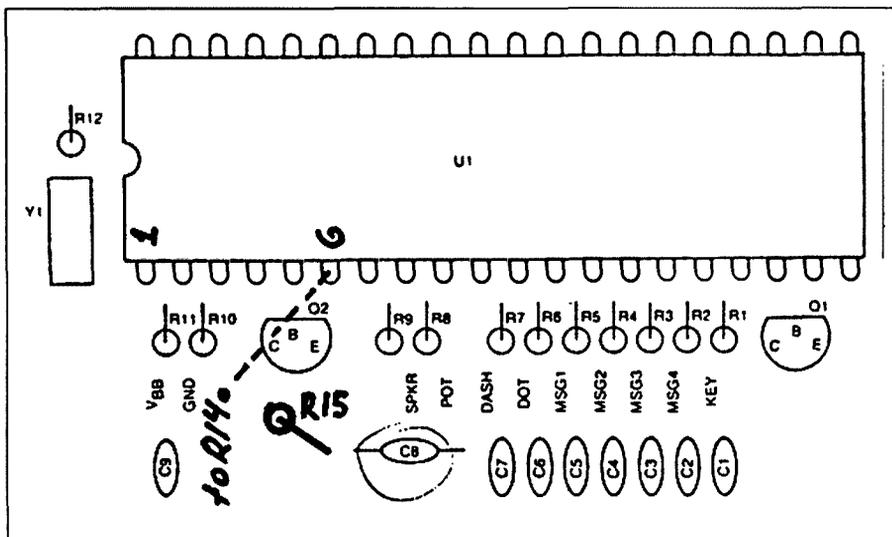
A fully charged battery will retain the memory data for approximately six months with the keyer switched off. A well regulated +12V with very little ripple content supplies the keying interface circuit.

### Parts: Power Supply

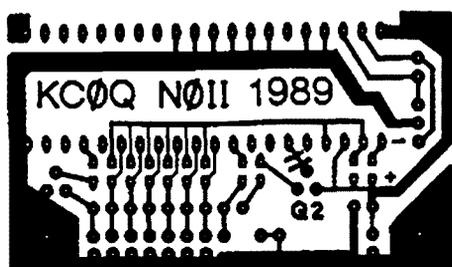
L1, L2-25uH p nr 178-331 and L3-4uH p nr 178-329 from Farnell Electronics. C13-C16 5.6nF/3kV p nr R-2395, C17-47nF/250V AC p nr R-2750, T1 p nr M-2155, WD p nr Z-3304, U2-voltage regulator 7812, LED green Z-4087, LED red Z-4085 from Dick Smith Electronics.

### Checkout Procedure

On completion of the memory keyer section, connect a battery, an OK in morse should be audible in the speaker, confirming that the keyer section is correctly working. To check the keying interface,



Part-placement guide. C12 is soldered to U1 pin 6 on the foil side.



Circuit board etching pattern shown in full size. Cut foil between Q2b and U1 pin 6.

connect it to a +12V supply and apply 10-20mV DC to the input (junction of R16, R18 and R17) which should produce 0.7V at the negative output and 10-15mV at the positive keyed output. Equally, shorting resistor R16 should produce the same result.

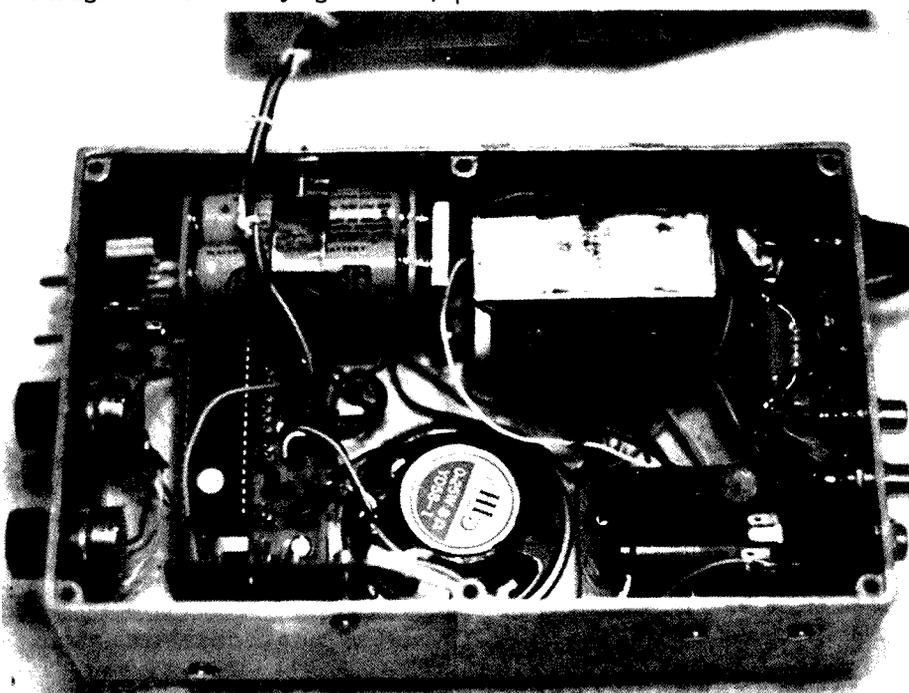
A detailed manual is supplied with the main components. I recommend that you read it thoroughly to acquaint yourself with the keyer and to ensure the unit is operating properly.

### Editor's Note

This unit contains a programmed microprocessor (U1 is a 68HC705). Anyone contemplating construction of this keyer should obtain this microprocessor first. Only the supplier, Idiom Press, can guarantee the software in the microprocessor. A 6805 obtained "off the shelf" will not work in this keyer. While other components can be substituted, there is no alternative to a correctly programmed microprocessor.

The keyer, as originally described, contained a mains filter made from discrete components. This filter has been removed from the schematic. As this unit has a charge/operate key, I do not believe the operation of the keyer will be affected.

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A close-up view of the completed Compact CMOS Super Keyer II.

# Multiband Inverted V for the Z Match Antenna

ADRIAN FELL VK2DZF, PO Box 344, BAULKHAM HILLS 2153

## Introduction

**T**HE FOLLOWING multiband wire antenna system which I have just constructed, and which is described in detail in this article, was prompted by some quite important reasons.

Firstly, I had just finished building the compact coil version of the Z match coupler and, during experiments with different antennas, discovered that arcing problems were, well, in my case, completely eliminated. This was, in part, due completely to the correct choice of antenna and feeder.

Secondly, I was to install a wire antenna that not only worked well on all HF frequencies (sorry I do not include WARC) but also able to fit neatly into my outer Sydney suburban block of land.

It is no accident that our only means of support for antennas are two 70ft tall gum trees; it's one reason why we selected (my wife is VK2ELF) this location. We have a 20m quad loop up between the two trees, and it works extremely well. The other reason for installing this multiband antenna was that during the last mini-cyclone Sydney experienced we lost two of our wire antennas (80 and 20 metres), so it was now time to tidy things up and simplify this mess.

## The Antenna

The schematic diagram of the Z match coupler is shown in figure 1 (see the reference also) and I chose to construct the compact coil version, but there are other alternatives around. After some experimenting (combining theory and practice) it was apparent that if the length "L" in figure 3 was a non-resonant length at any operational frequency (WARC users take note) this was a near ideal situation for my little Z match.

Length "L" (Figure 3) can be juggled between A-B and B-C once "L" has been determined without too much drama. It must be pointed out though, that if dimensions (Figure 2) are changed too much, the electrical conditions will also change. Refer to Table 2 for an example. The first serious length I tried for distance A-B was the famous G5RV length of 51 feet. This also fitted nicely into the back yard with 94 feet of feeder. Every

band tuned up very well except 20 metres, where C1 was at a maximum of 425pF. This annoyed me somewhat! Shortening the feeder from 94 feet to 90 feet (four feet shorter) and adding that four feet to each end of the antenna, improved matters quite a bit, especially on 20 metres (see Tables 1 & 2). C1 was now 117pF, and all other frequencies were acceptable. There were some combinations of A-B and B-C that caused some unfavourable conditions and those have been listed in Table 2. In conclusion to the above, it would appear that not only does "L" have to be a non-resonant length, but its distribution between the antenna and feeder must be given great thought if we are to present the Z-match with an ideal set of parameters. My final choice (yours may be different) was 145 feet for "L", and the way I have distributed "L" is shown in Figure 2. Length "L" (Figure 3) does not necessarily have to be 145 feet long, 109 feet or 95 feet are two other shorter alternatives to try if a 90 feet feeder is way too long. If the 28MHz band is not required, any between 95 feet and 109 feet could be tried. As these lengths are way too short for my property, I have not tried them, so the results on 80 metres are a bit unsure regarding the maximum input watts the Z-match will take before arcing takes place. The 110 feet of the antenna is five half-wave lengths at 21MHz and when the extensions of 11 feet are connected it is a half wavelength long at 80 metres.

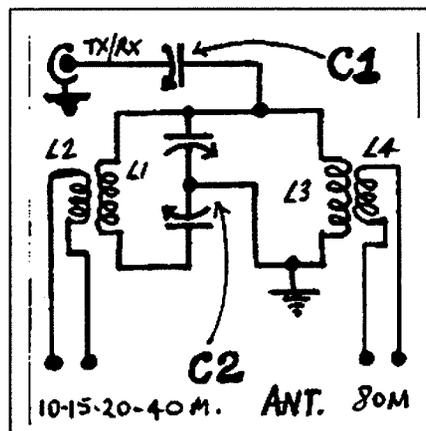


Figure 1: Schematic diagram for Z-Match coupler.

All in-between frequencies are a mixture, and it is similar to the way the G5RV works. Interested readers should refer to the RSGB for further details.

## 80 Metres (and Arcing)

Eighty-metre operation held quite a few surprises for me, and luckily I had picked up early in the tests that, unless I had a half wave-length of wire in the antenna sections (again the feeder length must also be the correct length), I would experience some degree of arcing from the capacitor C2 (Figure 1). The amount of arcing would depend on the varying dimensions, and some examples are listed in Table 1. Even C1 could cause lightning belts, but this condition was very rare and one should not experience problems from C1. The watts listed in Table 1 should be self-explanatory, but I cannot give the breakdown point above 100 watts as that is all the carrier power I can produce from my ageing TS520S. The 40W and 70W listings for the 3.600 section are just prior to arcing taking place in C2. It's interesting to note that just because one may have a perfect match of 1:1 VSWR, it doesn't indicate the whole story, but it's (sometimes) fun finding out. The finished result is shown in Figure 2, the 11 feet sections only being used for 80 metres. One can obtain a match on other frequencies with these still connected, except for 21MHz which doesn't match very well. It's worth trying the difference at 28MHz with the extensions on and off.

## Feeder Selection

I used 300Ohm TV ladder line (the type used in fringe areas, part number BC1682). Spacing is about 0.72 inch, spreaders every eight inches, and a wire size is about 1mm thick. This stuff is not the best in the world to work with, but if some tension is applied with nylon at each end (hard to explain) the shape holds better. Experienced amateurs should not only prefer other methods, but probably have perfected their own construction, and these people should be asked by the inexperienced. There is always the old trusty ARRL and RSGB handbooks for electrical and mechanical advice on feeder systems.

advice on feeder systems.

Figure 4 shows the method I used at the feedpoint between feedline and antenna. Stripped RG58U braid makes a good flexible connecting wire (as shown) and you can use the sheath as an insulating sleeve. After soldering, you can cover the joint with "Five-minute Araldite" for extra strength and protection from the elements.

**Polar Response**

At a guess I would estimate that on 80 metres and 40 metres and up, I would expect some major lobes to be directed off the sides (left and right in Figure 2) because the wires are arranged like an end-fed vertical beam. I don't think I will lose any sleep about the lobe direction as I cannot rotate the antenna if it's unfavourable, but it's worth considering before making a final decision on how the antenna is rotated.

**Thanks**

I would like to thank the two Rons, Ron Cook VK3AFW and Ron Fisher VK3OM, for their published data on the compact Z-match; add another happy Z-match user to your list. Also, thanks to Dean Probert VK5LB and Lloyd Butler VK5BR, who published some very useful information on the Z-match. These articles are listed in the references.

**Final**

It must be emphasised that, although this antenna/Z-match combination of mine has performed to my expectations, variables in other stations will not necessarily guarantee the same results. Good luck and 73.

**References**

1. VK5LB "Z-match construction", AR May 1989
2. VK5BR "Analysis of the Z-match", AR May 1989
3. VK5BR "Tests on compact coil Z-match", AR December 1990
4. VK3OM & VK3AFW "Ronymous Z-match", Random Radiators, AR March 1990
5. VK3OM & VK3AFW "Picking the right feeder length", Random Radiators, AR July 1990
6. "Transmission Lines" ARRL Antenna Handbook.
7. G6XN "HF antennas for all locations" RSGB
8. "HF Antennas", RSGB Radio Communications Handbook

**Addendum**

The original design of the antenna did not allow for the WARC frequencies, but in practice the WARC bands tune up very

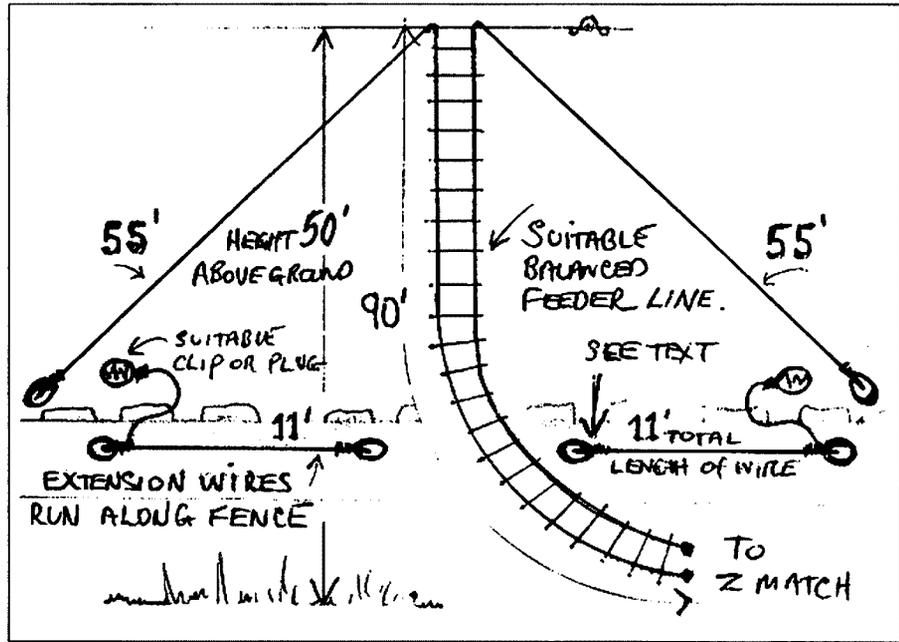


Figure 2: Complete antenna installation.

**VK2DZF Multiband Antenna/Z-Match Coupler\*\***

Feeder Length	Antenna Length (Total)	Freq	Watts RMS	Coil Type*	VSWR	Antenna Extension	C1 (pF)	C2 (pF)
90 feet	110 feet	29.000	90+	Small	1 to 1	No	148	34
90 feet	110 feet	28.450	90+	Small	1 to 1	No	45	45
90 feet	110 feet	21.150	90+	Small	1 to 1	No	91	63
90 feet	110 feet	14.150	100+	Small	1 to 1	No	117	196
90 feet	110 feet	7.050	100+	Small	1 to 1	No	89	55
90 feet	110 feet	3.600	40 max	Small	1 to 1	No	89	331
90 feet	110 feet	3.600	70 max	Large	1 to 1	No	104	325
90 feet	132 feet	3.600	100+	Large	1 to 1	Yes	174	285

\*\*Compact Coil Version. \*Small: L1-7T L2-6T, Large: L3-10T L4-7T (Fig 1)

Table 1: Note how power input can be limited depending on ant and coil used, when operating on 3.5MHz Band. These power figures are input to the Z-Match

Feeder Length	Antenna Length (Total)	Freq	Watts RMS	Coil Type*	VSWR	Antenna Extension	C1 (pF)	C2 (pF)
90 feet	102 feet	21.150	Would not tune			No	N/A	N/A
94 feet	102 feet	21.150	90	Small	1 to 1	No	90	90
90 feet	132 feet	21.150	Would not tune			Yes	N/A	N/A
94 feet	102 feet	14.150	100+	Small	1 to 1	No	425	124

Table 2: Above are examples of figures that proved unsuitable.

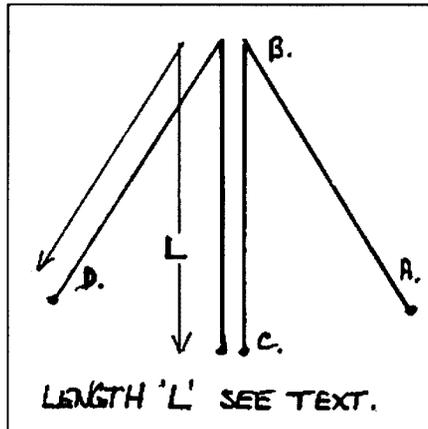


Figure 3: Antenna and feeder length.

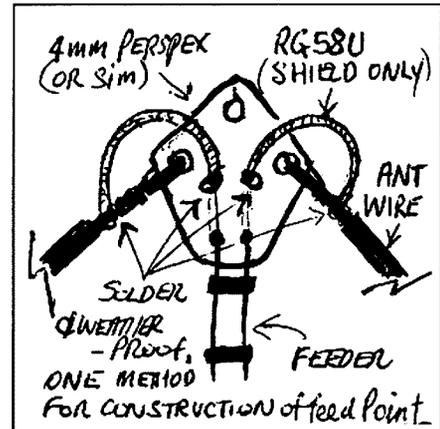


Figure 4: Feed point connections

well using the 90' feeder length and 55' per side antenna dimensions. There may be a more optimum set of dimensions to be arrived at to include WARC, and the experimenter should refer to *ARRL* and *RSGB Antenna Books* for details.

The details are as follows:

	Freq	VSWR	Power Used	C1	C2
(12m)	24.940	1 to 1	100W RMS	66pF	31pF
(17m)	18.100	1 to 1	100W RMS	63pF	105pF
(30m)	10.125	1 to 1	100W RMS	77pF	305pF

With my Z-match and using the VK2DZF inverted V I can apply about 120 watts CW carrier before C2 starts to arc. This limit of power should satisfy users of most of today's modern transceivers and most of the older valve final types, like the FT101 and TS520 etc. Considering the antenna is a compromise, performance is very good indeed, 10m being its weak area. Fifteen metres down is quite good. The antenna with a Z-match would be an excellent aerial for the SWL, the 11' extensions not being required.

73 ADRIAN ar

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# FT290 Modifications

BRUCE JONES VK4KIT, 57 BRETT AVENUE, MOUNT ISA 4825

## Microphone Noise Reduction

**V**HF PORTABLES SUCH as the FT290 are beaut to take everywhere. Often there is too much mike gain for noisy environments. As the gain control is preset inside the radio you cannot just turn it down because you will hardly be heard when returning to a quiet shack. What is needed is something to reduce the mike gain only when required. This is neatly done using the scan lock switch on the mike itself.

Referring to the schematic, the "up down" switches are normally enabled via a connection to earth through the "Lock" switch. To "Lock" the earth is removed.

However, the "Lock" switch is a changeover type and applies the earth to a spare contact when in the "Lock" position.

This contact is used to connect a low-value resistor in a shunt path across the mike insert. In my case, the resistor is soldered on the pcb inside the microphone case. A value of 22 ohms is suitable for use in light aircraft or for very noisy mobile conditions.

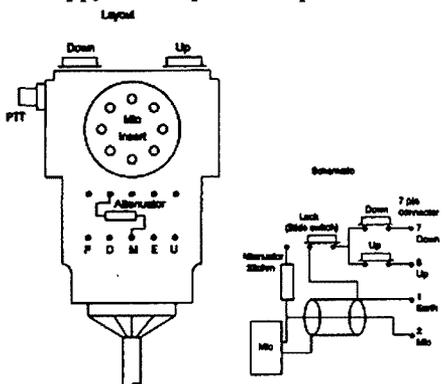
Try a higher value if your situation is a little quieter, say 100 ohms or so.

Operation is simple and does not interfere with the scan buttons either. Just set the "Lock" switch to "Lock" and the attenuator is in circuit. The scan function is disabled while you have your QSO. Not a problem!

The only catch is that you cannot use the "Lock" function while operating in a quiet environment. However, the need for this feature is usually not required when stationary etc.

I'm sure this principle may apply to other equipment.

Happy mobile/portable operation!



FT290R noise reduction.

## Squelch Improvement

**E**VER NOTICED THAT if you set the squelch on your FT290 to need a good signal to open it, then back it off for a weak signal, it stays wide open once tripped? This is called hysteresis and is undesirable if you often work weak signals.

### Operation of Squelch

When the set is squelched Pin 13 of Q1019 is approximately five volts and is less than one volt when unsquelched. If a portion of this is fed back to the squelch control pot the hysteresis is reduced. An 81k resistor is all that is required.

### Installing the Modification

In finding the correct place to install the resistor, I determined components by measurement of DC signals rather than tracing the circuit. You need not remove the circuit board.

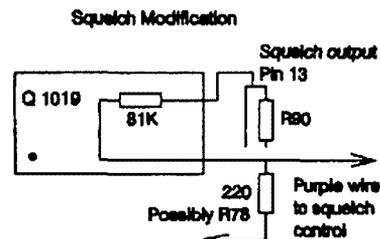
Locate at the end of Q1019 what I think is R90 mounted vertically. The exposed end of this resistor is connected to Pin 13 of the IC, so scratch some of the paint off and check this with a multimeter for zero ohms. If correct, scrape off sufficient paint and tin with solder.

Near this, close to pin 8, is another vertically mounted resistor, possibly R78, with the top end connected to a purple wire which goes to the squelch control. This is the second connection point. Solder the modification resistor to these points. Do not disconnect anything. The resistor can lie down on top of the IC.

The value of resistor is determined by experiment. I used an 81k resistor.

If the value selected is too low, the squelch will cycle on and off when finely set. There is some dependence on supply voltage, so check operation on a supply as well as on batteries.

The modification will enable the full sensitivity of the receiver to be used.



ar

# Mini Equipment Review

RON FISHER, VK3OM.

## The Yaesu SP-4 and SP-5 Extension Speakers

**I**F YOU WANT THE BEST audio reproduction from your transceiver, a good external speaker is essential.

It's essential for several different reasons depending on how your equipment is used and installed. Here is the story of two different external speakers that would probably be used for different reasons. Both are produced by Yaesu and obtainable from most Dick Smith outlets.

### THE SP-5.

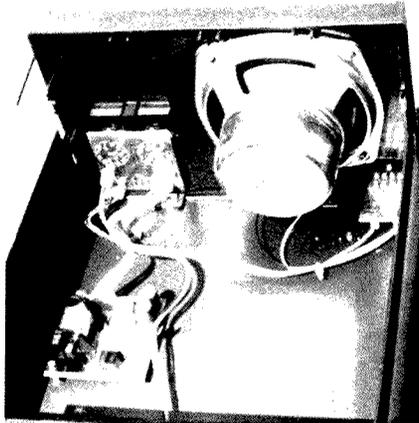
The SP-5 is a base station speaker designed to complement the new Yaesu FT-1000 and the FT-990 transceivers. It matches them in both size and colour and also presents the correct impedance to the external speaker sockets on these rigs. Of course you can use this speaker with any brand of transceiver if you are looking for top quality audio. The SP-5 measures 230mm wide, 150mm high and 294mm deep. It weighs in at 3kg. The important part of it, the speaker, is a high quality Foster unit with a diameter of 120mm. It is fitted with a most substantial magnet to produce a very high efficiency and a good transient response. The overall frequency response is rated as 100 to 12,000Hz but this can be tailored to suit the signal being received with five inbuilt filters. These are: 1. cut below 300Hz; 2. cut below 600Hz; 3. cut above 700Hz; 4. cut above 1kHz and 5. cut above 2.4kHz. The low frequency filters use non-polarised electrolytic capacitors, and the high frequency filters use inductive networks. The networks are designed to produce a cutoff rate of 6dB per octave that is the 300Hz filter will be down 6dB at 150Hz.

So, how does all of this work out in practice? I must admit that I prefer to use a wide range speaker and let the transceiver do the filtering of the audio. If the transceiver has an audio section with low distortion and a good IF filter to suit the mode of operation, a good speaker system should produce an ideal response. However, in the real world things are not always perfect and this is where you can tailor things to suit your own requirements.

Many older transceivers had rather wide filters and product detectors with somewhat high distortion and even audio amplifiers with high noise levels. This is where audio filters come into their own. A sharp high-cut filter will make



*The Yaesu SP-4 speaker. Note mounting bracket making it suitable for either home station or mobile use.*



*Internal view of the SP-5 circuit board. In foreground is the filter network. Note the solid speaker used.*



*The Yaesu SP-5 with the SP-4 on top.*

listening much more pleasant without removing any of the wanted audio response. The SP-5 will do all of this for you.

I checked the overall frequency response by feeding an audio oscillator into it. Apart from a slight rise in output around 500Hz, which would be normal for a speaker of this type in a metal cabinet, the overall output sounded very smooth. Music reproduction on broadcast transmissions was quite acceptable. By the way, the SP-5 has a headphone socket on the front panel that is fed via the filters. There is also provision to take the audio output from a second receiver, if required. In all, a highly recommended speaker. Try one - you might be amazed just how good some SSB signals can sound. The SP-5 is priced at \$199.

### THE SP-4.

This speaker is designed for mobile use or for fixed station use where space is limited. It measures 110mm wide, 90mm high and 40mm deep and comes with a fully adjustable mounting bracket. The actual speaker is 70mm in diameter and is rated to take three watts of power at eight ohms. The button at the bottom right-hand side is a noise filter which is an electrolytic capacitor switched across the speaker voice coil. In other words, a top cut tone control. In use, the speaker produces very clear audio although, as might be expected, the low frequency response is very limited. My oscillator test showed very little output below 500Hz, although the high end extended up to 10kHz. Under many conditions a limited low end output can be quite an advantage and, for mobile use, would be ideal. The SP-4 is nicely finished and comes with a long connecting lead fitted with a 3.5mm plug which suits most amateur transceivers. At \$39.95 it is good value. Our thanks to Dick Smith Electronics for the loan of these two speaker units. ar

**Repeaters -  
additions, deletions,  
alterations. Have you  
advised the WIA of  
changes needed to  
the repeater list?**

## MURPHY'S CORNER

In the article, "A Great Circle Distance Program" written by the late Wally Middleton VK3IT and shown on page 16 of the January issue, an error occurred due to typesetting the program instead of photocopying. Line 240 should have read

240 d = ACOS(SIN(a)\*SIN(b)+COS(a)\*COS(b)\*COS(f))

On the same topic, the letter from J H Knowles VK3JK, published under Technical Correspondence on page 7 of the February issue, should have shown a revised computer program. This is belatedly presented now.

The program "CW Trainer" in March AR (p7) has two small errors. Line 480 should read DATA 131 (not 313) then no change until the last group which should be 3311 (not 3113).

```

10 REM: THIS PROGRAMME CALCULATES THE GREAT CIRCLE DISTANCE AND BEARING FROM ANY
    LOCATION TO ANY OTHER TARGET LOCATION.
20 REM: LATITUDE NORTH IS POSITIVE, SOUTH IS NEGATIVE. LONGITUDE WEST IS
    POSITIVE, EAST IS NEGATIVE.
30 REM: CONVERT HOME LATITUDE TO RADIANS
40 N = (HOME LATITUDE)
50 GOSUB 260
60 A = T
70 REM: CONVERT HOME LONGITUDE TO RADIANS
80 N = (HOME LONGITUDE)
90 GOSUB 260
100 LONGS = T
110 INPUT "Target latitude dms";N
120 GOSUB 260
130 B = T
140 INPUT "Target longitude dms";N
150 GOSUB 260
160 LONGF = T
170 F = LONGF-LONGS
180 P = SIN(A)*SIN(B)+COS(A)*COS(B)*COS(F)
190 D = ATN(-P/SQR(1-P*P))+3.142/2
200 PRINT USING "Distance in kilometres #####";D*1609.344
210 R = (SIN(B)-SIN(A)*COS(D))/(COS(A)*SIN(D))
220 C = ATN(-R/SQR(1-R*R))+3.142/2
230 IF SIN(F)<0 THEN PRINT USING "Bearing degrees ####";C*57.296 ELSE PRINT
    USING "Bearing degrees ####";360-C*57.296
240 END
250 REM:Subroutine to convert degrees minutes to radians
260 U = FIX(N)
270 V = N-(U)
280 T = (U*60+V)/3437.74#
290 RETURN
    
```

**Remember to leave a three second break between overs when using a repeater.**

# AMERITRON AL811 600W PEP HF Linear amplifier



Shades of the magnificent past! Remember the days when a power amplifier looked like it meant business and was heavy enough to convey the message? Well those days are back! Ameritron, one of the USA's leading amateur power amplifier manufacturers has released an amplifier using three 811A tubes in Class AB2 grounded grid to deliver a clean, comfortable 600W PEP. The AL-811 amplifier needs only 40W of drive for the VK legal limit. Best of all the cost of running the AL-811 is low, and a new set of tubes will only cost \$105 not \$350 - \$700 or more for other amplifiers using more exotic tubes.

- 600W PEP output
- All bands 160-10
- Three 811A tubes
- Quiet fan cooling
- Rugged construction
- 50Hz rated transformer
- Easy to use
- Vernier anode tuning
- Large twin meters
- Safety interlock

Ameritron's choice of the 811A is no accident, nor is it a purely economical one. The 811A has developed an enviable reputation for robustness and reliability over many many years of operation in amateur and commercial service. Its directly heated thoriated tungsten filament is immune to cathode stripping which can ruin an expensive indirectly heated tube in a few milliseconds if the amplifier is mistuned. Ameritron have chosen a simple yet extremely effective input circuit, a single Pi section with a slug-tuned coil for each position of the band switch. The slugs of the coils can be easily adjusted without removing the cover so that you can peak the amplifier without danger of being exposed to high voltage supplies.

AL-811 **\$1449.00** plus freight

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# Random Radiators

RON COOK VK3AFW & RON FISHER VK3OM.

**T**HIS MONTH WE HAVE our usual selection of antenna ideas we hope you might be tempted to try. But first a plea for help from one of our readers, WEasterling VK4BBL.

So many new cars are devoid of gutters or some other projection to which VHF/UHF antennas can be attached, hence the increase in antennas adhering to the rear window. We'd like to know something about these; where obtainable, what to do and how to tune and adjust, VK4BBL says that at the moment he is using a magnetic mount antenna but the magnet is so good he cannot get the thing off the roof of the car. Some years ago one of us used a magnetic mount antenna for two metres and it worked very well, but when taken off after a couple of years use, it proved to be a wonderful trap for moisture and the roof under the magnet was rather badly rusted. So watch out. Anyhow, back to the problems.

The other aspect is roof mounted TV-type masts. Professional installers know exactly where to drill holes in roof tiles so that there will be timber underneath for the screw-eyes for the guy wires. What to attach first—the roof end of the guy or the mast end. Suburban hams are finding it increasingly difficult to put up masts due to smaller building blocks, council restrictions etc. In many cases a roof-mounted trapped vertical or an inverted V is the only choice. Some "roof wisdom" would be very handy to have. Can anyone out there help? We have an idea that through-glass antennas were written up in QST some years ago. We'll try to find it.

Now from Bob Kemp VK3CAY comes the story of a TH3-JR triband beam antenna. We'll let Bob tell the story himself.

## Tuning the TH3-JR Triband Beam on 20 Metres

Two hams talking. First ham:

"I'm delighted, I've just completed a jigsaw after only 1-1/2 years." Second ham: "It took you a long time." First ham: "Oh no, it said on the box, five to eight years!" Well, this story has a lot in common with that jigsaw.

Some years ago, I purchased a TH3-JR slightly second-hand, together with its original small handbook. Also supplied was the balun, as recommended by the manufacturers, Hy-Gain (specifically a BN86, also by Hy-Gain).

This antenna was duly placed in service,

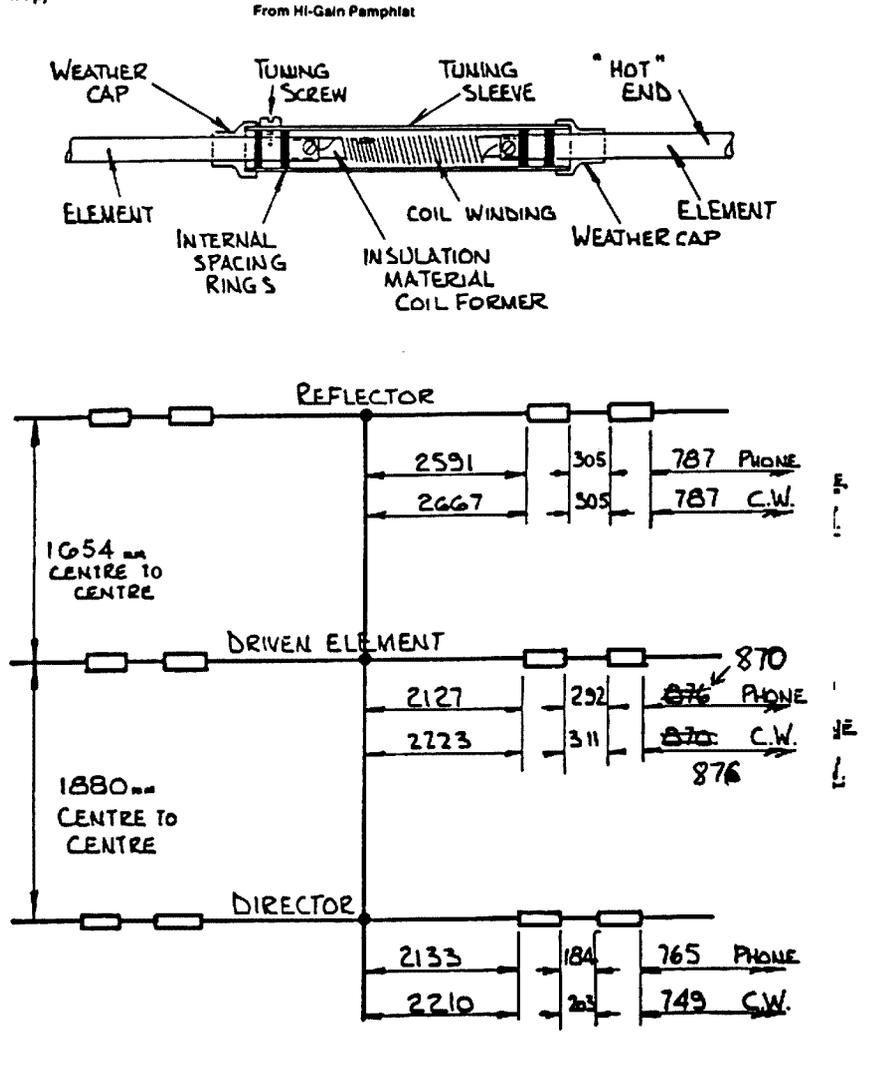
not without some neighbourly comment, but no real drama, and yours truly joined the ranks of the avid DXers. Time passed, as it has a habit of doing in spite of us. The TH3-JR was moved, raised, overhauled, and the traps were checked on the station dipper. There was a nagging feeling that all was not well with this antenna's performance. It seemed a bit vague in what was the forward direction. It had gain, but I had expected better. There was a feeling that 20 metres was its worst band.

More checks, then Des VK3CO had an article published in AR February 1988 on

overhaul of the TH3-JR, with dimensions for correct operation. These were exactly as laid down in my handbook, but now they were metric. It should be noted also that the driven element dimensions are measured from the outer wall of the boom, not the centreline of the boom, as is the case for the reflector and director.

Well, tribanders are a compromise and it's not reasonable to expect it to perform as well as a large monobander. Being stubborn (at least my XYL accuses me of this!) I press on regardless of fact, commonsense or reason. With the passing of time, I'm also

Figure 1: TH3-JR Dimensions in millimetres. (Measurements to end of tuning sleeve of trap).



becoming more crafty and hence check the RF currents in each element, on each of the three bands. Indeed, there is a problem on 20 metres, but what? Is my steel tape wrong? Like the ham and the jigsaw, it was only a question of time before a solution was found. It was so simple; the typesetters of the original handbook had made an error, and yours truly could not see the forest for the trees. I wonder how many TH3-JRs out there are incorrectly tuned? By the way, this antenna is performing very well on all three bands now. On average, it is nearly two "S" points over a dipole and now does have a back-to-front ratio!

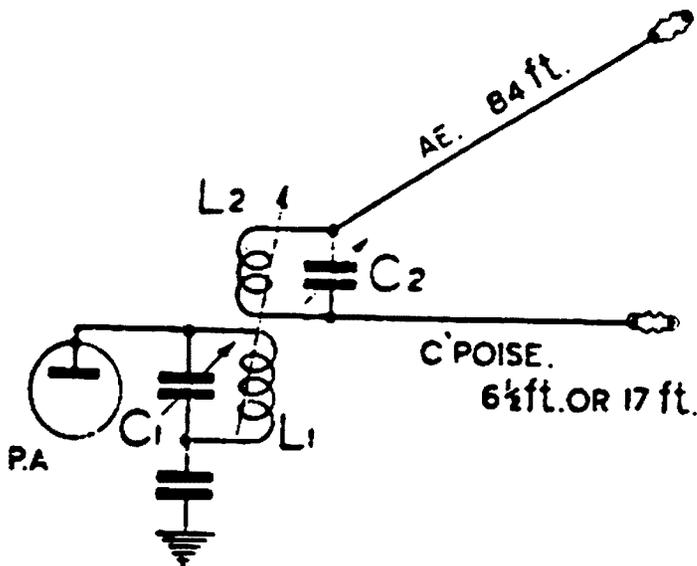
Des, in his article, and my handbook, both show that the driven element and director dimensions are longer on the phone section than on the CW section of the band. It's as simple as that. Ignore the handbook error and reverse these dimensions. Then your TH3-JR works as the designer had intended.

See Fig 1 for corrected dimensions.

Well, Bob, we certainly agree with your findings. Two different editions of the TH3-JR handbook both have the 20m measurements transposed as you suggest, but a TH2 handbook has it right. Just goes to show. Thanks Bob.

### The W3EDP Wire Antenna.

Does a certain length of wire produce better results on all HF bands than another length? There are many schools of thought that say yes it does. One such example is the W3EDP. This is an end-fed against a counterpoise of either 17 feet or 6.5 feet. Pardon the imperial measurements, but this antenna dates back to the mid 1930s. It was first described in *QST* around 1936, but our first reference is in the *RSGB Amateur Radio Handbook* of 1940. Over more recent years it has appeared in the *Short Wave Magazine* of August 1981 and in the later *RSGB Handbook*. Well what makes 84 feet work better than some other length? The theory is that with the counterpoise the antenna 'looks' like an end-fed Zepp. By the way, its not necessary to run the counterpoise out under the antenna, just run it around the skirting board or across the floor. On 80 metres the antenna is a slightly lengthened quarter wave. On 40- it's an end-fed half wave with 17' Zepp feeders. The counterpoise should be shortened to 6.5 feet on 20 metres and may not be needed at all on 15 and 10. It's a popular antenna with the QRP operators, and the guru of QRP, G3RJV, describes it as "an excellent antenna". Well, so where is the catch? Originating from 1936, it's not fed with coax. An ATU is required. The ATU shown



**The W3EDP Multi-Band Aerial.**  
A suitable value for  $C_2$  is  $0.0025 \mu F$ .

Band. Mc.	C'pse. Feet.	L2—2" Diam.
3.5	17	21 turns 16 S.W.G. spaced one diam.
7	17	7 turns 16 S.W.G. spaced one diam.
14	6½	5 turns 16 S.W.G. spaced one diam.
28	0	3 turns ½" spacing.

Reproduced from *RSGB Amateur Radio Handbook* 1940

in the diagram can be replaced with— you guessed it, our old friend the 'Z' match, which will give excellent results. It seems that you might get away with a standard unbalanced ATU. As yet we haven't had time to try out the W3EDP but will be doing so soon. In addition to the 'Z' match, We will be trying a Kenwood AT-120, and will let you know how it works out. One thing that might help in the tuning procedure is an RF ammeter in series with the antenna. None of the descriptions makes mention of this but it could be a worthwhile idea.

By the way, RF ammeters are common at buy and sell days. Grab a couple; they are very handy if you like to play with end-fed antennas. That's all for this month. Hope you have lots of fun playing with antennas. So it's goodbye from him and goodbye from me.

The two Rons.

ar

**Help stamp out  
stolen equipment -  
always include the  
serial number of  
your equipment in  
your hamad.**

# ANNUAL REPORTS FOR 1992 FEDERAL CONVENTION

Published below for members' information are all those annual Federal reports received by the closing date for copy for this issue of Amateur Radio magazine.

## **ANNUAL REPORT OF THE FEDERAL PRESIDENT FOR 1991**

**T**HIS PAST YEAR HAS continued the trend of the increasing benefits from the processes and decisions made a couple of years ago in the Federal sphere of the WIA. The best indicators are the performance of the Federal Office - particularly the excellent way that the examination process was introduced - and the successful financial result. This is a tribute to the management practices that have been introduced over the last few years.

### **Executive Matters**

#### **Federal Office**

Bill Roper, as General Manager and Secretary, has continued to bring his management expertise to bear on all aspects of the operation of the Federal Office. This not only includes the Office and its secretariat role to the Executive and the Council, but also the business management of Amateur Radio magazine. This year has seen the successful takeover of the examination process by the WIA from DoTC. The complete system from the accreditation of examiners to the prompt delivery of results to candidates was carefully thought out by Bill in advance. The WIA believes that examinations are now more readily available than ever before, making it easier for new people to enter the hobby and existing amateurs to upgrade their privileges. The system is working well and praise is now being received from many people, including those who were somewhat sceptical in the beginning.

Bill is still providing a considerable voluntary contribution to the work of the Executive Office. This involves work on weekends and public holidays. Further, Bill has not been able to take all of his accrued holidays due to the work load.

#### **Federal Executive**

As in the past two years, the majority of the Federal Executive members come from outside of Melbourne. This has continued to bring a wider view of ama-

teur radio matters and has proved to be very useful. The quarterly meetings are working well and there is a much greater sense of purpose and co-operation amongst the participants. The members of the Executive elected in 1991 were Rob Apathy, VK1KRA; Joe Gelston, VK7JG; Ron Henderson, VK1RH (Vice Chairman); Roger Harrison, VK2ZTB, Murray Kelly, VK4AOK; Peter Maclellan, VK3BWD; Kevin Olds, VK1OK; Neil Penfold, VK6NE; Bill Rice, VK3ABP (Editor of Amateur Radio); Terry Ryeland, VK2UX and Bill Wardrop, VK5AWM. David Wardlaw, VK3ADW, was co-opted onto Executive as Immediate Past President. Joe Gelston resigned in December and was replaced by Jim Forsyth, VK7FJ. There has not been anyone filling the position of Treasurer during the year.

During the year the Executive has met on 10 occasions, with four of these meetings being two-day Saturday and Sunday meetings. These two-day meetings have allowed many items to be considered in detail, particularly items relating to the financial, budget and performance aspects of the WIA. Two of the Tuesday evening meetings had to be abandoned because of the lack of a quorum.

The weekend meetings continue to be worthwhile, as a wider group of people are now more aware of what is involved in running the WIA on a daily basis. It has also furthered a better understanding between the divisions and provided a good opportunity for the exchange of ideas. The representation of each Division on the Executive and the weekend meetings are a successful arrangement and should be continued.

#### **Corporate Planning**

Since its initial presentation in 1989, the Corporate Plan has been reviewed on a regular basis and changes incorporated as issues were considered by the Executive. A recent review has shown that the majority of objectives have been achieved. Accordingly, it was considered appropriate review some of the WIA's activities. Accordingly, a recent Saturday afternoon was spent by the Executive conducting a "SWOT" (Strengths, Weaknesses, Opportunities and Threats) analysis. The re-

sults of this activity will be further considered by the Executive in the coming months as new directions are developed for the WIA.

#### **Amateur Radio Magazine**

Our magazine continues to improve, which is a tribute to the Publications Committee, the Executive Editor, Bill Rice, the Managing Editor, Graham Thornton and the Business Manager, Bill Roper. Feedback from members on the magazine, particularly the February data issue, has been very positive.

#### **International Matters**

As this report is prepared, David Wardlaw and Ron Henderson have been attending the World Administrative Radio Conference in Spain. David and Ron have made significant contributions to the preparation for this conference and have represented the needs of amateurs very well. Close liaison has been maintained with other Amateur Radio Societies (through IARU) and views of other administrations have been noted. We are looking forward to a full report from David and Ron on this important conference when they return.

#### **DoTC Matters**

As has been mentioned earlier, a significant change has taken place in the process of examinations. As a result of a number of meetings between the WIA and the DoTC, a significant number of outstanding matters have now been resolved. The most significant change now on the agenda is the issue of "deregulation" - that is the minimisation of the regulations governing the Amateur Radio Service. The tradition of the hobby of Amateur Radio has always been one of self regulation and the WIA believes that the likely changes are a positive step in that direction.

#### **Thanks**

There are many volunteer co-ordinators who contribute to the activities of the WIA on behalf of the Executive. On behalf of all members of the WIA, I would like to thank the following people for their efforts:  
Graham Ratcliff, VK5AGR Amsat

John Kelleher, VK3DP Awards Manager  
 Neil Penfold, VK6NE Contest Manager  
 and QSL Manager (VK9, VK0)  
 Brenda Edmonds, VK3KT Education  
 Hans Ruckert, VK2AOU EMC  
 John Edmonds, VK3AFU Historian  
 Gordon Loveday, VK4KAL Intruder  
 Watch  
 Ash Nallowalla, VK3CIT International  
 Travel Host Exchange  
 John Martin, VK3ZJC FTAC  
 Bill Roper, VK3ARZ and  
 Ron Fisher, VK3OM Tapes (Federal  
 News)  
 John Ingham, VK5KG Tapes (Video)  
 Leigh Baker, VK3TP WICEN

During the year Phil Hardstaff stepped down as Awards Manager and John Kelleher has now taken over this position.

This is my fourth (and final) report as your Federal President. It has been a privilege for me to serve the world's first and oldest National Radio Society in this capacity. During that time there has been a number of significant changes in the WIA. The first of these was the appointment of a very skilled General Manager and Secretary, who has revitalised the Executive Office and set the WIA on a very firm financial foundation. The second was the involvement of the Divisions more closely in the day to day running of the WIA by having representatives of each Division on the Federal Executive. While this was not necessarily the most desirable approach, it was one that was easily implemented within the present structure and has facilitated much closer contact between the Divisions and the Federal organisation, as well as between the Divisions themselves. This has considerably strengthened the management of our hobby.

Whether we like it or not, the process of change is part of our hobby, be it in the techniques or components we use to communicate with our many far flung

colleagues or in the process of regulation imposed on us by external authorities. I believe that as a result of the decisions made by the Federal Council and the Executive, the WIA has coped well with the changes of the past few years. We are also well prepared to face the changes that will come during the next few years. I would like to wish the incoming Federal President and Executive every success as they build on the work that has been carried out by their many predecessors over the last eighty one years.

I would like to thank the members of the Executive, particularly Ron Henderson, and the Office Staff, especially Bill Roper, for their support and encouragement over the past four years.

**Peter Gamble, VK3YRP  
 Federal President**

## ANNUAL FEDERAL FINANCIAL REPORT FOR 1991

For yet another year the General Manager acted in the dual role of WIA accountant and Treasurer.

As a non-profit organisation, the WIA should always budget for an excess of income over expenditure of about 5% of income. Expenditure for fixed assets (equipment, etc.) can only be made from Accumulated Profits.

The 1991 budget, prepared by the General Manager, and accepted by the Federal Council and Executive, budgeted for a surplus of income over expenditure of \$20,965, or 5.1% of budgeted income.

Despite events occurring during the year, which were not anticipated in the budget (such as the devolvement of the amateur examinations from the DoTC to the WIA, and the Australia wide financial recession), the result was a surplus of income over expenditure of \$20,751. This shortfall from budget of \$214 was a variation from budget of 1%.

Some of the more significant aspects of the audited 1992 financial statements include the following:

**Amateur Radio Advertising**, a major source of income, was \$6,836 over budget, which speaks well for the perception by advertisers of Amateur Radio magazine as an advertising vehicle. No help was received from Divisions in obtaining advertising for Amateur Radio magazine.

**Call Book**, the 1992 edition, sold very well when it was published at the end of September. After allowing for **Salaries & Secretarial** costs, and office overheads, the Call Book returned a profit of \$5,848 for the year.

**Examinations**, an unbudgeted item,

were costly to set up (\$8,300 from expenses and \$3,350 from accumulated funds for equipment) and, according to usual small business practice, those costs will take about three years to recoup. The highest cost component of WIA Exam Service is salaries and these are included with **Salaries and Secretarial**.

**Interest Received**, was \$5,127 under budget because of the dramatic and unexpected fall in interest rates during 1991.

**Members Subscriptions** income was \$17,977 higher than expected because the decrease in members for the year was 322 less than anticipated.

The over-budget expenses involved in the publication and distribution of Amateur Radio magazine such as **Bulk Posts, Typesetting and Wrapping & Addressing** were more than offset by the savings in **Printing** costs. These savings resulted from a new printing arrangement negotiated by the General Manager.

The Amateur Radio magazine result for the year was \$2,301 (or 1.3%) better than budget, and the net cost per copy of the magazine posted to members was \$2.39.

**Convention Expenses** were \$3,678 under budget mainly because of the substantial drop in air fares.

**Salaries & Secretarial** costs were \$22,317 over budget. The reasons included award salary increases early in the year, \$6,385 for the additional, unbudgeted work involved with setting up the examinations, and \$7,227 for weekend work by the General Manager (three weekends in every four throughout the year were spent by the General Manager working in the Executive Office mainly because of the increasing devolution of tasks to the Executive Office that were previously and historically carried out by volunteers!).

Despite the capital expenditure during the year with renovation of the office, and setting up WIA Exam Service, **Accumulated Reserves** totalled \$76,264 at the end of the year.

After expenditure of \$28,016 for the Geneva CCIR conference, the NZART conference, the IARU Region 3 conference in Bandung, and preparation costs for WARC 92, the **International Representation** account retained a balance of \$19,300.

The table following shows the Profit and Loss budget and actual for 1991.

If any member has any queries about the finances of the Federal body of the WIA, please address them in the first instance to the Federal Councillor of your local WIA state Division.

**Bill Roper, VK3ARZ,  
 General Manager & Secretary**

**Help protect our frequencies become an intruder watcher today.**

**PROFIT AND LOSS BUDGET AND ACTUAL AMOUNTS FOR 1991**

INCOME	BUDGET	ACTUAL	VARIATION	
			Amount	%
ADVERTISING (incl. HAMADS) - AR	39024	45860	6836	17.5
CALL BOOK	32000	32412	412	1.3
DONATIONS	250	0	-250	-100.0
EXAMINATIONS INCOME	0	5619	5619	0.0
INSERTS - AR	400	603	203	50.6
INTEREST RECEIVED	22500	17373	-5127	-22.8
INTERNATIONAL DONATIONS/LEVIES	12332	19060	6728	54.6
MAGPUBS	3800	2943	-857	-22.6
MEMBERS SUBSCRIPTIONS	287500	305477	17977	6.3
SUBSCRIPTIONS (O/SEAS DIRECT) - AR	7000	5473	-1527	-21.8
SUNDRY INCOME	2000	2859	859	42.9
TEAC FEE INCOME	2400	4676	2276	94.8
<b>TOTAL - INCOME</b>	<b>409206</b>	<b>442353</b>	<b>33147</b>	<b>8.1</b>
<b>LESS EXPENDITURE</b>				
AMSAT	1500	2072	-572	-38.1
AUDIT FEE	2600	3308	-708	-27.2
AWARDS - AR	500	504	-4	-0.7
AWARDS & SPECIAL PROJECTS	750	353	397	52.9
BAD DEBTS WRITTEN OFF	500	0	500	100.0
BANK CHARGES	2700	2204	496	18.4
BULK POSTS - AR	35897	38955	-3058	-8.5
CALL BOOK EXPENSES	12000	12928	-928	-7.7
COMMITTEE/COORDINATOR EXPENSES	1000	2644	-1644	-164.4
CONVENTION EXPENSES	22000	18322	3678	16.7
DoTC LIAISON	0	1227	-1227	0.0
DEPRECIATION	6802	6907	-105	-1.5
DRAFTING - AR	1000	490	510	51.0
ELECTRICITY	1500	1610	-110	-7.3
EXAMINATIONS EXPENSES	0	3388	-3388	0.0
GENERAL EXPENSES/SUNDRIES	1000	2010	-1010	-101.0
I.A.R.U. DUES	4900	4488	412	8.4
INSURANCE/WORKCARE LEVY	4365	5253	-888	-20.3
INTERNATIONAL REPRESENT'N PROVISION	12332	19060	-6728	-54.6
MAGPUBS EXPENSES	2800	3943	-1143	-40.8
POSTAGES & FREIGHT	10000	9987	13	0.1
PRINTING - AR	68000	59702	8298	12.2
PRINTING/STATIONERY/OFFICE SUPPLIES	9000	10413	-1413	-15.7
PROMOTION/ADVERTISING/RECRUITING	9600	5582	4018	41.9
RENT & CLEANING	9095	9664	-569	-6.3
REPAIRS & MAINTENANCE (OFFICE)	2000	4180	-2180	-109.0
SALARIES & SECRETARIAL	126000	148317	-22317	-17.7
TEAC EXPENSES	1150	2320	-1170	-101.7
TELEPHONE	3200	3918	-718	-22.4
TRAVEL (EXECUTIVE)	2000	674	1326	66.3
TRAVEL (OFFICE)	850	966	-116	-13.6
TYPESETTING - AR	24500	25354	-854	-3.5
WRAPPING & ADDRESSING - AR	8700	10860	-2160	-24.8
<b>TOTAL - EXPENSES</b>	<b>388241</b>	<b>421602</b>	<b>-33362</b>	<b>-8.6</b>
<b>SURPLUS/DEFICIT</b>	<b>20965</b>	<b>20751</b>	<b>-214</b>	<b>-1.0</b>

**ANNUAL REPORT OF THE PUBLICATIONS COMMITTEE FOR 1991**

The main theme of this report for the year 1990 was that after a number of rather traumatic changes in 1989, 1990 had been a year of relatively calm progress. This trend continued through 1991 and in most respects the production of *Amateur Radio* (and the Call Book) has been carried out in a smooth and efficient manner. As Chairman, I hasten to point

out that, while the Committee has made its contribution to this happy state of affairs, a major part of the credit is due specifically to the firm financial direction of the General Manager and the detailed overall competence of the Managing Editor. While my own position of Executive Editor is no sinecure, the pressure is really on for only a few days each month and it is comforting to know the magazine is in good hands for the rest of the time.

As suggested last year, some attempt is being made to plan in advance the mixture of material in each issue, but progress towards a fully planned magazine is very slow. So long as the supply of material from volunteer authors continues to be adequate, there is little need to do more than mix the ingredients in the proportions supplied. One notable exception was in recognition of the 100th birthday of Harry Angel VK4HA in December. We were told in advance by a VK2 of the forthcoming event, and were thus able to commission suggested VK4s and eventually the VK4 Division to provide the relevant article and photographs. Incidentally, no-one has yet submitted a competing claim to being the oldest active amateur in the world! Many thanks to all concerned for rallying to the cause.

Financially, the performance of AR over the calendar year was very close to budget, and the General Manager deserves congratulations for the accuracy of his predictions. Income, mainly from advertising, was just under \$52,000 which was about \$5,500 above budget. Expenditure totalled \$233,000 (\$3,000 above budget) of which the largest single component was salaries and office costs at \$102,000. Membership fees contributed \$183,000 and the cost per copy mailed to each member was \$2.39 versus the budget figure of \$2.38.

Some progress is being made towards the concept of a magazine produced entirely "in-house" (except for the printing) by a full-time salaried editor-producer. This is seen as the only viable alternative to the present semi-volunteer situation, which cannot continue indefinitely. The cost, however, will unavoidably be higher than at present by at least \$10,000 per annum.

There has been no change this year in the membership of the Publications Committee, which comprises (in alphabetical order):

Norm Eyres	VK3ZEP
Ron Fisher	VK3OM
Peter Gibson	VK3AZL
Evan Jarman	VK3ANI
Bruce Kendall	VK3WL
Bill Rice	VK3ABP
Gil Sones	VK3AUI
Bob Tait	VK3UI

As paid employees, Graham Thornton VK3IY, Bill Roper VK3ARZ and Brenda Edmonds VK3KT are not Committee members, but do of course actually perform most of the magazine work (production, advertising, business management, etc). Others who contribute, but are too many to name, are the four technical editors who operate from VK4 and VK6, a group of about four volunteers who carry out each month's

proof-reading, and of course all the regular columnists and contributors. Then there are the other staff in the Executive Office and the staff at the typesetters (Magazine Graphics). The printers (Industrial Printing & Publicity) and mailing house (RL Polk & Co) must also be mentioned. To all of you, our gratitude for another year's work well done!

**Bill Rice VK3ABP**  
Executive Editor

## **ANNUAL REPORT OF FEDERAL TECHNICAL ADVISORY COMMITTEE FOR 1991**

**COMMUNICATION:** Communication between FTAC and Divisional Technical Advisory Committees has continued to work effectively, thanks to the TAC representatives in each Division.

**RECORDS:** A large number of record claims were processed, and the "Certificates of Achievement" for record holders have resulted in improved goodwill towards the WIA, both within and outside Australia.

**BEACONS:** The 50 MHz beacon policy has been revised to provide extra beacon frequencies for the eastern states, and it is now up to those Divisions to move beacons into the 50 MHz segment. The IARU deadline for the 10 metre beacon changeover has been extended to January 1993. It is a matter for concern that many VHF/UHF beacons around the country are still inoperative.

**DEREGULATION:** A major activity this year has been the submissions relating to deregulation of licence conditions, especially regarding identification and repeater linking. Thanks to the new approach adopted by DoTC, these submissions are expected to bear fruit in the near future.

**AMATEUR ALLOCATIONS:** No progress has been made in securing spectrum space to replace the 576 MHz band. Approaches have been made to DoTC concerning the radiation of TV sound modulation within exclusive amateur bands.

### **RECOMMENDATIONS:**

1. That Divisions give attention to 50 MHz beacon allocations, and also to getting inoperative beacons back on the air.
2. That after the outcome of WARC '92 is known, Executive actively seek the establishment of exclusive amateur segments at each band above 144 MHz.

**THANKS:** Again I wish to thank all FTAC panel members and the staff of the Federal Executive office for their assistance. I have been dogged by illness in the last year and this help has been invaluable. I am hopeful that my situ-

ation will continue to improve during the coming year.

**John Martin, VK3ZJC**  
Chairman, FTAC

## **ANNUAL REPORT OF ROSS HULL VHF - UHF CONTEST MANAGER FOR 1991**

The band multipliers were changed for 1991- 1992 to overcome the scoring advantage of the 6 metre band. This resulted in fewer 6 metre logs, but this was offset by increased activity and a greater number of logs on higher bands. Nevertheless increased interest was shown by overseas 6 metre stations. Comments from entrants indicate general satisfaction with the existing rules, and no significant changes were suggested. Activity was again concentrated in the first half of the contest but no-one suggested any further shortening of the contest. The abuse of calling frequencies on 2 metres and above was worse than in 1990-1991, in spite of my requests to the contrary. This practice of "hogging" has now become normal for many stations throughout the year. This problem is basically one of poor operating habits and the contest itself is not responsible. However thought is being given to ways in which the rules could be changed to discourage or penalise selfish operating habits. The only other changes planned for next year are minor and relate to bringing the contest exchanges for the Ross Hull Contest and the VHF-UHF Field Day into line.

**John Martin, VK3ZJC**  
Ross Hull VHF-UHF  
Contest Manager

## **ANNUAL REPORT OF THE VHF - UHF FIELD DAY MANAGER FOR 1991**

The Field Day was better supported this year than in 1991, largely due to the change of date from the Australia Day weekend to a mid-January date. Band multipliers were brought into line with those used for the Ross Hull Contest, and this change was also approved. Suggested improvements for 1993 include a one-day section for those who cannot stay out overnight, combined with a possible later finish on the Sunday. A number of entrants commented on the different exchanges for the Field Day and the Ross Hull Contest, and these will be brought into line next year. Very few operators have shown any interest in the Maidenhead locator system. One is driven to the conclusion that it is not an appropriate

basis for contest scoring in a country like Australia where the active amateur population is widely and thinly distributed. Therefore thought is being given to dropping the locator system and adopting the same distance-based scoring as used in the Ross Hull Contest. I am reluctant to make too many rule changes too often but feel that these changes would be an improvement and stimulate more activity.

**John Martin, VK3ZJC**  
Manager, VHF - UHF Field Day

## **ANNUAL REPORT OF FEDERAL INTRUDER WATCH CO-ORDINATOR FOR 1991**

This year just past was no different to other years as far as the number of intruders into the recognised amateur bands. We saw a decrease in positive monitoring of the DoTC. No indication of whether the proposed upgraded monitoring equipment ever became a reality. Nor did the service, as far as Australia is concerned, get any satisfactory evidence that even some of the reported intrusions have been followed up at inter-government level.

No intruders have been "removed" from our legal frequencies. I have had neither direct or indirect feedback on any of the programs suggested by the DoTC to assist their monitoring, eg. number of times certain intruders were logged, or the time they occupied the frequency as recorded by the observer.

At a state level, it has been on the whole disappointing. VKs 1,3 & 5 have no co-ordinators, despite efforts to obtain them.

We have NO observers in VK3. In VK5 the oldtimers post direct to me, which is appreciated. VK4 still leads the way in observers and log sheets.

Owing to the resignation of Bill Martin VK2COP as the IARU Region 3 Co-ordinator, we now have Rohan ZL1CVK in the "chair". I am looking forward to working with him, and will assist where possible in reducing the intrusions in Region 3. I think it is a good omen that ZL has now taken over. The new broom again. We in VK have had a good run of Region 3 co-ordinators and must not be greedy.

More work now the USSR is no more, in sorting out all the states.

An interesting observation over the years I have been co-ordinator with Intruder Watch. Our "modes" tape does not appear to be working to the best advantage with our new recruits to the monitoring service. It does not assist them - I believe it scares them. I have discussed this with other co-ordinators and they are of the same opinion. Take a new

observer. He asks for a tape, and when he/she plays it, it scares them. All those "noises", guard carriers, duplex and quadplex carriers, and all to be remembered if possible for a quick identification. No wonder my recruit rate is about 1%.

If we want to get new blood into the service we must upgrade our tape to an interesting, informative one where they can be guided into these modes. Graham VK6RO is going to put his thoughts on to tape for me with some examples. I find that, even after 15 years as an observer, I still have to refer to the tape. Easy if one is set up for it.

Gordon Loveday VK4KAL  
Federal Intruder Watch  
Co-ordinator

## ANNUAL REPORT OF EDUCATION CO-ORDINATOR FOR 1991

This has been another very busy year, although the emphasis has changed from that in other years. I have received far fewer requests for information direct from the public and potential examinees, and have had to supply only a few Morse code tapes and sample theory examination papers. I have attended several local and interstate Conventions, and some club meetings. I have continued the monthly "Education Notes" in Amateur Radio magazine.

The major event of 1991 which affected Education was the change in the examinations devolvement from free access by any interested parties to the assumption of total control of the administration of examinations by the WIA. DoTC, having found the original devolved system unmanageable, and being unable to allocate sufficient resources to improve the viability and integrity of the system, proposed in July that the WIA should assume responsibility for the production of all examination materials and their supply to persons desiring to conduct examinations. After extensive consultation between DoTC and the WIA, the present system was devised by the General Manager, and the amateur population advised of the changes.

As Education Co-ordinator I was able to assist in some of the planning and discussion of the new system in the early stages. I proofread the stockpile of examination question papers before their submission to DoTC for approval and prepared segments of prose for use in the CW examinations. I also assisted with the publicity and explanations about the new system, and responded to a number of letters which offered either criticism or

useful suggestions. Many of the critical letters were based on inaccurate information. In most cases the writers reacted favourably to a straight-forward explanation of the matters or procedures with which they had expressed concern.

Another development in which I have assisted is the formation of a question bank Sub-Committee, whose tasks will be to review and extend the existing theory and regulations question banks. All banks are at present too small, leading to considerable repetition of questions from paper to paper. In addition, there are a number of questions which are badly worded, or not on the syllabus. This sub-committee will view all proposed additions to the banks before they are submitted to DoTC for final approval.

A highlight of the year was my trip to the NZART annual conference in late May 1991. This gave me the chance to talk to a number of amateurs involved in education and examinations. This was especially interesting as at that stage NZART had only recently become responsible for administering the theory and regulations sections of their examinations. It appears that the NZART is much more active in the schools than is the WIA. Considerable work has gone into production of materials for use in schools, and annual awards are made to young members.

**Future.** The major task at this stage is the review and extension of the examination question banks. This will be an on-going task, as inevitably some questions will become "dated" and need to be replaced. With the move towards further deregulation of the Amateur Service, the Regulations bank in particular will have to be edited, and extra questions added on the regulations that remain. It may be that we can extend the Regulations examination to include questions on operating etiquette and traditional procedures as well as those questions which relate specifically to matters in the Radio Regulations.

I have already stated that it is time for a review of both AOCP and NAOCP syllabuses. This can be done to some extent in conjunction with the review of the question banks, as members of the Sub-Committee will be able to advise if questions on some topics should be deleted. However, questions not on the existing syllabuses cannot be added until it is agreed with DoTC that those topics be included.

There is still a pressing need for the exchange of information between those involved in education of potential amateurs. Those who commit themselves to running courses or classes frequently find that they must "re-invent the wheel" as

Divisions do not have records of resource material prepared by previous lecturers. I appeal to those who do run classes to provide their Divisions with an outline of their course structure and with information about their classes so that inquirers, who are of course potential members, can be assisted in their search for instruction.

There is also an urgent need for more resources to be made available to candidates in remote areas. We now have an excellent system to help these people sit for examinations, but few ways of helping them to gain the necessary knowledge in order to contest the examinations.

In conclusion, I thank those who have assisted with tasks on request, responded to my queries, or provided information or resources to make my job easier.

Brenda M Edmonds, VK3KT  
Federal Education Co-ordinator

## ANNUAL REPORT OF FEDERAL VIDEO CO- ORDINATOR FOR 1991.

This past year has been an extraordinarily busy year for me personally, but unfortunately not for the Video Library! While I am sure that it is still a valuable resource particularly for country Radio Clubs, the collection is gradually aging and becoming increasingly out of date.

I stated in my report last year that I was willing to continue indefinitely as the WIA Video-Tape Co-ordinator, but to be frank, what is really needed now is someone with the time and energy either to produce new lectures or to organise those willing to do so.

Rather than let the Service slowly become less relevant to today's Radio Amateur, I honestly think that I should step down now because in the present circumstances I am unable to give the time and energy which the position demands.

Anyone contemplating the job must have access to a VHS VCR because almost all requests nowadays are for the VHS format. Most of the video masters are 3/4" U-matic video cassettes which are played on the Institute's almost-new Sony VP-5040 player; most of the remainder (lectures produced by others) are sub-mastered on Betamax tapes which are played by the Institute's Sanyo VTC-M10 recorder.

Finally, although this report is intended to cover the calendar 1991 year, I should point out that in the February issue of "Amateur Radio" magazine in which the Video Title listing has traditionally been published, this year's listing unfortunately did not include as usual

instructions on how the service works. So as to avoid confusion, please note that this information was published in the March edition of "AR". It is to be hoped that next year the listing will be published free of error.

**John F Ingham VK5KG**  
**Federal Videotape Co-ordinator**

## **ANNUAL REPORT OF THE GENERAL MANAGER & SECRETARY FOR 1991**

The Executive Office, apart from providing administrative and secretarial facilities for the Federal Council and the Executive, exists mainly as a secretariat for the WIA state Divisions to provide those member services, such as Amateur Radio magazine, Call Book, Customs certification, DoTC Liaison, examinations, membership database and fee processing, etc., which can be carried out more efficiently on behalf of the Divisions by a centralised office.

1991 was another year of continued development and further computerisation of administrative procedures so that the Executive Office could run more efficiently and effectively.

The first major achievement for the year was the installation of a five station computer LAN. Many difficulties were experienced, and it was several months before the last of the "bugs" was eradicated from the system. Several problems even defeated the computer professionals. This network, combined with over 25 new computer programs written and developed in the Executive Office during the year, and further on-the-job training of staff, helped to increase the efficiency of operations by an estimated 40% over the course of the year.

Another major achievement was the renovation and expansion of the office facilities. The WIA had leased the present office space for over 10 years but, for a variety of reasons, it was considered no longer of sufficient size or condition. After exploring the viable options a new lease arrangement was made for the present office which was expanded into an additional area thereby enabling the setting up of a conference room for Executive and Federal Council meetings. The office was then completely repainted, and additional office furniture purchased. In addition, the fax machine was given a dedicated telephone line, and a seven station, two line Commander telephone system was installed.

Another significant achievement during the year was the change in liaison procedures with the DoTC in Canberra

which brought about a vastly improved relationship and results. Formal quarterly joint meetings between the WIA and the DoTC, where members of the Executive met and negotiated with representatives from the DoTC, were replaced with direct, informal negotiations between the General Manager and DoTC department heads, conducted as the need arose.

Arguably the largest and most difficult task ever taken on by the Executive occurred during 1991. Examinations.

From the time of the surprise decision by the DoTC to devolve examination administration to the WIA, the Executive Office had less than four months to design a system, compile the instruction manual, design over 30 forms, write over 20 computer programs, and prepare an examination paper bank. The General Manager worked 100 plus hour, seven day, weeks for that four month period and, with the help of a small group of dedicated people, WIA Exam Service commenced operation on 1st October 1991.

The enormous workload in setting up examinations was further increased by the large number of queries (many quite illogical and uninformed, some quite abusive) received by letter, fax and telephone.

Some of the other major achievements during 1992 included:-

Preparation of staff instruction manuals for all new computer operations;

Improved comprehensive analysis of membership trends;

Substantial development of recruiting "leads" information; and

Publication of the 1992 Call Book.

Due to further development of accounting programs, enabling more detailed analyses of the cost effectiveness of individual tasks, the costs of operation of the Executive Office were kept as low as possible. Despite the abovementioned major projects, the surplus of income over expenditure for the Federal Body was only \$214, or 1.0%, below budget.

Office staffing has now stabilised, and the present team are enthusiastic and competent.

The staff currently consists of:-

### Full time paid employee

General Manager

Bill Roper VK3ARZ 75 hours pw

### Part time paid employees

Office Manager

Brenda Edmonds VK3KT

20.5 hrs pw

Book Keeper

June Fox 25 hrs pw

Membership & Exams

Chris Russell VK3LCR

30 hrs pw  
Membership  
Margaret Allen 18 hrs pw  
**Contractors**  
Managing Editor  
Graham Thornton  
VK3IY 19.5 hrs pw  
Membership computer  
Earl Russell VK3BER  
3 hrs pw maintenance

### Volunteer workers

Librarians

Ron Fisher VK3OM 4 hrs pw

**Bill Roper, VK3ARZ,**  
**General Manager & Secretary**

## **ANNUAL REPORT OF FEDERAL EMC (ELECTRO MAGNETIC COMPATIBILITY) CO- ORDINATOR FOR 1991**

- 1) Reports were sent to the Editor and published in "AR";  
January 1991, June 1991, November 1991. More than 70 EMC reports have been published during the last 10 years, by VK3QQ, VK2AOU and other contributors.
- 2) Correspondence on EMC Matters:
  - 2.1) NZART EMC group list of VK-EMC-Reports was sent to ZL2CA
  - 2.2) Interesting EMC cases reported by: VK4AFA and VK4OE
  - 2.3) summary EMC Report prepared for the benefit of VK Amateurs, who did not (as recommended) keep past "AR" EMC Reports, which can be helpful if an EMC problem was experienced.
  - 2.4) Comment on EMC Document: 92.003:WR., 8-1-1992. Sent to Executive of WIA.
- 3) EMC Information received from: "QST", "CQ-DL", "Radio Communication" (via Norm Burton) and DL1BU.
- 4) The development of EEC EMC Standards is watched with great interest and concern by radio amateurs world wide. The EMC specialists of the DARC are correcting statements by the German Telecom (Ministry of Communication).

**Hans F Ruckert, VK2AOU**  
**Federal EMC Co-ordinator**

**Amateur radio Helping  
the community.**

**REPORT OF FEDERAL COORDINATOR INTERNATIONAL TRAVEL HOST EXCHANGE FOR THE YEAR ENDING 31 DECEMBER 1991**

The International Travel Host Exchange (ITHE) is a voluntary scheme administered by the American Radio Relay League (ARRL) wherein interested radio amateurs are able to meet or host fellow operators from other countries. This is a free service, which is promoted by the WIA to its members. You do not have to be on the list to contact those on it.

During 1991 the number of enquiries handled by this office tripled to six; two by Australians intending to travel overseas, and four by potential visitors. There have been a few other direct contacts between participants.

The total Australian membership is 23 couples or individuals and we need some more names. Please contact the undersigned for more details.

Ash Nallawalla, ZL4LM/VK3CIT  
**Federal ITHE Co-ordinator**  
**PO Box 539,**  
**Werribee, VIC 3030**  
**(03) 741-9302 AH; (03) 742-4566**  
**Fax**

**ANNUAL REPORT FROM FEDERAL TAPE CO-ORDINATORS FOR 1991**

The practice of providing Federal News on a recorded tape for weekly Divisional news broadcasts, completed 16 years of operation during 1991.

Preparation of the news scripts for a two, seven minute news segments tape averages five man-hours. All news scripts are prepared by Bill Roper VK3ARZ, with the assistance of Brenda Edmonds VK3KT. The recording of the news segments on to the master tape takes about another man-hour, a task shared between Bill Roper and Ron Fisher VK3OM. The duplication of the tapes and dispatch to each of the seven Divisions takes another two man-hours, tasks carried out by Ron Fisher, and June Fox from the Executive Office staff.

All of us involved with the production of the Federal Tapes would like to thank those volunteer Divisional broadcast announcers and engineers who so ably assisted during 1991 in broadcasting the news from the Executive Office to WIA members.

**Bill Roper VK3ARZ,**  
**General Manager & Secretary**  
**ar**

**Battle of Coral Sea Commemoration VI4BCS Townsville, Australia**

ROGER CORDUKES VK4CD, PO Box 964, TOWNSVILLE 4810

**T**he Battle of the Coral Sea is considered by historians to be one of the most significant battles of World War Two and a landmark in the history of Australia.

In May, 1992 the national commemoration of the 50th Anniversary of the Battle of the Coral Sea will be celebrated in Townsville. It will be 50 years since Americans and Australians fought against the Japanese in the Coral Sea about 1200km off the north coast of Queensland.

The Townsville Amateur Radio Club (VK4WIT) has been invited by "Coral Sea '92" to be a part of these celebrations. During 1-13 May, a special event call-sign, VI4BCS (Victor India Four Battle Coral Sea), will be activated from the Club's premises at Green St, West End, Townsville. A special QSL card will be available for all QSOs to VI4BCS during the commemorations.

The Battle of the Coral Sea began on 4 May and concluded on 8 May 1942. It was the closest approach of hostile forces in strength to the Australian Coast during World War II. The Battle was fought both in the air and on the sea. The Allied forces contained 26 ships against 62 Japanese ships. Both sides suffered heavy casualties, with over 4000 United States servicemen killed.

The Battle of the Coral Sea Celebrations have been organized by Coral Sea '92, a committee led by Mr Graham Jenkinson in Townsville. The celebrations include a troop train from Brisbane bringing 300 ex-servicemen and women to Townsville, the arrival of four United States Navy ships and three Australian Navy ships on 8 May for the unveiling of

the \$100,000 Coral Sea memorial in Anzac Park, the largest gathering of ex-servicemen and women from both Australia and United States since World War II.

Visiting ex-servicemen and women may care to inspect the Townsville Amateur Radio Club's premises during their visit to Townsville.

Our Club meets on the first Tuesday of the month at 7.30pm, that is Tuesday 5 May. Please phone Bob Mann VK4WJ on (077) 79 7869 or Roger Cordukes VK4CD on (077) 74 0221. Or write to TARC Inc PO Box 964, Townsville, 4810 Australia. Packet address: VK4WIT@VK4AFS#NQ.QLD.AUS.OC.

The Townsville Amateur Radio Club looks forward to welcoming all visitors to Townsville during the celebrations and hopes to contact many amateurs during this special occasion. TARC operates nets:

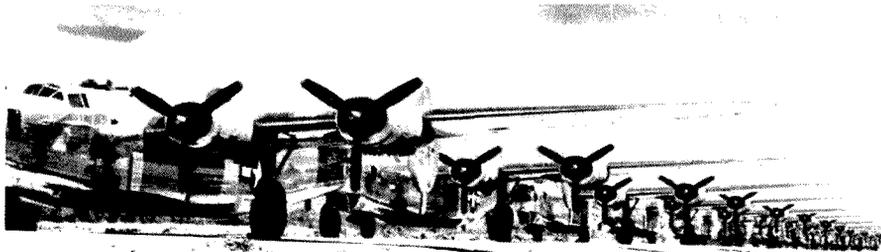
- Sundays
- 28.365 MHz 0830 local time
- 146.700 MHz via VK4RAT
- 0900 local time
- 3.605 MHz 1930 local time

Repeaters  
 VK4RAT 146.700 438.225

Meetings: First Tuesday of the month, 1930 local time, Green St West End (monthly meeting). Third Tuesday of the month, 1930 local time (social meeting).

- VI4BCS frequencies (1-13 May)
- 3.605 MHz
- 7.080 MHz
- 14.190 MHz
- 21.190 MHz
- 28.365 MHz

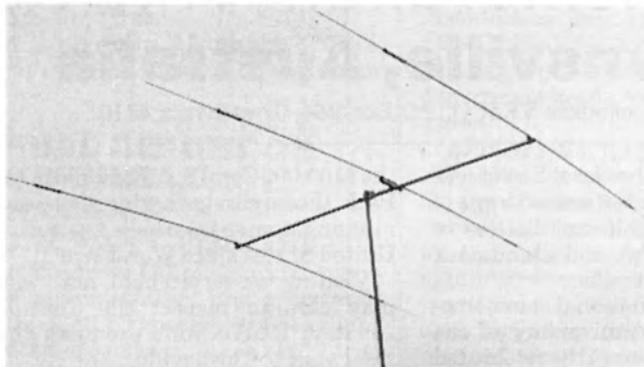
ar



Newly delivered B24 Liberator bombers of the USAF line up at Garbutt Air Base, Townsville, some time between 1942 and 1945. (Courtesy Arch Fraley Collection)

# TET-Emtron

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## TET — EMTRON

### Model TE-33

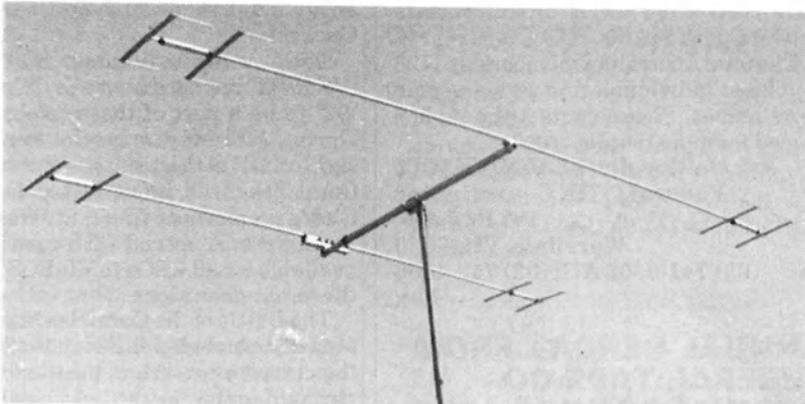
The "TET-EMTRON" model TE-33 is an optimum performance 3 element HF Beam Antenna. New high efficiency traps, all stainless steel hardware and rugged aluminium construction guarantee, long and trouble-free operation. As trap type antennas are generally considered narrow banded, the TE-33 gives a SWR of 1.5 or less across the entire operating band, and therefore does not need any readjusting for Phone or CW band. The antenna is made from specially hardened aluminium, all predrilled and partly pre-assembled components — THIS ANTENNA IS MADE TO LAST.

Band .....	14, 21, 28MHz
Gain .....	6, 6.2, 7 dBd
F/B Ratio .....	21, 15, 16 dB
Power .....	2 KW PEP
Max Ele. Length .....	1.3m
Weight .....	12.5kg

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FREQUENCY .....	14 21 28MHz
ELEMENT LENGTH 5.0m .....	BOOM LENGTH 2.0
GAIN 4/6/6 dB .....	FRONT TO BACK RATIO 12-20dB
FEED IMPEDANCE 50ohm .....	TURNING RADIUS 2.74m
WIND SURFACE 0.25m .....	WEIGHT 9.1kg
VSWR 21 28MHz less than 1.5:1 across band	
14MHz 150 kHz less than 1.5:1	
250 kHz less than 2.0:1	



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Fax: (09) 472 3795

# Voices Out of the Air

BOB HAWKSLEY VK2GRY (EX-G3GBP), 21 WALLUMATTA RD, NEWPORT 2106  
(ARTICLE ORIGINALLY INTENDED FOR ABC BROADCAST USE)

**J**UST ON 60 YEARS AGO there occurred an event that stunned the world – a 251-word message broadcast by King George V to the British Empire on Christmas Day 1932. Here's part of what he said, by courtesy of ABC Sound Archives.

*I speak now from my home and from my heart to you all, to men and women so cut off by snows, the desert or the sea, that only voices out of the air can reach them.*

Why did that broadcast make such an impact? Quite simply, it demonstrated that one person could speak to all mankind at the one time and, in this instance, the King spoke to a good quarter of it. Technically it was a tremendous achievement. It was done live and broadcast simultaneously on long, medium and short waves - about which I'll have more to say later.

But how was this possible when wireless as a discipline was scarcely 30 years old? The inventors of wireless, Hertz and Marconi among others, showed the way, but the actual ways were trod by the hundreds of thousands of experimenters the world over, wireless enthusiasts, radio amateurs or hams as they are colloquially known.

While most hams exhibit a great diversity of interests, they are all seemingly propelled by one common factor: a hearty disregard for the opinions of experts who say that something can't be done. I'll give you a classic example, but first I should explain something about long, medium and short waves which I mentioned a few moments ago.

When broadcasting first began, programs were transmitted on long and medium waves by what today are called the AM stations on our radios. (AM means amplitude modulation, which is a technical description of how the sound is carried by the radio wave).

And on some radios you may also have seen the letters SW, which stand for short wave, and it's on the short waves that we get programs from all over the world.

Now in 1920 it was the expert view that short waves would never be any good for broadcasting because they didn't appear to go very far. Logic was on the side of the experts because long-wave stations were heard at distances of many hundreds of kilometres, while medium wave stations could be heard at a hundred or so kilometres. But short waves could be heard for only a few kilometres and

then they fizzled out. So the expert view was that they weren't any good for broadcasting.

But a ham in England didn't agree because of something rather odd happening in Scotland - the Scottish could hear the London medium-wave programs and Scotland is all of 500 kilometres away from London - almost five times the distance one could normally expect to hear a medium-wave station. The same thing happens today and, in Sydney, for example when, in the evening or early morning, it's not uncommon to hear stations which are in Victoria or Queensland. Why? The short answer is that about 100 kilometres or so up in the sky the atmosphere reflects the waves and so they bounce back to earth. But in the early 1920s this wasn't known.

The experts said that the phenomenon was due to freak conditions, which is what all experts say when they don't know. But the ham simply refused to accept this and he formed the notion that the medium waves might bounce along rather like a tennis ball because there simply had to be a logical explanation for Scottish listeners hearing London medium-wave programs. And if medium waves bounced, then why not short waves? So he decided upon a bold experiment.

He designed and built a short-wave transmitter and receiver (for the technically minded its nominal wavelength was 30 metres) and he organised a fellow ham in Malta to do the same. (Malta is 2000 kilometres from England). A time was fixed for a radio appointment (called a schedule or 'sked' in ham language) and, as the minute hand closed upon the appointed hour, there came out of the ether a call...

The Malta station replied immediately, and all evening the two hams chatted in morse across the 2000 kilometres. They had achieved what the experts had said was impossible.

And, just to conclude this story, in no time fellow RAF hams in Cairo, Bombay, Singapore and Hong Kong were all chatting to each other, and then the Admiralty and the Air Ministry were given a demonstration which, for once, convinced them on the spot that short waves could be used to communicate with fleets and squadrons anywhere in the world. And so, once again, the military found a use for an innocent pastime but, not to be

outdone, the hams found other wavelengths.

That was 70 years ago and today hams straddle the world. But there are not only radio hams, but hosts of other types of ham in all sorts of disciplines such as archaeology, biology, botany, chemistry, computer science (you've heard of hackers - they're simply computer hams) - the list is endless.

Which brings me to a closing thought, that mankind has only to think of something for it to become a possibility, because somehow human beings yearn to learn and experiment. It's the science fiction writers who more often than not point the way, but it's the hams who tread it. And for hams there is always a reward - that of capturing voices out of the air.

Which brings me back to that royal broadcast nearly 60 years ago on Christmas Day, 1932. That broadcast has gone into history and, through the wonderful medium of wireless, into the vastness of space.

Perhaps, somewhere, billions of kilometres away, some other being is at this very moment detecting that broadcast with the same degree of excitement that gripped its first listeners. And I am willing to bet that whatever that being is, whether it is a he, a she or an it, he, she or it is most certainly a ham. ar

**Sign up a new  
WIA member  
today -  
we need the  
numbers to  
protect  
our frequencies  
at WARC 92.**

# An Aussie in Los Angeles

RICK RICARDO VK1ALR, 2 PLUNKETT ST, CHIFLEY, ACT 2606

**O**N 29 MARCH I LEFT Australia to spend five months in the US at the Jet Propulsion Laboratory, (part of the NASA network). I lived in an apartment in South Pasadena, California, near Los Angeles. My reason for travel was to assist in the testing, and later, back home, the installation of new upgraded computers and ancillary hardware at the Tracking Station at Tidbinbilla, near Canberra. This would include also the training of staff. All this would carry on the support of both Deep Space and Earth Orbiting probes.

I would like to share with fellow hams in Australia my experiences since gaining my full licence and then travelling to the US.

Prior to departing Australia I enquired of the DoTC as to the procedures to be followed to obtain my reciprocal licence. I was disappointed that they were unable to help me in any way.

Once I arrived in the US and started work I contacted the JPL Amateur Radio Club. After speaking to several people I eventually contacted Jay K6EJJ, who happens to be the International Affairs Vice President of the ARRL. He assisted with the necessary form 106B from the FCC to apply for my reciprocal licence.

I was a little disturbed when I read on the form that it could take up to 60 days to receive a licence.

When you realize that the FCC has to administer to 500,000 hams alone you can understand why it can take so long.

Along with my application I had to send a copy of my certificate and licence. I had taken both with me in anticipation, and was glad that I had. Having filled in the form and obtained copies of the previously mentioned forms I posted my application off to the FCC at Federal Communications Commission, PO Box 1020, Gettysburg, PA 17326, USA

The ham operator in the US does not pay a licence fee for the privilege. The licence is currently issued for 10 years. There are moves to introduce a fee of some sort (see *QST Magazine* April 1991) with some advocating perhaps up to \$10 per year for 10 years. A far cry from the equivalent fee we currently pay and will have to pay over the next 10 years.

While I waited patiently for the re-

turn, hopefully, of a licence, I completed an application to join the ARRL, and also an application for membership of the JPL ARC, W6VIO (with a key to the shack as a benefit).

What a setup the JPL Amateur Club has! A transportable building fully rigged up. Three VHF rigs with PC/XTs on packet or satellite, a repeater on 1.25 metres, a Kenwood TS-820S for slow scan TV, a Yaesu FT-101EE and two other HF rigs. In addition, a shipping container sits beside the shack full of other gear, spare antennas for Field Days etc.

To connect an array of transceivers and listen to the world was a patch panel which had VHF, UHF and HF beams appearing on it. The HF beams, a TH-6 and Somer, were mounted on towers with rotators, about 400 feet above the lab. To use the gear was a ham's dream. Everything you wanted in one place. After a check out on the gear with the equipment officer Jerry Hawkes W6WXL, I was on my own. It whetted the appetite for more gear.

Before leaving Australia I had made plans to set up a sked with my father-in-law, Charles Armstrong VK1WW on a regular basis, once I had everything in order.

The first thing to arrive was my ARRL membership followed by the FCC licence, effective from 30 April, only two-and-a-half weeks to reply.

Now I needed a key to the shack to get in whenever I had time to go down there, and access to the lab on a Saturday in the US to allow my XYL and our first harmonic to be able to come on the lab on a regular basis for the skeds. This was achieved, and I went to the shack to get the feel of the gear and determine what conditions were like at different times. I established that 10 metres at 0000Z was excellent for DX and that 20 metres was just workable at 0530Z. VK1WW had a regular sked at 0530Z on Sundays in Australia with ZL3QQ, VK2BWW and a couple of others. What better time to try than the 0530Z for the first sked, and then get it changed once contact was made.

Off to the JPL shack at 0500Z (1000pm PDT) on the second last Saturday in May. Try out the pass for XYL and Junior. We're in! Down to the shack. Connect the

TH-6 to the Kenwood TS-820S via the patch panel, power on, scope on and wait for the heaters. The QRN and QRM are both severe. Tune up the finals and wait.

Right on time Tom ZL3QQ came up. VK1WW was up next. Perfect. As soon as he stopped I'd jump in. Success! Contact was made and we then started moving around the 20m band trying to find a quiet spot. Finally on 14200kHz we had a reasonable QSO and decided to try next Saturday on 10 metres. In the meantime VK1WW and brother-in-law Glen VK1GT would construct a 10m beam.

Next Saturday at a civilised hour for us, 0530pm PDT (Pacific Daylight Time) we came up, five and nine both ways. VK1GT's XYL was cross with me for getting Glen involved to a great extent in radio again. He had enjoyed it and was considering becoming active again. We need more active hams.

Skeds continued then without much drama apart from a week of severe solar flare activity. It was impossible to raise VKland, but there were plenty of excited Ws thinking they had a good skip as my FCC licence allowed me to use my VK call rather than issue me with a US call. Boy, were they disappointed!

The next event of interest was the arrival of VK1WW, complete with his XYL, to visit us for a couple of weeks at the end of June. The fourth weekend in June in the US is set aside for Field Day. A 24-hour exercise organised by the ARRL where hams attempt to maintain continuous contact with other hams using alternative forms of power (solar panels, generators etc) no commercial power. The purpose of the exercise is to then allow the ham radio network to assist in establishing emergency communications in times of emergency or national disaster, and also to have a good time with fellow hams.

The members of W6VIO (of which I was now a member), had planned the activity. The plan was to operate three HF rigs, two CW and one phone number, one packet, one satellite and one VHF/UHF. In addition, a novice HF station would be set up for the less experienced or less seasoned hams among us.

Friday 21 June, 8am at the shack. Those able to spend some time assisted with loading the truck with all the field

gear, including the beams from the shipping container complete with masts etc. I was given the task of packing the gear on the truck and tying it down for the trip to Mount Gleason some 30 miles distant from JPL, in the San Gabriel Mountains. Mount Gleason is 6500 feet above sea level. Just after 10am they were on their way. I had to do some work so wished them well and indicated I would be up Saturday morning.

Saturday morning VK1WW and I were off after a slight detour to Ham Radio Outlet. We arrived about 11.30am. What a setup! A 20m steerable beam on a 30-foot mast, a multiband beam (10, 20 and 40 metres) on another 30-foot mast, a 2m/70cm satellite tracking antenna, a 2m repeater, a 2m packet and the piece de resistance was a six-element 40m full wire beam. What a beauty. Two 50-foot masts suitably spaced. A long rope strung between them with the elements drooping down in a V, pointing north-east. Lastly was a G5RV as a spare.

Everything was working well except for the satellite. Oscar seemed down on power. Listening to the bird, you could hear stations trying to tune in but it continually seemed to drop out. I tried for a while without success. You could hear yourself coming back weakly and then all of a sudden it would drop out.

Packet was working well, as was two metres. The two CW locations were burning up the ether but the 20m beam didn't appear to be performing particularly well. Pulled it down, checked the balun, checked the line, checked the connections. Nothing; but, just in case, we replaced the two driven element leads and put it up again with no improvement. However, overall, at the end W6VIO had had its best Field Day ever. In the past four years it has slowly worked its way up the ladder to finish 15th in 1990. They hope to better it again this year.

Monday came around and it was back to normal work. How wrong! Friday 28 June, 7.43am. The ground shook, a 5.8 rumble. I missed the actual ground movement, as I was driving on a rough road at the time and just thought it was extra rough. A pedestrian crossing the road in front of me was acting most strangely and I thought something was wrong with her. Next thing on the radio they announced that we had had a tremor. Turned on the 2m Yaesu FT-227R in the car and in a couple of minutes it was alive with controlled reports, slowly pinpointing the extent of damage and the centre of greatest damage.

By the time I got to work all the buildings at JPL had been evacuated. Everyone sat outside waiting for the first major after shock. We waited for an hour and a

half and finally it was decided to send all non-essential staff home for the day. Half an hour later we had our first good after shock, a 4.0 rumble. The 2m rig was still alive and continued most of the daylight hours as further after shocks took place. Next Monday, back at work. A look at the building my office was in showed definite signs of stress up through the stairwell. The cracks were evident only in the direction of the flexing of the building.

During the morning of the quake as all buildings had been evacuated no telephone access was possible. The JPL ARC has established 'on lab' an Emergency Communications Team (ECT) for just such happenings. They swung into full action using hand talkers on 1.25 metres. The response was outstanding and the club was thanked for its proficiency following the quake.

T-shirt shops in the shopping mall at

Glendale had shirts out that day with "I Survived the 28th of June 1991".

In July the President of the JPL Amateur Radio Club, Art Zygielbaum WA6SAL was kind enough to give me access to his repeater. The repeater received on 70cm and transmitted on two metres. Via the repeater I was able to access an HF rig, an ICOM 735 connected to a Cushcraft R5 multiband vertical antenna. I controlled all this using a Yaesu FT-470 hand-held. The result was excellent and I thoroughly enjoyed the experience. Full control, bands, the works using a hand-held. I really appreciated the availability of the repeater. Thanks Art.

I have seen amateurs in action in another country, listened to them and become a part of their activities. I have been impressed, and hope that we in Australia are as efficient. ar

## Remember the Titanic

This year, 1992, marks the 80th anniversary of the maiden voyage and tragic demise of the *RMS Titanic*. A major convention is to be held by the Titanic Historical Society in Mass, USA.

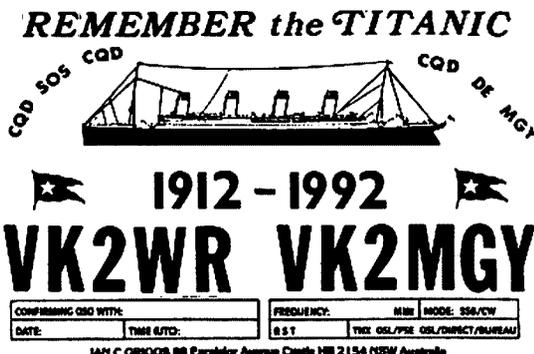
To commemorate the vital part played by radio in the rescue of survivors of the tragedy, several of whom will attend the convention, at least two amateur stations will be operating for the purpose of remembering the event, with the issue of a special QSL card.

The ARRL informs that KA1BB, Tri-City Amateur Radio Club of Graton, Conn, will operate from 1300Z to 2100Z on 11 and 12 April. Frequencies will be between 7.225-7.300, 14.225-14.350, 21.275-21.350 and 28.300-28.500MHz.

Here in VK Land, Ian VK2WR, a member of the Titanic Historical Society, will operate a station under his own call each day from 11-15 April between 0600Z and 0900Z on the 15m band - CW on 21.080, SSB on 21.180 and 21.280; also between 1000Z and 1300Z on the 20m band - CW on 14.008, SSB on 14.180 and 14.280. All frequencies +/- QRM.

An attractive red, white and black QSL card, shown here, will be forwarded to any station requesting one. VK stations may be via Bureau, or direct (self-addressed stamped envelope, QTHR 1992 VK Callbook). Overseas stations via Bureau or direct with SAE and 2 x IRCs to Manager VK2DZF QTHR *International Callbook*.

Ian C Griggs



# MORE FEATURES FOR YOUR MONEY!



## FT-411E 2m HANDHELD

Superb performance on the 2m band. Top of the line features, reliability and value for money from the name you can trust... Yaesu. Only the compact FT-411E offers these standard features...

- 144 to 148MHz transceive operation, with enhanced receiver performance
- Ultra long life 1000mAh 7.2V NiCad battery pack
- 2.5 watts RF output as standard, 5 watts with 12V DC (or optional FNB-11 NiCad)
- Better than 0.16uV (12dB SINAD) sensitivity
- Programmable power saver for extended operating periods
- Keypad or dial frequency entry, with selectable tuning rates
- 49 tuneable memories which store repeater offsets
- Band, memory, priority or limited-band scanning
- Just 55 x 155 x 32mm
- Carry case, belt clip, carry strap and approved AC charger
- **Now with enhanced receiver sensitivity and improved strong signal handling!**

Cat D-3350

2 Year Warranty

**\$479**



## FT-212RH MOBILE 2m FM TRANSCIVER

The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. With 45 watt output over the 144-148MHz range, rugged diecast chassis (for superb RF isolation) and extensive use of surface mount components.

What's more, it has a large back-lit LCD with a bargraph PO/S-meter, 5 selectable tuning steps and a total of 21 memories ( 18 general purpose, 1 call channel and 2 sub-band limit memories for band scanning). As well, there's inbuilt C.T.C.S.S. encode and a variety of scanning functions. Complete with mobile mounting bracket, MH-14A8 microphone and DC power lead.

Cat D-3494



2 Year Warranty

**\$569**



Remote Panel Kit YSK-4700

Cat D-3301

**\$59<sup>95</sup>**

A.C.N. 000 908 716

## FT-4700RH MOBILE 2m/70cm FM TRANSCIVER

Check this out for fantastic value! With full-duplex or dual-band operation, remote mountable front panel option and 50W output (2m) & 40W output (70cm). It also has full 2m and 70cm frequency and signal strength displays, back-lit controls and an inbuilt cooling fan. To top it off, you get 20 memories, 5 selectable tuning steps and a number of scanning selections. Complete with microphone and mounting bracket.

Cat D-3300

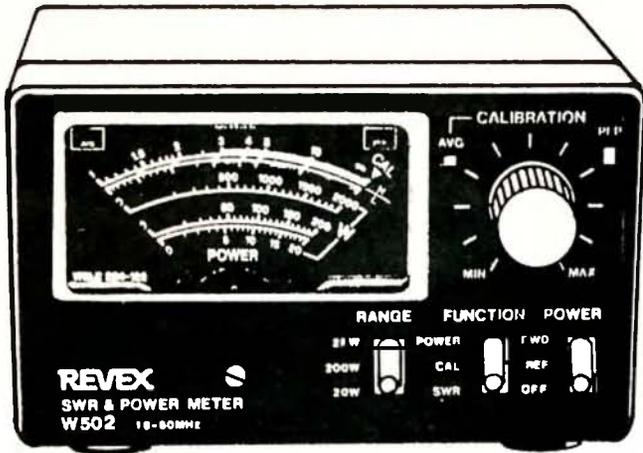
2 Year Warranty

**\$999**

Hurry, stocks are strictly limited!



B1307/BK



## HF/6m POWER/SWR METER

A superb wideband SWR/Power meter which boasts quality Japanese construction and a truly accurate P.E.P. metering circuit (unlike many other so called P.E.P. monitor systems). The Revex W502 features solid construction with an all-metal case and a large back-lit meter... and it covers the 1.8 to 60MHz range with less than 0.1dB insertion loss. With 20W, 200W and 2kW power ranges and LED indicators which show average or P.E.P. operation. Requires 13.8V DC @ 200mA power supply.

Cat D-1360

**\$199**



NEW FOR '92

## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware and instructions.

Cat D-4840



**\$169**

## ST-7500 DUALBAND MOBILE ANTENNA

NEW FOR '92

At last, a high performance dualband mobile antenna at a down to earth price. The ST-7500 is just 1metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality Japanese construction together with a tiltable whip structure make this an ideal antenna for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended).

Cat D-4810

**\$79<sup>95</sup>**

## DIAMOND VHF/UHF BASE STATION ANTENNAS

These high quality, vertically polarised base station antennas are ideal for the discerning Amateur operating on the 2m, 70cm or 23cm bands. They're beautifully constructed Diamond brand antennas from Japan which provide high gain for maximum range. Constructed from robust F.R.P. tubing for excellent all-weather operation, with ground-plane radials for a clean radiation pattern.

### 2m ANTENNA F-23A

Frequency: 144 — 148MHz  
Gain: 7.8dB  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 4.53m  
Type:  $3 \times \frac{1}{2} \lambda$  co-linear  
Cat D-4850



**\$199**

### 2m/70cm ANTENNA X-200A

Frequency: 144 — 148MHz, 430 — 450MHz  
Gain: 6dB on 2m, 8dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 180km/h  
Length: 2.5m  
Type:  $2 \times \frac{1}{2} \lambda$  (2m),  $4 \times \frac{1}{2} \lambda$  (70cm)  
Cat D-4860

**\$199**

### 2m/70cm ANTENNA X-500A

Frequency: 144-148MHz, 432-450MHz  
Gain: 8.3dB on 2m, 11.7dB on 70cm  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 5.2m  
Type:  $3 \times \frac{1}{2} \lambda$  (2m),  $8 \times \frac{1}{2} \lambda$  (70cm)  
Connector: N-type socket  
Cat D-4865

**\$299**

**Limited Stocks!**

### 23cm ANTENNA F-1230A

Frequency: 1260 — 1300MHz  
Gain: 13.5dB  
Max. Power: 100W  
Max. Wind Speed: 144km/h  
Length: 3.06m  
Type:  $25 \times \frac{1}{2} \lambda$  co-linear  
Connector: N-type socket  
Cat D-4870

**\$239**

**Limited Stocks!**

## 2m 1/2 WAVE BASE STATION ANTENNA

— MOBILE UNIT

An outstanding value for money, compact, Australian made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection and comes with a 5 year warranty.

Cat D-4820

**\$49<sup>95</sup>**



B1297/LB

# EX-DEMO CLEARANCE YAESU FT-1000



Now's your chance to get the 'Best of the Best' at a bargain price! Right now you can pick up an ex-demo FT-1000 deluxe HF all-mode transceiver and save a fortune. Here's what the experts have to say about this incredible transceiver...

## On Operation

"The layout of the front panel of the FT-1000 is just right... I reckon the FT-1000 is (operationally) far less complex than either the Icom IC-781 or the Kenwood TS-950S." -ARA  
 "I found the FT-1000 easier to learn and use than any other radio in its class." -QST

## On Documentation

"clearly written and complete, and includes a complete set of schematics and many high quality photos" - QST  
 "The quality of printing and presentation of this book is the best I have seen..." -AR

## On the Receiver

"... this rig has a very strong receiver; it has the best overall performance (in terms of sensitivity and dynamic range) and the highest third order input intercept of any commercial radio ever tested in the ARRL lab." -QST\*  
 "The direct digital synthesizer works very well and produces receiver performance that sets new standards." -AR  
 "I found the receiver in the FT-1000 to be astonishingly sensitive and immune to cross modulation..." -ARA

## Transmitter - SSB

"the FT-1000 is easy to adjust and use.... The processor adds quite a bit of punch to SSB signals; hams I worked on SSB with the FT-1000 gave me good audio quality reports"-QST  
 "Reports were all very favourable, especially when using the speech processor." -AR

## Transmitter - CW

"CW keying was a delight...power output was checked in the CW mode and found to be well in excess of 200 watts on all bands..." -AR  
 "On CW the FT-1000 was absolutely faultless." -ARA  
 "CW operation with the internal keyer is a breeze..." -QST.

## Transmitter - RTTY/Packet

"Using the set on HF packet was an absolute pleasure..."PW  
 "Packet and RTTY modes were tried and proved just superb."-ARA

## Conclusion

"...the FT-1000 represents unbelievable value..."-AR  
 "It's an excellent set worthy of accolades and rave."-ARA  
 "...the FT-1000 needs little for me to consider it the ultimate contesting and DXing machine available today..." QST\*

The FT-1000's combination of Direct Digital Synthesis, high output power, ultra-high performance receiver and easy to use controls put it far ahead of the competition. Hurry in today and check out our limited number of ex-demo models all with a full 2 year warranty. Wouldn't you rather be using the "Best of the Best?"

## 2 Year Warranty

**\$4295**

Cat D-3200

**SAVE  
\$700**

**(ex-demo models only)  
Includes MD-1 desk mic**

*Ex demo units are available only at our York St, Nth Ryde, Chermside, Brisbane City, Springvale, Coburg, Bourke St, Adelaide City and Perth City stores.*

## Magazines

ARA - Amateur Radio Action Vol.13, No.2  
 AR - Amateur Radio August 1990  
 P.W. - Practical Wireless January 1990  
 QST - ARRL QST March 1991 \*(review with optional filters fitted)  
 Copies of our 12 page colour brochure are available upon request.  
 Phone (008)226610 or (02) 8882105

Some models may be shop soiled. However all come with a full 2 year warranty.



# The Tradition Continues...

## FT-990HF ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000... and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.

Cat D-3260



**\$3495**



### Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

### Convenience Features

- A highly efficient AC switch-mode power supply is built-in. It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF shift, IF notch, IF bandwidth, and SCF audio controls.
- An adjustable noise blanker, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.

#### STORE LOCATIONS:

**NSW** • Albury 21 8399 • Bankstown Square 707 4888 • Blacktown 871 7722 • Brookvale 905 0441 • Bondi 387 1444 • Campbelltown 27 2199 • Chatswood Chase 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 6633 • Hurstville 580 8622 • Kotara 56 2092 • Liverpool 800 9688 • Maitland 33 7888 • Miranda 525 2722 • Newcastle 81 1898 • North Ryde 878 3855 • Orange 818 400 • Parramatta 689 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 287 9111 • Tamworth 88 1711 • Wollongong 28 3800 **ACT** • Belconnen (06) 253 1765 • Fyshwick 80 4944 **VIC** • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 890 0699 • Coburg 383 4455 • Dandenong 794 9377 • East Brighton 592 2386 • Essendon 379 7444 • Footscray 689 2055 • Frankston 783 9144 • Geelong 232 7111 • Melbourne City 399 Elizabeth St 328 6088 & 246 Bourke St 639 0398 • Richmond 428 1814 • Ringwood 879 5338 • Springvale 547 0522 **QLD** • Brisbane City 229 9377 • Buranda 391 8233 • Cairns 311 515 • Capalaba 245 2870 • Chermerside 359 6255 • Redbank 288 5599 • Rockhampton 27 9844 • Southport 32 9033 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0844 • **SA** • Adelaide City 223 4122 • Beverley 347 1900 • Elizabeth 255 6099 • Enfield 260 8088 • St. Marys 277 8977 **WA** • Cannington 451 8888 • Fremantle 335 9733 • Perth City 461 3281 • Midland 250 1460 • Northbridge 328 6944 **TAS** • Hobart 31 0800 **NT** • Stuart Park 81 1977

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# YAESU

A.C.N. 000 908 716



B1297/LB

## FT-757GXII ALL MODE H.F. TRANSCEIVER

Always ready for action! Whether you're in a demanding H.F. mobile situation or at home in the shack, the FT-757GX II won't let you down. Based on its popular predecessor (the 757GX), the MK2 features the same heavy duty die-cast heatsink and rugged metal chassis for long term reliability. As well, it offers even easier to use controls and new features such as a pushbutton mode selector and IF notch filter.

- All mode operation - SSB, CW, AM, FM (160m-10m)
- 100 watt output on SSB, CW, FM (25W AM) at 100% duty cycle
- High performance general coverage receiver - 150kHz to 30MHz
- Dual VFO's with single button VFO/memory swap functions
- Memories store freq & mode and allow band scanning between adjacent memories
- Inbuilt 600Hz CW filter, IF shift and IF notch filters, variable noise blanker, speech processor, iambic CW keyer and SWR meter.

Cat D-3492

**Save \$100**

2 Year Warranty

**Now Only  
\$1595**



## FT-650 6m,10m,12m ALL-MODE TRANSCEIVER

Yaesu's new FT-650 all-mode mobile transceiver has been designed with the 6m enthusiast firmly in mind. With continuous reception from 24.5 to 56MHz you can follow the rising M.U.F. and work the 6m DX as soon as the band opens. Output is a powerful 100 watts on the 24.5, 28 and 50MHz bands (SSB, CW, FM), and the use of 3 Direct Digital Synthesizers results in extremely clean Tx and Rx operation. Particular attention has been made to the receivers performance, with 6 Band Pass Filters and a 2 stage, low noise RF Amp being used to provide exceptional sensitivity (SSB/CW, 0.125uV) and wide dynamic range. Includes user selectable tuning steps, manual or automatic tuning IF notch filter, an IF shift control for interference rejection, an IF bandwidth control, 105 scannable memories, an RF Speech processor and an effective noise blanker. Includes Yaesu MH-1 hand microphone.

Cat D-3250



**\$2295**

## The Only Place To Shop For All Your Accessories

### QUALITY 2-WAY COAX SWITCH

This high quality 2 position 50 ohm coax switch is ideal for HF, VHF and UHF uses up to 1000MHz. It offers superb isolation, low insertion loss (<0.1dB@ 1000MHz) and 1kW PEP HF power rating.

Cat D-5208

Revex model S20

**\$59<sup>95</sup>**

Also available model S20N with N connectors

Cat D-5202

**\$99<sup>95</sup>**



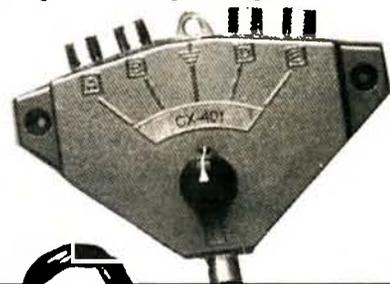
With Surge Protection!

### 4-WAY COAX SWITCH

A high quality 4-way coax switch featuring rugged die-cast aluminium construction, 2kW PEP (max.) power handling at 30MHz and only 0.3dB insertion loss. What's more, it has an inbuilt surge suppressor and automatic grounding of all unused connections to help protect against lightning induced surge damage.

Cat D-5204

**\$89<sup>95</sup>**



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B1307/1

# AWARDS

**JOHN KELLEHER VK3DP – FEDERAL AWARDS MANAGER**  
(C/- EXECUTIVE OFFICE)

By now, I will have taken responsibility for the DXCC operation. When I was appointed Federal Awards Manager, I knew that I would have some problems. Those problems were overcome. Now, I will treat DXCC in the same way, and with effort and help will have it under control by at least mid-year. So here is a likely program:

1. Applications for, and upgrades to, DXCC will be processed, as usual.
  2. DXCC listings will be temporarily delayed while I re-organise the existing files.
  3. The bracket showing deleted countries will not be retained (for publication) but will be kept by this office. The numbering system for modes will be retained, ie SSB, CW and open.
  4. DXCC standings list should, when published, show the top 25 or those above 200 countries confirmed, whichever is applicable, depending upon magazine space available. To publish the complete list would take up over half the magazine.
  5. If you have any argument with the list when published, let me know so I can make it absolutely correct.
- So, I beg of you, be patient, don't overload my desk. Heaps I can deal with, a deluge takes much longer.
- Finally, please send all enquiries to the above address, not to my home.

## The Royal Flying Doctor Service Award

This award recognises the services provided over large parts of outback Australia by the Royal Flying Doctor Service, established in 1928, and to the many radio amateurs who were, and still are, involved in its operation. You can earn the award annually (a different certificate each year) by making the necessary contacts between 8 February and 2

August each year. *All contacts must be on the 10m band.*

Using as many letters as you wish from the prefix and/or suffix of station call signs worked (or heard) from anywhere in the world, make

up the words: **Royal Flying Doctor Service.** Each call sign can only be used once per year. If you work a VK station who works for, or relies upon the RFDS for normal contact with the world, you instantly qualify for the award.

Your GCR list and \$A5 for VK and \$US5 for DX stations. Note: Only \$1 will be used for the certificate and mailing costs. The balance will be sent to RFDS.

To apply – RFDS Award, PO Box 1073, Subiaco WA 6008, Australia. ar



## LY AWARD'S PROGRAM

*Lithuanian Amateur Radio Society (L.R.M.D.) issues following awards to any amateur. Some rules to SWLs.*

### LY TROPHY

Is given for two-way contacts with LY stations as follows:

Europe..... 25 LY stations Rest of World..... 10 LY stations  
Oceania..... 5 LY stations VHF (144 MHz and above) ... 3 LY stations

Send certified list of contacts (no QSL's) and \$5 US or 10 IRC or equivalent to L.R.M.D.

### BALTIC WAY

Award available to any amateurs confirming 2-way contacts with three Baltic states: ES (1QSO), LY (1 QSO), YL (1 QSO) in 24 hours.

Send certified list of contacts (no QSL's) and \$3 US or 6 IRC or equivalent to L.R.M.D.



**L.R.M.D. Award Manager**  
**P.O.Box 1000, Vilnius, 2001 LITHUANIA**

## Islam award

Contact with UM-RM, RL-UL, UI-RI, UJ-RJ only four QSOs.  
All bands and all modes. Amateurs and SWLs.  
GCR lists + \$US3 or 5DM or 7IRC.

*Please send to:*  
**Marat G Valiev**  
**Box 53 Bugulma Tatarstan**  
**423200 USSR**

# CONTESTS

(INFORMATION PROVIDED BY RELEVANT CONTEST MANAGERS)

## Contest Calendar

<b>April</b>		<b>July</b>
4-5 SP-EX – P		11-12 IARU – M
25-26 Helvetia – M		18-19 Seonet CW – C
<b>May</b>		<b>August</b>
2-3 Italian International DX – M		1-2 YO-DX M
9-10 CQ-MIR (UA) – M		8-9 WAE-DX DARC – C
30-31 CQ-WPX – C		15-16 RD Contest 1992
<b>June</b>		29-30 All Asia CW – C
6-7 RSGB/IARU Field Day – C		<b>September</b>
20-21 All Asia SSB – P		6 LZ-DX C
		12-13 WAE-DX DARC – P

19-20 SAC CW – C  
26-27 SAC SSB – P  
26-27 CQ WW DX RTTY – R

### October

3-4 VK-ZL Oceania – P  
10-11 VK-ZL Oceania – C  
17-18 21MHz CW RSGB – C  
24-25 CQ WW DX SSB – P

### November

8 OK-DX – M  
28-29 CQ WW CW – CW

### December

5-6 ARRL 160m – C  
12-13 ARRL 10m – M  
*Key: M – Multimode. P – Phone. C – CW. R – RTTY*  
VK6NE ar

## Ross Hull Contest 1991-1992: Results

The level of activity this year was higher than last year, especially on 432MHz and higher bands. However, the number of logs received was the same as last year. Very few logs ever gave much emphasis to six metres but the higher bands were better represented. A number of quite active stations did not send in logs – this is a pity, because they could have scored quite well.

In contrast to the higher bands, most 6m scores were quite low and it seems that most entrants did not try very hard on this band. Maybe they felt that the 10-point limit did not make six metres worth the effort. However those who did work at six metres were well rewarded for it.

The message is clear: the more bands the better! The scoring is designed to encourage multiband operation and the scoring table shows that an extra band can have quite an effect on the total score.

Only one overseas log was received – from Yutaka Katoh JH1WHS, who is well known to 6m operators in this country. Other unusual entries were the four for 10GHz. These are not seven-day scores as they resulted from three contacts each on one day. They are included for the sake of "stirrers" and also to encourage more microwave activity next time around.

I did not spend much time on six metres so did not hear any contest QRM on 50.110MHz. However, some was reported. On higher bands, the QRM on calling frequencies was worse than last year and once again a number of DX contacts were missed because of local QRM. This kind of operation is selfish, self-defeating and certainly not in accord with the spirit of the contest. It would be so much better for everyone if people would spread out and give each other a fair go.

## Ross Hull Contests

The table of results appears below and it shows that Roger Steedman VK3XRS has scooped the pool once again. He also achieved the top score on six metres, two metres and 1296MHz. Gordon VK2ZAB wins the prize on 70cm, and Mark VK5EME on 13cm. The four "stirrers" share the prize on 10GHz. There was no operation on 3456 or 5760MHz. Congratulations to all concerned!

Call	Operator	50	144	432	1296	2304	10368	Total	
VK3XRS	R Steedman	1252	2580	2023	750			6605	
VK2ZAB	G McDonald	2132	2107					4239	
VK5NC	T Niven	265	1764	1694	160			3883	
VK5EME	M Kilmier	84	1728	896	360	143		3211	
VK5AKK	P Helbig	230	1480	812	160	78		2760	
VK3AUI	G Sones	422	924	966	540			2597	
VK7XR	A Hay	90	1300	1120				2510	
VK3CY	D Clarke		1428	938				2366	
VK3ZJC	J Martin	91	640	854	680		48	2313	
VK3AUG	N Sallman		1240	805				2045	
VK3KTR	R Rode		840	917				1757	
VK2DVZ	R Barlin		1196	266	270			1732	
VK4KZR	R Preston		1072	476	130			1678	
VK4DH	D Hollon		7	1280	224	100		1611	
VK7KAP	A Perkins		7	616	671	170		1464	
VK2ZRE	R Gilbert		38	736	294			1068	
VK2XMD	M Erskine		443	536	7			986	
VK3BBU	M Crew		5	208	126	160	91	48	638
VK5LP	E Jamieson		43	208	203	80		534	
JH1WHS	Y Katoh		380					380	
VK6BWI	P Parker		2	132				134	
VK3AJQ	A Elliott							48	48
VK3TAF	P Ford							48	48

Comments on the band multipliers were favourable, so these will be left as is. There were no complaints about the duration, so that will also remain the same.

For the past two years, the contest has begun on the weekend before Christmas, but this year Christmas Day falls on a Friday. This week leading up to Christmas will be quite hectic for most people, so it might be better to start the 1992-1993 contest on Saturday, 26 December. With the three-week duration the finishing date would then be Sunday, 17 January.

The change to the 1800 UTC starting time for contest days seemed to achieve the effect of shifting activity into the evenings, and did not cause any great confusion. Several dating methods were used by entrants but all were understandable!

Several comments were made about the different exchanges for the Ross Hull Contest and VHF/UHF Field Day. There was also some concern about the Field Day numbers being consecutive, while the Ross Hull numbers were not. Some entrants exchanged separate numbers for both contests to make sure they were fully within the rules. This was not what I intended, and I ignored the exact format of the numbers when checking the logs.

The rules need to be made clearer on this point so everyone knows where they stand. Next time both contests will use three-digit serial numbers, and entrants can choose whether to make them cumulative or start each day at 001.

Many thanks to all those who sent comments with their logs. I would be glad to hear any other comments or suggestions about the rules for 1992-1993.

## VHF-UHF Field Day 1992: Results

The Field Day was better supported this year than in 1991, and the change of date to the last weekend of the Ross Hull Contest was well received. There was more 1296MHz activity than last year, but there was only one log for 2.3GHz and four "stirrers" on 10GHz.

The scores covered an enormous range and it was particularly good to receive the low-scoring logs. Low scores do not reflect on the entrants who took the trouble to go portable – rather they reflect on the other stations who weren't around to work them! This was especially the case in VK6.

It was also good to receive a novice log – to my knowledge the first ever for any VHF-UHF contest.

Some logs contained repeat contacts made within the four-hour limit and their scores have been adjusted. Several logs contained no repeat contacts and I assume this was because the other stations were no longer around – otherwise there could possibly have been some confusion with the Ross Hull Contest rules.

The winner this year is Brian Young VK3BBB. With such a stupendous score he will obviously take a lot of beating next year. Brian also gained top score on two metres, 70cm and 23cm, so he will receive a nice collection of certificates.

The top score on six metres goes to VK5BW, and on 13m to VK5AKK; VK3ATL wins the multi-operator section – a very good score, but no doubt they would have liked more competition! The home station prize goes to VK3AUI!

Congratulations to all!

## VHF-UHF Field Day Results

Call	Operator	Location	50	144	432	1296	2304	10368	Total
VK3BBB	B Young	Mt Skene	852	10980	9702	560			22094
VK5BW	A Raftery	Kuitpo Forest	1122	6240	5229				12591
VK3AFW	R Cook	Mt Buller		2652	2590	20			5262
VK5AKK	P Helbig	Kangaroo Is	38	3400	1050	30	39		4557
VK4OE	O Friend	Byron Bay	495	1320	546	220			2581
VK5NW	G McEwing	Black Hill		700	210				910
VK5NOT	I Northeast	Mt Oakden		180					180
VK3AJQ	A Elliott	Mitcham						128	128
VK3BBU	M Crew	Mitcham						128	128
VK3TAF	P Ford	Mitcham						128	128
VK3ZJC	J Martin	Mitcham						128	128
VK3KKW	O Dobrosak					80			80
VK6BWI	P Parker	Perth		24					24
VK4KZR	R Preston	Maleny		10	3				13
Section B: Portable station, multiple operator									
VK3ATL	Geelong ARC*	Mt Cowley	3480	5544	3024				12048
Section C: Home station									
VK3AUI	G Sones	Box Hill	30	924	665	40			1659
VK5LP	E Jamieson	Meningie	36	504	490	40			1070
VK7KAP	A Perkins	Devonport	56	35					91

\*C Gnaccarini VK3BRZ, M Trickett VK3ASQ, P James VK3AWY, J Pile VK3ZPO, A Forster VK3AJF.

Assuming that the next Field Day will run again over the last weekend of the Ross Hull Contest, next year's dates will be 16-17 January.

There were quite a few comments on the need to bring the Field Day exchanges into line with those for the Ross Hull Contest. This will be done. No-one seemed keen on dropping the RST report from the Field Day logs so that will be restored too. The only difference now between the two contests will be the maidenhead locator exchange.

There was some dissatisfaction with the locator-based scoring, and it was suggested it should be replaced with distance-based scoring as in the Ross Hull Contest. It was also pointed out that multiplying contacts by locators on each band favours the lower bands where more locators are worked – ie big scores get even bigger when they are multiplied by the locators.

I would like to keep the rules as simple as possible, but there is a good case for fixing these problems. Should we go to exactly the same scoring as the Ross Hull Contest? An alternative suggested by Brian VK3BBB is to use locators to get rough distance-based scores by adding the number of "across" and "down" squares between the two stations.

Most Field Day operators are also active in the Ross Hull Contest, so perhaps the first choice would be best. Many people still do not know their locators, so should we keep on encouraging "locator awareness" or give up on them? One reason for keeping the locator scoring was because of the new Grid Square Award, but VHF operators have shown very little interest in it so far.

There are also some problems with the timing and duration. Several entrants mentioned that they could not stay out overnight and would appreciate a one-day section – say six or eight hours. This will be done next year. The 0200 UTC start works well, but activity tapers off on Sunday morning and many entrants finish early. In Western Australia the 11am finish on Sunday is an obvious problem.

I would appreciate comments on this idea for next year: a later finish on the Sunday – say 0600 UTC – but with two sections: a "day tripper" section based on one six-hour period, and a "full marathon" section based on any three six-hour periods. This would make it easier for those who can only go out for one day, and it would also allow the overnights to get some sleeping time.

#### Comments from the Logs

"Even though I have a low score I thought I would put in a log to support the change in date of the Field Day."

"It really should be called a field night ... there was very little activity after 9am Sunday."

"I went out again to have fun – not necessarily win the event – and have fun I did! A lone operator planning, setting up, operating

and pulling down a four-band VHF-UHF station, with good antennas on each band, sounds like a lot of work, and it is. But the successes of getting it all going and having a variety of contacts are very satisfying. I would recommend that lots more people try it for themselves – get involved!"

## ARI Contest (Italy)

The 1992 ARI International DX Contest  
**Aim**

It's a world-wide competition – everybody can work everybody.

#### Date and Time

Every first full weekend of May from 2000z Saturday till 2000z Sunday. In 1992 it will be on 2-3 May.

#### Classes

1. Single operator – CW
2. Single operator – SSB
3. Single operator – Mixed
4. Multi operators – Single TX – Mixed
5. SWL – Single operator – Mixed

#### Bands

Ten metres through 160m (except WARC bands) are allowed according to IARU band plans. Band and mode can be changed only after you have been on it for 10 minutes.

#### Exchange

Stations will send RST and a serial number from 001.

#### QSO/Points

- a) QSO/HRD with own country counts 0 points, but is good for the multipliers' credit;
- b) QSO/HRD with own continent counts one point;
- c) QSO/HRD with different continent counts three points;
- d) QSO/HRD with any Italian (I and ISO) station counts 10 points.

The same station can be contacted on the same band once on SSB and once on CW, but only the first QSO is good for multipliers' credit.

#### Multipliers

- a) all Italian provinces (95) count one multiplier;
- b) all DXCC countries (except I & ISO) count one multiplier.

The same multiplier (country/province) can be counted once for band.

The 95 Italian provinces are: II: AL, AT, CN, GE, IM, NO, SP, SV, TO, VC. DX1: AO, I2: BG, BS, CO, CR, MI, MN, PV, SO, VA. I3: BL, PD, RO, TV, VE, VR, VI. IN3: BZ, TN. IV3: GO, PN, TS, UD. 14: BO, FE, FO, MO, PR, PC, RA, RE. I5: AR, FI, GR, LI, LU, MS, PI, PT, SI. 16: AN, AP, AQ, CH, MC, PS, PE, TE. I7: BA, BR, FG, LE, MT, TA. I8: AV, BN, CB, CE, CZ, CS, IS, NA, PZ, RC, SA. IT9: CL, CT, EN, ME, PA, RG, SR, TP, AG. I10: FR, LT, PG, RI, ROMA, TR, VT. ISO: CA, NU, SS, OR.

#### Final Score

The sum of QSO/points from all bands times the sum of multipliers from all bands.

## SWL

SWL have the same rules as OM. The same station cannot appear more than three times on every band as a correspondent.

#### Logs and Summary Sheet

Separate logs are necessary for each band. Logs must show all the QSOs' data. Duplicate contacts must be marked and with points = 0. A summary sheet is required showing all the scoring details on each band, class of entry, name, callsign, full address of the applicant, callsign of other operators and a signed declaration. A dupe sheet is required for entries with more than 100 QSOs on one band.

Logs must be mailed within 30 days from the end of the contest and addressed to: ARI Contest Manager I2UIY, PO Box 14, 27043 Broni (PV), Italy. Please enclose your station's description and your comments. A picture will be much appreciated.

#### Awards

A plaque with a certificate will be awarded to the top scoring station in each class.

Special plaques can be awarded by the contest committee if country/continental/call-area participation will justify the decision.

A certificate will be awarded to Nos 2, 3, 4, 5 top scoring stations in each class as well as to the top scoring stations in each country in each class.

A free T-shirt will be awarded for working a minimum of:

European stations: 250 different Italian stations

Extra-European stations: 100 different Italian stations

The T-shirt cannot be won twice working the contest in the same category. You must include an alphabetical list of the Italian stations worked.

#### Free Software

An IBM-compatible software to administer this contest is available free of cost. It can be used on real-time or after the contest. It calculates points, multipliers and score; you have just to type the callsign and the received report. It prints logs, summary and dupe sheets as well as QSL labels. The software can be received by sending \$US7 or 10 IRCs to cover the diskette postage expenses to the contest manager.

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**Have you advised the  
WIA Executive  
office of your new  
callsign?**

**Use the form on the  
reverse of the  
amateur radio address  
flysheet.**

## HOW'S DX

STEPHEN PALL VK2PS - PO Box 93, DURAL 2158

After an apparent quiet period, activity is gathering pace and new rare DX prefixes will soon appear on the air. Everybody was waiting on the great event: the South Sandwich DXpedition. Hopefully many of you had the opportunity and luck to work them. Propagation to the northern hemisphere is improving day by day as the sun starts on its move away from the south. Let's hope the next few months will bring you that rare country for which you have been waiting so long.

### Aves Island - YX0AI

If you have not succeeded in breaking through the pile-up on 14195kHz in the late afternoon VK2 Standard Eastern Time, do not despair, you are not the only one who has not worked them. I, and many others also, did not make it, and my impression is that only a few lucky VKs and ZLs could attract the attention of the operators who were heavily involved with Europe, North America and Japan. Nevertheless the operation took place from 28 February to 3 March, as planned.

This was a joint activity between the Association of Amateur Radio of Venezuela (ARV) and the Venezuela DX Club. They were active on all bands, and the occasion was to celebrate the 25th anniversary of the Venezuela DX Club and the 500th anniversary of Columbus discovering the Americas. QSL route: SSB contacts to ARV, PO Box 3636 Caracas, Venezuela, and CW contacts to the YV DX Club, PO Box 7458, Caracas, 1070-A Venezuela.

### Clipperton Island - FO0CI

At the time of writing this, the expedition was on its way to Clipperton Island in a new three-screw, 88ft aluminium boat - different than the one reported previously. They left San Diego on 28 February. Whilst on the high seas, they were heard on 28, 21 and 14MHz as N7QQ/mm. The activity will start on 7 March and will most likely finish on 15 March. There are three Europeans among the nine operators, and the 14145kHz frequency has been dedicated to the European amateurs. As usual, they will be heard on CW 20 up from the band edges on 10/15 and 20m, and SSB on 14195, 21295, 28495. They planned to be also active on satellites and 6m. QSLs for all contacts should be sent to N7QQ: Charles S Spetnagel Jr, 5327 Carol Ave, Alta Loma, CA 91701 USA.

### The Colvins - XW and V85

Iris and Lloyd reports that their operation in Laos was a success with the callsign XW1QL from the shack of Inh XW8KPL, and they made some 1600 QSOs with about 115 countries. From Laos, the Colvins moved to Brunei, where they operated with the call V85KGP.

The Colvins intend to work from at least one more country before they return to the US.

Since they started their DX safari in the mid-late 1960s, they have visited 220 DXCC countries and worked DXCC from most of them.

### Christmas Island Indian Ocean - VK9XN VK9XM

Bob W5KNE/VK9XN and Lanny W5BOS/VK9XM had a successful operation from this much-sought-after DXCC country. Their main activity was directed to the US, Japan and Europe, but quite a few VKs made contacts with them when propagation allowed. QSLing should be done to each operator either direct to his home call, or via the W5 QSL Bureau. Do not send your cards to the VK9 QSL Bureau, as it will take some considerable time before the cards are re-routed to the W5 QSL Bureau.

### South Sandwich Islands - VP8

According to the latest news, there is no change in the original plan for this very much awaited DXpedition. The dogpiles will be even bigger than with the Bouvet activity. Hopefully, you will be able to work VP8SSI in the period from 21 March to 5 April. It is interesting to note that this island group consists of 11, mostly volcanic, islands situated in the Scotia Sea near Antarctica. Bob W5KNE in the "QRZ DX" Bulletin, gives quite a lengthy description of the island group's background. Here is a summary of it: The islands are situated in the area between 58°18' and 59°28' latitude, and between 26°14'W and 28°11'W longitude. The islands are administered by the UK as a dependency of the Falkland Islands. The DXpedition will be located on Thule Island at the southernmost end of the group. The island's peaks (2700 feet) are buried under an ice cap, but the island itself provides the best anchorage.

The southern islands were discovered by Captain Cook in 1775; the northern islands were discovered by the Russian explorer Fabian Gottlieb Benjamin von Bellinghausen in 1819. The British Government formally annexed the islands between 1908 and 1917.

### DX on 160 Metres

As winter approaches in the southern hemisphere, so is the advent of DX contacts on 160 metres (refer to October 1991 issue of AR). The usual DX season starts in April and lasts until about August. The 160m DX fraternity is congregating around the 1832kHz frequency. Opening hours on the west coast of North America start at 1400 UTC in April, gradually decreasing to about 1100 UTC around the middle of June. Bob VE7BS is

looking forward to working you. So do not hesitate; get to work and build that 160m dream antenna of yours.

### San Ambrosio Island

Do you remember the XQ0X operation by John CE0ZAM - from 15 December 1990 to 12 June 1991 on San Ambrosio Island? He made 24,154 QSOs on eight bands, all in SSB - there was no CW activity from John in that period. A photograph sent to me by his QSL manager, Mickey CE3ESS, shows he had very cramped quarters on a three-square-kilometre uninhabited volcanic island.



John XQ0X in his shack on San Ambrosio Island.

### Albania - ZA

As mentioned briefly in the March 1992 issue of *Amateur Radio*, the DXCC has finally accepted for credit the Hungarian operations in Albania last year. Here is the full text of the ARRL news release (dated 3 February):

The ARRL DXCC desk in Newington, Connecticut today announced that QSL cards for ZA1HA, ZA1QA and ZA1DX are being accepted for DXCC purposes. Licences for these operations were issued by the Ministry of Culture, Youth and Sport in Tirana. There has been confusion in Tirana over what a radio amateur is, and who has the authority to issue amateur licences. The Ministry of Culture, Youth and Sport and the Albanian Radio Sport Federation support a number of unlicensed radio enthusiasts. The PTT publicly announced the beginning of an amateur radio service in Albania. Further, the PTT has had contacts with ITU and IARU and arranged for training of Albanians in the technical, operating and regulatory aspects of amateur radio.

In the future, the ARRL DXCC desk will

accredit only those operations approved by the Albanian PTT.

No further comments for the time being, except two more questions: The ZA0RS contest operation with 12673 QSOs (October 1991) and the other operations (RTTY) of the Hungarians are not yet on the approved list. Will they be in the future? What about the activity of the Albanian club station ZA1FD?

### Future DX Activity

- \* Herman DL1RBH, alias VK2CCW, 5W1JQ, 3D2JQ and FO0/VK2CCW, advises me that all QSLs for the above expeditions will go out in March. He also says he will be active from March to May in ZS6, ZS3, Lesotho, Swaziland and maybe Mozambique. He will turn up on different nets.
- \* Claudia F1NYQ/HB9CUY and Fritz F6IMS/OE6FOG intend to activate Cocos-Keeling Islands on all bands including WARC between 17 March and 6 April. The callsigns used will be VK9CL (Claudia) and VK9CK (Fritz). They will take part in CQ WW WPX SSB Contest. QSL to: F6IMS, either direct or via the HB and OE QSL Bureau.
- \* According to the ARRL Bulletin, P5, North Korea will be on the air in May; a DXpedition similar to the ZA1A operation.
- \* FD1PJK/ET is active in Ethiopia on 14121. However, it is not known whether he has a legal licence to operate.
- \* The call IA1A during April should not confuse you. It is Paul I1RRJ using that call. QSL to his home call.
- \* It is rumoured that UT4UX DXpedition to Afghanistan YA5MM has been postponed until April.
- \* Look out for a new active P29 operator. Peter HS1AMB will be on the bands for the next year as P29UV.
- \* The Hungarian team of HA8IE was very active from T32BW during February and March.
- \* Tromelin is rumoured to be active at the beginning of April as FR5ZU/T and FR5AI/T will be active later on in May.

### Interesting QSOs and QSL Information

- Note: callsign, name, frequency, mode, UTC, month
- \* V73DF-Wayne-21034-CW-0327-Feb. QSL to: W9GW Wayne Warden Jr, 704 Meadowbrook Av, Bloomington, IN, 47401 USA.
  - \* 9X5HG-Hartmut-21037-CW-0358-Feb. QSL to: Hartmut Gumpert, BP420, Kigali, Rwanda.
  - \* FK8GF/50/USA-Alex-14226-SSB-1128-Feb. QSL to: PO Box 3977, Noumea, French Caledonia.
  - \* V85KGP-Iris-21205-SSB-0523-Feb. QSL to: Yasme Foundation, Box 2025, Castro Valley, CA 94546 USA.
  - \* CEOFYL-Marco-21260-SSB-0534-Feb.

- QSL to: PO Box 7, Easter Island, Chile.
- \* DX2VOA-Jonathan-14225-SSB-1037-Feb. QSL to: W7KNT John D Vugteveen, PO Box 64, Stevensville, MT 59870 USA.
- \* XFOC-Mario-14196-SSB-0555-Feb. QSL to: XE1BEF Hector Espinosa Flores, Box 231, Colima 2800, Mexico.
- \* EH8URL-Tony-14189-SSB-0608-Feb. QSL to: EA8ZX Alfonso L Hernandez, Box 221, 38085 Las Palmas, Gran Canaria.
- \* TZ6NU-Alain-1422-SSB-0624-Feb. QSL to: F6FNU A Baldeck, Box 14, F-91291 Arpajon, Cedex, France.
- \* V85KY-Mike-18068-CW-0912-Feb. QSL to: G3JKY A J Gould, 60 Merlin Grove, Beckenham, Kent BR3 3HU, UK.

### RTTY News

Here are a few interesting RTTY QSOs. Note new format: UTC, QRG, call, mode, QSL information

- \* 0715-14084-VI150SYD-QSL to: PO Box 1066, Parramatta, Sydney 2124, Australia.
- \* 2219-21085-HI8AX-QSL to: JA2DLT.
- \* 1942-14096-CQ5X-QSL to: CT1CIR.
- \* 0757-21080-3C1EA-QSL to: EA4CJA.
- \* 0023-14085-TA5C-QSL to: Box 73, WAR Adana, Turkey.
- \* 1853-14086-ZA1TTA-QSL to: Box 66, Tirana, Albania. The operator was Daylan Omeri, who says he is the only one allowed to use RTTY in Albania, and he states that his operating time will be from 1400 UTC to 0000 UTC on most days.
- \* 1615-21093-A92DQ-QSL to: Box 33716 Isatown, Bahrain.
- \* 1510-21085-WD3D/WH0-QSL to: JF2KOZ.
- \* 0001-21090-T30NY-QSL to: Box 80, Meguro, Tokyo, Japan.
- \* 1637-21085-S79PDL-QSL to: Box 448, Victoria, Seychelles.

### From Here and There and Everywhere

- \* The Maly Vysotskij Island (MV Island) cards from the third DXpedition in May 1991 have arrived in VK. For those who do not know, MV Island is located in the Gulf of Finland on the Baltic Sea within Russian Territory (60°38' north, and 28°34' east). The island was leased to Finland in 1962. Its DXCC status was established in 1970 and re-affirmed on 17 November 1988.
- \* According to Bill VK4CRR all the XY0RR Myanmar DXpedition cards were posted at the end of February. Rumour has it that Romeo might visit VK4 in May this year. The special event station VK4VD cards will be posted mid-March.
- \* Karl PS7KM, who is the QSL manager for the PY0SK operation, advised Austin VK5WO that there are problems with the cards of PY0SR (CW) activity, St Peter and Paul's Rock, May 1991. Those VK

- amateurs who are still waiting on their PY0SR CW cards should contact Austin VK5WO for help. Send all details to Austin Condon, 25 Mill St, Laura, SA 5480. Karl PS7KM also advised that the Brazilian Telecommunication Department has cancelled Jaime Dorneles PP5JD callsign and licence on 3 January 1992.
- \* With the dissolution of the former Soviet Union, the Amateur Radio League of the Republic of Kirghizstan came into being (ARLRK), and cards directed to UM amateurs should be sent to their new bureau: PO Box 1100, Bishkek, 720020 Kirghizstan. This advice was received from UM8DMX, who is the President of ARLRK, via the VK4 QSL Bureau from VK4FIX.
- \* The Annabon August 1991 DXpedition cards started to arrive from QSL Manager EA3CUU. The attractive card shows the seven Spanish operators of the Garrotxa Amateur Radio Club and a beach scene of the island. There is also a detailed description of the historical background of the island but, unfortunately, it is only in the Spanish language.
- \* Jim Smith VK9NS says he has been informed that the legislation introducing the amateur radio service into Bangladesh has been examined and passed by the various sub-committees, including internal security, of the Bangladesh authorities. There is now a well-based hope that amateur activity could start from that country soon.
- \* The *International Callbook* lists only those Polish amateurs who are members of the PZK (The Polish Amateur Radio Association) but all SP amateurs can receive QSL cards via the PZK QSL Bureau. SP0 calls are for special events in Poland.
- \* Talking about the 1992 edition of the *International Callbook*, turn to page 1528. You will see the caption V7 Marshall Islands, but listed underneath are the amateurs of Brunei V85. The V7 Marshall Island listing is missing. Or is it missing only from my book? What does the publisher of the *International Callbook* intend to do about it?
- \* The address of the YL QSL Bureau is: Box 164, Riga, Latvia 226098.
- \* We do know that using the QSL Bureau service is a relatively inexpensive, but slow, method of exchanging cards. However, sometimes the system gets lost in its own sorting boxes. Lately I received quite a number of QSL cards from the Bureau which were for contacts made, six, five or four years ago. Who knows where these cards had a long period of rest? Which one of the two bureaus has too many sorting boxes? Incidentally, among the latecomers was one from 9K2KL for a QSO which we had in September 1988. The confirmation is not a card, but a beautiful computer-generated and graphics-enriched

impressive certificate.

- \* DXCC has turned down the application to grant a separate DXCC country status for last year's activity from the Holy House under the call HV0HH.
- \* The Visalia International DX Convention will be held in California USA from 10-12 April.
- \* As from 1 April, Denmark OZ will allow its amateurs to work SSB on 160m between 1830-1850kHz, and CW from 1820-1850kHz.

### Thank You

Thank you to all my contributors, your help is greatly appreciated. Many thanks to: VKs 2DID, 2KFU, 2GS, 4CRR, 4FDX, 4SZ, 5WO, 9NS, and CE3ESS, DL1RBH, VE7BS, 9X5HG, and the following publications: *QRZ DX*, *The DX Bulletin* and the *DX News Sheet*.

### QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager and its call; OP=operator and/or its call

Direct QSL cards received:  
9H1EL (11M FM MGR LA2TO), VK9YJ (9M FM OP), 3B8CF/3B7 (3M 2W FM OP), 3B8CF (3M 2W FM OP), 9M8ST (10M FM OP), 4J1FS (9M FM MGR OH2BU), 3C0CW (5M FM MGR EA3CUU).

Bureau Cards received: PJ2CI (6Y FM OP), HS0B (5Y FM OP), 9K2KL (4Y FM OP), CE1HIK (4Y FM OP), GM4CXM (4Y FM OP), HC5AL/3 (4Y FM OP), LS8E (4Y FM OP), VI88ACT (4Y FM OP), C31LEK (4Y FM OP), XQ5SM (4Y FM OP).

Good DX and 73  
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## A Call to all Holders of a Novice Licence

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## VHF/UHF - AN EXPANDING WORLD

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All times are UTC

### Australian Amateur Bands

Frequency	Band	Location	Call
50.046	VK8RAS	Alice Springs	PG66
50.053	VK3SIX	Hamilton	QF02
50.056	VK8VF	Darwin	PH57
50.057	VK7RSB	Hobart	QE37
50.066	VK4RPH	Perth	QF78
50.0774	VK4BRG	Sarina	QG48
52.325	VK2RHV	Newcastle	QF57
52.345	VK4ABP	Longreach	QG26
52.370	VK7RST	Hobart	QE37
52.420	VK2RSY	Sydney	QF56
52.425	VK2RGB	Gunnedah	QF59
52.440	VK4RTL	Townsville	QH30
52.445	VK4RIK	Cairns	QH23
52.445	VK4RBM	Mackay	QG48
52.450	VK5VF	Mount Lofty	PF95
52.470	VK7RNT	Launceston	QE38
144.400	VK4RBB	Mount Mowbrall	QG62
144.410	VK1RCC	Canberra	QF44
144.420	VK2RSY	Sydney	QF56
144.445	VK4RIK	Cairns	QH23
144.445	VK4RTL	Townsville	QH30
144.445	VK4RBM	Mackay	QG48
144.450	VK5VF	Mount Lofty	PF95
144.460	VK6RPH	Perth	QF78
144.465	VK6RTW	Albany	QF84
144.470	VK7RMC	Launceston	QE38
144.480	VK8VF	Darwin	PH57
144.485	VK8RAS	Alice Springs	PG66
432.160	VK6RPH	Perth	QF78
432.410	VK1RBC	Canberra	QF44
432.420	VK2RSY	Sydney	QF56
432.440	VK4RSD	Brisbane	QG62
432.445	VK4RIK	Cairns	QH23
432.445	VK4RTL	Townsville	QH30
432.445	VK4RBM	Mackay	QG48
432.450	VK3RAI	Macleod	QF22
432.450	VK5VF	Mount Lofty	PF95
432.537	VK3RMB	Mount Buninyong	QF12
1296.410	VK1RBC	Canberra	QF44
1296.420	VK2RSY	Sydney	QF56
1296.440	VK4RSD	Brisbane	QG62
1296.445	VK4RIK	Cairns	QH23
1296.450	VK5VF	Mount Lofty	PF95
1296.480	VK6RPH	Perth	QF78
2304.445	VK4RIK	Cairns	QH23
2306.440	VK4RSD	Brisbane	QG62
10445.000	VK4RIK	Cairns	QH23

### Beacon Notes

I regret an error occurred in the February issue where I said the only 70cm beacon in VK3 was VK3RMB. A letter from Ian Glanville VK3AQU assures me that VK3RAI is still operating in Melbourne and has done so from the QTH of his father Neil VK3AQD for many years, at their own expense. The beacon is re-listed above. Sorry about that!

New beacons reported by G4UPS are CU3URA/SIX from the Azores on 50.014 in HM68 square. Also DX1HB/B from the Philippines with 20 watts on 50.008 in square PK04. GB3LER is located in the Shetland Islands and runs 45 watts to a dipole. The beacon is FSK, 24 hours, in square IP90JD and the keeper is GM4IPK.

### Six Metres from Europe

Another valuable and lengthy report from

Ted Collins G4UPS. Whilst we in VK get our openings, most of the news is certainly centred on the northern hemisphere where there are so many active countries. Ted reports:

The official start-up date for Czechoslovakia was from 0001 local time on 15/12/91 on 50-52MHz with a maximum power output of 20 watts to a horizontally polarised antenna.

Arnie CO2KK from Cuba is active, as is Bill C6A/KM1E from the Bahamas. It appears that OE6XHF is the only 6m station in Austria. (However, despite that statement, a number of other OE stations have been worked in VK during the past week or so ... 5LP). OE6XHF is a club callsign with the address, VUSC, Sausal 50, A-8444 St Andrea, Austria.

Polish stations (SP) may receive permission to operate on six metres by April/May; Rich SP3CUG is ready to operate, can run 20 watts, but speaks poor English! Joe EA4CGN anticipates that the first EA 6m permit will be issued sometime between April and June 1992.

QSL info for Ivan YT3ET is Ivan Nanut, Cankarjeva 76, Nova Gorica 65000, Slovenia, Yugoslavia. Brian 9H5ET QSL to Brian Cole, 140 St Mary Street, Zejtun, Malta.

The activity on six metres for January 1992 reported by Ted G4UPS runs to more than four closely typewritten pages - it really is staggering what is available to be worked or heard from the UK. It seems Ted's 6m day starts around 0900 UTC, which would also be their local time, and usually continues for eight to 10 hours or more on almost a daily basis. Regular signals are available throughout the day from all over Europe and, from time to time, to the Caribbean, USA, Canada, Africa, South America, Japan, Hong Kong and Australia. The information I gather seems meagre by comparison. I suppose the man eats!

Here is some of the best of Ted's reporting. Geoff GJ4ICD reported similar listings, and these were included last month. However, there is a variation between the two reports indicating the differences between two locations of the UK. 1/1/92: 0945-1945 - OH, DU1/KG6UH, LY2WR, ES5MC, VE1XDX, W1, F6, OE, SM, IK2, YU3, YT3. 2/1: PZ1EL, FY7THF/B, P43FM, KP2A. 3/1: P47THF/B, DL, OZ, PA, ON, YV5ZZ, 9H5AZ, ZB2VHF/B, DJ, CN8ST, ZB0T, K4CKS, I7C, KM1E/C6A, W, LY2WR. 4/1: 0935-2100 - meteor scatter to DL, OZ, SM. Then via Es to SM7, FC1JG, IK0, OZ9, HC1BI, KP2A, OK, DK, PA, PE1ILY, OE5, C6A/KM1E, K4SC, ON, YU, K9APW, N7JJS, K5UR, CO2KK, N5VC, ZB2VHF/B. Many contacts via a large Es opening.

6/1: 0900-1930 - VK3OT, VK3LK, ON, FY7THF/B, VE1ZZ, CU1EZ, SM7, W1EP, W8, PA, OK, OE, DL, ON, YU, IK2, K9HMB, WB0V, KE9I, K8EFS, W2RHQ, N4KWV,

K0GJX, W3WFM, K1NDP, W5FF. In all, worked W2, 2, 3, 4, 5, 8, 9, 0. Es commenced 1627. 7/1: VK3OT, VK3LK, HC5K, HC5K, YV4AB, VE1YX, KE9I, P43FM, W3JO, W2BXA, K1JRW, VE3RM, 9H1, K5CM, N6CA. 11/1: 0920-1614 - HC1BI, VEYX, W2CAP/1, CO2KK, PA, W2LT, N4AR, W5OZI, KE8F, VE2DFO, W3ZZ. 12/1: VS6BG works YU, CN8 etc. 14/1: In band TV from 9M, BV. 5B4CY/B. 18/1: 1227-2020 - ON7, PZ1EL, FY7THF/B, P43FM, YU3, 4N3SD/B, I4ICL, CT0WW/B, CT1BH, ZB2VHF/B, CN8ST. 20/1: Southern Florida to YU, OE, OK and I.

21/1: 5V7JG keyer, F, ZB2VHF/B. 24/1: 1218 ZS6AXT working OE and 7Q7RM hearing V51VHF/B. CN8 into W. 26/1: 0825 DX1 beacon into Italy along with VS6BG, 0825 UL7GCC into OZ, OH. 28/1: 0825 in band TV from Russia, UL7GCC/P, F8IH, VK6PA, ON, VE to I, VE1YX, W3EP/1, W to LA, SM, I, YU, DL. W working Z23JO/7Q7. 29/1: UL7GCC/P, JA7 into YU, YU to VS6BG, VK6 and VK8 to ON, 9H and I stations hearing OX3 beacon strongly, K1JRW. 30/1: GI hearing 5B4 beacon, SV1EO and VE1YX hearing FY7 beacon. 31/1: 4X1IF, 5B4CY/B both 5x9+, PT7CB, SO1A, OD5SK, VK6JQ.

The above paragraphs have included only one call sign from an area; many times there were multiple contacts. The latest list (31/1/92) of countries worked from the UK now stands at 130. I note that Geoff GJ4ICD has now worked 119 countries and confirmed 115, has DXCC #33 and over 500 grid squares with 450 confirmed.

Geoff GJ4ICD, with additional information, said that on 26/1 he worked VS6BG at 599 and heard XX9JN. On 28/1 heard UL7GCC, but no QSO. RA3TES was worked by UK but he told UK amateurs he was not permitted to transmit! 29/1: Strong Es from 0830 to SM, YU and the USSR. F2 provided video from 9M2. At 1044 GJ4ICD worked UL7GCC/P in MN83KB for a possible first British Idles QSO, with the UL7 remaining in GJ for nearly two hours. The mode appeared to be multihop winter Es for a distance of 5843km. The Es then fell into the TEP to end path and produced VK6PA at S9+ for 30 minutes. CU1EZ worked UL7GCC/P and OK via Es about the same time.

## 8 February 1992

That date deserves a special mention as it provided what appears to have been one of the longest and most widespread 6m openings between Australia and Europe, up to five and a quarter hours in some places. There were intense sun flares on 3/2, followed by auroral openings on six and two metres during the late afternoon and early evening. 8/2: Scattered throughout the day there had been Es openings to VK2, 4, 6 and 8. From 0130-0215 a TEP opening to Japan. Many video carriers were audible between 48-50MHz during the late afternoon, so the warnings were there.

The following will give readers some idea of

the coverage at both ends, and I thank those operators who have responded to my requests for details of their contacts. From information on hand it seems that Steve VK3OT started the ball rolling in the south/south-eastern area of the continent by working OG1ZAA at 0740. Then followed OH, SM6, OZ, PA, DK, LX, OK, F6, ON being 43 contacts (34 on CW) in 10 countries and finishing at 1055. Many signals were 5x9. At 0826 LA9ZU reported hearing VK3OT, but no contact eventuated. Ray VK3LK south of VK3OT had 20 contacts for five countries. In Melbourne, Arie VK3AMZ around 0825 worked DL, OK, OZ and OH, while VK3AZY, VK3BDL and VK3AMK heard a few weak signals, but did not work any. There was a report that Ian VK7IK had worked a PA, but this is unconfirmed.

In Sydney VK2FLR, VK2BA, VK2VC and VK2GLS were able to work ON, OZ, DL, PA, G3 and F1. Further north, VK2QF worked some. Further north again, no stations appear to have been worked in Brisbane.

Between 0755 and 1159 Col VK5RO in Adelaide worked SM, DK, OZ, G3 and ON for 18 contacts in five countries. He said there were some very strong signals from Europe, but at times it was impossible to work them due to local QRM from so many stations operating simultaneously. Hugh VK5BC started at 0750 with DL7ARM, followed by OK, OZ, G3, SM, PA, ON, OK, OE, IK, GJ4, F6 for 55 contacts in 12 countries, the last at 1200. Fifty-three contacts were on CW. It is not known whether the band opened to Mount Gambier as Trevor VK5NC was not home that night.

David VK5KK in Adelaide worked 41 stations in eight countries comprising DL, PA, G, GW, SM, ON, OH, OZ between 1120 and 1210. Signals varied from 5x5 to 5x9. The band was open to VK8 at the same time, and it seems the contacts into the Adelaide area were assisted by Es from Alice Springs. David said it was utterly confusing, there were so many stations calling together that he could select only certain stations from the dogpiles.

Also in the Adelaide area, Mark VK4EME worked OZ5IQ at 1141. Others to work a number of stations were VK5ZDR, VK5ZBK, VK5DX, VK5RQ, VK5AFO, VK5AKM and VK5NY who had 20 contacts in four countries comprising SM7, OZ, OH and D from 0826. VK5LP heard absolutely nothing!

Don VK6HK in Perth commenced at 0830 with DL, then SM, OH, OZ, G, GI, GM, GW and PA, being nine countries from 74 contacts over a period of five hours. He worked 44 stations in G alone. Most were on CW. John VK6JJ, also in Perth, had 130 contacts for 14 countries, which included EI as a rare one. It is interesting to note that Steve VK6PA at Karratha had only 10 contacts on 8/2, instead of the nightly 100 or so. It appears most of the signals were going over him to Alice Springs and points beyond. At Broome, in addition to VK6JQ who has worked many Europeans,

there is now VK6RJ, and further inland at Mount Newman a newcomer is VK6YCF - both of these stations have been working to Europe.

Graham VK6RO in Perth between 0814 and 1330 worked 71 stations in 12 countries, being SM, OH, LA, OZ, GM, GD, GI, GW, G, EI2, PA and DL. He said there were incredible pile-ups in return to his calls and dozens of stations were S9. He worked 40 stations on SSB, 23 on CW, and eight on FM, the latter all being G stations. He had what is believed to be the first VK to Europe FM QSO when he worked G0JHC on 50.250MHz at 1154, with signals 5x9 both ways, and duly makes that claim in the absence of earlier claimants.

Graham VK6RO said he had a mains power failure between 1025 and 1130, but managed to work two new countries using 10 watts with power from a car battery and operating by candlelight! He also heard UK beacons on 50.000, 50.050 and 50.062, and OH1SIX on 50.060, but all were weak.

Peter VK8ZLX in Alice Springs had more than 60 contacts in seven countries, comprising OH, SM, PA, I, OE, OZ and HB9, which was a rare one. Also involved with many contacts was Jeff VK8GF.

Below a line across the centre of Australia, in the regions comprising Perth, Alice Springs, Adelaide, Berri, Hamilton, Melbourne and Sydney, the spread of countries appeared to be DL, EI, F6, G, GD, GI, GJ4, GM, GW, HB9, IK, LA, LX, OE, OG, OH, OK, ON, OZ, PA and SM. There may have been others not reported to me, but this is a total of 21 countries available, but no one worked them all. Also worth observing is that all those worked were in the regions of central Europe and further north; absent were such areas as ZB2, 9H1, IS0, YU, 5B4M, SV etc. there were many G stations, but few from France.

## Does Six Metres Ever Close?

It would appear not. To prove that, it is interesting to take a brief look at the log of Steve VK3OT over the past three months. 23/11: JA1, W6, W7. 24/11: VK4, KH6, JA6. 26/11: G3, JA6, NJ7. 3/12: VK7. 4/12: KH6JEB/KH7, JA2, 3, 5, 7, 8, 0. 6/12: JA2, 8. 7/12: VK4, 8, 24/12: VK8, IS0. 25/12: IK, SM, IS0. 26/12: JA1, 2, 7, 8, VK8. 29/12: KH6. 30/12: V73AT. 31/12: 3D2, ZL1, 3.

4/1/92: ZL1, 2. 5/1: FK8. 6/1: OK3, OH3, OG1. 7/1: OH2. 8/1: W4. 9/1: JA1, 7, 8. 10/1: JA1, 4, 6. 19/1: ZL3. 21/1: ZL2. 23/1: W6, FK8. 29/1: JA2, 4, 0. 3/2: VK7. 8/2: As reported above - 43 contacts to Europe in 10 countries. 15/2: ZL1, 3, 4, SM7, DJ, OZ3, OK, OZ, PA. 18/2: OK, SM, OZ. End of log copy. Many of the prefixes involved multiple contacts. Further contacts to Europe have been made since on 19/2 and 20/2.

Hugh VK5BC reports various Es openings between 28/1 and 31/1. On 1/2 he worked OH2BC and OH2TI. 5/2: OH2, OZ1, SM7, DL8, G3, JG2. 8/2: As reported above. 10/2:

VK4. 11/2: 0032-0040 TI2NA, TI2HL. On 5/2 Col VK5RO started at 0950 by working two JAs, then at 0952 ON4ANT, OH, GW4, SM7, DL8, G for six countries and nine contacts, finishing at 1120. Col said the European stations were being received over a wide swing of the antenna, from north to west, with the strongest being received from the north.

On 16/2 John VK4ZJB phoned to say that at 0944 he worked GU7DHI on Guernsey Island for the first time. Signals were to 5x7. John said anyone QSLing Guernsey should send him two green stamps, as postage from there is very costly. His contact has been confirmed. On 15/2 in Brisbane, G8VR, G4FUF, G4AAN, GJ4ICD and another were worked by VK4APG and others with signals to 5x9. Peter VK8ZLX at 0843 on 23/2 received a surprise when he worked ES6QB in KO37, at 0952 he worked FC1, ES5PC and ES5MC, the latter using 1.5 watts, hence the 5x1 report! In between he worked DK, OH, GJ4ICD, GO, G3, JR1 (who persisted until worked!), PA, F6, DL and ON. VK8GF worked F6, OE5 and others. Amongst the Europeans they heard KG6UH/DU1.

15/2 was another good day around the country. VK6PA worked 153 Europeans in 18 countries! (VK6PA worked more than 100 stations on each of consecutive nights 17, 18, 19/2). VK5NC in Mount Gambier, between 1044 and 1144, worked PE1, DL8, SM6 and VK5EE worked on SM6.

The same day VK3LK at Portland worked SM6, OZ4, OH3, SM7, OZ1, OH5, OZ3, SK7, DL8, PA2, DK2, DK9, PA0 and DK8. 17/2: VK3AMZ worked 25 stations. VK5NC worked two. VK3LK from 0849 worked OZ7, SM7, OZ8. Don VK6HK said that in Perth there had been openings to Europe on 17, 18, 19 and 20/2 and stressed that the use of CW was an important factor in making contacts. 16/2: In Sydney, Mike VK2FLR said I4CIL, I4XCC and YU3ZV were worked on SSB from 1030, and on 18/2 he worked I4CIL and IK4DRY at 1025 during an opening which lasted 90 seconds! Geoff VK3AMK said on 18/2 two DLs were heard, and he worked a DK 529 at 0824. Also on 18/2 VK3DUT worked an LX1 at 5x9. When does it stop!

Mike VK2FLR comments that there are considerable difficulties working DX from a large city like Sydney. Operators have to contend with a high overall noise level which requires the use of a noise blanker which, because of the "holes" it punches in the signal, gives it a peculiar sound, tending to make the signal less readable. The more efficient the noise blanker, the more problems it causes with cross modulation from other strong nearby signals.

However, despite the QRM, Mike considers Sydney has had its fair share of European contacts, beginning on 14/10/91 and continuing on 27/11, 8/2/92, 16/2 and 18/2, when contacts were concluded. There were three other occasions in November when signals were heard only. On 29/1 VK2ZXC was heard at S9 in Holland and Belgium.

### Two Metres and Above

The Adelaide gang is around most nights on 144, 432 and 1296. Some even venture on to 2304MHz. Mark VK5EME hears David VK3AUU on 144 most mornings, but has difficulty in completing contacts as David cannot always hear him. VK3AUU advises there is EME activity on two metres every fourth weekend, eg 11-12/4, 9-10/5, 6-7/6, 4-5/7 etc.

An aurora on 21/2 allowed fairly widespread contacts. From 0618 VK3BDL, VK3AZY, VK3LK, VK7ZJJ amongst others were observed here. Col VK5RO also said 21/2 was a good night with Es providing not only 6m contacts into Perth, but two metres as well. John VK5PO, north of Adelaide at Kapunda, supports this and reports working, with some auroral assistance, at 1048 VK6QB at Busselton 5x9+, 1052: VK6LD Katanning 5x9+60, 1045: VK6YVJ Busselton 5x9+60, 1054: VK6AXX Esperance 5x4, all on 146.500 FM. At 1125 he worked VK5KCX at Gawler, 35km south of Kapunda, via the Kellerberrin repeater on 147.325 – a long way round for a short cross-country contact! Other repeaters heard at 5x9 or better were Bunbury VK6RBY 146.900, Busselton VK6RBN 147.350, Albany VK6RAA 146.825, Perth VK6RAP 146.700 and other Perth repeaters. All these were

worked from his home. Barry VK5KCX at Willaston near Gawler worked Richard VK6FKB at Booragoon, a Perth suburb, on 146.525 FM.

John VK5PO says he has had considerable success from his portable site, Bethel Hill lookout, 7km south-west of Kapunda and about 450m above sea level. All have been on 144.100 unless otherwise indicated. 22/12: 1334 VK6BE Albany 5x7, 2145 VK3CY Wedderburn 5x9. 23/12: 1050 VK5MC Millicent 5x9, 1112 VK5ACY 5x9+, 1923-2204 VK3ECV and VK3JAW, both at Mildura 5/3-4 on 146.5 and 439.0 FM.

2/1/92: 1219 VK5ZVA Whyalla 5x7. 4/1: 0949 VK5MC 5x9, 0957 VK5KAF 5x1, 1027 VK5EN Cummins 5x9+, 1049 VK5ZDS/5 Cummins 5x9+. 10/1: 1130 VK5AKK/P Kangaroo Island 5x3, 1133 VK5AKK/P 5x2 on 432.1 FM, 1144 VK5NC 529, 1154 VK5ACY 5x9+. 11/1: 0849 VK3CY 5x2, VK3BBB/P Mt Skene 5x9+, VK5AKK/P 5x9, 1027 VK3AOS Horsham 5x5, 1038 VK5LP Meningie 5x9, 1045 VK5DK Mount Gambier 5x5, 1056 VK3III/P Grampians 5x9+.

Roger VK3XRS reports a few notable contacts. On 8/11/91 he worked VK2ZAB on 432MHz via aurora. 11/1/92 VK3XRS worked VK3ELV Wangaratta on 1296 SSB running two watts into a 2m dish. On 8/2 he worked VK1AU, VK1VP, VK1BG, VK2ZRE via aircraft enhancement – with 12 watts into a 12m-long yagi.

### Closure

By the time you read these notes we should be enjoying the DX on six metres that only the equinox can bring. Watch out for Central American and Caribbean stations from 2200 onwards and probably South Africa from mid-April around 0400 onwards, and more from USA in May.

Closing with two thoughts for the month: *"The best motorist drives with imagination: he imagines that his family is in the car", and "The best cigarette filter is the cellophane on an unopened packet".*

73 from the Voice by the Lake ar

## POUNDING BRASS

GILBERT GRIFFITH VK3CQ – 7 CHURCH ST BRIGHT 3741

I have been having these nasty mental blocks lately when trying to do the writing for this column, and catch up on some of the mail at the same time. The first letter is from Jean VK2NF, and she says:

"... I agree Morse code is another "language" and, on hearing "dits and dahs", one automatically listens to it. Operators do develop a style, which is easily recognised.

My initiation to Morse was early in the

WWII years (March 1941) when volunteers were called for to learn and attend classes at the then Fort Street Girls' High School, now the National Trust Building in Sydney. On reaching 20wpm sending and receiving, we sat for a test held at the RAAF recruiting centre and, on passing a medical were accepted into the WAAAF as a wireless operator and sent to No 1 WAAAF Training Depot in Melbourne. Some time later they changed the

mustering to "telegraphist". We tuned in our sets in front of us, but always had RAAF radio mechanics not far away. In August 1941, after our "rookie" course in Melbourne, the signals operators were sent in to the Marconi School of Wireless in the city (Melbourne) to learn the RAAF procedure in a signal office. Printing figures and letters clearly was of the utmost importance so that the cypher office could decode the information quickly. Being stationed at Air Force headquarters in St Kilda Road, Melbourne, accuracy was the key word. We realised this more when the bombs dropped on Darwin, the Coral Sea battle and the fall of Singapore.

On discharge at the end of 1945, the Morse took a back-seat so to speak, but was not forgotten. Thirty-five years later I was encouraged to learn and sit for the amateur radio licence. Morse and the regs were never a problem. It was a long time since I went to school. After several attempts, I achieved the novice licence and am now enjoying Morse communication with people near and far. The Morse will get through most times when voices fail to be heard."

The second letter, from "Doc", may be of some interest as well. Here it is. From "Doc VK4CMI VK5HP:

"... Licensed in 1975, and an ex-Navy telegraphist, I have worked QRP CW exclusively. Apart from a break of some years for professional studies, my on-air activity included successful international contesting on 20 metres. December 1990 I resumed these activities in Whyalla and, six weeks ago, relocated to Warwick (Q). During that time, I have used a Ten-Tec QRP transceiver; groundplane 5/8 groundplane, three-element Yagi and four-element quad to notch up 200+ DXCC on 5W input, 140 DXCC on 1W input, and 42 DXCC (so far) on 500mW input. Since 1975, I have made some 9000 QRP QSOs on 20 metres. One hundred countries were worked using 5W input in 40 days - without living for amateur radio. We don't have a QRP column in AR (or ARA) unfortunately, and although I sent my log extracts to VK9NS for a few months, they were published only once. I was hoping that continued exposure might cause others to contribute. Although I wasn't sure whether to send this information to you or to "How's DX", guess you drew the short straw hi. Having commenced QRP activity from this area on 18/1/92, in the first month the following QRP/QRP QSOs took place on 20 metres:

JA60P	0930 UTC	SM5CLE	1333
RQ0CV	1005	N9SW	1345
EAS/DJ6QX/P	1008	JA3WFG	1411
JG2EHE	1114	SM5ACC	1950
VK8CW	1237	PA3BBV	2051

(This sounds like one day's work ... Gil)

And the following represents the total types of DX worked this month on 20 metres (no contests involved):

0A4AWE	F05FQ	4K3/JA10LM	7L1KPV
FK8FS/50USA	AA7LB/NHO	T30RE	CP6UH
I2JHF	CT1DRA	UW1ZC/JW	VE30CP
LY1CX	FY5FA	KP2BL	HL9TK
F88G	G3KXV	KH6IJ	JT7AB
JT1AA	BY8AC	YN/SM00IG	8V4AO
ZP6CW	UA1QE	UG6GG	4S7CF
VU2NTA	AC4KD/DU1	V73CT	UA0WG
UL7JEG	5R8GW	W2BA	VK + ZL

OZ4UN, SK7AX, 3D2QB and Tim, VK3IM/M worked for 70 minutes while he drove home to Mt Eliza!

Yes QRP is alive and well on CW. Keep up the good work.

73 de Doc"

I notice that "Doc" is a member of the CW Operators QRP Club (#221 on my membership list), so I can only recommend that you ask the editors of both AR and LO-Key if they are interested in printing a column on QRP CW that you will send in each month (or whatever).

The last letter only just arrived at the beginning of the month, and comes from Renawk VK4FUL, who says:

"... You might recall seeing a documentary about an American amateur with a recumbent bicycle full of computers and radios connected via satellite etc. It was on TV a year or two ago. Well, I am what might be called the equivalent in Australia, but in a somewhat different manner.

My transportation is in the form of a recumbent tricycle with the front wheels steerable; the frame has space inside the tubing for

three banks of 10 "D" size nicads, giving about 3.5 amp hours at 12 volts. Power is further supplemented by the use of an alternator connected to the rear wheel drive and a 30w solar panel.

I am presently touring outback Queensland and using a home-brew rig on 160 metres with a power output of five watts (at 13.0 volts). My antenna system consists of 500 metres of steel wire, commonly used on control-line model aeroplanes, a small electric winch (a recycled cordless screwdriver) and a Cody design kite of 2m span.

When I am touring downwind the pull of the kite is balanced by the drag of the alternator, otherwise the trike would travel too fast and the kite would fall down. Operating on one band makes it unnecessary to have more than a simple tuner for the long wire, and reception is excellent.

I have already tried all the other bands and am looking for more of a challenge, hence top band is now the way to go. It is quite common for me to work 100 countries on CW in a day's riding, when I would usually cover about 150 miles. (Top-banders don't use kilometres!) Unfortunately I don't have any way of logging the calls as I have my hands full steering the trike and operating the paddles of the keyer, although when the conditions are right I can steer with my feet, but then I usually use my other hand to hold a stubby (the trike has a small electric fridge).

Anyway you can get confirmation from anybody on top band because they all know me. I don't care for paperwork anyhow. Don't bother to QSL either.

73 and cheers, Renawk."

That's all I have time for this month, Morsiacs, so 72 and 73 from Gil VK3CQ.

ar

## AMSAT

**BILL MAGNUSSON VK3JT - 359 WILLIAMSTOWN Rd YARRAVILLE 3013**  
**PACKET VK3JT @ VK3BBS**

### National Co-ordinator

Graham Ratcliff VK5AGR

Please take note of the AMSAT information nets:

### AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.

### AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

### AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia  
 GPO Box 2141  
 Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

### Computer time setting service:

At the time of writing a new Telecom service is undergoing operational tests in Melbourne. It will be similar to (but not exactly the same as) that provided by the National Bureau of Standards (NBS) in the USA. It will enable users equipped with a telephone modem to update the clock in their computer automatically. You'll be able to access the service through a routine which can be called up at will or can reside in the auto-exec file. Since most "modem" computers have notoriously inaccurate clocks, this service should prove popular with regular satellite operators. If you run an auto-track program to control antenna pointing, you need to (1) set your antenna system accurately to true north and level, (2) regularly update your keps, and (3) make absolutely sure your computer clock is accurate in the long term. Until now this has meant doing it the hard way or buying a high stability clock card. The popular program Instanttrack has a routine to do this by

accessing the NBS service. You can do it this way if you like for the cost of a brief ISD call. The new Telecom service will mean you can update your system more regularly, say once a week or month, at a relatively low cost. Unfortunately, the Telecom service uses a slightly different format than the NBS service so the routine already in IT won't work as is. It should be possible to write a short routine to reside in the auto-exec file, and I know of a couple of people working on this already. It's probably better done this way rather than modifying the routine in IT. The TZ variable can be included in the bat file and you'll never have to worry about resetting TZ each time we go to and from daylight saving time. There appears to be a bug in the readout at present with the year field containing an intermittent error in the first two digits. No doubt this will be fixed in the testing phase. The service is as yet unnamed, but it will receive wide publicity when it comes on line. It was mentioned briefly in the columns of *Your Computer* magazine for February, so you can bet there will be a suitable routine published in that magazine before long.

#### Attention UoSAT-2 Users:

Surrey University is looking for reports from users of this satellite. I know of a couple

of teachers using the signals from UoSAT-2 as part of their class studies. If you know someone who uses UoSAT-2 regularly (or even occasionally), please ask them to send in a report. It seems the UoSAT team is evaluating the service provided to educators on UoSAT-2. With a lot of effort being put into the development of UoSAT-Oscar-22 it would be a shame to see the good simple experimental data on UoSAT-2 downgraded or even discontinued. If enough interest is shown I'm sure the team will continue to provide this service.

#### New Satellite in the RS Series:

Sketchy reports are coming in about a new RS satellite. To be known as RS-15, it will be placed into a 2000km orbit. Neither its launch date nor any other details is known yet, but an orbit that high will be very interesting. An exact 2000km orbit should result in an orbital period of approximately two hours and seven minutes, and a mean motion of only a little more than 11.3 revolutions per day. It should result in access times of half an hour for an overhead pass, and a greatly extended footprint area. Those who can remember Oscar-7 will recall how well it performed with JA contacts possible from southern VK. It'll be

good to see a return to those kinds of access times and footprints on LEO satellites. If it contains similar features to the current RS series it should provide an excellent entry level satellite for Oscar users.

#### Oscar-13 Orbit Decay:

Not long after its launch concern was expressed about the long-term viability of Oscar-13. Due to a couple of problems during the launch its orbit was less than ideal. A lot of number crunching in a large computer at NASA has come up with some predictions which aren't good. It appears that the perigee will decay down to about 500km some time this year. Originally it was thought it would continue to decay and come down before the end of 1992. Further calculations have indicated it will recover to just over 600km by 1994 and then the big plunge will happen in 1996 when it will decay to less than 200km and re-enter. Oscar-13 never lived up to its expectations for this part of the world. The orbit drifted rapidly so that apogees were high in the northern hemisphere and much of the good communication time was lost to southern hemisphere stations. Hopefully phase 3D will be better placed for those stations south of the equator. Next month I'll go through the orbit possibilities for phase 3D. ar

## SPOTLIGHT ON SWLING

ROBIN L HARWOOD VK7RH - 52 CONNAUGHT CRES, WEST LAUNCESTON 7250

The situation in the former Soviet Union continues to be rather volatile, as evidenced by the Armenian enclave of Nagorno Karabakh, in Azerbaijan. Full-scale civil war has erupted amongst the inhabitants and has now involved the two republics of Armenia and Azerbaijan. Radio Yerevan in Armenia does have an external service in English and Armenian, but is beamed primarily to North America, where there is a sizable Armenian migrant community. Reception may be possible during our winter months, around 0330 UTC. The Azeris don't have an external service in English and seemingly target audiences in Iran and the central Asian republics in Azeri.

Meanwhile, the World Service of Radio Moscow is continuing, but its future is still rather uncertain. I believe it isn't a part of the domestic "Radio Russi", which has taken over the Russian language editions of the World Service. Funding was supposed to be a part of the Commonwealth of States budget, yet this has not been confirmed. The stationery from Radio Moscow still carries the USSR logo, although the address is given as "Moscow, Russia". I believe that the service could be looking for commercial sponsorship to help the continued funding of the station. Already, many Asian and African languages have been axed or curtailed, including drastically reduc-

ing those 24-hour Chinese language broadcasts. Some senders are now being leased out to either international or to domestic commercial broadcasters.

Because of these budget cutbacks to Radio Moscow, the Baltic nations of Latvia, Lithuania and Estonia have found that their rental of senders located within the former Soviet Union has escalated dramatically. Because of the imminent rate hike, Baltic programmers made on-air appeals for assistance in getting clearer channels for their own low-powered senders or help in obtaining their own higher powered units.

I have noticed Radio RSA in Johannesburg, South Africa on 15230kHz in English around 0430 UTC. It is broadcasting to Afri-

can audiences and has been quite good. Unfortunately, propagation isn't always reliable, as Radio Moscow World Service can be heard when Radio RSA's signal is absent.

The BBC External Services is negotiating to build a new relay base in Thailand, to replace the Hong Kong Relay, which is to close in 1997 when China re-acquires Hong Kong. The BBC site is reportedly going to be the location of the second Hong Kong airport.

Yet another co-operation agreement between international broadcasters has been signed. NHK in Tokyo has entered into a sharing of senders with the BBC External Services. This means that Radio Japan programming to western and central Europe will be via the BBC senders at Skelton, UK, and eventually for the BBC to use the NHK site in Japan to broadcast to East Asia.

Well, that is all the news for now. Until next time, the very best of listening and 73.

ar

**Don't buy stolen equipment - check the serial number against the WIA stolen equipment register first.**

## ALARA

JENNY ADAMS VK3MDR 70 KANGAROO GROUND RD, WATTLE GLEN 3096

Greetings to all once again. Another month has flown past. Late last year Christine VK5CTY was lucky enough to meet Val KH6QI from Honolulu when she was in Adelaide for a few days. Before coming to Adelaide to visit her friend Beryl, Val had been with a research team on the Great Barrier Reef.

Prior to that she had been with a team identifying archaeological sites at Easter Island in the Pacific. She is a lady of many interests, and is fortunate enough to be able to pursue them wherever in the world they are. Val would love to meet any YL passing through Hawaii - if she is at home. Paddy VK5ZYB is going to sponsor Val.

Four ALARA girls participated in Camp Quality in VK5. Christine VK5CTY and Paddy VK5ZYB went up on the Monday morning, Meg VK5AOV and Denise VK5YL went up on Tuesday and Friday mornings, and Denise went back on Tuesday evening as well.

Most of the time we helped the children make up simple electronic kits or operated the radio to show the children what amateur radio is all about, which was all very satisfying, but it was the extra trip by Denise that was the highlight of both ALARA participation and of amateur radio activity associated with the camp.

Denise took up detailed information of altitudes, azimuth and time of passage of the MIR satellite that night. She helped the men move the antenna into a more suitable position to catch the orbit, and then all waited for the appropriate time to arrive.

Denise tells us the conversations between the astronaut and Gabby was so crystal clear

she almost began to suspect someone was playing a trick on them. The QSO lasted eight minutes of the passage of the spaceship across the sky.

From Marilyn VK3DMS our report on the ALARA contest. It was very heartening that not only did the logs arrive earlier this year, but there were more of them. The number of OMs taking part this year was also much higher, and we do appreciate their presence.

I am sure everyone felt the same about the utterly despicable solar flare, which decided to coincide with the start of the contest. More than one girl checked her gear very thoroughly, thinking it had gone wrong! Not so - just several totally lost hours.

Congratulations to one of our newer members, Robyn VK4RL, who took out all the honours in her very first contest!

More congratulations, this time for Lyndell VK5LO who, with valuable help from OMs, managed more than enough points to qualify for the Florence McKenzie CW trophy. It will be great to see another name go on. It would appear that conditions entirely beat most of our DX members, with only the ZLs managing to get through. We can always hope for better things next time.

Conditions didn't beat Mavis VK3KS and her OM VK3XB who both got good scores on their 33' of wire along the fascioboard (a piece of wet string). It just shows what determination can do - bravo Mavis and Ivan.

Dorothy VK2DBB once again represented

## Results of the 11th ALARA Contest, November 1991

Marilyn VK3DMS, Contest Manager

1	VK4RL	Robyn	243	Top score overall, top phone, top VK4 ALARA member, top VK YL trophy
2	VK4VR	Val	218	
3	VK5CTY	Christine	198	Top VK5 ALARA member
4	VK5AOV	Meg	193	
5	VK8YF	Poppy	184	Top VK6 ALARA member
6	VK3KS	Mavis	138	Top VK3 ALARA member
7	VK5YL	Denise	135	
8	VK3DYF	Bron	128	
9	VK5KLO	Lyndell	125	Top VK YL novice Florence McKenzie trophy
10	L40018	Charles	122	Top SWL
11	VK4AOE	Margaret	120	
12	VK3XB	Ivor	115	Top VK OM
13	VK4JB	Julie	113	Top VK non-member YL
14	VK2DOB	Dorothy	110	Top VK2 ALARA member
15	VK5BMT	Maria	102	
16	ZL1ALK	Celia	102	Top ZL ALARA member Top DX YL trophy
17	VK6DE	Bev	100	
18	VK3DYL	Gwen	90	
19	OL2FCA	Rosel	89	Top European non-member YL
20	VK4VHN	Clayton	73	
21	ZL1WA	Alma	66	
22	VK7HD	Helene	60	Top VK7 ALARA member
23	VK3PO	Mike	60	
24	VK5ANW	Jenny	50	
25	ZL2AGX	Dawn	44	
26	VK3ALO	Len	30	
27	VK5BGZ	Kelth	30	
28	VK4KRR	Ted	24	
29	V85EB	Brian	24	Top Pacific Is OM
30	VK2NFS	Jean	18	
31	VK3DMS	Marilyn	Check log	
17	VK	ALARA members		
3	DX	ALARA members		
2	VK	non-member YLs		
1	DX	non-member YL		
6	VK	OMs		
1	DX	OM		
1	SWL		31 logs in total	

us at the Gosfield Field Day. Once again lockjaw prevailed by the end of the day. Thanks Dorothy.

Cheers till next time 73/33

ar

## INTRUDER WATCH

GORDON LOVEDAY VK4KAL - AVIEMORE, RUBYVALE 4702

This new year for the MS will hopefully see some new developments. The changes we have witnessed in the USSR can only have a bright side for the worldwide amateur fraternity. It could produce many changes in the long-standing intruder patterns, as the newly independent states get their own systems going, will they, as smaller states, be much more co-operative than the USSR giant? Some of those independent states have already made separate applications to join IARU, when their administration problems get sorted out, Bob ZL1BAD, the International Co-ordinator, believes that we will be able to get rid of many of the long-standing "Russian" stations. We watch with interest in R-3. Those observers listening to the "A2A" mode on 7038MHz, are you absolutely sure it is A2A??? A2A is a single-channel AM of a tone, for audible re-

ception. The R/T on 14045 +/- N0N and U/L SSB, the majority of fone contacts monitored are Chinese languages - this is not heard in the outer regions, suggesting relatively low power. Given that it has a constant carrier, detectable most of the time, a little organisation around R-3 should be able to come up with a QTH for it. Observers please give this more attention. VK, as with other countries, seem to have a frustratingly seemingly endless task with intruders, but it does have value and it does help. We *must* keep reporting the long-standing intrusions, if only to build up a history, which at some appropriate time we can produce as a lever. Radio Beijing on 40m! This station was documented for 30 years, then the deciding factor was produced to the Chinese ... by the JARL! It is hoped that more "noise" is made about our successes.

**Apology for the absence of "Knutshell Knowledge" in this issue. It will be resumed as soon as possible - VK3IY**

## IARUMS Summary Jan '92

Freq	UTC	Date	Mode	ID	"X"	Comments
7002.5	1120+	161291	A1A	V	12	Beacon USR Vladivostok
7008.5	0910+	161291	F1B/A1a	-	23	UMS?? 250Hz URS
7021.5	0840+	271291	F1b	-	8	3rd register 250Hz t/c & idle USR
7048/9	dly	161291	F7b/F1a	UHf3	26	5flg grp ID @ end of same USR
7060	1900+	030192	R7b	-	7	Interference as of SSTV audio
7060	1900+	to 010292	extreme interference to amateur operations			
14001	1712	120192	A1a	-	-	5flg blks t/c out
14022	1015	220192	J3E	-	3	R/tele foreign language
14030.2	1100	040192	J3E/U	-	-	R/tele Chinese voices
14045	1015+	9-2401	NON	-	10	Carrier + rad telephone
14046+/-	dly	161291+	J3E/L	-	28	R/Tx 2 ch duplex & dialling, Asian
14058	dly	161291	F1b/Ac3	-	35	Chn "fax" + TTY + NON
14073.8	1200	020192	A1a	VRQ	2	"Clicks" only
14074.8	1200	130192	A1a	VRQ	4	T/c + Msg fast op
14075	dly	280192	A1a	VRQ	69	T/c also uses 14070&14080,KFB,VBX VTN
14092	0815+	301291	A1a	RGT77	5	Short coded msg out VTN
14093/5	mnl	170192	A1a	VPC	7	T/c out (co-operation & protocol)
14100	0930/5	030192	A1a	NZB	17	T/c out ZBK de NZB QSV K
14177	mnl	301291	F1a	UID80	7	Calls only with UZZ44
14210	mnl	161291	A3E	-	25	Har of 7105. B/c radio Espana
above mixes with F1b stns on 14211 & 14215MHz/170192 @ 0920 chn programs						
14211/215	0820+	161291	2x F1b	-	27	2ch 3rd sh 200-250Hz 50 baud
14215	1000/15	311291	A1a	P7A	10	T/c in & out P9K de P7A etc
14217.5	dly	mnl	F1a/A1a	UMS	26	+ F1b main UMS stn USR
14250	dly	mnl	NON	-	7	+F1b also AFSK
16080	1154+	030192	A3E	R Mosc	22	ID @ 1200 Radio Moscow USR
18090	1215	030192	A3E	???	2	B/c sig tune "Church Bells"
21031.5	dly	mnl	F1b/A1a	MNR	44	T/c to UUU UMS & others hvy QRM
21135	0400+	200192	F1b	-	8	TTY 200Hz
21283.5	dly	mnl	A1A	MNR	40	to UU UMS also F1b 5-flg blocks

This month's logs from VKs 2PS, 4BG, 4YD, 4AKX, 4BHH, 4BTW, 4BXC, 5LG, 5GZ, 5TL, 6RO, 6XW.

ar

## FTAC NOTES

JOHN MARTIN VK3ZJC  
FTAC CHAIRMAN

### Records

This month there is a new national short path record for 50MHz, at an almost unbeatable distance of 19,251.3km. The contact was between VK2QF and CU3/N6AMG and is most likely the first-ever contact between Australia and the Azores.

The Azores is almost 180 degrees from south-eastern Australia, and this record looks as though it would be very difficult to beat.

In addition, two new VK5 state records go to Trevor VK5NC. One is a new 50MHz record for a contact with GJ4ICD (16808.4km) and the other is a 432MHz record for a 2069MHz contact with VK6UD. This contact was made six years ago, and it just shows how slow some people can be in making record claims.

Congratulations to these new record holders.

### TV Stereo Carriers

My thanks to those who have written with details of interference problems.

## REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS - 21 WATERLOO CR, LESMURDIE 6076

### Circuits

Replacement of a large part of the VK6 repeater network with identical units always looked like a big job. With the acquisition of a number of Phillips FM800s (FM828s in a rack-mounting box) the opportunity to rebuild our repeater network from the ground up was begun.

The existing network was a collection of many different types of modified radios. When a large number of repeaters are operated by one organisation, this variety is nothing but a problem. Non-standardisation causes extra work and a poorer standard of repeater system.

How well is your repeater documented? With many different types of repeater design our documentation was less than adequate. If the new repeater design was to be a complete success, then design and documentation had to be comprehensive. This is where the idea of recording all the documentation on computer began. Circuits were drawn and modified on the computer as the repeater hardware grew. Many hundreds of hours were spent in placing the circuit schematics on computer, and the process continues today with updating any changes.

With all this information now on computer, how could it best be shared with other amateurs building repeaters. The most obvious

way is to print the circuit descriptions and circuit schematics onto paper. Simple enough, and some of these circuits have appeared in Repeater Link.

There is, however, a better and more versatile way of disseminating the information, and that is via packet radio. Not only disseminating, but receiving feedback with circuit corrections and modifications. The versatility of the packet network, I believe, is understood by some and not by others. Having just increased my knowledge of what packet can do for circuit design ideas, by disseminating the information, I would like to share this information. To many in the packet world, this is old hat and they have been doing much the same thing for years. For those who have not, read on.

The backbone of the packet network is the BBSs and the interconnection between them. Any amateur who can access a bulletin board can send a text message to any other amateur in the world who has packet radio. Not only text, however, but any information can be sent. This includes high definition colour pictures and circuit diagrams. In fact anything you can see on a computer screen can be sent via the BBS mail system.

The mail forwarding via the packet network is text based only; that is 7bit information. In order to send colour pictures etc,

which are 8bit, a program is used to convert the 8bit information to 7bit information. This 7bit information which represents the 8bit information exactly, can then be sent via the packet mail system to any amateur anywhere. All that is needed at the receiving end, along with a packet station and computer, is the same program that was used to create the original picture or circuit diagram.

This is the crucial part. The program that was used to draw the circuit diagram. If there is no standard, a circuit drawn by using a particular program may be of no use if another amateur uses a different program for circuit design. There are ways and means of converting circuit drawings drawn by one program into another drawing program. Take it from me, a novice in the computer world, this is not easy. It is far simpler to arrive at a standard drawing program for amateur radio use.

If you have not seen circuit drawings done on a computer, you are at a disadvantage in understanding how flexible they are. A circuit on a computer can be manipulated in many ways. You can zoom in and out on the fine detail that the circuit may contain. Changing components is easy and fun to do. The results can look as good as any you see in electronic publications. All this can be sent to another amateur for saving for future reference, or this amateur can take place in the design phase, and modify the circuit. The potential is considerable. The infrastructure is already there; only standardisation on a drawing program is required.

At present, the drawing program that has potential and is the best shareware program I have found so far is Draft Choice version 1.51. A shareware program is required as copyright programs could present problems. DC151, for short, is a credible powerful drawing program. It is not directed specifically

towards schematic drawing, but does the job well. You may well find this program on a local BBS.

It is important to repeat the versatility of having your repeater circuits on computer. They look good. They are fun to draw. They are easy to modify. They can be printed out on

to paper and, if a standard is agreed upon, they can be sent around the country.

From time to time, I receive requests from amateurs who are building their first repeater. One thing most of them say is where do you find information on repeaters. Maybe, in the long term, computer CAD can help. ar

## DIVISIONAL NOTES

### VK2 NOTES

Tim Mills VK2ZTM

Members of the NSW Division are reminded that the 1991/92 AGM is scheduled to be held at Amateur Radio House, 109 Wigram St, Parramatta on Saturday afternoon of 2 May 1992. The formal notice and business paper are contained within an insert booklet included with the April 1992 issue of *Amateur Radio*. This booklet also contains the current membership card.

### Happenings

A typo crept into the special event call sign for the 200th birthday of Ryde in last month's notes. The prefix should have read VI. The special event call sign VI2RC is being operated by John VK2DEJ ... The 43rd annual Urunga Convention will be held over Easter at Urunga on NSW's mid-north coast. Details via the VK2WI broadcasts or from Merv VK2DMS, or check into the Coffs Harbour net, VK2EP on 3610kHz at 8pm Mondays ... In June the Oxley Region Field Day is held at Port Macquarie ... The next exam conducted by the Division will be held on Sunday, 24 May, closing date 7 May. Details from the office, see page 3 for contact methods ... The next Parramatta based Trash & Treasure will be 31 May ... AGM for AAPRA 12 April.

### VK2WI

The packet BBS VK2RWI has had to change to a temporary antenna until some problems are solved. Some investigation is under way to offer 2400bps on the system ... The stolen equipment register is available on VK2RWI; look in the general files area in the "F" directory.

For a few months a test transmission was made onto 20 metres of the VK2WI morning broadcast by Peter VK2OG on our behalf. Our thanks to Peter for his assistance. Currently Graham VK2DIG is conducting a morning and evening relay for VK2WI onto 17 metres, 18.120MHz - reports are most welcome. The Division would like assistance to continue relays 20, 15 and 12 metres. If you can help, please contact the Divisional office. In time these frequencies will be included in the VK2WI facilities. Help is also wanted in the maintenance of some of the Dural equipment. If you can assist, also advise the office and

indicate area of interest and leave a contact point. A fault has taken the 6m beacon transmitter off air, one of the areas for which assistance is required.

### New Members

A warm welcome is extended to the following who joined the NSW Division early this year.

A	Calos	Assoc	Bankstown
D R	Clark	VK2KSN	Canowindra
A P	Colman	Assoc	Port Macquarie
J E	Conway	Assoc	Mount Druitt
E	Dait	Assoc	Springvale
D	Davidson	Assoc	Maroubra
J N	Doherty	Assoc	Narramine
P W	Duddy	VK2KJJ	Thornleigh
I	Gavin	Assoc	Umina
D M B	Harvey	VK2NWN	East Ryde
K	Hughes	Assoc	Lidcombe
R J	Hughes	VK2YOW	Willoughby
W L	King	Assoc	Georges Hall
C	Miranda	VK2TCM	Seven Hills
A W	Redman	VK2VAR	Goulburn
N	Roma	Assoc	St Andrews
I L	Rosser	VK2WAG	Niagara Park
J H	O'Brien	VK2BHU	Bega
G K	Vick	VK2ZGV	Narrabeen
D G	Walker	VK2ZBW	Lugarno
M C	Wares	VK2MAC	Woolgoolga

### Divisional Services

Library: There is an extensive collection of books and magazines maintained at the Parramatta headquarters. There is a detailed index system, which is cross-referenced, in a series of folders (Nobody has yet offered to transfer same to a computer). Members may use the library during the week or the Wednesday night opening. For those unable to visit, send your request in by mail, fax or telephone Tuesdays when Aub VK2AXT, the Divisional Librarian, is in attendance. For a copy of the library conditions and facilities send a stamped, self-addressed envelope to: The Divisional Office, PO Box 1066, Parramatta 2124. An article photocopy service is available, and some facilities are available to WIA members in other Divisions.

73

5/8 wave

JENNIFER WARRINGTON VK5ANW

### Special Notice

The AGM will be held on Tuesday 28 April at 7.45pm in the BGB, not the 21st as stated in the *Journal*!

The following is printed with the permis-

sion of Rowland VK5OU, and is taken from his President's Notes in the February '92 SA *Journal*.

"Whether they hold religious beliefs or not, I think most people would go along with the concept of "loving your neighbour as yourself" or "treating others as you would like them to treat you". Of late, this seems to have been diluted somewhat to a concept of "do what you want, so long as it doesn't hurt others". We talk of a victimless crime, but differing people have different ideas of what is acceptable, eg the graffiti artist perhaps considers his work art; the owner of the wall a nuisance. The person playing the stereo at his "acceptable level" may well be intensely annoying to the next-door neighbour. And this sort of thinking can easily lead to the concept of "blow you, Jack, it is my right to be able to do this, that or the other".

So, how do we stack up in our hobby? If the neighbour complains of TVI do we try to be cooperative in finding a solution? How do we treat our fellow amateurs? I guess we are all guilty of misdemeanours; one of mine, I know, is to rely upon the repeaters too much. It is so handy, having made a contact, to stay there, rather than QSY to a simplex frequency, if possible. I hope, though, that I have never told someone who has tried to take advantage of the pause to "get nicked, I've got a right to use the repeater as much as I want", which I heard the other day. We have bandplans and gentlemen's agreements recommended by the WIA, and they have been arrived at, often over several years of discussion and modification, for the good of amateurs generally. Some of these are our own plans, peculiar to Australia; others are international, such as the SSTV frequencies on the HF bands, the DX windows and so on. Do you know them? Do you observe them? There is no legal requirement to do so, just consideration for others. The bandplans appear on page 12 of the *Australian Call Book*. Similarly, on VHF, there are the ATV liaison frequencies on 2m, satellite, EME etc, on 23cm to consider. May I recommend to all who use the bands above 50MHz the plans on pp 26-31 of the callbook?

One area that seems open to considerable abuse and misinterpretation is the concept of calling frequencies. These are designed to allow for the making of an initial contact, and then one should QSY! In particular, 146.500 is of concern. It is not intended as a chat-chat channel. Certainly one has every legal right to remain there, but accepted practice, good manners, consideration for others and, in the end, your reputation as a good operator rest

upon your willingness to abide by this convention. Please observe it, and please, Old Timers, let's encourage our younger operators in good techniques rather than in their rights.

Leave you with my thought for the month: "The cemeteries are full of drivers who had the right of way".

Thanks, Rowland, I think there are quite a few things to think about in there. Thanks also to Trevor Lowe VK5ZTJ who is retiring as *Journal* editor after several years of excellent service. Anyone who would like to take on the job, please contact Bill Wardrop VK5AWM.

NB: If you are wishing to sit any of the amateur exams, please put in your application at least two weeks before the exam date.

### Diary Dates

Sun 5 April Mt Pleasant Radio Picnic Day,  
Mt Pleasant Oval 1100-1600 hrs

(see *Journal* for details)

NB: Tues 28AGM commences at 7.45pm  
(not 21 April as published in *Journal*).

## VK6 NOTES

HARRY ATKINSON VK6WZ

This is the month of the Division's AGM and, as these notes are being prepared, the date should be 21 April. Nominations for divisional council closed on 10 March, the date for notices of motions for the AGM. So far there has been no rush of volunteers to take over book sales in WA, but we have had a volunteer for the position of Divisional Broadcast Officer. Details next month.

Meanwhile, congratulations are in order

for Joe VK6ZTN on receiving the President's Commendation in the Ron Wilkinson Award.

The John Moyle Field Day will have come and gone by now, but we are assured by the Northern Corridor Radio Group that its entry this year will be even bigger and better than last year. You should just see the way these guys prepare for the Field Day - their command of logistics would surely give even the professionals pause to think - and admire.

Finally, a word to the callsign dissatisfied. A recent case of harassment of a grieving family for a Silent Key's two-letter call gave many of us a nasty taste. Fortunately, a family member, already licensed, will take over the call. If you're so hungry for a two-letter call, deal with DoTC and wait your turn - don't pester grieving relatives with your petty little demands!

ar

## CLUB CORNER

### Notes from the Moorabbin and District Radio Club

The big news is that the club's annual hamfest has grown so large and popular over the years that we have had to find an even larger venue, having outgrown the club's own premises a couple of years ago.

An insert in the Victorian issue of *AR* gives full details. The date is Saturday 2 May, and the location Brentwood Secondary College.

The club's highly regarded power supply kits and direct-conversion receiver kits continue to be very popular. Details of these kits may be obtained by writing to the club at PO Box 88, East Bentleigh 3165.

### Radio Amateurs Old Timers Club

All members of the Radio Amateurs Old Timers Club are asked to note that the times given for our monthly broadcast in the current issue of our *OTN* magazine were quite wrong. My fault, I'm sorry to say!

For the next six months, depending on conditions, the 2400 hours Zulu transmission will be on three frequencies simultaneously: 145.700MHz FM, 7.060MHz SSB and 3.560MHz SSB.

The transmission will be repeated at 0100 hours Zulu on 14.150MHz SSB beaming north, and again on 14.150MHz SSB beaming west.

To make our monthly transmissions of interest we need information about coming or recent activities of members in all states, and also items of interest about which you have had direct experience in the past, or about which you have knowledge. These items may be sent to me QTHR.

Allan Doble VK3AMD

### Summerland Amateur Radio Club

At the 33rd Annual Meeting of the SARC,

held Friday 21/2/92, the following personnel were selected to control our destiny for the ensuing 12 months:

President VK2XKX John  
Vice-President VK2EA Leith  
Secretary VK2HE Ken  
Treasurer VK2JWA John

Examinations Officer VK2XKX John

Awards & QSL Officer VK2ESI Jim  
Publicity VK2GJ Graeme  
Librarian VK2WJC Bill  
Quartermaster VK2IGC Gerry  
WICEN VK2PF Peter

Committee members: VK2XUZ Terry;  
VK2EJV Ric

Repeater sub-committee: VK2YKM, VK2FSD,  
VK2AGE, VK2YLO,  
VK2YDN

Packet sub-committee: VK2YDN, VK2AGE,  
VK2JNR, VK2XRL,  
VK2BEV  
Examiners: VK2XKX, VK2HE,  
VK2EA, VK2EJV,  
VK2IGC, VK2FSD.

Our clubrooms are at Richmond Hill, Goonelabah, and the club callsign is VK2AGH, with HF, VHF, UHF and packet equipment in use.

Four voice repeaters (three VHF and one UHF) and three packet digipeaters (two VHF and one UHF) are controlled by the club.

Our packet BBS is VK2YDN-1 and the local PMS is VK2EA-2.

The club has an extensive array of test equipment and tools for use by and loan to members.

The clubrooms are operational on Thursday evening and Sunday afternoon, with other times by arrangement.

HF nets are conducted on 3.605MHz Monday to Friday, 2030 UTC, and on Sundays on 3.603MHz at 1000 UTC.

A CW net runs nightly on 28.200MHz at 1230 UTC.

VHF nets on either repeater VK2RIC or VK2RBB, Fridays at 1000 UTC.

The WIA broadcast is relayed on VK2RIC, Sundays at 0100 UTC.

An informal net is held each Tuesday afternoon at the Lismore Workers Club at 1705 local.

Examinations for the amateur licence are conducted every two months in our clubrooms. We have six authorised examiners.

Our club has an Award, "Las Balsas", available to all amateurs. This award was established to commemorate the 1973 Las Balsas expedition across the Pacific Ocean.

A "minifest" is conducted annually; this year on 1 August.

Social outings are held monthly, either an evening dinner or a barbecue picnic, at various locations within our Summerland area.

At present we have 101 members, who include 44 members of the WIA.

Club membership is available to anyone who is interested in any branch of electronics: amateur radio, computers, remote control etc. Enquiries may be made directly or to PO Box 524, Lismore 2480.

Graeme Virtue VK2GJ  
Publicity Officer

### Brisbane Amateur Radio Club - BARCFEST '92

On Saturday 9 May this club will be conducting its 10th annual BARCFEST (hamfest).

Date: Saturday 9 May 1991

Time: 9.30am-3.00pm

Venue: As in previous years, ie Indooroopilly State High School, Ward St, Indooroopilly, Brisbane.

Features: Lectures, AR equipment, retailers' displays, specialised group displays,

military radio display, computers and disposals. Some arts and crafts, pot plants etc for the family.

Further details may be obtained by writing to the Barcfest Co-ordinator at the above address, or by telephone on (07) 288 4911.

**Dave Prince VK4KDP**  
Barcfest Co-ordinator

**Barossa Amteur Radio Club Inc**

In the Reference Data section of the Febru-

ary 1992 issue of *AR* there is an error in the listings for the repeaters operated by the Barossa Amateur Radio Club Inc.

The listing for VK5RGB should be as follows:

Output	Input	Call	Service Area	S
ERP	HASL	T/O	Sp	
147.825	147.825	VK5RGB	Adelaide	o
50	50	3.5	SBA(24)	

The listing for VK5RBP should be as follows:

Freq 1	Freq 2	Call	Service Area	S
ERP	HASL	T/O	Sp	
147.575		VK5RBP	Barossa Valley	o
50	110		SBA	

Note (24) is incorrect in that VK5RGB is not "experimental" and does not operate with VK5RBP (this is a packet repeater).

VK5RGB is a fully operational licensed "simplex" repeater located near Gawler (with a beam antenna directed to Adelaide and suburbs) and is permanently cross-linked with VK5RBV in the Barossa Valley.

Please could you publish the updated data in *AR* so visitors to the area would be aware of the existence of the linked network covering the Adelaide/Barossa Valley area. ar

**SILENT KEYS**

**DUE TO INCREASING SPACE DEMANDS  
OBITUARIES MUST BE NO LONGER  
THAN 200 WORDS.**

**Robert Pallett VK3BEA**

It is with deep regret that I advise the passing of Robert (Bob) Pallett VK3BEA on 22 December 1991, after a short illness.

Bob home-brewed most of his early equipment, and demonstrated a keen sense of adaptability in the use of available parts (ie Dettol bottle caps made practical and aesthetically pleasing tuning knobs).

With the increased use of SSB, FM and black-box operating, Bob turned his considerable talents from home brewing ham gear to the re-creation, restoration and experimentation of earlier types of equipment. He produced many fine, faithful, working examples,

including spark transmitters, coherers and various types of detection devices. Bob was able to emulate some of the experiments of Hertz, Marconi and the like with this gear, for the benefit of others. He was a founding member and former committee member of the Gippsland Gate Radio Club. Bob is survived by his wife Dorothy, three daughters and two grandchildren.

Thank you Bob for the part you played in rekindling my interest in amateur radio and your assistance and encouragement to Irma and myself in obtaining our licences but, most of all, thank you for being our friend.

**KEITH BEEBY VK3BBY ar**

The WIA regrets to announce the recent passing of:

J H (Roy) Hart	VK2HO
R (Bob) Pallett	VK3BEA
W C (Wally) Middleton	VK3IT
S G McLean	VK5ME

**When you buy something from one of our advertisers, tell them you read about it in the WIA Amateur Radio Magazine.**

**Spreadeagled?**

In the February WIA News section of *AR*, it was reported that the WIA had contacted the DoTC for clarification of RIB 71, paragraph 39, in respect to spread spectrum emissions. Recently, disturbing news came to light concerning identification requirements for stations using this mode.

Dr Owen Lee Kidden VK1APR, who lectures in digital signal processing at the Australian National University in Canberra, informs us that DoTC still requires amateur stations to listen on frequency and to identify, either by voice or morse code, at the start and end of each transmission.

This places severe restrictions on spread spectrum operators, whose signals are spread over a wide band of frequencies at very low signal levels, and on those experimenters who employ "frequency hopping" techniques.

"DoTC is completely missing the point of spread spectrum operations," said Dr Kidden. "When frequency hopping, the signal is only on a particular frequency for a few tens of milliseconds. If the operator must prefix each "hop" with QRL and a station ID, the benefit of this mode is totally lost. When employing true spread spectrum, the situation is even more ludicrous, as at any particular frequency the signal level is near the noise floor, so nobody will hear the identification anyway.

"I blame the UK for this silliness. They started it all by requiring packet operators in the UK to identify in CW as well. It seems some British civil servants have migrated down here. Perhaps the military origins of spread spectrum are stirring up paranoia in Canberra."

Dr Kidden urges all radio amateurs to demand the right to "hop without hindrance".

*(Please hop to page 54)*

# OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

## A Hundred Thanks

I would like to use *Amateur Radio* to thank the organisers and those who sent cards as well as the many amateurs who called my father, Harry Angel VK4HA, over the air on the occasion of his 100th birthday. Of the 100 or so who were on the air, Harry spoke to so many on a wonderful day for him.

On behalf of Harry, a very sincere thank you.

LILY ALLSOP  
CANNON HILL

## WIA Exam Service

I am worried about our Secretariat "whose sore task

Does not divide the Sunday from the week; What might be toward that this sweaty haste Doth make the night joint-labourer with the day;

Who is't that can inform me?"

Are we "prick'd on by a most emulate pride", And overcommitting our very limited resources?

LINDSAY (MARCELLUS) LAWLESS VK3ANJ  
Box 112 LAKES ENTRANCE 3909

## It's An Ill Wind

I read in February *AR* that some repeaters may be forced to close down because the sponsors can't afford the high rents being demanded by the site managers who are being pressured by the current economic situation.

However, there is no doubt that declining amateur radio popularity is due to the failure of existing participants, including the WIA, to identify and promote the fundamental essence of the hobby.

There is also no doubt that any thorough analysis, in contrast to the shallow guesses we have seen over the past few years, would identify the fundamental essence of the hobby as informal competitive contact-making where the competitive variable is the distance between the stations.

It follows that any activity which is contrary to the essence is inimical to amateur radio. Such is the nature of repeaters.

The enemy of my enemy is my friend.

Vive the current economic situation!

GORDON McDONALD VK2ZAB  
59 WIDEVIEW RD  
BEROWRA HEIGHTS 2082

## Cans Can Do It?

Well, while the hornets' nest is still rattling! About Owen VK2DMY in Editor's Notes Feb '92. We are lucky being in Australia, when other countries don't have amateur radio etc, let alone a free say in public on politics etc.

I have worked hard most of my life - now 41

years, which is fairly young, but ... I get the usual too old, too well qualified etc, etc, when trying for a job.

Nowadays I look after my children (single parent). Not easy to do, I'll tell you, and hard to make the dollars s-t-r-e-t-c-h.

Those people who find it too hard to support *AR*, just think about it. You could save 10 aluminium cans a week and, hey presto, in one year it equals *AR* magazine. Drink 10 tinnies a week (soft drink, of course!), enjoy it; no headache, and you have 10 cans a week to get your *AR* and pay your dues, right? Anyhow, really mate, I have heaps of problems my way, and it's hard going, but if I didn't have my radios to talk to people around here and overseas I would not have much of an outlet from home.

And, be honest, who wants your job, mate? I think it would be a hard act to follow: keep up the good work.

CHEERS & 73  
MAURICE STONEHOUSE (& KIDS) VK6NST  
140 MEDINA AV  
MEDINA 6167

*(Seems unlikely that 520 cans would have enough scrap or refund value, Maurice, but I guess it would help anyway! Ed).*

## SWL QSLs

I am prompted to write regarding QSL cards to VK regions.

I have been a SWL for almost three years and, in that time, have sent more than 200 QSL cards to various VK operators, but have yet to receive any in return. Whilst it is appreciated that not all operators respond to QSL cards, surely some would.

Is it possible that all SWL's QSL cards are ignored, either by the bureau or the operators themselves? If so, why? The "G" bureau has assured me they are sent regularly from here.

It is much more difficult for the SWL to log callsigns, as he does not have the facility to ask an operator to repeat his callsign should he not get it the first time, and some operators tend to string their own and that of who they are working, together, thus making it more frustrating.

When I first started listening, I would rise early to catch VK, but not any more. It's not worth the trouble!

ROY BESSANT RS92837  
43 OLDFIELD DR  
VICAR'S CROSS, CHESTER  
ENGLAND CH3 5LN

## Value of WICEN

Recent promotion of WICEN has received a cool reception locally for several reasons. Some of these are:

1. The number of separate emergency organisations already existing, each with its own structure and communications.

## Morseword No 61

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Across:

- 1 Jeans material
- 2 Become dimmer
- 3 Pierce
- 4 Bushwalk
- 5 Discount price
- 6 Edges
- 7 Golden
- 8 Smoky atmosphere
- 9 Study hard
- 10 Meaning

Down:

- 1 Food fads
- 2 Settles
- 3 Prevalent
- 4 Employs
- 5 Sketched
- 6 Ache
- 7 Run
- 8 Leg joint
- 9 Reddish brown
- 10 Bicycle

© Audrey Ryan 1992

The need is for greater integration and intercommunication, not the superimposition of an external body.

2. Most amateurs enter the hobby to communicate with others with similar interests. They do it for recreation and enjoyment, not to perform a public service.
3. Local amateurs recognise that they may be of use in an emergency. Consequently authorities are advised of their availability. However, they refuse to accept the fees, exercises, uniforms, procedures and paraphernalia of WICEN. If WICEN membership is a prerequisite for them to be used in an emergency, they are content to pursue their hobby and leave emergency operations to others. But, should an emergency occur in which their employment could be of material benefit, and they are not utilised, they would feel free to acquaint the public with the reason, especially as they may be co-opted into an emergency body if required.
4. Those amateurs interested in emergency communications are encouraged to join one of the rescue organisations whose members generally reveal only a limited knowledge of the operational and maintenance requirements of their communica-

tions equipment, and who could make effective use of amateur participation.

5. In past major emergencies uncommitted amateurs have figured as prominently as WICEN members. Amateur regulations cover emergency operation and, subject to the control of relevant authorities, an amateur is entitled to engage in emergency communications.
6. Whether involvement with WICEN would assist in preserving our spectrum space is questionable. The public has largely never heard of WICEN. It is the performance of individual amateurs that will count.

We should, perhaps, consider the relevance of WICEN before making our choices.

S V ELLIS VK2DDL  
82 TAREE St  
TUNCURRY 2428

### Do Regulations Matter?

Increasingly I hear "This is A signing off and clear with B".

If this is acceptable practice despite DOC71 para 25 (which tells us to put our own call sign last), I wonder what other regulations are not important!

The question seems to be whether some of the regulations are really intended to be just

a "guide" or if, in fact, we are required by law to comply with all of them?

B T POINTON VK5BK  
Box 41  
CAMBRAI 5353

### Non-Member's QSLs

Who knows which overseas bureaux do not accept non-member's cards? From returned cards, my list is growing, and now is: DARC (German), SARL (South African), REF (France) and NRRL (Norwegian).

And a French QSL manager for *more than* 200 stations who is not a member of REF, so no bureau cards will be accepted by REF for him.

Perhaps some help could be given to those wishing to obtain cards if they knew beforehand if they would ever reach their destination. I will keep a list if any correspondence from amateurs and SWLs is received, updating from time to time with a letter in AR. Any takers of the offer? The QSL manager, by the way, is F6FNU.

NEIL PENFOLD VK6NE  
2 MOSS CRT  
KINGSLEY 6026  
(VK9 AND 0 QSL MANAGER)  
ar

# SOME THINGS HAVE NO COMPARISON

amateur  
**radio**  
action

The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

Have you advised DoTC of your new address?

# HAMADS

## TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please ... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

● **WEATHER FAX** programs for IBM XT/ATs. RADFAX2 \$35, is a high resolution shortwave weatherfax, morse & RTTY receiving program. Needs CGA, SSBhf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SATFAX \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card, & 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) & documentation, add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Old 4005. Ph (07) 35 82785.

## FOR SALE — ACT

● **HAM RADIO MAGAZINE** Jan '77-June '91 plus "CO" to Oct '91 15 years for \$25. GC. VK1US QTHR (06) 281 3587 any time.

## FOR SALE — NSW

● **BOOKS** and magazines relating to vintage and Military radio and radar covering technical and history. Some new, some old, some rare. Send \$2 for list which includes a bibliography of military radio and radar publications. Also advise specific wants. C MacKinnon VK2DYM, 52 Mills Rd, Glenhaven NSW 2158.

● **DECEASED ESTATE.** Large quantity of military surplus components for the collector/restorer. Send \$2 for list and advise your specific wants. C MacKinnon VK2DYM, 52 Mills Rd, Glenhaven NSW 2158.

● **KENWOOD TS120V, VFO120, TL120** linear, noise-cancelling mic, mobile mount, all VGC. Official Licensed amateurs only. Also UHF SWR meters. Phil VK2KEY OTHR (066) 76 1871.

● **YAESU FT101ZD MKIIA HF** bvr, EC. Original packing, handbook etc. YD148 desk mike, hand-mike, hi-mount Morse key, spare finals included. S No 230836, \$695. Ian VK2WR (02) 634 7210.

● **YAESU FV101DM** digital memory VFO. Original packing and handbook, absolutely as new cond. \$200, no offers. VK2WR (02) 634 7210.

● **TELETYPE ASR33** full ASCII teleprinter 110BPS with integral paper tape reader and punch. Complete with technical manuals. \$10 ono. VK2AEJ (02) 955 4025.

● **EIMAC TUBE SOCKETS** SK800B SK810B for 4CX1000 4CX1500B Eimac tubes 4CX1500B vacuum caps 500pF 15000V 1000pF 10000V antenna change-over relays 24VDC unused taken out of equipment 50K 70 watts bleed resistors 7" x 110. (02) 918 3835.

● **SWAP YAESU FT707** all band including WARC AM SSB CW-N-W 100W mobile serial no OH040108. Will SWAP for TS830 preferred, or TS530. Len VK2EDQ QTHR (043) 32 4838.

● **YAESU FT4700 RH** dual band 70cm/2m xcvr. Ideal car or base. All extras included. Five or 10 watts output, detachable front panel, 20 memories per band, ARS CTCSS, tone encode/decode, full duplex crossband, extended frequency response, DTMF microphone autodialler (ideal for phone patch). Almost new. Great buy at \$650. VK2XJC (02) 388 1081 H. (02) 963 6915 Bus.

● **RACAL Squadcal HF SSB 2-7MHz** 29 channel inbuilt ATU, VGC, rechargeable battery \$200. Yaesu FTDX560, VGC, spare finals 550W input, \$390. Chirnside duoband beam 10/15m, VGC, \$150. VK2OC OTHR (069) 48 5267 evenings.

● **URUNGA Radio Convention** WIA affiliated Australia's oldest 43 yrs Continuous Easter 18/19 April fox hunts disposals competitions, friendly atmosphere, relaxing holiday, village mouth of beautiful Bellinger River. See you there. Further information VK2ZCQ, VK2DGT, VK2ADA, VK2BUI, VK2EVB.

● **TOWER** two-piece triangular lattice, 17-31ft, wind up with new tilt-over base, \$275. John VK2VJD, 550 Ocean Dr, North Haven 2443. Ph (065) 59 6596.

● **ATN HF** log periodic 20-30-6L continuous coverage 20-30MHz, six elements, 8.5dB gain, EC, \$375. Scott VK2JAG (02) 968 2026.

## FOR SALE — VIC

● **PIPE ALUMINIUM** 3mm thick 4cm O/dia 6m long, good \$36. ICOM IC271A all-mode txvr 2m 144MHz S/N 01383 manual, perfect, \$950. VK3DVT QTHR (03) 592 6238.

● **YAESU FT290R** 2m all-mode s/n 1070498 with case, nicads, manual, EC \$300. ITT 4H at 0.8 amp, 500 wvdc choke \$20. ITT 820v at 190ma transformer, \$20. MICROWAVE Corp step attenuator, six sections, BNC connect, \$25. Roger VK3XRS (051) 56 8291.

● **COLLINS KWM2A** txvr plus 30L1 linear ampl Inc instr books, all in EC. No mods. \$2300 lot. Rob VK3JE (060) 37 1262 or (03) 584 5737.

**KENWOOD TS440S** HF txvr with mic and manual. \$1625. Bert VK3BH QTHR (03) 857 9438.

● **DECEASED ESTATE.** OSKER BLOCK VSWR meter type SWR 200, \$35. VOLTOHMYST AWA type A56010, \$40. KYORITSU volt-ohm-milliammeter model K140, 20K ohms/v, \$25. DICK SMITH digital capacitance meter, model O1222, \$85. ARCHER tunable UHF down converter, model 15-9650, \$40. MORSE KEY telegraphist type base 15cm x 10cm, \$30. MORSE KEY base 10cm x 5cm, \$8. DICK SMITH digital frequency counter, seven digits, \$60. KYORITSU grid dip meter K126-B, 435kHz-220MHz, \$45. MICRONTEA FET analogue multimeter 22 range cat no 22-220A, \$60. KYOKUTO FM txvr type FM-10SXR 11 car mount & aerial, \$150. AIWA mic DM-47 dyn model MS-13, \$15. HEADPHONE HS-33 600 Ohms, \$5. COAXIAL cable terminated 259 plug RG214/U 25m, \$25. YAESU MUSEN antenna tuner FC700 (new, not used, in original box, \$120. For details contact Stewart Meek (03) 370 1774.

● **IC751 HF** txvr with internal AC power supply and stabilised crystal oven. Immac cond. Asking \$2000, but will consider reasonable offer. Ian VK3AQH (057) 52 2631.

## FOR SALE — QLD

● **COMMUNICATIONS** receivers test equipment, mainly valve, SWL estate, send A4 SSAE for prices. Peter Hadgraft, 17 Paxton St, Holland Park 4121. (07) 397 3751.

● **FREE-STANDING** triangular galvanised iron tower, 9m high in three bolt-together sections; ladder attached; bearings mounted in tp section, \$100. Moseley TA33 triband yagi beam 20, 15 and 10m, \$100. (07) 892 3458.

## FOR SALE — SA

● **YAESU** 2m gutter mount stub 80m 40m 20m screw-on whips, \$150. EMTRON EAT300 ATU \$180. VK5BVJ QTHR (087) 38 0000.

● **ICOM IC761** super txvr s/n 02010 quadruple conversion gear coverage RX built-in ATU electronic CW keyer HM 36 mke. As new, little used, boxed. Bargain \$2650. (08) 339 2755.

## FOR SALE — TAS

● **FIVE HAM RADIO** magazine binders, new cond, suit AR/EA etc, \$10 + post. Tom VK7TL QTHR (002) 23 8755.

● **JRC JST135** txvr new, not used, boxes books mic 150wo/p receiver 130kcs-30MHz \$2050. Also NVA88 matching speaker JST135, \$150. KENWOOD TM241A 2m FM mobile, new, receives 118MHz-174MHz 50w high 10 w low, \$550 ono. DRU1 digital record unit \$150. Suits TM241A VK7AN QTHR (003) 27 1171.

## WANTED — NSW

● **ANY PAPERWORK OR MANUALS** for Marconi sig gen mod TF801/A. Will pay all costs. VK2KNN Col Davis QTHR (049) 52 7391.

● **TO SUIT** KENWOOD TS680 ATU (prefer automatic AT250 or similar) and 20A power supply. Brad VK2KQH (02) 906 5855 BH, 018 640 377

● **70CM TRANSVERTER** module for Yaesu FTV-107R, FTV-700 etc, working or otherwise. Scott VK2JAG (02) 968 2026.

● **6146B VALVES** wanted, new or used, but prefer the vacuum to be in one piece. VK2ZHM QTHR (02) 417 5338.

## WANTED — VIC

● **No 109 Army** radio set in reasonable cond, or parts for same. Ian VK3AYK QTHR (03) 428 5383 BH, (03) 523 9405 AH.

● **YAESU FT790R** 70cm txvr and MMB-11 mobile bracket. VK3ZJC QTHR.

## WANTED — QLD

● **COLLINS RECEIVER** 32S3 or similar, transformer to suit 2x813, EG 2KV at 1AMP OR SIMILAR. VK4CRO QTHR (07) 390 7762.

## WANTED — SA

● **COPY OF CIRCUIT** diagram of amateur band recvr LAFAYETTE model HA500. all expenses paid, call Bruce on (08) 382 1563.

## WANTED — WA

● **BASE DIAGRAM** and characteristics 6BJ5/N78 and EBF35M valves. Ken Gillon VK6ZA, (08) 398 7829.

## Spreadeagled

*continued from page 51*

*(We hop(e) you found the article by Dr Kidden technically informative. Please do take careful note of his name and callsign and the month in which we have published the item, which was submitted by Richard Murnane VK2SKY of Dee Why. Ed)*

## Stolen Equipment

Date	Equipment	Ser No	From
26 Feb '92	Kenwood TH75A UHF/UHF h/h transceiver plus accessories: carry case speaker/mic, mobile power lead	0061315	VK6KCH Chris Hill
?	Kenwood TS440S HF txvr	9100338	VK6ELL Elliott Greenfield

# Signals. A History of the Royal Australian Corps of Signals 1788-1947. Theo Barker

ISBN 0 7316 0361 1. Royal Australian Corps of Signals, Canberra. 1987.

Subject: History of Army Signals in Australia

The RACS commissioned this history and the author had access to many of the official documents relating to the Corps. The book covers the historical, organisational and technical aspects of Army Signals. The earliest use of signals in Australia was via flags from ship to shore in 1788, then semaphore posts were set up for visual telegraph signalling and, still later, heliographs and lime lights were used. Illustrations of this early equipment are included. A great deal of Army Signals was, and still is, via telegraph lines, and the book deals in depth with the evolution of telegraph and telephone sets, mostly following English designs.

Interest in wireless in the Army can be traced to early experiments in 1910 between amateurs who also happened to be in the reserve forces, but the first wireless sets officially used in the AMF were Marconi Pack Sets issued to the Light Horse in 1913. Several chapters of Theo's book deal with the development of wireless for Signals, and the various sets introduced over the years up to 1947. The military establishment is not quick to adopt new technology and it is interesting to note that pathetically primitive English wireless sets designed in 1926 were still in service in Australia in 1940!

This book is a well rounded history of the signal Corps, and has plenty of detail for those interested in military wireless/radio. Whilst it does not go into specifics of individual sets, it is a useful chronology and has an appendix listing many of the wireless sets used by the Army. The book has 362 pages, including maps and organisational charts, and there are a number of photos of wireless sets, including the WS 208, No 11 and No 128.

Do not confuse this publication with an earlier *SIGNALS - Story of the Australian Corps of Signals*.

The book has 362 pages and size A5. It may possibly be available still from the Australian War Memorial for about \$35 (plus post?) and is definitely available from VK2DYM for \$35 including post.

VK2DYM  
ar

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Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

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\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

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\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

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State: .....


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Miscellaneous

For Sale

Wanted

Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 61

Page 52

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Across: 1 denim; 2 fade; 3 stab; 4 hike;  
5 sale; 6 rims; 7 gilt; 8 fug; 9 swot; 10  
sense.

Down: 1 diets; 2 seats; 3 rifle; 4 uses; 5  
drew; 6 pain; 7 jog; 8 hip; 9 Titian; 10  
bike.

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VK2BWI nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699kHz and 144.950MHz 5wpm, 8wpm, 12wpm

VK3RCW Continuous on 144.950MHz 5wpm, 10wpm

VK4WIT Monday at 0930 UTC on 3535kHz

VK4WCH Wednesday at 1000 UTC on 3535kHz

VK4AV Thursday at 0930 UTC on 3535kHz

VK4WIS Sunday at 0930 UTC on 3535kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555MHz

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Antenna Compendium Vol 2 ARRL	BX292	\$21.60		
Antenna Handbook - Orr - 1988	8X217	\$23.00		
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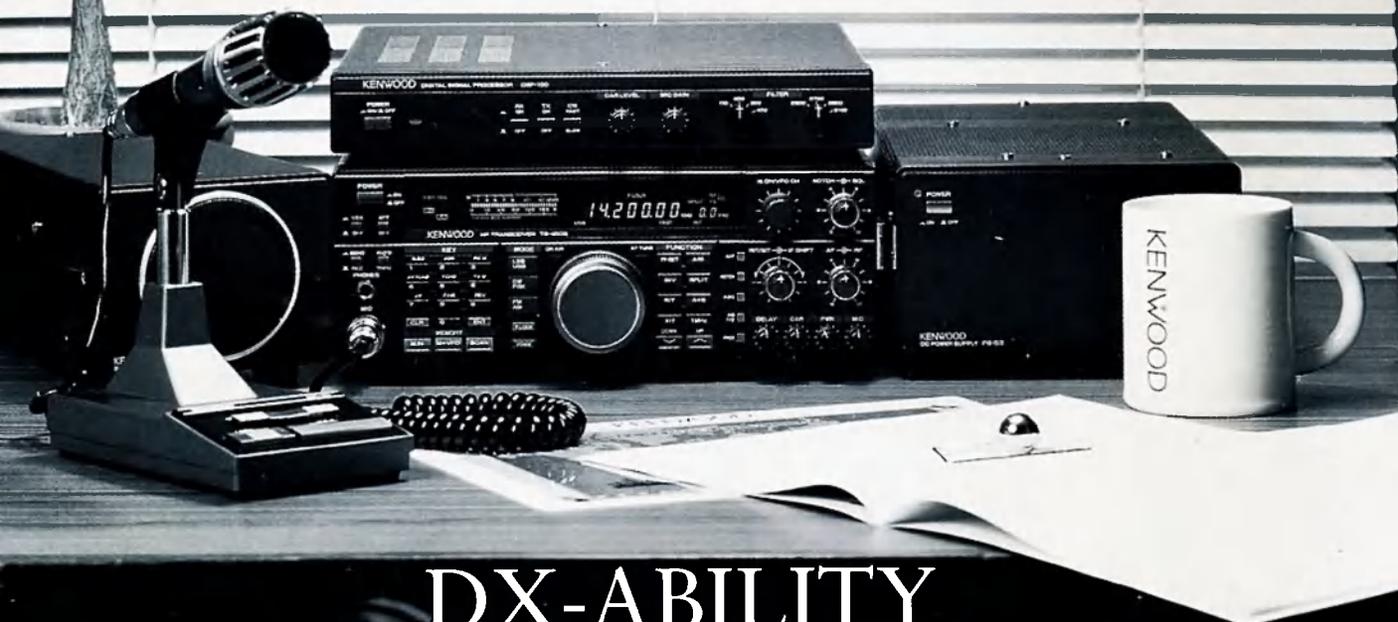
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	Editorial	Hamads
June	11/5/92	13/5/92
July	8/6/92	10/6/92
August	13/7/92	15/7/92

Delivery of *AR*: If this magazine is not received by the 15th of the month of issue, and you are a financial member of the WIA, please check with the Post Office before contacting the registered office of the WIA.  
Wireless Institute of Australia 1992

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### Cover

This month's cover features the dish used for microwave operation by Roger Steedman VK3XRS of Sarsfield, near Bairnsdale.

The dish is 2m in diameter, and the 1296MHz contacts using it no doubt contributed to Roger's success in winning the 1991-92 Ross Hull Contest (see last month, page 38). The two kookaburras play no part, we understand, in optimising the performance!

# EDITOR'S COMMENT

BILL RICE VK3ABP EXECUTIVE EDITOR

## Fact and Fiction

Once a month the problem confronts me. What can I write about for this month's editorial? Happily, there are some occasions when there is a ready-made theme instantly obvious in the recent activities of the WIA or of amateur radio in general. This did not seem to be one of those months! More and more, I have come to admire those newspaper columnists who successfully dash off some hundreds of words every day, perhaps with a break on Sunday, on a wide variety of themes.

Do they perhaps have a large staff of sub-columnists helping them to achieve that elusive inspiration? Of course, they are not restricted purely to topics which have some connection with amateur radio.

"Neither are you?" says our business manager, "You spend far too much time talking about sailing, for example!" (He was only joking, I hasten to add!)

But then, when desperation almost reigned supreme, I read in this morning's paper a brief review of the life and works of the late Isaac Asimov, perhaps the most prolific science fiction writer of all time. I cannot state with certainty that he was a radio amateur, although I have a feeling that he may well have been "one of us". I can be certain that few radio amateurs would not have read some of his prolific output, or at the very least be aware of his impressive reputation.

In his lifetime (72 years; not long by today's standards)

Asimov wrote 467 articles or books, mostly science fiction novels, but a great deal of serious material as well. (It has taken me eight years to write 87 AR editorials!) Most impressively, it was his custom to write them three at a time!

Is there any real connection between science fiction and amateur radio? I think there is. Perhaps more so in past decades than in these days of CB, TV, satellites and fax. But, even now, in their formative years, readers of stories about space travel and interplanetary communication may well be attracted to amateur radio by its potential for inexpensive informal international conversation, leading on to many other things.

What other things? For a start, how about amateur satellites? It was the science fiction writer (and notable scientist) Arthur C Clarke,

who proposed geo-stationary satellites to provide worldwide communications. This was not in a novel, but in a letter to *Wireless World* in 1945.

It was hardly science fiction to begin with, but it became science fact in only a few decades. We do not yet have amateur satellites in synchronous orbit, but we're working on it! How about a repeater on the Moon?

Not all science fiction has such a happy history of becoming fact. Orwell's *1984*, for example, happily didn't work out that way at all. Perhaps it served its purpose as a "horrible example".

Clarke's epoch-making *2001* has only nine years to go; by which time it may at least partially have come true. In the meantime, it has entertained millions, and made millions! More power to SF!

ar

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Vice Chairman:	Ron Henderson	VK1RH	VK2 Federal Councillor:	Terry Ryeland	VK2UX
	Roger Harrison	VK2ZTB	VK3 Federal Councillor:	Peter Maclellan	VK3BWD
	Kevin Olds	VK1OK	VK4 Federal Councillor:	Murray Kelly	VK4AOK
	Bill Rice	VK3ABP	VK5 Federal Councillor:	Bill Wardrop	VK5AWM
Immediate Past President:	David Wardlaw	VK3ADW	VK6 Federal Councillor:	Neil Penfold	VK6NE
Honorary Legal Counsel:	George Brzostowski	VK1GB	VK7 Federal Councillor:	Jim Forsyth	VK7FJ

### FEDERAL CO-ORDINATORS

Amsat:	Graham Ratcliff	VK5AGR	Int'l Travel Host Exch:	Ash Nallawalla	VK3CIT
Awards:	John Kelleher	VK3DP	QSL Manager (VK9, VK0)	Neil Penfold	VK6NE
Contest Manager:	Nell Penfold	VK6NE	FTAC:	John Martin	VK3JC
Education:	Brenda Edmonds	VK3KT	Federal Tapes:	Ron Fisher	VK3OM
EMC:	Hans Ruckert	VK2ACU	Standards:	Roger Harrison	VK2ZTB
Historian:	John Edmonds	VK3AFU	Videotape:	John Ingham	VK5KG
Intruder Watch:	Gordon Loveday	VK4KAL	WICEN:	Leigh Baker	VK3TP

# WIA NEWS

FROM THE WIA EXECUTIVE OFFICE

## Special Callsigns for Amateur Use

Details of the latest procedures relating to application for special amateur callsigns appeared on page 4 of the March 1992 issue of Amateur Radio magazine. The WIA expressed concern to the DoTC about the increase in delay of up to 12 months in receiving special callsigns that did not fit the standard template.

The DoTC responded with the following:

*On various occasions we have received requests from amateurs seeking special callsigns, which do not conform to the*

*format laid down by the International Telecommunications Union (ITU) Radio Regulations. If a non-standard callsign is required, we have an obligation to seek the approval of the International Frequency Registration Board (IFRB).*

*There have been occasions in the past where we have tended to overlook the ITU requirements. More recently, IFRB has notified us of their concerns regarding non-standard callsigns issued by the Australian Administration. As a result we are taking a much closer look at our procedures and callsign allocations for all services.*

*Notwithstanding the work carried out by the IFRB on behalf of all administrations, our work to co-ordinate a proposal with the IFRB is not insignificant. As a consequence, we have placed restrictions on the issuing of special callsigns, by confining them to matters of local, state and national significance. There are many wide-ranging, complex, telecommunications and radiocommunications issues that the IFRB are required to respond to. Australia is just one of approximately 160 administrations with whom the IFRB have to deal. I would suggest that, given the enormity of the IFRB's responsibilities, the consideration of non-standard amateur callsigns would have low priority. To minimise the extra-ordi-*

*nary work that needs to be undertaken for the approval of non-standard callsigns, we like to keep these applications to a minimum. Our experience is that it can take many months for the IFRB to finalise such requests. Occasionally, the reply is to request further information or to state that the callsign is not permissible, in which case further negotiations would be required by our Administration with the party involved.*

*To ensure that a non-standard special event callsign is available in time for the special event, it is recommended that one year's advance notice be given. This will provide us with a comfortable time-frame in which we can negotiate the special callsign with the IFRB. Whilst our requirements may*

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley VK2ZIG Secretary Bob Lloyd-Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only): 1.845 AM; 3.595 AM morning and SSB evening; 7.146 AM*; 10.125 SSB; On relay 14.160 SSB* and 21.170 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; On relay 584.750 ATV sound; 1281.750 FM. Plus automatic relays to 2m repeaters surrounding Sydney and manuals to several country repeaters. News headlines by phone (02) 552 5188	(F) \$86.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Halley VK3XLZ Office hours 0830-1530 Tue & Thur	1.640MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 146.700 FM (R) MT. Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President John Aarsse VK4QA Secretary Bob Lees VK4ER Treasurer Eric Fittock VK4NEF	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Rowland Bruce VK5OU Secretary John McKellar VK5BJM Treasurer Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farnan VK6AFA Treasurer Bruce Hedland-Thomas VK6QO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525MHz. Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker Broadcast repeated on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$48.00 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne Tas 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$87.00 (G) (S) \$53.08 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).			
			Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

seem excessive, we are doing this to maximise the opportunity to finalise an application before the required date. To do otherwise could mean the failure to obtain permission for the use of the specified callsign, and an alternative callsign would then need to be considered.

In conclusion, it would be preferable if special event callsigns were constructed from the approved callsign allocation. In these cases we can respond very quickly. However, if there is sufficient justification for a special (non-standard) callsign, we would prefer as much prior notice as possible.

The standard Amateur formats laid down by the ITU for Australia are as follows:

XXna, XXnaa, XXnaaa

where XX = Australia's internationally allocated characters (VH, VI, VJ, VK, VL, VM, VN, VZ and AX)

n = any digit

a = any alpha

Of these the available amateur blocks are: VK; VI and AX for specials.

Yours sincerely

David Hunt,

Director Licensing.

## New Generation Mobile Phones

A DoTC Media Release announces a new radio frequency spectrum band plan, designed to allow for a new generation of mobile telephones. The 900 MHz Band Plan allocates frequencies for Australia's first digital public mobile telephones, soon to be offered by AOTC, Optus and the third carrier when selected.

## Reciprocal Licences

The Executive Office recently received multiple copies of the DoTC Radiocommunications Information Pamphlet, RIP 73A, which is entitled "Information Paper for Overseas Amateur Radio Operators". This paper, reproduced in full at the end of WIANEWS, sets out clearly and definitely the conditions under which overseas amateurs may obtain an Australian

licence or visitor's permit.

The paper also outlines the procedures to be followed in applying for an Australian licence or permit, and the documents required to be provided. The WIA recommends that any amateur, who is asked by an overseas friend about reciprocal licences, should obtain a copy of this paper, RIP 73A, from any DoTC office for reference.

## NZART Visitors for Federal Convention

The WIA will host two New Zealand delegates, NZART President Trevor King, ZL2AKW, and Anne McMaster, ZL3VL, at the 1992 WIA Federal Convention that this year is scheduled for the weekend of 2nd-3rd of May.

The WIA and the NZART each send delegates to the other society's Conference in alternate years. As many matters under discussion are of interest to both societies, it is beneficial to both to hear the other's views.

## International Representation Fund

Now that WARC 92 is over, the tendency is to think that the WIA's commitment to International Representation will be reduced both in time and expenses. This will not necessarily be so.

IARU representation and consultation will continue, as will meetings and liaison because of WARC 92. In addition, the ongoing liaison with New Zealand must be maintained, and provision must be made for unexpected calls on our resources.

During the run-up to WARC 92, it was Executive Office policy that any donations received should be put into the International Representation fund unless otherwise directed. Many of our members included an extra amount when forwarding their membership renewals, sometimes specifying its use, other times simply rounding off the subscription total. These dona-

tions have been acknowledged individually, but it is appropriate again to acknowledge them collectively here, and to thank publicly all those who have contributed, whatever the sum. Members can be assured that all such donations are used for the benefit of the Australian amateur radio service.

## 1992 Radio Amateur Call Book

The 1992 Australian Radio Amateur Call Book sold like the proverbial "hot cakes". There are no copies left in the Executive Office. Perhaps some Divisional offices, or other retailers may still have some copies available.

Planning has already started on the 1993 Call Book. This may be an appropriate time to remind members to ensure that their information held in the Executive Office files is correct before it comes time to commence production of the next edition in a few months.

Amendments to callsigns of all amateurs, members and non-members, are supplied to the Executive Office by the DoTC at monthly intervals. Unless other information is on hand, it is the DoTC data that is used in the Call Book. Any alterations to callsigns, address details, or suppression requirements should be notified in writing to the Membership Secretary at the Executive Office.

## Hamads

The Amateur Radio magazine editors have noted a falling off in the number of HAMADS received of late. Is this a factor of the current economic climate?

We remind members that under the current arrangements for the production of Amateur Radio magazine, it is less than three weeks from the closing date for submission of advertisements to the day on which the magazines are posted to members.

What is the closing date? At the foot of page 1 you will find the closing dates for col-

umnists and editorial copy. The Hamads close two days later than that date. If an article that you have offered for sale is sold privately after the advertisement is lodged, it is appreciated if members notify the Executive Office as items can be withdrawn as late as a week before publication, so saving the seller much bother.

## Amateur Radio Magazine Advertisers

The Executive Office is always pleased to receive information about potential advertisers for either the magazine or the Call Book. This information will be promptly followed up with a letter or telephone call, as appropriate, to the potential advertiser.

Although the WIA realises that some members prefer a magazine with all articles and little advertising, we have to admit that the advertisers do help pay the costs. In turn, the WIA expects that members will inform advertisers that they notice their advertisements, and so provide feedback to them.

Members also are welcome to use Amateur Radio magazine for advertising their business or professional interests. A telephone call or letter is all that is needed to obtain a copy of the advertising rates and the deadlines.

## DoTC Negotiations Update

At present many matters affecting the amateur service in Australia are under discussion with DoTC. Despite the restructuring going on within the DoTC, the WIA and the amateur service are receiving a considerable share of DoTC time.

Some of these negotiations are of necessity very prolonged.

**Deregulation** In accordance with the amateur service being a self regulating service, it was proposed last year that much of the current regulations could be reduced to broad principles rather than

strictly defined "rules". The WIA discussed various proposals at several Executive meetings, formed a sub-committee to collect input, circulated a draft submission, presented the final submission to the DoTC and is now in the latter stages of negotiating agreement on individual points.

The final draft document will be published in Amateur Radio magazine, and ARA, during June 1992 for public comment.

**Low power devices** The proposal to allow the use of low-power devices on specific frequency bands was raised first some years ago. The WIA was concerned with the possibility of some of these devices appearing in the amateur bands, and responded accordingly, pointing out the interference potential of such devices, and proposing specifications for them.

The demand for spectrum for low power devices has again been raised recently. DoTC has advised the WIA that the review of the use of low-power devices carried out last year identified several bands suitable for the licence-exempt operation of these devices, on a "no interference, no protection" basis and amendments to the Regulations had been made to allow their use. However, the standards proposed were non-mandatory!

While the devices are limited to, at most, 125 dBuV/m at 3 metres, some frequencies had been allocated that the WIA believes could possibly cause interference in several amateur bands.

After consultation with amateurs via the Federal Technical Advisory Committee (FTAC), the WIA has written a strong letter to the Spectrum Planning and Policy Section of the DoTC making it clear that the amateur service is not prepared to accept such devices in or immediately adjacent to amateur bands when there is plenty of spectrum available in the bands

allocated to the fixed and mobile services.

#### **Amateur Certificates and Licences**

Since the further devolution of examinations for amateur Certificates of Proficiency, there have been comments on the ability or otherwise of local DoTC offices to issue certificates and/or licences "over the counter". At some offices this was automatic. At others, delays were the rule.

A recent letter from David Hunt, Director Licensing at the DoTC in Canberra, clarifies this situation. David emphasises the importance of the applicant providing the necessary documentation, including the official examination results certificate, evidence of identification, and a recent passport-sized photograph. It is essential that the DoTC issuing staff be satisfied that the necessary qualifications have been attained.

In addition, David points out applicants should be aware that, if they intend to personally attend a DoTC office, delays are inevitable at times due to staff shortages, particularly in DoTC district offices. He strongly advises applicants to check with their local DoTC office first and, if necessary, make an appointment.

Obviously, the easiest and most convenient way to obtain your Certificate of Proficiency or Station Licence from the DoTC is to apply by mail.

#### **Channel 0 and 5A Interference**

A recent submission to the DoTC from the WIA Executive office has protested against the continued usage of these channels where an audio channel intrudes into exclusive amateur bands. Research by FTAC showed that there are several instances that interfere with amateur activities.

#### **Philippines AHA National Hamvention**

A news release from the Philippines Amateur Radio

Association announces that the 1992 Hamvention will be held in Zamboanga on July 11, 12 and 13, 1992. This year, as well as the general meeting and social get-together, there will be a series of lectures and symposia to cater for a wide range of interests.

For reservations or more particulars, members should write direct to:

Mr Vic Mas, DU8VSM  
C/o WESMARC,  
G V Lending Compound,  
Veterans Avenue, Zamboanga City, Philippines

#### **ITU Day 17th May 1992**

For many years it has been customary for the WIA to request permission from the DoTC each year for the use of the special suffix "ITU" by one WIA station in each state during World Telecommunications Day on 17th May.

A communication from DoTC in April 1991 advised that this allocation to the WIA has now been made on a continuing basis. Therefore one WIA station in each state is permitted to operate as AXnITU (n = state number) on that day each year.

The theme for World Telecommunication Day for 1992 is "Telecommunications and Space: New Horizons" that reflects the growing importance of space communications, and associates the ITU with the United Nations designation of 1992 as "International Space Year".

#### **JARL Office Hour Changes**

It is noted from the JARL News of March 1992 that, as from 1st April, their office hours will be reduced to a five day week, from 0930 to 1800 daily! "The new schedule is attributable to the recent trend in Japan that a five day work week has generally been established with even the banks and post offices closed on weekends".

If only we could arrange it so that some staff from the Federal office of the WIA do

not have to work on weekends! This JARL newsletter also reports on a particularly long-standing amateur radio activity, the monitoring and reporting of the activity and potential risk of further eruption of Mount Fugen. It is interesting that, in this activity, children have played a major part in passing information to the correct parties.

#### **FCC on Code-free Licences**

Apparently the introduction of the code-free Technician licence in the USA has caused something of a stir. The ARRL letter of 11th March 1992 reports that a series of objections had reached the FCC, based on the perceived need for such a licence and the absence of distinctive call-sigs.

The Commission's reply refused to reconsider the establishment of the licence category, stating that other responses "clearly confirmed that the amateur community is undergoing a dramatic shift in sentiment concerning the value of Morse code as an entry level licence requirement".

The FCC also found that "for the amateur service to achieve its purposes, the participation of as many qualified persons as possible who desire to pursue those purposes is needed".

Hear! Hear!

#### **WIA Exam Service**

As at the end of the first six months of providing examination materials for amateur operator examinations, three months in tandem with the previous system and three months as the sole provider, the WIA Exam Service is working well.

Just on 300 people around Australia are now registered as accredited examiners and new applications are still arriving. One requirement for becoming a WIA Exam Service accredited examiner is the willingness to act as an information contact point for po-

tential hams. With the regular publication of lists of examiners, and the availability of lists from all DoTC offices, it is becoming easier for interested people to be introduced to amateur radio.

In this first six months of operation, WIA Exam Service examiners conducted 107 examination events enabling 557 candidates to be examined on a total of 950 examination subjects. The overall pass rate for those examinations was 48%, comparing more than favourably with previous system results. The hardest exam remains the AOCPT theory with an average pass rate of 34%, with the easiest being Novice Morse sending with an average pass rate of 75%. Despite the circumstances in which WIA Exam Service came about, and the attendant controversy, there is no doubt it is now easier to sit for an amateur examination in Australia than it has ever been.

### DoTC Says "Thanks"

I quote the following excerpts from a letter just received from Roger Smith, First Assistant Secretary, Radiocommunications Division, DoTC:

*"I am writing to express my appreciation to your organisation for the contribution made to the Australian delegation to WARC-92 by Dr David Wardlaw and Mr Ron Henderson....."*

*"Through the co-operation of many organisations such as yours, detailed preparation*

*was made for the Conference, and we carried an Australian brief with a significant number of proposals to obtain decisions which would facilitate new technology and expansion of services for a number of years to come. I am pleased to say that the Australian objectives were virtually totally achieved, which to a great extent was because of the combined effort of all of the members of the Australian delegation....."*

*"The particular contribution to the work of the Australian delegation by Dr Wardlaw and Mr Henderson deserves commendation. Both were involved in our preparations for the Conference, and Dr Wardlaw in particular assisted in preparing our brief and in some preliminary conferences. During the WARC itself, both were heavily involved in a wide range of issues well beyond their primary interest in amateur radio matters....."*

*"Mr Henderson assisted on a number of different committees and became involved in many issues which I am sure he would not be expected to handle. Dr Wardlaw was of particular assistance in the HF broadcasting area..... The assistance of your organisation and contribution by Dr Wardlaw and Mr Henderson is much appreciated."*

The WIA has also expressed its appreciation and thanks to the two delegates.

Delivery of Amateur  
Radio Magazine

So your Amateur Radio  
magazine does not always

arrive on the first of the month! Actually, there is no reason it should.

Have you read the fine print in the top left hand corner of page 1 of every issue? The current arrangement between the WIA and the printers has been negotiated to allow the shortest possible lead time between receipt of items and publication. This period of less than three weeks is the shortest of any similar magazine.

This agreement ties the publication date to the last Friday of the month, rather than a particular date. In this way, we can have the closing date for editorial copy always on a Monday, Hamads on the following Wednesday, proof-reading always on a Thursday, and so on.

After printing on the last Friday, the bulk magazines go to the mailing house that inserts the address label sheets and seals them in plastic, delivering them to Australia Post on the following Monday and Tuesday. From then on the arrival is beyond the control of the WIA. Australia Post is in charge.

This is where some variations occur, as we have records of some issues taking longer to reach Sydney than the country towns of NSW, or reaching Perth before Melbourne suburbs.

For the 1992 issues, the mailing dates will have been:  
January 31st December  
February 4th February  
March 3rd March  
April 31st March  
May 28th April

In the bottom left hand corner of page 1 there is a note asking members to check first with their local Post Offices if the magazine is not received by 15th of the month. This is the only fixed date that is used. There are very few records of the magazine not having arrived by the 15th.

### Awards

At long last the certificates for the Grid Square Award and the Antarctic Award are being printed. The Awards Manager, John Kelleher VK3DP, will be starting to clear the backlog of claims as soon as possible, so please be patient a little longer.

### Stolen Equipment

We all know that it happens, but that does not lessen the shock when one actually has an item of equipment stolen. One thing that can help is for the owner to add the details of the items lost to the WIA Stolen Equipment register that may be used by non-members as well as members.

This file has helped the police to return items to their owners.

Please, if notifying the Executive Office of stolen equipment, do so in writing, and provide as much detail as possible, including serial numbers and any identifying features.

Also, please notify the WIA immediately when an item is recovered. ar

Bill Roper VK3ARZ

## ATN ANTENNAS & Accessories

56 Campbell St, Birchip Vic 3483  
Phone: (054) 92 2224  
Fax: (054) 92 2666.

Ask for a free catalogue

We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc to suit your application. Three of our log periodics provide continuous coverage from 13-30MHz, including WARC frequencies, and replace outdated tri-banders.

Now in use in 29 overseas countries and six continents.

- Rotators by Create, coax cables & non-conducting guy/halyard materials.
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- Hard-drawn copper antenna wire.
- Aust/NZ distributor for Create antennas/rotators & Phyllystran (Kevlar) non-conducting guying materials.
- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 AR).
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR meters by Diamond to 1300MHz 5 models. All in stock.

**This space  
could be  
earning you  
money!**

# Information Paper for Overseas Amateur Radio Operators

**T**HIS INFORMATION paper aims to answer questions you may have in relation to the issue of an Australian amateur licence.

Reciprocal licensing agreements have been negotiated between Australia and other countries whereby amateur operators from overseas can obtain an equivalent Australian amateur licence or a temporary permit.

## WHO MAY APPLY FOR AN AUSTRALIAN AMATEUR LICENCE UNDER THESE RECIPROCAL AGREEMENTS?

Overseas amateurs visiting Australia fall into three main categories and they are:

### Category A

*Amateurs from countries having a reciprocal licensing agreement with Australia.*

The countries with which Australia has a reciprocal agreement are:

Canada, Denmark, France (including New Caledonia), India, Israel, Japan, Malaysia, New Zealand, Papua New Guinea, Poland, Singapore, Solomon Islands, Spain, Switzerland, United Kingdom, United States of America and Germany.

- Amateurs from countries in category A who are merely visiting for less than a year will be issued a temporary permit which will not be renewed.
- Amateurs from countries in category A who are intended residents will be issued an Australian amateur licence.

### Category B

*Amateurs from countries having no reciprocal licensing agreement with Australia but having qualifications / licences with a recognised Australian equivalent.*

The countries which have no reciprocal agreement with Australia but have a recognised Australian equivalent are:

Argentina, Falkland Islands, Greece, Hong Kong, Indonesia, Ireland, Italy, Luxembourg, Malta, Nauru, Netherlands, Norway, Philippines, South Africa, Sri Lanka (Ceylon), Sweden, Vanuatu and West Indies (Cayman Islands).

• Amateurs from countries in category B, regardless of their intended residential status, will be issued a temporary permit for a period of twelve (12) months. The temporary permit will not be renewed.

### Category C

*Amateurs from countries having no reciprocal licensing agreement with Australia and no recognised Australian equivalent qualifications / licences.*

• Amateurs from countries in category C, regardless of their intended residential status, will be issued a temporary permit, for twelve (12) months, permitting 10 Watt (mean power) FM telephony operation in the 146-148MHz band only. The temporary permit will not be renewed.

## HOW IS A LICENCE OBTAINED?

It is preferable that you apply for a licence in person so that original documents can be sighted and a licence issued to you over the counter. You should apply for a licence in the state you visit first. The Department's addresses are listed below.

If you are unable to apply in person on your arrival in Australia, mail applications are accepted. If you wish to operate from your arrival in Australia, you should apply for a licence at least three (3) months before your departure to Australia to allow time for the licence to be forwarded to you prior to your departure.

## WHAT DOCUMENTS DO I NEED TO SHOW?

You need to show the following documents:

- (a) a copy of your amateur's certificate\* and passport\*, certified by a public notary (to be included in mail applications only);
- (b) a completed licence application form (RF57);
- (c) your current licence\*, or a certified copy of your current licence\*;
- (d) proof, such as a visa, that your visit will not be for longer than twelve (12) months (for visitors only); and
- (e) the current licence fee of \$A35\*\*.

Cheques or money orders in Australian currency should be made payable to the "Receiver of Public Money".

\*With English translation where applicable.

\*\* (licence fees are subject to change on 1 Dec every year)

## ARE LICENCES RENEWABLE?

Australian amateur licences may be renewed annually. We would like you to give us an Australian address in case we need to contact you while you are in Australia. However, your renewal notice may be forwarded to your overseas address if requested. Temporary permits are not renewable.

## WHAT CONDITIONS APPLY?

If you are granted an Australian licence, you must comply with the conditions attached

to that licence. These are described in Departmental brochure RIB71. Amateur practices and procedures are in Departmental brochure RIB72. Both brochures are available from any of our offices. Also available from Departmental offices is brochure RIB70 - Information for Prospective Amateur Operators.

## CAN I USE THE LICENCE/ TEMPORARY PERMIT TO OBTAIN LICENCES FROM OTHER ADMINISTRATIONS?

If you are granted an Australian licence or an Australian temporary permit as a visiting overseas amateur, you cannot use the Australian documentation to obtain licences in other countries.

## CAN I USE THE AUSTRALIAN LICENCE/TEMPORARY PERMIT/CALLSIGN OVERSEAS?

The use of any licence, temporary permit or callsign, issued by the Australian administration, is limited to use only within Australia, its territories or its territorial waters.

## DEPARTMENTAL ADDRESSES

Communications Manager  
Radiocommunications Division

QUEENSLAND  
424 Upper Roma Street  
BRISBANE Qld 4000  
Telephone: (07) 238 6322  
(Postal: PO Box 555  
FORTITUDE VALLEY Qld  
4006)

TASMANIA  
4th Floor  
3 Brooke Street  
HOBART Tas 7000  
Telephone: (002) 20 5267  
(Postal: GPO Box 854J  
HOBART Tas 7001)

NEW SOUTH WALES  
9th Floor  
Victoria Cross Building  
60 Miller Street  
NORTH SYDNEY NSW 2060  
Telephone: (02) 922 9111  
(Postal: PO Box 970  
NORTH SYDNEY NSW 2059)

SOUTH AUSTRALIA  
11th Floor East  
Commonwealth Centre  
55 Currie Street  
ADELAIDE SA 5001  
Telephone: (08) 237 6333  
(Postal: GPO Box 2248  
ADELAIDE SA 5001)

VICTORIA  
3rd Floor  
6 Riverside Quay  
(formerly Byrne Street)  
SOUTH MELBOURNE Vic  
3205  
Telephone: (03) 685 3555  
(Postal: PO Box 6444  
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*Produced by Radiocommunications Division, Canberra ACT. Department of Transport and Communications*

# DC91 Direct Conversion Receiver for 80m

DREW DIAMOND VK3XU "NAR MEIAN", GATTERS RD WONGA PARK 3115

**A**BOUT FOUR YEARS AGO Signetics introduced its NE602 balanced mixer. A number of experimenters have presented designs using the NE602 for direct conversion (DC) and superhet receivers in radio journals. The result is that the device has become rather a promising item, challenging the MC1496, SL6440 and diode-ring in the popularity stakes. This is possibly due to the easier implementation, albeit at reduced dynamic range.

The great feature of DC is that of acceptable performance consistent with relative circuit simplicity and ease of construction. DC receiver designs are now enjoying a well-deserved popularity, having come from relative obscurity in the mid-sixties to a stage now where even commercial manufacturers have marketed them. The only DC disadvantage is that the "audio image" cannot easily be suppressed, resulting in an apparent doubling of the receive IF bandpass. To perhaps offset this to a degree is the pleasing clarity of signals thought to be due to the smaller number of tuned circuits and active devices through which signals and noise must pass.

So the NE602 offers experimenters the prospect of building a receiver with fewer parts than previously possible, yet retaining the same or better performance than a discrete component job. Fuller specifications for the NE602 may be gleaned from References 1, 2 and 5.

Here is a receiver for you to try. All the components required, including the NE602 IC, variable capacitors, printed boards and toroidal cores are available at present.

## Performance

Frequency Range: Nominally 3.5 to 4.0MHz

Sensitivity: 0.5 $\mu$ V for 10dB S + N : N  
Reception Modes: SSB, CW, DSB and AM (as DSB)

Frequency Stability: Less than 100Hz drift in one hour after warm-up

Supply Requirement: Nominally 9 to 14V at 50mA

By making full use of the balanced

nature of the NE602 the common DC problem of susceptibility to powerful unwanted AM stations and swamping by strong inband signals is significantly reduced. That is, we apply the input RF signals to the device in push-pull and extract the wanted AF in push-pull or differentially. The result is a receiver not so easily overloaded by locals, thus allowing the user to wrinkle out those sub-microvolt DX or QRP stations. The prototype is a delight to use. SSB and CW signals have been heard from all Australian states, NZ, Japan, USA and the USSR, using a 10m length wire antenna. Dozens of listening hours have resulted in only a few instances where local transmitters caused perceivable overload effects.

## Equipment Required

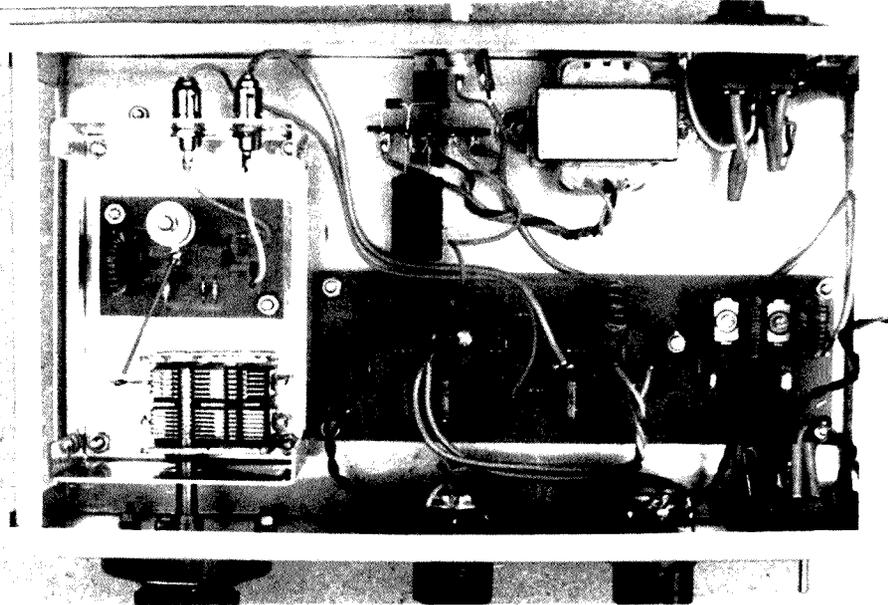
The usual electronics hand tools are required, including an egg-beater type hand drill, fine soldering iron and preferably a high impedance multimeter.

## Circuit

Signals from the antenna must negoti-

ate a top-coupled band pass filter which allows those in the 3.5-4.0MHz range to enter without significant attenuation. Dual-gate FET RF amplifier Q1 provides about 0-15dB gain to incoming signals, depending on the setting of RF gain control R2. Transformer T1 converts the RF amp output configuration to push-pull, and is applied to the balanced input of the NE602 balanced mixer at U1. Input and output impedances of the NE602 are set at manufacture at 1.5kohm.

A Hartley VFO maintained by Q2 supplies our heterodyning signals, variable (nominally) from 3.5-4.0MHz, which is applied to the base of the internal oscillator transistor of the 602. Simpler designs make use of this internal transistor for the VFO. However, by employing a separate shielded VFO, we have greater control over the oscillator's environment. Furthermore, the possibility of oscillator signal being directly radiated into the RF input is greatly reduced. Direct pick-up of the local VFO and overloading of the RF amplifier are thought to be a frequent cause of disappointing performance in DC receivers.



Internal view with VFO cover removed

The audio signal, the product of the VFO and incoming signal, is applied to a differentially connected LM741 op amp at U2 configured for a mid-AF gain of about 40dB. The unwanted highs are rolled off by C16 and C17, and lows by C12 and C14. There appears to be no point in choosing a quieter chip than the venerable 741. In practice, noise from the RF amp and product detector will mask any noise contributed by the 741.

Most experimenters seem to favour the LM386 for receiver AF output applications, and it appears to be more readily available than the LM380. So here again a LM386 at U3 provides a little gain and the necessary speaker or headphone power.

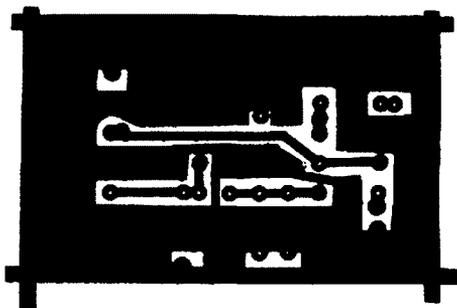
The +5V and +10V rails for the differential amplifier are supplied from two 78L05 regulator chips, one stacked upon the other as shown at U4 and U5. You could use one 78L06 for U5, and wire the board so that 12V replaces 10V, and 6V replaces 5V; omit U4 and link (i) to (o) with a 100ohm resistor substitution for U4. Unfortunately, 78L06s may not be available from some suppliers. At supply voltages of less than about +11V, the top chip loses regulation. Nevertheless, the receiver will go on working down to less than 8V. Inputs and outputs of all regulators are bypassed to discourage HF oscillation. For circuit stability, the VFO and product detector are also powered from the +5V (6V) rail.

### Construction

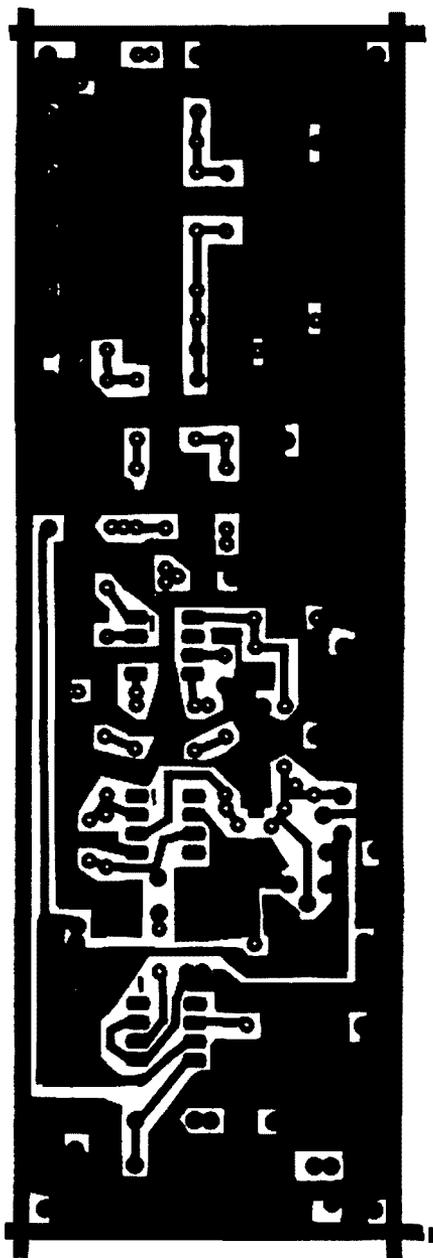
The RF amp product detector and AF amp are accommodated upon one circuit board, with the VFO on a separate board. The aluminium box housing the VFO is a stock item measuring 70W x 50H x 100Dmm. Check that your variable capacitor rotates easily without bumps or grittiness. The capacitor is fixed to the bottom plane of the box with three shortened 4BA screws. Make sure these do not touch the plates.

For easy and accurate tuning, some sort of reduction drive and dial is required. The vernier frequency dial shown in available from Dick Smith's: P/N P-7170. Also available is a reduction drive: P/N P-7172. But they have become rather expensive. Builders with engineering skills will no doubt be able to devise a better or cheaper alternative. The dial drive must not be stressed in any way, or annoying backlash may develop. No flexible coupler is necessary if care is taken with alignment of capacitor shaft and drive, although inclusion is recommended, space permitting.

Each constructor will have their own ideas about a case to house the set. There are some handy metal boxes available



Printed Circuit Board Artwork – VFO Board

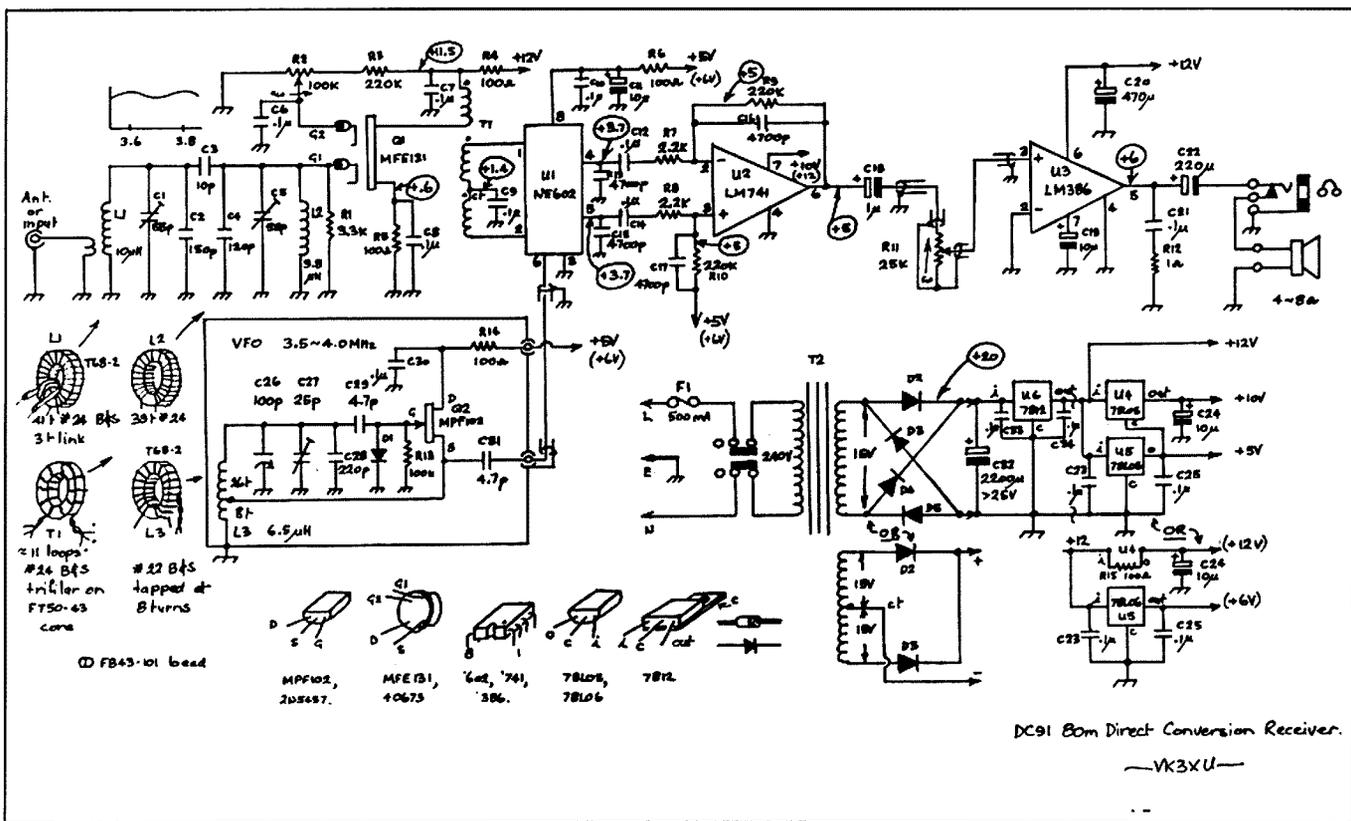


Printed Circuit Board artwork – Main Board

from the usual suppliers if you want to buy one ready to drill. The case shown is a K&W C1063 measuring 255W x 77H x 155Dmm. The side brackets were added to improve rigidity. When marking out, remember to allow for the cover overhang. You may find that the nominal rear panel is quite flat, not having been sand-blasted, and would actually make a better front panel. Power supply and/or speaker may be internal, although an external speaker should give a cleaner sound. If an internal converter for other bands is planned, remember to allow room for expansion (see Ref 4).

The VFO may be tackled first. The trim capacitor shown at C27 is an air-spaced 25pF "beehive", the pins of which must be bent down to enter fully. Drill holes in the board to suit your particular trimmer. The stator, fixed plates, connection for C26 is made to the solder tag of C27. For L3, wind on 26 turns, then pull out about 2cm of wire and twist into a little pigtail loop for the source tap, then continue with the remaining eight turns. When soldering L3 into position, clean and tin the leads first, and be sure it sits down upon the board. Fix it there with a blob of epoxy glue. Make a 1cm hole in the VFO cover directly above trimmer C27. If you have access to a second receiver, VFO operation and range may be checked by applying 5 to 9V, perhaps from a small battery, and listening to the VFO signal. A short clip lead inserted in the output socket will radiate a good sample. With the cover in place the VFO note should sound pure and constant. Adjust C27 so that rotation of C26 has a range of just less than 3.5MHz to just over 4.0MHz. If for some reason the desired range is not obtained C28 may be replaced with a larger or smaller value as required. No second receiver? Never mind. Your nearly completed receiver will allow you to find 3.5MHz and 3.8MHz (see Testing below).

Broadband transformer T1 may be wound as follows: take three 300mm lengths of #24 B&S enamelled wire – different colours if available. Lay them parallel to each other, then twist one end of the triplet together. Clamp that end in a vice. Twist the free ends together and then fix them in the chuck of a hand drill. Whilst maintaining tension on the group, turn the drill until you have about three twists per centimetre. The resulting twist must be uniform, with no kinks or transpositions. Give the drill a pull to set the twist. Carefully wind the triplet onto an Amidon FT50-43 core. About 11 loops, not critical, should fit nicely. Untwist the ends and leave about 2cm of each wire. Remove about 1cm of enamel from each wire. With your multimeter on ohms,



identify one winding. Push this pair, which will be the primary or drain winding, to one side. Now identify the other two windings. Temporarily connect the end of one to the start of the other to form the centre tap. A pad is provided for each on the circuit board. Winding starts are shown schematically with a dot.

The components are loaded onto the main board in the usual way. Mount resistors and capacitors vertically if this is easier. To suppress any tendency to parasitic oscillation FET Q1 should have a ferrite bead fitted to gate 2 and, preferably, also G1, to discourage TV/FM breakthrough. They can be kept from rattling about by slipping a tiny length of sleeve removed from hook-up wire onto the gate lead so the bead is captive between it and the board.

Power supply diodes and filter capacitor may be mounted upon the lugs of a five-tag strip. The 7812 regulator chip is loafing at 50mA and need not be heatsunk to the case. The transformer may be 15V (4-diode bridge) or 30Vct (2-diode) at greater than 100mA. All mains wiring must be covered to prevent accidental contact, a 500mA fuse installed, DPDT switch wired with twisted pair, the mains earth connected to chassis ground with heavy wire as shown. The set may be operated from an external 12Vdc supply if desired. If there is any possibility of reverse polarity being accidentally ap-

plied, wire a diode in series with the +12V supply.

**Testing**

Check that all components are properly placed and polarities correct. Replace the VFO cover. Apply power and measure the +12V, +10V and +5V rails. You should hear only a slight hiss as the AF gain control is rotated near maximum. Clockwise rotation of the RF gain pot should also cause some increase in hiss. Connect an antenna to the input. A few metres of wire will probably do for now. Night-time activity on 80m usually provides plenty of signals for receiver work. You should hear Morse signals just above 3.5MHz, lots of SSB around 3.6MHz, and DX window activity near 3.8MHz. At about 3.6MHz adjust C1 for loudest signals. Adjust C5 on about 3.8MHz for loudest signals. There is some inter-reaction between these, and compromise may be necessary. Be mindful of

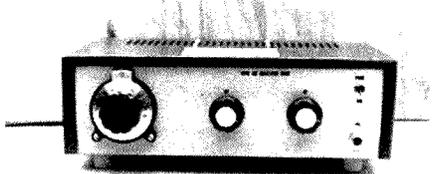
any tuning effects which your antenna may have. With a fair-to-good antenna connected, the set should be pretty lively. Signals should sound pleasantly clean, without significant distortion or hum. Use as much AF gain necessary for comfortable listening. Very powerful signals may be throttled back with the RF gain control. Finally, if desired, make a frequency look-up chart or table using a crystal calibrator or similar where available.

**Problems**

There are no perceived difficulties for the typical radio/electronics enthusiast. If the VFO refuses to work, try a new MF102—perhaps a different brand. Some key voltages are indicated on the circuit as a guide to any necessary troubleshooting. If, however, you cannot get your set to work satisfactorily, please write to me about it and all reasonable help will be returned (SASE for reply).

**Parts**

Most parts are known to be available from the usual electronics suppliers. Shop around for best prices on significant items such as the case, transformer and semiconductors, as costs vary considerably. Radio components, including variable/trim capacitors, circuit boards, chips, power transformer and Amidon cores should be available from Truscotts Elec-

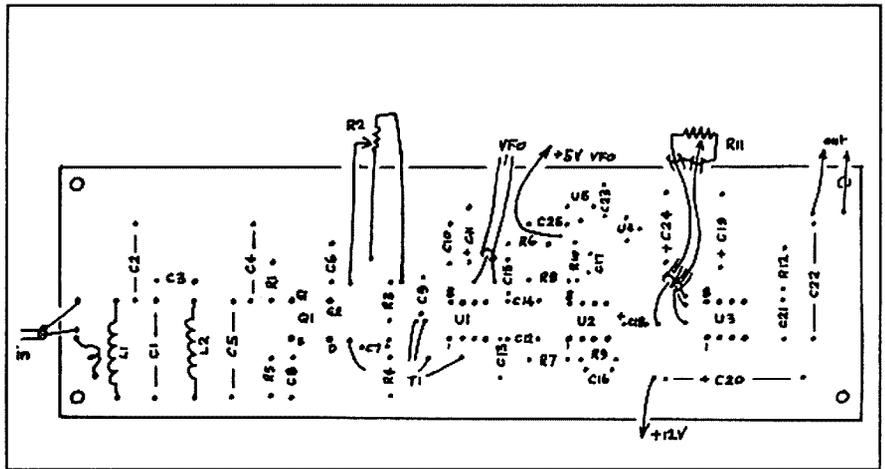


The DC91 Receiver

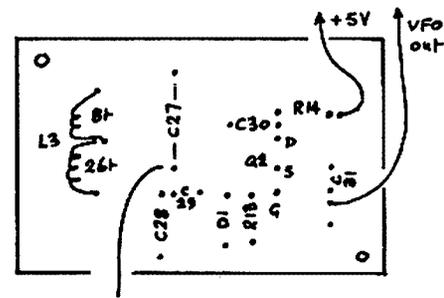
tronic World, ph (03) 723 3860 (will answer mail orders). Stewart Electronics (03) 543 3733 can also supply most parts. Other Amidon suppliers regularly advertise in the Hamads of this journal.

### References and Further Reading

1. Simple Receivers from Complex ICs – Parrott W6VEH, *Ham Radio*, Nov '88.
2. Simple Direct Conversion Transceiver – Kreuter WA3ENK, *Ham Radio*, Dec '88.
3. The Neophyte Receiver – Dillon WA3RNC, *QST*, Feb '88.
4. "Computarock" Receiving Converter – Diamond VK3XU, *AR* June, '91.
5. The "Sudden" Receiver – Dobbs G3RJV, *Prac Wireless*, Mar '91.
6. "APC" Receiver – Hepburn VK3AFQ, *ARA*, Vol 14, No 3.



Component Locations – Main Board



# A Five-band Version of the VK2ABQ

## Variations on a Theme

MARTIN DEELEY VK3FMD 10 MARIEMONT AV BEAUMARIS 3193

**T**HE VK2ABQ ANTENNA has interested me since I saw the G6XN-modified version. Bill Rice's article (*AR* Oct '90) threw down the gauntlet, and I decided to try for a five-bander.

### The Hardware

The central support is a 600mm square of 6.3mm ( $\frac{1}{4}$ " ) aluminium plate. In the centre is cut a hole sized to clear the O/D of the mast, in my case, 50mm (2"). On the underside of the plate, on the circumference of the hole and perpendicular to the plate, I welded a 300mm length of aluminium angle. This will allow the antenna to be slid up and down the mast for tuning and maintenance.

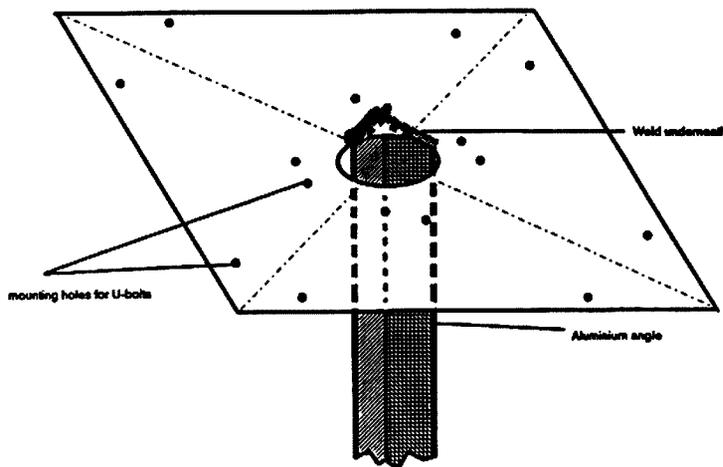
For the spreaders, I used four 6m telescopic fibreglass fishing poles, discarding the top two sections for future use as spinning rods. For attachment to the central support I fitted 300mm lengths of 40mm diameter aluminium tubing over the end of each pole, bonding it into position with fibreglass resin. The poles were fixed in their extended position by a self-tapping screw at each joint and then fixed to the central support with U-bolts.

To support the wire elements, on the spreaders I attached 150mm lengths of light elastic cord (the type available from yacht chandlers) with a hook at the free end, at points about 250mm outboard of the expected suspension point of each element. This keeps each element under reasonable tension whilst still allowing for adjustments.

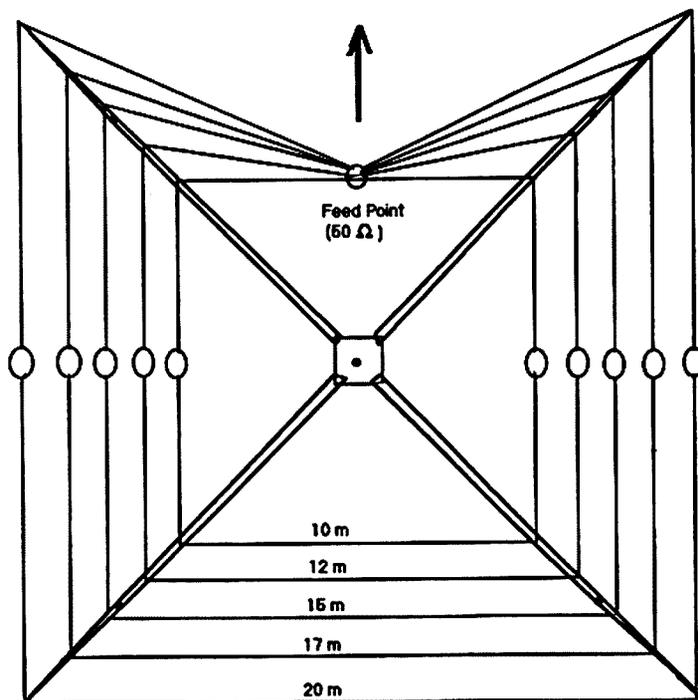
For insulators I used high impact styrene sheeting, mainly because I had some, but it just happens to have a dielectric constant of 2.5, which is about the same as the stuff coat buttons used to be made of. I simply cut the sheet into 25mm squares and pack-drilled two holes 6mm apart.

The wire used is black PVC insulated multi-strand copper wire, known here as "auto wire". (Also "ex-stock".)

At the feed point I initially used a 1:1 balun. Previous articles suggest that this isn't necessary, but I had one, and now I wish I hadn't. For some reason, it threw out the tuning of the entire antenna, and



Aluminium central support bracket.



Modified VK2ABQ, plan view

when I removed it, everything started to behave again.

### Tuning

With the first loop, for 20 metres, I followed earlier articles and dipped the loop prior to cutting and fitting insulators.

The loop dipped at 13.975MHz (with some difficulty). So I decided to make no adjustment and go ahead with construction. When I had the 20m element built, I checked resonance with a (very) small RF signal and a VSWR meter.



Detail of Insulators.

The resonant point hadn't moved and I decided to be lazy and build the other elements without dipping the loops. The dimensions I used for each element are shown in table 1. (It's perhaps a good idea to start with each element a couple of percent longer, but remember if trimming after cutting the loops to trim exactly the same from each of the four ends!)

When all five elements had been fitted,

I soldered the common connection points at the feed point and raised the beast to a height of about eight metres, feeding at this stage with RG58U. The first results were amazing! Resonance was in-band on 20, 15 and 10, slightly high on 17, and slightly low on 12. Adjustments were made to the lengths of the elements by adding or subtracting equal lengths of wire at the four ends near the insulators. Only the 10m element originally tested above VSWR 1.5:1, and this I found to be due to a feedline effect. I increased the length by a few centimetres and was rewarded immediately. Feedline lengths to avoid are odd multiples of  $\lambda/4$  on any of the bands the antenna is used on. With the help of friends locally and overseas, I have made tests on all bands, 20 through 10 metres. Approximate results are shown in table 2.

The "clothes line", as one friend has christened it, has now been in service for a couple of months. Band conditions have, of course, been terrible, but during the few moments of reasonable propagation we have had, I have been well satisfied with the reports. It would appear from comparative tests, and from my performance in "pile-ups" that the antenna is performing at least as well as the average tri-band trapped Yagi. Not bad for a total expenditure of about \$150!

**Table 1**

Frequency (MHz)	Loop length (Metres)	Radial length (Metres)
14.20	21.127	3.735
18.15	16.575	2.930
21.20	14.151	2.500
24.90	12.048	2.130
28.50	10.528	1.880

**Table 2**

MHz	VSWR	Bandwidth	F/S Ratio	F/B Ratio
14.18	1.30:1	0.8MHz	-30dB	-10dB
18.10	1.05:1	0.7MHz	-20dB	-10dB
21.30	1.20:1	0.7MHz	-20dB	-10dB
24.89	1.30:1	0.4MHz	-20dB	-10dB
28.48	1.20:1	0.8MHz	-20dB	-10dB

Finally, on mechanical strength, the antenna is extremely light (less than 10kg) and has a remarkably good wind resistance which is essential for those of us who lives on the shores of Port Phillip Bay. It does have a tendency to droop a little, however, and this is accentuated by the tensioning of the element wires. I have a Cushcraft ARX-2 2m antenna mounted above the "clothes line" and have run some light nylon fishing line from a point about one metre up the ARX-2 to the end of each fibreglass spreader. This prevents the droop, and also appears to have introduced a little stiffness into the structure.

Hmmm ... how about another element for 6? ... or 40 perhaps?

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# Noise Figure Measurements Over the Years

CHRIS SKEER VK5MC SUNNYBRAE BOX 930 MILLICENT 5280

## What's this Thing Called Noise and Where Does it Come From?

**S**O WHY ALL THE FUSS about noise? We know that noise is random electromagnetic radiation. The HF operators know all about it. Car ignition, lightning crashes, power leaks, auroras are typical sources. We know that it tends to peak at certain frequencies, but covers a wide range of frequencies.

Apart from all that, an amateur could be forgiven for thinking that if it wasn't for those sources we could just add on more and more amplification and have an almost infinitely sensitive receiver.

Here's some simple physics to explain the bad news.

Many, but not most, things in our universe are made up of atoms and molecules. Each atom in turn consists of smaller "particles" most of which are in the central core or nucleus, while some are in orbits at varying distances from the nucleus. Many of these tiny "particles" carry a charge either positive or negative.

These atoms and molecules are in constant motion. We call this motion "temperature". The more vigorously they jiggle the hotter we say they are.

The only time these atoms and molecules stop moving is when the temperature is at 0 degrees Kelvin. In everyday language that's about -273 degrees Celsius. (By the way, strange things happen to some materials at low temperature but that is another story.)

The movement of the particles is accompanied by rapid changes in velocity. Now, when an electric charge accelerates, it generates an electromagnetic field which is radiated.

The less the jiggle (low temperatures) the lower the frequency of the radiation and the less energy is radiated. Note that because a body at a particular temperature is really an average of the motions, the radiation actually covers a wide band of random frequencies (noise). As the jiggles speed up, so does the average frequency and the intensity of the radiation.

So, everything in the universe (even space isn't empty) is sending out electromagnetic waves which, if we hear with a radio receiver, we call radio waves or, if we receive with our eyes or a telescope, we call light waves.

What this means is that your backyard at 293deg K is radiating RF, the family dog at 313 deg K is radiating RF and space at 3deg K is radiating RF, the only difference being in a shift in the frequency peak of the energy and a considerable difference in the intensity. Higher temperature objects tend to have the spectrum shifted to the higher frequencies (remember red hot steel is not as hot as white

hot steel which has more blue light in it.)

This is why most modern graphs of receiver performance use degrees Kelvin instead of dB. A temperature measurement is a more fundamental indicator of the radiated energy and is directly related to noise output. On the other hand, dB is obtained by definition and is just a ratio related to a standard.

So now you'll see that Chris' article describes receivers at the threshold of the ultimate performance. The front end is so quiet that significant improvements must now come from improved gathering of the signal from the desired direction. A poor front-to-back ratio of an antenna means that there could be more energy coming from the ground (293deg K) at the back of the antenna than signal from the desired source. You'll also see why valves with a hot filament have limitations on performance and why early solid state amplifiers for space use were put in liquid nitrogen to reduce generated noise.

Dedicated amateurs of the future may have liquid-nitrogen-cooled antennas, feedlines and relays!! It might help if you were a refrigeration engineer too.

PS: The majority of the "stuff" in the universe is plasma, where the movement of the particles is so vigorous that the electrons have been stripped off and the state is no longer solid, liquid or gas. Stars are made of plasma. The above description holds true for plasma, too. Apart from thermal agitation there are other interesting ways that electromagnetic radiation can be generated in nature. Pulsar stars, natural sparks, atomic blasts and laser action are other processes that make fascinating study. (The preceding introduction is by John Drew VK5DJ).

Anybody who has ever constructed or owned a receiver would have thought at some stage, "I wonder if I can make it slightly more sensitive by adjusting or modifying it?" Now, most of us have something to measure the transmitter power, even if it is a crude SWR bridge, but only a handful of amateurs have anything to measure a receiver's sensitivity.

I guess that this is one of those town versus remote country location situations. If you can hear the power leak and ignition noise it's not much good making it louder. In my location both are a rarity, and I hope it remains that way.

However, I have heard some people say that they had no car ignition noise, that is, until they made a pre-amplifier.

Since most of my activity over the years has been 144MHz and up, one of

my interests has been the adjustment of receivers or converters, as they normally were in those days, unless you had a SCR-522. My first receiver on 144MHz was a super regenerative one which used a 955 valve. It was made from a 288MHz unit by putting on a few extra turns. The best DX was to Victor Harbour (270km). However, it had lousy selectivity.

My first converter was described in February 1959 *Radio, TV and Hobbies* (now *Electronics Australia*). It was a design using a 6BQ7 RF amplifier, 6BL8 mixer and 12AT7 oscillator. The only adjustments done were on a push and pull basis, with self supporting coils. To lower the resonant frequency, you would push the coil together, to raise the frequency, pull the coil open, depending on which end of the test rod, with an iron dust slug on one end and a brass slug on the other, made the signal stronger when inserted inside the coil.

My first instrument for measuring sensitivity was a noise source made from a 1N21 diode, a potentiometer and a battery. (RSGB 1961).

The reverse biased diode generated some noise, which was measured with an AC voltmeter across the speaker leads.

The method used was to measure the residual noise and increase the current through the diode until the noise output was double. The current was then measured. Any adjustments could then be made to the converter and the noise output re-measured. This simple device, however, could not tell you any value of noise figure. It only told you if your adjustment had made it more or less sensitive.

Mark "2" was made. This consisted of a CV-2171 temperature limited diode noise valve, which gave a calibrated amount of noise for a certain current. The method used then was to establish a reference level, switch on the noise source and switch in a 3dB pad in the IF line. The current through the noise tube was then adjusted so that the output remained the same. Over the years, one became quite adept at switching one off and one on, whilst watching for minute variations on the "S" meter or output meter. Any adjustments to pre-amplifiers, at that time U310 FETs, had to be made and then

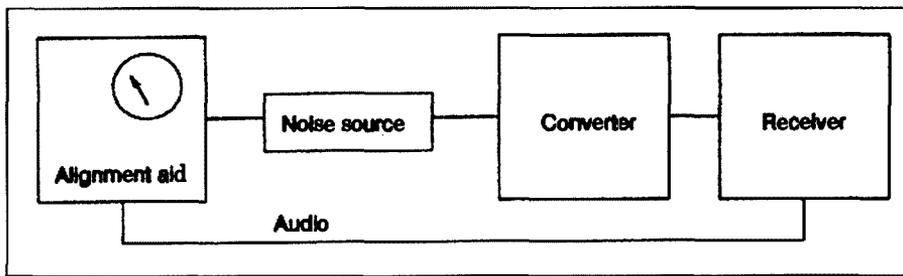


Fig 1: Alignment aid for VHF receivers.

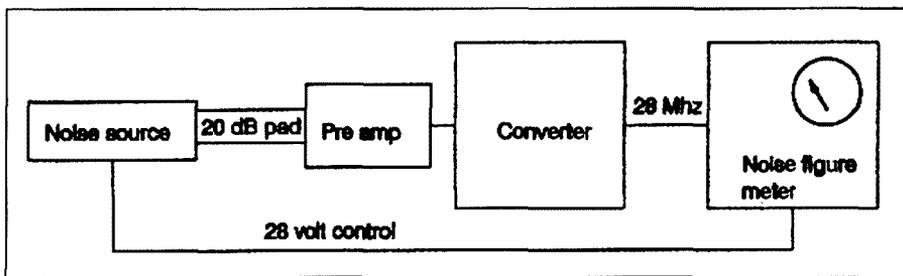


Fig 2: Mark "5" Noise Figure Meter.

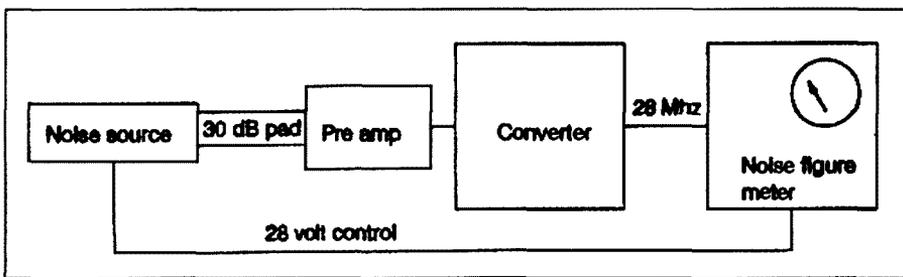


Fig 5: Mark "6" DJ9BV Noise Figure Meter

rechecked on the noise figure meter, with more flicking of switches. The results received were always fairly good, as nobody had ever seen an excess noise calibration chart in those days. The charts indicate you need to add 0.5dB to the noise figure on 144MHz, as the diode generates more noise on 144MHz than at its calibration frequency of 30 MHz (ref 2).

Mark "3" noise alignment aid was a very simple automated device that pulsed the noise source (fig 1 and ref 1). It was quite adequate to tune the front end of a receiver for maximum sensitivity by ear; the meter however gave a better indication. After the switch flicking procedures it was a pleasure to watch the meter move as you adjusted the bias, the coupling and the resonance capacitors. However, for any idea of what the noise figure really was, it was back to 'Mark 2' to check how well it was actually working.

By now somebody is going to be thinking, why not use a signal generator and simply peak for maximum gain. This is fine for an initial alignment. Transistors and FETs however don't have their mini-

mum noise at their maximum gain point. To make matters worse, the signal from my HP608E is still quite strong with the attenuator at minimum output of -125dBm.

K9IMM Edward Giske (Ref 3) described at that time the ultimate automatic noise figure meter with a temperature limited diode valve. As I already had the noise source, "Mark 4" was constructed. It used the twice power method, which automatically switched in a 3dB pad and adjusted the current through the diode to give a measure of noise figure automatically.

At this time the new GaAsFETs were starting to appear at reasonable prices, \$35 each, and dual gate GaAsFETs for \$10, with noise figures of less than 1dB.

Which meant most "state-of-the-art" people were trying to measure something less than 1dB. Even with the best equipment in 1979, a HP340B and 343A noise head, 0.5dB was the best accuracy you could expect.

Late 1980 saw the arrival of a solid state noise source, a simple reverse biased transistor junction (2N918). This would produce about 35-36dB of noise at 144MHz which, with a simple current

limit, would give a saturated output. Its high output level could be used with a 20dB pad to give a reasonable SWR (ref 4). Because of Mark 4's design, however, this noise source could not be used.

In *VHF Communications* (ref 5) Martin Hohulus described an automatic noise figure using the Y factor method (Ref 6) and a solid state head. This allowed for a noise source output of between 10-20dB of excess noise for the various frequencies. See block diagram figure 2.

"Mark 5" was constructed and has been in use here on 144MHz, 432MHz and 1296MHz. The largest problem with this noise figure meter is that the noise source ENR (Excess Noise Ratio) was not constant with frequency. The audio AGC system did need some care to keep the input level correct for a good indication.

By varying the ENR calibration control you can make the noise figure read what you like. In my situation, as I have been looking for a comparison, this has not been a problem.

However, above 1296MHz the useful ENR of a 2N918 falls below a usable level, so yet another noise source change. This time a solid state noise diode BAT-31 (ref 7). This noise source gives a relatively constant 15dB ENR up to 10GHz; however it did require a 28 volt switched supply, so Mark 5 was modified to handle both noise sources.

With the advances being made with the GaAsFETs and HEMT (High Electron Mobility Transistor) technology the magical 0dB is very close to obtainable. Even the best equipment on odd occasions would give, or could be made to give, a reading below 0dB! Many people were finding low noise pre-amplifiers which had been tuned up on the bench and put into service, were not performing as well as they should have.

Articles were published on how to optimise a preamplifier by introducing pieces of coaxial cable in front of the pre-amplifier, believing that the instrument was perfect and could not be giving a false reading. This technique was actually inducing an error in a maximum way to make the noise figure read better than it actually was.

The noise figure error is caused by a gain error related only to the changing magnitude of the noise source reflection coefficient and the interaction of the pre-amplifier between the ON and OFF state. Consequently a 0.36dB change in the noise figure may be induced into the reading.

This error could be made worse if the device being tested was potentially unstable (Ref 8).

There are two solutions to this problem with 15dB ENR noise sources.

\* Add an isolator in front of the noise source which will change the ENR by the loss through the isolator.

\* Use a 10dB attenuator to give an ENR of approximately 5dB.

A good comparison of the gain error and resultant noise figure error which can occur between a noise source with a 15dB ENR (HP346B) and a 5dB ENR (BAT31-30) is reprinted with kind permission from Rainer DJ9BV in figs 3 & 4.

Enter "Mark 6", Rainer Bertilmeier DJ9BV (refs 9, 10, 11), has produced a design of a PANFI (Precision Automatic Noise Figure Instrument) which can use a 15dB or a 5dB excess noise source. This has ENR controls for both noise sources so that once the ENR is known for each band, a reasonable calibration can be made. This will not give an absolute noise figure reading unless you have something to calibrate it from, but it will give a good comparison between two pre-amplifiers or converters.

To obtain a good reference of noise figure I recommend construction of a MAR 6 or MSA06xx MMIC amplifier (using "N" connectors in and out) that can be measured on a HP8970A and HP346A at the various frequencies and then can be used as a standard reference when required.

It must be remembered that if the antenna you use is not exactly 50 ohms, you may still have a mismatch problem to the pre-amplifier. Once the DC parameters have been set and you know the device performs well, a final touch of the input matching of the pre-amplifier in its final working situation may be needed for best performance.

In my situation, as I can select polarisation at my dish feed, I connect the noise source minus attenuators to my vertical feed and listen on the horizontal. Provided the antenna is pointed to cold sky, it is possible to tune the system using a noise figure meter for best performance and include the feed and relays as they would normally be used for receiving.

As a final performance check, using an antenna that can be elevated, it is possible to use the difference in noise between

1. sun noise to cold sky;
2. cold sky to ground noise; or
3. a cosmic radio source to cold sky to determine noise figure.

These measurements can be made in two ways with the receiving system in its widest bandwidth SSB position.

1. by placing a variable attenuator in the IF line and using a reference level - preferably the audio output of the receiver with the RF gain wound back or the AGC switched off;

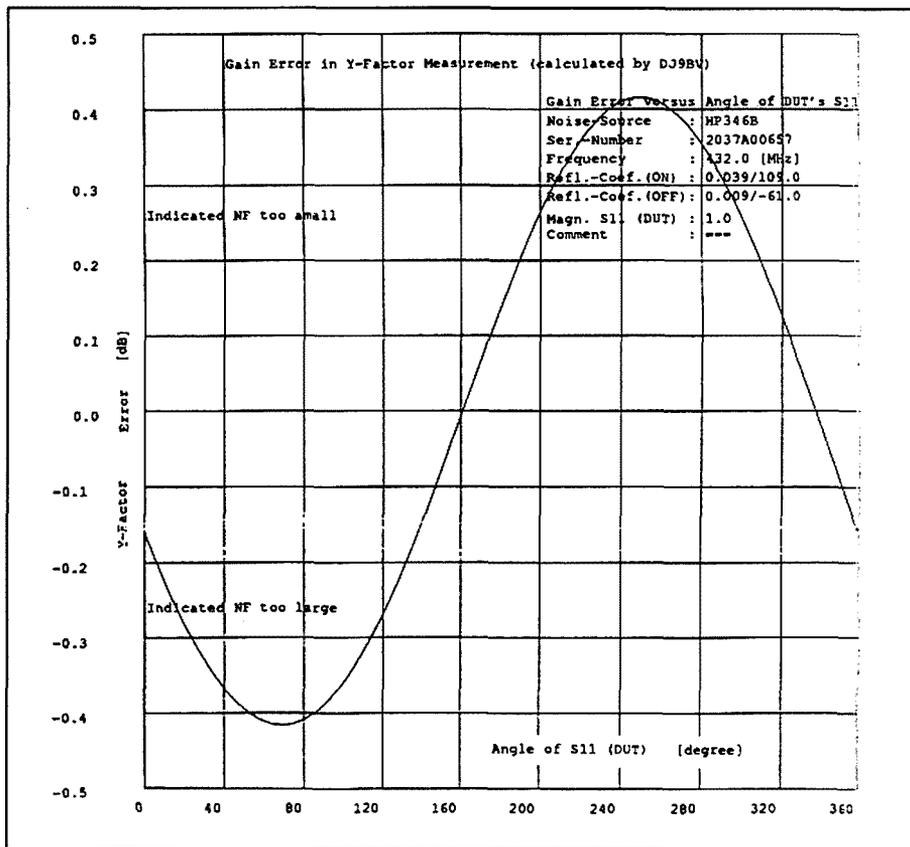


Fig 3: Gain error for 15dB ENR HP346B noise source.

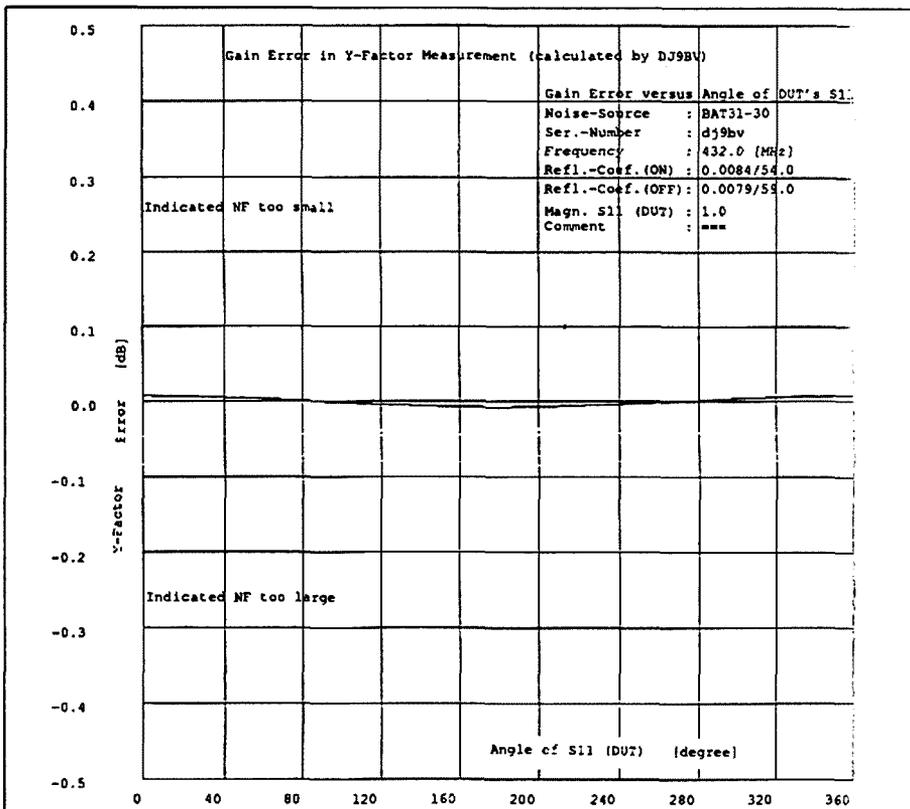


Fig 4: Gain error for 5dB ENR BAT31-30 noise source. Fig 5: Mark "6" DJ9BV noise figure meter.

2. using an audio meter calibrated in dB. Although I suggest you check it out with a variable attenuator so that you know there is no compression or linearity problems;

The most common test for receiver evaluation that is independent of antenna gain is the cold sky to ground noise. Simply point your antenna at a cold point in the sky and then into the ground 3-5 degrees, noting the difference in noise. Pointing your antenna at the horizon is not enough, as ground reflections may give you an erroneous reading. The dB difference is entered on the vertical axis and your system noise figure is read on the horizontal axis of figure 6. You do need to estimate your antenna temperature. This chart is reprinted with kind permission of Charlie G3WDG.

Dr Charles Suckling G3WDG and Drogo Dobricic YU1AW have discussed these methods in greater detail (refs 13, 14) for those who wish to make a study of this approach.

It is possible to optimise a system using one of the noise sources but it can be very time consuming and frustrating.

When checking pre-amplifiers of the masthead variety on a noise figure meter, the first thing that is noticed is the increase in noise figure from the loss in relays, especially the cheaper ones. This is partly overcome when the pre-amplifier is in use, but remains as a loss in power when transmitting something you can measure.

Over the years I have seen a few red faces and some smiles when checking a "you beaut" pre-amplifier or converter.

However, I have measured my receivers and have tried to keep up with the technology as the new devices and test equipment has appeared.

I often think of how inaccurate some of the early measurements must have been, especially on the temperature limited diode noise source and a GaAsFET pre-amplifier. Hopefully this collection of information may clear up some of the misconceptions that are around.

The current situation at VK5MC is that my antenna and relays are limiting my system. That, however, is another story.

I wish to thank the many amateurs who made this story possible by providing assistance, fellowship and encouragement over the years of experimentation. Without their help this story would not be possible.

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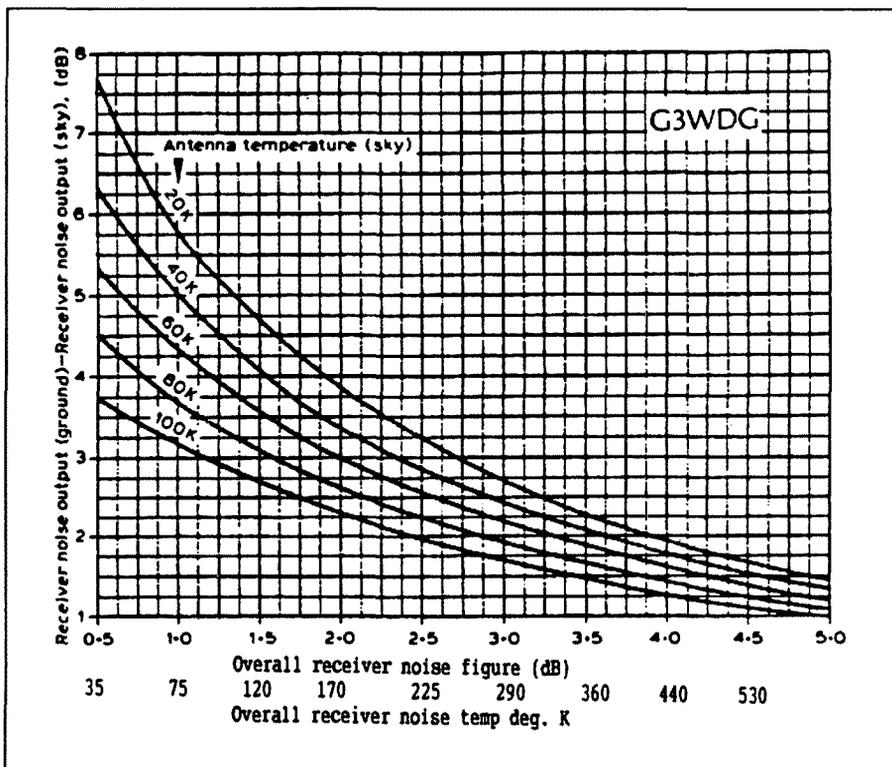


Fig 6: Receiver noise figure by sky/ground measurement. Antenna temperature is approximately 20k for low side lobe horn, 50-80 K for .6 F/D dish and 30-50 K for a well designed yagi.

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# Vertical Antennas for DX

J A GAZARDVK5JG 2 CORBIN RD MEDINDIE GARDENS 5081

**A** ROTARY BEAM ANTENNA, Yagi or Quad, is by far the best antenna for working DX, and it is also by far the most expensive and difficult to erect. There are, however, much simpler and cheaper antennas which will perform quite well, especially when CW is used.

The chief requirement of an antenna for DX is that it should have a low angle of radiation. The vertical antenna has this property but, in its usual form of a quarter wave fed at its base against ground, its height is too low. There are two other types of vertical that can be raised above ground, and these are very suitable for DX working.

The first is the Ground Plane (GP) antenna. A high mounted GP antenna would consist of a quarter wave aluminium tube fixed vertically to the top of a tilt-over pole and fed by a 50ohm coaxial cable. The radials could be 16swg or larger wire sloped down to points above the ground. The angle of the slope below the horizontal is not critical because, whatever the angle, the SWR will be less than 1.5:1. The optimum angle is about 25 degrees where the SWR is close to 1:1. Only two radials are necessary and they should be equal in length, exactly opposite, and slope at the same angle. The antenna can be tuned to resonance by adjusting the length of the radials to give minimum SWR. This adjustment is made easier if the radials are cut 10 percent longer than a quarter wave and looped back through an insulator at the lower end.

The GP antenna elevated in this way has useful height and is clear of ground obstructions. I have found it performs very well and have noted that many DX stations were using this antenna.

The other type is the half-wave antenna mounted vertically on the top of a tilt-over pole. With this type of mounting it is difficult to keep the centre feeding cable clear of the antenna, so end feeding with open wire feeder is preferred. A tuning unit is needed to match the transmitter to the feeder. The impedance to be matched will depend on the length of the open wire feeder, and will vary from very high to very low as the feeder length varies from an even to an odd multiple of a quarter wavelength. Figure 1 shows the current values in the antenna and feeder and also the impedance at points

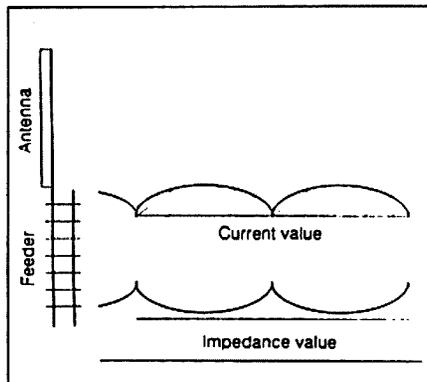


Figure 1

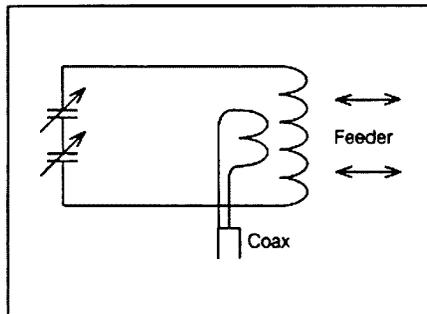


Figure 2

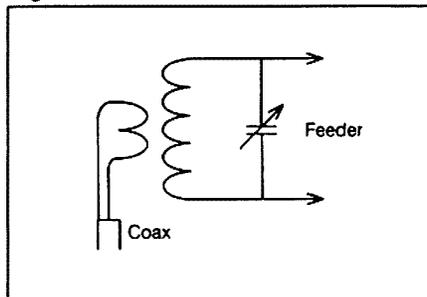


Figure 3

along both. The curves indicate that the antenna is voltage fed and the current in the antenna is a 100 percent standing wave.

A standard tuning unit for use with open wire feeder is shown in fig 2. The tuning capacitor tunes the coil to resonance, but the impedance match involves the ratio of the number of turns on the link coil to the number of turns between the feeder tapping points. The split stator capacitor is used to keep RF off the rotor and chassis which can then be grounded. If a single capacitor is used, it will have to be mounted on an insulating panel, as both sides will be "hot" with RF.

The Alcan Company (and probably others - Ed) makes aluminium tubing in sizes rising by  $\frac{1}{8}$ " from an outside diameter of 0.5" up to 1.5" and the wall thickness is such that any size fits neatly into the next size above. The tubes can be joined by cutting a slot longitudinally in the outer tube, sliding the smaller one in and clamping the join with a stainless steel hose clamp.

A vertical half-wave antenna for the 21MHz band was set up using a half-wave length of aluminium tube mounted on the top of a 10m high tilt-over pole. Three equal lengths of  $\frac{3}{4}$ ",  $\frac{5}{8}$ " and  $\frac{1}{2}$ " tubing were used to make an antenna 6.74 metres long. This produced a tapered antenna which reduces wind loading while maintaining strength at the base.

The feeder was made from two lengths of 7/029 (electrician's earth wire) spaced 50mm apart with perspex spreaders. As the feeder was close to a half-wave long, the tuning unit would need to match a high impedance. After several attempts, the final version was assembled with a 50pF wide-spaced ceramic capacitor (mounted on hardboard panel) and a 22mm 14-turn close-wound coil made from 16swg enamel wire. A two-turn link coil was wound over the centre and connected to the transmitter with 50ohm cable.

The turns ratio with this coil was 7:1 so the impedance ratio would be 49:1 with unity coupling. With air-cored coils as described, the coupling coefficient was much less than one, but even so the impedance at the feeder was much higher than 50 ohms and the voltage also high, so that hand capacity at the tuning knob made tuning difficult. The simplest way to overcome this was to extend the shaft of the capacitor using the body of a ball-point pen. This tuning unit, as shown in fig 3, is simple and compact, but there would be wide variations in construction with other feeder lengths.

This antenna has been used for some months, mainly on CW. I have been unable to make direct comparisons with other types of antenna, but consider it to be the best simple antenna I have used. Its chief advantage would seem to be its low angle of radiation and its height, which puts it clear of obstructions. It has one disadvantage in that it picks up more noise than a horizontal type. ar

# Tips and Tweaks for the Icom IC735

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**T**HE FOLLOWING ARTICLE describes in detail some methods as used by the author.

Although this article has been written for owners of the IC735, other amateurs may find some useful information in the text or diagrams. The methods described, however, may not necessarily be the only approach.

## 1: Audio Filter

When a pair of headphones is being used with the IC735, it becomes very apparent that the level of noise (IC or transistor hiss) is unacceptably high. This noise is not only annoying, but affects the signal-to-noise ratio quite considerably, especially with weak signals. The circuit shown in Figure 1 will eliminate that problem and therefore improve the receiver functions considerably.

Not only is the audio signal cleaned up, but one can obtain full benefit of the pre-amp switch because the S/N ratio is improved and the pre-amp switch can be left off more often, thereby gaining all the benefits when the RF is fed straight into the mixer stage. Without the filter, one was tending to reach for the pre-amp to improve the S/N ratio.

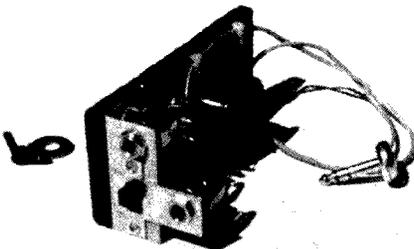
I have also found that some high impedance headphones can improve matters somewhat, as the noise is not so easily heard when these types are used.

The circuit in Figure 1 was arranged using a pair of ICOM HP2 headphones; these are 20ohm impedance. I have also tried a pair of Koss K/6x headphones, which have an impedance of 55ohm (in mono). Both types worked extremely well with the filter.

## Filter Design

The circuit shown in Figure 1 is based on the principle of the 12dB per octave low-pass filter, as would be commonly found in loudspeaker cross-over networks. The values shown were arrived at by using trial and error.

Some other designs were also tried, 6dB and 18dB per octave slopes as an example, these proved to either do too little or too much, so the circuit shown in Figure 1 was the final choice, offering I



*Completed headphone filter in final arrangement. Circuit is as Fig 1.*

feel, the best overall compromise.

The inductor (L1) could be reduced in value if the junk box dictates, although the value of C1 would have to be suitably adjusted to compensate. To put that another way, other combinations of L1 and C1 together may well do the same job.

The capacitor (C1) should be of the highest quality. This is very important as low level definition will suffer otherwise. A Greencap capacitor rated at 250V worked extremely well compared with Bi-Polar, polypropylene, blue caps and plastic film types of the same value.



With the values of L1 and C1 used as specified, there is a *very slight* top cut-off of high frequencies on wide AM signals. The noise (IC hiss) is, however, reduced by a considerable amount, improving the signal-to-noise ratio substantially. This is most evident when listening to very weak SSB or CW stations.

## Construction

The construction method chosen is shown in the photographs. The base is a small piece of particle board with a metal front for all the sockets etc. Because the inductor is an air core type it is sensitive to pick-up of hum and hash, so keep it away (at least 30cm (1ft)) from power supplies.

Figure 2 shows the dimensions of the inductor; 20m (65 feet) of 20SWG enamelled wire should be wound evenly on this bobbin to give the required value of 1.2 millihenries.

## 2: Volume Control

Is the volume control now hard to get at once the headphone jack is inserted into the rig? Then use a right-angle phone jack (I got mine from Tandy Electronics) and arrange it with the filter circuit. Two birds with one stone! I used a hacksaw to shorten the plug to be flush with sides of IC735.

## 3: CW Filter Installation

Although seeming to be in the "too hard basket", the job is actually basically straightforward and takes about 45 minutes. With everything disconnected, place the rig upside down on a soft sheet etc, the front facing you, then after disconnecting the RCA jumper wire at the rear, remove all the screws on the bottom lid.

The idea is to lift out the PCB, pivoting at the wires at the front of the rig. First remove all the screws holding down the PCB. (A magnetised Phillips head helps here) and disconnect all connections at the rear and sides of the board; be gentle when taking off the plugs (a small screwdriver as a lever may aid this operation). From memory, there are about six to eight leads and plugs to disconnect. Then

cut (be careful) the cable tie off the loom at the board just left of the CW filter location; this allows the board to now be carefully manipulated and lifted out, pivoting at the front and lifting up from the back. It is now a simple matter to install the filter, with the right sized soldering iron. Check the solder joints thoroughly and gently refit the PCB, making sure no wires are caught somewhere they shouldn't be, then connect all plugs. Fit in all the PCB screws but, before tightening, check that no wires are jammed underneath the board. Refit a new cable tie or secure where it was before, refit the lid and RCA jumper wire, turn the set over and check all functions.

#### 4: Hum

My ICOM PS-55 power supply could be heard at more than 20 feet away when I first got it; the hum from the case was that bad. Luckily, it was a simple method to fix the problem by inserting a piece of sorbathane rubber between the top lid and the top of the transformer, along with tightening all screws, especially the four holding the transformer. Don't forget to disconnect the power plug first before you go inside.

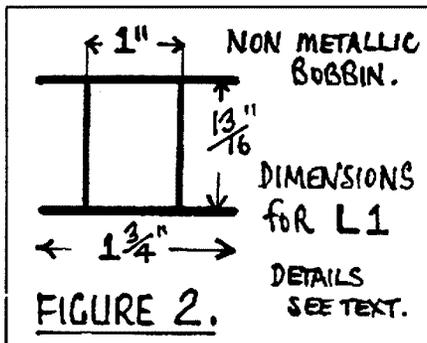
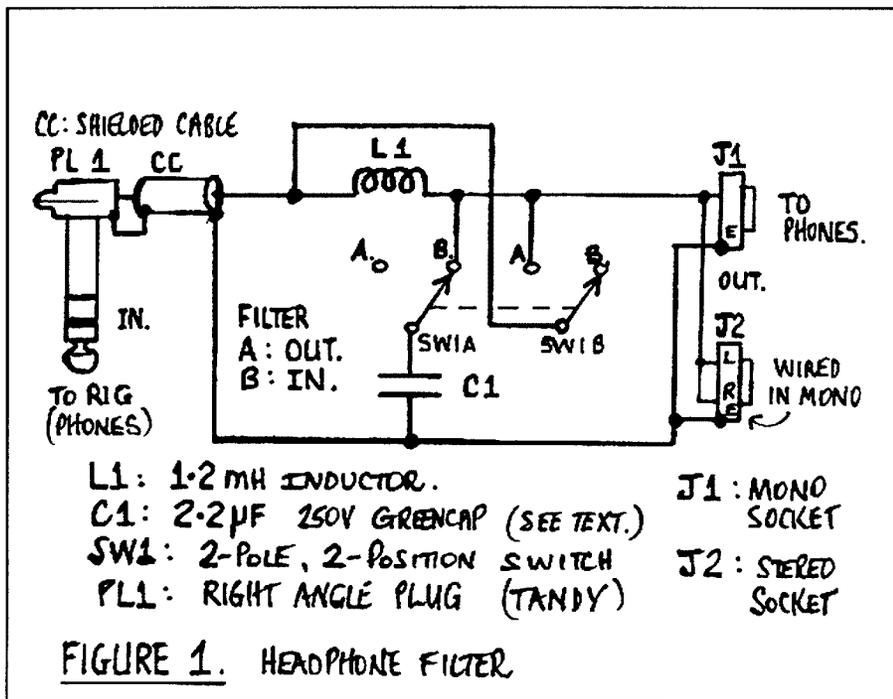
Sorbathane pieces between shelves and large resonant areas such as tables etc can also reduce mechanical hum levels.

#### Addendum

Since writing this article it has been found beneficial to increase the capacitance value of C1 (in the headphone filter design) from 2.2µF to a total of 4.4µF.

Two 2.2µF 250v Greencaps, wired in parallel, do an excellent job if the maximum amount of internal receiver noise reduction is required.

Audio quality is only very slightly



changed, and the value of inductor L1 will remain the same value of 1.2mH.

The ICOM PS55 Power Supply can be quietened down even further by adhering (under pressure) a strip of bituminous pad (approx 150mm x 50mm) to each internal surface of the sides of the lid. This can be done with clamps and soft wood to prevent scratching during the drying time; silicon rubber is the recommended adhesive.

Bituminous pads can be obtained from some motor accessory retail outlets as they are used for quietening down motor vehicle panels.

## WIA Award to VK6HD

One of Australia's top DXers has won the 1991 QSL Contributor to the WIA Collection Award. He is Mike Bazley VK6HD of Bedfordale. Mike's generous contribution of rare DX, commemorative and rare prefix QSLs put him on top of the 1991 ladder. Another well-known West Australian, Robin VK6LK and Jim VK9NS of DXpedition fame filled the minor placings. Mike's main interests in radio are low-band DXing and CW. He was first licensed in 1950 as G3HDA, obtaining his present VK6 call in 1969.

He was the first VK to gain the WAS (USA) certificate on 160 metres, a fact confirmed by the ARRL. He uses an FT1000 and several antennas, including a 160m dipole, 80m sloping dipole, 40m two-el Yagi, 30m ground plane and a 20m three-el Yagi. He also has antennas for other amateur bands.

Mike was presented with an engraved medallion from the WIA (Vic Div) Council. Well done, Mike, and thanks for your help in building up a world-class QSL collection as a future record of one of the most popular aspects of amateur radio - DX.

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## Murphy's Corner

On pp 11 and 12 of the April issue, the two diagrams which belong to Robert McGregor's VK3XZ FETs up Front technical correspondence on p21 of this issue, were also reproduced in Graeme McDiarmid's VK3NE article "Mobile Operations". Apologies to both authors for the mix-up.

The gremlins didn't take a holiday for the April issue. On page 5, Terry Clark VK2ALG popped from the list of WIA Accredited Examiners to also appear as the author of WIA News! Apologies to Terry for taking his name in vain.

# FETs Up Front

ROBERT R MCGREGOR VK3XZ 2 WILTSHIRE DRIVE SOMERVILLE 3912

**M**IKE MURPHY'S ARTICLE on FETs, AR May '91, was both timely and interesting. There are several other useful circuits to realise the benefits available by using FETs. FETs do not load their input sources, and allow a maximum realisation of the time and money spent in producing a decent tuned circuit. They are not power hungry and so make ideal voltage probes. The precise action of a receiving antenna!

Yes, you can liven up valve receivers. One American company foresaw that changes to the then current microwave trunk networks across the USA would not be instantaneous. Geostationary satellites were almost science fiction and maybe there was a market for 10 million replacements for 6AK5 valves which were a hot VHF miniature valve. This was achieved with series connected FETs mounted on a valve base. See Fig 1. The lower FET drives the source of the upper one in a grounded gate mode. The basic circuit was used often with triodes in DC amplifiers for analogue computers, which are now on the way back. Fortunately there is no longer a need for a + and - 100 volts output, and a + and - 300 volt regulated supply which is costly, heavy and lethal.

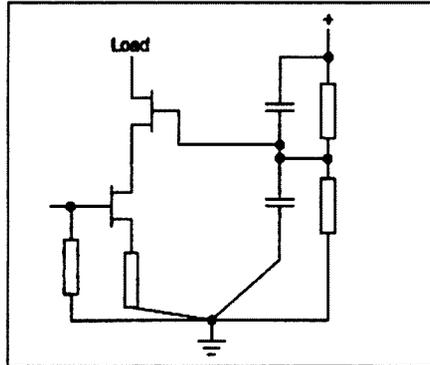


Figure 1

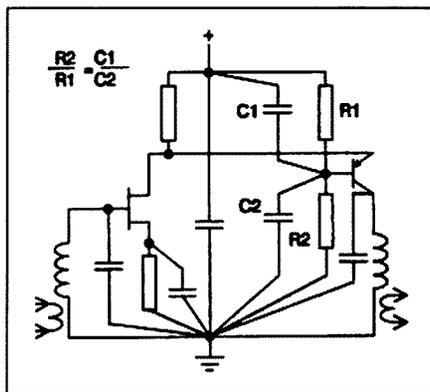


Figure 2

Another useful circuit originated in wideband IF strips. See Fig 2. Feedback was still the problem so the input to the stage, a transistor, had a common resistor load that drove a grounded base PNP transistor. This mode eliminates any feedback from a high impedance load in the collector circuit, thus permitting maximum gain and selectivity from tuned circuits. The circuit is equally at home with a FET driver driving a following FET stage.

Further variations with additional feedback paths are used in wideband inputs, eg CROs, voltmeters etc. Bypassing is important, and I have indicated the preferred common points in the circuits. Where there is a division of DC potential by two resistors to an active device, a transistor base, and it is desired to maintain it as an AC earth point, there is merit in bypassing the source and then in either direction from the point which it is desired to ground to the ends of the source bypass. If these two capacitors are in the same reactance ratio as the resistors they bypass, the results will be consistent over a wider frequency range. Reactance is proportional to  $1/C$  so the capacitors are in the inverse ratio to the resistors they parallel. See Fig 2.

ar

## Wireless for Women

The radio set is an instrument which needs a woman's care. In the first place it needs a good position in the house, where it will be a pleasure to all and yet not be an obtrusive obstacle to be knocked against at every turn. If you have a large living room, the bow window is a good position in which to place the set. It is also a good place for the wires, which can be brought through the side of the window and attached to the set without being in anybody's way or looking unsightly.

In another direction the set needs a woman's care is to keep it bright and well polished, free from dust inside and out, for in the most carefully looked after house the dust will penetrate even into the inside of a closed piano or gramophone, so just the same with a wireless set.

(From Radio Broadcast of December/January 1925/6). Submitted by Colin Mackinnon VK2DYM

ar

## Stolen Equipment

Stolen from Alan Gardner VK4BWG, 40 Wattle Avenue, Bribe Island 4507:

HF transceiver FT757 s/n 4E-071058. Power Supply FP700 s/n 3C-020584. VHF/H/H FT209RH s/n 6E-260229. Power Supply NC15. FNB4 and FBA10 battery packs.

Stolen from Colin Luke VK5XY, 7 Loma Linda Grove, Wattle Park 5066:

HF SSB transceiver Yaesu FT7. Two Philips 1680 hi-band FM transceivers - one on commercial frequency of 165MHz, the other converted to 2m amateur band. FDK Multi 7 VHF/FM Xtal-controlled transceiver, with all channels fitted. Also SWR meter, digital multimeter and sundry plugs.

ar



# Welcome to Mission Beach

( June 6-8 1992 )

Iain Morrison VK4KIG PO Box 964 Townsville 4810

**I**N 1982, A GROUP OF amateurs from Townsville and Cairns decided to meet for a camping weekend on the May Day long weekend. The venue for this was chosen to be central to both cities, and pleasant for family activities. Mission Beach is 200km north of Townsville, and 140km south of Cairns (1590km north of Brisbane) and a "tropical paradise". This initial foray was so successful that it has developed into a major social occasion in the calendar of north Queensland amateurs. Quite a few tourist amateurs have also turned up and met with us, after hearing about our meeting, and are always welcome.

Now the meet is held over the long weekend, when we Queenslanders celebrate the official Queen's Birthday with a public holiday. Traditionalists bring their tents of all shapes, sizes and complexity to pitch. One or two large, borrowed, coloured plastic "tarps" are erected as a central shelter and assembly area. There are no sides to this shelter so as to allow free access to the tables and chairs which

serve as dining, gaming, workbenches etc as the need arises.

There are cabins available on site (these need to be booked in advance) and, of course, lots of local motels, which some prefer to the tent city accommodation.

The central tarp site has 250V power, which is used for fridges, lights, lots of cuppas, charging batteries and even soldering irons (!!) occasionally.

Many old and new friends may meet only on this one social occasion, interspersed with walks to the beach and other seaside activities. As this is the "cold season" for us northerners, not much swimming or sun loving is indulged in, but we do observe the tourists who think our winters are better than theirs!

There is some radio operation, apart from the fox hunts and monitoring of two metres. This peaks on Sunday morning for the WIAQ news, and on Sunday evening at 8pm local time, for the north Queensland hook-up on 3604.4kHz, which is conducted from the campsite. These are rebroadcast on 2m, which prevents

overcrowding of the Tx area. Aerials are strung up, like a WICEN exercise, from anything high enough and near enough. The sight of fox hunters occurs at different times, and usually involves the searching of rubbish bins, washing machines, car boots, all looking for the diabolical hiding place.

One basic "organised" activity has become traditional: the "cricket match", which is played on the beach sometime after 1000 Sunday morning. For this, two teams, named "Townsville" and "Cairns", are involved, on a pitch paced out on the sand, hopefully with some semblance of stumps at each end! The rules are usually the subject of much discussion and negotiation on the previous night, and are quite flexible. Surrogate runners are allowed for those who want to bat, but cannot race down the pitch, and no one can go out for a duck. A maximum score of 25 runs per player is sometimes reached, forcing the batter into retirement. Basically the teams are Townsville versus combined Cairns and Tablelands

Clubs, with visitors being used to even up the sides where possible. This game runs for only a couple of hours, depending upon a lot of factors, and then a retreat is made to the campsite for sustenance. The scores are totted up, and adjusted using the formula negotiated the night before, and the winning team is announced.

As midday Sunday sees the greatest attendance, due to work commitments of some, a photograph session is usually held as soon as possible after the cricket match. This session brings out more cameras than a royal wedding, and in 1990 Jeanette Mann volunteered to learn how to operate them all in 15 minutes. It has been suggested that the faces in the group photos be identified, but so far this has been a daunting task, and is yet to be done. The photo above shows some of the crowd attending in 1990.

Sunday afternoon continues the chatter and technical discussions, with a lot of afternoon napping occurring.

A barbecue is usually held on Sunday evening, for everybody, at a nominal charge. An old well-worn cricket bat serves as a trophy, and each year a small shield engraved with the winning team's name is affixed. As the occasion befits, the bat is either presented to the winning team or gloated over by the winners, depending on who won last time. The club presidents, or their reps make appropriate remarks into some very strange "microphones" looking like grapefruit stuck on a two-pin plug, or the bottom of a tomato sauce bottle.

The evening continues with singing and talking. If the moon is out, some stroll along the beach, and occasionally have a beach fire. Some would-be fishermen try their luck to find the fish amongst all the water.

Monday morning sees the tents being taken down and rolled up, and by lunchtime most are on their way, relying on their radios to keep contact for another year.

### Addendum

This year the venue for this very social weekend has been changed to the Beach-Comber Coconut Village – at Mission Beach South. This is a large park, and has all the usual mod cons, and can be found immediately on the left as you approach South Mission Beach – where the waves meet the sandy part.

Camping and van sites, on-site vans and Melanesian cabins is the range of accommodation available, and should suit all families and purse-strings or sense of adventure! Please book early for the vans and cabins to avoid disappointment.

The Cairns Club has made the site booking for the tent city already, and is

bordered by the beach and the rainforest – really lush green vegetation (a change for all the Townsville members!) and a cassowary was seen last year at the far end of the park when the inspection was made.

All operators, families and friends are welcome to come and see us – and stay awhile. There is always a cup of tea etc available for visitors, in return for the chatter and eyeball. The conversational subjects know no bounds, from trite to

technical wave equations(!) with lots of laughs in between. If you would like to book or enquire further, please phone (070) 68 8129 (or fax (070) 68 8671). The park is listed in the RACQ accommodation guide also. Tell them you're with the amateur radio group too! For further details you can contact: The TARC Inc, PO Box 964, Townsville Qld 4810, or Iain Morrison VK4KIG, Packet VK4KIG@VK4AFS.#NQ.QLD.AUS.OC, or phone (077) 21 27 14 AH, (077) 78 6211 BH. ar



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# Early Amateur Radio in Australia

COLIN MacKINNON VK2DYM, 52-54 MILLS RD, GLENHAVEN 2156

**A**S HAS BEEN NOTED in other articles, our first wireless experimenters were active from the late 1890s, and experimentation in Australia followed closely on developments in England, with information and help obtained via cable and from the wireless operators on ships coming from overseas. However, the government of the day decreed that the Royal Australian Navy was in charge of all wireless communications, and the Navy had the attitude that the only required application of wireless was for it to communicate with its own ships. The Navy was paranoid about anyone else having the ability to communicate by wireless. On the other hand, the commercial shipping lines, aided by the Marconi Company, demanded the unhindered right to contact their vessels. The Postmaster General already controlled the transmission of telegrams and messages via telegraph through the *Post and Telegraph Act of 1901*, and it too had a vested interest in the control of wireless because it could see it as a competitor to cables and telegraph just as had occurred with the Post Office in England. Following pressure on the government from commercial interests, the PMG and several amateur experimenters, the responsibility for wireless was delegated to the Postmaster-General's Department through the *Wireless Telegraphy Act 1905*. The Act allowed business wireless operation and did provide for the issue of permits to undertake experiments. The Postmaster General required applicants to prove that they had a valid requirement to carry out experiments which would advance the techniques of wireless. The exact wording is:

"... and the messages shall be transmitted and received for the purpose of conducting demonstrations in wireless telegraphy at public lectures or conducting experiments in wireless telegraphy and for no other purpose whatever."

The licence did not regulate power or wavelength, but the details that had to be furnished for the "appliances" included the power (ie voltage and current input), source of power, description of receiving appliances, and a curious requirement, the maximum range of signalling. The Navy retained technical control of the

airwaves and could make any station close down if it felt it could hinder Navy wireless traffic. These were the days of spark transmitters and it was quite easy to blot out several MHz. The licensee had to submit sketches of his appliances to the Naval Commander-in-Chief and explain their working to a Naval Officer appointed by the Naval CIC. He also had to submit any changes for approval, and nothing was to be withheld as confidential from the Naval representative. In an emergency the PMG had the right to take possession or control of any station, but did agree to pay the licensee for his time at normal rates of pay.

In this atmosphere of difficulty, if not repression, George Augustine Taylor called a meeting on 11 March 1910 at the Hotel Australia where a group of experimenters and interested people formed the *Institute of Wireless Telegraphy of Australia*. It aimed to bring together wireless experimenters for mutual co-operation and learning, and to protect their interests. To organise operating conditions for the Institute, a provisional committee was appointed, consisting of:

G A Taylor	Major Rosenthal
Major Fitzmaurice	Captain Cox-Taylor
Dr Brissenden	J H A Pike
W H Hannam	C P Bartholomew
W H Gosche	J Leverrier
H Leverrier	A Garnsey
F Cleary	

Many of these people distinguished themselves in wireless experimentation and the development of amateur and commercial radio in Australia. G A Taylor, in particular, led a very active life with interests in wireless, the Army Signals Reserve, flying, writing, painting, poetry and civil engineering.

Digressing a little, there was a problem between the Navy which regarded itself as the keeper of wireless, the PMG which didn't want competition to its telegraph landlines, and now the Army which could see tactical benefits from the use of wireless. The Army interest arose when Lieutenant G A Taylor, as a member of the Australian Intelligence Corps, along with Captain Cox-Taylor, Wal Hannam, Reg Wilkinson and a Mr Kirby, the last three being civilian members of the newly formed Institute, all participated in the first Army wireless transmissions from

Heathcote, south of Sydney on 28 March 1910. The distance covered was three miles between Army camps in what is now part of the Royal National Park. The PMG immediately complained that the Army had operated without a permit! The Army responded by saying it could do what it wished in the name of the national interest. Eventually, in April 1911, the Defence Department and the PMG agreed that the Army and Navy could set up any stations they wanted, but should preferably advise the PMG of the wavelengths etc and should try to avoid interference with commercial stations. Members of the forces who wished to experiment could submit applications through military channels to the PMG, and did not have to pay the £1 licence fee.

On 22 April the first General Meeting of the aforementioned Institute was held and officers were elected for the ensuing 12 months, as follows:

His Honour Dr Cullen	Patron
F Leverrier	President
Captain Cox-Taylor	Vice-President
G A Taylor	Vice President
C E Stowe	Vice-President
C Huxtable	Vice-President
C Bartholomew	Councillor
R Wilkinson	Councillor
W H Gosche	Councillor
O U Vonwiller	Councillor
Dr Brissenden	Councillor
Captain Fitzmaurice	Councillor
W Spruson	Honorary Treasurer
W H Hannam	Honorary Secretary

The word Telegraphy was dropped from the Institute name shortly after.

One must remember that in those days there were very few telephones, mail was slow, and transport between cities was a major undertaking. Wireless communication was practical only over short distances, so even though wireless groups and clubs started up in several states, they mostly operated independently. Therefore, whilst the foresight of that first meeting in establishing a *national* institute was laudable, it was later found that other states had their own parochial organisations, and so the name of the NSW group was altered to the *Wireless Institute of New South Wales*. The Institute prospered and met on a monthly

basis. It was able to negotiate donations of test equipment such as a valve tester and a Marconi wave meter, a very necessary item for calibrating the operating frequency of members' equipment. One popular activity was a regular standard frequency transmission night which allowed listeners to calibrate their equipment.

It is interesting to note that according to a return submitted to Federal Parliament in October 1911 there were only 24 licensed experimenters in New South Wales, two in Victoria, two in South Australia and one in Tasmania (actually on King Island in Bass Strait). Two of that total were really commercial stations, so there were 27 licensed experimental stations. Others who may have been active at the time were therefore illegal and risked a £500 fine, which was a considerable amount in those days.

In Melbourne *The Amateur Wireless Society of Victoria* was formed on 30 November 1911, with the first general meeting on 13 December. Gradually the NSW Institute made contact with the other states, promoting the idea of a unified organisation and, in April 1913, the Victorian group changed its name to the *Wireless Institute of Victoria*. Other states had not advanced to the point of wanting a national affiliation before the outbreak of WWI on 5 August 1914.

In accordance with government regulations, all wireless equipment was interned for the duration of the war, except for an interesting exception in Western Australia. The PBS Radio Club had been formed at Perth Central Boys' School in 1913 and, at the outbreak of war, the members, mostly Boy Scouts, were sworn in for special military service locating undismantled wireless stations and checking reports of illegal signals. To carry out their duties the equipment was returned and they built other apparatus to aid direction finding, with the result that they were instrumental in the finding of 35 illegal stations. When equipment was surrendered throughout Australia in 1914, around 400 licensed stations were handed in, but another 208 unlicensed stations turned up!

The war officially ceased in November 1918, but the Navy, which had never been happy about losing its authority to control wireless communications in 1905, and had resumed control during the war, was most reluctant to allow any private experimentation. On the other hand, the numbers of amateurs had been swelled by ex-service signallers who retained an interest in wireless and wished to further experiment with the medium.

The resurgence of the Wireless Institute after WWI was detailed in a previ-

ous article, "The History of the WIA Journal" in *AR* January 1991, so is only briefly covered here.

On 7 January 1919, the Wireless Institute of NSW met for the first time since the war and discussed the difficulty members faced in re-commencing operation. A committee was established to attempt to get their wireless equipment back.

The first post-war meeting of amateurs in Queensland was on 19 March 1919, and they joined the Wireless Institute a little later. Melbourne amateurs formed the Wireless Institute of Victoria following a meeting on 1 April 1919, whilst on 11 September 1919, the Wireless Institute of South Australia had its first general meeting. On 3 November 1919, West Australian amateurs formed The Wireless Institute of Australia, WA Section, later changed to a state Division of the Wireless Institute of Australia.

One of the objectives which drew these groups together was the reactivation of amateur experiments. Despite pressure from AWA and intense lobbying by the Wireless Institute, the Navy was recalcitrant. It did give back the wireless apparatus in March 1919, but forbade any transmitting or receiving. Finally, in September 1919, Radio-Commander Creswell, who was the acting director, Radio Service, sent a letter to the WI of NSW stating that the Navy was willing to issue temporary permits to WIA members for experiments. However, the permit allowed wireless reception only, and valves could only be used if the member possessed a morse qualification of not less than 12 words per minute for receiving, and a knowledge of the use and operation of valves. Take a moment to consider those restrictions – you had to be able to receive morse code at 12wpm before you were even permitted to have a valve in your receiver; you could not transmit at all and, to top it off, the permit was temporary! What would those who argue against morse code say to that? Commander Creswell outlined in his letter special circumstances for the issue of a transmitting permit. Transmitters were limited to 100 watts input and kept below 250 metres. Despite appearing to make concessions, the Navy made it very difficult to obtain any permits, and very few were issued between 1919 and 1922.

The Act was revised in 1919 to become the *Wireless Telegraphy Act 1905-1919*, and many of the statutory rules that had been issued since 1905 were updated in light of the developments in technology. However, the requirements for amateurs were even more draconian than before. For instance, applicants for the "experimental and instructional licence" had to

be natural-born British subjects, had to set out "the scientific, technical, practical or other grounds upon which it is desired to obtain a licence" and had to produce "satisfactory proof of his competence to conduct experiments scientifically ... for the advancement of science and for no other purpose whatever." If he was lucky enough to be granted a licence he could not alter any of the appliances without written permission from the Minister or an authorised officer. If the PMG claimed its telegraph lines had been damaged, interrupted or interference caused by an experimenter, the licensee was liable for all costs to restore or re-route the system. As if to rub it in, the fee for an experimental licence was £2, whilst a ship licence was only £1. Today's "black box" operators who can only "ragchew" would have had a problem back then!

In mid-1920 the Postmaster General took over the licensing arrangements again, but it was still not easy to get a transmitting permit, and in the period from September 1919 to December 1922, the only stations with legal transmitters were associated with the Wireless Institute.

On 1 December 1922, new wireless regulations came into force, allowing amateurs the wavebands of 150-250 metres for all classes of transmission, and 410-440 metres for wireless telephony and CW only. Stations within five miles of a defence or commercial station were limited to 10 watts CW, MCW or telephony (no spark transmitters allowed). Up to 50 miles, all transmitters were allowed but only 20 watts, and the aerial had to be tuned. Outside 50 miles, any type of transmitter up to 250 watts was permitted. Applicants now had to sit for an exam, if required by the controller of wireless, at a cost of 5/-. Receiving licences were reduced to 10/-, and transmitting and receiving licences dropped to £1. Applicants wanting permission to use a valve receiver had to produce a certificate from a wireless club or a postmaster, showing they could receive morse at 12wpm. Other previous restrictions still applied. The new regulations also included tentative rules for proposed broadcasting and licences for broadcasters and dealers.

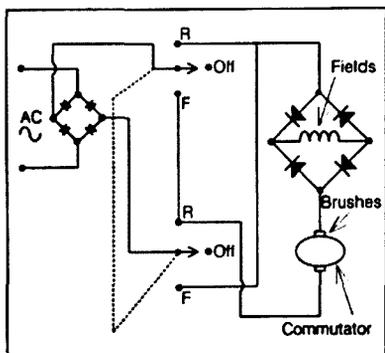
By December 1924 there were only 90 transmitting licences issued throughout Australia, according to official PMG records. That raised an interesting point, because it seems there are hundreds of old timers who claim to have had transmitting licences before 1924.

Prior to 1915, amateurs had been free to communicate on any wavelength with each other and with operators on merchants ships (and Navy ships prior to

1905). These ship's radio men were a great source of hard-to-get parts, perhaps at the expense of the ship's spare parts store. However, now with the new regulations of 1922, the transmitting amateurs were restricted to set wavebands well away from commercial and Navy frequencies, so they could talk only (telephony was becoming popular now) amongst themselves. Some others began to broadcast to the growing group of amateurs who had listening licences only. Programs of music, poetry and book readings were popular, and the operator would often give his name and maybe a phone number and ask for listeners' reports. I am not sure how this qualified as serious experiment to advance science. Another interest was DX and it was a time when genuine experimenters made great advances in distant contact, redesigning aerials, improving transmitters and developing better receiving apparatus. Regular overseas contacts became possible, and links were built between Australian amateurs and those in other countries.

Just as amateurs were distinguishing themselves in an increasingly popular hobby, progress was about to create a new set of problems – or opportunities. Nineteen-twenty-three marked a change in the whole wireless scene, because in that year commercial broadcasting was introduced in Australia. It brought dramatic changes in the role and perception of amateurs and also provides a convenient point to interrupt this narrative. ar

## TRY THIS



### Two-wire method of reversing series motor.

Tech Editor's Note: The diodes must handle the stalled current of the motor. For small motors, 35amp encapsulated bridges would be suitable and economical.

Submitted by Les Daniels VK2AXZ  
9 Highfield Terrace  
Cardiff Heights 2285

# International ARDF

WALLY WATKINS VK4DO PO Box 262 AIRLIE BEACH 4802

**O**VER THE YEARS there has been close co-operation between member societies of the IARU Region III at administrative level. However, the amateur to amateur contact has not been developed as a national initiative. This is now changing.

The Townsville Amateur Radio Club (TARC) established a sister club relationship with BY4RSA, the club station of the Jiangsu Province branch of the Chinese Radio Sports Association (CRSA) in 1990. As a result of this initiative, the Jiangsu Province Sport and Physical Culture Commission invited the TARC to send a team to compete in its August 1991 provincial Amateur Radio Direction Finding (ARDF) contest in Nanjing.

The team consisted of Ken VK4QZ, Ray VK4LU, Ron VK4BRG and Wally VK4DO (leader). This is the first time an Australian team has competed overseas under international rules. Prior to leaving Australia, arrangements were made to have lessons before the contest. These lessons were given by Mr Miao over four consecutive mornings. Subjects covered were the international rules of ARDF, how to use 80m and 2m equipment and, finally, field practice.

The principal organisers of the contest were Yan Xie Nan, secretary general of Jiangsu Branch CRSA, and Chen Fang BZ4RC, station manager of BY4RSA. The Australian team was able to stay in the guest house of the Sports Commission and to keep in close touch with various people involved in the running of the contest.

The official interpreters were Miss Li, a most pleasant young lady, and Kang BZ4SAA, an ardent 6m operator from Suzhou City.

The 80m contest was held under appalling conditions. One hundred and fifty millimetres of rain fell during the day. To say the least, it was unpleasant! Day two was fine for the 2m event, and more enjoyable. The TARC team achieved, in the senior class, a silver medal in the 80m (VK4LU) and, in the 2m, two gold (VK4QZ and VK4DO), equal) and a bronze (VK4BRG).

What is so different about international ARDF compared with the Australia/New Zealand type of fox hunting?

International ARDF is based more on conventional orienteering than the An-



Ray VK4LU and Ron VK4BRG in Chinese wet-weather gear in 80m event.

zac norm. It is, in fact, a footrace in which the contestants must, after leaving the start line, find and record on their card the required number of transmitters found, and proceed to the finish line. Times are taken to the nearest second.

There are four classes: YL no age limits, JN males under 17, OM males 17 and under 40 and OT (seniors) 40 years and over.

The starting sequence is drawn up by the chief judge, and one contestant from each class starts at the same time. These groups leave at five-minute intervals.

The hidden transmitters (five) all transmit on the same frequency for one minute sequentially and send their callsign in CW. Callsigns are MOE, MOI, MOS, MOH and MO5. A beacon transmitter MO at the finish line is on an adjacent frequency and transmits continuously. Output power of the transmitters is five watts or less. A red and white board is close to the transmitters and a unique punch is attached for marking the scorecard by the competitors. Umpires are hidden near transmitters to make sure there are no breaches of the rules. The course is generally over a distance of 5-

7km. The contestants must supply a receiver, antenna, compass and writing material.

JARL has put forward a uniform ARDF rule proposal for use in Region III. This is hoped to be a stimulus for more Region III ARDF activity both regionally and between adjacent societies.

Information is given out at the starting point as the time limit for the contest, a map of the area with the start and finish shown, the starting time for each contestant, together with a numbered vest to wear. All receivers are impounded and given out only five minutes before each starting time. They cannot be activated until the end of the starting corridor is reached. The transmitters may be found in any order.

Most of the competitors at Nanjing were from primary and middle schools. They were fit and could be seen running everywhere. The TARC team tried, unsuccessfully, to get the rules changed for the OT class so that running was not allowed! There were more than 200 competitors taking part, but the excellent organisation allowed everything to run smoothly.

The transmitters and timing gear are commercially made, rugged and waterproof. Receivers are of varying designs, a lot being home-made. The TARC team was supplied with commercial Chinese receivers for both events. These were subsequently given to the team for future use in Australia.

From the experience of the TARC team it is readily apparent that any team from Australia must be physically fit and very familiar with its equipment.

Having said that, and looking around our ageing amateur population, it can be seen that problems may arise in this area in the future. On a number of occasions letters in *Amateur Radio* magazine have noted that we must attract more young people into amateur radio. This sport could be an ideal vehicle to achieve this end. If ARDF is promoted in secondary schools, through the physics classes, it may well be possible to attract young people to it and later into amateur radio. Encouraging them to build simple receivers for ARDF may turn out to be the catalyst for further interest in amateur radio. A pilot scheme will be investigated to see if schools are interested in participating.

International ARDF will not replace the traditional Australian mobile fox hunting or the pedestrian sniffer hunt, but will add another dimension to amateur radio activities within Australia and Region III.

Further details can be supplied to interested groups or individuals. ar

江苏省无线电运动协会  
Jiangsu Radio Spots Association

无线电测向友谊赛  
Fox hunting friendly competitio

澳大利亚 VK4WIT 俱乐部  
Australia Club

运动员名单(男子老年组)

Naemlist(Senior Group)

澳大利亚队:	154	罗恩· 裕莱汉姆	1938年5月14日生
Australian Team		RON GRAHAM	
	155	瑞尔· 亨克思	1934年6月30日生
		RAY HINKS	
	156	凯恩· 卡西台	1937年10月13日生
		KEN CASSIDY	
	157	华莱· 华特肯斯	1928年1月1日生
		WALLY WATKINS	
江苏队:	151	姜圣农	1939年生
Jiangsu Team		Jiang Shengnong	
	152	常文龙	1951年生
		Chang WenLong	

Morseword No 62

Solution Page 56

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- Across:
- 1 red dog
  - 2 group of six
  - 3 certain
  - 4 lie
  - 5 part of eye
  - 6 actors
  - 7 ladies and .....
  - 8 hairdo
  - 9 mock
  - 10 marshes

- Down:
- 1 stitches
  - 2 boss
  - 3 begin
  - 4 preserve
  - 5 vehicle
  - 6 review
  - 7 namely (Latin)
  - 8 tarts
  - 9 horn sound
  - 10 genuine

© Audrey Ryan 1992

# Bulgarian Visitors

DEREK THURGOOD VK3DD PO Box 234 YARRA GLEN 3775

**D**URING OCTOBER I received a telephone call from Ken VK3MBD asking whether I would be interested in an international visitor visiting my club (Healesville Amateur Radio Group). This question was asked knowing that HARG likes to have visitors and often arranges guest speakers on club nights.

Of course, being a keen DXer, I was not averse to meeting radio amateurs from around the world – earlier in the year I spent some time with Bill KJ6EO from Los Angeles who was in Melbourne on business – and the club agreed to invite Pavel LZ3TU and Vasil LZ3VD to visit us at Healesville on 6 November.

Pavel and Vasil are airline pilots and were in Melbourne undertaking a transition course of training on 767s (planes, not radios!) Their time was very hard to pin down due to flight simulator training and the result was that on 13 November Pavel visited Healesville Amateur Radio Group. Vasil was on the flight simulator at Tullamarine until 0100 (local) and, unfortunately, could not attend.

The visit to HARG by Pavel was simply to meet and get to know a few amateurs and to help break the training routine at the airport. Pavel did, however, agree to give a talk about his work as an airline pilot and tell us a little about amateur radio in Bulgaria.

About 25 members attended the HARG meeting and listened attentively to Pavel's talk. There was also quite a lot of opportunity for individual discussion during the evening. The evening was enjoyed by all present especially Pavel who really enjoyed meeting VK hams.

During the talk, Pavel left some magazines issued by Balkan Airlines, which gave an insight into the tourist aspects of Bulgaria – quite nice beaches, hotels etc (and very clean looking cities).

Many thanks to Ken VK3MBD for driving Pavel to the club.

On being given a HARG QSL card (which has a caricature of a platypus on it) Pavel showed interest in Australian native animals.

I asked him if he and Vasil would like to visit the Healesville Sanctuary and see our native animals first-hand. He responded immediately that if they could arrange a suitable time away from their

training they would love to do so.

After a couple of false starts, arrangements were made for myself and Lynn VK3DKE and our XYLs to take Pavel and Vasil to the Sanctuary. However, again Vasil could not attend as he was to fly home on 1 December, the date arranged for the visit.

Lynn and I did manage to meet Vasil when we drove into Melbourne to pick up Pavel. Vasil was disappointed at not getting to the club or the sanctuary, but he was glad to be flying out to home and family (informal skeds have been arranged – informal because pilots' rosters are not necessarily going to keep track of good propagation!).

We left Pavel's motel at about 1000 and drove back to my QTH at Yarra Glen where we picked up my XYL Roma, Lynn's XYL Jenny and a "goodly selection of picnic ingredients".

Arriving at Healesville Sanctuary at about 1200 we decided to have our picnic before entering (don't have to carry Eskies and flasks). At this point Pavel produced an interesting bottle of Bulgarian red wine (available in Australia) which, after some discussion, was put back in the Esky (Lynn and I may open it for Christmas).

The walk around the Sanctuary was

slow and became even slower when we arrived at the platypus enclosure where Pavel stood fascinated by this animal (monotreme) that many of us take for granted. He eventually was drawn away with the promise of being able to touch and feed a kangaroo and see a number of koalas. It turned out to be a very friendly wallaby that Pavel patted and, when it licked his hand, he called for photographs.

When we finally left the Sanctuary we went back to Yarra Glenn and spent some time in my shack "just talking" (easy for amateurs!).

All too soon it was time to take Pavel back to his motel for more study.

Pavel got through his training okay and, on Saturday 7 December, flew out of Melbourne heading for XYL and children in Sophia, Bulgaria. Again, "informal" skeds arranged.

If any amateur reading this ever has the opportunity to spend time with a fellow amateur from "across the world" I heartily recommend you take it up. It is enjoyable and educational (from the perspective of both parties) and helps to bridge the gap that we amateurs (most of us, anyway) only ever realise "on air".

Hopefully we will meet Pavel again on air, perhaps signing as LZ3TU/AM!

ar



Pavel LZ3TU pictured at the Healesville Sanctuary. Photo by Derek VK3DD.

# A Mother of A Storm

## (Or Why The Quad Isn't There Any More)

BARRIE GILLINGS VK2DWC 121 BANNOCKBURN RD, TURRAMURRA 2074

### The Antenna Farm

**T**HE ANTENNA FARM at the home QTH is not what the true enthusiast would call extensive. It's quite modest really, just a TH3 Junior, a home brew tri-band spider-type cubical quad and a G5RV, plus, of course, the TV antenna.

The TH3 was tastefully mounted atop a length of galvanised water pipe which sticks out, (a long way out) of the now disused laundry chimney. The quad was mounted on a home brew tilting tower, again of galvanised water pipe. It is not guyed, but does not stand proud and alone. It gains support from a large cedar (the cedar of Lebanon, *Cedrus deodara*). In the OM's opinion, the quad adds considerably to the aesthetic appearance of the tree, a view not shared by the XYL. Refer to Figure 1 and draw your own conclusion. The G5RV is strung between a tall jacaranda (*Jacaranda mimosifolia*) and a much taller lemon scented gum (*Eucalyptus citriodora*). There is no photograph of the G5RV. If you've seen one, you've seen them all.

By careful selection from a prized hoard of useful items, referred to by the XYL as junk, the OM fitted the TH3 with an Armstrong rotator of, in his unbiased opinion, astonishing efficiency (45 degrees per second) but denigrated by the XYL because of the creaking noises the bicycle chain, used roller bearings and paintbrush handle brake make during high winds.

The quad has a conventional rotator, and for those readers unfamiliar with spider construction, looks exactly like two anorexic Hill's Hoists, joined at their tops, and turned sideways (Figure 1). It uses spreaders of aluminium tube and broomsticks, and 1/8 inch aluminium wire, lots of it. It is, to the OM, an imposing structure, but the XYL refers to it as a monstrosity. It has a lot of windage, an undesirable quality in an antenna.

The G5RV is of hard drawn copper wire, fed by a ladder line cut to the appropriate length. The OM and XYL agree that it is unobtrusive, except for the orange coloured polypropylene guy rope. It has practically no windage at all, and because of a cunningly inserted coil spring, does not stretch or break when

the supporting trees bend out of phase in the wind.

### Pros and Cons

Operators living in elevated locations may bless the accompanying good propagation, but they must also accept the disadvantages. These are two: i) wind damage and ii) lightning strikes. Operators who live in deep ravines and curse their misfortune may be mollified by the information that in the last three years at this QTH the TH3 has been blown over twice, the quad three times and that the G5RV has been struck once by lightning (see AR Vol 57 No 10 November 1989). Antennas cannot be struck by lightning more than once, because the first strike metamorphoses them into metal vapour and/or scrap.

Thus the G5RV now in situ is a complete replacement of the original G5RV. It's getting to be a bit like Paddy's axe, which readers may recall has had two new heads and three new handles.

### The Gould League of Antenna Botherers

There are, of course, other natural phenomena which cause problems for antennas. The common ones at this QTH are Magpies (*Gymnorhina tibicen*) and Currawongs (*Strepera fuliginosa*), who delight in perching on the TH3 elements in groups, invariably on one side only, and rotate them out of alignment by sheer weight of numbers. A handy hint: pin the elements with bolts right through the boom before erection. Alternatively, you can grow giant bamboo (*Bambusa vulgaris*) in the garden, and use a long length of it to poke the elements back into position, but this can get tedious after a while. Another alternative might be to train the birds to distribute themselves evenly either side of each element, but this would definitely be a long term project. It might be simpler to acquire a shotgun or a pet wedge-tailed eagle.

A more challenging avian problem is the Sulphur Crested Cockatoo (*Cacatua galerita*). Our local representatives of this group travel in large flocks, and delight in undoing or biting through the cords which hold the cubical quad in its right and proper, aesthetic and efficient shape. Braided nylon cord and liberal

applications of silicone sealant on the knots slows them down a bit, but may not defeat them. But do not use plastic insulators. Your average cockatoo regards these as some novel type of nut, and dismembers them with ridiculous ease. They have trained themselves to perfection on the nearby Queensland nut tree (*Macadamia tetraphylla*). This OM was forced to replace all 24 insulators on the quad with porcelain, but it was worth the trouble and expense and is the definitive solution. One can gloat when the puzzled birds try, unsuccessfully, to crack the hardest nut they have ever encountered and almost hear them saying 'with a shell this hard, it's got to be delicious'.

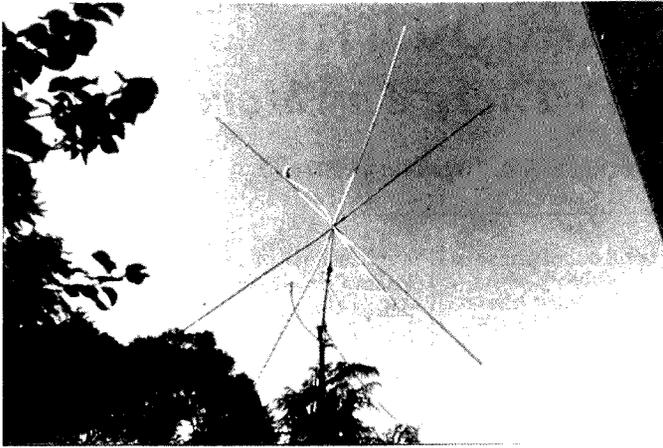
### WX Hazards

The first time the TH3 was blown over, a very strong westerly wind was responsible. These occur regularly in the winter months on the east coast of Australia. They are so common that the WX authorities have a pet name for them: 'Winter Westerlies'. This one, in 1989, was a ripper. It bent the mast at right angles, but the TH3 was recovered, relatively undamaged. The quad did not fare so well. It required a complete rebuild, but its mast, supported by the deodar, remained straight and true.

The next big blow was the freak wind-storm of August 3 1990, a true 'Southerly Buster'. By then the OM had provided the TH3 with a prophylactic reinforcement of three steel cable guys and had no problems.

The quad, alas, was completely demolished, again. GIO insurance, by this time somewhat perturbed at the ephemeral nature of the quad, demanded full details of the event, which the WX personnel ((02) 269 8555), were able to provide 'off the cuff', without referring to the records, this being their most popular weather event enquiry for the year.

The lightning strike of 9 December 1989 which disintegrated the G5RV, bears mentioning because the supporting trees didn't even lose a twig, nor the roof a tile. So it was that in the AR article (see above) the G5RV was called a 'sacrificial dipole', as it saved the trees and QTH itself from damage. Alas, it could not protect against storm damage, as the following will describe.



*Figure 1 The three band spider quad. Spreaders are aluminium tube and 25mm dowels. The mast is galvanised water pipe, and tied to the top of the deodar tree. Wire is 3mm aluminium and tensioning ropes are braided venetian blind cord. Full construction details are available from the author.*



*Figure 2 The cubical quad in dismembered condition. The OM decided against re-erecting it for the third time.*

### **The QUB<sup>1</sup> and Met Report**

On Sunday 20 January 1991, there was a trough over western Victoria and NSW which resulted in hot, relatively dry air over the eastern part of NSW. The weather in western Sydney was hot, around 35°C. On the coast, and in the northern suburbs, it was a bit cooler, because of the sea breezes. But there wasn't much moisture in the air, and thus not much vertical air movement. The situation was described as unstable. On Sunday afternoon a mild southerly change came in from the south, bringing with it cool, moist air. This exacerbated the instability. The trough moved slowly eastwards.

By Monday morning 21 January, the southerly change had raised the moisture content of the lower air, which was now confined by an inversion layer at 1,500 metres. By lunchtime the trough had deepened because of cold air approaching from the south at around 6,000 metres. The trough continued to move eastwards. The inversion layer now started to break up, causing great instability. Higher level winds from various directions developed, and these injected into the system additional quantities of moist air. The scene was now set for a rapid and catastrophic denouement.

By mid afternoon, WX authorities had identified a severe storm approaching Sydney from the south west. It was multicellular, with many individual localised thunderstorms forming and decaying. The most active part moved through Camden, then along the high ground through the Hills district, Warrawee, Turrumurra, St Ives, Terrey Hills, Duffy's Forest, then past Barrenjoey

headland and out to sea, in an irregular swathe 30 kilometres long and three kilometres wide.

At the height of the storm, Camden and Bankstown airports recorded winds of around 100 kph. Turrumurra and Barrenjoey windspeed recorders registered around 130 kph before stripping their gears and failing. The individual storm cells moved together in a north easterly direction at about 60 kph, but the associated winds came mainly from the south, providing thereby a nice demonstration of the Coriolis force.

However, extremely strong downdrafts at the foot of the storm cell fronts came from various directions, often in rapid succession. It wasn't a tornado, with a typical tornado 'eye', but to some unfortunate observers the wind shifts must have made it appear so. It certainly behaved like a tornado, but it was a localised storm, a Mother of a storm!

Now strong winds can cause considerable damage, and are not nice things to have around the house.

The problem here was that the strong winds were accompanied by rain, masses of it. At this QTH, the Christmas gift 'Nylex Official Rain Gauge' recorded 70 millimetres in about 25 minutes. For the older reader, that is the equivalent of about an inch of rain every eight minutes.

I say 'equivalent', because this rain had lots of hard bits in it, in the form of large hailstones, some of which broke the sides of the gauge's collector funnel, so the actual 'precipitation' was probably more than 70mm. It rained, as they say, 'cats and dogs', enough to start an RSPCA animal refuge.

### **Local Effects**

That is the cold, unemotional, scientific explanation of the events of 21 January 1991. What follows is a personal account, which starts with the OM taking an early mark from the Saltmines, it being off season for dentistry students at the Westmead Hospital Dental Clinical School. He drove out of the hospital parking lot at about 1530 hrs (local time) and noticed dark clouds to the south. Not to worry, he was going north east and there the sky was blue. A swim in the home pool would be nice. He turned on the car radio, and deduced that the antenna connection must have failed again because all he could hear was massive QRN. One expects these little problems with an 1972 vehicle. He did not realise at the time that the QRN was real rather than illusory, and was a dramatic demonstration of the RF component of continuous, monumental lightning activity.

He stopped near the home QTH to get some fuel, and have an eyeball QSO with the garage proprietor. The sky to the south west was now unnerving. Low down on the horizon it was bright yellow, in a narrow band. Above that was a band of apple green, and above that the green became darker and darker, and at 45° it was charcoal grey, shading into black almost overhead. The garage man, who seemed to know all about such things, said knowingly: 'That dark green means hail. You'd better get your car under cover to avoid the golf ball effect.' The OM departed forthwith.

Tempting fate, he stopped at the local shopping centre for some sausages. Fortified with his newly acquired knowledge, he adopted the pose of an expert,

and QSP'd the butcher that dark green clouds mean hail, and that he should protect his big south facing plate glass window. Neither the OM nor the butcher had any idea how this could be achieved in the 15 minutes remaining to zero hour. But the thought was there.

Arriving home, the OM found the XYL also home early from the Saltmines. She was having a ragchew with the visiting YL harmonic. The latter's car was parked in the street. Adopting a dramatic tone, the OM issued urgent instructions to move it into the carport to avoid hail damage, as the clouds were dark green, and this always meant hail. The YL harmonic did so, suitably amazed at the OM's omniscience.

The OM then QSP'd the XYL that dark green clouds signify hail, and all south facing windows should be closed forthwith. The QTH has 24 of them. He did not notice at the time that the dog, who hates thunderstorms and can somehow detect them when they are miles away, was already under the piano stool, the location in the house which is furthest from all the windows. He had closed the last of the windows and was QRV for anything when he noticed that someone was throwing ping pong balls into the swimming pool. No, the splashes are too big, they must be golf balls. Surely they can't be hail. But they were!

Two minutes later, at 0537 UTC (1637 hrs local summer time) the wind, rain and hail all struck at once. About five minutes later, it was clear that this was no ordinary storm. We were shouting to make ourselves heard. Perhaps the communication difficulty was why we were all gathered at the piano, where the dog was still under the piano stool. An alternative and more likely explanation is that we were all as terrified as the dog and positioned ourselves as far from the windows as possible.

Then the bedroom door blew open, apparently against the wind. How could this happen? A quick peek into the bedroom provided a clue. The hail had blown out not only the south facing windows, but also the east facing windows, and this created a suction effect. This conclusion was later supported by hard evidence. Pillows from the bed were found the next day 50 metres away, in the neighbour's front yard.

Against the XYL's pleading, the OM braved the elements and broken glass, (admittedly during a lull in the tempest, as he is really a devout coward) and managed to move the two mobile bookcases and a television set to drier ground. By now the troops had become somewhat inured to the noise and devastation, and were making sporadic efforts at damage

control. Severe leaks had developed in three areas of the lounge and dining rooms, threatening the parquetry, and bucket and mop details were appointed. We all benefited from having something to do, as it kept our minds off the dramas unfolding around us. The rest is a blur.

In 30 minutes it was all over, and not long after that, the sun came out again. Now was the time to take stock, and assess the damage. It was not, as they say, a pretty sight.

### Checking for Damage

In situations like this, the most important areas should always be checked first. On previous occasions of heavy rainfall, water has been known to seep down the mast, into the chimney and so on to the equipment in the shack. This time the situation was more serious. Both windows were broken, and there was a layer of hail several centimetres deep on the operating table. This is fine if you want a gin and tonic, but is inimical to comfortable or indeed safe operating. Also eight roof tiles were missing, and blue sky was visible because the ceiling had fallen down.

In order of priority, the next items checked were, of course, the antennas. The mast of the TH3 had been bent at 60 degrees, and the antenna itself was resting on the roof, but from the ground did not appear to be seriously damaged. The OM established this beyond doubt by climbing on to the roof.

While he was there he took the opportunity to replace the roof tiles. This task was made not a little dangerous by the broken glass of the solar heating panels which had relocated themselves in the street. The spider hub of the quad had left the mast, and was suspended in the jacaranda. The spreaders were either broken or bent, and all tangled up, together with the braided nylon guys, in the branches of various trees, as were the wire elements (see Figure 2). The supporting bracket of the rotator casting was later found to have been snapped off at the motor housing. Strange, that, it looked strong enough to moor a Manly ferry in the shop. Come to think of it, it probably was. The jacaranda end of the G5RV was intact, but at the lemon scented gum end we had a problem. The 80 foot (24 metre) tree was now a 40 foot (12 metre) tree. A secondary problem was that the broken bit was still in situ, albeit 180 degrees out of phase, and everyone kept well away in case it fell. It eventually did, two days later, narrowly missing an SES worker (see Figure 3).

Having the YL harmonic move her car into the carport was, in retrospect, a mixed blessing. The good news was that

its erstwhile street location was now occupied by a huge tree trunk. The bad news was that although the carport had provided the anticipated protection against hail damage, it had collapsed onto the car.

### Collateral Damage

There was some other damage. All fourteen solar heating panels were damaged and BER (Beyond Economical Repair) and eight had relocated from the roof to the street. Eighteen windows had been blown out, and all the associated curtains were shredded. All the plastic guttering was perforated, with a hole about every ten centimetres. Three ceilings were buckling under the weight of water.

The back fence was on its side and most of the twenty or so fruit trees had lost their south facing bark. The pool was full of broken glass, leaves and branches, but here was a bright note. It didn't need topping up. In fact it was overflowing. Apart from this, the collateral damage was slight. The neighbourhood had a bit of greenery to be collected though, 60,000 truckloads of it. Several neighbours also suffered damage. This would have included the occasional radio antenna. The total insurance bill for the storm was \$185,881,095, being made up of



Figure 3 The 12 metre '180° out of phase' section of the 24 metre lemon scented gum, which fell later. The XYL and dog are in the foreground. Directly behind her is the YL harmonic's car, under the collapsed carport. They are obscured by fallen branches.

\$142,033,275 for 37,339 house and contents claims, \$22,428,864 for 2925 commercial claims, \$21,419,557 for 4208 motor vehicle claims. There was, incredibly, no loss of life.

# Exercise

H KARL SAVILLE VK5AHK 2/1290 NORTH EAST RD, TEA TREE GULLY 5091

## QRO to QRP

There was no electrical power at all in the area. Anticipating that it was unlikely to be restored for perhaps a week, the OM avoided the embarrassment of missing his skeds by purchasing, the following day, a Honda 2kVA generator which ran faultlessly and almost continuously for the six days that we were without mains power.

It operated the rigs just fine. The XYL got a bit stropky about the refrigerator and freezer, and the OM obliged by powering these up, and the television set, from time to time. That's how we do things at our QTH. Share and share alike. It's the only way.

A comprehensive booklet describing the event, and the sterling efforts by many organisations to restore the area is available from the Ku-ring-gai Municipal Council. All those involved in the activities deserve the highest praise.

## QUM?

So, what does this event teach us? The lesson is clear. Cubical quad antennas are unsuitable for high winds areas, and if any reader would like a second hand spider hub, slightly damaged, at no charge, please contact the author. No, the 1/8 aluminium wire is not included. Most of it has now been converted into a large discone antenna. The XYL prefers it to the 'Hills Hoist'. She says it looks like an Asian Coolie hat, and thinks it's quite decorative. The TH3 and the G5RV are now back in operation. When the time is right, the OM might, diplomatically of course, open negotiations about a vertical.

The above, dear reader, explains why that famous local landmark, the cubical quad, isn't there any more.

PS The butcher's plate glass window survived, but his roof lifted six inches. The garage man's roof sagged by an equal amount, owing to a surfeit of hail.

PPS The local boy scouts will be selling garden mulch made from the debris for decades to come. It's an ill wind that blows nobody any good!

PPPS At the insistence of the XYL and at great expense to the management, all south facing windows at the QTH are now 6mm laminated glass.

## Notes:

1 QUB The WX at.....is.....

2 QUM Normal working may be resumed (following distress traffic).

ar

There was only part 4, and final episode of the Stephen Frith Story to be printed out. The draft was already in my trusty Microbee, but the printer tape was too worn, and the resulting copy would have been too faint for the typesetters of *Amateur Radio*, so I decided that I would pop along to the little computer shop, which is about 500 metres down the road, and get a replacement tape.

I am getting on in years and I have put on some weight recently, possibly because I dislike exercise, and also because I eat too much. However I finally fell for the repeated advice given by the medical profession and the various fitness organisations that one should exercise every day. I must admit that when I look into the wife's dress-making mirror and compare my figure with the huge chested and small waisted models, of both sexes, I can see a difference and maybe I should exercise more and regain my youthful figure. So instead of taking the car, I decided to walk down to the computer shop.

It was a very hot day and I put on my saucy wide brim hat, with the little feather in the hat band, to shade off the cancerous spots, and I felt ready to brave the 500 metre stretch.

I had covered about 400 metres and I must admit that the walk was good. I was passing the Commonwealth Bank with its new sign prominently displayed, and wondering what the connection was, when I stumbled. I was wearing glasses, and I find that the rim of the glasses somehow shields the view down at the feet, unless of course you tilt your head downwards. I was deep in thought and had not seen the bump in the bitumen path which had been raised by a large root from a nearby tree. I am a big man and not nearly so agile as I used to be, but fortunately I had the presence of mind to roll as I hit the deck. This still did not prevent me from hurting myself, but the rolling action must have looked peculiar to a fellow at the automatic teller machine, outside the bank. He turned round, on hearing my glasses, printer tape and hat go flying in all directions, and the look on his face seemed to give me the impression that he thought I was drunk. He certainly did not offer to help this poor old man in his moment of need. I staggered up, there were no broken bones as far as I could tell, although I felt awful, bruised, shaken and bloody. I managed

to get to the computer shop, which was close-by, only to find a notice on the window saying that the shop was closed for the day owing to illness. Just my luck!

So I started off home, without a new printer tape, and on the way I called in to see our doctor, to check me over. The doctor is a very nice chap, the wife and I like him very much, but while we trust him in matters of family medical advice, his expertise in nursing isn't of the same high standard. In fact, I gained the opinion that I was his first accident case. He put a very large bulky bandage on my arm, he had a lot of difficulty in bandaging up my thumb, the huge bandage on my knee prevented my trousers from being pulled down, and with greater difficulty he managed to bandage my shoulder. After a tetanus injection, I staggered home desperately trying to keep the bandages from falling off me.

My daughter's car was in the driveway when I arrived home and when she and Doris saw me enter, looking more like a mummy from Tut's tomb than the handsome old gentleman who left the house earlier, you can imagine the consternation it caused.

I am more than ever convinced that exercise is not good for you. I have managed all these years without it, and so I am going to see how long I can really manage without it. I will not look in the wife's mirror again! ar

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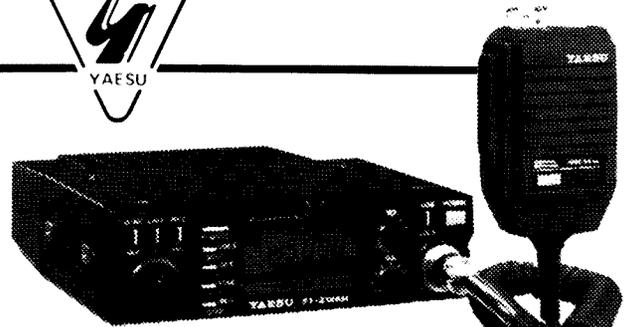


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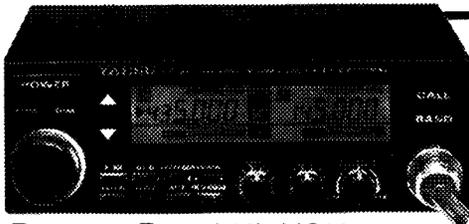
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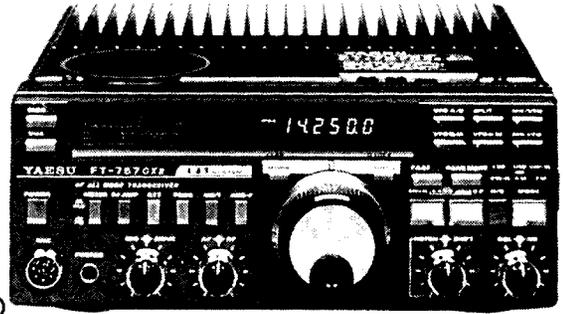
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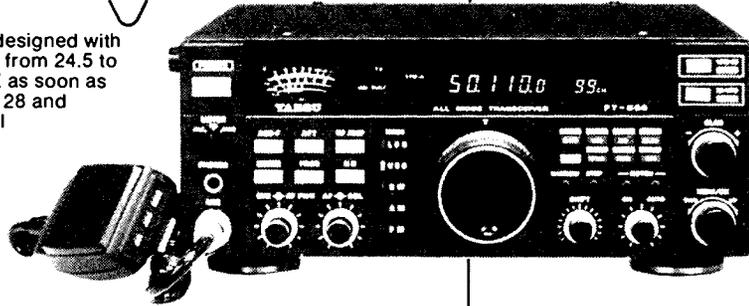


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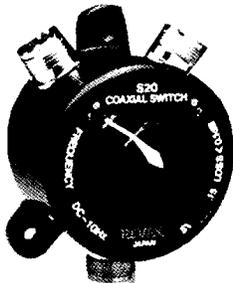
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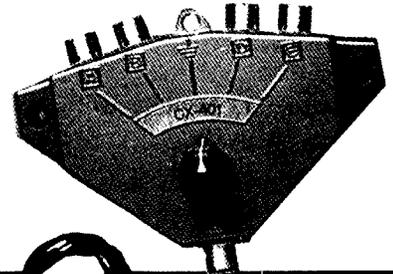
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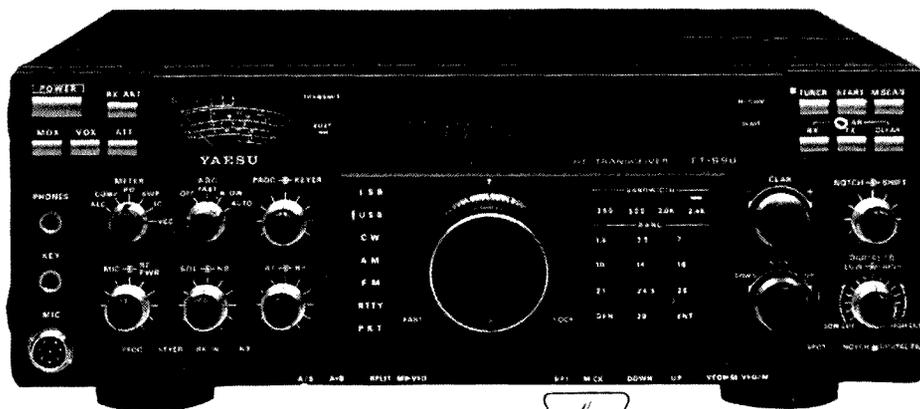
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- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
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Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

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- Modular construction maximizes selectivity and makes servicing easy.
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B1297/LB

# AWARDS

JOHN KELLEHER VK3DP - FEDERAL AWARDS MANAGER

## Murphy

1. I knew it would not be long before he tripped me up in regard to the world grid locator map. I only have one copy, for my reference in checking applications for the grid square award. This one copy is in book form, published by the ARRL, and should be available soon through this office for \$10 incl p&p. The short basic program for determining grid square location is available for a SAE.

2. In reference to the Flying Doctor Award, all information stands, except for:

(i) Contacts for the award can now take place on any band, any mode, within the restrictions of the licence.

(ii) All VK6 stations can be claimed as "instant qualifiers" no matter what band or mode.

(iii) The award is offered by the "Twenty-Eight" chapter of 10-10 International, and is available to any radio amateur or shortwave listener in the world. (SWL to list both stations heard).

My thanks for this information go to Dave Hanscombe VK6ATE (certificate manager - RFDS Award) and all applications should be addressed to him at PO Box 1073, Subiaco WA 6008, Australia.

This is an excellent chance for radio amateurs to help the work of the Royal Flying Doctor Service.

## Help

To help me keep my files in order, on any future applications for awards, updates or general correspondence, please include your callsign, address and, most importantly, the

date of your correspondence. Also, inform me of any changes in callsigns.

## Port Adelaide Radio Club VK5APC 10th Anniversary Award 1982-1992

### The Point System

In order to become eligible for the PARC award, four points must be gained.

A club contact with VK5APC is worth two points.

Contact with PARC members is worth one point.

(EG: One contact with the club plus two members or four contacts with different PARC club members).

### Applicants for the Awards Must Record:

Callsign, date/time UTC and frequency

Shortwave listeners need to report only four contacts in order to qualify, recording date, time UTC, frequency and both callsigns.

The award contacts can be made on all bands in any mode.

Cost \$A5.00 or five IRCS. Award runs for eight months, from 1 April until 31 December 1992. Correspondence to PO Box 218, Alberton, South Australia 5014.

## 1000 Miglia Award

The Associazione Radioamatori Italiani (ARI) of Brescia yearly issue the 1000 Miglia award dedicated to what was the world's most beautiful car race: the "1000 Miglia!"

The 1000 Miglia award will be issued to

any licensed amateur station and it can be attained only during the two-month period within which falls the historical 1000 Miglia.

## Award Rules

**Activity Period:** the yearly award activity period starts on 2 April at 00.01 GMT and ends on 31 May at 24.00 GMT.

**Bands and Emissions:** all bands assigned to Region 1 and all emission modes with the exception of frequency modulation.

**Score:** contacts with ARI members, resident in Brescia province, will count as follows:

(a) Two points each during the three-day-long Mostra Mercato di Montichiari (Montichiari Ham Fest).

(b) Three points each throughout the four-day duration of the historical 1000 Miglia and, for the same period, three points each for the two ARI official station of Rome and Ferrara, and the official station of S Marino Republic, stage cities of the 1000 Miglia.

(c) One point each for the remainder of the activity period. Dates of events mentioned at points a) and b) will be given year by year. In 1992 the Montichiari Ham Fest will take place on 1-3 May, while the historical 1000 Miglia will take place on 21-24 May.

**Special Requirements:** throughout the award activity period a special callsign station belonging to ARI of Brescia IU2MM will be on the air. The score contribution of this station is five points.

**Limitations:** only one contact on each band with a valid station is allowed throughout the award activity period.

**Final Score:** the final score computation is as follows:

- Total score x 1 for Italian stations
- Total score x 2 for European stations
- Total score x 3 for non-European stations

The above computation must appear at the foot of the log summary.

**Callsigns:** all stations valid for the 1000 Miglia award will use their own callsign followed by /IU2. As mentioned above, IU2MM will be the callsign of the special station belonging to ARI of Brescia, while IU4MM, IU0MM and T70MM will be the callsigns of the official stations of ARI of Ferrara, ARI of Rome and ARRSM of S Marino Republic respectively.

**Calls:** all the above stations will call as follows:

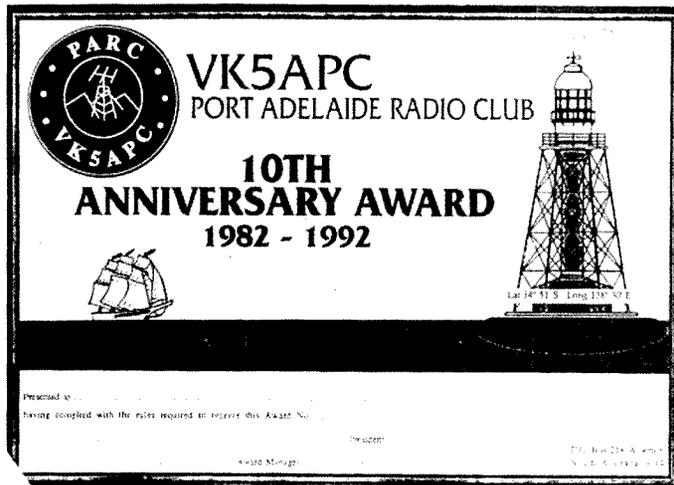
- Phone: CQ DIPLOMA 1000 MIGLIA
- CW: CQ DMM

**Award Application:** the log summary, counter-signed by two hams or by the chairman of the local radio club, shall be accompanied by Lira 10,000, \$US10, or 20 IRCS and sent to: Sezione A R I, PO Box 230, 25121 Brescia, Italy.

Applications received by the Award Committee after 30 September of the same year will not be taken into consideration.

**Awarding of Prizes:** the delivery of prizes will take place the subsequent year on the





occasion of the Montichiari Ham Fest organised by Centro Fiera of Montichiari in cooperation with the Associazione Radioamatori Italiani of Brescia.

**Prizes:**

a) The 1000 Miglia award will be sent to all those radio amateurs who forward a log summary in conformity with the award rules

and with a final score of at least 30 points.

b) A silver medal and the 1000 Miglia award will be assigned to the ham at the top of the list on each band.

c) The prize for the radio amateur who achieves the highest final score consists of a one-week stay – for two persons – in a locality of the Garda Lake, offered by the Award sponsor: the Centro Fiera of Montichiari.

Decisions of the Award Committee pertaining to the administration of this award shall be final. Radio clubs that send log summaries of at least three of their members will receive a special award. All contacts will be confirmed with a QSL reproducing the 1000 Miglia award.

Best 73 from I2IQ Mauro Bettelli, ARI Brescia Chairman. ar

**HOW'S DX**

**STEPHEN PALL VK2PS - PO Box 93, DURAL 2158**

By the time you read this month's "How's DX?" column, I should be somewhere in the middle of Europe. As they say in the trade, my XYL and I are on our "well earned holiday". It was 20 years ago when we visited the Continent for the first time since we left it shortly after World War II. Being away on the other side of the globe for a few months will give me the opportunity to reflect on the past, and also on my miniscule contribution to the world of DXing. I will also try to look into the future and will seriously consider whether I should continue to be bound day by day, week by week, month by month by an invisible umbilical cord to a black box and to my typewriter among mountains of paper and scores of letters in the name of the ever-so-passionate hobby, amateur radio and DXing.

Changing working environment and age suggest I should stop. However, I will make up my mind only when I return in a few months time. What do you, the readers, think? Your written comments to my usual address will be appreciated.

**Kermadec Islands - ZL8**

For months, the world waited for some amateur news from this island group. The much heralded activity of George ZL8GBS has turned into a "negative" result, and the proposed DXpedition by Ron ZL1AMO was cancelled because of lack of funds.

It was, therefore, a complete surprise when Bob ZL4DO turned up on the "222" net on 21 March. Bob was on the island on official duty for a short period – 24 hours only – as ZL8RS, yet he made hundreds of amateurs happy with his activity. QSL to his home call.

**North Korea - P5**

The ARRL released the following news on 27 February:

A project has been launched to encourage amateur radio in the Democratic People's Republic of Korea. It was announced today that the International Amateur Radio Union (IARU) will participate in an international project aimed at establishing Amateur Radio in the Democratic People's Republic of Korea (DPRK). The announcement was made in Torremolinos, Spain, site of the 1992 World Administrative Radio Conference. The project is based on preliminary discussions held in Pyongyang earlier this year, where the authorities of DPRK indicated their positive attitude toward such an initiative. Several amateur radio groups and IARU member societies are offering their co-operation and support.

The project group is led by Dr Seppo Sisatto OH1VR. The co-ordinator for IARU is President Richard L Baldwin W1RU. Detailed discussions are under way and the project is tentatively scheduled for May 1992.

**CONTESTS**

**RD Contest 1992**

Date: 15-16 August 1992  
 Rules: Will be same as last year, that is, no change this year from previous year (1991).  
 N Penfold  
 FCC  
 1 April 1992 ar

**Albania - ZA**

News is starting to filter through about the fledgling amateur radio movement in Albania.

The past Hungarian DX and training activities of the first group in September/October last year, ZA1HA, ZA1QA, ZA1DX, ZA0RS, are starting to bear fruit. The second Hungarian team, which operated under the callsign ZA0DXC, has established a VHF station at the town of Elbasan, situated south-east from Tirana, the capital. It trained operators and went on air with the local club callsign ZA1FD. At the beginning of February the third Hungarian visit under the guidance of HA4YD and HA6NF held theoretical courses for a number of radio club leaders, demonstrated HF and VHF equipment and, as a result, ZA1FD has now the following trained local operators: Fatos, Bujar, Hiqmet, Denir, Agim, and the first YL SSB operator: Anila.

A more accurate news-source dated the establishment of the (older) Albanian Amateur Radio Society as 1957. This radio society

has nine radio clubs in the following localities: Tirana (2), Berat, Lusja, Krilja, Peskoper, Pogradec, Skodra and Elbasan. Latest news is that the local high-school students in Elbasan, who are interested in amateur radio, have been formed into a youth group and are receiving English language instruction, specifically oriented towards an average radio amateur QSO. It appears that past efforts of the various Hungarian amateur radio groups over the past five months have paid off. Amateur radio has been firmly established in Albania and, hopefully, the licensing problem will be solved soon. It still appears there are two authorities that issue valid amateur licences: The Albanian PTT and the Ministry of Culture Youth and Sports.

### Christmas Island - VK9XM and VK9XN

Despite location and propagation difficulties, the DXpedition of Lanny W5BOS/VK9XM and Bob W5KNE/VK9XN was a great success. First activity was at 1154 UTC on 11 February, and the last QSO was at 1525 UTC on 24 February.

If you want to QSL direct, send your card to W5BOS Lanny Phillips, 505 Bellah Dr, Irving, Texas 75062, USA, or to Bob Winn W5KNE, 635 Williams Way, Richardson, Texas 75080, USA. Please do not QSL via the VK9 QSL Bureau. Bureau cards should be directed to the W5 Bureau.

### Afghanistan - YA5MM

Despite the gloomy predictions that this activity might not take place, YA5MM appeared on the band and finished off around 20 March.

They were quite active on several frequencies and even paid a surprise visit to the "Southern Cross DX Net" on 13 March.

However, there is some confusion regarding the correct QSL route. Some sources suggest that the cards should be sent to LZ1HA Todor Dikov, Box 603, 1000 Sofia, Bulgaria. Others say the instruction was to send the card to Igor Petrashko, Box 321, 1000 Sofia Bulgaria. The best bet is to send the card to the address the operator of YA5MM has indicated to you.

### The Travelling Show - HA5BUS

The Hungarian Bus is on its way to Australia. In the last days before my departure overseas, a good reason for the hurried look of this column - a big envelope arrived from Imi HA5HO, who is the organiser of the Hungarian Bus expedition which is going around the world, and is better known as the Globe-EX-Foundation. It took four weeks for the registered air mail envelope to reach Australia from India.

According to the original schedule, the Hungarians were supposed to be in Perth, WA, on 1 March, and were supposed to depart



Globe Expedition antenna work in Tehran. L to R: HG5CHI and HA5HO.



Inside the Globe Expedition bus - L to R: HA5HO, EP2AG and EP2HZ.

from Sydney on 24 April. However, according to their letter, they are already one and a half months behind with their projected timetable, so expect them to be in Perth probably in the middle of April. As I write this, they were still without an Australian licence due to the non-existence of a reciprocal agreement between Hungary and Australia. Should you hear and/or meet them, please extend to them the usual amateur courtesy and help. Incidentally, it appears that their Iranian activity is quite legitimate. I have sighted a photocopy of their Iranian permit issued by the TCI Tehran, in English and in the Iranian language, and both permits refer to the callsign as EP/

HA5BUS.

After eight months of preparatory work, and several written applications to the Iranian authorities, the crew of HA5BUS arrived in Tehran without a licence. The last written application was made on their behalf by the Hungarian Department of Telecommunications without a positive result. In Tehran it took them four weeks of almost daily personal representation before the authorities agreed to give them a "permission" to operate. In the beginning, the Hungarians were plainly told that, because there is no legislation which regulates amateur radio activity in Iran, their application cannot be considered favourably,

despite the fact that the Iranians understood the expedition's international importance. A little while later the Hungarians were told they have now a "verbal permission to operate". Wisely, they did not avail themselves of this enticing opportunity. According to Imi HA5HO, "No one in his right mind should ever take up an offer like that, especially in a country where regular police patrols were inspecting the bus on a rotation basis."

After 19 days of constant lobbying, visiting various departments and government offices they received, on 14 December, the magical paper which says, in part: "To Globex Co EP/HA5BUS. Further to your application No 1991/435 dated 11 December 1991, we give you a temporary permission to use the unit up to 27 December 1991, 8pm." The permission was signed by an official of the Frequency Department, Iranian TCI. Seeing that Imi HA5HO was the only HF operator – the other two Hungarians have VHF licences – a total of 120 operating hours produced 11,537 QSOs. During their stay in Tehran, they met several active Iranian radio amateurs, among them Hassan EP2HZ, who fronted up to meet them with his friends, Mohammed EP2MHB and Ali EP2AG. According to Hassan, they are known to and tolerated by the local PTT office. Officially, however, the (the Iranian radio amateurs) "do not exist" because of the absence of the relevant legislation. They hoped the EP/HA5BUS activity, despite its short operation, will assist them in their endeavour to have the amateur radio service approved in Iran. To finish the story on a bright note: I just heard the good news that the EP/HA5BUS activity has been approved for DXCC.

### South Sandwich Islands – VP8SS

*The DX team left the Falkland Is on 14 March and was first heard in Australia on Sunday 22 March. Their intention was to operate on the following frequencies only: (CW) 1824, 3524, 7024, 10104, 14024, 18074, 21024, 24894, 28024. (SSB) 1845, 3795, 7065, 14195, 18145, 21295, 24945, 28495. (RTTY) 14090, 21090, 28090. They hope to make about 60,000 QSOs, and promised to pay particular attention to VK/ZL and South-East Asia areas, but the main activity will be with North America, Japan and Europe.*

### Future DX Activity

- \* Dave, who had given many DXers a contact with Sierra Leone as 9L1US, will sign as A22US from Botswana from April. QSL to WA8JOC.
- \* Apollo SV2ASP/A is still not active from Mt Athos.
- \* During 1992, radio amateurs in French Caledonia may use a special suffix to celebrate the 50th anniversary of the arrival of the US troops on that French island on 12 March 1942. FK8GP/50/USA was worked, and others were also heard with

this particular suffix.

- \* WB7FRA Craig will be active from Nevis Island for the next two years under the call V47ITU.
- \* Paul IR4JB and his father I1RB will be active from ITU headquarters, Geneva, between 1-3 May, using the callsign 4U7ITU.
- \* Hiqmet Shypheja, c/- PTT Elbasan, Albania, was heard operating as ZA1HS. ZA1QJ was also heard. He was Otto DL1QJ.
- \* If you hear the VR2 prefix again, it is not something from the past. Fiji was using that call prior to 1971. It is reported that the Hong Kong authorities now issue new calls with the VR2 prefix.
- \* FR5ZU/T was reported active from Tromelin Island.
- \* Burkina Faso will be on the air for the next 12 months activated by XT2BW.
- \* YU3PR will be active in May from YI1BGD. QSL to YU2AJ.
- \* 3B8DB has indicated he might visit St Brandon Island later this year.
- \* John N0PMF/KH8 will be active, on 10 metres only, for at least one year. QSL to John Rankin, General Delivery, Pago Pago, American Samoa 96799.
- \* V85PB is Peter G3ZSS in Brunei for the next two years. Expect him to be active, especially on six metres.

### Interesting QSOs and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

- \* 9K2YA-Yousef-14282-SSB-0557-January. QSL to Yousef Abdul Momassin Al Shaiji, PO Box 13210, Kaifan, 71953, Kuwait.
- \* A61AD-Caeed-14226-SSB-1421-Jan. QSL to WB2DND Donald R Greenbaum, 250 Standish St, Duxbury MA, 02332 USA.
- \* YK1AO-Omar-14224-SSB-1447-Jan. QSL to PO Box 245, Damascus, Syria.
- \* 4J1700GAT-21246-SSB-1256-Jan. QSL via Bureau, via DL1VJ.
- \* TU2XZ-Kouma-21029-CW-0453-March. QSL to Assn des Amateurs Ivoiriens 01, BP 2946, Abidjan 01, Ivory Coast.
- \* V47ITU-Bill-21028-CW-0429-March. QSL to Box 608, Basseterre, St Kitts, Leeward Islands, Caribbean.
- \* P43BW-Bert-14226-SSB-1140-Feb. QSL via the Bureau.
- \* 4S7/ON4IPA-Wim-14226-SSB-1208-Jan. QSL to International Police Association, PO Box 88, Brussels, 23, B1000, Belgium.
- \* KK6RT/P/KH0-Thomas-14165-SSB-March. QSL to J1LEEE via the Bureau.
- \* FO0CI-10103-CW-1235-Mar. QSL to N7QQ (See April AR).
- \* YA5MM-14226-SSB-1119-Mar. QSL to Igor Petrashko, Box 321, 1000 Sofia, Bulgaria.

### RTTY News

As this column was written well in advance of the normal cut-off date for contributors, Syd's notes have not reached me at the time of closing. Apologies to you and also to Syd VK2GS.

### From Here and There and Everywhere

- \* 3A2LU was recently worked on 21355 and will be active again in the near future. QSL to F6AXX.
- \* Alan VK5ZN reports the existence of a new specialised net. PLA/NET is the environmental amateur radio network. This net meets every first and third Saturday on 14,333 at 1830 UTC with net control Bob K3SRO. At 1300 UTC the net controller is W6NPS. This session of the net is directed to the Pacific. For further details write to PLA/NET, 19 Glen Rd, Lansdale PA, 19446 USA.
- \* Frank/Zbig – VK2EKY/SP5EKY – who is now living in Japan, sends his greetings to his Australian friends. He is operating mobile these days as 7J6AAK/M, and can be found on the 21, 28, 29 and 50MHz bands. And he also has new CW facilities in the car.
- \* There is a new operator at the Polish polar station HF0POL. QSL now goes to SP9DWT.
- \* Don G3XTT reported that the next 160m newsletter will appear in April/May.
- \* The RSGB International HF and IOTA convention will be held at the ICL Beaumont Conference Centre in Berkshire from 25-27 September.
- \* Antoine 3D2AG was still on Rotuma at the end of March 1992.
- \* Some time ago, a few Australian and USA amateurs were after the QSL information for the October 1984 Mellish Reef operation. It was Les VK2WU (since re-issued), who operated as VK9MR. Les was also active on Lord Howe Island in 1983 and 1984 under the call VK9LA (since re-issued). If you still want a card for those activities, write to Les Cullen VK3WA – direct only – with SASE, as Les is not a member of the QSL Bureau. Send your letter to 43 Hillcroft Drive, Templestowe, Vic 3106, Australia.
- \* Bob VK9ND advises that in the future, due to cost increases, he will QSL direct only to those who will include the appropriate return postage in their letters. Please do not QSL via the Bureau. Bob can be contacted at PO Box 279, Norfolk Island, South Pacific 2899.
- \* The address of the Estonian QSL Bureau is ERAU, Box 125 Tallin, 200090 Estonia.
- \* It was reported that Lloyd and Iris W6KG and W6QL were active from Macau as XX9TQL. QSL to YASME.
- \* Don Search W3AZD is not working any

more at the ARRL DXCC desk. The League is now looking for a DX specialist for a job which pays around \$US25,000 a year.

## QSLs Received

Note. W=week; M=month; Y=year; FM=from; MGR=manager and his call; OP=operator and/or his/her call.

Direct QSL received: \* J6LRU (15M FM MGR) JT1BV/UA0S (1Y FM OP) \* BY4RSA (6M FM OP) \* ZS9S (6M FM OP) \* A22GH (4M FM MGR G3KMQ) \* FJ5BL (2M FM

MGR F6AJA) \* V63CJ (5W FM OP) \* YK1AO (7W FM OP) \* P43LJP (6W FM MGR P43ARC) \* 4S7/ON4IPA (6W FM OP).

Bureau QSL cards received. HB0/DL1GGT (2Y 10M FM OP) \* 3C0LBS (2Y 6M FM OP) \* ZC4RF (8M FM OP) \* OY7ML (1Y 9M FM OP) \* SV9ABG (4Y FM OP) \* V73AT (3Y FM MGR K2CL) \* AT0T (2Y 6M FM MGR W8XM) \* ZF1RC (3Y FM OP) \* KP2A (2Y 6M FM MGR W3HNK) \* 4S7RO (3Y FM MGR DJ9ZB).

## Thank You

To all my helpers and contributors: please have a rest for a couple of months, but start sending in reports and news very early in July. A big thank you especially to: VK2DID, VK3DD, VK5ZN, VK6NE, HA5HO, HA6NF, 7J6AAK/M, and the following publications: *QRZ DX*, *The DX Bulletin* and *the DX News Sheet*.

Good DX and 73

ar

# VHF/UHF – AN EXPANDING WORLD

ERIC JAMESON VK5LP – PO Box 169 MENINGIE 5264

All times are Universal Time Co-ordinated (UTC)

## Beacons

50.043 ZL3MHF Aylesbury RE66, as reported in December 1991, appears to be operational, but ZL3MHB on 50.0525 Grey-mouth RE57 is not on air.

## Six Metres in Australia

Whilst we can never hope to emulate the scale of 6m workings that seem common to the northern hemisphere, whether it be winter or summer, nevertheless, there have been a few good catches here, with JAs being an almost daily occurrence even at Meningie!

5/3: C21BR on Nauru Island to VK8RH. 6/3: 0100 KC6RR on Palau Island worked by VK4ZJB and VK3OT; 0250 JA8RC and others; much activity between 38 and 46MHz, strong oriental style music on 42.7 at 0750, then pagers up to 46MHz until 1000, strong Ch 0 on 46.250, TV on 49.750, power line noise up, everything looking fine for an opening to Europe, but by 1030 no signals above 38MHz!

4/3: VK4ZJB reported T30JH worked by VK2, 4 and ZLs 0201 to 0301. QSL via VK2GJH. 7/3: 0300 JA8, JA9 at S9; 0329 JA8RC worked C21BR; 0420 Charlie KC6RR to VK1, 2, 3, 4, 5, 6, 8 including VK5LP at S/9/S9 and still strong at 0530. At 0555 KC6RR observed working VK6s HK, RO, WB, ZFG, KRC, ZSB, JJ, KZ, WD, AKT, ZFY, WN, RO, AO, OD, ZPP, JKR, ABR; VK5s NY, RO, AZM, ZRO, KPW, ZKV, ZDR, ZBK, ZAH, KK, AKM, most being heard on backscatter here. Others to be heard similarly were in VK2, 3 and 4; at 0615 there were many JAs at S9; at 0800 JT1CO/B at S1/2 from Mongolia was heard by VK3OT and VK5LP at least, but no answers to CW calls; at 0820 there was strong RTTY on 50.081, by 0830 all gone. Then, at 1134 Tim V73AT was 539 on 50.104. Quite a day!

Courtesy of John VK4ZJB, QSL info for JT1CO is MRSF, PO Box 639, Ulaanbaatar-13, Mongolia. That's a different address than the one on the card sent to Don VK6HK, but I suppose we need to adhere to the later address. John's QSL arrived early March and was posted on 19/12/91, so it appears to take

nearly three months to arrive, but then, to be fair, Mongolia is not exactly adjacent to us!

11/3: 0400 JAs again, 0600 strong radio telephones around 41.2, 0715 48.26 and 49.750 strong, signals everywhere between 38 and 50MHz, peaking 320 degrees; all gone by 0900. 12/3: JAs again from 0200; 0529 worked KC6RR 5x9 again, this time with Dave at the helm – the station was to be dismantled on 13/3. VK4ZJB reported KH6JB/KH7 today. 13/3: 0100 JAs; 0115 Clipperton Island DXpedition station FO0CI worked VK4s DDC, KJL, KK, APG, ZAA, ALM. 14/3: 0200 JAs; 0400 V85PB on Brunei to VK4s DDC, KJL, APG.

18/3: 0015 C21BR to VK2, 3, 4; 0120 NI6E/KH6 529; 0130 VK3LK working JAs; 0140 beacons JA6YBR, JA7ZMA, JA2IGY all 559 at Meningie; 0630 very strong video on 48.26 and 49.750 with video crud all over 50MHz; 0656 VK3LK heard calling Europe; between 0710 and 0830 many pagers etc between 38 and 42MHz and Ch 0 on 46.250 very strong; 0925 VK4s on Es, but no opening to Europe.

19/3: 0330 JAs, no signals above 41.3. 20/3: 0440 JAs and video on 46.25, 48.26 and 49.75, all still there until 0615 then dead. 21/3: 0300 JA7ZMA S5. 22/3: dead band. 24/3: 0330 JAs, most of day pagers, telephones etc crowded the band from 38 to 46MHz, but 50MHz bare. 2250 Roger VK6NY worked T30JH 4x3, nill here. W6/7 to VK2, 3, 4, also TI2NA noted. Overheard N6AMG telling VK4s on 50.110 not to call him when he was trying to work other areas!

25/3: mass of strong signals of all types 38 to 46MHz for most of day. 49.750 in and out, no JAs, but they were there next morning with a vengeance at 2200 with CW everywhere, but a lot of flutter on the signals. 3D2AG from Rotuma Island around 2300 was working VK2, 3, 4, 7, 8.

26/3: 0005 JAs to ZL3, CT and CU. 0021 at last I worked 3D2AG 5x3, although he was S9 in VK3 – thanks for the extra warning, Steve VK3OT. JAs on and off all day.

Courtesy of Steve VK3OT is an interesting comment regarding the events of February 1991 and 1992: *The following shows the countries which were available for those fortunate*

*to have been in the target zone for the propagation: 5/2/91: 1022 – SM, OH, LA, OZ, G3. 5/2/92: 1000 – SM, OH, LA, G3. 8/2/91: 0913 – DL, G3, ON, PA, SM, OZ, GJ4, OH until 1104. 8/2/92: 0740 – DL, OK, ON, PA, SM, OZ, GJ4, OH until 1105.*

## News from the United Kingdom

I never cease to be amazed at the high level of 6m activity which always seems to be available from and to the UK and Europe, no matter what the time of the year. Of course this is aided by about 50 countries in Europe now having 6m operating status, many within Es distance and often assisted by auroral propagation.

However, the following report from Ted Collins G4UPS for February 1992 will show that contacts are not confined to Europe but are very widespread and include all continents, and we in Australia need to remember that it is still winter in the northern hemisphere! Their 6m day usually commences around 0730 and can extend for the whole day, often until 1830 or later. The first half of the month includes times and other information, the latter half the prefixes available. Unlike us, they do not appear to spend too much time just listening to white noise on six metres; there is always something to hear or work.

1/2: 0808 heard 4X1IF 559 and 5B4CY beacon; 0831 OH stations work VK5; 0912 OD5SK in Lebanon works 30 UK stations and later OY9JD Faroe Islands; 1300 W4 into OH, ES stations into KP2A and W; later W to various parts of Europe. 2/2: 1106 FY7THF beacon 449; 1110 TU4DH 5x8; 1200 CN8ST to K1 and VE; 1233 KP2A to EA; 1259 heard HI8A. 4/2: 1220 KP2A working F and I working ZS; 1323 ZS6AXT, ZS6LN and ZS6WB working G, 1354 QSO VE1YZ and VE1ZZ working ZB2.

5/2: 0912 OH hearing DX1HB beacon on 50.008, at 1005 KG6UH/DU1 working Europe, 1026 VS6 and JA working all over Europe except G, 1045 VS6 to GJ4ICD, 1116 VK6RO 559, 1210 VK6PA to UK at 5x8, 1225 I stations hearing VO1ZA beacon and SM/LA hearing P43FM, VE into northern UK. 6/2: 0800 LA9ZV to VK6HK, 0945 YU working JA, 1240 VK6RO 449, 1252 VE1 to PA, DL, I, 1351 KITOL and K1IKN 559, 1500 VE to SM, OH.

7/2: 0905 GM works 4X1IF and 5B4YX, 1020 UL7GCC 5x9, 1220 VK6RO to G, 1400 to 1621 extensive opening to VE1, WA1 with all signals 5x9, 1649 N4EJW 529.

8/2: (This was the big day for VK as reported last month... 5LP) 0745 strong inband video, 0800 VK to YU and I, 0845 4X1IF 579, 1017 VK2VC 559, 1040 KG6UH/DU1 5x6, 1100 VK5 to SM, OH, 1112 to VK6JJ, VK6AKT, VK6JQ, VK6HK, VK6KRC mostly 579. 1150 to VK5KK and VK5BC, 1218 KG6DX, 1315 VK6RO (the latest VK ever worked in UK) but some G stations still hearing VK at 1350. 1350 HC1BI 599, P43FM, 559, HI8A 599, 1420 VE1YX 579, 1443 to 1602 OZ1LO, GD3AHV, PA3EUI, GD7JQI, ON4PS, DL5BBW. That's a spread of at least 13 countries on five continents - only Africa was missing! 10/2: 1250 heard P43FM working W3/W4, 1604 ZS9A 579 to W5 and others, 1610 AA6TT reports HIO beacon strong, 1835 W working 9H5.

11/2: 0855 ZL hearing strong video from Europe, 0905 9H to KG6UH/DU1 and JA, JAs continue until 1104. Between 1110 and 1713 heard or contacted SM, OH, PT7NK, DX1HB/B, VK4FP, VK4JH, 9H hearing OX3 beacon, KP2A, 5V7JG, VE1YX and many theors, VO1NE, KITOL and others, N4KWX, N4MM, W3JO, WA3HKM, W2ZKE, and the list goes on. 12/2: 1031 VK8ZLX 5x5, 1140 VK6RO, then on to VE1, OK, W1, K3, WA2, N4 etc. 13/2: 0935 UL7, PA, DU1 to 9H1, LA, OH, SM to PT7NK, 1136 5B4YX, RA3TES, DX1, LA to 5V7JG, many JAs, VE1 again, YS1AG to DL, OZ.

14/2: Stations heard or worked include VK6PA, I, VS6, JA, K1, VE1, KN4. 15/2: UK7GCC/P, 9H1, DU1, VK4KK, 4X1IF, VK8ZLX, VK6PA, PYOFF. 16/2: DU1, YU, OH5NQ, V85PB, DU1, VK6JQ, JH4, W1, SM, V51VHF/B, 7Q7CM, 7Q7RM. 17/2: DX1/B, OH, 9H1, I, JA, 5B4YX, DU3, JA, OH2BK, V85PB, UL7GC, VK4, VK6JQ, VK6PA, CN8, W1, PA, ON, KJ4E. 18/2: VK3, 9H1, OH2BC, V85PB, 5B4YX, JH4, VK6PA, VK6JQ, JA5, 1415 PYOFF into W and OH3MMM at same time. 19/2: DU1, YO2, 5B4CY/B, JA, 5B4YX, VK6PA, ZD8VHF/B, SM, LA, CN8ST, V31YX. 20/2: VK6PA, SV working F67, 9Y4, YV, CU etc, PT7NK, 5B4YX, GM3WOJ, CN8ST, GD3AHV, PA. 21/2: 9H1, CU1EZ, YU, 5B4, 717RM, V51VHF, VS6, ON, ZS7, TI2HL, V51VHF, Z23JO.

23/2: VK6, JA, UL7GCC. 24/2: 5B4YX, YU, VK6, PY7NK, ON, ZD8VHF, TR8CA. 25/2: TU2OJ, PT7FH, ZS6WB, V51VHF. 26/2: TR8CA 5x9 working UK/Europe. 27/2: V51VHF to 9H1. 28/2: ZD8VHF, TU4DH, TU2OJ, CN8ST, ZS6KJ, ZS6WB, W and VW work YS1. 29/2: 9H1 report DU1, LX1SI reports VK6PA, GD3AHV, SM7FJE.

## Other Countries

Estonia: G4UPS says that the first major opening for ES stations occurred on 1/2 when ES5MC, ES5PC and ES6QB worked CN8ST,

the Caribbean and North America. Previously a mixture of Swedish and Estonian operators mounted a DXpedition from Saaremaa Island, off the coast of Estonia, from 8 to 17 August 1991, when on six metres they had 525 QSOs in 26 DXCC countries. Lebanon: Samir OD5SK made his first 6m contact on 31/1 at 1210 with Alan GI00TC in a 5x9 SSB contact, running five watts to a groundplane antenna! On 1/2 Samir worked Europe plus 30 G stations. QSLs to KB5RA. Saharan Arab Democratic Republic: Naama SO1A in grid locator IL56FI had his first European opening on 31/1. Tanzania: Masa 5H3RA in locator KI93 has his first 6m QSOs on 16/2 by working 9H. QSLs via JA3PAU.

Brunei: Peter Bacon V85PB (G3ZSS) is on Brunei for two years and his first QSOs were on 15/2 to OZ and SM. (He has also been worked in VK... 5L0). Greenland: Bo OX3LX travelled back to Denmark on 17/2 after a few weeks on Greenland. His only 6m contacts were with two local stations, who are active on the band - OX3LK with 10 watts to a dipole and OX3CS running 50 watts to a vertical antenna. Bo's home call sign is OZ1DJJ. Kuwait: A 6m permit is being sought for the US club station 9K2USA by Bob WA8MOA currently in Kuwait.

Cyprus: 5B4YX was very active in February. QSL to Ian Osborne, Blakelow, Old Paphos Road, Episkopi, Cyprus. Zambia: Peter 9J2HN was due to go home to Japan in April 1992 but has requested a further 12-month stay. After a few weeks leave in April he will return to six metres. Russian Republic: Andy RA3TES was active on six in mid-January; his locator is LO15JW. QSL to Andy Kamaev, Box 13-A, Arzamas 607220, Russia.

## Jersey Island

Although part of the UK, Jersey Island, where Geoff GJ4ICD resides, seems sufficiently removed for there to be a difference in propagation when compared with the bulk of the UK. These variations are included in his January/February report.

26/1: Es to USSR and OE5. Worked VS6BG 599 and heard XX9 5x4. 28/1: heard UL7GCC in MN83, a distance of 5835km, 1130 VK6PA S9. 29/1: worked UL7GCC/P for first British Isles contact, YU and VK6PA. UL7GCC worked CU1EZ for a distance of more than 7500km, VEs in at S9.

1/2: 4X1IF 529; news that Neil G0JHC worked OD5 and 4x4 for his 100 countries. 4U1UN has been QRV on 50MHz, QSL via W8CZN. 2/2: Large backscatter opening to F, I, OE, DL, PA, ON; 1100 TU4DH S9, FY7VHF, PYOFF. 4/2: 1300 KP2A, ZS6AXT. 5/2: DX1, DU1. 6/2: JA9, UL7GCC. 7/2: Worked VE1YX using FT690R and whip from sea level! From home station VEs, W1, 2, 3, 4, 8 all S9+.

8/2: 0116 JAs on long path - Feb 1989 since JAs heard so late; 0900 4X1IF S9, 9MTV S5, VK4TVS9, worked VK5BC, VK5KK, VK3OT, KG6UH/DU1, VK8ZLX, KG6DX. VK2, 3, 4, 5,

6, 8 heard S5-9. Geoff said *The band was alive from 0900, at 1000 there were weak VK2s and 3s, then it happened. At 1100 VK5BC was 599+ with half the UK calling him, VK3OT was heard in southern England, G6HKM worked VK6SO in Perth, then VK5KK. At GJ4ICD KG6UH/DU1 was S9+ and VK8ZLX was trying to destroy my S meter! KG6DX was pounding into Lancashire and, for the next 90 minutes, VK6s were blasting central and northern England.* It was a big opening for VK, so it is interesting to read the story from the other side.

11/2: JA, VK4, VK6, DU1, VE1, 2, 3, W1, 2, 3, 4, 8. 12/2: YU3, VK8ZLX, VK6, heard ZLTV, VE1, W1, 2, 3, 4. 14/2: JA1/6, DU1, VK, OZ1, VK6PA, W1, 2, 3, VE1, heard N5JHV. 15/2: worked VK4KK, VK4APG, KG6DX, 4X1IF, UL7GCC, VK6PA, TU3EW, PYOFF, IK8DYD. 16, 17, 18/2: mainly JAs and VK6PA, VK6JQ. 19/2: VK6JQ, UL7GCC, 5B4YX, JAs, ZC4KS, ZD8VHF, PYOFF, FR5EL.

21/2: 7Q7RM. LZ1ZP said LZs are interested in 50MHz but at present taxis, fire department etc use these frequencies. If converters are available will try crossband.

22/2: 0830 FR5DX S9+, FR5EL 5X9+, UL7GCC 599, heard ZS5/B, ZS6s, 7Q7s, 4X1IF worked GD3AHV, UL7 to JAs, PA0 to UL7, VK6PA S9, PYOFF S5, PT7NK S5, KP4BZ S5, 9Y4VU S8, PJ9EE S7, 5V7JG S9, HI8A S5, A22BW S9, V5A/B S9, ZD8L1 S8, KP4BZ works YO1IS. All this was done with solar data of 217, A index 62 and a K of 4!

23/2: GJ4ICD worked all continents in 28 minutes - VK8, JA, 5V7JG, PA0, PYOFF, KP4BZ - do they get it easy over there! ... 5LP

## The Higher Bands

Normally I do not report overseas contacts on the bands 144MHz and above unless they are of outstanding importance - most times they are of a local nature. However, I believe this brief report from Geoff GJ4ICD is worthy of reporting and it concerns the 432MHz band.

On 30/1 Geoff worked GB3MA and GOMOK at S9+, while GB3MLY and GB3ANG, both S9+, called all day for no takers! On 31/1 Geoff says the 432MHz band was wide open. SK6UHF S7, ON4UHF S9+, OZ9IT S8, lots of beacons from DL at S9, G3NVO worked SP3RBF. SM OZ, PD all S9. Geoff said it was a great day, more than 350 stations were worked on 432, so the band is not dead. (I am not sure whether the 350 is a misprint, but it seems an awful lot of stations. If it is correct, how do we compare! ... 5LP).

It is interesting to observe that we in southern Australia normally expect enhanced propagation on the higher bands around the end of January - does the same apply to Europe? Perhaps comment will come from there as to whether it is an annual occurrence.

## 1296MHz

John VK3ZJC advises of some good contacts on 1296MHz. During the Field Day on



Murray code, the five-unit system punched as holes into paper strips. These skills became obsolete in the 1980s as systems were replaced.

All work is currently undertaken on VDUs, but now the remaining two telegraph grades, Telegraphist and Telegraph Executive "C", are to be abolished after agreement between British Telecom, the UCW and CMA ... from *The CTO Veteran*, official organ of the Central Telegraph Office Veterans' Association.

### Duxford RS Re-inaugurated

At a re-inaugural meeting held at the Imperial War Museum's historic Duxford Airfield on 8 March 1992, the Duxford Radio Society adopted a new constitution, with the declared aims of supporting an international interest in the history of military radio, in-

cluding all armed forces, para-military and clandestine (resistance) groups; assisting in the provision of an exhibition of radio equipment at Duxford; and in operating an amateur radio station at the museum, using both modern and historic equipment.

Specially adapted accommodation has been provided by the museum, which will feature an exhibition of equipment later this year with permanent public access when staffed. The Society's own call is G0PZJ.

The purpose of the exhibition and station is to increase public awareness of the important role played by radio in war-time operations and, hopefully, to make contact with many people, whether radio amateurs or not, who can help in achieving the aims of the society, either from personal experience and knowledge of historic equipment, or from a special

interest in the subject.

Active members of the Society can also be members of the Duxford Aviation Society, with various privileges, including unrestricted access to the site, while distant or corresponding members, including overseas members, are also welcome. There are a number of special events/flying days etc planned by the museum for 1992, and a special highlight in September will be the 50th anniversary of the American Air Force's use of Duxford airfield during WW2.

President of DRS is John I Brown G3EUR, and its chairman is Dick Pope G4HXH. Further information about all aspects of the Society, including classes of membership, can be obtained from the secretary Mrs B I Pope, 95 Northolt Avenue, Bishop's Stortford, Herts CM23 5DS, England. ar

## EDUCATION NOTES

**BRENDA EDMONDS VK3KT - PO Box 445 BLACKBURN 3130.  
WIA FEDERAL EDUCATION CO-ORDINATOR**

WARC-92 is over and reports are being prepared, distributed and discussed. The main news is that the amateur service has lost neither band space nor privileges from this WARC. However, as was expected, little has been gained. There will be no new "WARC bands" such as came from the 1979 WARC.

The 13 years since the last WARC have seen developments in communications and technology that few amateurs would have predicted. There are now claims for spectrum space for services and modes which did not exist in 1979. Assuredly, there will be similar growth in services and demand over the next 13 years. But, as we all know, there will be no increase in the amount of spectrum available.

We must be aware that many commercial and other interests find it hard to accept the extensive frequency allocations to the amateur service, when the demand for spectrum space is so great. Can we as amateurs justify it? What is it about the amateur service which gives it the right to allocations exceeded only by the Defence Services? We may be called

upon to answer these questions at a future WARC, when the usual stories of past technological triumphs and possible value in emergency situations may not balance the cold cash on offer.

I see two possible approaches (there are probably many more to be considered at other times) both of which must be applied at both national and international level. We need to speak with the loudest possible voice, and we need to make the public and those in authority aware of amateur radio and its potential, both scientific and social.

The IARU co-ordinates and represents amateur radio at international level. Its strength comes from the input to it from each member nation, and its funding from a levy on each national society according to the number of transmitting members.

A loud Australian voice can come only from an active, united WIA, speaking for all Australian amateurs. An increase in the number of licensed and active amateurs is one requirement, so that it is apparent to all listen-

ers that our band allocations are being used to good purpose. But we also need a high WIA membership, to represent the Australian amateurs to the Australian and international authorities.

To make the public and authorities aware of amateur radio we must take every opportunity to publicise or report on amateur radio activities. This may be at local community level, eg the communications for a Fun Run being supplied by amateur operators, or a talk by an amateur to the local school students, or through the national media such as the reports published on the contacts with MIR. There are probably hundreds of events involving amateur radio which could receive publicity, but do not because no-one bothers to provide the media with reports.

So, do you want your grandchildren to have the access to amateur radio which you now have? How are you going to ensure the bands are still there for them to use? Perhaps you do not feel that one person can have much effect, but you can go out and tell the world about this marvellous hobby, with its potential for both uniting distant individuals regardless of race or language, and challenging and extending scientific knowledge. If you do not, who will? ar

## AMSAT

**BILL MAGNUSSON VK3JT - 359 WILLIAMSTOWN RD YARRAVILLE 3013  
PACKET VK3JT @ VK3BBS**

### National Co-ordinator

Graham Ratcliff VK5AGR

Please take note of the AMSAT information nets:

### AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At pres-

ent 7.064MHz is used.

### AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

*Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.*

### AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 payable to AMSAT Australia, addressed as follows:

AMSAT Australia  
GPO Box 2141  
Adelaide 5001

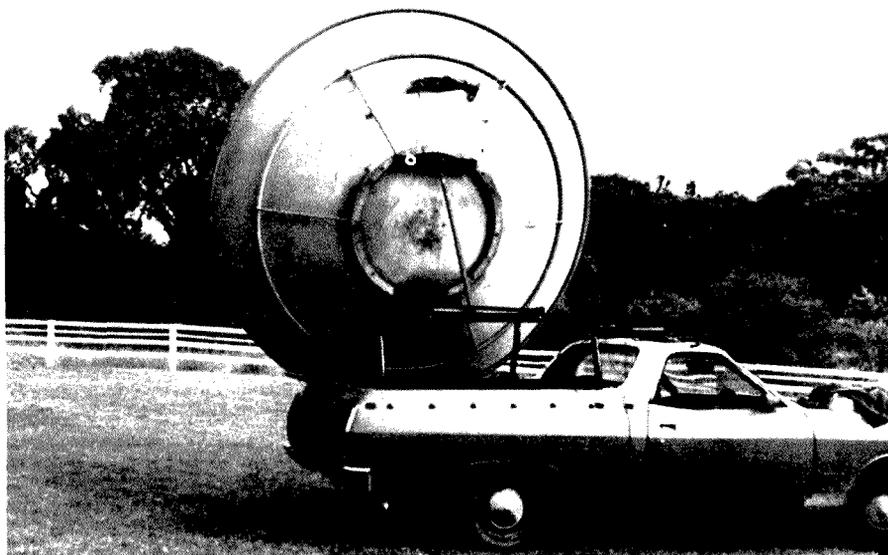
The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New soft-

ware is reviewed regularly in the newsletter.

## Phase 3D Orbit options

Oscar 13's apogee is now moving slowly (ever so slowly) back towards the southern hemisphere. This means longer and better passes for those of us in the south. The apogee is currently about 50 deg north latitude and still out of range for southern VKs. Mid 1993 should see the return of apogees with all the other goodies like modes J, L and S operations, ZRO tests etc. We will begin to see good squints for longer periods. By late 1994 the apogees should be over the equator with the best opportunities for inter-hemisphere DX. All this is, of course, conditional on nothing unexpected happening due to the rather unusual orbit perturbations that Oscar-13 has been experiencing. These are as a result of a less than optimum launch and will mean that Oscar-13 will probably re-enter and burn up in 1996. We'd better get in there and use it while we can, particularly over the next couple of years.

This brings us to considerations of the orbit for Oscar 13's replacement, known during design and launch as Phase 3D. A sub-committee of the phase 3D design team has been working on options for some time now and these were presented last year at the second "Experimenters' meeting". They boil down to three alternatives. All these are, of course, optimised for the northern hemisphere, but



*The 3m dish used by Trevor Niven VK5NC at Mt Gambier to make effective use of Oscar 13. Over the period 3-4 January 1990 he worked DL1FCU, OH2DX, VE6WP, JR8XPV, VK7ZFM and VK8OB on mode L. The mobile(?) dish was at the QTH of Ron Johnson VK5AKJ for these contacts, and his 432MHz downlink equipment was used.*

none is as disadvantageous to the southern hemisphere as the originally planned orbits of Oscar-10 or Oscar-13. They are referred to as M/N resonant orbits. That is to say, they perform M orbits in exactly N days. One school of thought favours a 3/2 orbit. With an argument of perigee of close to 210 deg this is the most favourable one for the southern hemisphere as far as inter-hemisphere DX is concerned. The planned inclination of 63.4 deg would mean good high elevation passes in the southern hemisphere. The perigee height will be between 4000 and 8000km. It's been decided to go for the highest perigee which is consistent with reliable magnetorquing attitude control which is carried out at perigee. This will also help southern stations. It's been very encouraging to see the interests of the southern hemisphere being taken into account in the current planning. This is due in no small part to Graham's (VK5AGR) inclusion in the planning team and the esteem in which he and the other VK contributors are held.

The second alternative is a 5/3 orbit. This orbit has the advantage of being very stable in the long term and should have a design life of 10 years or more.

Another alternative is a 16-hour sun-synchronous orbit which would be very favourable for the northern hemisphere and more desirable as far as radiation exposure is concerned. The jury is still out, nothing is firmly decided at the moment, so we can live in hope.

## Digimoon

This one should be worth following up (if

it's fair dinkum!!). A project to place a digital package on the surface of the moon. The first I saw of it was a packet bulletin a week or so ago. Not much detail, but it seems that a group of research students in Argentina is engaged in designing lunar landers for a future mission and is being encouraged to include an amateur radio package, probably packet. I wonder how we'd set the timing parameters in our TNCs to cope with a delay of seconds in the return signal?

The packet would travel on a NASA mission called Project Artemis, to be launched in 1995 or 1996. This is reported to be a low cost unmanned lunar lander. Lots of design problems associated with the long lunar days and nights, but it has the advantage over a lunar orbiter that high gain antennas could be employed.

This whole deal could be a bit fanciful, but then there were those who thought that Oscar-1 wouldn't work.

## MIR News

The crew change appears to have gone smoothly and contacts on both voice and packet have been reported. It was interesting to see all the new callsigns come up calling the PMS. There has certainly been a big increase in the number of people trying to log on. Probably a result of the publicity and the seemingly exponential growth in packet in the past year.

Farewell message on Sergei's PMS indicated the most convenient way to address mail to him is: Sergei Krikalev, Post of Cosmonauts, Moscow Region, Star City, 141160, Russia. Of course, if you are requesting QSLs, don't forget the return postage etc. ar

## A Call to all Holders of a Novice Licence

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Phone: (02) 689 2417

11am to 2pm Monday to Friday  
7 to 9pm Wednesday

# INTRUDER WATCH

GORDON LOVEDAY VK4KAL - AVIEMORE, RUBYVALE 4702

February	Freq	Date	UTC	Mode	Remarks	X
	7002.5	200192	1120+	A1A	V beacon Vladivostok USR?	9
	7008.5	dly	0830+	F1B/A1a	MNR A1a rarely used 250Hz	15
	14002	170792	1007	NON/A3	Foreign voices, weak, no ID	2
	14005	270292	1105	A3	Foreign Lang fone+ jammer, no ID	
	14035+/-	180292	1040	J3E/U	Short overs speech + NON, no ID	
	14046+/-	dly	0810+	MNY	2chLSB x 2-way r/tone, NON for tone signals	
	14058+/-	*fr	0833	AC3/NON	Chn fax + pulses to hold freq	12
	14065/70	070292	1056	A1A	VBX .. VPO de VBX QSV K plus numbers	9
	14075	030292+	mni	A1A	VRQ traffic both ways, as above, Vietnam	18
	14075	07-1202	1030+	A1A	VRQ traffic out, Vietnam	9
	14080	070292	0130+	A1A	KFB also on 14088 & 14075 t/c in Vietnam	10
	14092	130292	0535	A1A	RG77 followed by short coded msg, Vietnam	4
	14095	020292	0930+	A1A	CQ de VPC, t/c & calls only, Vietnam	10
	14100	160292	0930/35	A1A	ZBK de NZB QSV K R msg? Vietnam	14
	14126.5	0802+	1044/1316	F1B	also A1A RTTY approx 4kHz wide	7
	14140	020292	0955++	NON	Constant, no ID heard	3
	14138/58	260292	0545++	PON	Motor-boat, audible to 14160MHz	
	14177	0502	0625+	F1A	UID80 UZZ44 de UID80 QSA? QSV	6
	14210	daily	0805+	A3E	Harm of 7105. Severe distortion	18
	14211	200192+	0530+	2XF1b	250Hz 3rd cyrillic, 2 sep ch F1b	22
	14215/8	020292	1000+	A1a/F1b	P7A t/c in + RTTY, Vietnam	17
	14217.5	2001/1102	0800+	mxd	UMS F1CW, A1a, F1b< mny c/s used MNR USR	18
	14250	mni	mni	NON	No ID heard	13
	14228	110292	1642	A3	B/cast stn weak, no ID hrd	3
	18075	0202	1203	A3E	B/cast stn talk in Russian	2
	18076	010292	1225	J3E/L	Russian military stn	
	18002	2102	1345	PON	PON OTHR	
	18080	1702	1119	A3E	B/caster nightly, foreign, pos Arabic	
	24904	140292	1142	A3/L	AM b/cast, music, Europe?	
	24925	daily	mni	A3/J/L	Russian military station	11
	24950	0202	1041	A3E	Chinese? Music	
	24980	140292	1136	A3E	B/c Middle East news	

Many PON stations on frequency from 18102 through to 29600MHz. Also Russian and Chinese military operations from 24900 to 24925MHz. A proliferation of AM b/cast stations on the 18, 24 & 28-29.7MHz sections. VK6 seems to be in the right spot.

21001	270192	0400+	NON	Always a faint signal	20
21031.5	200192	0210+	A1a/F1b	MNR t/c to UUU UMS & others, 250Hz, USR	34
21134/6	2801	0400+	A1a/F1b	VVH call at 0453 Z	5
21142/5	210292	1000	ditto	A1A mostly numbers	7
21250	210292	1100	R7B	Usually 4kHz wide	16
21222	270192	1053+	A1A	VVH 3 ltr groups QSY to 21213/18, QRM?	
21283.5	mni	mni	A1a/F1b+	NON UU UMS (note 1 less U than 21031.5 probably different location USR)	43

21317/21	010292	0500+	A1A	P7A mainly rec t/c, Vietnam	16
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21326/330	0302+	0605+	A1A	P8V PA7 de PV8 QSA? QSVR AS, Vietnam	10
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These last three frequencies are associated with Vietnam, or so it seems after years of observations, pattern is that of VRQ. Contributors this month have been VKs 4AKX, 4BHJ, 4BTW, 4BXC, 4CRR, 5TL, 6RO, 6XW and 6BW1.

# SPOTLIGHT ON SWLING

ROBIN L HARWOOD VK7RH - 52 CONNAUGHT CRES, WEST LAUNCESTON 7250

Recently, I was able to see a copy of the 1992 *World Radio TV Handbook*, thanks to a friend, as I missed out getting my own individual copy earlier. Glancing through it, I was interested to see that the listing for the Soviet Union was still there. The editors had a footnote that this was the state of affairs as at 15 November. And, as we now know, the Soviet Union is no more, being replaced by a very loose "Commonwealth of Independent States". This itself looks very weak and unstable, with each republic flexing its muscles and pursuing its own independent policies. This is indeed being reflected on shortwave.

The former Soviet Union's external services had a number of senders within the Ukraine, but the Ukrainians themselves have seized these and have denied Radio Moscow and Radio Russi air time over them. Radio Kiev, which has now been renamed Radio Ukraine, commenced its own "World Service" in Ukrainian. The English and German programs remain unchanged, but it is much easier to hear "R Ukraine" as it is reportedly on up to 10 channels simultaneously. They are still utilising their own distinctive Inter-Voice Signal, so it is easy to identify.

Radio Moscow World Service is still unsure

of the direction it is supposed to take. Funding for the station was originally to come from the CIS budget, but with the CIS itself in some disarray, the station's future is still unclear. Radio Russi - the Russian language World Service - is financed and controlled by the Russian republic and is very much separated from Radio Moscow.

But, to return to the WRTH 1992, I do notice there is an increased listing of all R Moscow transmitter sites and the times when they will be operational. I would expect the 1993 *Handbook* will be listing each CIS republic separately, which will make it easier and difficult, at the same time, to find listings for each republic. I understand that with the continuing uncertainty of what is happening within the USSR, that groups of monitors are keeping watch even more so these days, compared with those when all transmissions were highly regulated and controlled. Incidentally, Lithuania, Latvia and Estonia are now listed separately in the WRTH, while the situation in the Yugoslavian republics has not been established, and hence all senders are still under "Yugoslavia".

The Red Cross Broadcasting Service has informed its listeners that future transmissions directed to locations outside Europe will be incorporated into Swiss Radio international programming. European programming will continue on the frequency that has been designated to the international committee of the Red Cross, ie 7210kHz. It will be on from 1100 to 1240 and 1700 to 1840 UTC on the last Sunday of the month, repeated the next day. Many listeners will recall hearing the monthly RCBS transmissions at 0740 to 0757, prior to the commencement of SRI. I believe that this has come about because SRI itself has made a significant alteration to their programming strategy.

I have come across two new stations while tuning around recently. One is Radio WJCR in Upton, Kentucky, with an all-music religious format. The station has occasional ID announcements and is wanting to obtain reports. I monitored it at around 1130 UTC on the frequency of 7490kHz. Don't be confused with another American religious station only 20kHz up on 7510. That is in Salt Lake City, Utah, and is a relay of a TV network.

On 21580kHz, between 0230-0330 UTC, there is a station calling itself Radio Filipinas, and is located in Manila. It is a government station and is using the VOA relay bases at Tinang and Poro in the Philippines. The program is in English and concentrating on ASEAN news as well as having an extensive local news bulletin at 0315. Reception was fair to good. Besides the VOA, there are two other shortwave broadcasters from the Philippines - The Far Eastern Broadcasting Co, which is protestant, evangelical and Radio Veritas, which is Catholic, and is jointly owned by Radio Vatican and the local Philippine Catholic dioceses.

As regular readers will have noted, I have mentioned the problems we have had with Daylight Saving here in Tasmania, especially when we go out on a limb from the rest of the nation for six weeks. Well, other countries have also been having second thoughts about it. For instance, China decided it would not re-introduce Daylight Saving Time this year, following numerous complaints.

Remember when the Soviet Union found out it forgot to revert to Standard Time in the '30s and was going to revert one hour last year? Well, that indeed did happen, but when the Soviet Union disintegrated, the various republics were undecided as to what to do. Some have opted for its re-introduction, while others have decided to remain on Standard Time. The Ukraine and Russia are on differ-

ing time zones now, while for 70 years they were identical. As for the domestic situation, the new Tasmanian Government has stated it is going to negotiate with the other states to have a common Summer Time changeover date. Hopefully, commonsense will prevail.

That is all for this month. Until next time, the very best of listening and 73 - VK4RH. ar

## ALARA

JENNY ADAMS VK3MDR

70 KANGAROO GROUND RD WATTLE GLEN 3096

During the past month several members met up at the Bendigo Convention and, by all accounts, had a wonderful time talking to one another without the hiss, crackle and crash of 80 metres. Our net, weather permitting, and occasionally it hasn't, is on Mondays 3.580+/- 1030 UTC (1000 UTC during daylight saving) VK6 ALARA net conducted by Poppy

VK6YL following the national net Mondays 3.585+/- 120 UTC (1100 during daylight saving). YL 222 DX net Mondays 14222 0600 UTC VK6DE Bev has a YL chat on Fridays on 0400 UTC 21.88.

VE/VK/ZL net Fridays 14.148 0500 UTC.

VL Activity Day - 6th of each month - listen on the hour UTC 14.288 21.188 28.588.

If no YL activity heard, call CQ YL.

ALARA birthday YL Activity Day - fourth Saturday in July - 0800-1200 UTC 3.588 14.288 21.188 28.588 and 28.688.

Welcome to our two new members Beryl Bennet from VK5 and Pauline VK2MJP. Congratulations to Joy VK4JOY to VK4AT. Our Annual General Meeting on 21 May is fast approaching.

So, too, is the ALARAMEET slowly getting closer. For information re accommodation available, contact Margaret VK3DML.

Cheers for now 73/33 ar

## REPEATER LINK

WILL MCGHIE VK6UU @ VK6BBS - 21 WATERLOO CRS, LESMURDIE 6076

### How to Do It

Eversince the early days of talking through amateur repeaters, the thought of linking some of them together has taken up a large slice of idle brain time. Now that regulations have been changed to permit linking, the days of thinking about linking are over, and the time for doing it is here.

The more thinking I have done on the subject, the more options I have found. The ideal option is the hard part. When faced with several ways of doing the same thing, how do you choose? So, when a letter from FTAC turned up on this very subject, it was read with a lot of interest.

The FTAC letter was in response to a letter sent to FTAC by Peter Weeks VK3YZP. Peter is the licensee for three repeaters, and has been involved with repeater linking. Peter's letter was questioning some of the current thoughts on proposed and adopted linking standards. Very important, because amateurs do not want to end up with linking concepts and regulations that cripple linking.

Peter's comments were in response to an article in December '91 AR written by Will Scott VK4XP. Will had spent a lot of time putting his thoughts into the article, and prior to this article appearing, I have had a couple of lengthy phone calls with him, discussing linking. Will's point was that, unless some form of standards was adopted, repeater linking could run into compatibility problems. As the linked repeater network grows, systems may have interface problems. Repeater users may have to use different operat-

ing procedures when moving around Australia. This is a situation which must be avoided. The problem, however, is to produce linking standards that don't stifle development.

Here are some examples of Peter's concern at linking standards-cum-regulations:

How does any amateur know to where he or she is linked if someone else has set up the link? My response to this is, does it matter? If the amateur is in the next street mobile, or hundreds of kilometres away on a pair of snow skis, does this create a problem? However, I may be missing Peter's point. If the repeater being used has several different link possibilities, it may be confusing to know how to clear the current one and establish a different one. This may be Peter's point. Will it be a problem for amateurs if they do not easily know to where they are linked? When talking to another amateur via a linked system, one can always ask where the other amateur is located.

Peter continued: How this linking is to be achieved is not clear. Is it by dedicated links or what? If off-air receivers are used at each end of a link, what happens if someone is using an existing repeater part the way along the link chain? Do they get overridden? My answer to this situation is one of two options: busy tone with no link connection, or if the busy repeater can be by-passed around via a dedicated link, then a connection is made to the desired repeater. Overriding an existing QSO would not be an option.

Peter also comments on the delay with CTCSS encoding and decoding on the link

systems. This is at the moment required by regulation. There is a small delay when using CTCSS for activation of a link. This delay is additive with every extra link path. The total delay over several link systems could be seconds. Not an easy way to operate.

This would be a very annoying problem, and yet it is so simple to solve. Don't have CTCSS encoding decoding on links. Why was it made a requirement?

Peter's letter has many other interesting points, but the most interesting and the one I agree with most is: repeater linking should be on a permanent basis. The whole idea of user-switchable linking sounds good on paper, but when you really put some thought into it, someone is going to end up with one hell of a headache. I think you might well be right, Peter.

Even though I have a lot of time for Will Scott's linking guidelines and the thought he has put into them, when a vote has to be taken on the idea I would be reluctant to endorse them.

Perhaps the best way to go is to have only the loosest guidelines on how repeaters are to be linked. If regulations are kept to an absolute minimum, something ingenious and user-friendly may evolve. There will be problems, but amateur radio is about solving technical limitations.

I hope you have been able to follow most of the points put forward. There are many more that need discussion. I may be putting down the average repeater user, but it is difficult to put into writing some complex aspects of linking repeaters together. The issues I have touched on are only a few of many concerning linking repeaters. Other countries have been linking repeaters together for many years. Some of the systems are vast and ingenious.

Australian amateurs have a long way to go, and starting in the right direction is important. There has not been enough debate on this issue by the amateurs who maintain and

build our repeater systems.

Please, if you have any ideas on the subject, let John Martin VK3ZJC FTAC know. Any input to Repeater Link would also help let

other amateurs know your ideas. Several repeaters are already linked in Australia. How about telling other amateurs how you did it? ar

## DIVISIONAL NOTES

### VK2 NOTES

**TIM MILLS VK2ZTM**

#### Annual General Meeting

By the time you read these notes the AGM will have been held at Parramatta on 2 May. An election was not required this year, there being the required nine nominations and there is only one new councillor – Bob VK2CAN will replace John VK2EJM, who retired at the AGM. The AGM report was included as an insert to the April *Amateur Radio* and included on the back cover is this year's membership card. The VK2WI broadcasts will report on the meeting outcome, as will future Divisional notes.

#### Trash and Treasure

The scheduled event for the end of March was not conducted. Rain overnight and during the Sunday morning showed signs of continuing and the decision was made to defer the event. This was announced on the morning broadcast. However, it then turned into a nice sunny afternoon. Several people apparently not able to hear the broadcast turned up.

Only a portion of the Parramatta car park is under cover. On the day of future Trash & Treasures, all should listen to the morning broadcast for confirmation of the event, should there have been overnight or morning rain. If radios are out, a phone call to VK2EI (02) 651 1489 at broadcast time will get you the answer.

#### Happenings

Peter VK2NPW has taken over as Intruder Watch Co-ordinator for VK2 from Don VK2EYI ... May Trash & Treasure is set down for 31 May ... The Oxley Region Field Day will be held at Port Macquarie over the June holiday weekend ... The next exam will be conducted by the Division at Parramatta on Sunday 24 May. Contact the office for applications, which close 7 May.

#### VK2BWI Morse Team

One of the VK2 services is the nightly 80m session on 3550kHz at 8pm local time. The team would like some additional members, both to fill the gaps at times, and provide relief and back-up. Check-in to the net and offer your services.

#### Broadcast Team

Dave VK2KFU has been compiling the

VK2WI news content for some years. He is soon to take a break from full-time assembly. Contact the Divisional office, if you would like to assist in broadcast preparation. Much of the new now reaches us via fax and is used as received. Please head the page clearly that it is for the broadcast, use double spacing and a wide left margin and sign it as to origin and authorisation. The parts of the broadcast generated on the computer are fed into the packet network, but direct submitted items are not retyped from the faxes and mail.

#### New Members

The following joined the NSW Division recently, and our usual warm welcome is extended to them.

PH Adams	VK2GRQ	Leeton
PR Crosthwaite	VK2GNX	Harbord
I Danks	Assoc	Singleton
KC Dundas	Assoc	Narromine
BA Goldsmith	VK2GQD	Homebush
BA Hirshman	Assoc	West Pymble
Y Ishii	VK2GRF	Botany
AW McKay	VK2MLH	Randwick
SJ Rae	VK2XRR	Narrabri
MP Ryan	VK2KFI	Port Kambla

#### Dural

There is currently a spare transmitter at Dural on HF, and this has been used for 12m broadcast tests. The frequency used is 24.910MHz, which is that used earlier in the day by the VK4 broadcasts. The transmitter delivers about 100 watts PEP to a dipole at 15 metres, with the main lobes north and south. This transmission, together with the relay of 17 metres (18.120MHz) conducted for VK2WI by Graham VK2DIG and the VK2WI 30 metres (10.125MHz), is the first time that VK2WI has covered the three WARC bands.

As previously indicated, VK2WI would like continued relay coverage on 20 and 15. Our thanks to Peter VK2OG on 20 and Peter VK2NPW on 15 for conducting the first series of tests on these bands.

In time, as equipment is acquired, these transmissions will be provided from Dural.

Some serious thought will have to be given soon to the location of the various beacon antennas of VK2RSY at Dural. Continued tree growth has started to reduce the horizon view each antenna is able to see on the VHF and UHF bands. Ten metres, 28.262MHz, is a sort of vertical in the clear, but it's starting to have a preference to point the wind direction.

73

*Remember to leave a three second break between overs when using a repeater.*

## VK3 NOTES

**BARRY WILTON VK3XV**

In the February issue of AR Jim Linton drew attention to an imminent threat to the Victorian repeater network by the privatisation of communication services operated by Victorian Government Services.

We are also concerned that the cash-strapped Victorian Government current policy of implementing the user pays principle for many services could adversely affect the tenure of many sites on which our repeaters are located.

The Victorian Division Council is doing its utmost to retain as many repeater sites as possible, and commenced negotiation with the Department of Conservation and Environment in December 1991.

While we have had many subsequent verbal contacts with that department during the past four months, it appears to be very reticent to make any commitment in writing.

Our most recent correspondence to the Department of Conservation and Environment is as follows:

Assistant Director – Policy  
National Parks & Public Lands Div  
Dept of Conservation & Environment  
Mr D Miller Dear Sir

In reference to our letter Ref VT577-BW dated 3/12/91.

A reply or acknowledgment of receipt of same has not been received to date.

Correspondence received and personal contact with several regional offices are the cause of considerable concern, as there would appear to be differences in the interpretation and application of DC&E policy regarding future charges for licences for our communications sites in different locations throughout Victoria.

An account for rental of \$104.00 has recently been received and paid in respect of a repeater we have located on a Victoria Police site at Mt Nowa Nowa in Gippsland.

Mr Ray Buck of the DC&E Bairnsdale office informed us the charge was made in accord with new policy regarding "shared sites" and that in 1993 we could expect this annual charge to increase to a minimum of \$500.00.

The Wireless Institute of Australia, Victorian Division, is responsible for more than 60 installations throughout Victoria, and does not have the financial resources to enable the payment of site licence fees of this magnitude.

Whilst the licence fee being charged in respect of 1992 would appear to be uniformly

set at \$104.00 on all sites we occupy, we are concerned that at the commencement of the 1993 year we could be faced with an increase in charges we would be unable to meet.

In the event of an increase in charges beyond our capacity to meet, it would be necessary for us to cease our operations and remove all equipment.

Operation could be terminated at relatively short notice; however, as this organisation is reliant solely on the services of voluntary labour provided by the membership, and having regard to the period of time it has taken to establish our repeater installations (over 20 years) it could take at least 12 months before all equipment could be removed.

The utilisation of professional services to remove equipment is not a consideration, as we would be unable to meet the cost involved.

Your advice is now sought as a matter of urgency, as if future DC&E policy is to adversely affect the operation of our repeater network, we intend to seek further consideration by appealing directly to the Minister for Conservation and Environment and enlist the aid of the media to bring our plight to public attention.

The amateur radio service has contributed significantly to the community in the past, and provided service in the time of great public need, eg "Ash Wednesday", and we believe the Victorian Government, in spite of its current financial difficulties, should recognise the value of amateur radio to the community at large, and give our 84-year-old organisation concessional consideration.

Yours faithfully,

Barry Wilton Secretary - Manager

We will keep you informed of future developments

**Have you advised the WIA  
Executive office of your  
new callsign?**

**Use the form on the reverse  
of the amateur radio  
address flysheet.**

## 5/8 wave

JENNIFER WARRINGTON VK5ANW

### New Committees

Both Adelaide Hills Amateur Radio Society and the South Australian Packet Users Group have announced their new committees for 1992.

#### Adelaide Hills ARS

President	Geoff Taylor	VK5TY
Secretary	Trevor Gower	VK5BE
Treasurer	Bryan Trott	VK5PBT
Vice President	Lloyd Butler	VK5BR
Committee Man	Phil Day	VK5QT
Committee Man	Jim Trepellas	VK5JKT
Public Officer	Rob Gurr	VK5RG

#### Other Officers

Austr'n Sprints (contests)	David Box	VK5OV
Examinations Officer	Phil Day	VK5QT
Examinations Officer	Hans Smit	VK5YX
Historian	Lloyd Butler	VK5BR
Broadcast Relay Co-ord	Ted MacKenzie	VK5PEB

The Buy and Sell Sale Day will be co-ordinated by the Committee.

#### SAPUG

President	Maurie Hooper	VK5EA
Vice President	Garry Herden	VK5ZK
Treasurer	Hans Smit	VK5YX
Secretary	Moss Lower	VK5ALH
Committee Men		
Ben Broadbent	VK5ABE	
Andrew McDade	VK5EX	
Grant Willis	VK5ZWI	
Arto Attema	VK5ZAR	
Peter	VK5TZX	

Those of you who missed our speaker for February should be kicking yourselves. Colin McEwen VK5ZYK (formerly ZL2TFK from Hamilton NZ) gave an excellent talk with video, on the Klondyke Project, putting a repeater on Mt Egmont. I was particularly impressed with the logistics of the thing.

Imagine a shopping list which read:

1 helicopter; 1 drilling rig; 1 bulldozer; 1x36-foot mast; 3 cement trucks; a bath of sulphuric acid and a trench digger! Fortunately, they were able to hire, borrow or beg most of the above, but the project still cost around \$30,000. Thanks Colin, for a most interesting talk. It is a pity that Peter Mad-

dern VK5PRM could not be sure ahead of time that Colin would be available, so it could have been advertised on the broadcast.

As far as I am aware there was no speaker or any business meeting at the March general meeting night. I and several others waited for half an hour and then left, as nothing seemed to be happening. I realise problems do arise, but nobody seemed to be about to step into the breach or offer an explanation. I felt particularly sorry for at least one new member - there may have been others - who asked me "what happens tonight?" I told him what usually happens, but I think he would have been disappointed by the reality. It isn't a very good first impression for a "first-timer". I hope someone remembered to tell him to "come back next week" for the Buy and Sell night. I bet the place was packed-out for that!

I ran into Joy VK5YJ while I was waiting. Joy was doing her annual job, trying to get WICEN volunteers for the Walk Against Want. Apparently, though, it had been made more difficult this year by the fact that the Barossa Picnic was to be held on the same day ... I'll say no more, but there are a few red faces around! Picnic organisers (and others) please note, the date for next year's "Walk Against Want" is Sunday 28 March 1993.

### Diary Dates

Next meeting Tuesday 26 May, 7.45pm at 34 West Thebarton Rd, Thebarton.

ar

## FTAC NOTES

JOHN MARTIN VK3ZJC FTAC  
CHARIMAN

### Records

A new digital modes record for the 2m band has been set by Andrew Stewart VK1AS/2 and Bill Sinclair VK2ZCV for a series of packet contacts on 26 December 1991. This solidly beats the previous record for a RTTY contact between VK3ZQB and a certain other person. Congratulations to Andrew and Bill.

ar

## CLUB CORNER

### South East Radio Group Inc

Well, folks, the time is fast approaching when that special weekend in June comes around. Of course I'm talking about the ever-popular South east Radio Group Annual Convention to be held over the weekend of 6-7 June 1992.

The South East Radio Group has set a standard for amateur conventions which is unsurpassed in Australia. A good balance is maintained between trade displays and competitions to ensure a wide range of tastes is catered for.

This year we are offering many exciting

events which include the Australian Fox Hunting Championships. However, additional emphasis is to be placed on the home brew competition. Traditionally, this competition may not have been very encouraging to beginners to the home brew arena, so this year we have created a number of sections to cater for the novice to expert. We hope this will encourage everyone who likes to dabble in home-built equipment to show their prowess and compete for some attractive prizemoney.

The South East Radio Group convention promises to be a very popular spot on the amateur calendar, so book your accommoda-

tion early to make sure you don't miss out. A list of recommended motels and caravan parks is available by writing to the Convention Coordinator at the address below.

*Hope to see you there.*

Convention Co-ordinator

SERG

PO Box 1103

Mt Gambier 5290

### Oxley Region Amateur Radio Club Annual Field Day Weekend

Organisers of the Oxley Region Amateur Radio Club's annual field day weekend remind all interested amateurs, their families and friends that planning, which began

immediately after last year's event, is well down the track for this year's happening, scheduled for the Queen's Birthday weekend, Saturday and Sunday 7/7 June, 1992.

The venue, as in the previous two years, will be the Tacking Point Surf Lifesaving Pavilion, in Matthews Flinders Drive, at Lighthouse Beach, Port Macquarie. This has proven to be an excellent site, allowing most events to take place with minimal discomfort should the weather be unkind.

The usual attractions for this fun event, which include the various fox hunts, quizzes, competitions (home brew contest, radio throwing - for YLs/XYLs/ guess the resonant frequency, lucky door prizes etc) are again planned, with worthwhile trophies.

Registration begins at 10am on the Saturday and at 9am Sunday for those attending Sunday only. Registration fees: full weekend YLs/XYLs \$8, OMs \$12, family \$23. Sunday only: \$6, \$8 and \$16 respectively. A barbecue

luncheon on Sunday is included in the registration fees).

Tea, coffee and biscuits are provided free throughout both days, and a range of sandwiches will be available for purchase at the venue on Saturday at reasonable prices.

Enquiries to the secretary - Trevor VK2TT, (065) 85 2278 - or the president - Tracy VK2GTM (065) 85 7061. Written requests should be directed to The Secretary, ORARC, PO Box 712, Port Macquarie. ar

## SILENT KEYS

DUE TO INCREASING SPACE DEMANDS OBITUARIES MUST BE NO LONGER THAN 200 WORDS.

### The WIA regrets to announce the passing of:

C D (Colin) Pryce	VK2KQX
A F (Alex) Taylor	VK3AT
J F (Jack) Elliott	VK3BZB
D H Burrows	VK3BZC
J (James) Stent	VK4SJA
J L (Jack) Burke	VK5FZ
K (Ken) Townsend	VK5PHT
F (Fenton) Sanderson	VK6TS

### Alex Taylor VK3AT

Alexander Francis Taylor was born at Rushworth, Victoria, 10 June 1917. He was granted his AOCIP at the age of 17. Considering his chosen profession, his logbook reveals a very active amateur, all contacts being achieved on low powered homebrew equipment; a commercial transceiver not being obtained until 1975.

A member of the Wireless Institute since 1949, he was elected a member of the Old Timers Club in 1977.

Who's Who in the Commonwealth summarises his medical career - graduated in Melbourne 1941 with Bachelor of Science and Bachelor of Medicine; 1945 with Doctor of Gynaecology and Obstetrics. Appointed Resident Medical Officer for St Vincent's Hospital 1941, then for the Women's Hospital 1942, Captain, Australian Army Medical Corps 1943-44, Clinical Assistant, Royal Women's Hospital 1944-47, Honorary Obstetrician and Gynaecologist 1947-65, Consultant Obstetrician and Gynaecologist, Goulburn Valley Base Hospital, Shepparton, Victoria.

A humble, unassuming and caring man, whose other hobby - fishing - would be cancelled if a patient was to give birth. A man with a quick wit and sense of humour, who once said, "We should not be concerned with growing old; ceasing to grow old was the problem."

Alex is survived by his wife Glenys, sons Peter and Ross, and daughters Glenys and Julie.

ARTHUR DUKE VK3DFA

### Ken Townsend VK5PHT

It is with sadness that I advise my brother Ken passed away peacefully on 31 March 1992 at the age of 69 years.

Ken enlisted in the RAAF in World War II as a Wireless Air Gunner, and saw active service overseas in the Persian Gulf area and in the United Kingdom. Whilst in Persian Gulf areas he rescued a crew member of an aircraft which had crashed into the sea near the aerodrome, for which he was mentioned in Dispatches. Subsequently he joined the PMG Department/Telecom, and retired in 1982. Ken spent the last four years of his life at the War Veterans' Home in South Australia, following a serious illness. He was active on two metres and 10 metres from the Home until a couple of days before his death. He is greatly missed by family and friends.

JACK TOWNSEND VK5HT

### James Stent VK4SJA

Ex ZL3SR, ZL1BMQ, ZL2ATY, YJ8JS, VK8JS

With sadness, I wish to record the sudden and unexpected passing of my friend James on 3 February 1992.

James was first licensed in New Zealand in 1960 and moved to Vanuatu (then New Hebrides) in 1968 to take up an appointment as an air traffic controller. It was there that we became acquainted. James was particularly interested in RTTY, and most of his activity was confined to that mode.

James retired in 1982, moved to the Darwin area, but finally settled at Brbie Island. Over the past few years his radio activities were concentrated on computers and satellite activities - particularly AO-10 and AO-13, mode B.

Jim is survived by his wife Marion.

RON GRAHAM VK4BRG

### Jack Elliott VK3BZB

Jack passed away on 14 January 1992, aged 83.

Jack took on the challenge of amateur radio at the age of 68 in 1977, received his novice call that year (VK3NJQ) and his full

call the following year. Jack was a staunch member of FAMPARC, attending all meetings for many years until night driving and ill health forced him to stop. However, he still renewed his membership every year.

Jack was also a member of Southern Peninsula Amateur Radio Club, the Yaesu FT Club and the QRP Club, building several CW QRP rigs. A confirmed home brew amateur, his many finished and unfinished pieces of equipment attest to that fact. Jack's cheerfulness and humour will be greatly missed.

Gordon Buchanan VK3BGB

FAMPARC SECRETARY

### C D (Col) Pryce VK2KQX

It is with deep regret that we record the passing of Colin Pryce VK2KQX of Port Macquarie. He passed away suddenly on 15 March 1992.

Col will be sadly missed by his many friends in the amateur radio fraternity.

Prior to VK2KQX, Col had held the callsign VK2VDD.

Sincere sympathy is extended to Col's wife and family in their time of grief.

Vale: Colin Pryce VK2KQX.

HENRY LUNDELL VK2ZHE

### Alf Gooby VK4AAG (ex VK3GV)

On 31 January 1992, Alf died, aged 77. He was born in Oakleigh, Victoria, in 1914. He had a colourful life, including employment in a clothing factory, oil refinery and as a race-horse transport driver, until he joined the Army Royal Corps of Signals from 1940 to 1945. After the war, he worked as an aero engine mechanic, OTC traffic assistant and counter officer, then 20 years as a TV serviceman, until he retired in 1975.

His electronics background started in 1921 (aged 7) when he built his first crystal set. By the time he was 14, he had sold his first broadcast receiver, he was licensed in 1935 as VK3GV, after getting his 2nd Class Operator's Certificate. His home-made wooden lattice 130ft radio mast at Glenroy was a landmark and aerial navigation aid for many years. Shortly after retiring, he came to Caloundra, where he eventually bought an acre of land. He was an ardent CW operator.

His other hobbies included astronomy and organ playing, and he had an extensive neat workshop. He was known for his quiet man-

ner and helpful advice, and will be sadly missed by the Sunshine Coast AR Club. We extend our sympathies to his wife Heather, his daughters Glenda and Carol, and grandchildren.

VK4IS PRESIDENT  
SUNSHINE COAST ARC

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION BUT MUST BE LESS THAN 300 WORDS. THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

### Phantastic Phonetics

Listening around the DX bands of late, it has become apparent that something should be done about the standard of phonetics used. One operator may give as many as five or six different versions of phonetics in one CQ call. This, coupled often with a broad accent, does not always lend towards easy understanding. We can sympathise with the old timers who have the Able Baker etc routine so ingrained that nothing else can come out. They also had their resounding "Roger" changed to Romeo—a catastrophe.

Our complaint surely is with those afflicted with phonetic diarrhoea. To overcome this problem, or at least confuse them even more than they confuse us, may I suggest the adoption of the following phonetic alphabet:

A able  
B Babel  
C cable  
D day-bell\*  
E enable  
F fable  
G Gable  
H hay-bell\*\*  
I irritable  
J Jezebel  
K kapok  
L label  
M Mabel  
N Navel  
O operable  
P pay-bell  
Q quadragenarian  
R rateable  
S sable  
T table  
U unable  
V voonk  
W way-bell\*\*\*  
X Xavier  
Y yea-bell\*\*\*  
Z Zorro

\* used in day-schools

\*\* used by farmers distributing dry food

\*\*\*nearly as obvious as P. — Navy stuff

\*\*\* signifies "motion carried unanimously".

Confucius once said: "If conditions are bad enough to warrant the use of phonetics, re-

peat the same format slowly and clearly."

Seriously, though, how many times, under difficult conditions, have you tried to read a call which has been repeated quickly with continuing variations and given up hope of being able to understand him even if you did raise him?

NEIL TRAINOR VK3IJ  
133 BLADIN ST  
LAVERTON 3028

### Callbook Revisited?

Remember the 1986/87 Australian Radio Amateur Callbook?

That was the one that identified WIA members with the "†" mark against their callsign. I also remember that this caused a bit of an uproar, mainly from non-WIA members. Six years on, and having just got into the business of QSLing due to my 6m SSB contacts, I now think back—what a good idea that was.

If QSLing to another WIA member, cards could be sent via "The Bureau", rather than sending them "direct" via Australia Post, which can be a very expensive exercise after a while, particularly if you send out a dozen or so cards at a time — each with an SASE enclosed. I make the assumption here that a WIA member has bothered to register with his/her Divisional QSL Bureau and, considering it doesn't cost any extra, why not?

How about the re-introduction of this feature to future editions of the callbook?

Comments anyone?

ADAM MAURER VK3YWW  
1 JEFFREY STREET  
DANDENONG NORTH 3175

### Ten Metre Pirates

During the past few years I and other writers have drawn attention to the extensive pirating of the 10m band by Asians.

During 1990 I ran a series of DF measurements on these stations using an Adcock DF system I had built. Although HF direction finding is subject to errors, these tend to average out. I was able to establish the bearing was through the northern part of the Indonesian archipelago—primarily Sumatra.

This and other evidence leads me to conclude that the signals were coming from this region. Quite recently, the conference of Region 3 IARU was held in Indonesia.

However, in the conference report published in AR, I can find no specific mention of the 10m pirate problem which, in the circumstances, seems rather surprising. Let us hope Region 3 IARU addresses this matter in the not-too-distant future. For anyone interested, details of my 10m Adcock DF system can be had by writing (QTHR).

Adcock finders located in Darwin and Port Moresby, Cairns or Townsville could pinpoint the pirates with adequate accuracy.

IAN F BERWICK VK3ALZ  
107 LOONOANA AVE  
GLENROY 3046

### Codeless Novice

I read in the WIA News segment of AR for March 1992 that yet another novice licence is appearing on the horizon. Where will this end? It appears to me that the amateur licence structure is rapidly becoming a citizens band type, ie pay your money then go and operate; no examination, of course.

When the novice licence was introduced it was intended to get people on the air whilst studying for either limited or full call licences. Due to the limited privileges of the novice licence, there was an incentive to obtain the higher licence grades. Then the novice privileges were extended to the point where a novice now has most of the full call privileges. Where is the incentive to upgrade? Call me old fashioned, but I believe an amateur licence is earned — not handed to one.

With this new novice licence the cycle will start all over again. Limited privileges at first, pressure groups forming, privileges extended again, as occurred with the present novice classes.

I have held a limited call since 1976 and would love to upgrade to a full call, but I have a problem learning CW. The incentive is still there to obtain the full call and, when obtained, I will feel I have earned my full call.

LES PARKER VK4ZLP  
22 AUCKLAND ST  
WISBART 4122

### Forty at Night

While I was a novice operator I believed the 40m band was the sacred haven of the "old timer" or the retired ham wireless person who operated on this band only during the daylight hours. Unfortunately that impression has remained with me even when I found myself qualified to venture, with some trepidation, on to the 40m segment of the bands.

This has now changed. The recent contest held over 14/15 March indicated to me there are many amateurs who just do not get on to 40 metres at all.

Come on, amateur operators, fire up those rigs! On Saturday night last, I copied 57-59 signals from VK4, VK5, VK6 and ZL, all on 40 metres. My falsely based belief that this band was the haven of one group of people within the hobby, during the daylight hours only, was finally shattered, and I am thankful that it has been shattered.

While 80 metres is noisy and crowded, 40 metres provides us with a reliable band for VK and ZL contacts. Let's see this band spring to life as we begin to establish and re-establish friendships once lost among the noise of 80 metres.

GRAHAM GALL VK3ZS  
76 GREENWOOD DR  
BUNDOORA 3083

### Lan Link

Oh "frabjous joy" when I received a complimentary copy of the March issue of AR under the above reference.

Then, what a sinking, intestine-twisting feeling when I realised that article on Lan Link had an error, and that it was my mistake!

Sackcloth and ashes department.

Living with Lan-Link, AR March 1992, pp 20 & 21, Section 2, Editing the Operating Files.

The last sentence in the last paragraph should read ..." The FILE menu allows for easy file deletion/erasure, ESC F E filename ENTER."

The source of the error was in my keeping drafts containing errors which had been corrected elsewhere, and not double checking.

Apologies from the author.

DENNIS W. AVARD VK4ADY  
11 JAMES ST  
LAIDLEY 4341

### Metric Only

Congratulations on the continuing high standard of AR. I have a suggestion for editorial policy to maintain AR's generally excellent image.

About 20 years ago, most of Australia adopted metric measurements. I now find it hard to visualise or think in the old measures, and I have few remaining instruments with

which to measure them.

Perhaps more important than my personal plight, however, we now have a whole generation of people who have probably never learned imperial measurements at school - lucky things!

After 20 years, maybe it's time to eliminate, or at least reduce, imperial measurements to "optional, secondary" status throughout the magazine, even on imported copy. After all, doesn't it say somewhere ... "The amateur is progressive ..."

NORM MELFORD VK3ZTN  
OLD COONARA RD  
OLINDA 3788

*(I thought the latter was our policy, Norm, ie to give metric measurements first and imperial second, if at all. We will try to do it more thoroughly from now on! - Ed).*

### Coral Sea Battle

Regarding the Coral Sea commemoration by Townsville ARC.

My purpose is to awaken some interest and respect for the part played by wireless telegraphists (W/T) in that and many other battles. Without them the flow of information between participants and commands would not have been possible. Their presence is mostly ignored, even by the history books. The fol-

lowing extract from the official *Royal Australian Air Force 1939-1942* is typical:

"The crew listened for more than two hours to reports of further assaults by both bombers and fighters" - not a word about the fact that the reports were signalled in Morse telegraphy, copied at the aircraft's W/T desk and distributed as handwritten notes to captain and crew.

The part played by those unsung participants could be publicised on the occasion of the 50th anniversary of the Coral Sea, and who better than members of the "wireless" fraternity. Mention in AR and divisional broadcasts would be appropriate. Many were pre-war amateurs and many joined our fraternity after the war. But, please show the respect which is their due, and stick to the truth. I suggest a Coral Sea item on every Divisional broadcast on 3 and 10 May.

The truth is contained in official histories such as chapter 26 of *Royal Australian Air Force 1939-1942* by Douglas Gillison.

LINDSAY LAWLESS VK3ANJ  
PO Box 112

LAKES ENTRANCE 3903

*(In an accompanying letter to VK4CD, Lindsay describes some of his "hair raising" experiences in RAAF Catalinas during that epic battle. - Ed).*

ar

# Early birds catch worms... but at the S.E.R.G. convention amateurs can catch bargains that even the worms won't believe!

but only for one day, and only for personal shoppers, Saturday June 6th from 10:00am, at the Mt. Gambier showgrounds. See you there!

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# HF PREDICTIONS

ROGER HARRISON VK2ZTB - THE APOGEE GROUP

The general band conditions begin to change this month as we move away from the autumn equinox into winter. The solar cycle is maintaining high sunspot numbers still, so propagation on the bands 10 MHz and above remains good when conditions are generally quiet (no solar flares or geomagnetic disturbances). The value of the yearly smoothed sunspot number used to generate this month's charts was 94.

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28 MHz. The UTC hour is the first column, the second column lists the predicted MUF (maximum usable frequency), the third column the signal strength in dB relative to 1 µV (dBU) at the MUF. The fourth column lists the "frequency of optimum travel" (FOT), or the optimum working frequency, as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1 µV in 50 Ohms at

the receiver antenna input. The table below relates these figures to the amateur S-point 'standard' where S9 is 50 µV at the receiver's input and the S-meter scale is 6 dB/S-point.

µV in 50 Ohms	S-points	dB(µV)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	-8
0.2	S1	-14

The tables are generated by the Graph-DX program, assuming 100 W transmit power output, modest beam antennas (eg three-element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the

following areas:

**VK EAST.** The major part of NSW and Queensland.

**VK SOUTH.** Southern-NSW, VK3, VK5 and VK7.

**VK WEST.** The south-west of West Australia.

Likewise, the overseas terminals cover substantial regions; eg "Europe" covers most of western Europe and the UK.

Graph-DX is written in the C language and runs on any IBM PC AT/XT or compatible computer with EGA, Hercules or VGA adapter and screen. Professional and Amateur versions are available.

Enquires to FT Promotions, PO Box 306, Woollahra NSW 2025.

ar

**Prevent pirates -  
make sure you  
sell your  
transmitter to a  
licensed  
amateur.**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	18.0	8	13.6	2	8	6	1	-7	1	16.7	18	12.7	22	16	8	-3	-17	1	16.7	18	12.7	22	16	8	-3	-17
2	17.8	2	13.3	-7	2	3	-1	-8	2	16.4	10	12.4	9	9	4	-5	-18	2	16.4	10	12.4	9	9	4	-5	-18
3	20.9	3	15.5	-16	-1	3	2	-1	3	19.3	7	15.2	0	6	6	7	-6	3	19.3	7	15.2	0	6	6	7	-6
4	25.6	5	19.4	-25	-4	2	5	4	4	23.8	7	18.1	-9	4	7	6	3	4	23.8	7	18.1	-9	4	7	6	3
5	29.1	4	22.0	-28	-6	1	5	5	5	26.7	5	20.7	-14	0	4	6	5	5	26.7	5	20.7	-14	0	4	6	5
6	28.7	4	21.7	-29	-6	1	5	4	4	26.4	4	20.0	-18	-1	4	5	2	6	28.7	4	21.7	-29	-6	1	5	4
7	27.4	4	20.8	-26	-5	2	4	3	5	25.9	4	19.6	-17	-1	4	4	2	7	27.4	4	20.8	-26	-5	2	4	3
8	25.4	4	19.3	-19	-1	3	4	2	8	24.5	4	18.6	-14	0	4	4	0	8	25.4	4	19.3	-19	-1	3	4	2
9	22.8	5	17.2	-11	2	5	3	-5	9	22.6	5	17.1	-7	4	5	3	-2	9	22.8	5	17.2	-11	2	5	3	-5
10	20.3	5	15.4	-4	5	5	1	-5	10	20.0	6	15.1	0	6	5	0	-9	10	20.3	5	15.4	-4	5	5	1	-5
11	18.0	7	13.6	3	7	4	2	-12	11	18.0	7	13.6	3	7	4	2	-12	11	18.0	7	13.6	3	7	4	2	-12
12	16.2	9	12.2	8	8	2	-7	-20	12	16.2	9	12.2	8	8	2	-7	-20	12	16.2	9	12.2	8	8	2	-7	-20
13	15.1	13	11.4	13	9	0	-12	-29	13	15.1	13	11.4	13	9	0	-12	-29	13	15.1	13	11.4	13	9	0	-12	-29
14	14.4	18	10.8	18	9	-1	-17	-35	14	14.4	18	10.8	18	9	-1	-17	-35	14	14.4	18	10.8	18	9	-1	-17	-35
15	13.9	23	10.6	23	9	-3	-22	...	15	13.9	23	10.6	23	9	-3	-22	...	15	13.9	23	10.6	23	9	-3	-22	...
16	13.5	26	10.1	23	8	-5	-26	...	16	13.5	26	10.1	23	8	-5	-26	...	16	13.5	26	10.1	23	8	-5	-26	...
17	13.2	27	10.0	24	8	-7	-28	...	17	13.2	27	10.0	24	8	-7	-28	...	17	13.2	27	10.0	24	8	-7	-28	...
18	12.2	29	9.3	21	3	-14	-38	...	18	12.2	29	9.3	21	3	-14	-38	...	18	12.2	29	9.3	21	3	-14	-38	...
19	10.8	30	8.3	16	6	27	...	...	19	10.8	30	8.3	16	6	27	...	...	19	10.8	30	8.3	16	6	27	...	...
20	10.7	30	8.3	15	7	-28	...	...	20	10.7	30	8.3	15	7	-28	...	...	20	10.7	30	8.3	15	7	-28	...	...
21	13.7	28	10.2	26	10	-4	-25	...	21	13.7	28	10.2	26	10	-4	-25	...	21	13.7	28	10.2	26	10	-4	-25	...
22	18.2	24	14.0	32	25	17	6	-7	22	18.2	24	14.0	32	25	17	6	-7	22	18.2	24	14.0	32	25	17	6	-7
23	17.1	20	13.1	23	18	11	1	-11	23	17.1	20	13.1	23	18	11	1	-11	23	17.1	20	13.1	23	18	11	1	-11
24	19.8	15	15.2	15	16	14	7	-1	24	19.8	15	15.2	15	16	14	7	-1	24	19.8	15	15.2	15	16	14	7	-1

## VK EAST - MEDITERRANEAN

## VK STH - MEDITERRANEAN

## VK WEST - MEDITERRANEAN

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	
1	17.3	13	11.7	13	13	9	0	-8	1	16.1	10	11.2	9	9	5	-3	-14	1	15.5	0	10.9	-2	2	0	-7	-16	
2	16.5	15	11.2	16	14	8	0	-11	2	15.4	14	10.7	14	11	5	-5	-18	2	14.9	4	10.5	3	4	0	-9	-20	
3	15.9	18	10.9	19	15	8	-2	-15	3	14.9	18	10.4	18	12	4	-8	-22	3	14.4	7	10.2	7	5	-1	-11	-24	
4	15.1	20	10.4	21	15	6	-5	-19	4	14.2	20	10.0	20	12	2	-12	-28	4	13.8	10	9.8	10	5	-2	-14	-29	
5	14.0	22	10.3	23	15	6	-6	-21	5	14.1	22	10.0	22	12	2	-12	-29	5	13.7	12	9.8	11	6	-2	-15	-30	
6	15.5	26	10.7	28	19	3	-4	-18	6	14.7	25	10.4	26	16	5	-10	-26	6	14.2	13	10.2	13	7	0	-13	-27	
7	17.7	22	12.0	27	21	13	3	0	7	16.1	22	11.5	25	18	9	-2	-16	7	15.6	14	11.3	15	10	4	-7	-20	
8	17.3	16	12.9	19	15	8	-1	14	8	16.7	16	13.0	19	14	6	-5	-19	8	17.4	14	12.6	15	13	8	0	-11	
9	14.8	11	10.0	11	7	0	-11	-25	9	14.3	11	11.1	11	6	-2	-15	-31	9	18.9	11	13.7	14	12	8	0	-10	
10	12.9	2	9.5	3	1	-5	-16	-31	10	12.6	4	9.7	5	0	-8	-22	-39	10	16.5	7	12.8	6	6	1	-8	-19	
11	11.8	-8	8.7	-1	-1	-7	-18	-32	11	11.5	-4	8.8	-1	-2	-10	-24	-38	11	14.1	0	10.9	0	0	0	-5	-15	-28
12	11.1	-15	8.2	-3	-2	-7	-17	-31	12	11.0	-11	8.4	-1	-3	-10	-23	-38	12	12.4	-8	9.6	-3	-3	-9	-19	-35	
13	10.9	-21	8.2	-5	-2	-6	-16	-28	13	10.7	-16	8.4	-3	-3	-9	-20	-34	13	11.3	-16	8.6	-5	-4	-10	-20	-33	
14	10.9	-29	8.0	-10	-5	-9	-17	-29	14	10.6	-28	8.1	-10	-8	-13	-23	-38	14	10.8	-24	8.2	-8	-6	-10	-20	-33	
15	10.9	-38	8.1	-16	-10	-13	-21	-34	15	10.5	...	8.1	-20	-16	-20	-32	...	15	10.6	...	8.3	-20	-16	-20	-30	...	
16	10.3	...	7.8	-23	-17	-20	-30	...	16	10.0	...	7.8	-32	-26	-31	...	...	16	10.5	...	7.9	-28	-22	-25	-35	...	
17	9.7	...	7.3	-30	-24	-28	...	...	17	9.5	...	7.4	...	-56	...	...	...	17	10.3	...	7.9	-36	-28	-31	...	...	
18	9.9	...	7.6	-27	-21	-25	-36	...	18	9.7	...	7.6	...	-35	...	...	...	18	9.9	...	7.6	...	-35	-39	...	...	
19	12.1	-20	8.8	-9	-3	-4	-11	-21	19	11.4	...	3.7	-25	-17	-18	-27	-39	19	9.3	...	7.3	...	...	...	...	...	
20	16.2	-6	12.5	-13	-2	-1	-5	-12	20	14.7	-12	11.7	-15	-4	-3	-7	-15	20	9.6	...	7.5	...	-35	...	...	...	
21	20.8	3	14.6	-11	1	3	1	-3	21	18.7	-3	13.9	-18	-4	-1	-3	-8	21	11.3	...	8.5	-21	-14	-17	-25	-37	
22	19.9	7	13.6	-2	6	7	4	-1	22	18.6	-1	13.1	-16	-2	0	0	-5	22	14.6	-13	11.6	-15	-5	-5	-10	-18	
23	19.0	10	12.9	5	10	9	4	-3	23	17.7	1	12.3	-7	2	2	1	-7	23	17.1	-6	12.0	-16	-4	-2	-5	-10	
24	18.1	12	12.3	10	12	9	3	-5	24	16.8	6	11.7	2	6	4	-1	-10	24	16.2	-4	11.4	-9	-1	-1	-6	-13	

## VK EAST - EUROPE L.P.

## VK STH - EUROPE L.P.

## VK WEST - EUROPE L.P.

APOGEE ARTS

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	11.0	10	8.8	7	-5	-19	...	...	1	11.1	18	8.5	12	-2	-18	...	...	1	9.8	27	7.6	0	-13	-34	...	...
2	10.8	4	8.3	5	-3	-16	-34	...	2	10.8	13	8.3	9	-4	-19	...	...	2	10.7	7	8.3	11	-5	-21	...	...
3	10.4	-4	8.1	2	-5	-16	-33	...	3	14.1	12	10.4	12	6	-2	-17	-33	3	14.0	13	10.5	13	6	-3	-18	-36
4	13.6	0	10.6	1	1	-4	-15	-30	4	20.2	12	15.6	12	14	11	4	-5	4	20.4	12	15.8	12	14	11	3	-6
5	19.7	5	15.3	-2	5	4	0	-7	5	24.8	9	19.9	5	12	12	9	3	5	25.0	9	19.0	6	13	13	9	3
6	24.9	6	19.1	-5	6	8	6	0	6	26.4	8	21.4	2	11	12	10	5	6	26.6	8	20.2	2	11	12	10	5
7	23.9	6	17.9	-4	6	7	5	0	7	25.6	8	20.5	1	10	11	8	3	7	26.7	7	20.0	0	10	11	9	4
8	21.8	6	16.3	0	7	5	-1	-4	8	24.0	8	19.1	4	10	11	7	1	8	25.8	7	19.3	0	9	11	8	3
9	19.0	7	14.2	0	6	6	1	-1	9	21.9	9	17.3	7	11	10	4	-3	9	24.1	7	18.1	2	10	11	6	0
10	16.4	8	12.2	0	6	6	1	-1	10	19.3	10	15.2	10	11	7	0	-11	10	21.9	9	16.4	7	11	10	4	-4
11	14.0	8	10.4	0	6	4	-4	-18	11	16.8	10	13.1	11	9	2	-8	-21	11	19.1	11	14.5	11	12	7	-1	-12
12	12.3	10	9.1	0	9	0	-11	-29	12	14.4	12	11.2	12	5	-4	-19	-36	12	16.5	13	10.3	14	10	3	-9	-24
13	11.2	15	8.3	10	-3	-18	...	...	13	12.7	15	9.8	13	1	-11	-31	...	13	14.1	17	10.3	16	7	-4	-21	...
14	10.7	22	7.9	12	-6	-24	...	...	14	11.7	21	9.0	14	-2	-19	...	...	14	12.3	21	9.2	16	15	-4	-22	...
15	10.5	27	7.7	13	-7	-26	...	...	15	11.2	25	8.6	14	-5	-24	...	...	15	11.3	26	8.3	16	-3	-22	...	...
16	10.5	29	7.8	14	-7	-27	...	...	16	11.0	28	8.3	14	-6	-27	...	...	16	10.7	29	7.9	14	-7	-28	...	...
17	10.5	30	7.8	14	-7	-28	...	...	17	10.8	29	8.3	14	-7	-28	...	...	17	10.5	30	7.9	14	-8	-30	...	...
18	10.0	32	7.5	12	-11	-33	...	...	18	10.6	30	8.2	13	-9	-31	...	...	18	10.6	31	7.8	15	-8	-30	...	...
19	9.3	32	7.1	9	-17	...	...	...	19	10.1	30	7.9	11	-13	-36	...	...	19	10.6	32	7.9	15	-8	-30	...	...
20	9.5	32	7.3	10	-15	-38	...	...	20	9.7	31	7.6	8	-17	...	...	...	20	10.1	32	7.6	12	-12	-35	...	...
21	10.1	31	7.8	12	-11	-35	...	...	21	9.9	31	7.8	10	-15	-38	...	...	21	9.4	32	7.2	8	-18	...	...	...
22	9.6	29	7.5	9	-15	-38	...	...	22	10.3	31	8.0	15	-10	-32	...	...	22	9.6	33	7.4	10	-16	...	...	...
23	9.1	21	7.1	4	-13	...	...	...	23	9.7	29	7.6	9	-15	-38	...	...	23	10.4	32	7.9	14	-9	-31	...	...
24	9.3	13	7.4	4	-15	-34	...	...	24	10.0	23	7.9	9	-12	-32	...	...	24	9.7	31	7.4	10	-15	-39	...	...

**VK EAST - AFRICA      VK STH - AFRICA      VK WEST - AFRICA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	29.0	11	22.1	6	15	17	16	12	1	24.6	9	18.7	3	11	12	8	2	1	27.6	12	21.2	11	18	18	15	10
2	29.1	11	22.6	6	14	16	15	11	2	25.4	9	19.2	1	10	12	10	2	2	28.2	11	21.6	7	16	17	15	11
3	29.3	11	22.3	3	14	16	15	12	3	25.9	9	19.4	0	10	12	10	5	3	28.6	11	21.6	5	15	17	15	11
4	29.4	11	22.4	4	15	17	16	12	4	25.7	9	19.4	0	10	12	10	5	4	28.9	11	21.4	4	15	17	15	11
5	29.5	11	22.5	7	16	18	17	13	5	25.4	9	19.2	2	11	12	10	4	5	29.1	11	21.9	5	15	17	16	12
6	28.7	12	22.0	11	19	19	17	13	6	24.7	10	18.6	6	13	13	9	3	6	28.8	12	21.9	7	16	18	16	12
7	27.2	13	20.8	17	22	21	17	11	7	23.3	11	17.6	11	15	13	8	0	7	28.5	12	21.7	11	19	19	17	12
8	25.1	15	19.0	27	26	22	16	0	8	21.2	13	16.0	19	18	13	5	-6	8	27.5	13	21.0	17	21	21	17	11
9	23.1	19	17.7	36	30	25	14	3	9	18.6	17	14.1	27	19	9	-4	-19	9	25.7	15	19.6	24	25	22	16	9
10	21.0	20	16.0	37	28	20	8	-5	10	16.2	20	12.2	26	12	-1	-19	...	10	23.3	18	17.7	34	29	23	14	3
11	19.4	21	14.8	36	26	15	2	-13	11	13.9	21	10.5	20	2	-16	...	...	11	21.1	19	16.1	35	27	19	7	-6
12	18.4	22	14.0	35	23	12	-3	-20	12	12.3	23	9.2	13	-10	-33	...	...	12	18.9	20	14.4	33	23	12	-2	-19
13	17.7	23	13.4	34	21	9	-7	-25	13	11.3	24	8.5	7	-20	...	...	13	17.3	21	13.1	31	18	5	-12	-32	
14	16.9	23	13.0	33	19	6	-12	-32	14	10.7	25	8.0	3	-27	...	...	14	16.2	22	12.3	30	14	0	-20	...	...
15	15.9	24	12.1	30	15	0	-19	...	15	10.5	25	7.8	1	-30	...	...	15	15.5	23	11.7	28	11	-5	-27	...	...
16	15.3	24	11.7	29	12	0	-25	...	16	10.5	25	7.9	1	-31	...	...	16	14.8	23	11.4	26	7	-5	-33	...	...
17	15.8	25	10.6	23	4	-15	...	...	17	10.5	25	7.9	1	-31	...	...	17	14.7	23	10.8	23	4	-5	-33	...	...
18	11.7	27	9.0	13	-12	-36	...	...	18	9.9	25	7.5	-4	-39	...	...	18	13.8	23	10.5	22	1	-18	...	...	...
19	11.2	27	8.7	10	-17	...	...	...	19	9.1	26	7.0	-12	...	...	...	19	12.6	24	9.7	16	-8	-31	...	...	...
20	14.6	25	11.1	26	9	-8	-31	...	20	9.2	26	7.1	-12	...	...	...	20	11.0	25	8.5	5	-25	...	...	...	...
21	20.1	21	15.8	33	26	18	7	-6	21	11.5	24	8.9	9	-18	...	...	21	10.7	25	8.3	2	-29	...	...	...	...
22	26.4	14	20.4	22	24	22	17	10	22	15.9	11	12.3	13	6	-4	-20	-38	22	13.9	18	10.4	17	0	-17	...	...
23	28.7	13	22.1	15	21	21	18	13	23	20.3	10	15.6	10	12	8	0	-10	23	19.8	13	15.3	20	17	10	0	-13
24	28.9	12	22.2	9	18	19	17	12	24	23.2	9	17.7	6	12	11	7	0	24	25.0	12	19.3	15	19	17	12	5

**VK EAST - ASIA      VK STH - ASIA      VK WEST - ASIA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	30.7	23	23.1	32	35	34	31	26	1	23.1	13	17.4	21	21	17	9	0	1	27.1	10	20.5	11	17	17	13	8
2	30.6	23	23.1	33	35	34	31	26	2	23.7	13	17.7	22	22	18	10	1	2	28.3	10	21.3	11	17	18	15	9
3	30.4	23	22.9	34	36	35	31	26	3	23.6	14	17.7	24	23	19	11	0	3	29.0	10	22.2	12	18	19	16	11
4	29.9	24	22.5	37	39	36	32	26	4	23.3	15	17.5	26	24	19	11	0	4	28.9	10	21.6	14	20	20	16	11
5	28.5	26	21.6	41	40	37	32	26	5	21.6	17	16.4	30	25	18	1	-4	5	27.9	12	21.0	19	23	21	17	11
6	26.4	28	20.0	48	45	38	31	24	6	19.5	21	14.7	35	25	15	1	-14	6	25.8	15	19.5	27	26	23	16	8
7	23.7	31	18.0	48	42	36	28	18	7	17.4	24	13.2	34	21	9	0	-27	7	23.1	18	17.5	33	28	25	13	3
8	21.1	33	15.9	47	40	32	22	11	8	15.5	26	11.7	31	15	0	-20	...	8	20.5	22	15.5	37	28	24	8	-4
9	18.6	35	14.0	45	36	27	15	1	9	13.5	28	10.1	25	5	-13	-39	...	9	18.1	24	13.6	35	28	24	14	0
10	16.8	37	12.6	43	32	22	8	-7	10	11.9	30	8.9	19	-5	-27	...	...	10	15.6	27	11.6	32	18	5	-12	-32
11	15.5	38	11.6	42	29	17	2	-14	11	10.9	31	8.1	13	-14	...	...	...	11	13.6	30	10.2	28	11	-4	-25	...
12	14.7	39	11.0	40																						

# HAMADS

## TRADE ADS

● WEATHER FAX programs for IBM XT/ATs, RADFAX \$35, is a high resolution shortwave weatherfax, moras & RTTY receiving program. Needs CGA, SSBHf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SATFAX \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) & documentation, add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Old 4005. Ph (07) 358 2785.

### ● Disposal of Weather Facsimile Recorders

The Bureau of Meteorology has for disposal a number of Alden Weather Facsimile Recorders, capable of reproducing both weather charts and satellite imagery (grayscale). The units have both AM (WMO format) and baseband inputs, and with a suitable interface to an HF radio receiver, could reproduce the weather charts routinely broadcast by the Bureau's AXM (Canberra), AXI (Darwin) or other radio facsimile services. The recorders use 11 inch electrolytic paper, and comprise a 240v to 110v mains transformer, recording head and control electronics. They will be available on a "collect" basis at most state capital cities for \$200 each. Expressions of interest are requested in writing by 30/6/92, directed to the following:

Mr Phil O'Donnell  
Communications and Computing Branch  
Bureau of Meteorology  
PO Box 1288K  
Melbourne Vic 3001

Please DO NOT enclose any money with your expression of interest.

● AMIDON FERROMAGNETIC CORES: For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please ... 14 Boony Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truacot Electronics, Melbourne.

## FOR SALE - ACT

● DECEASED ESTATE VK1DJ. Offers are invited for the following equipment, much of which is as new with original packing and instruction manuals. YAESU FT747GX tcvr, KENWOOD 2M 241A transceiver; DRAKE T-4X transmitter; DRAKE R4-C receiver (1\*); DRAKE power supply, DRAKE 4-4A receiver; DRAKE MS-4 speaker; DRAKE T-4X receiver (2\*), spare valves; (\*Drake 2 is operational/Drake 1 is for spares - not in original cartons, but with manuals); KENWOOD PS-30 DC power supply; KENWOOD AT-230 antenna tuner; CLIPSAL Morse key; WELTZ antenna switch; FT-203R portable with battery charger; KYORITSU SWR power meter; belun, white AS14772; 5/8th 2m antenna whip; 80m hamtenna mobile 1; dummy load; miscellaneous cables, books etc. Transmitting gear sold to licensed amateurs only. Prices are negotiable. Prefer to sell complete stock. Contact Kate Higginson (06) 292 1931 or 5 Goldsborough Close, Macarthur ACT 2904.

## FOR SALE - NSW

● PHONE PATCH. Fully automatic multi-mode radio-telephone interconnect terminal. Built-in keyboard and digital display allows maximum power from on-board microprocessor. All features are user programmable and/or selectable. Six modes of operation: simplex sampling, simplex vox, duplex base station, duplex repeater, repeater controller, dial access remote base. 90-number autodialler, last-number redial, remote hookflash, user programmable CWID; remote controllable relay, auto disconnect on busy, fully regenerated tone or pulse dialling. Very powerful unit. All that for \$795. VK2XJC (02) 388 1061H, (02) 963 8915.

● SOLARTRON DUAL TRACE CRO 15MHz \$350; MARCONI 995A2 Sig gen 1.5-220MHz \$250; AIRMET212 Sig gen 85kHz to 32MHz \$125. All GC with handbooks. VK2FSW QTHR (054) 89 3224 AH.

● ROTATOR CONTROL CABLE ex-US Army 15 stranded conductors, each approx 2mm dia. Two are thicker \$1.50 per

metre. Send \$2 SAE for sample. VK2BDT, PO Box 350 Goulburn 2580. (048) 21 5036.

● YAESU FT-ONE TX/RX 100w s/s all filters. FM. Keyer 240/13.8v power-full metering, great performer \$1350. Also YAESU FC700 tuner \$250; both VGC. Run out of space sale. All offers considered. George VK2EHN QTHR (043) 69 2696.

● KENWOOD TR7400A 2m 25w tcvr, includes accessories and manual, GC, \$150. Greig VK2BSM QTHR (02) 899 5620.

● YAESU FT411 2M HT extended rec \$300. Realistic scanner PRO2020 mobile bracket \$175. Dentron 80.10m long wire ATU \$80. All manuals. Pat VK2RZ QTHR (043) 62 1235.

## FOR SALE - VIC

● YAESU FT620B 6m SSB tcvr \$350. Chas VK3BRZ (052) 82 3167.

● COLLINS S-LINE RX 75S3B no 16443 TX 32S3 no 12064 power supply, all in mint cond. Ph (059) 96 1028, Cranbourne.

● DAIWA CN250 2KW SWR cross needle output meter 1.8-60MHz 50ohm as-new cond, hardly used \$100. Roth VK3BG (03) 725 3550.

● MFJ 1278 TNC with 2400bps board and multicom s/ware \$400. Damien VK3CDI (054) 27 3121.

● RACAL RA17L receiver, mint cond \$450. DRAKE R4C tcvr, mind cond \$450. B&K analyst mod 970, as new cond \$300. G Himolaji, 118 Wilsons Rd, Newcomb 3219.

● YAESU MD1 B8 dynamic microphone \$80. KENWOOD AT-200 antenna tuner \$200. MOORABBIN & DISTRICT Radio Club heavy duty 30amp power supply, \$300. IAMBICI touch keyer \$60. HIGHMOUND HK707 Morse key \$20. SHINWA 1005 (LPF) RF filter \$15. WERNER WOLF vertical antenna (80- to 10m) \$200. MICRONA SWR meter \$15. SANYO M2541 cassette recorder \$20. VARIABLE Power Supply 1-16V, 1, 2A, \$40. Ph (052) 44 2577.

● YAESU YO101 monitor scope \$250. Topward dual tracking DC power supply 4603 model, unused, cost \$550 new. Sell \$250. 0-60v 0-3A, a real bargain. (03) 315 9387 Jim VK3YJ.

● FT221R all mode VHF transcv 2m Tokyo Hi-power HL110V 2m amp, all offers. VK3YJR QTHR (054) 46 8161.

● YAESU FT290R 2m all-mode S/N 3F280778 mobile plug-in bracket, scanning microphone, RX pre-amp kit, power supply, manual, GC \$450. Hi-mound HK701 key with marble base, as new, \$90. Kevin VK3ASM (03) 874 2046.

## FOR SALE - OLD

● YAESU 6M module to suit FTV700 transceiver and instructional manual \$50. Jeff VK4CEM QTHR (079) 76 3430.

● MARCONI SIGNAL GENERATOR TF995A/2M FM/AM a/n JA310/047 1.5-220MHz working, but needs some TLC. Handbook and some spare valves \$100. VK4WD QTHR (07) 359 8806.

● ICOM ICR-71A communications receiver, serial no 03497, GC, about 1 1/2 years old. \$890 ONO. Peter VK4GPS (075) 39 4485.

● PK232 ALL MODE MODEM all updates increased mailbox PSK. All leads manual perfect \$440. TH25A HH KENWOOD FM 2M tcvr, as new 2 bat/packa DC adaptor pwr supply, speaker/mike 2 antennas, soft cover, box/schem perfect \$350. John VK4ET QTHR (07) 269 3942.

● RECEIVERS 500kHz to 30MHz Eddystone 10Ci \$225. Eddystone EC10 GDO Weston AN-PRM-10 \$40. SIG Marconi FT10771 \$25. DCA Y1059; \$25. SSAE to P Hadgraft, Paxton St, Holland Park. (07) 397 3751.

IC271H 100W 2M SSB/FM S/N 03027 with Mutek F/E and modem for use with I'variers. VGC, box, manual, \$1100. FT780R 10W 70cm SSB/FM S/N 1FOA-0958 PC, Box, manual incl neat

H/B P/S with memory protection \$850. Doug VK4OE QTHR (07) 391 5526 H (07) 234 1169 W.

## FOR SALE - SA

● ICOM LINEAR AMP 2KL automatic, as new, matching power supply 30amp, all solid state. SONY videorec top of line, needs head service \$49. Ph (06) 31 4194.

● YAESU FT77 \$600. DSE cat Q1280 CRO \$300 ATN Bel log ant \$600. COM-IN modem for C64 RTTY ATV CW etc, \$150. Bob VK5RI QTHR (068) 93 4001.

● KENWOOD R5000 receiver with VHF converter IF-232C interface, two extra filters and full service manual. Mint cond \$1395. YAESU FRG-7 receiver, manual & circuit. Mint. \$295. Hans VK5YX QTHR (08) 271 5350.

## WANTED - NSW

● KENWOOD TS711-A 2M all mode, must be as new boxes etc. KENWOOD YK-88C-1 CW filter. COAXIAL relays UHF to 1500MHz. 2 & 70 low noise GaAsFet pre-amps to handle about 150W mirage, Oreaser etc. Latest models. Bert VK2TBW QTHR (048) 61 2092.

● PLUG IN MODULE 6M to suit FTV901R or FTV707, working or not. Should be complete. VK2FSW QTHR (054) 89 3224 AH.

● DIAGRAM or MANUAL for handheld YAESU FT202, all costs paid. Eventually swap with FT202M manual. Bruno VK2BPO QTHR (02) 713 1831.

● FTS-12 CTCSS module for Yaesu FT-73. Dave VK2KFU (02) 489 1610.

## WANTED - VIC

● ICOM 417 all mode 70cm tcvr. Circuit diagrams or manuals for Microwave Modules amp 432/100. (054) 76 2689.

● YAESU FP-757GX compact switched mode power supply. Details to Ron VK3OM QTHR (059) 44 3019.

● TONO 3000E RTTY terminal in good order. Roc VK3AKH QTHR.

● No 122 WW2 transceiver and also BC611 walkie talkie. Ingoing or repairable cond or parts. Suitable recompense arranged. Ian VK3AYK QTHR (03) 428 5383 BH, (03) 523 9405 AH.

● CRYSTALS suit Genave 2m transcvr model GTX-2. Kevin VK3CKL QTHR (03) 792 9503.

## WANTED - QLD

● BC348 RECEIVER ex WWII, must be unmoded and no front panel holes. Mail PO Box 1340 Townsville 4810. Ph (018) 77 9928.

● HELP. REQUIRE instr book & circuit for PHILIPS Electronic counter GM4810. Also info on SONOBUOY AN-55Q-41A Magnavox USA or Aedic? Amps 0-03A-5Q3 CV-A-ASQ3 (WE USA) Bomb sight computer AN-11-704-9 GE USA VK4EF WWII signaller restorer. QTHR (07) 366 1803.

## WANTED - TAS

● YAESU FT102 AM FM board. Alf VK7ZOA (004) 24 3509.

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# Transmission Line Transformers

AUTHOR JERRY SERVICE W2FMI

REVIEWED BY BOB TAIT VK3UI AND NORM EYRES VK3ZEP

The author Jerry Servick's passion is experimenting with transmission line transformers and efficient short vertical antennas, which many readers may have come across in *QST* magazine, and featured repeatedly in the *ARRL Antenna Handbook*.

The design goal of this publication is to supply a great variety of impedance transformers for matching 50ohm coaxial cable to antennas in the 1.5 to 30MHz range.

A great deal of space within this book has been devoted to the properties of toroidal cores, such as size, loss, saturation, IMD, frequency response, plus other conventional transformer properties such as turns ratio and impedance ratios.

The subject matter covered from a practical viewpoint: The balun and how to wind it; coaxial line transformers; multiple impedance transformers; unbalanced to unbalanced transformation; air cored baluns; strip line transformers; material specifications and suppliers; simple test equipment you can build; hints and tips on how to wind all types of baluns.

This book covers all the mathematics and physics required to understand the operation of transmission line transformers, but is also a practical constructional guide for those of us who would rather leave the maths to the experts.

# WIA Book Volume 1.

EDITED BY BRUCE BATHOLS VK3UV

WIRELESS INSTITUTE OF AUSTRALIA, MELBOURNE. 1982

Subject: History of WIA and technical notes for amateurs

This small book, less than A5 size, of 160 pages, is both a technical reference for amateur operators and a part history of the WIA. It has historical articles on early amateurs, QSL cards and publications pertaining to the WIA, as well as operational notes on bandplans, contests, satellites etc. The latter part of the book has a section titled "VHF Projects" which has constructional articles on VHF antennas, amplifiers etc. The book does not pretend to be a complete history, nor a complete textbook, but does add to the overall understanding of the WIA. There are a number of early photographs of people, AR covers and QSL cards. The technical articles are still useful, although a couple are a bit dated and details of bandplans etc are obsolete.

Original price was \$3.50 from the WIA. It sometimes turns up at "Trash & Treasure" sales. (*There are still some on the Executive Office shelves. Ed.*)

VK2DYM

AB

# Hamads

Please Note: If you are advertising Items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Cauffield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the aerial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

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Not for publication:

Miscellaneous

For Sale

Wanted

Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 62

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Across: 1 setter; 2 sestet; 3 sure; 4 fib;  
5 iris; 6 cast; 7 gents; 8 perm; 9 sneer; 10  
fens.

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5 bus; 6 crit; 7 viz; 8 pies; 9 beep; 10 real.

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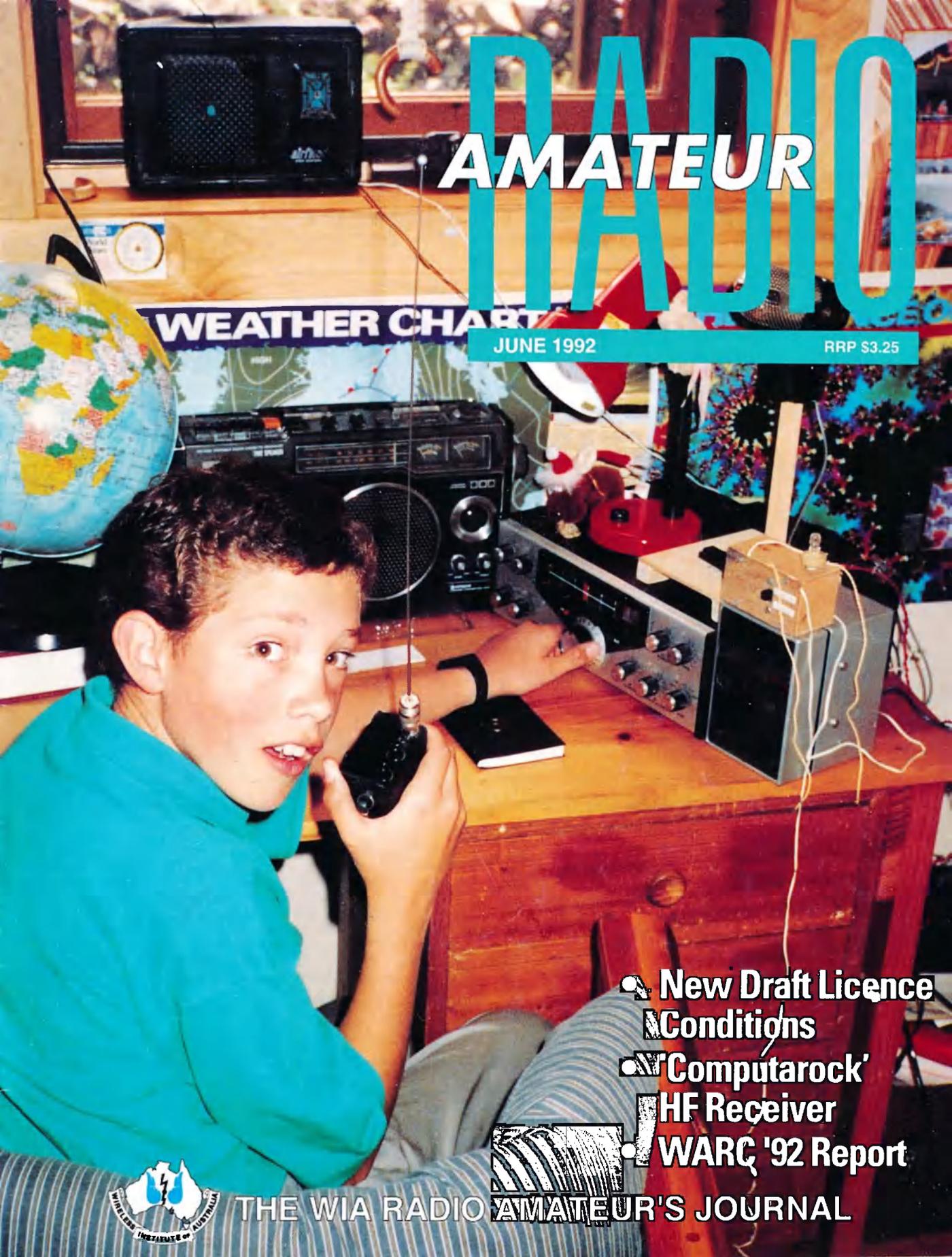
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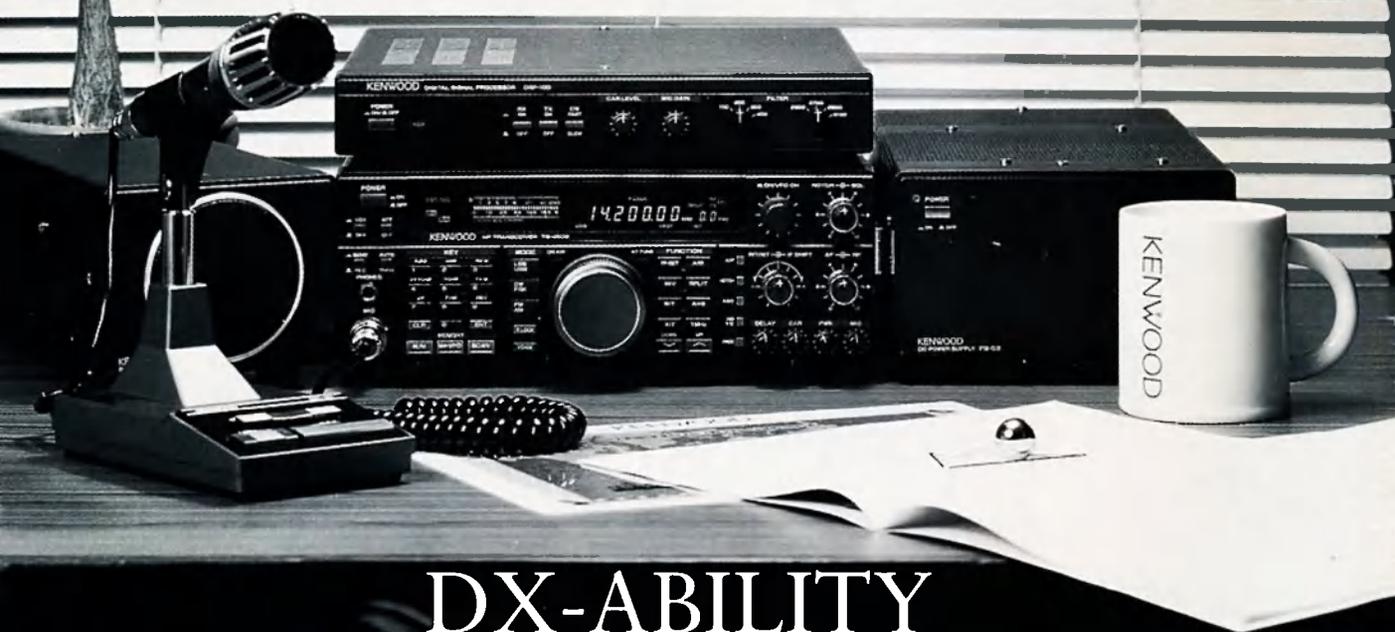


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**Cover**

James Brinkhoff VK7PAN aged 12 is pictured at the controls of his rig in Kelso, Northern Tasmania. Age information is not held in the office records, so we wonder if James is the youngest-ever licensed VK amateur and full member of the WIA? Read the complete story by Don Cripps VK7AY on page 16. Photo by James' dad, Stephen Brinkhoff.

## Amateur Radio Service

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## Editor's Comment

Bill Rice VK3ABP Editor

### Tempora Mutantur

**E**t nos mutamur in illis. The times are changed, and we are changed with them. "This time he's really flipped," you say. "Do we need Latin tags in *Amateur Radio*?" Yes, you're probably right. But, on the other hand, how very true it is. And we should never forget completely that ancient language on which so much of our own is based.

All of this was sparked off by looking back through the minutes of earlier Federal Conventions. There is an account of the 1992 Convention in this month's WIANEWS, beginning on the next page. I have the bound minutes of all that have been held from 1982 onwards, only 10 years ago, but a great deal has happened since. That was the year in which I first attended a Federal Convention, in my new official capacity as Chairman of FTAC. Peter Wolfenden VK3KAU was the Federal President, David Wardlaw VK3ADW the immediate Past President, and Ron Henderson VK1RH the VK1 Federal Councillor. These three people were also at this year's Convention, and Ron is our new Federal President. Brenda Edmonds VK3KT was also there in 1982 as Federal Education Co-ordinator, and Neil Penfold, then as now, was the VK6 Federal Councillor. But every other person present in 1982 was no longer involved this year. Twenty-eight different faces this time!

Even at the 1985 Convention (the first at which I was listed as Editor) there were 30 people present who are no longer in the Federal scene. The rate of

turnover is rather frightening, isn't it? And yet, somehow, you still seem to be stuck with the same old Editor! Just plain "Editor", not Executive Editor, as we now have a Federal Management Group, and Executive is no more.

There is one thing which doesn't change as far as this magazine is concerned, and that is our need for a good regular supply of technical articles. We still have quite a few in the queue, but they are starting to be published faster than new articles are arriving. You have all done a marvellous job of keeping up the supply for some years now, and we're not yet by any means desperate! But if you have had the germ of a tech article lurking in the back of your mind for a while, now is the time to encourage its growth! We still have a fair supply of non-technical articles, but we do like to keep the balance somewhere near right.

By the time you read this, a two-vehicle convoy containing VK3OM and VK3ABP and XYLs should be approaching far north Queensland. We expect to be active on at least 80, 40 and 20 metres, and will be stopping overnight in such places as Longreach, Karumba and Mt Isa before crossing over into VK8, up to Darwin, and then back down to Adelaide about 11 July. Incidentally, the carburettor problem, mentioned in my April blurb, was the automatic choke. A retainer clip had disappeared, allowing the choke linkage to jam now and then in the closed position. What will the next problem be?

ar

# WIA News

From the WIA Executive Office

## WIA 56th Federal Convention

The 56th Federal convention of the WIA was held at the Brighton Savoy Motel over the weekend of 2nd and 3rd May 1992. The following persons attended:

### Federal Councillors

Rob Apathy VK1KRA, Terry Ryeland VK2UX, Peter Maclellan VK3BWD, Murray Kelly VK4AOK, Bill Wardrop VK5AWM, Neil Penfold VK6NE, and Jim Forsyth VK7FJ.

### Alternate Federal Councillors

Hugh Blemings VK1YYZ, Roger Harrison VK2ZTB, Barry Wilton VK3XV, David Jones VK4OF, and Ian Watson VK5KIA.

### Executive members

Peter Gamble VK3YRP (Federal President), Ron Henderson VK1RH (Vice-Chairman of Council), Kevin Olds VK1OK, David Wardlaw VK3ADW (Immediate Past President) and Bill Rice VK3ABP (Editor).

### Observers

John Nunan VK3IC, Peter

Wolfenden VK3KAU, Clive Sait VK4ACC, Ted Doell ZL1BQA, Anne McMaster ZL3VR and Ron McMaster ZL3MQ.

### Federal Office

Bill Roper (General Manager/Secretary) and Brenda Edmonds VK3KT (Assistant Manager).

Peter Gamble opened the meeting just after 9 am on Saturday, initially in Executive mode, to deal with correspondence and reports. This was mostly routine, but one interesting item was the report by Ron Henderson on his visit to RSGB headquarters while on the way home from WARC-92.

Near midday, Executive business was adjourned until Sunday, and the meeting formally became the 56th Convention of Federal Council.

Giving his Presidential report, Peter surveyed the administrative changes and increasing responsibilities which have evolved during his four years as Federal President. He also foreshadowed his retirement from the chair. A highlight of the reports to Council was that by Ron Henderson and David Wardlaw on their participation in WARC-92. As reported elsewhere in this issue this WARC produced no significant changes in the spectrum available to the Amateur Service.

At this stage Peter handed over the chair to Ron, as business commitments required him to be elsewhere for the rest of the day, exemplifying the demands on his time which have forced his resignation from Executive.

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 800 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	3.570MHz 2m ch 8650 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO B or 1066) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley VK2ZIG Secretary Bob Lloyd-Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM; 10.125 SSB; 24.910 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18.120 SSB; 684.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional information (02) 651 1489.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilson VK3XV Treasurer Rob Halley VK3XLZ Office hours 0830-1530 Tue & Thur	1.840MHz AM; 3.615 SSB; 7.085 SSB; 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mckura 146.700 FM (R) MT, Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President John Aarsee VK4QA Secretary Ken Ayers VK4KD Treasurer David Travis VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repeated on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Rowland Bruce VKSOU Secretary John McKellar VK5BJM Treasurer Bill Wardrop VK5AWM	1820kHz 3.550MHz; 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6006 Phone (09) 388 3888	President Cliff Baslin VK6LZ Secretary John Farnan VK6AFA Treasurer Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.385, 28.345, 60.150, 438.525MHz; Country relays 3582, 147.350(F) Busseton 146.900(F) Mt William (Bunbury) 147.225(F) 147.250(F) Mt Saddleback 146.725(F) Albany 146.825(F) Mt Barker Broadcast repeated on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$46.00 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne Tas 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.05 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

## REORGANISATION

After dealing with most of the reports to Council, Ron asked Rob Apathy to introduce a proposal by the VK1 Division for re-organisation of the WIA which was foreshadowed at the last quarterly meeting (*Amateur Radio* March 92 page 5). This proposal was the result of much discussion between VK1, 2 and 3 and also with legal Counsel. It is an attempt to remedy the situation perceived by some Divisions that Council, by delegating power to Executive, has become less effective ("the Executive tail wagging the Council dog").

The proposal does two things:

Firstly, by simple changes to two of the Articles of Association, it abolishes the Executive in its present form;

Secondly, it vests responsibility for the majority of the work hitherto done by Executive in a Federal Management Group. Those members of the previous Executive who also served as directors of the WIA will cease to be directors. The only directors will be the seven Federal Councillors plus the Federal President, who is chosen by Council, but need not previously have been a Councillor.

## DOTC REPRESENTATIVES

The re-organisation debate was adjourned to deal briefly with most of the remaining reports to Council, and then to welcome to the Convention the two representatives from the Department of Transport and Communications. These were:

Ms Gwen Andrews, Assistant Secretary and

Mr David Hunt, Director, Licensing, both from the Radiocommunications Operations Branch of the Department.

Gwen Andrews spoke first about the Parliamentary Enquiry into Management of the RF Spectrum, which was recently completed but has yet to be presented to Cabinet. She assured us that none of its recom-

mendations need be feared by the Amateur community.

David Hunt announced a number of changes to the regulations as part of the continuing deregulatory program. (These are published in this issue of *Amateur Radio* magazine.) David stressed the importance of the input received by the DoTC from the WIA and the desire to encourage flexibility and ease of entry to the Amateur Service without inhibiting the development of new technology. He also noted the decreasing resources of the DoTC, and the fact that amateur licences make up less than 1% of the total number of licences under control of DoTC, which inevitably means that the time and resources devoted to the Amateur Service are limited. In these circumstances, there is no place for rules which cannot be administered.

The changes will probably become effective later this year, or early next year, after a period of "active consultation" with the amateur public. One very significant change is the introduction of a Novice Limited licence class, permitting use of FM phone (only between 146 and 148 MHz) but requiring no Morse code qualification.

Many questions were addressed to Gwen and David regarding various aspects of amateur activity and administration. All were answered honestly and thoughtfully, admitting in some cases that they did not have the answer either! On that note the meeting adjourned to dinner, where we were delighted that the DoTC representatives had accepted the invitation to join us. Another dinner guest was Maggie Iaquinto VK3CFI, the winner of the 1991 Ron Wilkinson Achievement Award who, on behalf of the VK3 Division, received the 1991 Remembrance Day Trophy from Neil Penfold VK6NE, the Federal Contest Co-ordinator.

## OTHER BUSINESS

The meeting re-opened on

Sunday, again under the chairmanship of Peter Gamble, in Executive mode to deal with a range of agenda items. These included international liaison, examination service progress (very gratifying), repeater linking, options for the future production of *Amateur Radio* magazine, spread spectrum modes, suggestions for an opening speaker for the 1992 Remembrance Day Contest, the Amateur Service responsibility to publicise the increasing number of systems contributing towards pollution of the RF spectrum, and a number of more minor items.

## RE-ORGANISATION AGAIN

The principal business on Sunday afternoon was, again as Council, to continue the debate on re-organisation. Six agenda items were involved in setting up the machinery to abolish the Executive and revise the management of the WIA. The first five were carried unanimously with very little debate, and the sixth was withdrawn, as acceptance of the others rendered it irrelevant. One clause was added to the fourth motion, empowering the General Manager to set up the new Federal Management Group to supersede Executive.

## NEW PRESIDENT, SAME COUNCIL

It was moved by VK3, seconded VK1, that the incoming Federal President should be Ron Henderson VK1RH. This was carried unanimously. Ron has been a very competent Vice-Chairman for some years, so was seen to deserve promotion to the chair! The seven Federal Councillors were unchanged, as listed earlier.

## G A TAYLOR MEDALLIONS

One of the last items agreed to before the election was that G A Taylor Medallions (the WIA's highest award short of Life Membership) should go to David Wardlaw VK3ADW, Pe-

ter Gamble VK3YRP and Wally Watkins VK4DO, for years of service to the WIA in many capacities. Thus it was that one of Ron's first duties as President was to make the awards of these medallions to the two nominees actually present (VK3ADW and VK3YRP). The third medallion was accepted by Murray VK4AOK, on behalf of the Queensland Division, for later presentation to VK4DO. On this happy note the 56th Convention concluded just after 3.30 pm.

## ARRL DXCC News Release

An interesting circular has been received from the ARRL and is being publicised in order to allow radio amateurs the opportunity to comment on matters under consideration by the ARRL DX Advisory Committee.

### New DXCC Country

#### Actions:

- Vatican enclave of the Holy House (HV0HH) was rejected for new DXCC country status by a vote of 15 - 0.

The following are under consideration for new DXCC country status:

- Add Pratas Island (21N 117E) - waiting further information and a formal application.

Make Ceuta and Malilla (EA9) two separate countries - based on Rule 3, separation by another DXCC country.

The following are under consideration for DXCC deleted country status:

- Spratley Is (1S) - based on no longer meeting criteria.
- South Sudan (ST0) - based on no longer meeting criteria.

The following questions are under consideration:

- Should electronic confirmations be acceptable for DXCC credit?
- Should separate DXCC country status for the Vienna International Centre (4U1VIC) be reconsidered?
- What are appropriate guide-

lines and procedures for DX operations - particularly DXpeditions to rare countries?

• Should contacts with stations on docked ships count for DXCC credit?

• What does the future hold for DX and DXCC?

## Further News from WARC 92

**R**on Henderson VK1RH, one of the WIA delegates at WARC 92 advises that the Canadian WARC 92 delegation provided a couple of conference documents on Digital Audio Broadcasting experiments they had conducted to determine the characteristics of typical systems. They had used UHF and 1.4 GHz signals including a synthesised satellite path.

By digital Audio Broadcasting or DAB we mean the digitisation of a signal as close to the source as possible and its passage in digital form to the listener's receiver. Of course compact discs are already in digital format and can be readily accepted into the system. As a matter of interest the Canadian experimental system employed a fully digital studio control panel. Perhaps it was akin to a mini telephone exchange!

By multiplexing or combining several digital signals into one composite modulating signal, a multi-channel as well as a stereo system can be obtained. This has many advantages such as multiple stereo channels from the one transmitter.

The WARC considered DAB, both in its terrestrial and satellite forms, which were seen as complementary, as a development worthy of receiving consideration in the "carve up" of precious spectrum. It is expected terrestrial systems, possibly co-located with existing UHF TV installations, will shortly come into service to demonstrate DAB's capabilities.

Those of you experienced with modern digital telephone

systems may ask how do you tune in a system which has, in practice, no background noise?

So what's in it for the amateur service? Well, the increasing availability of receivers will serve as an impetus for experimenters to build digitisers and transmit digital speech signals. No doubt the IC chip sets exist. After all the technology is not new, at least for the digital to analogue path, being included in every CD player!

How could we amateurs use a version of DAB? Perhaps to provide an audio channel in parallel with one or more data channels. No great gains for packet you might think, except for engineering and experimentation, that's true. But suppose you are a real computer buff, transferring computer files of data and software on air with a friend who has similar interests. You could conduct duplex speech liaison traffic in parallel with your data and not clog up the local repeater as is inclined to happen today.

The WIA will be examining this mode of modulation, that is broad band or high data rate signals, to ensure the Australian amateur is able to experiment with it.

## Changed Your Address or Callsign?

**M**ost WIA members are very good about notifying the Executive Office of changes to their addresses or their call sign. The reverse side of the address label flysheet in each copy of Amateur radio magazine is designed to make this easy for you.

However, a few members recently have sent in only the end section with the new details on it, and not the whole sheet, making it time consuming to work out who it has come from and what has to be changed. Please reduce the stress on the membership secretary and provide BOTH the old and the new information when advising of any

changes in your details.

## Death of ORARI President

**L**etters from Masayoshi Fujioka, Secretary of the IARU Region III, and David Rankin, President of the IARU Region III, announce with deep regret the unexpected death of Mr Barata YB0AY, President of ORARI, the Indonesian host society of the IARU regional conference held in Bandung during October last year. This is a sad loss to both ORARI and the IARU. The WIA extends condolences to its sister society, and the family of the deceased.

## IARU 1992 ARDF World Championships

**T**he 6th IARU Amateur Radio Direction Finding World Championships 1992 will be held in Hungary, hosted by the Hungarian Amateur Radio Society, from 8th to 12th September 1992. Unfortunately this notice did not reach the WIA until two weeks after the closing date for entries to be received.

## Amateur Radio Magazine

**W**hat is your magazine to you? How does the "average" amateur see this magazine? Is it a source of up-to-date technical information, a collection of irrelevant trivia, light entertainment, a sales pitch, a trading centre, a contests/awards guide, a social calendar, a newsletter or a gossip column?

Surveys at various times have highlighted the vast range of expectations among readers, and a similar range of perceptions, but members are getting just about all of the above, and maybe more. Not every issue of *Amateur Radio* magazine includes them all, but over a few issues a wide range of interests

is satisfied. But are our readers content with the present situation?

The WIA sees the magazine as a forum for its members to contribute technical, or general interest articles, to air their views on operating techniques, regulatory procedures or published items, etc.. Feedback from a range of sources confirms the high standing of *Amateur Radio* magazine among similar publications world wide. It is quoted from and used as a reference in many other journals.

Despite comments recently in this column about the delay between receipt of an article and its actual publication, the Publication Committee is always pleased to receive articles or other items for consideration for publication. In the attempt to please all readers, and to produce a reasonably balanced magazine, the Editors need to have plenty of items ready for use.

There are some contributors who submit items frequently, but I am sure many members could manage an occasional article or story. The space distribution is based on member input and interest, in particular on responses when asked which articles and columns are read. If you are not satisfied with the present system, there are two approaches you can take:

A. Do something about it such as writing and submitting articles or comments, or encouraging others to do likewise.

B. Voice your concerns in the places where it can have some effect. There is no point in criticising the magazine on the local repeater if you are not prepared to make the effort to pass your comments direct to the Publications Committee.

As in many fields, the voices of the critics are louder than those of the supporters. But it is significant to note that, three years after the introduction of the X Grade membership, which does not include the sup-

ply of a magazine, the members taking this option comprise less than 7 % of the total membership.

Often members approach the WIA with "Why don't you.. ?" ideas, suggestions for special columns, articles, or reports, or general ideas on changes to the layout or emphasis. This is great. All ideas are welcome, and are discussed by the Publications Committee. But the implementation usually requires someone to do the extra work. It would be even better if the idea came equipped with the offer of action.

### Exams Update

As at the 30th April 1992 there were just over 300 Accredited Examiners listed with WIA Exam Service. Of these, 168 have conducted examinations on one or more occasions.

It is understandable that the two figures do not tally - many examiners may intend to conduct only one examination per year, say at the end of a course, and it is possible that a number arranged accreditation to assist with club activities, or simply to be able to be kept up-to-date with procedures as time goes by.

At times rumours are heard that the service supplied by the examiners is less than satisfactory, or that an examiner has stated that he does not intend to conduct further examinations. As WIA Exam Service is keen to keep its records up-to-date, we would appreciate being told directly of any examiners who have stated their intention not to examine, so that we can obtain confirmation from them and adjust the lists accordingly. In that way, they will not be bothered by enquiries from recruits asking for assistance or examinations.

Examiners who have not conducted an examination in the previous 18 months will be deleted from the published lists automatically, but may be re-

instated on request. It is perhaps worth reminding members that remote candidates can be examined as easily as those in the suburbs. It is up to the candidate to find two acceptable supervisors - other amateurs, or persons from the categories on the published list - who are prepared to administer the examination on a "once-off" basis. For these persons, no accreditation fee is payable.

### 1991 JOTA Report

Each year the WIA receives a copy of the International Jamboree Of The Air report, compiled by the World Organisation of the Scout Movement in Geneva. The 1992 JOTA report has just been received.

It is an impressive document of 38 pages, with extracts from the reports submitted by each country, and comments on the activities involved in the 1991 JOTA held on 19-20th October 1991. The statistics show that the JOTA is still gaining strength - over 386,000 JOTA participants used 12,367 radio stations staffed by over 33,000 amateurs, with a tally of 99 countries participating.

Particularly noteworthy were the newly established scout stations from eastern-European countries, and the enthusiasm of the countries for submitting reports to Geneva. The latter of course was stimulated by a competition for the best report, a competition won by Mexico, with Australia second and Oman third. According to the figures, 21.5% of Australian scouts/guides participated, contacting 48 countries. Note was made of the satellite links provided by AUSSAT, and also various contacts with MIR.

This year, the 35th JOTA will be held over the weekend of 17 - 18th October, with the theme "Let's talk".

### ITU News

A press release from the International Telecommunications Union ad-

vises that:

"The instrument of accession of the government of Azerbaijan has been deposited with the International Telecommunications Union (ITU) on 10th April 1992, making that country the 167th member.

The accession of Azerbaijan follows that of Lithuania (12th October 1991) and Latvia (11th November 1991). The former USSR Republics of Belarus and Ukraine have both been members since 7 May 1947".

This notice was followed a few days later by a similar announcement about Estonia becoming the 168th member of the ITU. Estonia is situated on the Baltic Sea, North of Latvia and bounded on the east by Russia.

The ITU has also recently announced the establishment of a World Telecommunications Advisory Council, comprising senior representatives of the Telecommunications industry. The intention of the Council is for it to provide advice to the ITU on its activities and recommendations for the worldwide development of information technology, as well as raising the awareness of the importance of investment in telecommunications.

### Spread Spectrum Transmissions

So-called "Spread Spectrum" communications modes have come to prominence in amateur radio over the past decade, although the technique, as a possible amateur mode, was mooted as early as the mid-1950s (see a QST article, "Poisson, Shannon and the Radio Amateur").

The following concise definition was supplied courtesy of Dave Horsfall, VK2KFU/VK2SSG.

As the state of the art currently stands, there are three main modes:

1. CHIRP: the transmission frequency is swept up and

down a wide band. (Not an approved "legal" mode);

2. FREQUENCY HOPPING: the frequency "hops" to pre-defined (pseudo random) frequencies at high speed, staying on each frequency for less than 0.1 secs (usually much less);
3. DIRECT SEQUENCE ("true" spread spectrum): the transmission is modulated with a digital pseudo-random binary pattern, causing it to occupy great bandwidth, but the power in any typical "window" is below the noise floor.

Technically, spread spectrum is a "wide-band" mode and is only permitted to amateur radio operators in Australia above 420 MHz only.

### D-I-Y Radio

Last year *Amateur Radio* magazine published a review of "D-I-Y Radio", a new publication by the RSGB aimed at the beginners in amateur radio, which is published six times a year. We have recently received advice on subscription procedure. It is available to overseas subscribers for Pounds (Sterling) 12.18 per year, from DIY Radio, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE UK.

The March-April issue contains instructions for building a BFO, simple explanations of capacitors and wave motion, a kit review, readers letters, and other minor news items. This could be a useful publication for any beginner in radio theory.

### SEANET '92

*Amateur Radio* magazine last month published a small advertisement for SEANET '92, which is to be held in Darwin from 29th October to 1st November 1992. SEANET is a group of radio amateurs spread around Northern Australia and south-east Asia who hold regular skeds, and

hold an annual Convention. This year will be the first time the Convention has been held in Australia. The publicity being received at the Federal Office invites all interested parties to attend. Further information can be obtained by writing to Jim Jones, VK8LJ, Secretary, SEANET '92, PO Box 37173, Winnellie, NT 0821.

## New IARU Members

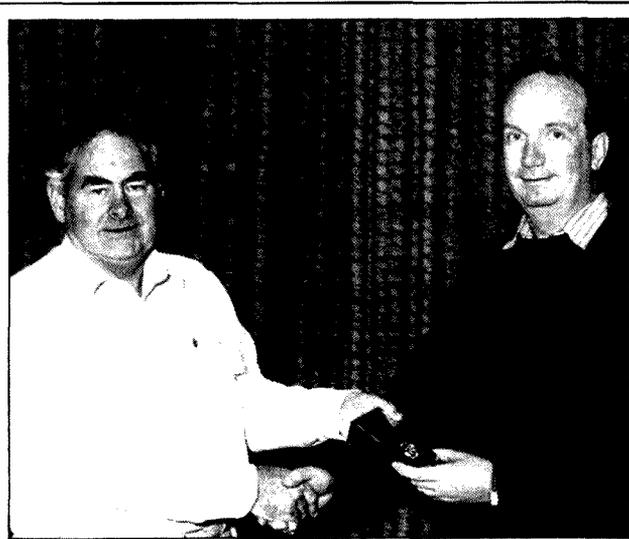
International voting has just agreed that the Namibian Amateur Radio League should be admitted to membership of the IARU, making a total of 128 members. There is also a proposal in circulation to admit the Chinese Taipei Amateur Radio League to membership.

## Written That Article Yet?

Although at the present moment the Editor of Amateur Radio magazine holds a reasonable stock of articles for future publication, it has been noted that the number of articles being received has dropped over the last few weeks. Perhaps there was a spate of writing by members over the New Year holiday period which has now dried up. Now may be the time for you to do something about that article you have always intended to write. Technical or general interest, serious or humorous, long or short will be acceptable. The Editor likes to have a variety on hand in order to be able to select by style, topic and length in the perpetual quest for a high quality, balanced magazine.

## Regulations Brochures Changes

In conjunction with the rewrite of the amateur service licence conditions, published later in this issue, the DoTC have reprinted bro-



**Ron Henderson VK1RH, newly elected Federal President of the WIA, presenting a G A Taylor medal to the retiring President, Peter Gamble VK3YRP at the 1992 Federal Convention.**

chures RIB 70 and RIB 72 with some minor changes recommended by the WIA.

### RIB 70

Paragraph 31 of RIB 70, which related to cross linking of repeaters, has been omitted from the reprint of that brochure. Unfortunately, however, some minor errors crept in to the reprint, and Sheila Grant from the DoTC Licensing Section Publications Sub-section has asked me to publicise the following so that you can correct your latest copy of RIB 70.

- The index still shows paragraph 31.
- Radiation Angle was omitted from Appendix E, paragraph 11.1 (d) and should be included as (vii).
- The code for the Morse Code commencing signal appearing in Appendix F should be corrected to show dahdidahdidah.

Sheila advises that an insert correcting these errors will be produced and inserted in the January 1992 edition of brochure RIB 70.

### RIB 72

Part 3, the CALL AND REPLY section of RIB 72, has been out of touch with amateur radio re-

ality for many years, and has been quite misleading to new amateurs wishing to learn the correct calling procedures.

In conjunction with the WIA this section has been completely rewritten to reflect current and proper practice. The latest reprint, showing the "Revised Jan '92" note on the bottom right hand corner of the front cover, includes the new Part 3 paragraphs. This is yet another example of the WIA, representing the Australian radio amateur service, working in co-operation with the DoTC to improve the conditions and privileges for all Australian amateurs.

## Amateur or Ham

Since 1959 the WIA has had a policy to actively discourage the use of the word "ham" to describe an amateur radio operator. After taking into consideration:

1. the increased use, public understanding and acceptance of the expression "ham" to denote a radio amateur within Australia, without any derogatory intent;
2. the meanings of "ham" and "amateur" in the Australian

Macquarie dictionary; and  
3. the need to explain amateur radio in terms easily understood by the public and so raise their awareness of our hobby;  
the WIA Federal Council has repealed that policy.

This does not mean that the WIA is actively advocating the use of the word "ham", simply saying that it is OK if people use it when describing an amateur radio operator.

## Telephone RFI

As many amateurs have discovered to their dismay, the new slim-line push button telephones being marketed by AOTC (formerly Telecom), are very susceptible to RFI.

Barry Wilton from the WIA VK3 Division has been actively involved for some time in trying to find a solution to this problem, and at last Barry's endeavours have paid off.

In a letter just received, AOTC advise that they now have an EMI resistant TF200 telephone available which they believe will be adequate to solve most RFI problems encountered. Unfortunately, only limited stocks are available at present of these EMI resistant telephones.

According to the new AOTC policy, where a rental telephone is suffering from RFI, the customer shall have the option of having the telephone replaced with a special Telecom TF200 telephone which is resistant to the effects of EMI (at an increased annual rental "to cover the increased complexity and higher maintenance liability of this telephone").

Or, if a Telecom sale telephone has EMI problems within 12 months of purchase, a refund will be available.

This is another example of the WIA, representing the Australian radio amateur service, acting to improve conditions for all Australian amateurs.

*Bill Roper VK3ARZ ar*

# Report to the WIA on WARC-92

**David Wardlaw VK3ADW  
Ron Henderson VK1RH**

World Administrative Radio Conference 1992 or WARC-92 for short, was held in Torremolinos, Spain from 3 February to 4 March 1992. Some 1400 delegates from 120 countries met to discuss many vital radio-communications matters which will affect the world over the next few decades. The WARC was called by the International Telecommunications Union (ITU), an agency of the United Nations. The ITU regularly calls conferences concerned with the Radio Regulations. These are called Administrative Radio Conferences and their Final Acts have the status of an international treaty. In the case of WARC-92 the agenda included, amongst other things, possible changes to frequency allocations in certain parts of the spectrum. Consequently it was of interest to the amateur service.

## Preparation

The Administrative Council of the ITU under instructions from the Plenipotentiary Conference, the supreme body of the ITU, published the WARC-92 agenda back in June 1990. Since then the Australian authorities, DOTC, through its Australian Preparatory Group or APG of some 90 members from the Department, government and industry had been active preparing the Australian position. The APG was assisted by its five committees of specialists which met approximately monthly. The WIA was represented on four of these, the technical, frequency allocation, regulatory and HF broadcasting committees by David Wardlaw VK3ADW and Ron Henderson VK1RH.

WARC-92 was tasked to consider "fre-

quency allocations in certain parts of the spectrum"; in that way it differed from WARC-79 which was a general WARC of considerably longer duration and broader agenda. The agenda set for WARC-92 did not specifically mention amateur radio, however early in the preparation stages the International Amateur Radio Union (IARU) and member societies, of which the WIA is one, became aware amateur related issues might arise. These included pressures for additional HF broadcasting spectrum which could have affected the 40 metre band; demands for spectrum around 1.5, 2.5-3.0 GHz and the likelihood of wind profiler radars around 50, 400 and 1000 MHz.

Australia was represented at WARC-92 by a delegation 22 strong; made up of 5 DOTC officers, including the delegation leader and deputy, representatives from other government departments, CSIRO, the

telecommunications, broadcasting and television industry and the WIA.

## Amateurs at WARC-92

The IARU, being an "exempt international organisation", had an observer team at the WARC, led by its President Dick Baldwin W1RU. Other members of the team were Larry Price W4RA, IARU Secretary, David Sumner K1ZZ and Dan Bergeron KB4IYK, both IARU Secretariat, Wojciech Nietykaza SP5FM, IARU Region I Vice President, John Allaway G3FKM, IARU Region I Secretary, Al Shaio HK3DEU, IARU Region II President, Tom Atkins VE3CDM, IARU Region II Secretary and David Rankin 9V1RH, IARU Region III chairman.

Holding accredited observer status, and not associated with any national delegation, the IARU team were able to move about the conference and speak with delegations with a single authoritative amateur viewpoint.

In addition to the official IARU observer team there were amateur national society members on a number of delegations representing principally the amateur viewpoint. They were David Wardlaw VK3ADW and Ron Henderson VK1RH of the WIA with the Australian delegation, Ben Samsu YB0EBS of ORARI with Indonesia, Young Soon Park HL1IFM and Lee Young Ho HL1AKF of KARL with Korea, D D Deven 9M2DD of MARTS with Malaysia, Shoso Hara JA1AN and Masa Fujioka JM1UXU of JARL with Japan, Fred Johnson ZL2AMJ of NZART with New Zealand, David Evans G3OUF of RSGB with the UK, Paul Rinaldo W4RI of ARRL with USA, Mirko Mandrino YT7MM of ARI with Italy, Ojekunie Ajayi 5N0OBA of NARS with Nigeria and Peter Hall SM0FSK and Sigge Skarsfjall SM5KUX of SSA with Sweden.

During the WARC the IARU placed a registration sheet in the conference foyer for all amateurs present to record their names and callsigns. By the end of the conference some 100 other licensed radio amateurs signified their attendance, showing around a 10 % amateur presence and giving rise to the jocular expression "amateur mafia!".

At this point it is worth noting all Australian members had full delegation member status, an action the DOTC is to be congratulated for implementing. Often this meant amateur members (and others) had to attend meetings and speak on behalf of Australia on matters not in their direct interest.

### Conference Conduct

ITU decision making is achieved through a ponderous and lengthy process. The agenda is usually so large and wide ranging that it must be broken into manageable "chunks" or related issues and processed in numerous committees and working groups, meeting in parallel. Hence the value of a large delegation with all members briefed on a wide range of issues.

WARC-92 was no exception, for it set up six committees from day 2 and they in turn set up their own working groups, ad-hoc groups and drafting groups to grapple with the agenda items.

The two committees of principal interest to the amateur service were Committee 4 - Frequency Allocations and Committee 5 - Regulatory Matters. Your two amateur representatives split their efforts across these with David following the frequency allocations and Ron the regulatory issues.

Also of interest was the Working Group of the Plenary which was the name given to the Technical Committee. This Committee dealt with Wind Profiler radars and was also covered by David.

All completed committee output documents were passed through an Editorial Committee to achieve consistency of ITU style and the requisite translation into the three working languages of the Union, namely French (the authoritative language), English and Spanish. The Editorial Committee then sponsored these output documents through two readings of Plenary to become final acts of the WARC.

In order to cover all the frequency allocation issues three committee 4 Working Groups were created, 4A for HF and proposals up to 137MHz, 4B for 137MHz to 3GHz and 4C for matters above 3GHz. Committee 5 also set up three Working Groups, however the division of its work was not as clear cut as for Committee 4.

The greater part of the first three weeks of the WARC was devoted to sub-committee meetings to hear national proposals, identify common ground and points of contention, then to resolve those differences through consensus. Many small sub groups were set up to consider specific points and report back to sub-committees.

Most meetings were conducted in six languages with speakers being simultaneously interpreted into the other five languages through wireless headsets. At the start it was eerie to enter a conference in session and hear only the rustle of papers until one collected a headset and switched on to the English channel! The languages

were English, French, Spanish, Chinese, Russian and Arabic and the teams of interpreters were outstanding in their patience and workmanship.

Regular, though brief, meetings of Committees were held to review progress. This process was repeated with weekly Plenary meetings at which some nations felt the need to have their views recorded in the record despite the often somewhat redundant nature of their remarks.

By the end of the second week the committee chairmen could see the need for additional consideration time, for many nations were intent to speak at length on their national views. Indeed it felt at times the speech length was inversely proportional to the potential impact of the speaker's nation. Consequently, knowing the WARC could not be extended beyond its scheduled four weeks and two days, night and evening meeting sessions were programmed. Upon reflection, many nations were holding back and not prepared to disclose their true positions on the several conflicting frequency allocation issues. Consequently proposal papers continued to be printed and distributed until late into the conference and consensus through compromise was very late starting. Other contributing factors to this slow progress were the formation of blocks of interests; the CEPT was strong in professing consensus and compromise had already been reached in the Community and no member could back down further; the Arab and African states frequently supported each other whilst a lesser cohesion was seen from the

Americas of Region I and no cohesion was apparent from South East Asia, due possibly to commercial and industrial influences from manufacturing nations in our region.

The last days of the WARC were hazy in many delegates' memories. On the last Sunday evening procedural points of order were raised with the Chairman, concerned with the slow progress being made in Plenary on frequency allocations around 1.5 and 2.5GHz. Eventually a point of order to adjourn for the day was moved and voted in favour. The Secretary General and WARC Chairman then met with concerned heads of delegations and eventually agreed a way ahead around 4 AM. The Plenary resumed at 9.30 AM and met in continuous session, except for meal breaks and whilst awaiting papers until all issues were resolved, some say by exhaustion, at 7.32 AM the final morning. Plenary reconvened at 2 PM for acceptance of formal statements for inclusion in the Final Acts, which were then printed and issued just before a 10.30 PM formal signing and closing session. In the event the Final Acts, as distributed, contain a gap in the frequency allocations from 960MHz to 13.75GHz, together with a secretarial note that the missing portion was being reconstructed from the notes of the Secretariat, the official precis and tape recordings and would be forwarded when completed. At the Australian WARC-92 debrief to the APG in Canberra in mid March '92 the head of Delegation said a copy of the outstanding material from the Final Acts was on its way to him from Geneva by special courier. They have now arrived.



The two WIA delegates to WARC '92 David Wardlaw VK3ADW and Ron Henderson VK1RH

Incidentally the collected papers from WARC-92, some 400 in all, are available from the ITU in electronic format on some 25 disks for around 200 Swiss francs.

### The Outcomes

In reviewing WARC-92 outcomes it's worthwhile going quickly through the whole agenda, highlighting issues which did, or may in the future affect the amateur and amateur satellite service. The amateur satellite service has received little mention throughout this report, however with the increasing emphasis being placed upon satellite communications there are potential implications for amateurs.

### High Frequency Broadcasting

High frequency broadcasting (HFBC), despite strong pleas from broadcasting nations and equally strong resistance from principally emerging nations, gained some additional 790 kHz spread across the HF bands below 30MHz. This gain was not without concessions, for it will not be available before 2007, will need a further WARC to coordinate its introduction and must be used only for single sideband transmissions. The debate on re-allocation of spectrum to HFBC began at the higher frequency bands, where many nations felt they were able to re-allocate spectrum and worked down in frequency. By the time 10 MHz was reached opposition had stiffened considerably and the final plan, which was presented as a "take it or leave it, or all bets are off" package reallocated only 200 kHz below that point. Changes were made to broadcasting around 7MHz but many nations proposed no change to the amateur allocation. As a consequence any attempt to align the amateur band world wide was fraught with the danger that alignment might be by reducing the width of the band in Region II. Having stated the 200 kHz total reallocated to HFBC below 10MHz was an absolute limit the likelihood of reallocating a further 200 kHz at 7MHz for amateurs in Regions I and III was an impossible expectation. The IARU team discussed with nations sympathetic to amateurs a Recommendation the alignment of the 7MHz band be referred to a later WARC and this was accepted by the WARC and appears in the final Articles. In effect we survive to try again at a later date when the HFBC situation has stabilised and reduced the pressure for spectrum.

Another HF gain was a recommendation directing nations to maintain their HF broadcasting within the designated bands. This



**These two pictures, reproduced from a tourist brochure, show Torremolinos recently and as it was about 50 years ago. On the Spanish Costa del Sol (or Sunshine Coast) it seems rather reminiscent of how our own Queensland Gold Coast and Sunshine Coast have evolved.**

recommendation should be included in amateur intruder reports to reinforce their impact.

### Mobile Satellite Service

The Mobile Satellite Service (MSS) was a contender for spectrum around 150MHz and 1.5GHz. LEOs or Low Earth Orbit satellites were contenders for this spectrum, which amateur satellite users know is ideal for such applications. The Table of Frequency Allocations was altered around 137 and 150MHz and at selected frequency segments between 1 to 3GHz to accommodate them. The outcome for amateurs will be new neighbours at 148-149.9MHz which is to become a LEO uplink band.

### Broadcasting Satellite Service Sound

The Broadcasting Satellite Service Sound (BSS(sound)) is intended to be based on digital broadcasting techniques, otherwise known as Digital Audio Broadcasting - DAB. The service has a complementary terrestrial broadcasting service using the same techniques. The WARC had difficulty in allocating one unique frequency band worldwide, despite its attraction for equipment manufacturers and in the end established three distinct bands, namely;

1452-1492MHz world wide with secondary status in many countries until 2007;

2310-2360MHz in the USA, which is also secondary to the Amateur Service; and, 2535-2655MHz in some Region III countries and Russia.

Amateurs may be able to take advantage of DAB techniques in the future and combine voice and data on the same channels for DAB multiplexes many channels on the one bearer.

### Future Public Land Mobile Telecommunications Service

Future Public Land Mobile Telecommunications Service (FPLMTS) is a system for the future where a user with a low power hand held cellular phone can roam world wide with immediate communications. It poses questions of sovereign rights of nations, the recovery of call costs and the interconnections between its terrestrial and satellite components. The WARC was of the opinion it needed further study by the CCIR but they did allocate, through a footnote, spectrum in the bands 1885-2025 and 2110-2200MHz on a world wide basis. Whilst these frequencies are not near any amateur allocations the technology has much amateur potential if employed in our bands.

### High Definition Television

High Definition Television (HDTV) is a high technology extension of television

services which employ satellites and provide a significantly higher grade of picture. It is a direct satellite to user broadcast service and desirably should have a common frequency allocation world wide. WARC however was only able to agree on an allocation to Region II in the range 17.3-17.8GHz and in Regions I and III 21.4-22GHz, commencing in the year 2007. The amateur implications are slight unless we also wish to go into high definition ATV satellites utilising commercial HDTV receivers with down converters.

#### **Aeronautical Public Services**

WARC had before it consideration of frequency allocations for the Aeronautical Public Service (APS) which will permit phone calls from passenger aircraft in flight to the public telephone systems of the world. Once again a world wide frequency allocation was highly desirable and the WARC agreed an allocation at 1670-1675MHz ground to air, and 1800-1805MHz air to ground. A footnote was entered by some Region II countries, including USA and Canada, for allocations around 850 and 890MHz. Consequently aircraft will probably need to be equipped with two transceivers to permit world wide usage.

#### **Wind Profilers**

Wind profilers are doppler radars which determine the wind profiles at a number of altitudes. Several well separated frequencies are required to cover all heights of interest and the CCIR is already studying frequencies around 50, 400 and 1000MHz, somewhat close to amateur allocations for comfort. Indeed experimental systems have been operating at 49MHz in Darwin and the USA showed a preference for 449MHz, a selection which did not receive much support at the conference although it did avoid safety of life satellite communications around 406MHz. The WARC discussed the matter at some length and resolved to refer the matter to the CCIR for further studies before allocating frequency segments.

#### **The 75.5-81GHz band**

Amateurs have a little used allocation in the Table of Frequency Allocations at 75.5-81MHz. 75.5-76GHz is primary amateur whilst the remainder of the band is secondary. A Russian Federation initiative for Space Research (Earth to Space) now makes that service an additional secondary service in the band. The views of experts in the field suggest the Russians will not be able to take up this allocation for some time.

#### **Footnotes**

One observation from WARC-92 was the increase in use of footnotes to designate a differing use for a frequency band from the usage shown in the Table of Allocations. This happened despite the fact that the ITU has set up a Volunteer Group of Experts (VGE) to simplify the Radio Regulations, of which the Table of Frequency Allocations is RR 8. One of particular note was the increased use of 430-440MHz by other than the Amateur Service in some 64 nations.

#### **Regulatory Matters**

On the regulatory side the Radio Regulations relating to qualifications for ships operators were revised to align them with the Safety Of Life At Sea (SOLAS) Conven-

tion. This means ships will be changing over to Global Maritime Distress and Safety System (GMDSS), a satellite based reporting system in the near future replacing the redundancy of ship borne equipment and the technically qualified maintainer-operator. The International Maritime Organisation (IMO) believes when GMDSS is fully implemented in 1999 use of morse radio-telegraphy by ships will cease after 100 years of dedicated and faithful service. The implications for the Amateur Service are we will then be the sole remaining service requiring morse proficiency for an operator's certificate and no doubt the regulatory authorities will question its relevancy.

#### **The future of WARCs**

During WARC-92 an evening was devoted to reporting and discussion by the High Level Committee (HLC), a group of people expert in ITU ways, who were tasked in 1990 to review ITU operations. The HLC proposed a number of significant changes to make the ITU more efficient whilst still remaining within its budget. One proposal, which the Secretary General has already adopted, was to schedule WARCs at more frequent intervals, but for lesser duration and with shorter agenda devoted to like issues. We are therefore likely to see WARCs every two years, with around four years notice of their agenda. This will probably cause the Australian Preparatory Group (APG) to remain continuously in session, possibly meeting half yearly, with the specific WARC preparation done by dedicated committees. The WIA will need to monitor all APG meetings and seek representation on those WARC committees which have agenda items which might affect the Amateur Service. For planning purposes we should think about having to be represented at around half these shorter WARCS, that is for fourteen to sixteen days every four years.

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## **New Date for Deferred NSW Division AGM**

**Sunday 28th June 1992  
See VK2 notes page 47**

**Have you  
advised  
DoTC of  
your  
new  
address?**

# Deregulation of Licence Conditions

For many months the WIA and the DoTC have been working together to bring about a new set of deregulated amateur licence conditions. The release of the draft of the licence conditions for public comment represents a major breakthrough in the move towards deregulation and increased self management by the Amateur Service in Australia. But what do the changes mean to the amateur community?

Bill Roper VK3ARZ

Amongst other things, the new licence conditions no longer distinguish between the different modes of operation. Licence conditions are now expressed in general terms which apply to all modes of operation.

A new class of licence, based on Novice theory and no CW examination, the Novice Limited, is included in the conditions. These licensees will be permitted the use of 30 watts mean power; FM only, on the 146 - 148 MHz Novice band.

Power limitations for Novice and Novice Limited operators have been increased to more readily align with commonly available commercial equipment - 100 watts output on SSB, and 30 watts on FM. Combined Limited and Novice licence holders will be able to use full 400 watts power on all bands, not just those above 30 MHz.

Identification requirements have been simplified considerably. For instance, all amateur stations will now be required to transmit *their own callsign only* at the beginning and end of each series of transmissions, and at ten minute intervals.

These changes will be most noticed by packet operators. The new identification requirements will allow packet networks to

be more easily established using software which is readily available overseas and which to date has been illegal to use in Australia under the current identification requirements. Also, some repeater stations will no longer have to identify.

Probably the greatest area of change in the licence conditions is in the area of repeaters. For some time now the amateur community has been moving to establish networks of repeaters, a task that was proving difficult under the current conditions. The new conditions recognise the concept of a network of repeaters as an entity in its own right. Traffic between repeater network stations is seen as traffic that belongs to the network, not to the originator of the signal. This simplifies the process when, for instance, a Novice is being retransmitted on linked repeaters.

Gone also are the current restrictions on linking of repeaters. The scope and functionality of a repeater network is only limited by the imagination of the designers of the repeater. We could now establish a network of repeaters that you access on voice and have your signal emerge to the party you are calling as a packet message and vice versa.

The new conditions are a major advance

for the amateur service in Australia and remove many unwanted regulations. However, conditions in respect of matters such as interference are virtually unchanged. A responsible attitude on the part of ALL amateurs is necessary if the new conditions are to be a success.

Although these proposed licence conditions represent a giant step along the road of deregulation, the WIA will continue to seek further privileges for Australian radio amateurs.

To help us in that regard further input from members would be most welcome.

If you have any comments on the proposed changes to licence conditions, as published below, please forward them in writing to Mr. D. Hunt, Director Licensing, PO Box 594, GPO Canberra ACT 2601, to reach him no later than 17th July 1992. Please also forward a copy of your comments to DoTC to the WIA at PO Box 300 Caulfield South VIC 3162.

The DoTC news release follows:

## PROPOSED LICENCE AND TECHNICAL CONDITIONS TO BE ATTACHED TO AMATEUR STATION LICENCES

### PART 1 - GENERAL

The Amateur Service in Australia is authorised under the *Radiocommunications Act 1983*, the Radiocommunications Certificate of Proficiency Regulations and the Radiocommunications (Licensing and General) Regulations.

All licensees are required by law to abide by the licence conditions for the Amateur Service specified in this attachment.

An applicant for a licence must have achieved a satisfactory result in an Amateur Operators Examination in accordance with the Radiocommunications (Certificate of Proficiency) Regulations before an Amateur station licence can be issued.

The following are the licence conditions for Australian Amateur Stations including Beacon, Repeater, and Translator stations. This attachment incorporates conditions prescribed in the International Telecommunications Regulations, *Radiocommunications Act 1983*, and the Radiocommunications (Licensing and General) Regulations.

### PART 2 - LICENCE CONDITIONS Licence

1. One licence is required for each Amateur Station.
- Change of Address**
2. Permanent change of address must be

notified in writing, within two weeks, to any Departmental office in your State or Territory.

#### Use of Amateur Stations

3. The Licensee of an amateur station must use the station solely for the purposes of self training, intercommunications of a personal nature and investigation into radiocommunications. Activities considered not to be included in communications of this nature would be the use of the station for:

- (a) financial gain;
- (b) transmission of any form of entertainment including:
  - (i) music - (except music incidental to training videos and tapes);
  - (ii) aural or visual amusement;
  - (iii) video or radio broadcast programs; or
  - (iv) advertisement material.
- (c) transmission of material relating to industrial, commercial, political, or religious matters; and
- (d) re transmission of another amateur station's transmissions without that station's consent.

#### Communications by Amateur Stations

4. The licensee of an amateur station must abide by the provisions set out in Article 32 of the International Radio Regulations (refer Appendix B).

#### Third Party Traffic

5. Subject to the provisions set out in the International Radio Regulations, Third Party Traffic is permitted.

Note. Australia has Third Party Traffic agreements with Canada, Honduras, Israel, Solomon Islands and the United States of America.

6. Except in the event of a natural disaster or as authorised by the Minister, the licensee of an amateur station must not solicit for Third Party Traffic.

#### Display of Station Licence

7. The amateur station licence and/or the operators Certificate of Proficiency must be made available on the request of an authorised officer of the Department of Transport and Communications.

#### Control of Station

8. The licensee of an amateur station must have direct control of all operations of the station at all times (unattended repeater and beacon stations excepted).
9. The licensee of an amateur station must ensure adequate security measures are taken to prevent operation of the station by unauthorised persons.
10. A qualified operator, if permitting an

unqualified person to transmit from the station, shall be responsible for the supervision and control of all operations of the station, including station identification in the prescribed manner at the beginning and end of each series of transmissions.

11. The licensee, if permitting another qualified operator to operate the station in his/her absence, must do so in writing.

#### Unattended Stations

12. The licensee of an amateur station, if operating the station unattended, must ensure that:

- (a) the transmitter is fitted with a device to cause automatic shut-down in the event of a fault causing unintentional continuous transmission for a period exceeding 10 minutes duration; and
- (b) prompt termination of transmissions is able to be effected in the event that interference is caused to other services.

#### Identification of Stations

13. The licensee of an amateur station must not, except for brief tests and adjustments, cause a transmission to be emitted from the station transmitter(s) on any frequency unless identified.

14. The licensee of an amateur station must transmit his/her own callsign at the beginning and end of each series of transmissions and at least every 10 minutes during a series of transmissions. Fixed frequency, fixed location amateur repeater stations do not have to identify.

15. The call sign must be transmitted either by voice, visual image or an internationally recognised code.

#### Interference

16. The licensee of an amateur station must take such measures as are reasonably practicable to erect, fix, place and use the transmitter(s) in such a manner as to avoid interference to the efficient and convenient working of other stations.

17. The licensee of an amateur station must comply with any written directions given by an authorised officer of the Department of Transport and Communications in relation to:

- (a) the installation and maintenance of a station or service; and
- (b) any accessory apparatus used, or to be used, in the operation of the station or service

as are reasonably necessary for the operation of that station or service so as to avoid interference to radiocommunications.

#### Club Stations

18. Club stations may be operated only in the presence of a qualified operator and in accordance with the qualifications of the operator supervising all operations. A log book recording all use of the station must be kept with identification of the operator supervising the transmissions clearly indicated.

19. A club station must not be operated at other than the address shown on the licence without prior notification to the Department of Transport and Communications.

#### Frequencies

20. The licensee of an amateur station must only transmit:

- (a) on frequencies within the band limits, specified in Appendix D, under the column heading of the class of station licence; and
- (b) in accordance with the footnotes to Appendix D.

#### Emissions

Note. Explanations of Emission designations appear in Appendix F.

21. The licensee of an amateur station (Novice Limited) must only use emission mode 16K0F3E.

22. The licensee of an amateur station (Novice) must only use the following emission modes:

- (a) when operating on bands below 30 MHz: 200HA1A, 8K00A3E, 4K00H3E, 4K00R3E, 8K00B8E/B8W and 4K00J3E.
- (b) when operating in the 146-148 MHz band: 16K0F3E.

23. When operating on bands below 30 MHz, the licensee of an amateur station (Combined Limited and Novice) must only use the following emission modes: 200HA1A, 8K00A3E, 4K00H3E, 4K00R3E, 8K00B8E/B8W and 4K00J3E

24. When operating on bands below 30 MHz, the licensee of an amateur station (Unrestricted) must only use the following emission modes:

200HA1A/A1B, 6K00A2A/A2B/A2D, 8K00A3E, 4K00A3EKN\*, 4K00R3E, 2K00R3EKN\*, 4K00J3E, 2K00J3EKN\*, 4K00H3E, 2K00H3EKN\*, 8K00B8E/B8W, 6K00A3C, 3K00R3C/J3C/H3C, 6K00A3F, 3K00J3F, 1K12F1A/F1B/F1D, 6K00F3E/G3E, 16K0F3E\*\*, 6K00F2B/G2B/G2D/F2A/G2A/F2D, 6K00F3C/G3C, 6K00F3F/G3F.

Note 1. Use of the emission modes designated with "" is limited to Narrow Band Voice Modulation (NBVM).

Note 2. Use of the emission mode designated with "\*" is limited to the bands above 28 MHz.

Note 3. The bandwidths shown in the above emissions are the maximum permitted values. Amateur stations may use lesser bandwidths if so desired.

25. The licensee of an amateur station (Lim-

ited), an amateur station (Combined Limited and Novice), or an amateur station (Unrestricted), operating on bands above 50 MHz may employ any emission mode but must ensure that:

- (a) wideband television, spread spectrum or pulse emission modes are used only on bands above 420 MHz; and
- (b) the emission mode in use does not:
  - (i) cause interference to primary/secondary radiocommunications services utilising the same band(s); or
  - (ii) inhibit other amateur stations from using the band(s).

**Power**

26. The licensee of an:

- (a) amateur station (Unrestricted);
- (b) amateur station (Limited); or
- (c) amateur station (Combined Limited and Novice)

must ensure that the station's output power does not exceed that indicated in column 2 in the same row for the type of emission(s) detailed in column 1 of Table 1.

**Table 1**

Column 1	Column 2
Single Sideband Voice (J2E, R3E)	
Vestigial/Sideband Television	400 watts pX
All other emission modes	120 watts pY

*Note.* Refer to Appendix D for approved frequency bands.

27. The licensee of an amateur station (Novice) must ensure that the station's output power does not exceed that indicated in column 2 in the same row for the type of emission(s) detailed in column 1 of Table 2.

**Table 2**

Column 1	Column 2
Single Sideband Voice (J3E, R3E)	100 watts pX
All other emission modes	30 watts pY

*Note.* Refer to Appendix D for approved frequency bands

28. The licensee of an amateur station (Novice Limited) must ensure that the station's output power does not exceed 30 watts pY.

**Beacon Stations**

29. Amateur beacon stations shall conform to the general provisions outlined in these licence conditions.

**Repeater/Translator Stations**

30. Amateur repeater and translator stations shall conform to the general provisions outlined in these licence conditions.

31. Repeater and translator station's may be linked to form a network(s) of repeaters or translators.

**Note.**

Where a tone access system is used to control the linking of repeater or translator stations, the parameters for these tone access methods are set out in Appendix E

**APPENDIX A  
TERMS AND DEFINITIONS**

For the purposes of these licence conditions the following terms and definitions apply.

**Amateur Service**

A radiocommunication service for the purpose of self-training, intercommunication and technical investigations carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

**Amateur Satellite Service**

A radiocommunication service using space stations on earth satellites for the same purpose as those of the amateur service.

**Amateur Station**

means a station -

- (a) that employs, for radiocommunication, any frequency included in the frequencies designated in the frequency table as a frequency for use by an amateur service; and
- (b) that is used without financial gain and solely for the purpose of self training, intercommunication and investigations into radiocommunications.

**Authorised Officer**

means an officer of the Department of Transport and Communications who has been authorised by the Minister for the purposes of that provision.

**Club Station**

means a station in the amateur service for which a licence is held by a group of persons such as a school, college, institute, radio club or similar.

**"pX" (Peak Envelope Power - Watts)**

means the average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the crest of the modulation envelope taken under normal operating conditions.

**"pY" (Mean Power - Watts)**

means the average power supplied to the antenna transmission line by a transmitter during an interval of time sufficiently long compared with the lowest frequency encountered in the modulation taken under normal operating conditions.

**Qualified Operator**

means a person holding a certificate of proficiency issued in accordance with the provisions of the Radiocommunications Act 1983.

**Repeater/Translator Station**

includes a station in the amateur service used for the automatic reception and re transmission of signals.

**Repeater Network**

includes a system of two or more amateur repeater stations linked together for the automatic reception and re transmission of signals. Traffic within the network is traffic of the network, not the stations accessing the network and, except in the case of portable/mobile repeater stations, does not need to be separately identified.

**Third Party Traffic**

in relation to the communications between amateur stations means messages passed on behalf of any other person who is not a qualified amateur operator. Subject to the laws of another country, amateur to amateur communications are not considered to be Third Party Traffic.

**APPENDIX B  
ARTICLE 32 - INTERNATIONAL REGULATIONS  
Section I**

**Amateur Service**

1. Radiocommunications between amateur stations of different countries shall be forbidden if the administration of one of the countries concerned has notified that it objects to such radiocommunications.

2. (1) When transmissions between amateur stations of different countries are permitted, they shall be made in plain language and shall be limited to messages of a technical nature relating to tests and to remarks of a personal character for which, by reason of their unimportance, recourse to the public telecommunications service is not justified.

(2) It is absolutely forbidden for amateur stations to be used for transmitting international communications on behalf of third parties.

(3) The preceding provisions may be modified by special arrangements between administrations of the countries concerned.

3. (1) Any person seeking a licence to operate the apparatus of an amateur station shall prove that he is able to send correctly by hand and to receive correctly by ear, texts in Morse code signals. The administrations concerned may, however, waive this requirement in the case of stations making use exclusively of frequencies above 30 MHz.

(2) Administrations shall take such measures as they judge necessary to verify the operational and technical qualifications of any person wishing to operate the apparatus of an amateur station.

4. The maximum power of amateur stations shall be fixed by the administrations concerned, having regard to the technical qualifications of the operators and to the conditions under which these stations are to operate.

5. (1) All the general rules of the Convention and of these regulations shall apply to amateur stations. In particular, the emitted frequency shall be as stable and as free from spurious emissions as the state of technical development for such stations permits.

(2) During the course of their transmissions, amateur stations shall transmit their call sign at short intervals.

**Section II**

**Amateur-Satellite Service**

6. The provisions of section I of this Article shall apply equally, as appropriate, to the amateur-satellite service.

7. Space stations in the amateur-satellite service operating in bands shared with other services shall be fitted with appropriate devices for controlling emissions in the event that harmful interference is reported in accordance with the procedure laid down in Article 22. Administrations authorising such space stations shall inform the IFRB and shall ensure that sufficient earth command stations are established before launch to guarantee that any harmful interference which might be reported can be terminated by the authorising administration.

**APPENDIX C  
EXTRACT FROM THE RADIOCOMMUNICATIONS  
ACT, 1983**

Conditions to which transmitter licence is subject.

25 (1) A licence to operate and possess a radiocommunications transmitter is subject to the following conditions:

- (a) a condition that the holder of the licence shall not operate, or permit the operation of, the transmitter except for a purpose specified in the licence, being a purpose not inconsistent with a purpose of a kind specified in the appropriate frequency band plan under sub-section 19(2);
- (b) a condition that the holder of the licence shall not operate, or permit the operation of, the transmitter except in accordance with provisions specified in the licence, being provisions relating to-

- (i) the prevention or reduction of interference, or of the likelihood of interference, to radiocommunications;
- (ii) the prevention or reduction of risk of death or, or injury to, persons, or risk of loss of, or

- (iii) the transmission of an identification signal;
- (c) a condition that the holder of the licence shall not operate, or permit the operation of, the transmitter except on a frequency or frequencies or on a frequency channel, and at a constancy, specified in the licence;
- (d) a condition that the holder of the licence shall not operate, or permit the operation of, the transmitter in such a manner as would be likely to cause reasonable persons, justifiably in all the circumstances, to be seriously alarmed or seriously affronted, or for the purposes of harassing a person;
- (e) a condition that the holder of the licence shall not operate the transmitter unless he is a qualified operator in relation to the licence;
- (f) a condition that the holder of the licence shall comply with sub-section 269A(2) of the *Navigation Act 1912*;

NOTE: 269A(2) A person in charge of a radiocommunications transmitter that is within the jurisdiction of the Commonwealth (including a transmitter in a Territory) or that is operated by virtue of a transmitter licence or a

temporary permit granted under the *Radiocommunications Act 1983*, shall on receiving the prescribed safety signal, refrain from sending messages for a time sufficient to allow other stations to receive the message, and, if so required by the Minister, shall transmit the information in the manner directed by him.

- (g) a condition that the holder of the licence shall comply with any direction with respect to the operation of the transmitter given to him, in a manner not inconsistent with any relevant guidelines in force under sub-section (4), either orally or in writing, by-
  - (i) a member of the Australian Federal Police;
  - (ii) a member of the police force of a State or Territory;
  - (iii) an officer of the Defence Force;
  - (iv) an officer of the Australian Coastal Surveillance Centre; or
- (v) an officer included in a prescribed class of officers, being an officer of a prescribed organisation the sole or principal purpose of which is to deal with natural disasters, that is reasonably necessary for the purpose of-
  - (vi) securing the safety of a vessel of aircraft

- that is in danger;
- (vii) dealing with an emergency involving a serious threat to the environment; or
- (viii) dealing with an emergency involving risk of death of, or injury to, persons or risk of substantial loss of, or substantial damage to, property;
- (h) a condition that the holder of the licence shall comply with the provisions of this Act;
- (j) such conditions (if any) as are prescribed;
- (k) such other conditions (if any) as are specified in the licence.

Contravening conditions of transmitter licences  
 27. A person who, without a reasonable excuse, contravenes a condition of a transmitter licence is guilty of an offence punishable on conviction by a fine not exceeding \$1,000.

**Repeaters - additions, deletions, alterations. Have you advised the WIA of changes needed to the repeater list?**

**APPENDIX D**

**Amateur Station (Unrestricted)**

Frequency	Notes
1.800 - 1.825 MHz	
1.825 - 1.875 MHz	(A) (B)
3.500 - 3.700 MHz	
3.794 - 3.800 MHz	(A) (C)
7.000 - 7.100 MHz	(G)
7.100 - 7.300 MHz	(A)
10.100 - 10.150 MHz	(A) (D)
14.000 - 14.250 MHz	(G)
14.250 - 14.350 MHz	
18.068 - 18.168 MHz	(G)
21.000 - 21.450 MHz	(G)
24.890 - 24.990 MHz	(G)
28.000 - 29.700 MHz	(G)
50 - 52 MHz	(A) (F)
52 - 54 MHz	
144 - 146 MHz	(G)
146 - 148 MHz	
5.670 - 5.725 GHz	(A)
5.725 - 5.830 GHz	(A) (E)
5.830 - 5.850 GHz	(A) (E) (G)
10.00 - 10.45 GHz	(A)
10.45 - 10.50 GHz	(A) (G)
24.00 - 24.05 GHz	(E) (G)
24.05 - 24.25 GHz	(A) (E)
47.00 - 47.20 GHz	(G)
75.50 - 76.00 GHz	(G)
76.00 - 81.00 GHz	(A) (G)
119.98 - 120.02 GHz	(A)
142.00 - 144.00 GHz	(G)
144.00 - 149.00 GHz	(A) (G)
241.00 - 248.00 GHz	(A) (E) (G)
248.00 - 250.00 GHz	(G)

**Amateur Station (Limited)**

Frequency	Notes
50 - 52 MHz	(A) (F)
52 - 54 MHz	
144 - 146 MHz	(G)
146 - 148 MHz	
420 - 435 MHz	(A)
435 - 438 MHz	(A) (G)
438 - 450 MHz	(A)
1240 - 1260 MHz	(A)
1260 - 1270 MHz	(A) (G)
1270 - 1300 MHz	(A)
2300 - 2400 MHz	(A)
2400 - 2450 MHz	(A) (E)(G)
3.300 - 3.400 GHz	(A)
3.400 - 3.410 GHz	(A) (G)
3.410 - 3.600 GHz	(A)
5.650 - 5.670 GHz	(A) (G)
5.670 - 5.725 GHz	(A)
5.670 - 5.725 GHz	(A)
5.670 - 5.725 GHz	(A)
5.725 - 5.830 GHz	(A) (E)
5.830 - 5.850 GHz	(A) (E)(G)
10.0 - 10.45 GHz	(A)
10.45 - 10.50 GHz	(A) (G)
24.00 - 24.05 GHz	(E) (G)
24.05 - 24.25 GHz	(A) (E)
47.00 - 47.20 GHz	(G)
75.50 - 76.00 GHz	(G)
76.00 - 81.0 GHz	(A) (G)
119.98 - 120.02 GHz	(A)
142.00 - 144.00 GHz	(G)
144.00 - 149.00 GHz	(A) (G)
241.00 - 248.00 GHz	(A) (E) (G)
248.00 - 250.00 GHz	(G)

**Amateur Station (Novice)**

Frequency	Notes
3.525 - 3.625 MHz	
21.125 - 21.200 MHz	(G)
28.100 - 28.600 MHz	(G)
146.000 - 148.000 MHz	
<b>Amateur Station (Combined Limited and Novice)</b>	
<b>Frequency</b>	<b>Notes</b>
3.525 - 3.625 MHz	
21.125 - 21.200 MHz	(G)
28.100 - 28.600 MHz	(G)
50 - 52 MHz	(A) (F)
52 - 54 MHz	
144 - 146 MHz	(G)
146 - 148 MHz	
420 - 435 MHz	(A)
435 - 438 MHz	(A) (G)
438 - 450 MHz	(A)
1240 - 1260 MHz	(A)
1260 - 1270 MHz	(A) (G)
1270 - 1300 MHz	(A)
2300 - 2400 MHz	(A)
2400 - 2450 MHz	(A) (E) (G)
3.300 - 3.400 GHz	(A)
3.400 - 3.410 GHz	(A) (G)
3.410 - 3.600 GHz	(A)
5.650 - 5.670 GHz	(A) (G)
5.670 - 5.725 GHz	(A)
5.725 - 5.830 GHz	(A) (E)
5.830 - 5.850 GHz	(A) (E) (G)
10.0 - 10.45 GHz	(A)
10.45 - 10.50 GHz	(A) (G)
24.00 - 24.05 GHz	(E) (G)
24.05 - 24.25 GHz	(A) (E)
47.00 - 47.20 GHz	(G)
75.50 - 76.00 GHz	(G)
76.00 - 81.0 GHz	(A) (G)

Frequency	Notes
119.98 - 120.02 GHz	(A)
142.00 - 144.00 GHz	(G)
144.00 - 149.00 GHz	(A) (G)
241.00 - 248.00 GHz	(A) (E) (G)
248.00 - 250.00 GHz	(G)

**Amateur Station (Novice Limited)**

Frequency
146 - 148 MHz

**FOOTNOTES**

- A The Amateur Service is allocated on a secondary (non-interference) basis in this band.
- B Amateur licensees shall avoid operation within +/- 4 kHz of 1.870 MHz.
- C Amateur licensees shall avoid operation within + 1 kHz of 3.794 MHz.
- D Amateur licensees shall avoid operation within +/- 4 kHz of 10.1415 MHz.
- E Amateur licensees using this band must accept any harmful interference that may be experienced from Industrial, Scientific or Medical (ISM) equipment operating in this band.
- F Amateur stations are permitted to operate within this band subject to the following conditions:
  - (i) No interference is caused to the reception of channel 0 transmissions;
  - (ii) In New South Wales, Victoria, Queensland and Tasmania, operation is restricted to:
    - (a) the sub-band 50.05 to 50.20 MHz;
    - (b) locations outside the following minimum radial distances from:
      - (i) Television Channel 0 main stations - 120 kms;
      - (ii) Television

Channel 0 translator stations - 60 kms;(iii) Television Channel 0 translator stations with Channel 0 inputs - 60 kms

- (c) emission mode 200HA1A with a maximum transmitter power of 100 watts pY; and
- (d) emission mode 4K0QJ3E with a maximum transmitter power of 100 watts pX.
- (iii) In the Australian Capital Territory operation is restricted to:
  - (a) the sub-band 50.05 to 50.20 MHz;
  - (b) emission mode 200HA1A with a maximum transmitter power of 100 watts pY; and
  - (c) emission mode 4K0QJ3E with a maximum transmitter power of 100 watts pX.
- G Communications with amateur satellites are authorised in this band. (Excluding Novice licensees).

**APPENDIX E  
TONE ACCESS CONTROL PARAMETERS**

- (i) Tone Burst tone frequency 1750 Hz.
- (ii) CTCSS EIA standard tones (Hz)
 

67.0	94.8	141.3
69.0	100.0	146.2
71.9	103.5	151.2
74.4	107.2	156.7
77.0	110.9	162.2
79.0	114.8	167.9
82.5	118.8	173.8
85.4	123.0	179.9
88.5	131.8	186.2
91.5	136.5	192.8

(iii) DTMF	Bell Standard			
		Digit		
	697 Hz	1	2	3
Low Tone	770 Hz	4	5	6
	852 Hz	7	8	9
	942 Hz	*	0	#
High Tone	1209 Hz	1336 Hz	1477 Hz	

**APPENDIX F  
ITU EMISSION DESIGNATIONS**

**Classification of Emissions**

- 1. Classification of emissions provides an internationally recognised standard to accurately specify the significant characteristics of a transmission.
- 2. The abridged version of the emission

designation system, detailed in paragraphs 3-6, covers emissions used in the Amateur service. More comprehensive details on emission classes may be found in the International Telecommunications Union (ITU) Radio Regulations.

**Classification Method**

3. To fully classify an emission a total of NINE letters and figures are used. The first FOUR provide details of the necessary bandwidth, the following THREE give details of the basic characteristics of the emission and the last TWO, which are optional, describe any additional characteristics which may provide a more complete description of the emission.

**Example:**

6M25 C3F MN  
 [6M25] Necessary Bandwidth  
 [C3F] Emission Characteristics  
 [MN] Supplementary information

**First Four Symbols**

4. These provide details of the necessary bandwidth of the emission expressed by three numerals and one letter. The letter occupies the position of the decimal point and may be H for Hertz, K for Kilohertz, M for Megahertz or G for Gigahertz.

**Following Three Symbols**

5. these describe the basic characteristics of the emission. The first defines the type of modulation of the main carrier, the second the nature of the signal(s) modulating the carrier and the third the type of information transmitted.

**First Symbol - type of modulation of the main carrier**

- (a) Emission in which the main carrier amplitude is modulated:
  - (i) Double-sideband (Amplitude Modulated) A
  - (ii) Single-sideband, full carrier H
  - (iii) Single-sideband, reduced carrier R
  - (iv) Single-sideband, suppressed carrier J
  - (v) Independent sideband B
  - (vi) Vestigial sideband C
- (b) Emissions in which the main carrier is angle modulated:
  - (i) Frequency Modulation F
  - (ii) Phase modulation G
- (c) Emission pulses:
  - (i) Unmodulated sequence of pulses P

**Second symbol - nature of signal(s) modulating the main carrier**

- (a) No modulating signal 0
- (b) A single channel containing quantized or digital information without the use of a modulating

carrier 1

- (c) A single channel containing quantized or digital information with the use of a modulating carrier 2
- (d) A single channel containing analogue information 3
- (e) Two or more channels containing analogue information 8

**Third Symbol - type of information transmitted**

- (a) No information transmitted N
- (b) Telegraphy - for aural reception A
- (c) Telegraphy - for automatic reception B
- (d) Facsimile C
- (e) Data transmission, telemetry, telecommand D
- (f) Telephony E
- (g) Television F
- (h) Combination of the above W

**Last Two Symbols**

6. These describe any additional characteristics which provide a more complete description of the emission.

**First Symbol - details of signal**

- (a) Sound of commercial quality with the use of frequency inversion or band splitting K
- (b) Monochrome M
- (c) Colour N

**Second Symbol - nature of multiplexing**

- (a) None N

**Emission Description**

**7. Examples:**

200HA1A 200 Hertz bandwidth double-sideband single channel (without the use of a modulating audio frequency) TELEGRAPHY for aural reception

3K0QJ3E 3.00 Kilohertz bandwidth single-sideband suppressed carrier single channel analogue TELEPHONY

6K0Q3E 6.00 Kilohertz bandwidth double-sideband single channel analogue TELEPHONY

16K0F3E 16.0 Kilohertz bandwidth frequency modulated single channel analogue TELEPHONY

**COVER STORY**

**James Brinkhoff VK7PAN**

**Don Cripps VK7AY  
PO Box 414, DEVONPORT 7310**

It is really great to know of our younger generation who are showing their hands by becoming amateur radio operators. Here is another, and I believe it is all the more interesting as this young man has no family with amateur radio interests, and I understand made his attack on the NAOCP without really knowing any amateur enthusiasts.

James Brinkhoff, aged 11 years, sat for his NAOCP exam, Morse theory and regulations on 20 November 1991, passed all sections, and was granted his licence on 10 December, callsign VK7PAN.

James comes from the small town of Kelso, on the Tamar River, site of transmitters for ABC station 7NT. (Maybe the sight of those high antenna masts was the catalyst!).

Within a day or so of receiving his licence, he was lent a transceiver, helped to erect a G5RV, and introduced himself to Tasmanian amateurs on the daily sked on 3590, known as the "sewing circle". (Thereby hangs another tale). He has been a regular contributor on the "sewing circle" ever since, and has also been regular on the "Tasmanian Devil Net" on Tuesday evenings; he has many overseas contacts to his credit already. James turned 12 on 20 December.

He admits to first trying out CB radio, no doubt from his father's and mother's (Steven and Judy) interests in yachting, but says his enthusiasm stems from his long-time interest in electronics, so here's hoping this brings him fortune.

When asked how he enjoyed learning Morse code, he very nonchalantly replied, "Oh, that was easy; I could read it pretty well after a couple of nights study."

ar

ar

# “Computarock” HF Receiver

An ingenious and relatively inexpensive “homebrew” answer to the need for a general-coverage HF receiver. “If a digital readout is desired, counting a VFO which tunes 8-9MHz can be done easily without need for further manipulation.”

**Drew Diamond VK3XU  
Nar Melan, Gatters Rd,  
WONGA PARK 3115.**

A constructor wishing to build a workable multi-band HF receiver may search through magazines and handbooks, only to find “high-performance” designs which can look rather daunting, typically having lots of complex switched filters, ingenious PLLs, AGC loops, intricate metal-work and fancy hard-to-get components. In radio literature there appears to be a substantial gap between the fully engineered no-compromise designs and the relatively simple, no-frills single-band DC or superhet receivers. These simpler designs make interesting and worthwhile projects for radio enthusiasts of all types, and presently there is a wealth of material from which to choose. As a rule, however, they fall short of the standard necessary for a home station receiver, particularly where greater frequency coverage is required.

Here is a practical receiver which attempts to fill that gap. It is a consolidation of circuitry from previous projects, notably the “Super-DC”<sup>1</sup>, “Computarock”<sup>2</sup> and “DC91”<sup>3</sup> efforts, together with ideas from other experimenters. Whilst not intended for exact duplication, the circuit details presented here may encourage the more experienced worker to adapt and modify according to individual requirements and resources.

No claims of high-performance are made. The simplified and compromised nature of the input band pass filter may allow an unwanted image signal (it will need to be a

strong one) to appear near a wanted signal and pass through to detection. NE602s are used as first and second mixer. Whilst by far not the strongest mixer IC available, they are cheap, easy to use, and obtainable. Finally, AGC is only applied to the 3-4MHz RF amplifier stage, so useful but not full AGC action is obtained. Nevertheless, in practice, the receiver gives a good account of itself despite these compromises, and provides quite respectable performance. Dynamic range is sufficient for all but the most hostile receiving locations. After alignment and adjustment of the AGC, the receiver is sensitive and pleasant to operate. All amateur bands are forward tuning. The prototype has the following characteristics:

## Performance

Frequency Range:	Basic range 3-4MHz, then any 1 MHz band from 7 to about 28MHz (see table)
Reception Modes:	SSB USB/LSB, CW, DSB, and AM (as SSB)
Sensitivity:	0.3uV for 10dB S + N : N
Stability:	Less than 100Hz drift in any hour
Image Rejection:	Worst case 50dB on the highest band
Internally Generated Spurious signals:	Notable birdies at 3.33, 7.5, 9.5, 14.0, and 15.5MHz, plus harmonics of the BFO crystal
First IF Rejection:	75dB of a 3.5MHz signal when tuned to HF
Second IF Rejection:	71dB of a 5MHz signal when tuned to 3.5MHz.

## Circuit

Basic tuning range is nominally 3-4MHz. Signals in this range must negotiate the 3-4MHz tuned filter which tracks 5MHz be-

low the VFO. An MFE131 dual-gate FET provides a degree of RF gain or loss to signals before they are applied to an NE602 balanced mixer chip. A LED is inserted in series with the FET source to increase AGC range. The input attenuator is useful for dealing with particularly powerful signals. Local oscillator VFO, which operates 5MHz above the input frequency, is applied to the oscillator port of the NE602 (the internal transistor within the NE602 can, and usually is used to provide the LO signal. However, for best results, and to minimise the production of spuri, the oscillator should be a separate unit, isolated off the chip from the remainder of the mixer circuitry).

The resulting IF signal at 5MHz is matched and applied to a crystal ladder filter comprised of four identical 5.0MHz computer crystals. The value of coupling capacitor shown, 33pF, yields a bandpass of about 1.7kHz, which probably represents a fair compromise for CW and SSB work. Smaller values of C (eg 27 or 22pF) will give wider bandwidths.

The choice of 5MHz as the IF was quite arbitrary. A round number IF means the VFO must generate a signal which relates directly to the receive frequency (those digits to the right of decimal point where MHz are the whole-number part). If a digital readout is desired, counting a VFO which tunes 8-9MHz can be done easily without need for further manipulation. Naturally, other IFs, such as 4.433 or 5.068MHz etc may be used if preferred, and the VFO range altered accordingly. Another MFE131 does duty as product detector. BFO signal at either 4.9994MHz or 5.0014MHz, placed at either end of the crystal filter bandpass, is applied to G2 of the MFE131 to obtain LSB or USB reception. The single 5MHz BFO crystal is pulled either high or low with series C or L respectively (the 3-4MHz to 5MHz conversion inverts the sideband, so 5.0014MHz BFO gives USB reception) Product detected AF appears at the drain, where RF energy is removed through the simple LC filter.

A LM741 followed by a LM386 raises the AF signal to headphone or loudspeaker level. A sample of AF is picked off at the output of the '741 and applied to another '741 acting as AGC amplifier, where it is rectified, the 1uF capacitor charged, which drives a DC amplifier to supply AGC control voltage back to the RE amplifier. RF gain is also manually adjustable via the 20K RF gain pot.

For reception of signals in the 7-28MHz range, the input is routed via the converter

circuit. A three section top-coupled band-pass filter is manually peaked so that the chosen band is presented to the input of the NE602 balanced mixer. An MPF102 maintains the selected crystal in oscillation, which should be exactly 3MHz below the desired band, eg to receive 7-8MHz, we need a 4MHz crystal ( $f - 3 = 4$  and so on. The table shows the bands obtainable with standard computer crystals). The 3-4MHz first IF is extracted from the balanced output of the NE602 through a broadband transformer, where it is applied to the "input" of the basic receiver.

A band not available is 8-9MHz, being the same as the VFO frequency. More importantly, it was found that the 5MHz conversion crystal frequency interferes directly with the IF. 9-8MHz is available if essential, as a backwards tuning band using a 12MHz conversion crystal, so the birdie will only appear at 8.5MHz.

### Construction

It is suggested that the basic 3-4MHz section be tackled first. For this project it may be assumed that the enthusiast who contemplates building a multi-band receiver will know where to lay hands on many of the "hard-to-get" items required for a job of this kind, although the only perceived obstacles for the relative newcomer are perhaps the acquisition of wafer switches, a 3-gang variable capacitor with 200, 300 or 400pF per section for the 3-4MHz receiver

section, and a three-gang variable capacitor of similar capacitance per section for the converter. The capacitor for the converter is not critical, provided all three gangs have identical value.

For the main receiver, the builder may have to do some maths and experimentation to fit the capacitor to the task. Maximum and minimum total C are shown on the circuit as a guide. A three-gang 200pF unit is to be preferred, as best linearity of tuning will be obtained (a larger capacitor with series fixed C compresses the tuning at the high end, and tracking will be poor). If only a 300 or 400pF unit is available, capacity may be reduced by extracting the surplus portion of the moving plates of each gang. For example, a 400pF with 18 plates each may be converted to about 200pF by removing half the moving plates. A jeweller's piercing saw is probably the best tool. Carefully cut through the supporting spacer to isolate the unwanted individual outside plates, then extract them one at a time with long-nosed pliers. Make sure no swarf gets into the plates or bearings.

Naturally, a wider tuning range may be employed if desired. For instance, if the basic range is made 3MHz to, say 4.2MHz, then we will have a range of 9-10.2MHz with a 6MHz converter crystal (stock 7MHz for the 10MHz band are not known to be available), thus covering the 10.1MHz band. Similarly, a stock 24MHz crystal will allow a 27.0 to 28.2MHz range (25MHz crystals are

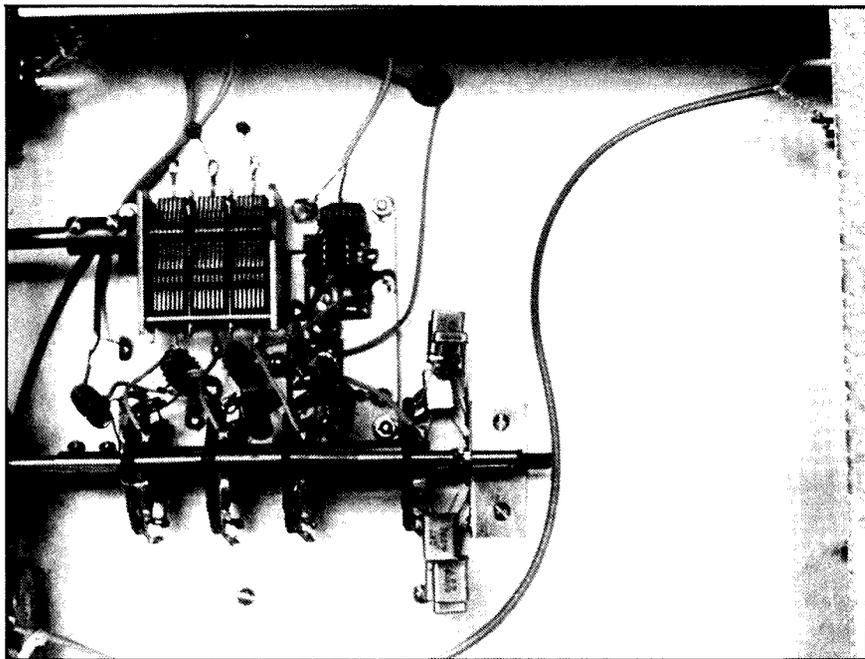
available from some suppliers)

Wafer switches are ideal for bandswitching, especially the kind that you can make up to requirements. Configure a 4-wafer/11 or 12-position combination, three wafers for the converter filter, and the fourth for the crystal selection. Wire the filter wafers with the 12MHz break point appropriate to your chosen bands (the circuit shows this function schematically simplified) For the prototype, the 7, 9, (10) and 11MHz bands occupy four positions, all wired together, then 13MHz and above occupy the remaining positions. Retail suppliers cannot, as far as I know, supply wafer switches of this type. They are by no means a mandatory requirement however. The 7-12/12-28MHz selection could be done with an ordinary 3-pole/2-position wafer, and the crystals selected with a 1-pole/12-position switch. (It was hoped to cover 7-28MHz with just one set of two coils, but image and sensitivity problems due to poor L/C ratios were significant. Two sets of three coils were found by experiment to provide acceptable image rejection and sensitivity across the mid to upper HF range).

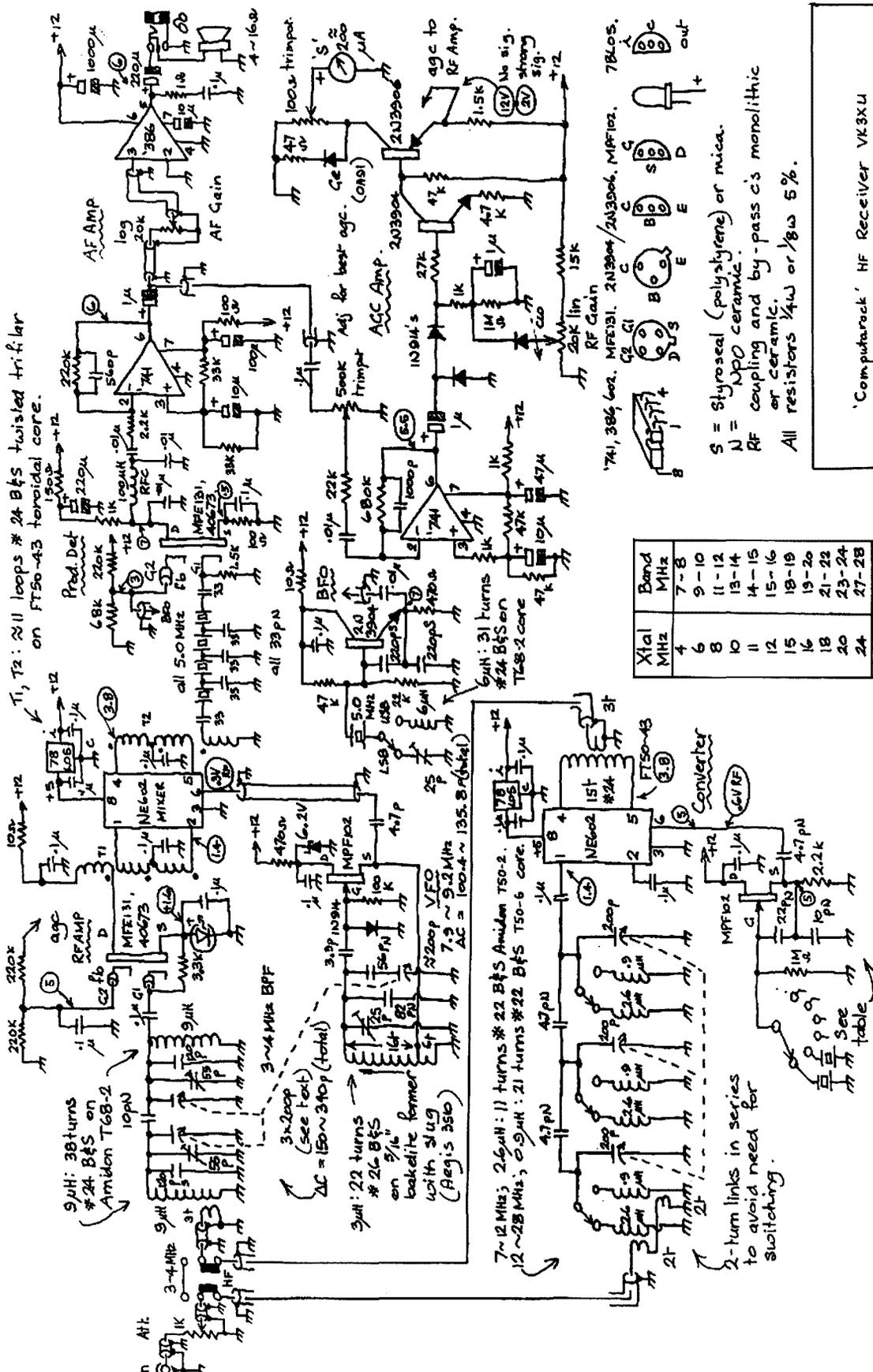
The physical shape of the prototype (rather an ugly duckling - but I've grown to like it) was largely dictated by the deluxe 3-gang variable capacitor/worm-drive/dial assembly (very similar to the "Command" receiver capacitor) which was on hand. So it was decided to fit the assembly upright, and fix the circuit boards upon two vertical chassis panels as shown. The transformer and power supply components are located upon the rear panel, converter circuit on the left panel, basic receiver on the right panel, and VFO in the space between. The panels thus form a screened area for the VFO, effectively separating the three sections, and gives a shipshape rigidity to the whole assembly.

Circuit boards (or whatever wiring method is chosen) are as follows: RF amplifier/mixer/crystal filter/product detector, AF amplifier, AGC amplifier, BFO, VFO, power supply and converter/bandswitch.

A 12V regulated supply is necessary. Peak current demand is about 100mA, although extra capacity should be provided if dial and S meter lamps are required. The standard 2155/15V transformer with four-diode bridge and 7812 regulator configuration is ideal. If a mains supply is used, be sure to include a 500mA fuse in the line side of the 240V mains supply, and switch both conductors with a DPDT switch. Mains earth must be connected to chassis ground with a dedicated screw, solder tag, lock washer



Converter assembly.



T1, T2: 211 loops # 24 B&S twisted trifilar on FT50-43 toroidal core.

9µH: 30 turns # 24 B&S on Amidon T68-2

3µH: 22 turns # 26 B&S on 3/16" bakelite former with slug (Regis 350)

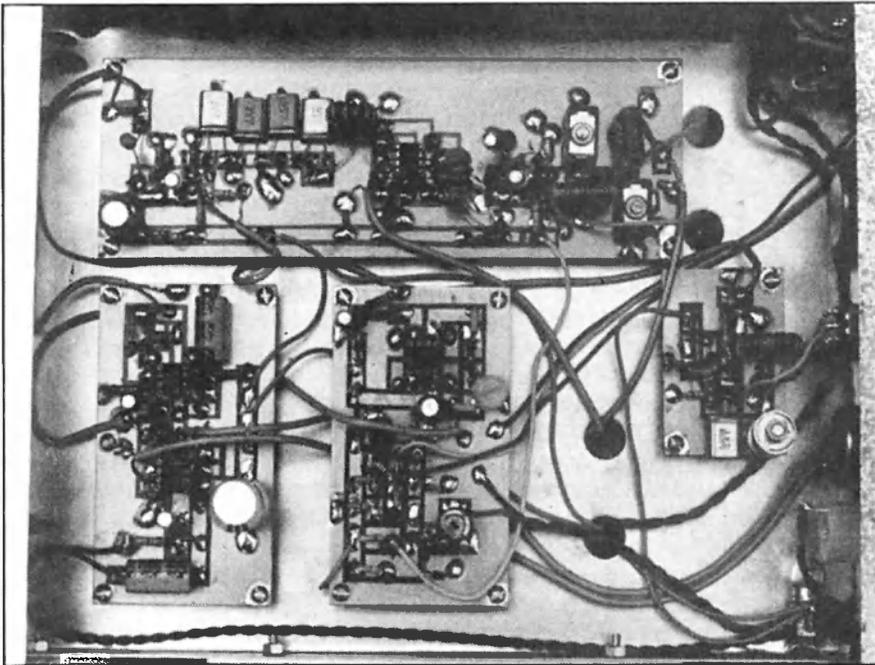
7-12 MHz: 2.5µH: 11 turns # 22 B&S Amidon T50-2. 12-28 MHz: 0.9µH: 21 turns # 22 B&S T50-6 core.

Xtal MHz	Band MHz
4	7-8
6	9-10
8	11-12
10	13-14
11	14-15
12	15-16
15	18-19
16	19-20
18	21-22
20	23-24
24	27-28

2-turn links in series to avoid need for switching.

'741, 386, 602, MPE131, 2N2906/2N2906, MPE102, 78L05.  
 S = Styrofoam (polystyrene) or mica.  
 N = VPO ceramic.  
 RF coupling and by-pass's monolithic or ceramic.  
 All resistors 1/4W or 1/8W 5%.

'Computrack' HF Receiver VK3XU



**3-4MHz receiver section.**

and nut. All connections must be adequately covered to prevent accidental contact.

Further notes on construction may be gleaned from Ref (1), and additional information also from Refs (2-4). Most of the home-made circuit boards relate closely to the Super DC receiver, and may be individually adapted to suit your own model. Indeed, there is no need to wire the thing using printed boards. This receiver worked entirely satisfactorily during the breadboard phase, blobbed up on scraps of printed board using the "ugly" method, so we may safely assume that just about any well-known RF construction method will give satisfactory results, providing the general layout is observed. For best stability, use polystyrene (styroseal or silvered mica if available) and NPO capacitors where indicated. Miniature 50 ohm cable was used for the coax connections.

**Alignment**

VFO range must first be established. Set the 25pF trim capacitor to mid travel. Adjust the slug of the VFO coil so that, with rotation of the VFO tuning capacitor, about 7.950MHz is generated at max C, and 9+MHz at min C. The inclusion of the trim capacitor is based on experience, and may be found useful at some much later date to provide top-end adjustment and alignment of the dial, made necessary by any change with time of VFO component values.

Connect an antenna to the receiver in-

put. A few metres of wire will probably do. Set the RF pot to maximum gain. If there is fluorescent lighting, or HV power lines nearby, you should hear some line-related noise. Tune the receiver to about mid-band (3.5MHz) Peak the two 55pF trim capacitors for maximum noise. Sensitivity should now be reasonably flat across the band. Sub-microvolt signals at night should be easily detectable, and the set should sound lively. Find a fairly strong CW or RTTY station. Adjust the 25pF trim capacitor in series with the 5MHz BFO crystal so that a strong heterodyne is heard on one side of zero beat, the heterodyne being much



**"Computarock" HF receiver.**

weaker as you tune through to the other side of zero beat (about 1/5 mesh or 5pF) No adjustment is provided for the series coil- you may wish to substitute a coil and slug of about 10µH here to permit a more accurate setting of the BFO frequency for USB signals.

The 500kw trimpot at the input to the AGC amplifier is adjusted subjectively to what the user regards as most pleasing AGC action, ie find the point where AGC action occurs, but is free from attack pop and click on strong signals. This should occur near the top end of the trimpot range. Monitor the AGC voltage at the emitter of the 2N3906. Weak or no-signal voltage should be about 12V. When a strong station is tuned, the voltage should quickly drop to about 2V. The S meter trimpot is set for FSD on a strong signal. Anti-clockwise rotation of the RF gain pot should cause the S meter to indicate upwards to FSD.

When the converter is in use, there will be two or more sharp "peaks", separated by about 30 degrees rotation, as the input filter is tuned. One of the peaks will be the required band, the other(s) will be an image band. For instance, with a 16MHz conversion crystal, desired forward tuning of 19-20MHz will be obtained. Another peak will be found at 13-12MHz, tuning backwards, and is there if you want it. If the desired band has a grouping of two or three closely spaced peaks, you can bring them closer together if you wish by experimentally bunching or stretching the turns (thus altering the inductance) of the appropriate coil. A look-up table of switch positions and tune settings may be typed and affixed to the front of the set to allow rapid band changing. Harmonics of the conversion crystal may also give access to other bands. For example, the second harmonic of the 11MHz crystal; 22MHz, will give usable 19-18MHz coverage (22-4=18, 22-3=19), and, once again- is there if you want it (got some time to spare? Just for fun, work out some of the others, there are many possibilities). Cunning use of the converter input filter will sort these out.

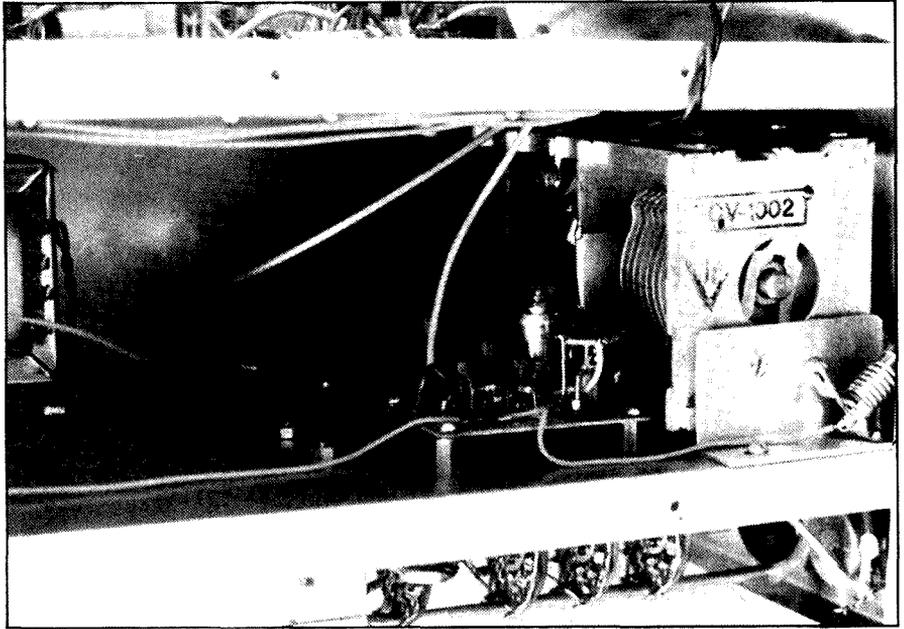
**Problems**

Some key voltages are shown on the circuit as a guide to any necessary troubleshooting. The DC voltages were measured with respect to chassis with a high-impedance DMM, and RF levels with a standard diode probe. A voltage which differs significantly should indicate a problem area. If the VFO or conversion oscillator will not work, try another MPF102 (some cheaper

makes are, I suspect, "from the bottom of the barrel"). If you cannot get your receiver to perform satisfactorily, or consider that it will not work properly due to some mistake or oversight herein, or require further details; please write, and any reasonable amount of help will be returned. For reply, an SASE would be appreciated. Interested constructors may inspect the prototype at the writer's QTH after first confirming on (03) 722 1620 outside work hours.

**Parts Sources**

All FETs, chips, trim capacitors and Amidon cores are available from Truscotts Electronic World (03) 723 3860, and Stewart Electronics (03) 543 3733 (the writer has no connection with either firm). Other Amidon suppliers advertise regularly in this journal. Shop around for best price and range of computer crystals - best I've seen is around \$3 each from a well-known computer/electronic parts supplier. The NE602AN has measurably better intercept characteristics than the earlier 602, so try for the latest version available. Vintage radio shops, radio clubs or disposal sources may be able to help with ganged variable capacitors. The Aegis 3510 bakelite coil former for the VFO may be difficult to find. Truscotts have a supply of ordinary IF transformer type 5/



**VFO and main tuning gang.**

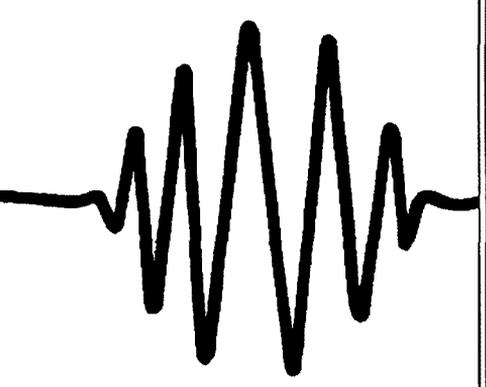
16" coil formers which would reasonably suit.

**References and Further Reading**

- (1) Super-DC Receiver - Diamond, VK3XU, AR, May '90.

- (2) Computarock Converter - AR June '91.
- (3) DC91 Receiver - AR, May '92
- (4) How to Lay Out RF Circuits - White, G3SEK, *Rad Comm*, Feb/Mar '91.
- (5) NE602 Single Chip Frequency Converter - Covington, *Radio Electronics* April '90.
- (6) SSB Receiver for 80m - Williams, VK2DOB, EA, Sept and Dec '91.

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*If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.*

# Random Radiators More on Tree Antennas

Ron Fisher VK3OM &  
Ron Cook VK3AFW

**B**ob Eldridge writes from Pemberton in Canada. It's nice to hear from overseas readers and his kind comments are much appreciated. Bob was inspired by the November 1991 article to look up the FBTO data base and came up with three articles on tree antennas. Bob has sent photocopies of these and they are summarised below:

## Shunt Excited Tree

This article was published in the May 1989 issue of *CQ Ham Radio JA*) according to page 26 of the May issue of *73* magazine. JA6HW and JA6AUI are reported to have carried out a series of experiments on live trees. A matching unit is described for a 12ft tree on the 10m band. Using 50 watts CW SSB and FM they worked stations in the US, Europe, Asia and Australia. An L match type of ATU is used at the base of the tree. One terminal connects to an earth stake and the other to a wire which runs parallel to the trunk to the tapping point. The connection to the tree is accomplished by a stainless steel bolt screwed about 30mm into the trunk. It appears that the tapping point was about 3ft up the trunk.

Field strength tests showed that the tree was the main source of radiation, not the matching wire. Most of the radiation was vertically polarised, but some horizontal radiation from horizontal leaves was noted.

Bob added some comments about his

own experiments with trees.

*"Notice that the input terminal doesn't go very far into the tree. This makes sense if the bark is very thin. I made some experiments with cottonwood trees (a kind of larch), which have thick bark, and found you have to get through the bark and past the layer where the sap runs. But there is not much to be gained by going further into the hard wood except in the case of a tree (like the cottonwood) where there is a heavy flow of sap right in the centre. Trouble is, you don't know just where the effective centre is, although if you drill in from the north it is somewhere north of the geometric centre and about centred east and west. I suppose for you upside-down people you would go in from the south."*

## HEMAC

Another method of coupling the RF into the tree is a Hybrid Electromagnetic Antenna Coupler (HEMAC) which was devised by Dr Kurt Ikrath. Bob has sent copies of two articles on this device. The first is from *Ham Radio* magazine May 1974, page 4. The HEMAC is a coil wound in toroidal form around the trunk of the tree. The coil is air wound and held to the tree by means of a strap which is probably made of plastic. Two taps are made onto this coil, and connection made to a matching network which provides a match to a coaxial feed line. Tests showed an improvement of up to

22dB over a comparable whip, particularly in wet jungles. Two trees were used to provide a steerable phased array. The HEMAC was also used to couple to metal utility poles and humans. Coupling to the belly did not work, but other parts of the body did. Fat people made better antennas than thin ones. *The two Rons do not advise coupling of transmitters to humans as overheating and consequential injury may occur, particularly if power levels above one watt and frequencies above the HF spectrum are used.*

The second article on the HEMAC was printed in *73* magazine of January 1975, page 21, with feedback on that article in the March issue on page 7.

It states that the HEMAC acts like a transformer with the tree being a single turn secondary. It was found that lower frequencies were absorbed less by the surrounding forest, but the height of the tree was also important. A 100ft tree worked best in the 80m band, for example.

Bob also cites an article from *CQ* magazine of April, 1978, page 79, on using a tree on 160 metres, but was unable to supply a copy. Maybe another reader can help.

Bob continues -

"I use 160 most of the time, and the tree I suspend the vertical loop from is about 130ft tall. Despite all the top loading it may resonate at 160, because it sure makes a difference in antenna resonance if I move the apex (a voltage antinode) towards and away from the tree. Also, I can certainly measure re-radiation from the trunk of the tree with an MFJ RF current probe (incidentally, an instrument I find very useful not only for finding current reversal points and polarisation etc, but also for RF sniffing around the shack and the house).

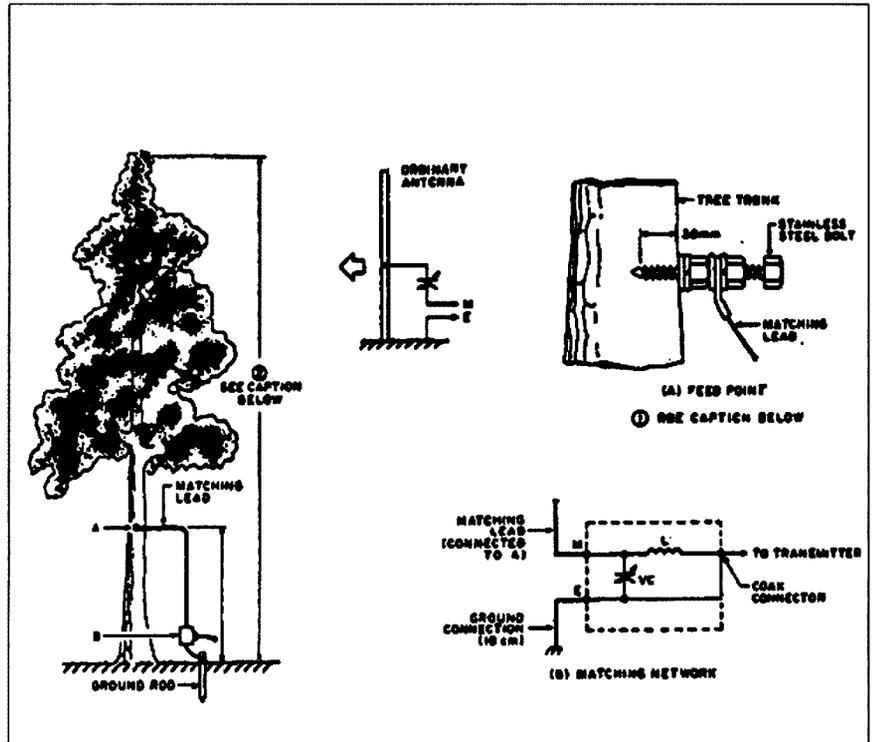
I may as well mention while writing that the MFJ SWR analyser is quite useful too. But it may be a good idea to mention to your readers that it doesn't really look for SWR, it looks for 50 ohms. So if you are using 75 ohms cable?

Lamp cord: Ours is probably radically different from yours, because many years ago we used some for receiving antennas because it measured about 70 ohms impedance. It was okay for that because we were not concerned about the efficiency. But the loss per 100 feet was very high even at 2-10MHz, so it didn't work worth a damn for transmitting, and got quite warm at 100 watts or so. We tried some flat AC cord (the kind you can peel apart, but it got twisted) and it was even worse.

A practical matter I haven't seen covered is the usefulness of using pulleys instead of insulators at the corners of wire loop antennas. With a vertical Delta, for example, it is quite difficult to predict just where the insulators should go at the bottom corners to end up with the base wire reasonably taut, and the whole thing has to be hauled up and down several times to get it right. With pulleys it self-adjusts. One becomes aware of the problem when there is a couple of feet of snow on the ground or the grass is 6ft tall.

The same applies to a horizontal loop. I have one about 600ft around, roughly square and above thick grass, brush and trees, gardens etc, and I find letting the wire slide through insulators just doesn't work well. Mostly because I have taped connections here and there because of my "try adding 30 feet", "add another seven", "add another three" method of "tuning".

Your suggestion that 275W input AM is equivalent to about 600 watts PEP output on SSB gave rise to some interesting discussion around here, as you seemed to be looking at the **spacing** on the capacitors. We more or less agreed between ourselves here that "275 watts input" meant "275 watts unmodulated input to the final" in



**A tree antenna. 1. C: 70pF 500V variable capacitor, adjusted about halfway in; L: 0.9µH coil. 2. Tree used is about 3.73m high, diameter at A is 12.5cm; at B 16.6cm.**

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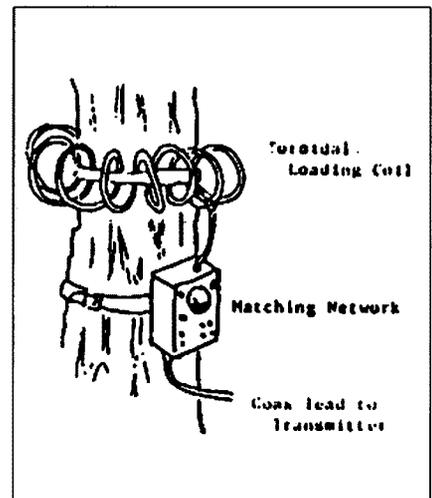
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those days, equating to about 200 watts output, which when modulated produces about 400 watts PEP. But then we considered that AM puts a considerably greater stress in duty cycle for **current flow**, so maybe taking everything into account, your figure may be right. I had a 275W Matchbox one time, and regret having given or sold it to someone. I have a 1kW one stowed away in the attic, but it has a totally different design as you probably know, and is very big.

Now we figure it this way. Two hundred and 75 watts of AM is 275 watts of DC input plus the modulation signal which doubles the supply volts and the plate current at 100 percent modulation (high level plate modulation assumed). Thus the total input is four times 275 watts, or 1,100 watts peak. If we assume that allowing for average efficiencies of the modulated final and output tank circuit that an effective efficiency of 55 percent is obtained, then the PEP output is 605W PEP. It should be noted that while the average power for a 100 percent sine wave modulated final is increased by 50 percent, the peak power is increased by 400 percent. An ATU designed to handle a 1kW input AM rig could handle more than 2kW



**HEMAC in position on tree. (Drawing courtesy 73 magazine, January 1975).**

PEP output. Old timers will remember that 100W SSB rigs had smaller components in them than 100W AM rigs - some of us were most surprised that they worked without sending out smoke signals of distress.

That's all for this time, so it's 73 from me and 73 from him.

**The Two Rons**

# Homemade Spectrum Analyser

Paul Kay VK4SY  
20 Gilbert St  
WINDSOR 4030

Very little has been described in amateur radio magazines concerning the spectrum analyser, its theory and operation or how to build one. There is no denying a spectrum analyser is a most complex piece of equipment. The complexity can be reduced by modular construction. But first, what is a spectrum analyser and what does it do and how?

An oscilloscope displays signals in the time domain as an amplitude-versus-time graph. The RF spectrum can be displayed as an amplitude-versus-frequency graph and, for that, we need a spectrum analyser.

This article shows how to build a simplified spectrum analyser. A spectrum analyser project is unique for most of us amateurs, and might cause some uneasiness at first. However, by following the steps outlined in this article, a usable spectrum analyser can be built. A store-bought spectrum analyser is nightmarish in complexity and very expensive. Yet a homemade unit can be built to reasonable performance by following the guidelines.

1:

By using a mass-produced TV tuner front end that covers the 35-90MHz frequency range with good sensitivity.

2.

By using economical consumer priced modules for IF, selectivity, detector, oscillator and audio sections.

3.

Using your own CRO as a display unit.

4.

Modular, repeatable construction.

This spectrum analyser uses the double conversion principles to translate on the screen any frequency between say 35-

910MHz (see fig 1). Signals arrive first into varactor front-end module. This selects the frequency we wish to monitor. This module feeds into second conversion module using the receiver section of a handheld CB radio that boosts the signal and provides needed selectivity. IF frequency in this module is 455kHz and uses ceramic filter for selectivity and ample stable gain to feed an AM detector. We need an amplitude detector to drive the vertical amplifier in our display section. The base line (grass) must not shift on varying signal levels and is referenced on zero or chassis earth. Only two modifications are needed in this module, namely the RX Xtal of 26785kHz has been substituted by the 27240kHz Xtal at present in TX position. This reduces CB breakthrough. An OA91 diode and a 3.3k resistor in parallel with a 22nF capacitor has been added to the last IF providing a separate detector to provide the output to the CRO of the required positive polarity for CRO. The audio section is intact, and the mute pot is wired off permanently. RG178 miniature coax is used between the IF section and the CRO display and for aerial input. A 47pF capacitor couples the varactor tuner IF output to the CB module aerial terminal. A three-position rotary switch selects the frequency range, either VHF Low or High or UHF. All frequency band

limiting components are omitted so there is a fair amount of overlap between the switch positions. The low end starting about 35MHz with the high end just covering the cellular telephone band around 910MHz.

A purist might object to having a spectrum analyser with an audio section included, but it's there anyway. It's a bonus already built in to the modules as they come. (See fig 2).

Four of these units are in almost daily use now. Some have FM sound and a slightly different front-end module, and some are AM sound. Any combination of these has been used with good results; this particular article uses AM board for IF and detector section.

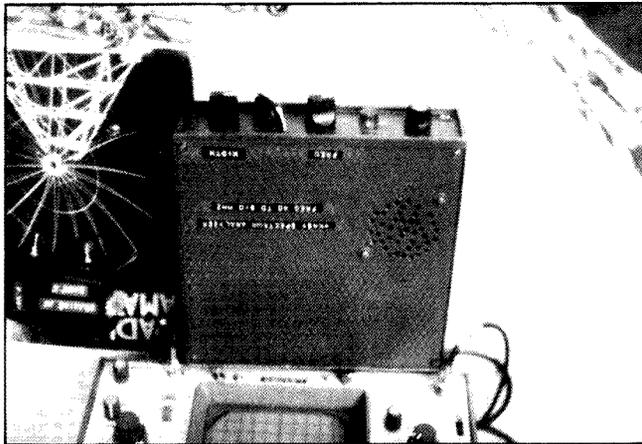
The very first unit was built to check various modules. They all work and they work well considering their simplicity and low cost. None of the components used is a one-off unit or hard to obtain or unobtainable. Almost 90 percent of the components come from garage sales or Sunday flea markets. For example, a pair of Ferris HF3000 hand-helds used here cost just \$10, and two BETA VCRs for a total cost of just \$40. A box for a two-way radio cost just \$5. Just strip out what you need and discard the rest.

## Construction

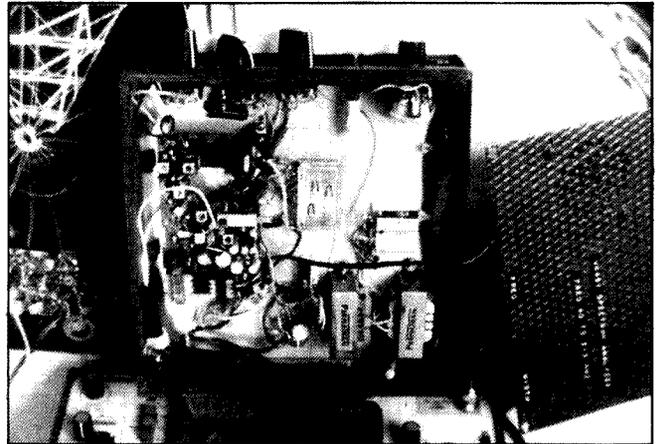
The unit is housed inside the case of the defunct two-way radio built by Willis. All parts were removed and the case given a coat of paint. PSU components were installed on the bottom plate, which is used as a chassis. Although the inside area is only  $7\frac{1}{2} \times 7\frac{1}{2}$ , it's more than enough. Parts and modules occupy only about half the space available. A small speaker is mounted on the top plate. All controls are on the front panel. Coax leads to the CRO and the aerial and mains lead are on the back panel. Total height is just under two inches. This cabinet has plenty of room for future additions.

The LM317T voltage regulator is three-terminal type, and is bolted against the bottom plate using a normal mounting kit. Heatsink compound is not needed as it runs barely warm to touch. The varactor tuning voltage is derived from a voltage doubler and is Zener regulated for simplicity.

**Note:** This voltage must be stable without any hum or ripple. Remember, this voltage controls your incoming frequency. Any hum causes blurry cusps on the CRO display. Larger variations shake signals left and right across the screen. We need only a



Internal view of spectum analyser - PSU is in top left-hand corner. Mitsumi tuner is in the middle, and the Ferris HF3000 board is on the right.



The complete spectrum analyser.

few milliamps to control frequency. The CB board needs about 50mA on low volume; this is sufficient for normal use. Adjust the 5k preset to give about +13V for the IF board. It goes without saying that all the components have to be rigidly mounted, and leads carrying 240V AC must be shielded properly and away from other components.

#### Display

For display purposes an oscilloscope is used. Any CRO will do here. The author has been using an ancient HP6288 round face as well as D/S LAB. CRO (ex-garage sales) and also a leader LBO507 square face. If a round-face CRO is used, the grass line is adjusted across the middle of scope screen. A square face is a bit fancier, as you can bring all the action to the bottom of the display. It's necessary to use an AM detector here as all the action is ground-up, that is to say, above ground level. The time constant of this RC combination must be sufficiently short to avoid any unnecessary stretching of the AM signal slope. In other words, display rise and fall times are fast. A combination of 3.3kohm and 22nF is just about right. The resistor can be increased if your CRO is insensitive, but leave capacitor alone. Direct coupling is used to preserve good low-frequency response.

Any AM CB board will work fine without any touch-up as is, but the detector diode should have the right sense, that is, positive pointing towards the CRO vertical input. No harm is done if diode is the other way, except that your display is inverted.

We also need horizontal sweep voltage from the CRO. This is easy. Just connect an 82kohm resistor to the point that feeds the horizontal deflection plate on the CRO tube. Bring this voltage to your spectrum ana-

lyser using mini-coax. This voltage, as you can see in the circuit diagram, is superimposed on the varactor tuning voltage, thus scanning the segment of the RF spectrum of your choice. See fig 3.

The sweep voltage is not AC as such, but a fast-changing DC voltage. It does not spin 180 degrees however (almost) never cutting the zero line. Use mini-coax and BNC connectors for CRO input and output. Older CROs, however need different connectors. About 15V sweep voltage is required for tuner operation. Any CRO can supply more

analyser resolves FM-AM-SSB signals as well as harmonics and other spurs. In a spectrum analyser, complex signals are separated into their frequency components, and the relative levels at each frequency are displayed. The frequency domain is a graphical representation of signal amplitude as a function of frequency.

The spectrum analyser thus described can be built by anybody with an average toolbox and knowledge of radio. With a normal TV aerial it is possible to observe 6m activity, band openings, fadeout etc. TV

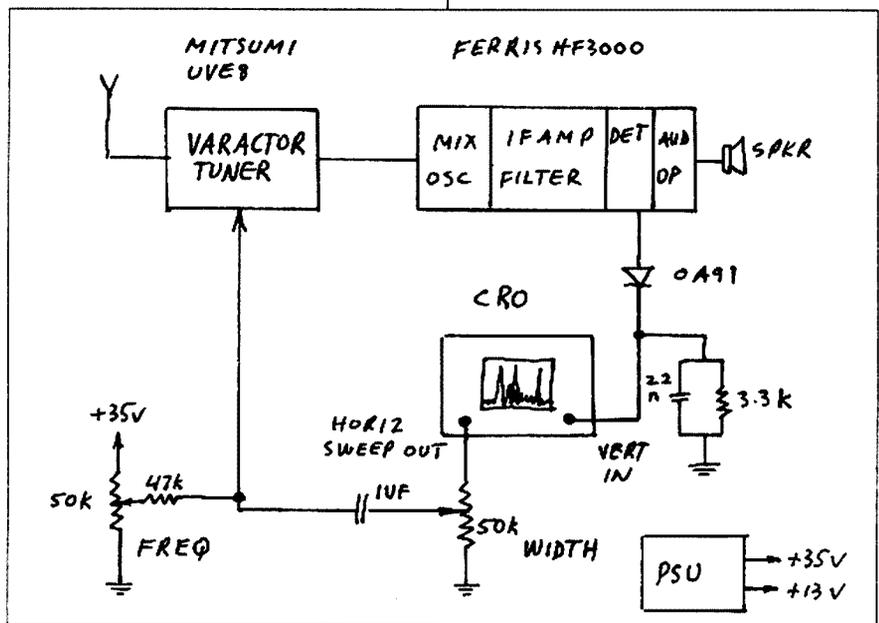


Fig 1: Spectrum analyser block diagram.

than this, so a dropping resistor is needed to limit the full swing.

Propagation can be observed visually. Pile-ups show on screen without spinning receiver dial back and forth. The spectrum

and FM stations come in from at least 50km away, with video and sound carriers visible.

All in all, this spectrum analyser project

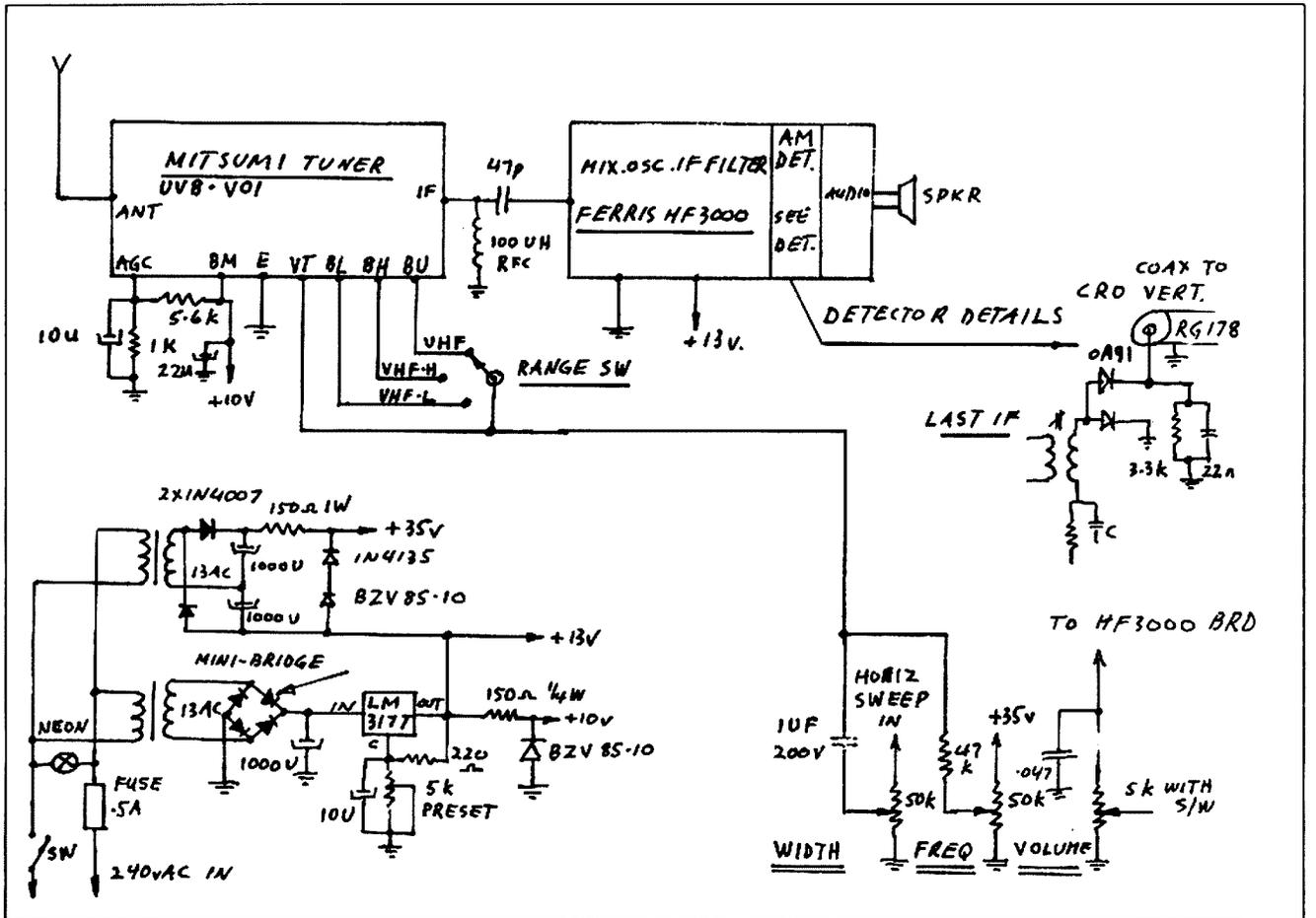


Fig 2: Schematic of VK4SY spectrum analyser.

has been a practical solution for a most useful item of test equipment.

**References**

High-Performance Spectrum Analyser, by Wayne Ryder W6URH, *Ham Radio*, June 1977.

Low-Cost Spectrum Analyser with Kilobuck Features, by Robert M Richardson W4UCH, *HR*, Sept. 1986.

Panoramic Adaptor/Spectrum Analyser, by Rick Ferrsnti WA6NCX, *HR*, Feb 1983.

Practically Speaking, by J J Carr K4IPV, *HR*, Feb 1990.

**Parts Summary**

Resistors: 1 x 150 ohm; 1 x 220; 1 x 1k; 1 x 3.3k; 1 x 5.6k; 1 x 47k; 1 x 82; all 1/2 w; 1 x 150 ohm 1 w; 1 x preset 5k.

Caps: 1 x 47pF cer; 1 x .022 uF greencap; 1 x .047uF greencap; 2 x 10uF 25V; 1 x 22uF 25V; 3 x 1000uF 25V.

Diodes: 1 x OA91; 1 x 1N4135; 2 x B2V 85-10; 2 x 1N4007.

Miscellaneous Parts: 2 x 50k pot lin; 1 x 5k pot log S/W; 1 x 100uH RFC; 1 x S/W - 3-position rotary S/W; 2 x 240/12V transformer; 1 x fuse .5a; 1 x 1m 317T regulator; 1 x minibridge MR RB154; 1 x 5pkr; Mitsumi uV8, vol varactor tuner; Ferris HF 3000 board or similar; Midland - Tokai AM boards, knobs; AC lead.

ar

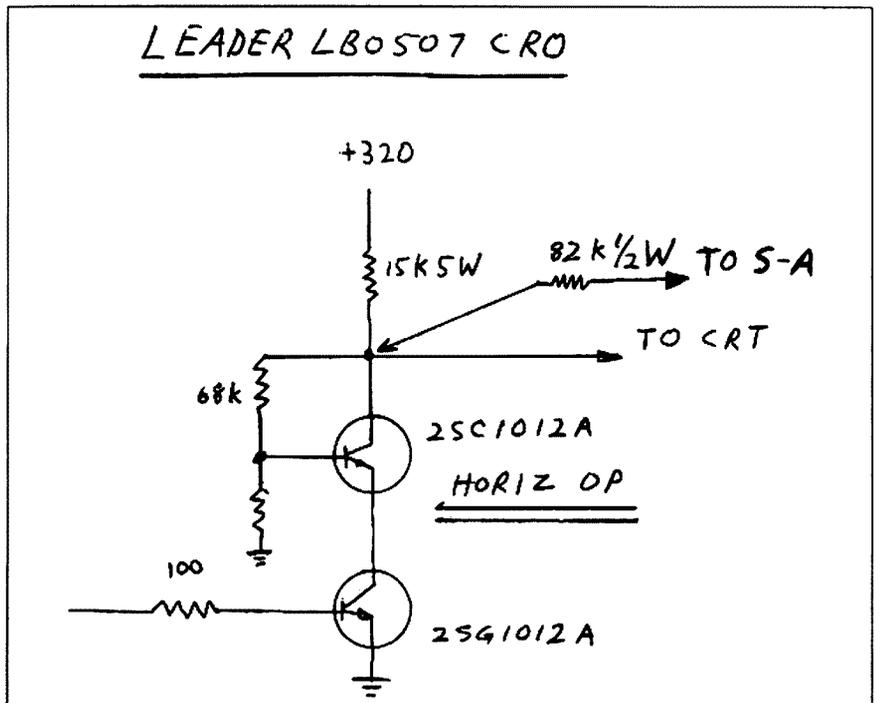


Fig 3: Horizontal sweep for spectrum analyser.

# Matching to the Base of a Vertical Half-Wave Antenna

## *A Simple Method*

Clive J Cooke VK4CC  
PO Box 181  
BRIBIE ISLAND 4507

A quarter-wave type antenna needs a complementary earth, counterpoise or radial system to achieve resonance, whereas these are not required with a half-wave vertical radiator which, furthermore, has better low-angle radiation characteristics. Matching of the feedline to the former is not difficult as both antenna and feedline are of low impedance. With a half-wave antenna, the high impedance at its base requires that more care be taken to correctly match it to a low impedance line such as a coaxial line having a 50 ohm surge impedance. It is usual to make use of a parallel tuned circuit appropriately tapped down the coil to match into the feedline, the top of the coil being connected to the base of the antenna and the outside braid of the feedline to the opposite end. Conditional on the feedline being taken down directly below an elevated half-wave antenna to avoid induced line currents from the antenna, there is no need for any other isolating action. However, protection against detuning of the parallel tuned circuit with changes of weather conditions is a problem but, as I have discovered in the construction of many trap multi-frequency dipoles for commercial use, the parallel tuned circuit which can

be achieved with a suitable length of coaxial cable alone is practically immune to changes of weather.

Therefore, these factors were taken into consideration when I recently undertook the construction of a whip antenna for operation on 21MHz, which I decided would be an electrical half-wave in length wound on an available 8-ft length of fibreglass tubing tapering down from a base diameter of two inches. (The antenna which I am about to describe is not to be confused with the short *quarter-wave* closely wound whip antennas pioneered by the late Queensland amateur Max Swaby, which require almost a *half-wave* length of fine wire to achieve *quarter-wave* resonance against ground).

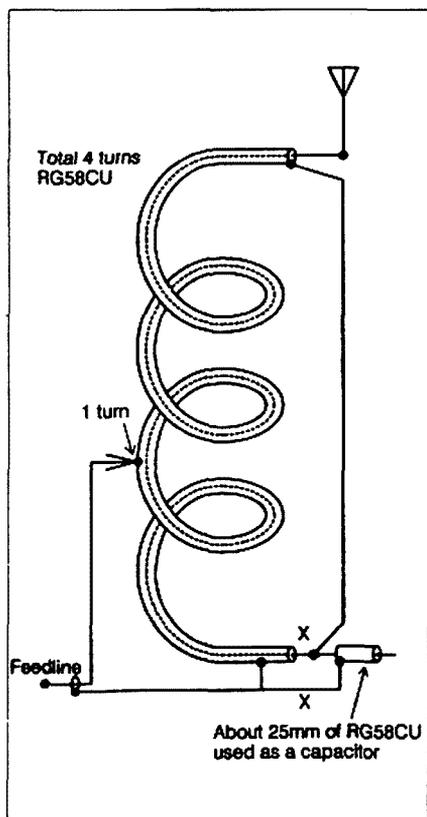
The construction procedure which I adopted was as follows:

1. The requisite length of wire required for a conventional half-wave antenna was calculated by formula to be approximately 24 feet, and some heavy-gauge enamel-covered wire was cut to that length.
2. The wire was spirally wound around the 8ft length of fibreglass tubing, making the pitch as coarse as possible for better radiation efficiency, but including about six closely wound turns near the centre sec-

tion. These close-wound turns are for both loading and resonant frequency determination purposes.

3. The assembly was placed in the horizontal position on top of a wooden ladder so the antenna was clear of objects likely to affect its resonant frequency and, by coupling to a dip meter, appropriate pruning of the wire was undertaken, checking with a receiver for frequency accuracy, of course.
4. The parallel tuned circuit made from a length of RG58CU coaxial cable was constructed for operation on the selected 21MHz frequency in accordance with instructions on the subject given in numerous textbooks. My coil diameter was 45mm and consisted of exactly four close-wound turns on the plastic water pipe former to which I was able to add end caps designed for the purpose and which protected the inside connections from rain. A small length of coaxial cable was connected as a trimmer capacitor to prune the circuit to the precise frequency of the antenna (21.1MHz). For the information of readers, a 14MHz coil on a similar sized former required 5.75 turns.
5. The coaxial parallel tuned circuit was then electrically connected to the antenna which had, as stated, been previously adjusted to the requisite operating frequency. On the ladder, the dip meter showed that the frequency had been slightly lowered with the additional coil, but not, as might be considered, by as much as the overall *length* of the coaxial cable. It was only by as much as the actual physical length of the *winding*. This I had discovered many years ago when experimenting with shortened beam antennas. The inductive effect of the coil alone at the end of an antenna is negligible. For the inductance to be effective, a capacity "hat" after the coil is required so that current will flow in the inductance. Thus only about two inches of wire had to be removed from my whip antenna to restore it to resonance as required.
6. The antenna assembly was then temporarily lashed to the wooden ladder so that it now was vertical. The 50 ohm impedance tapping point, about one turn from the bottom end of the coil, was found by using a short length of feedline to an impedance measuring meter. A feedline to a transmitter and some low power using an SWR meter would also do the job. The connection of the braid of the feedline is, of course, to the bottom of the coil, and the tapping point is determined experimentally by tapping the outer protective covering of the cable with a pin to make contact with the braid. The pin was soldered to the inner conductor of

# Technical Correspondence



**Note: The resonant frequency of the coil is adjusted by trimming a longer piece of RG58CU soldered across point X-X, while chocking with a dip oscillator.**

the temporary feedline. Having found the optimum connecting point, the protective covering was removed with a sharp knife so the feedline could be permanently soldered to the braid and also to the base of the coil. No doubt a neater job could have been achieved by incorporating a coaxial feedline socket at the bottom of the coil in the centre of the protective cap previously mentioned.

7. I was satisfied with an SWR of 1.5:1, after which the antenna was mounted above a 2m yagi beam so that the base of the whip antenna was approximately 15 feet above ground.

No doubt the coaxial tuned circuit could be adopted for use with a full sized vertical radiator, but with the complication of first determining the resonant frequency of the antenna alone. However, it is likely any minor reactance from an antenna slightly off resonant frequency could be compensated for by adjustment of the coaxial tuned circuit when it is actually connected to the antenna. The tapping point for the feedline should be determined once the antenna is in its final position.

af

## Horizontal Loops

**T**here must be many operators very confused with all the articles on loop system antennas, quad delta and other kinds. Yes, there are other kinds of loops and I have tried most of them.

I am using at this time a triangular loop system. It is an obtuse triangle (you purists stay out!) mainly because that is where the trees are! But it does work (on all bands, yes) with the help of an ATU (home brew).

My loop is two wavelengths long in total, and is tuned for VSWR=1 on 3.797MHz. The feed is by 50ohm coax and the tuning is by means of a quarter-wave inverted V cut for 3.797.

The feed point is at the northern end of the loop and the inverted V is connected to the loop. The side of the inverted V connected to the coax centre core is either cut or lengthened to obtain a VSWR of 1. If

difficulty is found in achieving this, try opening or closing the angle of the V.

This loop can be used on all bands with the use of an ATU. If 160(1.830) is the prime band, then another 20m (66ft) is added to the tuning V on the side connected to coax centre core. At present the feed point is at 21m (70ft). One side is at 17m, the other side at 18m. I do intend to raise the height at some time in the near future, but at this present moment cannot find a round tuit!

If the reader has the room I have found that a V beam at 90 degree angle and 1.5 wavelengths long at 3.797 and tuned to optimum with an inverted V at 18m or more will work very well. I have worked all USA states and all CQ zones on 75 with this, plus DXCC. Yes, I do have the cards confirmed! Also on 160m contacts, both CW and some SSB have been made to most parts.

**Bill Garvey VK2CWG**

**19 Eastaway Ave Nth Narooma 2546**

## Book Review by Gil Sones VK3AUI

**MICROWAVE HANDBOOK**, Vol 2 Construction & Testing. Edited by M W Dixon G3PFR, Radio Society of Great Britain 1991.

This handbook is a must for the serious and not-so-serious experimenter. Whilst primarily concerned with amateur microwave technology, there is a great deal of information for the average experimenter. The chapter on safety is of significance to all amateurs. The hazards and how to minimise and avoid them are very well set out. This is of particular significance to those of us who have a handheld radio.

Chapters on Data, Filters and Construction are very interesting and have a much wider appeal than the narrow microwave field. The information is well presented and very easy to use and understand. Test Equipment and Construction are more specialised but are very interesting. However, the subject of beacons and repeaters is slanted more to the British and European scene and regulations.

*Summing up, a most worthwhile and useful book.*

# Wartime Reminiscences

**Terry Hake VK6PCC  
16 Forest Gve  
TWO ROCKS 6637**

After going through the usual wireless course in the UK in 1941/42 I found myself posted to a RAF station in Canada's maritime provinces as a ground W/Op. At this time of the war it was usual for would-be air ops to do further training in this way to gain practical experience.

**W**e were working Hudsons and Venturas flying on anti-sub patrols out over the Atlantic. These patrols are worth a series of stories in their own right, but back to my own. We noted that at night a German station used to intrude onto one of our HF frequencies. It became obvious to us that this station was also working units by the "F" method which many readers will not recognise, so I will explain.

This consisted of sending a message and then repeating it to ensure the recipient had a good chance of filling in any missed groups the second time around. This type of message was transmitted at given times and did not require an answer from the unit. It was used to prevent the receiving station having to risk being DFed and plotted. They were sent in five-letter number groups and sent very fast - about 28-30wpm by extremely good operators. On odd occasions these were interrupted by the receiving station, and a short exchange of about four groups rapidly passed back to base and acknowledged. It became our custom (and theirs) to send little bits of amicable Morse to each other to help while away the small hours. Most readers will know the type of thing, which I cannot include for fear of offending some of your readers; ahem!

This all ended rather abruptly one very cold morning - in more ways than one -

when some of our bright lads (and I include myself) were called to the office to find some very official people with odd looking eggs on their caps waiting to have a little chat with us. They had come all the way over the briny from Abingdon Monitoring Station in the UK. We were very quickly informed about the penalties for passing messages to the enemy in wartime, and logbooks containing the German transmissions and our little asides were produced in evidence. What had we to say for ourselves before being shot?

Well, we didn't know that the station we were sending our rapid Morse to was German, did we? And, since the ops at the other end used the same code for mild abuse to us we assumed they were a UK RAF station. This was received with a certain amount of disbelief, but we were off the hook for the time being. We then had to explain to these officers what each little mixed group meant. This was met with amusement, much to our relief! We were then told that the station we were having our fun with was the German Luftwaffe airfield in Merignac. It was the main station for German U-boat co-operation, using Focke Wulf Condors over the Bay of Biscay and the Atlantic. The messages were going out to individual U-boats and aircraft, and the need for F procedure was obvious.

Our frequencies were changed overnight and, after much cautioning and many lec-

tures, we were not charged over the affair. However, much later on in the war I was one of the crew of the first aircraft to land on Merignac (after the German withdrawal). The station and runways had been well and truly plastered with bombs for some time now, and we had to land carefully on the only runway then serviceable. The bomb craters were quickly filled in with rubble, but still needed to be avoided to save our tyres from this rough and ready surface.

Merignac had special memories for me and I went to look at the signals section, or what remained of it. This had been a vital element during the U-boat campaign and had had its share of bombs. I crawled under fallen-in roofing and eventually got to the operators' room. The loot lying there would have been worthy of a gleam in any ham's eye, but alas could not be touched because of booby traps. I had a strange feeling about this room when thinking of the amusement the ops here had given us so far away, and we them, of course.

In passing I was less than amused when emerging from this place to be confronted by a Frenchman armed with sub-machine gun and brassard who threatened to shoot me for looting. These Frenchmen popped up towards the end of the war, and were a constant menace to us for some time until our own people moved in. They had, it seems, learned well from former masters on the ability to shout at the tops of their voices and order anyone in sight to take off. To move after dark, it was most important to be in company and speak at all times or risk a burst of gunfire. Merignac became a large RAF staffing post for aircraft then passing through to the Far East in vast numbers. As many as 40 aircraft a day refuelled and passed on for a very long time until the atom bomb put an end to the need.

Also interesting were the German death charge dumps near the airfield. These had casings made of concrete (due to shortage of steel in Germany) and were in huge dumps of several hundreds of tonnes. The casings over time developed tiny cracks, and the contents started to leak out (looking like honey). POWs were brought in to remove these and took a lot of persuading to do so, since a slip of one of them would have caused an enormous explosion. However, they were man-handled carefully one at a time, carted down to the port, placed on anything capable of being towed to sea, and there sunk a few miles off the coast. It was considered too risky to touch them again!

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# Contesting in Turkey - TA5KA

In the December 1991 issue of *Amateur Radio* I briefly mentioned that the CQ Worldwide SSB and CW DX contests, which take place in October and November each year, are a good source of rare DX, and also rich fields for prefix hunters. A strategically chosen location could give the operators a chance to achieve excellent results. There is a small group of people who are very good at both DXing and contesting. Some of the better known Hungarians come into this category.

**Stephen Pail VK2PS  
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DURAL 2158**

egory. The Hungarians travelled by car to Turkey and, after 2500 kilometres, reached their destination at a seaside resort.

A three-element tri-bander beam, specially constructed for this occasion by HA0KLE, proved to be a winner during the contest. Other antennas used were a Butternut HF6V and a variety of dipoles for 80 and 40 metres. The station was staffed by two operators continuously during the whole of the course, and they changed over every four hours. The unique prefix was a blessing in disguise and created quite a demand for a multiplier.

A total of 7609 QSOs were made during the 48-hour period of the SSB contest - 133 countries worked. The team finished up with 15,056,664 points, which was a new Asian record in the multi-operator single-transmitter category, and reached third position world-wide. Both the transmitters and antennas worked very satisfactorily. There were no mishaps other than several interruptions to the outside power supply which, after some investigation, was diagnosed as being a local one in the building where the team stayed.

The November CW section of the contest used the callsign TA5KA and again attracted a good response from the contesting fraternity. There was no more interruption to the power supply because they decided to stay in a different house. The CW contest proved to be a winner for the Hungarians. They made 7201 QSOs on six bands, with a total point-score of 13,915,044, which created a new world record in the multi-operator single-transmitter category.

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A short time ago, I received a letter from Dodi HA6NF, who enclosed a brief description by Gyozo HA0MM about their participation in the 1990 CQ WW SSB and CW contest. The team for the October SSB con-

test was made up of Zoli HA5PP, Joska HA0LC, Gyozo HA0MM and Jani HA0NNN. They were joined by their Turkish friends Mehmet TA5B and Mehmet TA5C, and the group operated under the callsign of YM5KA in the single-transmitter multi-operator cat-



The TA5KA operators at their QTH in Adana, Turkey.



The YM5KA team with their XYLs (left to right) HA0NNN, XYL-NNN, HA5PP, XYL-PP, XYL-LC, HA0LC, XYL-MM, HA0MM.

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### 2 YEAR WARRANTY

**\$479**

**Bonus Antenna Offer**

### FT-470 2m/70cm HANDHELD

Dual-band performance at its best! The FT-470 is a very easy to use handheld transceiver that offers a high degree of flexibility through the use of a sensible microprocessor control system to provide both 2m and 70cm operation in one compact unit. Dual independent IF circuits allow several functions to be performed simultaneously, including dual-band reception, and full cross-band operation. The FT-470 also has 21 tuneable memories and 2 VFOs per band, plus inbuilt C.T.C.S.S.

### BONUS

Diamond RH-770 telescopic dual band high gain antenna for just \$10 (Cat D-4336 valued at \$79.95)

### 2 YEAR WARRANTY



(encode/decode tone squelch) with a paging facility and a wide variety of scanning functions. A back-lit LCD screen shows a 5.5 digit frequency display on both bands simultaneously and a bargraph PO/S-meter lets you know exactly what you're doing. The programmable 'power-saver' system helps maximise battery life, allowing squelched receive current of as low as 7mA. The FT-470 comes with a high capacity 7.2V 1000mA/H NiCad battery pack, carry case, belt-clip, dual band antenna and approved AC charger.

### Specifications

Frequency Coverage:	144 - 148MHz, 430 - 450MHz
Output Power:	2.3W (both bands, 7.2V) 5.0W (both bands, 12V)
Supply Voltage:	5.5 to 15V DC
Current Consumption - Stand-by (with 1sec. save):	8mA (both bands)
Receive:	150mA (both bands)
Sensitivity (12dB SINAD):	Better than 0.158uV (both bands)
Size:	55 x 180 x 32mm

Cat D-3360

**\$749**

### With Bonus Antenna

### FT-212RH 2m FM MOBILE

The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. With 45 watt output over the 144-148MHz range, rugged diecast chassis (for superb RF isolation) and extensive use of surface mount components. What's more, it has a large back-lit LCD with a bargraph PO/S-meter, 5 selectable tuning steps and a total of 21 memories (18 general purpose, 1 call channel and 2 sub-band limit memories for band scanning). As well, there's inbuilt C.T.C.S.S. encode and a variety of scanning functions. Complete with mobile mounting bracket, MH-14A8 microphone and DC power lead.

Cat D-3494



**\$569**

### 2 YEAR WARRANTY

### BONUS

Hustler RX-2 5/8 wave magnetic mount antenna (Cat D-4805 valued at \$49.95)

\*YAESU bonus offer valid until June 30 1992, or while stocks last.

# YAESU



# YAESU FT-990 HF

## ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000... and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.

Cat D-3260



Offer valid until 30th June 1992

# \$3495

2 Year Warranty!

### BONUS OFFER SELECTION

Your choice of Yaesu MD-1 deluxe desk microphone (D-2125, valued at \$169), or Revex W502 H.F. PEP wattmeter (D-1360, valued at \$189)

### Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

### Convenience Features

- A highly efficient AC switch-mode power supply is built-in. It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
- Modular construction maximizes selectivity and makes servicing easy.
- Effective interference rejection is facilitated by IF Shift, IF Notch, IF bandwidth and SCF audio controls.
- An adjustable noise blanker, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.



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## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware and instructions.

Cat D-4840

NEW '92



Save \$10  
\$159

## 2m 1/2 WAVE BASE STATION ANTENNA

MOBILE ONE

An outstanding value for money, compact, Australian made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection and comes with a 5 year warranty.

Cat D-4820

\$49<sup>95</sup>

## ST-7500 2m/70cm MOBILE ANTENNA

NEW '92

At last, a high performance dualband mobile antenna at a down to earth price. The ST-7500 is just 1metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality Japanese construction together with a tiltable whip structure make this an ideal antenna for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended).

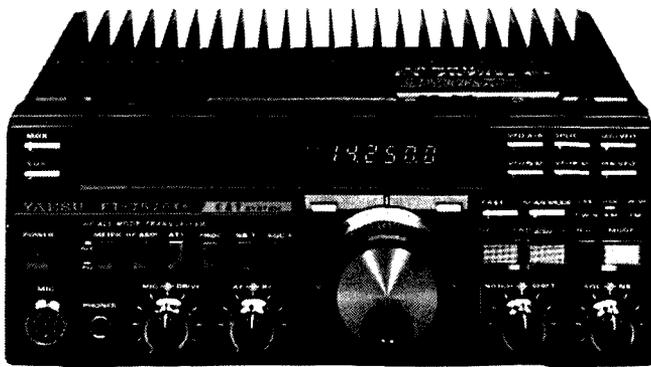
Cat D-4810

\$79<sup>95</sup>

Major Amateur stores — Nth Ryde, York St, Parramatta, Chermiside, Brisbane City, Bourke St, Springvale, Coburg, Adelaide City and Perth City

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Always ready for action! Whether you're in a demanding H.F. mobile situation, or at home in the shack, the FT-757GXII won't let you down. Based on its popular predecessor (the 757GX), the MK2 features the same heavy duty die-cast heatsink and rugged metal chassis for long term reliability. As well, it offers even easier to use controls and new features such as a pushbutton mode selector and IF Notch filter.

- All mode operation - SSB, CW, AM, FM (160m-10m)
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- High performance general coverage receiver - 150kHz to 30MHz
- Dual VFO's with single button VFO/memory swap functions
- Memories store freq & mode and allow band scanning between adjacent memories
- Inbuilt 600Hz CW filter, IF Shift and IF Notch filters, variable noise blanker, speech processor, iambic CW keyer and SWR meter.

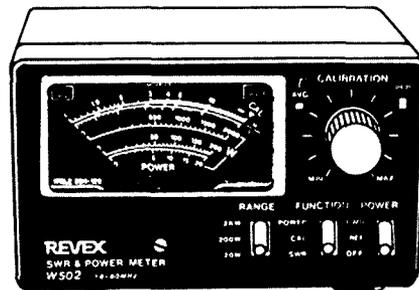
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# Awards

John Kelleher VK3DP – Federal Awards Manager

## WIA DXCC STANDINGS LIST

as at 7th May 1992

Considerable work has been put into updating and clarifying the WIA DXCC standing list. Old records have been re-examined, a comprehensive card index system introduced, and the standings list entered into a computer database in the Federal Office.

When laboriously going through the records, it was found that many on the list were now deceased, or no longer held that call sign, or had not requested an update for many years. Therefore, in compiling this list, it was decided to only list those amateurs whose call sign was current, and who had either applied for DXCC, or had their standing updated, since 1st January 1985.

If you are not on this list, or your countries total is not what you believe it should be, please write to me with the details. I am determined to get this list correct, and keep it that way, but your assistance is needed.

### PHONE

CALLSIGN	COUNTRIES	CALLSIGN	COUNTRIES
VK5MS	323/373	VK6VS	258/259
VK6RU	322/373	VK2SG	254/274
VK4KS	322/364	VK3GI	254/256
VK5WO	322/353	VK2AVZ	251/256
VK6LK	322/342	VK3VQ	250/265
VK5XN	322/338	VK2BCH	224/226
VK6HD	322/335	VK2CKW	224/225
VK3AKK	322/330	VK5B0	220/222
VK6MK	321/367	VK40X	220/221
VK4LC	321/363	VK5IE	220/221
VK3QI	321/330	VK2PU	213/214
VK3DYL	320/321	VK6YF	212/213
VK4RF	319/335	VK4KRP	201
VK30T	318/327	VK40D	200/201
VK6NE	315/327	VK5PS	200/201
VK3AMK	314/329	VK3DP	189/190
VK3YJ	312/314	VK6BQN	187/190
VK5EE	312/313	VK4AIX	183/184
VK3CSR	309/313	VK3AB0	180/181
VK4VC	308/324	VK3EW	171
VK7LZ	306/326	VK2AAC	164/168
VK6AJW	306/309	VK2B0S	163
VK3RF	305/311	VK3DVT	160/161
VK3AWY	305/310	VK2DVU	149/150
VK3WJ	305/308	VK2AGA	132
VK1ZL	304/305	VK7YP	123/124
VK7BC	303/309	VK4ATQ	119
VK6HE	303/307	VK2AMV	116/117
VK4UA	294/308	VK2CWG	116/117
VK4PX	292/312	VK4A0Z	113
VK2AKP	291/294	VK5GZ	111/020
VK4UC	289/305	VK3XV	111
VK2APK	287/312	VK501	110/111
VK48G	286/299	VK4LV	108/110
VK2DTH	286/287	VK30D	108/109
VK7AE	285/291	VK3APT	107/108
VK3DU	284/290	VK5AGM	106/107
VK5OU	283/286	VK4EJ	105/106
VK40H	282/283	VK3EHP	104/105
VK3VU	274/275	VK5ZH	103/105
VK4DP	271/276	VK48JE	103/104
VK2WU	270/272	VK3YH	103
VK3CYL	267/271	VK2CMV	101/102
VK3JI	266/279	VK1LF	101
VK2FGI	263/264		

VK3PSD	101	VK3AKK	261/265
VK5AFZ	101	VK3JI	242/266
VK2APJ	100/101	VK5WO	237/246
VK4KGE	100/101	VK7BC	212/219
VK3PTB	100	VK4LV	184/190
VK4VIS	099/100	VK3DP	182/183
CW		VK40P	178/184
VK2QL	313/359	VK4UC	170/178
VK3XB	313/343	VK5B0	160/184
VK6HD	312/329	VK4DA	153/154
VK3QI	311/318	VK4UA	144/177
VK3YL	304/340	VK4AIX	142/143
VK4RF	303/327	VK2SG	137/148
VK3KS	299/322	VK4KS	128/139
VK7LZ	278/313	VK5AGX	118
VK2APK	276/303	VK2AKP	117
VK6RU	275/317	VK5GZ	115/116

VK5QJ	114	VK3JI	285/312
VK1DH	113	VK4DP	284/294
VK2CWS	106/107	VK3DP	276/277
VK4FB	105/106	VK3CYL	267/271
VK4PX	104/112	VK5B0	266/301
OPEN		VK3VQ	265/280
VK6HD	323/343	VK40D	255/256
VK6RU	322/373	VK4AIX	203/204
VK4KS	322/364	VK2AAC	176/180
VK5WO	322/356	VK2B0S	173
VK3QI	322/332	VK4DA	154/155
VK3AKK	322/330	VK5GZ	139/140
VK6MK	321/367	VK1DH	133
VK3YL	321/363	VK5AGX	133
VK30T	321/330	VK6NV	127/128
VK4RF	319/352	VK2AMV	120/121
VK3JA	314/359	VK5A0L	105/106
VK3AMK	314/329	VK6ASD	104
VK7BC	313/318	VK3COR	103/104
VK7LZ	308/345	VK2KE	100
VK3XB	303/340	VK5ZN	100
VK4PX	299/323	VK2PA	099/112
VK4UA	298/310	CW	
VK2APK	294/328	VK2SG	159/160
VK48G	293/309	VK2B0S	109/110
VK2SG	292/314	VK3EBP	105/106
VK4UC	291/309	VK5RY	101/102
VK2AKP	291/294		

## Contests

### Australasian Sprints CW and Phone, July 1992

The Adelaide Hills Amateur Radio Society Inc is pleased to announce that the seventh series of the annual Australasian Sprints will be held during July 1992.

Both of these contests, which are for CW and phone operators respectively, and are of one-hour duration on 80 metres, are open to all appropriately licensed amateurs in VK, ZL and P2 call areas. As in past contests, a section is provided for SWLs.

The Australasian Sprints are endorsed and co-sponsored by the South Australian/Northern Territory Division of the Wireless Institute of Australia and the Adelaide Hills Amateur Radio Society, and certificates and trophies will be awarded to call area winners and overall winners. Also, a certificate will be awarded to the highest scoring novice class operator in the CW sprint only, provided this entrant is not entitled to another award for the CW sprint.

The reasoning behind the concept of the Australasian Sprints is simple. Most contests are long with fairly complex rules, and participation - except by serious contesters - is tending to diminish. The Australasian Sprints, being of only one-hour duration, are quick and simple, challenging but fun.

### Object of the sprints

The operator's basic goal in the sprints is to make (and SWLs to hear and log) as many contacts as possible, without duplication, during an hour of operation on a single band.

Any contact with a VK, ZL or P2 station on 80 metres during the contest period can be counted, but a station may be claimed only once.

**Eligibility:** The Australasian Sprints are open to all licensed amateurs, or groups of amateurs, using a single call sign, eg club stations, anywhere in the VK, ZL and P2 call areas.

**Contest period:** 1200 to 1300 UTC, 4 July 1992 (CW only)

1200 to 1300 UTC, 11 July 1992 (phone only, any legal mode)

**Frequencies:** For the CW sprint, frequencies between 3.500 and 3.700MHz may be used.

For the phone sprint, frequencies between 3.535 and 3.700MHz may be used.

**Contest call:** CQ Sprint or CQ Test or CQ Contest.

**Exchanges:** Minimum exchange for a valid contact will consist of a signal report and a three-digit serial number. The serial number may start at any number between 001 and 999, but will revert to 001 if 999 has been reached.

**Logs:** Contest logs must show for each contact the time (UTC), call sign of station worked (both call signs for SWLs), report/serial number given and report/serial number received. Each log must be accompanied by a cover sheet showing the name and date of the sprint (CW or phone), the total number of contacts claimed and a statement that the operator(s) has abided by the rules and spirit of the contest. This cover sheet is to be signed by the operator(s) and personal call signs added

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where multi-operators enter using a club callsign. Any special conditions such as QRP or mobile operation should be mentioned in the statement. Any comments you wish to make will be welcomed by the sponsors.

Logs are to be in the hands of the AHARS, PO Box 401, Blackwood SA 5051, Attention: Contest Manager, no later than Friday 14 August, and the envelope is to be endorsed CW, phone or SWL Sprint.

**Awards:** Certificates will be awarded to the highest score in each VK, ZL and P2 call area for both the CW and phone sprints. Trophies will be awarded to the outright winners of both. A certificate will also be awarded to the highest scoring novice class operator in the CW sprint only, provided this entrant is not entitled to another award for the CW sprint. Certificates may be awarded to other operators whose performance was, in the opinion of the sponsors, exemplary.

**SWLs:** Certificates will be awarded to the highest scoring listener log in the VK, ZL and P2 call areas for both the CW and phone sprints.

Any entry which is clearly in violation of the rules or spirit of this contest, or which contains an excessive number of duplicate contacts (this does not refer to duplicates which have been indicated as such and are not claimed) may be disqualified. The decision of the Adelaide Hills Amateur Radio Society Inc in respect of the interpretation of these rules, the granting of awards and disqualification will be final.

These contests are recommended as a good Saturday evening entertainment. If you have never entered a contest before, here is a good, friendly time to start. Join in and enjoy the fun.

## UHF/VHF Field Day: Correction

I wish to apologise for an error in the results for this contest published in April AR. VK5BW should have been listed as a multi-operator station, the operators being Alan Raftery VK5BW, Andrew Russell VK5ZUC and Tony Denton.

With a score of 12591 points, VK5BW therefore scores first place in the multi-operator section, rather than second place in the single-operator section. My condolences to the Geelong ARC team, and congratulations to the operators of VK5BW.

John Martin VK3ZJC

## VK Novice Contest 1992 Rules

### Contest Period

From 0800 UTC 20 June 1992 until 0800 UTC 21 June 1992

### Objects of the Contest

To encourage participation of amateur radio stations in Australia, New Zealand and Papua New Guinea, with special emphasis on

contacts with novice and radio club stations.

### Stations Eligible

Only stations in VK, ZL and P2 call areas may enter. No stations outside these call areas are permitted to be worked or entered in a log for the purpose of this contest. Except for club stations, no multi-operator working is allowed. Stations in the same call area may contact each other as well as stations in other call areas.

### Contest Bands

All operations must be confined to within the novice frequency sub-band allocations in the 10, 15 and 80m bands. No cross-band operation is permitted. Novice allocation VK HF 3.525-3.625MHz, 21.125-21.200MHz and 28.100-28.600MHz.

### Modes of Operation

Section (a) phone - novice/full call

Section (b) CW - novice/full call

Section (c) SWL

### Scoring

For contacts with a novice station - five (5) points

For contact with a club station - ten (10) points

For contact with a full call station - two (2) points

### Listener Section

For novice to novice contacts

- five (5) points

For novice to full call stations - two (2) points

For full call to full call stations - two (2) points

For any contact with a radio club - ten (1) points

A listener (SWL entry may log only ten (1) sequential contacts made by a station, and then must log no less than another five (5) stations before logging that station again. The five (5) stations so logged need a minimum of one contact only logged.

For phone stations, call CQ Novice Contest.

For CW stations, call CQ N.

### Contacts

Any station may be contacted twice per band, provided a period of at least 12 hours has passed after the first contact.

### Number Exchange

*Section (a), on phone.* Stations must exchange a serial number comprising an RS report followed by three figures. The figures must commence at 001 for the first contact and increase by one for each further contact.

*Section (b), for CW stations.* As for phone, but the report is an RST followed by the serial number.

### Log Entries

Each log should be laid out so as to provide columns in the order given as follows:

Date/time UTC. Band. Mode. Station contacted. Report and serial number sent.

Report and serial number received. Claimed

score. Each log sheet must be endorsed at the top "VK Novice Contest 1992".

Total claimed score for each page must be shown on the bottom of the page.

### Front Sheet

A front sheet must be attached to the contest log and must carry the following information:

Name and address of operator. Callsign. Station location. Section entered. Score. Declaration. The front sheet must also carry a declaration which states: I hereby certify that I have operated within the terms of my licence, and the rules and spirit of the contest. This declaration must be followed by the signature of the operator, with date. In the case of a club station, the entry must be signed by a responsible officer of the club committee, or a licensed operator delegated by the committee to do so. In the case of multi-operator stations, the callsigns of participating operators must also be shown on the front sheet.

### Regulations

All stations participating in the contest must be operated within the terms of the station licence and applicable regulations.

### Entries To

Entries must be posted so as to reach the Contest Manager no later than 24 July 1992. The address for entries is: Novice Contests Manager, WARC, Box 1, Teralba 2284.

### Certificates

Certificates will be awarded to the top scoring stations in each section at the discretion of the Federal Contest Manager.

Certificates will also be awarded to the top scoring novice stations in each call area and to any other entrant where meritorious operation has been carried out in the opinion of the Contest Manager.

### Trophies

The Keith Howard VK2AKX Trophy for the novice entrant with the highest aggregate (phone and CW) score, and the Clive Burns Memorial Trophy for the novice entrant with the highest CW score, are perpetual trophies on permanent display at the Executive Office. In each case, the annual winner will receive a suitably inscribed wall plaque as permanent recognition.

Provision is made for adjudication in the case of a tie.

### Operator

A person may submit only one contest log per mode.

Logs for entries where an operator uses more than one callsign whilst operating in this contest will not be accepted.

### Disqualification

The contest disqualification criteria as published annually in *Amateur Radio* will apply. Any station observed during the contest as constantly departing from the generally accepted code of operating ethics may also be disqualified.

Ken Miller VK2GKM  
Novice Contest Co-ordinator

## The Sunshine State Jack Files Memorial Contest 1992

### Objects

- The objects of the Contest are to:
  - perpetuate the memory of the late Jack Files, a long-time member of the Council of the Queensland Division of the Wireless Institute of Australia;
  - enable amateur radio operators to work Queensland stations for the Worked All Queensland Award, and other awards issued by radio clubs in Queensland;
  - encourage mobile/portable operation from the lesser populated towns and shires in Queensland;
  - provide a "warm-up run" for the Remembrance Day Contest.

### Period

- The contest will be run over the six hours between 0700hrs UTC (1700hrs EAST) and 1259hrs UTC (2259hrs EAST) on 18 July 1992.

### Sections

- Stations within VK4:
  - Tx all band. Twenty percent of contacts claimed must have been made on the V/UHF bands;
  - Tx HF phone;
  - TX HF CW;
  - Tx V/UHF only;
  - club stations in a to d above, single transmitter;
  - mobile/portable stations in a to e above.
- Stations outside VK4:
  - Tx all band phone;
  - Tx all band CW.

### Preferred Contest Frequencies

Phone		CW	
1.820	- 1.840MHz	1.805	- 1.815MHz
3.570	- 3.590MHz	3.525	- 3.535MHz
7.100	- 7.120MHz	7.010	- 7.020MHz
14.180	- 14.200MHz	14.050	- 14.060MHz
21.170	- 21.195MHz	21.125	- 21.150MHz
28.480	- 28.520MHz	28.125	- 28.125MHz

### Operation

- The WARC bands may not be used in this contest. Cross-band operation is permitted only via a satellite repeater; contacts made via a net are not admissible; cross-mode operation is allowed.
- The contest is primarily for single-operator stations, but log keepers are allowed. Where two licensees use a single station, each is to submit a separate log.
- Club stations may use multiple operators, provided there is only one transmitter in use at any one time.
- Home-based stations may be worked again after an elapsed time of one (1) hour.
- Mobile or portable stations are not subject to the one-hour rule when operating from a different city/town/shire. When operating within one hour from that of previous operations, they are regarded as "new" stations for their own and the contacted stations' scoring purposes. (Different is not to be taken as

alternating, eg operations from Area A for 50 minutes, then move to Area B, operate for 50 minutes and return to Area A, would be regarded as alternating, not different). Operations from the same city/town/shire after one hour, regardless of movement within that area, are regarded as home-station operations.

### Calling Procedure

- Phone: CQ Jack Files Contest  
CW: CQ Test Jack Files.

### Exchanges

- Each exchange is to contain the following elements:
  - the location designator, N or S, see **scoring**;
  - the serial number beginning with 001 and continuing in sequence throughout the contest and on all bands worked;
  - the "code letters" of the designated city/town/shire as set out in the attached "Designated Areas and Code Letters".

### Scoring

12. For scoring purposes Queensland is divided into two zones by the Tropic of Capricorn. Stations in designated areas north of the Tropic are to use the letter "N" as the first element of contact exchange. Those in designated areas south of the Tropic are to use "S" similarly.

Example: A valid exchange for scoring purposes might be:

S	001	MH
Zone	Contact	City/town/shire
N	132	RH

- Stations within VK4, phone contacts:
  - HF/V/U/HF within the same zone  
3 points

- HF/V/U/HF with the opposite zone  
5 points
  - HF/V/U/HF outside VK4 2 points
  - ALL CW contacts score double points, ie 6, 10 or 4.
- Stations outside VK4, **all** phone contacts, two points, **all** CW contacts, four points.

### Bonus Points Applicable to all Stations

- A bonus of ten (10) points may be claimed for the *first* contact with a city/town/shire, other than the one from which the claimant is operating, over the whole contest.
- A further bonus of ten (10) points may be claimed for each club station on *each occasion* it is worked (one-hour rule still applies). Examples - **Phone**: A VK4 station in S zone, first contact with VK4000 in Cairns, which is the club station of the Green Island ARC Inc, ... score five points for across zone, 10 points for first contact Cairns City, 10 points for club station; total 25 points.  
**CW**: For the same contact, score 10, 10, 10; total 30 points.  
Stations outside VK4 would score 2, 10, 10, or 4, 10, 10 for phone or CW respectively.  
NB: No further bonus may be claimed for Cairns City.

### Logs

17. Logs must show the full name, address and callsign of the operator(s), the section entered, points claimed for each contact and the total points claimed; a signed and dated statement that the rules have been followed, and the appropriate licence conditions observed. A recommended form of log is: (Assumes VK4SSS is not a club station)

Date	Band	Mode	Call	No	No		Points		
Time				Sent	Recd	QSO	C/T/S	Club	To
15/7/92									
0834	7.0MHz	Phone	VK4000	S001BE	N002CS	5	10	10	2
0837	7.0MHz	Phone	VK4SSS	S002BE	S001BE	3			

18. Logs are to arrive at:  
VK4 Contest Manager  
T Mulholland VK4AEM  
PO Box 35  
CALOUNDRA 4551  
On or before 14 August 1992.

### Awards

19. Trophies will be awarded by the VK4 Awards manager to the highest scorer in each section, provided there is a minimum of five entries in that section.

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## Coda to Define Cities, Towns and Shires for the Jack Files Contest

<b>CITIES/TOWNS</b>							
Brisbane	BN	Barcoo	BO	Etheridge	ET	Munduberra	MU
Bundaberg	BU	Bauhinia	BH	Fitzroy	FZ	Murgon	MY
Calrns	CS	Beaudesert	BT	Flinders	FL	Murella	MX
Caloundra	CA	Belyando	BY	Gatton	GT	Murweh	MH
Charters Towers	CT	Bendemere	BO	Gayndah	GH	Nanango	NN
Dalby	DY	Biggenden	BG	Glengallan	GL	Nebo	NE
Gladstone	GD	Blackall	BX	Gooboorum	GM	Noosa	NO
Gold Coast	GC	Boonah	BV	Herberton	HT	Paroo	PO
Goondiwindi	GI	Booringah	BQ	Hinchinbrook	HK	Peak Downs	PD
Gympie	GY	Boulia	BZ	Ilfracombe	IL	Perry	PY
Hervey Bay	HB	Bowen	BW	Inglewood	IW	Pine Rivers	PR
Ipswich	IP	Broadsound	BS	Isis	IS	Pioneer	PI
Logan City	LC	Bulloo	BP	Isistord	IF	Pittsworth	PT
Mackay	MC	Bungil	BI	Jericho	JE	Proserpine	PP
Maryborough	MB	Burke	BR	Johnstone	JO	Quilpie	QL
Mount Isa	MI	Caboolture	CB	Jondaryan	JY	Redland	RD
Redcliff	RC	Calliope	CL	Kilcoy	KY	Richmond	RI
Rockhampton	RH	Cambooya	CM	Kilkivan	KK	Rosalie	RO
Roma	RM	Cardwell	CD	Kingaroy	KG	Rosenthal	RL
Toowoomba	TO	Carpentaria	CP	Kolan	KO	Sarina	SA
Townsville	TV	Chinchilla	CH	Laidley	LA	Stanthorpe	ST
Thuringowa	TH	Clifton	CF	Livingston	LV	Tambo	TB
Warwick	WA	Cloncurry	CY	Longreach	LO	Tara	TA
		Cook	CK	McKinlay	MK	Taroomb	TM
<b>Shires</b>		Crows Nest	CN	Mareeba	MA	Tiaro	TI
Albert	AL	Croydon	CR	Maroochy	MO	Torres	TE
Allora	AA	Dalrymple	DL	Milmeran	ML	Waggamba	WG
Aramac	AC	Diamantina	DI	Mirani	MN	Wambo	WO
Arakun*	AN	Douglas	DG	Miriam Vale	MV	Waroo	WR
Atherton	AT	Duaringa	DU	Monto	MT	Widgee	WE
Burdekin	BK	Eacham	EA	Moreton	MR	Winton	WI
Balonne	BL	Eidsvold	ED	Mornington*	MZ	Wondai	WD
Banana	BA	Emerald	EM	Mount Mogan	MM	Woocoo	WC
Barcardine	BC	Esk	EK	Mulgrave	MG	Woongarra	WN

available. 2/64: VK3OT worked 7Q7XX at 1000, which was a good catch. Heard that VK2MQ had worked Chep PJ9EE.

### VK5RO Report

VK5 generally has to struggle to some extent when it comes to sharing much of the DX. However, Col VK5RO reports as follows: 1/4: 2310XE1GE, 23203D2PO, 3D2AG, 2342 called a 9Y? but no contact. 6/4: 2340 W5FF, 2345 heard HK0AR and HK0/W6JKV working to VK and ZL, 0630 to 0905 JAs, 2158 worked HK0/W6JKV at 559 but peaking to S9 at 2204. 10/4: 1321JA7WSZ, 1325VS6BG, 1330V85PB. 15/4: 0723JA2BZY, 23413D2AG, 3D2PO. 16/4: 0001 K6FV 5x5, 0009 N6AMG. 17/4: 2324 XE1GE, 2327 WA4LOX, 2333 W4IXH, 2342 heard Rudi CX2PI. 21/4: 2252 C6ANY heard working VK2QF, then calling CQ, but no takers. 22/4: 23433D2AG. 25/4: 23243D2AG. 26/4: 0019 XE1GRR, 0024 XE1GE, 0823 to 1004 JAs. Interesting to note the consistent signals from 3D2 and XE, similar situation at VK5LP.

### VK7ZMF Report

I was particularly pleased to receive a report from Frank VK7ZMF on the state of six metres from the Tasmanian viewpoint - news from there is usually rather scarce! Frank operates from Arthurs Lake at an altitude of 1061 metres (3500 feet) and runs 80 watts to a 10-element Yagi with a 14m (45ft) boom and 10 metres high.

19/3: C21BR. 24/3: T3OJH, VK8ZLX, 3D2AG. 26/3: 3D2AG. 27/3: C21BR. 31/3: 3D2AG, VK4TJA. 2/4: 3D2PO, 3D2AG, XE2HWB. 6/4: 3D2AG. 13/4: W5OZI, ZL3TY. 15/4: ZLs, 3D2PO, VK4s. 21/4: XE1GRR, K6FV, WB6BYA, K6QXY, UZ0CWW. 23/4: N6XQ. All contacts were SSB and S2 to S9. Quite a good effort for a little over a month.

Frank adds some comments on a matter which has also been of concern to me for some time and reported in my notes. I think I should quote him - *Some of the contacts I hear organised on 28.885MHz are highly suspect. I have heard many exchanges of signal reports and callsigns, grid locators etc. They go to a 50MHz frequency and, it seems, if they hear a noise (any noise), that seems to be regarded as a contact with the details passed over on 10 metres. Recently I heard signal reports passed to a station who replied he wasn't transmitting, but that didn't appear to affect the results; eg, a two-way contact on six! These contacts are very annoying to the people who have genuine contacts and put a lot of time and effort into the band. That's enough of my ubing, at least I know none of my contacts is a ghost!*

The above problem may not be widespread, but it is a pity that it should appear to be occurring at all, and also it is not only confined to VK.

## VHF/UHF - An Expanding World

Eric Jamieson VK5LP - PO Box 169 Meningie 5264

All times are UTC

### Beacon Notes

50.006 PJ2/OH1ZAA is a new CW beacon from Curacao, Netherland Antilles.

### Six Metres in Australia

Some late items were missed last month with the deadline for copy being a week earlier than usual, but they have been included this month.

Following the working of 3D2AG on Rotuma Island on 26/3 (reported last month) Antoine has been a regular signal to Australia and as far as VK5 on 27, 28, 29/3; 1, 3, 4, 9, 10, 12, 15, 18, 20, 22 and 25/4 at least. On most occasions he has been accompanied by Ian 3D2PO from Fiji, both with signals to 5x9. On 27/3 JAs were in for most of the day, at 2230 3D2AG to VK5BC, RO, LP, ZDR, EOT and other VK3s, VK2FLR and others, all heard here on backscatter. 31/3: VK5RO at 2309 worked XE3EB at 5x5.

On 1/4 at 2315 XE3EB 5x4, also to VK5BC, 3D2AG to VK2, 3, 4, 5 at 5x9 with his 100 watts and four-element beam; 2/4: 1100 VK6PA and VK6JQ worked 9K2ZR, probably first VKs to work the Kuwait station. 3/4: 2340 KG6DX, KG6UH/DU1 and b/s to VK2, 3, 4. On 4/4 at 0005 KG6UH/DU1, 0015 VK8ZLX and VK8RH in conversation, both sides audible here, many

JAs. At 0215 VK5BC calling HK0/W6KV, 2330 VK4ZJB worked HK0/W6KV, also CN8ST the day before. 5/4: VK3OT worked the HK0 at 2330 but only in here for about 30 seconds.

7/4: 0945 VK6RO and VK6HK worked 9K2ZR; 9/4 VK5BC and VK5NY were working John VK4KK at 0200 but no sign of John here - that's Es for you. At 0430 there was a mass of signals between 38 and 50MHz plus JAs, who this day had worked VK1, 2, 3, 4, 5, 8 and ZL. Enormous amount of crud on 50MHz from 49.750 video, culminating in the reception of Chinese TV by VK3OT and VK5LP around 0730. At this time there were no signals below 46.8, but plenty right up to 56MHz, including JAs on 52MHz. At 0819 JAs worked V73AT. At 2204 HK0/W6KV was worked by VKs 5O, 5BC, 5ZDR and VK3OT at 5x9.

15/4 was another good day, many JAs, 1057 VK6PA heard here for the first time, 2330 to 2355 3D2AG and 3D2PO worked VK1, 2, 3, 5 and 7, with both reaching 5x9+20 here. 16/4: 0047 V73AT 439. Ws to VK3OT. 18/4: 0004 XE1GE to VK5NY, XE1GRR noted on 50.110 working another talking in Spanish, but unable to break in. 20/4: 0350 Mike EK0JA working split frequency to VK8ZLD. At 0400 UZ0CWW also split to VK4KK, VK4APG, VK4ZAA and probably others in VK4, also VK3OT, VK8ZLX - so at last eastern Siberia

## Bulletin Board Information

Courtesy of VK5ZBK, the following received via BBS - 2/4: YCOUVO and YBOUSJ at 1515 worked VQ9JT, QSL via K5DIY or VQ9 bureau; 1522: 9K2ZR, QSL via K8EFS; 1553: 4S7/JA1OEM, QSL via home call. 6/4: HL9TG advises from square PM36MX that his 6m gear has been re-activated - first day 27/3 resulted in a good opening to VK and P29 using 10 watts and a five-element 10m monoband Yagi with a VHF tuner! He says there are many 6m rigs in Korea, but most do not take the band seriously and use it as a local "intercom". He says to check 52MHz FM as that is a known "in country" intercom frequency. 7/4: Special call - ZS7OSAN 50.120 SSB, QSL via buro or ZS7OSAN, Box 14, Honeydew, 2040, South Africa.

## Presenting the VK6PA Saga

A massive report of stations worked has arrived from Steve VK6PA at Karratha, and I have tried to present it in a concise manner as I think the information should be included in the columns, at least for posterity. It also indicates what an incredible location he lives in, especially for contacts to Europe; a good percentage of those shown have been made using SSB and with many signals 5x9 both ways and some stations have been using no more than 10 watts. By comparison, most of us further east really only pick up the crumbs!

28/1: 1108 to 1236 - DJ1, F6, DK5, F1, DJ2, PA2, LX1, PA0, ON1, G7, FC1, PE1, G3, SM7, G4, SM6, G10, OZ1, SK7, PA3, G4, ON4, F6, JA5, 24 call areas for a total of 44 contacts in 11 countries, most on SSB and many at S9.

29/1: 1114 to 1330 - ON4, G7, G3, GJ4, OZ1, GW3, G4, PA0, F1, G6, OK1, DL8, ES5, SM6, DF9, G1, SM7, OZ7, DL6, OH2, PE1, DJ4, DL1, DL9, DK6, PA3, JH4, 24 call areas for 34 contacts in 13 countries.

5/2: 1215 to 1238 - G8, GM0, G3, ON4, PE1, G6, PL1, F1, eight call areas for 12 contacts in five countries.

6/2 to 12/2: F5, JA2, JA1, VS6, G3, DJ8, PA0, G8, ON1, AH6.

14/2: 0805 to 1357 - YU3, YU2, IV3, YO3, I2, G8, SM7, OZ1, G1, PE1, G3, PA0, ON4, PA3, OZ4, GJ4, F6, DJ9, OZ6, G4, SM1, DL8, DL6, OZ8, OZ5, G6, PA2, OZ1, DK7, FC1, LA9, OK1, LA1, F1, DK2, PA2, DJ1, SM6, OE5, G7, DL7, ON7, DJ9, F8, HL1 and 16 JAs, 51 call areas for 106 contacts in 16 countries.

15/2: 0836 to 1436 - 1K2, YU2, YU3, YO2, YT3, OK2, G3, IK4, DK8, PA2, FC1, DK6, I2, DF5, DJ8, I5, G1, PA3, DJ2, G6, OZ1, OZ3, SM7, DJ9, PA0, G4, GW2, PE1, G0, DL3, OE4, PB0, IK1, ES6, G10, SM1, ON1, SM6, LA9, I0, ON4, ES5, OG2, SM3, OZ5, OH1, LA2, DF7, OZ2, OH3, SM0, OH2, DK2, OH3, ON7, OH5, LA8, OZ4, DK6, OK1, G4, SM5, G7, F5, IK0, DJ6, ES0, OE5, DL4, OE6, CT1, F6, F8, I5, DL8, DL9, JA6, JA7, JE3, 79 call areas for 156 contacts in 19 countries.

16/2: 0811 to 1152 - DF7, OK2, OE5, OK1, ES5, LA3, OZ2, FC1, DK8, SM7, OK3, IK2,

OZ1, DK7, YU2, ES6, IK1, SM6, LX1, SM0, OZ5, YU3, SM6, OZ7, OZ3, ON4, DJ4, JE3, G4, OE6, P31, PA3, I4, FD1, DK1, IV3, DL3, LA3, LA6, I5, DL6, OZ6, SM3, DL8, OZ1, F6, G3, G8, G1, DF6, OH1, G0, G7, DF4, OZ9, GJ4, GM3, 57 call areas for 128 contacts in 20 countries.

17/2: 1050 to 1113 - DL8, PA2, DK2, LA9, DJ3, OZ1, DJ4, PA3, DL1, DL2, PE1, PA0, DL9, G1, DJ6, DL5, OZ8, OZ4, G10, OZ7, OH7, G3, F1, G8, OH3, GM6, LA5, OH2, G0, G7, DJ5, OZ3, SM5, DF8, OZ6, GW6, 36 call areas for 43 contacts in 12 countries.

18/2: 0829 to 1227 - PA2, OH3, OH2, ES5, OH1, OZ8, SM7, OZ7, PA0, GJ0, SM6, FC1, G3, SM0, JA4, JA3, JR6, DK8, DL6, SK0, ON1, ON5, DL9, PA3, DJ4, G0, OZ2, OZ6, DL8, PE1, DL1, DK7, SM7, OZ1, G7, DK9, G6, DF9, G8, DK3, OZ1, G2, OZ9, F6, JF6, DF8, G5, ON3, 48 call areas for 93 contacts in 12 countries.

19/2: 0800 to 1249 - DJ1, YU3, FC1, OE4, OE5, IK1, DK2, DK8, DL7, OZ8, G3, PA0, PA3, G7, G4, PE1, G0, G2, DF7, JN6, F6, JA7, JA4, 23 call areas for 33 contacts in nine countries.

20/2: 1206 to 1310 - LA9, SM6, G3, G4, OK1, GW2, DL8, SM7, PA0, G6, PA3, G7, DJ1, G8, JE6, JH3, OE5, ON4, OZ2, OZ4, 21 call areas for 25 contacts in 13 countries.

22/2: 1058 to 1141 - ON4, PA3, JA2, J36, F5. Must have been a poor day!

23/2: 0957 to 1152 - G8, G7, G3, G1, G4, G6, G0, GB5, JH1, 9H1, 5B4, JA5, SV1, CT1, G11, G14, GM4, G17, G18, PE1, G0, PA3, DF5, 23 call areas for 52 contacts in 10 countries.

After 23/2 the contacts tapered off, 1/3 producing contacts to K2, FC1, FD1, F1, F6, CT1. 5/3: KC6/WORRY. 6/3: KC6RR, JA7, JH1, JD1, JR2, VS6, JK1. 7/3: JR7, KC6RR, JH6, VK8ZMA, VK8KDR, VK8RH, 7K1, JD1, VS6XMQ, KG6UY/DU1. 22/3: V73AT, SV1UN, 9H1BT, JA8, JG4, JA5, JQ2, JE3, heard JT1CO. 23/3: JA6, SV1UN, KG6UH/DU1. 24/3: NI6E/KH6, 3D2AG, VK4s, SV1UN, 9H1BT, JN1. 26/3: VK5RO, NI6E/KH6, PYOFF, V73AT/B, DX1HB/B, JH1MAO/JD1, JAs, KG6UH/DU1, VK9CK. 27/3: JAs, HL9TG, VS6SIX/B, KH6, HL1J.V.

2/4: 9K2ZR, P29CW, VK4JH, JAs. 3/4: 9K2ZR, VS6WV. 4/4: KG6DX, 3D2AG, VK4s, VK2s, VK3DUT, KH6s, 4S7/JE1OEM, SV1UN. 5/4: 4S7/J31OEM, 9K2ZR, 7K2AZA, VS6XMQ. 7/4: KG6UH/DU1, NI6E/KH6. End of information.

It is of interest to note that at times Steve was making five and six contacts per minute, many times four to the minute - it would be hard to do better under HF contest conditions. With stations appearing at that rate, one wonders how he ever found a clear spot at the other end! We talk of wall-to-wall JAs at times; Steve must have had Europeans in the same manner.

Steve VK6PA appears to have had his first 6m DX contact on 2/4/90 with VS6XMQ, he then got into the act properly on 1/3/91 and, in 13 months since then, has worked 57 countries and appears to need only Africa for WAC. Between 27/1/92 and 4/4/92 he has worked

46 countries. They are: VK, JA, DF, F, PA, LX, ON, G, SM, G1, OZ, GJ, GW, OK, ES, OH, GM, VS6, AH6, YU, IV, YO, LA, OE, HL, CT, 9H1, 5B4, SV, HB9, KC6, JD1, DU1, V85, BT, KG6, V73, JT1/B, 3D2, PJ2/B, PY0, VK9CK, JD, 9K2, P29 and 4S7. Any challengers for a better score in 1992?

## The UK Report

From Ted G4UPS and Geoff GJ4ICD: Jean F6IXI was active as TM6CHU, from Chausey Island - locator IN98CU - to early March. QSL to Jean Claude Bernard, 2 Chemin d'une Ruelle A L Autre, F-95300 Pontoise, France.

QSL for Bob 9K2ZR is via K8EFS and for 9K2WR via his XYL N6UXB. **Germany:** Six hundred 6m permits have been issued to German amateurs with 50.080 to 50.400 allocated. Power limit is 25 watts to a horizontal antenna. **Lesotho:** Ray 7P8SR is active from square KG31 - QSL to Ray Schenkweiler, PO Box 333, Maseru 100, Lesotho. **Diego Garcia:** Jason VQ9JY in MI70 commenced operating on 24/3. QSL via his home call of KB7CDA.

**Vladivostok area:** Information from Kan JA1BK reveals that Mike EK0JA is likely to be found around 2000-2200 on a Saturday morning when the local TV station is off the air for eight to 10 hours. (This would indicate monthly from 18/4 onwards, being the time he and UZ0CWW were first worked in VK ... 5LP).

Between 8/3 and 30/3 African stations were flooding into the UK and Europe - just like the JAs do to VK. Stations heard/worked included ZS6AU, ZS6JON, ZS2SIX, ZS6XJ, ZS6AWP, ZS6WB, ZS6AXT, V51VHF, 7Q7RM, ZS6YN, ZS6AYE, ZS9A, A22BW, TU20J, VQ9JY, ZS4S, TU4DH, ZR1WDK, ZR1L, V51DM keyer. Others around were FR5SIX, FR5DN, 4S7AVR, TR8CA, 8Q7HP, 7Q7XX, SVIDH, TM6CHU.

Geoff GJ4ICD says F1JJK will operate as TA9/F1JJK from Turkey on 50MHz until about July; QSL via F6FNU. During November F1JJK will operate from XU. Both could be good contacts for VK stations.

From the above it is obvious there are many South African stations operating, plus a few other exotic call areas from Africa. It seems there are still countries for VK stations to work.

## The Higher Bands

Ron VK3AFW sends a lengthy report on band activity on 144, 432 and 1296MHz for the past four months. This indicates a reasonable degree of activity between VK3 and VK1, 2, 5 and 7. These are the highlights. Ron had his first QSO on 1296MHz when he worked Gil VK3AUI on 31/12/91. His rig was the VK5 kit, and running 100mW to a 24-element DL6WU Yagi.

On 12/1/92 he went portable on Mount Buller for the VHF Field Day and worked VK1, 2, 3, 5 and 7 on 144 and 432. On 1296 he heard VK3BBB, VK1BG, VK3KKW/P and worked VK3ELV. On 26/1 VK1BG reported working VK2BKS at Young and VK2BE in Sydney on

1296. 27/1: Arie VK3AMZ copies NDB from Longreach on Es, but unable to raise any VK4 2m stations.

3/2: Plenty of auroral activity on 144. Ron worked VK3YJR, VK3HQ, VK5NC, VK3ELV, VK7XR and VK7ZJG. Another aurora on 10/2 when VK7XR copies VK2RSY and VK5VF beacons on 144, but no contacts made. 26/2: David VK3AAU copied VK5VF and VK6RTW beacons via tropo on 144.

7/3: Special trip to Mount Buller by VK3AFW, now with six watts on 1296, in an effort to work for the first time from VK3 to VK1. Conditions were appalling - could not trigger the Mount Ginini Canberra 2m repeater! Nothing on 432 or 1296!

Ron tried again on 13/3 and worked VK2BFK/P and VK2WG/P on 144. On 1296 he worked VK3AMZ and then VK1DO/1ACA/P on 1296 tropo for the first VK3 to VK1 contact on that band. John VK3ZJF copied VK2BE on 1296. On 21/3 from Mount Buller VK3AFW worked VK1BG on 1296 during the period 2215 to 2245 which gave him the first VK3/P to VK1 home station on 1296. VK2BE in Sydney was also copied. John VK3ZJC was reported working VK2BE on 1296 2 x CW for the first VK3/VK2 contact on 1296. On 24/3 Ian VK1BG worked John VK3ZJF on 1296 at 1115 for the first home station to home station contact on that band, 519 both ways and using aircraft enhancement. 31/3: On 1296 SSB VK1BG worked VK3AMZ and VK3ZJC worked Eddie VK1VP at 5x8, both contacts via aircraft. Well done to all concerned. These are all good contacts mentioned in this paragraph; it seems a pity they lack UTC time, distance, locations and often signal reports, as they are worth recording for the future.

### Six Metres Standings List

Those operators wishing to upgrade or add to their lists should have their information on my desk by 25 June, please - in time for the August issue. New entries are always welcome.

### Closure

Space is a bit scarce this month, so will close now with two thoughts for the month: *The family fireside is the best of schools and A man begins cutting his wisdom teeth the first time he bites off more than he can chew!* 73 from The Voice by the Lake.

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**Sign up a new WIA member today - use the form on the reverse of the AR address flysheet.**

## Pounding Brass

Gilbert Griffith VK3CQ - 7 Church St Bright 3741

"While browsing through the local newsagency the other day I came across a paperback book by Hugh Atkinson called *The Longest Wire*, so I bought it. The story is mainly a drama, but is based on the building of the overland telegraph between Adelaide and Darwin and is set in the early 1870s. I was a little disappointed that there was little or no reference to Morse Code as such, but it was a good yarn all the same. The many pitfalls encountered will amaze you."

I found the above in my notes for March 1989 and began wondering if anyone out there managed to get hold of a copy of *The Longest Wire*.

The ABC national radio station recently ran a radio play version of this story, which some of you may have heard. I seem to recall it was on a program called *Songs and Stories of Australia*, which is on ABC FM each Friday at 11.30am. You will no doubt remember it mainly for the songs done in "country ballad" style. To cut a long story short (if you think this is boring reading it for the first time, how do you think it is for me ... who knew about it before I wrote it down) I have sent off a letter to David Mulhallen to see if he will send me a tape of the play, and whether ABC can run it again. So keep watching and I will let you know if and when it will be on.

Conversely, if you happen across anything interesting, please let me (us) know.

Back in January you will remember I featured some excerpts from the Marconi School of Wireless pamphlet. In the pamphlet the space between words was given as "five dits". This prompted a couple of fast responses to tell us all that the space between words should be seven dits. What I would like to bring to your attention is the small fact that the article was taken from a teaching sheet which was written in the early 1930s, as well as being a "telegraph" teaching sheet. And, if we are going to haggle over two dits out of five or even two dits out of seven when hardly anybody could tell the difference in practice, then try the following on for size. It is taken from an article by Bill Welsh W2DDB, in *CQ* magazine, August 1979.

### Dit-to-Dah Relationship

"The dah is generally said to be three times as long as the dit.

"This relationship holds true only at about 15wpm. The length of the dit is constant; it is the time required to lift the wrist after depressing it to send the dit. Since it takes about the same length of time to depress or raise the

wrist, the spaces between dits and dahs in a symbol are about a dit length. At a code speed of about 2wpm the dah is commonly about six times the length of a dit, and it shortens to about five times the dit length at 5wpm. The dah length is reduced to about four times the dit length at 9wpm, and is about three times the dit length at 15wpm. The dah is about twice as long as the dit at 35wpm, and is reduced to about 1.5 times the dit length at 55wpm.

"The dit length does not vary in good code, nor does the space between dits and dahs in a code symbol. The dah length does vary with the code speed, as does the space between words. The space between words is basically twice the length of the dah being sent, plus one dit length. If you are sending code at 5wpm, the space between two words should be about 11 dits long, and it is most easily obtained at this slow speed by taking your hand off the key between words. Good code sounds smooth and pleasant at any speed. Expend the time and effort required to develop good receiving and sending capabilities. Give yourself the option to operate code whenever you wish to do so; don't be forced into other modes of operation due to poor code ability."

While rummaging through some old files I came across some data which may help if you are considering putting up a new antenna.

One of my favourite antennas, which has been up for about six years so far, is a 80/160m trapped dipole that still works well. It was originally to be a multiband dipole, but it proved impossible to tune to the exact band-segments I wanted on each band.

Anyhow, here are the requirements for making up the traps.

The formers used are simple lengths of plastic plumber's pipe, the 3.55MHz trap uses pipe which is 44mm OD, and all the others use 32mm OD pipe. The coax is cheap RG58/U. The method is firstly to drill a hole near one end of the former through which the coax is threaded, wind the required number of turns, and drill another hole to thread the coax through. Don't forget you need to wind one trap left-handed and one right-handed for a balanced dipole. A suitable amount of each end is then bared, remembering the inner of one end has to join up with the outer braid of the other end, and that this join has to be made inside the former tube. If you have not already done so, drill a hole near each end of the former through which you can tie the antenna wire legs, before connecting them to the coax

ends. If you want to tune the traps, you can do so by spreading the coils slightly. I'm sure you can figure out the rest of the details, for example, my 80/160 dipole has the normal 66 feet of wire in each leg (which you tune up first), then the 3.55MHz trap, followed by another 40 or 50 feet to tune the antenna on 160 metres. Theory says you need to add 60 feet per side, but I found the traps' presence required cutting a fair amount off that 60 feet in order to tune the antenna.

Here are the measurements for the coils of coax:

3.55MHz trap 21.25 turns on 44mm OD  
7.05MHz trap 14.5 turns on 32mm OD  
10.1MHz trap 11 turns on 32mm OD  
14.0MHz trap 8.5 turns on 32mm OD

The formula I used for finding the length of wire in a dipole is 468MHz in feet. If you want to convert to metres you can do it yourself!

73e, Gil  
ar

Listen to the WIA Divisional broadcasts for regular AMSAT information.

## AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia  
GPO Box 2141  
Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

## Satellite server on new packet BBSs:

If you're fortunate enough to have a local BBS that has recently changed over to the new F6FBB board, you've probably already noticed that it has a lot more goodies than the WORLI or MBL boards. It also appears to be a lot faster in operation.

The satellite server is particularly interesting. It should be very useful in a number of ways. Auto-update will assure the BBS will be a reliable source of up-to-date keps. The satellite descriptions data bank (if kept up to date) will be a good source of info for the newcomer. The tracking program itself seems to be accurate and comprehensive.

All in all it ought to provide good reference data particularly for newcomers to satellite operations who do not as yet run a full-blown auto track and update system.

## Weather satellite report:

In the March column I asked for expressions of interest in a small segment on WXsats. So far I've heard from only one amateur. He was in favour. There may be more people interested; please let me know. I can't really do it unless there's a lot more interest.

## KITSAT-A

This satellite appears to be on schedule for a launch in July 1992. The current target date is 24 July. It is a result of a collaborative educational program by the University of Surrey and the Korean Advanced Institute of Technology (KAIT). The device is being built at Surrey by KAIT engineering students under the guidance of the UoSats team.

KITSAT-A will have a rather unusual and interesting orbit. It will have a semi-major axis of 7700km and an inclination of 66 degrees. I've run a few figures through the computer and, if this orbital geometry is achieved, we'll have a very useful satellite indeed. An SMA of 7700km results in a mean motion of 12.8491322

## Education Notes

Brenda Edmonds VK3KT – WIA Federal Education Co-ordinator  
PO Box 445 Blackburn 3130

Elsewhere in this issue readers will find the draft of the revised version of DoTC brochure RIB71. Under an agreement between the WIA and DoTC it is being published widely so that all amateurs will have the chance to read and, if they so wish, comment on it before it goes to the final printing. Please note the closing date for comment to reach DoTC.

This revision has greatly simplified the regulations under which the Amateur Service operates. After extended discussion and negotiation, a number of the requirements which we have observed for many years have been deemed to be part of the self-regulation which is expected of a responsible body of operators. In the current moves towards devolvement of authority from DoTC, it is seen as appropriate for many matters which concern amateurs to be managed by amateurs.

In addition, this revision makes provision for extra privileges which have been sought for some time by the WIA, including the Code-free Novice licence, or Novice Limited grade, and increased permitted power for combined calls on the HF bands.

No doubt some members will disapprove strongly of a new, "lower" entry level licence, or increased privileges for combined licences, on the grounds that "I had to work for the privileges I hold" or "There will not be any incentive left for upgrading to full call". All these arguments have been heard a number of

times over the past few years. The records show, however, that few novice or limited licensees are content forever with their restricted privileges, and novices, in particular, are quick to seek extra qualifications.

Incentives may be needed more to attract new recruits into the hobby than for upgrading. In a society where personal communications devices are cheaper and more common than ever before, some members have expressed doubt that the privileges conferred on a new amateur are worth the effort expended in gaining the licence. Other modes are so much easier to access and to use. To allow a broad range of potential amateurs to "taste" the hobby, we need an easy entry qualification, then an enthusiastic group of experienced amateurs to demonstrate the scope, challenges and rewards gained by achieving an unrestricted licence.

The survival of Amateur Radio as a hobby (way of life? interest? passion?) will depend on the enthusiasm and energy of present and future amateurs, because these will determine the strength of the voice of the Amateur Service. It was pointed out by one of the DoTC visitors at the recent WIA Federal Convention that the licences held by amateurs comprise less than one percent of the total licences managed by DoTC. I am sure we all consider ourselves much more important than that in the scheme of things! ar

## AMSAT

Bill Magnusson VK3JT – Packet: VK3JT @ VK3BBS

### National Co-ordinator

Graham Ratcliff VK5AGR

Please take note of the AMSAT information nets:

AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.

AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

*Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on band to answer queries.*

rev/day. It will orbit at an altitude of 1324km (822 miles) which is rather reminiscent of the old faithful Oscar-7. It should have an orbital period of 112 minutes and a maximum access time of 21 minutes on an overhead pass. The maximum communication range (footprint dia) will be 7590km. The 66° inclination will take it over just about every populated part of the Earth. At that inclination it'll go across the southern sky quite a lot in VK, so your auto tracking will need to support flip-over or some other way of "tracking through south".

The payloads on KITSAT-A are also of major interest. It will have the now almost standard PACSAT comms system. Running at 9600bps it will use 13mBytes of CMOS SRAM for message storage. If you have a UO-14 (UO-22) system up and running, it will be immediately usable on KITSAT-A.

It will carry an improved version of the UO-22 Earth imaging system with twin wide-angle and tele-lens systems.

A first for KITSAT-A will be the digital signal processing experiment. It will be used for speech synthesis, store and forward speech relay and high speed modulation experiments.

The cosmic ray experiment will provide

valuable data on the radiation environment and there will be the usual array of UoSat type telemetry which will be decodable on presently available software.

Watch for this satellite, it should be a beauty.

### AO-10 keps

There was a report recently that NASA may have discontinued publishing keps for Oscar-10. This is being looked into and should be resolved before too long. In the meantime, don't worry, the keps for Oscar-10 (and Oscar-13 for that matter) will remain accurate for at least six months. You can prove this for yourself by manually loading an old set - say 12 months old - and compare the result. Of course, you can't afford to be so relaxed about the low Earth orbiters. The lower they are the more often you have to update.

older familiar fluorescent lamps do cause radio interference if unshielded receivers, feedlines and antennas are too close. One wonders whether the new lamps present EMC problems. DL1BU mentioned that the new lamps were formerly operating near 3.6MHz, but that apparently the influence of radio amateurs caused the move to 2.65MHz. It remains to be seen whether this change is good enough.

### EMC Reports

A number of EMC reports published in *Radio Communication* were again submitted by Norm Burton. All of us can benefit from the excellent EMC work done by the UK RSGB EMC Committee under the chairman G8SOZ.

#### 2.1. Radio Communication December 1991

"EMC down the salt mine": \$A1 million EMC test centre was established 200m below ground in an air-conditioned tent 35 x 16 metres near Winsford in Cheshire. This was one way to make sure that unwanted RF neither escaped nor got into test equipment.

2.2. The flasher units of several motor car models have become known to be far too susceptible to mobile radio transmitters and the radiation from high powered stationary radio transmitters. The recommendation of an American car dealer "to shield the transmitter antenna", was not very helpful, but shows the problem! The problem was solved by connecting two 100nF capacitors from the flasher unit terminals to the car chassis ground.

#### 2.3. Radio Communication January 1992

Telephone EMC Cure

To overcome susceptibility of electrical devices to legal and unavoidable RF radiation is only half the problem, the other half is find and educate officials of the responsible organisation, who understand the facts, accept the responsibility and are therefore able and willing to solve the problem. It took several attempts by the EMC committee members to get a Post Office official, who understood the problem with a BT-Telephone, to have filters and a different phone installed. Other officials of the Telecom Faults Department had flatly refused to co-operate.

#### 2.4. Radio Communication February 1992

*Testmagazine* reports important RF field strength measurements near the Flyingdales Early Warning System in Yorkshire. Field strengths of 30 volts/metre on roads in this area and peak values three times higher were also found. These conditions are of great concern to motorists, because modern cars use very RF-sensitive devices for motor and brake operation and the function of associated car equipment, besides the car radio. Car problems have been found with Fiat Panda, Ford Cosworth, Citroen, Vauxhall Cavalier, VW Golf. Blaupunkt Radio taxi equipment operation etc is more or less susceptible to

## FTAC Notes

John Martin VK3ZJC FTAC Chairman

### Records

A couple of months ago I described a new national 6m record set by VK2QF and CU3/N6AMG as "almost unbeatable". Well, I did say "almost". This record has now fallen to Mike Farrell VK2FLR, who also worked CU3/N6AMG over a distance of 19424.1km.

There is also a new ACT record for the 1296mHz band, between Ed Penikis VK1VP and a certain nondescript known as VK3ZJC. The contact was made by aircraft enhancement and the distance is 451.7km.

### Data base update

The next publication of the *Data Base* will be in the 1992-1993 *Call Book*. The deadline is expected to be in late July, so all beacon and repeater licensees are asked to check the

details in last February's magazine and advise of any changes. The site details, omitted from the February list to save space, will be included in full in the *Call Book* listing.

### Band planning

It is proposed to allot 52.600/53.600MHz as a national WICEN portable repeater channel. Two WICEN simplex channels are also proposed on 53MHz. It is also suggested to allot 434.950 and 439.950MHz for use by WICEN portable repeaters, including packet. These channels are a voice repeater pair, but the use of one or the other for packet would reduce co-site interference between portable voice and packet repeaters.

Comments on any of these proposals would be appreciated. ar

## EMC Report

Hans F Ruckert VK2AOU, 25 Berrille Rd, Beverly Hills 2209

### Fluorescent lamp and RF radiation

VK4OE submitted an interesting report from the "Hospital Engineering Connection" paper

on the new Philips Fluorescent Lamp operating on 2.65MHz, operating with increased efficiency and expected to outlast older fluorescent lamps by 50,000 hours. We know the

25W of HF, VHF and/or UHF transmitter power.

Even 400mW from a 70cm handheld transmitter in one case affected the engine management system. The term EMS, Electro Magnetic Susceptibility, is now being used.

### 2.5. Statistics

Eighteen EMC co-ordinators compiled the following statistics. Amateur radio operation affecting:

B-telephone 41x	Others 10x	Radio 15x
TV: UHF 74 x	Cable TV 1 x	Satellite TV 9x
Hifi 19 x	Cars 5x	Alarms 8x
		Others 14x

Amateur radio operation interfered in 29 cases like: fax machines, power lines, alarm systems, satellite TV systems, computer, digital phone systems, fluorescent lighting, thermostats, TV masthead amps, radio telescopes, gaming machines (in restaurants).

Since both sides suffer equally badly, the EMC problems should always be solved in a reasonable, co-operative manner, not by non-technical legal arguments.

### 2.6. Radio Communication April 1992

A detailed EMC report covers several cases

of RF-susceptible alarm systems using Passive Infra-Red (PIR) sensors. In some cases 70W on 7.28MHz triggered the neighbour's new alarm. Using a different make of sensor solved this problem. Some firms, like Visonic Ltd (of Israel) and Optrex Co Ltd, claim to have immunity to RF fields of at least 20V/m up to 1GHz. In a different case 5W on a 3.5-7MHz dipole caused the alarm to bleep. Several more "alarming problems" are described, showing that the problem can be solved in all cases by proper engineering on the manufacturer's side - not by the radio amateur.

### 3. Amateur Radio and Cable TV CQ DL 4/1992, page 237)

The Executive of the DARC had talks with members of the German Parliament who are committee members dealing with communication matters. It was absolutely necessary to inform these parliamentarians of the problems caused by the cable TV operators using the radio amateur exclusive 2m band for channel 6 cable TV, causing interference to amateur radio reception and susceptibility problems to cable TV reception. Otherwise they would hear only the arguments of the cable TV operators. ar

signal, between a strength 7 and 9+. The usual RA channels of 21525, 21740 and 21775kHz were at their normal levels here, so I checked on my FT707 as well as the Icom R70, and the signal was present on both. So I put in a quick call to the RA offices in Melbourne and alerted them that something could be amiss. About 45 minutes later, I was notified by RA Master Control that it indeed was on that frequency and had been tracked down to the Darwin transmitter site. Apparently one of their senders had been put on the dummy load. They also informed me that it also had been monitored at a DoTC receiving station in Perth (WA). There were a few red faces, no doubt. The efficiency of the dummy load has been questioned, if signals were heard quite well from it at either ends of the continent.

I have heard another DX program on Radio WWCR in Knoxville, Tennessee. It is on at 1130 UTC on Tuesdays. The frequency is 15690 and it is always very clear and strong here. The program consists of ham radio news from Gordon West, Clandestine Radio, plus a weekly propagation report, and is titled "Signals".

Incidentally, don't be confused by the appearance of the BBC World Service "Newsdesk" program on 9700kHz at 1100 UTC. It is actually being relayed by Radio New Zealand International. It is a six-month trial to gauge listener response. It is handy for me as the BBC Kranji relay on 9740kHz suffers severe splatter from Radio HCJB on 9745kHz. The Sackville relay to eastern North America also carries the same program on 9515kHz; 12095 and 15070kHz from the UK sites are only fair at that time. The BBC Kiwi relay is about one second behind the UK sites, and 300 milliseconds behind either Kranji or Sackville. The Print Handicapped stations also relay the BBC World Service on AM between midnight and dawn local time. Also concerning NZ, an AM network has been established by an entrepreneur to relay the "Beeb".

Well, that is all for this month. Until July, all the very best of listening and 73. ar

## Spotlight on SWLing

*Robin L Harwood VK7RH - 52 Connaught Crs, W. Launceston 7250*

Well, winter has finally arrived here and reception of European stations is coming in very well on the long path on the major broadcasting allocations. I have noticed though, that the number of simultaneous channels has been reduced, allowing signals from other broadcasters to come through. Even so, I have noticed some broadcasters are utilising the same channel to identical target areas, ie the Pacific coast of North America. Deutsche Welle in Cologne, Germany, is broadcasting in English at 0500 UTC on 11925kHz at the same time as Radio HCJB in Quito, Ecuador. Both are beaming to the same area. The German station is on for only 50 minutes, yet it did not realise HCJB has been on 11925kHz for a number of years at 0500 UTC.

And while we are on HCJB in Quito, I have noticed a spurious emission from it on 12100kHz around 0800 UTC. At that time, they broadcast to Europe and the South Pacific on two different channels and presumably are mixing somewhere along the line. The two channels are as follows: 11730kHz from 0700 to 0830, directed to Europe; 11925kHz from 0730 to 1130, directed to the South Pacific. The latter channel is extremely strong here, naturally, although 11730 is quite audible. The other channel of 9745kHz to the South Pacific is always reliable in this area. However,

15270kHz to Europe varies in level from day to day.

On 21 April I was tuning across the bottom edge of the 15m amateur band around 0600 UTC, looking for Europeans on the LP, when I came across a strong broadcasting station on exactly 21000kHz. Naturally, my curiosity was aroused, as I'm also the IARUMS Co-ordinator for VK7. It turned out to be Radio Australia, broadcasting from Melbourne.

There was quite pronounced QSB on the

## Repeater Link

*Will McGhie VK6UU @ VK6BBS - 21 Waterloo Crs, Lesmurdie 6076*

### True FM

Direct Frequency Modulation of a repeater's transmit crystal results in higher quality audio from your repeater. Included is a circuit to provide up to 10kHz of deviation at the repeater's output.

This circuit can be used to frequency modulate the transmit crystal oscillator circuit in a Philips FM828 and FM747. These VHF and

UHF radios have almost identical oscillator circuits, and the point X is the same for both. The audio level required varies from crystal to crystal, but about two volts peak to peak is required.

The earth end of the crystal must be isolated from the rest of the oscillator circuit, and this is shown as point X. From this point to ground now becomes the variable capaci-

tance point that shifts the oscillator frequency high and low to produce the FM deviation.

Because capacitance is introduced into series with the crystal, where previously there was none, the oscillator centre frequency shifts high. To minimise this shift, four or more varicap diodes are wired in parallel, and the oscillator re-netted by the existing L1. A fixed capacitor could be placed in parallel with just one varicap, but more deviation for less audio input results from adding extra diodes.

A fixed DX bias is applied to the varicaps via the 47k resistor. This resistor, along with the 100pF capacitor isolate the RF from the crystal to the audio circuit. The voltage source for this must be regulated.

The BB809 diodes are cheap if you can find them. They are a wide capacitance shift diode, some four times greater than the BB102. This means more deviation for less distortion, as the diodes are operated over a smaller portion of their voltage to capacitance transfer curve.

### Different Opinion

Feedback from Gareth VK2ANF makes for interesting reading. My opinion on cleaning up poor amateur audio before it is transmitted from a repeater, has touched a sore point with Gareth. One paragraph from Gareth's correspondence summarises his position.

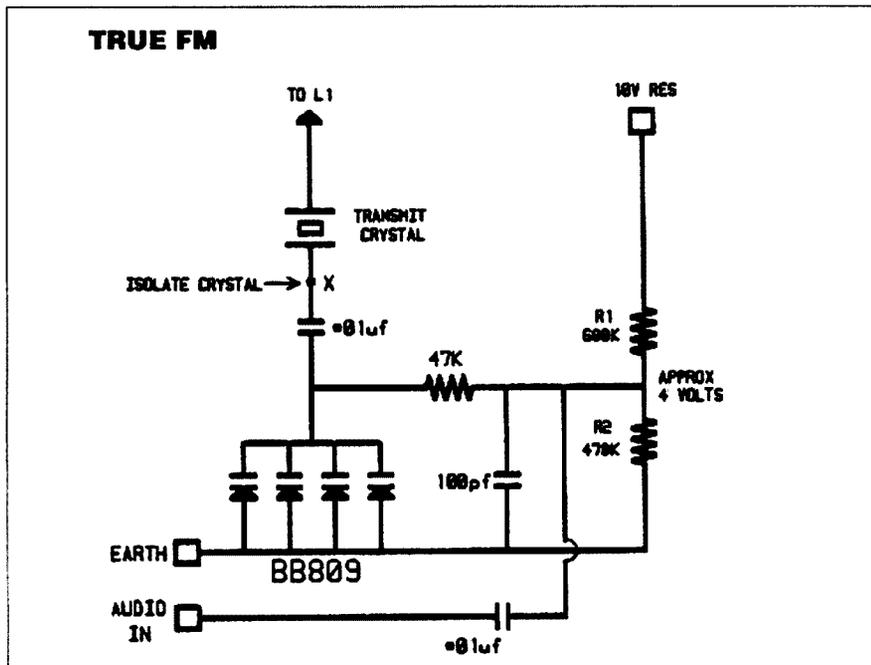
"Why should you or I or any other repeater manager clean up someone else's bad signal? If they over-deviate or are off frequency, let them pass through distorted; if they under-deviate, let them sound like they're whispering. It's not our problem."

Even though I'm an advocate of automatic audio gain control in a repeater, I have sympathy for leaving poor amateur audio as such, in the hope that the amateur will correct the problem. However, after many years of listening to wide variations in audio levels and quality, audio AGC was tried on a repeater, with pleasing results to the ear.

If amateurs can be convinced to adjust their equipment to produce the correct audio on transmit, to suit their speech level and operating situation, then this is by far the best situation. Unfortunately this has proved to be impossible. The reluctance of amateurs to give reports on the quality and quantity of audio from amateurs they are having QSOs with is the biggest problem. If you have poor audio, you don't know unless you are told.

Repeaters are the reason why poor audio can be put up with. Because of the strong signals they radiate, audio deficiencies can be compensated for by the receiving station turning the volume up and down to suit the widely differing audio levels. The deterioration in signal to noise is not a problem with FM when you have RF signal level to spare - well almost. Some audio levels are so low you can run out of volume control and/or the low audio simply slips below the white noise.

Not all the blame for poor audio can be levelled at the amateur, however. Some FM



transceivers have difficult-to-get-at Mic gain pots, or insufficient range on the mic gain, or in some cases, no mic gain pot at all. Until all these problems can be sorted out, many amateur signals you hear on your local repeater are going to be difficult to read.

If the amateur with whom you are in QSO has low audio, tell him or her. Comments like, "didn't get much of that", "I must be in a poor location" or "there must be a problem with the repeater" show a lack of understanding of the equipment and operating mode you are using. If the S meter on your receiver is near full scale and you are having a problem with another amateur's audio, let the amateur know.

Gareth's correspondence contained not only criticism of cleaning up poor amateur audio, but some constructive suggestions on how to improve poor audio.

A test transponder is one idea. Like a repeater, it would be installed at an elevated site, but be allocated its own simplex frequency. Stations dropping carriers on its simplex frequency would be rewarded with a digitised voice announcing how much off-frequency they are and their signal strength. Modulated stations would get back a peak deviation report and a 10-second reply of their audio. Wouldn't that come as a surprise to some of us with lousy audio?

Several repeaters around the country have some user feedback to let you know if you are off frequency etc. Few, if any, have comprehensive on-air testing of amateur FM transceivers. What a great idea if such automatic on-air testing could be set up in many areas.

Here in VK6, on-air testing has been carried out from time to time. Stations call in and are told their frequency, deviation and, most importantly, mix level. To set up such a test system is very easy. A correctly lined-up trans-

ceiver, with a discriminator meter and audio output to a CRO, are all that is required. The DC output from the discriminator allows easy calibration of the audio deviation on the CRO. Frequency inputs 10kHz high and low from centre frequency can be used to set the vertical gain on the CRO. That is, correct frequency reads centre trace on the CRO. Ten kHz high is set to read 10 positive divisions and 10kHz low 10 negative divisions. The CRO is now set up to read in 1kHz steps per vertical division.

With a little practice at looking at speech wave forms on a CRO, a lot of information about the audio can be interpreted. Peak deviation, mic gain setting, type of clipping or compression and frequency response are easily seen.

In a later article of Repeater Link I will include some drawings of speech wave forms of amateur FM signals, both good and bad. The level variation between amateur FM signals may come as a surprise to you, but audio level differences of as much as 20dB - yes 20dB - are not hard to find.

It is important to understand that these are audio differences, not RF differences. RF signal level has no bearing on audio levels in a frequency modulated system. An S9 plus 50dB signal will have the same audio level as a S1 signal, provided the transmit audio mic gain and deviation are set up correctly. There is also no AGC in an FM receiver like there is in an AM receiver. There is no need. As has already been stated, RF level has no bearing on the audio level you hear out of the loudspeaker.

I may be talking down to most FM users, but listening to QSOs on repeaters from time to time, there is a need by some of us to better understand the Fun Mode. ar

# Intruder Watch

Gordon Loveday VK4KAL — Aviemore, Rubyvale 4702

March 1992

Freq	UTC	Date	Mode	Comments	X
7002.5	1220+	020391	A1A	V beacon	17
7048-9	1040+	230292	A1B/A1a	UHF3 last hrd 28/02 ID at end	6
7080	1235	030292	A3E	B/c news & music. Asian?	2
14004	1103	030392	-	No ID but series of V hrd	
14005	1915	190392	NON	Plus A3E male voices	
14045.5	1300	Daily	2 x LSB	Dialling tone & carrier	39
14058	0843	080292	AC3/NON	Helschreiber fax China?	24
14063	0800+	230292+	PON	No further info	20
14070.5	mni	daily	A1a	VRQ t/c to VBX on freq	24
14075	mni	daily	A1A	VRQ t/c & calling CQ	42
14075/80	mni	daily	A1A	KFB CQ de KFB as PHL QSV K	13
14092	0715	280292	A1A	RG177 940 BT DDD coded msg	3
14095	0200/5	090392	A1A	VPC, CQ de VPC as may QSV	14
14100	0936/40	mni	A1A	ZBK de NZB QSV K t/c out	17
14174	0820	020392	A1A	KLV + H/S data, 3kHz wd sm freq	1
14177	0933	280292	F1A	UID80 & PL7 t/c	5
14190	1300	070392	PON	Motor-boat abt 20kHz wd	
14210	mni	daily	A3E	fx2 of 7105 R Espana/splatts	23
14211/15	mni	0203+	2xF1B	Both 250Hz 3rd register, CIS	18
14215	mni	290292	A1A	P7A from P9K QSA?QSV K	13
14217.5	0815+	230292+	F1B	UMS vry active, 200Hz, MNR, CIS	17
18068	0940	110292	A1A	PTA1 vvv CQ de PTA1 pse QSO ZHG	
18080	1242	290292	A3	B/cast Chinese	
18105	1205	260292	A3E	Weak b/c station no ID	
18119	1033	010392	A1A	B9D calling CQ QTC	1
18125	1210	260292	A3E	B/cast stn Russian?	3
18135	0744	090392	PON	OTHR	
18140	0935	020392	A3E	B/caster, m announcer??	
21001	0400+	250292+	NON		22
21031.5	0040	240292	F1B/A1A	T/c to UUU UMS in cw +5figs	39
21065	2039	110292	F1B/A1A	RTTY idling	2
21230	0500	110392	PXX?	Points to Black Sea area	
21250	1000+	250292	R7B	4kHz wd	3
21283	0400+	230292	A1A/F1B	Most 200Hz t/c to UU UMS	47
21315	1100	260292	A3E	B/C carrier & voices	13
21340	1104	300392	A3J	Radio Pakistan	
21326	0507+	270292	A1A	P7A FR P8S WSA?QSV R QRK 4RF	16
21369	0605+	160392	A1A	P7A de P8V R RF2 W AS	19
21450	1255	010392	A3E	English b/cast, Rad Moscow	12
24895	0637	020392	A3	Chinese military	4
24925	1158	030392+	J3E/L	Russian military stn	7
24970	1108	120392	A1A	de Q1DT, de Q1DT??	
28004	1320	1303	A3E	Pyongyang Nth Korea/music	2
38035	1352	1303	A3E	Identical to above	
28980	1206	110392	A3E	Chinest b/c music	6
29370	1335	130392	A3E	Russian language b/cast	

PON OTHR on 28 & 28MHz at S9 from VK6 area.

\*CIS - C'wealth Independent States, formerly USSR.

My thanks to VKs 4BG, 4OD, 4AKX, 4BHJ, 4BTW, 4BXC, 4EKA, 5TL, 5GZ, 6LG, 6RO & 6XW.

found after several phone calls., so it was left as a two-person team. On Saturday at approximately 7.40am, I volunteered my services, keeping in mind we would have to take the children. Hesitation on OM's part. I decided to do some last-minute shopping for the family's Mother's Day luncheon. I left at 8am, returning 25 minutes later, having been to the butcher, greengrocer, bakery and supermarket. On my return we decided to go.

We were due to be at Greensborough at 9am (15-minute drive) to fit the doppler, antennas and radios. Philip decided to do some "just in time" engineering of a shelf and I packed the nappy bag, lunch and children. We got to Ewen's only 10 minutes later than expected, to find his son was coming, too, for part of the day.

While the antennas etc were being fitted, I fed Kate (nine months old). It was a case of breathe-in and seat belts on, and we were on our way. Upon our arrival we registered under my callsign. There were a few bemused looks at people discovered our car half full of people under the age of seven.

We had our fair share of equipment malfunction, mis-navigating and failure to find the fox. The hunt before lunch we broke the antenna pole, so dashed back to Ewen's place for some running repairs. Upon returning to the starting point we discovered the lunch break had been shortened and the 2m sniffer hunt was in progress. We missed by 10 feet.

So our day continued with more or less success, and the same could be said for the local QRM. Barry (age three) at times preferred the play equipment. (Thank you to Brenda and Bev for keeping an eye on him!). On the last hunt we should have gone over the river (90 per cent of the time that is what the fox does), but we didn't and, consequently, discovered our error too late.

Each event was awarded 1st, 2nd and 3rd place with a choice of prizes. We finished with four sheets of circuit board and 241 resistors. The final result overall to the VK3MDR team ... 2nd. I still have the grin on my face. It was take-away for tea that night; the week's routine is in shambles, but we had a ball!

I can still remember our first attempt at the championships several years ago. With borrowed equipment 10 minutes instruction, no children and one dog. We came ... last. So we have improved.

Cheers for now, Jenny VK3 MDR

ar

## ALARA

Jenny Adams VK3MDR — 70 Kangaroo Ground Rd, Wattle Glen 3096

### The Victorian Foxhunting Champions

On the Friday night, the decision was made

to compete. The team consisted of only two people; a third was really needed for map reading and navigation. Nobody could be

**Amateur  
Radio  
Helping the  
community**

# WICEN – NSW

Dave Horsfall VK2KFU, NSW Deputy Co-ordinator

WICEN Sydney North held a committee meeting recently, the first since the election of office-bearers, and some of the activities for the year were discussed.

The date of the next WICEN Sydney North general meeting will be Wednesday 24 June at the Ku-ring-gai SES headquarters, starting at 8pm. The latest developments in Sydney North will be explained, including first-aid training,

bushfire training and a "hands on" exercise to be held on Saturday 27 June. A committee meeting of WICEN Sydney North will be held the Wednesday before, 17 June, at the home of Jo VK2KAA at 7.30pm.

Listen to the Sydney WICEN net on the 2m repeater VK2RWS, channel 7150, every Thursday night at 9.30pm, for more details of Sydney WICEN happenings. **ar**

## Club Corner

### Moorabbin & District Radio Club

Life members honoured at M&DRC

On Saturday afternoon 28 March, 70 members and friends of the Moorabbin and District Radio Club gathered at the clubrooms for a function at which 15 life members of the club

were presented with newly created life membership certificates and badges.

Peter Gamble VK3YRP, Federal president of the WIA, was a guest and made the presentations.

As each presentation was made, Trevor VK3MGD and Ken VK3TKR alternated in read-



Back row: Trevor Armstrong VK3MGD (Vice President), Ken Mills VK3TKR, Keith Turner VK3CWT (President) and Denis Babore VK3BGS (Secretary).  
Centre row: Peter Gamble VK3YRP (Federal President, WIA), Harold Hepburn VK3AFQ, John Emery VK3UA, Allan Doble VK3AMD, Morrie Lyons VK3BCC (Treasurer), Roger Thomas VK3RG, Len Jackson, John Dawes and Doug Richards VK3CCY.  
Front row: Bill Yates VK3SB, Alit Chandler VK3LC, Ed Manifold VK3EM, Bob Patterson, Milton Crompton VK3MN, Ray Fowler VK3BHL and Percy Sebire VK3MX.

ing an account of that member's contribution to the club.

The afternoon concluded with a well catered afternoon tea and an expression of thanks to all attending by secretary Denis VK3BGS.

The honoured guests are shown in the photo.

### Successful Hamfest

The new venue for the Moorabbin & District Radio Club Hamfest at the assembly hall of Brentwood Secondary College, held on 2 May, was crowded by 500 or so eager buyers, sellers and other interested visitors.

Demonstrations of ATV and packet were given from time to time. The club had its various projects and kits on display and found the interest very gratifying.

Allan Doble VK3AMD

### Barossa Amateur Radio Club

On Sunday 5 April 1992, the Third Annual Mt Pleasant Radio Picnic Day, hosted by the Barossa Amateur Radio Club, was held at the Talunga Park Showgrounds at Mt Pleasant.

This year the event was upgraded from amateur radio only, to an event that covered amateur radio, CB radio, vintage radio and many other forms of radio-related activities. The biggest change was the participation of ACBRO in the event. ACBRO actively publicised the event to its members, and on the day provided a display of CB and vintage radio. A very large number of CB operators attended on the day.

The event was sponsored by Dick Smith Electronics and Castrol Australia, as well as by minor sponsors Countrywide Mobile Communications, Electrophone, Johnston Electronic & Audio Visual Services, WIA Equipment Supplies Committee and ZCG Antennas.

The weather in Adelaide on the day before the event and also on the picnic day was fairly wet, and this possibly reduced the numbers that attended. Even considering the weather, a total of 450 people still attended the event.

Activities got under way with a 2m foxhunt which was won by Andrew VK5EX from the South Coast Amateur Radio Club, and finished with an interclub tug of war which was won by a joint team consisting of members from ACBRO clubs.

Throughout the day there were many activities for both adults and children alike, with prizes in excess of \$1000 for the winners. A raffle with prizes totalling \$500 was also held on the day.

The day was a good opportunity for bargain hunters to save money on both new and second-hand equipment.

New equipment at substantially reduced prices was available from Dick Smith Electronics, Countrywide Mobile Communications, Johnston Electronic & Audio Visual Services, Microwave Developments, WIA Equipment Supplies Committee & Bookshop and Stewart Electronic Components.

A large area was set up for buying and selling used equipment. A large number of people were seen leaving with lots of newly purchased goodies under their arms.

Several groups and individuals provided displays covering CB radio (ACBRO), vintage radio (Historical Radio Society of Australia), vintage military radio and miscellaneous equipment (several individuals), Outback communications (Royal Flying Doctor Service), vintage military vehicles (individuals) and ALARA.

Planning is well under way for next year's event on Sunday 28 March 1993. This will be bigger and better than this year, and will be housed in the Agricultural Pavilion, which is equipped with 60 permanent trestle tables, thus allowing for a greater number of dealers to take part. Other activities will be held in the Main Pavilion, with any overflow into the

Sheep Display Pavilion. A major outdoor electronics display is also planned (details to follow).

Having the majority of the displays and trading tables inside the various buildings within the showgrounds will ensure the weather will not deter people from attending.

For those who wish to plan ahead, the dates for forthcoming Picnic Days should be 27 March 1994, 26 March 1995, 24 March 1996 and 23 March 1997.

Any dealers who wish to participate in the 1993 event can obtain a dealer registration form from the Barossa Amateur Radio Radio Club, PO Box 356, Angaston SA 5353.

The club president, Steve Johnston VK5ZNJ can be contacted on (08) 287 1064 or fax (08) 287 0422.

**Steve Johnston VK5ZNJ**  
**President BARC ar**

## QSLs from the WIA Collection

*Ken Matchett VK3TL Hon Curator, WIA QSL Collection*  
*4 Sunrise Hill Road, Montrose 3765. Ph: 728 5350*

### Danzig - and what's on that old QSL card? Part I

Ask most of the younger generation where Danzig is, and one would be met with blank faces. Mention the Polish name of this city, Gdansk, and most would recognise it as a Polish shipping centre and the birthplace of the Polish trade union movement, Solidarity. Danzig (to give it its German name) will be remembered by pre-war DXers, since in those days it was a separate "country" for the pre-war DXCC.

From Slav origins, the area of Danzig was taken over by the Teutonic Knights, a military order that enforced Christianity during the Middle Ages. As a prosperous port, Danzig gained its autonomy as early as the 15th century, and when Prussia became a powerful European state, Danzig was ceded to it. With the conquests of Bismarck, Danzig became the capital of West Prussia, but after the end of WW1, gained its free city status again under the Treaty of Versailles. It is interesting to note that the major excuse for Hitler's invasion of Poland (with no fewer than 54 army divisions) on 1 September 1939 was the German claim to this territory and the refusal of Poland to yield up Danzig as a free city within the framework of the German Reich. After the end of World War 2, the German population (approximately 90 percent) was deported and the territory resorted to its Polish name, becoming part of post-war Poland.

Under the terms of the historic Washington Conference of 1929, callsign prefixes had to indicate the country from which they origi-

nated. The prefix block YMA-YMZ was allocated by the ITU to the "Free City of Danzig".

Experimental radio licensees were assigned the specific prefix of "YM" by Danzig authorities. The latest listing the writer can find is that appearing in the January 1940 issue of the magazine *Radio* just after WW2 had started. (The USA was not then at war). Danzig continued to be listed in the December 1946 edition of *Amateur Radio*, but the listing was only a guide since, at that time, decisions concerning post-war country listings were just being made. The "Official" Post-War Countries List of the ARRL, appearing in the February issue of the 1947 *QST*, omits Danzig. It would be fairly safe to say there was no amateur radio activity from Gdansk (Danzig) just after the war. In fact, almost the whole of the city had been obliterated and had to be entirely rebuilt. When transmissions from the city resumed they were accompanied by the SP (Poland) prefix.

### YM4ZO

The owner of the station was Herr Bussler, a successful DX operator and what the Germans called a "Deutscher Sendemeister und Empfangsmeister" in 1935-36. (German transmitting and receiving master or expert). Herr Bussler won many awards and DX contests before the war, including WIA 1934, 1935 and 1936 awards. He used no more than 36 watts input. The recipient of the QSL was Chas Harrison VK7CH of Bellerive, Tasmania, a truly Old Timer, who is still active on the air.

The QSL is dated January 1934 and gives a signal report of T9 W4 and R4. The T (tone),

W4 (strength) and R (readability) code was used extensively on the Continent before 1935 by German and Austrian stations in particular. The code order of RWT was, however, much more popular than the TWR seen on this QSL card. Many stations throughout the world during the early and mid-1930s were using the signal indication of QSA-QRK-Tone. The Q code QSA from the early 1920s meant "Are my signals strong?". The QRK meant "How do you receive me?". Sometimes QSB, meaning "Is my tone or spark bad?" was used but, as we know, today it has an altogether different meaning. In the April 1934 edition of *QST*, Arthur Braaten W2BSR presented a paper in which he suggested the simplified code of RST, which we all use today. Unfortunately this took a little time to get used so, some operators using QSA-R-T, effectively changing the meaning of QSA from a strength indication to one of readability. However, the new RST system proved very popular, especially after the ARRL HQ station W1MK adopted it from 27 September 1934.

The time of the QSO is indicated using MEZ, a middle-European time zone. The early experimenters used local time exclusively; signals were seldom strong enough to be sent into a different time zone!!! Even when DXing started to become popular from about 1924, local times continued to be used. Many operators soon realised the importance of using a generally accepted time standard. From 1934, GCT (Greenwich Civil Time) appeared, but many experimenters used both times on their QSL cards. From 1936, GMT was commonly used by all countries, although Greenwich Mean Time itself had been the standard time (for England) from 1880, being internationally adopted four years later. Nowadays we use UTC (Co-ordinated Universal Time), but this is only because from 1 January 1972 the earth ceased to be regarded as the standard timer, since with the remarkable accuracy of today's chronometers, the extremely small variations in the movement of the earth's axis demanded that the atomic clock set the standard of time.

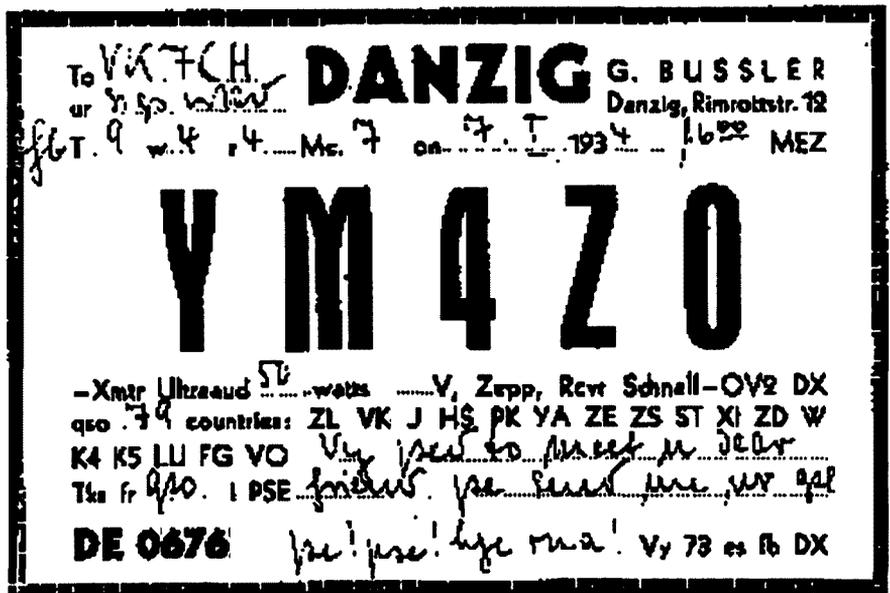
Herr Bussler's transmitter was an Ultraudion (abbreviated to "Ultraud") of 50 watts. This transmitter belongs to the Colpitts family of oscillators. Like the Colpitts, the filament of the oscillating valve is connected to the junction of two capacitors (ie grid-anode coupling is capacitive) but in the case of the Ultraudion only one of the capacitors is across the tuning coil, the other being across the earth end of the coil and the filament. It, like the Colpitts, was favoured by some operators over the Hartley for higher radio frequencies.

The antenna was the very popular "Zepp" in which one end of the feeder is attached to the end of a single wire. This voltage-fed antenna has seen many variations over the years such as the "two half waves in phase" antenna. It gets its name from the fact that, being an end-fed antenna it could be easily trailed outside the gondola of a zeppelin. (The

WIA QSL Collection contains the QSL, D4BEC sent from the Graf Zeppelin LZ127 in November 1935 using such an antenna).

The receiver was a Schnell O-V-2. The name Schnell will ring a bell with those interested in the story of DXing. It was the American Fred H Schnell who, together with another radio pioneer, John L Reinartz, made the first two-way radio contact between USA and France on the night of 27 November 1923. Schnell had received special permission from the Supervisor of Radio at Boston to use a wavelength of 100 metres. Schnell was, at that time, ARRL Traffic Manager and later a Captain in the US Naval Reserve. (In addition to running the Chicago police station!). Schnell used his call of 1MO, later WO7Z. The Schnell receiver was an early regenerative set. In the early days of radio feeding back into the tuning coil (by means of a "reaction coil") some of the anode output was a simple way of obtaining gain and selectivity. The big problem was, of course, the all-too-frequent excessive feedback which caused self-oscillation.

This led to serious interference problems; so much so that, according to some licensing regulations, the operator stood a good chance of losing his experimental licence were his receiver to behave as an oscillator. The code O-V-2 stood for the numbers of stages in the receiver. O-V-2 was a popular choice. The first letter O tells us that there was no RF amplification stage (although at the date of this QSO one stage was common). The V signalled a valve detector stage (in this case the regenerative detector, usually a triode) and the 2 indicated two stages of audio amplification. Readers might be surprised at the attention given by early experimenters to audio rather than radio frequency amplification. It should be remembered that in the early days of radio, from the 1920s to the mid-1930s, the triode valves used gave considerable problems owing to the large capacitance between their single grid and the plate. When tetrodes and pentodes became freely available in the 1930s, and if stages were introduced, radio amplification became an accepted principle. The coupling device of early O-V-2 receivers was just an audio transformer. The HT supply was fed via an RF choke to the triode plate through its primary coil, whilst the grid bias to the AF triode was fed through the secondary winding of the iron cored transformer. Having said this, more fortunate experimenters **did** use one or more stages of TRF (Tuned Radio Frequency) in front of the detector, stability problems having been reduced by the introduction of the screen grid valve in 1928. Such improved signal level arriving at the detector often allowed an AF stage to be deleted altogether. We have to remember too, that sensitivity would have greater priority than audio output to early DXers. After all, the possession of a quality speaker was often out of the money range of the average operator. When pentodes became available commercially in



the early 1930s, there was really no need for regenerative detection and, in fact, radio regulations were drafted to outlaw this method of reception altogether.

On the QSL card of YM4ZO we can see a list of the DX countries worked by Herr Bussler, although the prefixes of the countries have changed somewhat. The letter J is now JA, Netherland East Indies PK is now YB (Indonesia) and ZE (Southern Rhodesia) is now Zimbabwe ZZ. In those days Mexico was X, ZD = Nigeria, K4 = Puerto Rico, K5 = Panama Canal Zone and VO was Newfoundland (at that time a separate DXCC country). The DE0676 printed on the bottom of the card indicated (as it still does today) a German Short Wave Listener. In the early days when QSOs with far-away places were a real challenge, many licensed amateurs took "an each-way bet" by becoming instant SWLs when they were unable to make a QSO. Unlike today, the majority of foreign operators in the early days of radio really appreciated SWL reports from DX stations,

there being a considerable exchange of QSL cards between the two. The WIA Collection is preserving several hundred such pre-war reports. *(To be continued).*

### Thanks

The WIA (Vic Div) would like to express its thanks to the following who have kindly donated QSLs to the Collection.

- Percy VK4CPA
  - Bill ex VK6WY
  - Ron VK3QP
  - Mike VK6HD
  - Stan VK3BSR (ex VK3ASB)
  - Frank VK2QL
  - Owen VK1CC
  - Reg ex VK1RF.
- Also to the family and friends of the following "Silent Keys"
- Russell Edwards VK3CZ
  - Fenton Sanderson VK6TS

ar

## Divisional Notes

### VK2 Notes

#### Annual General Meeting Deferred

The 1991/92 NSW Division AGM failed to reach the required quorum on 2 May by a half-hour after the scheduled time. The "articles" of the Division were not clear on the procedure, leaving the Council with the only option to defer the meeting date until a date to be advised after seeking legal advice.

The advice was to set a new date and advise

members in writing. The new notice is later in these notes. The date has been chosen to take into account the required 21 days notice. It was also pointed out that the "articles" (constitution) of the Division do not address the procedure to be adopted should a duly convened meeting, or an AGM, not attain a quorum. Action is being undertaken to correct this condition.

The new meeting date will also afford mem-

bers an opportunity to participate in a forum discussion on the proposed draft of the next generation "Regulations" for the Amateur Radio Service which you have found in this issue of *Amateur Radio*.

Our thanks to those members who took the effort to either attend - many from country regions - or who submitted proxies for the 2 May meeting. Please note that the agenda for the deferred meeting has changed and that new proxies will be required.

Until the new meeting is conducted and concluded the 1991/92 Council remains in office.

### Wireless Institute of Australia - New South Wales Division

#### Notice of Meeting

The deferred Annual General Meeting of the Wireless Institute of Australia, New South Wales Division, will be held at 2pm on Sunday 28 June 1992, at Amateur Radio House, 109 Wigram Street, Parramatta.

1. Opening of meeting by Chairman
2. Apologies
3. Confirmation of Minutes of the 1991 AGM
4. President's report
5. Presentation of awards
6. Presentation of annual accounts for the year ended 31 December 1991
7. Declaration of the 1992/93 council
8. (a) Appointment of Returning Officer for 1992/93
- (b) Appointment of an Auditor for 1992
9. Notice of Motion to change the Articles of Association of the NSW Division in respect to General Meetings
10. Discussion period (no motions may be moved)
  - (a) Members' forum re proposed regulation changes
  - (b) Other matters that may be raised
11. Close of meeting

Note: new proxy votes are required to be submitted for this meeting.

Robert Lloyd-Jones, Company Secretary

#### Now Members

Our usual warm welcome is extended to the following who joined the NSW Division recently.

K J Apps	Assoc	Wyoming
W F Brown	Assoc	North Bondi
J K Daniel	Assoc	Port Macquarie
B Duffy	Assoc	Narromine
J P Emanuel	VK2XZG	North Rocks
D R Godden	VK2JDG	Toongabbie
D W Hall	Assoc	Inverell
P J Hennessy	VK2KPH	Yagoona
J M Holland	VK2XZB	Bungendore
L F Kentish	VK2CFK	East Maitland
J T Jordon	Assoc	Green Point
G C Paterson	VK2AHJ	North Ryde
W L Swinnerton	Assoc	Toongabbie
C E Webb	VK2CO	Unanderra

#### Happenings

It would seem little - based on the attendance for the AGM - maybe there were too many distractions. However, don't miss the Oxley Region Field Day this coming June long weekend at Lighthouse Beach, Port Macquarie; Oxley Region ARC, PO Box 712, Port Macquarie 2444. Phone (065) 83 1311. The next Parramatta located Trash and Treasure will be on Sunday afternoon 26 July. Listen to VK2WI that morning for the weather forecast. The next VK2 Division exam will be held at Parramatta late August. Contact the office for details of this or other exams. Also see list of exam sources/locations in recent ARs. Recent work at VK2WI has restored most transmitters to the broadcast format. There are no 20 or 15 relays at the moment. Seven metres is relayed on 18.120, and 12 metres is broadcast from Dural on 24.910. The 6m beacon has been overhauled and is back on line. Tree growth is starting to shield beacon antennas; relocation is being considered. VK2WI seeks a recent 50 watt solid state low/mid band base suitable to replace a very aged BS50 for 52.525MHz. VK2RWI is upgrading packet UHF linking to the various networks. Ch 4850 antenna recently improved. Richard VK2SKY will start to take over some of the broadcast preparation from Dave VK2KPU.

#### 5/8 Wave

1992/3 Council

At the AGM of the VK5 Division, held on Tuesday 28 April, the following members were elected to Council, and as usual to provide continuity, the President, Secretary and Treasurer were elected at a brief council meeting afterwards.

President	Bob Allan	VK5BJA
Secretary	John Highman	VK5PJH
Treasurer	Bill Wardrop	VK5AWM
Past President	Rowland Bruce	VK5OU
WICEN Director	Ian Watson	VK5KIA
	Peter Maddern	VK5PRM
	Rob Gunnourie	VK5FI
	Mark Spooner	VK5AVQ
	Alan Roorcroft	VK5ZN
	Chuck Waite	VK5CQ

Other positions will be allocated at the next council meeting.

We welcome to Council two new members, Chuck VK5CQ and John VK5PJH, and wish them a long and happy time on Council. Unfortunately, we also farewell two hard-working members, Don McDonald VK5ADD and John McKellar VK5BJM. Amongst other positions he held, Don was Secretary when I was President, and President after me. He has also been Minutes Secretary and Examination Officer over the past two years. I enjoyed working with him and found he was someone you could always rely on. After seven years on Council he will certainly be missed. I'm not sure how long John has been on Council, three or four years possibly, but during that time he too has been a warmly accepted and

valuable member of Council. We wish both of you a healthy and happy retirement.

#### Diary Dates

6-8 June	South East Radio Group Convention, Mt Gambier
23 June	General Meeting, Burley Griffin Building
30 June	Buy and Sell Night

#### Examination Dates and Information

I am very grateful to Christine Taylor VK5CTY, who provided me with the dates of all forthcoming examinations in the Adelaide metropolitan area for the rest of this year. She also sent me the information sheets she sends out to would-be candidates. This month we have published the sheets for "General" and "Morse Code Only" exams. Next month we will bring you the "Remote Areas" and "Special Conditions" papers.

#### Examination Program for 1992

Date	Venue	
4 July	Burley Griffin Building	WIA (SA Div)
8 Aug	Blackwood High School	AHARS
5 Sept	Burley Griffin Building	WIA (SA Div)
31 Oct	Burley Griffin Building	WIA (SA Div)
14 Nov	Black Forest Primary School	Christine Taylor
5 Dec	Blackwood High School	AHARS

#### Contact Phone Numbers

WIA (SA Div), Don Macdonald	276 1251
AHARS, Alan Haines	276 7091
Christine Taylor	293 5615

Contact must be made at least two weeks before the date of the examinations.

#### Information for Applicants for Amateur Exams

From January 1992 the amateur examinations will be conducted under the authority of the WIA Exam Service.

In each state there will be a list of official examiners which will be available from DoTC. These examiners will conduct exams at scheduled times and places (available from the examiner or the local Division of the WIA).

All examinations must have two official examiners present at all times.

Candidates unable to attend scheduled examinations should read the information sheet for **remote areas** or **special condition examinations**.

Candidates wishing to sit for any of the amateur exams should apply to the appropriate examiner at least **three weeks** before the date of the examination.

Payment for the examination(s) will be at the time of application.

On the day of the examination the candidate will be able to obtain a provisional mark at the conclusion of the examination. The official mark and any appropriate forms will be forwarded to the candidate from the WIA Exam Service.

These results, along with any previously obtained qualifications, must be presented to the

Department of Transport and Communication when applying for certificates or station licences.

Good luck!

Prepared by Christine Taylor VK5CTY

VK7ZMF Frank Moore, Southern Branch  
 VK7JK John Rogers, Southern Branch  
 VK7GL A Dickson, Southern Branch

New members of Council are: VK7GL, VK7BE, VK7PU. Bob Jackson is retiring as Awards Manager after this year and is looking for a replacement. Any offers?

Retiring members of Council are: VK7JG, VK7JH.

ar

**VK6 Notes**

The AGM came and went, and the composition of the Divisional Council remains much the same. VK6WZ's withdrawn nomination for VP and VK6AFA's ditto for councillor made an election unnecessary. Glen VK6ZGT was the only other nomination for VP, and was declared elected.

The bookshop is again up and running. Bruce Robson VK6ABR is the new man, and is doing a fine job; the same can be said of Nick VK6ND, our new broadcast officer.

Last month trial relays of the Sunday morning bulletins on the top band were initiated by John VK61M. His first morning (26 April) yielded so many stations on the callback, John was somewhere between shock and delight! He handled it well, however, and 160 metres might become a permanent relay frequency. His best DX was John VK6JX at Thompson's Brook in the south-west.

Judging by comments on air, interest in ATV is on the increase in WA, and the same can be said for UHF and SHF. The VHF group is promoting 10 gigs and there are whispers about a special project for UHF taking shape at Northern Corridor.

Membership of the division continues to grow and, although far from ideal, is still a couple of percent above the national average. Keep talking WIA to your non-member mates, be positive, don't put them down because they're not members, lend them your AR occasionally. Gently hint that in this global tug of war between commercial users of the spectrum and amateur radio we must have more hands on our end of the rope, and fewer onlookers!

**QRM from VK7**

Frank Moore VK7ZMF

President	Tom Allen	VK7AL
Secretary	Ted Beard	VK7EB
Treasurer	Peter King	VK7ZPK
Intruder Watch	Robin Harwood	VK7RH
QSL Manager	Charles Harrison	VK7CH
QRM Editor	Frank Moore	VK7ZMF
Repeater Co-ord	Anthony Tunks	VK7ZTA
Patron	Col Wright	VK7LZ
Federal Council	Jim Forsythe	VK7FJ
Broadcast Officer	John Rogers	VK7JK
Awards Manager	Bob Jackson	VK7NBF

VK7 Divisional Council is now:

VK7BE	Barry Hill, Northern Branch
VK7PU	Phil Harbeck, North West Branch
VK7ZPK	Peter King, Southern Branch
VK7AL	Tom Allen, Southern Branch
VK7EB	Ted Beard, Southern Branch

**Morseword No 63**

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Audrey Ryan 1992

- Across:**
- 1 cubes
  - 2 travellers pay it
  - 3 smooth material
  - 4 serious
  - 5 thrown at weddings
  - 6 high room
  - 7 patch
  - 8 wreck
  - 9 sieve
  - 10 dressed to the .....
- Down:**
- 1 cap
  - 2 rice wine
  - 3 trick
  - 4 flower holder
  - 5 mend
  - 6 ancient
  - 7 barrels
  - 8 smile
  - 9 picture
  - 10 successor

**Help stamp out  
 stolen equipment -**

**keep a record of all  
 your equipment  
 serial numbers in a  
 safe place.**

# Silent Keys

*Due to increasing space demands obituaries must be no longer than 200 words.*

The WIA regrets to announce the recent passing of:

A Cutting	VK2AAC
W T (Bill) Wilson	VK3DXE
M (Merv) Busch	VK3LL
G (Graham) Phillis	VK5AGP

## Graham Phillis VK5AGP

Belatedly I wish to advise on the passing of my next-door neighbour and friend Mr Graham Phillis VK5AGP.

On Tuesday afternoon, 30 July 1991, while riding his motor cycle to work for the afternoon shift at the Pasmenco BHAS Smelting Works, he was struck by a car entering the main road from a side street, and died shortly after. This was more than tragic, as Graham was only 52 years of age.

Graham was a quiet achiever, and followed his hobby for a number of years. He did spend some time with his own radio and TV business, which he finally quit to go into the smelting works. He was keen on building his own equipment and always had some radio project or other under way. Amateur TV was one of his interests and he was more interested in getting something going than operating.

He was a member of the Port Pirie Amateur

Radio Club for some years, and he was also a very keen breeder of birds.

He is survived by his wife Raylene, a son 24 years, and twin daughters 21 years.

Brian Condon VK5CO

## Bill Wilson VK3DXE

It is with deep regret I advise the passing of a good friend, Bill Wilson VK3DXE.

Bill gave great service as a Victorian Division Councillor in years gone by, and I will always remember him as the very first "full call" I had a contact with after I gained my call VK3YXX.

Bill was a man's man - a true "rough diamond" with a heart of gold, and always ready to help a fellow amateur.

Bill became ill a relatively short time ago whilst at his favourite place - his fishing shack on Big River up in the mountains around Eildon.

After surviving major surgery for a short time, Bill lost the battle with cancer and passed away at his home on Tuesday morning 5 April.

VK3DXE will be well remembered by his many friends, and to his wife Margaret and the family, the Victorian Division Council offers sincere condolences.

Barry Wilton VK3XV  
ar

# Over To You

*All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.*

## Technical plagiarism?

The article on Loop Yagis, in *AR* for April, is grossly unfair to me.

The author attributed the design of the Loop Yagi to R5GB.

In fact, the long quad (loop yagi) was designed by me (VK3ALZ).

In *AR* for June 1967 is an article by me entitled "Long Quads for 144, 432, 1296 MC". The article details the advantages of the long quad over the long yagi, and shows both square and circular element designs.

Some years later (1970 on) articles began appearing in overseas magazines with copies or near copies of these designs - without acknowledgement, I might add.

However, *VHF Communications* did have the courtesy to acknowledge my prior work.

What particularly annoys me in respect to

the April article is that I have verbally supplied long quad design information for previous Mt Skene expeditions - but no mention of this was made.

Of course, Loop yagis are being sold commercially by the thousand now for 400MHz and above, for which neither I nor *Amateur Radio* will ever see a cent.

I wish to thank Bill Roper VK3ARZ, general manager, for a photocopy of the June 1967 article.

Ian Berwick VK3ALZ  
107 Loongana Ave  
GLENROY 3046

*(Bill Magnusson is most apologetic, Ian, at not being aware of your prior contribution. He based his design on the R5GB information which, as you say, also failed to acknowledge your work. Ed).*

## A bold suggestion

Adam Maurer's letter in May *AR* is quite right: we should highlight WIA members in the *Callbook*.

After all, we're proud to be members and we pay WIA management to ensure we're provided with services above those available to non-members.

Rather than put a "+" mark against member callsigns, why not do what the phone books do and have them in **bold print**?

And if the non-members scream? Good. Send them a membership application form. A bold printed callsign may cost them less than bold print in the phone book.

Gareth Davey VK2ANF  
PO Box 1367  
DEE WHY 2099

## WICEN again

The Newcastle earthquake brought about major upheavals in the thinking of emergency service providers in New South Wales and beyond. For them, "amateur" communicators (in the sense of "lacking professional skill") are no longer good enough.

In a disaster of Newcastle's proportions, to whom will an emergency management officer entrust his message: the WICEN operator, trained in emergency traffic handling procedures and wearing the recognised uniform of an accredited emergency services support group, or the guy who slouches up in thongs and stubbies with an HT, saying "I have a radio; I want to help."?

If Mr Ellis questions the relevance of WICEN, perhaps he should ask why WICEN is being written into every Disaster Management Plan in the state of New South Wales.

As for membership fees, is \$10 a year more than his community spirit is worth?

Procedures: they're the same ones used by the other emergency services.

Exercises: doesn't Mr Ellis recognise the value of training?

If Mr Ellis is left at home when disaster strikes, it will be because he is not a *member of an accredited emergency service or support group*. If he tries to interfere, or "help out", he will be committing an offence under NSW law.

The thousands of dollars worth of time, service and equipment provided by dedicated WICEN members goes a long way towards justifying usage of radio spectrum worth \$1 million/megaHertz. By comparison, keeping one's local repeater warm all day with idle chat about the weather contributes even less than the pittance we pay in licence fees.

When I put on my WICEN uniform, I stop being an "amateur" and become a "volunteer professional communicator". When lives and property are at stake, we must settle for nothing less.

Richard P Murnane VK2SKY  
7/15 Grafton Cres  
DEE WHY 2099

## WICEN replies

In the April edition, S V Ellis VK2DDL questions the value of WICEN. I know its value!

That's why I joined it years ago, and why I've served the past few of them as president in NSW.

He does not seem to understand that times have changed, and WICEN has changed with them.

When the NSW Rescue & Emergency Management Act of 1989 was proclaimed, all existing rescue and emergency service organisations were given primary and secondary responsibilities.

The NSW Volunteer Rescue Association was included in this review, with two of its specialist squads, WICEN and CREST, accredited by the State Rescue & Emergency Services Board for communication support roles.

The combat agencies have their own dedicated communications systems and WICEN, as a specialist technical support group, reinforces them.

The Act is firm about legal accreditation and responsibility for disaster management, making it a punishable offence for unaccredited organisations to attempt to participate in emergency operations.

WICEN integrates casual volunteer amateurs offering specialist aid, and disaster combat agencies which, in NSW, are co-ordinated by the police.

As VK2DDL correctly points out, DoTC regulations cover emergency operation and, subject to the *control of relevant authorities*, an amateur is entitled to engage in emergency communications. In NSW, authorities recognise only accredited organisations, one of which is WICEN.

WICEN believes that amateurs are not only entitled, but also morally obliged, to help the community in time of crisis, and is the structure through which those with commitment can best function.

VK2DDL said our reception had been cool locally.

It's a pity he didn't look further afield and talk to the commanders in NSW's disaster combat agencies or the people they help.

They're very warm to WICEN!

Ian Nance VK2BIN  
22 Truscott St  
NORTH RYDE 2113

## Metrics please

I have read with interest the article on "Multiband Inverted V for the Z Match Antenna" by Adrian Fell VK2DZF in April AR. I do not wish to seem to be "nit picking" but I wish all amateur radio operators would convert themselves to the metric system and not give measurements in the archaic feet and inches. I am the instructor for the novice course run by our local amateur radio club, and teach all newcomers in the metric system. We also refer to the wavelength in metres; we use the

formula for converting frequency to wavelength in metres. To make a half-wave dipole, the formula gives us the answer in metres, so **why** give dimensions for antennas etc in feet and inches. Things get complicated enough without mixing "... spacing about 0.72 inch, spreaders every eight inches, and wire size 1mm thick ...".

Although I was brought up on feet and inches (nearly 60 now), I have tried to convert to metric. The younger ones do not learn about feet and inches now so, please, can other writers convert to metric so these youngsters can easily understand. (I haven't even got a measuring stick in feet and inches any more).

Reg Wheller VK4ARW  
20 Watson St  
HERVEY BAY 4655

*(You will have read the letter from 3ZTN last month, Reg, expressing much the same thoughts as yours. As you say, it should be authors who use metric dimensions to begin with. That would make life much easier for us poor editors!)*

## Zero callsigns

The list below indicates the present operators with VK0 callsigns down "south".

VK0AW	PH Mantel
VK0CE	C Hobbs
VK0CN	P Smyth
VK0DI	D Mehonoshen
VK0KZA	A Cramond
VK0NE	G McDiarmid
VK0ZCM	C Mohring
VK0ZJH	J Hunt

The next crop of callsigns to be issued for

operation in the Antarctic and Macquarie Island should appear around next Oct/Nov '92. This will be when the bases are re-supplied during the '92/'93 summer season.

Nell Penfold VK6NE  
VK0 QSL manager

## No Code Novice

I wish to voice my opposition to the current proposal of no-code novice. The idea is good, but I don't believe that two metres is the answer because 146-148MHz is full enough. Why not give them a portion of six metres, as there are far less operators on this band?

In reply to Les VK4ZLP (ARMay 1992) how can you say a novice has most full-call privileges and there is no incentive? I think there is a big difference between 30 watts and 400 watts etc (read the regs).

I started studying August 1990 and had my novice by March 1991, I had my full call by November 1991. It was hard work. Novice gave me a taste, which was enough incentive to continue.

Finally, how is it becoming like CB? There are still CW, theory and regulation examinations, and I believe CW is a necessary part of amateur licence examinations.

Rob Owen VK3ICG  
PO Box 713  
ELTHAM 3095

*(Originally it was WIA policy to advocate six metres rather than two for the VHF band common to all licensees. This was changed due to several significant factors, one being the ready availability of 2m equipment. - Ed) ar.*

**Help protect our  
frequencies -  
become an  
intruder  
watcher today.**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5	UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	9.4	9	7.4	2	-16	-35	...	...	1	9.2	21	7.0	5	-17	-39	...	...	1	9.0	25	6.9	5	-20	...	...	
2	8.8	0	6.7	0	-15	-32	...	...	2	8.9	13	6.9	2	-18	-39	...	...	2	8.6	15	6.7	1	-21	...	...	
3	8.4	-8	6.5	-1	-15	-32	...	...	3	12.3	14	9.1	11	0	-12	-31	...	...	3	12.3	12	9.2	10	0	-12	-31
4	11.8	0	9.2	2	-2	-11	-27	...	4	18.7	13	14.4	15	14	8	0	-12	4	19.1	12	14.8	13	13	8	0	-12
5	16.2	0	9.2	1	5	3	-3	-13	5	23.1	9	18.7	9	13	12	6	-1	5	25.1	9	19.3	9	14	14	9	3
6	21.6	6	16.1	0	0	8	4	-1	6	24.9	8	20.1	6	12	12	6	-2	6	26.7	8	20.0	4	12	13	10	5
7	22.0	6	16.5	0	7	7	2	-4	7	23.5	8	18.9	5	11	10	6	-1	7	26.3	7	19.7	3	11	12	9	4
8	19.3	7	14.5	4	7	5	-2	-11	8	23.4	8	17.0	7	11	9	2	-6	8	25.0	7	18.4	3	10	11	7	1
9	16.1	6	12.0	5	5	0	-10	-23	9	18.6	9	14.7	9	9	5	-4	-15	9	22.8	6	17.1	4	10	9	4	-2
10	13.2	5	9.9	6	1	-8	-23	...	10	15.6	9	12.2	9	5	-2	-14	-30	10	20.0	9	15.0	8	11	7	0	-10
11	10.9	4	8.1	4	-6	-19	-39	...	11	13.0	9	10.1	8	0	-12	-29	...	11	16.6	11	12.5	11	9	2	-9	-23
12	9.6	7	7.1	3	-11	-30	...	...	12	10.8	10	8.4	5	-9	-25	...	...	12	11.6	12	10.2	12	3	-7	-24	...
13	8.9	12	6.6	1	-19	...	...	...	13	9.6	13	7.4	3	-17	-38	...	...	13	11.2	17	8.4	11	-4	-21	...	...
14	8.7	22	6.4	1	-23	...	...	...	14	9.1	21	7.0	1	-24	...	...	...	14	9.8	23	7.3	8	-14	-36	...	...
15	8.8	27	6.5	3	-23	...	...	...	15	9.1	26	7.0	2	-25	...	...	...	15	9.0	28	6.7	4	-22	...	...	...
16	9.1	29	6.7	5	-21	...	...	...	16	9.3	28	7.1	3	-24	...	...	...	16	8.7	31	6.5	3	-25	...	...	...
17	8.7	31	6.6	2	-27	...	...	...	17	9.3	30	7.1	4	-23	...	...	...	17	8.9	32	6.7	5	-23	...	...	...
18	8.6	32	6.5	1	-29	...	...	...	18	9.2	31	7.0	5	-23	...	...	...	18	9.3	33	6.9	7	-20	...	...	...
19	8.3	32	6.3	0	-31	...	...	...	19	9.0	31	7.0	2	-27	...	...	...	19	9.4	33	7.1	8	-18	...	...	...
20	8.1	33	6.3	-1	-33	...	...	...	20	8.5	31	6.6	-2	-34	...	...	...	20	9.2	33	7.0	6	-21	...	...	...
21	9.0	31	6.9	4	-24	...	...	...	21	8.4	31	6.6	-3	-35	...	...	...	21	8.5	34	6.5	1	-29	...	...	...
22	8.6	30	6.7	1	-28	...	...	...	22	9.2	31	7.1	5	-23	...	...	...	22	8.4	34	6.4	0	-31	...	...	...
23	8.1	22	6.3	-3	-32	...	...	...	23	8.6	31	6.7	0	-29	...	...	...	23	8.6	34	6.5	2	-27	...	...	...
24	7.9	12	6.3	-4	-29	...	...	...	24	8.5	26	6.7	0	-29	...	...	...	24	8.4	33	6.5	1	-29	...	...	...

**VK EAST - AFRICA**

**VK STH - AFRICA**

**VK WEST - AFRICA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	27.1	11	21.0	8	16	17	14	9
2	26.3	11	21.1	6	15	16	13	8
3	26.0	11	19.8	6	14	15	13	8
4	26.1	11	20.7	7	15	16	13	8
5	26.9	11	20.8	9	16	17	14	9
6	26.5	11	20.2	13	18	18	14	8
7	24.7	13	18.9	18	20	18	12	4
8	22.2	15	16.9	25	23	17	8	-2
9	19.8	18	15.2	31	23	14	1	-13
10	17.5	21	13.1	31	18	6	-10	-29
11	15.9	22	12.1	28	13	-1	-21	...
12	14.8	23	11.2	25	8	-8	-31	...
13	14.0	24	10.6	23	4	-14	...	...
14	13.5	25	10.3	21	0	-19	...	...
15	12.9	25	9.8	18	-4	-25	...	...
16	12.7	25	9.7	17	-5	-27	...	...
17	11.3	26	8.7	9	-18	...	...	...
18	9.3	28	7.2	-7	...	...	...	...
19	8.9	28	6.9	-13	...	...	...	...
20	12.6	29	9.5	17	-6	-29	...	...
21	17.1	20	13.3	28	17	6	-9	-26
22	21.8	16	18.4	22	23	20	14	6
23	27.6	13	21.3	16	21	20	17	11
24	27.9	11	21.3	11	18	18	15	10

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	23.6	9	18.0	5	12	11	7	0
2	23.1	10	18.6	3	11	12	8	2
3	23.4	10	17.8	2	11	12	8	2
4	23.9	10	18.8	3	11	12	9	3
5	24.4	9	18.6	5	12	12	8	0
6	23.6	10	17.8	8	14	12	8	0
7	21.7	10	16.4	13	14	11	4	-5
8	19.2	13	14.5	19	15	8	-3	-16
9	16.2	17	12.2	22	10	-2	-20	...
10	13.5	20	10.2	17	-2	-21	...	...
11	11.2	21	8.4	5	-22	...	...	...
12	9.8	23	7.4	-6	...	...	...	...
13	9.0	25	6.5	-18	...	...	...	...
14	8.6	25	6.5	-21	...	...	...	...
15	8.7	25	6.5	-20	...	...	...	...
16	9.0	25	6.7	-16	...	...	...	...
17	9.2	25	7.0	-13	...	...	...	...
18	8.8	25	6.7	-19	...	...	...	...
19	7.9	26	6.1	-32	...	...	...	...
20	7.8	26	6.0	-35	...	...	...	...
21	10.0	25	7.8	-4	...	...	...	...
22	14.3	11	11.0	11	0	-13	-33	...
23	18.8	9	14.5	11	10	5	-5	-18
24	22.0	9	16.9	8	12	10	4	-4

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	26.0	12	20.0	14	19	18	14	8
2	26.2	12	20.1	11	17	17	13	8
3	25.6	12	19.8	9	16	16	13	7
4	25.3	11	19.9	8	15	15	12	6
5	25.5	11	19.5	9	16	16	12	6
6	25.7	11	19.6	11	17	17	13	6
7	25.8	12	19.7	14	19	18	14	7
8	24.9	13	19.0	18	21	19	13	5
9	23.1	15	17.7	25	23	19	11	1
10	20.7	20	15.7	36	27	18	5	-9
11	18.3	21	14.0	34	21	10	-6	-24
12	16.1	22	12.3	29	13	-1	-22	...
13	14.6	23	11.1	24	5	-12	-37	...
14	13.6	23	10.3	20	-1	-22	...	...
15	12.9	23	9.8	17	-6	-29	...	...
16	12.5	24	9.6	14	-10	-34	...	...
17	12.0	24	9.1	11	-11	...	...	...
18	11.9	24	9.1	11	-11	...	...	...
19	10.7	25	8.2	1	-32	...	...	...
20	8.9	26	6.9	-19	...	...	...	...
21	8.5	26	6.6	-25	...	...	...	...
22	11.9	18	9.0	7	-15	-39	...	...
23	18.1	14	14.1	20	14	5	-8	-24
24	23.4	13	18.1	17	19	16	10	1

**VK EAST - ASIA**

**VK STH - ASIA**

**VK WEST - ASIA**

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	29.6	23	22.3	34	35	34	30	24
2	29.3	23	22.1	34	35	34	30	24
3	29.0	23	21.9	36	36	34	30	24
4	28.4	24	21.4	38	38	35	30	24
5	24.7	26	20.2	42	39	35	29	22
6	24.2	29	19.1	43	36	27	18	6
7	21.0	32	15.9	46	39	31	20	9
8	18.0	34	13.4	44	34	24	11	-3
9	15.4	37	11.6	41	28	15	0	-17
10	13.7	39	10.3	37	22	7	-10	-30
11	12.5	40	9.4	34	16	1	-19	...
12	11.8	41	8.8	31	12	-3	-25	...
13	11.5	41	8.5	30	11	-6	-28	...
14	11.1	41	8.5	29	10	-7	-30	...
15	11.4	41	8.6	30	10	-6	-29	...
16	10.6	42	8.0	26	5	-13	-39	...
17	9.1	44	6.8	18	-5	-20	...	...
18	8.9	44	6.8	17	-5	-21	...	...
19	12.1	40	9.4	31	14	-2	-23	...
20	18.1	31	14.0	39	31	23	10	-3
21	23.9	26	18.4	39	36	31	24	15
22	27.5	24	21.0	37	36	34	28	22
23	28.8	23	21.9	35	36	34	29	24
24	29.4	23	22.2	34	35	34	30	24

UTC	MUF	dBU	FOT	14.2	18.1	21.2	24.9	28.5
1	22.2	13	16.7	22	21	15	6	-5
2	22.9	13	17.2	24	22	17	8	-2
3	22.9	14	17.1	25	23	17	8	-2
4	21.8	15	16.5	27	23	16	6	-4
5								

# HAMADS

## TRADE ADS

● WEATHERFAX programs for IBM XT/ATs. RADFAX \$35, is a high resolution shortwave weatherfax, morse & RTTY receiving program. Needs CGA, SSBhf radio & RADFAX decoder. Also RF2HERC, RF2EGA and RG2VGA, same as RADFAX2 but suitable for Hercules, EGA and VGA cards respectively. SATFAX \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Uses EGA or VGA modes. Needs EGA or VGA colour monitor and card & WEATHER FAX PC card, & 137MHz receiver. All programs are on 5.25" or 3.5" disks (state which) & documentation, add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm Old 4005. Ph (07) 35 62785.

● AMIDON FERROMAGNETIC CORES: For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please ... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

IBM-PC CLONES. AMTOR/RTTY/CW/FAX/SSTV. Your selection of modes supplied in one comprehensive program. Details from VK4ASB, 23 Darwin St, Aspley Old 4034. Tel AH: (07) 263 8689.

## FOR SALE ACT

● YAESU FT767 70cm 2m 6m & HF TX/RX all band RX plus FL7000 YAESU HF LINEAR 160-10m, both for \$4500 ono. Phil VK1PJ (06) 292 3260 (H), (06) 280 5966 (W).

## FOR SALE — NSW

● KENWOOD TS400S HF txvr EC with voice mic, batt cable, manual \$1650. Max VK2GE QTHR (065) 85 5732.

● TWO RF CONCEPTS "Fourth Generation" solid state power amps for 2m and 70cm. Both feature state-of-the-art GaAs-FET preamps, variable SSB delay, high SWR protection, over temperature protection, automatic or remote keying and remote control. All modes of transmission, including FM CW and SSB. Input 200mW to 50W output up to 170 watts. Brand new. A steal at \$595 each. AR1000 scanner, wide range portable monitor receiver, 8-1300MHz. Full features, \$395. VK2XJC, (02) 388 1081 (H), (02) 963 6915 (B).

● KENWOOD TS 120S VFO120 AT 120 MB100 service manual, all VGC. Yaesu VFO 107, new, the lot \$700. Robin L20423 QTHR (069) 63 9232.

● SHACK clearance - 10m tower, 2m HF trans, HF Yagi; 2 teleprinters with encod & decod, ATV TX; BWD. CRO; Yaesu FT101ZD HF trans DS plus 2m trans plus range of other equip. Prices on enq. John VK2CJV AH (02) 809 5024.

● DECEASED ESTATE. Offers in WRITING (letter or fax) are invited for the following equipment: YAESU FT901DM HF txvr (#9G081234); digital & analogue display, 180W, SSB, 80W AM, FM & FSK; 240V AC & 13V DC; incl YD148 desk mic. YAESU FL2100B HF linear amp (#7G170092). KENWOOD TR7400A 2m FM txvr (#650626); PLL 5kHz steps; 5/25W output; incl mobile mounting cradle & mic. CDE HAM III (Series 2) antenna rotator, control box & electronic directional indicator; 240V; suitable for arrays up to 12.5 sq ft of wind surface area. LEADER LCG-392 PAL TV pattern generator (#2080068); 240V; B&W & colour dots, cross-hatch & rainbow patterns; video & RF (50-80MHz) output. (No handbooks etc). HEWLETT-PACKARD 410C electronic voltmeter (#344-01014); 240V; measures AC/DC voltage, RF voltage to 700MHz, DC current & resistance. HEWLETT-PACKARD HP5024A digital logic tool kit;

HP545A logic probe (TTL 80MHz, CMOS 40MHz), HP546A logic pulser & HP547A current tracer; incl any case & application notes. PROMAX MC160 TV field strength meter (#999): 9V battery pack; max sensitivity 20dBuV; freq range 46-860MHz. AVO VCM3 valve characteristic meter with manuals. B & K 1076-ES television analyser. All above in good working order (no mods) and are complete with operating manuals, technical handbooks, circuit diagrams etc. Successful purchaser will be responsible for collection and cartage. Transmitting gear sold to licensed amateurs only. All offers to buy received by 15 June 1992 will be considered. Contact Bruce Carroll QTHR (063) 62 8702 or fax (063) 62 7950 or QTHR.

## FOR SALE — VIC

● YAESU FT101ZD HF txvr with FV101Z ext VFO orig boxes \$695. YAESU F5101B HF txvr with FV101 ext VFO with spare new finals, orig boxes, \$695. YAESU FT101B HF TXCVR with FV-101 ext VFO with spare new finals orig boxes \$495. \$1100 for both rigs. Ray VK3CDR QTHR (03) 726 9222 after 5pm.

● GELOSO EQUIPMENT G222TR TX 2 signal shifters, one with 807 final, other V4/102 brand new in box. Other gear push pull 807 modulator GELOSO handbooks, \$100 the lot. Mike VK3KTO QTHR (03) 557 5475.

● PROP PITCH MOTOR \$100 or offer. B40 receiver, 650kHz-30MHz. \$100 or offer. Ken VK3ACS QTHR (03) 592 5960.

● YAESU FT680R 6m all-mode 10W microphone and mobile mount. Manuals and circuit diagrams, VGC, \$440. Also WERNER WULF 6m J-Pole antenna, \$60, both VGC. Peter VK3TKG QTHR (053) 68 7293.

● YAESU FT901 DM HF txvr 160-10m 100W all mode fitted all optional filters. 240 VAC or 12 VDC can be used portable or mobile. Also FV101 DM digital memory VFO, FC 902 antenna tuner, SP901 spkr. EC with handbooks and original packing, \$950. GALAXY III txvr 20-40-80 SSB 150W. All valve unit with external spr, excellent SSB quality. Complete but not working. H'book and circuit supplied, \$200. SSB linear kit comprising type 813 tube, 2 ceramic bases, 2 fil transformers and UM3 plate modulation transformer, \$200. Alan VK3ADK QTHR (03) 337 7332.

● COLLINS POWER SUPPLY 426U-2 115VAC to 28VDC 100A, handbook, \$110. R1051A/B, R1051E, R390/1, R390A, PTR170, ARC51 handbooks, \$50 ea. LSG11 signal generator 120kHz to 350MHz, \$50. ARC R35A VHF rcvr 108 to 136MHz, \$50. David VK3BFB (03) 587 1593.

● COMPLETE DRAKE STATION comprising TR4C txvr RV4C remote VFO, AC4 power supply, ASTATIC desk mic, manual, spare new finals and other tubes. All equip in as-new cond. \$750 lot. Rob VK3JE (060) 37 1262 or (03) 584 5737.

● COLLINS "S" line 75S3C receiver and 32S3A V mitter, in EC. Rob VK3JE (060) 37 1262.

AWA CAR PHONE junior FM txvr, comes with HT inverter. RX needs attention. With circuit diagram, \$200 ono. VK3AJQ QTHR (03) 872 3503.

● TS203S KENWOOD txvr, new finals, EC, \$500 ono. VK3UI (03) 541 5458 BH.

YAESU FT230R FM 2m mobile rig, 30W/3W output, 10 mems, plus scan. New quick release mounting bracket. Manual EC, \$325. Bob VK3BRF QTHR (03) 878 6613.

● COLLINS KWM2 txvr, compl with sep p/supply, EC, \$1000. Rob VK3JE (060) 37 1262 or (03) 584 5737.

● EIMAC SK600A air socket sets c/w SK606 chimney, anode clamp & mount kit, \$75 per set. Qty top quality parts to suit 4CX250/350 amp builders, incl fil

trans, blowers etc. VK3GY QTHR (03) 789 4363.

● ICOM IC751 HF txvr and heavy duty power supply PS30 complete with 2kW key-down commercial grade linear amp. Mint cond. All workshop manuals. Brand new set of extra final tubes for linear. A complete DX station at less than half cost. Enquiries WIA Vic Div Office or AH VK3XV (059) 98 7851.

## FOR SALE — QLD

● YAESU FT747GX S/N 8G070357, GC, \$600. YAESU FT757 ATU 9J49001 little use, \$400. Steve 6-7pm on (07) 261 1711.

● LARGE COLLECTION of new valves, mostly receiving type, some tx: eg QOV03/20 send SSAE (suitable for two A4 sheets) for list. Will sell single or all. VK4FGB QTHR (070) 54 1448.

● 286 MOTHERBOARD, EGA card, true basic with manual & disks (unused), joystick & card (virtually unused). EPSON MX80 compatible printer with 4 unused ribbons. Any reas offer. Phil VK4BVM QTHR (076) 62 8346.

● HANDHELD ICO2A, with Nicad battery and charger. Also ICO2A with alkaline battery pack. Headset HS10 with VOX unit to suit. All new. Reas offers to VK4AVR QTHR.

● DECEASED ESTATE VK4KT: RF ATTENUATOR Dick Smith K6323 \$50. FLUKE 8060A multimeter \$700. MFJ752 signal enhancer 2 \$100. TESTERS We Megger 500V \$120. DAIWA CN630 140-450MHz SWR \$175. Dick Smith transistor tester \$25. 1KW TVI low pass filter \$50. 432MHz linear amp microwave module MML432/50W \$200. LEADER LCR 740 bridge \$200. 13.8/2A regulated power supply \$40. 500W HF transformer \$100. DAIWA SWR meter 140-250MHz \$100. DAIWA SWR meter 140-250MHz \$100. IC735 HF txvr \$1300. IC-2KL 500W HF all band linear amp C/W power supply \$2000. IC575H 28/50MHz txvr \$1900. IC275A 144MHz txvr \$1200. IC-AT500 antenna tuner \$700. IC-MB12 mobile mounting bracket suits IC-R70, R71A, IC-745 \$20. IC-EX2 marker extension terminal \$25. MOBILE Mounting bracket for IC221 \$10. 2M GaAs-FET preamp \$60. SCANNER JIL SX200 \$280. LEADER curve tracer \$200. IC7072 Interface unit for IC720A \$40. IC-275A 144MHz txvr \$1400. PS55 20A power supply \$415. IC-HM7 dynamic mic \$20. AG25 144MHz preamp \$150. IC-MB6 mobile mounting bracket to suit 22S \$5. IC-MH12 up/down mic \$50. IC-4E UHF FM handheld \$300. AH32 VHF/UHF mobile antenna c/w AHB-32 boot mount \$130. IC-4E 70c handheld \$250. AVO meter \$500 ono. LEADER high voltage probe \$100. DC micro amp meter \$200 ono. MEGA solid state \$150. FL-44 Crystal filter \$50. FL-34 AM filter \$40. POWER SUPPLY parts (Moorabbin) \$100. IC-FAI antenna \$15. RESISTOR substitution box \$50. REALISTIC sound level meter \$70. HT signal generator 7-11GHz \$500. BIRD model 4381 power analyzer \$1500. UHF LINEAR amp Tokyo Hy-Power 10-80W \$350. BIRD watt meter insert 1W 1.1-1.8GHz \$100. BIRD watt meter insert 2.5W 1.1-1.8GHz \$100. BIRD watt meter insert 50W 400-1000MHz \$100. BIRD watt meter insert 250W 400-1000MHz \$100. BIRD watt meter insert 5W 100-250MHz \$100. BIRD watt meter insert 250W 100-250MHz \$100. BIRD watt meter insert 1kW 100-250MHz \$100. BIRD watt meter insert 2.5kW 95-150MHz \$100. BIRD watt meter insert 5W 50-125MHz \$100. BIRD watt meter insert 500W 50-125MHz \$100. BIRD watt meter insert 1W 110-160MHz \$100. BIRD watt meter insert 500W 2-30MHz \$100. BIRD watt meter insert 1W 425-850MHz \$100. BIRD watt meter insert 1W 2.2-2.3GHz \$100. B/W new video camera \$350. DAIWA DM3003 digital multimeter \$45. COMET 302 5/6 vertical mobile ant 1.2GHz model CA-1200 \$80. FOUR only HELIAX connectors ANDREW 45AN unused \$100. 2.3GHz transceiver kit LMW 2320TMA, 144P, 2320, 2320 PRE1, UNVLO2, 2320PPI \$300. Four roller inductors \$100 ea. 2.1-2.3GHz mixer module \$500. 2-way 70cm power divider YS-PD 072 \$60.

4-WAY 70cm power divider YS-PD 074 \$100. 2-WAY power divider 1.2GHz \$80. 4-WAY power divider 1.2GHz \$120. XRM-1 10GHz receiver mixer \$60. XLO-1 local oscillator for 10GHz \$40. XTM-1 transmitter mixer 10GHz 2.3GHz power amp kit \$70. 1296MHz front end kit \$60. 1296MHz mixer kit \$60. 144MHz preamp kit \$30. EIMAC tube 4X150G Offer. EIMAC electron tube socket SK-620A Offer. EIMAC electron tube socket CF-100 Offer. EIMAC shroud SK-626 Offer. EIMAC valve base socket SK-620 Offer. EIMAC electron tube valve 2039A Offer. EIMAC JAN-7289 valve Offer. SIEMANS RS1007-176 valve Offer. VK POWERMATE 25amp complete kit \$200. ICOM ML-12 10W 1200MHz amp & ICOM IC-120 FM TX \$700. M2010 transformer \$50. SUPERSCOPE D Smith No T1605 c/w spare tips etc \$30. R-L-C bridge kit \$30. WELLER EC300ID EC 1301 soldering station new \$270. CAPACITANCE meter kit Altronics K2524 \$80. 1GHz digital freq meter kit Altronics K2515 \$180. Contact Judy Robertson (077) 71 4968 H, (077) 71 6559 W.

● SIEMENS teleprinter, modem SEQTG plus 2 spare record Siemens, tapes, paper, ribbons, manuals, complete system \$150. Ron VK4CRO QTHR (07) 390 7762.

**FOR SALE — SA**

● YAESU FT7 SN8G060665 \$395. YAESU FT200 S/N 2N335294 \$260. Complete set valves for FT200 \$60. Valves QOE03/12 and QOE03/20 (with socket) offers. Barry VK5BS QTHR (082) 95 3249.

● ICOM IC-R7000 25MHz to 1.3GHz with scanning antenna and RG-8 cable and connectors. With handbook and receive modification. No gaps! Exc cond \$1250 ono. (08) 278 3861 S/N 240843.

● KLM KT34XA six-element tribander \$1200 or offer VK5RN (08) 339 1210.

**FOR SALE — WA**

● VHF/UHF Discone antenna. Stainless steel construction. "N" connector termination. Ex-DoTC, EC \$80. Two x30m coils of 120-strand 8mm sq conductor. One red, one black. Ideal for high current power supplies and leads. \$35 per roll. Renzo VK6ZQA QTHR (09) 453 3054. Fax (09) 453 3175.

**FOR SALE — TAS**

● JRC JST-135 txv, mint cond \$2000. NVA88 ex-sprk suit JRC \$140. KEN KP12A RF speech processor, built-in AC supply \$110. YAESU SP102 ext sprk \$105. Above all as new, inc boxes, man. VK7AN (003) 27 1171.

● DAIWA ANTENNA TUNER cross needle WARC bands \$150 ono. MFJ TUNER PREAMP for SWL \$130. Ph (004) 31 3020.

**WANTED — NSW**

● KENWOOD model HC10 clock in reas cond. VK2AS QTHR (02) 416 7784.

● COLLINS 32S-3 or 32S-1 tx, 30S-1 amp, 62S-1 converter BUTTERNUT HF-6 vertical, large collections of CQ, QST and Ham Radio. VK2OE (046) 21 2226 evening.

● KENWOOD SP230 speaker. Garnet VK2CGF QTHR (065) 51 0767.

● DIAGRAM or manual for handheld Yaesu FT202 - all costs paid - eventually. Swap with FT202M manual. Bruno VK2BPO QTHR (02) 713 1831.

**WANTED — VIC**

● TRANSVERTER 2m or 70cm for Yaesu FT901 series. Fred VK3APA QTHR.

● YO-901 CRO station monitor. Ph (03) 547 0910.

COLLINS MECHANICAL FILTERS 1 500kHz centre/F SYM bandpass 3.1kHz b/wkth 1 500kHz carrier/F USB 2.4kHz BAW 1 ditto LSB style Y preferred. Maurice VK3AZB QTHR (03) 890 8038.

● COLLINS 75S3C receiver. Will pay good price. Rob VK3JE (060) 37 1262 or (03) 584 5737.

● TYPE F COIL BOX 480-960kHz for HRO Receiver. Will buy or swap for spare type JC 3.5-7.3MHz bandspreadable coil box. Also MN26 BENDIX Compass Receiver. Need not be a goer but tuning gang and coils must be unmodified and in GC. Harold VK3AFQ QTHR (03) 596 2414.

● COLLINS. Any pre-1960 Collins AM CW or SSB

equipment, esp RXs 75A-2, 75A-3, 51J-1, 51J-2, 55G-1 pre-selector. TXs 32V-1, 32V-2, 32V-3, KWS-1 any cond acceptable. Good price paid or trade for other Collins models. Also ARRL and Radio Handbooks, any edition to 1990, esp 1930/ 40/50 editions D104 mic, Vibroplex bug. Garry VK3GY QTHR (03) 789 4363.

● ATTENTION chess players! Ever given a thought to chess "on air"? We welcome players of any strength to join us on 3.669MHz 10:30 Tuesdays. We now cater for novices too on 3.569MHz 10:20 Tuesdays. 73. Damian VK3EHP.

**WANTED — OLD**

● BADLY NEED copy of operating instructions and circuit to restore 1959 GELOSO 222TR CW/AM 6 band transmitter. Also any information and circuit for MULLARD VALVE VOLTMETER type 7555/2 0.5V to 500V 7 ranges. Any help appreciated. VK4EF QTHR (07) 366 1803.

**WANTED — SA**

● 70CM LINEAR AMP solid state, suitable for amateur satellite works. GaAs-FET pre-amp not a necessity but would consider if other types not available. Contact Peter VK5ZPG reverse charges on (085) 56 2608 until 2130hrs lt any day.

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Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.  
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State: .....


Not for publication:  Miscellaneous  For Sale  Wanted

Name:..... Call Sign:..... Address:.....

## Solution to Morseword No 63

Page 27

	1	2	3	4	5	6	7	8	9	10
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Across: 1 dice; 2 fare; 3 satin; 4 stern; 5 rice; 6 attic; 7 darn; 8 ruin; 9 sift; 10 nines.

Down: 1 beret, 2 saki; 3 ruse; 4 vase; 5 fix; 6 old; 7 vats; 8 grin; 9 image; 10 heir.

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VK3RCW Continuous on 144.950MHz 5wpm, 10wpm

VK4WIT Monday at 0930 UTC on 3535kHz

VK4WCH Wednesday at 1000 UTC on 3535kHz

VK4AV Thursday at 0930 UTC on 3535kHz

VK4WIS Sunday at 0930 UTC on 3535kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555MHz

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# RADIO AMATEUR MAGAZINE

JULY 1992

RRP \$3.25



- Cavity Filters & Pager Interference
- The Australian Traveller's Net
- Willis Island Story



THE WIA RADIO AMATEUR'S JOURNAL

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Willis Island - A tiny speck in the Pacific Ocean. See Willis Island - VK9 by Stephen Pall VK2PS on P23.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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<b>Int'l Travel Host Exch:</b>	Ash Nallawalla	VK3CIT
<b>Intruder Watch:</b>	Gordon Loveday	VK4KAL
<b>QSL Manager (VK9, VK0)</b>	Neil Penfold	VK6NE
<b>Standards:</b>	Roger Harrison	VK2ZTB
<b>Videotapes:</b>	John Ingham	VK5KG
<b>WARC &amp; CCIR</b>	David Wardlaw	VK3ADW
<b>WICEN:</b>	Leigh Baker	VK3TP

## Editor's Comment

Bill Rice VK3ABP

### Big Country, Small World

RON FISHER VK3OM and I are now well into the sun-chasing safari which began on Friday 22 May. Late that night my XYL Margaret and I joined Ron and Lynette in one of Albury's caravan parks, and next day continued in convoy.

Our first tourist destination was the Japanese memorial garden at Cowra, but the night before, at dinner in the Services Club, we noticed at the next table a gentleman wearing a WIA windcheater! Who should it be but Tom Dowling VK4OD and XYL Nancy on their way home from the 50th anniversary RAAF Radar Reunion. You will read all about this celebration in a near-future issue of *AR*.

After visiting the gardens (a truly magnificent little piece of Japan transplanted to Australia) we also looked at the nearby war cemetery, and then set out for Parkes (some 130km away) where we visited the CSIRO radio telescope with its 64m dish. Later, arriving at Dubbo for two nights, we were spotted by Ron VK4NRD, also in the same caravan park en-route to Bendigo.

We spent most of Monday 25 May at the very impressive Western Plains Zoo, then went on to Coonabarabran and the Warrumbungles National Park on Tuesday. This proved to be quite an amateur get-together! Gordon VK3GRJ was also spending a few days there, while another Gordon, VK2TGC at Gilgandra, gave us useful information about the local roads. We visited the Siding Spring Anglo-Australian Astronomical Telescope on 27 May. With a mirror diameter of 3.9 metres, this is the largest such telescope

in the southern hemisphere, and the building which houses it is 50 metres high. Twenty-seven astronomers are currently working there, and the scheduling of time on the instrument must be a major feat of administration!

In the car park, as we prepared for our Travellers' Net check-in, we met VK4AO. A nephew of the famous aviator of some 60 years ago, Bert Hinkler, his name is also Bert Hinkler. A prospective amateur couple near us in the Warrumbungles were old friends and colleagues of our general manager, Bill VK3ARZ. Later, at Bourke (another 400km) we met people from Murray Bridge (VK5), friends of my sister's family in that town.

The coincidences eased a little after that. The next four nights were at Cunnamulla, Charleville, Blackall and Longreach. Who should be among the first people we saw at Longreach, but friends from our own suburb of Melbourne? They live 'just around the corner' from us!

I am writing this on 3 June at Longreach, home of Eddie VK4KAA, who makes a very tasty nut-loaf! 'As the crow flies' it is just 1000 miles or 1600km from Melbourne. We have covered 2600km of roads to get here. By the time we arrive home, in mid-July, we will have travelled about 10,000km through all states but WA and Tasmania. Yet every day we will have 'kept in touch' via the 20m Travellers' Net; and nearly every day Ron will have made contact on 20m with friends in the UK (notably G4JNH, GW4DJW). Australia is truly a 'big country', but amateur radio makes the whole globe a 'small world'.

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# WIA News

From the WIA Federal Office

## Role of the ITU

IN THE FEBRUARY ISSUE of Amateur radio magazine, we quoted from the Calendar of the IARU on improper use of the amateur bands. It was not stated at the time that the material had been prepared by Michael Owen VK3KI, who is now the vice-president of the IARU. It is perhaps worth quoting Michael's first two paragraphs.

1. The ITU is not a police

### force.

The International Telecommunications Union exists by virtue of an agreement between nations to cooperate on telecommunications matters. This agreement has been entered into freely by most of the sovereign nations of the world. However, by agreeing to respect the regulations and to use the mechanisms of the ITU, these nations have not relinquished their sovereignty. Each country reserves the right to do what is necessary to protect its own vital national

interests, and to determine for itself what those interests are.

Thus the ITU has no enforcement authority. ITU officials and staff may educate an administration that is responsible for stations causing harmful interference outside its borders. They may encourage an administration to take corrective action. But they may not force an administration to act.

2. Our mission as radio amateurs is to persuade administrations to protect our interests.

When radio amateurs suffer harmful interference from stations operating in violation of ITU Radio Regulations, it is the national telecommunications administrations, and not the ITU, that have the power to provide relief. Each IARU member-

society is obligated to promote the objectives of the IARU: the protection, promotion, and advancement of the Amateur and Amateur-Satellite Services within the framework of regulations established by the ITU. Part of this obligation is to seek the assistance of your own national telecommunications administration in resolving interference problems caused by improper use of Amateur Radio allocations. (In some countries, there may be only limited opportunities to seek such assistance. In particular, it should be remembered that no member-society is ever required to act in a manner that is contrary to the laws of its country.)

The IARU Resolution 91-1 which followed from the discussions details procedures to

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burnell VK1BR Treasurer Ken Ray VK1KEN	3.570MHz 2m ch 6950 Rebroadcast Mondays 8pm 70cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1086) Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Roger Henley VK2ZIG Secretary Bob Lloyd-Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 1100-1400 Wed 1900-2100)	From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM*; 10.125 SSB; 24.910 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18.120 SSB; 584.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional Information (02) 651 1489.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 403 Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Halley VK3XLZ Office hours 0830-1530 Tue & Thur	1.840MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw 146.800 FM(R) Mildura 146.700 FM (R) MT. Dandenong 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President John Aarssen VK4QA Secretary Ken Ayers VK4KD Treasurer David Travis VK4ATR	1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400, MHz 52.525 regional 2m repeaters and 1296. 100 0900 hrs Sunday Repealed on 3.605 & 147.150MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Rowland Bruce VK5OU Secretary John McKellar VK5BJM Treasurer Bill Wardrop VK5AWM	1820kHz 3.550MHz, 7.095, 14.175, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555M 146.500, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farnen VK6AFA Treasurer Bruce Hedland-Thomas VK6BOO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525MHz. Country relays 3582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R) 147.250(R) Mt Saddleback 146.725(R) Albany 148.825(R) Mt Barker Broadcast repealed on 146.700 at 1900 hrs	(F) \$60.75 (G) (S) \$46.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfame Tas 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNN), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repealed Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.85 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

be followed in notifying improper band use to the Monitoring Service, and action that will be taken by the IARU.

## Do You QSL?

The Federal Awards Manager recently advised he has received many complaints from overseas about the low rate of QSLing by Australian amateurs. (A letter from an English SWL on this subject was published in the April 1992 issue of Amateur Radio magazine).

Historically, it was traditional that all first contacts were confirmed by the exchange of QSL cards, but this custom seems to be declining. This should not be due to the costs of postage when the QSL Bureaux are functioning, but it may be because of the current high costs of getting cards printed. Members should be aware that, for confirmation for award purposes, a received card can be endorsed "Confirmed", signed and returned through the Bureau for practically no cost. Members who do not intend to QSL should advise their contacts of this at the time rather than simply not replying to cards received.

## Chain Letters

Information reached the Federal Office recently from a member that a chain letter, labelled "for Hams only", is in circulation. It appears to be using callsigns picked at random, and requires the recipient to send money to the other names on the list. Be warned that this type of operation does not find favour with the authorities, and do not be "conned" into going along with it.

## Looking for that Article?

The WIA "20 year" index is now a 24 year index. It includes all articles published in Ama-

teur Radio magazine since 1968, listed in over 25 categories. Members who wish to trace articles without having to go through annual indices for several years may obtain copies of the index either on IBM format computer disk (in ASCII or .DBF), or as a hard copy print-out. Disks cost \$10.00 each, the printout \$5.00, including postage.

## News from the IARU

As a result of a recent poll of member societies, the IARU has announced that the Lithuanian Amateur Radio society has been admitted to membership, making a total of 129 member-societies.

At the Region 3, October 1991 meeting in Bandung, it was recommended that the Secretary of the IARU write to the Burma Amateur Radio Transmitting Society, at its last known address, stating that it is no longer seen as representing the interests of its radio amateurs, and that its rights as an IARU member-society are suspended. As the Secretary's letter has been returned as undeliverable, the IARU Calendar of 15th May 1992 gives notice that this suspension has been carried out.

The Eleventh International Wroclaw Symposium and Exhibition on Electromagnetic Compatibility will be held in Wroclaw, Poland on 2 - 4 September 1992. Included in the program is a session on "EMC in Amateur Radio Service". The organiser is Henryk Cichon, SP9ZD, Convenor of the IARU Region 1 EMC Working Group

## Radio Frequency Band Plans

The DoTC Newsletter for May 1992 announces changes to the band plans for the VHF Mid Band (70 - 87.5 MHz) and VHF High Band (148 - 174 MHz). The introduction of a two-frequency operation with narrower 12.5

kHz channelling over much of the bands is expected to help make spectrum space available for mobile services in areas of high demand.

## 1992 VK Novice Contest

This is a reminder that logs for the popular VK Novice Contest, which took place over the weekend of 20th and 21st June, must reach the Contest Manager by 26th July 1992.

## 1992 Remembrance Day Contest

Talking of contests, have you started your preparations yet for the big contest of the year, the 1992 RD Contest? This year's contest will be held on 15 - 16th August, and the rules appear in this issue of Amateur Radio magazine. Make sure you know where to find them when the Contest date arrives.

## WIA Membership

Analysis of WIA membership figures over the past couple of years reveals that, although the number of licensed amateurs in Australia is still increasing, the percentage of the amateur population that maintains its WIA membership is slowly decreasing.

As at 31st December 1991, DoTC figures show a total of 17569 individual amateur radio stations. At that time, the WIA membership stood at 6758, ie, about 38.5 %. This figure approaches more nearly to 50 % when inactive operators and multiple callsigns are taken into account, but it still adds up to the fact that less than half the licensed amateurs in Australia are carrying all the costs of WIA activities such as WARC's, international representation, DoTC liaison, and bandplanning which benefit all Australian amateurs.

Also of concern is the data that shows the non-renewal of

WIA membership is highest among the newer members, that is those of only one or two years membership standing. It may be that this group is more apt than members of long standing to feel the effects of the current economic situation, but this seems unlikely. Apparently the strength of the WIA is in the members who have been around for 5 years or more. After that time, members seem to drop out only in response to severe financial pressure, a loss of interest in amateur radio as a leisure time activity, or strong dissatisfaction with some aspect of the WIA.

What does the WIA have to do to hold the new members for 5 years? The WIA would be interested to hear members' ideas on either the reasons for the membership losses, or ways of providing improved services which may help to reduce the loss.

Incidentally, it is worth noting that the membership analysis shows the most effective membership recruiting, and presumably retention, is that carried out on a personal basis by committed members. When was the last time YOU signed up a new WIA member?

## Advertisers in Amateur Radio

Amateur radio magazine is always happy to print advertisements from members, whether or not they relate to radio equipment. Rates for advertisements for any size from business card to full page are available from the Federal Office. Members are requested, also, to inform dealers who advertise with the magazine that their advertisements are noticed. Leads for new advertisers supplied by members will be promptly followed up.

## Deregulation of Licence Conditions

Members are reminded that responses to the draft

deregulated licence conditions published in the June edition of Amateur Radio magazine, should reach the DoTC by 17th July. Please remember to also send a copy of any comments you forward to the DoTC to the WIA Federal Office so that we are aware of members' views.

Thank you to those eagle eyed members who pointed out the apparent curtailing of the bands for Unrestricted licensees. No, this was not a result of secret deals between the WIA and the DoTC to limit the activities of unrestricted licensees. It was an error in the deletion of some duplications that had occurred at the typesetting stage, and there was NO ulterior motive.

The "missing" bands were clearly shown in the adjacent listings of frequencies for Limited and Combined licensees.

It is suggested that the small handful of vocal WIA knockers do their best to recover from the excess of adrenalin brought on by this typesetting error, and cast around for something else to complain about.

### **Intruder Watch**

One of the matters raised with the DoTC representatives at the May WIA Federal convention was the action taken on Intruder Watch reports. Although DoTC takes action on many of the confirmed reports, the priorities of other countries may differ from ours, so there is no guarantee that any other administration will take action.

In addition to the WIA, the DoTC also finds it unsatisfactory when no response is received from other administrations in answer to approaches made on the basis of reports from WIA Intruder Watchers. However, the DoTC has agreed to provide the WIA with as much information as possible on the results of action taken.

If you wish to provide a valuable service to amateur radio, why not join the Intruder Watch

team. You can do that by contacting the Federal Intruder Watch Co-ordinator, Gordon Loveday VK4KAL, QTHR.

### **RF Pollution**

One of the working parties set up at the WIA Federal Convention identified RF Pollution as a matter of high priority for the WIA's consideration. With the rapidly increasing usage of RF in commerce as well as communications, it was seen as appropriate for the WIA to place a high priority on lobbying for standards and controls on such devices and their use.

### **SEANET '92**

In the June 1992 edition of Amateur Radio we advised the address for information for contacts for SEANET '92. Please note that Jim Jones, the Secretary, can be reached at PO Box 37317, Winnellie, not 37173 as given.

### **Next Shuttle Flight**

STS-50, the next SAREX Shut-

tle Flight, was scheduled for launch on 22nd June 1992. The Shuttle Amateur Radio Experiment is a secondary payload to the shuttle's main mission, a microgravity laboratory.

On board will be Commander Richard Richards, KB5SIW and Mission Specialist Ellen Baker KB5SIX. On packet the call sign used will be W5RRR-1: SSTV will use W5RRR/S.

### **Heath Company Alive.**

Despite contrary reports, the Heath company is alive and well, according to a recent ARRL News Letter. The company's President has recently announced that the company is changing its focus from "the rapidly shrinking electronics kit business to the burgeoning electronics education market." We reported some time ago that the production of Heathkit products was ceasing.

The President feels that the age of the kit is now past because the prices of assembled electronic products are now so low.

### **Interference Handbook**

The ARRL has recently published a new edition of "Radio Frequency Interference". Members wishing to obtain this valuable reference should contact their WIA Divisional Bookshops. Arrangements have been made for a review to be published in an early issue of Amateur Radio magazine.

### **Callsign Number Plates**

In the January 1990 issue of Amateur Radio magazine, I announced that Victorian amateurs could now obtain car licence plates featuring amateur callsigns. At that stage orders were being accepted for "custom" plates, in various colours, at a once-only cost of \$280.00.

A few enquiries have recently been received about these callsign number plates from amateurs who were refused a plate, being told by the RTA that a personalised number plate could not have a number except as the last digit.

This may be true for "nor-

## **Position Vacant**

Consequent on Graham Thornton's resignation, there has been some re-organisation of the Federal Office staff, and there is a vacancy as follows:

POSITION:	Part Time clerical at assistant manager level
LOCATION:	WIA Federal Office in Caulfield
HOURS:	Three days a week average - hours negotiable
REMUNERATION:	Above award rates plus superannuation
QUALIFICATIONS:	<u>Essential</u> Superior English skills Keyboarding experience <u>Desirable</u> Knowledge of amateur radio and the WIA

In addition, the appointee for this challenging and exciting position will be a dedicated, hard working team member with a sense of humour.

ENQUIRIES: (03) 528 5962 between 9.30 am and 3.00 pm on weekdays

APPLICATIONS: In writing, with CV, to:  
WIA  
PO Box 300  
Caulfield South VIC 3162.

mal" personalised number plates, but an exemption from this rule was obtained for "radio callsign" plates, and many amateurs' cars in Victoria are sporting callsign number plates, including VK3ARZ.

Members are directed to any Road Transport Authority office, and should firmly insist that the "radio callsign" provision has been in place for some time.

The Federal Office is not aware of the provisions for such a service in other States, and would be interested to hear about what is available.

### **Managing Editor Resigns**

It is with sincere regret the WIA announces that, after three years of dedicated, strenuous effort in putting together Amateur Radio magazine every month, Graham Thornton VK3IY has decided to resign from the position of Managing Editor in order to devote more time to a commercial project. Graham stepped in to assist when the magazine was recovering from a change in the previous publishing arrangements, and immediately made his expertise and experience felt.

Graham also made his presence felt as part of the staffing of the Federal Office, and as overseer of the team which proofreads each issue of the WIA journal.

The WIA thanks Graham for his hard work and continual efforts to improve the magazine, and wishes him success in his new venture. We have been promised that there will still be contributions to "Knutshell Knowledge" from Graham.

### **Contributors Please Help**

The July issue of Amateur Radio magazine will be Graham's last production. Until a new appointment is made, the magazine will be put to-

gether by the Publisher, Bill Roper, the Editor, Bill Rice, and Federal Office staff. It will make the load considerably lighter if regular columnists can arrange to submit their copy earlier than usual to allow extra time for processing.

### **WICEN Divisional News**

Recent developments in the National WICEN Telephone Bulletin Board Network have been reported by Leigh Baker, the Federal WICEN Coordinator. Leigh's report will be published in full in the August issue of the magazine, but it is worth noting that the WICEN Divisions, despite their varying status and disparate charters, are managing to reach agreement on procedures, training and administration.

Co-operation between several states has produced an almost complete national BBS which can be accessed by anyone with the available equipment. For details about access to these phone BBSs, see Leigh's report next month.

### **DoTC Guidelines for Pager Services**

Last November it was reported in WIANEWS that the WIA had commented, at fairly short notice, on a draft DoTC Spectrum Planning Document containing guidelines for the pager service.

Earlier this year DoTC issued Spectrum Planning Document No. SP 5/91, Policy Guidelines for Assignment of Frequencies to the Paging Services. It was examined in detail by John Martin VK3ZJC, Chairman of FTAC, as well as by the two amateurs who had commented on the draft paper, Rob Milliken VK1KRM and Paul Bell VK1BX. From their comments a response was prepared and sent to DoTC expressing the WIA's concerns with some aspects of the pager service. Before de-

tailoring those concerns however it is worth going over some of the background.

From the beginning amateurs need to acknowledge a couple of points; firstly, the pager service is not operating on amateur frequencies for it is just above 148 Mhz; secondly, the equipment is designed to good commercial standards. Indeed, the WIA is of the opinion the Policy Guidelines mentioned above are generally a good set of technical specifications.

How does pager interference happen? Principally in three possible ways; firstly through an inopportune combination of frequencies, that is by intermodulation product interference. Secondly through cross modulation, that is by information from a strong unwanted signal being imposed on a weaker wanted signal. Thirdly through adjacent channel interference, that is lack of adjacent transmitter selectivity in the receiver or excessive sideband noise from the transmitter where the transmitter can be either the pager transmitter or a dirty local oscillator.

The first potential cause is not new, having been discussed in Federal Council in 1987. Indeed some repeater groups have been carrying out site intermodulation frequency checks to select suitable repeater frequencies. Incidentally "inverting" the repeater input and output frequencies is not a cure-all, as each site must be examined in detail for all frequencies in use at the specific location.

The second and third potential causes became more apparent around the time pager output powers were doubled late last year. Pager transmitters and sensitive, but wide band, amateur transceivers are not compatible. The selectivity of modern amateur VHF and UHF transceivers is not good. Indeed many boast very wide receiving ranges, which leads to minimal input tuning.

### The WIA Response

The WIA's response observed the three potential sources of interference identified earlier. It commented that the amateur service was capable, with some assistance from DoTC, of conducting site intermodulation evaluations. It pointed out some repeater groups had changed the frequencies of their repeaters to avoid third and fifth order intermodulation problems even though the amateurs were established on the sites considerably earlier than the pager service. The WIA believed this was the negotiation between parties called for in the DoTC Document.

The WIA observed pager transmitter side band noise emissions was a different issue, which amateurs faced due to the pager frequencies being so close to 148 Mhz. DoTC's attention was drawn to the earlier WIA letter of last September, which identified this problem and proposed an approach using filters on pager transmitter outputs, to increase compatibility between the two services. The WIA further observed DoTC had not seen fit to include that technical approach but rather had made an implied but, unfortunately, a technically incorrect reference to it in their Guideline Document.

The WIA explained once again that once a pager transmitter has radiated a (spurious or unwanted) sideband noise signal in the upper end of the amateur band, it was highly likely it would interfere with amateur FM receivers tuned to repeaters operating just below 148 Mhz. No amount of filtering at the amateur receiver would assist, for the interference was on the amateur working frequency. Filtering, to be effective, must be at the pager transmitter output.

The WIA pointed out that, unfortunately, the unwanted pager radiation sanitises the upper portion of the amateur

band for many other possible uses; a problem which DOTC had acknowledged in their Document as also applying to the land mobile service and which was to be overcome by grouping transmitters just above the pager frequencies.

The WIA also expressed reservations about the omission of pager receiver performance parameters from the Guidelines, noting the DoTC belief that market forces were expected to regulate the industry. The WIA wished to be assured this would not lead to transmitter power creep to achieve the total system performance specification of a service area of 40 km radius of the main transmitter.

In concluding the comments on the final Document the WIA made several requests:

- a. we wished to know when the Guidelines become effective and asked were all existing pager systems subject to its provisions?
- b. we sought correction of the erroneous statement on filtering at the amateur receiver;
- c. we sought assurance that DoTC, through its Radio Inspector service, would assist in the identification of cases of pager transmitter sideband noise interference. That assistance to be principally through the conduct of con-

trolled tests using the Radio Inspector's filters on pager transmitter outputs; and

- d. we sought re-assurance the solution of compatibility problems would be on an equitable basis, with due allowance for the earlier operation of amateur equipment from a site, when that was so.

The WIA's final observation was that the difference between devolution of a function and abrogation of a responsibility appeared rather tenuous in the Document. We believed the public must surely expect a reduction of licence fees or taxes as the EMC/RFI service rendered reduces and the public is forced to go elsewhere for that service.

#### What Can Amateurs Do?

With increasing co-siting the planning of amateur services has become a lot more complicated. This is a challenge repeater groups and Divisional Technical Advisory Committees or TACs have to meet. The Federal Technical Advisory Committee or FTAC can help, as can DoTC to some extent. Amateurs will also need to pay more attention to design and engineering of their repeaters. Federal Council recognised this back in 1989 and recommended all repeaters and beacons be constructed to good commer-

cial practices and standards in order to retain claim to prime sites.

There are several methods available to control pager interference. They include:

Altering the amateur band plan to avoid the problem frequencies at the top of the 2 metre band. This has already been done on some sites. In some circumstances inverting the repeater frequencies has transferred the interference problem to mobile users of that repeater.

In the case of adjacent channel interference caused by the sidebands or sideband noise of an adjacent transmitter, inserting a notch filter on the amateur frequency in the pager transmitter path is the only solution.

If the pager interference occurs further down the 2 metre band adding filters on the wanted frequencies to improve the front end selectivity and attenuate signals in the top end of the band.

Taking a lesson from commercial operators and add sub-audible tone squelch to amateur transceivers so that only signals carrying the squelch tone will open the mute.

#### What can the WIA Do?

As you can see from this news item, the WIA has commented twice on the DoTC Guidelines

and will press to have its points accepted.

The WIA needs to inform amateurs on how susceptible their amateur transceivers are to interfering signals. This should be included in all future equipment reviews.

The WIA could also usefully advise the manufacturers representatives of the problems with their products. These problems may be unique to Australian national band planning circumstances.

Publicity needs to be given to the causes of pager interference through the columns of Amateur Radio magazine; two articles have already been supplied and a third, by an amateur who overcame pager interference, has been promised.

Simple, yet proven effective, remedies contributed by members will be published in Amateur Radio magazine.

It is also obvious the two metre band plan, now twenty years old, is badly in need of review.

#### **Thanks**

That's all the WIANEWS we have room for this month. My thanks to the President, Ron Henderson VK1RH, and to Brenda Edmonds VK3KT for their help with WIANEWS.

**Bill Roper VK3ARZ**  
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## **A HISTORY OF RADIO IN SOUTH AUSTRALIA, 1897-1977.**

*John Ross. ISBN 959 5852 0 6.*

*Published by J F Ross, Adelaide, 1978.*

*Subject: History of amateur and commercial radio in SA.*

John Ross has done an excellent job of writing the history of radio in South Australia, including biographies of early SA amateurs, and his book must serve as a model for other WIA historians. In many cases, the biographies are supported by photos of the early amateur stations. It is a little sad to realise it is no longer possible to do interviews with early amateurs such as John did in 1977-78, simply because there are now so few of the old timers left. In addition to a strong amateur and WIA history, John presents extensive research into commercial broadcasting both in SA and in context with the rest of Australia. He even provides information on the electronics activities of the Weapons Research Establishment and the Ceduna Satellite earth station, and covers the SA TV stations too.

Finance for printing the book was provided by Ermsmiths, an Adelaide electrical company, which also retailed it.

It is a substantial hard-cover publication of 272 pages, larger than A5 size. I am unsure of the original cost, but it now sells for perhaps \$10-\$20, if you can find a copy.

**Reviewed by Colin MacKinnon VK2DYM ar**

A  
History  
of Radio in  
South Australia  
1897-1977



# Measurements on Balanced Lines Using the Noise Bridge & SWR Meter

Lloyd Butler VK5BR  
18 Ottawa Ave  
Panorama 5041

## Introduction

I HAVE OFTEN BEEN ASKED how test instruments common to the radio shack could be used to measure the performance of balanced transmission lines. This is a good question considering that instruments such as the noise bridge and the SWR meter, in their usual form, are made for unbalanced lines with a ground common. Furthermore, the usual SWR meter is made for a balance at 50 ohms, and sometimes 75 ohms, whereas balanced lines, such as TV ribbon and open wire pairs, have a higher characteristic impedance such as 300 ohms. There seems to be little in the amateur radio handbooks addressing this problem so I decided to experiment with a few ideas aimed at using these instruments on balanced lines operating in the HF region.

Initial discussion follows around the use of special balancing circuits which connect to the usual amateur radio noise bridge. The discussion leads on to the SWR meter. In the process of experiment, I constructed a special SWR meter for balanced lines and this instrument will be described. To lead up to this subject, the operation of a typical SWR meter for unbalanced lines is discussed. Whilst there is plenty of available construction information on these instru-

ments, basic theory is often just assumed. Most radio amateurs use these instruments, but I often wonder how many understand the significance of what they measure.

## Measurements Through Balun Transformers

Measurements into balanced lines can be made through a 1:1 RF transformer with primary and secondary tightly coupled. This is easily achieved with the primary and secondary twisted together and wound on a suitable toroidal ferrite or iron dust core. The method of connection shown in figure 1A is not satisfactory for measurement purposes because there is a capacitance unbalance reflected to the secondary from the unbalanced primary. An electrostatic shield between primary and secondary would solve this problem, but be difficult to apply whilst still maintaining tight coupling.

A more satisfactory connection is shown in figure 1B in which each leg of the line is fed through one of the two windings. For the balanced load, the current  $I_b$  in each winding is equal but opposite in phase to each other, and the magnetic field is balanced out, resulting in zero inductance. For any common mode signal, the currents  $I_{c1}$  and  $I_{c2}$  through the two windings are in

phase, hence the device acts as an inductive choke. Furthermore, if there is an unbalance in the load currents  $I_{b1}$  and  $I_{b2}$  through the windings due to an unbalance of impedance in the load to ground, the device acts as a choke to the differential value of the current ( $I_{b1} - I_{b2}$ ) or ( $I_{b2} - I_{b1}$ ). In effect, the transformer acts as an inductive choke to all but the balanced load current.

## The Noise Bridge

The noise bridge is inherently a device for measuring the reactance and resistance of an RF load with one side grounded. The rotor of its tuning capacitor is grounded and the output to the receiver has one side grounded. I did consider the possibility of a new circuit with the whole bridge floating above ground, but this would have presented some real design problems. However, I found that quite reasonable results could be achieved by connecting the balanced load under test via the choke circuit of figure 1B and as shown in figure 2. For frequencies below 10MHz, I used 12 bifilar turns on an Amidon FT50-72 toroidal ferrite core. The method of winding does introduce some shunt capacitance across the circuit, and five turns were found to be more suitable above 10MHz to reduce error caused by this capacitance.

One problem with the common form of noise bridge is that maximum resistance

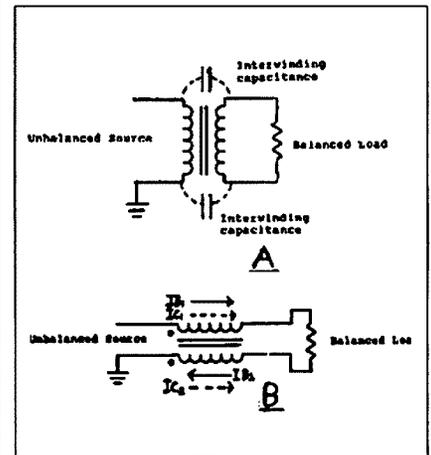


Figure 1. Two forms of 1:1 unbalanced to balanced circuit transformer.

measurable is limited to 250 ohms or less. The characteristic impedance of ribbon cable and open wire line is usually much higher than this. In my own home-constructed noise bridge I can switch in extra fixed resistance to allow measurement up to 800 ohms.

An alternative method of measurement is to connect the balanced line via a candelabrum connected balun as shown in figure 3. Two separate transformers, each similar to that of figure 1B are used and an impedance transformation of 4 to 1 is achieved. The circuit is an extension of the figure 1B 1:1 ratio circuit with the inputs of the two transformers in parallel and the outputs in series. Resistance and reactance measurements are indicated on the bridge as a quarter of the real value. For example, 300 ohms resistance would be read as 75 ohms.

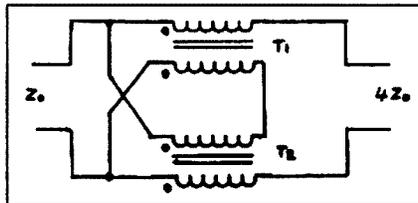
I found the two methods of measurement to be satisfactory on a transmission line provided the line was well balanced such as when terminated in a centre-fed antenna. If some degree of unbalance exists, such as when the line is matched into the end of an antenna, the measured results are in question. In this case, reversing the connecting leads to the line gives a different impedance reading. I suspect the true impedance in the balanced mode is some form of mathematical mean between the two readings, but I am not sure about this.

I found that the out-of-balance component could be essentially eliminated by using the candelabrum divide by four circuit, but further isolating its input via another balun choke of figure 1B. The complete system is shown in figure 4. Using this system, the transmission line leads could be reversed without change of reading, even if the line was a little out of balance. I recommend this as the preferred measurement system.

Concerning the toroidal transformer design, the inductive reactance of a winding should be sufficient to act as a choke at the impedance being measured (say 10 times the impedance). On the other hand, as few turns as possible should be used to minimise capacitance between the windings.

To achieve high inductance with few turns, a high permeability ferrite core is desirable. The Amidon FT50-72 cores which I used have a permeability of 2000.

Before making any measurement on an actual transmission line, the circuit can be checked out using a resistor of value equal to the characteristic impedance of the line.



**Figure 3. The Candelabrum balun arrangement provides a 4:1 impedance transformation.**

This will give an indication of the accuracy of the system and whether any appreciable reactance is introduced by the balancing network. This is most important towards 30MHz where the result can be most affected by a small amount of shunt capacity and lead inductance.

#### The SWR Meter

Before introducing SWR measurement on balanced lines, I thought it would be helpful to first discuss the operating principle of the Standing Wave Ratio (SWR) bridge. Most radio amateurs could explain that the instrument somehow measures forward wave power and reflected wave power, and that it derives a ratio between maximum and minimum of standing wave voltage or current on the transmission line. Let us examine the operation of the instrument in a little more depth.

The instrument operates by comparing two voltages. One voltage is derived from the voltage across the line and is propor-

tional to and in phase with that voltage. The other is derived from the current through the line and is proportional to and in phase with that current. One type of instrument uses a loop run along in parallel with a length of the line to inductively couple the current component. The voltage component is capacity coupled into the loop. Most SWR meters are also calibrated in power, and this particular instrument, more often used at VHF/UHF, gives a power reading which varies with frequency. Hence it requires a power versus frequency calibration chart.

An SWR meter, which is often assembled by the home constructor, makes use of a toroidal current transformer to derive the current sourced voltage component and a resistive voltage divider for the voltage component. A typical circuit taken from *Amateur Radio*, Nov 1969 (ref 1) as shown in figure 5. Because of the methods used to couple each component, the developed voltages are constant with frequency, and a calibration chart is not required. For this particular circuit, operation to 70MHz is claimed. For further explanation of the SWR meter we will make use of this circuit.

The voltage derived from current in the line is developed across either of the two 27ohm resistors marked R. The voltage  $V_I$  is calculated as follows:

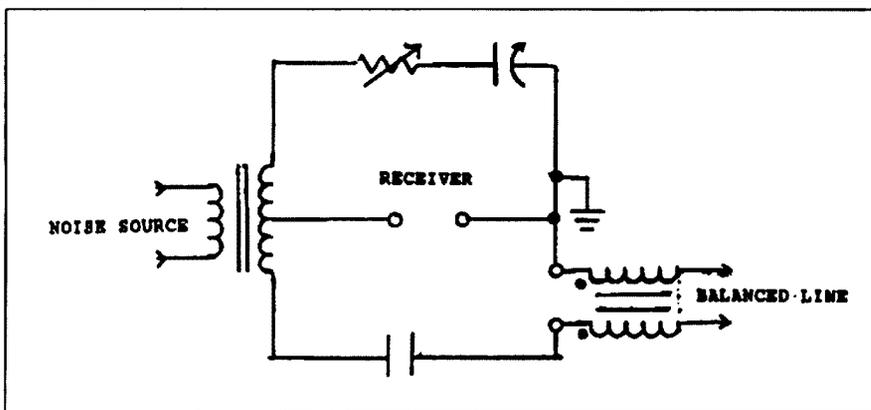
$$V_I = I_L R / T$$

where  $I_L$  is the line current and T is the turns on the secondary of the current transformer. (Note: the primary is, in effect, one turn).

The voltage  $V_V$  developed from that across the line is equal to the voltage divider ratio formed by VR1 in parallel with R2 and connected in series with R1. The values of T, R, R1 and R2 in parallel with RV1 are carefully selected so that  $V_I = V_V$  when the load resistance is equal to the nominated line impedance (50 or 75 ohms).

Two detector circuits record the summed voltage of  $V_V$  and  $V_I$ . One, which we will call Forward, adds them directly. The other, which we will call Reverse, adds them, but with  $V_I$  reversed in phase. We now refer to the vector diagrams figure 6. If the load is resistive and equal to line impedance, then for Forward,  $V_V = V_I$  and the resultant  $V_r = 2V_V = 2V_I$  (figure 6A). For Reverse, the resultant is zero (figure 6B), hence the ratio R between Reverse and Forward values of  $V_r$  is zero.

If the load resistance is not equal to  $Z_0$ , as shown in figures 6C and 6D, a finite value of resultant voltage  $V_r$  is developed for Reverse, and the ratio R between Reverse



**Figure 2. The noise bridge connected to read impedance of a balanced line via balun choke.**

and Forward values of Vr is finite.

A third case (figures 6E and 6F) shows a load impedance equal to Zo, but reactive, hence the load current is out of phase with the load voltage. Again, a finite value of resultant voltage Vr is developed for Reverse, and the ratio R between Reverse and forward values of Vr is finite.

It can be seen that the instrument is a bridge circuit which balances when there is a resistive load equal to Zo and records by ratio R the degree by which the load deviates in impedance from that resistive value. When connected to a transmission line, ratio R also equals the ratio between the reflected wave voltage and the incident or forward wave voltage on the line. In operation, transmitted power is set (or meter sensitivity is set) so that the Forward meter reads full scale representing forward wave voltage down the line. The Reverse meter, representing reflected wave voltage, then reads the ratio R between Reverse and Forward values of Vr, hence representing the ratio between reflected and forward wave voltage. The relationship between standing wave ratio SWR and ratio R is given by the formula:

$$SWR = (1+R)/(1-R)$$

The normal practice is to calibrate the Reverse meter scale in SWR as defined by the formula. The Forward meter is calibrated in power based on E squared divided by Zo where E is the line voltage for an SWR = 1.

Most amateur radio operators of today use an SWR meter, but I venture to say they are used more to ensure that a 50ohm load is presented to their transmitter than to

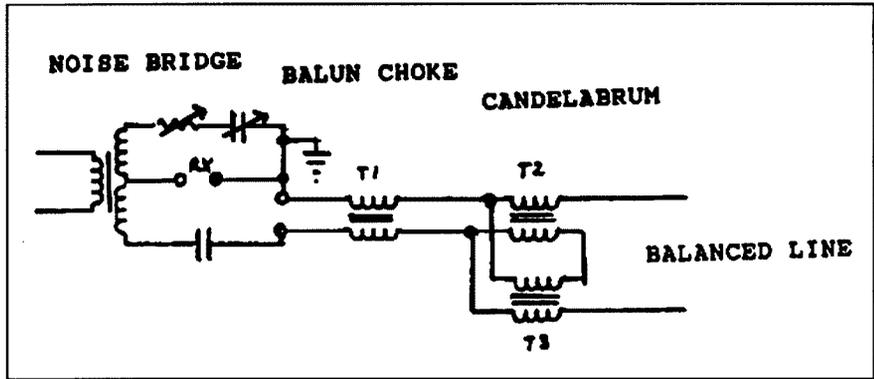


Figure 4. The improved noise bridge arrangement for measuring lines using a 1:1 balun choke driving the 1:4 candelabrum circuit.

check SWR on their transmission line. If some form of tuning or matching device is connected between the SWR meter and the transmission, there is no relationship between what is read on the meter and what standing waves are actually on the line.

How often do we hear on the air someone quoting his SWR = 1:1 to indicate how well his antenna system is adjusted when in fact he is really telling us how well his transmitter is loaded to its correct load impedance? In the next breath he tells us that he is using a Z match or transmatch or whatever and, in reality, has no idea of what standing waves exist on his transmission line, or what power loss they might be causing.

We can use the SWR meter to check the performance of a dummy RF load. We often see a dummy load quoted as having a standing wave ratio of some value at a given frequency. This, of course, if an anomalous declaration. The path length

through the core of the dummy load can be considered as but a fraction of a wavelength, hence there are virtually no standing waves. What they really mean is that, using an SWR bridge to check deviation in impedance from the nominal value of dummy load resistance R, a given value on the SWR scale is recorded. It means the impedance load produces a SWR reading similar to a transmission line of Zo = R and operated with that SWR.

So the SWR meter is not really some device which, by some form of magic, separately plucks out the forward wave and the reflected wave to calculate SWR. It is a bridge circuit which records impedance deviation from a given nominal resistance and is calibrated in terms of transmission line SWR.

If it is not obvious, to measure SWR on the transmission line, the meter must face the line. If the line is balanced, or is a different Zo from that for which the meter is designed, some form of transformer is required. As will be discussed in later paragraphs, this addition in itself can produce some questionable readings on the meter.

Owing to loss in the transmission line, the SWR reading will always be higher at the far or antenna end of the line. It is good to check out the far end, but somewhat difficult if located high out in space. If the line is balanced, a balanced SWR meter would seem to be the order of the day. As you will see in the following paragraphs, I have made an effort to design one. I must admit that, up to now, I have stayed at ground level and have not attempted to use it aloft.

Concerning figure 5, I built a unit based on this type of circuit some years ago. For the record, I added a small capacitor across R2 to make the unit balance properly at the upper end of the HF band. This seemed to be necessary to correct for a few picofarads

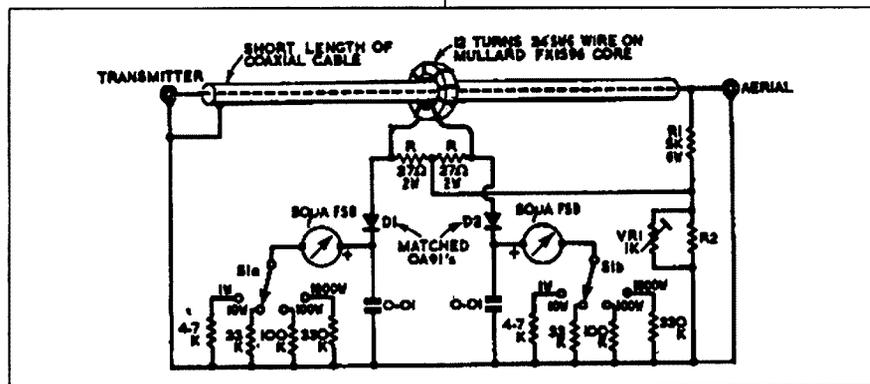


Figure 5. Typical SWR/Power meter for HF frequencies (from *Amateur Radio*, November 1969). The sensitivity ranges given in S1a and S1b are double the correct figure. Those in the caption are correct. Circuit of the basic Frequency-independent Directional Wattmeter, with four ranges corresponding to full scale deflections of 0.5, 5, 50 and 500 watts in 50ohm lines, when the value of R2 (including VR1, if fitted) should be 220 ohms. For 75ohm systems R2 equals 150 ohms, and the calibration is different. The coaxial cable acts as an electrostatic screen between its centre conductor and the secondary winding of the toroidal transformer; the cable length is unimportant.

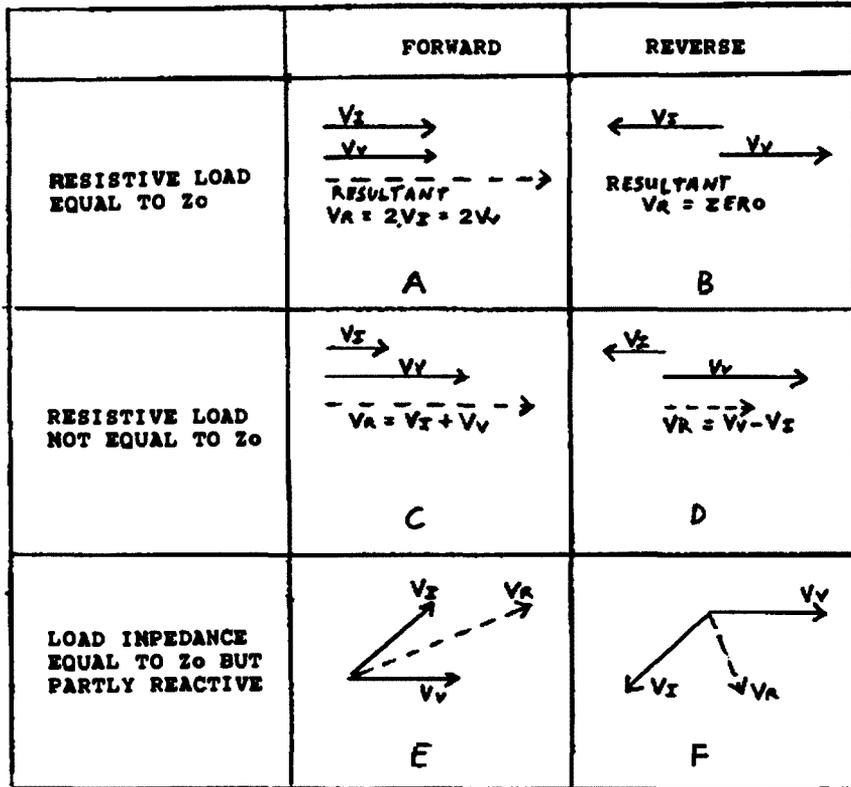


Figure 6. Vector diagrams for the SWR meter (see text).

of stray capacity in parallel with  $R_1$ . This might be a useful tip for someone else building such a unit.

#### An SWR Meter for Balanced Lines

As part of the balanced line exercise, I set out to build an SWR meter for balanced lines. It seemed a simple matter to base the design on the circuit of figure 5, but with a toroidal current transformer in each leg and a balanced voltage sensing circuit. The outer cover and braid were stripped off some coax cable leaving the centre conductor insulated by the coax dielectric. A length of this was slipped through each toroidal core to form the two legs of the metered transmission line. A short length of braid was ultimately put back over the dielectric where it went through the toroidal core to form an electrostatic shield. I found this was necessary to correct a balance error caused by capacitance coupling into the winding around the core. (Of course, the unbalanced versions such as figure 5 all used the braid shield, so this was not unexpected).

The circuit of the balanced meter is shown in figure 7. The circuit constants have been worked out for a balance with 300ohms resistance, which suits common forms of TV ribbon and open wire line. The secondaries of the two 12:1 current transformers (T2, T3) are connected in series. (They also

work quite well when connected in parallel). The voltage divider network ( $R_{10}$  in series with  $R_6//R_7$  and  $R_8//R_9$ ) is coupled into the signal combining and detector/metering circuit via transformer T4.

It all seemed straightforward, but I experienced a lot of trouble with circuit balance and common mode currents. I found it necessary to isolate the transmitter source with balun choke T1 to improve the bal-

ance at the instrument input. (I should point out that the source was already fed via a standard 4:1 transmitting balun). For T1, a 30mm diameter ferrite core was used to accommodate the transmitter power. This was a high permeability Philips type which I happened to have on hand.

A problem of line balance on some lines showed up as a different SWR value when the line pair legs were reversed. (This was a similar problem to that experienced when using the noise bridge). The problem was compounded by unbalance in the source circuit and hence the reason for the input choke.

Isolating transformer T4 plays an important part in minimising the effects discussed. A conventional transformer connection as in figure 1A seemed more effective for this particular circuit than the choke connection figure 1B.

I tried all sorts of balancing arrangements, but finished with the circuit as shown. The measures taken did not completely eliminate response to out-of-balance signal, but the level of this response was reduced enough to be tolerated.

#### Other Impedances

The balanced SWR meter is designed for a balance at  $Z_0 = 300$  ohms, but other impedances could be used by changing the value of resistor  $R_{10}$ . The value of  $R_{10}$  is inversely proportional to  $Z_0$ . For example, for  $Z_0 = 600$  ohms, halve the value of  $R_{10}$ . I haven't tried any other impedances, but that is how it can be worked out. For correct power calibration, the meter resistors must also be changed. These are changed in inverse proportion to the square root of the impedance change. For  $Z_0 = 600$  ohms,

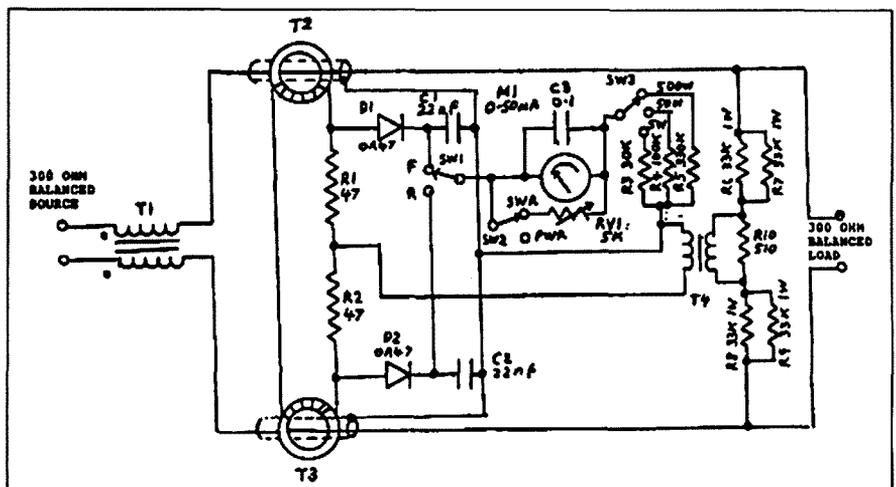


Figure 7. VK5BR SWR/power meter for 300ohm balanced lines. T1 - 6 bifilar turns on Philips TDK2609 30mm diameter toroidal core  $\mu = 800$ . T2, T3 - 10 turns on Amidon FT50-72 toroidal core  $\mu = 2000$ . T4 - 10 bifilar turns on Amidon FT50-72 toroidal core.

divide the meter resistors by root 2.

### Checking the Balance

High power 300ohm non-inductive loads are not easily obtained, but the balance is easily checked by using low transmitter power and loading the SWR meter with a few one or two watt resistors to make up 300 ohms. Five watts on the lowest power select meter position gives full-scale forward reading, and this is applied for just long enough to carry out the test without burning out the resistors. When the meter is selected for reverse or reflected power, the 300ohm load should give a low meter reading (near 1:1 SWR) at all HF frequencies.

### Meter Calibration

The following can be used to calibrate the meter scale:

SWR	mA	Power	mA
1	0	0	0
1.5	10	2	10
2	17	5	16
3	25	10	22
5	33	20	32
7	38	30	39
20	46	50	50
INF	50		

### 75 Ohm SWR Meter with Candelabrum Balun

Although 50 ohms is the most common operating impedance for SWR meters, many have a switch to select either 50 or 75 ohms. The type of meter which uses resistive voltage division (as in figure 5) can also be easily converted to 75 ohms by shunting the lower resistance arm of the voltage divider.

Another method I used for checking SWR on a 300ohm line was to couple a 75ohm SWR meter into the line via a 4:1 candelabrum balun pair as shown in figure 8. The toroidal cores of the balun pair needed to be large enough to handle the full RF power which passes through their windings. I used Amidon FC500 FT114 ferrite cores which are 29mm in diameter. The windings were bifilar wound with 19 turns on each, which gave a calculated inductance of 29 microhenries. This seemed to be a good compromise between sufficient reactance over most of the HF band without too much capacitance.

I found this measuring system worked like a charm. None of the problems I experienced with my balanced SWR meter (figure 7) was apparent, and the transmission line legs could be transposed at will. This seemed to be the best system of measurement, its only limitation being it could be used only at the transmitter end of the line.

For measurements at the load or antenna end, the balanced meter would have to be used.

I did try adding a further 1:1 balun choke at the candelabrum input as I had found to be necessary with the noise bridge. However, this did not enhance the performance in any way and, in fact, tended to modify the impedance reflected at the highest frequencies.

One might well ask how the normally used 4:1 impedance ratio balun connection (figure 9) performs as compared with the candelabrum circuit. This connection is a type of auto transformer and probably does little to reject common mode signals. Anyway, when using this type of transformer, I again experienced the problems of a differ-

with the noise bridge). Using the 75ohm SWR meter, the SWR at 21 and 28MHz was 1.2:1, but increased to 1.8:1 at 7MHz, and 2.8:1 at 3.5MHz. This compared poorly with my candelabrum circuit, which gave a reading with 1.1: over the whole range of 3.5-28MHz.

Now this is an interesting result. Suppose you use this typical broadband balun at, say, 3.5MHz to couple to a transmission line and then adjust your matching at the antenna end by stub or whatever. You adjust for a 1:1 SWR on the meter, but actually achieve a mismatch and standing waves on the line. Of course, the core needs more turns for the lower frequencies. Some time ago I did some tests with this core using the 1:1 ratio winding connection and a 50ohm

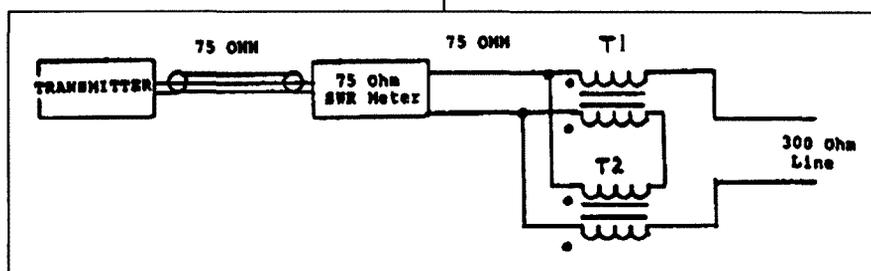


Figure 8. Measurement of SWR on a 300ohm balanced line with a 75ohm SWR meter and candelabrum circuit. T1, T2 - 19 bifilar turns on Amidon FC500 29mm ferrite core,  $\mu = 125$ .

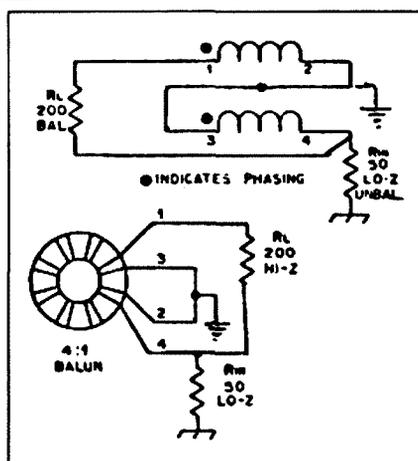


Figure 9. The usual 1:4 balun circuit - poor common mode rejection.

ent answer when the line leg pairs were reversed.

The balun transformer used for figure 9 type balun was the one that can be bought as a 1kW kit with a Amidon T200 iron powder core. Fourteen bifilar turns were placed on the core. When terminated in a 300ohm resistance, this balun reflected a considerable reactive component at the lower HF frequencies. (This was verified

load. I came to the conclusion that, for better performance, the number of turns should be increased to around 20 for frequencies below 5MHz and reduced to around six turns for frequencies above 10MHz. Anyway, there is a message here. Do not take your balun transformer for granted. Check it out at the frequency of operation using the SWR meter and with its secondary terminated in a dummy resistance equal to working load impedance. Fortunately, even if mismatched, line losses at the lower HF frequencies are small, hence we are usually able to tolerate the effect I have discussed without recourse to rewinding the transformer.

### Summary

Based on much of my own experimentation, I have described how common instruments in the radio shack can be used to make impedance and SWR measurements on balanced transmission lines. Measurement methods involve the use of particular types of balancing circuits which work in conjunction with the noise bridge and the SWR meter. A specific SWR meter for 300ohm balanced lines is also described. Included in the discussion is a description of how an SWR meter works, and some

comments on how it is generally used in the radio shack.

I think there is material in this article to invite further discussion on the measurement of balanced lines and the use of the two instruments put to use. Perhaps some of our readers have some other ideas which I hope they can test out before going to print. It is one thing to put up a theory, but I found this particular project (simple as it may seem) was one with plenty of those hidden little difficulties.

#### References

1. P.G.Martin G3PDM - *Frequency Independent Directional Wattmeter and SWR Meter - Amateur Radio, November 1969.*
2. Lloyd Butler VK5BR - *The Merits of Open Wire Lines - Amateur Radio, Sept 1991.*
3. Lloyd Butler VK5BR - *Transmission Lines - Measurements of their Characteristics - Amateur Radio, October 1989.*

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between overs when  
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# Pager Interference

## Part I

**Ron Henderson VK1RH  
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Melba 2815**

Lately, a number of amateurs have been suffering pager interference, that is the presence of short burst like data signals in their 2m transceivers. For those who live near pager transmitters in busy cities, the bursts are almost continuous and most annoying as they break the mute.

**W**HAT IS CAUSING THIS interference, you might ask. What is the WIA doing about it and, even more importantly, what can the individual do to reduce its effects.

Pagers are a system of relatively high power transmitters, operating on 25kHz channel spacings from 148.0125MHz upwards. Yes, they are just above the amateur 2m band. Their purpose is to send a coded data burst transmission to a small pocket size receiver carried by a subscriber client, usually to give them a message. The pager system has a service area of 40km radius from the main transmitter and may have supplementary transmitters on the same frequency for gap-filling purposes.

From the beginning we should establish a couple of points; firstly, the service is not operating on amateur frequencies; secondly, the equipment is designed to good commercial standards. Pagers are regulated by the recently issued DoTC Policy Guidelines for Assignment of Frequencies to the Paging Services, Spectrum Planning Document No SP5/91. The WIA commented on the first draft of that document and has sent further comments on the recent issue.

How does pager interference happen? Principally in three ways, through an inopportune combination of frequencies (intermodulation product interference), cross modulation (information from a strong unwanted signal imposed on a weaker wanted signal) or through adjacent channel

interference (lack of adjacent transmitter selectivity in the receiver or excessive sideband noise from the transmitter (this transmitter can be either the pager transmitter or a dirty local oscillator)).

This article will look at the first cause, with later articles examining the second and third and providing a case study by an amateur operator who has controlled his pager interference and resumed weak signal operating.

Intermodulation occurs when two signals are present in a non-linear device. Figure 1 shows diagrammatically the basis of intermodulation. RF signals at a site and its vicinity out to several hundred metres may intermodulate or mix due to any non-linearity at the site. We have all heard about 'rusty bolts', but there are wideband mast-head preamps, class C output devices and numerous other potential mixers; these include the preamplifier of your amateur transceiver, a slightly dirty antenna joint or a faintly dry joint in the receive path in the receiver.

An illustrative, but real-life, case study occurred at Mt Ginini in VK1. The amateur repeater VK1RGI is input 146.350MHz/output 146.950MHz and local packet enthusiasts wanted to put a 147.575MHz digipeater on the same site.

When calculating intermodulations there are two principal ones that need evaluating, these are:

third order, that is if  $2 \times f_1 \pm f_2 = f_3$  there

are problems

and fifth order, if  $3 \times f_1 \pm 2 \times f_2 = f_3$  there are problems.

These are two station intermodulation products; three station intermodulation products are not at all uncommon. Bear in mind that the third 'station' could well be a spurious emission from your local oscillator.

For Mt Ginini the two station third order solution is:

$$2 \times 146.950 - 147.575 = 146.325$$

but  $f_3$  is 146.350, so allowing for FM signal deviation which, incidentally is doubled, brings the intermodulation product into the receiver input. Consequently it was not possible to use that packet frequency, and the one selected was 144.800MHz. I will leave you to do the sums to show it was acceptable.

In calculating the intermodulation products it is necessary to try each site frequency in each position in the equation as  $f_1$ ,  $f_2$  and  $f_3$ . On a busy site this is a mammoth task, but solvable by computer provided you know all the frequencies in use in the vicinity. At Mt Gray, near Goulburn, the number of transmitters on the site produced a 36-page print-out with 70 lines per page of the potential intermodulation products applicable to the siting of the 2m repeater at that location. Of all the repeater frequencies available only one would work on the site. In view of our earlier comments regarding the cleanliness of our own local oscillator this has real impact.

Okay, you say, that is nothing new; we have all observed birdies in our receivers. Indeed, years ago, when VHF converters were the go, birdies were used for calibra-

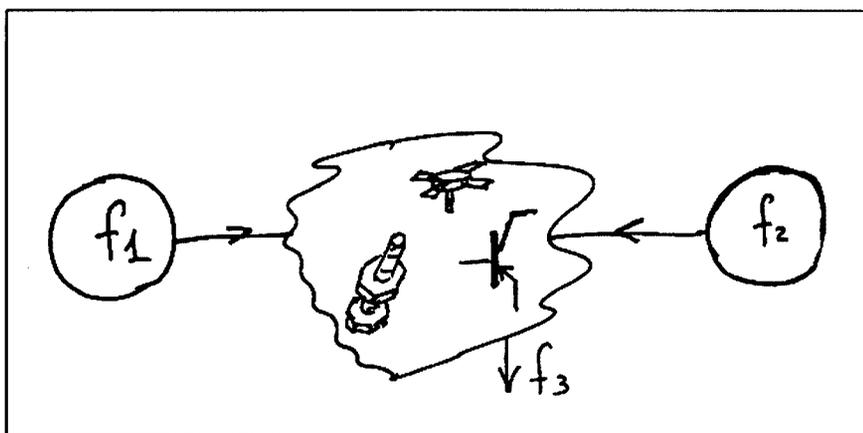


Figure 1

tion and checking sensitivity. So what has changed? Only the density of signals through increased utilisation of the spectrum.

After all, we amateurs frequently use the statement 'amateur frequencies, use them or lose them', and now other people are using them more intensely too.

Incidentally, a consequence of site intermodulations is we amateurs need to check carefully before setting up any new service. The approach of inverting the repeater inputs and outputs is not a universal solution, by any means; indeed, it may just be the wrong thing to do in some cases.

Bottom line. With increasing co-siting, the planning of amateur services has become a lot more complicated. This is a challenge Divisional Technical Advisory Committees or TACs have to meet. The Federal Technical Advisory Committee or FTAC can help, but FTAC is essentially one man, its chairman John Martin, working

with support from specialists and TACs, so much of the groundwork must be done in the states. Can DoTC help? Yes, to some extent. But again the government's 'user pays' policy impinges. Therefore, amateurs need to pay more attention to the design and engineering of their repeaters. The intermodulation theory shown above also applies in our own transceivers. Consider a receiver fed with a strong pager signal. The first amplifier could be forced to operate in a non-linear manner, that is the strong pager signal at the aerial becomes the local oscillator (LO) for a wanted weak signal. Then, if that LO has spurious components - and few signals are spectrally pure - noise or unwanted products will be passed to the IF stages and detected. Balanced mixers can help reduce this problem to some extent.

Next article, transmitter sideband noise emissions. What are they and what can we do about them? ar

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• HNF1: is a 2-stage filter rated at 100 watts, with a notch depth of better than -40dB at 148.6MHz and an insertion loss of 1.7dB at 147.600MHz  
**Price: \$175**

• HNF2: is a 4-stage filter rated at 50 watts, with a notch depth of better than -40dB at 148.6MHz. Maximum width of notch is -80dB with a narrow band width.  
**Price: \$175**

• HNF3: is a 3-stage filter rated at 50 watts. Maximum depth of notch is -55dB with narrow band width.  
**Price: \$165**

• HNF4: is a 2-stage filter rated at 10 watts with an attenuation better than 30dB at 148.600 Mhz and an insertion loss better than -2dB at 147.600MHz. BNC connectors are standard for this model, small enough to be used on a hand held. **Price: \$150**

Notch frequency and depth can be adjusted at the factory at the time of order to suit the user's local needs.

Send for an illustrated leaflet and detailed performance curves.

122 Wanda Street, Mulgrave, Victoria 3170 Phone: (03) 548 2594. Fax: (03) 547 8545

# Telecom Pagers Cause Much Anguish for 2m Operators

Rodney Champness VK3UG  
17 Helms Crt,  
Benalla 3672

In town and suburban areas there would be few amateur operators on the 2m band, mostly towards the 147-148MHz end of the band, who have not experienced some trouble from the operation of Telecom and other pager transmitters in the 148-150MHz band. The ones up towards the top end near 150MHz do not cause as much in the way of problems as do the Telecom pagers just above 148MHz.

**N**OW WE ALL KNOW THE fault is with the pager transmitters, don't we? Do you remember the TV viewers who knocked on your door and accused you of causing interference to their TV sets? Many blamed your transmissions, even though you knew your transmissions were clean. And so with the pagers; their transmission is clean too, except when a fault develops, which is relatively rare. What did you tell the TV viewer to do about his TV signals? You probably told them they needed to overcome the inadequacies of their TV system. In other words, fit a filter etc. And so it is in this case. Your amateur 2m receiver is unable to discriminate between the powerful pager transmitter nearby and the weaker signal you are trying to receive.

Erroneously, many amateurs believe their black box transceiver receiver is the best receiver made since sliced bread. Sorry to

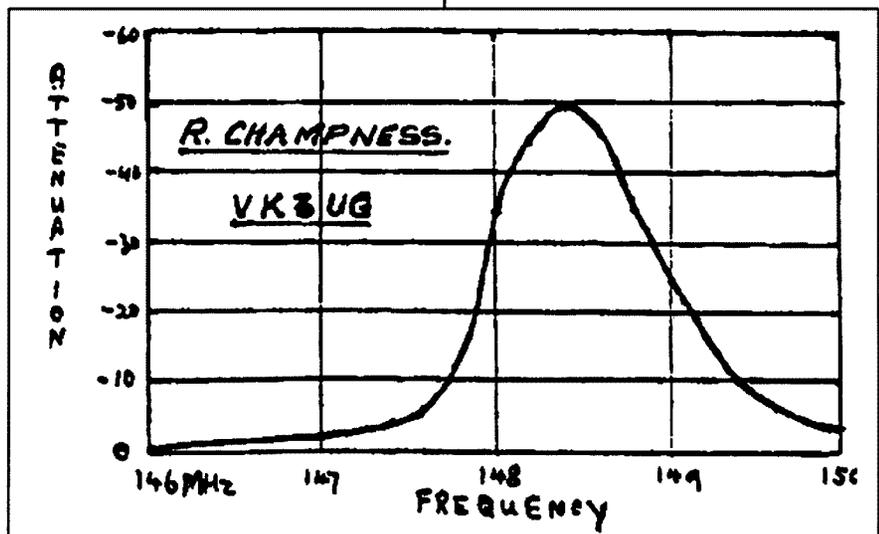
tell you, but amateur-grade equipment is not in the same league as professional equipment. It may be quite sensitive and hear

quite weak signals when no other signals of any great strength are around, but in this real world there are many relatively high-power transmitters in the near neighbourhood. Most amateur receivers suffer from intermodulation, de-sensitisation, spurious responses, image response and a variety of other inadequacies. This does not mean your beautiful piece of equipment is a heap of junk - although some come close! - but that you cannot expect professional performance at the price we are prepared to pay. We have to be satisfied with the amateur-grade equipment and look at ways of overcoming its inadequacies.

The pagers are not causing interference; they are not being discriminated against by our equipment. The pagers do put out quite a high ERP, usually 500 watts effective isotropic radiated power, usually up at about 30 metres or so with very good take-off. They usually use a 100W transmitter feeding four half-wave folded dipoles. Is this power as much as many amateurs use? I have run up to 1500W ERP, and some use much more. The high ERP is achieved by running as much power as allowed, plus the multiplying factor of the antenna gain.

In general, the problem caused by high-power pagers can be overcome by using notch filters to reduce the level of the pager signals at the receiver input whilst attenuating the wanted signal only slightly.

I had the opportunity of testing a filter that does reduce the level of pager transmitter signals to the front end of 2m receivers. The filter I tested over a period of several weeks is a four-pole helical resonator filter. There are many pagers in the frequency range 148-150MHz, so there is no point in having individual notch filters for each frequency. It is not practical, too lossy and too



expensive. I re-tuned the filter with a spectrum analyser and tracking generator and, with careful alignment, obtained 35dB attenuation at 148MHz, raising to 50dB at 148.4MHz, with a passband insertion loss of 2dB at 147MHz and 1dB at 146MHz. These are very credible figures. Lex Paterson tells me he can achieve 62dB or better depth with this four-stage filter.

I live about 1.5km from a Telecom pager that transmits on 148.0125 and 148.0375MHz, and the signal is so strong that I notice de-sensing on all the FM repeaters. I do not have other troubles that some may have. Fitting the filters in the antenna line to the transceiver produced extremely pleasing results. No de-sensing of my receiver and minimal attenuation of the wanted signals. I have tried three receivers, and the results with the filter have been most pleasing. None of the receivers I have used has shown great distress even without the filter, but does not become de-sensed at all with the filter.

Yes, you could make one of these devices yourself, but the experience of the manufacturer and his use of a spectrum analyser to align the device make it unattractive to do so. The filter is made by JENLEX (Lex Paterson) of 122 Wanda St, Mulgrave, Victoria 3170. The filter sells for \$175 and, at that price, is good value. Lex also offers a service where he will align the filter for the purchaser's particular needs at the time of purchase. Lex has supplied a range of filters that can be obtained, on loan, from the Victorian Division to assist amateurs with interference problems.

ar

# 2m Cavity Preamplifier

**Mai Le Maistro VK3KSA  
2 Thornton Crt  
Mooroolbark 3138**

Over the years I have seen a few pre-amplifier designs published in *AR* from a variety of sources. However, many amateurs have the wrong idea of what a pre-amplifier is for.

**T**HE FIRST STAGE IN A receiver normally sets the noise level which is added to the ambient noise level that is amplified along with the wanted signal. The ideal would be to build an amplifier that contributes no noise at all and only amplifies the incoming signals - linearly. Unfortunately, this sort of performance is well beyond the average amateur 2m receiver/transceiver. It has to operate over about 4MHz and can have relatively poor front-end selectivity, resulting in non-

linearity and cross-modulation between nearby high power signals such as TV or paging transmitters.

After many experiments with both homebrew and commercial pre-amplifiers using FETs and GaAsFETs, I found that most amplified everything and were generally more of a hindrance than a help. Reading *CQ* and *VHF Communication* magazines about cavities versus noise, both wide and narrow band, I started to experiment

## Coastwatchers Reunion

**Fiftieth anniversary national reunion of 'M' special units, Allied Intelligence Bureau will be held at Gosford on 14, 15, 16 August. Intending participants should contact Mrs Jo Foster, 38 Fitzroy St, Umina 2257. Phone (043) 41 9205 for event booking details.**

### CAVITY

- 63.5mm (2 1/4") in diameter**
- 105mm (4 1/8") in height**
- 0.8mm (1/32") brass wall**
- Tap 'A' 12mm (1/2") to Base**
- Tap 'B' 36.5mm (1 7/16") to base**
- 4.8mm (3/16") brass tube**
- 1.6mm (1/16") brass rod**

**Drill 3.2mm (1/8") hole at 'C' to clear 1mm silver plated wire.**

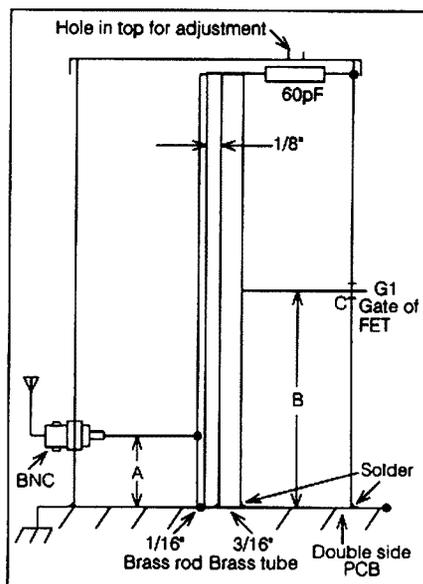
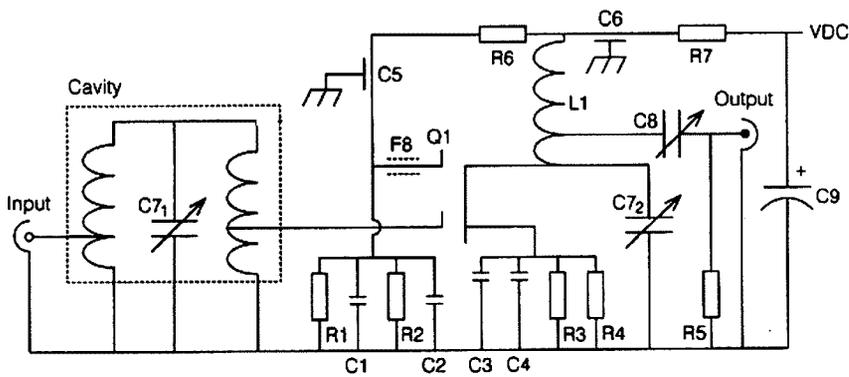


Figure 1



- C1 .01 $\mu$ F monolithic
- C2 .001 $\mu$ F monolithic
- C3 .047 $\mu$ F green cap
- C4 .01 $\mu$ F monolithic
- C5 & C6 1000pF feed-through
- C7 & C7, 0.65pF trimmer
- C8 1.7pF trimmer
- C9 33pF tantalum

- R1 20k trimmer
- R2 100k ohm 1/4 watt
- R3 82 ohm 1/4 watt
- R4 68 ohms 1/4 watt
- R5 10 ohms 1/4 watt
- R6 100k ohms 1/4 watt
- R7 39 ohms 1/2 watt

Q1 any suitable dual gate MOSFET  
'F8' means FB-ferrite bead)

L1 4-3/4 turns 18 B&S silver coated wire tapped 3/4 of first turn from cold end. ID 11mm (7/16") length 19mm (3/4") inch.

Figure 2 Cavity with pre-amplifier circuit

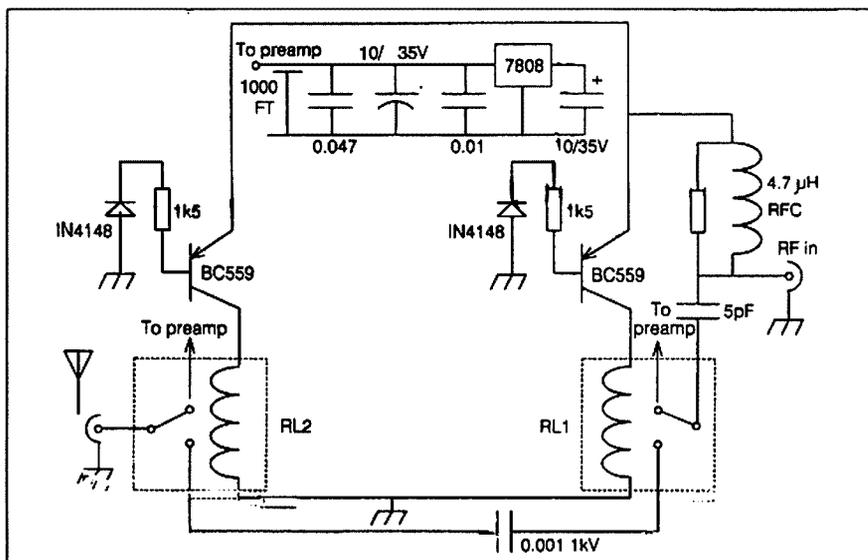


Figure 3

This VOX circuit applies if 12 volts is placed on the RF line eg Icom pre-amp switches inbuilt in the transceivers.

with various cavities and helical resonators, and they worked! However, they were much too big, being 21 inches/53cm long. After numerous experiments with various configurations, I found a smaller cavity could do the same job, being just some 4-1/8 inches long and 2-1/2 inches in diameter (105mm H/63.5mm D) The inductor in the centre was also critical in relation to the frequency and Q. By altering the inductor it was possible to change the bandwidth and/or alter the side lobe performance. The insertion loss was less than 1dB and the rejection of off frequency interfering signals was about 40dB (goodbye to pagers - at least to a more tolerable level). By placing a preamp immediately after the cavity, the insertion loss was more than compensated for. This unit, combined with a suitable VOX circuit, has proved to be a very valuable experiment which sits proudly amongst my other homebrew equipment.

### Construction

The cavity is a cylindrical brass tube, 2.5 inches (63.5mm) in diameter and 4.125 inches (105mm) high. The cylinder is soldered to double sided PCB material, along with the 3/16 inch tube and the 1/16 inch brass rod. These are soldered 1/8 inch apart to the PCB, in the centre of the cylinder. A removable top is made, with an adjustment hold for the trimmer. For the dedicated,

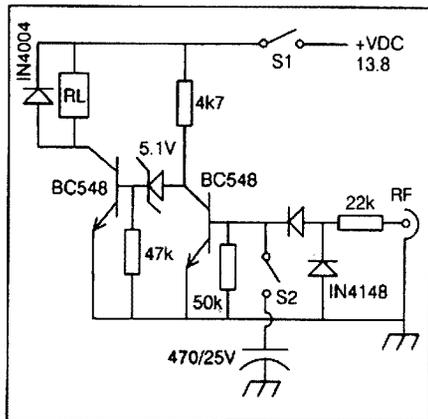


Figure 4 VOX circuit for 12v external. When RF is applied, the relay de-energises. S<sub>1</sub> is for power and S<sub>2</sub> enables 'hang time' (ie delay) for SSB.

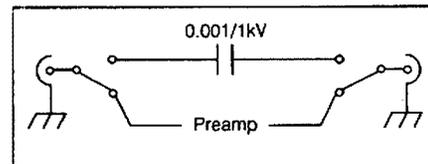


Figure 5 Switching of relay contacts in figure 4. Double pole relay can be used.

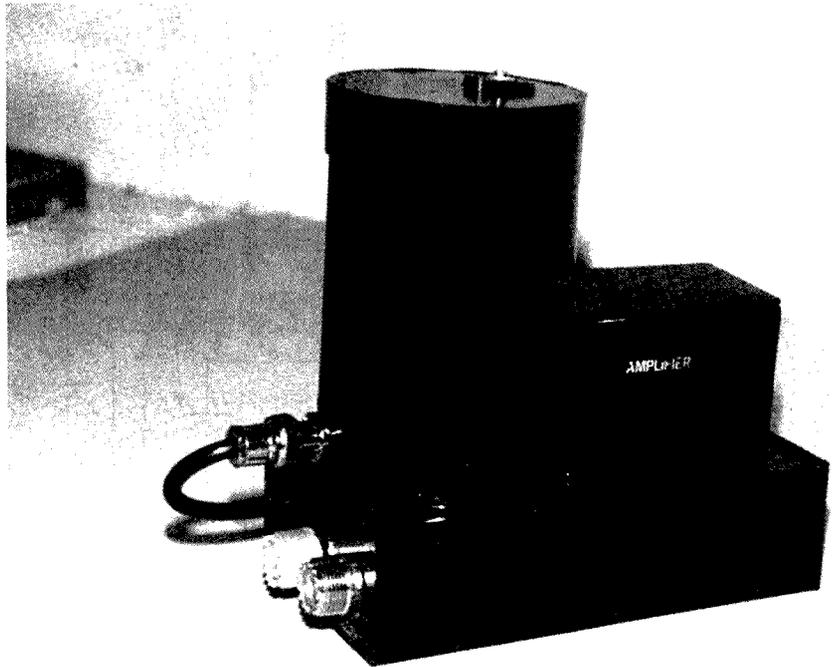
silver plating of the internal surfaces is great, for the hobbyist, leave it. Figure 1 shows the general construction of the cavity.

### Designing the Cavity

After many ideas and experiments of forming the actual cavity I found the most practical way was to select a piece of brass sheet and wrap it around an aluminium drink can, holding into place by wrapping fuse wire around the newly formed brass, thus holding its present position whilst soldering the overlap flange. A good idea is not to use brass, which is too thick. I suggest 0.5mm. This gives a little bit of flexibility and allows easier soldering. Do not solder the inside overlap unless you are silver coating. All brass used in this homebrew exercise is available at most railway hobby places.

When the cylinder has cooled, remove the can and the fuse wire, place the brass cylinder on a piece of double-sided PCB (138x70mm) at one end, and draw a pencil mark around the cylinder on the PCB. Remove the cylinder, exposing the circle and define its centre with a small indentation. Place the cylinder back within the marked circumference on the PCB, then solder the outer edge or perimeter that contacts the PCB all the way around. Measure and mark a point some 26mm from the PCB up the wall of the cylinder, on the LHS, that is to say, at the end close to the edge of the PCB. For argument's sake we will call this point 'A' (shown at dimension 'A' figure 1).

Now, on the opposite side of the cylinder, mark the wall at some 46mm from the PCB. That is, point 'B' (shown at dimension 'b' figure 1). At point A mount a BNC low-cost female panel mount connection, and at point B drill a hole 4mm in diameter.



The apparatus fully assembled.

Obtain a piece of brass tube 3/16" (4.8mm) x 3 7/8" (98mm) in length, and solder it to the centre of the cylinder on the PCB (where you indented the PCB). Select a piece of 1/16" brass rod the same length of 3 7/8" (98mm) and place it 1/8" (3mm) beside the centre rod, opposite the BNC connector. Solder it home to the PCB. Now bridge the BNC to the thinner tube. Solder a piece of 1mm silver-plated wire to the centre tube opposite hole 'B', allowing the wire to extend through 'B' for 4mm. Make sure it doesn't touch the sides of the cylinder. This works as a feed-through. Lastly, place a 5-55 picofarad variable capacitor from the outer wall to the top of both tubes.

To finish off the cavity, a top cover can be

made. Remember to have a hole in it to adjust the cap. Do not allow the cover to short out the capacitor, or tubes to the wall of the cavity. Point 'B' goes to the preamplifier gate 1 of the FET employed.

Figure 2 shows the circuit of the preamplifier.

It is a good idea to mount all the components in the preamp in the air, each supporting the other. This results in less loss and helps impedance-wise.

The additional circuits are typical VOX circuits that can be used to switch the cavity and preamp out of circuit on transmit. If you have any problems and require help, please call me QTHR.

ar

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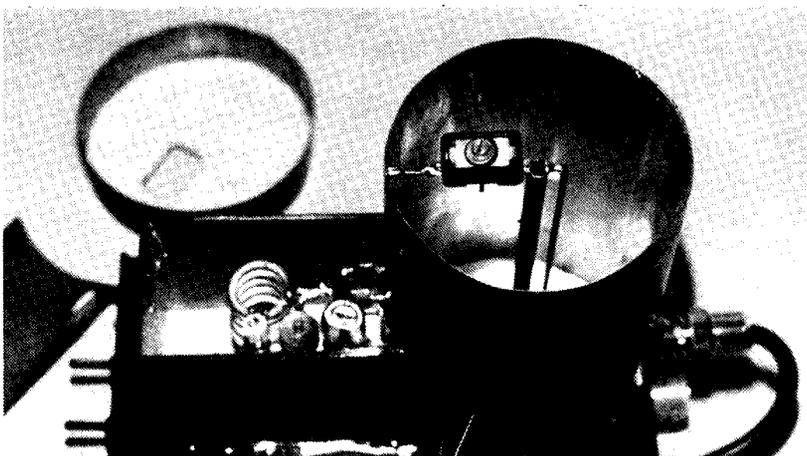
PO Box 21191

CHRISTCHURCH

(4/54 Rolleston Ave)

NEW ZEALAND

Phone/Fax 3-795-570



Internal view of the cavity and pre-amp.

# 14.116 The Australian Travellers' Net

*A Diode- and Formula-Free aspect of Amateur Radio*

Compiled from many peoples' memories by VK2DZL  
Fred Greening,  
51 Murray Street  
St Marys 2760

It was in 1969 when VK6KC Keith Williams was employed at the Japanese Cultured Pearl Farm at Kuri Bay, that a lonely seed was sown in this most unlikely spot. Fortunately it germinated and took root and has grown to what we now call The Australian Travellers' Net".

**A**T THIS TIME KEITH WAS THE resident radio officer, weather observer, first-aid officer, company clerk, film projectionist and did any other job that nobody else could handle. I think that this type of employment is nowadays referred to as 'multi-skilling' but no one told Keith about this back in 1969.

Then as now, Kuri Bay was a very isolated place, being 350 km north-east of Broome and 380km west of Wyndham, and was well off the (then) little-used 'tourist track'. As the only European on the site, Keith was isolated both culturally and geographically from his peers. He then, as many other amateurs have done in similar circumstances, turned to his radio for interest and information and also to maintain some social contact with the outside world.

His gear at this time was a Geloso AM TX and a National HRO RX but this RX was later superseded by a matching Geloso RX.

Initially DX was the main interest, for conditions were particularly favourable at this time but later, as they deteriorated, he found that he was working more and more amateurs marine mobile and a few land mobile. He made contacts with the few land mobiles who were about, came to

know them, and they started to meet on a regular basis.

Keith selected the frequency of 14.106 as a meeting place for no other reason than at this time of day it was generally pretty quiet. The time of 0300 GMT, as it was then, was selected as travellers, depending on what part of the continent they were on, would most likely then be stopped for either morning tea or lunch. It also suited him, for at this time of day he was usually pretty free to play amateur radio.

This arrangement brought together a small band of people of like interest, giving Keith the social contact he sought as well as adding another interest to those amateurs who were on the move, by working this amateur in such an unusual place.

These new contacts were soon picked up and monitored by more and more 'stuck at home' pairs of ears which, in effect, were experiencing something of the nature of outback Australia and the magic of faraway places ... and so came into being the nucleus of today's net.

With the passage of time base stations became involved with the sessions, and relayed back and forth between Keith and any weakly heard stations, and from this it

was not too long before Keith had these stations assisting as control stations to call and pick up stations that Keith could not read himself. The net could now legitimately call itself a net, so Doug VK3YK gave it the name "The VK6KC Travellers Net". Later VK6ART Arthur became very involved with the net and helped Keith very much in developing a basic format for running the sessions. These early procedures became the blueprint from which the current operating procedures were developed.

In the fullness of time Keith left his employers and retired to Perth and it was only then he realised just how busy one can become in retirement. It was not long after this that he asked Arthur VK6ART if he would assume control of the net, as Arthur had much superior gear and an antenna system ideally suited for handling widely separated stations. Arthur accepted the post and handled it with distinction for the best part of 10 years. We all owe Keith a debt of gratitude for his initiative in starting the net, and also to all those other stations who helped in the early days and whose names are now lost in the mists of time. A big 'thank you' to all concerned.

When Arthur assumed control of the net he quickly found solid support from Reg VK6YE and later Roy VK6BO. The somewhat informal procedures soon had to be streamlined to meet the rapidly increasing demands being placed on the net by the growing band of amateurs taking part in the sessions, some at home and many more on the road. The net was now a respected voluntary service to all who travelled by land and by sea. It now provided an almost professional service in respect to safety and communications to travellers and has since been a major player in many rescue operations by alerting the proper authorities to the dangers and emergencies facing travellers far from conventional means of communication.

On the lighter side, the net also acts as a contact point for friends and relatives who are not licensed amateurs to leave messages for passing to the travellers when they check in each day. All travelling amateurs are urged to leave the phone numbers of control stations with family and friends to ensure contact is not lost, particularly when off-roading in remote areas. The types of messages handled range from the inevitable 'death and disaster' ones to the light hearted 'happy birthday Mum from Sue and Jack', or "good news, Dad, Helen's baby was a girl and your antennas did not blow down in that last lot of heavy wind", or Roy,

will you tell VK8ABC that I will catch him on 7070 at the usual time tonight. Apart from this kind of traffic from home there are always base stations at home waiting to take travellers off frequency just to rag-chew. It is, by and large, a very versatile platform for all sorts of contacts.

As the volume of traffic increased, so did the number of base stations from almost all over Australia, to ensure no traveller's call would go unheard or unanswered. Some of these stations helped a little; some helped a lot; and some are still part of the net. A brief roll call of those stations would include VK6KC, VK6ART, VK6B0, VK6YE, VK6HH, VK6TB, VK6RJ, VK6ZZ, VK5ARM, VK5RI, VK5AAX, VK3YK, VK3PN, VK3UX, VK3KF, VK2HI, VK2EDM, VK2ALH, VK2IV, VK4YG, VK4AF, VK2CJD, VK3BMS, VK4ACU, but this list would be far from complete, as many other people also did their share. I know that all those who presently run the net would wish me to say on their behalf "thank you all who have helped, and we hope that you still listen sometimes and enjoy the net and think to yourself "I helped to get that net started" and then feel a little sense of pride in having helped do something worthwhile. VK3UX, VK6ZZ and VK2HI are all silent keys now I am told, but their help is still remembered.

With the passing of time, Arthur's involvement in the net became more and more time consuming and, in some respects, almost a full-time job, especially when he was involved in emergency situations such as marine disasters. At these times Arthur could be found in his shack

day and night doing what needed doing until relieved by the proper authorities or the situation was satisfactorily resolved. I understand that after the 'White Waves' incident, Arthur's XYL Eileen did suggest that perhaps they could meet socially once a week at the supermarket to discuss the world outside amateur radio and perhaps buy sufficient of the necessities of life to see them through until the following week. I believe that shortly after this discussion, Arthur decided to take Thursdays off and leave Reg to run the net in his absence.

By now record keeping too had become state-of-the-art, as both Arthur and Roy had computers and had jointly developed a format for their use. Now after a station called in it was positively known who it was, where it was, how it was and where it was going to be that night ... all handy knowledge if they were needed or went missing. Another firmly established procedure is the call 10 minutes before the advertised starting time 'any emergency or priority traffic'. This announcement is initiated by net control in Perth and is repeated by the VK5 relay station. If there is no VK5 relay station available then another relay station, either in the centre or in the east, is invited to broadcast this announcement. This gives anyone with problems a clear frequency on which to contact the net. There are those who know just how important this pause in proceedings can be.

Ultimately Arthur felt that he had contributed as much as he could to the net and, in view of the close working relationship he had with Roy VK6B0, asked him if he would

assume the control position for the net.

Roy agreed to accept this position and he, in turn, asked Peter VK6HH to fill the position he had just vacated so he too could have one day a week off to go to the supermarket. These XYLs wield formidable power, don't they?

In 1988 the name of the net was extended to identify it better by changing to 'The Australian Travellers' Net' and the frequency moved up the band to 14.116 to escape the overwhelming clamour of the recently arrived packet radio stations that were wiping out those trying to contact the net on the long used and well recognised frequency. Not only was this a quieter frequency, but it was more in line with the new band plan. Now, not only is there a new name, but also a new frequency.

Now the net is recognised internationally as a valuable and reliable net comparing favourably with SEANET and maritime nets of similar standing. As previously mentioned, the net is widely used by amateurs marine mobile, but is also used by visiting amateurs who have obtained a reciprocal licence for use during their stay in Australia. It is also known as a contact point for anyone in distress, and can be used freely by anyone for the duration of their emergency, licensed amateur or not. In essence, this net can and does do a lot for all kinds of people.

From 1987 until now, at the peak of the season about 70 callers per day, made up of mobiles and contact stations have checked into the net. One can only surmise that these numbers will increase when the present economic crisis is past and people hit the road and take longer talk breaks at lunch time. Some incidents come to mind where the net has been able to render valuable assistance in times of distress. In 1987, a boy in a party visiting the Purnie Bore, which is on the edge of the Simpson Desert, broke through the hard crust of the mud surrounding the bore and plunged feet first into the boiling mud below, scalding his legs terribly.

Getting the picture, Arthur contacted the Royal Flying Doctor Service and acquainted it of the situation, and was advised of the first-aid to be given. He relayed this information to the accident site, and kept in touch with the truck carrying the nursing sister and medical supplies from Oodnadatta through the RFDS base at Alice Springs, whose operator was a licensed amateur, so keeping both parties up to date on the state of affairs.

On another occasion, the net picked up



**Keith Williams VK6KC who started the Net.**

an outpost station with a weak signal trying to contact the RFDS at Alice Springs, but which, because of the weakness of its signal, could not trigger the auto emergency alarm. Contact was made with the base at Alice Springs by phone, and they came up on air and took over the problem.

In 1984, an amateur came upon a man unconscious beside the road north of Sandfire Flats. He contacted the net which alerted the SES, which then handled the problem.

The writer is deeply indebted to VK4ANN, who contacted the net when Urgent or Priority Traffic was called for on behalf of our daughter in Brisbane. Our grandson had been rushed to hospital and found to have what proved to be an inoperable brain tumour and was given only hours to live. Full praise must be given to the police at Yunta in SA, who sorted things out for us and organised us onto a plane for Brisbane. The boy died just as we landed, but we were at least with our daughter when she needed us most. Our thanks and full praise to the amateur fraternity which made this possible.

A note just to hand advises me of an incident of recent times when a family travelling the Pine Creek to Jabiru road were involved in a serious motor accident where four people required ambulance transport to hospital. Fortunately an amateur happened upon the scene and put out a very early call to the net which was picked up by Roy VK6BO who was readying things for the day's operation. After obtaining all the relevant information he contacted the WA Police Communications Network and it arranged for the people to be transported to Katherine Hospital in a matter of hours. One of the injured had later to be flown to Darwin for treatment that was not available in Katherine.

Not long after this the net was approached to see if it could locate an amateur holding a limited call, and so not on the net. They announced the details on the next session and an amateur located the car in the blow holes area north of Carnarvon. This resulted in a very urgent message regarding family welfare being passed in a matter of only a few hours.

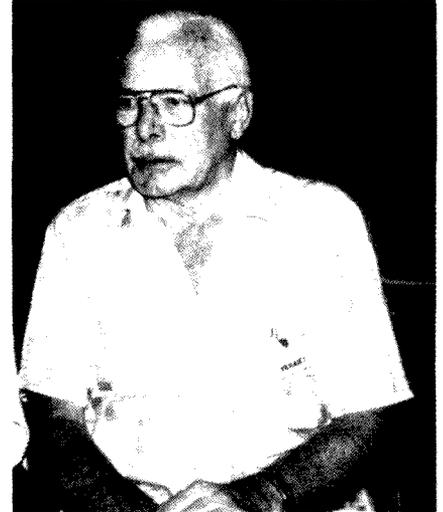
All this is but a sample of the work done by the net. Some of the messages bring sadness to the recipient, others joy and others laughter for all concerned. How many of us relate to the message to Dad from his son that says he is forwarding the new water pump for the Gemini to Banka Banka Station and it should be there by a week from tomorrow.

From what I hear the Australian Travellers' Net has now become big brother to a new net designed to watch yachties across the Indian Ocean ... logically called "The Indian Ocean Maritime Net". It too grew from a casual contact which revealed a 'hole' in the maritime network's coverage of this part of the world.

Some time back the net had a M/M (OK4KOB) with three on board crossing the Indian Ocean to South Africa and using but five watts of power on the transmitter. Contact was maintained with the net until propagation made contact impossible, and when the yacht reached Madagascar, Beda OK4KOB changed to the Durban net. This experience showed that nobody was providing a service for boats crossing the Indian Ocean. This contact led to others, and now we have an 'Indian Ocean Net' running at 11.15 Zulu each night, with a calling frequency of 14.316 and then moving to an operating frequency usually somewhere between 14.322 and 14.337, depending on QRM. Presently the working frequency continues to be announced for 10 minutes after

it is determined, so late-comers will know where to find it.

For those interested in the 'mechanics' of the net, and how it is run, I am indebted to Peter VK6HH for the following information. The concept of one man controlling the net, with a second man as a relief one day a week, has gradually changed to what could almost be called a control team based in Perth. Roy VK6BO is acknowledged



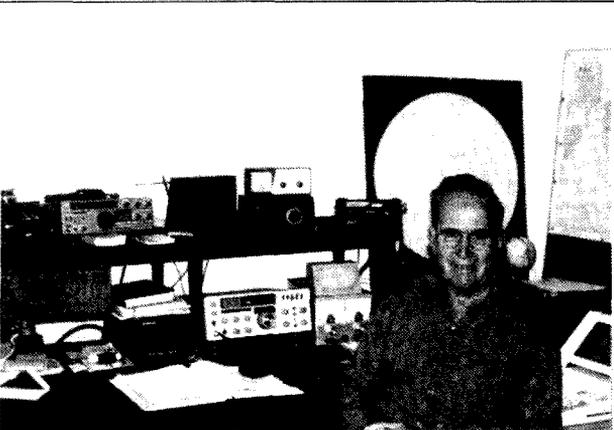
**Arthur Oliver VK6ART who ran the Net for many years. (Photo courtesy Nell Penfold VK6NE).**

as being the net controller, with Peter VK6HH being his 2IC, who takes over alone one day a week, or more often as required when Roy has to attend to other commitments. Generally these two men work as a team and they would be very unusual circumstances indeed, if ever the net was left without a controller in Perth. To further increase the efficiency of the control, a 2m link is maintained throughout the sessions on 144.625. This is a handy way to report 'doubling' or to confirm information received from faintly heard mobile stations, and this is doubly handy when one control station is experiencing local QRM caused by rain static or the like.

1. Both stations use the FT107M as their main transceivers.
2. Both have standby gear. Roy has a TS430S and Peter an IC735.
3. Roy has an NEC computer, and Peter an Amiga. Both computers contain the same information.
4. Roy uses a tower-mounted Yagi, and Peter a two-element Quad atop a mast, and a 107' dipole with tuned feeders through a Z-match as a back-up antenna.
5. Both shacks have Telecom phones.
6. Roy has a back-up generator for use should mains power fail during the session.

**Control Station Telephone Numbers**

These phone numbers are available to all to use to enquire about the net itself or to leave and receive messages for or from travellers. When ringing these numbers, please remember to take into account the time differences across Australia and give the callsign the message is for.



**Roy Chamberlain VK6BO who took over from Arthur VK6ART.**

Roy VK6BO (09) 331 1825  
Peter VK6HH (09) 397 5772  
Bob VK5RI (08) 93 4001  
Alex VK3BMS (03) 579 0006

There has been a spin-off for amateur radio arising from the use of this net. Some XYs who previously had little or no interest in amateur radio have become avid sked-time watchers, later progressing to obtaining an amateur licence for themselves, as have some of the passengers who have been afield in vehicles operated by touring amateurs. Thus amateur radio has become a comfortable way of keeping in touch with those either at home or touring about.

I think this just about covers the story of the Net. It is a very brief and generalised coverage, but to tell it properly and mention all the people one would really have to write a book. Already I think I can hear rumblings from those electronically oriented readers who are objecting to this bloke taking up valuable space in the technical journal of the society with a rag-chew article about travel tales, so let me say now there are many facets to our hobby as there are many colours in a rainbow, and don't we all get a thrill at seeing that wonderful bow across the sky, especially when our own favourite colour shows through clear and bright? ar



**Peter Harrison VK6HH who runs the Net one day per week.**



**Bob Gebhardt VK5RI looks after the VK5 end of the Net.**

# SOME THINGS HAVE NO COMPARISON

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**AT YOUR NEWSAGENT EVERY MONTH**

# Willis Island VK9

**Stephen Pall VK2PS**  
**PO Box 93**  
**Dural 2158**

It was in late 1989. As I was tuning across the band, I heard a "CQ DX" call. "This is VK9TR on Willis Island," said the Australian voice. Suddenly the band was alive and, within minutes, the transmitting frequency of the Willis station became a "dogpile". Willis Island was on the air and continued to be so until the middle of 1990.

**S**INCE TREVOR'S RETURN TO Adelaide, I have exchanged several letters with him. Trevor, who these days gives his callsign as VK5FG, supplied me with fascinating information about life and activity, past and present on one of the remotest islands on the Australian coastline. But before I proceed to quote from Trevor's letters, let's look at the history of this island. Willis Island is part of an island group lying in the Coral Sea, and consists of North Cay, Mid Islet and Willis itself. They are 267 nautical miles north-east of Townsville at latitude 16°-17' South, and longitude 149°-58' east.

The islets were discovered in 1853 by Captain Pearson of the ship *Cashmere* - he named them after the owner of his vessel. The island remained unnoticed and uninhabited, except for a survey done by Captain H M Denham of HMS *Herald* in 1860, until the end of the First World War.

The north-eastern part of Australia is visited quite often by cyclones. In September 1921, the political pressure to establish a cyclone warning station on an island in the Coral Sea prompted the then Minister of Territories, the Hon A Poyton, to ask the Commonwealth Director of Navigation,

Captain John King Davis, to submit a report about the feasibility of establishing such a station, having regard to the "dangers and safety of personnel remaining on the island in the cyclone season".

Captain John K Davis, who was the commander of the *Aurora* in 1911-1914 during the Australasian Antarctic Expedition and after whom the Australian Antarctic base was named, was aware of the great value to shipping, if such a storm warning station was established. He himself led the exploring and working party to the island in October 1921 on the ship SS *Innisfail*, and after arriving back in April 1922 he submitted a 14-page report which the Australian Senate ordered to be printed on 3 August, a total of 902 copies at a cost of £26 which, in those days, was quite a sum of money. The report reveals that the island is approximately 583 yards long (533 metres) and about 212 yards wide (194 metres). However, the usable grassed portion is only about 468 yards (427 metres) by 150 yards (137 metres). On this small area of usable land, Captain Davis, 13 other helping hands and the crew of the ship erected in the short time of three weeks: living quarters for three men, a "wireless telegraphy house", two wooden radio masts

of approximately 80 feet high (26 metres), installed the radio and meteorological equipment and provisioned food and other stores to last for six months, and 1600 gallons of drinking water in tanks and casks. Captain Davis writes in his report:

"On 1 November, communication with Australia was effected with one mast, and the following message was despatched to the Minister for Home and Territories: "Work of erection of Willis Island Station proceeding satisfactorily; job has proved a heavier one than anticipated. All hands are in good health, and it is hoped, if weather continues fine, to despatch the *Innisfail* from here on Monday evening, 7 November. Work then remaining can be completed by resident party - Davis."

The first meteorological report was sent from the station on 8 November 1921, and 70 years later in 1991 Willis Island still provides important meteorological information to the Australian Bureau of Meteorology. However, the means of communication have greatly changed since.

A letter written by Mr Eric Riethmuller in 1981 at the age of 78, and who, according to the information given to me, passed away three or four years ago, gives a very interesting insight into early life on the island. Riethmuller was on Willis Island at various times, starting in 1927 as an observer-cum-radio officer. He writes to his modern-day colleague at Willis in September 1981 as follows.

— The communications from 1921 when the station was established by Captain Davis is in great contrast to what you have today (1981). Willis Island began with the callsign CGI and worked Cooktown (VIC). CGI later changed the callsign to VIQ, had one 1.5kW rotary spark transmitter with two frequencies - 500kHz and about 300kHz (in old language 600 and 800 metres). The transmitter was driven by a 5HP upright single cylinder petrol engine via a 110V DC generator, and these two made such a racket that in the receive mode, the petrol engine had to be switched off (... to hear the incoming signals). The operator had to dash in and out of the engine room, swinging the crank handle with rapid enthusiasm, transmit, switch off and listen and hope that his opposite station in Cooktown did not reply too quickly — writes Riethmuller.

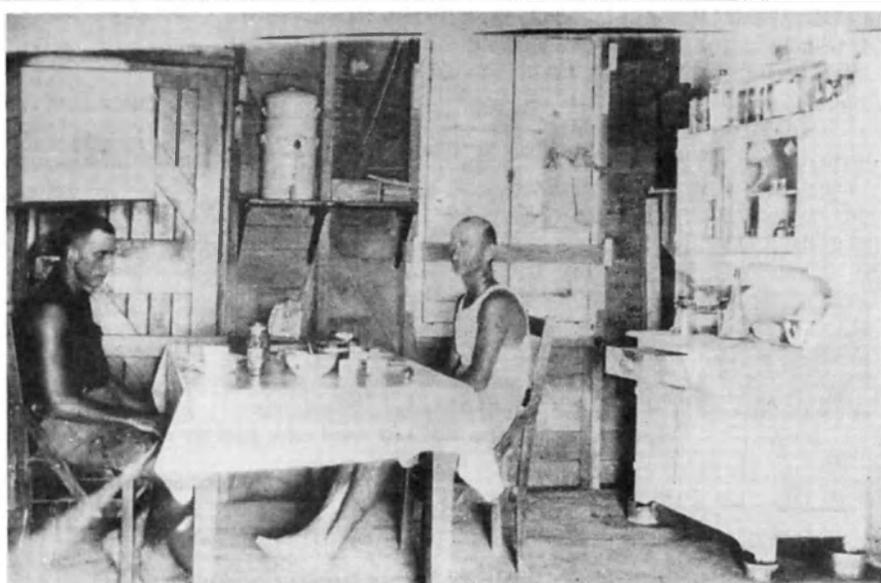
During the cyclone season communication was very difficult from Willis in the early years, due to the ever-present static noise. The weather reports were sent in five-letter code groups, and each group had to be repeated, sometimes nine times

between the two stations. Willis was manned during the 1920's and 1930's according to Riethmuller's letter, with personnel from Amalgamated Wireless (Australasia) Ltd (AWA) marine radio department. There were two people on the island - one radio officer/observer and one handyman/cook, from the months of May to November. Life was tough in those times. Riethmuller continues:

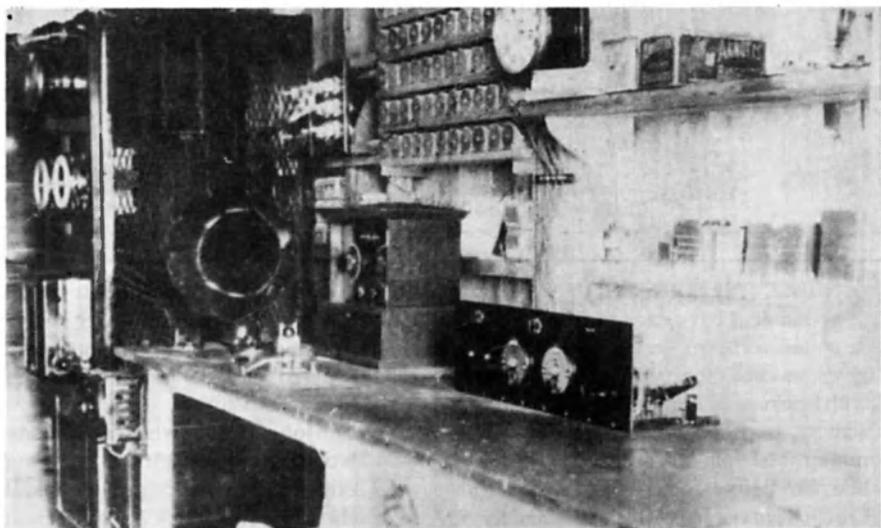
Before leaving Sydney I spent several days at the weather observatory, where a man named Nelson initiated me into the mysteries of how to read the mercury barometer and look after the anemometer, barograph and thermograph.

I sort of remember the barometer, temperature etc had to be read each day and recorded in certain books. For weeks on end the weather changed little, SE trades (wind) blew consistently, the sooty terns wailed all night, and very little rain. On arrival there about May 1928, I found the station in a run-down condition. Most things had been given over to the cockroaches, corrosion and humidity with sad results. One item completely ruined was the large medical store. For that season, as later, practically all food was tinned or bottled. Things such as flour, sugar, biscuits, dried fruit were all done up in sealed cans to defeat the weevils and ants plus humidity. We had a dozen or so hens that kept us in eggs. Hens were fed on wheat mostly, and kept in a small yard to the north of the wireless hut. Both buildings were referred to as "huts" though built of reinforced concrete. For cooking, we had a three-burner kero stove and a primus. Stove was needed for the breadmaking. We mostly were proud of the results with the bread. Yeast was the old grandma type, hops potato cork tied down in a bottle. When "H" (the offsider) missed his beer, he used to take a mug of the yeast and pour it down his throat. At the end of the first session we were short of flour. Ration was half a slice of bread per meal, caused partly by the month-late arrival of the *Morinda*, which had run aground up New Guinea somewhere the previous trip.

Later I was there with Snape, also from the Marine (department of AWA) and sometimes we followed one another. He also was an eager beaver, and we two put the station in order. Took a couple of years to do so. This even impressed the high command to such an extent that old Fisk (then chairman of AWA) ordered that we be given a bonus of 30 pounds for "good work at Willis Island". Weather men came with the



The pioneers of Willis Island, around 1930s. Note string on the left to operate the camera.



The original rotary spark transmitter on Willis Island in the 1920s.

November relief, plus a second radio Walah (radio officer); I stayed over the summer season. Before returning for my second trip towards the end of 1928, I spent several days in the AWA castle in York Street making a short-wave transmitter under the direction of Joe Reed, one of the AWA engineers. When back on the island, this little toy changed our whole communication. We transmitted on 32 metres, received VIT on 600 or 700. His glorious signal came in all over the static and dynamotor noises. We still had to run the engine and the 1½ kW set to obtain the 1000 or so volts for the SW set.

The AWA personnel on Willis later were replaced with the personnel from the Bureau of Meteorology. After the war, the

Overseas Telecommunication Commission assumed responsibility for radio communications, but in 1966 the Australian Bureau of Meteorology took over sole control, which is still has to this day.

Today the island boasts quite a range of modern communication equipment, such as 500 and 1000W CODAN HF sets (previously RACAL) a digital data transmitting system, a back-up RTTY system, telephone etc. The power is supplied by two air-cooled DEUTZ diesels with 40kVA alternator sets and a water-cooled CUMMINS with 50kVA alternator set attached. At present, there is also a 3cm manual wind finding radar, type WF2, able to track targets of 500mm to a distance of 80 to 100km. The two wooden masts of yesteryear were re-

placed with two marine aluminium masts 24m high with stainless steel rigging, and dipole antennas with baluns. There is a sloping multiband antenna in the range of the 5 to 30MHz, and another half Delta antenna for the 2-14MHz range.

The scientific study and information gathering carried out on Australian outposts - Willis Island, Macquarie Island, the bases in



**Trevor VK9TR operating on Willis Island. Note the "local brewery" advertisement.**

Antarctica, just to name a few - attracted radio amateurs from the early days. Amateur radio as a hobby neatly fitted with their scientific background and profession. Amateur radio in the early days was the only source of communication with the loved ones on the mainland, and even today, where there is a telephone on practically every base, amateur radio still plays an important role, not to mention the DX aspect of the hobby. Ken McLachlan VK3AH, in an earlier article about Willis Island in the September 1982 issue of *Amateur Radio*, describes these amateur activities in more detail. I list here their callsign and the year of operation, supplemented by my own observations, just for the record. The list is not complete, and further information about amateur radio operations on Willis is welcome.

John VK4JO was there in 1963. VK4WV was there in mid-1964. John VK4HG in November 1967, Gavin VK4EV in 1968 and Kevin VK9ZC in 1973. Dave VK9ZD went to Willis shortly after his previous tour of duty, lasting 12 months on Macquarie Island.

Dave was followed by Mike VK9ZG and Tony VK9ZH in 1982, Andy VK9ZA in August 1982 and John VK9ZJ in January 1983. Graham went there as VK9ZW in May 1984, and Trevor VK9TR was there from November 1989 to June 1990. Harry VK2BJL spent a little time there when visiting the island in a sailing boat, and used the call VK9ZR. There is no amateur activity at present on Willis. Amateurs who were active from Willis were always sought after for contacts in the DX world. Willis Island is just one of nine locations with a VK prefix, which is considered to be a separate "DX country" according to the rules of the DX Century Club.

One of the most successful recent DX operations was the one by Trevor VK9TR. His cheery voice, politeness and patience towards sometimes not-so-polite DXers, and his willingness to participate in several net operations, had left a very pleasant memory and gratitude in the heart of the serious DXers. Trevor, who is a radio technical officer with the Australian Bureau of Meteorology, spent eight months on Willis. He received his first taste of amateur radio at Macquarie Island in 1980-81 watching VK0DB operating DX. Returning to the mainland, he obtained his full call in 1982 as VK5BTR. After the death of his father in 1987, he took over his late father's callsign VK5FG. Since returning home from Willis, Trevor had very little time for amateur radio. His technical skill is very much in demand by his employer, and he spends quite a lot of time organising the installation of automatic weather stations spread across South Australia. Trevor's letters to me describe the life on Willis as totally different from those times before him in the mid-1920s and 1930s.

Let's now sit back and enjoy the extracts from his letters. He describes his life on Willis as "working and DXing in paradise".

It is probably true to say (writes Trevor) that some of us have some grand ideas as to what paradise should look like. Some no doubt would be disappointed, but I certainly was not. That place of paradise was Willis Island, that small coral island in the Coral Sea. I guess, not knowing what to expect, off I went to Willis, armed with a plastic container of "real things" (valves) and a trusty FT200, contending that I may at least be able to make a contact or two. Well, in the end, I was a bit out by two things: I ended up with a Kenwood TS130S and 7641 contacts. The staff at Willis for the eight-months stay were the grand total of four, three weather observers and myself, with the male to female ratio of 3:1.

With this small population, the weather observers being responsible for the daily routine of weather observations, including upper atmosphere balloon flights and synoptic observation. There were times when working in the power house in the middle of the wet season in my capacity as station technical officer, I thought I was nearer to hell than paradise. But the ever-present thought of sitting under the palm trees in the gentle breeze, sipping the local brew of "Booby Bird Bitter" always won out, and added to that paradise touch.

In another letter, Trevor mentioned that brewing beer is another interest of his, but that hobby has been made considerably easier by the use of brewing kits: "it does take the fun away from it, a bit," he says. Just like amateur radio: home-brew gear has been replaced by factory built black boxes.

Beer was also mentioned in Riethmuller's letter written in 1981:

Thinking back to the year of 1927 (he writes) my offsider "H", a man aged 45, and I, travelled to Willis on a Burns Philp island steamer named *Morinda*. The trip took one week, and "H" looked "deeper" into the beer bottles than was advisable.

Arriving at Willis, "H" was incapable of descending the gangway to the surf boat, so he was put over the side in the cargo sling,



**The four "residents" of Willis Island. Left VK9TR.**

together with the beer supplies acquired by him on board ship. Most of the bottles broke before reaching the shore. There I was, full of inexperience, a big heap of stores scattered on the beach, amongst

which sat the inebriated "H". Incidentally, three weeks later "H" still appeared "sickened" and hard to understand, so I looked in one of the storerooms where there had been six bottles of port wine supplied as medical stores. Only two were left, so that night I quietly buried them in the sand. And all that happened in 1927.

Back to Trevor's letter. He writes:

One had to be a diesel mechanic, plumber, radio technical officer, cook, electrician and, at times, general father confessor, so you can see, it's a pretty interesting life if you do not weaken and succumb to savouring too much of the highly rated Booby Bird Lager, the local home brew. (Guess who was also the chief brewer?) By the way, the local brewery also sponsored the advertisement that can be seen on the photo of yours truly operating inside the equipment room. One of the pertinent facts that I took no time to discover was the fact that this paradise also had a five-star food supply and a view from almost every room. Some of the feathered residents were a little noisy at night and in the morning, but generally well behaved.

There is a large bird population on Willis. Sooty terns, noddy terns, black and pink foot booby birds, frigate birds and migratory birds like kingfishers, falcons and egrets, to name a few.

Turtles also appear around November, to start laying eggs, which hatch in January, normally at night, and present a sight witnessed by few people, as the baby turtles make for the sea in their thousands. People always ask how difficult it must be with only four people on the island. Well, the answer is relatively simple. Although the situation lends itself to a great study in human relations, surprisingly, people were not what you call bumping into each other throughout the day, except if it was to help out with some communal task. The only

real assembly of the entire population was normally at evening meal time for the five-star treat. When asked about the scientific significance of Willis Island, I am always hesitant, because, as we are all aware, the value of the almighty dollar always rears its ugly head, but it is very difficult to correlate the monetary expenditure to collected data. All I can really say is that, weatherwise, Willis Island data are of great value to the Queensland region, and possibly to the Australian east-coast network of weather forecasting.

Willis is certainly a great place to operate amateur radio. I say this not only from my maybe biased viewpoint, but on behalf of the other three people who were not in any way connected with the hobby.

Whilst it was one of my pastimes, and has been since 1982, it also gave great entertainment to the other residents, as we often sat around the "rig" - "Booby Bird Bitter" in hand, listening to world wide conversations taking place live. The extra bonus was of course, the fact that the others could participate by listening. I think that this is one of the great attributes of the hobby, hence creating the feeling that maybe the finesse of paradise is participation.

I made 7641 contacts (writes Trevor again, in a different letter) with the approximate breakdown of the QSOs as follows:

USA	45%
Europe	25%
Japan	15%
South America	5%
Canada	3%
NZ, Australia & USSR	7%

The difference between the percentages of USA and European contacts is due to the type of antenna used. It was a V-beam Type 4131, not rotatable, and as it pointed in a NE direction it was perfect for USA and Canada. The other V antenna was pointed SW, but

was a little low for Europe, but it did prove okay for South Africa.

Due to the physical size of these antennas, they were difficult to load on 21MHz, and out of the question on 28MHz. (A small dipole was used for these contacts). A breakdown of contacts on the various bands was as follows:

10m	5%
15m	10%
20m	80%
40m	5%
80m	only occasionally

At this point, and just getting under way so to speak, I found it a great help to start networking on the Family Hour net with Gray VK4OH and the most helpful USA net controllers Bob KI4RU, Bud KC4DWI and others on that net, as well on the "222" net with Jim VK9NS and his colleagues, of course, one has to mention the veteran of many nets, the ANZA net, with Percy VK4CPA and his helpers.

Personally it was not from the 7641 QSOs logged that I derived the enjoyment of my stay on Willis because, as all DXers know, that is only the start, but it is the fact that there are so many great people out there, some of them very lonely and handicapped, but all having the opportunity to participate in communicating with each other. I really had no intention of becoming so involved, but found I enjoyed it so much that I wouldn't hesitate to return to paradise if the opportunity presented itself again, but I would certainly go a little better prepared.

In closing, I have to admit that Willis Island is a fantastic place, whether it is working, washing, cooking, fishing, relaxing with a booby bird Bitter or plain DXing with a Kenwood 130S, 85W output into a V-beam: it is paradise!

Acknowledgement of material used:

\* Several letters written by Trevor VK9TR and photographs supplied by him.

\* Photocopy of a letter written by Eric Riethmuller, and copies of old photographs of the old wireless station, courtesy of the Australian Bureau of Meteorology.

\* Report by Captain John K Davis, Commonwealth Director of Navigation, Willis Island Meteorological Station, 3 August 1922.

\* *Australian Encyclopaedia*, 1963 edition, Volume 4, page 377b and volume 9, page 315b.

\* Article about Willis Island written by Ken McLachlan VK3AH, *Amateur Radio*, September 1982.

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# The Story of Stephen Frith

Part 4

H Karl Saville VK5AHK  
2/1290 North East Rd  
TEATREE GULLY 5091

In the final part of my story of Stephen, I will describe the effects of fitting a speech synthesiser to the computer. I had seen an article in an Australian electronics magazine back in February 1986 by Mark Bishop, of a speech synthesiser using the General Instruments SPO256-AL2 Speech Processor, but at the time I did not have a use for one. However, one of our TAD committee members, Richard Jackson, recently demonstrated a talking blood-pressure device which he had made up for the Blind Institute, and this rekindled my interest in speech synthesisers.

**I**T WAS CHEAP TO MAKE, AND fairly easy to program, and while it is not the best speech synthesiser, it is adequate for our purpose, and the more time you experiment with it the better the speech sounds get. One has to learn the basics of word sounds and how they are built up and it is like going back to primary school again.

The SPO256-AL2 is a single-chip N-channel MOS LSI device that is able, using its stored program, to synthesise speech or complex sounds. With 59 discrete speech sounds - called allophones - and five pauses, any English word or phrase can be created by addressing the appropriate combination of allophones and pauses.

This seemed to be the logical step to take with Stephen. Up to now he had been enjoying himself playing games and only occasionally using his word processor. When I fitted the speech synthesiser to his computer programs I thought it would enable him to speak to the world or, if the

volume was turned up, he could shout to the world, but it did not turn out as I had thought.

I may have mentioned previously that Stephen is married to Linda, and that Linda is as helpless as Stephen, but for one very important detail. She can talk, and because she has a voice she has been educated and, as a consequence, she is really a normal intelligent being. She and Stephen have grown up together and, because of their very close association, there has developed a sort of body language between them. Stephen has no trouble at all letting people know what he wants because Linda seems to know, and she will tell you. Stephen has grown to depend on Linda in this way. And, because of his lack of voice, his education was not as good as Linda's. He finds it very difficult to express himself with a word processor. Now he has his computer and can put letters on the screen, the training staff at Julia Farr are giving Stephen regular

lessons in spelling and grammar, and it is hoped he will become proficient in using his word processor in the near future.

In the meantime he prefers to play games on his computer and will spend all day long trying to beat the computer.

When you consider that a helpless and disabled person has about 12 hours or more each day to while away, you can realise they cannot be just putting messages upon the screen all the time. It would become very boring, as it is very slow and difficult, and also very tiring for him. It takes two to make a conversation, so he would need a friend, or someone, to be standing by his side for a considerable period, say 15 minutes or more for each sentence, and it could take a long time to hold a meaningful conversation. Most of the time he and Linda are on their own and there is the rest of the day to be filled in.

However, speech has made it possible for the computer to be more than just a machine that communicates, entertains or educates. It can become a personal thing, in fact a personality. The computer can announce the program that is to be used, it can say whose turn it is for the next move, or who won the game, and by how many points, and also congratulate the winner by name. We all like to be congratulated when we achieve something, and the disabled are no exception. The computer can have a name and announce itself to the operator. In other words, the computer responds in a friendly way and interacts with the operator. This is very importantly to a severely disabled person, as he can take command and be in control (maybe for the first time) of the situations created in the computer. He feels he is not alone any more, he has a real friend, a friend who talks to him and is his constant companion - and the disabled really do need friends.

## Institutional Care

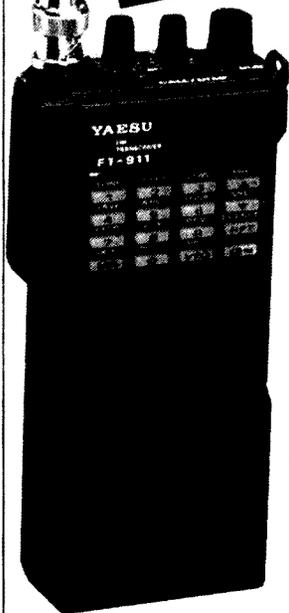
It is very strange, but you would think that, being in an institution, if a computer wrote out the phrase "I want a drink" and the speech synthesiser loudspeaker said "I want a drink", and if this was repeated many times, someone would come running with a drink. But, unfortunately, it does not work quite like this.

Institutions are run by the clock. Seven o'clock, and a nurse comes and prepares resident for wakey wakey. Eight o'clock, another nurse comes and takes the resident to breakfast. Nine o'clock, nurse takes resident to bath. Ten o'clock, nurse brings round the pills. And this carries on through-

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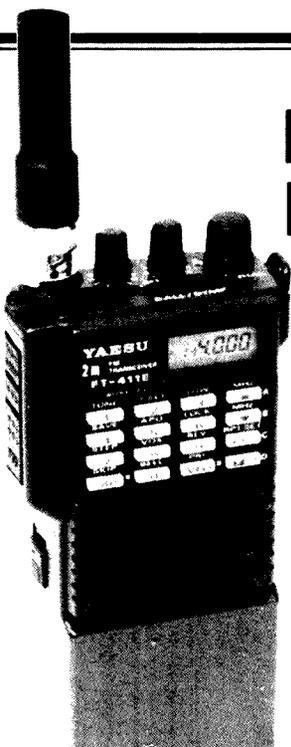
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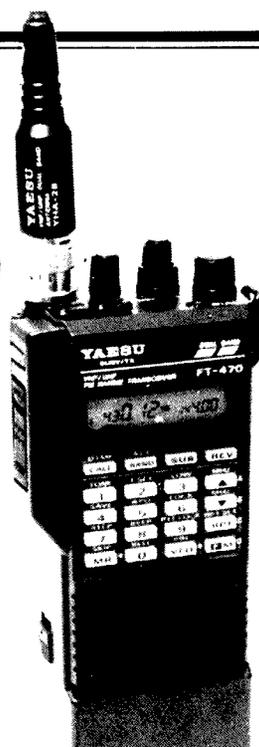
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Length - 2.5m  
Type - 2 x 5/8 wave (2m)  
4 x 5/8 wave (70cm)

Cat D-4860

**\$169**



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**BRANER \$79<sup>95</sup>**

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out the day. Lunch time, pill time, drink time, dinner time, etc, etc. Nurses have a schedule to keep. With a large number of residents to look after, and many are very difficult to manage because of their disabilities, it is not surprising the nurses and other staff are generally run off their feet trying to keep up with the schedule.

And it takes a very special kind of person to be a good nurse for the disabled, and I have met many very dedicated nurses.

Generally, though, Stephen has a lot of time on his hands, and his computer becomes his mate, his friend; some days his only friend, his constant companion - a companion that jumps at his command and does what he wants it to do - and it helps to fill in those very long hours with something interesting.

## Programming for the Disabled

Programming for the disabled is an ongoing occupation. New programs come to mind, all programs need changing, become outdated. The operator's skill improves and time delays need shortening to keep up with their speed of operation. More difficult games are needed, and programs of wider and wider interest are needed. Stephen started with the Morse code and, because of his inability to transmit a readable Morse code signal, a combination Morse and scanning system had to be used.

As his ability at operating the switch improved, various methods of scanning and stepping were introduced to increase

his acquisition of letters or words. It has been as much a learning exercise for the programmer as it has been for Stephen.

## Conclusion

I attended a Caring Mothers meeting recently and was very surprised to learn of the number of brain-damaged people caused by car accidents in South Australia. We are told by the media of the number of deaths each year through car accidents, and that there have been more, or less, this time last year, but rarely do they publish the number of people who have been brain damaged because of these accidents. The hospitals operate and stitch them up and, when the wounds are healed, send them home to mother to look after them for the rest of their lives. There are 4000 of these brain-damaged people in South Australia alone.

Since just before Christmas, I have been training one of these lads in the use of a computer. He is a young man in his mid-20s, helpless and cannot talk. His name is Kelly. The only way he can operate the computer switch is with his foot.

Then there is Sue, a lovely girl. She is 29 years of age, with cerebral palsy, and cannot talk. She operates the computer switch with the back of her head. Her parents want to get her a printer so that Sue can write her life story.

I mentioned in the first part of this story that I was a member of the Technical Aid to the Disabled.

Technical Aid to the Disabled (TAD) is a

voluntary organisation comprising a group of about 80 technical members (in South Australia) with varying skills, such as carpentry, mechanical/electrical engineering and electronics. We also have experts in the latest computer usage and programming.

When called upon for assistance, our members will design, construct, install, train and maintain any assisting device unavailable commercially, or will adapt existing aids, facilities and everyday items more specifically to meet the needs of the user. Individuals, family or friends may contact TAD directly as there is no referral necessary.

We work very closely with the Juliar Farr Centre, Royal Society for the Blind, regency Park Centre for Young Disabled, Royal Adelaide Hospital, Domiciliary Care, Intellectually Disabled Services Council and many other organisations.

Our members are volunteers, and there is no charge for the time spent on a project, but the client is asked to meet the cost of materials used, and out-of-pocket expenses. In some cases a small administrative charge may be necessary.

If we can help, or you know of someone with a disability who would benefit from using our services, contact us on 261 2922 (in South Australia) or write to the Co-ordinator, Technical Aid to the Disabled, PO Box 112, Eastwood 5063.

*(Corresponding information for NSW was published in January AR, page 30. Consult the telephone directory in other states. Ed).* **ar**

## EARLY AMATEUR RADIO IN AUSTRALIA - A CLARIFICATION

*Colin MacKinnon VK2DYM  
52-54 Mills Rd, Glenhaven 2156*

In my article published in *AR* of May 1992 I stated that from 1899 to 1905 the Royal Australian Navy was in charge of wireless matters. To be strictly correct, it was still the Australian Squadron of the Royal Navy. Prior to Federation, in 1901, the various Australian states had their own military forces, including an assortment of small armed vessels, to protect their cargo ships and shoreline. The Federal Government took on this responsibility in 1901 but looked to the Royal Navy for ships and financial assistance. Between 1901 and 1914, political arguments continued about the expected contributions from states, commonwealth and the UK during which time the navy was called the Common-

wealth Naval Forces. On 10 August 1914, this embryonic navy was placed under the control of the Royal Navy for the duration of the war, and by the conclusion of hostilities was officially the Royal Australian Navy.

The various Government Acts that I mentioned were not the inspiration of some clever Australian draft committee, but followed very closely the UK Acts for the same purpose of controlling wireless and telegraphy. Therefore they were influenced by events in the UK, including the PMG Monopoly, stifling of amateur experiments, the arguments with the Marconi Co, and the dislike of that company in many circles. In 1923 AWA was able to exert sufficient influence on the authorities to break away from the UK regulations which dictated a broadcast monopoly by the BBC. AWA and the

broadcast entrepreneurs wanted and got the 'sealed set' system, with stiff royalty and licence payments. It failed miserably. In my article I told how a Perth radio club used its equipment to discover a number of illegal stations. Recent access to official records reveals that after the outbreak of war, suspicious telegrams were being sent from Perth to remote areas to the north and then transmitted by illegal wireless stations associated with German companies or friendly to the German cause. Germany had a number of colonies to our north equipped with powerful wireless stations capable of relaying the information to Germany and to ships at sea. The enemy's local & overseas colonial wireless stations were captured and destroyed early in the war. **ar**

# The Horrors of CW

**Julie Kentwell VK2XBR/VK2KSE/VK2ISI  
34 Raymond Rd  
SPRINGWOOD 2777**

Back in 1982 I obtained a limited amateur ticket, VK2XBR. The event was not shown on national TV news broadcasts, nor did it make the front pages of sundry newspapers; in fact, it never even appeared in the sports section. Nonetheless, it was done.

**W**HY A HUMBLE LIMITED, NOT the mighty full call? Let's say I considered CW to be a boring, unwarranted imposition; antiquated, ridiculous, irrelevant and about as applicable to amateur radio as being able to type 20wpm in order to gain your certificate for HF. As for HF, I considered it to be full of old windbags who could talk for half an hour without actually saying anything, who had most likely never learned which end of the soldering iron was which, and who used only store-bought gear.

The lure of VHF/UHF had been strong in me since my teenage years in the early to mid-1960s; up there I would go, and damn HF.

Everything proceeded smoothly for nine years. I explored ATV, built the VK2RTS Sydney ATV repeater, built much VHF/UHF home-brew, including my famous collection of 415V three-phase-operated two metres and UHF gear. I still considered HF and CW to be the domain of fools.

Back in early 1973 I had started learning CW. I could do about 6wpm when, in unfortunate circumstances, my right arm was cut halfway through and, predictably, became purely ornamental (totally useless in fact!) for quite a long time thereafter.

So much for CW!

I never regained my interest in it, and that was that.

It should be mentioned that I had spent some years on 27MHz as "Batman" in the

old pirate days, along with many others who are today's amateurs, and a few of these years were during a sunspot peak around 1979, so "been there, done that" applied to me in terms of world-wide DX on HF. During my years on amateur radio as VK2XBR I was never heard to say anything nice about CW; in fact, I rubbished the hell out of it.

There comes a time in one's life when some of one's pontifications rebound upon oneself with a crash. One is then in the ridiculous position of having a large black crow, complete with feathers, jammed into one's flapping mouth and being, unequivocally, told to eat it.

Yes folks, it happened to me!

In my ATV years I became friends with one Doug Chaffey VK2NBC. Doug eventually upgraded his licence to VK2GJE, subsequently VK2FC, and continued to play a leading role in the development of ATV activity. Doug had been VK2NBC since 1976, while another chap, Ralph VK2ZRG, had been a limited for around 30 years; they made a deal: "I'll upgrade my theory if you upgrade your CW" and vice-versa. Well, it worked and they did. Ralph became VK2NR.

So far, so good.

The real problem came when, in late 1991, Doug pulled up stakes from Chester Hill and moved to Trangie. Yeah, I know, where the hell's Trangie? It's on the Mitchell Highway, about as far past Narromine as Narromine is past Dubbo. Ever tried to

work Trangie from Springwood NSW on two metres? It's not on!

Now I find I have a problem. I want to keep contact with Doug on the bands and I can't. What to do?

Meanwhile, as all this was occurring, Ralph VK2NR had set up a system with Paul VK2JPL, at whose domicile resides the 2m section of the VK2RTS ATV repeater. This repeater is a complicated device using one callsign from two locations, capable of independent 2m and ATV operation as two repeaters or as one giant complex, too involved to describe here. Through the magic of amateur radio, not to mention some Ralph-brewed equipment, Ralph set up a system for slow-morse practice sessions (as if anyone would be idiotic enough to call 12 or 14wpm slow, although Doug does 45wpm), which sessions I, of course, ignored.

Until my problem!

On 13 November 1991 I sat down for the first time to try to copy Ralph's slow morse after an 18-year layoff. At 5wpm, two sessions of five minutes each, I made five and 10 errors. Fairly obviously, learning CW is like learning to ride a bicycle: once you master the art of falling off the damn thing, you never forget how it's done. Admittedly, 6wpm and above looked as though it had been mauled by a pack of wolves but, in less than one week, 6wpm was down to five errors over five minutes with just two sessions of practice. I passed my 5wpm send and receive on 1 December 1991.

Enter VK2KSE, King Size Ego.

The old Batman-days FT707 had some seven years worth of dust on it, but still worked. The glorious moment arrived and I had my first HF 80m QSO with Doug VK2FC on SSB. This probably won't interest you very much - if at all. What might interest you, though, is that the following evening I had a CW QSO with Doug. This event is regarded by me as a high spot in my chequered amateur radio career.

Why should this be?

Because, believe it or not, I had discovered the **enjoyment**, pure and simple, of goode olde steam-powered CW wireless. Now who would believe the man dubbed Mr Amateur Television by his peers, and a confirmed CW hater, would ever do that?

Not I, cried the little red hen!

Having achieved the ability to work Doug on 80 metres with my Terry VK2UX/Tim VK2ZTM inverted-V antenna, the story should have ended there. It doesn't!

My most important discovery so far is that CW is **fun!** No-one could have told me

this; I would have laughed aloud at the idea; I had to find out for myself.

So, undaunted by the rapidly increasing "diddley dahs", I soldiered on towards 10wpm, and this is where things started going a little funny. You would expect that, as you regularly practised your CW receiving, your error score would steadily drop. That sounds fair enough, doesn't it? Except that it's not what actually happened. Right from the word go, all my CW receive practice was done in a book and the number of errors made was entered in a chart. At this stage I was still doing only two nights a week and my error scores at a given CW speed varied wildly (and somewhat crazily!) from night to night. As an example, take my errors at 10wpm over a short period: 46, 22, 13, 31, 32, 27, 39, 44, 21, 29, 28. If there's any downward trend there, I can't find it.

A discussion with Terry VK2UX resulted in his suggestion that I use the VK2BWI Morse practice sessions each evening. So I did, and the errors started to take on a pattern. Two charts were now kept - one for Ralph VK2NR's CW on VK2RTS (from which the error scores above were taken) and one for VK2BWI. We pick up, from Ralph's table, where we left off, which is the point where I started using VK2BWI and, from Ralph's 10wpm, we have errors of: 27, 25, 19, 5, 9, 12, 17, 6, 5, 2.

Now this is much more like it!

The proof of the pudding was indeed found in the consumption thereof. Terry's idea bore fruit very quickly; the secret was in a little CW practice every night.

One VK2BWI operator, Jim VK2NDI, supplied another valuable clue. He said, "When you're copying around 75 percent of the 10wpm segment, go to 12wpm and concentrate on the higher speeds." I heard him say this just one week before I went for my exam, which was my rotten luck, be-

cause it's good advice and worth knowing.

Jim, along with Cec Purvis from the WIA NSW Division, also made the point that when people learned CW for the Air Force they were given character speeds of around 18wpm. The gaps between these fast characters were gradually shortened as the speed increased. This way, operators learned the characters at the operative speed, right from the jump. Bear in mind that these blokes were learning CW for as much as four hours a day, weeks on end, and became very proficient very quickly.

Probably one of the most important facts you'll ever hear about learning CW was mentioned to me by Cec Purvis. Cec points out that CW is **sound**. If you learn to receive good CW (and there's plenty of the other sort around) then you will know yourself whether or not your own sending is good, just by the sound of it. Fairly obviously, you need not touch a key until you are well on the way in receiving.

I actually proved that. My first use of a Morse key in 18 years was when I did my 5wpm sending test, no errors and acclaimed as good CW, even though sent by a man with a mangled sending arm. The point is that if you learn good CW first, you will send good CW.

The great moment arrived, and on 1 March 1992 I passed 10wpm send and receive. Know something? It was easier than I thought it would be, even though I was a nervous wreck before the event and knocked over two cans of beer to settle myself down prior to having a go. I had to widen the gap on the key to stop my shaky hand from bouncing the key around, but out flowed the good CW and all was well. I had put in the work; I reaped the rewards while others at the same exam failed because they just hadn't been fair dinkum about putting in the effort. How serious were *they* about upgrading?

Which brings us to the crux of the matter. I never did think that CW, any more than typing or public speaking, should be a requirement for HF operation; now, having done it, I am still firmly of that opinion. CW does absolutely nothing for your technical expertise, therefore it is irrelevant in terms of a licence based on "self-training, inter-communication and technical investigations carried out by duly authorised persons solely with a personal aim and without pecuniary interest". (RIB71, page 2, paragraph 3).

My friend Barry VK2FP is learning to play guitar. It will take him many years to play it as well as I do, since I have played for 24 years and practise every day. Do you play a musical instrument? If so, how well and how often. Is it fun?

You can learn CW, with just 10 minutes a day at it, in a few months. Anyone who can't spare that time is a ratbag or a liar. The big question is whether or not the time spent is worth the bother. For me, it was.

No doubt about it, the day will come when CW is no longer required. Until then, people will continue exercising their right of choice in pursuing it or not, as they see fit. Many of those who do their five or 10wpm and pass will put the CW key away, never to be used again. Others will keep it connected and ready for use because, like me, they are proud of their achievement and genuinely like CW, for the pure enjoyment of it. That's what it's all about; those HF operators who say "I had to do CW so you must" are coming the raw prawn. The choice is still yours; the goal and its rewards are solely up to you.

My thanks to Ralph VK2NR, Jim K2NDI, Rosco VK2BRC, Michael VK2BMW and Doug VK2FC for their help in getting me where I needed to go. Thanks also to Terry VK2UX and Cec Purvis for a helping hand.

May the Morse be with you!

ar

## Sunday CW Net

The number of the Sunday CW Net, held on 31 May, was 984. Many CW operators may care to note that the 1000th Net should take place around September '92. Information can no doubt be obtained from the Sunday Net controllers.

G Lanyon VK2AGL

ar

# Support the WIA in order to protect amateur radio frequencies

# Intruder Watch

Gordon Loveday VK4KAL, Federal Intruder Watch Co-ordinator,  
"Aviemore", Rubyvale 4702

Freq	UTC	Date	Mode	Comments	X
7.002	1235dly	230392	A1A	V hrd more in winter	27
7014/16	1130+	2303	2xR7B	Possibly north of VK/ZL	21
14002	0630	030492	A3E	Foreign language B'caster	
14003	1015+	120492	N0N	Nil ID during listening time	3
14006	1210	090492	A3	Nil ID, QRN'd VK6HG	
14008	1517	190492	A3E	B'cast for no ID	
14015E	1233	110492	JE3	2-way tfc Chinese	
14032	1405	090492	J3E	B/c stn Indo or Malay lang	
14044	0930+	daily	2x LSB!	+ guard freq? 3 all told???	31
14045	1300	080492	J3E/U	R Nederland re B/C via R fone	6
14045/6	1039+	0704 dly	N0N	No ID in 3 hrs	20
14058+	0815+	2304 dly	P0N	+AC3 fax China??	42
14059+	0800+	210492	F1B	Unable to resolve fully	4
14060E	1108	060392	A1A	No further info	2
14070	1030+	010492	A1A	VBX coded tfc out mainly	25
14075	0830+	0204 dly	A1A	VRQ cq de VRQ MSG-SGO, LAF etc	33
14078	1205	140492	A1A	CK80 calling CQ fast CW	
14080	0330/35	0604	A1A	KFB XQ de KFB as PHL etc	11
14092	0955+	110492	A1A	RGT77 coded traffic	2
14095	0200/06	0604	A1A	VPC/CQ de VPC AS RGU etc	13
14100	0930+	040492	A1A	NZB coded tfc	27
14126	1030+	0704	F1B	Cont RTTY 2.5KHz shift	10
14210	0950mni	2303mni	A3E	Harm of 7105/f severe distort	25
14211/15	0935	2303mni	2x F1B	Both 250Hz shift, 3rd regis	28
14217.5	0700	240392	F1B/A1A	UMS + N0N when NIL tfc 250Hz	12
18075	1035	0304	A3E	B'cast stn, talk in English	2
18080	1208	100492	A3E	B'cast stn Chinese	10
21001	0500+	2603	N0N	A1A often hrd no ID	19
21031	0500/600	260392	F1B/A1A	MNR CW tfc to UUU UMS	33
21250	1009/+	0704	N0N	Some NS CW & R7B	11
21283.5	0705+	240392	A1A/F1B	UU UMS mostly 250Hz	47
21315	0500+	220492	A3E	B/c, faint music (7105 x 3)	10
21379	0500+	240492	A1A/F1B	UMS ID in A1A	2
24900	1143	2904	A3E	B'cast stn middle E, music	2
24925	1052	030492	J3E/L	Russian military stn	3
28183	2221	130492	F1B	50bd news in French	
28515	1149	200492	A3E	B'cast stn music	

Freqs 29500, 29565, 29575, 29595, 29605, 29625, 29675, 28595 are b'cast stns programming music and or talks - **all non-amateur origin**, all logged many times by VK6RO. Our winter is bringing an influx of CB stations from **all Asian** areas onto 28MHz band. Observers this month: VKs 4BG, 4AKX, 4BHJ, 4BTW, 4BXC, 5TL, 4BXC, 5TL, 6AJ, 6RO, 6BW1, 7XR.

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## PACKET RADIO PRIMER

by Dave Coomber G8UYZ and Martyn Croft G8NZU

ISBN 1 872309 09 7, first published 1991 by the Radio Society of Great Britain. 140 pages. Price UK£7.00.

Reviewed by: Bruce R Kendall VK3WL

At last someone has written a book about packet radio that is readable. I say this because nearly everything I have read about this rapidly growing segment of our hobby is either written in "Packatese", or assumes the reader has some existing knowledge of computers or packet radio itself.

The preface to this easy reading book for the beginner openly states that "it is not intended it should be a standard reference manual, and some liberties have been taken with the deeper meaning of some of the more technical aspects of 'packetizing'".

Consisting of seven chapters and six appendices, this book covers most of the basic information required to get on the air using the AX25 protocol. Subjects such as the radio, the terminal node controller, the computer, software requirements, commands, operating procedures, mailboxes and bulletin boards are covered in a way that makes the

newcomer feel comfortable. It goes on to discuss the various bulletin board software packages in use, and the basic commands one requires when logging on to these mail boxes.

Appendix 4 is on "PC Software" and details some of the TNC commands and features of YAPP v2.0, ProComm v2.41, and Paket v4.0.

The information contained in this book is about 99 per cent applicable to our local packet radio scene. There is, however, a few instances where some regulatory requirements peculiar to the UK are mentioned, such as the quaint British requirement for Morse code station identification when using packet radio transmissions. These few points aside, readers should have little difficulty getting their packet stations up and running using the information contained within.

For those amateurs who have yet to experience this mode of communication, or for the frustrated packeteer who

is having difficulty digesting the existing range of publications on this subject that are often not written for the raw beginner, this book is a must and I would suggest it as recommended reading.

The authors do recommend in their preface that for the more technically minded or more advanced operator, other publications such as the RSGB and ARRL handbooks be consulted in conjunction with or after reading the *Packet Radio Primer*.

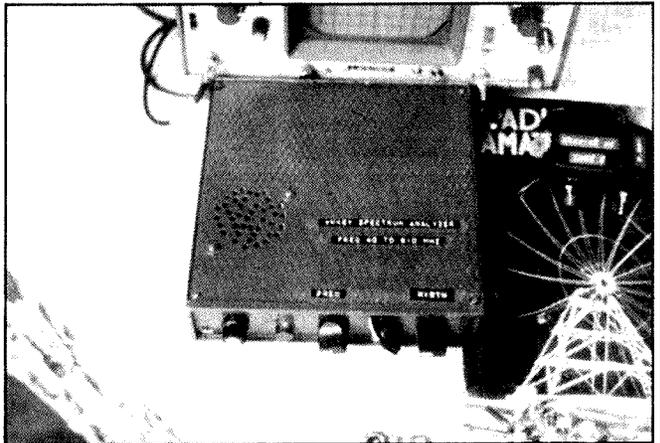
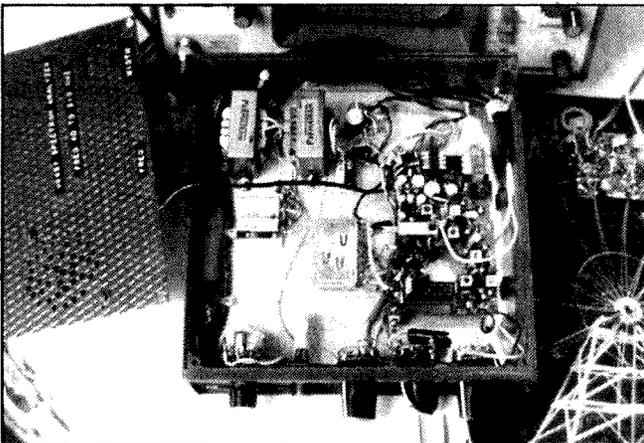
Footnote: Other publications such as *Your Gateway to Packet Radio* by Stan Horzempa WA1LOU, and available from divisional bookshops, make good reading but do not, in the opinion of this reviewer, handle the basics quite as well as *Packet Radio Primer*. Both publications have their place, but the latter is recommended for those wishing to take their first steps in packet radio.

ar

## MURPHY'S CORNER

In the article by Paul Kay VK4SY 'Homemade Spectrum Analyser' on pp24-26 of the June issue, the photographs are both upside down and transposed. They are reproduced correctly below. Apologies to Paul for the mixup.

**Internal view of spectrum analyser - PSU is in top left-hand corner. Mitsumi tuner is in the middle, and the Ferris HF3000 board is on the right.**



**The complete spectrum analyser.**

On p45 of the June issue, Dave Horsfall VK2KFU should have been described as Deputy Co-ordinator for the Sydney North region, not for the whole of NSW.

# Awards

John Kelleher VK3DP, Federal Awards Manager

The A4-DX group of the Royal Omani Amateur Radio Society will activate these DXpeditions:

- i Zanzibar, 15-31 July - callsign 5H0ROA
  - ii Pemba, 21-27 July - callsign 5H0ROA/A
- Bands: 10-80 including WARC bands  
 Mode: SSB/CW/Data  
 QSL: Via A47RS

## Hervey Bay Award

Due to the unqualified success of the special event that this club operated in August 1991, celebrating the Whale Festival, we have been requested by the city of Hervey Bay's Whale Festival Committee to organise a 'sister' award for August 1992.

Feedback from all parts of the world have led us to believe the award itself was very well received, and it is our intention to keep this standard of award - although a different presentation - to the forefront once again.

We wish to advise all members of the amateur radio fraternity worldwide that the Hervey Bay Amateur Radio Club Inc will be activating the special event callsign VI4FOW (Festival of Whales) from 1-31 August 1992. The approximate frequencies will be: 3.794; 7.100; 14.235; 21.250; 28.495MHz, all + or - QRM, of course, and Australian novice frequencies will be activated as much as possible, as the bands permit.

The annual migration of these gentle giants, the humpback whales, into the warm,

sheltered waters of Hervey Bay, enables them to rest and rear their young before continuing their southerly travels to the Antarctic regions. Visitors from many countries and all states of Australia arrive and marvel at the gentle nature of these magnificent creatures of the deep. Some lucky visitors have actually managed to 'pat' a whale from the sightseeing vessels.

An award and QSL card will be available for working the special event station, VI4FOW. Applications for the award may be directed to PO Box 829, Hervey Bay, Queensland 4655, Australia.

## New Zealand Association of Radio Transmitters

This is the address for future applications for NZART awards. NZART PO Box 108, Gisborne 3801 New Zealand

## Air Forces Amateur Radio Net

Special Event Station VI4AAF  
 The Air Forces Amateur Radio Net is congratulating our RAAF on its 71st anniversary with an A4 sized Special Event Award. Only one contact required. Forward QSL or copy of log entry to awards manager, Len VK2LEN QTHR with \$3.00.

Shortwave listeners may apply for the award by submitting an extract of log with \$3.00 to the awards manager.

You can find the Air Forces Amateur Radio Net on a Tuesday on 3.567MHz at 1000z and 3.610MHz at 1030z, also on Tuesday. We are using the callsign on other frequencies. VI4AAF. ar

# Contests

Presented by the relevant Contest Managers

## 1992 Remembrance Day Contest - Rules

This contest is held to commemorate those amateurs who died during WWII, and is designed to encourage friendly participation between all amateurs and to help in the improving of operating skills of all participants.

This contest is held annually during the weekend nearest 15 August, the date on which hostilities ceased in the south-west Pacific

area. The contest is preceded by a short opening address by a notable personality, which is transmitted on various WIA frequencies during the 15 minutes immediately prior to the commencement time of the contest. As part of this opening ceremony, a roll call of the names of those amateurs who paid the Supreme Sacrifice is read.

A perpetual trophy is awarded annually for competition between Divisions of the Wireless Institute of Australia. It is inscribed with the names of those Australian amateurs who made the Supreme Sacrifice, and so perpetuate their memory throughout amateur radio in Australia.

The name of the winning Division each year is also inscribed on the trophy and, in addition, the winning Division will receive a suitable certificate. The winning Division also holds the trophy for the next 12 months, after it is presented at the Annual Federal Convention.

### Objectives

Amateurs in each VK call area will endeavour to contact other amateurs:

- in other VK call areas, P2 and ZL on bands 1.8-30MHz, except the 10, 18 and 24MHz bands;
- in any VK call area, including their own, P2 and ZL on bands above 52MHz, and as indicated in Rule 5.

### Contest Period

0800 UTC Saturday 15 August to 0759 UTC

**AIR FORCES AMATEUR RADIO NET**  
 congratulates  
 the R A A F on its 71st Anniversary with a  
**SPECIAL EVENT AMATEUR RADIO STATION**  
**VI4AAF**

The AUSTRALIAN AIR FORCE was formed in 1921 (the ROYAL part was promulgated a few months later)



A.B. NARRISON  
 Hon. Secy of the net. mem. manager  
 2481 STONE ISLAND RD. MADDINGB. S.  
 Perth W. A. S.  
 Post Free  
 South West  
 WA 6101



Commonwealth of Australia  
**Gazette.**  
 PUBLISHED BY AUTHORITY.  
 (Printed and Sold by the Government Printer at Melbourne)

ORDER.  
 By His Excellency the Governor-General of the Commonwealth of Australia

WHEREAS it is enacted by the Defence Act 1903 that the Governor-General may, subject to the provisions of that Act, make orders, and orders to the nature aforesaid, with respect to the manner of the award of the Victoria Cross and the Military Cross, and the manner of the award of the Victoria Cross and the Military Cross, and the manner of the award of the Victoria Cross and the Military Cross;

And whereas it is desirable that orders should be made to the effect that the Victoria Cross and the Military Cross should be awarded to the holders of the Victoria Cross and the Military Cross, and the manner of the award of the Victoria Cross and the Military Cross;

Now therefore I, Her Majesty Queen Elizabeth the Second, by His Excellency the Governor-General, do hereby order that a Force, to be called the Victoria Cross and the Military Cross, shall be awarded to the holders of the Victoria Cross and the Military Cross, and the manner of the award of the Victoria Cross and the Military Cross;

And I do further order that the said Force be read, name taken, and organized in the manner prescribed by the Defence Act 1903 and the Regulations made thereunder.

Given under my Hand and the Seal of the Commonwealth of Australia, this twenty-fourth day of March, in the (1992) year of our Lord (the thousandth one hundred and eighty-two), and in the thirtieth year of His Majesty's said Majesty's Lieutenant,  
 G. P. FRANK, Minister of State for Defence.

R. K. Mahoney

Sunday 16 August 1992. All Australian amateur stations are requested, as a mark of respect, to observe 15 minutes silence prior to the commencement of the contest. It is during this period that the opening ceremony broadcast, referred to above, will take place.

### Rules

- There will be two contest categories:
  - High Frequency (HF) - for operation on bands below the 52MHz band
  - Very High Frequency (VHF) - for operation on bands from 52MHz and upwards
- In each category there will be three sections:
  - Transmitting phone
  - Transmitting CW
  - Receiving
 Modes applicable to each section are as follows:
  - AM; FM; SSB; TV
  - CW; RTTY
  - Receive (a) or (b)
- All Australian amateurs (VK callsigns) may enter the contest, whether their stations are fixed, portable or mobile. Members and non-members of the Wireless Institute of Australia are eligible for awards.
- Cross Mode Operation is permitted. Cross Band Operation is not permitted except via a satellite repeater.
  - All contacts score one point
  - On all bands a station in another call area may be contacted once on each band using each mode, ie you may work the same station on each band on phone, CW, RTTY and TV.
  - On the bands 52MHz and above, the same station in any call area may be worked using any of the modes listed at intervals of not less than two hours since the previous same band/mode contact. However, the same station may be contacted repeatedly via satellite not more than once by each mode on each orbit.
  - Acceptable logs for all entries must show a minimum of at least 10 valid contacts.
- Multi-Operator Stations Are Not Permitted (except as in Rule 7), although log keepers are allowed. Only the licensed operator is allowed to make a contact under his/her own callsign. Should two or more operators wish to operate any particular station, each will be considered as a contestant and must submit a log under the individual callsign which applies to that operator.
- Club Stations may be operated by more than one operator, but only one operator may operate at any time, ie no multi-transmission.
- Ciphers - for a contact to be valid, serial numbers must be exchanged between stations making the contact. The serial number will comprise three figures commencing 001 for the first contact, and incremented by one for each successive contact. Should the serial number 999 be reached, the serial number will revert to 001.
- Terrestrial Repeaters - contacts via terrestrial repeaters are not permitted for scoring

purposes. Contacts may be arranged through a repeater. The practice of operating on repeater frequencies in simplex is not permitted.

10. Portable Operation - Log scores of operators located outside their allocated call district will be credited to that call area in which the operator takes place, eg VK5XY/2 - this score will be added to the VK2 Division scores.

**Entries** - a log of all contest contacts must be kept. This should be in the format as shown in the example.

A summary sheet for each category and section entered must be submitted to the RD Contest Co-ordinator showing the following information in this order as per the example shown:

Category (HF or VHF). Section (phone, CW or receiving). Callsign, name, address, total score.

Declaration: "I hereby certify that I have operated in accordance with the rules and spirit of the contest."

Signed:

Date:

**Only the summary sheets for each category/section entered are to be submitted. DO NOT send contest logs.**

Sheets are to be forwarded to the RD Contest Co-ordinator, 2 Moss Crt, Kingsley, WA 6026. Envelopes are to be endorsed "Remembrance Day Contest" on the front outside.

Entries **must** be forwarded in time to reach the RDCC by Friday 2 October 1992. Although they are not required by the RDCC, the contest logs should be retained by contestants in case proof of claimed score is desired by the contest co-ordinator.

### Determination of Winning Division

Scores by stations in VK0 are added to VK7. Scores by VK9 stations are added to the mainland call area which is geographically nearest.

Scores claimed by P2 and ZL stations are not included in the scores of any VK call area.

The formula to be applied to determine the winning WIA Division is as follows:

Total Contacts per Division/Total Licences per Division times the Weighting Factor.

The Weighting Factor is calculated such that should each WIA Division perform equally as well in 1992 as in the past four years (averaged) the result would be a seven-way dead-heat.

Consequently, the most improved Division will win the trophy, and also earn a revised and lower weighting factor for the following year.

### Receiving Section Rules

- This section is open to all shortwave listeners in Australia, Papua New Guinea and New Zealand. No active transmitting station may enter this section.
- Contest times and logging of stations on each band are as for transmitting.
- Logs should be set out as per the example. It is not permissible to log a station calling CQ.

The detail shown in the example must be recorded.

4. Scoring will be as per Rule 5 for transmitting, with other aspects of that same rule also applying.

5. Club stations may enter this section.

### Example Transmitting Log

Remembrance Day Contest 1991

Callsign: VK1XXX Category: HF

Section: (1) Transmitting phone

Date Time (UTC)	Band (MHz)	Mode	Call	No Snt	No Red	Pts
0800	14	SSB	VK2QQ	001	002	1
0802	14	SSB	VK6LL	002	001	1
0805	14	SSB	VK5ANW	003	011	1
0807	14	SSB	ZL2AGQ	004	003	1
0809	14	SSB	VK4XX	005	007	1

0800 14 SSB VK2QQ 001 002 1

0802 14 SSB VK6LL 002 001 1

0805 14 SSB VK5ANW 003 011 1

0807 14 SSB ZL2AGQ 004 003 1

0809 14 SSB VK4XX 005 007 1

### Example Front Shoot

Remembrance Day Contest 1991

Category: HF

Section: (a) Transmitting phone

Callsign: VK1XXX Name: Joe Brown

Address: PO Box 123, Farm Orchard, ACT 2611

Total Score

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the contest.

Signed: J Brown Date: 20.8.92

### Example Receiving Log

Remembrance Day Contest

Name/SWL No: L30371 Category: HF

Section: (c) Receiving phone

Date Time (UTC)	Band (MHz)	Mode	Stn Calling	Stn Called	No Snt	No Red	Pts
0800	14	SSB	VK1XXX	VK2QQ	001	002	1
0802	14	SSB	VK1XXX	VK6LL	002	001	1
0805	14	SSB	VK5ANW	VK1XXX	011	003	1
0807	14	SSB	ZL2AGQ	VK1XXX	003	004	1
0809	14	SSB	VK7AL	VK2PS	007	010	1

0800 14 SSB VK1XXX VK2QQ 001 002 1

0802 14 SSB VK1XXX VK6LL 002 001 1

0805 14 SSB VK5ANW VK1XXX 011 003 1

0807 14 SSB ZL2AGQ VK1XXX 003 004 1

0809 14 SSB VK7AL VK2PS 007 010 1

12. **Disqualification.** Any station observed during the contest as constantly departing from the generally accepted codes of operating ethics may be disqualified.

13. **Awards** - certificates will be issued in accordance with the Guidelines for Certificate Issue Remembrance Day Contest.

## Rules of the 1992 VK-ZL-Oceania DX Contest

For VK and ZL Stations

1.SSB: From 1000 UTC Saturday 3 October to 1000 UTC Sunday 4 October.

CW: From 1000 UTC Saturday 10 October to 1000 UTC Sunday 11 October.

2.Only open contact per mode per band is permitted. All bands except WARC bands may be used.

3.VK and ZL stations are permitted to contact each other **only** on 160 and 80 metres. VK to VK; ZL to ZL, and ZL to VK contacts are

permitted on these two bands.

4. **Cyphers:** Exchange a five or six-digit number composed of the RS(T) report, together with a three-digit number beginning at 001, and increasing by one for each QSO.

5. **Scoring:** Different points for contacts on different bands are as follows:

160 metres	20 points
80 metres	10 points
40 metres	5 points
20 metres	1 point
15 metres	2 points
10 metres	3 points

**Final score** will be the total QSO points multiplied by the total number of prefixes worked. The same prefix worked on a different band is counted. Note: K1, W1, AA1, N1 etc are all different prefixes. W1AAA/6 would count as W6, not W1.

#### 6. Logs

(a) Separate logs for each band, please, and for SSB and CW.

(b) Show date, time in UTC, call of station contacted, cyphers sent and received

(c) Indicate clearly each new prefix worked (Underline, highlight or show in separate column, as in CQ WPX)

(d) State QSO points claimed for each band

(e) State number of prefixes claimed for each band.

#### Summary sheet to show ...

- Callsign, name and address
- Total points claimed on all bands
- Total prefixes claimed on all bands
- Total points claimed
- Declaration that the rules were observed.

**SWL Section:** As for transmitting section, but ...

- VKs must hear and log ZL or other stations (No VK stations)
- ZLs must hear and log VK or other stations (No ZL stations)

**Post logs to:** NZART Contest Manager, John Litten ZL1AAS, 146 Sandspit Rd, Howick 1705, New Zealand, to arrive by 15 December 1992.

#### Awards: Separate awards for SSB and CW.

- (a) Special certificates to top scorers in each prefix area
- (b) Special certificates to top scorers on each band
- (c) Participation certificates to all entrants on request (one IRC for postage, please).

### 1992 John Moyle Field Day results

Section	Portable	Operator	Mode	Band	Callsign	
6 Hour	Home Stn	Multi Op	Phone	All band	A Minter SWL 790	
6 Hour	Home Stn	Single Op	CW	HF	VK4EAW	88
6 Hour	Home Stn	Single Op	Phone	HF	VK6DE	26
					VK3PJB	13
					VK6BWI	3
6 Hour	Home Stn	Single Op	Phone	VHF/UHF	VK2BDT	16
6 Hour	Portable	Multi Op	Open mode	HF	VK2HZ	266 *
					VK4WIN	172
6 Hour	Portable	Multi Op	Phone	HF	VK4WIW	254 *
					VK1WI	140
6 Hour	Portable	Single Op	CW	HF	VK3EFO	22 *
6 Hour	Portable	Single Op	Open mode	All band	VK4BLE	290 *
6 Hour	Portable	Single Op	Phone	All band	VK4OE	286 *
6 Hour	Portable	Single Op	Phone	VHF/UHF	VK2ANK	366 *
					VK2DXV	102
					VK6BWI	20
24 Hour	Home Stn	Single Op	Open mode	All band	VK4EV	38
24 Hour	Home Stn	Single Op	Phone	All band	VK3DD	157
					VK4PJ	48
					VK5PMC	38
24 Hour	Home Stn	Single Op	Phone	HF	VK5CN	169
					VK3CAY	98
					VK7FD	36
24 Hour	Portable	Multi Op	Open mode	All band	VK4WIS	2556 *
					VK1ACA	2276 *
					VK6ANC	2188 *
					VK5ARC	1700
					VK2WG	1394
					VK3BML	944
					VK3ATL	678
					VK5BAR	448
					VK4WIT	182
24 Hour	Portable	Multi Op	Open mode	HF	VK6VS	138 *
24 Hour	Portable	Multi Op	Open mode	VHF/UHF	VK1WI	2416 *
24 Hour	Portable	Multi Op	Phone	All band	VK4IZ	4404 *
					VK4WIE	4254 *
					VK2FBK	2178 *
					VK3GH	1333
					VK3ANR	1099
					V12FFG	1058
					VK5BP	212
24 Hour	Portable	Single Op	CW	HF	VK3XU	30 *
24 Hour	Portable	Single Op	Open mode	All band	VK5NW	646 *
24 Hour	Portable	Single Op	Open mode	HF	VK4OR	464 *
24 Hour	Portable	Single Op	Phone	VHF/UHF	VK5BW	408 *

Congratulations to the certificate winners (annotated by an asterisk). Well done. It was disappointing to note insufficient CW entries and scores to justify awarding the President's Trophy again this year. Hopefully more competition in the single op, portable, CW section next year.

The number of logs submitted does not show how the popularity of the contest has increased over the past few years. I was not able to enter myself but had the chance to listen around and there seemed a lot of activity. More logs and in particular comments will hopefully be submitted next year.

On that point next year the rules will only be changed for 50 MHz contacts. Scoring for 50 MHz will follow the VHF/UHF scores up to 499 km. For distances over 499 km, 50 MHz contacts will score as for HF contacts. A table of scores such as the following has been suggested by a few contestants with varying scores depending on distance. This table is for portable stations only. Home stations will score on a smaller scale that is yet to be designed.

0-49 km	50-99 km	100-149 km	150-199 km	200-499 km	> 499 km
2	10	20	30	50	2

50 MHz scoring was the only area of contention in all the comments received with the logs. So if you want to comment on the rules for next year, read last years rules again and drop me a line. Your input is much needed otherwise no other changes will be made.

Many stations failed to log any overseas contacts. The rules for the John Moyle do not exclude any operator from entering. Those stations that did log overseas contacts were noticeably ahead on scores for the contest.

Let's see if we can encourage more portable single operators next year. In the future I would like to phase out log submissions by home stations. Any comments!

Entrants are reminded that I will continue to make myself available on air on the weekend preceding the contest for any last minute enquiries.

See you all on air. Regards Philip VK1PJ.

ar

**Help stamp out stolen equipment - always include the serial number of your equipment in your hamad.**

# The 16th West Australian Annual 3.5MHz CW & SSB Contests Transmitting & Receiving Rules

## 1. Duration:

CW Sunday 2 August.

SSB Sunday 6 September

Between the hours of 1030z and 1330z time, ie three operating hours for each contest.

## 2. Frequencies

All contacts to be made in the 3.5/3.7MHz band using frequency allocation applicable to your licence conditions.

## 3. Calling

Stations will call CQ WAA using the three times three technique; infringement of this rule by the use of long CQ calls may result in disqualification, as will pre-arranging of a QSO.

## 4. Scoring

Points for contacts are as follows:

Within Western Australia 5 points per contact

WA to all mainland eastern states 2 points per contact

WA to VK7 4 points per contact

WA to VKO and overseas 8 points per contact

Three points per contact with WA stations only

## 5. Multipliers

A multiplier of two per WA shire worked will apply to the final score.

WA stations north of the 26th parallel only: an additional multiplier of 1.3 will apply per contact confirmed with stations south of the 26th parallel.

## 6. Contacts

Stations may be worked twice on each night, ie once between 1030z to 1300z and again between 1300z to 1330z; these contacts will count for points. Each time the contact for WA stations will take the form of an exchange of five characters comprising RST/RS and shire letters.

Eastern states and overseas stations will send RST/RS plus a running number starting at 001.

## Shire Identification Letters

1.	Albany Town	AT
2.	Albany	AL
3.	Armadale	AK
4.	Augusta/Margaret River	AM
5.	Bassendean	BA
6.	Bayswater	BW
7.	Beverley	BV
8.	Boddington	BO
9.	Boulder	BD
10.	Boyup Brook	BB
11.	Bridgetown/Greenbushes	BG
12.	Brookton	BK
13.	Broome	BE
14.	Broomehill	BH
15.	Belmont	BL
16.	Bruce Rock	BR
17.	Bunbury	BY
18.	Busselton	BN
19.	Canning	CA
20.	Capel	CL
21.	Camamah	CH
22.	Carnarvon	CN
23.	Chapman Valley	CV
24.	Chittering	CI
25.	Claremont	CT
26.	Cockburn	CR
27.	Collie	CE
28.	Coolgardie	CG
29.	Coorow	CW
30.	Corrigin	CS
31.	Cottesloe	CO
32.	Cranbrook	CK
33.	Cuballing	CB
34.	Cue	CU
35.	Cunderdin	CD
36.	Dalwallinu	DU
37.	Dandaragan	DN
38.	Dardanup	DP
39.	Denmark	DK
40.	Donnybrook/Balingup	DB
41.	Dowerin	DR
42.	Dumbleyung	DG
43.	Dundas	DS
44.	East Fremantle	EF
45.	East Pilbara	EP
46.	Esperance	ES
47.	Exmouth	EH
48.	Fremantle	FM
49.	Gingin	GG
50.	Gnowangerup	GP
51.	Geraldton	GN
52.	Goomalling	GM
53.	Gosnells	GS
54.	Greenough	GR
55.	Halls Creek	HC

56.	Harvey	HY
57.	Irwin	IN
58.	Kalamunda	KA
59.	Kalgoorlie	KL
60.	Katanning	KG
61.	Kellerberrin	KN
62.	Kent	KT
63.	Kojonup	KP
64.	Kondinin	KD
65.	Koorda	KO
66.	Kulin	KU
67.	Kwinana	KW
68.	Lake Grace	LG
69.	Laverton	LV
70.	Leonora	LA
71.	Mandurah	MB
72.	Manjimup	MP
73.	Meekatharra	MK
74.	Melville	MV
75.	Menzies	MZ
76.	Merredin	MD
77.	Mingenew	MW
78.	Moora	MA
79.	Morowa	MR
80.	Mosman	MS
81.	Mukinbudin	MU
82.	Mullewa	ME
83.	Mundaring	MG
84.	Murchison	MH
85.	Murray	MY
86.	Mt Magnet	MM
87.	Mt Marshall	ML
88.	Nannup	NP
89.	Narembeen	NN
90.	Narrogin	NG
91.	Narrogin Town	NT
92.	Nedlands	NL
93.	Northam	NM
94.	Northam Town	NO
95.	Northampton	NH
96.	Nungadin	NG
97.	Peppermint Grove	PG
98.	Perenjori	PJ
99.	Perth	PH
100.	Pingelly	PY
101.	Plantagenet	PT
102.	Port Hedland	PD
103.	Quairading	QG
104.	Ravensthorpe	RT
105.	Rockingham	RM
106.	Roebourne	RB
107.	Sandstone	SS
108.	Serpentine/Jarrahdale	SJ
109.	Shark Bay	SB
110.	South Perth	SP
111.	Stirling	ST
112.	Subiaco	SU
113.	Swan	SW
114.	Tambellup	TP
115.	Tammin	TM
116.	Three Springs	TS
117.	Toodyay	TY
118.	Trayning	TG
119.	Upper Gascoyne	UG
120.	Victoria Plains	VP
121.	Wagin	WN
122.	Wandering	WD
123.	Wanneroo	WO
124.	Waroona	WR
125.	West Arthur	WA
126.	Westonia	WS
127.	West Pilbara	WP
128.	Wickepin	WI
129.	Wiluna	WU
130.	Williams	WL
131.	Wongan/Ballidu	WB
132.	Woodantilling	WG
133.	Wyalkatchem	WY
134.	Wyndham East Kimberley	WE
135.	West Kimberley	WE
136.	Yalgoo	YO
137.	Yilgarn	YN
138.	York	YK

## 7. Logs

Contest logs to be set out on one side of a quarto or foolscap sheet with columns headed as below:

Time	Call	RST	RST	Shire	Shire	Points
Z	Wkd	Out	In	Letters	Multiplier	
Claimed						
10.45	VK6—	59MV	59	PD	1	5
11.05	VK6—	56MV	56	RB	1	5
11.10	VK3—	55MV	55001	-	-	2
11.20	VK6—	59MV	59	MV	1	5
Totals -				3	17	

Example - Final Score(south of 26th parallel) = 3 x 17 x 2 = 102 points

(north of 26th parallel) = 3 x 17 x 2 x 1.3 = 132.6 points.

Column 7 to be totalled at the foot of each page, and the running totals brought forward. The last page to contain the following summary: Total number points scored, input power, equipment and antennas used, along with comments on the contest in general. SWL participants score as above using the outgoing TX score.

All logs to be addressed to the WAA Contest Committee, 42 Kennedy Street, Melville WA 6156 and posted so as to reach us not later than 9 October for both contests. The results for all contests will be published in the December issue of AR.

# VHF/UHF – An expanding World

Eric Jamieson VK5LP PO Box 169, Meningie 5264

All times are UTC

## Six Metres in Australia

Gil VK3AUI worked a few interesting stations recently; they included on 7/3 VK73AT, KC6RR and JAs; 26/3: C21BR; 27/3: 3D2AG; 30/3: XE1GE, 3D2AG; 31/3: KH6IAA. 1/4: XE3EB, 3D2AG; 8/4: ZL3TY; 14/4: FO5DR; 15/4: XE1GE, 3D2AG, XE1ABA, 3D2PO; 16/4: N6CW, K6STI, WA6BYA; 20/4: XE1GE; 22/4: 3D2AG; 25/4: 3D2AG, XE1GE; 26/4: XE1GE, XE1GRR; 27/4: K6FV/b, V73AT/b. 3/5: ZL3TY.

The month of May has been relatively quiet. JAs were rarely heard here at Meningie, and little to report between 38 and 50MHz. The same report comes from Adelaide and from VK5BC at Berri. However, there were a few contacts that should have been included last month. Jack T30JH had 108 6m contacts to VK from South Tarawa over a four-week period ending early April. The lucky recipient of the only contact to VK5 was Roger VK5NY at 2250 on 24/3. A message from Steve VK3OT says Jack will visit T30 again in August and hopefully those who heard him last time, but could not get through the QRM, will be more successful. QSL to Jack Haden, PO Box 299, Ryde, NSW 2112.

Last month I reported VK3OT as having worked 7Q7XX, but this second-hand report should have been checked by me as it is apparently not so - sorry Steve. However, 7Q7XX is QRV on six metres with 50 watts and a four-element Yagi and has been worked extensively by overseas stations.

John VK4ZJB has received his QSL from KC6RR and suggests others will receive theirs in due course, but it may take time as KC6RR was reported having made 28,000 contacts during his DXpedition!

Clarry VK5KL said he missed a few opportunities to work Europe by not noting the signs, but on 8/2 at 0740 he heard VK8GF working YU3ZV, so waited and worked his first Europeans, OZ1LO at 0825, SM7FJE at 1151 and ON4KST at 1153 after which propagation swung back to JAs. Clarry said the going was tough with his 20 watts and five-element Yagi at 20 feet, but he enjoyed the experience.

## The VK2QF Report

Neville VK2QF has sent an interesting report, and for those of you who have wondered what he has worked, the following should tell you. Neville says six metres has yielded some exciting DX during the past eight months, particularly from Europe and the South Pacific. **New Short Path Record.**

For this contact with Joel CU3/N6AMG on 27/11/91, VK2QF now holds the Australian 50MHz record with a distance of 19251.3km. That's really pushing out the DX frontiers, and the distance will not be easy to better, as there is not a lot of global space left beyond that distance.

New countries in bold print. 13/1/92: **OH2TI**. 29/1: DJ10J and heard IK. 8/2: YU3EA, IK2GSO, YU3ZV, IK1EGC, YU3OV, OZ4VV, OH3XA, IE1BJT, OH2BC, OH2TI, OH2AUK, OZ1BVW, **ON4ANT**, ON4GG, PA3VST and many others. 11/2: TI21NA, TI2HL. 12/2: YU3OV, YU3SE. 16/2: YU3ZV. 5/3: **KC6/WORRY**. 6/3: KC6RR. 7/3: T30JH, **C21BR**, V85PB. 8/3: V73AT, VS6BG, KC6RR. 9/3: AL7C, KL7HBK. 12/3: **JT1CO**. 13/3: JA8RC. 14/3: C21BR. 23/3: **3D2AG**, FO5DR, K6QXY, K6STI. 27/3: 3D2AG. 30/3: HH7PV, TG9AWS, N4RFN.

1/4: **W6JKV/HK0** - this was Jim's first QSO from HK0. 5/4: W6JKV/HK0, 3D2AG. 7/4: ZL2TPY on early Es at 1929. 13/4: V85PB, JA0, 1, 3, 4, 9, V85PB, VS6BG. (Neville said he asked Alex VS6BG to call XX9 on the phone, but the XX9 said he was entertaining and would not be using the radio for at least 24 hours!). 15/4: JA2BZY, 3D2AG, XE1ABA, 3D2PO, V31PC. 16/4: K6FV. 17/4: KC4SUS, N4XIH, 5W1KF. 18/4: XE1GE, YS1AG, V31PC. 19/4: V31PC. 20/4: **UZ0CWW**, V85PB. 21/4: V31PC, **C6ANY**. 25/4: JR8DAH. 26/4: XE1, V85, DU1, V63JC, K6. 30/4: JH1WHS. 3/5: JA1, 7, HL1EJ, 7K1GZP, JA2KSO.

It seems the DX largely disappeared in early May at VK2QF as it did in most of the country. Neville said he had been looking for ZK3TPY but was not very hopeful as the F2 seems to have moved further north. Neville also mentioned that Joel, whom he worked as CU3/N6AMG for his record contact, is now in hospital in a very serious condition following a bone marrow transplant. I am sure all amateurs will join with me in wishing Joel a successful operation and a speedy recovery.

## Six Metres from Russia

A report from Yoshi JA1UT courtesy of Brenda VK3KT gives details of the 6m propagation test of 17-23 April from Khabarovsk City, eastern Russia, with the callsigns of RZ0CZZ and UZ0CWW. Both were club stations and there were 13 operators with assistance from JA1UT and JH4RUG. The stations worked split frequency - TX on 50.125, RX on 50.135 - using SSB and CW. They used an FT-655, TS680S, IC-551, HB9CV and a six-element Yagi.

The propagation test was promoted by the

Friendship Amateur Radio Society, Khabarovsk, and carried out with support from the Khabarovsk Union of Friendship Society and the Radio Sport Club KAMIFUSEN Japan, with JA5RMR and JA0BEE.

The stations had 502 contacts, of which 472 were with JAs, 28 to VK, one to KG6 and one to UA0. The VK stations who made contact were 2BBR, 2QF, 3OT, 3AMZ, 4ABW, 4BRG, 4CCR, 4APG, 4DDC, 4FP, 4FNQ, 4KJL, 4KK, 4VV, 4UTT, 4ZAA, 4ZJR, 4ZNC, 6PA, 7ZMF and 8ZLX. (As I reported last month, the stations may be able to come to air once a month when their local TV station closes for several hours to allow adjustments to be made ... 5LP). You may send your QSL to JA1UT at 4-20-2 Nishi-Gotanda, Shinagawa, Tokyo, and Yoshi is prepared to forward them to Khabarovsk.

## Six Metre News from the UK

**Grenada** James Jangdon J37AE is active from this island; QSL to James of the Philatelic Dept, Post Office, Sauters, Grenada. **Kuwait** Don 9K2WR and Bob 9K2ZR shared the same rig when making their first contacts at the end of March. By 20 March they had worked more than 25 countries. Bob 9K2ZR reports VK8RH is organising a CW beacon for 9K2 - frequency 50.041.5, callsign 9K2SIX, and planned to be on 24 hours. Permit to operate is now awaited. **Dominican Republic** HI8A was activated by Akito Nagi JA5DQH until the end of March. QSL to his home address of Box 73, Ishii Tokushima, 779-32, Japan. **Eire** QSL for EI2EFB is John Edmundson, Drumbooy, Lifford, Co Donegal, Eire.

**St Helena** Chuck ZD7CRC is now on the island and ready to go on six metres. His direct address is Chuck Chalmers ZD7CRC, Box 126, St Helena, South Atlantic Ocean. However, as there is no airstrip on the island, mail by sea can take a considerable time! **DXpedition to UA2** The expedition to UA2 by Mike UL7GCC and Peter PA3EU1 will operate from mid-July until sometime in August. The callsign is expected to be 4L2FM and the first grid locator probably KO04. No QSLs via bureau, but direct only to Peter vd Woude, Sparrendal 610, 3142LT Maassluis, Netherlands. **Turkey** Eric F1JKK commenced his 6m operations from Turkey on 23/4 using the callsign TA/F1JKK. QSL route appears to be Antoine F6FNU.

Contrary to what one might have expected, April was comparatively quiet in the UK. Ted Collins G4UPS reports stations worked or heard included ZS6XL, ZS9A, V51VHF, ZS6XJ, V51AT, SM7FJE, ZS6WB, ZS4S, 2E0AAX (one of the new UK allocations), FH4AA (Mayotte Is), DF7QY, CN8ST, PP5WL, G4SMC/8R1, CX1CCC, LU3EX. Best day was 24/4 from 1040 to 1504 with 4X11F, PY5CC, 4N3SIX, I6CXD, YT3ET, IK4DRY, I4SJZ, IK4EWN, YU3AN, OE9FK1, ZP6CW, DL8MCG, DF7RG, YT2AQ, YT2SB (located in town of Oziec - he had to QRT due to heavy fighting!), 4N2CCY, OK3LG

being nine countries.

Geoff GJ4ICD reports the OD5 (Lebanon) beacon on 50.078 ran into some problems, but these have now been rectified. On 12/4 he worked 7P8SR at 559 for a GJ first and country number 121. Later the station was 5x9 on SSB. 15/4: News that TY1ABE (Benin) had worked Malta and southern France. 17/4: 1110 A22 at S5, followed by V51SIX and 4N/b. 19/4: FR5/b at S1. 20/5: 8R1 into Europe. Geoff confirms the big Es day on 24/4 with YU, PY5CC, FY/b, OK3LQ, OE5NEL, DLs, OK2PZW, ZP6CW, OK1MAC, V51SIX, ZS4S, ZS9A, ZS6AXT being available. Geoff has now worked 513 grid squares and mentions there are 17 squares to be worked in OK.

In my May 1992 notes I commented that the 350 stations worked in a day from the UK/Jersey area on 432MHz seemed an awful lot of stations, but Geoff assures me it was no misprint - there is much activity on that band in Europe, also widespread use of 1296MHz as well. It would seem then, that no matter when they turn on the rig there will always be stations to work. Interesting! I wonder if they have tried contacts via aircraft enhancement, or is there no need to bother?

#### The UK Six Metre Group

This group, of which I am now a member, is celebrating its 10th birthday. The group issues a quarterly bulletin; issue 33 for April runs to 52 pages, and included are lots of snippets of information relating to 6m activity and proposed activity on a world-wide basis. The following selections should be noted by you.

At the moment 6m operation from **Morocco** is strictly forbidden, so any amateur claiming to be operating from there is doing so illegally. Attempts are being made to reverse this situation. **Lebanon** OD5SK came on at the end of January. Samir runs 10 watts to a 1/4 wave vertical but has been widely heard in the UK. It is hoped a five-element beam will be constructed soon. **Switzerland** Swiss stations are permitted to operate only in non-TV hours, usually 0000 to 0500 UTC, which is not very helpful. Swiss authorities will decide at the end of 1992 the future of the 6m band. **Brunei** Peter V85PB will be at Brunei for three years. **Greenland** OX3CS and OX3LK are permanent residents and keen to make contacts. OX3LX is likely to be active during the northern summer, probably until 25/9, running 50 watts and a four-element beam. **Tanzania** 5H3RA is on six from square KI93 and will be there until spring 1993.

**Estonia** ES5MC, ES5PC and ES6QB appear to be the only 6m stations equipped for DX working. **Guatemala** Paul KA9KAI is seeking a /TG6 permit, but this may take six months. **Cyprus** G0KOM (ex ZC4MK) hopes to be QRV as ZC4MK for a couple of weeks at the end of August, and later to sign as 5B4. In October/November Adrian will activate VP8 (Falkland) for about four months. **US Virgin**

**Islands** KP2A is the only operator at present on six from there, and is usually on daily between 1200 and 1600. John specifically requests that 6m operators call him **only** if they need him for a new country. **Crete** SV1DH recently reported that a 6m beacon was planned for Crete and that permits may be issued for operation as SV5 and SV9.

**Spain** It appears one-year permits could be available to stations fulfilling rather stringent criteria, eg be a paid-up member of a local or international organisation; have had a full Class A licence for at least five years; during the past 10 years applicants must have participated in at least five international five national VHF/UHF competitions; no sanctions against the licensee in the past 10 years; the applicant must give details of places of operation, equipment used and what technical studies they wish to carry out and, at the end of the year, a log with observations of their activities must be submitted to enable consideration of a further one year's extension! So there!

**Poland** Despite all the rumours there are still no firm indications there will be any early operating from SP - this the latest news from SP4TKK. **Trinidad Island** - Natel DX Group is planning a DXpedition for eight weeks from early October 1992 and using the call of PY0T. Finally, 7P8SR from Lesotho is now on six, as also is Z21AFR from Zimbabwe. CX2IY and CX9DK are new stations on from Uruguay.

#### Repeat Contacts

**Tanzania** - Maza 5H3RA in KI93 warns stations he does not like to exchange grid squares or make repeat contacts, or be helped when a QRP station is calling him; so, beware! I note the UK Six Metre Group magazine carries a few comments about stations who repeatedly work DX stations. ZP6CW makes a plea for no more repeat contacts from stations who have already worked him. The question is being asked in the UK why UL7GCC needs to be worked three times a week, and the same two TU stations each time they appear on the band, apparently by the same stations. KP2A does not want any repeat contacts. A number of US operators are now looking for less powerful and more distant VK stations than those regularly available from the east coast of Australia, in particular looking to Western Australia.

It would appear the plea is circulating around the world. If you have already worked a station, must you do it again and again, to possibly exclude someone who has not worked the DX station? However, I must add - what should you do if a DX station is repeatedly calling CQ and not receiving replies? Operators who have already worked that station could surely be excused for giving a quick call and stating, say, "Fred, you are still S9 here in Brisbane/Sydney/Melbourne" as the case may be. This at least alerts the DX station that propagation still exists, and may keep him on

the air for a longer period. All in all, one needs to weigh the consequences of calling again, as there will be times when it can be justified. It's a world-wide problem and one where there are no simple answers.

#### ARRL DXCC List

The time is drawing near when one or more VK stations may achieve DXCC on six metres during Cycle 22. A few years ago this would have been considered virtually impossible due to our geographic position on the globe. Much will depend upon whether the present low sunspot count stays down; a short peak may produce a surprise or two. Who knows? As a matter of interest the May 1992 issue of the ARRL *DXCC Countries List* shows there are 323 countries to be worked, and 54 deleted countries.

DXCC now being a consideration, a degree of interest has centred on the position of New Guinea in our total of countries confirmed. As a result of enquiries to me, I contacted the ARRL DXCC desk for an opinion and, as this has now arrived, the following is the official response, with some elaboration from me to give a better understanding.

Originally, New Guinea was divided into three countries: Dutch New Guinea to the west which, at the moment, is not our concern. The eastern portion was divided into two countries, the northern portion called the Territory of New Guinea, with its dividing line meeting the coast at a point between Dona and Cape Ward Hunt. It included such coastal towns/settlements as Lae, Madang, Wewak etc. The southern portion was called Papua or Papua Territory, and included Port Moresby, Milne Bay, Buna etc. Up until 15 September 1975, for ARRL DXCC purposes, each was considered a country in its own right. From 16 September 1975 the two countries became Papua New Guinea - same land, but considered a new country with a new name.

Therefore, up until 15/9/75, if you worked someone in Lae you had one country, and another if you worked into Port Moresby. On and after 16/9/75, if you worked a station in Port Moresby or anywhere else in the amalgamated country, you scored a further country; therefore a possible total of three countries. The May 1992 ARRL DXCC list confirmed the above situation.

The above should set some readers scouring through their QSL cards. However, before I accept any claims for the Six Metre Standings List 1 would like to peruse the actual card or a photocopy of the card to enable me to decide if your claim can be supported geographically.

#### On Higher Bands

Ron VK3AFW says he continues to work Andrew VK7XR most mornings on 144.1 CW with readable signals. Andrew reported one tropo opening to VK3 in April, and on 25/4 he heard a brief opening to VK4 on two metres

and copied several repeaters, but no contacts were made.

On 9/5 from 0700, auroral activity was noted in VK3 on both six and two metres. Around midnight local time Norm VK3DUT worked VK7ZMF and several other stations on six metres, and VK3ELV in Wangaratta and VK7ZMF in Hobart on two metres SSB. VK3AZY and VK3DUQ were involved.

On 16/5, Ian VK1BG worked Phil VK3ELV at Wangaratta on 1296 at 5x4 both ways, for a distance of about 270km over the Great Divide at one of its highest points. This contact gave Ian his fourth VK3 on 1296. Contacts

were also made on 144 and 432MHz. All these contacts were via aircraft enhancement. Others to use aircraft enhancement have been Eddie VK1VP to John VK3ZJC and Arie VK3AMZ. Lyle VK2BE has also worked VK3ZJC.

#### Closure

Two thoughts for the month: *Laughter is the sun that drives winter from the human face* and *With a good band of credit cards, it's easy to go for broke - and make it*. Till next time - 73 from The Voice by the Lake.

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## Pounding Brass

Gilbert Griffith VK3CQ - 7 Church St Bright '3741

This month I would like to feature some Morse code software which was sent to me by Ross Keatinge ZL1BNV in May. Gary Bold reviewed Ross' program in April for his column in *Break-In* (the New Zealand official journal) and Ross posted me the program, which I have been trying out.

You may remember the last program I tried out was VK3VR Geoff's RD Contest program. Well, this one can be used for contesting as well, but does not give the printouts and cover sheet as in the RD Contest program. It is very simple to operate but still has the following features:

- \*A memory for each F-key (to F10)
- \*A repeat character
- \*Automatic serial number incrementing for contesting.
- \*Serial number resetting and alteration with page up/down keys
- \*Speed change while transmitting with up/down arrow
- \*Status line giving last serial number and speed
- \*Help screen which does not interfere with sending
- \*And the following 'hot' keys:
  - Alt-D toggle colour/mono display
  - Alt-H Help screen
  - Alt-N Setup IO Port
  - Alt-P Pause on/off
  - Alt-S Speaker on/off
  - Alt-W Save messages, speed and serial to disk
  - Alt-X Exit to DOS
  - ESC Stop sending and clear the buffer.

The CW for the transmitter comes out of the parallel printer port on your computer, and the interface is very simple for modern rigs with positive keying (see figure 1). The interface fits inside a DB25 connector shell and is easily assembled from one's junk box by anyone with a soldering iron.

The program starts with Ross' copyright notice with "Press any key to continue", followed by a blank screen with the status line at the top giving "Last S/N: 0. Press ALT H for help. Speed: 25", and pressing Alt-H gives a screen which has all the controls explained.

I loaded some Function key memories with 3 by 3CQ calls, my callsign, some serial number formats and repeats to see how they all worked, and found it was possible to keep pressing F-keys until the screen is full, at which time you started to lose messages as you tried to enter them. But a full screen represents a buffer of 1800 characters, and I make that about 10 minutes of buffer to the page at 30 words per minute! I entered up to 1800 characters in one F-key memory, but found I had wiped a previously recorded F-key, so I eventually settled for recording 10 F-key memories with 400 characters each, and yet I did not find the real limit of these memories. It may be possible to record 1800 characters in each F-key memory and save them to disk without losing anything. To enter text into a F-key memory you press Alt F1 and the status line tells you that you are currently entering text to message number 1, entering text terminates when you press enter. You can enter the hash sign (#) last and the message will repeat, or enter the code for a serial number with up to four digits which can be upgraded automatically, or ignored as required. Pressing the required F-key sends that particular message; pressing Shift and the F-key sends the message but does not update any serial numbers; and pressing ESC erases the screen and immediately stops sending. Of course, typing text normally at the keyboard starts filling the 1800 (one page) buffer and the computer operates the transmitter at the selected speed. You will be surprised how hard it is to keep up with a moderate sending speed unless your touch typing is very fast and accurate (which mine

isn't).

Commonly used punctuation is provided, such as question mark, comma, full-stop and slash, with special characters of

- (hyphen) sends BT,
- = (equals) sends AR
- \ (back-slash) sends BK
- + (plus) sends SK
- ; (semi-colon) sends KN.

I would have liked to have seen a few extras in the special character department such as \$ @ & % ! etc, but it is difficult to find someone who knows some of those more obscure characters.

Ross has given me permission to distribute the program, so if you want a copy you can either send me your formatted disk with return post and packaging, or just \$5 and your format requirement of 360kB or 1.2mB disk and I will supply the disk, p&p etc.

I am sorry if you do not have a computer and find all this talk of programs and such boring. I guess it is something we all need to adjust to and that is the main reason I am involved in computers - to try to stay one jump ahead of my kids! But also it is such a large and varied subject that I am glad I am not being left too far behind the times.

Does anyone know the official Morse characters for some of the obscure characters mentioned above?

I think it is generally agreed amongst amateurs that the exclamation mark should be --- •. (OE), but did you know the following?

colon	----•••	(OS)
apostrophe	•-----•	(JN)
brackets	-•---•-	(KK)
(left-hand bracket used to be	-•---	
• (KN))		
underline	••---•-	(UK)
understood	•••---•	(SN)
semi-colon	-•---••	(KR)
quotes	•---•••	(RR)
multiplication sign	---••---	(X)
dollar sign	•••---••	(SX)
paragraph	•---•••	(AL)

Correspondence and argument on the above subject will be enthusiastically entered into.

73, Gil VK3CQ

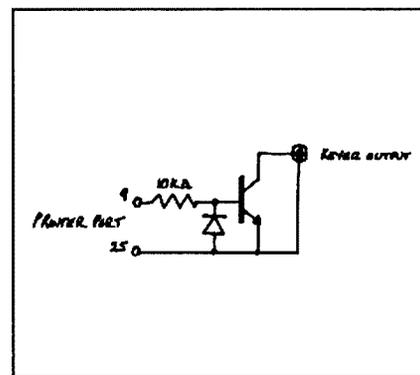


Figure 1

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# AMSAT Australia

Bill Magnusson VK3JT - Packet VK3JT @ VK3BBS

## National Co-ordinator

Graham Ratcliff VK5AGR

Please take note of the AMSAT information nets:

### AMSAT AUSTRALIA net:

Control station VK5AGR

Check-ins commence at 0845z on Sunday nights

Bulletin commences at 0900z

Frequencies 3.685MHz or 7.064MHz. At present 7.064MHz is used.

### AMSAT SW Pacific net:

2200z Saturday on 14.282MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular AMSAT information.

AMSAT Australia Newsletter and Computer Software:

Satellite users, whether experienced or newcomers, will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$20 payable to AMSAT Australia, addressed as follows:

AMSAT Australia  
GPO Box 2141  
Adelaide 5001

The newsletter provides up-to-date information on all current and planned satellite activity. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

### KITSAT-A

Last month I outlined some details of this new satellite. More information is coming to hand as the launch date approaches.

KITSAT-A will transmit and receive 9600bps FSK signals using the AX.25 protocol. The downlink will also contain telemetry, experimental data, camera images and store and forward data. This will account for about 95 per cent of downlink time. The remaining five per cent will be taken up with DSPE (digital signal processing equipment). This will take the form of digital voice broadcasts and high-speed modulation experiments.

The satellite will be controlled from Korea. The control station call is HLOENJ. The University of Surrey team will be acting in an advisory capacity.

KITSAT-A user frequencies: There will be two uplink frequencies. The primary uplink frequency will be 145.850MHz. The secondary uplink frequency will be 145.900MHz. There will be one downlink frequency. It will

be 435.175MHz. These frequencies have been chosen after long deliberation to be least likely to cause interference to existing amateur radio satellites. (Unlike a couple of other recent examples).

The launch is planned for 23 July 1992. It will travel into orbit with another (commercial) micro-satellite and the main payload, which is called Topex/Poseidon, an oceanographic researcher. As I mentioned last month, the orbit will be very interesting and unique for an amateur radio satellite. It will be rather like a highly inclined version of the old Oscar-7 with long access times and slow transmit across the sky. The 66-degree inclination will take it way south of VK on occasions, giving good opportunities for VK0 contacts. I wonder if anyone's geared up down there?

No doubt KITSAT-A will be allocated an oscar number when it's safely in orbit and fully commissioned. Watch your local packet BBS for details as the launch date approaches.

### Oscar-10 Kaps

It looks like the approaches made to NASA by Amsat-NA have been successful in re-including Oscar-10 in the two-line keps list. The last set I downloaded, which were marked day 144, included a set for Oscar-10. Let's hope this continues as Oscar-10 is still a very workable satellite.

### Oscar-13

Operating conditions for southern hemisphere stations should slowly improve over the next couple of years. The apogee is moving south at the rate of about 0.01 degree per

day after a lengthy stay in the northern hemisphere. This rate will increase a bit as it comes further south. It is currently about 50 degrees north of the equator. For stations in VK6 there should already be some quite good windows into Europe, and this will gradually extend east over the next couple of years as the apogee moves further south. So it's time to dust off all that gear, reset the rotators and make the most of it. Remember, we've got only another three or four years before Oscar-13 re-enters, so we'll probably never see it back over the equator. But, during the time it has left, it should provide some good long-distance communications in the southern hemisphere.

### Sail Race to the Moon

"In 1492 Columbus sailed the ocean blue". And, to commemorate this epoch-making event, another rather amazing event is to take place in 1994. Originally proposed to start in 1992, this race has attracted participants from Europe, USA and Japan. The idea is to design and build a spacecraft using 'solar sails' for propulsion and engage in a sailing race to the moon. The craft will be launched on an Ariane rocket. They will make use of the solar energy and their sails will be made like the radiometers we are all familiar with, spinning around in the sunlight on our science classroom window-sills. Their direction will be controlled by radio command through yaw, pitch and roll control surfaces on the sails. The first craft to send back a picture of the other side of the moon will be the winner. The combined Amsat-NA and World Space Foundation spacecraft will carry a colour camera similar to the one on Webersat Oscar-18. It will carry a beacon on 145.825MHz and a microwave communication package. If it is successful in reaching the moon it will have the capacity to go on to a close encounter with Mars some time later. This is pretty exciting, and will no doubt create quite a bit of interest as the launch time approaches.

## Satellite Activity for January to March 1992

Bob Arnold  
VK3ZBB

### 1. Launches

The following launching announcements have been received:

Intl No	Satellite	Date	Launch Nation	Period min	Apog km	Prg km	Inc deg
1992 -							
005A	COSMOS 2177	Jan 29	CIS	11h16m	19150		64.5
005B	COSMOS 2178	Jan 29	CIS	11h16m	19150		64.5
005C	COSMOS 2179	Jan 29	CIS	11h16m	19150		64.5
006A	USA-78	Feb 10	USA				
007A	JERS-1	Feb 11	Japan	96.0	580	558	97.7
008a	COSMOS 2180	Feb 17	CIS	104.9	1028	980	82.9
009a	USA-79	FEB 23	USA	714.7	20318	19913	54.7
010a	SPRBIRD	FEB 26	ESA	631.3	35776	222	7.0
010b	ARABSAT-1C	Feb 26	ESA	632.4	35832	222	7.0
011a	MOLNIYA	Mar 04	CIS	11h42m	38998	629	62.9
012a	COSMOS 2181	Mar 09	CIS	105.0	1027	994	82.9
013a	GALAXY 5	Mar 14	USA	653.9	36135	1092	19.6

014a	SOYUZ TM-14	Mar 17	CIS
1963-047B	ATLAS/CENTAUR	Mar 20	
1971-096A	EXPLORER 45	Jan 10	
1975-033A	ARIABAT	Feb 11	
1976-085B	COSMOS 851	Mar 22	
1977-015A	COSMOS 895	Mar 22	
1978-024A	MOLNIYA 1-39	Mar 09	
1978-072A	MOLNIYA 1-41	Feb 08	
1980-051A	METEOR 1-30	Mar 01	
1990-038A	COSMOS 2075	Feb 20	
1990-058A	GAMMA	Feb 28	
1991-049A	COSMOS 2153	Mar 13	
1991-051E	MICROSAT-5	Jan 24	
1991-085A	COSMOS 2174	Jan 30	
1992-001A	COSMOS 2175	Mar 20	
1992-002A	STS-42	Jan 30	
1992-004A	PROGRESS M-11	Mar 13	
1992-014B	SOYUZ TM-14	Mar 19	

### 3. Notes

1992-014A SOYUZ TM-14 carried three cosmonauts and docked with the MIR space station on 19 March 1992.

Bob Arnold VK3ZBB

## Education Notes

*Brenda Edmonds VK3KT – WIA Federal Education Co-ordinator  
PO Box 445 Blackburn 3130*

I have recently had the opportunity to examine a copy of the 1991 *Proceedings of The ARRL National Educational Workshop*. This is the third year in which amateur radio recruiters, educators and others have been asked to submit papers for publication in the hope of assisting others to increase public awareness of amateur radio, teach amateur radio classes, integrate amateur radio into the formal classroom, or encourage and support newly licensed amateurs.

The 'booklet' runs to 254 A4 pages. Almost all of the 40+ contributions are from licensed amateurs. Many of them are 'How I do/did it' type, setting out in more or less detail the reasons for the activity organised, the preparations, processes and results, some evaluation and further suggestions. They range from a sample submission for funding to complete lesson plans or dissertations on the application of amateur radio to the Earth Science classroom, the Elementary School Guidance and Counselling Program or teacher training. Each paper is published unedited, so there is a wide range of styles and formats as well as varying levels of technical detail.

The most impressive part is the obvious enthusiasm and dedication of all the writers. Although admitting their own personal preferences, many of them have taken a larger view in the interests of encouraging a new generation of amateur operators, whether in primary school or among senior citizens. While acknowledging that the success rate in any

group may not be more than five per cent overall, and that the attention span of teenagers is traditionally very limited, the programs

have all 'worked' to some extent. (This is not surprising, I suppose. Would you write up one that was a miserable failure?). The authors have gone to a lot of trouble to make their contributions easy to follow, with samples of publicity material, individual class worksheets and a host of useful ideas. And it has all been produced specifically to allow others to evaluate the ideas and use them, if appropriate.

This is not a book I would say should be in every amateur's library, but it would be very good value for anyone wishing to introduce amateur radio to a group of students, or looking for ideas for new approaches. Divisions and clubs would find useful publicity suggestions, and many of the bright ideas will appeal to course teachers. (Why didn't I think of some of these years ago?). There is little effort required to translate the American situation to the Australian. As well, much of it makes entertaining light reading, mostly in short articles which can be read in only a few minutes.

The ARRL and the contributors are to be congratulated on this initiative.

I would very much like to know what is happening to amateur radio in Australian schools. Please drop me a note if you are running a school station or classes, or if there is a chance of integrating radio into classes in your school. Perhaps some of the ARRL Workshop papers could encourage more school activity.

My inspection copy from Stewart Electronics. RRP \$24.00. This will be available from Divisional bookshops shortly.

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## FTAC Notes

*John Martin VK3ZJC FTAC Chairman*

### Records

Moss Kucerans VK7IK has broken his VK7 shortpath record on six metres by working PA0LSB on 8/2/92. The contact was CW and the distance is 17,053km.

John Bisgrove VK4KK (also better known to some of us at VK4ZJB) made two new VK4 6m records within the space of six minutes on 15 February. The first was a contact with Ken

Willis G8VR (16,416km), and the second was to Paul Simons G4CCS (16,515km).

### Data Base

The time for the next *Callbook* is getting very close, so any corrections or additions to the beacon and repeater lists would be much appreciated as soon as possible!

ar

**Sign up a new WIA  
member today**

# ALARA

Jenny Adams VK3MDR – 70 Kangaroo Ground Rd, Wattle Glen 3096

Greetings to all once again. In May we had our annual general meeting and there have been a few changes. Firstly, a thank-you is in order to all who have retired from their positions, especially Bron VK3DYF who, after editing our newsletters for six years, takes on the job of secretary. Robyn VK3ENX has taken on the job of publicity, and I hope she enjoys the task as much as I have. Dorothy VK2DDB is our new editor. Congratulations to all those re-elected in their present positions - President Maria VK5BMT, Immediate Past President Jenny VK5ANW, Vice Presidents Christine VK5CTY and Judy VK3NYL, Treasurer/Souvenir Custodian Val VK4VR, Minute Secretary Christine VK5CTY, Awards Custodian Jessie

VK3VAN, Historian/Contest Manager Marilyn VK3DMS, Librarian Kim VK3CL and Sponsorship Secretary Poppy VK6YF. Last, but not least, our State Representatives: VK1/2 Dorothy VK2DDB, VK3 Bron VK3DYF, VK4 Margaret VK4AOE, VK5/8 Meg VK5AOV, VK6 Poppy VK6YF and VK7 Helene VK7HD.

In July we celebrate our 17th birthday, with many states celebrating with a luncheon. Set aside a few hours on the fourth Saturday in July for our ALARA Birthday Activity Day, 0800 to 1200 on 3.588, 14.288, 21.188, 28.588 and 28.688. Hopefully the previous editor's rig will hear some activity this year.

Cheers for now.

ar



Pictured on Wednesday 9 October 1991, L to R: Christine VK5CTY, Marilly (sister of Maxi), Maxi DJ4YL, Irene Wilson, Denise VK5YL and Maria VK5BMT at a coffee house in the City of Adelaide.

## Spotlight on SWLing

Robin Harwood VK7RH

As I write this, the situation in the former Yugoslavian republics has worsened. The United Nations has imposed tough economic and political sanctions on Serbia and Montenegro, to try to bring the senseless

slaughter and misery to an end. So far there has not been any success. Although the shortwave senders of Radio Yugoslavia from Belgrade are situated in Bosnia-Herzegovina, it does not appear to have made any appreci-

# Tell the advertiser you saw it in the WIA Amateur Radio Magazine!

able difference. Presumably they must be located in Serbian-controlled areas.

Croatia has now commenced broadcasting on shortwave and has been heard quite well in Australia. Listen on 9830 or on 21480kHz around 0600z for Radio Zagreb in Croatian. At approximately 0605z, there is a brief English news bulletin. Overseas DX sources report that these short English newscasts are heard at 0603, 0803, 1203, 1603 and 2103. A European monitor also stated that Radio Zagreb has an English newscast at 2220z on 6210. I have found 21480 provides the best signal, as it is on 24 hours a day. 9830 is fair, despite being a clear channel, and I suspect it is a low-powered sender. Belgrade is still being heard at 1130z in English on 21605, preceded by a Serbian program.

The Southern Cross DX Club Inc, which is based in Adelaide, has produced a receiver guide. This non-technical guide is a review of new and second-hand receivers currently available in Australia. It has been written and compiled by Stephen Newlyn VK5VKA. This nine-page pamphlet reviews most models, such as the Kenwood, Icom, Panasonic, Yaesu, Grundig and Sangean etc. It is well written, but isn't a technical review. It costs \$2.50 and is available from the Southern Cross DX Club Inc, GPO Box 1487, Adelaide, SA 5001.

This month, as you are all no doubt aware, the 1992 Olympics commences in Barcelona, Spain. There is going to be an extensive coverage on shortwave from most of the international and national stations. The Spanish Foreign Radio in Madrid has been giving extensive coverage of the trials and difficulties the Spanish authorities have been encountering in organising these Games. Incidentally, the new title of the former Spanish Foreign Radio is the External Service of the Spanish National Radio. A 24-hour Spanish World Service will be operational by now. I'm hearing it best at 0600z on 7105.

Well, that is all the news for this month. Until next time, the very best of 73 and good listening.

# Repeater Link

Will Mc Ghie 21 Waterloo Cr Lesmurdie 6076

## On-Air Audio

The four diagrams as shown are real samples of amateur audio as seen on two metres FM. The vertical scale is deviation in kHz. The dotted lines show + and - 5kHz, and + and - 10kHz. The horizontal scale is time. These audio samples are input signals to a repeater. If the repeater has no audio processing, the output audio from the repeater will look and sound the same.

Figure 1 is the right peak deviation but with too much mic gain. Figure 2 is close enough to being correct. A peak deviation of 5kHz with the right mic gain (compression). Figure 3 has an unknown peak deviation with too little mic gain. Figure 4 has too much deviation, but the right mic gain.

There are many combinations of the four samples as shown, but they are representative of the wide variation in amateur audio signals. The problem for the repeater designer is to leave them as is, or to add some processing to iron out the differences. Simple audio processing can easily restrict the peak deviation to 5kHz, as shown in figure 2. The result with audio AGC would be that figures 3 and 4 could now look like the correct figure 2. However, figure 1 would suffer with increased audio compression, on top of its already excessive compression. There is always a compromise, but the result is better sounding audio.

To help relate the diagrams to what these samples sound like, here is a description of each.

Figure 1 sounds loud, with a loud audio background noise. If mobile, the vehicle's mechanical noise can be heard as loud as the operator's voice. Comments like, 'You must be driving a big four-wheel-drive truck with all the windows down' best describes this signal.

Figure 2 sounds comfortable, with the right mix of wanted audio and little background audio. An easy-on-the-ears signal.

Figure 3 is hard to understand. Your receive volume control is flat out, and you miss a lot of what is said. There is white noise on the audio, mixed with ignition noise if you are mobile. Chances are the next amateur signal blows you out the window.

Figure 4 is loud, but may be broken up due to the excessive deviation causing the repeater's mute, and/or your mute, to close on voice peaks. This type of audio is confusing, as it sounds strong with no noise, but breaks up.

The difference in audio level between figure 3 and figure 1 or 4, can be 20dB. Yes, 20dB. That is 100 times more audio power. It is little

wonder that some stations blow you out the window while others can't be heard.

It is important to understand that audio levels in an FM system do not relate to RF signal levels. Strong RF signals do not have loud audio simply because they are strong. The single most important adjustment in your FM transmitter for good audio is the mic gain. Correctly set for your voice and operating

situation, this control will produce that easy-on-the-ear sound.

In a future article of 'Repeater Link' I will endeavour to describe the correct setting up of the mic gain and deviation controls. These two controls may appear to do the same thing, but they do not. Results from adjusting them can easily lead you into believing the correct outcome has been achieved, but an understanding of their functions is needed to set up an FM transmitter's audio.

Most FM transceivers produce good audio and never need adjusting, but this is not always the situation. If you receive consistently poor reports of your signal, don't only look at the RF side of things, or blame it on the repeater, it may be your transmitted audio.

ar

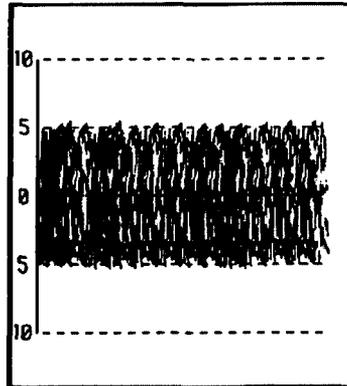


FIGURE 1

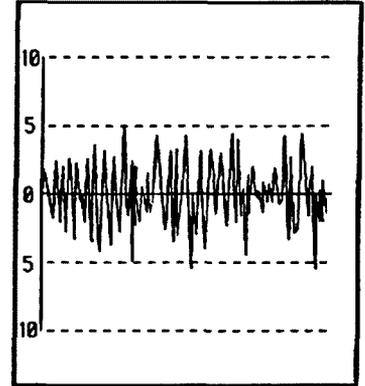


FIGURE 2

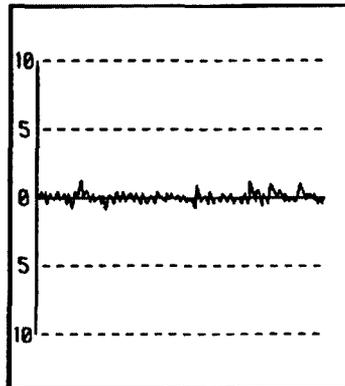


FIGURE 3

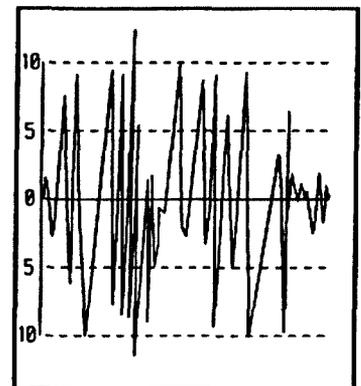


FIGURE 4

## Club Corner

### Summerland ARC - Minifest

Sunday 2 August is the date for the Summerland Amateur Radio Club's annual Minifest.

Bring and Buy stalls; heaps of treasures awaiting discovery; disposals; packet demo; trade display.

Maybe a foxhunt or two.

Refreshments available (BBQ, tea, coffee, drinks etc.

The venue is our clubrooms at Richmond

Hill, via Lismore, commencing at 9.30am.

Directions on VK2RIC, VK2RBB or VK2AGH.

More information from John (066) 21 933, Ken (066) 24 4771, or Graeme (066) 85 1336. Packet news on VK2EA-2, VK2AGH-2, or VK2YDN-2, all via VK2RPL-1, 668900.

Make a note in your diary now - Sunday 2 August 1992, Minifest.

**Graeme VK2GJ**  
Publicity Officer

## QSLs from the WIA Collection

*Ken Matchett, VK3TL Hon Curator, WIA QSL Collection*  
4 Sunrise Hill Road, Montrose 3765, Ph: (03) 728 5350

### Danzig - and what's on that old QSL card? Part II YM4AF

This is a slightly older QSL than that of YM4ZO, and dates from October 1935. The TWR (Tone, strength, readability) code is still being used, although some operators at this time had already started to use the RST system. The operator has crossed out his callsign of YM4AF, thus turning his QSL into a SWL report, his licensed receiving call being DE2796Y. When transmitting, the operator, Max

Brandstaedter (who was then living in Hitler Street) used the popular Hartley transmitter in which the anode and grid are connected to opposite ends of a parallel tuned circuit.

Input power was only 30 watts. Note the Nazi symbol of the swastika on Max's card. This became quite a common symbol on German QSL cards from about the mid-1930s, the Nazi Party having won the elections held in Danzig in 1933. The operator is using GMT rather than local time standard, as GMT was becoming increasingly used on the Continent

by this time. On top of the card we read "Besucht das schoene Danzig" (Visit beautiful Danzig), one of the few tourist promotions that were just becoming popular, and which on many of today's QSL cards have given rise to many attractive pictorial renditions. The name of the very ornate building does not appear on the card. However, a search of Polish tourist literature led the writer to identify it as the Artus Mansion situated in what is called the Long Market in the middle of Gdansk. In late mediaeval times the building was the meeting place of rich merchants, and became a kind of closed club and stock exchange. The internal fittings were completely destroyed by bombing, but the interior has been fully restored by expert craftsmen. Just to the right of the picture can be seen a fountain. This is called the Neptune fountain and is the most famous one in Poland, Neptune signifying the dependence of the city upon the sea for its prosperity.

### Author's Note

Much of the history of amateur radio can be gained by the study of the QSL cards of yesteryear. This column is only possible by reference to such cards in the WIA QSL Collection. We think it's worth preserving and for this reason appeal to all amateur radio operators and short wave listeners to give generously to the Collection. (It should be realised, however, that all QSLs are gratefully received whether they be pre-war or post-war). If you would like to help, please contact the writer of this series of articles. All contributions are acknowledged both in AR and by personal letter by the writer, who is the honorary curator of the Collection.

### Thanks

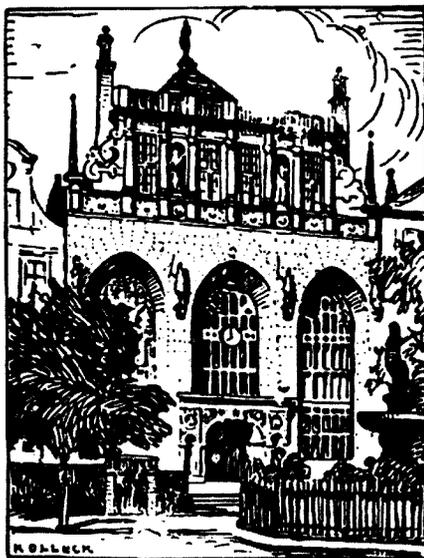
The WIA (Vic Div) would like to express its thanks to the following who have kindly donated QSLs to the Collection. (Supplementary list).

Percy VK4CPA Bill ex VK6WY  
Ron VK3QP Mike VK6HD  
Stan VK3BSR (ex VK3ASB) Frank VK2QL  
Owen VK1CC Reg ex VK1RF.

Also to the family and friends of the following "Silent Keys" (Supplementary list):

Russell Edwards VK3CZ  
Fenton Sanderson VK6TS

ar



YM - DE 2796 y  
BESUCHT DAS SCHÖNE  
DANZIG  


To radio VK 3 2 w  
Urlop red on 14015 16 gmt  
t. 9 w. S. r. S mc. 1/2 qr. qs  
Xmtr. Hartley inpt. 30 wts  
Rcvr. S.G. P. Aerial 52 m  
DX 5 Cont. 1/2 Countr.  
Inx - Pse qsl 73 fb DX

Qra: Max Brandstädtter  
Danzig-Oliva, Ad. Hitlerstr. 484  
DE - QSO № 1178

**Have you advised  
the WIA Executive  
Office of your new  
callsign? Use the  
form on the reverse  
of the Amateur  
Radio address  
flysheet**

# Divisional Notes

## VK2 Notes

Tim Mills VK2ZTM

### AGM

Perhaps on the second time. The re-scheduled NSW Division was advised in last month's notes for Sunday 28 June. It should be over by now. A report in later notes and in VK2WI weekly news.

### July Trash & Treasure

This is set down for Sunday afternoon 26 July in the car park at Parramatta. Sellers from 1pm and buyers from 2pm. Good weather was on hand for the May event and saw a very good crowd, perhaps still waiting from the cancelled March event due to doubtful weather. Perhaps the next problem is going to be overcrowding, for there was a record number of both sellers and buyers in May. As always, keep an ear on the Divisional broadcasts for details.

### August Exams

The next exams conducted by the NSW Division will be Sunday afternoon 30 August. Closing date for applications is 13 August. Venue is the library at the Parramatta office. Check page 3 in this AR for means of contacting the Divisional office.

### VK2WI

Late in October this year, the morning VK2WI broadcast will move to a slightly earlier time slot of 10am. There will be no change to the present evening slot from 7.15pm. More details in later notes. A request last month for a replacement base station for 52.525 has been filled. Thank you. A solid state unit is now being crystallised up. The planned 6m repeater for VK2RW1 is getting closer now that a transceiver and cavities have been sourced. The transmission on 12 metres will move soon from 24.91 to 24.95MHz. An alternative test may be conducted on 15 metres about 21.17MHz. These secondary transmissions are made when equipment is spare via a standby unit when not required for 80, 40 or 30 metres. The Great Lakes Amateur Radio Club has recently set up its 2m repeater VK2RGL on 7375 to automatically relay both the morning and evening broadcast from VK2WI. This is the 14th repeater used in broadcast presentation. Additional relays are still required in major regions. Club committees should soon receive a newsletter detailing various changes and upgrades scheduled for VK2WI, which may affect aspects of their relay involvement. It is time for the roster for announcers and engineers for the next quarter at VK2WI to be drawn up. Advise the office of unsuitable dates/times from the current crew, or if any-

body wishes to join the roster, also contact the office by the usual means.

### QSL Bureau

Please note recent changes to card handling. Check your club QSL officer for details, collect a sheet from the office, or listen to the periodic announcements on the broadcasts. Have you registered your card-handling methods with the Bureau, via the office? See card and report in AGM booklet.

## VK3 Notes

Barry Wilton VK3XV

At last, some good news regarding our repeater sites!

Following the publication of our letter to DC&E in the May edition of this magazine, the Victorian Division Council produced another comprehensive submission which was forwarded to the assistant director, National Parks and Public Lands Division.

The final outcome of this matter is most favourable, and the following is an excerpt from an official letter received from DC&E:

"The nature of an organisation and the purpose for which a site is used dictate the policy adopted by the Department in establishing rent. A market rental applies to those tenants who are involved in operational or commercial activities or have exclusive use of a site. However, organisations primarily set up to provide a social, recreational or cultural service to the community, and which have limited means to generate revenue, are charged a nominal rental only.

Given that the Institute is a non-profit organisation established to provide facilities for radio amateurs and generates revenue primarily through members' subscriptions, it is considered that the Institute fits into this latter category and should, therefore, be regarded to be a community tenant for the purpose of rental determination. A copy of the Department's policy relating to community tenants is attached for your information.

The nominal rent charged for community tenants is currently set at \$104 per annum, an amount covering Departmental costs. This amount will be payable for each tenure held. Regional staff have been advised to adjust accounts accordingly.

Please note that, where there are any situations where the Institute has entered into a commercial arrangement to sub-let its own facility to another organisation, a market rent would be payable in respect of that site."

It would certainly appear that success has been achieved on this front; however, we

must closely monitor the situation as it develops regarding the privatisation of the repeater network utilised by Victorian Government services.

It is too early to predict the long-term effects of this privatisation policy; however, we will keep you well informed.

## 5/8 Wave

Jennifer Warrington VK5ANW

### Council Update

Here, as promised, are the rest of the council portfolios and their holders:

Bob Allan VK5BJA

President, DoTC Liaison & SATAC Co-ord

John Highman VK5PJH Secretary

Bill Wardrop VK5AWM

Treasurer, Federal Councillor & Journal Editor

Peter Maddern VK5PRM

Building Supervisor & Auctioneer

Ian Watson VK5KIA

Alternate FC, WIGEN Director and Publications Officer

Mark Spooner VK5ACQ

Program Organiser & ESC member

Rowland Bruce VK5OU

Past President, 5/8 Wave Columnist (and possibly Minutes Secretary)

Rob Gunnourie VK5FI

Clubs & Country Members' Representative

Chuck Waite VK5CQ

Membership Secretary (and possibly Examinations & Education Officer)

Alan Roorcroft VK5ZN

QSL BURO Manager

One or two positions were still subject to negotiation at the last meeting when these were announced.

And yes, you did read that right, next month's column will be my last. I decided it was time to hand it on to someone else, preferably someone who is still on Council and nearer to the 'heart' of the Division. I am delighted that Rowland has agreed to take it on and keep it going. He proved last year that he is equal to the job. It was pure coincidence, but next month will be exactly 10 years since I started doing it.

### Diary Dates

July 28 General meeting, 7.45pm at the BGB.

As promised last month, here are the Examinations Information Sheets for Remote Area and Special Conditions Examinations, courtesy of Christine Taylor VK5CTY.

## Information for Applicants for Amateur Exams

### Special Conditions Examinations

From January 1992 the amateur examinations will all be conducted under the authority of the WIA Exam Service.

In each state there will be a list of official examiners which will be available from DoTC. These examiners will conduct exams at scheduled times and places (available from the examiner or the local Division of the WIA).

All examinations **must** have two official

examiners present at all times.

If, because of religious or work commitments, a candidate cannot attend a scheduled examination they may apply for an examination to be held on a day or at a time that is suitable.

Payment for the examination(s) will be at the time of application.

The examiner will apply for only the papers required and will arrange the time and place with the candidate when the papers arrive.

On the day of the examination the candidate will be able to obtain a provisional mark at the conclusion of the examination. The official mark and any appropriate forms will be forwarded to the candidate from the WIA Exam Service.

These results, along with any previously obtained qualifications, must be presented to the Department of Transport and Communication when applying for certificates or station licences.

Good luck!

Prepared by Christine Taylor VK5CTY.

#### Remote Areas

From January 1992 the amateur examinations will all be conducted under the authority of the WIA Exam Service.

In each state there will be a list of official examiners which will be available from DoTC. These examiners will conduct exams at scheduled times and places (available from the examiner or the local Division of the WIA).

Candidates from country areas who attend any of these scheduled examinations may apply for a private examination in their own area.

Many of the professional people in the local towns can be authorised to conduct an individual examination. A list of these people is also available from the Divisional Office.

These people may become 'once only' examiners.

When the candidates are ready to sit for any of the amateur examinations they should ap-

proach one of the people on the list, with this information to explain their request, and ask for assistance.

The examiners' applications, along with a covering letter from the candidate listing the examination(s) to be attempted, should be sent to the:

WIA Exam Service

PO Box 300

CAULFIELD 3162

This service will send back all the appropriate information to guide examiners and examinees.

Good luck!

Prepared by Christine Taylor VK5CTY.

## VK6 Notes

Harry Atkinson VK6WZ

Two well-known VK6 operators are leaving - one to live in VK3, the other to spend about two years travelling Australia. Alan VK6AR will be a resident of Geelong some time this month. He and XYL Shirley will henceforth live close to family in Victoria, perhaps to the chagrin of Telecom! John VK6GU and XYL Hope are off to warmer climes initially, by taking the clockwise route around VK. Plans? To go places and renew friendships and to take at least two years doing it. Good luck to both parties.

Nick VK6ND is settling in well as BCO, and callbacks each week testify to this.

This is the time of year when many amateurs take off for touring ... and enjoy the security and peace of mind engendered by the Australian Travellers' Net on 14MHz, and Ross' 21MHz net for those unable to call in on 20 metres. For new licensees, the ATN operates on 14.116MHz seven days a week at 0300 Zulu, and the VK6DA net can be found on 21.185 seven days a week at 0100 Zulu.

The latter net has been welcomed by many travellers, especially those with novice calls. It fills a long-felt want.

2m group from 1948-1950 using MOPAs and Superregen receivers.

After shifting to Templestowe, he had problems with the broadcast stations over the river from his location and his amateur radio activities were severely restricted. However, his interest in electronics in general did not diminish.

He will be greatly missed by his daughter Carol and her family as well as other relatives and many friends.

Allen Crowther VK3SM

## Jack (John Henry) Early VK2KQ

A well known and respected member of both the post office and amateur radio, Jack passed away, aged 90, on Sunday 17 May in Port Macquarie Hospital.

Jack, who was born in Helensburgh, south of Sydney, was the son of a coal miner. He attended school in Wollongong, leaving at the age of 15 to take up a job at Clifton Post Office. Jack passed his Morse test of 20 words per minute in 1918, worked at many post offices in NSW, and finally became Postmaster at Toronto late in 1941. This office was upgraded by the creation of the RAAF base at Rathmines.

Jack was a 'top' morse operator, and right up to the time of his death, was an active ham radio operator.

He had close associations with the Westlakes Amateur Radio Club at Teralba as well as the Newcastle Morsecodians.

Frank Mike

## Clarice Adams VK3UE

Clarice died on 26 May. She was first licensed in 1947 with the callsign VK3VB, and after her husband Stan died in 1977 took over his callsign VK3UE. Clarice was very active on the VK3UE net and made many friends here, interstate and New Zealand. Her cheery voice and interest in people will be sadly missed.

A remarkable lady has left us.

Barry Gauntlett VK3JB

## Reg Orr VK4CV

It is with an acute sense of loss that I record the passing of Reg Orr in April 1992.

Reg will be sadly missed by his many friends among the amateur radio fraternity and the Royal Flying Doctor Service. Reg was a radio operator in the merchant navy during WW2. After a short stint with DCA, he joined the Queensland section of the RFDS in 1947. He was in his 43rd year of service as State Radio Supervisor when he retired in 1989. I was fortunate enough to be closely associated with him during the last 10 years of his working life.

Reg's amateur radio interests lay mainly in VHF, satellites and packet. A man of firm convictions, he called a spade a spade, and was much admired for his traditional values. Vale Reg Orr VK4CV.

Nick Watling VK4YT ar

# Silent Keys

*Due to increasing space demands obituaries must be no longer than 200 words.*

The WIA regrets to announce the recent passing of:

J H (Jack)	Early	VK2KQ
L (Len)	Pollack	VK2NM
A T (Allan)	Bosher	VK2TU
R T (Ray)	Pettigrew	VK3DO
IT	Adams	VK3OA
C (Clarice)	Adams	VK3UE
R (Reg)	Orr	VK4CV
DJ (Dave)	Richards	VK4UG
AR (Alan)	McKinnon	VK5AM

## Raymond Thomas Pettigrew VK3DO (ex VK3PE)

Ray passed away suddenly on 10 May 1992. He had been an amateur since 1947 and worked for many years as an industrial electrician, and later at Preston Technical College as a lab assistant in the electrical and communications section until he retired.

He was very active as an amateur in the earlier years, and was a member of the Coburg

# Over To You

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

## Suggest, but not Direct

Reading through the IARU Administrative Council's Summary Record, Bandung 1991, I came across the following: "Concerning the improper use of the amateur bands". In respect to various other reports of non-amateur operation in amateur bands and amateur satellite bands Mr Owen VK3KI reminded the group that the ITU exists because of an agreement between countries in the form of a convention; that is, in so agreeing, the countries have not surrendered their sovereignty and have not given the ITU authority to function as an international spectrum policeman; and that every country reserves the right to act in accordance with its own best interests as each country may define for itself.

So, if a country wants to operate a transmitter for broadcasting in the amateur bands, or cares little about the proliferation of transmissions on the 10m band, that's it! Short of imposing economic sanctions or sending a gun-boat, we may just have to learn to live with 'other users' of the amateur bands. 73

**Nell Penfold VK6NE**  
2 Moss Crt  
Kingsley WA 6026

## Titanic Anniversary Station Success

Single-handedly over a period of five days, using phone and Morse code on 80, 40, 20 and 15 metres, I answered hundreds of contacts and have already sent out the special QSL card to those operators who replied direct.

Those who made contact on the novice bands will have worked VK2MGY; "MGY", the callsign of the *Titanic*. But the card carries both calls, with a tick against the call worked. Among the contacts made were many from old radio pioneers and ship's operators, as well as those who had various connections with the *Titanic*.

Contact was also made with KA1BB, the USA *Titanic* station. Some of the interesting callers included the son of an operator at Cape Race, Newfoundland, who was on duty and heard the *Titanic*'s CQD SOS call on 14 April 1912.

Two people, one a still-current VK, were taken aboard the ship by their parents prior to its sailing; one of these, when observing the gleaming copper antenna wires leading to the Marconi room, was bitten by the 'radio bug' at the tender age of eight, and has been hooked ever since.

The highlight was perhaps contact with VOICQD, the operator at Cape Race telegraph

station. Historians will remember that operator Phillips was so busy working Cape Race with private messages from passengers, he ignored the final and crucial ice warning from the *Californian*. This station obtained the use of the suffix CQD after it ceased to be an accepted distress call.

All operators who QSL'ed direct (or via manager VK2DZF) will have received their cards by 25 May. All other cards will be held until 15 July 1992, after which they will be sent via the NSW Bureau.

**Ian C Griggs VK2WR**  
88 Excelsior Ave  
Castle Hill 2154

## BARC Picnic

As a member of the Barossa Amateur Radio Club it was with regret that I read in the 5/8 Wave column in the May issue of *AR* Jenny Warrington's 'attack' on the BARC's Radio Picnic Day which was held on the same day as Walk Against Want. Particularly offensive was the bold type telling 'picnic organisers' to note the date for next year's event.

Firstly, the red faces must have been on her behalf because they did not contact us to tell us of the problem. Secondly, I do not feel the WIA should be letting us know of the plans for next year through *Amateur Radio* magazine. At no stage has Jenny or the WIA had the decency to telephone or write to the BARC advising us of the matter at hand.

The BARC will be holding the next Mt Pleasant picnic on 28 March 1993, the same date as the Walk Against Want. This was planned before I read of the Walk Against Want date in the May *AR*.

We are committed to this date as it is the only time Mt Pleasant is available; in fact, the date for the Mt Pleasant Picnic Day is set with the Showgrounds committee for quite a few years to come (the week after the Mt Pleasant Show). The weeks before the Mt Pleasant Show are permanently booked for cricket and, from April on, are booked for football.

I feel our picnic day could not be totally blamed for poor response to the Walk Against Want. We had 450 people (amateurs and CBers) turn up at Mt Pleasant; this still leaves many hundreds more who could have volunteered to help out if they had been so inclined. Maybe not that many people are interested in WICEN activities.

**Steve Johnston VK5ZNJ**  
Box 67 Elizabeth 5112

*(Jenny who saw this letter prior to publication, has declined to comment. Ed)*

## QSL Cards

I refer to the SWL QSLs article in the "Over to You" column of April '92 issue of *AR*.

In response to that letter, I would like to offer some of my own figures. I work DX regularly on 20m, 100 per cent CW. I QSL 100 per cent by prior arrangement and reply 100 per cent to SWLs etc, but not to those who want me to pay the expenses both ways.

### Working Stations

1. Of those to which I QSL, about 18 per cent reply.
2. Of that 18 per cent, about 95 per cent of them wait until they receive my card first.
3. Via the Bureau or Direct the results are similar.
4. A very small percentage of those who reply direct will put extra cards in the envelope to be redirected to other parts of Australia. *Usually these are okay in the International Callbook, too.*

### Working Other VKs

1. Better than 90 per cent return rate.
2. Again the great majority wait to get that card first.

While I have reservations about someone who would send 200 cards and not receive a single reply, I do appreciate that SWLs would probably find it more difficult to get a reply than we do. However, as a WIA member who attends branch meetings regularly, I can assure you we do see cards that are SWL related going through our QSL bureau on a regular basis.

While I do accept there is a problem with QSLs, I don't accept that Australia is the only trouble-spot, and will never accept that we are as bad as that letter made us out to be.

**Clarrie Hilder VK7HC**  
5 Speed St  
Coonee 7320

## De-regulation of Licence Conditions

I am not one who knocks back things which are the result of change, and am happy to go with progress, but what makes me angry is that full-call licence holders again did not get any more privileges.

I do not object to an increase of output power for novice and combined licence holders. **But, how about an increase of power for full-call licence holders?**

We also have the right to align with commonly available 'commercial equipment'. Lots of countries have output power from 750 watts to 1.5kW for full-call holders. Only Australia and some other conservative countries are still behind.

I worked very hard to get my full call, probably like many others, and I think **now is the time** for full-call holders to also get something for nothing.

**Thomas Knopp VK3GTK**  
PO Box 454  
Noble Park 3174

## A New Name for the WIA

The *Wireless Institute of Australia*, as a name, has the virtue of simplicity, but the disadvantage of antiquity. It fails to convey to newcomers and the public just what we're about.

'Wireless' has fallen so far from any sort of currency in everyday language as to be meaningless to all but 'the cognoscenti'. Among young people, the term is wholly eschewed, if not derided. This reflects very poorly on our image, particularly on first impressions which, as is well recognised, are most important.

In this area, the word *wireless* is an anachronism - 'something placed or occurring out of its proper time' (Macquarie Dictionary).

We need a name which conveys what we are and what the organisation is about. But we ought not cast aside *bolus-bolus* our organisation's proud past and honourable traditions - for the Institute is, after all, the oldest amateur radio organisation in the world.

I believe the answer is a simple one; I propose the new name be the

*Amateur Radio Institute of Australia* (ARIA)

Amateur Radio states *precisely* what the members' interests are, and whom the organisation represents. The term 'amateur radio' could, should and would enjoy a wider currency, and with more positive connotations than does the term 'wireless'.

Retaining 'Institute of Australia' retains a link with our current name and its heritage.

I note current moves by the ARRL to change its name to 'The American Amateur Radio League'.

Ladies and gentlemen of the Institute, what do you think?

Roger Harrison VK2ZTB

3/3 Rosemont Ave

Woollahra 2025 ar

## Stolen Equipment

Stolen from Peter Corkeron VK2AGB on 28 May, one Yaesu FT-2700RH dual-band transceiver, serial number 5L121354. Contact Peter 018 412 629 or Sutherland Police.

Stolen from Dick Smith Electronics at Parramatta on 13 May, one Yaesu FT-757GX II serial number IL590102. Notify DSE or police.

Stolen from R Clark VK2KSN, 'Walnut Grove', Morga Rd, Canowindra 2804 on 24 April, one Sawtron 999 UHF CB transceiver, serial number 203026.

## Balloon Launch QSLs

A reminder is given to all those hoping to acquire "QSL Cards" and certificates for the recent balloon launch to send contact details and \$5.00 to the EMDRC, PO Box 87 Mitcham Vic. Certificates and cards are prepared and await verification of contacts.

Jeff Daly VK3MFR

## Morseword No 64

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Across:

- 1 Lawn
- 2 Young Stephen
- 3 Regretted
- 4 Listen
- 5 Remain
- 6 Aden's country
- 7 Roused
- 8 Young Harold
- 9 Latvia's capital
- 10 Dregs

Down:

- 1 Bottom
- 2 Dog
- 3 Underwater craft
- 4 Sheep
- 5 Snuggeries
- 6 Mist
- 7 Oath
- 8 Touch
- 9 Mouth
- 10 Part of a blind

© Audrey Ryan 1992

# A Support for the Rotary Beam

**J A Gazard VK5JG**  
**2 Corbin Rd**  
**Menindie Gardens 5081**

*(with apologies to the author for the unconventional placement of his article, caused by a last-minute hitch - Ed)*

The simplest and cheapest structure for supporting a rotary beam is a guyed pole but, although the guyed pole is structurally sound, this type is seldom used. The reasons for this are:

- (1) that to install the beam the structure has to be climbed, and this cannot easily be done with a guyed pole, and
- (2) the beam, assembled on the ground, has to be hauled up to the pole top, and the guys prevent this.

In discussion with a friend, it was considered that these difficulties could be overcome if the pole was telescoped into a borehole in the ground so the top was about two metres above ground in the low position. The beam array could then be installed at ground level, and the pole could be winched up into its elevated position. The advantages of this scheme would be:

- (1) The much greater cost and difficulty of erecting a tower or similar support would be avoided.
- (2) All installation, adjustment and repair of the beam would be done on the ground, and no climbing would be necessary.

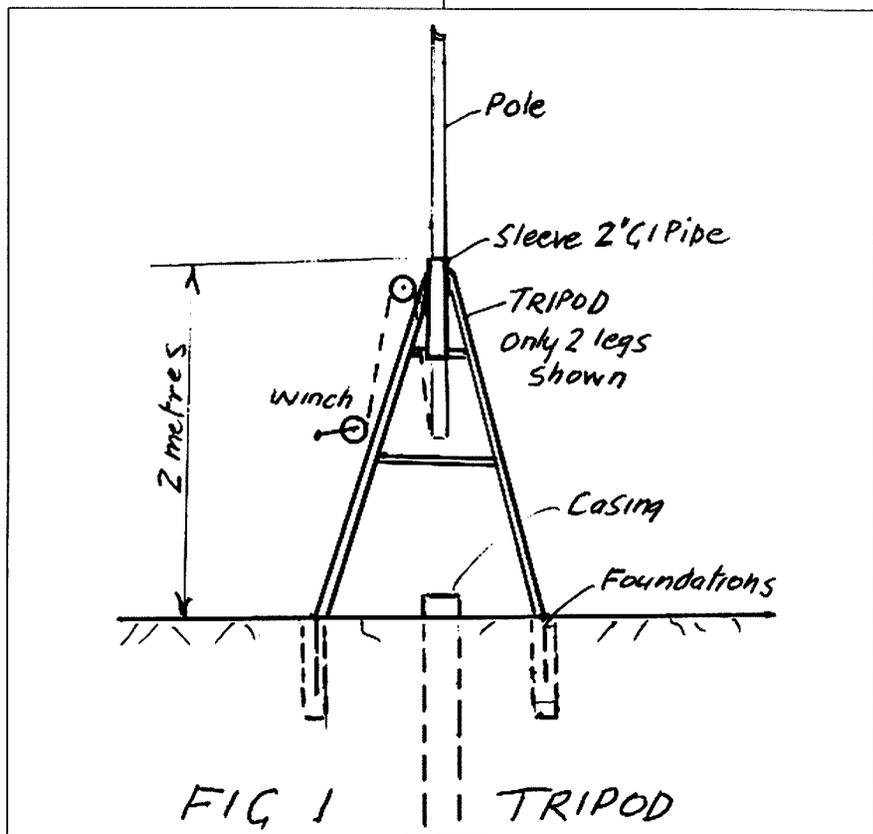
This idea seemed feasible to me and I decided as an experimental check to set up a pole support for a 28MHz quad in this way. The pole chosen was a steel tube 50.8mm od, 1.6mm wall thickness (2" and 1/16") which comes in lengths of six me-

tres. It was passed through and supported vertically by a 450mm long sleeve which was held two metres above the borehole by an angle iron tripod (see fig 1). A 2" G I water pipe has exactly the right dimension (50.9mm) for the sleeve, and the tripod was formed from available 38 x 38 x 5mm angle iron.

With this arrangement the top wire of the quad was 10 metres above ground, and the borehole depth needed was four metres. The hole was bored with a 6" posthole borer with extensions, and the bore was cased with a 4" plastic drainpipe. It is essential the sleeve should be exactly in line with the borehole, and this was achieved as follows. The pole was wrapped with a spiral of 1/2" rope and fitted into the free casting which was then lowered into the borehole and set vertically with a spirit level.

The borehole was back-filled around the casing by pouring dry sand. The tripod was then lowered onto the pole so the tripod feet, with holding down bolts fitted, came just over pre-drilled foundation bores. These bores were then filled with concrete to the level of the tripod feet.

A thrust bearing for the pole was fitted to the bottom of the sleeve. This swung away from the centre line so the pole could be raised or lowered and was swung back under the fully raised pole. A fixed collar was fixed to the top of the pole with a loose collar set just above to take the guys. The pole with the quad attached was rotated by hand. A simple home-brew winch was used to raise the pole. This could be done in less than half a minute.

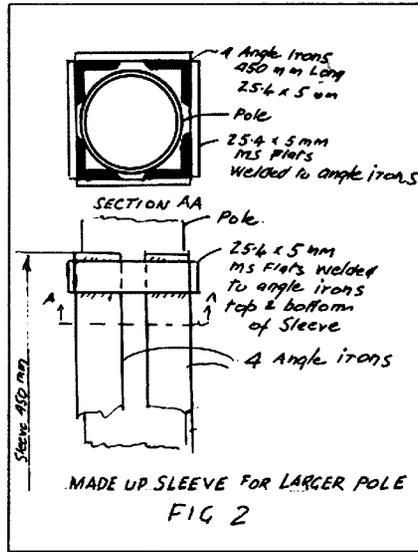


The work was carried out single-handed and, except for the bore, was not difficult. I had not expected any difficulty in boring to four metres, as friends in other suburbs had put down drainage bores to 10 metres, but this bore was very difficult. Although it was done at the end of summer, ground water entered the hole below two metres, which made it difficult to bring up the spoil, and then, at about three metres, the clay, which had been compressed by the weight of the overburden for a million years or more, became very hard, and resembled soft rock. It did not soften when wet, and four hours of boring was needed to complete the last metre. A different type of borer might have been more successful.

The mast has met all expectations in use. It carried the quad at full height for two years and showed no signs of strain in strong winds. It now supports a 2m 'Slim Jim' and the centre of a down-sloping dipole at 10 metres with a drop-in extension, and in this use needs no guys. The cost of the pole itself was \$25-50 and the total cost of materials, including guys, was about \$65.

This mast was experimental, and its height was suitable only for a 28MHz quad. For general use it would have to be about two

metres higher, and a larger steel tube would be preferred. There is a tube made by Tubemakers Aust which meets these requirements. It is styled 'Gal Tube Plus'. It is galvanised and has an od of 60.3mm, and a wall thickness of 2.3mm. It comes in lengths of 6.5 metres, costs \$6 per metre and is calculated to be twice as strong as the 50.8mm tube. A length of 2.5 metres joined



to the 6.5 metres, either by a steel insert or by welding would result in a pole with height of 10.5 metres, or about 35 feet, which is ideal for supporting a rotary beam. The bore depth in this case would be 7.5 metres.

There is no ready-made sleeve available to fit this larger tube, but one can be made by setting up four angle irons as shown in fig 2. As this sleeve is four-sided, the tripod could be replaced by a four-legged structure, possibly using 3/4" pipe for the legs. A beam rotator could be fixed to the bottom of the thrust bearing if the support legs were designed to fit this in.

I estimate the project using the stronger and taller mast could be carried out for a materials cost of about \$100 - a fraction of the cost of a tower. I would suggest that anyone proposing to carry out a similar project should complete the borehole before acquiring any material. You may strike rock!

The above is only a general description of the project. I would be happy to supply any further information such as sketches of the thrust bearing or winch that I used to anyone proposing to erect a pole.

ar

# AMERITRON AL811 600W PEP HF Linear amplifier



Shades of the magnificent past! Remember the days when a power amplifier looked like it meant business and was heavy enough to convey the message? Well those days are back! Ameritron, one of the USA's leading amateur power amplifier manufacturers has released an amplifier using three 811A tubes in Class AB2 grounded grid to deliver a clean, comfortable 600W PEP. The AL-811 amplifier needs only 40W of drive for the VK legal limit. Best of all the cost of running the AL-811 is low, and a new set of tubes will only cost \$105 not \$350 - \$700 or more for other amplifiers using more exotic tubes.

- 600W PEP output
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- Three 811A tubes
- Quiet fan cooling
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- Vernier anode tuning
- Large twin meters
- Safety interlock

Ameritron's choice of the 811A is no accident, nor is it a purely economical one. The 811A has developed an enviable reputation for robustness and reliability over many many years of operation in amateur and commercial service. Its directly heated thoriated tungsten filament is immune to cathode stripping which can ruin an expensive indirectly heated tube in a few milliseconds if the amplifier is mistuned.

Ameritron have chosen a simple yet extremely effective input circuit, a single Pi section with a slug-tuned coil for each position of the band switch. The slugs of the coils can be easily adjusted without removing the cover so that you can peak the amplifier without danger of being exposed to high voltage supplies.

AL-811 **\$1449.00** plus freight

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# HAMADS

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● **AMIDON FERROMAGNETIC CORES:** For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please ... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

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## FOR SALE — NSW

● **ALL** transistorised com RX band coverage 500kHz to 30MHz for AM, FM, CW. Brand new. Also one pair new headphones with individual vol controls. VK2AXR AI (02) 477 6275.

● **RANK 1065** toner, suitable laser printers, refill your cartridge \$5 ono. Varian Aerograph 1200 gas chromatograph (not working) (two). Any offers? Yaesu FT207R 2M handheld with battery, PA2 charger/adaptor and speaker/mike. Noel VK2YXM (02) 871 3079.

● **YAESU FRG7700** gen cov RX with FRA7700 ant amp in original carton with handbooks etc, \$500. S/N 220909. Ray VK2FW QTHR (063) 65 3410.

● **TRANSFORMERS HTX 3KV** at 350mA primary taps to provide 1.5-2.0-2.5-3kV on sec, \$110. Heater trans 2.5-0-2.5 at 15 amps \$70. 4kV bridge rect to suit above \$30. Ray VK2FW QTHR (063) 65 3410.

● **SPECTRUM** analyser Siemens model K2001 200Hz-4000Hz near new, \$250. Also impedance bridge Siemens model R277 30Hz-1.6MHz resistance complex Jay-Gee-C+L, \$200. Peter VK2CPK QTHR (02) 411 1227.

● **ICOM IC730** with IC HM7 & IC HM10 mics, \$750. ICOM 251A, \$500. ICOM IC2A with speaker-mic, \$275. Azden PCS400, \$350. Manual for above equipment available if required. VK2KAN, PO Box 1767, Tamworth 2340.

● **TOWER** tilt-over 70ft freestanding fully galvanised,

\$1000. Kenwood TS820S ex/VFO handbook, \$500. Heathkit monitor, \$150. Audio generator, \$80. Various mobile whips from \$50. All items open for offers. Horst VK2HL QTHR.

● **TET HB35C** 5-element beam, complete with fittings, GC, owner moved interstate, \$300. VK2AHJ George (02) 878 2278.

● **ATTENTION** radio clubs! Thinking of setting up a 70cm repeater? I have just what you need. A NEC base station with separate transmitter, receiver, 8-cavity duplexer, Xtal ovens, 10 watts output, \$400. VK2ATU (02) 792 2275.

## FOR SALE - VIC

● **MALDOL HS:260** Pwr/SWR meter 3.5-150MHz range, VGC, \$40. Paul VK3EPD (059) 83 1771.

● **SPEAKER** Kenwood SP120 ser no 0050062, as new cond, best offer. VK3GI (054) 27 2576.

● **YAESU FT901D** \$625. Also FT101B, \$400. Ham 3 rotator, fully recond, \$425. Chas VK3BRZ (052) 82 3167 AH only.

● **ATN 9-ele** log period antenna 13-30MHz, all stainless hardware. Cost \$1145 sell \$750. Create RC5A-2 worm drive heavy duty rotator, cost \$965 sell \$550. Both less than 12 months old. VK3BCY Morrison QTHR (056) 89 1205.

## FOR SALE - QLD

● **CHEAP** quad antennas and components 2el 15m spider quad, 4el 15m and 6el 10m spider quad, both all alloy and fibreglass. 16 fibreglass blanks, alloy quad spiders (6). Prices negotiable. 5-band vertical antenna, \$90. VK4CMY (076) 61 7494.

● **YAESU FT208R** 2m rig with manual, rubber whip antenna 10 memories GC, ideal for packet, \$200. VK4ARB QTHR (07) 269 8848.

## FOR SALE - SA

● **YAESU FT400** tranx, spars new finals spkr, mike, manual, s/n S053915, \$250. (08) 381 5676.

● **70-FOOT** Southern Cross antenna tower in dismantled state, \$1000. VK5BTA QTHR (08) 332 1381.

● **KLM KT34XA** six element tribander, \$200 or offer. VK5RN (08) 339 1210.

## FOR SALE - TAS

● **KENWOOD TS520S** fitted with CW filter, complete with 2xGE 6146B spare finals, MC50 desk mic, hand-

book, service manual, all perf cond. Has been on low power all its life, \$450. David VK7ZDJ (004) 25 2030.

## WANTED - NSW

● **ICOM** model UX14 C1-IV/C1-V converter. Art VK2AS QTHR (02) 416 7784.

## WANTED - VIC

● **TONO 9000E** RTTY terminal. Will pay top price. Roc VK3AKN QTHR (03) 336 7992.

● **YAESU FT301** tuner. Hawthorn EAST. VK3EB QTHR.

● **MC50** base mic Oskerbloc SWR200 Paul VK3EPD (059) 83 1771.

## WANTED - QLD

● **KW2000** manual or info circuits for KW Electronics 2000 txcvr. Will pay costs for copies, postage. (07) 390 7762.

● **RECEIVER** Eddystone EALZ amateur band only; Vibroplex or other 'bug' key, any cond; pair 8950 valves, EC; old tribander TA33 or similar for experiments; Heathkit HD610 coax switch; old ARRL handbooks. Contact Doc (076) 61 7494 AH, (076) 61 6200 BH.

● **FOR** cassette player used or new drive motor, Sanyo VFA2L73 00701-A or similar. Help all costs met. VK4UA (075) 46 7041.

## WANTED - SA

● **TWO-METRE** linear Daiwa LA2080H VK5XT QTHR (085) 56 5881.

## WANTED - WA

● **PAIR** of 6146Bs, new or good used cond. Alec VK6BEB QTHR (098) 41 7773.

## WANTED - TAS

● **FT301** ATU, must be in good cond, with manual and circuit. Required to complete 301 station. Contact David VK7ZDJ (004) 25 2030.

**Sign up a new WIA member today - we need the numbers to protect our frequencies.**

# The Eavesdroppers

*Signals Intelligence in the South-West Pacific Area - World War II. — Jack Bleakley*

ISBN 0 644 22303 0  
 Australian Government Publishing Service, Canberra ACT

*The Eavesdroppers* is an excellent exposition of the part signals intelligence played in the defeat of the Japanese in the south-west Pacific area (SWPA) by the Allied Forces.

It is of particular interest to the amateur fraternity as many radio hams played an important part in these activities.

The author, Jack Bleakley, who served as an intercept operator in the New Guinea and Philippines campaigns, gives a finely balanced account of the experiences of the operators together with the strategy of the American and Australian forces.

The operators used equipment well known to operators of the 1939-40 era, namely SX28s, HROs and AR7s, which performed very reliably in the rigorous tropical conditions.

The Japanese Kana code used for the transmission of messages by W/T comprised 71 Kana Morse symbols as against the International Code of 26 alphabet characters. An operating speed of 40-50wpm was commonplace. Furthermore, you

couldn't ask for repeats when you were intercepting a message.

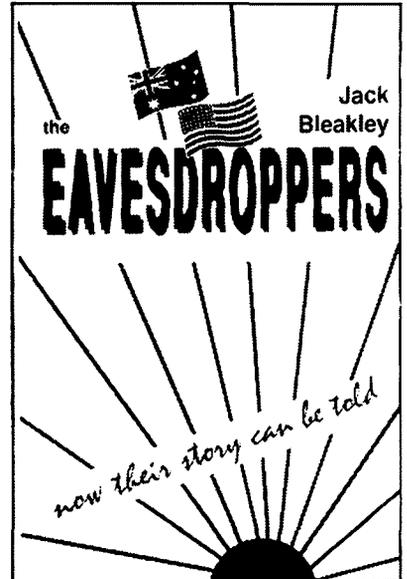
Maybe our novice and AOCPS Morse speeds are not so unattainable after all!

The book is well written in easy-to-read chapters. Each chapter has a single map before it showing the main locations discussed, and the text starts with a summary of the strategy of the Allied Forces at that particular part of the campaign.

Thus the reader is carried along with the astounding impetus of the island-hopping campaign in the SWPA right through to the Philippines and thence to the surrender of Japan, without having to backtrack to previous chapters and maps to find out what the author is discussing.

General Willoughby, who was MacArthur's Chief G2 (Intelligence) said soon after the defeat of Japan that Signal Intelligence chopped two years off the war in the Pacific.

The book is a paperback of handy size - 23mm x 14mm - comprises 261 pages and is available from the AGPS Mail Order Sales, GPO Box 84 Canberra ACT 2601. Commonwealth Government bookshops in our capital cities and major bookstores at a RRP of \$12.95



(postage included).

A bargain read!

Reviewed by Quintin Foster L30720

(who is too modest to admit that he himself was in the "thick of it"! - Ed).

## Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address. Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PD Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

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and the name of your nearest authorised Icom dealer.

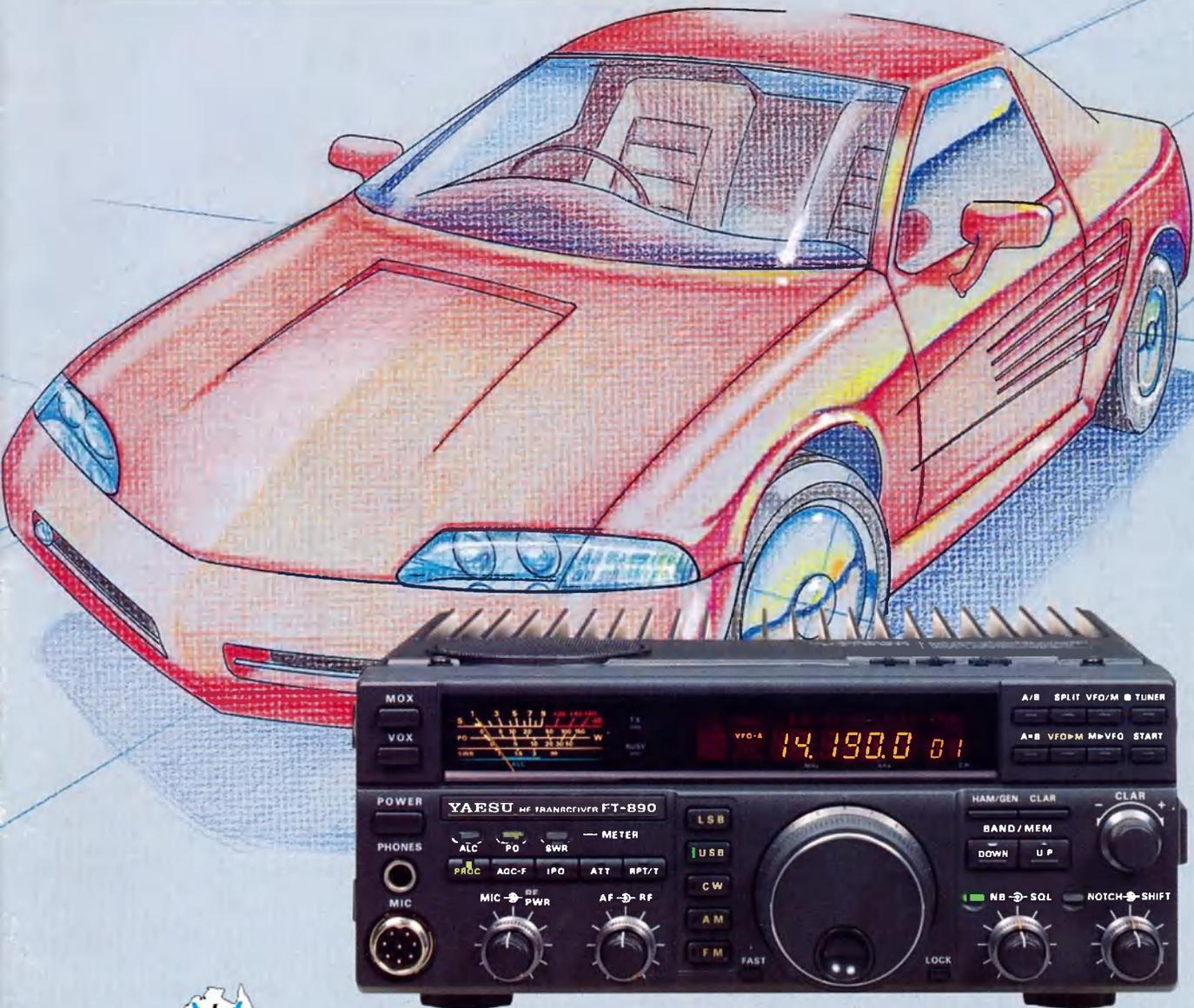
Alternatively, you can write to Reply Paid 1009 Icom Australia Pty Ltd P.O. Box 1162 Windsor Victoria 3181. Telephone (03) 529 7582 A.C.N. 006 092 575

# RADIO AMATEUR MAGAZINE

AUGUST 1992

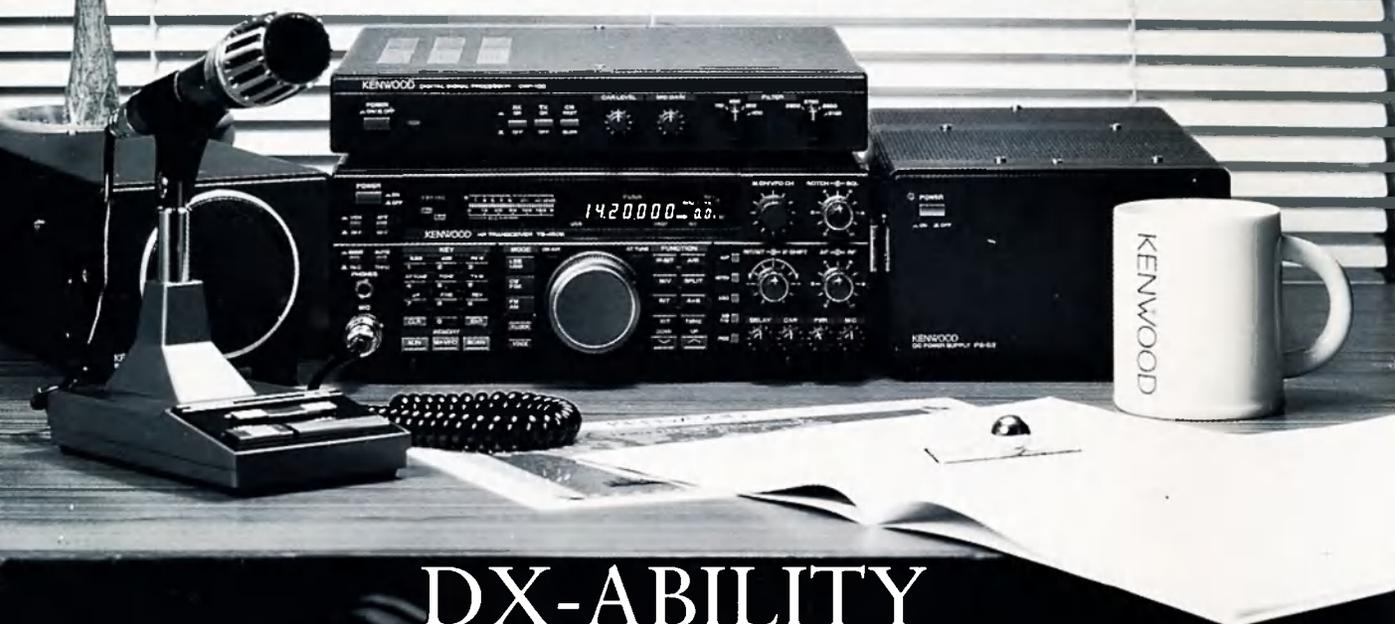
RRP \$3.25

- Review of Yaesu FT-890 HF Transceiver
- How to Write for AR
- Junk Box HF CW Transmitter



THE WIA RADIO AMATEUR'S JOURNAL

# KENWOOD



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### Cover

Like a newly released high performance sports car, the Yaesu FT-890 HF transceiver has much to offer the enthusiastic operator. Read Ron Fisher's review on this latest Yaesu on Page 13.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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## Editor's Comment

Ron Henderson VK1RH  
Federal President

As your recently elected President I would like to devote this editorial to thoughts about the WIA and what it means to you and me. However, I should start with the mandatory boat story! Suspended from the ceiling of my garage, over my daughter's car, is a Mirror dinghy. My eldest son and I painstakingly restored it several winters ago and regrettably have only got it wet twice since then, and not at all last summer. This prompts me to ask, am I a balanced amateur? Have I been neglecting my children's summer water sports? Well, I make a public promise here to launch it as soon as the lake warms up!

Now down to business, why a WIA? It's survived since 1910, will it make the turn of the century? What does it do for you? Is that what you want? What do you do for the WIA? I suggest the WIA is not just a monthly magazine or a free QSL bureau and a renewal notice each year. The WIA has two main reasons for existence, firstly as your representational body and secondly as a learned society. The WIA is your representational body and "lobby group", for international, national and local affairs. Internationally it is recognised by the International Amateur Radio Union, which in turn is recognised with observer status by the International Telecommunications Union as the worldwide voice of radio amateurs. Nationally it is recognised by the Department of Transport and Communications as the only Australian society representing amateurs views. Locally the Divisions represent amateur radio views to State and local governments.

Are your views being heard?

If you are a WIA member they can be; through your Federal Councillor and Division to the Federal body so that we can speak and confidently present a majority view. If you are not a WIA member I suggest your letters to the DoTC or even the Minister are barely worth your time and effort in writing and sending them. It's numbers that influence the bureaucracy and we would like you to join with the strength and swell our numbers.

You might ask why can't the local WIA Division or even radio club represent you? Well they can and do to an extent, but at their particular level of involvement. For example the Division is the body to press State or regional issues and a strong radio club may just be able to influence a local council, particularly so if you have an amateur on that council! But nationwide the demands become great and beyond the efforts of part time volunteer officers.

We have all heard the expression "Horses for courses". This applies to the WIA also. For example in the Federal Office we have our hard working General Manager, Bill Roper and his loyal office staff, working on a full time paid basis to provide you with members' services. They only carry out those actions which are more economically and effectively delivered from one site, the Federal Office. Other members' services are delivered by the Divisions. Generally these are less time critical, more directed to local and specific needs and often involve direct contact with members.

The representational issues of the future involve countering commercial pressures on our frequencies, bands and

sites. Most cannot be met head on. Rather, all parties must be accommodating and more willing to share that non consumed yet finite resource, the radio frequency spectrum.

So far I have said little about our learned society role. Amateur Radio magazine provides a forum for members' technical articles and supports our aim of self instruction (see the definition of the amateur service!). Although amateur radio is often seen as the hobby of the recluse, amateurs frequently gather for lecture meetings, fox hunts, hamfests, conventions and other "eye ball" occasions. With changes in social ways the Divisional monthly meeting has disappeared in major cities and is felt by some to be more the province of strong radio clubs.

Amateurs meet to talk amateur radio, not administration. You appoint office bearers, give them general guidance and let them get on with it. Or do you?

Have your representatives got a clear picture of your wishes? Are they allowed to get on with it without "bad mouthing" behind their backs, often on air? All this boils down to having control of the destiny of your hobby; and you can have that control through your membership of the WIA.

I invite you to do the Australian thing and share the responsibility. Join the WIA if you are not already a member, nominate for office and give a hard worker a spell for a year or so to recharge batteries and perhaps work a little DX! ar

# WIA News

From the WIA Federal Office

## Longlife RF Lightbulbs

A recent American Radio Relay League (ARRL) Newsletter gave more information about the new RF powered lightbulbs which have been mentioned in various publications. A representative of the company producing the lightbulbs states it is ex-

pected that the bulbs will have to be Federal Communications Commission type accepted.

The lightbulbs are expected to operate at 13.56 MHz, using a crystal oscillator, power amplifier, and a coil type antenna to "couple high frequency electrical energy into a mercury vapour plasma". Both the ARRL and the WIA will be keeping a close watch on this development from the point of view of potential RFI.

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 800 Canberra ACT 2801 Phone (06) 247 7006	President Christopher Davis Secretary Jan Burrell Treasurer Ken Ray	VK1DO VK1BR VK1KEN 3.570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$58.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1086 Parramatta 2124 Phone (02) 889 2417 Fax (02) 633 1525	President Terry Ryeland Secretary Bob Lloyd Jones Treasurer Bob Taylor (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2YEL VK2AOE From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM*; 10.125 SSB; 24.910 SSB; 28320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18120 SSB; 584.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional information (02) 651 1489.	(F) \$68.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey Office hours Tue & Thur 0830-1530	VK3PC VK3XV VK3XLV 1.840 MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, 147.225 FM(R) Mt Baw Baw, 148.800 FM(R) Mildura 146.700 FM(R) Mt Dandenong, 438.0 75 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarssen Secretary Ken Ayers Treasurer David Travis	VK4QA VK4KD VK4ATR 1.825, 3.085, 7.118, 10.135, 14.842, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday Repeated on 3.808 & 147.150 MHz, 1930 Monday.	(F) \$70.00 (G) (S) \$58.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen Secretary John Highman Treasurer Bill Wardrop	VK5BJA VK5PUH VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.176, 28.470, 53.100, 145.000, 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 148.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$58.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin Secretary John Faman Treasurer Bruce Hadland-Thomas	VK6LZ VK6AFA VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 148.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$80.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfame TAS 7015	President Tom Allen Secretary Ted Beard Treasurer Peter King	VK7AL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 148.750 (VK7RNV), 3.570, 7.090, 14.130 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.85 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

## 169th member of the ITU

The International Telecommunications Union has just announced that Croatia has become the 169th member of the ITU. Situated between Slovenia, Hungary, Serbia and the Adriatic, Croatia has a population of over 4,700,000, and an area of about 56,500 sq km.

## DoTC Works on Standards

The Department of Transport and Communication's Telecommunications Policy Division has recently established a Standards Policy Section. This section will coordinate the Division's standards activities at global, national and local levels, promote standards activities, and provide input to the formulation of policies on standards in developing areas.

## Intruder Watch Certificates

The WIA has recently revived the custom of presenting certificates to those amateurs who have been most active in sending Intruder Watch reports. Certificates for 1991 were forwarded to the following:-

VK5TL Tom Laidlaw  
VK4AKX Col Robertson  
VK4BG Ron Glassop  
VK4BTW Tom Walker  
VK4BHJ Norman Richardson  
VK4BXC Jack Barnett  
VK6RO Graham Rogers  
VK6XW Karl Hennig

The certificates are a small token of appreciation from the society representing the amateurs of Australia for the dedication and enthusiasm displayed over a long period by these intruder watchers.

There is always room for more Intruder Watchers. Unless the Intruders into our bands are identified and reported, there is no hope

whatever of having them removed. Further information and log sheets are available from the Intruder Watch Co-ordinator, Gordon Loveday, at "Aviemoire", Rubyvale, QLD, 4702, Freepost No 4, or on packet VK4KAL at VK4UN-1.

## 11th Computer Networking Conference

For our computer enthusiasts, we pass on a note from the ARRL that the 11th ARRL Amateur Radio Computer Networking Conference will be held in New Jersey on 7th November 1992. Camera-ready papers should be received by 21st September. Author's guidelines are available from Lori Weinberg at the ARRL, 225 Main Street Newington, CT 06111. Topics will include digital signal processing, digital speech, packet satellites, HF packet investigations, protocols, network development, future systems, hardware and software.

## Responses to Draft Regulations

Thank you to all those who have made submissions to DoTC about the draft regulations which were published in the June issue of Amateur Radio Magazine.

The Federal Office has received copies of a number of these submissions, and will be considering them when preparing for the final discussions with DoTC before publication of the new regulations. It has been very interesting to read the variety of matters raised, and the enthusiasm with which some correspondents have pressed their claims.

## Going Overseas?

Want to be recognised as an amateur wherever you go? The Federal Office has on hand stocks of the WIA badge in the internationally recognised

diamond shape. This is the shape that amateurs in almost any country will recognise.

There are two versions, the standard diamond badge, and one with space to have your own call sign engraved. Both can be obtained through your Divisional Bookshop for \$4.00 each. If not in stock there, the Bookshop Officers will be happy to get them in for you.

## Novice Study Guide

Several years back the WIA published a Study Guide for NAOCP, which took the DoTC syllabus for the Novice examination and expanded it to define the depth of examination for each topic. Stocks of this booklet are still available.

It is strongly recommended that both students and lecturers use this booklet to ensure that all the necessary detail of study has been covered. These Study Guides for NAOCP are also available from Divisional Bookshops and cost only \$1.50.

## Some Spare Time!

The Central Bureau of the International Earth Rotation Service (IERS) has announced that a "positive leap second was inserted in the scale of Coordinated Universal Time (UTC) at the end of June 1992". This means that the last minute of 30th June 1992 was 61 seconds long.

In case you missed it, it occurred at 10hr 0m 0s Australian Eastern Standard Time on Wednesday 1st July 1992. The adjustment represents the 17th such since the introduction of the present system of time scale co-ordination in 1972, and serves to keep the UTC time scale (derived from International Atomic time) in line with the scale derived from the rotation of the earth.

## HAMADS

Members are reminded that the closing dates for Hamads for future issues of Amateur Radio magazine are given on page I of each issue. However, the Editors are happy to accept Hamads at any stage during the month. You do not have to leave it until the closing date. In fact, it pleases them more if the Hamads arrive several days in advance to reduce the pressure around the closing date.

Please present your Hamad as you would wish to see it presented in the magazine (look at the presentation of Hamads in the current issue). Make sure that you have included your identification in the body of the advertisement, and have specified whether it is "For sale" or "Wanted".

## Federal Council

It is not only the Australian amateur licence conditions which are undergoing change at present. The Federal Body of the WIA is also undergoing change with a view to bringing the company structure into line with the business practices of the 1990's.

The first meeting of the re-organised Federal Council of the WIA took place on Saturday 13th June. To allow as much of the day as possible to be used, the meeting was held in a conference room at Melbourne Airport. Councillors flew in early, mostly before 8 am, worked through the day, and flew home in the late afternoon and evening.

It was a strenuous day, but by the end considerable progress had been made towards agreement on a number of matters raised, and an addendum to the Articles of Association to cover the proposed changes had been drafted. All outstanding business from the previous Federal Executive, which will no longer exist under the new structure, was transferred to the Forward Business list of the Federal

Council, and the records of the Executive closed.

The next meeting of the Federal Council will be on the weekend of 17th-18th July. The meeting will be held as usual at the Federal Office, and will be reported in the September issue of Amateur Radio magazine. Much of this meeting will be given to consideration of the future financial affairs of the WIA, including preliminary discussion of the 1993 Budget, but time will also be allocated for consideration of recruiting strategies.

### Federal Vice-President

Under the previous structure of the WIA Federal body, the Executive appointed a Vice-Chairman, whose main tasks were liaison with the President over policy matters, or as Chairman of meetings in the President's absence.

At the Federal Council meeting on 13th June, the Council elected Rob Apathy, VK1KRA,

as Federal Vice-President, with responsibility to deputise for the President at meetings or similar functions within or outside the scope of normal WIA activities.

It is hoped that Rob will be able to meet with Divisional representatives during some of the travel which his Company requires him to do.

### Statistician Wanted

Now that WIA Exam Service has been running for nearly a year, and the Examination Subcommittee is starting to work on the theory question banks, it would be very useful to have some independent evaluation of the individual questions to help the decision making.

Is there a member familiar with the statistical processes for evaluation of multi-choice questions? We realise that it will be some time before individual questions have been asked often enough to constitute a statistical sample, but

perhaps now is the time to do the planning so that we can know what information should be kept for the future. Comments from examiners or candidates come in if there is a question that displeases someone, and all these will be considered by the sub-committee. But we really should know if there are some questions which everyone (or no-one) passes, as these are not really serving much purpose.

### Morse Code Examinations

WIA Exam Service reports that some candidates are failing simply from nerves rather than from lack of ability to receive Morse code. One of the main hopes of the devolved system was that in smaller groups and in familiar surroundings candidates would be more relaxed, and so able to perform better. No doubt this has happened for many candidates, and we can only

say to those still stressed by the examination "keep trying".

Most examiners go out of their way to make conditions comfortable for candidates, some of them playing the practice section two or three times to help settle the nerves before the actual test is run. Others have gone to much trouble to ensure the best possible quality reproduction of the tapes. The thanks of WIA Exam Service go to all those who have made so much effort for the sake of our new recruits.

A word to those candidates who are practising sending Morse code by automatic means — the regulations say that the candidate must demonstrate the ability to send "by hand"! Go back to the old key and practise on it before you attempt the examination!

### Divisional Bookshops

Do you as a member find that the Divisional Bookshops can supply your needs? Are

# O ICOM

adds a new sophistication to the meaning of the word basic...

To most of us basic means you miss out on performance and quality, but not any more, the new Icom IC-728 might be Icom's 'basic' H.F. transceiver, but in fact it makes many other transceivers look pretty basic by comparison!

**\$1678** r.r.p. Call for special introductory pricing!

Please allow \$35 for postage and insurance within Australia mainland or Tasmania. Other areas please call for pricing. E&OE, all prices and information subject to change without notice.



You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

*"Getting the IC-728 up and running is a treat"*

*"It almost runs itself — the learning time is very low"*

*"DXing on 20 metres is a snap with a hot little receiver like this one!"*

*The manual "is an absolute pleasure to use"*

*"I must say that the IC-728 offers very good value for money indeed."*

Amateur Radio Action — 9 June 1992

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there titles or topics which you would like to see on the Bookshop lists? If there are, please let your Division know, and we will ask the supplier if a source of these items can be found. If you already know the source or publisher, that information may save the supplier considerable trouble. It may be that the reference book you find so valuable is just what a number of other members have been trying to find.

### More on E-Lamps

The ARRL Newsletter of June 24th 1992 states that the manufacturer of the new rf-powered light bulbs, the so called E-Lamps, should not be a concern in relation to RF interference. The company producing the globes employs a number of amateurs, who are obviously sensitive to the possibilities. The manufacturer details tests which have shown no harmonics below 420 MHz and, above that frequency, that the RF will only open the squelch if the antenna is actually touching the globe. Unfortunately there is no word as to when samples will be available.

### FCC and Special Callsigns

Included in a long article in the same Newsletter about the American Volunteer Exam Coordinators (VEC) examination system, which apparently works very satisfactorily, is a short note stating that:

*"A return to issuing special callsigns is also on the FCC's mind: however, a fee would be necessary for the special service".*

### US Ponders Spectrum Needs

Further news from the US states that:

*"The National Telecommunications and Information*

*Administration has opened a broad-based inquiry into the future requirements for the use of the radio frequency spectrum in the United States, and technology trends that will affect use of the radio spectrum."*

Of interest to us, because what happens in the US tends to affect the rest of the world, is the comment:

*"Two paragraphs on Amateur Radio posed the following questions for the Amateur Service:*

- *What factors could either increase or reduce the spectrum requirements of the Service?*
- *Is the current spectrum available to amateurs adequate?*
- *What new techniques may increase the ability of the Amateur Service to share with other radio services in certain frequency bands?"*

### Amateur Radio Changes In Russia

I quote from a letter recently received by the WIA from the Chief of the Krenkel Central Radio Club of the Russian Federation:-

*"In connection with the disintegration of the USSR into individual countries the Krenkel Central Radio Club of the USSR has passed under the jurisdiction of Russia and now becomes the Krenkel Central Radio Club of the Russian Federation (Russia).*

*After transition under the jurisdiction of Russia the Krenkel Central Radio Club and its QSL-Bureau (Box 88) will proceed with its work as in former times — carrying on the QSL card exchange for Russia and other countries (former republics of the USSR), and also passing on the diploma exchange and the sending of contest logs for international competitions.*

*We wish success to you on the good cause of radio amateur development. 73."*

### Callsign Number Plates

In response to the item in the July issue of Amateur Radio about callsigns on car registration plates, Tim Mills VK2ZTM reports that NSW allows up to six mixed letters and numbers on car number plates, which covers amateur callsigns. An annual renewal fee is charged, and several well known amateurs currently display their callsigns on their car number plates.

### WIA Bookshops

The WIA is pleased to announce that arrangements have been made with the supplier of books to the Divisional Bookshops for an extended range of titles.

If you look closely at the book listing on the inside back cover of the August issue of Amateur Radio magazine you will note these additions, particularly a number of new RSGB publications which are now imported direct.

It is interesting to note that sales of books have been increasing as the economic situation in Australia has worsened.

### New Member of the ITU

The latest International Telecommunications Union (ITU) press release announces that Slovenia has become the 170th member of the ITU.

The press release commented that:

*"Slovenia is bordered on the north by Austria, on the Northeast by Hungary, on the south east by Croatia and on the west by Italy. It has a land area of 20,251 square km. Its capital is Ljubljana. It has a population of 1,974,839 inhabitants (1991)".*

### Changed Country Listings

The Deutscher ARC (DARC), which is the German equivalent of the WIA, has changed its listings for the former Yugoslavia for awards and contest multipliers, now recognising as separate countries Croatia (YU2); Slovenia (YU3); Bosnia-Herzegovina (YU4); and Yugoslavia (YU1, 5, 6, and 7).

### New Satellite

Kevin Olds VK1OK, the WIA IARU Region 3 representative, has provided information from the Korean Amateur Radio League (KARL) about a new satellite, KITSAT-A, which is scheduled for launch on 12th August 1992.

The satellite is being built as a co-operative project between the University of Surrey and the Korea Advanced Institute of Science and Technology (KAIST), under the guidance of experienced UOSAT engineers. It will be launched as a secondary payload on board the Ariane V-52 mission, which has as its primary payload the oceanographic satellite TOPEX/POSEIDON.

The target orbit is nearly circular, with a semi-major axis of 7700 km and inclination of 66 degrees. The KITSAT-A payloads comprise four items:-

1. Digital Store-and-Forward Communication (DSFC), providing open access store-and-forward digital communications using the standard protocols of the PACSAT Protocol Suite for message forwarding.
2. CCD Earth Imaging Experiments (CEIE) using both wide angle and narrow field cameras to provide high resolution images which can be accessed by a wide audience.
3. Digital Signal Processing Experiment (DSPE), to be used for speech synthesis, store-and-forward speech relay and high speed modulation experiments, to allow

multilingual greeting messages similar to DOVE, and conversion of digital uplink to FM voice downlink; and

4. Cosmic Ray Experiments (CRE), which will collect data on total radiation dosages and the occurrence of highly energetic cosmic rays, as well as monitoring the effects of the radiation on the satellite components. KITSAT-A will be in an orbit with much worse radiation characteristics than other satellites.

KITSAT-A operations will be managed by KAIST from their ground station (HLOENJ) which is already active in Korea. It should be a valuable addition to the fleet of amateur satellites.

### **DXCC Vote Results**

The June issue of Amateur Radio magazine gave notice of proposals under considerations by the ARRL DX Advisory Committee. The results of the voting were announced on 22nd June, and reached this office shortly thereafter. The committee voted unanimously against making Ceuta and Melilla separate DXCC countries, against deleting the Spratly Islands from the DXCC countries list, and against deleting Southern Sudan from the DXCC countries list.

### **News from the IARU**

The calendar of the IARU received this week announces several items:-

- As the result of a poll of member societies, the Albanian Amateur Radio Association has been admitted to membership of the IARU. As at 23rd June 1992, there were 23 Albanian amateurs with transmitting licences. In addition, 32 licences have been issued in the series ZA1Zxx for foreign amateurs who have visited the country. Licences for foreign amateurs now being issued use call signs of the format of ZA/(personal call sign).
- The IARU membership of the Estonian Amateur Radio Union has been re-activated after a hiatus of over 50 years. Although its membership lapsed for several decades, during which time representatives of the Estonian Federation of Radio Sports participated indirectly in IARU through the Radio Sport Federation of the USSR, the Estonian membership was never rescinded.
- The Associations of both Slovenia and Croatia have

also applied for membership of the IARU.

- Voting is still continuing on the admission of the Chinese Taipei Amateur Radio League. The WIA voted YES in this issue.

### **Overseas Balloons**

A contributor providing information about the recent balloon launches of transmitters in Victoria notes also that a number of similar experiments have been carried out in the USA, including one carrying a 2 metre repeater which was accessed from over 1200 km away, and one carrying ATV equipment providing video images of the surface below from 100,000 feet.

There is an increasing interest in balloons carrying amateur radio experiments right around the world at the present time.

### **Possible Pirate Station**

In recent months the WIA has received several complaints about the apparent pirate operation of a station using the callsign VK2FEW.

The main complaints have come from the address of the previous holder of this callsign, Mr N Sato, who has been living in Sweden for the past couple of years. Mr Sato advises that he has not operated with the callsign VK2FEW since leaving Australia.

QSL cards are arriving from all around the world, and are an embarrassment to the people looking after Mr Sato's affairs in Australia.

Several Australian amateurs who have worked VK2FEW stated that his operating technique was quite good, and they had no suspicions whatever that he was a pirate. If you know the location or identity of the apparently bogus VK2FEW, please let the DoTC know.

*Bill Roper VK3ARZ*

### **AAAH-H-H It's finished!!**

**T**his edition of Amateur Radio magazine is brought to you by the combined efforts of a small team of workers, who have made every effort to produce a top-class issue under some difficulties.

As announced last month, our Managing Editor resigned at the end of June, at which time the Editor was somewhere "Back of Bourke", and arrangements were being made to change typesetters in an attempt to reduce production costs. Negotiations with the typesetters revealed a considerable cost saving if all material could be supplied on disk, so arrangements were made for a contract typist to come in for a few days. Unfortunately, this typist cancelled the arrangement at short notice, but did we panic? NO!

The General Manager cracked his whip even harder than usual, started earlier than his usual 7 am, and passed over another article for keying-in whenever any of the office staff paused for breath. With the assistance of Bruce Bathols VK3UV and his wife Gwen, we had all items keyed in and ready for the Editor on his return to the office. Even Vicki our graphics person was caught up in the tide to prepare quickly a couple of diagrams. Sincere thanks to those columnists who provided copy on disk as well as hard copy.

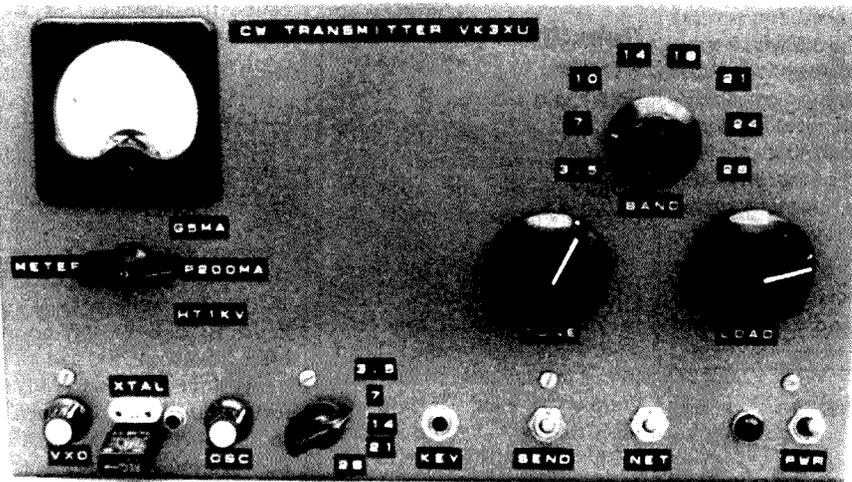
Enjoy your magazine, made up of your contributions and, while you are reading it, give a thought to all the time and effort that goes into producing Amateur Radio magazine each month.

*Brenda Edmonds  
VK3KT  
ar*

**Remember to  
leave a three  
second break  
between overs  
when using a  
repeater**

# HF Band CW Transmitter From Junk-Box Parts

Drew Diamond VK3XU  
 "Nar Molan" Gatters Rd  
 Wonga Park VIC 3115



Front Panel (cover removed)

**M**Y SHACK IS PROBABLY like that of countless other fellow radio enthusiasts, where squirreled away are all sorts of interesting and "useful" items, such as power transformers, coils, switches, tubes (or valves if you like), high voltage capacitors, and so on. When you think about it, that's about all it is, just a collection of junk, with no useful purpose. In nostalgic mood one day I thought; why not build a handy, all HF band CW transmitter from them? So that's what I did. Agreed, it is "old hat" it has

indeed "all been done before". So too has many a cricket ball been bowled down a pitch, model loco built from scratch.

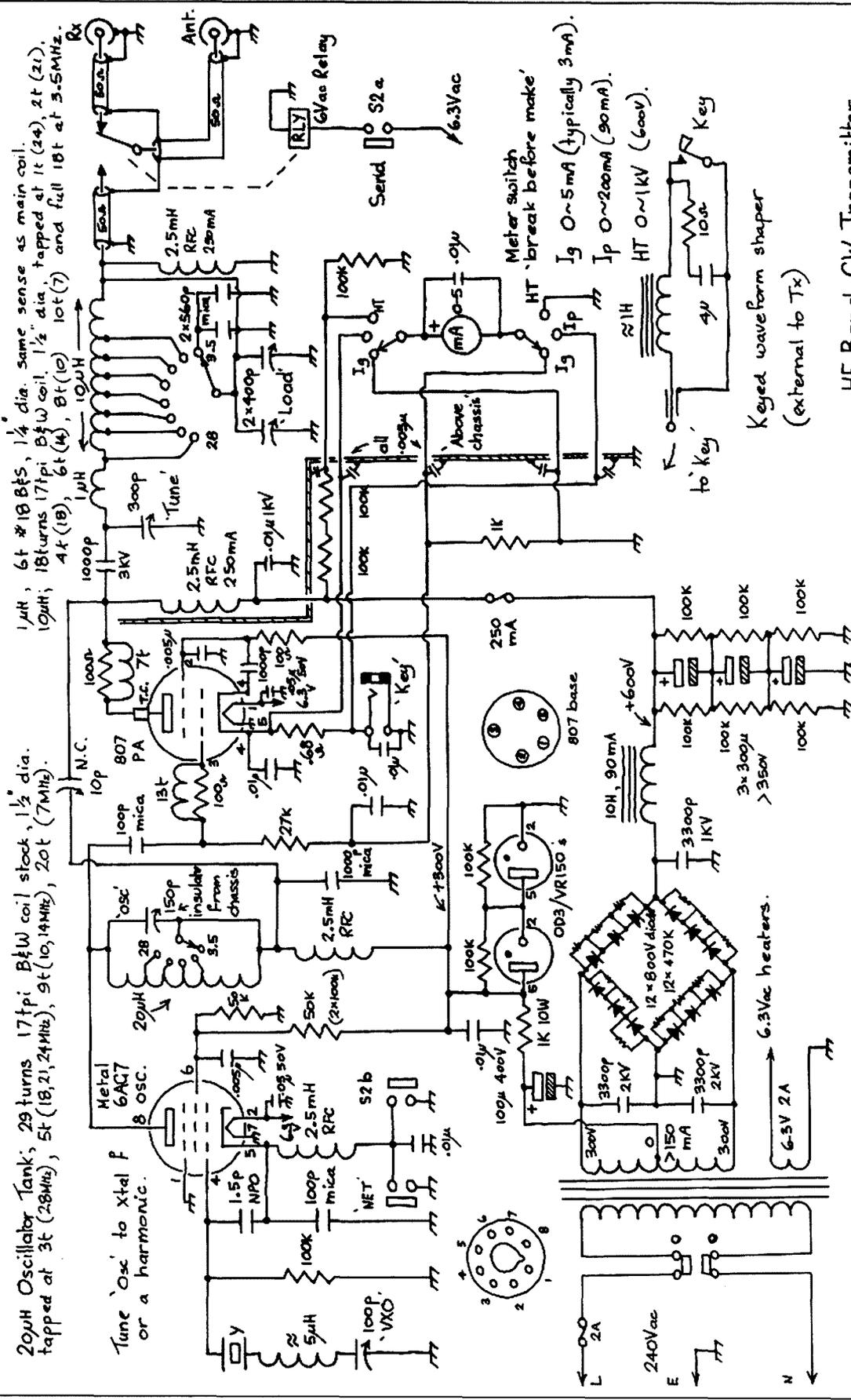
A search of 50's and 60's radio handbooks revealed that many of the circuits of that time were very alike, being based on a 6AG7/6CL6/12BY7 or similar crystal oscillator/multiplier, followed by a power tetrode of the 807/1625/6146 variety. I chose to "blend" a design from the 1961 ARRL Handbook — which employs a 6AG7-807 configuration with plug-in oscillator and output tank coils (flexible,

but messy), and a design from the 1967 edition, which uses 6AG7/6146 and band-switched tank coils. An 807 was chosen as the PA tube, as they are still relatively cheap (if needed to be purchased new) and easy to obtain. With regard to the original articles, the following additional observations are made;

At first it was thought to be a fairly straightforward job, just follow the details provided, but adapting and modifying where necessary to suit available parts on hand. The 6AG7 oscillator was blobbed up on a scrap of chassis, and worked well first time. Sufficient output power to light a small 6V lamp link-coupled to the plate tank gave spur to press on with the project. So a chassis and covers were bent up to house the rig. Power supply and oscillator were wired and tested first, with success. then the 807 PA was built, and fired-up into a dummy load. I had forgotten how ill-mannered these beasts could be. It screamed like a banshee. MF, HF and VHF parasitics were all going at once. The BC radio in the shack, which was tuned to 3RN, hummed and buzzed, as did the HF receiver nearby. Several mA of grid current with no crystal installed showed that the PA was hopelessly unstable.

One of the attractive facets of tube transmitters is that you don't need fancy test equipment to find out what's going on. A neon lamp, such as an NE-51 attached to a plastic knitting needle (watch those high voltage areas!) may be used to test for parasitic oscillations. With no oscillator drive to the PA, there should be no grid current, and constant plate current regardless of the tuning of the input or output tank. To avoid damaging the PA tube, the key should only be closed for short periods of perhaps 10 seconds. The neon may be placed NEAR the plate cap. The colour of any glow gives a clue as to the type of oscillation occurring. A ready-purplish glow indicates HF oscillation, whereas yellow indicates MF or LF oscillation. The problem can then be tackled accordingly.

Here is probably a good point to express a word of warning — any person building such a project must be acquainted with the hazards of higher voltages. If you have never worked with high voltage equipment before, seek the guidance of someone with the required experience. Furthermore, never work alone on exposed powered-up equipment, always have some other person in your work area, and make sure he or she knows where the power switch is located.



20µH Oscillator Tank; 29 turns 17tpi B&W coil stock, 1 1/2" dia. Tapped at 3t (28MHz), 5t (18.2, 24MHz), 9t (10, 14MHz), 20t (7MHz).  
 Tune 'Osc to xtal f or a harmonic.  
 1µH, 6t #18 B&S, 1/4" dia. Same sense as main coil.  
 10µH; 18 turns 17tpi B&W coil, 1 1/2" dia. Tapped at 1t (24), 2t (21), 4t (18), 6t (14), 8t (10) lot(7) and full 10t at 3.5MHz.  
 Ant. Rx

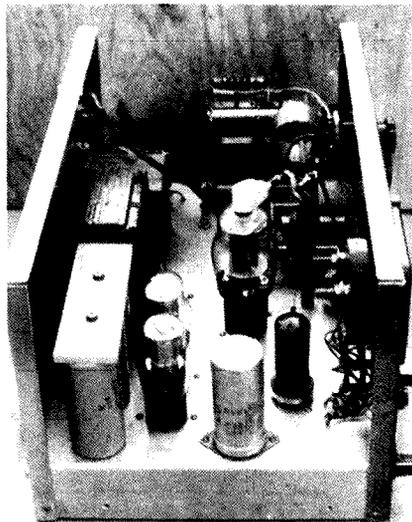
All resistors 1W carbon except where shown otherwise. .005µ = .0047µ  
 All capacitors 1W ceramic > 600v except where shown otherwise. .005µ = .0047µ  
 Keyed waveform shaper (external to Tx)  
 HF Band CW Transmitter.  
 VK3XU '92.

The standard capacitive divider neutralisation technique was applied first, with promising results, but parasitics, thought to be VHF, were still present. These were suppressed (after some experimenting) with a 100 ohm, 1W carbon resistor wound with 7 turns of 22 B&S enamelled wire installed in series with the plate connector, right at the cap, and a 100 ohm 1W carbon wound with 13 turns in series with the grid connection to the 807. Extra by-pass capacitors were also placed at strategic points around the circuit. The PA was then unconditionally stable. The circuit may look more complex than is thought necessary, for which I make no apology. The skilled and experienced radio worker will know just how "bare-bones" a thing can be made and still obtain trouble-free operation. However, for the relative newcomer, frustration and disappointment may be avoided with the investment of just a few extra components and a little more time (I think most would agree that time spent in construction is more pleasant than in de-bugging?)

Grid currents on most bands is about 2 to 4mA. Power output is about 30W on bands up to 18 MHz (yes, a WARC band with a 27 MHz 3rd overtone 9 MHz crystal, that's doing it on the cheap!), and about 25W on 28 MHz doubling from a 14 MHz crystal. The TX is very versatile, as any crystal can provide up to 3 or 4 bands of operation (as of old), by multiplying in the plate tank of the oscillator — the PA *always* operating as a straight-through class C amplifier. VXO pull on the crystal allows a useful degree of frequency agility — handy for dodging occupied frequencies, and netting on to other stations as required.

The circuit schematic attempts to show that the output tank circuit and related components should all be located above chassis. An ordinary 4-pie 2.5 mH 250 mA RFC is adequate as plate feed choke, and a similar unit should be used for the safety choke at the output. The plate choke may be fitted to length of insulating material as shown in the photo. The 2 or 3 kv 1000 pF ceramic mica plate blocking capacitor is also mounted upon the insulating rod.

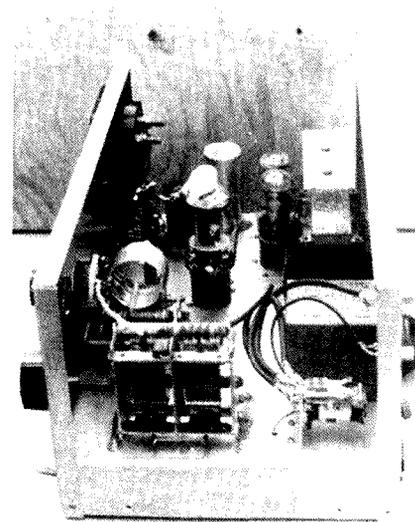
Ready-made B&W coil stock was used for the tank coils. Naturally, home made coils wound upon ceramic, bakelised paper or glass formers would also serve. Wire gauge is 20 B&S. The coil for the VXO is not critical, any shielded or toroidal coil of about 5 to 10  $\mu$ H will give a useful amount of downwards frequency pull on your crystal(s).



**Side view showing filter capacitor mounting arrangement.**

The "Tune" variable capacitor should be a 250 or 300 pF with fairly wide-spaced plates, an ordinary BC type may just be adequate at lower plate voltage, but try for wider spacing to avoid ar-over problems. The "Load" capacitor may be an ordinary 2 or 3-gang BC type. Note that the "OSC" variable capacitor must be insulated from chassis. Two fibre washers and a slightly enlarged mounting hole will do the trick. The shaft sits at 300 Vdc above ground, so it must have an insulated knob attached, with the grub screw well recessed. So too must the neutralising capacitor be insulated from chassis. A "Polar" or Jackson 10 pF unit with ceramic insulated mounting bushes is ideal. At least one supplier here is selling 300  $\mu$ F/350 V electrolytic capacitors quite cheaply. But they may not have mounting brackets. Shown is suggested mounting method. Mica capacitors should be used where indicated, although in most instances ordinary disc ceramics would probably suffice. Similarly, micas may be used instead of disc ceramics. By-passes may be anything from about 0.003 to 0.01  $\mu$ F, except as shown at the "earthy" end of the oscillator tank, which must be 1000 pF mica for the neutralising circuit to work correctly.

The power transformer shown is a 600 Vct type ("300 volts-a-side") at about 150 mA. Of course, a transformer different from this may be used. You may have a 770 Vct for more power output (the maximum plate voltage for the 807 is 600 V, although in practice they will take more than that without blushing too much), or a 550 Vct for lower power. Furthermore, the HT voltage may be lifted by about 40% at the cost of a less smooth HT sup-



**Side view showing output components.**

ply if no 10 H filter choke is used. The series resistor feeding the two regulator tubes may need to be altered according to which transformer is used. A value which keeps the tubes reliably glowing under all conditions without them getting too hot is the right one.

The antenna change-over relay shown is a 6 Vac type, because that's what I had on hand. A simple diode and capacitor arrangement will permit use of a 6 Vdc type, or a 12 Vdc type may be worked from a two-diode/two-capacitor voltage doubler powered from the 6.3 Vac winding. My junk-box sported a 5 mA meter (1 mA have become rather scarce), so the circuit shows resistor-values for the 5 mA movement. Recalculate for other sensitivities (eg 1 or 2.5 mA, in which case, a shunt will be required for 0.5 mA grid current). The bottom 100 K resistor in the HT multiplier string simply takes the voltage strain off the meter switch and by-pass capacitor. The 3300 pF (not critical) HV capacitors around the rectifier diode bridge should suppress any line-related switching transients, and so reduce side-band noise, and offer some protection to the diodes.

A few suggested alternative oscillator tubes include; 6CL6, 12BY7, 6AQ5, 5763, 6L6 and 6V6, with due consideration to pin connections. For glass envelopes, a tube shield is recommended to aid stability.

The construction and troubleshooting of this TX has been a very interesting and instructive project, and brought me back in touch with a technology — which (perhaps sadly), appears to be rapidly dying out in amateur circles, in this country anyway. It is not a static museum dis-

play however, and finds frequent and effective use on the HF bands.

In one of the outer eastern suburbs of Melbourne, not far from here lives a recently retired man, who has taken up again his hobby of amateur radio. His transmitter is a simple two valve job, not unlike this one, crystal controlled on 40 m, with a simple companion receiver. He may be heard almost daily, working DX, far and wide. I do believe that he is hav-

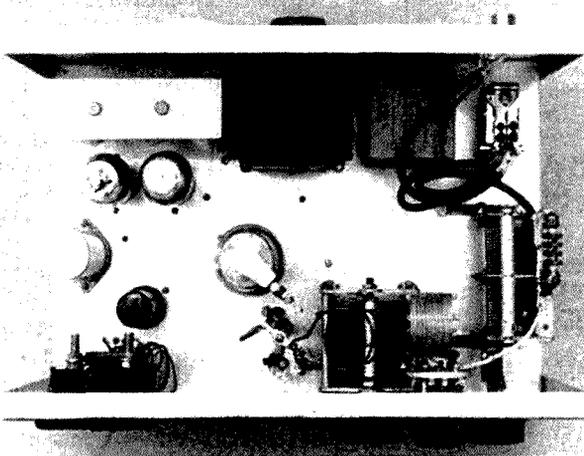
ing greater enjoyment with his set-up than many do who have the latest "bells — and-whistles" box from Mr Y Musen's factory.

Copies of the original articles listed may be obtained by writing to me at the address above. An A4 size SASE for reply would be appreciated. The transmitter and a matching VFO may be inspected at this QTH after confirmation on 03 722 1620. Have fun.

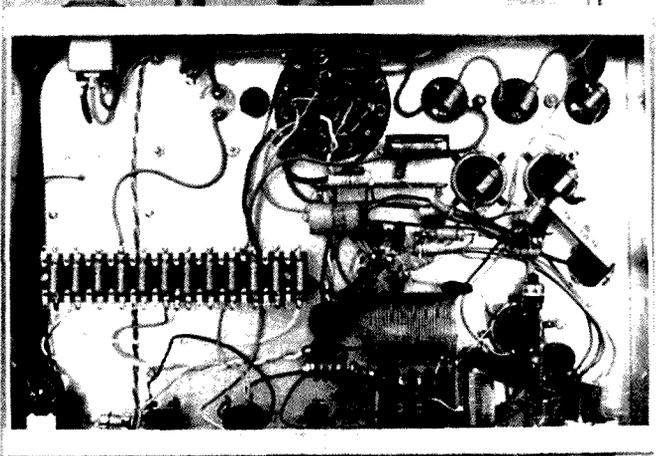
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3. The 5-Band Junk-Box Transmitter-Tiemeyer, W3RMD, Ham Radio Dec'89
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Above chassis view.



Below chassis.

# The Tuned Circuit as a Tool

Robert R McGregor VK3XZ  
2 Wiltshire Drive  
Somerville 3912

**R**F CIRCUIT INVESTIGATIONS and measurements can be both difficult and tedious. Many times, what is really wanted is a determination of how far the resistance or reactance is from that expected or some indication of a trend so that we know which way to go.

Frequently, it is easier to measure the deviation, rather than the absolute value. An auxiliary tuned circuit, consisting of, for instance, an inductor and a variable capacitor, for the frequency of interest and your grid (or other element) dip oscillator can supply a lot of answers. Set the dipper oscillating at or near the frequency of interest, loosely couple it to the tuned circuit and tune it to resonance. If

the unknown is expected to have a low resistance or reactance, connect it in series with the auxiliary circuit and retune the circuit to resonance. The variation is the unknown reactance. If the tuning capacitor has to be reduced in value, the unknown is inductive. If the capacitor has to be increased, the unknown is capacitive. For medium to high unknown impedances, connect it in parallel with the auxiliary circuit. After retuning, an increased capacitance indicates the unknown is inductive and a decreased capacitance indicates it is capacitive. Known, fixed capacitors can be used to calibrate the tuning capacitor.

To determine the resistive component

of the unknown, it is necessary to have an indication of either the voltage across, or the current flowing in the auxiliary circuit. Record either the voltage or current with the unknown connected, disconnect the unknown and retune. Now load the auxiliary circuit with non-inductive resistors until the measured current or voltage is re-established. The loading resistor value equals the resistive component of the unknown. Slight retuning will eliminate the effect of stray capacity across the "non-inductive" resistors. The amount of retuning required can give an indication of how inductive the resistors are.

The tuned circuit constants should have a reactance of 100 to 120 Ohm at the frequency of interest. For parallel feeders, a split stator or two capacitors in series could be used. You can use a parallel "floating" trimmer to achieve the desired L/C ratio. The tuned circuit should be left unshielded to reduce spurious effects whilst at the same time avoiding coupling to other, adjacent circuits. Some typical uses of the above technique would be to check the impedance of an antenna or measure the input impedance of an amplifier. Knowing is better than guessing, especially where a PA is concerned — even an auto tune circuit can run out of range!

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# Cross Modulation and Adjacent Channel Interference

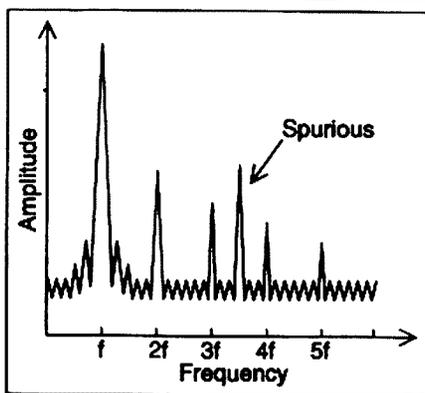
Ron Henderson VK1RH  
171 Kingsford Smith Drive  
Melba ACT 2615

Continuing our series on pager interference, this article is devoted to cross modulation and adjacent channel interference.

**W**HAT IS CROSS Modulation? Cross modulation occurs when an active linear device is nearing its non-linear state. Bear in mind that no device is perfectly linear. As a result a very strong signal may transfer some of its energy to a much weaker signal. Whilst there is no mathematical relationship between the two, cross modulation can affect any receiver which does not have sharp selectivity before its first active stage. Cross modulation can be negated with the insertion of a notch filter on the strong unwanted frequency and/or a band pass filter on the wanted frequency.

What is adjacent channel interference? That's a question HF operators don't ask for they are well aware of the interference that occurs when they operate on a frequency too close to an existing QSO. Their transmitted sideband signal occupies nominally 2.8 kHz and if this overlaps the next user, some of their transmitted energy will get into the other operator's receiver and disrupt that QSO. On the channelised segments of the VHF and UHF bands our band planning generally eliminates this type of interference caused by amateur sources.

Pagers are also frequency planned on a channelised band plan. Although we may not expect interference, because our bands do not overlap, it is a practical reality that transmitters, even in CW mode, do not radiate solely a single frequency.



Indeed a typical transmitter CW output looks a little like Figure 1.

Harmonics of the desired frequency are generated together with sidebands of the carrier and sideband noise. Spurious emissions, not related to the carrier frequency may also occur, finally there is wide band low level noise, appearing as mush in the diagram.

Pager transmitters have a specification set for the fall off of sideband noise, but for pagers with carriers close to the upper end of 2 metres, around 148.0125 MHz, some leakage occurs downwards into the amateur band. Should the level of that leakage be still high at an amateur frequency in use, say 147.950 MHz, a possible repeater output, then the amateurs in the vicinity will hear it as a noise signal on their FM transceivers.

How can we control this problem?

There are several methods available:

The amateur band plan could be altered to avoid the problem frequencies at the top of the 2 metre band. We have done this on some sites, for the pager sidebands and sideband noise will be a problem for co-sited repeaters with inputs just below 148 MHz. Indeed this has given rise to "upside down" repeaters, ie, their input and output frequencies have been inverted. In some circumstances inverting the repeater frequencies has transferred the interference problem to mobile users of that repeater.

In the case of adjacent channel interference caused by the sidebands or sideband noise of an adjacent transmitter the insertion of a filter at the receiver will not help. Inserting a notch filter on the receive frequency in the transmitter path is the only solution. We need to be careful in deciding whether the adjacent channel interference is the result of a wide band emission from the transmitter or insufficient selectivity in the receiver.

If the pager interference occurs further down the 2 metre band the amateur can add filters on the wanted frequencies to improve the front end selectivity and attenuate signals in the top end of the band. Note that adding notch filters tuned to the pager frequency may also assist in this case but would be of little use near 148 MHz.

Amateurs could take a lesson from commercial operators and add sub-audible tone squelch to their transceivers so that only signals carrying the squelch tone will open the mute.

Why has this problem arisen? Pager transmitters and sensitive, but wide band amateur transceivers are not compatible. The selectivity of amateur VHF and UHF transceivers is not good. Many have very wide receiving ranges, which leads to minimal input tuning.

How can commercial operators exist in this environment? In a commercial installation front end sensitivities of  $0.35 \mu\text{v}$  are not uncommon, amateur transceivers often boast  $0.2 \mu\text{v}$  but this is achieved at the expense of selectivity. In a commercial repeater situation receiver input sensitivities of  $0.15 \mu\text{v}$  are often realised but only in conjunction with \$3000 worth of cavity filters. Simply, the higher engineering standards adopted for their equipment (which shows in the costs of their transceivers) says it all. As noted above they have also been required to adopt tone squelch to reject unwanted signals.

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# Equipment Review

Ron Fisher VK3OM  
24 Sugarloaf Rd  
Beaconsfield Upper VIC 3808

## *Yaesu FT-890 HF all mode transceiver.*

At long last Yaesu have brought out an update for the FT-757. For you Yaesu stalwarts out there, the wait has been worth while. This transceiver has brought Yaesu fully into the 1990s, along with the proven and undoubtedly most popular top line transceiver on the market, the FT-1000, the excellent FT-990, and the value leader FT-747. Yaesu are well and truly back in the amateur HF market. From that, you have probably deduced that I like the FT-890 which indeed is absolutely correct.

### Enter the FT-890.

**T**HE FT-890 RETAINS most of the desirable features of the old 757 but also incorporates many new ones. Measuring 238 mm wide, 93 mm high, 243 mm deep it is only 5 mm deeper than the 757. All other measurements are the same. Weight is up a mere 6 kg. This makes the FT-890 one of the smallest and lightest HF transceivers. It is beaten only in weight by the FT-747, but not in size which is essentially the same. Consider this. The smallest transceiver on the market, now with an optional built-in automatic ATU which covers the full range of amateur bands from 160 to 10 metres and you start to get the picture. All of its rivals' ATUs only cover 80 to 10 m, not 160 m. Let's look at a few of the other nice new features. A most effective RF speech processor. A clarifier with a  $\pm 9.9$  kHz tuning range, similar to the clarifiers you find on the top line rigs. A notch filter operating at the lowest IF and an IF shift control help attack QRM.

One of the very handy new features is the ability of each selected frequency range to retain the last used frequency. This can in effect give you many extra memories. Talking of memories, the FT-890 has thirty two multi-function memories. A variety of scanning options is also provided.

Let's take a look around the front and rear panels to see what's available for the keen operator. In the top left hand corner are the MOX, VOX and main DC power switches. Under these is a standard 6.5 mm headphone socket (stereo compatible) and the eight pin microphone socket. The meter function switches are placed under the meter and in addition to the "S" meter function on receive, give transmit readings of ALC, power output and SWR. Unfortunately there is no metering of compression level with the RF speech processor on.

Under the meter selection buttons are five buttons which operate with a very soft but positive feel. These are for processor on/off, AGC fast/slow selec-

tion, IPO in/out, attenuator in/out and RPT/T. A couple of these obviously need explaining. The IPO (Intercept Point Optimisation) switches the receiver RF amplifier in and out to give improved intermod characteristics. The attenuator switch inserts a 12 dB pad into the receiver input. The RPT/T enables the repeater offset and an adjustable sub-audible tone for use in the FM mode on ten metres. Four rotary controls at the lower left are for microphone gain and transmitter RF power output. This latter control accurately sets the output of all modes from the full 100 watts down to a watt or so which prevents overdriving a linear amplifier or transverter. The next pair of controls is for receiver RF gain and receive audio gain. The vertical row of buttons to the left of the main tuning control select the various modes (LSB, USB, CW, AM and FM). There is no morse code identification provided.

At the top right hand side are the selection buttons for VFO A/B, VFO A = B and split operation (transmitting on one VFO and receiving on the other). Three buttons are for memory operation and two for the automatic antenna tuning operation.

To the top right are four buttons, the two smaller for Ham/Gen and clarifier on/off. The Ham/Gen selects either consecutive amateur bands or full general coverage reception. In the general coverage mode, up/down stepping is in either 100 kHz steps or with the "Fast" function selected down in 1 MHz steps.

The rotary controls below are for noise blanker level and squelch (left hand side). The on/off button for the blanker is just above left of the control and, like the meter switches, it illuminates when operated. The right hand concentric pair are for notch and IF shift. Again the notch "On" button is illuminated when in use. The clarifier control is on the far right. This uses an optically encoded tuning system and covers a range of  $\pm 9.9$  kHz. To the left of the clarifier are the up/down buttons for band changing and memory selection.

The front panel has a very clean layout with all controls well spaced, easy to get at, and with the best status indicators I have ever seen. The rear panel has the VOX controls, compression level control and inputs for a phone patch and external ALC and outputs for external speaker, data in/out plus connectors for the DVS-2 digital voice recorder, external ATU, band data output to the Yaesu FL-7000 linear amplifier. There is also an output for CAT control data, and a key

input. A standard SO-239 connects to the antenna and a six pin plastic socket for the 13.8 volt DC input.

There is also a relay connection via a phone connector to control a linear amplifier such as an FL 2100.

### The FT-890 On The Air.

The FT-890 operates from 13.8 volts only, so requires an external DC power supply with a twenty ampere peak current rating. At long last, Yaesu now fit a standard six pin plastic DC connector of the type that has been used by Kenwood and Icom for many years. Let's hope that the old Jones type power connectors have gone for good. The only thing they did well was scratch cabinets with their metal locating plates.

Luckily I have a couple of old (and very good) Yaesu FP-707 power supplies in the shack already fitted with the new six pin DC connectors. So plug it in and off we go. Well, no! Nothing! A quick check shows there is plenty of DC both from the power supply and at the output of the plastic connector but still nothing from the 890. To make a long story short, I found (after quite a while) that the MOX switch on the transceiver panel had been pushed in without my noticing. Release it and everything comes to life, but no mention is made of this in the otherwise excellent instruction manual. Watch out for this safety feature.

As is usual these days, many functions can be set on power-up. Yaesu call this "Power-up customisation and button combination settings", which actually takes longer to say than it takes to enable your function. Some of the things you can set are; 10 Hz or 100 Hz digit displayed, fast button press on/off or active only while pressed, set scan-resume mode, select lock mode where only the tuning control is locked or all operating buttons plus tuning knob is locked. There are in all ten functions that can be "customised" with the power-up feature. In a similar way, while the rig is actually on, several functions can be set by holding the "fast" button plus one other control. Some of these include; The beeper audio frequency can be set anywhere between 220 and 7000 Hz. I found 1 kHz about right. You can set the digital display to any one of eight different brightness levels, however the intensity of the "S" meter does not change. The transmitted audio response can be tailored to suit different voices and microphones (more about this later), the tuning rate can be set, the CTCSS tone for 10 metre FM can

be selected and a memory skip function can be initiated.

The tuning control is superb. It has a very free action similar to the FT-1000 and 990 transceivers. The meter is brightly illuminated and calibrated for "S" meter, power output in watts, ALC action and SWR. The SWR reading is automatic and does not require forward setting. The three last functions are available on transmit only of course, and are selectable via three small push buttons under the meter which illuminates when selected. A very nice effect.

Back to the tuning control. As well as the excellent mechanical action, the FT-890 has a direct digital synthesiser. This results in very clean tuning with an almost total absence of bloops and clicks. This is particularly noticeable on AM where the 890 tunes like an analog VFO receiver.

"S" meter action is good and produced an S9 reading with an average input of about 60  $\mu$ V. However around 86  $\mu$ V input was required on 28 MHz. AGC action is well controlled on SSB with the slow position selected but there is no provision to switch the AGC off. With the "IPO" selected, the sensitivity drops about 10 dB and a further 12 dB with the attenuator selected.

Receive audio quality from the internal speaker is very acceptable and with a good quality external speaker plugged in, excellent. Audio power output was measured at 1.6 watts with 10% distortion and a four ohm load. With an 8 ohm load the output dropped to 1.2 watts. The notch filter was effective, but as usual with notches operating at the IF, it had quite a detrimental effect on the audio quality. This is caused by the wide notch at the top of the response curve which removes a large slice of the wanted audio. The IF shift was useful in helping to reduce the effects of adjacent QRM. I like the action of the clarifier, however it lacks two important features. Firstly there is no "Clear" button to return to the normal frequency readout to show the amount of offset. The main readout moves in sympathy with the clarifier, but you have to hit the transmit button to see where you have come from!

I thought receiver selectivity on SSB was good. It can however be improved with an optional crystal filter. If you rag-chew on 40 and 80, you won't need this, but a keen DXer might prefer the extra selectivity of the optional filter. Optional CW filters with 500 Hz and 250 Hz bandwidth can also be installed.

Frequency readout is selectable to either 10 or 100 Hz resolution. The 10 Hz digit is smaller than the rest of the display, and disappears when the memory mode is in use.

Frequency stability is excellent and did not vary by more than about 20 Hz or so during the period of our tests. If you are very fussy, this stability can be improved by installing the optional TCXO-3 temperature compensated crystal oscillator, but you won't need to be very fussy.

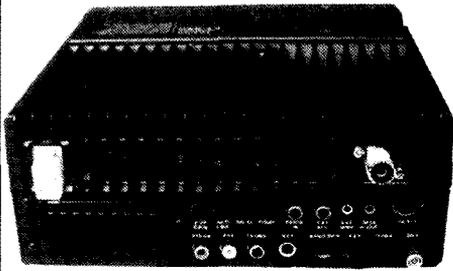
The automatic ATU will match up to about a 3:1 SWR. It was somewhat slower in action than many available these days, sometimes taking 20 or 30 seconds to find a suitable match. However, once a band setting is stored, it recalls the setting very quickly. There are 31 memories for the ATU — very handy when hopping from band to band.

The transmitter power output was measured at an average of 110 watts output over all bands with current drain averaging 19 amps (at 13.8 volts). With a reduction of voltage to 11.5 the power output dropped to about 95 watts with the current remaining about the same. Initial transmit quality reports were somewhat on the bassy side. However, this was easily resolved using the RF processor shift which is a unique feature of this transceiver. As received the RF processor shift was set at the zero point. This was then set to +200 Hz with a dramatic improvement in quality. Naturally this will depend on the voice and microphone you use. The RF speech processor worked very well and was markedly superior to the usual audio based processors used in many other transceivers in this price class. I set the rear compression control to about the 10 o'clock position. All of our tests were carried out with the supplied MH-1 hand held microphone.

The power output metering was found to be very accurate, but it was hard to get a meaningful reading on the SSB speech peaks. I would like to see the meter slowed down to somewhat overcome this. On CW the keying was clear and free of clicks and of course the FT-890 is fully packet compatible.

### The FT-890 Instruction Manual

The FT-890 Instruction Manual is presented in a similar form to those supplied with the FT-1000 and FT-990. In other words it's very well presented. The mistakes that I noted in the FT-990 manual have been corrected and in fact a hard



look failed to find any errors at all. The print quality of the manual is the best of the Big Three manufacturers by far and the touches of colour really make things stand out. Five full pages are devoted to the CAT system computer control.

Again there is no technical description of the transceiver in the manual. No doubt this is well covered in the workshop manual when this becomes available. However as a general instruction manual I will give it almost top marks — nine out of ten. A couple of pages of circuit description would take that up to full marks.

### Conclusions

The performance of the FT-890 is, in a word, excellent for a transceiver in its class. I feel that the only thing that Yaesu have left out is a clear button for the clarifier. With this added, a clarifier is almost as good as a second receiver. If you are a keen DXer then the optional SSB crystal filter would be a must but nonetheless, in standard form the transceiver is at no disadvantage to its main competitors.

Our review transceiver was kindly supplied to us by Dick Smith Electronics to whom all enquiries should be directed.

The FT-890 will retail at \$1995 which includes the MH-1 hand microphone. The optional automatic tuner (ATU-2) will be \$429.

# Shepparton Balloon Found

**David Mann VK2OC  
"Mundaroo"  
Tumbarumba 2653**

**S**HEPPARTON AND DISTRICT Amateur Radio Club launched a "voice weather balloon" on Saturday 23 May 1992. The launch created much excitement among local amateurs in reporting its signal, and tracking it. The flight proved most successful, and provided more than 100 reports, with the best distance being more than 1200 kilometres.

The prevailing winds took it in a north-easterly direction. The highest recorded reading was at 65,000 feet over Wagga. At this altitude the balloon is believed to have burst, causing its parachute to open.

The airborne package floated to the ground and landed approx 1 km from the road, in a pine plantation on the Lower Bago Road, near Courabyra, NSW. Its resting place eluded keen followers for almost 72 hours, and on Wednesday 27 May 1992, David VK2OC and XYL Sue, together with Trevor VK2ACZ and Terry VK2ETR spotted the missing package with binoculars.

With Sue standing atop a four wheel drive, she directed by radio the male contingent, who had made their way into the plantation carrying a white flag on a stick (obviously to beat the package into submission once located!).

When located, the balloon remains, radar reflector and parachute were in one

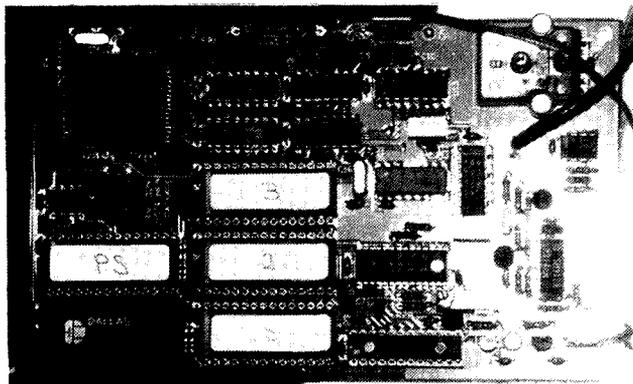


**David Mann VK2OC, Terry Reeckmann VK2ETR and Trevor Hoodless VK2ACZ proudly display the balloon transmitter and parachute after its successful recovery.**

tree, and the radio package in another, in good condition and undamaged.

The \$100 bounty for the return of the package was increased to \$200 by Peter VK3MU in a spontaneous gesture. Although the main purpose of the exercise was the flight itself, the recovery simply adds icing to the cake, and the organisers of the Shepparton and District Amateur Radio Club have expressed their grateful thanks to the recovery team, and all who participated in the activities.

**Support the  
WIA in order to  
protect  
amateur radio  
frequencies**



**The main control circuit board of the Shepparton Balloon Instrument Package Transmitter.**

# Random Radiators

Ron Cook VK3AFW  
Ron Fisher VK3OM

This month, we intend to look at a few more wire antennas that are held in high regard in some circles. Then a new version of our favourite antenna coupler, the "Z" Match. Is it as good as the old one or not?

**B**UT FIRST A NEW LOOK at an old antenna, the extended double Zepp. One of the Rons has just put one of these up for the 40 metre band and is getting excellent results on all bands from 80 through 10.

It all started when an 80 metre dipole fell down in a storm. It was decided to extend it before putting it up again. The first thought was to make it a full 160 metre dipole, but as an improved signal into Europe on 40 metres was needed, it was decided to make it into an extended double Zepp.

As the original 80 metre antenna was centre fed, it was decided to retain this feature and just extend each half of the dipole. The overall length used is 55 metres (not critical) and it is fed with 33 metres of 300 ohm open wire feeder. With either the "Z" match or the Johnson Matchbox antenna tuner, the antenna tunes up very easily on all HF amateur bands. Performance seems better overall than the 80 metre dipole and on 40, the 3dB gain puts a very competitive signal into Europe.

Of course as we have mentioned in the past, a half size version works well on 20 metres, and all the other bands as well although performance on 80 will be down a bit as the overall length is shorter than a half wave.

While on the subject of extended dou-

ble Zepp, we came across an interesting variation on the theme in an old Short Wave magazine. By the way, these are a wonderful source of antenna information especially those around the late 1940s to the late 1950s. We have a good collection of these and will be quoting from them over the next year or so. The November 1949 issue has an article by G3AEN showing how a 20 metre extended double Zepp can be end fed. A rather unusual situation, but one which could be most useful in many locations. In addition to this, the author has devised a method to change the directivity of the antenna. All of this has been achieved in the space of only 90 feet by 25 feet, an apparently English back yard.

The feeder system is rather unusual these days but not so uncommon in 1949. A matched 300 ohm balanced feeder is provided for single band operation. In those days it was not unusual for transmitters to have a 300 ohm output. Matched 50 ohm coax feeders were still a few years away. To use this antenna today, a balanced line of about 300 ohms impedance to an ATU of the "Z" match type would be fine and would also allow all band operation. The closed stub on the feeder would need to be removed for all band operation, but could be retained for 20 metres only.

After using the basic antenna for an ex-

tended period of operation, G3AEN decided he needed some radiation off the end of the antenna. To do this a half wave element for 20 metres was added to the main radiator a half wave length from the feeder end. If you have enough space to run this in a straight line so much the better. G3AEN folded the element to fit his available space.

Let us now quote some of the author's remarks which show his design parameters.

"An extended double-Zepp aerial which gives a gain of 3dB in its preferred direction seemed to be the most suitable choice, but no trace of any suggestions regarding end-feeding could be found. The radiation pattern produces an arc of approximately 50 degrees, and is covered on each side of the aerial. In addition there are four minor lobes making an angle of 35 degrees with the line of the wire. The increase of 3dB over a dipole in its optimum direction makes a worth while improvement, especially as it is accompanied by a decided reduction in QRM from the unfavoured direction.

Being a true to type amateur, naturally this state of affairs could not be considered final, and attention was turned to the original problem of raising DX off the ends of the aerial. A few hours thought resulted in the idea of an additional half wavelength at right angles to the main aerial. From the estimated radiation diagram this would achieve practically omnidirectional propagation without reducing the gain from the original aerial. It is true that the advantage of the reduction in QRM would be lost, but more value was placed on being able to work in all directions that the ability to receive all signals in the clear".

Worth a try? We think is certainly is. If you try one, let us know your results and thoughts. We would like to compare notes.

## A New and Better "Z" Match

In the March 1992 issue of Break In, the magazine of the NZART, a new design of the popular "Z" match ATU was described. This uses just one tapped coil with a single output coupling link. At the moment we are in the process of building up a prototype to check its operation. The Break In article is largely a theoretical discussion with little practical information on how to build one. Let us look at some extracts from the article and then some thoughts from ATU guru Lloyd Butler VK5BR.

But first over to T S Seed ZL3QQ as published in Break In.

The author uses a 300 pF coupling capacitor to the top of a coil 14 turns spaced over 7.6 cm on a 5.7 cm former, and a twin tuning capacitor of 240/28 pF. The secondary winding is nine turns inter-wound with the primary, tapped at two and five turns. This allows two, three, four, five, seven or nine turns to be connected to the load.

The genesis of impedance matching circuits is the "L-section" network of which there are four arrangements. One of these uses a series capacitor and a shunt inductance. Such a circuit will match a high resistance  $R_{in}$  on the load (inductance) side to a low resistance  $R_{in}$  on the generator (capacitor) side with a Q given by

$$Q = \sqrt{(R_{in}/R_{io})-1} \text{ and component values } X_L = R_{io} \times Q \text{ and } X_C = R_{in}/Q.$$

If  $Q^2$  is equal to or less than one either (1) the source and load may be interchanged or (2) a step-down secondary winding may be placed on L.

To cover a range of operating frequencies both the capacitor and inductance must be variable. Variable capacitors are commonly available, while an inductance may be made "variable" by placing a capacitor Ct across it by tuning this parallel combination to the low side of the operating frequency. This, and the "secondary winding" technique is what is used in the Z-Match — also in the Gamma match on beam antennas.

The conventional Z-Match shown in Figure 1 uses two coils  $L_h$  and  $L_h$  and two capacitors  $C_t$ ,  $C_t$ , which here are taken to be ganged, variable and of equal capacity, to form what may be thought of as the "variable" inductance of an "L-Section" network.

This combination exhibits parallel resonance at two different frequencies  $F_{lo}$  and  $F_{hi}$  with a series resonance  $F_{series}$  between them for any particular setting of the twin capacitor  $C_t$ .

This circuit is known to have been described as early as 23 March 1918 in Circular C74 of the Bureau of Standards, which includes reference to the use of the series resonance condition to suppress unwanted harmonics!

Now over to Lloyd Butler VK5BR for his comments.

The circuit principle does differ from the original Z-Match circuit principle in one important aspect. In the original circuit, the unused coil floats and is not coupled to the antenna. In the single coil version, both tuned circuits are coupled to the antenna. I wonder what side effects occur if the upper tuned frequency happens to be harmonically related to the operating frequency when the lower frequency circuit is predominant for opera-

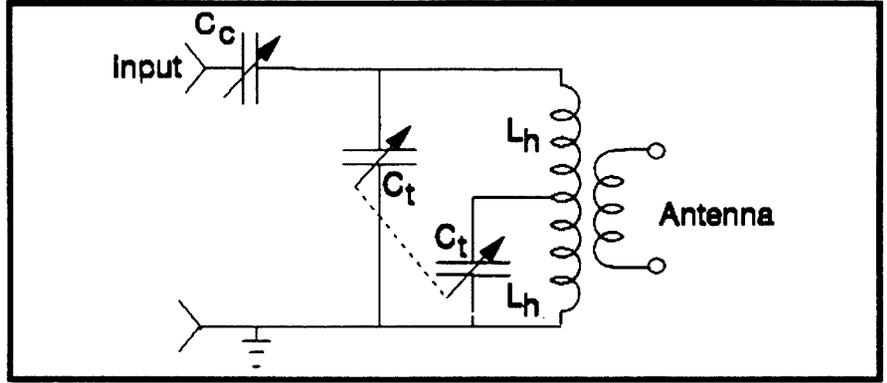


Figure 1.

tion. Could it encourage harmonic radiation? I bear in mind that in tapped coil systems, the unused turns are normally shorted out to prevent stray resonances in the unused section of the coil.

I note that whilst the writer has established a detailed theoretical base for the design of the dual resonant tuning system, he has avoided detailed discussion on the output coupling system. In my May 1989 AR article, I went to lengths to explain how the air coupled coils gave a coupling coefficient considerably less than one and this produced a very useful effect. For a load resistance lower than a certain critical value, there is a fold back effect in which decreasing load resistance actually increases the resistance component reflected to the primary of the coupling transformer. This is the reason why the Z-Match tuner can match right down to low impedance not otherwise possible with a network of series C and shunt L as used in the Z-Match.

I don't know whether it is a documentation error but, if correct, the writer has a reference to the Z-Match type of tuning system in published information as early as 1918. This is very interesting as it puts it back into the spark transmitter era.

The writer also refers to the series

resonant frequency which can be used to suppress harmonics. Whilst I followed through all his reasoning in the article, I did not understand how that could be set to do that job over the tuning range of the device.

The last point is that no information is given on just what performance has been achieved in using this particular design. The question must be raised on how it performs by comparison to the two coil circuit.

It seems to me that the only reason we need two tuned circuits in the Z-Match is that one won't quite cover the complete range of 3.5 to 28 MHz. I have the feeling that we could achieve what we want using the circuit in Figure 2 — a single tuning capacitor (not split stator) in parallel with the primary of an air coupled (low coupling coefficient) output transformer. To extend the high frequency tuning range, a switch is provided to short out some of the primary turns. The more I think about it, the more I am convinced that this circuit (more straightforward than the Z-Match) is worth looking at.

As soon as we have our model up and working the results will be published. Keep tuned in.

*The two Rons.*

ar

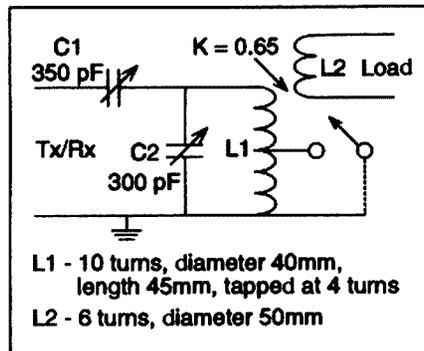


Figure 2.

**Remember to leave a three second break between overs when using a repeater**

# How to Write For *Amateur Radio Magazine*

Bill Roper VK3ARZ  
Publisher, *Amateur Radio magazine*

IT'S EASY TO WRITE FOR *Amateur Radio* magazine. Hundreds of amateurs have already done it. Few of them are professional writers. All get a lot of satisfaction out of hearing their fellow amateurs say they enjoyed reading their article in the latest issue of the WIA journal.

Just about anybody can write. Some can turn an elegant phrase, while others just explain what they have in mind and keep right to the point. Practice develops skill in writing, just like anything else you do. The more you write, the easier it gets and the better it is.

## The Subject

Most amateurs love simple equipment and antenna construction and design articles. While most of us will not actually build the project we often follow the construction in our minds and enjoy reading about it. However, since *Amateur Radio* magazine has more than 10,000 readers each month, just about any project will be constructed by at least 10, and sometimes hundreds of fellow radio amateurs.

It pays to be extremely careful in checking your article, particularly circuit diagrams, for any errors, or the mail will pour in.

If you are experimenting in a new field, you may want to write about it and let others know what you are doing and dis-

covering. Bear in mind, however, that you are writing for a wide range of amateurs, from beginners to experts. Gear your article as close as possible to the "entry level" amateur as possible. After all, this is amateur radio, not the Proc IREE.

While the emphasis in *Amateur Radio* magazine is for technical articles, readers also like to read about any other area of amateur interest. A visit to a particularly interesting DX location, perhaps a local event of significant interest to radio amateurs. Most amateurs have at least one good story in them.

## The Plan

Before you start to write the article, outline what you want to say. Remember the old rule: *Tell them what you are going to tell them; tell them; then tell them what you've told them.* Or, in more formal language, introduction, body, summary.

Follow this format for construction articles: *introduction, theory, construction, alignment and adjustment, and summary.* The title and opening paragraph are particularly important, as are diagrams and photographs. You win or lose most readers right at the beginning.

When writing, remember that *Amateur Radio* magazine is an informal, hobby magazine and that you are writing for friends. Don't be a stuffed shirt. Go

lightly on impersonal third-person terms, such as "the author". It's in order, however, to occasionally use the first person "I".

Also use direct sentences whenever possible. They deliver your point more forcefully. "I fastened the nut" is better than "the nut was fastened". Write naturally, in short simple sentences, starting a new paragraph with each new thought. Avoid unnecessary abbreviations. Use sub-headings as signposts for the readers.

Misspelling is easily avoided. Many of you have word processors with spelling checkers, and *hard copy* dictionaries are cheap. Look it up!

Minimise maths. It's not often necessary in *Amateur Radio* articles, and it scares many readers. While most readers can use high school algebra and trigonometry, they don't want to. They prefer practical projects, designed and ready to build. Graphs are next best. Maths is last. Even engineers prefer pre-designed circuits, if only as a starting point for their work. Use maths only where it is vital. If a mathematical derivation is necessary, show only the steps which introduce fresh logic. Steps of a purely Mathematical manipulation nature should not be shown.

## Abbreviations and Symbols

The editors of *Amateur Radio* magazine use the abbreviations as detailed in the Australian Government Publishing Service (AGPS) *Style Manual*, such as: Hz, kHz, MHz, GHz,  $\mu$ F, pF, mH, H, W, mW,  $\mu$ W, V, mV, kV, A, mA,  $\mu$ A, dB, km,  $\Omega$ , k $\Omega$ , M $\Omega$ . Do not use full stops or pluralise the abbreviations. Separate them from the number: 10 MHz, not 10MHz. Modes of emission, and acronyms in general, are capitalised: AM, FM, CW, SSB, RTTY, ATV, RF, IF, DC, AC, RMS, VFO, AGC, etc.. Though the text flow should be informal, keep away from *hammy* abbreviations in your articles such as xtal, XYL, xmt, xfmr, etc.

Greek letters can be created with most word processors by holding down the Alt key while pressing the numbers from the following chart on the keyboard numeric key pad.

$\alpha$	224	$\beta$	225	$\pi$	227	$\Sigma$	228
$\sigma$	229	$\mu$	230	$\phi$	232	$\theta$	233
$\Omega$	234	$\delta$	235				

Avoid footnotes wherever possible. References in the text are easier to read. Do not forget to give credit when you borrow an idea from someone else. This is important both ethically and legally.

## Diagrams, Illustrations and Schematics

Put all drawings on separate sheets of paper. Never put them in the text. If the standard of your drawing is not good enough to be published as is, we have an excellent draftsman who will redraw it for you. Be sure your sketches are complete, neat and readable. Put parts values on the schematic and include a separate parts list. Use terms R1 and C2, etc. Label the drawings numerically, for example Fig 1, Fig 2, etc. At the end of your article text, list the figures with a caption by each one. Put your callsign or name on every sheet of paper you submit.

## Photographs

Good photographs can make all the difference in the appeal of an article. You may be able to find a good amateur photographer who will be glad to do the job in exchange for a credit line in your article. Although colour photographs are the most popular today, quite often they do not reproduce well in black and white. A good quality black and white print will generally reproduce better in the internal pages of the magazine than a colour print. Standard 15 × 10 cm prints are satisfactory.

You will want an overall photo of the project, plus relevant views that will be helpful to the reader who wants to duplicate your efforts. Label each photo clearly with a letter: Photo A, Photo B, etc. At the end of the article, list photos along with captions describing each photo.

If you have a colour photograph that you want the editors to consider for the front cover of the magazine, take note of the vertical format requirement for the front cover, and send us a good quality print. Again, a standard 10 × 15 cm size print is satisfactory. We can also use positive transparencies.

## PC Boards

If your project includes a PC board, send a positive of the board with your article. Separately sketch out the component layout. If the positive is not the same size as the board, be sure to tell us.

## Software

Accompany all program listings with text explaining the logic and uses of the program. Include a flow chart whenever possible. Send all program listings on an IBM format floppy disk, but make sure to include clean dark hard copies of all listings. Use a fresh ribbon and a letter-quality printer for your listing. If you are writing in an assembly language, make sure the listing and disk contains the source code. It is considered poor practice to reproduce pages of code listing in the magazine. A preferred approach is to publish a description of the logic and function of the program together with an address from which hard copy or a disk can be obtained.

## Manuscript

Send a covering letter itemising what you have included in the submission, such as manuscript, schematics, photos,

captions, etc. Provide a brief biography. Readers like to know a little about the author of an article.

When submitting hard copy, use regular A4 typing paper and double space the text, leaving at least a one inch margin at each edge. Number the pages, and put your callsign or name on each page. Do not type titles, subtitles, or text in all capitals. Always keep a copy of your work.

If you submit a hand written manuscript, please ensure that it is legible. Printing rather than writing may be better.

## Submission

You can submit your article in several ways. We prefer it electronically by sending it to us on an MS DOS formatted floppy disk, 5 ¼ or 3 ½ inch. We have the ability to translate most word processors, but would prefer the text to be in either WordPerfect or ASCII. If you use another word processor, please tell us the name and version number.

Send your article to: Amateur Radio, PO Box 300, Caulfield South, VIC, 3162.

The editors will arrange publication of your article at the earliest possible opportunity. Be prepared to wait up to six months, however, before you see your work published in the magazine. It can take that time to edit and prepare your submission for publication, and place it in a particular issue to ensure a balanced magazine.

Acknowledgments to Radio ZS. This item is based on an article published in the October 1989 issue of Radio ZS, and has been adapted to Australian conditions.

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# JENLEX FILTERS

## Get Rid of Pager Interference

The range of JENLEX 50 Ohm helical filters is designed to reduce or eliminate pager interference on the 2 metre band. They are compact, weatherproof filters suitable for indoor or outdoor use.

• NHF1: is a 2-stage filter rated at 100 Watts, with a notch depth of better than -40dB at 148.6MHz and an insertion loss of 1.7dB at 147.600MHz.

Price \$175

• HNF2: is a 4-stage filter rated at 50 Watts, with a notch depth of better than -40dB at 148.6MHz. Maximum depth of notch is -80dB with narrow band width.

Price \$175

• HNF3: is a 3-stage filter rated at 50 Watts. Maximum depth of notch is -55dB with a narrow bandwidth.

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• HNF4: is a 2-stage filter rated at 10 Watts with an attenuation better than 30dB at 148.600MHz and an insertion loss better than -2dB at 147.600MHz. BNC connectors are standard for this model, small enough to be used on a hand held.

Price \$150

All prices are ex-works, including Sales Tax, and subject to change without notice. Packaging and Post is \$10 on all units. Notch frequency and depth can be adjusted at the factory at the time of order to suit the user's local needs.

Send for an illustrated leaflet and detailed performance curves.

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# VK Caltenna Update

**Clive J. Cooke  
VK4CC  
P.O. Box 161  
BRIBIE ISLAND QLD 4507**

Since writing about the VK Caltenna (August 1991 AR), additional experiments have caused me to modify my views regarding the transformer design and the use of an earth system for a vertical or end-fed antenna.

**T**HE TRANSFORMER connections currently in use are as indicated in figure 1, in which it will be noted that the 50 ohm resistor is now connected directly across the feed line socket, the lead to the resistor from the inner conductor of the feed line being as short as possible as in a dummy load. The earthy end is not as critical re the length of the wire. To clarify some enquiries, the winding wire size does not seem to be critical. I use mainly 16 gauge B & S or thereabouts enamel covered on a ferrite toroid having a  $\mu$  near 130; though once more this does not seem to be critical for the power we are authorised to use as saturation is unlikely.

Before winding the 11 twisted turns ensure that the ferrite is first covered with some plastic electrical tape to reduce the capacitive effect of the ferrite on the winding. The final test for a good winding should be on the bench using a SWR meter which should result in a substantially flat SWR on all bands.

Too many turns or too tight a twist and the higher frequencies will suffer. Too few turns and the lower frequencies are affected due to insufficient inductance.

Note that the centre tap of the transformer is joined to the braid of the feed line which should be earthed at the base of a vertical or end-fed sloper or inverted vee for improved results.

It is recommended that if possible, a minimum length of wire of 51 feet be used; preference being for about 100 feet

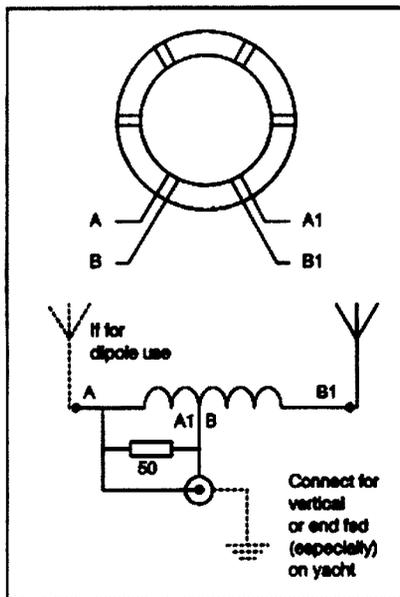


Figure 1.

or more as an inverted vee. Relative to the centre tap (and earth), each side of the auto transformer has a 1:1 ratio relative to the other side. However if the transformer is employed in matching to a DIPOLE (which need not necessarily be the same length on each side of the transformer), a 2:1 voltage or 4:1 impedance ratio exists between the two ends and the feed point connections.

One USA manufacturer suggests 20 feet on one side and a minimum of 50 feet on

the other side for his unit (which costs up to US\$1,000). A Japanese manufacturer marketing a similar device to the VK Caltenna since I wrote my article for AR, suggests that the end-sloper would be ideal for use on a yacht from the mast to the backstay (and a good earth). For larger vessels the centre-fed unit may be used (Cost A\$495-00).

As previously stated, I am using a 33 feet high aluminium vertical which is energised by the VK Caltenna matching unit, now making effective use of a seven feet long copper clad earth stake connected to four 33 feet wire radials under the antenna. The wires are at spade depth below the lawn. Although I had 3.5 MHz contacts and some 1.8 MHz contacts with that relatively short antenna, I was not really happy with the results compared to the temporary longer wire antennas I have tried. In an attempt to overcome the problem I connected a coil of about 20 close spaced turns in series with the base of the antenna to earth to resonate the entire system on 3.6 MHz, as confirmed with a Grid Dip Oscillator placed inside the coil. Having thus resonated the system I tried connecting the VK Caltenna matching unit in series at the "earthy" end of the coil. This certainly improved the 3.5 MHz operation but the higher bands went dead ... no wonder I get asthma! I then elected to feed across the coil with the matching unit and what do you know, IT WORKED!! (see figure 2). Not only did I then have improved 3.5 MHz operation, but so also for reasons

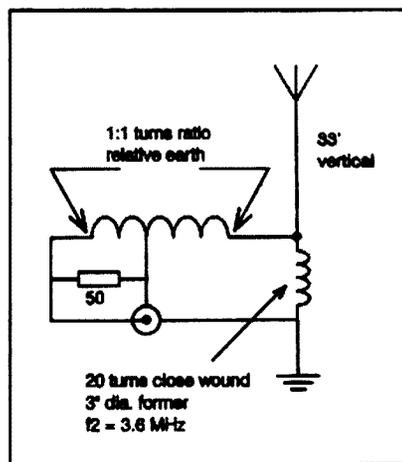


Figure 2.

unknown were the higher frequencies improved. It seems that while the coil acts as a means of matching in combination with the transformer on 3.5 MHz, the inductance of the coil is sufficient on fre-

quencies above 7 MHz to act as an RF choke, thus preventing signals from being by-passed to earth through it. Comments are often made about the improvements and I have been having regular contacts with overseas friends, including JA5AI (who visited me as stated in the original article). He used to dodge the Japanese made bombs I aimed at him, but as I told him, I was never too sure if the bombs would blow up under me before they reached his foxhole. We have been friends now for over 40 years.

#### Footnotes

VK4CC advises:-

1. 300 watt 50 ohm resistors are available from Stewart Electronics, 44 Stafford Street, Huntingdale Victoria 3166. Their stock number is RA38.
2. The following letter reprinted from "CQ" for August 1985 will be of interest to followers of the "CALTEENNA" articles:

#### The "Delta Dummy"

Editor, CQ:

As the "originator" of the "Dummy Dipole" and the "Delta Dummy" (see QST, April 1985 Issue, P.51),

I particularly enjoyed Lew McCoy's commentary on the "DLA" antennas in the May 1985 issue of CQ. I would like, however, to point out that the most successful edition of my DLA was the full-wave 80 meter "Delta Dummy" rather than the dipole configuration. This is a triangular 260 foot long horizontal loop fed with RG58U and terminated at the antenna feed point with the 50 ohm non-inductive resistor. This configuration seems to work as well as a resonant half-wave dipole in 75-80 meters and is, of course, useable from 1.8 to 144 MHz.

In the dipole configuration with two 50 foot wires across the 50 ohm resistor, performance is pretty good on the lower frequencies but falls off on the higher frequencies, as Lew indicated. I'm still not certain that using resonant antennas in DLAs will improve performance, since the two 50 foot elements are not resonant on, nor harmonically related to, the commonly used ham frequencies, and, apparently, were chosen by commercial manufacturers of similar systems for that reason. I am quite convinced that when a full-wave loop is used on the band of choice, it will approximate the performance of a resonant dipole on that band and will be useable with an almost negligible SWR on all other ham bands. My suggestion therefore, would be to use a full-wave loop on the band where most operating is done — i.e., 260 ft. for 3.8 MHz, 130 ft. for 7.2 MHz, 65 ft. for 14.2 MHz, etc. The loop can be square, round, or triangular, depending on the "geography" of one's backyard, and can be used as a clandestine or

hidden antenna run around the perimeter of an attic or roof. The beauty of the system is that it will present a very low SWR to a solid state transceiver on all bands, although, as freely admitted, there will be some loss of RF energy in the resistor, depending upon antenna impedance, the frequency used, and several other factors mentioned in my correspondence with Lew.

In any case, I was very pleased to read Lew's article in CQ. I've gotten more fun out of my "invention" and reaction to it than I've had in my almost 50 years as a ham.

**Mort Slavin, K3FGB**

VK4CC says: "... It will be noted that the letter throws some light on the use of an antenna such as that which I have described .... By incorporation of the transformer I have facilitated the use of shorter antennas than those advocated by K3FGB and am currently finding that a 50 ft. horizontal end-fed version is working satisfactorily from 3.5 MHz to 30 MHz ...."

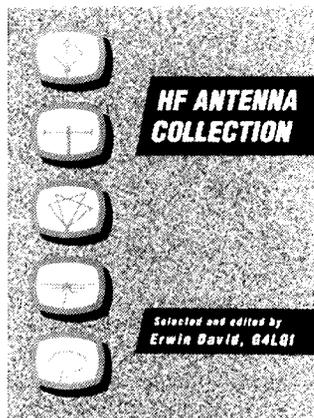
ar

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## BOOK REVIEW

# HF Antenna Collection

*Selected and Edited by Erwin David, G4LQI*



This is the first edition of a new RSGB publication and it is a worthy addition to the impressive list of volumes published by them.

Antennas have always fascinated me and I believe that most radio amateurs have a strong interest in them. After all, they are the key element in any station. No antenna equals no contacts equals no fun.

The articles in this book are restricted to the frequency range 1.8 to 30 MHz and most have been published in Radio Communications between 1968 and 1989. In addition, a most useful set of appendixes covers related topics such as feeder characteristics, wire sizes, stock sizes of tubing, lightning arresters and cores for baluns and inductors.

The book begins with a few words on antenna basics by none other than Pat Hawker, G3VA, followed by some advice on antennas and AC mains safety.

Chapter One covers single element wire antennas. Our old friends the Windom, G5RV, and trap dipoles are all there along with a range of others. G4ABS describes a very interesting multi-band antenna for restricted space that should give a very good account of itself compared to full size antennas.

Chapter Two describes a range (I was tempted to say an array) of horizontal beams. More old friends including the VK2ABQ and its derivative 2 element tri-banders. All are inexpensive and intended for the home brewer.

Chapter Three is about single-element vertically polarised antennas. Loaded verticals, matched towers and mobile whips feature here.

Chapter Four details vertically polarised beams, including one for 160 metres for suburban lots.

Very small transmitting and receiving only loops feature in Chapter Five. Recently I have been hearing and working stations using loop antennas, so this was a particularly interesting Chapter.

All antennas need a feeder and these and the mysterious Smith Chart take up Chapter Six.

Those of you with computers have probably dabbled with computer modelling of your favourite antennas as an alternative to on-air testing. Articles by Peter Dodd, G3LDO, and others address these topics in Chapter Seven.

Once you have built your antenna, in most cases you will want to get it off the lawn, well if you don't, the XYL definitely will. Chapter Eight describes a very solid DIY mast, how to get a 60 ft pole upright without calling in the regiment and how to build the right sort of kite.

Finally, Chapter Nine describes a range of useful measuring instruments for the antenna system.

The 233 pages of this book are packed with practical information on antennas, although being an RSGB publication I was surprised it wasn't about aerials. In this brief summary, I haven't been able to fully cover every topic, however, I recommend this book to anyone who is building antennas, is thinking of building an antenna or who might one day think about building an antenna. It makes good reading for anyone interested in antennas.

The book is on sale at the usual outlets, this copy being kindly supplied by Divisional Bookshops whose price is \$39.60 to members, and \$44.00 to non-members.

Reviewed by Ron Cook VK3AFW

ar

# RAAF Radar — Fifty Years Old — 1992 *Celebrations at Bendigo*

**Phil Williams VK6NN**  
24 Dodson Road  
VICTOR HARBOR 5211

Over 500 ex members of the RAAF and WAAF World War II Radar Branch gathered at Bendigo from 21st March to 26th March 1992, to celebrate the 50th Anniversary of the occasion when Radar Station No 31 at Dripstone Caves north of Darwin detected Japanese bombers approaching over the Timor Sea at 11.30 AM on 22nd March 1942. The raid was intercepted by US Kittyhawk fighters and turned back.

**T**HIS RE-UNION WAS organised by a national committee set up by the Air Defence branch of the RAAF Association in Sydney, under its president Wal Fielder-Gill, who served on radar stations in both Queensland and the Admiralty Islands. It took three years from the previous gathering in Canberra in 1988 to find that Bendigo, where numerous ex-radar people live, could host the re-union. The local committee under Alex Culvenor did a wonderful job in surveying the local facilities to cater for the delegates from all states, and several from the USA and New Zealand.

The father of Radar (or Radio Location as it was then called) in the RAAF was Squadron Leader AG (George) Pither, a permanent RAAF officer, who studied the art in England during 1940/41. He returned to Australia with the intention of training specialists for Britain. However, the Pearl Harbour bombing changed everything, and his first direct

recruits, mostly professional radio engineers, physicists and some suitably qualified radio amateurs, found themselves posted to Malaysia and Singapore installing British Radio Location equipment.

After the loss of Singapore, much of this equipment found its way to Australia, to provide our first stations, but several of the men were not heard from again. Others remained as Prisoners Of War. Australian designed equipment suitable for tropical use and of lighter construction for the island campaign was soon developed by the CSIRO and NSW Railways. Some of it was supplied to US forces for use in Pacific Island landings.

George Pither was a radio amateur (VK3VX), and after he retired from the RAAF in the 1960's, supervised the conversion of the Royal Flying Doctor Radio Network from AM to SSB. He retired with the rank of Air Commodore, but did not live to enjoy this 50th Anniversary at Ben-

digo. A little known facet of George Pither's career in the Air Force was the period he served as Superintendent, Woomera Rocket Range — circa 1951 to 1954.

The radio amateurs who are all ex-radar men attending the re-union were VK2AYU, VK3SW, VK3DSW, VK3DSP, VK3EJQ, VK4LZ, VK4OD, VK4AGT, VK4QS, VK4VH, VK5RV, VK5KTZ, VK5UL, VK5NN, VK6AMB and ZL4JL.

A special event station VK3FRA (Fifth Radar Anniversary) was organised by Wally Cameron VK3WMC of the Bendigo Club, with special QSL cards for all contacts with the Bendigo station during 1992.

Sunday 22nd March was the actual anniversary day, and was celebrated with a civic reception at the Bendigo Town Hall. The celebrations also included a march led by serving personnel and the RAAF band, a service at the Cenotaph conducted by the Senior Padre followed by a wreath laying ceremony, and then a luncheon at the Town Hall. During the luncheon, a painting by Lae Fielder-Gill of the No 31 Radar Station at Dripstone Caves was presented to Wing Commander Peter Bevan, the Commanding Officer of No 41 Air Defence Wing at Williamstown.

On Monday 23rd March, there was an exhibition of paintings by well known artist Frank Harding, entitled "They flew for the King". This series depicted RAF and RAAF planes and situations which were of a major interest to all present.

The official dinner was held on Monday evening with the Chief of the Air Staff, Air Marshal Ray Funnell (CAS) as the guest of honour. Other guests included senior officers from the technical areas of the Air Defence set up, scientists from the CSIRO Radio Physics Laboratory, and Geoff Michael (Air Commodore, Retired), president of the RAAF Association. The CAS's address brought home to us the need to maintain high technology in the modern RAAF, to achieve much more, with much less.

A painting of No 316 Radar station, a typical WW II light weight portable station on Borneo, by Jack Messer who served there, was presented to the CAS during the dinner.

On the following day, a visit by bus to RAAF Williams (Laverton and Point Cook combined) saw a parade at the Radio School for presentation of a mounted valve type VT90 (Micropup) which was used in both ground and airborne radars in the early 1940's. The parade ended

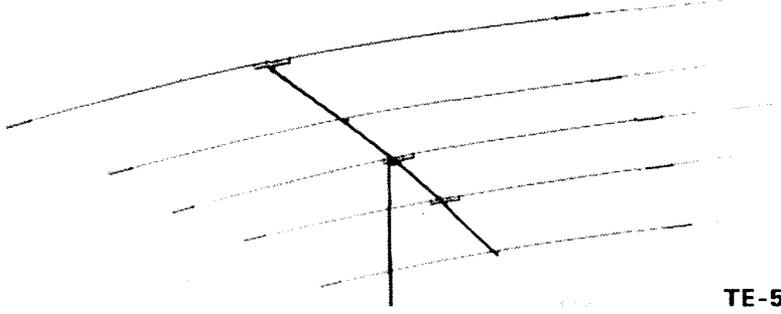
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Element	4	3	2	2	1	1	3	2	3	1	1	1
Gain (dBi)	9.1	8	4/6/6	6/6/6	2.2	2.2	8	6	8	2.2	2.2	2.2
F/B Ratio	25/20/20	21/15/16	20/14/12	13/10/10	0	0	25/20/20	12/10/10	25/20/20	0	0	0
V.S.W.R.	SEE VSWR CHARTS						SEE VSWR CHARTS					
Max. Power	2KW <sub>pep</sub>	2KW <sub>pep</sub>	1KW <sub>pep</sub>	2KW <sub>pep</sub>								
Impedance	50ohm	50ohm	50ohm	50ohm	50ohm	50ohm	~50ohm	~50ohm	~50ohm	~50ohm	~50ohm	~50ohm
Element L.	7.5m	7.3m	5m	7.3m	7.2m	8.5m	10.47m	10.47m	10.47m	10.47m	10.47m	10.47m
Boom L.	6m	4.28m	2m	2m	—	—	6.28m	4.28m	—	—	—	—
Turning Ratio	6m	4.5m	2.74m	4m	3.6m	3.6m	6.0m	5.1m	5.23m	—	—	—
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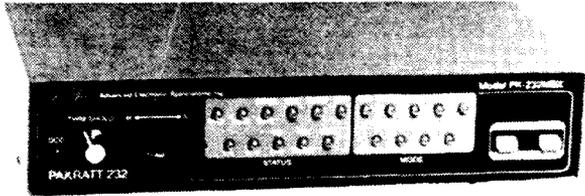
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with a low fly-over by a Meteor jet — a rare item now!

After lunch, we visited the RAAF Museum, but found that there was almost nothing there pertaining to the fact that the RAAF had over 140 stations around Australia and the Pacific Islands, manned by 4,000 trained personnel. This is now difficult to rectify, as there is little of the equipment left. Radar was one of the branches of the Services which was kept secret during and after World War II, to such an extent that photographic records and much other information has been lost in fires or shredded.

A special envelope has been issued by Australia Post to commemorate 50 years of Radar. The stamp depicts an Australian made set as used on Borneo and the Pacific Islands, and the envelope shows radar operators at work with a brief description on the back. Stamp collectors should not miss this one.

However, Ed Simmonds and Norm Smith (VK2AYU), two enthusiastic collectors, have produced three books in limited editions, which were selling well at Bendigo. The first is a selection of "Radar Yarns" — mostly unofficial stories kept under wraps (understandably) until now. The second is a pictorial record from private submissions of snaps on overseas stations, and some of the Radar school at Richmond. The third is similar, but of stations on the mainland of Australia,

many of these being operated by the WAAAF to release RAAF male operators for duty overseas.

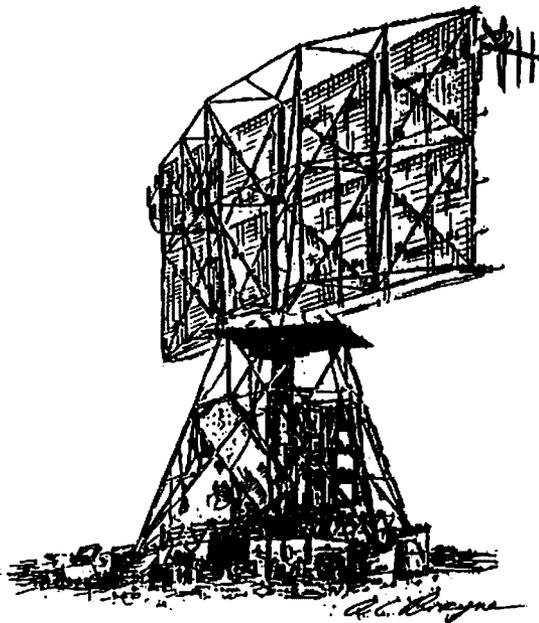
These books may be obtained from E W Simmonds, 2 Hind Avenue, Forster NSW 2428.

The Bendigo re-union has been wonderful. It enabled us to remember and renew friendships which had lapsed for nearly 50 years. A video tape is being prepared and will be available soon. En-

quiries should be made through the Air Defence Branch of the RAAF Association in NSW. A similar re-union of RAF Radar personnel was held in Coventry last year, 50 years after their part in the Battle of Britain.

The Sydney and Bendigo committees which worked so hard for three years, deserve our thanks for such a smooth operation. Good staff work still wins battles!!

ar



#### BURNT OUT RADAR — SAIDOR NEW GUINEA 1945

This drawing is an excellent portrayal of a Mk 1 UNIAW tower. It shows the cramped working area within the steel frame. The result, a small amount of air and poor ventilation giving the operators a poor working environment, being extremely hot and humid.

## Murphy's Corner

### VHF/UHF — An Expanding World

The above column for June contains an error for which I accept responsibility. In my haste to get the information to Eric Jamieson I have presented him with a garbled account of some of the activity on 1296 MHz. The first VK3 to VK1 contact was achieved by Arie, VK3AMZ and VK1DO/IACA/P on the evening of 13/3/92.

Returning to the text in Eric's column, the beginning of the last paragraph prior to the heading "Six Metres Standings List" should be amended as follows:

"On 13/3 Ron, VK3AFW, worked VK2BFG/P and VK2WG/P on 144. Later that evening VK3AMZ worked VK1DO/IACA/P on 1296 tropo for the first VK3 to VK1 contact on that band. John, VK3ZJC, copied VK2BE on 1296 during aircraft enhancement tests.

On 21/3 VK3AFW returned to Mount Buller and worked VK1BG on 1296 ...." (rest of text as published).

For the record, the approximate distances from Mt Buller are as follows:

To Canberra	320 km
To Devonport	450 km
To Melbourne	150 km
To Adelaide	750 km
To Sydney	560 km

I apologise to your readers and especially to Arie, and Eric, VK5LP, for the errors.

**Ron Cook VK3AFW**  
CSIRO Division of Applied Physics  
Bayview Avenue  
Clayton VIC 3168

### Measurements on Balanced Lines

Please note that in the Meter Calibration Chart on page 12 of the July 1992 issue, the currents shown are in milliamps (mA) whereas they should have been in micro amps ( $\mu$ A).

**Lloyd Butler VK5BR**  
18 Ottawa Avenue Panorama 5041.

### Computarock Receiver

Whilst building a second Computarock Receiver (AR June 1992), I discovered two mistakes in my circuit. Could you please publish the following errata:

— The BFO USB/LSB switch is incorrectly labelled, and should be reversed from that shown.

— Details of the converter input filter coils were transposed, and should read as follows:

7 to 12 MHz; 2.6  $\mu$ H: 21 turns #22 B&S on Amidon red T50-2 core.

12 to 28 MHz; 0.9  $\mu$ H: 11 turns #22 B&S on Amidon yellow T50-6 core.

**Drew Diamond VK3XU**  
"Nar Melan"  
Lot 2 Gattors Road, Wonga Park 3115.

ar

# Unique 20/15 Metre Dipole

Adrian Fell VK2DZF  
PO Box 344  
Baulkham Hills NSW 2153

The Dipole antenna described in this article is a simple yet unique duo-band design which utilises a common feedline. The design is also compact relative to a full size 20 m dipole and incorporates controlled feeder radiation (CFR) technique as described in AR Nov 1990.

very strange things happen with Baluns in the past.

The two turns of coax through the small toroid is not as specified by the original article as I used available stock. Readers should refer to the original article for details if the winding technique.

The idea is to let the coaxial cable radiate but only down to point 0.275 wavelength from the feedpoint. Below this point no RF should be present. As this section is vertical and we have 2-band design I elected to optimise this portion for the 15 metre band as the 20 metre dipole has a portion of its ends already in the vertical position.

Radiation of RF from the shield of coaxial cable is not only wasted power but it also brings RF back into the shack or house causing TVI.

The recommended choice of cable is RG58C/U. Not only does this keep costs down but because of the weight saving keeps the antenna in shape and it is easier to keep in the air. If you have a long run to the shack it would be advisable to then change over to a heavier gauge such as RG213 at ground level or the support.

**C**OSTS ARE KEPT TO a minimum which is important these days. Good performances can be expected on both local and DX contacts assuming the antenna is located well in the clear and reasonably high above the ground.

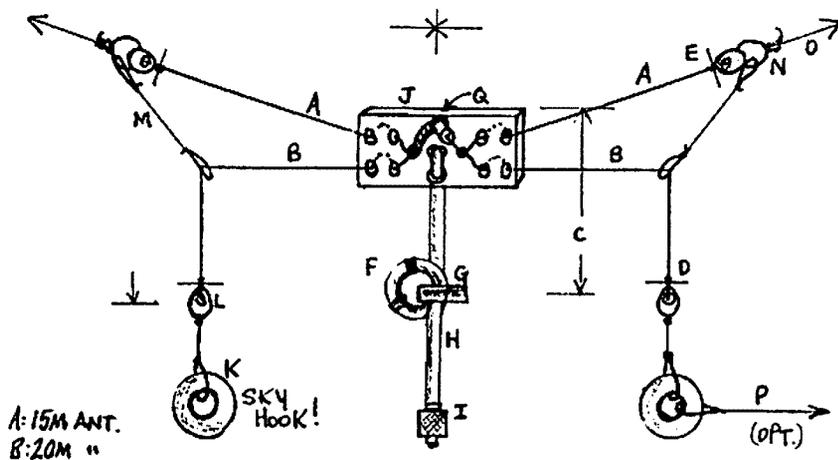
The general arrangement is shown in Figure 1 and although the dimensions are given for the 20 and 15 metre bands other frequencies can be used if the lengths of the dipoles and CFR are changed accordingly.

It's amazing how well the dipole will work even for DX contacts and looking at some QSL cards of mine confirm this fact. There are a lot of dipoles being used with good results. This design may prove suitable for a primary or secondary station antenna or it may be the answer for a compact light weight field day antenna.

The idea of a bent 20 m section and reversed Sky Hooks, as I call them, came about as my gum tree supports were just too close together for a full size span 20 m dipole. Ever tried moving gum trees?

I guess some vertical polarisation is expected of the 20 m section as a result of the bending but this is of no concern with my requirements.

The CFR technique was chosen as an alternative to using the normal 1 to 1 Balun at the feedpoint as I have had some



- A. 11'0" (3.35m) Multi-strand insulated earth wire (typ)
- B. 16'3" (4.95m) " " " " " " " "
- C. 12'9" (3.88m) Distance between Q & "toroid". "
- D. 6" (15cm) Per side, solid copper tuning aid.
- E. 4" (10cm) " " " " " " " "
- F. 2 turns of coax, 4" (10cm) dia. Q. small toroid
- H. RG58 c/u coaxial cable I. Plug PL259
- J. 4" x 2" x 1/2" thick perspex (typ) K. 1.5lb weight (opt)
- L. Egg Insulator (typ) 4-req. M. Polypropylene cord 3' (1.9m) +
- N. Special knot for cord, used on Poly cord, see ARRL Handbook
- O. Cord to pole, tree etc. R. Anti sway line
- Q. Use 5 min Araldite to seal end of coax.
- D. & E. bend or cut during tuning. 1 loop and solder to end.
- J. Solder all connections.

Note: meter measurements are approx.  
Note: measure from point "Q" to very end of wire when wire is being cut, allow at least 8" to go around insulator. Double check before cutting.  
Figure 1. 20/15 meter Dipole VK2DZF

By having a PL259 arrangement at ground level it is then a simple matter to move your rig out into the backyard on sunny days. Add a few cold drinks, lemonade of course, thereby, during the JOTA days keeping everybody out of the shack. Well — I thought it was a good idea!

Getting the dipole as high as possible certainly helps, not only from a performance point of view but also keeps it away from surrounding and offending objects. This also assures the length won't have to be altered too much if the antenna is well clear of everything. The ends are particularly sensitive to nearby objects such as trees, guttering and roofing etc. Although the just mentioned reasons will often be the best approach some extra gain might be achieved on transmission by mounting the dipole at some predetermined wavelength multiple from the ground. The ground reflection could then add up to the transmitted signal giving some extra "oomph". Interested readers should refer to the RSGB or ARRL handbooks for information but remember the height will be a compromise with a 2 band design. The only amount of tuning required assuming a good location will be to bring the lowest VSWR point to your favourite portion of the band.

This is fairly straightforward, and my favourite way is to check the VSWR at the extreme ends of each band. It is then a simple matter to see which way, longer or shorter, to adjust the ends. The method I used is seen in Figure 1 but this is optional and you may have a better idea. There will be a slight interaction between the 2 bands during pruning so after one band dipole is adjusted check both bands before doing the other.

Sometimes if things are not going well and a high VSWR, over 1.5 to 1, is experienced try reversing the whole array or adjust the height. There should only have to be a few inches of adjustment to get it spot on.

But don't worry too much if 1.5 to 1 is the lowest VSWR you get as the VSWR does not always tell the whole story. My results are 1.3 to 1 at resonance on 15 metres and 1 to 1 at resonance on 20 metres and the height is about 45 feet off the ground.

Although it's great to have a tower and a Yagi or a Quad, I did have, it still gives me great satisfaction working the world on a simple wire antenna like a dipole and it's also a lot of fun.

ar

# A Fault in the PLL of an IC22S

**Keith Gooloy VK5BGZ  
Lot 15 Tenafeste Court  
Ono Tree Hill SA 5114**

Do you own an IC22S which is either not working at all or works only intermittently? There must be quite a few of you as there were over 3000 IC22Ss sold in Australia. If you have such a rig, I hope this article will help you to get it working again.

**O**NE OF THE THINGS I like about the IC22S for mobile operation is that you don't have to look at the rig to change channels, just count the clicks of the switch as you rotate it, and it doesn't have a microprocessor which is prone to lose its memory. These otherwise excellent mobile two metre FM rigs have a reputation for intermittent faults, primarily in the Phase Locked Loop (PLL) board. So it was with my IC22S.

Before going on to describe the faults and the method of repair, it may be helpful to give a description of the basic operation of the IC22S PLL.

Figure 1 is a block diagram of the PLL itself. The voltage controlled oscillator (VCO) is the first local oscillator for the receiver. Its output goes to a mixer as well as the transmitter and receiver. The VCO frequency is translated down from the MHz to kHz region as the frequency dividers are not fast enough to divide down the 135 MHz signal directly. The local oscillator for this mixer is a single overtone crystal on 44.567 MHz and the third harmonic on 133.7 MHz is selected in the collector circuit of the oscillator.

The resulting output signal from the mixer on 50 kHz to 3.6 MHz is divided

by 2 in one flip-flop of a 4013 IC. These CMOS devices have a maximum input frequency for a supply voltage of 9 volts of about 10 MHz, and so if the VCO frequency goes above about 144 MHz for any reason, this divider will cease to work and this may prevent the VCO from being pulled back down again.

The 4013 output passes to IC1 the programmable divider which simply divides the input frequency by the number applied in binary format to its programming pins. This can be any number from 2 to 255. At the lower limit of the frequency range, 144.4 MHz this IC divides by 2 and at the top end, 147.975 MHz it divides by 143. These are the transmit frequencies for simplex or +600 kHz and for these two modes, 24 is added to the divisor during receive. The 24 is derived from 600 divided by 25, 25 being the frequency increment of the programmable divider.

For PLL's in general this increment is usually equal to the reference frequency at which the phase comparison is done, but in the IC22S the heterodyned down VCO frequency is divided by 2 before entering the programmable divider and



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#### Specifications

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Channel Steps:	10, 12.5, 20 & 25kHz
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Current Consumption -	
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Receive:	150mA
Sensitivity (12dB SINAD):	Better than 0.2uV
Dimensions	55 x 155 x 32mm

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- 2.5 watts RF output as standard, 5 watts with 12V DC (or optional FNB-11 NiCad)
- Better than 0.16uV (12dB SINAD) sensitivity
- Stand-by current consumption (1sec SAVE) only 7mA
- Programmable power saver for extended operating periods
- Keypad or dial frequency entry, with selectable tuning rates
- 49 tuneable memories which store repeater offsets
- Band, memory, priority or limited-band scanning
- Just 55 x 155 x 32mm
- Carry case, belt clip, carry strap and approved AC charger
- Now with enhanced receiver sensitivity and improved strong signal handling!

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Dual-band performance at its best! The compact FT-470 is an easy to use handheld transceiver that gives you greater flexibility with a sensible microprocessor control system for both 2m and 70cm operation.

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The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts PEP output on all 1.8-30MHz amateur bands, and general coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and an easy to read backlit digital display, dual operator selectable tuning steps for each mode, dual VFO's for split frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM and narrow 500Hz CW IF filters are also a standard feature. Complete with Yaesu MH-1 hand microphone.

Cat D-2930

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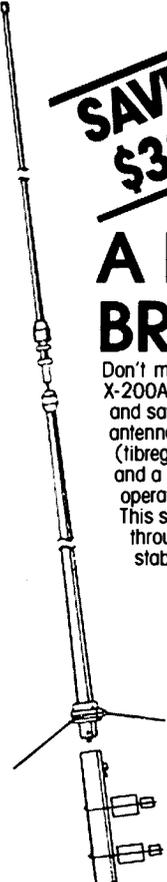
Don't miss this best ever price on the popular Diamond X-200A dualband 2m/70cm base station antenna. Hurry in and save \$30 on this high performance Japanese vertical antenna (while stocks last). The X-200A uses robust FRP (fibreglass reinforced polyester) tubing construction and a ground plane to provide excellent all-weather operation and a clean low-angle radiation pattern. This sturdy antenna has stainless steel hardware throughout and solid mounting hardware for a stable connection to your mast.

### Specifications

Frequency - 144-148MHz, 430-450MHz  
Gain - 2m:6dB, 70cm:8dB  
Max Power - 200W  
Length - 2.5m  
Type - 2 x 5/8 wave (2m)  
4 x 5/8 wave (70cm)

Cat D-4860

**\$169**



## HUSTLER HUSTLER HF TRAP VERTICAL ANTENNA

The tradition continues! The 5BTV is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1kW PEP power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable. Cat D-4920

**\$299**

### 30m Resonator Kit

Adds 30m coverage and includes all hardware. Cat D-4921

**\$79<sup>95</sup>**

### VRK-1 Radial Kit

Provides a ground-plane for above ground mounting Cat D-4922

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## ST-7500 2m/70cm MOBILE ANTENNA

A high performance dualband antenna at a down to earth price! The ST-7500 is just 1 metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality construction plus a fillable whip structure makes it especially ideal for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended) Cat D-4810

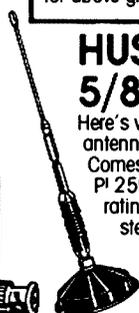
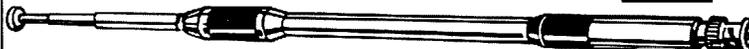
**BRANER \$79<sup>95</sup>**



## 2m/70cm HIGH GAIN HANDHELD ANTENNA

The Diamond RH770 is a high gain telescopic dualband antenna for use on handheld transceivers when maximum range is required. It provides approximately 3dB gain on 2m and 5.5dB gain on 70cm. It weighs just 85 grams and collapses from 93cm to 23cm for easy storage. Comes fitted with a standard BNC connector to attach to your transceiver. Cat D-4336

**\$79<sup>95</sup>**



## HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL 259 attached. It has 3dB gain with a power rating of 100W maximum and a flexible stainless steel radiator to minimise wind loading.

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**HUSTLER** Cat D-4805

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careful not to adjust the VCO too low in frequency as it can be moved to the opposite side of the fixed heterodyne frequency (133.7 MHz). Then the loop will never lock as the feedback is positive instead of negative and the VCO will be driven to the lowest frequency and stay there. The correct VCO frequency range is 133.75 to 137.35 MHz.

If your IC22S has a faulty 5080 and you decide to have a go at replacing it with 4526s as I have done, you can test the assembled divider before installing it in the set by checking that it divides by say 104. This is the divisor for a frequency of 147 MHz with the VCO on 136.3 MHz. Connect the 8 data input lines P7 — D0 to the binary equivalent of 104 ie 01101000. Feed an input frequency of 1.30 MHz to pin 6 of the first 4526 and the signal on pin 3 of the second 4526 should be 12.5 kHz. Taking D0 from a 0 to a 1 should reduce the output frequency to 1.3 divided by 105 ie 12.381 kHz. If all is well, the new divider may be installed in the rig with a fair degree of confidence.

I hope this article has helped some of the many IC22S owners to better understand the synthesiser and to get around the high cost of original spare parts.

ar

## Try This

**Adrian Fell VK2DZF Box 344  
Baulkham Hills 2153**

RG58U coaxial cable braid, when stripped of the inner cable and insulation, makes a good flexible wire for feed point connections on antennae.

The braid should be run through pinched fingers to flatten it out first.

ar

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# Technical Abstracts

**Gil Sones VK3AU!  
30 Moore Street  
Box Hill South, 3125**

## Transceiver PSU from Computer PSU

UDO THEINERT DL2YEO in the April 1992 issue of CQ DL describes the conversion of a computer power supply into a 12-volt high current power supply for a HF transceiver. A translation of the article appears in the Rad Com column Eurotek by Erwin David G4LQ1 in the July 1992 issue.

PCs have a switching power supply which has output capabilities from 60 to 200+ watts. I have seen 350 watt versions and 200 watt units are common. The price is very reasonable with new units retailing in the range of \$100 to \$200. Even less for flea market and ex-service stock.

Udo DL2YEO came by one, which after investigation and some work, he converted into a power supply for a HF transceiver. He found that the supply used a common regulator IC type TL494. All the outputs came from a common tapped secondary winding via rectifiers and filters. This meant that rewinding the transformer was not needed as the wire could accommodate the highest current supply.

Conversion consisted of rewiring the output from multiple outputs to a single 12 volt output using the high current rectifiers previously used for the 5 volt output. Some rewiring of the filtering was also needed. The voltage regulator reference and protection circuitry needed some adjustment to cope with this change. The circuit had circuits to protect from over-current and to provide short circuit protection. There were simply reinstated with modifications for a single output voltage.

Additionally a load bleeder resistor was installed to provide a minimum load and some additional storage capacitors were installed along with additional filter sections. The mains input had an additional block mains filter installed. The DC output needed an additional Pi section added to eliminate noise.

These supplies follow a common general block diagram as shown in Fig 1. The first step in conversion is to obtain a circuit. If the is not available it should not be too hard to trace. Then set it up with loads on all outputs and measure voltages at all points. This will aid in restructuring the voltage regulator reference and protection circuits to single output.

## Safety

Remember when working on a switching power supply that part of it is at AC Mains potential. An isolation transformer is handy but you should always switch off and unplug before touching anything. This is particularly important when directly plugged into the AC Mains. PC power supplies use transformer isolation between input and output but there is a significant amount of curcuiaty at mains potential. The regulator and output DC circuits are quite safe as they are isolated by transformers. However, remember that you should treat anything inside the box with respect. Switch off and unplug before touching things.

For additional mains filtering use one of the proprietary block main filters. These are made for the job. Do not make your own.

The Rad Com article carries a translation of the original article and it

is well worth the trouble of obtaining it if you set about converting one of these supplies.

A possible source of cheap supplies is the computer service industry as many computer faults are fixed by substitution. In common with many other areas sub assemblies such as power supplies are often regarded as uneconomic to repair. They may be a rich source for the frugal amateur.

### Replacement Valves

Many transceivers use valves for the finals and the driver stage. These were once easy to obtain and cheap. Valves were fairly rugged and tolerant of abuse. Replacement was trouble free.

Lately reports in overseas magazines highlight problems being experienced when valves from other than the original suppliers are used for replacements. Valves are now being sourced from a dwindling number of sources. These sources are often not in Australia, the UK, the USA, or Japan and the specifications and performance are variable.

The surviving valve manufacturers are often in such places as China, Russia, Eastern Europe, and South America. While many of them have good products there are a few of lesser quality.

Both Technical Topics in Rad Com July 1992 and Bill Orr W6SAI in CQ May 1992 have items concerning the problems

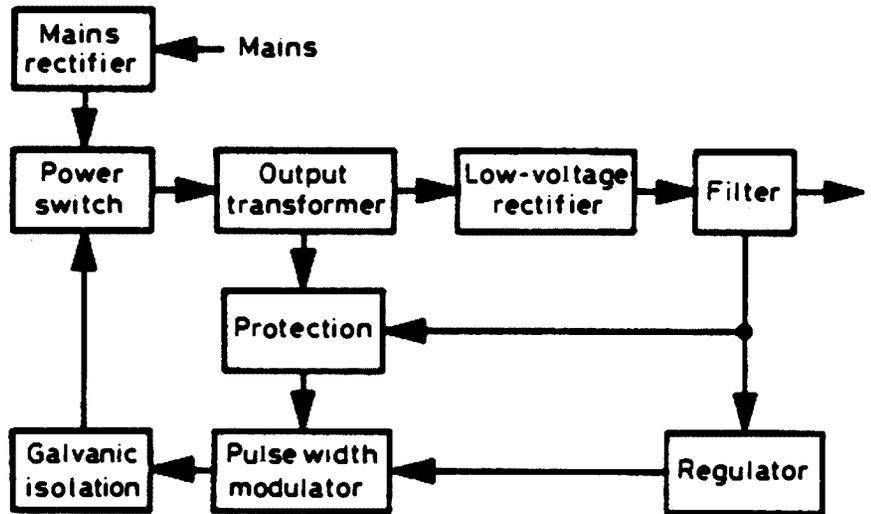


Fig 1 Block Diagram of Power Supply.

being experienced. Solutions to some of the problems and ways to avoid problems are discussed.

Many of the original manufacturers no longer make the valves we are familiar with. However, many alternative sources of supply have come onto the market. Unfortunately, only the type number of these alternative valves bear any resemblance to the originals when they are used in RF service.

Sweep tubes are the worse offenders, as their use in a transceiver final is very different to their intended use as a TV

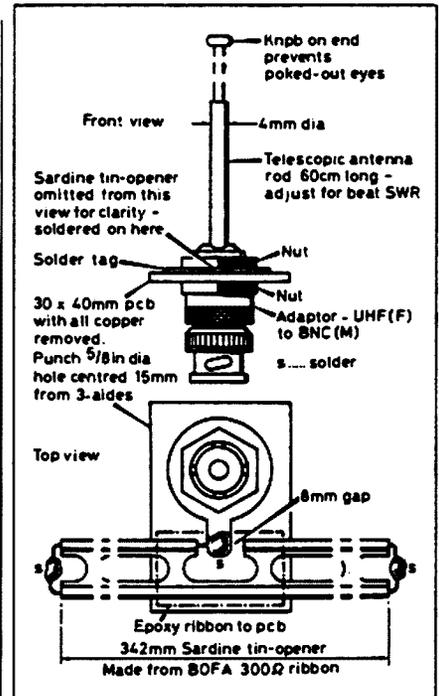


Fig 2 145MHz Ground Plans using STO for use with Hand Held Transceiver.

deflection driver. However, even transmitting valves are not immune as they are often not made to the originally tight standards.

Valves made by old established companies are OK, if they can be obtained. However, valves from unknown sources should be approached with caution. A reputable local retailer is a good start. One familiar with amateur usage and problems is desirable. The premium you pay is money well spent.

Both the physical and electrical characteristics should be checked.

**Repeaters —  
additions,  
deletions,  
alterations. Have  
you advised the  
WIA of changes  
needed to the  
repeater list?**

A valve that is too high to fit or won't run the correct current is not too good.

Non original valves may require matching and this may even apply to transmitting valves. Transmitting valve specifications used to be so tight that matching was seldom necessary. Look alikes may not be so uniform.

Investigate the cause for failure of the valves being replaced. A fault may otherwise claim your expensive replacements. In particular check filament or heater voltages and other supply voltages. Check filament inrush current limiting and watch out for replacement filament transformers. The originals often had characteristics which limited switch-on surges.

Neutralising should be carried out carefully following the procedure laid down in the equipment manual. Check for stability and watch out for parasitics. Variations in the manufacture of sweep valves and high gain are a potent mixture.

### The Sardine Tin Opener

This is a shortened top loading system. The system appeared originally in CQ DL Oct 1989 with translations and further work appearing in the Rad Com Eurotek column in Feb and March 1991. The

originator was Karl H Hille DL1VU.

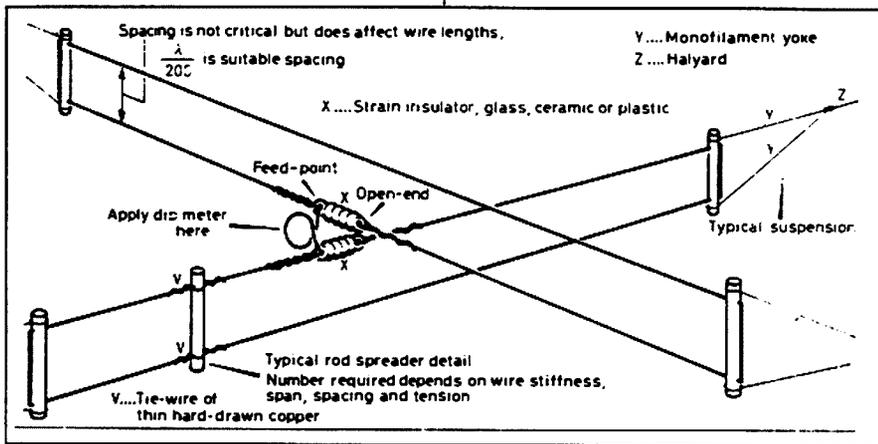
The system is used at HF for top loaded verticals. At VHF it can be used to provide a compact ground reference point for a handheld antenna.

Erwin David G4LDI describes a neat 145MHz ground plane for a vertical used with a handheld transceiver. This was used for RAYNET work which is the equivalent of WICEN. Operators used the antenna whilst conducting handheld operation on city busses during the 1990 Strathclyde Special Olympics. The

antenna enabled them to maintain communications when rubber duckies proved inadequate.

The STO ground plane vertical is shown in Fig 2. The ribbon is TV feeder ribbon. If local ribbon is different the length of the STO may need adjustment.

The STOs may be resonated by placing two at right angles and joining them with a loop. Couple a GDO to the loop and look for the dip. See Fig 3. With the simplicity of the design and the low cost of TV ribbon this should be no hardship. ar



Tuning the HF STO with a GDO.

# amateur radio action

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number 66 design

# VHF/UHF — An Expanding World

Eric Jamieson VK5LP PO Box 169 Meningie 5264

All times are UTC

## 50 — 54 MHz DX STANDINGS

DXCC Countries based on information received up to 25 June 1992. Crossband totals are those not duplicated by two-way contacts. A callsign cannot be displaced from its existing position except by another with a higher confirmed number.

Column 1: 50/52 MHz two-way confirmed contacts

Column 2: 50/52 MHz two-way claimed as worked but not confirmed Column 3: Crossband 50/52 MHz to 28 MHz confirmed

Column 4: Crossband 50/52 MHz to 28 MHz worked

Column 5: Countries heard on 50/52 MHz

Call Sign	1	2	3	4	5
VK4ZJB	90	94			04
VK4BRG	81	87			
VK3OT	78	81			
VK2QF	78	83			
VK4ALM	65	67			
VK4ZAL	65	68			
VK2BA	62	63		04	
VK8ZLX	45	60		01	
VK3AMK	45	47			
VK6HK	45	45		03	
VK8GB	42	42			13
VK5RO	39	48		03	
VK6RO	39	39	01		12
VK3AWY	34	36			
VK3AUI	34	35			
VK5LP	33	36			09
VK3NM	31	34			
VK5BC	29	63			
VK2DDG	25	26		02	13
VK4KHZ	23	34			
VK3XQ	23	25			02
VK6PA	23	43			
VK4TL	22	23			
VK2KAY	21	23			
VK2BNN	20	21			
VK9LG	20	20			
VK4BJE	19	25			
VK4KAA	19	20			
VK7JG	18	20			02
VK3TU	17	19			
VK2ZRU	16	19			04
VK4ZSH	16	16			
VK2ZSC	16	30			
VK9LE	14	14			
VK6OX	10	10		01	
VK5KL	06	11		01	16

Overseas

JA2TTO	48	48			06
YJ8RG	25	25			

The next list is planned for the February 1993 issue. Copy, additions or alterations to me by 20 December 1992 please. I thank those contributors who continue to support their claims with photocopies of QSLs or have them certified by other amateurs. It helps!

## Six Metres in VK

The best that can be said is that the band is very quiet. A number of amateurs have expressed the view that Cycle 22 has now finished, however, I would not be that adamant and believe that we can expect some F2 contacts at least during the next two equinoctial periods. I may be wrong but let us wait and see!

Ron VK4BRG says that from his Sarina location the last few months were somewhat disappointing, with little of significance from the Caribbean and very limited contacts to the US central and east coast areas. He expected trouble working V85 but this proved not to be so. His most significant discovery was the long path propagation to South America but believed that would have been better had he been further north.

Don VK6HK also reports a quiet time in Western Australia, however, as an aside says that over the years a total of 60 countries have been reported collectively by operators from Perth and these include the following prefixes: VK, VK9 Papua, ZL, VR2 Fiji, JA, YJ8, HL9, W6, H44, VS5, VK9 Willis, FK8, VK0 Macquarie, VK9 Lord Howe, KH6, LA3, OH1, YC0, KG6, T30, DU3, XF4L, 9M2, VS6, GJ4, G4, PA0, GW3, SM7, GM4, GD3, GI8, KH5J, T32B, ON4, LX1, KH4, V73, ZS6, V51, 7Q7, A22, JT1, OZ4, KH7, DK0, KC6, 9K2, BY, JD1, VK9 Norfolk, YS, C21, 4S7, OK, ZC4, 1, ZS9, EI and P29.

## The Tarawa Operation

In a letter to Steve VK3OT, Jack T30JH said after his stint on Tarawa that he was disappointed at the apparent lack of interest from many VK and ZL stations who had not requested a QSL, particularly as he never went there for a social chat on six metres! He worked 57 VK4s and received 22 QSLs, 38 VK2s and 10 QSLs, 7 VK3s and 2 QSLs, 5 VK8s, 3 VK1s and one VK5 none of whom QSLed, one VK7 and one QSL, one VK9 and no QSL, 23 ZLs and 5 QSLs. He worked about 400JAs, more than half of whom QSLed. Other areas worked were 3D2, P29, V73, KH7, KH6 and heard V63, C21, KH3 and WA6.

The possibility exists that later this year Jack may activate T31 and T33, no doubt in the

hope that there will be a greater interest shown in his efforts by amateurs at least sending a QSL.

By the way, if he operates again as T30JH he wants to be spared working excessive duplicates and an alphabetical list of those already worked hangs in the shack as a reminder! Last month I mentioned 5H3RA and ZS6CW voicing the same sentiments and to that list should also be added GJ4ICD, G4UPS, G3WOS, G3RFS, EKOJA, UZ0CWV, OH2TI, DL8HCZ and C21BR. Unfortunately, the list will continue to grow unless some amateurs change their operating habits.

## New Records

John Martin VK3ZJC, Chairman of FTAC, advises some new distance records:

6 metres: VK2 and national short path record, VK2FLR to CU/NGAMG at 19424.1 km on 27/11/91; VK4 state record (two of them on the same day — 15/02/92), VK4KK to G8VR at 16416 km and VK4KK to G4CCZ at 16515 km; VK7 state record, VK7IK to PA0LSB at 17053 km on 08/02/92. 23 cm: VK1 division record VK1VP to VK3ZJC at 451.7 km on 28/04/92.

## The GJ4ICD Report

Propagation may be poor in VK but with the northern hemisphere enjoying its summer Es period, all that is needed there is to shift from the F2 gear to the Es gear and simply go on working stations on a daily basis! In support of that comment, the following is a sample of stations worked or heard for May 1992.

4/5: 4X1IF to PA and SM. 5/5: G17, PA3, G3, SM3, IK8, 9H, FR5, OY9. 6/5: 9H, YU, UL7, V51/b, IT9, Z23, 7Q7, 9J2, A22G, 8R1. 7/5: DL, OK, SM6, TU2, FY7/b, CT1, ZB2/b, CT0, CX4, LU in for hours! 9/5: ON, PA0, VK4, VK5, SM, OH, LA, DL, V51/b, over six hours of S9 Es! 10/5: large aurora, GM, GI, GD, EI, PA0, ON, SMI using 150 milliwatts to cover the 1637 km, OZ, ZS6. 11/5: OK, I, YO. 12/5: 10, 9H, OK1, F, ES6, YO7, SP4, 4N2, OK, 7Q7, ZS6, DL8, ZB2/b. 13/5: ZS6, V51/b, 9J2, ZS4, VE, CX4. 14/5: SM, LA, 4N2, LY, SP, DL, CN8, F, ZB, YU, OK, IS0, CX4, LU, ES6 all S9, 7Q7.

16/5: CN8, FR/G/DJ3OS Glorious Isle, many LUs, 8R1, CX4, ZB2/b. 17/5: tropo to DL, OZ, PA, 9J2, 7Q7. 18/5: LA, SM, OH, FR/DJ3OS, 7Q7, CT. 19/5: LA, YU, CX1/b, LU9. 21/5: SM, UL7, V51/b, 7Q7, EA1, LU2, CT, ZB2/b, GM3, CN8, CT1. 23/5: OZ, SM, DL, YU7, GM3, LU. 24/5: LA, SM, OZ, LA, GB3, GM, 7Q7, IK8, 9H1, 4N2/b, D68BR. 25/5: ES6, OH5, SM, DL. 26/5: SM, LA, 4N2/b, TM5CHA Chausey Isle.

The good tropo on 17/5 produced some useful 23 cm contacts. Geoff worked many DLs plus two firsts for GJ, to OZ and later SM6HYG at 59/55 for a distance of nearly 1400 km. 23 cm beacons from LA were audible for ten hours and he also worked DB0OS, GB3MHL

and heard beacons from France and PA0. In all, ten beacons were copied. A part QSO took place (one way) between SM6HYG and G4FUF on 10 GHz. What a day!

### From G4UPS

On might think there would be little difference in propagation between GJ4ICD and G4UPS but there is, as this comparison shows: 5/5: SM, 9H, DL, II and several I2s, 4N3/b, YU3, F, CT1, OZ3, SM3. 6/6: OH, SM, IT9, 7Q7, Z23, A22, V51/b, ZD8/b, EA3/b. 7/5: 4N3/b, 4N2, IK8, DL7, PA3, OK1, CT0, GU0, 8RI, CX4, LU. 9/5: ON & PA work VK4, OH, SM, many OZs, LA4. 10/5: SM, PA, GM4, FCI, GD7, DK, EI, ON, F, OK, OZ, YU, IK2. 11/5: ZS6 to SM, OH, OZ and DL. 12/5: 4N2, OE, DL, EA, YU, SM, V51/b. 13/5: ZS6, V51/b, CX4, PY5, ZB2/b, CT0, VE1 heard. 14/5: DJ, 4N2, OK, IC8, SP4 crossband, SM, LA, IS0, FCI, YT3, 9J2, 7Q7, CN8. 15/5: IK, YU, 4N2, DL, SV1/b.

16/5: CN8, LU4, CX1/b, 8RI, ZD8/b, ZB2/b. 18/5: YU, LA, SM, OH, OG, KP1, 7Q7, FR/DJ3OS, IK, ES5, ZD8/b. 21/5: OK, DJ, YU, OE, I4, ZB2/b, ZB0, V51/b, 7Q7, EA3, CT0/b, ON. Station closed 22/5 to 28/5 inc. 29/5: CT0/b, EA3/b, ZB2/b, CN8, 9H1, F6, 7Q7, I6, OK, YU, SV, 5B4/b, 4N3/b, TA5, ZC4, 55 Italian stations all over band! 4Z7, ZB0, SZ2/b. 30/5: EA, ZB2/b, 9H5EE, IS0, SV1, F, PA, ON, OH, OG, SM, YT, 5B4, IT9, 4N3/b. 31/5: IK, 9H5, HB9QQ (using 100 mW!), YU, OE, 5B4, TA5, 7Q7, DK, ZC4, 4Z7.

From the above two reports it is fairly obvious that no matter where you live, particularly in the more central regions of Europe, including the UK, there will always be someone to work, either by Es, F2, TEP, tropo, aurora, backscatter etc. If you become tired of six metres, then you need only tune to 144, 432 and 1296 MHz where there are obviously many stations to work. What a place to live! However, because it is relatively easy to work stations around you on those bands, I wonder how much serious work has taken place in attempting to work from Europe across the Atlantic to North and South America and southwards to Africa, or any points between such places. Any comments?

### 1296 MHz Report

In June I reported on 1296 MHz activity and asked for more details. John VK3ZJC has responded and also advised that where I mentioned VK3ZJF this should read VK3ZJC. Sorry John.

On 1296 MHz, from the VK3ZJC log: 21/3: 2245 VK2BE heard for three minutes on CW. 22/3: 2230 worked VK2BE 529 both ways; VK3AMZ heard VK2BE. 24/3: 1115 VK1BG 519 both ways. 28/3: 2237 VK1BG SSB 5x3 sent, 5x1 received; 2254 VK1VP SSB 5x8, 5x6; 2257 VK1BG again, 5x5, 5x4. 11/4: 2217 VK1VP 5x8, 5x5; VK2BE heard to S6 but no contact. 12/4: 2206 VK1VP 5x7, 5x4 — worked under signals from VK2BE; 2207 VK2BE 5x5, 5x5;

2225 VK1VP 5x7, 5x7. 2/5: 2250 VK1VP 5x5, 5x3. 3/5 2225 VK1VP 5x4, 5x4. All via aircraft enhancement.

The distance from John to Ed VK1VP is 451.7 kms and a new VK1 record. The distance from Arie VK3AMZ to Ian VK1BG is 490 kms. The distance to VK2BE is around 700 kms.

John says the received signals have been higher than anticipated and are usually better than on 144 and 432 MHz. The window seems to open earlier on 1296 than on the lower bands and stays open longer, something akin to tropo conditions when 1296 could be well open but little happening on the lower bands. An unexplained phenomenon with aircraft enhancement is the 'hole in the middle' — i.e. a drop in received signal strength halfway through the contact and appears to be more pronounced on 1296 than 432.

Power levels are reasonably high but a good mast-head amplifier is more useful than extra power. Ed VK1VP runs 220 watts to four 50 element yagis at 6 metres high, Lyell VK2BEs power is similar. Ian VK1BG runs 15 watts to two 50 element DL6WU yagis at 7.5 metres and whilst not as strong is usually Q5.

On 3/4/92 VK3TBN operated portable from Mount William using a dish mounted on a trail-

er and worked VK3KAJ, VK3ALZ and VK3ZJC on 1296. Danny VK3KKW went portable on 19/4 and activated squares QF23 and QF13 on 1296. Ian VK3ALZ is operational on 2304 MHz with CW and FM and is now making a similar setup using SRDs on 3456 MHz.

The FTAC list at 28/03/92 shows 110 operators throughout Australia with 1296 MHz capability, 26 on 13 cm, 10 on 9 cm, 7 on 6 cm, 27 on 3 cm and one on 1 cm, where it must be lonely for VK2YOD! I would appreciate any reports from VK4, VK6, VK7 and VK8 indicating the form of activity taking place in those areas on bands above 50 MHz.

### Closure

Just before closing, it was interesting to note that at the end of June there was a six metre opening to Japan around 0200 and a few ZLs were there for the taking. Also, the time is right for possible winter time Es openings.

Closing with two thoughts for the month: There's nothing wrong with the younger generation that becoming taxpayers won't cure and Winter is the season in which people try to keep the house as warm as it was in the summer, when they complained about the heat. 73 from The Voice by the Lake.

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## AMSAT Australia

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### National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR @ VK5WI

Please take note of the Amsat information nets:

**Amsat Australia net:**

Control station VK5AGR

Check-ins commence at 0945z on Sunday nights

Bulletin commences at 1000z

Frequencies: Primary 7.064 MHz. plus/minus 5 kHz.

Secondary 3.685 MHz.

Amsat South West Pacific net:

2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA Divisional broadcasts for regular up to date Amsat information.

**AMSAT Australia newsletter and software service:**

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AM-

SAT Aust. addressed as follows: AMSAT Australia, GPO Box 2141, Adelaide SA 5001.

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

### AMSAT Australia subscriptions

It's been brought to my notice that somehow an old header appeared on last month's column. This listed the subs at the old rate. Due to increased postal and duplicating costs Graham has reluctantly had to increase the subs. The new subscription rates appeared correctly as above in the April and May columns but I must have called up an old macro when typing the last column. Sorry about that, the offending file has been removed from my system. I hope it didn't cause Graham too much embarrassment.

### STS-50 and the SAREX

As I write this column the latest Sarex mission is under way. On Friday 3rd July I took part in one of those wonderful group exercises where Murphy took a holiday and everything went right.

Through the tireless efforts of Graham

VK5AGR, our club, the RAAF Williams Amateur Radio Club (RWARC) was allocated a scheduled time slot on the SAREX mission. RWARC operates from the Laverton Air Force base in Melbourne under the call sign of VK3APP. Being centred around the RAAF Radio School and having a large student membership component it qualified under the 'sa- rex in schools' section of the mission.

Over the preceding weeks many club members took part in working bees to ready the club station for the big event. As the day approached we were a bit apprehensive to say the least as much conflicting information was circulating around the traps regarding antenna problems etc on board Columbia.

However on the Friday afternoon and barely an hour before the first pass we received a fax direct from NASA setting out all the details we needed to know regarding frequencies and times along with an hour-old set of Keplerian elements. All other scheduled VK stations received this same fax and I'm sure I speak for them when I say how relieved we were. At that time no-one at the club had even HEARD a signal from Columbia.

With our club room full of bodies we made brief contact on the first pass and confirmed our schedule for orbit 124. Signals were full quieting and for the first time we all felt confident of a good quality contact. The excitement was building as we watched the Instant-track footprint approach our location. Video cameras and audio recorders were running, we had a totally redundant backup radio system including tracking antenna at the ready in case of explosions or worse.

Right on time virtually to the second we heard Ellen Baker KB5SIX calling us from Columbia with a good clear signal and the long planned contact was under way. It ran for the entire pass from horizon to horizon and could hardly have been better. The voice quality from Columbia was excellent and signals were loud and clear all the way. The students were buzzing with excitement as they left and no doubt within a few minutes the whole Air Force base would have been aware of our contact with the space shuttle. It was a fine club effort with many people contributing to bring about a most successful, unique and profitable learning experience.

#### OSCAR-10

The old warrior is still giving surprisingly good value. Now the oldest amateur satellite still in service, OSCAR-10 continues to deliver the goods. Excellent contacts are to be had as long as the range is not too great. Signals have been strong for some time now but watch for any signs of FM-ing on the beacon or signals. This will indicate that shutdown is imminent and transmissions should cease at once. OSCAR-10 shows no signs of faltering from its present 3 month on, 3 month off self-imposed schedule and if we treat it well it may continue to be a very useful satellite for years to come. We may have another 'Voyager' on our hands!

#### OSCAR-13

As I mentioned last month, this bird is improving week by week. I've recently heard JA and W stations at 20 dB above the system noise floor. Just like the old days of OSCAR-10. There have been good openings to Europe from southern Australia. Squints have been down to less than 20 degrees for periods of an hour or more on some passes. The number of regular VK users is increasing so the word must be getting around. We can expect more stations in the northern hemisphere to start looking to the south as the word is passed around up there. Unfortunately we are not yet seeing the orbit anywhere near apogee. The apogees are still too far north, about 50 degrees north latitude. As the apogees move to the south we should start to see more of mode J and S in southern Australia. About the middle of 1993 conditions should start to become very good for inter hemisphere DX on OSCAR-13.

#### Arsene

For the first time a 'fairly firm' launch date for this long awaited satellite is being circulated. Reports have it that it will be launched

on Ariane flight V55 in November this year. It promises to be a most interesting and unusual amateur radio satellite. It will be the highest of all OSCARs. Its apogee will be about 36000 km and perigee about 20000 km. It will orbit around the equator. Its period will be about 17.5 hours. If you want to have a look at the shape of the orbit on your tracking program, key in the following 'keps'. They are not real and they will not show you where Arsene will be at any specific time but you can fast forward and see what service you can expect from this satellite. I think you will be quite surprised.

Epoc 92 000.00000000

Ecc 0.2355

M Motion 1.361

Inclination, right ascension, argument of perigee, mean anomaly, decay rate, orbit number and anything else your program requires can be entered as zero. The orbit shape will be modelled by the Eccentricity, Mean Motion and Inclination but of course it cannot show you exactly where the satellite will actually be at any particular point in real time. ar

## Awards

*John Kelleher VK3DP — Federal Awards Manager*

### WIA DXCC Award

During the last few months, I have had several requests to outline this award, and to clarify the requirements necessary to submit a claim for it.

I have also had a challenge to its integrity as an internationally recognised award.

The general rules which apply are parallel to the ARRL DXCC Award, with one exception. After the submission of QSL cards for the initial 100 or so countries (which cards must be sighted and checked by this office), additions can be made using a verified list of contacts. The submission of QSL cards for additions to DXCC standings is not necessary, but some operators may, at their own discretion, send the necessary cards as long as sufficient return postage is enclosed. This system has been operating since the inception of this award, and has rarely been challenged.

The general format for making DXCC applications is to submit your list of contacts in alphabetical (DXCC list) order, and divided into the three separate headings ie SSB, CW and OPEN (or Mixed). To me, it is tedious and time consuming to have to separate these three headings from a sometimes substantial list of contacts.

When some of our more ardent and hard-working DXers have reached totals in excess of 300 countries, I will now find it necessary to visually check the final 20 or so QSL cards for entry onto the DXCC standings, which will

now be published more frequently, due to the fact that the complete list of standings is now on database at the Federal Office. It is also my intention to publish information on those operators who head the listings in all three categories, plus RTTY.

### Sevilla Universal 92 Award

The Spanish national society URE is sponsoring this award in connection with the Universal Exhibition Sevilla — EXPO92. It is available to amateurs and SWLs world-wide. Various prefixes have to be worked to amass points as follows:

Each AM7, AN7 and AO7 contact	1 point
Each AM92, AN92 and AO92	2 points
Special station EF92EXPO	5 points

A contact with EF92EXPO is mandatory. Each station may be worked more than once per band/mode to gain extra points, but there must be at least 24 hours between such contacts. All bands, including WARC bands are valid. Points required are as follows:

Spanish stations	100 points
Other EU stations	75 points
USA stations	50 points
AF and Asia stations	40 points
Other areas	25 points

Contacts for the award must be made during the period 5th May to 12th October 1992. Send log details before 31st December to:

URE Sevilla  
PO Box 479, CP-41080 Sevilla, Spain

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# Pounding Brass

Gilbert Griffith VK3CQ 7 Church St Bright 3741

Hands up if you know what a Yamaha TT350 is.

For those readers who didn't put their hand up, I will explain that a TT350 is an enduro motorcycle designed for high speed bush (track) bashing. I am not afraid of offending "greenies" but riding off the tracks is considered stupid even among the motorcycle fraternity. As you can probably guess, this pastime is commoner with teenagers than with Morsiacs, and anyone over 35 or so is classed as a veteran rider when entering events. My own TT350 is 5 years old now, but aside from numerous scratches in the plastic guards, it is in mint condition with only 3 to 4 thousand clicks on the clock. I have enjoyed learning to ride and had many memorable "moments" in enduros, trail rides and practice. I can hardly describe the thrill I have experienced on achieving the top of a particularly nasty hill for the first time after many failures (that means painful falls!). No matter how suicidal it may sound, I have experienced a euphoria in rocketing down a wet dirt track in excess of 100 kph and suddenly realising, "Hey, this is dangerous", and later wondering how I managed to negotiate corners at that speed.

Any normal person of my age would be leaving that sort of thing to younger men who would not consider the bad things that could happen. I really knew that falling off was likely, and still is, and I have been trapped under the machine, and even knocked unconscious for a couple of minutes, regretting that particular fall for a few days too. But I always wanted to ride so I think positively about it, and if I fall off on a hill I just keep at it until I succeed. Besides, falling off while going uphill is much safer, easier too.

One of the best lessons I learned early about riding was not to try to ride fast but to concentrate on technique, balance and control at a comfortable speed even if it was only a walking pace at first. An experienced racer wrote that advice in a motorcycle magazine. After a while I found that I was using more power (sometimes all that the bike would give) and some of my young friends were having trouble keeping up when it seemed to me that I was just cruising. Now I am doing "get fit" things like running up hills and giving up smoking (6 months so far... hooray) so that I can ride harder and longer without hurting so much. So now when our club has a motocross day I am able to have 4 or 5 prac-

tice laps of the course without collapsing in a heap from exhaustion. Far from it, it is great fun.

By now you must be asking, "What the heck has all this kerfoofle got to do with pounding brass?" And I will admit. "Not a lot".

But it has a lot to do with attitude, endeavour and success, at least I think it does.

Take a look at your average Prospective Amateur. He (she or it) has heard from somewhere that it takes 40,000 repetitions of each letter to learn Morse code, and effectively says to himself, "Impossible, I'll never be able to learn". Or a rumour starts up that there will shortly be a no-code licence and he says, "Hey, that sounds good to me, I'll push for that". There are limitless excuses put forward for not doing something.

On the other hand, one may take a lesson from not only my own experience with motorcycles (which real motorcyclists would call a joke — but who cares?) but with Morse code too, and say things such as, "If others can learn it, so can I". In my case I knew that others had learned the code, and living in the country I did not know that the task was impossible these days, so I started to learn, with a firm belief that I would eventually be successful.

The same goes for using the code on air. If you take the advice which was given to me just after I passed the Morse test you will learn quickly and enjoy the experience without worrying that some people might think you are a lid. That advice is simply, "Make the effort to have three contacts every day in Morse code". I can assure you that in a very short time three contacts will not be enough for you, at which time you will no longer suffer from "nerves".

Even before sitting for any of the amateur exams the most successful and enthusiastic people will have built a crystal set or receiver and maybe other things besides, and anyone who has built their own equipment will chat about it for hours especially willing to relive the moment when something first worked.

Finally, before you throw away your key forever, read "The Horrors of CW" by Julie Kentwell (AR July 1992 P32) for another opinion.

P.S. If you are thinking of taking up trail riding, get the right protective gear such as helmet, goggles, boots, knee and elbow guards and/or full armour, and take it easy:- especially if you are a veteran (over 40) like me. If you don't get hurt it will be a miracle.

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# QSLs from the WIA Collection

Ken Matchett VK3TL Hon Curator, WIA QSL Collection  
4 Sunrise Hill Road, Montrose 3765, Ph: (03) 728 5350

## CHAGOS ARCHIPELAGO

The Chagos are a scattered group of small islands and coral reefs lying south of another interesting DX group — the Maldives. Chagos lies south of the southern tip of India about the same distance as Brisbane is from Melbourne. The country was originally a dependency of Mauritius but after the declaration of independence (in 1968) of that country became part of what is known as the British Indian Ocean Territory.

## VQ8AS

In 1936 the islands of the Chagos Archipelago were rare DX indeed, that is, until two young radio operators from Mauritius, Leny Mazery (VQ8AB) and Paul Caboche (VQ8AS) commenced operation. The two stayed at Paul's father's home on Boddam Island some 200 km or so north of the main island, Diego Garcia. Leny was invited by the resident manager to set up an amateur radio station primarily for communication with Mauritius. An account of their operation has been given in "The DX Magazine" of November 1991 under the title "Chagos Revisited" by Marv Gonsior W6FR. The first transmitter was a single tube tuned grid tuned plate oscillator operating with an input power of between 4 and 12 watts.

The antenna was a 132 foot long wire at-

tached to a 30 foot steel tower which Leny had transported from Mauritius. The call sign VQ8AS was, in fact, allocated to Paul by Leny himself since the Postmaster General in Mauritius knew nothing of amateur radio. The station was powered by a bank of wet cells providing about 150 volts for the receiver and up to 250 volts for the transmitter. At night the equipment used local power. Batteries were charged by a small dynamotor driven by a coal gas engine that, in turn, periodically served to power the local saw mill. The receiver was a small 3 tube Philips TRF. One stage of RF amplification, a valve detector and two stages of audio amplification were used as indicated on the QSL (RX.1-V-2). The first call was answered by VK2HV quickly followed by VK3MR ("Snow" of Clyde, Victoria, still very active and known to most Old Timers). The QSL shown was sent to Ivor VK3XB, for a QSO dated April 1937.

In a letter to the writer, Paul recounts his call for help after being threatened by the locals during a native uprising. His call was answered by FB8AD who reported the incident to the authorities on Madagascar who in turn alerted the Government in Mauritius. A nearby steamship was diverted to the Chagos. The ring leaders were tracked down and taken to Mauritius without ever knowing how the intervention was accomplished with such rapidity and effectiveness.

When World War 2 broke out Paul was sent to the Chagos in order to set up a wireless station. He recalls that he had to insist that he take his own amateur radio gear with him to Diego Garcia rather than use the inadequate military equipment that Paul described as a "museum piece". His own gear worked well until proper military gear arrived one year later. After three years he was called back to Mauritius to work on the Royal Navy radio installation there. Later he worked underground having been trained in sabotage. He played a part in the landing of the Free French on Reunion Island which at the time was held by Vichy French forces. Paul writes further "I am going to send you, Ken, all of my pre-war QSLs as VQ8AS (Chagos) and VQ8AD also, as I know they will be destroyed at my death as nobody is interested in them". (The cards were safely delivered into the WIA collection in May 1992). Paul's pre-war activity from Chagos was noted in QST of October 1937 thus: "Even if you have worked Mauritius, don't pass up VQ8AS just because he uses VQ8. It's another country for you". Paul was quite an active operator and a very reliable QSL-er. It is interesting to record some of the Australian stations who managed to have a QSO with him at the time. Several have become "silent keys" but three or four are still active on the air. Their QSL cards show the following call-signs: VK5RX (George Luxon), 3CN (Chas Harrison before returning to VK7), 3RN (Ron Higginbotham), 3BZ ("Morrie" Morris), Reg Sankey (3XP), Fred Bail (3YS), 2XQ (John Traill), 2HV (Harry Hutton), 3FZ (Frank Maher) and 3XB (Ivor Stafford). Paul now resides on Mauritius his call being 3B8AD, (formerly VQ8AD).

## VQ8CB

Just as Paul had activated Chagos before the war, it was Leny who put the island group on the air in the post-war period with the call VQ8CB. His operation started in late 1947 and continued until his departure from the island in 1955. Actually the first post-war activation was, Paul informs me, by France Dumont between 1945 and 1947. His call was VQ8AM. However, his operations were confined to low frequencies primarily for communication between the island and Mauritius. Leny's QSL as shown indicates that he was using the popular 6L6 valve as an oscillator with an 807 as a power amplifier. This gave an input power of about 50 watts. His receiver was an NC SW3. The initials stood for National Company, Short Wave 3 valve receiver. (The equipment codes of those early days certainly gave more information about equipment than do modern ones!). The SW3 was a small box in the shape of a cube with headset output. Advertisements for this receiver started to appear in radio magazines in 1931. It had one stage of AF, full AC or battery operation with 6V heater tubes. With its excellent signal to noise ratio it was an inexpensive and popular choice of receiver.

To Radio Friend VK 3XB : UR 14 Mc Sig were  
RST 569 On 23/4/37 at 15.00 GMT

**VQ8AS**

RX  
1 - V - 2  
XTR.  
12 Watts  
T P I G  
Valve P.H.  
Aerial VQ8 ANT

Q R A : P. CABOCHE  
SALOMON ISLANDS  
ARA QOS ARCHIPELAGO  
c/o VQ8AF, Box 163  
PORT LOUIS, MAURITIUS

T N X Q S O - Vy 73 es dx Paul OP.  
P S E - T N X Qsl.

To Radio VK3BZ This cfm's QSO on 3/12/51 at 1030 G.M.T. 14 Mc Band  
 PHONE R 4/5 S 6/7 mod. ox. 826/13/14/15/16 Box 155  
 Rx-NC SW3 XTR 6L6-807 QTH: P. LOUIS MAURITIUS  
8CB CHAGOS

**VQ8AB**

G6NN PRINT  
 Gld QSO on Phone Maurice hpc mni QSO lpa I go 10/43 Henry

It will be seen that Leny has modified his former Mauritius pre-war call sign of V8AB to VQ8CB, the old V8 calls having been changed to VQ8 in early 1938. The QSL was for a QSO in December 1951 with 'SK' Maurie Morris, VK3BZ on 20 metres phone.

### VQ9JW

Since Leny's activities, there have been several radio amateurs on Chagos. In August 1962 "Gus" Browning W4BPD used the call VQ9A/8C but the next year QST announced that DXCC credits for this operation would be deleted due to the lack of proper licensing procedures. Another DX-peditionist, Don Miller W9WNV used the call VQ9AA/C during January 1967. Harvey VQ8BFC (1964) and VQ8CDC (1967/68) were quite active. At the time, QST reported that the purpose of three (rather than two) letter call signs was for the last letter C to indicate Chagos. There has been

quite a fair amount of activity since 1970, at about which time the official call sign prefix changed from VQ8 to VQ9. Most of the operators were American personnel. A few operated using their state-side calls portable VQ9. RAAF member, Alex VK5CCT operated as VQ9CCT in October 1980. Almost all calls originated from the defence facility on Diego Garcia. The WIA collection does however, hold the QSL VQ9DW, the first Joint Services Underwater Expedition 1972-73 operating from the Egmont group of islands to the north.

The QSL shown, VQ9JW is dated June 1980 and was received by well-known DX-er Tom Laidler, VK5TL. Diego Garcia is shown as a somewhat horse-shoe shaped island. It lies to the south east of the majority of the islets making up the archipelago. In 1966 a long term lease had been negotiated between the US Government and Britain for the use of the island as a strategic defence facility. It has a har-

bour and an excellent airstrip. The island itself is a rather narrow coral atoll complete with typical coconut trees, beautiful white beaches and a blue lagoon — not the least attractive location for an overseas posting.

### Author's Note

These series of articles on the history of amateur radio depend in part, upon information gained from QSL cards kindly donated by radio amateurs throughout Australia and overseas. All QSL cards are welcome. Please get in touch with the author who is the honorary curator of the collection if you would like to offer your help.

### Thanks

The WIA (Victorian Division) would like to thank the following for their donation of cards to the collection (Supplementary List)

Alf	VK3LC
Bill	VK6WY
Mike	VK6HD

Also the family and friends of the following "silent keys" (Supplementary List)

Bill Faull	VK3AGZ
"Monty" Nell	VK2JQ
Doug Burrows	VK3BZC
Alex Taylor	VK3AT
Roy Knott	VK5PDY

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## ELECTRONIC DISPOSALS

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### Specials:

3 watt ceramic resistors 10c each  
 40 amp 12 V relays single throw \$4  
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2716 70c each or \$10 per tube  
 9016 16k x \$12 per tube  
 TL082 Low noise op amp \$1 each  
 10 μF 40 v low leakage Electrolytics \$6 per 100

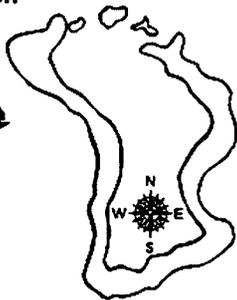
2200 μF 50 V axial 90c each plus lots components at reduced rates.

KITS (OR PARTS, BOARD, ETC.)  
 AVAILABLE FOR DREW DIAMOND'S PROJECTS

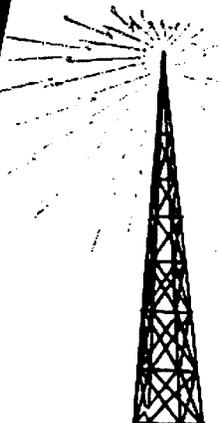
**VQ9JW**

J.T. Wilson

Diego Garcia  
Indian Ocean



7°S 72°E



# Education Notes

*Brenda M Edmonds VK3KT — WIA Federal Education Co-ordinator,  
P.O. Box 445, Blackburn 3130*

Lately I have taken a fresh look at some of the books available for training or as introductions to amateur radio, in an attempt to be able to provide recommendations to aspiring amateurs who are unable to attend formal classes. Both the ARRL and the RSGB produce a small range of such publications, and a few others come to mind but there are only a few that are directed specifically towards the Australian Novice qualification. More on these at a later date.

The ARRL publication "First Steps in Radio" by Doug DeMaw, W1FB, was first released in 1985, and has recently become available as the second printing. I had not previously been able to examine it closely. In 85 pages of A4 size, it provides a fairly easy-to-read text which includes a lot of theory interspersed with operating hints, construction technique advice, and traditional amateur radio lore.

The theory sections, about 16 of the 19 parts, do not assume any previous knowledge. They cover most of the content of the Aus-

tralian Novice syllabus, but do not treat it in the depth which I would recommend for a candidate. Admittedly most parts end with a recommendation towards further reading (generally from the ARRL Handbook), and it is frequently re-stated that the book is intended only as an introduction. The explanations that are used are generally clear and simple, and the diagrams although sometimes small are clear and well labelled. The really useful items are the glossaries, one per part, which define the new terms used in that part, both technical and jargon. Cartoons in the headings and occasionally elsewhere lighten the tone a bit, and there is a good range of photographs of components. But there is a lot of plain reading on many of the pages, which some beginners find discouraging.

In all, as an introduction it serves the purpose. It is not a "stand alone" text for a candidate studying for a Novice licence, but it may well encourage the candidate to "have a go" at some simple constructions, and it will help

the beginner make sense of much that is not clear to someone just starting to do some listening around.

My thanks to Stewart Electronics for the inspection copy. (RRP \$10.00)

On a vaguely similar theme, I wonder if any reader can supply some information which I have mislaid (or lost in one of the recent moves). About 6 — 8 years ago, I was notified of the production of an amateur radio training text on audio tape that was said to be a "first" in that it had been done directly onto tape, not produced as a book and then taped. A couple of recent requests for assistance for blind students reminded me of its existence, but no more. Can anyone out there help, please? If any reader knows of similar aids for such persons, I would be very pleased to hear of them. I am sure that the market for such items would not be limited to the visually handicapped. Perhaps my next project should be the compiling of a Resource Directory for students.

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## The 19th South-East Asia Net Convention

*Tan Lian Huat 9V1OD*

The 19th South East Asia Net (SEAnet) convention was held at the Empress Hotel, Chiangmai, northern Thailand over the weekend 8 — 10 November 1991. This was the fifth time that the Radio Amateur Society of Thailand (RAST) hosted this major annual event. The previous conventions organised by RAST were held in Bangkok and this year's venue, Chiangmai, was indeed a pleasant change.

More than 300 participants from 17 countries took part in the 3 day event. The opening ceremony was officiated by Mr SOMBUT UTHAISANG, HS1ISU — Director General, Post and Telegraph Department of Thailand. This was followed by a welcome dinner during which participants were treated to colourful northern Thai cultural dances.

The second day's events were

- a. A country drive to Doy Suthep Mountain and the Meaw hill tribevillage;

- b. Visit to the industrial handicraft village, with a sumptuous buffet lunch in between the above.

At the grand banquet dinner, ISAMU KOBAYASHI JA0AD presented the traditional video/slide show featuring SEAnet personalities. Delegates from several countries then contributed to the night's merriment with their songs. In particular, THIDA HSIASA and SUVIT HS0XH and their group did a great rendition of their own composition, "Far Away in the Sky". Door prizes and souvenirs were given to all present.

The third day saw a very interesting presentation "THAI SATELLITE — its design capabilities and application" by Mr WICHIAN MEKPRAKAN N6QYK. This included two video films on satellite launchings.

By tradition SEAnet control station operates from the convention site. This year was no

different with HS5SEA being the official station at the Empress Hotel.

At the closing luncheon, RAST president, VIKROM RUNYASHTHITT HS1HB announced that there were two offers to host SEAnet '92. These were DARWIN (Australia) and SHANGHAI (Peoples Republic of China). By a majority vote it was decided that the next eyeball QSO will be in Darwin. The president then thanked all participants for making this year's convention a success and wishes all a safe journey home.

The 20th SEAnet Convention will be held in Darwin from Thursday 29 October until Saturday 1 November 1992. More details may be obtained from Jim Jones, VK8LJ, Secretary — SEAnet '92, PO Box 37173, Winnellie, NT 0821.

(SEAnet meets on 14320 kHz (+/- QRM) at 1200 hrs UTC daily).

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# WICEN

Leigh Baker VK3TP WIA Federal WICEN Co-ordinator

## National WICEN Bulletin Board Network

### Introduction

With the advent of computers and data communication it is now a relatively simple process to exchange information quickly between groups of Amateur Radio operators around the country or, for that matter, the world.

As the various WICEN Divisions have undergone changes in their structure and in the way they carry out their duties they are often trying to re-invent things that have already been done by another State. Apart from being a waste of resources this is a long and tedious process. The WICEN Co-ordinators agree that a national forum is also required for discussions on many subjects such as national WICEN Standards, Net Control operation, maximising field efficiency, new training techniques, research into new technologies, administration, procedures etc.

The only way that WICEN can function efficiently as a National entity is to maximise its communications between Divisions and with other appropriate organisations.

### Inter BBS conferences

After much discussion and behind the scenes work, WICEN is pleased to announce that 4 Divisions have worked collectively as a team and have arranged National cchomail conferences through local phone Bulletin Board Systems. WICEN wishes to thank publicly Brian Wendt from Brisbane, Mick Howland VK6ZMF in Perth, Graeme Broadbridge VK2YUI, Mike Kearnes and Eric van der Wyer VK2KUR from Sydney for allowing the use of their systems as part of the nationwide network. David Tilson VK3UR is system operator of the WICEN Victoria BBS located in Melbourne.

While the WICEN general echo is freely accessible through the BBSs, the other areas have restricted access due to the discrete nature of the contents. Any other BBS that wishes to echo these areas should apply through their

Divisional WICEN Co-ordinator or to the Federal Co-ordinator.

### Central BBS

At this time the WICEN Victoria BBS is being used as the central node from which all other BBSs receive and forward their information as it is the only BBS dedicated to WICEN only matters and therefore has been designed exclusively for WICEN purposes.

BBSs currently linked into the WICEN phone network — see table 1.

### Who can access WICEN BBS Information?

Anyone! All that you need is a computer, phone modem and any type of communications software. Throughout the network there are several levels of information and access for different groups, ie General public, WICEN members, Region Co-ordinators, Special Project Groups, WIA Administration. Access to information at higher levels is by pre-arrangement. For more details see one of the Boards or write to any of the WICEN contacts.

### Inter-network traffic

For those people who cannot directly access the above BBSs but do have access to either Fidonet or Internet please feel free to use the addresses below:

The prime FIDO address of WICEN is 3:632/404.

The prime ACSNET/AARNET/Internet address of WICEN is VK3TP@CSOURCE.OZ.AU.

WICEN is also actively involved with data communications through the AARNET/Internet Network and the Australian Disaster Management Information Network, but more information about these in future notes.

### News from WICEN (NSW) Inc.

D. Horsfall VK2KFU

WICEN (NSW) Publicity officer

August is quite a busy month for WICEN (NSW) personnel, with many events in the Calendar, and there have also been a number of significant achievements. What follows is information garnered from the regular WICEN

nets, the VK2 Divisional broadcasts and various WICEN internal communications.

WICEN was recently asked to undertake two significant tasks. Firstly, the State emergency planners have asked WICEN to provide communications for thirty five evacuation centres and control points as part of the Nepean-Hawkesbury Flood Plan.

Recently WICEN was tasked by the Sydney South Division of the SES to provide communications for up to twenty evacuation centres and welfare sites in the Lansvale, Rossmore and Badgerys Creek areas.

WICEN now has clearly defined and definite roles within the NSW Disaster Plans. WICEN is actively looking for members in the western areas of Sydney and the Blue Mountains to assist in implementation of these plans. The revitalised WICEN team has become the most

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TABLE 1

	BBS	BBS number
New South Wales	The Serviceman BBS	(02) 698 1565
	The North Sydney Packetgate	(02) 954 0934
Victoria	WICEN Victoria BBS	(03) 802 0913
	SunMap BBS	(07) 393 0311
Queensland	Ampak Northgate	(07) 263 7070
	Perth Omen	(09) 244 2111

Other systems are being investigated for use in South Australia, Central Australia and the Australian Capital Territory.

prominent public face of the Amateur Radio Service, the public face that is showing just how the Amateur Radio Service CAN assist the community in time of need. WICEN is establishing new regions in Sydney's west, and needs volunteers and leaders to form these new teams. If you would like to be part of these new teams, particularly in Sydney West, contact John Buxton, VK2GJB at (02) 621 2762, Morton Williams, VK2DEX at (02) 646 1187, or Philip Greentree VK2IW at (049) 47 1202.

Planning for WICEN's involvement in the International Six-Day Enduro, the World Championship of motor cycle enduro riding is well under way. The event is to be held from Tuesday 25th August to Sunday 30th August, and WICEN requires operators for voice and packet stations as well as special marshals who need to be both competent enduro riders and licensed amateurs, since they will actually be on the course during the events. Their role is to provide the primary medical radio safety net communications from very difficult areas. This will be the event of 1992, so if you would like to be part of the World Championship happenings, contact the WICEN Hunter Region Co-ordinator, Simon Clowes, VK2TSC, at QTHR or (049) 48 9566 at your earliest opportunity.

WICEN has been asked to provide medical safety net communications for the MMM-FM Marathon to be held in early November. The event is to be run along the coastline from the start at Bayview, finishing at Manly. The event will pose a considerable challenge to Sydney North Region. For further details, contact the Sydney North Region Co-ordinator, Barry White, VK2AAB, at (02) 487 1428.

A number of WICEN regions are keen to build mobile communications and need your assistance. If you have an old caravan that, whilst being roadworthy, may not be up to the standard for taking on any further holidays, do not let that unneeded caravan rust away in the back yard. Donate it to WICEN who will put it to good use. After some handy-work by willing volunteers, the van could soon be up to standard, and registered as a communications van for field use by the various WICEN regional teams. If you can assist, contact your region's WICEN co-ordinator, or phone State Co-ordinator Philip Greentree VK2IW at (049) 47 1202.

The Annual General meeting of WICEN (NSW) Inc will be held on Saturday 15th of August at the Sydney North SES Division HQ, corner of Leonard and Hornsby Streets, Hornsby, starting at 1300 hours. It is anticipated that a Co-ordinators meeting will be held during the morning of that day.

Here is a calendar of forthcoming WICEN events, along with their commanders. Please note that some of these events are yet to be confirmed:

Annual General Meeting  
City to Surf race  
Batemans Bay car rally  
St Albans Horse Endurance Ride  
International Six Day Enduro  
Hawkesbury canoe Classic

Note that at the time of writing there is no event co-ordinator for the City to Surf Race, so hopefully somebody will volunteer soon. Also, please note that there are several "clashes" in these dates; the WICEN AGM and the City to Surf race are on the same weekend as

15th August  
16th August (no commander yet)  
22nd-23rd August (VK2XNH)  
23rd-29th August (VK2TV)  
25th-30th August (VK2TSC)  
17th October (VK2IW)

the Remembrance Day Contest; the St Albans Ride coincides with the International Six Day Enduro, and once again the Hawkesbury Canoe Classic will compete with JOTA for personnel.

ar

## Spotlight On SWLing

*Robin L. Harwood VK7RH  
52 Connaught Cres., W. Launceston 7250*

Well, Springtime is almost upon us, although as I'm compiling this, we are being battered by a fierce thunderstorm and gales in mid-winter. Hopefully, the buds will be appearing and the daffodils will start blooming again.

In the June issue, I made mention of Radio Australia putting out a signal on exactly 21000 kHz on April 21st. Since that was published, the Northern Territory Section of the Broadcasting Division of Telecom Australia has written and confirmed that it did indeed occur. The staff conducted a test the next day to determine the relative level of the test load signal to that produced from a transmitter operating into an antenna on 21525 kHz. An investigation of possible causes of the radiation of signals, while operating on test load was conducted. The culprit was not exactly the dummy load as radiation from the test load is negligible because of its construction and effective shielding. The transmission lines are another matter. I quote from the very extensive information, so kindly forwarded to me by Mr Graham Baker of the SA/ NT Broadcasting Division of Telecom Australia.

"The amount of radiation from open wire transmission lines depends on effective cancellation of the fields generated by the RF current in each conductor. When the transmission line spacing is an appreciable proportion of a wavelength this cancellation is not complete, similarly if the currents are not perfectly balanced in each conductor total cancellation does not occur. The estimated power radiated as a result of incomplete cancellation as a result of 400 mm spacing at 21 MHz while operating at 250 kW is in the order of 35 watts or about -38 dB. Current imbalance is normally in the order of 1% or so, and would add also to the power radiated."

Tests conducted on the transmission lines between the Transmitter building and the matrix switch run parallel to each other, so cross coupling can be normally expected to occur. Tests on adjacent lines over their full

length have shown coupling to about -30 dB. So adjacent lines could carry the radiations to any antennas connected to the transmission lines.

"It is therefore expected that normal operation into the test load will cause a signal of significant proportions to be radiated and that while in-band operation would not normally cause a problem because of the high signal level of other broadcasters, out of band operation into the test load may cause problems. As a result, operation into the test load will now only occur on frequencies within recognised international broadcasting allocations," Mr Baker concluded. One up for the IARUMS! Once again, my thanks to the Telecom Broadcasting staff in Darwin for the extensive background information they forwarded to me.

Incidentally Radio Moscow World Service is now carrying religious programming. Yes that's right! At 0430 and 2030, they carry a Japanese religious programme in rather fractured English. The diction is terrible, making it extremely difficult to comprehend what the speakers are on about. As far as I can make out, it is a mixture of Christian and Eastern philosophy with a Japanese address given during the programme.

This Winter, daytime reception on HF of the international broadcasting allocations has been exceptional, particularly from Europe, the Americas and the Mid-East. Signals on the 41 and 49 metre band were also interesting, particularly around my local midday time, when they came across the Antarctic regions, judging by the noticeable flutter on signals. However, it is becoming increasingly apparent that the Sunspot numbers are in sharp decline with the higher frequencies dropping off or not propagating at all. I do notice that I can receive the American Time Station, WWV in Fort Collins Colorado on 20 MHz only on the vertical.

Well, that is all for this month. Until next time, the very best of 73 and Good Monitoring!

ar

# Contests

## VK-ZL Oceania DX Contest 1991

### VK-ZL CW RESULTS

\* = equals top call area score

# = equals top band score

CALL	160M	80M	40M	20M	15M	10M
ZL1AII*			#203040			
ZL1HV		1280	500	8190	10744	9006
ZL1VD		240	125	5695	51952	480
ZL1BN			550	800	15048	12864
ZL2AGY*		1440	18700	23375	67784	16936
VK2APK*	#120	3520	155000	123151	90300	84096
VK2AIC		350	20	25	950	2652
VK2DID		500	360	7448	18630	17556
VK2NV		220		240		2
VK2BQQ	80	1890	11310	23436	12194	13000
VK2PS	#120	1760	3590			1196
VK3DP*				406		4
VK3KS		90		9		
VK3XB		700		462		
VK4OD				690		10106
VK4DWA				53940		
VK4XA*		451				#245490
VK4XY			450		8	
VK4YB		#22230				
VK5AGX*				18910		
VK6ZH*				46746	99198	142880
VK6AJ				9600	#152064	44604
VK6BB					37312	
VK6HG		350	2520	18870	7420	4620
VK6IT				11303		
VK7RO						540
VK7RY*		1260		144	512	8

### PHONE SECTION RESULTS

ZL1AKY					75576	338
ZL1AAS*	280	2160	245	14729	#145486	46898
ZL1BVK		4050	45	26190	3808	76500
ZL1IM		880	30	2166	15120	15600
ZL2AFY*		6160				
ZL3TX*	#2100	3140	80	3536	1920	60
VK2APK*	60	2250	5200	80740	120528	12090
VK2ARJ		910		2451	43660	3286
VK2CCK		10	5	5412	80586	13440
VK2BAM		1890		2332		
VK2PS	640	1440		25		
VK2PWS		1400			65682	50394
VK3DZM*		57230				
VK3SW				3380		
VK4EZ				19952	13089	18
VK4LT						#304876
VK4NEF					88040	
VK4QD				441	18	5292
VK4PJ		250	5	121	4408	11560
VK4YB*	800	39500	#16600	#91200	20540	7600
VK5FOX*	160	250		36	122	136

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# How's DX

Stephen Pall VK2PS PO Box 93 Dural 2158

Our plane landed with the familiar slight bump as the wheels touched the tarmac of the Sydney airport, we were home!

Still suffering from the jet lag, and barely being home for a day, I came to the conclusion that one should never go on a long holiday. This was the scene which awaited us: a broken water pipe on the property on this side of the water meter. This break was discovered only after hundreds of kilolitres of water was lost. Fortunately, the water bill will not come for another three months. Almost all the water disappeared from the swimming pool, no cause yet has been found. One suspects a perished pipe connection. The local post office had good news for me: 110 postal articles were stacked neatly in a cardboard box representing radio amateur mail, and there was another bunch of about 70 articles representing private mail. And all this accumulated in three months.

It took me three days to sort out the correspondence. Then I discovered that the deadline for the August issue of Amateur Radio expires in five days time. A quick summing up of the situation resulted in producing the column for this issue.

I apologise to my readers if this present column is not up to the usual standard, but I am sure you will understand the situation. I present the news as I find it, with some "on air" information mixed into it.

And how was the trip? you might ask. I visited eight countries in the middle of Europe, and met more than a dozen radio amateurs (mostly DXers). It was an enjoyable, interesting, informative journey with a lot of learning experience. I will tell you about it in a separate article later. But now, here is the news.

## Wake Island — KH9

After one week activity on this Island by Sam NIMPD, Jim VK9NS, became active on the Island as WR1Z/KH9 in mid June. He is using his American call sign, because he had no time to convert it into a KH9 callsign. QSL direct with SAE and return postage to: PO Box 90, Norfolk Island, 2898 Australia.

## Willis Island VK9W and Mellish Reef VK9M

A short note from Jim VK9NS informs me that, subject to adequate funds (\$A 20,000 is said to be the target), this expedition will take place in the middle of August or in September. So far there are four volunteer operators and the relevant Australian authorities have given their written permission for landing on the



Steve VK2PS in front of DARC HQ, Germany.

reef. The callsigns to be used are: VK9MM and VK9WW. Send your donations urgently to the above Norfolk address if you want the expedition to be a success. Remember charter boat charges must be paid in advance and they are not cheap these days.

## The Whale Festival — VI4FOW

The boys of the Hervey Bay Amateur Radio club are busy again. Due to the success of the 1991 activity, a similar event will take place this year in the month of August. See details of this special activity under "Awards" in the July '92 issue of AR.

## Heard Island — VK0

Jim VK9NS is trying to organise a DXpedition to Heard Island for the 1992/93 summer season. However, again the biggest problem is the travelling cost. There is a possibility of participating in a commercial shipping venture, but the cost works out around \$18,000 per head. This could mean \$54,000 for three people for five weeks or \$108,000 for six people

for 5 weeks. Jim thinks that he will be able to secure the necessary permission to land on Heard Island, but the decision has to be made soon, to secure the boat berths. So far some DX groups and some individuals have pledged some money, but much, much more is needed. So if you want the opportunity to work Heard Island, please give generously. The address to send your donation is: HIDXA, PO Box 90 Norfolk Island, Australia 2898.

## Rotuma and Other Pacific Islands

Bing VK2BCH is off again to his "lovely islands which keep him calling back". This is what he said in a letter to me dated 10 April. He is now on Rotuma Island signing as 3D2XV. Later he expects to be in Tuvalu as T20XV and later again in Western Samoa as 5WIGY. QSL only direct only with SAE and return postage to: Ronald V Crosby, PO Box 344, Forster NSW 2428.

## Zone 2 — VE8PW

Peter was kind enough to let me know in a letter, that as of 6 June he will be on air from this much-sought-after zone. He can be heard usually on the Southern Cross DX Net at 11.30 UTC on 14226 kHz, but he will be active also on 17,15,12 and 10 metres. From 1 July until the end of August, he will sign as CJ8PW, celebrating with this special prefix the 125 years of Independence of Canada from the UK. Peter intends to use SSB, CW, RTTY and Packet modes. He is still in need of a VK1 QSL card for his WPX Award. Hopefully our colleagues in the capital city will be able to assist him in this regard. QSL either direct with SAE and return postage to Peter Wollenberg, 125 Alber-tus Ave, Toronto,

M4R 1J6, Canada or via the Bureau.

## Father Marshall Moran SJ 9N1MM

Father Moran passed away on 14 April in New Delhi, India, after a short illness. "The Voice of the Himalayas" (see AR Sept 1991 issue) became a silent key. He operated amateur radio for more than 40 years and would have been 86 years old on 29 May. He was buried in Kathmandu, Nepal on 20 April. Father Moran was a kind man, who loved amateur radio and who gave thousands of DXers a great joy by confirming 9N1 for them. He will be missed by all of us over all the Continents. His friends and colleagues have established the "Fr Marshall D. Moran SJ Educational Fund" in memory of his outstanding educational past. Send your donations to Jesuit International Missions, 2059 N Sedwich St, Chicago, IL, 60614 USA.

Future DX Activity

- VK9CB is now working on the Cocos (Keeling) Islands and is active on most of the bands. QSL via VK6LA.

- FO4OA will be working on Wallis Island for the next 18 months starting 21 June.
- There is a possibility that PY0TSN will be active in August.
- Patrick F61RF is active as XU8CW from Phnom Penh, Kampuchea, until 31 August. He was heard on 14033, 14233, 18072, 21033 and 21330 kHz. QSL to: FD1GTR (FIGTR).
- YV25ARV is celebrating the 25th anniversary of the Association of Radio Amateurs of Venezuela (ARV). The station will be active until the end of the year. YV500EA will be a special event station celebrating the discovery of the Americas. QSL for both stations to YV5ARV, PO Box 3636, Caracas, 1010-A, Venezuela, South America.
- Expect some legal and official activity from Bangladesh S2 soon.
- Sanyi HA7VK is active as XU7VK in Phnom Penh. He can be heard at around 1700 UTC on 21315. QSL to: HA0HW, Laszlo Szabo, PF 24, H-4151 Puspokladany, Hungary.
- There is a possibility that, following the successful Navassa Island DXpedition, several operators plan to return to the Island (subject to adequate funding) in December 1992.

#### Interesting QSO's and QSL Information

Note: callsign, name, frequency, mode, UTC, month.

- VP5/W2HKM — Bob — 14226 — SSB — 1138 — March. QSL via W2HKM via the Bureau.
  - EA9PX — Juan — 21195 — SSB — 0912 — March. QSL to: Juan Carlos Arriaga, PO Box 2175, 11702 — Ceuta, Spain.
  - J28GG — Gabby — 14226 — SSB — 1400 — April. QSL to: PO Box 1076, Djibouti City, Djibouti, Africa.
  - 6Y5EW — Earle — 21215 — SSB — 0203 — April. QSL to: PO Box 841, Bridgeport, St. Catherine, Jamaica.
  - 5V5TS — Bill — 14262 — SSB — 0530 — April. QSL to: PO Box 7, Paradisi, 85106 Greece.
  - 3B8AD — Paul — 14226 — SSB — 1255 — April. QSL to: Paul Caboche, PO Box 467, Port Louis, Mauritius Island.
  - VK0NE — Graham — 14226 — SSB — 1222 — April. QSL to: PO Box 90, Norfolk Island, 2898, Australia.
  - OY2VO — Palle — 14280 — SSB — 0622 — April. QSL to: OZ9DP via the Bureau.
  - VK9LA — Tony — 14226 — SSB — 1253 — April. QSL to: Tony Blas, C/O PO, Lord Howe Island, NSW 2898 Australia.
  - 8R1UN — June — 14226 SSB — 1158 — May. QSL to: June Larruburc, PO Box 10960, Brickdam, Georgetown, Guyana South Africa.
  - Y11BCD — Baghdad ARC — 14252 — SSB — 0517 — May. QSL to: JY3ZH, Zedan Hussein, PO Box 11020, Amman, Jordan.
- From Here And There And Everywhere.
- The New Orleans International DX Convention will take place in the Royal Sonesto

Hotel between 28 August to the 30th. There will be presentations on various DXpeditions of the years 1991 and 1992. Contact W5VBX if you want to take part.

- If you worked V14SZF which was active from 10 to 12 July — that was a special event station commemorating the 50th anniversary of the "Z Force" activities. QSL with SAE and return postage to VK4CHB.
- Atsu VK2BEX was active for a few days (29 June to 3 July 92) on Mana Island OC-16 (Fiji) as 3D2BX. He made about 600 contacts. QSL with SAE and return postage to VK2BEX, PO Box 195, Killara, NSW 2071 Australia.
- There is an unconfirmed rumour that Macquarie Island could be on the air soon, but nobody has yet been able to confirm this.
- The Albanian Amateur Radio Association, AARA, has been admitted into IARU (International Amateur Radio Union).
- From 1 July to 13 July, a group of amateurs, mostly from Finland, were active from ZA activating the old callsign ZA1A. QSL to OH2BBF, Erkki Heikkinen, PO Box 53 10901, Hanko, Finland.
- Bob ZL4DO had a brief 14 hrs and 57 minutes operation from Kermadec Islands in March 92 making a total of 1238 QSOs on several bands. QSL direct to ZL4DO, callbook address.
- Karl PS7KM advises that he is the QSL Manager for the following stations: ZY0SS, ZY0SW, ZY0SY, ZY0FRT, ZY0FK, ZY0FZB, ZY0FCA, ZY0FMC, ZY0FMN, ZY0FCM, ZY0RK, ZY0AK, ZY0TK, ZY0TR, and ZY0TF. PY0FKL, ZY7EK, ZW7KM, S9/PS7ABT, ZW7AB, ZW7BX, and ZW7JN, Karl requires US\$2.00 — or 2 IRCs for direct reply, cards with US\$1.00 or 1 IRC will be returned via the Bureau. "Brazilian post is very expensive now" writes Karl. His correct address (note changed postcode), is: Karl Mesquita Leite, Caixa Postal 385, 59001 — 97, NATAL, RN Brazil.
- I am very sad to report the death of Janos Bolyoczky HA0NNN. I was planning to meet him early in April, whilst visiting Hungary, when I heard of his tragic death, victim of a car accident on 16 March, at the age of 26. Jani was a well known Hungarian DXer and contester, he was also the managing director of the St Lazarus Quick Aid Foundation, member of the Nyiregyhaza Radio Club, and the driving force behind the Hungarian DXpedition to Albania with the callsign ZA1QA.
- The DXCC desk has accredited the recent operations of YA5MM, S2/HA5BUS and OK1IAI/YA as valid for the DXCC award.
- The DXAC announced on 22 June, that Ceuta and Mellila (EA9) are not separate DX countries, Spratly Island (IS) was not deleted from the DXCC list, nor was Southern Sudan (ST0) deleted.
- Albania has a new licensing authority: The National Radio Communications Commis-

sion. Foreign amateurs are issued with a licence valid for 3 months, which cannot be renewed during the same year. The foreign amateurs will sign as ZA/(home call).

- The Olympic Games in Barcelona have created a multitude of special call signs, too many to list here. The two official Olympic stations are EH92JOB and EG92JOB. Other stations will operate with prefixes EH92, EG92, EH0, EG0. You hear stations also with prefixes AM25, AO25. All Spanish stations might substitute AM for EA and AO for EC. One should not forget also that the International EXPO in Sevilla is still on, with stations EF92EXPO and EFOEXPO.
- The former East German prefixes in the "Y" series will be converted into the DL1 to DL9 Series by the end of 1992. Note also that the German postcodes have now a "W" prefix for the former West German zip codes, and an "0" prefix for the former DDR zip codes. Further code changes are likely when the administrative integration of the two countries has been completed.
- The Clipperton Island DXpedition has made 50100 QSOs.
- The Canadian special event station XJ3S was active from 29 June to 12 July, commemorating the Bicentennial of John Graves Simcoe first Lt Governor of Upper Canada. QSL with SAE and return postage to VE3VM, Niagara Peninsula ARC, PO Box 692, St Catherines, Ontario, L2R 6Y3, Canada.

## QSLs Received

Note: W = week, M = month, Y = year, FM = from, MGR = manager and call, OP = operator and call.

Direct QSLs received: T30RT (4M FM MGR VK4CCR), A61AD (2M FM MGR WB2DND), HC4L (10W FM OP), HC1XFHC8 (2M FM MGR W4XT), EA9PX (3W FM OP), VK9LA (4W FM OP), C21BR (3W FM OP), T32LN (1W FM MGR VK4CCR), BV2FA (10D FM OP), J28GG (4W FM OP), 6Y5EW (6W FM OP). Bureau cards received: ZS6LUX (10M FM OP), H18RSB (7M FM OP), 4S7VK (3Y FM MGR DJ9ZB), SV4AFY (2Y FM OP), 5N0ETP (10 FM OP), SV1YH (3Y FM OP), CX1TE (3Y FM OP), XX9SW (3Y FM OP), HK5MQZ (2Y FM OP), ZK1KH (12M FM OP), 4Z80TA (12M FM OP) YS1DRF (10M FM OP).

## Thank You

Not much fresh input from readers, but as you can see the show is continuing and I need your assistance, co-operation, letters and reports. Special thanks go out to: VK2BEX, VK2BCH, VK2DEJ, VK3DD, VK4CHB, VK4OH, VK5QW, VK5WO, VK9NS, DF5JL, PS7KM, VE8PW, and the following publications: QRZ DX, The DX Bulletin and the DX News Sheet.

*Good Dx and 73.*

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# Divisional Notes

## VK2 Notes

Tim Mills VK2ZTM

### AGM Held

The recalled 1991/92 AGM was held on June 28th with a 60 plus attendance. The business was soon dealt with and there was a period of discussion about the new proposed regulations. A quick Council meeting after the AGM appointed the following major office bearers. President:- Terry VK2UX; Vice Presidents:- Tim VK2ZTM and Roger VK2ZTB; Secretary:- Bob VK2YEL; Treasurer:- Bob VK2AOE. Other office bearers will be given in a later issue of these notes.

The meeting was also informed of two changes for VK2W1 — Dural. The first is that the morning broadcasts will move to the earlier time slot of 10 am from October 25th, and the second was the addition of a third tower on the property. After some years of planning, a self supporting four legged tower, 76 metres high, has been erected. Further details will appear in later notes.

Reg VK2AI fell ill as he was leaving the AGM and was taken to hospital. His condition worsened and he became a silent key on the 4th July. Reg will be missed from the Council, having spent his time working on the QSL Bureau administration as well as Affiliated Clubs Officer.

Other members of the new Council are:- Roger VK2ZIG, Bob VK2CAN, Julie VK2XBR, and John VK2XY who has been co-opted in place of Reg.

### Happenings

The Division will be holding an exam on August 30th. Closing August 13th. Contact the office — see page 3 for contact details. The broadcast on the RD weekend at 5.15 pm Saturday 15th August in place of Sunday morning. Next Trash and Treasure, September 26th.

### New Members

The following are recent new members joining the NSW Division. Our usual warm welcome is extended to them.

H. B. Austin	VK2NHA	Junce
M. Chemait	Assoc	Seven Hills
N. Cohen	VK2OP	North Bondi
C. C. Duhigg	VK2XXE	Mona Vale
J. E. Duruz	Assoc	Ourimbah
C. S. Ferguson	VK2ZR	Coogee
I. Fitz	Assoc	Liverpool
I. Fujima	VK2GRX	Epping
S. P. Gannon	VK2THT	Terry Hills
R. Gow	VK2NO	Taree
F. Horton	VK2MIL	Illawong
A. Karpati	Assoc	Marrickville
K. L. McDonald	VK2GSL	Grays Point
B. Millington	VK2GRI	Sally's Flat
J. Robinson	VK2XY	Hornsby Heights

A. Storal	Assoc	Wentworth Falls
H. T. Tolhurst	VK2GOS	Forster
K. Trankle	VK2GSN	Panania
D. A. Woodside	VK2TZ	Penshurst

### Member's Forum

The new council of the WIA NSW Division will be hosting a forum of members and non-members alike to establish the ideals and directions in which our Division should proceed. After all, you can't achieve your goal if you don't know what it is. This is the golden opportunity for the Institute knockers or haters to have a go at the "Faceless Men" while others can give Council the straight drum on what needs to be done. No "sacred cow" will avoid the microscope, even the QSL Bureau. Everything is up for review and analysis as the NSW Division prepares to kick off the dust and leap ahead to the next century.

You, as an individual, will determine our success or failure. There is no point in telling yourself that you are only one person and don't count or won't be heard. Your ideas are our turning point. Without them, your Council can only believe that you don't give a damn about amateur radio or your Institute and they may as well chuck it in to go home for a beer.

Most people are feeling the bite of the "recession we had to have" and for them, cash is tight. Your Division is in the position of having a good hard look at our operation with a businessman's eye aiming for income from a wide base in order to provide our members with goods and services either cheaply or for nothing in exchange for their membership fees, which means that the NSW Division should become self-funding rather than rely heavily on the \$15 per member per year which is our part of a years' fees.

How will our aims be determined and achieved? This is where you come in. You can tell us what you want from your Institute and assist us to achieve it. There are only nine people on your Council. They need your input and assistance on the numerous committees and working parties which keep the show afloat. Your broadcasts, exams, trash and treasure sales, book shop, education, DoTC representation, seminars, QSL Bureau, Federal Council input, repeaters, bulletin boards and the host of other services provided by your Division are all going into the pot. What happens after that is up to you.

If you can attend, get to Amateur Radio House, 109 Wigram St, Parramatta by 12 Noon on Saturday 29th August. The forum will probably continue through the following day so if you come from the country, put the word on your amateur mate for overnight accommodation. If you are a country person who can't

make it but want your ideas to count, send them to PO Box 1066, Parramatta, marked "Forum Co-ordinator". The NSW Division needs your input; don't leave it to someone else because "they" never do it.

Julie Kentwell VK2XBR

## VK3 Notes

Barry Wilton VK3XY.

### Antenna Masts

An updated edition of the WIA Victoria "Antenna Masts Guide" is nearing completion and will be available within the next few weeks.

This package is designed to help those Amateurs in their application to local councils and shires for a planning or building permit, which may be required to erect a mast or tower on their property.

The guide will be available at no cost to members or for \$7.50 to non members. A large S.A.S.E. is required.

### Sherbrooke Shire

It appears that the shire administrators have a very short memory and have forgotten the help of the Amateur Radio fraternity and WICEN provided during the fires on "Ash Wednesday" and the subsequent long clean-up process.

Sherbrooke Shire is now seeking to amend the shire planning regulations to make radio masts a totally PROHIBITED USE.

The Victorian Division Council has lodged a formal objection to the amendment, and requested that it be given the opportunity to be represented at a panel hearing. We will keep you informed.

### TVI Filter Kits

The Division has filters for the combating of TVI available for loan to members, however it DOES NOT have cavity filters for pager interference available, as stated in an article which appeared in AR last month.

### Misuse of Repeaters

The abuse of several repeaters is continuing, and pressure for assistance from the DoTC has been increased. Council is well aware of the frustration and anger of those members affected, however the hobby has now entered the age of "self regulation" and it would appear that all Amateurs must collectively assume responsibility for the bad behaviour of a small minority!

### Slow Morse Broadcasts

The slow morse practice which was being transmitted continually on 144.950 MHz is continuing as usual. However, the frequency has been changed to 144.975 MHz to avoid a satellite link frequency.

## 5/8 Wave

Jenny Warrington VK5ANW

### Scout radio activities

The first edition of a newsletter called "VK5 Scout Radio Activities News" "passed across my desk" as they say in the classics courtesy

of Peter Koen, Project Commissioner Radio Activities in SA, and I would like to share some of the items with you.

In June 91 Jenny Housden was appointed as the Girl Guide Radio Activities Consultant. I understand that Jenny, like Peter, is working towards getting an amateur licence and in the meantime Jenny has contacted ALARA with a view to having YLs help at JOTA and other times. If you would like to help with either the Scouts or Guides please contact either Peter or me. (Peter's phone number is in most copies of the Journal).

For the past two years VK5 has been included in the JOTA-AUSSAT link thanks to people like Graham Gosewinckel, the Managing Director of AUSSAT, Neil Fallshaw, VK2ZNF, Mike Dower, VK2ENG and Lawrence Abney VK2ZLA at AUSSAT, Belrose, Sydney. It is hoped that this great support will continue this year now that AUSSAT is part of the OPTUS organisation. It is hoped that this year country stations will be allocated special times when they will get preference.

The SA Branch of the Scout Association has developed a forward plan to take Scouting "Beyond 2000" and yes, radio activities are definitely part of the plan! Those who attended a meeting to support the plan included Don McDonald VK5ADD, Activity Leader Radio Activities, Bob Dodd, VK5ADR, Assistant Cub Scout Leader, 2nd Adelaide and leader of VK5BPA 2nd Adelaide Scout Amateur Radio Club, Derek Reuther VK5AGZ, who looks after the JOTA-AUSSAT Interface and Ashley Kitto, VK5YAK, Venturer, Happy Valley. The future of Scout Radio Activities certainly seems to be in good hands.

Finally, one Scouting Activity which has been receiving lots of Media coverage here in SA has been the visit by 24 children and four Interpreters from Chernobyl, from 20th June to 18th July. They are being hosted by the Flagstaff Hill, Mount Lofty and Ridgehaven groups here in SA (Other states also hosted children). The host groups and visitors were all in camp at Woodhouse, in the Adelaide Hills, from the 5th to 12th of July (school holidays) and it was hoped that they would be able to talk to others interstate, or perhaps back home to Russia, via VK5BP.

My grateful thanks to Peter Koen for the above information and also for the encouragement and constructive criticism he has always given me. He isn't alone, of course. Over the years I have received many letters and phone calls, with bits of information, putting me right when I was wrong, telling me when they didn't agree with my point of view, or congratulating me when they did. I would like to thank all of them and hope that they will continue to support Rowland in the same way. When I came back from the 1982 Federal Convention I was very excited by the fact that every Division was to be given a free column in AR. I agreed to start the ball rolling but the

suggestion was that several members of Council would take turns to write it. Well, of course you know what happened! Even my "off the cuff" working title stuck and here I am ten years later. My one plea on Rowland's behalf would be that you feed him (information that is). It is very hard to find copy at times and I know that there are Clubs, groups and individuals doing all sorts of things that the rest of VK5 would be interested to read about.

Goodbye and thanks to you all.

#### Diary Dates

August 25 General meeting

#### VK6 Notes

Harry Atkinson VK6WZ

How to improve General Meetings? Divisional council recently discussed this perennial question. Majority seems to rush for the door as soon as they have picked up QSLs and heard the lecture ... sometimes leaving insufficient present for a quorum. Your ideas please. Some Divisions have ceased having monthly general meetings altogether — what would you like? Present system? Change to business agenda BEFORE lecture? If the latter, how about a "compressed" business session of, say, no more than 10 or 15 minutes to allow the lecture to begin early? Tell the Secretary or any Councillor your views.

Last month WA saw the departure of one of its well-liked amateur operators — Alan, VK6AR — now settling in at Geelong. Alan, retired from a varied career as ship's radio officer, DCA operator and finally air traffic controller, had a lifelong love of music and was an accomplished organist (theatre pipe and electronic) and pianist. Amateurs knew him as a kindly and patient practice Morse volunteer for the WIA service. We'll look forward to hearing you with a VK3 call, Alan!

#### QRM from VK7

F Moore VK7ZMF

Permission has now been approved for a test link between repeater 13 VK7RAF (147.250) on Mt Fawlkner in the south of the state and VK7RAB (438.550 MHz) on Mt Arthur in the north. The system consists of two Plessey commercial transceivers (UHF and VHF) back to back. Located at the QTH of VK7ZMF at Arthurs Lake Central Highlands with a four element yagi on 70 cms facing north and an eight element yagi on two metres facing south east. Due to foul weather the antennas are only rigged temporarily, but as soon as some of the snow and ice dissipates they will be moved to a more permanent site.

To access the link you will need a tone of 250.3 hertz. Novices beware that you do NOT have this tone enabled whilst using repeater 13 (147.250--147.850) as you will activate the link and thus be out of band.

Also this system will be replaced with a CTCSS unit after the regs are in. Thanks to Joe

VK7JG for all the work he has done on these units so far.

#### Channel 5A

Good news for the northwest. Channel 5A, a cause of much QRM on two meters will be closing down and being replaced by a UHF TV service in about 18 months.

#### TARGA TASMANIA

After the success of the inaugural Targa Tasmania motoring event, there will be an ongoing annual event. The southern branch participated with communications which was well appreciated by the organising body. Any branches interested in organising next years communication in your area contact your local WICEN rep or the divisional rep.

#### SPECIAL EVENT STATION

To commemorate the 350th year of discovery of Tasmania. Special Event call sign VI7AJT is issued and any VK7 that would like to have this callsign for the event contact the divisional secretary (VK7EB). The callsign is for the initials ABEL JANSEN TASMAN.

For people wishing to work this station there will be an update on times and frequencies in next months QRM.

#### RETIREMENT ETC.

The current divisional president and secretary would like to retire after years of serving the members of the VK7 division. So there is an urgent need for someone to fill their shoes. Think about it in the coming months. There is over six months till the next AGM, so there is plenty of time to think it over if you could do these very important chores and, if so, nominate. To find out what the jobs entail contact the president and/or the secretary. I'm sure they will explain what is required.

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## Stolen Equipment

Stolen from Chris Field VK2UP on 8 July 1992, one Yaesu FT211RH two metre FM transceiver, serial number 8M180306. Contact Chris (02) 820 2096 (evenings) or (02) 546 2606 (bus)

Stolen from K Brauer VK5AKN between 30 May and 12 June 1992, one TS120S HF transceiver with microphone, serial number 0070741, engraved with driver's licence number S160949. Contact Police at Renmark SA.

Stolen from Vincent O'Donnell VK2ZOD/VK3YOS on 12 June 1992, one DSE Commander two metre FM transceiver with microphone, rear panel engraved with "VK2ZOD" and NSW driver's licence number; microphone socket is a non-standard four pin configuration (early Kenwood).

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# Club Corner

## Twin Cities Radio and Electronic Club Inc

The inaugural Field Day for the Twin Cities Radio and Electronics Club Inc. will be held on Saturday 8th August 1992, from 1000 to 1630 hours, at the Murray High School, corner of Kaitlers Road and Kemp Street, North Albury. Cost \$4.00 per person, \$6.00 per family.

Demonstration, talks and activities include Amateur SSTV, packet, satellite activities, weather balloon activities, and fox hunts (radio type only).

Talk in to event will be VHF... VK3RNE 147.000 & 146.500 simplex, and UHF... VK3RNE 439.425 & VK2RAY 438.575.

Commercial/display/sales areas (Yaesu, Kenwood, ICOM, Stewarts, Nally's and others). Swap/used table area available. Hot and cold food, drinks available throughout the day.

Further information from the Club net...3.560 MHz, Thursdays 1000z, or from Greg Sargeant VK2EXA (060) 211741 (BH only).

## The Best (News) In The West

It's probably old news by now, but VK2RRT digipeater is up and running at last. There are still a couple of small problems with receiver desensing... the digi desenses the voice repeater, the voice repeater BLITZES the digi... but I guess we'll sort them out. At least the operation was a success and the patient is alive.

For the ill-informed, VK2RRT is located at Boona Mountain in Central NSW (find Condobolin, it's about 100km north from there) and is operated by AARG, which could be either a primal scream or the Albert Amateur Radio Group. Sometimes it's hard to tell! ROSE access is through VK2RAO-3, 636500. Whilst we are in lighter vein, I'm reliably informed that 'RRT stands for Radio "Rabbit Trap", which glorious appellation graces the pub at, of all places, Albert. Funny sense of humour, these Bushies!

Now to some people a new "digi" is a bit ho-hum, we are after all engaged in the serious matter of "protocol wars", but we should spare a thought for the blokes out West who did this thing. AARG covers an area of some 2000 square kilometres and has 8 members, most of whom had a negative income last year. The logistics of getting more than one person in the same place at the same time are unbelievably complex.

First we had a drought and sheep had to be fed, then we had rain and ground had to be

ploughed, then the cycle of shearing... first one bloke then the next, then we had a little more rain and crops had to be planted with a wish and a prayer, then the big day came! Five hardy souls responded to the call "it's on today!" and set forth from all the corners of the known world to climb Boona Mountain. After one small hiccup... we won't say who left the power cord at home... it was almost an anti-climax. Perhaps the power cord incident was a deliberate ploy to thwart Murphy, if so it has my personal recommendation, because everything worked first time!

So now we have a gateway to the West and who knows what may lie ahead. I hear there's a bloke in Cobarr interested. He can't quite access 'RRT' reliably, but if there were some high ground, some spare equipment and a few blokes to give him a hand...

Now for the credits. The following blokes deserve a medal:-

Norm VK2XCI for starting the whole show with his "Townie" ideas.

Peter VK2BXQ for doing the ground work. AAPRA for the Radio, TNC and support.

Trevor VK2XAQ for getting the radio on channel and on air.

All the blokes who put up with rude noises on the voice repeater.

Peter VK2BXQ (again) for assembling and debugging the system.

Noel VK2EMA, Kerry VK2GQR, Peter VK2BXQ, Robert VK2ERB and Norm VK2XCI who all braved Boona Mt to install and set it to work.

Now for the commercial. There's a bunch of blokes up north trying to get a voice repeater going. They could use some help with a set of cavities. Their club is even smaller than ours, 5 members, and covers almost TEN TIMES the area!... Think about it! If you can help, contact Ed VK4KAA @ VK4ABP, or phone Ed on 076-583062 at home or 076-581783 at work.

73 de The Voice Of The Edge Of The Out-back.

ar

## Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words.*

The WIA regrets to announce the recent passing of:

D	O'Dea	L20740
RL (Reg)	Brook	VK2AI
AK (Keith)	Ballantyne	VK3AKB
GW	Wiley	VK4AGW
G (Gwen)	Petrich	VK4AZC
WHC (Bill)	Hablutzel	VK4ZWH

## Mervyn Wordsworth Busch VK3LL

Mervyn passed away after a short illness on 14th April, 1992 at his home in Bairnsdale, aged 64.

Merv spent his early years on a farm where his introduction to radio came in the early 30's when he put together dozens of salvaged zinc and carbon electrodes to make a HT supply for the family radio receiver. He attended Bairnsdale Technical School and went on to automotive engineering, specialising in diesel engines. He was member of the Society of Automotive Engineers and the Society of Diesel Engineers.

Merv gained his amateur radio licence in 1965, was a WIA member and an RSGB member, holding the call G4DRP.

Much of Merv's working life revolved around oil exploration, being Chief Engineer in the Gippsland Region in the 1960's. He subsequently worked in the USA, Canada, Holland and UK where he was Maintenance Supervisor on the North Sea platforms before returning to Australia and the Bass Strait platforms.

Merv was active on the HF bands, but his most remembered radio activity was during the 1965 Victorian bushfires when his Bairnsdale home became a WICEN base for police, ambulance, CFA and other emergency services 24 hours per day for more than a week.

Merv was a licensed light aircraft pilot.

He is survived by his wife Val, son Kaj and daughter Karen.

Bob Neal VK3ZAN

## Gwendolne Hilda Petrich VK4AZC

It is with deep regret and sadness that I advise the passing of Gwen Petrich (nee Hanson) VK4AZC, on 28th May 1992. Gwen served in the WAAAF from 1942 to 1945 as a telegraphist, and in 1946 married Ron VK2CZ (now VK4ACZ), who was an RAAF Wireless Operator.

An excellent CW operator, Gwen obtained her Novice Licence in 1978, and the full licence in 1980, and was a member of the Cairns Radio and Electronics Club, and assisted licence classes with morse instruction.

She had a wide range of interests which included gardening on their property at Julatten near Mt Molloy, and wine making for which she won prizes at the Cairns show.

Gwen is survived by her husband Ron, son Jim and daughters Lesley and Jenny. Her warm and cheerful personality is greatly missed by family and friends.

*Ted Gabriel VK4YG*

### **Dave Richards VK4UG**

Dave Richards, VK4UG passed away on Monday, June 22nd in Redcliffe Qld, aged 82, a well known operator since 1969, after being prompted by VK4UA and VK4UC to find a rewarding hobby upon retirement from the Queensland Police Force and settling into Redcliffe with his wife Beryl.

In 1969 Dave became secretary of the new Redcliffe Radio Club, a post he held for over 12 years, seeing the Club grow from a mere 10 members to a healthy 109 members.

From the early seventies until the mid-eighties, Dave was Membership Secretary of the VK4-Division, a function he held with distinction.

In the mid-eighties he decided to retire from his retirement activities including Meals on Wheels, the Endeavour Foundation and other local charities, because of ill-health.

Dave, an active CW-er on most bands, was made a Life Member of the Redcliffe Radio Club in 1985.

All who knew him will remember the Gentleman among gentlemen, Dave Richards, VK4UG. May you rest in Peace.

*John Aarsse, VK4QA.*

ar

**Sign up a  
new WIA  
member  
today — use  
the form on  
the reverse  
side of the  
AR address  
flysheet.**

## **ALARA**

*Robyn Gladwin VK3ENX Box 438 Chelsea 3196*

This month sees my first report as the new Publicity Officer. I am hoping to be able to bring news from around Australia and would welcome additional material and feedback from readers.



**Jean Forbes-Smith VK2NFS.**

I would like to introduce two new members. Jean Forbes-Smith VK2NFS served as a telegraphist in the Women's Auxiliary Australian Air Force. She and her husband, Gordon, were involved for many years with training in radio procedure and safety, particularly relating to sailing dinghies and cruising yachts off shore. Her other interests include lawn bowls and voluntary work with the Royal North Shore Hospital Boutique. She also acts as a guide for the Museum in the Rocks, Sydney.

Jean's daughter, Barbara O'Connor, is presently living with her husband, Brian V8SEB, and two young daughters, in Brunei, a small sultanate on the north western coast of Borneo. She is studying for her radio licence by correspondence and we wish her every success. Jean, and Barbara's brother, Kingsley, VK2KFS, maintain regular contact with their overseas family members.

Two of our members have recently received awards for their involvement in amateur radio and we congratulate them on these achievements. Gwen Tilson, VK3DYL, has made the DXCC Honour Roll, a very creditable effort. Judy Atkins, VK3NYL, has been awarded the William G. Clarke Memorial Trophy by the Midland

Radio Club for outstanding service as Co-ordinator of Club Awards for 1991.

Congratulations also go to Ronnee, VK4KVM, for contacting the Space Shuttle "Atlantis" (SAREX Mission STS 45).



**Barbara O'Connor**

She had a short QSO with Cathy, N5YYV, calling CQ with the Shuttle call N5WQC.

Our VK4 State Representative, Margaret Schwerin, VK4AOE, has arranged a regular sked time with VK4 YLs as a way of reducing the size of Queensland — radio-wise, that is. She or Pat, VK4PT, can be found on 3580 kHz Fridays at 0930 z.

I will sign with an item from the June Bulletin of New Zealand WARO.

### **"The use of '33"**

"33" the signature used between YLs is often misused and its origin tends to get lost. YLRL was organised in the US in 1939, and it was at this time that women amateur radio operators seemed to find their niche. "YL" was adopted as a general term denoting any female licensed amateur operator, regardless of age or marital status.

"33" was originated that same year by Clara Reger W2RUF and it was adopted by YLRL for exclusive YL use. It means "Love sealed with friendship between one YL and another YL."

We are reminded that, with this background and meaning, it is understandable that "33" is not only exclusive to YLs but is never used in the plural. We sign "33"

ar

# Over To You

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

## Help Wanted

I am writing to you with a suggestion for an article in a future edition of the magazine. I recently had to give my KENPRO-600RC a refit and re-grease. It is really quite an exercise to remove it from the tower and the pipe holding the antennas, when you're nearly 70, that is!! In replacing the rotor housing I moved the POT DIVIDER Gear which is attached to the Potentiometer that sends the signal down to the Controller unit. This was on the bench and it took me ages to get it where I thought it should be. But, alas, when it went up it was out by at least 20 degrees. It's still up there until I can find out properly how to adjust it. In short, an article on the repair and adjustment of rotators would I am sure be received well by us "Apprentice repairers".

For sure there are good articles of much interest in the magazine, but please remember all the new chums who are just learning and try and get technical articles on their, and may I say even my, level. (I am a retired electrical contractor, not so hot on the electronics). On the whole I find the magazine quite interesting and read it from front to back. I say thank you to all the volunteers who make this possible.

Harold Moss VK2CHM  
13 Cedar Cres  
Ballina NSW 2478

## Thanks for the Response

I take this opportunity to thank the VK operators who responded to my letter regarding QSL cards from SWLs, which appeared in the April edition of "Amateur Radio". There were so many of you that I would be out of pocket if I were to write to you individually.

But I would like to say to the operator who did not identify him/herself, who, from the postmark, resides in VK5, that not all SWL are too lazy to pass the exam to become a full operator. Perhaps that SWL has a speech or other problem.

I have already recommended sending QSL cards to VK-land. Let's hope we have more success from now on.

Roy Bessant  
43 Oldfields Drive  
Vicars Cross, Chester, England CH3.5LN.

## Name Change Again

With regard to Roger Harrison's letter — AR July:-

Good on you Roger. Terrific idea. Amateur Radio Institute of Australia" - concise, to the point, and conveys what we are about.

In fact, "wireless" has come to mean something rather different from what it did in 1910, and is increasingly used as an adjective to describe a computer network which works without wires or cables eg "the wireless office"; where infra red, optical or microwave is used as the information carrier. Mind you, we may some day have to change it back to "Wireless" again if amateur radio does become nothing more than a computer network.

Drew Diamond VK3XU  
"Nar McLan"  
Lot 2 Gatters Rd  
Wonga Park VIC 3115

## The Future of the WIA and Amateur Radio.

Points to ponder.

1. As the WIA is the official negotiator with the DoTC it would seem a natural evolution for the WIA to take over control of the issuing of amateur licences. This could be incorporated in conjunction with a mandatory entry fee into the WIA.

Not only would it be possible to reduce membership fees significantly if all licensed amateurs were financial members but, collecting the licence fees for the Government, the WIA could negotiate a system similar to Australia Post agencies by which they would receive \$x for y licences issued.

The argument for this suggestion is that all licence holders should be members of a parent body, ie, the WIA. The added income would let the WIA employ more staff instead of relying on the same band of volunteers year after year. This would also make the staff more answerable to the requirements of their positions and stop a lot of rumbling from those who, although unwilling to volunteer any assistance themselves, have always freely criticised various executives who have donated their time and efforts.

These suggestions may raise a furore with many among the majority of non-members who still enjoy the benefits at no cost. I feel sure that if such a scheme were implemented, membership fees could be so drastically reduced that no amateur

could justify avoiding the small cost involved.

2. Switching responsibility for amateur examinations from the DoTC to the amateur fraternity itself has appeared to create more problems than it solved. The government controlled IAFE colleges are continually expanding their adult education, hobbies and pastimes courses. Why not use these establishments to conduct amateur radio examinations?

I feel that these suggestions would not be too difficult to implement and would certainly remove many problems that are becoming more vexatious as time goes by.

Ted Ross VK4TR  
PO Box 870

Maryborough QLD 4650

(I cannot agree with the first sentence of point 2 in Ted's letter. Have you evidence, Ted? Do you mean Devolvement Verston 1 or the current arrangements? Ed.)

## Contest Control

An interesting snippet of information appeared in the IARU Region I Contests Newsletter recently received here in VK land.

Under the heading of "Restriction on the number of Region I Contests", the following was reported:

"During 1991 there had been 105 contests, 15 of which DOMINATED spectrum use. Of these 15, only two had been European contests, DARC WAE and Radiosport. Many of the large world-wide contests were organised by PRIVATE organisations, and were OUTSIDE the control of the IARU."

So for all you contest haters, there is very little your national society may do to limit contest operations when it is in the hands of PRIVATE organisations.

Neil Penfold VK6NE  
2 Moss Court  
Kingsley WA 6026

## WICEN Again

There has been considerable controversy of late regarding the resurgence of WICEN in NSW. Following the enactment of the NSW State Rescue and Emergency Services Act in 1990, the entire emergency services scene has gone through an enormous change. One of the major results has been the realisation that organisations such as CREST and WICEN do have significant roles to play.

The role that WICEN now plays in NSW is probably unique within this Australia-wide organisation. WICEN is very actively involved at the "front line" in a number of situations. In others, WICEN is equally involved in behind the scenes activities.

One thing I have noticed is that the great majority of "WICEN knockers" seem to come from the age group best described as "senior" in years. Virtually all the severe critics of the WICEN uniform are definitely senior in years. In fact, there is a marked generation gap be-

tween the average WICEN member (about forty years old) and these critics, something I found interesting.

WICEN in NSW is very healthy indeed and is growing at an extraordinary rate, from 70 members at the start of 1990 to the current level of 270. Unlike Victoria, NSW WICEN has a joining fee of \$5 and an annual membership of \$10, which makes a membership of 270 quite significant.

Mr Ellis in his recent letter of criticism has himself generated considerable reaction within NSW. Before his retirement to Forster, Stan lived in the Sydney Eastern Suburbs and was an active member of the Waverley ARC. I recently travelled to Sydney to address that club (at their invitation) and found the members were very keen to distance themselves from the comments of their former member.

Whilst Mr Ellis is not alone in his attitude, he is only part of a small minority, but because minorities seem to receive considerable publicity these days, I have felt it necessary to reply to his recent letter. My reply is very lengthy compared to the usual requirements, but I feel it may be suitable for publication as a feature article.

**Philip Greentree VK2IW**  
State Co-ordinator WICEN (NSW) Inc.  
51 Jones Bay  
Warners Bay NSW 2282

### And WICEN Again

Immediate protests from proponents and office bearers of WICEN at my previous letter were to be expected, as was the trotting out of WICEN exhortations and clichés, including the offensive categorisation of the majority of amateurs as "stubbies and thongs" operators.

My concern is not with organisations but with the rights of individual amateurs. An amateur licence entitles the holder to participate in emergency communications if necessary. Relevant authorities to approve this are the police or rescue organisations, who may seek amateur assistance, and who may employ amateurs as required. Or does WICEN deny that they have this right?

If amateurs are not already professional communicators, WICEN training alone will not make them so. Professionalism is not so easily acquired. While training assists those involved with emergency communications, it should be directly with rescue organisations who are crying out for assistance with their own communications systems, rather than with WICEN. Amateurs may have a moral obligation to assist in emergencies, but certainly not to join WICEN.

WICEN may appeal to those who prefer regimentation, but, in emergencies, where self reliance and resourcefulness count, it is the independent amateur who will prevail.

**S V Ellis VK2DDL**  
82 Taree Street  
Tuncurry NSW 2428

### What's In a Name

Quite a lot really. A name can give an indication of an historical or family relationship eg Johnson, son of John. It may indicate how a company grew, its roots and so on.

One thing a company must do is successfully tell others who and what it is and does. Unfortunately this is where the name "Wireless Institute of Australia" fails to convey any message.

It's fine for you and me, as we already know about the WIA. But suppose you are a Divisional PR officer or President calling a local media outlet seeking free publicity for a "big event". You introduce yourself, and advise your position in the Wireless Institute of Australia, X division.

The next thing you have to explain is that the WIA is the national society of Radio Amateurs, Ham radio if you like. Been in that position yourself? You're on the back foot already. Our name fails to communicate who we are, what we do and who we represent.

In December 1989, a meeting of senior administrative representatives from VK2, 3 and 4 met in AR House in Parramatta. On the agenda was a review of the name of the Institute. The representative from VK4 recommended a new name, viz "THE AUSTRALIAN INSTITUTE OF RADIO AMATEURS".

It tells people what we do, and for whom. It tells them we are Australia-wide, and that we are an "Institute", an august body of learning to be taken seriously, not a loosely bound association.

I note with interest that my learned friend and fellow radical Roger Harrison has also raised this issue. So what do you think? Federal Council is currently reviewing the structure and Articles of the Institute, and so now may be a good time to review our name as well. Even the ARRL is planning a name change, all because their name doesn't convey any message to outsiders. Let your Council know your thoughts.

**David Jones VK4OF**  
18 Browning Court  
Strathplne, 4500

### Sunday CW nets

It is with interest I read Gordon's note, regarding the Sunday CW nets, inserted on page 33 of July AR.

Because we will have achieved net number 1000, a celebration BYO BBQ/picnic eyeball is planned for Saturday 26th September at QTHR VK3BKU, 12 Norris Road Rowville. Eric Cleburne, VK2BII, anchor man for the net for many years, plans to be in Melbourne on this date. We hope CW net operators will take this opportunity to meet the men and women behind the keys.

The Sunday CW nets are on 7.025 MHz from 10 am to midday EST. New callsigns are always welcome.

**Don Ockley VK3BKU**  
12 Norris Road  
Rowville 3178

### Station Operation on Kangaroo Island

I wish to advise that my friend, Paul Richards VK3AJJ, and I will be travelling to Kangaroo Island in late September. We currently propose to operate 2 amateur stations from the Island between Saturday 19th and Saturday 26th September 1992. We will be operating on all bands below 30 MHz and will also ensure that Novice allocations are suitably covered.

Unfortunately DoTC have denied our request for issuance of a special callsign therefore we will be using our own calls and the suffix "/portable Kangaroo Island". We have spoken to many people on air who are anxious to add the Kangaroo Island IOTA to their collection. However, to stimulate further interest it would be appreciated if you would include details of our excursion in your magazine.

**Norman Hall VK3PGR**  
1/9 Carlyon Street  
Ormond 3204

### Commemoration of Marconi

As we are all aware, the WIA has recently marked two significant milestones in its history, the 75th and 80th anniversaries of the founding of the original organisation from which it sprang.

But it seems that this year marks the approximate centenary of radio work from Sr G Marconi at his parent's home near Bologna. In about nine years we will be faced with the centenary of the epoch-making transatlantic tests, on 12 December 1901.

Even before that, 2 June 1996, the centenary of Marconi's first British patent application, is fast approaching.

At about the same time, we should mark the centenary in 1996 or 1997 of what seems to be the first controlled radio transmission in Australia, that of G W Selby and W Bragge.

The centenary of Marconi's first spark transmission passed a few years ago without comment. Let's not forget Marconi, our real founder.

**K G England VK1KGE**  
2 Shann Place Chifley 2606

### Offensive QSL cards

I was truly disappointed to find, in the July issue of Amateur Radio, the image of a QSL card containing swastikas — symbols of the Nazis and reminders of a very dark time in human history.

The inclusion of such symbols with no reference (in the accompanying article) to the horrors committed by many of those who wore them during that dark time is — in my opinion — unbalanced and distasteful.

I call upon the new Editor to develop a policy to ensure that future issues of Amateur Radio will not contain such material.

If — to preclude suspicion of "censorship" — such material must sometimes be includ-

ed, than let a more balanced telling of the history appear with it.

Surely there are many other QSL cards in the WIA collection which are more deserving of our attention than the one chosen for the July issue.

**Charles Waite VK5CQ**  
GPO Box 222 Adelaide 5001.

*(I think you have read much more into the article than was intended, Charles, particularly since the Nazi atrocities were years into the future from the date of the QSL. Ed)*

### Co-operation needed

I for one, urge that Barossa Amateur Radio Club to change the date -OR, if necessary, BOTH the date AND the venue — of its 1993 Radio picnic, which was (inadvertently) scheduled on a date now known to conflict with that of the 1993 Walk Against Want.

It would be most unfortunate if even one radio amateur were (again) forced to choose between these two worthy events, when time clearly permits setting a more creative "win-win" solution into place here.

Consider:

1. BARC has the skills to negotiate itself out of any commitment made to the owner(s) of last year's venue, especially at this early date, AND
2. South Australia has a number of other, very suitable venues which are still available for use on another day at about the same time of year.

Just as a good operator will QSY when s/he discovers a QSO in progress on the frequency s/he wishes to operate, a good event scheduler will do what needs to be done to foster or enhance peace in our larger Amateur Community.

A well-known work of art depicts two friends walking along in the snow — each on his own side of the narrow path between them ... and I am convinced that more is gained than is given up by showing consideration for the other party.

**Charles Waite VK5CQ**  
GPO Box 222 Adelaide 5001.

### O-V-2's

In June "AR", in the "QSL's" from the WIA Collection, VK3TL mentioned the regenerative detector receiver and it reminded me of an experience I had. At the end of 1938, I got my Commercial Operator's Certificate and got a job as a radio operator on a trawler operating out of Sydney. In those days, Sydney had two operators of large trawlers (ex North Sea) that carried Radio Operators, Red Funnel and Cams. I was RO on the Olive Cam and in those days there was no handover-takeover and one went into the job cold. Looking back, I presume that the Company felt that if you were a radio operator, like a bricklayer, familiarisation was not required.

The radio was in the bowels of the ship in

the very small Captain's cabin. On the operating desk, I found two morse keys, side by side. This, of course, intrigued me and when we got to sea, I traced out the wiring and found that one key went to the receiver. The receiver being of O-V-2 design (regenerative detector plus two audio) I concluded that this was for ship to ship communication when in close proximity.

One day I saw another trawler on the horizon, presumably a Cam, as I knew there was another one at sea. I called it on the receiver morse key and to my great surprise, he came straight back on his main transmitter with a S9++ signal, of course. That is the only time that I have conducted a QSO on a receiver.

The wavelength used was 195 metres — always metres in those days. The trawlers went to sea for ten to 14 days depending on the catch and went as far south as eastern Tasmania and to the west coast of ZL.

Flathead was the sought after fish and we radioed back to Sydney Radio VIS twice a day, indicating the catch and the total quantity on board.

All messages were in the Company code to keep it from the other Company. The catch was quoted in "baskets of flathead" and "baskets of other". It is interesting to note that these days, flathead seems to have fallen from favour as number one in the fish market. There was no refrigeration as we know it today; we carried crushed ice. The caught fish were placed in sections of the hold and covered with layers of ice.

The transmitter was a T-250 valve; quite a large one approximately 12 inches (30 cm) high with a 6 inch (15 cm) diameter in a Hartley circuit.

I wonder where the "Olive Cam" finished up?

**R. N. Torrington VK3TJ**  
4 Thistle St  
Pascoe Vale South VIC 3044

### Is Morse Necessary Any More?

I'm a morse man from way back. I learnt it as schoolboy and on joining the RAF I spent my life taking it on a typewriter. Typing has proved far more valuable to me than morse but morse has given me a window on the world which otherwise I would never have had.

But to the nub of the matter. Is morse necessary any more? In my opinion "No!" The key word is "necessary". Yes, once it was necessary. In the earliest days of radio morse was by far the most common method of communication and without it a ham simply couldn't have communicated.

But today it can be visually decoded with PCs and, for fun, I hope some ham somewhere is working out a method of getting a voice output as well. And why not? There are numerous other methods of signalling and I hope it won't be long before hams are faxing each other as readily as they CQ now.

But to make morse today a statutory requirement for a ham licence is nonsense and akin to the man with the red flag walking in front of a car in the primordial days of motoring.

So the necessity for morse has passed and to insist upon hams knowing it is pointless. But that doesn't mean that morse will fade away. I venture to suggest that the opposite will be the case.

Future hams will realise that morse is marvellous and if they want to do it manually they will make every effort to learn it. But a manual competence is no longer necessary because there is no difference between using a PC to decode morse or using a PC keyboard to send it. And that's where the future lies.

**Bob Hawksley VK2GRY**  
21 Wallumatta Rd  
Newport NSW 2106

### Visitor to VK

I am planning to visit your country AUSTRALIA this August for one year. I will get Working Holiday VISA soon. My plan is: First 10 weeks of my trip, I will go to Insearch Language Centre in Sydney, and study English there. Next about 6 months, I hope to travel and work wherever possible. Last 3 months, I will drive around AUSTRALIA. Especially I am interested in New South Wales (Premier State) and Victoria. Sydney Harbour, Observatory, Chinatown, Manly, Blue Mountains, Wollongong, Snowy Mountains, Port Macquarie, Phillip Island, Puffing billy, Great Ocean Road, Victorian Alps, etc will make me happy.

Also I will visit other amateur radio stations in VK-land. And I would like to meet VK hams who have a great interest in JAPAN. Of course I will get a reciprocal licence. I want to carry my radios to VK-land, but radios are too heavy for me. I can not carry my radios. So I hope to operate from VK stations for a few hours at a time.

Your Japanese Friend

**Yoshiaki Goto JH50WN**  
3-6-36 Shouenjl  
Matsuyama-City  
Ehime 790  
Japan  
ar

**Don't buy  
stolen  
equipment —  
check the  
serial number  
against the  
WIA stolen  
equipment  
register first.**

# Repeater Link

Will McGhie 21 Waterloo Cr Lesmurdie 6076 — VK6UU @ VK6BBS

## Deregulation

After all the effort and all the waiting it looks like deregulation has arrived. Repeater development can go in what ever direction imagination takes it, unhindered by narrow rules and regulations. To all those who worked long and hard on seeing the changes to this point, well done. Not only Amateurs, but courageous changes of attitude by DOTC have bought about deregulation to Amateur Radio, and in particular, the Repeater scene.

To be specific, what has changed? The big change is to remove all the restrictions. Now if you have a new way of doing it in repeater development you can. Well almost. There are a few requirements but they are few, and make sense. The requirements as I read them are....

1. Maximum repeater or link transmitter power 120 watts.
2. Transmitter time out 10 minutes maximum.
3. Termination of transmission in the event of interference.

These 3 abbreviated statements are in simple language the only technical requirements. There is in effect no change from previous regulations, but that is it. This is what has been removed.

1. Maximum number of repeaters to be linked 3.
2. Amateurs linked only onto bands for which they are licensed.
3. No Off Air linking.
4. Repeater and link identification.
5. No connection to the switched public telephone network.
6. CTCSS encoding and decoding on links.
7. And a basic philosophy of if in doubt say no.

This removal of all these regulations now gives Amateurs the opportunity to do what Amateur Radio is about, experimenting. The wide scope now available takes some time to comprehend. Can we really have the phone connected to our local repeater if we so de-

side? At the time of reading the new draft regs, and talking to other Amateurs, the answer is yes.

Is it also true to understand that Amateurs can now be cross linked onto bands for which they are unlicensed? The answer appears to be yes. One statement in the new regs however hints that this may not be true. I quote in part "Traffic within the network is traffic of the network, not the stations accessing the network". What this is saying, apart from the obvious, escapes me, but it may be a way of saying any grade of licence can be placed on a link, but Amateurs can only be re-transmitted onto bands for which they are licensed. It is a big step from the traffic within statement but why state the obvious?

The other possibility is that by defining the traffic within the network, it is simply a way of separating the identification requirements between the repeater network and the users. For me a clearer explanation is required.

Once these draft regulations become the new repeater regs, all repeater builders and managers can look forward to red tape free development.

ar

# A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCF and LAOCF Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor  
WIA  
PO Box 1066  
Parramatta NSW 2124  
(109 Wigram Street, Parramatta)  
Phone: (02) 689 2417

11 am to 2pm Monday to Friday  
7 to 9pm Wednesday

# Morseword No 65

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

### Across:

- 1 Pies
- 2 Everyone
- 3 Took to Court
- 4 Cows chew it
- 5 Quickly
- 6 Drags behind
- 7 Marceau is one
- 8 Holy Person
- 9 Trough
- 10 Competes

### Down:

- 1 Conditions
- 2 Impolite
- 3 Titles
- 4 Erode
- 5 Droplet
- 6 Not against
- 7 Rips
- 8 Military Car
- 9 Cover up
- 10 Upper House

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**Prevent pirates  
— make sure  
you sell your  
transmitter to a  
licensed  
amateur.**

# HAMADS

## TRADE ADS

● **WEATHER FAX** programs for IBM XT/ATs \*\*\* "RADFAX2" \$35, is a high resolution shortwave weatherfax, morse & RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio & RADFAX decoder. \*\*\* "SATFAX" \$45, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz receiver. \*\*\* "MAXISAT" \$75 is similar to SATFAX but needs 2 Mb of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 35" disks (state which) + documentation add \$3 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

● **AMIDON FERROMAGNETIC CORES:** For LF/HF/VHF/UHF applications. Send DL size SASE for data/price to RJ & US Imports, Box 431, Kiama NSW 2533 (no enquiries at office, please ... 14 Boanyo Ave, Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Electronic Components, ACT; Truscott Electronics, Melbourne.

## FOR SALE ACT

● **YAESU FT780R** all mode 70 cm xcvr, microphone, mobile mount, manual and circuit diagram \$450. Also ICOM IC-02 2W handheld \$220 (plus postage) Ota VK1BN QTHR (06) 295 7535.

● **SHACK CLEARANCE** Yaesu Transceiver FT901D S/no 9L100218 with Hi power Low Pass Filter, Viewstar PT1000, microphone, Clipsal morse key, handbook, Micronta F/S-SWR meter type 21 525B All exc cond \$850. DSE transistor dip meter type DM4061 with coils book \$85. DSE digital capacitance meter Q1222 with leads, book \$85. DSE laboratory oscilloscope Q1280, no book \$125. Micronta transistor tester type 22-024 leads, book \$40. Kaise ohm meter type 5000J 0-25 ohms and 0-5 ohms leads, \$35. Digital inductive tach/dwell engine analyser multimeter Yu Fong YF 1020S, leads, book \$35. National BN 500 UBE battery operated insulation resistance tester rating 500 V 100 Megohm, book \$35. Avometer type 7 universal, no book \$50. Coaxial switches good quality SA450 two position two for \$75. Technics stereo cassette deck RS B10, handbook \$75. Technics stereo cassette deck M216, no book \$75. Vertical antenna all bands Scalar type SC22 DX - MK2, handbook, mounting bracket \$100. Vertical antenna 21/28 MHz with loading coil and mounting bracket, no book \$50. Vicom SWR RF power meter type VC 2 with calib, book \$25. Realistic MPA 50 Mono amplifier 5 inputs master control, no book \$50. Transformer-heavy duty 240 V/100V 5 A \$50. TEKTRONIC oscilloscope RM 561A, no plug-in units, needs TLC \$100. Telex 6120M open reel to multi cassette console, Telex 612C rewind module master plus 3 cassette copiers, Telex 300 reel to cassette unit, not working, no handbooks \$150. Offers considered Frank VK1XE Call BH or Weekends (06) 295 0815 QTHR.

## FOR SALE NSW

● **KENWOOD R1000** comm receiver 0 - 30 MHz good cond. \$500 ONO. VK2AZT Phone (069) 42 1392.

● **KENWOOD TS93X S** No 4110404 exc cond with MC60 microphone \$1500 plus freight. Yaesu FRG7 comms receiver as new \$140 plus freight. Lawrie, VK2FIF, QTHR (066) 28 0418.

● **PALOMAR TX200** HF linear amplifier 12 V \$250. Yaesu FT301D HF xcvr. Yaesu FV-301 ext VFO. Yaesu FP301D 20 amp P/S. Yaesu Y0301 monitor scope, handbooks \$1350. Two Hanimex HTV 12/240 V portable B/W television as new \$75 each. Yaesu FT101E xcvr mic h/book no mods G C spare set tubes \$600. Yaesu FT209RH 2 m hand held xcvr PA-3 car adaptor MH-12 speaker mic never used hand book \$450. Hi-mound key mod E6MK701 new \$80. VK2DBI QTHR (063) 67 5095.

● **FREE** standing commercial 60 ft tower with Hazer platform, extra components included to extend to 80 ft. Excellent condition \$1000 ONO. Contact VK2EGC Errol (066) 72 3237.

● **DRAKE** station T4XC R-4C MS-4 Pwr sply includes xcvr functions VG cond. Manuals, desk mic, spares \$475 ONO. Max VK2GE (065) 85 5732

● **PHILIPS** office dictation outfit. Ideal for contest logging \$75. Telequipment D43 (valves) scope \$110. KW2000A xcvr + PSU spare valves, switch fault, offers. Toshiba T-100 RAM packs \$10 each Phone (067) 75 2158 QTHR VK2WS.

● **YAESU FT101ZD** and Kenwood TS530S \$600 each ONO. Yaesu Digital VFO and Kenwood ATU available \$150 each ONO. Trio HF valve transceiver needs general clean up \$200. Computer suit Packet \$500. VK2DTT QTHR (066) 46 6173

● **KENWOOD 930S** VGC \$1700. MC85 mic \$100. H phones ext spkr. Amstrad laptop computer 640K 3 1/2 FDD \$500. (02) 427 4321 Col VK2JCO QTHR Tx lic'd amateur only.

## FOR SALE VIC

● **YAESU FT-470** Dual band 2 m/70 cm hand held FM transceiver. Accessories, all Yaesu, include: YHA-28 antenna; CA-2 desk stand; MH-12-A2B speaker/microphone; FNB-14 ni-cad battery pack; FNB-11 ni-cad battery pack; PA-6 car adaptor. All as new. Programmed but never used. Dec estate VK3ZSO \$650. Contact Bill VK3JT QTHR

● **DECEASED ESTATE** Yaesu FT 767GX transceiver base \$3,300, Emtron EAT 1000A antenna tuner \$380, Yaesu MD 1B8 desk microphone (brand new) \$120, Emotator 1103 MSAX rotator, controller & cable \$450, TH6D XX 6 element aerial \$300. Offers considered. Trevor Adams (054) 52 1111.

● **REALISTIC HTX100** 10 metre transceiver as new in box \$200. Shinwa 500 watt low pass filter \$15. 15 metre 2 element Yagi \$50. Radiotron Designers Handbook 4th edition \$10. Mike VK3KTO QTHR (03) 557 5475.

● **MANUALS** for Army wireless sets, 101, 108, 109, 208, 11, 19, 22 and no 4 Rx. \$6 ea. Books - Signal Training 1932, '35, '36, '37, '38, '39. \$11 ea. Op instr- tional Philips Recorders 2202, 2204, 2503, 3302, 4407, \$3 ea. RADIO CRAFT book no 23 Public Address \$6. Price includes postage. VK3DS QTHR (053) 32 3226.

● **LINEAR HA14** Heath with separate power supply voltage switched and metered. Five bands, full power, excellent \$600. Transceiver 200 watt twenty metres only, Heath HW32 with power supply, matches above \$200. B40 receiver (ex HMAS Melbourne) good performer \$100. Digital meter, Schlumberger with charger, good coverage \$80. VK3DS QTHR (053) 32 3226

● **DRAKE SSR-1** Comm RX No 55720, VGC, \$190. Realistic Patrolman 50 VHF/UHF AM/FM RXCR No 12-776, VGC \$35. Yaesu MH-12A2B hand mic never used, \$40. Michael, AH (03) 879 7598, Fax 874 7608.

● **YAESU FT-One** Transceiver General Coverage in-built Power Supply, Tech man, two microphones. Complete set external test boards, AM filter, GC \$1350. (051) 99 2611

● **ICOM R7000** \$1400 offer S/n 20498 six months warranty. Harmon Kardon amp PM660, Harmon Kardon tuner TU915 \$400. Ray (03) 338 2328.

● **IC751** ex cond with int AC pwr supply \$1800. ask for Ian (057) 52 2631

## FOR SALE OLD

● **6m STATION** FT690R plus 100 W linear S/N 010876 perfect \$500 pair. Also Hidaka VS-80 10-80m vertical \$90. Prices firm. VK4CMY, 'Doc' (076) 61 6200 BH, AH 61 7494.

● **YAESU** linear amplifier, instruction book, all cables, 10 months guarantee left. A gift- \$2,650. S/n 8M180029. (074) 49 7151 Bob VK4RM.

● **FIVE** element Yagi for 10 metres. 12 months use only. Perfect condition. \$165 ONO. Jonathan VK4MJD (07) 343 6888

● **FREQ** counter 6 digit audio to 500 MHz \$100. Power supply 0-5-30 V 1 A remote sensing \$20. FR power meter 50 to 150 MHz with peak reading for SSB, 0-5-20-200 watts \$75. 25 drawer cabinet with variety of resistors \$25. 35 drawer cabinet with variety of capacitors, disc, styro, polycap \$35. Carriage extra. VK4ZFQ QTHR (077) 79 4641.

● **REMOTE** cable for Azden PCS-3000 2 m transceiver \$25. Bruce VK4AGB (07) 286 5921.

● **TELEREADER** CWR 685A (and printer) VGC \$450.00. Joan VK4BJE (075) 32 6418.

## FOR SALE WA

● **TRANSISTORS** final MRF 422 suit 930S, 940S, FT767 etc, matched pair \$110. Transistors final 2SC2290 suit most ICOM, Kenwood rigs, matched pair \$80. Graham VK6RO QTHR (09) 451 3561.

## WANTED ACT

● **VACUUM TUBES** - 6DJ8, qty 3; 8233/E55L, qty 2; 6BJ7/CBC7, qty 1 Frank VK1XE QTHR.

**FOR RENT NSW**

● QTH for rent near Manly, NSW. 3BR, 2 storey (furnished or unfurnished) house for 12 months from September 15, 1992. Excellent radio location with wind-up tower and 20 m monobander plus VHF. Handy location to schools, Manly ferries, northern beaches and Central Sydney. Sunny northerly views. Further details VK2BLF QTHR (02) 949 6604.

**WANTED NSW**

- KENWOOD HC10 clock working or not. I am after a replacement cabinet as mine is damaged. Art VK2AS (02) 416 7784.
- HANDBOOK (copy) or loan for copy Paton VCT valve circuit tester. Costs paid for museum use. Stan Dogger VK2KSD Tunnel Rd, Stokers Siding (066) 77 9292.
- HALLICRAFTERS SX100 receiver must be in GC (044) 57 3220.

**WANTED VIC**

- CIRCULAR polarized 70 cm satellite antenna in GC, Kenpro elevation rotator or similar in GC, 70 cm all mode base or mobile Kenwood TR851A or similar. Please help. Theo VK3CTK (03) 543 3517.
- SHARP ICs P/N IR2431 and IR2432 want tech info and pin connections VK3TJ QTHR (03) 354 2401.
- ANTENNA TH3JNR in good condition. Will collect within 100 km Melb. Andy VK3UJ QTHR (03) 726 8879.

**WANTED QLD**

- NEED copy of circuit diagram or workshop manual, also operating manual for Marconi sig generator FM/AM model TF 995A/5. All costs repaid. Geoff VK4ZGF QTHR (071) 22 1368 A/H.
- YAESU FT221(R) 2 m all mode Xcvr fair cond must be working order. Gordon VK4KAL QTHR or (079) 85 4168 (nights).
- AWA solid state carphone (M25)FM for spare parts to suit amateur rpt. Any condition working or not. Up to \$50 paid for working unit! Ring (07) 800 6798 AH or write 379-391 Middle Road Greenbank 4124.

- LNC model 12A made for Plessey used for AUS-SAT TVRO. Phone or write to John (070) 96 8328 VK4TL Box 508 Malanda 4885.
- SIMPLEX bug key, old ARRL handbooks. VK4CMY, "Doc" (076) 61 6200 BH, AH (076) 61 7494.

**WANTED WA**

- WANTED — Intruder Watch Observers. Free tape, postage, logs and advice. Please help keep intruders off our bands. Thank you. Graham VK6RO WA co-ordinator QTHR 09 451 3561.
- KENWOOD TS830S in excellent condition. Preferably with YG455 and YK8CC CW filters. Would also like external VFO for 830S. Steve VK6VZ (09) 349 9703.

**Have you advised the WIA Federal Office of your new Callsign? Use the form on the reverse side of the amateur radio address flysheet**

**Hamads**

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.  
 \*Eight lines per issue free to all WIA members, ninth line for name and address  
 Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.  
 \*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.  
 \*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.  
 \*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.  
 \*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.  
 Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.  
 Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State: .....


**Not for publication:**       Miscellaneous       For Sale       Wanted

Name:..... Call Sign: ..... Address: .....

## Solution to Morseword No 65

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	1	2	3	4	5	6	7	8	9	10
1	-	.	-	.	-	.	-	.	-	.
2	.	-	.	-	.	-	.	-	.	-
3	.	.	.	.	.	.	.	.	.	.
4	-	.	-	.	-	.	-	.	-	.
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10	.	.	.	.	.	.	.	.	.	.

### Solution for Morseword No 65

Across: 1 tarts; 2 all; 3 sued; 4 cud; 5 fast; 6 tows; 7 miner; 8 saint; 9 sink; 10 vies.

Down: 1 terms; 2 rude; 3 names; 4 rust; 5 bead; 6 for; 7 tears; 8 jeep; 9 hide; 10 Senate.

### TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

### VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

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Vic. 3066  
Tel: (03) 417 5161

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## HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information  
about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

# WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 KHz

VK4WCH Wednesday at 1000 UTC on 2535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

V5AWI Nightly at 1030 UTC on kHz

VK6RAP Nightly at 2000 local on 146.700 MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555 MHz

# WIA Divisional Bookshops

The following items are available from your Division's Bookshop  
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	Price to Members		Ref	Price to Members
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Antenna Collection - RSGB	BX391	\$39.60			
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Antenna Compendium Vol 2 - ARRL	BX292	\$21.60			
Antenna Compendium Vol 2 - ARRL	BX294	\$21.60			
Antenna Handbook - Orr - 1988	BX217	\$23.00			
Antenna Impedance Matching - ARRL	BX257	\$27.00			
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Antennas 2nd ed John Kraus - 1988	BX259	\$33.00			
Beam Antenna Handbook - New Ed. 1990 Orr	BX215	\$23.00			
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Practical Wire Antennas - RSGB	BX296	\$28.80			
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Reflections Transmission Lines and Antennas - 5.25" IBM	BX348A	\$18.00			
Reflections Transmission Lines and Antennas - ARRL	BX348	\$36.00			
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Vertical Antenna Handbook - Lee - 1990	BX284	\$18.70			
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<b>CALL BOOKS</b>					
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<b>HANDBOOKS</b>					
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Amateur Radio Awards Book - RSGB	BX297	\$22.50			
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Packet Radio Made Easy - Rogers	MFJ32	\$18.50			
Packet Radio Primer - G6UYZ - RSGB	BX440	\$28.60			
Packet Users Notebook - Rogers	BX285	\$16.70			
<b>SATELLITES</b>					
Oscar Satellite Review - Ingram - 1988	MFJ31	\$15.30			
Satellite AMSAT 5th Space Symposium - ARRL	BX182	\$15.80			
Satellite AMSAT 6th Space Symposium - ARRL	BX189	\$15.80			
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Satellite Experimenters Handbook	BX177	\$36.00			
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UHF/Microwave Experimenters Manual - ARRL	BX325	\$36.00			
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VHF 21st Central States Con. 1987 - ARRL	BX172	\$15.80			
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VHF 24th Central States Con. 1990 - ARRL	BX322	\$21.60			
VHF 25th Central States Conference 1991 - ARRL	BX436	\$21.60			
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VHF West Coast Conference 1992	BX444	\$21.60			
VHF/UHF 18th Eastern Conference - ARRL	BX445	\$21.60			
VHF/UHF Manual - RSGB	BX267	\$36.00			
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WIA Log Book - Horizontal or Vertical Format		\$5.00			
WIA Novice Study Guide		\$1.50			

Not all above are available from all Divisions (and none is available from the Executive Office).

If the items is carried by your Divisional Bookshop, but is not in stock, your order will be taken and filled as soon as practicable.

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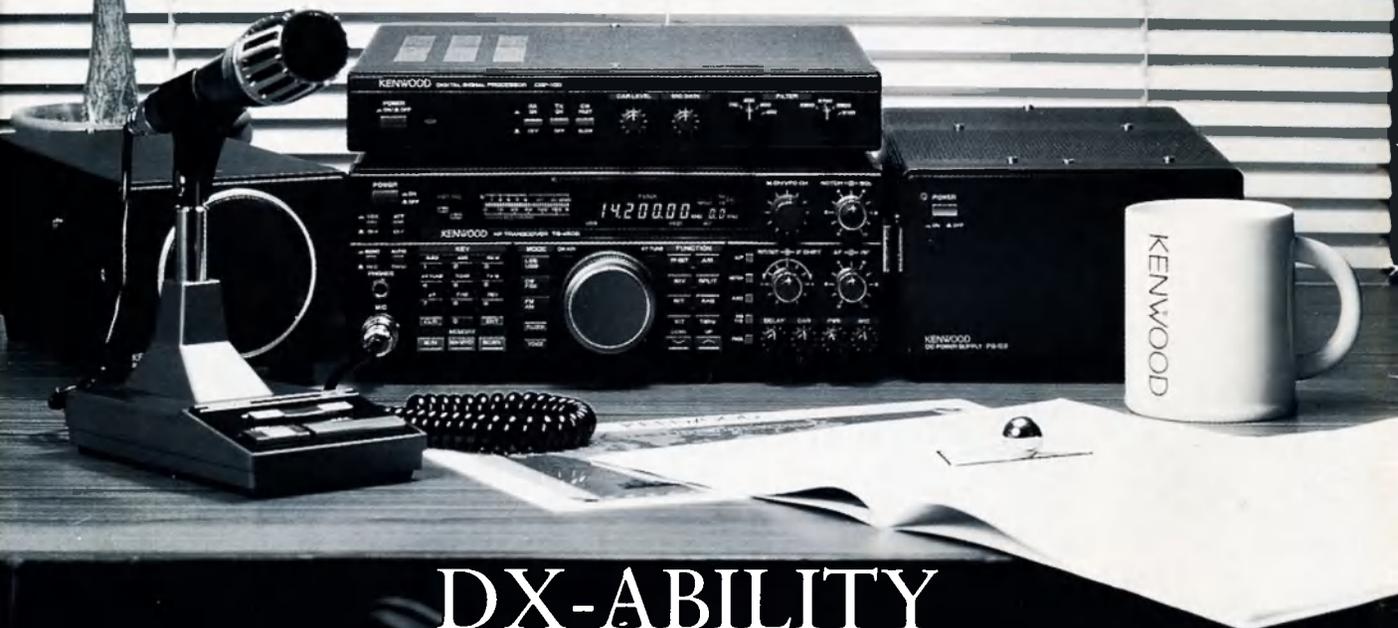


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### Cover

This month we feature two items:

1. **SS "Mantua"** — This is a copy of a postcard posted by Charles Edward Brown, father of VK2IK, on board the "Mantua" en route to London from Bombay — please refer to the article on p 13.
2. **Gwen Andrews** — The Assistant Secretary of the Radiocommunications Branch, in the Department of Transport and Communications. Gwen opened the 1992 Remembrance Day contest, and her excellent speech is on p 20.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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## Editor's Comment

Bill Rice VK3ABP

Editor

### Odyssey Continued

Two months ago I was telling you about our recent northern safari to winter warmth. Last month our new Federal President came up with higher priority traffic! There we were, back at Longreach early in June; so let's continue, not so much to write a travelogue as to show the big part played by amateur radio in our 10,000 km trip.

We went from Cloncurry to Mt Isa the long way around, via Normanton, Karumba, Burketown, Lawn Hill, Gregory Downs and back past Cloncurry. The Traveller's Net kept us in touch with home, every day if necessary, and we had two-metre FM between cars. But few amateurs live in these parts, and we met none in person.

At Mt Isa we met Mark VK4KEY, one of the radio technicians at the Flying Doctor base. Later, visiting the Hilary St lookout, Ron made not only his regular QSO with G4JNH, but also worked a W2 and a W4. The first was Tom, the second Dick. But there seemed to be no-one named Harry!

Daughters of amateurs seemed to feature for a few days. We met, by sheer coincidence, the daughter of VK4NFQ at the same Mt Isa lookout. But, by prearranged design a few days later, we met Dee, daughter of VK3AFJ, at Mataranka, and Sue, daughter of VK3AYI, at Pine Creek. Sue even had a chat to her father on 20 metres via Ron's mobile rig.

We might have missed the best of Litchfield National

Park on 23 June, but Ken VK3OG/8 "talked us in" to Wangi Falls. Two days later, at Florence Falls, we met friends from Perth whom we had not seen for 12 years! But that was by coincidence only, and amateur radio played no part, so it was even more amazing!

Around Darwin, the VK8RDA repeater put us in touch with many locals, some visitors (VK3XBG and VK3KRG among them), and led us to a barbecue at the home of Spud VK8ZWM, where we also met VK8TA and VK8ZAB. Bob VK8ZRJ recommended the Berry Springs Wildlife Park. It was excellent; somewhat resembling the Western Plains Zoo at Dubbo, but perhaps even better (certainly warmer!). Leaving Darwin for Kakadu we called in to see Henry VK8HA, who founded the Darwin ARC back in 1966.

Kakadu was marvellous! Less marvellous was the blown caravan tyre we "wrote off" near the South Alligator River crossing (and the leaky spare). While VK3OM stayed at the van, VK3ABP drove to Pine Creek and back (75 km each way) to get a new tyre and tube. Contact was maintained for the whole journey on 40 metres.

Five days later, with the aid of two-metre FM, we met Jim and Marlene (VK3DL, VK3WQ) in Alice Springs, and enjoyed dinner together. They were heading north, the lucky people, while we returned to the cold south! As at 9 August, the Traveller's Net tells me they are at Kununurra. Wish we were there!

This account has been written for one purpose: to show how effectively amateur radio meets the Australian traveller's needs. Probably no other service can provide the flexible use of spectrum space for all purposes as effectively as ours.

Neither the Outback network nor the CBRS has the versatility of amateur radio. This has been achieved over most of the 20th century by the diligence and competence of amateur pioneers, both technically and politically.

Foremost in this continuing saga is the Wireless Institute of Australia, the world's oldest amateur radio society. It deserves your support! ar

# President's Comment

Ron Henderson VK1RH  
Federal President

**Restructuring!** Yes the WIA has been restructuring following a series of Resolutions passed unanimously by Divisional representatives at the Federal Convention last May.

**What has happened?** Following those directions from the Convention a batch of Regulations has been adopted to extend the intent of our Articles of Association. The Executive has been effectively abolished; it exists only for ASC company act purposes

with the Federal Councillors the only members. The Council has also modernised its title and widened its responsibilities to become the Board of Directors of the WIA.

**Why the changes?** For several years Council had been unhappy with some aspects of management of the WIA. Council sets policy and for many years met only annually in Federal Convention. Management throughout the year was left

to the Executive, a Melbourne based group of amateurs who were perceived by some to be making policy rather than just carrying it out. Changing times, the need for more timely policy decisions, the shortage of Melbourne based Executive members and changes to company law have all contributed to the recent changes. The new structure will allow the General Manager to go about the daily business of the WIA, working within guidelines set by the Board. On the other hand the Board will continue to meet quarterly. It will debate and argue policy issues, monitor WIA operations and carry out Directors'

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis Secretary Jan Burrell Treasurer Ken Ray	VK1DO VK1BR VK1KEN 3570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Terry Ryeland Secretary Bob Lloyd Jones Treasurer Bob Taylor (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2YEL VK2AOE From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM*; 10.125 SSB; 24.910 SSB; 28320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18.120 SSB; 584.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional information (02) 651 1489.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victoria Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey Office hours Tue & Thur 0830-1530	VK3PC VK3XV VK3XLV 1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, (F) 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 (G) (S) \$58.00 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) (X) \$44.00 Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarsse Secretary Ken Ayers Treasurer David Travis	VK4QA VK4KD VK4ATR 1.825, 3.605, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 (F) \$70.00 MHz. (G) (S) \$56.00 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday (X) \$42.00 Repeated on 3.605 & 147.150 MHz, 1930 Monday.	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen Secretary John Highman Treasurer Bill Wardrop	VK5BJA VK5PJH VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, (F) \$70.00 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) (G) (S) \$56.00 South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North (X) \$42.00 Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin Secretary John Farnan Treasurer Bruce Hedland-Thomas	VK6LZ VK6AFA 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, (F) \$60.75 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays (G) (S) \$48.60 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) (X) \$32.75 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne TAS 7015	President Tom Allen Secretary Ted Beard Treasurer Peter King	VK7AL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (F) \$67.00 (VK7RAA), 146.750 (VK7RNV), 3.570, 7.090, 14.130, 52.100, (G) (S) \$53.65 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs (X) \$39.00	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR	Three-year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

fiduciary duties to maintain the well being of the WIA.

**Who will do the Executive's work now?** For the past two years the Federal Councillors have also been members of Executive. Now, as Board members or Directors, they will continue those duties. The biggest change will be the increased demands upon their time. Unlike Federal Councillors of the seventies and eighties who spent a few hours a month on Federal matters, today's Directors will need to devote several hours a week to keep up to date and on top of issues. Naturally this will preclude them holding other offices in their Divisions, and they will need to change more frequently to avoid burnout.

**What about the General Manager's workload?** The WIA, in common with any service industry, is judged on its responsiveness to inquiries. With a full time General Manager and paid office staff the Federal Office is well able to meet those demands. Indeed our present good image is due very much to their efforts. This service extends well beyond the membership, in fact with our Divisional structure most members inquiries, ex-

cept for subscriptions and AR, are answered by the Divisions. Rather it is in the fields of representation, internationally and nationally, that is ITU, IARU, sister societies, DoTC, Standards Australia and the like that the effort is expended.

**What's in it for us members?** The Board has to ensure the WIA continues to provide its current good services, contain its costs in these difficult times and represent members views to the authorities. By restructuring, resources are being better matched to the tasks at hand.

Volunteer Directors are responsible for policy creation, monitoring of operations and longer term issues. Volunteer coordinators also assist with many amateur radio technical and operating matters. All of these activities match the availability and time volunteers can give. On the other hand the widely varied routine administrative functions, many of which must be carried out to demanding deadlines, are in the hands of our trained and competent staff. The WIA's Board and its devoted staff are all committed to providing you, the member, the best service we can. ar

**Remember to  
leave a three  
second break  
between overs  
when using a  
repeater**

## WIA News

*From the WIA Federal Office*

### Low Power Devices

**L**ow Power Devices, or LPDs for short, are low power radiating devices which operate under DoTC approval through brochure RIB60 "Low Powered Devices". The DoTC conducted a comprehensive review into the use of low power devices and issued a report SP5/92 "Foundations for Future Management of Low Power Devices". The WIA provided input to that DoTC review and, in particular, commented on the proposed field strengths for devices in the 3.5 MHz band. Our argument was supported by a CCIR study report of natural and man made noise levels in urban areas, levels the WIA thought appropriate for band sharing with LPDs. The WIA did not comment on the field strengths proposed for non amateur frequency bands, believing this was not within our charter.

When DoTC report SP5/92 and RIB 60 were received the WIA observed a large number of band segments were proposed, several of which were secondary allocations to amateurs. The WIA expressed concern as to the field strengths involved and the likelihood of LPDs drifting in frequency into amateur primary allocation bands.

A meeting was held between the WIA and the appropriate area of DoTC at which our four principal concerns were discussed. Those concerns and the outcome of the meeting were as follows:

**Frequency stability of LPDs.** DoTC assured the WIA the frequency stability of LPDs was mandated by RIB60 and instances of them intruding into primary amateur bands would be investigated.

**LPD emission levels.** The DoTC assured the WIA that LPD emission levels were also included in the mandatory requirements of RIB60 and reported instances of excessive power would be investigated.

**Mandatory standards.** Whilst the WIA pressed for LPD standards to be mandatory, DoTC felt the existing requirements for frequency stability and emission levels were adequate, all others in the RIB being advisory.

**Difficulty in removing intruders.** The DoTC stated regulatory action would be taken to identify and remove intruders, but admitted their location would be a difficult task.

The WIA concerns about interference to weak signal reception were not well received for the Industrial, Scientific and Medical bands used by amateurs, because the definition of ISM bands states users must accept some degree of interference. The WIA was able to make the point that the amateur 24.00 - 24.05 GHz band had been included in the LPD allocation without consultation, DoTC responding that they had been guided by international allocations. Consequently the WIA has taken this up with the IARU to see if they were aware of the intrusion.

The DoTC view on sharing was that it was a means of

satisfying the increasing demand for spectrum. LPD frequency bands were harmonised throughout the world, used ISM bands to a considerable extent and LPDs radiated only briefly permitting sharing with many differing users. The WIA is well aware of this trend. Indeed, the preparation for WARC-92 involved a sharing review to determine which services could co-exist with minimum interference to each other.

During discussions it was difficult to demonstrate "real hurt" because the WIA lacked examples of amateurs suffering harmful interference. We understand LPDs are already in service. However, we are not aware of any reports of problems to the amateur service. Nevertheless we brought to DoTC's attention the 13.56 MHz RF lamp bulb, a current spread spectrum 70 cm

difficulty in Sydney and imprisonment in the home using LPDs as typical concerns. Overall the WIA argument was diminished in strength through the absence of documented reports of specific harmful interference situations.

The outcome was not particularly satisfying, for the WIA was unable to backup arguments with definitive examples of harmful interference. However, two positive points arose. First was DoTC's assurance that LPDs were required to conform to mandatory requirements as to power levels and frequency stability. The second was an acknowledgment that DoTC Regulatory staff would have to respond to reports of out-of-specification LPDs causing harmful interference.

The WIA has taken up with the IARU the matter of the 24 GHz band allocation.

International amateur representation might lead to excluding the amateur segment 24.00 - 24.05 GHz from the LPD band segment at some future date.

Unfortunately a WIA paper on RF tag devices or LPDs, presented to the IARU Region III conference in Bandung last October, evoked little interest.

### New Production Editor

The WIA is pleased to announce the appointment of Bruce Bathols, VK3UV, as the new Production Editor of *Amateur Radio* magazine.

This September issue of amateur radio magazine is the first to be produced by Bruce. Bruce has sat in the Editor's chair previously, firstly as assistant Editor then, from 1977 to 1983, as Editor.

A total of seven applica-

tions was received for the widely advertised position. The WIA is confident that the choice made, which was difficult considering the calibre of the applicants, is the best possible for both the WIA and the magazine.

### Extraordinary Convention

The weekend of 18-19th July 1992 was the occasion for the first weekend meeting since the start of the restructuring of the WIA Federal management procedures. Since the Executive, as such, has been replaced by the Federal Council, comprising the Federal Councillors of each Division, the quarterly meetings now become Extraordinary Conventions rather than Executive meetings.

This change of management procedures, of course, requires changes to the Articles of Association, a time

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Amateur Radio Action — 9 June 1992

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consuming process as the package has to be reviewed by the Australian Securities Commission, and is not expected to be completed until at least the 1993 Annual Federal Convention. Further work will be carried out throughout the rest of the year. A considerable amount of the time of this meeting was spent in further refining these management procedures, and a full report of the changes and their implications will be released shortly.

In addition, this meeting further defined policy on areas such as amateur examinations, membership and recruiting, financing of international representation and a preliminary consideration of the 1993 Federal budget.

Much of the Saturday morning was spent on routine consideration of reports on financial performance, membership and the magazine. In particular, the changes in the procedures for the production of *Amateur Radio* magazine were noted, and the appointment of Bruce Bathols VK3UV, as Production Editor was announced.

On international matters the WIA was pleased to record its vote in favour of the admission of both Slovenia and Croatia to the IARU. It was also noted that the commitment to WARC and CCIR meetings is on-going, and Preparatory Group meetings are already being held.

The draft de-regulation of licence conditions paper, as published in *Amateur Radio* magazine, attracted just on 50 responses to the Federal Office. These were discussed at length, and guidelines established for future negotiations with DoTC before the finalisation of the new regulations.

The question of membership recruitment and reten-

tion generated considerable discussion. It has long been a concern that, although the amateur population in Australia is slowly but steadily rising, WIA membership is drifting downwards. Because it is much more cost effective to retain existing members rather than to recruit new members, and because most of the membership losses are among those who have been members for only one or two years, it was agreed that the main thrust of any campaigns should be towards retaining existing members. This does not, of course, mean that no effort will be made to encourage new members. A number of possible approaches to be taken at either Divisional or Federal level were discussed, and a broad policy established.

Because of the pressure of time a number of items had to be deferred to the next meeting. These included a proposal to investigate the listing of WIA Divisions and radio clubs in the Yellow Pages, possible alternative arrangements for future production of *Amateur Radio* magazine, the establishment of policy on the use of special call signs, and a revision of the policy on trading by the Federal Office and the Divisions.

In all it was an intense, exhausting weekend, which made considerable advance towards many matters involved in the restructuring of the Federal structure of the WIA.

### **No More Press-to-Talk Button?**

The Japan Amateur Radio League (JARL) News for June 1992 announces newly developed technology which has succeeded in putting into use "a single-frequency, 2-way simultaneous communication radio equipment",

meaning that there is no longer a need to switch from receive to transmit, ie, the device functions similarly to a telephone. The operation is carried out by dividing the operator's voice signals into 0.2 second segments and compressing them into half the time before transmission, leaving the other half of the time for receiving. Technology keeps on advancing!

### **Comment from "Choice" Magazine**

A number of members contacted the Federal Office when the July issue of "Choice" was released. In an article explaining and investigating mobile and cellular phones, the statement was made "...cellular phones use radio frequencies for their operation and as such are susceptible to eavesdropping from "ham" radio operators. Andrew Peacock and Jeff Kennett will swear to that..."

The WIA has written to the magazine pointing out that listening devices are not confined to "hams", and that the WIA takes exception to the use of the term in this instance.

As I understand it, "Choice" has a considerably longer lead time than *Amateur Radio* magazine. Therefore it may be some time before we know if our letter provokes any apology.

### **Examination Trivia**

No statistics have been carried out, and it may be only a temporary effect, but it was interesting to note during the months of June and July this year that both the number and the proportion of female amateur examination applicants was higher than previously.

Members may also be interested to know that in the six months to 30th June,

almost 200 examination events were held, for a total of over 900 candidates. The overall pass rate, however, is still at just over 50%, ranging from 34% for AACP theory to 81% for NAACP CW sending. It would be pleasing to see an improvement in some of these figures. Presumably some applicants are not well prepared for examinations.

### **New Members of the ITU**

With the recent addition of Armenia and Uzbekistan, nine republics of the former USSR are now members of the ITU. Those which have joined previously are Azerbaijan, Belarus, Estonia, Latvia, Lithuania, Russia and Ukraine.

### **RF ID Systems**

Some information recently provided by Roger Harrison, VK2ZTB on the subject of Radio Frequency Identification systems may help to ease members' worries over these low power devices (LPDs). The article supplied is written from the point of view of the enthusiastic user, not the radio amateur, and lists the advantages such as immunity to dust, cold and chemicals, and the ability to be read through non-metallic materials.

However, it also gives a good description of some of the devices and their functions. The transponders can be either battery powered or passive, in which case they are activated only by the RF signal emitted from the reader. Frequencies used may be HF, but better results are being achieved using Low Frequencies, as in the TIRIS (Texas Instrument Registration and Identification) unit, a passive device on 134.2

kHz which uses pulse code modulation. The reading range is usually one metre, but may be extended to two metres depending on the antenna system.

Uses quoted include production lines, warehouses, security controls, monitoring, truck fleet identification, automatic refuelling records and, in Germany, garbage bin identification and weighing so that each household can be billed according to the amount of waste removed.

Nothing in the article suggests any problems with interference to amateur or other frequencies or any increase in radio noise in the environment.

### **Amateur Radio Magazine 20 Year Index**

This index, which now extends to 24 years, includes items going back to 1968. It has been advertised in recent issues of *Amateur Radio* magazine as available from the Federal Office either on disk or in hard copy.

Unfortunately, as the hard copy version is now up to 43 pages, the cost of the hard copy has had to be increased to \$10.00, including postage. The disks which can be obtained in either ASCII or .DBF format, are still available at \$10.00 each.

### **ARRL Name Unchanged**

The ARRL letter of 27th July notes that:

*The ARRL Board of Directors will not entertain changing the name of the organisation until next year at the earliest...*

*Further consideration was postponed "so that the full rationale for the proposal can be shared with the membership".*

The letter also noted that a sum of \$37,000 has been approved to conduct a survey to address membership recruitment issues.

### **SEANET '92 Update**

The SEANET '92 organising committee has advised that registration forms will be distributed in the near future. Information is now available, updated weekly, on packet from VK8SEA @ VK8DA. Royal Brunei Airlines has been appointed the official carriers.

### **ITU Administrative Council News**

The recent 47th Session of the ITU Administrative Council examined an interim report of the Group of Experts charged with considering ways of improving the use of the Radio Frequency spectrum and how to simplify the Radio Regulations. A drafting group has been set up to develop the complete texts of the simplified Radio Regulations.

It also agreed to convene the first World Radiocommunication Conference late in 1993 in preparation for the further cycle of radio conferences planned to be held every two years. These confer-

ences, which will replace the periodic WARCs, will review and revise the Radio Regulations as necessary.

Provision has also been made to merge the present non-standardisation activities of the International Radio Consultative Committee (CCIR) and those currently performed by the International Frequency Registration Board (IFRB).

### **Very Low Frequency Experiments**

The subject of allocation of a VLF band to the Amateur Service was discussed at length at the quarterly board weekend meeting in July. A note from the NSW Division's Sunday broadcast may interest VLF enthusiasts.

*"Dale Woodside VK2TZ, who runs the St George Amateur Radio Society net on Thursday nights, advises that he has recently obtained permission to conduct low frequency band experiments, using the callsign AX2NAV.*

*Following in the footsteps of VK3ACA, who recently conducted CW tests on 196 kHz as AX3T35, Dale tells us he has obtained permission to use AM and SSB modes, as well as CW, at power levels up to limits*

*specified for normal amateur band operations.*

*Dale says he will be researching the design and implementation of 'practical, electrically small antennas' and will be using frequencies allocated also in New Zealand for experimental purposes: namely 175 kHz and 185 kHz, using the 9K00A3E mode. He is obviously hopeful of some trans-Tasman DX contacts with other LF experimenters in New Zealand.*

*If you are interested in discussing LF band research with Dale, you can contact him on Thursday evenings at 8.30 pm (EAST) on the St George net (Sydney) on 146.8 MHz, or by packet where his address is VK2TZ @ VK2XSB.NSW.AUS.OC."*

### **Examination Costing Re-assessed**

WIA Exam Service has now been successfully operating for ten months, and has so far performed very satisfactorily. In the first six months of 1992, starting from the time that the WIA assumed total responsibility, 197 examination events have been held for a total of 910 candidates, who between them attempted 1504 subjects.

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- High gain VHF & UHF amateur, scanning & TV antennas.
- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 AR).
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR meters by Diamond to 1300MHz 5 models. All in stock.

As present Accredited Examiners will be aware, when *WIA Exam Service* was set up, one of the more difficult tasks was establishing equitable costs. Experience has shown that cost estimates on all aspects of providing the exam service were accurate, except in regard to the number of individual examination subjects needed for each Exam Event. Based on extensive surveying of examinations conducted under the previous systems, it was expected that the average number of individual examination subjects per Exam Event would be at least 20 (ie. 10 candidates sitting for 2 subjects each; or 5 candidates sitting for 4 subjects each).

However, *WIA Exam Service* has been too successful in simplifying the running of exams. Exams are now taking place much more frequently than previously, and for correspondingly smaller numbers of candidates. This is great for amateur radio in Australia, but the down side is that the average number of individual examination subjects per Exam Event has settled at less than 8, well under half the number originally expected. This seriously changes the costing of exams.

Obviously, *WIA Exam Service* must be self supporting and not dependent on the use of WIA members' funds. The directors of the WIA looked at many options, including the limiting of each exam event to a minimum number of examination subjects, or the application of an event fee on top of the cost of the examination material, before deciding that an increase in the cost of the examination material was the best and fairest method.

Therefore it has been regretfully decided that an increase in fees must be ap-

plied for all examination material supplied by *WIA Exam Service* after 30th September 1992. It is hoped that no further increase will be necessary for a considerable period.

Of course, *WIA Exam Service* sets the rates only for the supply of the examination materials. The Examiners may add whatever administrative fee is necessary to allow them to cover the perceived local costs involved. For information about the rates to apply after 30th September 1992, candidates are advised to contact their local Examiners. Examiner lists are obtainable from WIA Divisional Offices, DoTC Offices, and the Federal Office of the WIA.

### Club Newsletters

A number of clubs and groups send copies of their regular newsletters to the Federal Office and to the Editor of *Amateur Radio* magazine.

While this is appreciated as a way of keeping information up to date, these groups are advised that two separate copies are not really necessary. The Office does talk to the Editor, and he has full access to the files, so save your postage (and our filing space) by sending only one copy.

### Responses to Draft Regulations

By the closing date for submissions on this matter, the Federal Office had received just on 50 submissions. It is understood that DoTC received 182. While many respondents used the opportunity to push a personal barrow, the general

thrust of most suggestions encompassed higher power limits, increased band space for combined licensees, some UHF for Novices and data modes for Novices.

Negotiations with DoTC are not yet completed. WIANEWS will keep you informed of progress.

### Wanted

*Amateur Radio* magazine takes itself seriously, but some members feel that the magazine is a bit too serious. Are there any cartoonists or artists out there who can offer a more light-hearted approach? Contributions are always welcome, and will be rewarded at the same rates as those from the other contributors and columnists. That is acknowledgment, byline and satisfaction!

### JOTA 1992

The 35th Jamboree on the Air will be held on the weekend of 17-18th October 1992. Members may wish to start making preparations. It is expected that there will be a range of special activities for this 35th event, the theme for which will be "let's talk".

Your local Scout Group should have received a circular in August with operating frequencies, report form and participation cards.

### Standards for EMI

The August issue of "The Australian Standard", the journal of Standards Australia, announces the publication of a series of standards dealing with electromagnetic interference. Most of them are updates to bring them into alignment with international Standards, and all are being published in association with the Standards New

Zealand. There are nine items in the series, as follows:

- Household electrical appliances, portable tools and similar: (suppression standards for items which may cause interference)
- Measuring apparatus and measuring methods: (performance requirements for RFI measuring apparatus)
- Television FM and sound receiving equipment: (limits and methods of measurement of RI characteristics of receivers)
- Industrial Scientific and Medical RF equipment: (includes how the RF energy generated is used, also equipment design)
- Spark ignition systems for motor vehicles and similar: (EM radiation interference to radio reception from internal combustion or electrical engines)
- Information technology equipment: (measurement of spurious signals over the range 0.15 to 1000 MHz)
- Luminaires: (conduction and radiation of interference from fluorescent lamps and luminaires)
- Microwave ovens: (measurement of radiation from both small and large ovens, for frequencies above 1 GHz)
- Immunity of television: (measurement methods and limits: frequencies 150 kHz to 1 GHz, and various types of interfering signals).

It is also noted that Australia is playing an active role in the CISPR forum, having sent five representatives to Berlin last year, and is sending three to the meeting in Warsaw in September. When the series of International Electromagnetic Compatibility standards is published, it will be adopted by Australia. ar

# Public Comment Invited by the DoTC

*The Department of Transport and Communications, Radiocommunications Operations Branch, has recently adopted a policy, applauded by the WIA, of publishing for public comment any proposed substantive changes to the regulations and conditions affecting the amateur service.*

*Details of the following proposal were received just as this issue of Amateur Radio magazine was off to the printers.*

*Members are urged to make any responses direct to the DoTC at the address given, not later than 21st September 1992, and are also requested to send a copy of their submission to the WIA Federal Office, PO Box 300, Caulfield South, VIC, 3162.*

*The proposal was discussed by the Federal Council at the last meeting. The VK4 Division of the WIA submitted a paper to DoTC for consideration. This is the next stage.*

*Bill Roper VK3ARZ*

## Department of Transport and Communications Proposal for Use of Amateur Television in Education

A joint proposal has been received from the Queensland Department of Education and the Wireless Institute of Australia, Queensland Division for approval in principle for a trial to be conducted employing licensed amateur radio stations (and operators) to transmit television signals of classroom lessons between schools.

The intention is to extend the availability of specialist teaching skills in small communities by means of amateur radio. In this way a teacher with teaching ability in French or Chinese, for example, can maximise the number of classroom hours available to them by remaining at the one location and communicating with students at a number of schools or institutions by means of amateur television transmissions.

The Education Department is undertaking to train its staff in amateur radio and to supply transmitting equipment including repeater stations where necessary to facilitate the trial. This equipment may be made available for normal use by amateur stations after school hours.

The Queensland Division of the WIA has advised that it can see advantages in: the increased use of amateur frequencies for the benefit of the general community at a time when the majority of amateurs themselves are unable to use them; and an increased interest in amateur radio resulting from wider exposure to the community.

This concept of using amateur radio to assist school education programs operates very successfully in Canada which has similar problems to Australia in respect to distance and the availability of scarce resources.

The proposal is supported by the national body of the WIA.

Before making any final decision on the proposal the Department is seeking comment from the broader amateur community. All comments should be forwarded within twenty one days of the date of this publication to:

Assistant Secretary,  
Radiocommunications Operations Branch  
Radiocommunications Division  
Department of Transport and Communications  
GPO Box 594  
Canberra ACT 2601  
(FAX 06-274 8655)

Yours sincerely  
**Gwen Andrews**  
Assistant Secretary  
Radiocommunications Operations Branch  
Radiocommunications Division.

# An Interference Cancelling System for your Receiver or Transceiver

Lloyd Butler VK5BR  
18 Ottawa Ave  
Panorama 5041

**T**HE USE OF interference signal cancellation appears to have been around for some time. The idea is to use an auxiliary antenna (almost any random length of wire) in addition to the main receiving antenna.

As the two antennas are physically

spaced from each other and also unlikely to have similar field patterns, the amplitude and phase of signals induced into the two antennas by an interfering signal can be expected to be different. This particularly applies to a localised interference source which is large-

ly coupled into the antenna by induction. This induction field follows a different law of signal attenuation versus distance from that of the radiation field by which the distant desired signal is being received.

The two antenna outputs are combined after modifying their relative signal levels and phase such that the interference signal from one antenna is equal but opposite in phase from that from the other antenna. The interference signal is cancelled but, as the two desired signals have a different amplitude and phase relationship, a resultant desired signal component is retained. Of course, for all this to work, the interference waveform must be continuous and reasonably stable in its shape and amplitude. From my own experience, the system works extremely well for power line noise and frequency dependent noise bars generated by TV line time base and computers.

To achieve this form of interference cancellation, some device is required which can adjust the amplitude and phase of one or both of the antenna

signals. Relative phase between the two signals must be adjustable over a 360 degree range to cope with different signal conditions.

In 1976, Drew Diamond VK3XU submitted articles (references 1 & 2) on a passive method of mixing and adjusting the two antenna signals. To provide 180 degrees phase shift, Drew provided a reversing switch in the main antenna circuit. A matching network consisting of a tapped inductor and two variable capacitors was connected to the auxiliary antenna. Further adjustment of phase was achieved by detuning the matching network. Amplitude was adjusted by a potentiometer in each antenna circuit.

Phil Williams VK5NN has drawn our attention to a unit called a QRM Eliminator, distributed by a British company, SEM. Phil owns one of these units and has reported very favourably on its ability to balance out unwanted signal. The SEM unit is an active device powered from 12 VDC and is provided with phase and amplitude adjustment controls. Their Mark 1 unit is switchable between amateur HF bands, but a later Mark 2 unit appears to be unswitched with continuous coverage between 100 kHz and 60 MHz. I am not clear on how continuous full phase control can be achieved over this wide band without switching.

With all this background, I decided that I should attempt a circuit design of my own. The idea of a passive unit, as Drew had used, seemed attractive in that there were no transistors to encourage cross-modulation and, of course, no power required apart from relay control. On the other hand, I questioned whether detuning an antenna matching network was adequate to give the complete range of phase shift which might be required. I eventually decided to design the circuit around RC phase shift networks connected via suitable transistor interface stages. How this was done is described in the following paragraphs.

### Phase Control

Phase control is initiated in two RC networks A and B (figure 1). In each case, the reactance  $X_c$  is made equal to resistance  $R$  and hence the current  $I$  leads the source voltage  $E_i$  by 45 degrees. In network A, the output voltage  $E_r$ , developed across  $R$ , is therefore 45 degrees leading  $E_i$ . However,

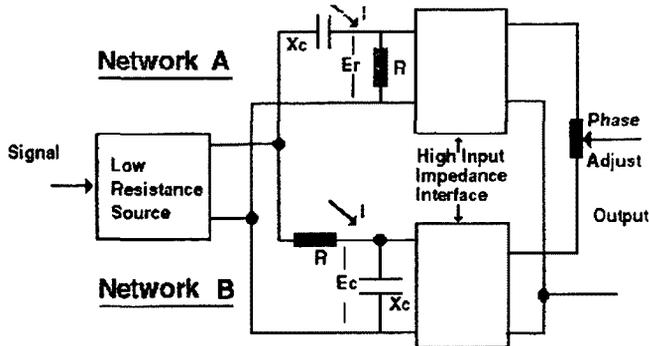


Figure 1 Adjustable Phase Shift Over 90 degrees

the voltage across a capacitor lags the current by 90 degrees and hence the output voltage  $E_c$ , developed across  $C$  in network B, is 45 degrees lagging on  $E_i$ .

As one network output leads by 45 degrees, and the other lags by 45 degrees, there is 90 degrees of phase difference between the two circuits. Phase relationships are shown in the vector diagram figure 2. The two outputs are interfaced by high input impedance amplifiers to prevent loading of the networks and then mixed together. By varying the ratio in which the two signals are mixed with the phase adjustment potentiometer, phase adjustment over a 90 degree range is achieved. The output level in the centre position of the potentiometer is a little lower than that at its ends, but as there is amplitude adjustment as part of the system, this is of little consequence.

Complete 360 degrees of phase control is provided by a four position switch, each position giving one of the four adjustable 90 degree quadrants. To select the three other quadrants either one, or the other or both of the inputs to networks A and B are reversed.

A band switch is provided so that the reactance of network capacitance is set equal to network resistance at 1.8, 3.5, 7, 14 and 28 MHz. In practice, the reactance is not critical and phase can be

set at intermediate frequencies, making adjustment possible over the continuous HF range.

### Circuit Description

The complete system of interference cancellation is illustrated by the block diagram (figure 3). For the circuit description which follows, refer to figure 4. The auxiliary antenna signal is amplified by FET stage V1 to provide a margin of signal level in adjusting the signal amplitude. Phase splitter stage V2 provides two outputs equal in level but opposite in phase as required for quadrant selection. Emitter follower stages V3 and V4 present a low impedance output suitable to drive the networks. Switch S3 selects the required quadrant as previously discussed. Network A is made up of resistance  $R_{10}$  and switched capacitor circuit  $X_x$ . Network B is made up of switched capacitor circuit  $X_y$  and  $R_{12}$ . The outputs of the two networks are interfaced by emitter follower stages V5 and V6 which feed the phase adjustment potentiometer RV1. A further interface stage V7 connects via amplitude control RV2 into the output line driver stage V8.

### Signal Combining

The antenna signal combining circuit requires some explanation. In the first instance, my circuit combined the processed output from the auxiliary antenna with that from the main antenna without isolation. With this arrangement, part of the processed signal was fed back to the main antenna as well as the receiver. Under some conditions of adjustment, I experienced instability due to feedback of processed output via the main antenna back into the auxiliary antenna.

Cross-modulation of the main antenna signal was also noticed when

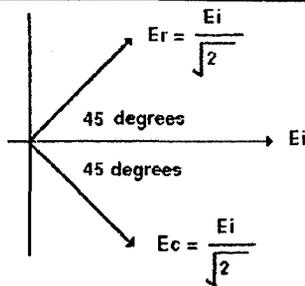
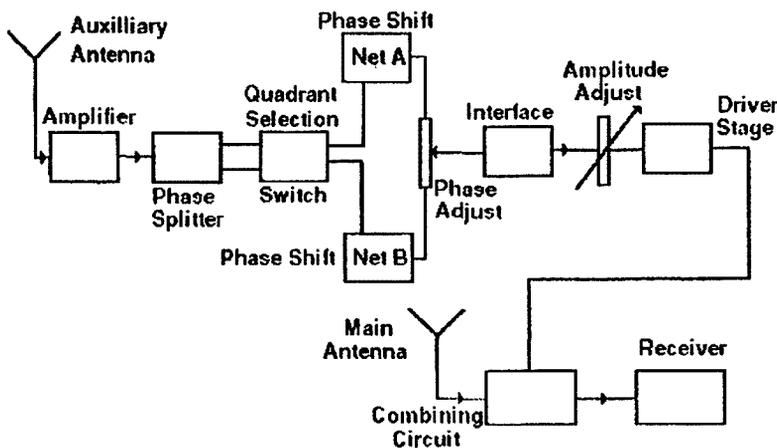


Figure 2 Vector Diagram 45 Degree Phase Shift Circuits



**Figure 3 Interference Cancelling System Block Diagram**

partly loaded by the V8 output circuit. To get rid of these problems, the circuit arranged around T2 was installed to isolate V8 output from the main antenna whilst still permitting each to feed the receiver. Readers with a Telecom background might recognise T2 circuit as similar to the Hybrid Coil circuit used to achieve two-way amplification on telephone trunk lines.

For the isolation to work, the receiver is assumed to present a 50 ohm resistive load. This is increased to near 100 ohms by transformer T3. The reflected 100 ohms is balanced against resistance R20 which is also 100 ohms. The main antenna is loaded by these two 100 ohm circuits in parallel, hence 50 ohms load is presented to the main antenna. As the lower two windings of T2 are in antiphase, the inductance of T2 in series with the main antenna is cancelled out. Furthermore, no signal from the main antenna can be induced into the upper winding of T2 which is connected to the auxiliary output.

As far as the auxiliary circuit is concerned, its signal is induced into the lower two windings of T2 which are connected across the two 100 ohm circuits in series, that is, 200 ohms. As there is a 2:1 turns ratio or a 4:1 impedance ratio, 50 ohms is reflected back to the auxiliary output circuit. Whilst half the auxiliary output power is fed to the receiver input, the auxiliary output voltage to earth is virtually zero at T2 centre tap. As this is the main antenna connection, auxiliary output signal is prevented from reaching the main antenna. Of course, the usual 50 ohm input to the receiver is a nominal value and the degree of iso-

lation between the two circuits depends on how near the receiver input circuit is to a resistance of that value.

### The Front End

The auxiliary antenna circuitry was first tried out in a broad band mode with the antenna directly connected to V1 input. Using this connection, the system was overpowered by cross-modulating local broadcast station carriers. A high pass filter set to cut off around 1.8 MHz fixed the problem and the system then worked quite well. However, there was still evidence of "birdies" at certain spots on the band and I found that a selective circuit was needed at V1 input to eliminate these. Had there been any strong local amateur stations on the air, I am sure that I would have needed the selective circuit to also eliminate further cross-modulation.

I made use of a slug tuned short-wave aerial coil which had been used on an old valve broadcast receiver, and a 17 to 549 picofarad variable capacitor. With the slug carefully set, a tuning range to cover all bands between 3.5 and 21 MHz was achieved. To tune 1.8 MHz, an additional 1.8 nanofarads fixed capacitor was switched in. I did not allow for 28 MHz, deciding to add this later if needed. Of course the whole range of 1.8 to 28 MHz could easily be covered with two switched coils and the variable capacitor. Another idea would be to use fixed tuned circuits for each band selected by a switch, possibly ganged with the phasing switch.

Input stage V1 provides gain to the auxiliary signal circuit (all other stages

are follower type circuits). Field effect transistor MPF102 was used because I happened to have some of these. Perhaps one of the newer low noise FETs could have been used with some advantage on the 28 MHz band. At lower frequencies, noise which comes in from the antenna is usually dominant and a low noise input stage is not so important.

Whilst the high gain in the input stage is needed for some conditions of operation, it can be too great for some other conditions, making it difficult to balance out the interference with the amplitude control set near minimum. A sensitivity switch S1 is provided to reduce the stage gain of V1 allowing the amplitude control to be advanced for these conditions. The same thing can be achieved by detuning the input circuit, but this also shifts the phase, thus altering the settings for balance of the phase controls.

The nominated power rail is 12 VDC. The actual supply voltage is not critical, provided it is sufficient to energise the relay. Load current is approximately 40 mA plus that consumed by the relay coil. This load current of 40 mA is fairly high because of the low resistance values (typically 1000 ohms) used in resistance coupling and the consequent need for high emitter/collector current in the transistors.

The need for low resistance to mask capacitance in these wide band amplifiers is apparent when one realises that even a small capacitance as low as one picofarad has a reactance near 5700 ohms at the highest frequency of 28 MHz. It is a different condition to tuned amplifiers, where the stray capacitance becomes part of the tuned circuit so that higher impedances can be used.

### Relay Switching

A 12 volt relay is provided to switch out the interference cancelling unit from the main antenna circuit when transmitting or when turned off. The relay is actuated when interference cancelling is in operation. The relay coil is operated by external contacts which are made when the associated transceiver is in the receive state. When the unit is switched out, the main receive antenna is directly connected to the transceiver by relay contacts A2 and A3. Other contacts A1 also disconnect the input of the active circuits from the

auxiliary antenna to protect the circuits from voltage induced into the auxiliary antenna from the main antenna. As a further precaution against RF pick-up and voltage surges, protection diodes D1-D4 are fitted at the input and output of the active circuits.

Of course, the interference cancelling system will also be of interest to DX listeners and, for this purpose, the relay can be omitted.

## Components

There is nothing special about components used. Main components include a two-pole, four-position switch, a two-pole, five-position switch, three toggle switches, two 1000 ohm potentiometers, a 12 volt relay with at least three changeover contacts, two high permeability toroidal cores and a few transistors and diodes. For V2 to V8, any small signal bipolar transistor with good high frequency performance does the job. Note that V3 is a PNP type, whereas the others are all NPN. The MPF102 (V1) could also be substituted by some other type of FET with good high frequency performance.

Diode OA202 is specified for D1 to D5 as it has a higher voltage and current rating than the typical 1N914, and more able to withstand a voltage surge. All resistors are low power rating (1/8 or 1/4 watt) and all capacitors are low voltage, having only to withstand the 12 V rail potential. The value of choke LI is not critical. Its function is simply to eliminate DC resistance in series with the FET drain circuit and prevent bottoming of the operation point. For a given gate bias condition, drain current on a FET varies from sample to sample, making it difficult to define the operating point when resistance is loaded in the drain circuit. Suitable RF chokes, no larger than a small resistor, are available from such suppliers as Dick Smith Electronics and Jaycar Electronics.

I discussed earlier how some form of selective circuit is needed at the auxiliary input to reduce its susceptibility to cross modulation (refer T1, C1). I suggest that most radio amateurs could find something in the junk box to provide this coupled tuned circuit.

Layout of components is not particularly critical. I made use of a small aluminium box and mounted the controls on one panel which became the

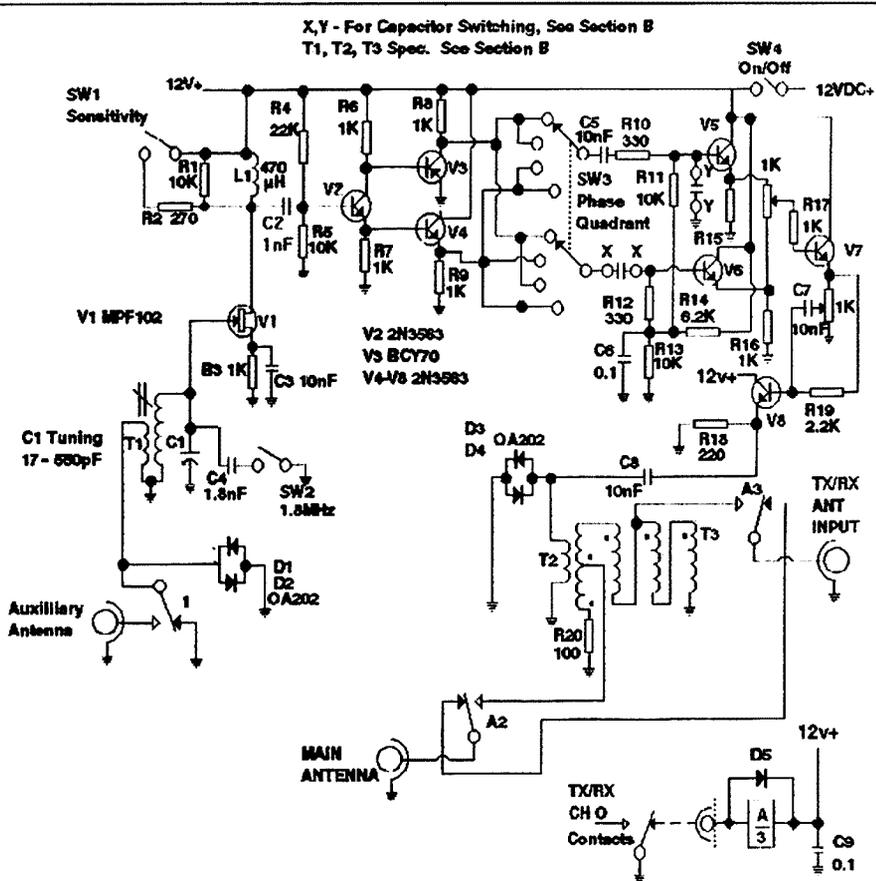


Figure 4 Interference Cancelling Unit — Section A

front of the box. Connectors for antenna and relay control were mounted at the rear. The transistor circuitry was mounted on matrix board with short interwiring leads between the board and the controls on the panel.

Any odd length of wire spaced from the main antenna can be used as an auxiliary antenna. The outer shield of the VHF antenna coax can be put to use for this purpose.

## Operation

Balancing out an interference signal is a bit tricky, but becomes easy once the technique is practised. Assuming an interfering signal is present, first disconnect or switch out the main antenna. Turn on the interference cancelling unit and advance the amplitude control a little. Set the phase capacitor band switch to the band in use. Set the sensitivity switch to maximum sensitivity. Peak up the input tuning for maximum signal and interference level, and then adjust the amplitude control for around the same level as was first heard using only the main antenna.

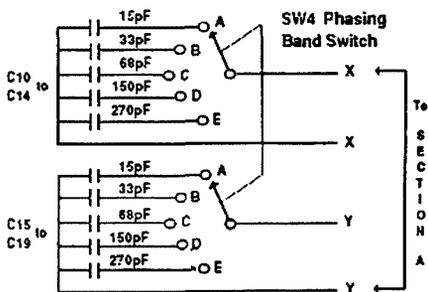
Re-connect the main antenna so that

signal is then being received from both antennas. Rotate the quadrant switch to a position which gives the lowest interference signal. Now adjust the phase and amplitude controls alternately a number of times until either an interference null or the lowest interference level is achieved. Check the other quadrants using the quadrant switch, again readjusting alternately the phase and amplitude controls (a better interference minimum might be found in the other quadrants). Settle on the adjustment which gives the best rejection of interference.

If a minimum of interference seems to occur near the minimum setting of the amplitude control, reduce gain with the sensitivity switch and see if a more defined minimum can be achieved with the amplitude control more advanced.

## Performance

As indicated earlier, the circuit works extremely well in balancing out localised interference such as power line hash, TV line time base noise and computer-generated noise. Under some circumstances, I found it could also



**Figure 5 Interference Cancelling Unit Section B**

reduce the general level of background noise. Another application is to reduce the level of an interfering carrier. I tried the unit out on the broadcast band where I found an interstate station completely swamped by a local station close in frequency. By balancing out the local station, the interstate station could be received quite well with only a slight amount of sideband splatter from the local station.

### Conclusion

The idea of interference cancellation in the antenna circuit has been re-introduced using R-C networks interfaced by transistor circuits and appropriate switching to achieve phase shift control. Having experimented with the device described, and seen how well such a system can be made to work, I am surprised that it is not found as a built-in feature of commercially made receivers and transceivers.

The main complication in a unit for this purpose is the provision of full phase adjustment over the range of frequency bands. A circuit which does this has been presented, but I am sure there will be other ways of achieving the results.

Articles we put in AR often generate correspondence and different ideas. Perhaps some of our readers have some other scheme they have tried out.

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1. Drew Diamond VK3XU — A Method of Reducing HV Power Line Noise — Amateur Radio, October 1976.
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ar

# Australian Radio History

Arthur J Brown VK2IK  
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EPPING 2121

## Twin Screw SS "Mantua" 1909-1935

**S**INCE THE FOUNDING of the P&O shipping company in 1837 to the present age, this organisation has a proud heritage of excellence to its travelling customers. In 1987 P&O celebrated the 150th anniversary of this service to the public.

You may wonder what this has to do with amateur radio and in particular the photos and the heading relating to the SS "Mantua". If you are of Italian birth, or have travelled the northern parts of Italy, you will know a city called Mantova, which is about 120 km SW from Venezia or Venice. Anglicising Mantova gives us Mantua. Why this ship was named Mantua I do not know. However, there may be some connection with the later details.

It is interesting to note that it was the birthplace of Virgil, a Roman poet — 70-19 BC. Mantua wear is a type of loose gown formerly worn by women. It is also a mantle, and is associated with the city of Mantua. Visitors to "Old Sydney Town" will see examples of this clothing at one of the displays.

### The Ship

The SS "Mantua" was one of the ships on which my father Charles Edward Brown worked during the years 1909-1911. He was employed as steward/pianist and, as far as I am aware, knew nothing of the historic significance, radio-wise, of this ship. From Lloyds' Register in the library of the Maritime Museum, Greenwich, London, "Mantua" is registered as: Steel, Twin Screw, 10700 tons, Electric Light, Built 1908, Caird & Co Greenock

(Scotland), 540 ft long, 65.2 ft wide, 33.2 ft deep.

During 1964/65 whilst I was on teacher exchange at North Gloucestershire Technical College, the principal, Mr Alex Hildrew, told me he had been a ship's engineer with P&O in the early 1920s. One of his stories was: Mantua was not a good sea boat, and was known in the company as the naughty one! He could remember seeing her in rough weather in the Gulf of Lyons off Barcelona on passage to Marseilles in 1926. On this occasion she was on her beam ends with her propellers thrashing the air. It must have been hell in the engine room (he would know!).

Alex was also able to give me other data regarding Mantua. From "A Hundred Years History of the P&O" 1837-1937 written by Boyd Cable, chapter 29, p 208 — War Services — when war was declared, Mantua was completing a cruise in the Baltic, and having been warned by wireless of the danger of being cut off by the enemy, she made a full-speed dash for home waters. An oft-repeated story told that being short of coal and unable to risk any delay or danger of capture or internment in a foreign port, the engineers gutted the ship of any fittings that would burn. Upon arrival, Mantua was converted to an armed cruiser with eight 4.7 inch guns within a period of nine days. She survived the war, returned to the company and was later sold to China Shipbreakers Ltd, for 32,000 pounds and delivered to Shanghai in August 1935.

## Radio Installation

Other details supplied by Alex from the P&O Information Service read as follows: "Mantua — designed for the Australian mail service, with 13000 IHP, quadruple expansion engines driving twin screws, she had a speed of 16-1/2 knots and carried 400 first class passengers and 375 crew (and now for the punchline!). Costing 308,053 pounds, she was one of the first P&O ships to be fitted with wireless, from new (her sister ships Morea and Malwa also had it fitted in May 1909). Mantua was the first British mail steamer to carry wireless into Sydney Harbour on her maiden voyage."

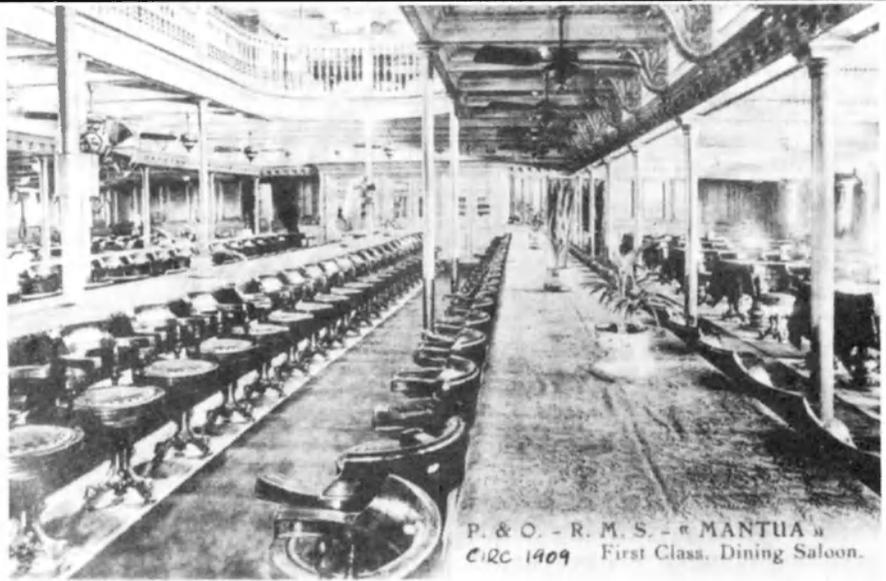
My father was not radio minded — he was musically oriented and played the piano on that maiden voyage of 1909. Meanwhile, its wireless operator "pounded the brass" on probably a Marconi Spark transmitter. Years later I went to UK (1938) on the "Jervis Bay". Its main spark transmitter was a rotary gap. Its backup transmitter was a single-valve self-excited oscillator! This ship's callsign was GSMQ. My callsign, acquired four years earlier, was — and still is — VK2IK.

As a corollary to the story, what of the receivers and transmitters that would have been used on shore to communicate with Mantua? From what I can glean from my father's work records, Mantua was in Sydney Harbour mid-July 1909, as she left Tilbury mid-May and returned mid-September.

Sydney Radio VIS, as we knew it in the 1930s, was not in existence. First identified as POS, it came on air 19 August 1912. The first officially licensed shore station was installed by the Australian Wireless Company in August 1910. This first coast station was installed on the 16th floor of the Hotel Australia and had the callsign AAA.

Around 1910 the Rev Father Shaw had an experimental transmitting station and factory at Randwick. He later, between 1910 and 1913, built about 17 Spark transmitting stations which were installed around the Australian coastline, Port Moresby and Thursday Island.

However, before all this, in 1909, it would appear that the only operative



SS "Mantua" First Class Dining Room.



Charles Edward Brown (extreme left) and musicians — circa 1909.

coast station was the experimental station of Charles Maclurcan. His station was situated in the Wentworth Hotel in Lang Street, Sydney. It is quite probable that this was the contact station on that maiden trip of Mantua and on its later trip in January 1910. Following those trips, Mantua went yachting, and on Indian Mail, and returned to Sydney with Australian Mail in February 1911. By this time she was probably working through the Pennant Hills Coast Station POS.

On a personal note, our family home at Marrickville, and later Earlwood, bore the name of "Mantua" as a reminder of our family's association with that "naughty ship".

## The photograph on the front cover — SS "Mantua"

This is a copy of a postcard posted by Charles Edward Brown, father of VK2IK, on board the "Mantua" en route to London from Bombay. The ship was returning with passengers and mail from India, having already taken passengers and mail to India. The card was addressed to Miss F Barchfield (Florence) at Paddington, Sydney. Flo was later to become Charlie's wife on 2nd November 1912. The "Mantua" sailed on 30 November 1909 for Australia, and the card bears that date as its postmark. The original card and others have been carefully preserved this past 82 years. ar

# Pager Interference — How I solved My Problems!

**Christopher Davis VK1DO**  
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**A**MATEURS ARE no doubt aware of the difficulties some amateurs have experienced with their 144-148 MHz equipment changing its receiver performance, due to what is clearly the influence of nearby transmissions, both in terms of frequency proximity and geographical proximity.

If this problem is news to you, or if it brings you wide awake when you are reminded of the anger you feel toward these transmitters and sites, then let me gain your undivided attention by stating at the outset that my personal experience and objective tests indicate that the problem is rarely, if ever, the fault of the paging transmitter, or any aspect of its site engineering.

Some readers will have turned the page by now, or made a final mental note that VK1DO has lost the lock in his personal phase locked loop. Perhaps you are just not aware of how frustrating the difficulty of operating near pagers is.

Pagers have been repeatedly described in recent articles. Just to briefly acquaint you with their operation; the pager is a pocket sized receiver which monitors a preset frequency between 148 - 149 MHz. When an appropriately encoded signal is received, uniquely intended for that pager, an alarm bleeps. This bleep allows doctors, software engineers, important people and yuppies to create scenes in restaurants and picture theatres as they rush to the nearest phone box as if they were Clark Kent about to don the miracle outfit in readiness for selfless public service.

Some of the recent pagers incorporate quite sophisticated text receiving capacity with a limited LCD readout that requires the reader to page through the groups of words in a detailed message.

These pagers are an economical way of keeping all sorts of people on call, without the hassles of giving them a costly mobile phone. The number of people able to be paged and the number of different frequencies and sites often duplicating the messages guarantees pretty steady transmissions in the 148-149 MHz segment, particularly during business hours.

If you have never experienced interference, it might be a credit to the immunity of your receiver, or you might be sufficiently removed or worse still your receiver/coax/antenna are rendering you deaf. For amateurs with recently manufactured gear of an amateur intended kind, running some sort of gain antenna within five kilometres of a pager site, or even handhelds within two kilometres, the breakthrough when it occurs is often breathtakingly dramatic. Its like tuning to a busy packet channel. Other forms of breakthrough might just take the form of masking the signal you intend to receive with a phantom S meter deflection.

Without fail, amateurs I have heard discussing the problem immediately blame the on site engineering of the pager transmitter. What is erroneously being presumed is that the signals are in existence where our frequency readout, or channel knobs, suggest.

Assume for a moment that such an

unfortunate state were true. The pager signals which mostly bother me are located on a communications site, Isaacs Ridge, which is just under 2,000 metres away line of sight. When certain transmitters fire up, my rig indicates full scale deflection on those signals. During SSB operation the effects are far more exciting, and indeed mysterious as the onset of paper transmissions, while the beams are facing the pager site, is accompanied by the television sound carrier of local channel seven. Are not these pager engineers strange creatures? Fancy adding television sound to their transmissions!

Well of course the FM sound carrier is not on the pager transmitter. Nor is the signal actually plonk in the middle of the SSB band of two metres. If the signal were actually occurring on what our dials suggest, and assuming that they are strength nine plus on our outside antenna, then surely if we substitute an inferior antenna, still able to see the site, or an antenna on a remote site, still able to see the pager site, then each of these supposedly in band signals would still be tuneable, only weaker.

Well, below a certain level of antenna efficiency these signals completely disappear. Yes, they don't even have the technical courtesy to follow the usual pattern of gain degradation or path loss and gracefully remove the signal strength meter from full scale and head down progressively toward zero.

What we are observing in such a demonstration is a threshold effect. Below a certain level of received signal, the receiver ceases to suffer massive overload of either front end RF stages, mixer stage, or even the IF stages.

There are three causes of interference.

One is sheer front end overload with consequent additional mixer behaviour by stages intended to be linear, and indeed the mixer stage itself going into a mode of operation way beyond its expected role.

The second and most grossly ignored is the capacity for Phase Lock Loop generated local oscillator signals to have their own spurious components. The spurious component might be 60 dB down from the genuine article, however, it does not take much receiver capacity inadvertently looking for signals in the 148-149 MHz band to get

good reception from a 100 watt transmitter operating into a gain antenna that looks into your back yard.

The third cause could be a combination of the first two, and/or the IF stages simply crumbling under the weight of a signal, which might have been as much as one tenth of a milliwatt at the antenna, amplified by at least 40 fold in the RF stage. Perhaps another moderate increase in the mixing stage and the first IF stage is trying not to become non linear or mixer like with a signal of some 10 milliwatts.

Without getting stuck into a gripe on how they don't build things like they used to, it is true that the most immune radio I have on this site is a crystal driven 20 year old receiver with a multi element front end. The other is a commercial two way, worth perhaps 50% more than the usual amateur rig. These rigs basically operate as if the papers were not there.

The solution at this site for weak signal SSB operation was the installation of a passband cavity tuned to 144.2 MHz with a notch cavity ahead of it tuned to 148.6 MHz, which is the principal problem here in southern Canberra. The passband cavity has about 500 kHz bandwidth allowing a check on beacons on 144.4 and has about 0.5 dB insertion loss. The notch has a negligible insertion loss and reduces 148.6 MHz way down before the preamp has a chance to be overdriven. The cavities are used before the mast head preamp to prevent initial overload and consequent production of seemingly in band signals.

My solution was courtesy of advice and logistical support given by Rob Millikan VK1KCM and Paul Bell VK1BX. Using two different receivers which were previously pathetic in their behaviour, the cavities transform their operation into a civilised mode. A recent acquisition of a receiver with a double balanced mixer with high level injection suggests that I can operate some receivers at this site even without cavities, until I switch in a preamp with probably insufficient strong signal capacity, once again sorted out by inserting the cavity filters.

The conclusion is, don't despair. On air bagging of the pagers is pointless. Demonstrate your technical experimental licence and try some cures. Good luck. ar

# A Message from the Board

Ron Henderson VK1RH  
Federal President



Your Board members took a few moments from their busy schedule to pose for this photograph. Seated from left are Neil Penfold VK6NE, Hugh Blemings VK1YYZ, Peter Maclellan VK3BWD, Murray Kelly VK4AOK. Standing from left are Jim Forsyth VK7FJ, Bill Wardrop VK5AWM, The Board President — Ron Henderson VK1RH, WIA General Manager and Secretary — Bill Roper VK3ARZ, Minute Secretary — Brands Edmonds VK3KT, Terry Ryeland VK2UX, Roger Harrison VK2ZTB.

**Y**ES YOU DID READ that correctly, at the July Federal Council meeting a package of Regulations was adopted. They were made under Article 103 of the WIA's Articles of Association, These Regulations are the first steps of the restructuring of the Federal body initiated at the last Federal Convention. The changes are relatively simple, the Executive has been done away with, the Federal Council will now call itself the Board and Federal Councillors are now

also Directors of the WIA Company. For the purists in our numbers the Executive cannot just disappear until the Articles are rewritten, for it has legal responsibilities. In the interim the Councillors are the only Executive members and they have agreed to only meet when required for Australian Securities Commission business. The practice of quarterly meetings continues, however instead of spending the weekends in Executive, the whole of the two days is devoted to Board (or Coun-

cil to use the more familiar name) business.

**Why has this happened?** Well for several years the Federal Council had been dissatisfied with some aspects of the management of the WIA. I can recall that as VK1 Federal Councillor in the early eighties I had some misgivings. In particular the Council as the supreme body according to the Articles, is charged with making policy. Yet the Council, meeting only annually and very formally in Federal Convention, began to feel the Executive, which was required to meet frequently to manage the WIA, was usurping its authority. Our Past President Peter Gamble, identified this problem and recommended the Federal Councillors also become members of the Executive and meet more frequently to achieve a greater involvement in management. As you are aware this situation prevailed until last May and did bring the two groups closer together. Of concern was the difficulty in remembering when the meeting was in Executive; where everyone was a company director and responsible for the well being of the Federal WIA company, and when the meeting was in Federal Council where Councillors had to represent strongly the views of the shareholders, their Divisions.

**What else has changed?** When the present Articles of Association were adopted back in 1974 the Federal body met only annually to formulate policy. Since then changes, such as employing full time staff, taking over publishing AR from VK3, a single computer aided membership and subscription data base, more frequent negotiating with DoTC and two WARC's have occurred. The continuing demands upon Victorian amateurs to find volunteers for two management structures, their own VK3 Division and Federal Executive led to a shortfall of helpers that is still with us today. Whilst Federal Executive was demanding on people, still further volunteers were needed for the Publications Committee, FTAC and Federal coordinator positions. Only recently the VK3 Division, in announcing its council for this year, observed good volunteers were few and far between and noted their President was in his eighth consecutive year of office.

**Has this reduced the load on VK3?** Actions taken several years ago to elect

Executive members from outside Melbourne were only a partial success. No funds were available for them to attend monthly meetings and they could only contribute through projects or written assignments. As the number of non Melbourne Executive grew the Divisions accepted responsibility for travel to quarterly weekend meetings. The following year Councillors were elected to Executive and funded quarterly meeting included in the Federal budget. There is no doubt more frequent meetings have made the WIA a much more responsive body and the extended Executive did reduce the load on VK3 to an extent.

**Who is going to do the extra work?** The Federal Council has for several years observed the increased responsiveness of the WIA, brought about by employing a capable General Manager and supporting office staff. People these days expect quick answers from service industries. Our members are people and the WIA is very definitely a service industry, for it is here to serve members and not the other way around! Like it or not our present good service image in the eyes of members is due to paid employees. This does not mean the volunteer is no longer needed, far from it; however the volunteers duties have to be aligned with circumstances. Some jobs only need to be done at intervals and can be done by volunteers such as Federal and Divisional Councillors. Returning to the question posed, the Council felt the Executive, in its last few years, was looking too closely over the General Manager's shoulders, and being too involved in the routine operations of the WIA.

**Has too much been heaped upon the General Manager?** Yes and no. He has been given much more responsibility to conduct the day to day operations of the WIA without interference, however he does need broad guidance in the form of policy. That is where the Board is now required to devote more effort. Fortunately much policy direction already exists. The Convention resolutions from past years are listed in an index of extant policy. Also in the mid-eighties Council adopted a series of Policy Statements on what were then burning issues. Last May's Federal Convention directed the Board to review and update those Policy State-

ments and prepare new ones where gaps were seen. These recorded decisions become the guidance to the General Manager. Even with this background material the General Manager still needs support at often short notice. In the past, the President and Vice President provided that advice and the situation will not change. It does mean that with a President not resident in Melbourne the opportunities for face-to-face discussions are less, but with modern communications means, such as the Fax in the President's home, measures have been taken to get over these problems.

**Who is going to do the Executive's work?** Obviously those who have replaced them, the Board. Being a Board member now is very different from being a Federal Councillor ten years ago. My recollection of those days is one received monthly mailings from the Federal Office, answered the odd query, supplied your subscription figure once a year, and came to the Federal Convention for a talk-fest over an extended weekend. Agenda items for the Convention were not taken all that seriously and many which were adopted were impossible for the Executive to implement, given the resource limitations even then.

The present Board member receives weekly routine mailings, most require fairly quick responses and phone contact is quite common. Quarterly weekend Board meetings occupy typically 15 hours of formal business, plus many more in liaison. The agenda for the last one included 23 items, and financial management is an important legal responsibility of Directors. Indeed Directors are now expected to possess financial, administrative or small business skills. In carrying out their duties conscientiously they will have no time for other Divisional responsibilities. With such demands upon them, the days of the past when office bearers stayed on for years are over. It's now far better to do one job well for a limited tenure then take a rest break.

**Will you keep the members informed of Board activities?** Most certainly yes. This article is the first of a series to bring you all up to speed on recent happenings. On the other hand I am sure members do not wish to see valuable AR column space used on lengthy Board minutes arising from quarterly

meetings of over 15 hours duration. What the Board has in mind, is to publish in AR in point form, all the key issues covered at each quarterly meeting. Please take it as read that Board members examined the latest financial performance sheets, ratified the accounts for payment and perused the membership statistics, current correspondence list, outstanding Board resolutions and active DoTC topics. To confirm this promise the point report from the July Board meeting appears elsewhere in this issue.

**How do I, a member of the VK? Division find out more about Federal happenings?** Nothing has changed in that regard. WIANEWS will continue to be published each month together with the quarterly Board reports. Your Divisional Board member, formerly known as Federal Councillor, remains your first point of contact. The WIA Directory, published in every issue of AR provides names and contact details. Board members need feedback from their members to allow them to better represent the views of the whole of the WIA and not just a vocal minority.

**Report from the July Board Meeting.**

The Board, at its 18/19 July 1992 meeting:

- Adopted a batch of 52 Regulations, prepared under Article 103. They will facilitate restructuring of the management of the WIA until new Article of Association are prepared, approved and adopted.
- Received a report from the General Manager on Federal Office matters. The office computer LAN has been upgraded. Routine checking of incoming computer disks has revealed two instances of viruses in recent times. Government legislation will influence superannuation involvement by the staff, which will in turn influence the budget. Insurance covers are being rationalised.
- Received a report on publications in which changes to staff, duties and publication methods were explained. The WIA now holds unlimited tenure for publication of the Call Book. Increasing demands for the Call Book in digital form are arising, these would influence the sales of hard copies.
- Received a report on examinations which revealed the average pass rate

to be 51%. The income from examinations, after due account has been taken of foregone income on members' funds used to establish the service, showed the break-even point was now beyond three years.

- Heard David Wardlaw had attended another CCIR/WARC meeting.
- Voted "Aye" to the admission of the Association of Radio Amateurs of Slovenia and the Croatian Radio-Amateur Association to IARU membership.
- Received an introductory discussion paper from Roger Harrison on AR production and referred it to the WIA's Publisher for comment.
- Noted the matter of a cross band 2 — 10 metre repeater proposal from VK7 could well be resolved by the revision of amateur licence regulations now under negotiation.
- Discussed at length a costing review of the WIA Examination Service, observing the good availability of the Service had led to examiners scheduling many frequent small exams which had not been anticipated in the original costing planning.
- Agreed the WIA Exam Service is a service to all amateurs and potential amateurs, whether WIA members or not.
- Agreed members' subscription funds should not subsidise the WIA Exam Service, and agreed use of such members' funds must be adequately recompensed including foregone income.
- Noted the need for a balance between services to members and trading operations, and agreed that in costing operations of the WIA Exam Service all identified costs, including foregone investment income, be taken into account.
- Agreed the WIA Exam Service is to achieve an annual operating profit, and endorsed an increase in each examination subject fee of \$5 to take effect from 1 Oct 92.
- Discussed at length a paper from the General Manager on the cost effectiveness of various recruiting options and provided guidance to him on a number of points. The principle considerations are retaining members and providing services to members.
- Received a briefing from the General Manager on amateurs' submis-

sions to DoTC on the proposed licence changes as copied to the WIA. The consensus of views expressed did not differ markedly from existing WIA policy. In particular the creation of a range of licence grades, with increased privileges for increased qualifications was supported. The successor "Combined" licence was seen as a distinct and higher grade than the present combination of Limited and Novice licenses. The General Manager was provided with guidelines for negotiating the completion of the matter with DoTC.

- Adopted a definition of admissible expenses for Board members and Officers.
- Examined subscription options for 1993, observing the difficult financial circumstances of the nation and consumer price index trends.
- Noted a replacement was required for the Federal Videotape Coordinator, and asked Board members to consult with their Divisions as to a suitable person.
- Referred a draft Policy Statement on Trading to Peter Maclellan for redrafting for the October meeting.
- Observed that not all amateurs are contributing to the cost of international representation, namely WARC and IARU.

The Board identified three options :-

1. funding directly by DoTC.
2. funding by DoTC through an addition to all licence fees.
3. partial funding from a levy on examinations.

The General Manager was directed to negotiate these with DoTC.

- Adopted the General Manager 1992 Evaluation and Performance report.
- Reviewed two batches of revised Policy Statements, made amendments to some and referred several for specialist advice.
- Noted a proposed timetable for the update of the Articles of Association.
- In general business observed the impending change of Director for VK2, the need for Board Standing Orders and a proposal to have the Board briefed on its legal responsibilities by a legal representative.
- The Board met formally for over 15 hours and agreed to meet again on 24-25 Oct 92 in Melbourne. ar

# Remembrance Day Contest — Opening Address

**T**HIS YEAR'S Remembrance Day Contest opening address was given by Gwen Andrews, the Assistant Secretary of the Radiocommunications Branch, in the Department of Transport and Communications.

The Operations Branch, or R-OPS, is responsible for licensing, frequency assignment and regulatory activities in spectrum management throughout Australia. It comprises more than 300 staff, located in 27 offices across the country.

Ms Andrews' career in communications policy spans 10 years and two countries. A Canadian by birth, she is now a permanent resident of Australia. She worked for the Canadian Department of Communications for a number of years, specialising in broadcasting and satellite policy, and in federal-provincial relations. During 1987 and 1988, she worked in Australia in broadcasting, telecommunications and radiocommunications policy.

She returned to Australia at the beginning of 1991 to work on the Department's review of spectrum pricing and management. She was the chief author of the Department's submission to the House of Representatives Committee on Transport, Communications and

Infrastructure on Management of the Radio Frequency Spectrum. She also helped draft the Department's proposals to Government in response to the report on the Committee.

She was appointed Assistant Secretary of the Radiocommunications Operations Branch in February 1992.

Ms Andrews lives with her husband on a property near Gundaroo, north of Canberra.

## **The RD Contest Opening Address**

"Thank you for giving me this opportunity to speak to you at the opening of the 1992 Remembrance Day Contest. I understand that this event has been a key feature of the amateur service in Australia since the first memorial contest in 1948, 44 years ago. I commend the organisers of the contest for their efforts in continuing this important tradition to commemorate the sacrifices made by Australian amateurs in World War II.

Amateurs throughout the world have played an important part in the development of radio-communications, often pioneering technological advances that are benefiting the commu-

nity as a whole. There is something special and unique about amateur radio-communications. It is a truly experimental service that actively encourages the use of the latest technological advances (such as satellite and computer-aided techniques), yet it still continues to attract a wide interest in one of the oldest forms, the use of morse code.

In the Department we have an important role to play in fostering the continuing development of radio-communications technology and in contributing to the Government's objectives in micro-economic reform. Improving the efficiency of licensing procedures, developing standards and allowing services to operate in a flexible, but controllable, environment are important objectives within the Radiocommunications Division.

A key priority of the Radio Communications Division is to ensure that the system of spectrum management provides greatest benefits to the community. A report of the Bureau of Transport Communications Economics and a more recent parliamentary inquiry into radio frequency management both identified shortcomings in the current system of spectrum management. Growing demand for access to the spectrum in a rapidly changing technological environment, together with recent reforms in telecommunications and broadcasting policy, will increase congestion in the more popular frequency bands and increase pressure for major reform of spectrum management.

Proposals to Government that would see more market-based techniques of resource management introduced are under consideration. The Department recently made an important step towards improving the future of the amateur service by reviewing some aspects of the service. Many of you will be aware of the Department's initiative, in consultation with the Wireless Institute of Australia, to introduce important changes to amateur licence conditions. We have also sought advice from the broader amateur community on these proposed changes, and we appreciate your responses.

A key element of proposed changes is to place more emphasis on self-regulation within the service, leading towards greater involvement of



**Gwen Andrews, Assistant Secretary of the Radiocommunications Branch DoTC records the 1992 Remembrance Day Contest speech.**

amateurs in the future management of the service. We want to create an environment that will encourage Australia's youth to gain an easier entry into the service. We also want to provide an incentive for participants within the service to further develop their interests and knowledge of radio-communication

tions, using the latest technology, without unnecessary restrictions.

Changes in the regulatory approach to the service go beyond the national level. Earlier this year, Departmental staff, with the assistance of representatives of your own amateur service, participated in the World Administrative Radio Conference in Spain. The conference covered a wide range of issues and was the first such opportunity to address many of the broader radio regulatory issues since the previous

World Administrative Conference of 1979. The results of this year's conference will require additional work, both internationally and within Australia, to implement and manage the changes. In the Department we will need to arrange a considerable number of changes to Australia's Spectrum Plan, in consultation with industry bodies and users. The amateur service representatives in this year's conference had a unique opportunity to learn from the experience in exploring options for reform of the process of international frequency management and decision making.

To return to the purpose of today's contest, I would ask that you take time to reflect on the sacrifices made by 26 Australian amateurs during World War II, it is also a time to think about the significant contribution that has been made by many of the past and present leaders in the amateur community, at your national and local level, who have given so much of their time and effort to the community. Australian amateur operators have made, and are continuing to make, significant contributions by their unselfish assistance in times of disaster. It is also encouraging to see that many amateurs throughout Australia are continuing to foster Australia's links with other countries.

In closing I would again like to thank you for this opportunity to talk to you on this important commemorative occasion, and to wish you well in the forthcoming contest!" ar

# JENLEX FILTERS

## Get Rid of Pager Interference

The range of JENLEX 50 Ohm helical filters is designed to reduce or eliminate pager interference on the 2 metre band. They are compact, weatherproof filters suitable for indoor or outdoor use.

- NHF1: is a 2-stage filter rated at 100 Watts, with a notch depth of better than -40dB at 148.6MHz and an insertion loss of 1.7dB at 147.600MHz.

**Price \$175**

- HNF2: is a 4-stage filter rated at 50 Watts, with a notch depth of better than -40dB at 148.6MHz. Maximum depth of notch is -80dB with narrow band width.

**Price \$175**

- HNF3: is a 3-stage filter rated at 50 Watts. Maximum depth of notch is -55dB with a narrow bandwidth.

**Price \$150**

- HNF4: is a 2-stage filter rated at 10 Watts with an attenuation better than 30dB at 148.600MHz and an insertion loss better than -2dB at 147.600MHz. BNC connectors are standard for this model, small enough to be used on a hand held.

**Price \$150**

All prices are ex-works, including Sales Tax, and subject to change without notice. Packaging and Post is \$10 on all units. Notch frequency and depth can be adjusted at the factory at the time of order to suit the user's local needs.

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# Equipment Review

## The Yaesu FT-26 2M FM Hand Held

Ron Fisher VK3OM  
"Gaalanungah" 24 Sugarloaf Rd  
Boseonsfield Upper 3808

**H**AVING BEEN THE proud and satisfied owner of a Yaesu FT-23R for some years, I was delighted when Dick Smith Electronics suggested I might like to look over the new FT-26.

There were two things that impressed me about the original FT-23. First, the size, and second, the ease of use. There were just eight buttons, three knobs and a push switch to select high or low power. Simplicity itself. There were a few things that the 23 did not do well, though. Frequency stepping was selectable in two rates only, five and 10 kHz. Neither of these was ideal. The 10 kHz rate does not fit our band plan and, although the 5 kHz does, it was far too slow when tuning large segments of the band. Secondly, there were only 10 memories. Not bad for the time, but a few more would have been useful. Well, thanks Yaesu, you have retained all the good features and well and truly fixed the not-so-good ones.

### The FT-26. Features

The FT-26 is a compact hand-held receiver that covers 144 to 148 MHz on

transmit, and 130 to 174 MHz on receive. With the supplied battery pack it weighs in at 350 grams. The overall size is just 123 mm high, 52 mm wide and 32 mm deep. The shape has been rounded off compared with the square old FT-23. It fits into the hand very well. The battery supplied with the transceiver is rated at 7.20 volts, 700 mAh, and gives the rig a 2 W output capability. A larger 12 volt 600 mAh battery is available which produces a maximum output of five watts. There is also a DC input socket for a maximum input of 16 volts. With a full 13.8 volts input from a car system, the power out from the rig gets up around six watts. A wall pack charger is supplied which takes care of the 7.2 volt FNB-28 pack. A carry strap, belt clip, carry case and instruction manual complete the package.

The memory capability will satisfy the most critical. Believe it or not, there are now 50 full-time memories. In addition to this there is a call channel and two memories for upper and lower limits for band scanning. A new feature is the ability to tune each memory



Top view of the Yaesu FT-26, showing how readily it fits into the hand.

so that it acts like a separate VFO, and then choose to store the new frequency and retain the original.

### The FT-26 On the Air

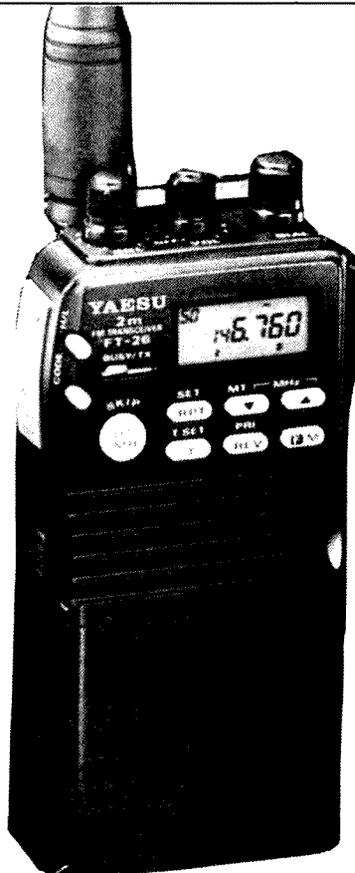
Having used the FT-23 for some years, the operation of the new FT-26 was very easy to master. I loaded up a few memories and got on the air. Received audio quality was crisp and clean. Naturally, audio power output is somewhat limited, as with all hand-helds, but quite adequate for normal hand-held operation. For use mobile in an average car, an external speaker would be an advantage to make the most of the limited audio output power. Audio output power was measured at just over 200 mW at 10 per cent distortion with an eight ohm load. Transmitted audio was rated as good quality, and the deviation appeared to be spot-on. The MH-12 speaker microphone I have for my FT-23 was compatible with the FT-26 and produced very acceptable quality on both transmit and receive. There are now four levels of transmitter power output selection. Using the 7.20V battery, high power produced an output of two watts, while low power No 3 level produced 0.5 watts output.

One interesting feature is the ability to change the display to a simplified readout. Instead of showing frequency, the channel number is displayed (see photo). I think I prefer the actual frequency to be indicated, but at least this does give another option. It is also possible to lock the keyboard completely to stop accidental changes in operating parameters. Low power No 2 provides 1.5 watts output, while low power No 3 level rises to 3 watts output.

As mentioned earlier, stepping rates can be set to 5, 10, 12.5, 20 and 25 kHz. As is usual, I found the 25 kHz rate fits

our band plan ideally and enables you to tune up and down the band very quickly. The FT-26 version sold in Australia has a special microprocessor to provide an automatic repeater offset set up for the Australian band plan. This feature can be activated or de-activated as required. CTCSS facility can be added to the transceiver as an option and, as it was not included in our review model, I was unable to check this out. However, a code squelch system is included. This even has a pager mode which makes the rig ring like a phone when the correct code sequence is received. Of course you need two similarly equipped transceivers for the system to operate. Another interesting feature now included with most Yaesu VHF and UHF transceivers, is the ability to transfer the memory contents of one transceiver into another. Has anyone out there actually used this feature?

One thing I found out right at the end of my test was that the transceiver will not fit into the Yaesu CA-2 desk stand. The size is right, but the locating grooves on the FT-26 are in a slightly different position than the FT-23. So, no way will it plug in.



### **The FT-26 Instruction Manual**

Like all current Yaesu manuals, the FT-26 owner's manual is very well presented. One of the very nice features is a fold-up concise instruction sheet. Until you get into the way of operating the rig, you can slip this into your wallet for instant reference. A full circuit diagram is included but, as usual, no technical information is supplied.

### **The FT-26 Conclusions**

This would have to be one of the neatest little hand-helds around. It has all the facilities needed, and yet is very simple to operate. Yaesu seems to have found the right formula for hand-held transceivers. When my FT-23 wears out, this one will be top of the list. The FT-26 retails for \$399, and our review transceiver was supplied by Dick Smith Electronics, to which all enquiries should be forwarded.

**Front view of the compact Yaesu FT26 2 metre FM hand held transceiver.**

ar

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# Technical Abstracts

Gil Sones VK3AUI  
30 Moore Street  
Box Hill South Vic 3128

## Electrostatic Discharge Detector Probe

**B**RYAN P BERGERON NU1N in QST May 1992 describes an inexpensive probe to detect electrostatic discharge. Electrostatic discharge is the charge which lurks waiting to mangle the IC's of the unwary. It is responsible for many puzzling failures in modern electronic equipment.

The probe uses a liquid crystal display (LCD) from a digital thermometer. Any LCD will do but a thermometer also provides a very convenient probe housing. The general setup is shown in Fig 1. The thermometer electronics are discarded and only the LCD display is used. The LCD forms a very high impedance detector and displays any potential encountered.

Both SHARP and BD makes of thermometer were shown undergoing conversion. Similar units may be avail-

able locally. As with all such schemes some experimentation is called for.

## Burn Out Proofed Tune Up Noise Bridge

There have been many schemes to use a noise bridge to allow tuneup without transmitting a carrier on the frequency. All goes well until the time the transceiver is inadvertently keyed into the noise bridge. In Break In Jan/Feb 1992 A M Wooler ZL1AUW describes a modification to one such circuit to burn out proof the noise bridge.

The article is called Quiet Tune Revisited. RF burn out proofing is obtained by placing small lamp globes in series with the line to the transceiver and also by some protective diodes in the noise bridge. The circuit is given in Fig 2.

Lamp globes have a low cold resistance and hence receive loss is small. The loss is insignificant in any

case as the only signal being received when the globes are in circuit is from the noise bridge. Further protective diodes are incorporated in the output stage of the noise bridge.

Should the transceiver be keyed up into the noise bridge the lamps light alerting the operator and limiting the RF current flowing into the noise bridge. The current is insufficient to damage the noise bridge with its added diodes.

A local equivalent of the basic tune up noise bridge appeared in AR for Sept 1991. This describes a device similar to the ZL Quiet Tune which was a ZL kit.

## Frequency Shift Attenuator

Attenuating strong signals is especially difficult when using a hand held transceiver in a fox hunt. The signal tends to bypass the attenuator and find its way into the front end straight through the plastic case.

PA0ZR F A O Eenhoorn found a way to get around the problem and described it in Electron June 1991. Also featured in Technical Topics Rad Com Dec 1991. He frequency shifted the signal 500 kHz and attenuated the mixing product. Only one transistor and a mixer diode are used. See Fig 3.

The mixer diode is made to double as an attenuator by varying the DC current through it. This gives initial attenuation on the signal frequency and later on the shifted frequency. The diode functions as both diode mixer and attenuator. By this means a large range of attenuation is available. For maximum sensitivity the whole device can be bypassed. Then connect it in series as the signal builds up as you close on the fox.

Locally a 600 kHz oscillator may be more convenient. This would allow the reverse repeater facility of the hand held to be used to swap between direct and heterodyned signal.

For those not too keen on a free running oscillator even at 500-600 kHz then maybe a little oscillator circuit from an anonymous designer may appeal. This uses a US color crystal of 3.579 MHz and divides it to give close to 600 kHz. See fig 4. This device originally appeared in AR March 1988. You may like to try it with PA0ZR's idea. The output should be adequate to drive the base of the emitter follower. A 3

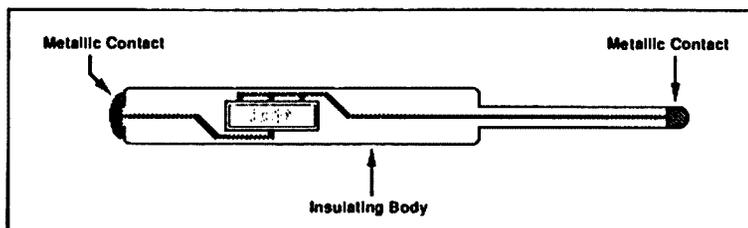


Fig 1 LCD from Thermometer makes Electrostatic Discharge Probe



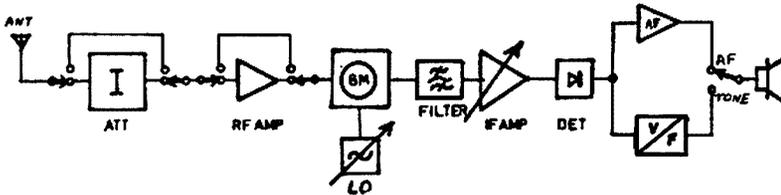


Fig 6 Fox Hunt Beam and Receiver.

pitch of an audio tone. This is similar to the scheme incorporated by Ian VK3MZ in a local sniffer. AR Jan 1992.

The receiver and beam are shown in Fig 6. The receiver skeleton block diagram is shown in Fig 7.

The receiver tunes 144 to 146 MHz. A switchable front end attenuator is provided and the RF amplifier can be switched out of circuit. A crystal filter

is used after the diode balanced mixer. The IF amplifier stages gain is controlled by a manual gain control. The detector drives an audio amplifier and a voltage to frequency converter giving an audio signal strength function.

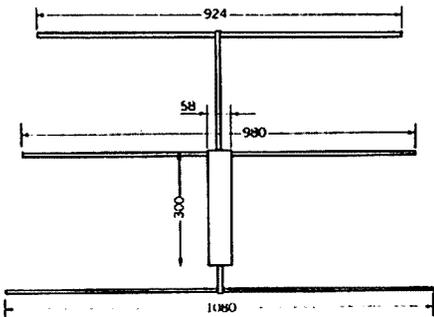
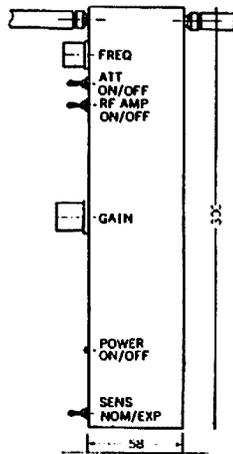
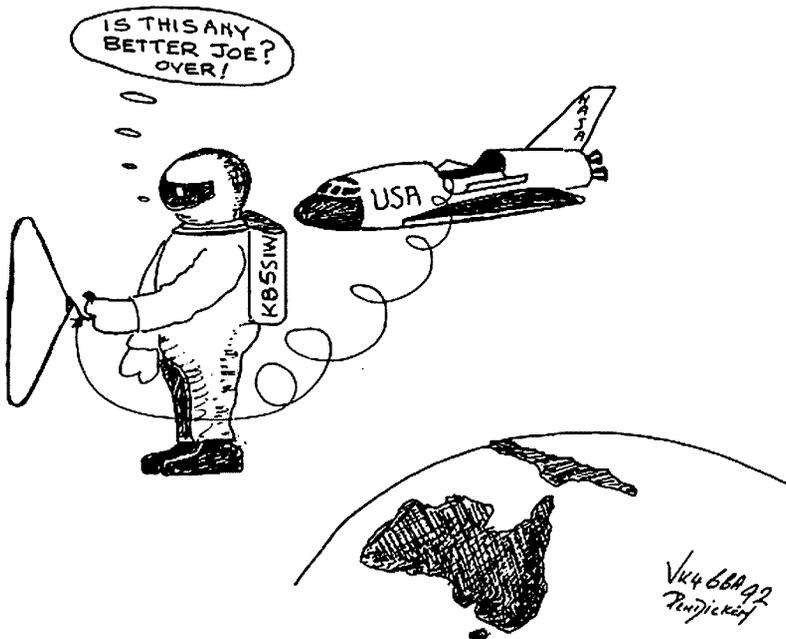


Fig 7 Skeleton Block Diagram of Receiver.

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Cat D-3494

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Receive a quality, USA made, Hustler 2m 5/8 wave magnetic antenna valued at \$49.95, with every FT-212RH. Cat D-4805

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## FT-411E 2m HANDHELD



Superb performance on the 2m band. Top of the line features, reliability and value for money from the name you can trust...Yaesu. Only the compact FT-411E offers these features as standard ...

- 144 to 148MHz transceive operation, with enhanced receiver performance
- Ultra long life 1000mAh 7.2V NiCad battery pack (supplied as standard!)
- 2.5 watts RF output as standard, 5 watts with 12V DC (or optional FNB-11 NiCad)
- Better than 0.16uV (12dB SINAD) sensitivity
- Stand-by current consumption (1 sec SAVE) only 7mA
- Programmable power saver for extended operating periods
- Keypad or dial frequency entry, with selectable tuning rates
- 49 tuneable memories which store repeater offsets
- Band, memory, priority or limited-band scanning
- Just 55 x 155 x 32mm
- Carry case, belt clip, carry strap and approved AC charger
- Now with enhanced receiver sensitivity and improved strong signal handling!

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## FT-470 2m/70cm HANDHELD



Dual-band performance at its best! The compact FT-470 is an easy to-use handheld transceiver that gives you greater flexibility with a sensible microprocessor control system for both 2m and 70cm operation.

- 144-148MHz and 430-450MHz transceive operation
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- 2.3 watts RF output (both bands) as standard, 5 watts with 12V DC
- Back-lit dual 5 1/2 digit frequency LCD screen
- Better than 0.16uV (12dB SINAD) sensitivity on both bands
- C.T.C.S.S. tone squelch encode/decode inbuilt as standard!
- Stand-by current consumption (with 1 sec save) only 8mA per band
- Keypad or dial frequency entry, with selectable tuning/scanning rates
- 21 tuneable memories and 2 VFO's per band
- Band, memory, priority or limited band scanning
- Complete with carry case, belt clip, carry strap and approved AC charger
- Only 55 x 180 x 32mm

Cat D-3360

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WARRANTY**

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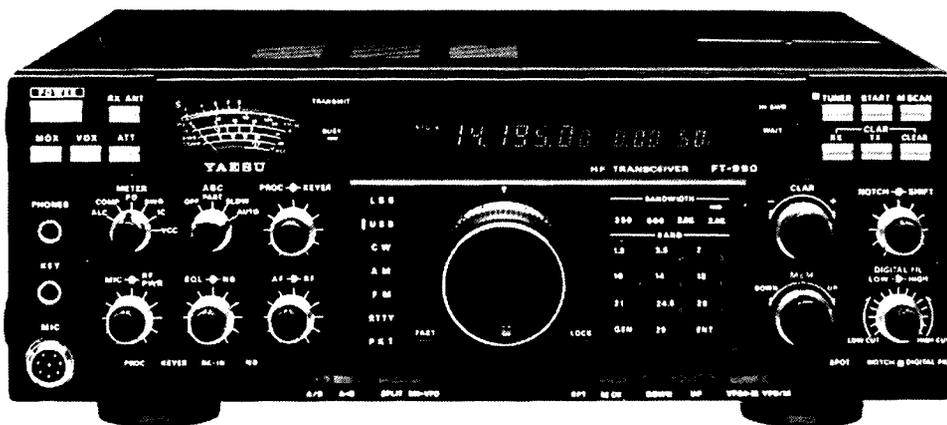
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CAN AFFORD"

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**ELECTRONICS**



# THE SENSATIONAL YAESU FT-990 HF ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000, and for good reason. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000. But in a more compact, economical package that sports several new advances in both transmitter and receiver design.



Cat D-3260

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# \$3495

2 Year Warranty!

### Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be... at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for a RTTY terminal unit and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

### Convenience Features

- A highly efficient AC switch-mode power supply is built-in. It allows high duty-cycle transmission while keeping the weight way down, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories is standard!
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## HUSTLER HF TRAP VERTICAL ANTENNA

The tradition continues! The 5BTv is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1kW PEP power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTv can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTv can be fed with any length of 50 ohm coax cable. Cat D-4920

**\$299**

### 30m Resonator Kit

Adds 30m coverage and includes all hardware. Cat D-4921

**\$79<sup>95</sup>**

### VRK-1 Radial Kit

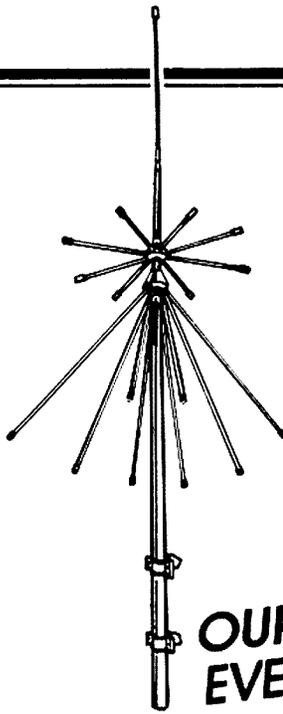
Provides a ground-plane for above ground mounting Cat D-4922

**\$59<sup>95</sup>**



## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm, and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware and instructions. Cat D-4840



**OUR BEST EVER PRICE SAVE \$10**

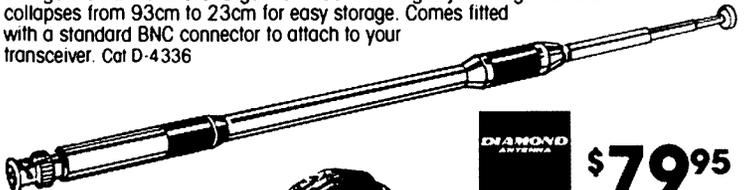
## ST-7500 2m/70cm MOBILE ANTENNA

A high performance dualband antenna at a down to earth price! The ST-7500 is just 1 metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality construction plus a tiltable whip structure makes it especially ideal for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended) Cat D-4810

**BRANER \$79<sup>95</sup>**

## 2m/70cm HIGH GAIN HANDHELD ANTENNA

The Diamond RH770 is a high gain telescopic dualband antenna for use on handheld transceivers when maximum range is required. It provides approximately 3dB gain on 2m and 5.5dB gain on 70cm. It weighs just 85 grams and collapses from 93cm to 23cm for easy storage. Comes fitted with a standard BNC connector to attach to your transceiver. Cat D-4336



**\$79<sup>95</sup>**

## HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL259 attached. It has 3dB gain with a power rating of 100W maximum and a flexible stainless steel radiator to minimise wind loading.



Cat D-4805

**\$49<sup>95</sup>**

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# A Simple Tuning Dial from Junk Box Parts

Drew Diamond, VK3XU  
'Nar Melan'  
Gatters Rd  
Wonga Park Vic 3115

Drew Diamond presents an interesting solution to the problem of finding a suitable dial drive for that receiver or similar project.

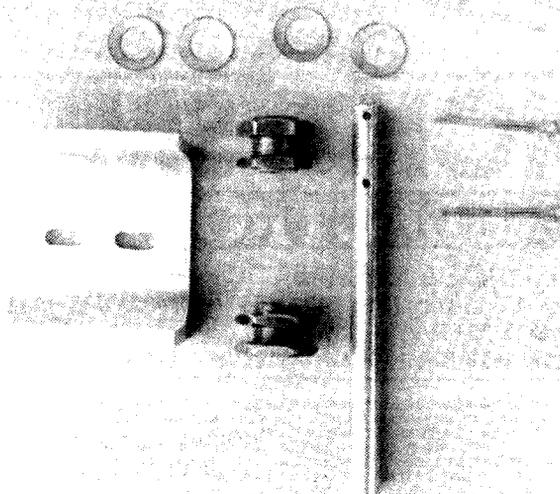


Photo 1 Component Parts of the Drive

**I**F YOU WERE TO ask a radio enthusiast; "what was the most difficult part to get for that receiver project of yours?" the reply may well be "a suitable dial". Gone are the days when we could walk into a radio components shop and buy one of those beautiful Eddystone dials (mind you — they cost an arm and a leg!), or even nice little Jabel dial for that matter, and the superb military type worm drives have all but dried up ( have you seen the prices asked at radio club sales lately?). At least one well-known firm can supply a dinky little vernier with a numbered scale, or a planetary drive, but they do seem rather expensive, particularly in the present circumstances. Some resourceful workers have succeeded in making serviceable cord type dials, but my own attempts have not really been satisfactory, nor were they what you would call simple to make. Here is an alternative approach, which provides surprisingly good resetability, reduction, and smoothness of operation.

The idea is borrowed from the rim-driven record turn-table principle, where a small rubber roller runs against the much larger platen. Here the knob driven 1/4 inch spindle (apologies for mixing metric and Imperial, but radio people still talk about, and use, 1/4 inch spindles or shafts) runs in two plain bearings, and a small length of rubber tube, fitted onto the spindle, is adjusted so that it grips the rim of the disc. If wall thickness of the rubber is small, say less than 2 mm, backlash will be minimal. The scheme will work with just one bearing, but smoothness and resetability is marginally inferior.

The plain bearings were obtained from two older style potentiometers (the newer ones may not be 1/4-inch bore). The supporting bracket is of extruded aluminium. The two holes for the bearings must be truly in line. Using a small round file, elongate the chassis mounting holes in the bracket to provide a means of adjusting the pinch pressure. The spindle is held captive with a small split-pin or scroll-pin each side of the rear bearing. Shim each pin with a plain washer or two, leaving just perceptible end-play. The spindle may be of brass or steel (avoid

aluminium for running surfaces — it has no self-lubricating properties, and soon becomes “gritty” with use). Before assembly, check that the spindle runs smoothly in the bearings, with perhaps just a microscopic amount of play. A tight fit can usually be eased by carefully running a 1/4 inch drill through the bearings a number of times. Also, polish the spindle by fixing it in the chuck of your drill — lathe fashion, and applying steel wool to the rotating workpiece. Upon assembly, a tiny smear of grease may be applied to the rear bearing, and the merest “sker-rick” to the front (lest it should creep onto the rubber tube).

The rubber part is “gas” tube, id 6 mm, od 10 mm, and seems to offer best durability and gripping characteristics for the application. It should be obtainable in small quantities from Clark Rubber, and scientific/medical equipment suppliers. 1/4 inch id fuel hose is a good second best.

Dial discs are not too hard to find. Valve type BC radios generally employ a disc attached to the variable capacitor for the cord dial, so maybe you could obtain one from a vintage radio buff. They can also be ordered from some disposals sources and older style radio parts shops. Make sure it has a rounded edge for running against the rubber roller. The front of the disc is painted with white undercoat in order to receive press-on letters at calibration. An arc shaped aperture in the front

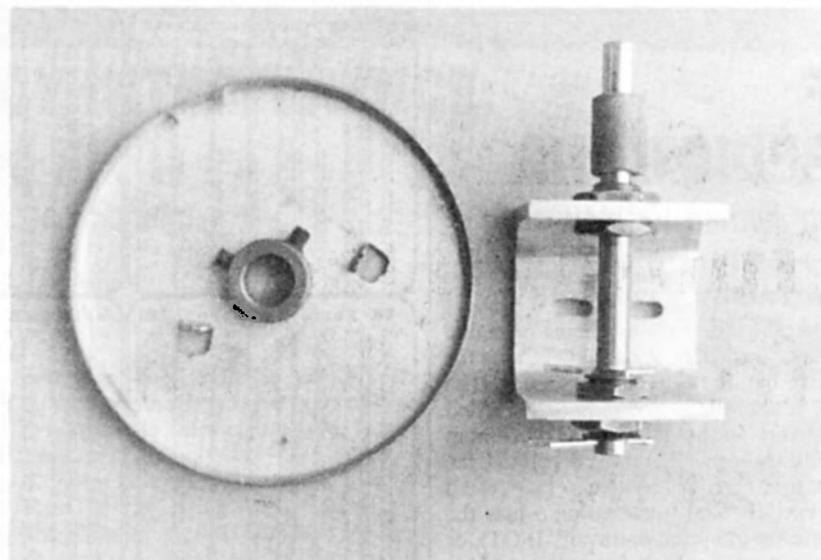


Photo 2 Dial Drum and Drive

panel and perspex window completes the assembly. The viewing area may be illuminated with one or two dial lamps positioned at the end(s) of the perspex so that light is conducted and diffused onto the calibrations.

In the example shown, the receiver covers a 1 MHz band, from 3 to 4 MHz. The disc diameter is 100 mm and the rubber diameter is about 8 mm, so the ratio is about 12.5:1. The 1 MHz is spread over one-half rotation of the disc, so there are about 6 spindle rotations to cover the whole band, which in this instance works out to about 170 kHz per knob revolution.

### Related Reading

1. Homebrew (cord) Tuning Dial-Pivnichiny, N2DCH, Ham Radio, Dec. 1988
2. The Fine Art of Improvisation-DeMaw, W1FB, QST, July 1985

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## A Call to all Holders of a Novice Licence

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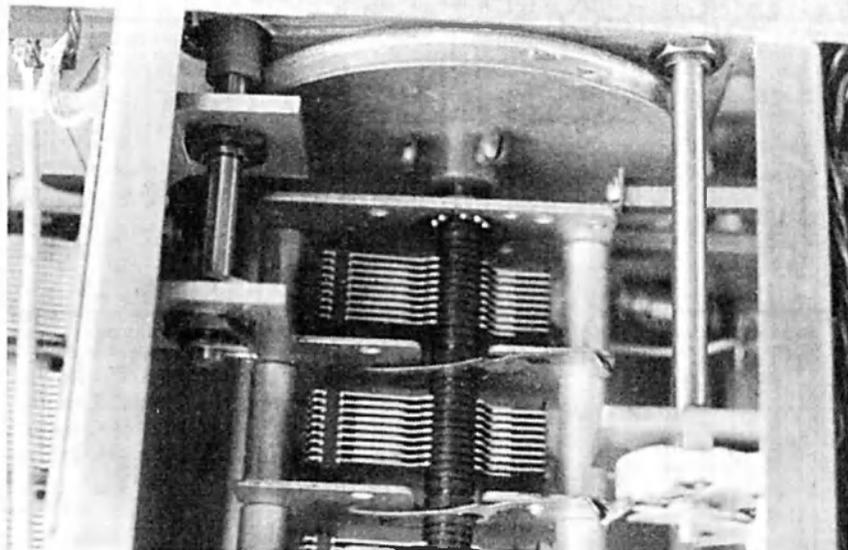


Photo 3 Complete Assembly

# RADIO FREQUENCY INTERFERENCE: How to Find It and Fix It

Editors; Ed Hare, KA1CV and Robert Schetgen, KU7G.

ISBN 0 87259 375 4, First Edition,  
Published by the American Radio Relay League 1991.  
16 Chapters, approx. 150+ Pages, WIA Divisional Bookshop Reference:  
BX186 Price: A\$27.00

I have owned and read many books on the subject of RFI, EMI, and EMC, over the years, and all have their good points. However this time they've got it right.

In one A4 sized publication of high quality production just about every facet of this diverse and often troublesome and perplexing problem area of our hobby is thoroughly covered.

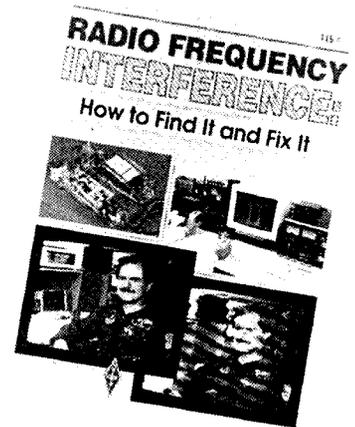
The publishers have wisely elected to recruit Authors with specialist knowledge in their field to write each individual chapter rather than one or two individuals to write the entire publication. In doing this the high levels of expertise of the writers shows through strongly, and is further evidenced by the numerous examples of problems and associated remedies for a myriad of EMI situations.

The Foreward, by David Sumner, K1ZZ, Executive Vice President of the ARRL., rightly points out that this book

covers not only Radio Frequency Interference, but the broader subjects of Electro Magnetic Interference and Electro Magnetic Compatibility.

Topics covered, for example, are; the First Steps, EMI Fundamentals, Troubleshooting, EMI Direction Finding, Transmitters, Television, Telephones, Audio Equipment, Power Lines and Electrical Devices, External Rectification, Receivers, Computers, Automobiles, Filters, a suppliers list, and other related topics.

This well indexed publication is also packed full of charts, drawings, diagrams, tables, photographs, humorous sketches (cartoons!), problems and cures, in fact I stopped counting at 150, but estimate that there must be about 600-700+ of the above examples that are very clearly illustrated, and help to make this a very easy manual to read and understand.



A well recommended publication for every Amateur or anyone for that matter (TV Service personnel, etc.) who becomes involved with EMI diagnosis, prevention, and cures. It is the best book in its class that I have read to date.

The review copy was supplied courtesy of Stewart Electronic Components, and is available from your divisional book shop.

Reviewed by: **Bruce R Kendall**  
**VK3WL**  
ar

## Repeater Link

Will Mc Ghie VK6UU @ VK6BBS 21 Waterloo Cr, Lesmurdie 6076

This month's Repeater Link is an article written by Will Scott VK4XP, who looks at the various methods of linking repeaters together. At a time of de-regulation in the repeater scene, this article puts into perspective the interesting options that can now be pursued without hindrance from short sighted regulations. Never before have so many possibilities been available to repeater builders and managers.

Here are a few ideas to start you thinking from Will Scott VK4XP.

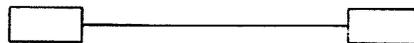
This article describes in simplistic terms the fundamentals of repeater linking. It discusses the five methods primarily used for linking, the need for standardised access across Australia and is the foundation for future articles to be submitted about repeater link controllers.

### The Five Methods of Repeater Linking

You may have thought that connecting repeaters together is a complex task requiring

lots of expertise and dollars. When it comes down to it the process is quite straight forward and need not cost the earth. There are in effect only five methods of connecting repeaters together. This article outlines the main concepts involved. All repeaters are linked using either one or parts of several of the methods covered below.

### Wired Link



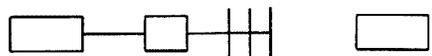
Repeater 1  
TX A  
RX B

Repeater 2  
RX C  
TX D

The wired repeater link is the easiest and cheapest way to link two repeaters together. Simply run a cable between both repeaters and the link is complete. Everything that is sent through one repeater is sent out through the other.

This method is ideal when two repeaters share the same site, for example a 6 m repeater and a 70 cm repeater.

### In-Band Link



Repeater 1  
TX A  
RX B

Link Radio  
TX C  
RX D

Repeater 2  
RX C  
TX D

In-band linking is a simple method of linking repeaters on different sites. It consists of installing at one repeater another transceiver used for linking. This transceiver is a mobile set tuned to the far distant repeater.

As can be seen from the diagram above, Repeater 1 is linked to Repeater 2 by a link set at Repeater 1. Repeater 1 transmits on frequency A and receives on frequency B. Repeater 2 transmits on frequency D and receives on frequency C.

The Link Radio wired to Repeater 1 transmits on frequency C to Repeater 2. It sends to Repeater 2 everything that is picked up by Repeater 1. And in return everything that is transmitted by Repeater 2 on frequency D is also picked up by the link Radio and passed to Repeater 1 for re-transmission on frequency A.

A beam antenna is often connected to the Link Radio to give a good signal for the link path itself.

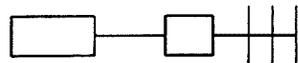
This method of linking is ideally suited for a link path that is line of site between both repeaters. It is economical in the sense that only one extra radio is used and no hub (or centre relay station) is required.

Sometimes problems of interference occur at the site where the two radios are in-

stalled. The Link transmitter can interfere with the repeater receiver, and vice versa. Additional cavities or separation between antennas may be necessary.

At present the link between 6800 Bundaberg and 7625 Miriam Vale temporarily uses this configuration.

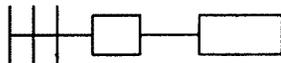
### Out-of-Band Link



Repeater 1  
TX A  
RX B

Link Radio 1  
TX E  
RX E

Out-of-band linking comes from using link radios not in the same band as the repeaters. The diagram shows two 2 metre repeaters connected by a 70 cm link. The 70 cm link is on a simplex frequency, shown as E. Two link radios are required, not one, as for the in-band link. The link radios are



Link Radio 2  
RX E  
TX E

Repeater 2  
RX C  
TX D

just transceivers set to a single channel.

This method is easier to set up than the in-band linking method because you don't have two radios on the same band at the same site interfering with each other. Unfortunately this is paid for with the extra radio required.

### In-Band Hub Link



Repeater 1  
TX A  
RX B

Link Radios at Hub  
TX A  
RX B  
TX C  
RX D

Repeater 2  
RX C  
TX D

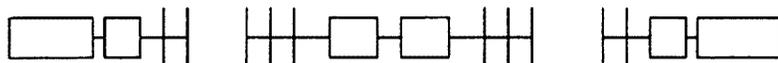
In-band hub linking is, as the name suggests, linking two repeaters with link radios located at a central hub. The link radios are transceiving in the same band as the repeaters themselves. The diagram above shows both Repeater 1 and Repeater 2 established on different sites. To form the link a third site, called the Hub or node, is established.

At the hub are two transceivers wired back to back. It is a busy little site. What comes in on, say, RX B is immediately sent out again on TX C and what is received on

RX D is immediately transmitted on TX A. But this happens only in one direction at a time, from B to C or D to A. The Department of Transport and Communications would call this a dual translator.

You can see that there are several advantages and disadvantages to this method. The disadvantage is that a third site must be built, the Hub. Also at the Hub a radio must transmit in the same band as a receiver, without interference — a challenging problem to solve at the best of times.

### Out-of-Band Hub Link



Repeater 1  
TX A  
RX B

Link  
TX E  
RX F

Link Radios at Hub  
RX E  
TX F

Link  
TX E  
RX F

Repeater 2  
RX C  
TX D

The final method of linking repeaters is called Out-of-Band Hub Linking and is shown in the diagram above. The link is established by placing a link transceiver at each repeater tuned to the Hub translator frequency. Because the link is not on the band of the repeater it is called out-of-band linking.

Typically the repeaters are on 2 metres while the links are set up on 70 cm. In the example above the link hub point is wired as a single frequency translator. What comes in on E goes out on F. Again several advantages and disadvantages exist. First the disadvantages. Each repeater has to have a link radio installed. And the hub has to be built.

The advantages are that the link transceivers at the repeaters are on another band so interference is generally limited. The hub is simpler and less expensive. As well, because of the hub, linking can occur over a much greater distance because Repeater 1 and Repeater 2 do not have to be within line of site of each other. The new link site set up by the Monto Radio Club at Coomindah is a hub for this configuration.

### Standardised Link Control

The five linking methods are Wired, In-Band, Out-of-Band, In-Band Hub and Out-of-Band Hub.

These five methods may be mixed and

The advantages are that no additional equipment needs to be installed to either repeater. As well, it is possible to link together repeaters which are not within line of site of each other.

This method is currently in use by the Central Highlands Amateur Radio Club for linking the 6925, 6950 and 6975 repeaters near Clermont, Blackwater and Sarina, together. The hub was originally in Middlemount but has recently been relocated to a more central and much higher site further to the west.

A minor variation of this configuration was also used for the tests between 6900 and 6800 a few years ago. This time a single scanning transceiver was used at the Hub, instead of two fixed frequency sets. The receiver scanned between B and D and when a signal was heard on either, the appropriate transmitter frequency was selected.

One note of caution concerning this method. All repeater links can, if improperly wired, cause a feedback condition to occur, like a dog chasing its tail. This configuration is especially susceptible to this.

It goes like this. First Repeater 1 transmits and the link is established to Repeater 2. Then 1 tails out and the link drops out, causing repeater 2 to tail out. But the link picks up Repeater 2's tail and sends it to 1 again, causing Repeater 1 to fire up. When 2 tails out the process repeats.

There are a couple of ways to solve this. One is to put the tails onto the link and not the repeaters, as happens for the Central Highlands network. Another is to put in link re-establishment delay circuits at the Hub, as was built into the 6900-6800 test link. Both methods work quite satisfactorily.

matched to form any link as required. At present only a few repeaters are linked in Australia. Little is required for access to a link — usually carrier only, a sub-audible tone or DTMF tones.

In time the networks are sure to grow to be as large as some of the overseas linking systems. Standardised access would then be necessary. This has already been proposed by the WIA in a forward looking attempt to offer a degree of national co-ordination. Generally, for all of the methods shown above, a control unit would need to be connected between the link radio and the repeater.

Various units have been described in publications and may be as simple as a tone decoder to the more complex electronic switches using microprocessors.

I hope this article has taken some of the mystery out of repeater linking.

Will Scott VK4XP  
PO Box 826 Gladstone QLD 4680  
ar

# Space Radio Handbook

by John Branegan GM4IHJ

an RSGB publication

This book is a worthy addition to the already well known RSGB publications, and is cast very much in the same mould. It is authoritative, complete and easy to read.

The author successfully draws together the wide range of topics related to space science and the depth of coverage is more than adequate for the amateur experimenter. His treatment of the ionosphere is one of the best I've read. He spends considerable time detailing the way in which the ionosphere affects VHF/UHF and microwave communication, an area often neglected in other texts, but vitally important to satellite users. There are formulae for those who need them, but the bulk of explanatory material is handled using computer-generated graphics and tables. The book is well indexed and has a useful glossary of terms and addresses.

There are 13 chapters:

## Space Radio Physics 1 & 2:

The ionosphere and near space physical conditions affecting HF, VHF, UHF and microwave propagation.

## Types of Satellites:

Covers just about every known kind of

artificial earth satellite from amateur Oscars to killer satellites.

## Orbits and Tracking:

A very comprehensive, easy to follow view of orbital geometry with an historical perspective on Johannes Kepler. Covers all the usual orbits along with problems posed by the Van Allen belt. An interesting account of some rather unusual deep space orbits.

## Satellite Radio Reception:

A practical discussion of problems and solutions associated with reception of weak signals from space.

## Amateur Radio Satellites:

Historical and technical account of all amateur radio satellites from Oscar-1 to phase-3 and the present generation of digital store and forward micro-satellites.

## Weather and Experimental Satellites

Good general explanation of the reception of weather satellite pictures.

## Experiments in Space Radio:

The longest and possibly most interesting chapter (42 pages). It details many experiments for the amateur or school science teacher. The book is worth reading for this chapter alone.

## Man in Space:

A detailed look at the manned space programs of USA and LONGER with a special emphasis on their communication problems and solutions.

## Space Radio Computing:

A comprehensive summary of the computer's role in space communications. Tracking, telemetry, command and control, digital comms etc.

## Meteors, Comets, Moons and Asteroids:

Discusses the effect of these bodies on the ionosphere and space communications. Good coverage of moon-bounce problems.

## Amateur Radio Astronomy:

Practical radio astronomy suitable for the amateur experimenter.

## Future of Amateur Radio in Space:

A bit of crystal-ball gazing.

To Summarise:

The book answers many questions for newcomer and experienced amateur alike. It covers a wide and complex field in a very readable and informative way, without resorting to jargon or higher mathematics. It's a good general text on space science and will find a place in secondary school libraries as well as on the experimenter's bookshelf.

Reviewed by: Bill Magnusson  
VK3JT

ar

## Murphy's Corner

### Random Radiators

August AR 1992, Page 16

### Extended Double

### ZEPP Antenna

Well Murph' ol' son ! you really let your hair down this time with an all time blunder, you omitted not one but TWO drawings for the Extended Double ZEPP antenna. To our columnists, Ron VK3AFW and Ron VK3OM, we extend our apologies, and to our readers we extend our regrets for the inconvenience caused.

The omitted drawings now reproduced are self explanatory.

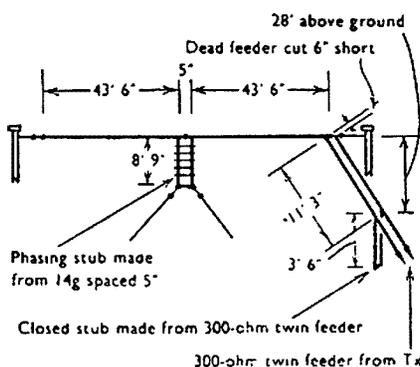


Figure 1 — Dimensions of the Extended Double ZEPP for 14 MHz, as used at G3AEN.

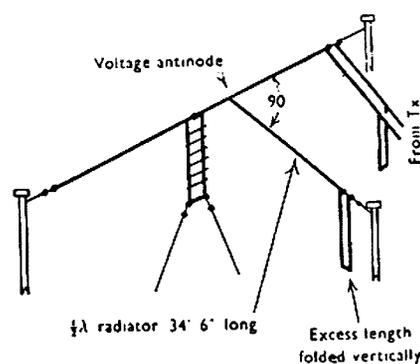


Figure 2 — The composite omnidirectional aerial eventually derived by G3AEN from his Extended Double ZEPP as described in the article.

### RAAF Radar — Fifty Years Old — 1992

August AR 1992, Page 22

Third column — VK3FRA represents the Fiftieth Radar Anniversary (not Fifth as stated on the first line of the third paragraph).

ar

## How's DX?

Stephen Pall VK2PS PO Box 93 Dural 2158

These days one quite often hears the complaint that propagation has not been good lately. The fact is, solar Cycle 22 is now on the decline, and has been so since the end of the year 1989. Looking at some charts the other day the prediction of smoothed sunspot numbers seems to reach the lowest level around September 1996, only four years away. Do you remember October 1986? Cycle 22 started then and reached its peak late 1989 early 1990. It was a rapid rise of only about four years or so; now we are already on the downward slope for the next four to five years. The peak of the next cycle, being No 23, will be sometime around the turn of the century in the year 2000 according to the predictions, and it will not be as high as Cycle 22. It seems to me its pattern will be similar to that of Cycle 20 in 1970, when the smoothed maximum sunspot number reached around the 115 mark.

This gloomy prediction will cause the eager DXer to upgrade his/her knowledge on propagation. We have to use as many sources of information as possible to catch those "good openings". One of these sources of information is the Recorded Solar Geophysical Message provided by IPS Radio and Space Services in Sydney. If you have never used this service before, try it now. Phone Sydney (02) 414 8330 and hear the information which might be beneficial to you.

### The City of Sydney Sesquicentenary — VI150SYD

This special event station, operated by various individual VK2 amateurs and VK2 radio clubs on behalf of the VK2 Division of the WIA, has been very active since 1 January this year. Thousands of QSOs were made with about (so far) 82 DXCC countries in the CW, SSB, FM and RTTY modes. There was activity from the Sydney Maritime Museum from the deck of "James Craig", an old iron barque undergoing restoration, and the station also took part in the May CQ WPX CW Contest. ANARTS and the RNARS used the callsign already.

Sydney Town was known since 1788 as a military settlement, but matured into a city as proclaimed in 1842. Today, Sydney

is a sprawling metropolis of almost four million people on an area of 4075 sq km, and welcomes more than three-and-a-half million visitors each year. The VI150SYD station will reply to all QSL cards received, direct if you enclose a SASE, or via the Bureau if you prefer the route. The attractive colour fold-out QSL card of this special event station carries a message of goodwill from the Lord Mayor of Sydney to the world amateurs, together with a greeting from the VK2 Division of the WIA.

If you are an amateur with a VK2 callsign, or an amateur radio club affiliated with the VK2 Division of the WIA, and you wish to operate this special event station from your own QTH, please apply in writing to WIA, VK2 Division, PO Box 1066, Parramatta, NSW 2124.

### Bangladesh — S2

Radio amateurs who followed the development of amateur radio in Bangladesh will be pleased to hear that Saif Shahid S21A, President of the Bangladesh Amateur Radio League, was reported to be on air. He was heard on the 15 and 20 metre bands. Eric WZ6C, who until now operat-

ed without written permission, hopes to be on air soon with official approval and corresponding callsign. It was also reported by the DX Bulletin that Ray Gerard G3NOM is in Bangladesh until 8 August and was issued with the licence S2/G3NOM. It is also rumoured that even S2IU, which is the official call of the Bangladesh Telecommunication Authority, will be on the air soon.

I will not be at all surprised if, by the time you read this in September, another prominent DXer might pop up on the bands with a Bangladesh callsign. QSL routes: S21A goes to W4FRU John Parrott, PO Box 5127, Suffolk, VA 23435, USA. S2IU goes to JAIUT Yoshi Hayashi, 4-20-2, Nishi-Gotanda, Shinagawa, Tokyo, Japan. S2/G3NOM goes to G0CMM, J Bell, 28 Stiles Av, Marple, Stockport, Greater Manchester SK6 6LR, UK. Incidentally, I had a long discussion with the S2/HA5BUS crew whilst it was in Sydney. From 1 April 1992, when they received their permission to operate for three weeks, they made a total of 23,546 QSOs as follows: SSB — 14016, CW — 8905, RTTY — 580. Out of these there were 9449 European, 7216 USA, 4183 Japanese and 2698 contacts with other DX countries. The number of QSOs averaged 1121 per day.

### Croatia — 9A

No doubt you have heard quite a lot of "new" prefixes lately. The former YU2, YT2, 4N2 stations are now using a new prefix 9A. However, I was not able yet to discover whether this new prefix has been issued by the ITU or not. According to various sources, the new callsign structure is as



The much sought after VI150SYD QSL card.

follows: 9A2-9A7 personal station stations, 9A0-9A1 club stations. The YU2 stations are signing 9A2, the YT2 stations are signing 9A3, and the 4N2 stations are signing 9A4. However, so far, all these new prefixes do not count as new DXCC countries — yet! New QSL routes: 9A2AJ via YU2AJ, 9A2MP via YU2MP, 9A3TR via YU2HDE, 9A2PM via KA9WON, and 9A4AA via 4N2AA.

### Mt Athos — SV2IA

The controversy created by Baldur's DJ6SI operation from Mt Athos (see "AR" Feb '92) does not seem to settle down. Whilst overseas, I had the opportunity to read the rules and regulations concerning the operation of amateur radio stations by radio amateurs of the European Economic Community (EEC) member countries in Greece. Under the heading 1 Licensing, paragraph 1.6 it says, "The operation of a radio amateur station within the District of Athos (Mt Athos), in addition to above conditions (note: other conditions refer to the general rules governing the CEPT licence agreement) is subject to the official written permission of the local administration of this district."

It comes then as no surprise that the ARRL news release dated 19 March 1992 spelled out in more detail the conditions under which DX operations on Mt Athos will be accepted for DXCC purposes. Basically, it says that the operator must have a valid licence issued by or recognised under treaty (ie CEPT?) by the Government of Greece. Furthermore, the prospective DXer must have written permission to enter the Mt Athos region, and must have written permission to transmit from Mt Athos. All these permissions must be issued by the Superiors of the Common Congregation of the 20 Holy Monasteries of Mt Athos. DXCC accreditation will be given only to those who have satisfied all these conditions. The press release does not say that this new ruling of the ARRL is retroactive, therefore it can be assumed it applies only to future DXpeditions. The future of DXing from Mt Athos is not very promising. Monk Apollo SV2ASF/A, the only resident amateur in that community, has been off the air as a protest against the DJ6SI operation.

He has written more than one letter to the ARRL DXCC Desk, and the latest lengthy letter was reproduced, apparently verbatim, in The DX Bulletin, which is published in California, USA. In this letter, Monk Apollo says, among other things, "The Holy Community, with which I'm in continuing contact, is very irritated and disappointed with the handling of the problem and informed me it had decided in the future it will not permit Greeks or foreigners

to make any transmissions again from Mt Athos, except the monks of Mt Athos." Monk Apollo, however, closes his letter with the following remark: "If you don't cancel the transmission of DJ6SI, you will never hear me on the air. Thx. With great sorrow. Monk Apollo."

As I said in my February '92 notes, the DXCC Committee has got a problem on its hands. It seems to me this controversial matter has developed into an "amateur radio diplomatic stalemate". What now?

### Pacific Wanderings

The northern hemisphere summer holidays have produced again a healthy number of travelling amateurs in our region. Here is a short list of some of the participants.

Peter DK6NP used the call A35NP from 13-18 August; later he was heard as 5W1NP and as 3D2NP. ZK1AL was Carlo I4ALU from the Cook Islands, both south and north. Bob ZL4DP was also active as ZK1RS from Penrhyn (North Cook) island. ZK1HJ is Harry G3MCN who was in Raratonga. Members of the Kyoto amateur radio club were active in August as: T30IG (JH3FJG), T30TX (JH3TXR), T30IL (JF3PLF), T30KT (J13DLI) and T30IM (J13NTS). The same operators will use the callsigns 3D2IG, 3D2TX, 3D2IL, 3DWKT and 3D2IM whilst in Fiji. QSL for the Kyoto hams goes to JA3OIN. H44GC was active for a few days, commemorating the 50th anniversary of the Battle of Guadalcanal. QSL to KU9C.

### HASBUS in Australia — VK5BUS

The Hungarian Globe-Ex-Pedition — HASBUS (see May '92 issue of AR) which was active from Iran (EP), India (VU) and Bangladesh (S2), has arrived in Sydney. The expedition originally planned to travel to Singapore down on the Malay Peninsula and then to Australia. Unfortunately the hostilities which plague Myanmar, made it impossible to travel by road where a 12-metre-long bus would have been an excellent target for stray bullets. The Hungarian boys, Imre HASHQ, Istvan HG5CHI and Gabor HG5BKG, decided to ship the bus from Calcutta via Singapore to Sydney. The original plan to land in Perth (VK6) and cross the Nullabor from west to east had to be abandoned because of shipping schedules and routes. The specially equipped bus has three sleeping berths, fully equipped kitchen, bathroom with shower and WC, storeroom, bread-making facilities, washing machine, refrigerator, a 3.6 kW generator, and an air-conditioning system designed for the tropics.

The bus has, of course, an amateur radio station on board with ICOM and Yaesu equipment and two computers. They have a nine-metre-high extendable antenna mast on the bus, and also a 18AVT/WB vertical and a three-el four-band Yagi and various dipoles. The bus was offloaded from the ship on 20 July. The group has established headquarters in one of the Sydney seashore suburbs on Mistral Point Lurline Bay. The site is opposite a public reserve with breathtaking views of the Pacific Ocean, and with a good take-off across the Pacific.



The "crew" of VK5BUS. From left are Imre HASHQ, Gabor HG5BKG and Istvan HG5CHI.

ic. The first QSO was on 23 July at 0500 UTC with a local VK2 amateur. The call-sign used is VK5BUS and they are very thankful to the Australian DoTC, which made this call-sign available to them. The frequencies used by the "BUS" are as follows: SSB 3775 (not in VK), 3795 (VK only), 7075, 14275, 21375 and 28575 kHz. CW: up 25 kHz from band edge, except on 7 MHz, where the frequency is 7025 kHz. RTTY: 7075, 14085 and 21085 kHz.

During the first week in Sydney they had equipment problems which were solved with the co-operation and generous support of the Melbourne headquarters of ICOM Australia. The "BUS" will stay in Australia for 2-3 months, and besides Sydney, will be active from Melbourne (VK3), Adelaide (VK5), Canberra (VK1) and Brisbane (VK4) using the call-sign VK5BUS. The unexpected change of plans and boat travel for the bus (Calcutta-Singapore-Sydney) has put an extraordinary strain on the finances of the expedition, not to mention the fact that one of its main sponsors in Budapest, Hungary, filed for bankruptcy, which completely stopped the flow of funds to it. So, if you are one of those amateurs who might have some spare cash (after having contributed this year to so many DXpedition funds) your financial support will be welcomed by the members of the expedition. Please send your donation to: Magyar Kulkereskedelmi Bank (Hungarian Bank of External Trade) Account, Globex 1037 Orban Bl. Account No 401-6782-844-99, Budapest, Hungary. The QSL address is unchanged: Globe Foundation, PO 49, 1311, Budapest, Hungary.

### Future DX Activity

- A number of special event stations will be active from Canada in the near future. VD325E will be used by Elma Township Public School from 17-30 October. The call VC350A will commemorate the 50th anniversary of the Listowel Squadron of the Royal Canadian Air Cadets and will be used from 17-30 November. The unusual call-sign of VA3200M — this call would interest our own licensing officials — will celebrate the bicentennial of Sir Alexander Mackenzie's crossing of North America by land. These celebrations are part of a heritage program and other community events, and the call will be on air from 1-14 September. QSLs for all the above special event stations are to be sent to VE3LSS.
- TJ1IJ is active in Benin. QSL to DJ5IO.
- XU/DJ4OF is Manfred, who will be in Kampuchea for nine months. He was heard on 14014 at 1400 UTC.



VK5BUS in Sydney ready for QSOs, and the DX pile up.

- A group of Italian amateurs will be active from Tanzania with the following call-signs: 5H3NU and 5H1TY during August and early September.
- Cocos Island — the one in the Pacific Ocean — will be activated by a group of operators using the call-sign T19JJP from 1-11 November. Interesting QSOs and QSL Information. Note: call-sign, name, frequency, mode, UTC, month.
- ZA1A-14195-SSB-0529-July. QSL to OH2BBF (see Aug '92 AR).
- HG92HQ-Zoli-14167-SSB-0719-July. QSL to HA6KNB Radio Club Salgotarjan, PO Box 115, H3101 Salgotarjan, Hungary.
- ZK1RS-Bob-14190-SSB-1055-July. QSL to ZL4DO Robert J Sutton, 4A Crompton Rd, Massey, Auckland 1208 NZ.
- YJ0AR-Roy-21195-SSB-0024-July. QSL to VE7TG, Roy Vernon Parett, 1708 Carnegie Cres, Victoria, BC, V8N 1P3, Canada.
- V14FOW-Ted-14226-SSB-0317-Aug. QSL to PO Box 829, Hervey Bay, Qld 4655.
- GB0WSS-Graham-14175-SSB-0620-July. QSL via Bureau.
- ED5VAL-14202-SSB-0451-July. QSL via EA4KK via Bureau.
- ZK1XR-Dick-14222-SSB-0625-July. QSL to N7NKG.
- TM9R-14222-SSB-0715-July. QSL to F9RM.

### From here and there and everywhere

The European CEPT licence agreement was mentioned elsewhere in this issue. It means that if you have a valid amateur radio licence from any of the countries which signed the agreement, you can operate in any of the other countries which are party

to this agreement, provided you use the prefix of the country in which you are located before your own home call. This could mean that you might use five different prefixes in one day if you are travelling by car in central Europe.

The countries which are party to this agreement are: Belgium, Denmark, Germany, Finland, France (and Territories), Greece (SY/Mt Athos requires written permission), Italy, Lichtenstein, Luxembourg, Monaco, Holland, Norway, Austria, Sweden, Switzerland, Spain, Czechoslovakia and Hungary.

- Selim OE6EEG has advised me that he is QSL manager for the following stations: HZIMM, HZITA, 7Z1IS, A61AB, A71AL, SU1ER, SU1MR, SU1RR, SU1SR, 9K2SH, 9K2YA (till Jan '93), and can help in obtaining cards from Y11BGD. Selim also points out that due to high postal charges from Austria, one IRC or one \$US is not quite enough for a first class airmail letter sent to VK/ZL.
- The RSGB HF and IOTA Convention will be held at Old Windsor (close to London's Heathrow airport) on 26 and 27 September 1992. For further details contact G3PJT (+0223 263137), or for accommodation G3KMA (+0276 858224).
- The operation on Glorioso Island in May by Baldur DJ6SI and his colleagues produced 2000 RTTY, 5000 SSB and 7000 CW contacts. According to CEPT rules they used their own call-signs DJ6SI (CW), DJ8CR (SSB), DJ3OS (RTTY) and DG4FCD (SAT) with the FR prefix.
- The 1992 FOOCI Clipperton Island operation has been accredited by the DXCC.
- Bill Kenamer K5FUV is the new man behind the DXCC desk at ARRL headquarters after the Don Search retirement.

- The special event station VI4FOW, "The Whale Festival" activated by the Hervey Bay Amateur Radio Club in Queensland, came on air as planned on 1 August 1992. On that very same day the Mayor of the City of Hervey Bay officially opened the amateur radio club. The opening ceremony was also attended by many distinguished visitors, among them the local member of parliament, Mr N G Dunn.
- According to KI4RU Bob, a Californian amateur who interfered with other amateur transmissions especially on net operations, and made a general nuisance of himself on a particular frequency, was dealt with by the US courts, and was fined \$8000 for "wilful interference".
- EP2HZ/portable was heard in July on 14243 at 0630 when he was located on the shores of the Caspian Sea.
- Heard Bing 3D2XV saying he is coming home from Rotuma on 1 August, and is homesick for a "juicy steak". He decided not to go to Tuvalu as the airfare was very expensive.

- Expect the special event station VK4RUM to be on the air soon. It will be activated by the Bundaberg Radio Experimenters Group. Contact VK4FC for further information.
- If you heard TV9CEE, that was a group of French radio amateurs taking part in a European Mt Blanc expedition from camp 1 at 3600 metres height. QSL to F1MXH.
- Jim VK9NS, operating as WR1Z/KH9, made over 12,000 contacts during his short visit, including several hundred RTTY contacts.

### QSLs Received

Note: W=week; M=month; Y=year; FM=from; MGR=manager call; OP=operator call.

Direct QSLs received: ZK2KK, 3D2XR, FW/SM/7PKK, KH8/SM7PKK, all the foregoing from MGR SM7PKK 1Y 6M. VK9YJ (6M FM OP VK3AWY), ZA0RS (5M FM MGR HA6NF), ZA1HA (4W FM OP), ZA1ZXV (2M FM MGR F6EXV).

Bureau cards received: HC2HVE (8M FM OP), HC2GZA (4M FM OP), YJ0AHM (2Y FM MGR DL5UF), ZF2ME/ZF8 (1Y 10M FM MGR WA2ICE), 4K4POL (18M FM MGR UA0KCL), V63IJ (18M FM MGR JA3OIN), 7J1ADJ/JD1 (18M FM MGR KB1BE), VP5VDK (13M FM MGR NY8E), OA4AFP (13M FM OP), 6Y5DA (2Y FM MGR VE4JK), LU5DBJ (14M FM OP), VQ9PM (2Y 2M FM OP), A35ML (2Y 5M FM OP OH4ML), OH4ML/H44 (2Y 5M FM OP).

### Thank you

Lots of thanks to the few who assisted me, and who remembered to send in reports and news, especially to VK2BBE, VK4MZ, VK4OH, VK5WO, KI4RU, OE6EEG, HA5HO, VK5BUS, and the following publications: QRZ DX, The DX Bulletin and the DX News Sheet.

*Good DX and 73*  
ar

## Education Notes

*Brenda M Edmonds VK3KT — WIA Federal Education Co-ordinator  
PO Box 445, Blackburn 3130.*

As stated last month, I have been looking at some of the RSGB publications for use by newcomers to the hobby. The establishment of a Novice licence in the UK has apparently triggered the production of a range of more basic texts than the familiar standard tomes.

The RSGB has also recently launched an initiative, entitled Project YEAR (Youth into Electronics via Amateur Radio), to encourage interest in the hobby, and has produced a training course suitable for use by any newcomer. Under the terms of the Novice licence, a candidate must attend an approved course of about 30 hours before attempting the Novice examinations. The course includes a number of exercises which must be assessed by the instructor. The usual group is a maximum of four students, of any age, with a volunteer tutor.

"Amateur Radio for Beginners, Book 3, The Novice Licence", forms part of this training scheme. It is an A4 size booklet of about 90-100 pages, the first 14 of which are an introduction to the course, an explanation of Amateur Radio, hints to help pass the examinations, and instructions for building an MF receiver. The rest of the book (pages not numbered) comprises the 32 worksheets, each labelled "H" or "C" meaning to be done at home or in class. The

"H" exercises include learning the colour code, the Q code, CW abbreviations and Morse code (the EISH/TMO method is used), as well as reading about propagation, the Electromagnetic spectrum and some simple theory. The "C" exercises include practice in soldering, using meters, fitting plugs to cables and some construction projects as well as practice contacts and log-keeping.

The book is spiral bound, to lie flat on a table when open, with the backs of the Worksheets left blank for notes. There is a strong emphasis throughout on care and safety, and frequent advice to ask for help with anything not understood. The instructions are generally clear and very detailed. For example, it takes almost two full pages to cover fitting a three-pin plug to three-core lead. (Is this a Novice exercise? I have reservations.)

Overall, there is not a lot of "radio theory" in the book, certainly not enough for an Australian beginner to consider it as sufficient background for attempting the NAOCP examinations, but it is a useful introduction, and explains a lot of the Amateur "folklore" and tradition which are often omitted from the standard texts. The language is perhaps a bit complex for entry level, but the explanations are simple,

with emphasis on establishing good operating practices. Diagrams are well labelled and clear.

The book could well be used as the basis for a beginners course or a school unit. My inspection copy from Stewart Electronics.

The idea of some practical training before a licence is granted has been mooted in Australia for years. It seems an excellent idea, and appears to be working in the UK, but would be harder to organise in this sparsely populated country. Perhaps some of the clubs could run "Introduction evenings" for their class members using the exercises listed here. I am sure many of the students would appreciate this.

Two more points, the UK Novice licence comes in two grades, A (with 5 wpm CW, gives HF privileges) and B (no CW, VHF and UHF only). And a UK Novice licence is free to those under 21!

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**Support the  
WIA in order to protect  
amateur radio  
frequencies**

# AMSAT Australia

Bill Magnusson VK3JT 359 Williamstown Rd Yarraville VIC 3013

Packet: VK3JT @ VK3BBS

## National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR @ VK5WI

Please take note of the AMSAT information nets:

AMSAT Australia net:

Control station VK5AGR

Check-ins commence at 0945z on Sunday nights

Bulletin commences at 1000z

Frequencies:

Primary 7.064 MHz. plus/minus 5 kHz.

Secondary 3.685 MHz.

AMSAT South West Pacific net:

2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

AMSAT Australia newsletter and software service:

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL.

It is payable to AMSAT Aust. addressed as follows: AMSAT Australia, GPO Box 2141, Adelaide SA 5001.

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

## AO-21 news:

The FM repeater on this satellite is up and running well. Many stations are heard daily with the passes coming over VK in the late morning to early afternoon and again in the late night and wee small hours.

If you have a well set up station and can track the satellite and hit it with a bit of ERP, you should get a good signal through. Be careful though. It was announced at the recent AMSAT-UK colloquium that the FM repeater has an attenuator which automatically switches in to cope with very strong uplink signals. If on the other hand you are using a vertical or some other omni-

directional antenna with 10-20 watts of FM you will have trouble getting in. Downlink signals are very strong and may be received on an all sky antenna. The CW beacon is on a nominal frequency of 145.818 MHz. while the FM repeater has an uplink on 435.016 MHz and a downlink on 145.987 MHz. Doppler shift does not appear to be much of a problem. FM is a fairly forgiving mode. If however you have trouble getting into the satellite adjust your uplink frequency to compensate for doppler shift. At present the downlink is operating to a 10 minute cycle. Beginning on each 10 minute count the repeater is operational for 9 minutes. It then switches to telemetry for one minute during which time the repeater is not available. Has anyone decoded the telemetry yet? If so, I'd like some details. One potential problem with this satellite is that 145.987 MHz is fairly close to the top of the satellite sub-band. Strong local stations operating on 146 MHz can be a worry. It doesn't happen often but my experience has been that if you use a proper approach a compromise can be reached. They are usually unaware of the problem and quite prepared to stop and listen for the satellite themselves for the duration of the pass. This doesn't always work and on one occasion I was told "Serves them right if they put a satellite on OUR frequency." Ah well, maybe my approach isn't as smooth as it used to be.

## OSCAR-13 and the DXer:

Conditions are becoming more favourable for VHF/UHF DXers to take advantage of operation through OSCAR-13. This satellite has "turned the corner" as it were and is now heading for the southern hemisphere albeit slowly. What this means is that the satellite is spending more time in our sky at LOW elevations and greater distances from earth. Great for the DXer with high gain horizontally aimed beams on 2 metres and 70 cm. At the time of writing we are seeing 2 to 3 hours of this situation for several days followed by several days of perigee passes. Good contacts can be made into northern Europe and the western half of the North American continent using only 5 to 10 watts of uplink power into a horizontally pointed yagi. The present satellite attitude is giving squint angles

down to single figures for quite long periods during each such pass. OH5LK reported recently that he had worked a ZL station for the first time on OSCAR-13. That's not a bad haul when you think about it. Finland and New Zealand are just about on opposite sides of the globe. The attitude will have been changed by the time you read this and the conditions will not be so good for a month or two but by mid September we will again see squints down into single figures and excellent operating conditions into the northern hemisphere.

## More on OSCAR-13:

My heart sank recently when I read a packet message from James Miller G3RUH. He was reporting on a fairly critical condition which had developed on OSCAR-13 and the reasons for some rather urgent action. It appears that a decision was taken by the control stations to leave some transponder operations available during the time just before and during the most recent attitude change. This was done as a service to users rather than shut down all transponders for a time due to less than ideal sun angles. The situation became critical when after repeated requests to use the lowest uplink power possible, a few stations were turning their power UP as the transponder was forced into QRP mode. Some stations are reported as using in excess of 20 kW EIRP which despite the QRP mode was making their signals 10-20 dB over the beacon level. There really isn't any excuse for this sort of behaviour. It is very selfish. The reasons have been fully documented. It resulted in a potentially disastrous situation which was compounded by the fact that James was having trouble commanding the satellite when it was over the northern hemisphere because of American over-the-horizon radar blocking the uplink. It was left to Graham VK5AGR to issue the command sequences necessary to effect the attitude changes and our short visibility periods at the time only served to prolong the process. You can't blame the controllers if they decide to shut down transponders during critical periods. No doubt the same stations who ignored the requests last time will be the first to complain if the transponders are shut down for a short period next time. The next generation of transponders will have devices in them to make sure this type of behaviour only disadvantages the perpetrator. One can only wonder at human nature sometimes. I don't believe these instances are the result of ignorance and even if they are there is no excuse for not being well informed as volumes have been written on this topic since it first reared its ugly head on OSCAR-10 many years ago. VK/ZL stations can take a bow as they have always enjoyed a good reputation in this regard.

### Satellite gateways:

It was reported recently on UoSat-22 that there are now 33 satellite gateway stations feeding mail into the world wide packet BBS network. We are quite well served in this part of the world with six stations operating in Oceania. They are ZL2AMD in Napier, VK5ZK in Adelaide, VK8SO in Alice Springs, VK4BBS in Brisbane, VK3JAV in Marnoo and FO5LQ in Tahiti. More and more overseas mail is finding its way here through these gateways and it is possible to specifically route mail outwards through them. If you live within VHF packet range of one of these gateways why not try routing mail through them. Next month I'll devote a paragraph to this mode and explain the method of addressing etc.

### KITSAT-A:

As I write this copy the launch of the KITSAT-A satellite is scheduled for today. Let's wish it good luck and hope I can write a report of the successful launch next month.

### New G3RUH demodulator:

James Miller has produced a new improved 400 bps psk demodulator for OSCAR-13 telemetry. It is an updated version of his earlier units for OSCAR-10 and OSCAR-13 and requires NO adjustments after building. It will be available from James sometime in mid September. I'll keep an eye on OSCAR News from AMSAT-UK for details and pass them on. This demodulator will also work on the proposed phase 3D satellite telemetry beacon. ar

are well in hand to make this the biggest Hamfest yet. A follow-up letter giving more details as they are finalised will be provided shortly.

We can announce that, as in past years, entry to the event will be absolutely free.

Alek Petkovic VK6APK  
for Hamfest Committee

NCRG

PO Box 244

NORTH BEACH 6020

## Club Corner

### Geelong Radio Electronics Society

List of office bearers for 1992-1993

President A Stevens VK3EFO  
Vice President A Anderson VK3VBG  
Treasurer J Powe VK3BJP  
Secretary K Vriens VK3AFI

#### General Committee

W Bond VK3BWS  
J Collins VK3DKH  
J Koopman VK3VCK  
R Lekic VK3MHJ  
R Tan  
V Verhoef VK3VCG

#### Special Officers

Library Officer R Lekic  
Storeman A Anderson  
Assistant Storeman R Jackman  
Publicity Officer K Vriens  
Museum Officer W Bond  
Asst Mus Officer R Jackman  
Syllabus Officer G McLennan  
RF Officer G McLennan  
Education Officer J Collins  
Catering Officer A Chalmers  
Awards Officer J Powe  
Field Day Co-ord J Koopman  
Auditor Mrs Collins

#### Additional Information

Location: Corner Breakwater Rd and Barwonheads Rd as per Melways Map 228 B11.

Postal Address: PO Box 962, Geelong 3220

Phones (052) 21 3658; (052) 43 6254  
Classes: free to members, AOCP, NAOCP  
Meeting nights: Thursday 20.00 hrs  
Clubnet on Monday night, 3.56 MHz at 20.00 hrs EAST.

City by the Bay award for SWL and licensed operators can be obtained by contacting five to 20 club members for the various levels of certificate. Contacts made during the Monday night net are accepted.

### Ballarat Amateur Radio Group Inc

At the Annual General Meeting of the Ballarat Amateur Group held on 31 July the following officers were elected for 1992-1993:

President Ian Robinson VK3FD  
Vice President Cliff Bilston VK3CCB  
Secretary Jim Wright VK3CFB  
Treasurer Harry Hekkema VK3KGL

The annual Hamvention will be held on 24 and 25 October, the venue Ballarat Bray Raceway.

Jim Wright, Secretary BARG

### Northern Corridor Radio Group VK6ANC

"HAMFEST 92" will be happening on Sunday, 1 November 1992 at NCRG Headquarters, Carine College of TAFE. Plans

### Moorabbin & District Radio Club

The following people were elected at the Annual General Meeting of the Moorabbin & District Radio Club Inc at its Annual General Meeting held on Friday 17 July 1992.

President	Keith Turner	VK3CWT
Vice-President	Trevor Armstrong	VK3MGD
Treasurer	Morrie Lyons	VK3BCC
Secretary	Vacant	
Committee	Denis Babore	VK3BGS
Members	Jerry Viscaal	VK3MQ
	Ken Millis	VK3TKR
	Andrew Bell	VK3WAB

The position of Secretary is currently vacant and will be either appointed from the elected committee or a Special General Meeting will have to be called to elect same. Until that decision is made, Keith Turner VK3CWT is acting as Secretary.

The following members were appointed to the positions listed below:

Station Officer	Keith Turner	VK3CWT
Components	Ray Fowler	VK3BHL
Awards Manager	Andrew Bell	VK3WAB
Newsletter	Denis Babore	VK3BGS
Publicity Officer	Allan Doble	VK3AMD
Librarian	Alistair Duff	VK3KAD
Valve Bank	Ken Bridger	VK3JII
Combined Clubs	Harold Hepburn	VK3AFQ
	Doug Richards	VK3CCY
Public Officer	Ken Millis	VK3KTR
	Allan Doble	VK3AMD

### Radio Amateurs Old Timers Club of South Australia

Ray Deane VK5RK  
35 Truro Avenue  
Kingswood SA 5062

The annual luncheon will be held at Marion Hotel, Marion Road, Mitchell Park, on Tuesday 27th October 1992, commencing at 12.00 noon.

A ladies luncheon will be arranged also at the same venue.

RSVP by 22nd October 1992 to either of John Allan VK5UL (tel 344 7465), or Ray Deane VK5RK (tel 271 5401), or Jack Townsend VK5HT (tel 295 2209).

Bus 243 stops in front of the hotel.

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# Knutshell Knowledge

Graham Thornton VK3IY PO Box 298 World Trade Centre Melbourne 300

I must apologise for the absence of these notes for the past few months, due to lack of abstracting activity. Hopefully, they will now continue uninterrupted — provided that readers want them, of course! It's rather a nice change just to have a column to consider, instead of the whole magazine, which is now in the capable hands of Bruce VK3UV.

If copies of complete articles are required, your Divisional library may be able to help; or perhaps some member of your club has copies.

## Amplifiers

### HF Linear

*A Solid State HF Linear Amp.* Mike Grierson G3TSO, RadCom Vol 68 No 1 Jan 1992 pp 33 — 35. il cct and photos. This article discusses in detail the assembly of one of a class of linear amplifier kits available by mail-order from the US. Several kits are available with up to 600 W output.

## Antennas

### Miscellaneous

*An Impedance Diagram for Transmission Lines.* Geoffrey Billington G3EAE, RadCom Vol 68 No 1 Jan 1992 pp 42 - 44. il diags. A simple graphical method is described whereby the impedance components can be found at any point on the line, if SWR and Zo are known.

### Product Review

*The Ventenna.* David Cassidy N1GPH, 73 issue #376 Jan 1992 p 32. il photo. A review is given of a cylindrical 2 m antenna which fits over a roof vent pipe. The finished result disguises the presence of an antenna; it looks just like a vent pipe. It is available for around \$40 from The Forbes Group, PO Box 445, Rocklin CA 95677.

## Audio

*Dolby Surround Sound Decoder.* Robert Priestly, EA Vol 54 No 1, Jan 1992 pp 72 - 79. il ccts, cmp, pcbs and photos. Details for the construction of this decoder are given. It takes advantage of the fact that Dolby surround information is usually present on most videos with high fidelity stereo sound tracks, as well as TV transmissions.

## Computers

### Miscellaneous

*The ROMloader, an EPROM Emulator* — I. Peter Baxter, EA Vol 54 No 1 Jan 1992 pp 104 - 111. il cct, cmp, diags, pcbs and photos.

A design is described for a RAM which can be used as a substitute for an EPROM when developing dedicated microprocessor programs.

### Software

*Kantronics All-Mode (KAM) Software Version 4.0 Upgrade and Host Master II Terminal Software.* (Product Review) Larry Wolfgang WR1B, QST Vol LXXVI No 1 Jan 1992 pp 81 - 82. A review is given of these combined packet and digital programs.

*Program Teaches the Basics of "C".* (Product Review) Jim Rowe, EA Vol 54 No 1 Jan 1992 pp 112 — 114. il photo. A review is given of the Waite Group's "Master C" which is a tutorial program designed to develop proficiency with this language.

### Electronic Devices

*Automatic Watering System.* Rolf Sommerhalder, EA Vol 54 No 1 Jan 1992 p 71. il cct. An irrigation control system is described, which allows automatic daily watering of up to 90 minutes duration. This can be arranged to be at dawn in winter or dusk in summer, activated by an LDR.

### Narrow Band Modes

*A New DSP for Packet.* John Albert WA9FVP, QEX #119 Jan 1992 pp 3 - 5. il diags and photo. A general overview is given of the applications of Texas Instruments TMS320C25 digital processing chip. The device can replace analogue filters, FSK demodulators or tone encoders. It can also be used as a digital audio filter for CW, a digital signal analyser and a digital audio oscilloscope.

### Propagation

*Maxwell Without Tears.* H Paul Shuch N6TX, QEX #119 Jan 1992 pp 6 - 10. il graphs. A simplified overview is given of the application of Maxwell's equations to radio propagation. The discussion is preceded by a simplified introduction to calculus.

*Solar Terrestrial Indices and HF Radio Propagation.* Paul Dunphy VE1PMD, QSTVE Jan 1992 pp 3 - 4. A general dissertation is given on the causes of disturbance to HF propagation. The indices (indexes?) used to measure various effects, and their significance to HF propagation, are described in detail.

## Power Supplies

### Battery Chargers

*The FET Charge Controller.* Michael Bryce WB8VGE, QST Vol LXXVI No 1 Jan 1992 pp 45 - 50. il ccts and photo. A switching FET regulator (30 A) is described, which controls the charge of a battery from a solar photo-Voltaic panel. Use of this device avoids overcharging, and it closes the system down during darkness. The regulator may also be used with other power sources.

### Miscellaneous

*Low Voltage Cut-out for Cars and Boats.* Rob Evans, EA Vol 54 No 1 Jan 1992 pp 82 - 86. il ccts, cmp, diag, pcb and photos. Two comparators monitor battery Voltage, and energise a relay via a 555 used as a flip flop. If the battery Voltage drops below a pre-set figure, the load is disconnected. A choice is offered for manual or automatic reset. The device avoids engine starting problems with a discharged battery.

*Safety Power Breaker for the Test Bench.* David McLanahan WA1FHB, 73 issue #376 Jan 1992 pp 18 and 20. il cct. A double pole AC relay supplies power to the test bench. It is energised by momentary action of a normally-open pushbutton, and latched on via a series of normally-closed pushbuttons connected to the output. Brief interruption of any of the latching switches causes the relay to release until re-set.

*240 V Power Relay.* Peter Murtagh, EA Vol 54 No 1 Jan 1992 pp 92 - 95. il cct, cmp, diag, pcb and photos. A load current drawn from a "master" AC socket actuates other equipment connected to a "slave" socket. A Voltage drop across three reverse connected diode pairs in the master active line triggers a triac in the slave circuit.

## Receivers

*A Receiver Spectral Display Using DSP.* Bill de Carle VE2IQ, QST Vol LXXVI No 1 Jan 1992 pp 23 — 29. il ccts, graphs and photos. An interface is described which allows an IBM compatible computer, with suitable graphic screen, to act as an audio spectrum analyser for receiver output. A Sigma-Delta modulator provides a digital output corresponding to analogue sample Voltages. The necessary Fourier transformation is conducted by software, which is available from the author.

## Technology

**Automotive Engine Control** — 2. Tony Mercer, EA Vol 54 No 1 Jan 1992 pp 46 - 50. il ccts, diags and graphs. An overview is given of the sensing transducers and associated circuitry used to control modern automotive engines. Sensing and control of the requisite air/fuel ratio is dealt with in some detail.

**The Flexible RC Circuit.** Peter Phillips, EA Vol 54 No 1 Jan 1992 pp 96 - 99, 119. il ccts, diag and graphs. An elementary discussion is presented on the application of RC circuits to filters and their effect on frequency response.

**Tristate Buffer as OR Gate.** C Shankar, EA Vol 54 No 1 Jan 1992 p 70. il cct. A circuit describes the application of a gate on 74LS125 tristate as an OR gate.

**Use Those Surplus Meters.** J Frank Brumbaugh KB4ZGC, 73 issue #376 Jan 1992 pp 42 - 45. il ccts. A dissertation is given on the techniques for determining the characteristics of surplus meters, together with directions to change the value of shunts or multipliers. A description is given of an expanded scale Voltmeter using a zener diode.

## Test Equipment

### Field Strength Meters

**A Field-Strength Meter with Decibel Display.** Ralph Fowler N6YC, QST Vol LXXVI No 1 Jan 1992 pp 33 - 37. il ccts and photos. An instrument is described which provides an accurate readout of relative field strength over a 40 dB range, within the HF spectrum. Special diode compensation circuitry is used to achieve this. Four switchable ranges are used, and the calibration technique is described.

**The Dual-Combo Field-Strength and Source Dip Meter.** Martin Beck WB0ESV, 73 issue #376 Jan 1992 pp 8, 10, 12 and 14. il ccts, cmps, diags and photo. A combined project which produces a tuned field strength meter with amplification for HF and VHF, together with a dip meter for HF. The same plug-in coils are used for both devices, and the FSM meter movement also serves for the dip meter.

### Frequency Meters

**A Simple HF Absorption Wavemeter.** E Chicken G3BIK, RadCom Vol 68 No 1 Jan 1992 pp 54 - 55. il ccts and diags. Details are given for the construction and calibration of an absorption wave meter covering the HF bands in four switched ranges.

### Function Generators

**Build a Function Generator.** J Frank Brumbaugh KB4ZGC, 73 issue #376 Jan 1992 pp 28 and 30. il cct, cmp and pcb. A function generator is described which produces square, triangular and sine waves over a frequency range of 300 to 7500 Hz.

Positive and negative pulses are also generated. The circuit uses one IC and a single NPN transistor.

### Inductance Meters

**A Direct-Reading Linear Inductance Meter.** Arthur C Erdman W8VWX, 73 issue #376 Jan 1992 pp 38 and 40. il cct, cmp, graphs and pcb. A 5 V pulse is applied to a series LR circuit. The time taken for the Voltage across the inductor to decrease from 5 to 1.8 V is a linear function of inductance. A positive 5 V output of this duration is derived from the original square wave. A DVM measures the average Voltage of this output, which is linearly proportional to the time and thus the inductance. Values from 5 to 250  $\mu$ H can be measured with the circuit described.

### Miscellaneous

**An Improved Crystal Tester.** Larry G Ledford KA4J, 73 issue #376 Jan 1992 pp 22 and 26. il ccts, cmps and pcbs. A combined oscillator detector circuit tests crystals in fundamental mode. Oscillation is indicated by illumination of an LED.

**I - 99 V DVM.** Julian Phillips, EA Vol 54 No 1 Jan 1992 p 70. il cct. A DVM with 10 M $\Omega$  input impedance is described. Its design is based on the use of a Voltage dependent oscillator and a counter.

## Transceivers

### Miscellaneous

**Budget Amateur Radio.** Alan Troy G4KRN, RadCom Vol 68 No 1 Jan 1992 p 46. The cost options of "getting on the air" with minimum expense are considered.

**Going Mobile** — Part 2. Steve Ford WB8IMY, QST Vol LXXVI No 1 Jan 1992 pp 53 - 55. il cartoons and photos. This part

discusses the selection criteria for various types of VHF mobile antennas. Techniques for the reduction of interference problems are also dealt with.

### Product Reviews

**Ten-Tec Argonaut II and Delta II MF/HF Transceivers.** David Newkirk WJ1Z, QST Vol LXXVI No 1 Jan 1992 pp 77 - 81. il graphs and photo. A detailed laboratory report is given, with measurements, for these two transceivers. They differ only in respect to power output.

**The 200-Channel Standard CI68A Handheld.** Gordon West WB6NOA, 73 issue #376 Jan 1992 pp 24 and 26. il photos. A review is given of this miniature 2 m handheld, manufactured by Standard Communications.

## Transmitters

**A Novice CW Transmitter for 3.5 MHz (2).** Steve Price G4BWE, RadCom Vol 68 No 1 Jan 1992 pp 48 - 52. il cct, cmp, diags and pcb. The construction details are given in this part.

### Glossary of Abbreviations

il	The article contains illustrations, a list of which follows.
cct	A circuit diagram
cmp	A component layout drawing
EA	Electronics Australia
diag	A mechanical drawing
pcb	A master drawing from which printed circuits may be produced
QSTVE	QST Canada
RadCom	Radio Communication
73	73 Amateur Radio Today

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**Have you advised the WIA Federal Office of your new Callsign? Use the form on the reverse side of the Amateur Radio address flysheet**

# VHF/UHF An Expanding World

Eric Jamieson VK5LP PO Box 169 Meringie SA 5264

All times are UTC

## Six Metre Beacons

Freq.	Call sign	Location	Grid square
50.000	GB3BUX	England	IO93
50.005	ZS2SIX	South Africa	KF25
50.006	PJ2/OHIZAA	Neth. Antilles	
50.008	DX1HB	Philippines	PK04
50.009	JA2IGY	Japan	PM84
50.012	OZ4VM	Denmark	JO46
50.015	SZ2DH	Greece	KM27
50.015	V51VHF	Namibia	JG87
50.015	PJ4B	Bonaire	FK52
50.016	4N3SIX	Slovenia	JN76
50.016	JA6YBR	Japan	PM51
50.018	V51VHF	Namibia	JG87
50.019	P29BPL	Papua N.G.	QI30
50.020	GB3SIX	England	IO73
50.020	CX1CCC	Uruguay	
50.021	OZ7IGY	Denmark	JO55
50.022	FR5SIX	Reunion Is	LG78
50.023	LX0SIX	Luxembourg	JN39
50.0245	ZP5AA	Paraguay	GG14
50.025	YV4AB	Venezuela	FK50
50.025	OH1SIX	Finland	KP11
50.025	6Y5RC	Jamaica	FK17
50.026	JA7ZMA	Japan	QM07
50.029	CT0WW	Portugal	IN61
50.0325	ZD8VHF	Ascension Island	II22
50.032	ZS5SIX	South Africa	KG50
50.033	LU8YYO	Argentina	FF50
50.035	ZB2VHF	Gibraltar	IM76
50.035	ZS3VHF	South Africa	JG87
50.035	V73AT	Marshall Is.	RJ38
50.039	FY7THF	French Guyana	GJ35
50.040	VO1ZA	Newfoundland	GN37
50.040	SV1SIX	Athens	KM17
50.041	FO5DR	Tahiti	BH52
50.0415	9K2SIX	Kuwait	
50.042	GB3MCB	England	IO70
50.043	ZL3MHF	Aylesbury	RE66
50.044	JR7YAG	Okinawa	PL36
50.045	OX3VHF	Greenland	GP60
50.045	YV4ZZ	Venezuela	FK60
50.046	VK8RAS	Alice Springs	PG66
50.047	JA7YYL	Japan	QM08
50.048	TG4BFK	Guatemala	
50.049	JG1ZGW	Japan	
50.050	GB3NHQ	England	IO91
50.050	VE7SIX	Canada	DN09
50.051	LA7SIX	Norway	JP99
50.0525	ZL3MHB	Greymouth	RE57
50.053	JA5FFJ	Japan	
50.053	VK3SIX	Hamilton	QF02
50.056	VK8VF	Darwin	PH57
50.057	VK7RSB	Hobart	QE37
50.057	TF3SIX	Iceland	HP94

50.060	GB3RMK	Scotland	IO77
50.060	PY2AA	Brazil	GG66
50.061	KH6HME	Hawaii	BK29
50.0625	GB3NGI	North Ireland	IO65
50.064	GB3LER	Shetland (GM)	IP90
50.064	WD7Z	Arizona	EL59
50.0655	GB3IOJ	Jersey	IN89
50.065	NB3O/I	Rhode Island	FN41
50.066	VK6RPH	Perth	OF78
50.069	K6FV	Woodside	CM87
50.070	EA3VHF	Spain	JN01
50.073	KH6HI	Hawaii	BL01
50.073	ZS4SA	South Africa	KG33
50.075	VS6SIX	Hong Kong	OL72
50.0775	VK4BRG	Sarina	G48
50.078	PT7BCN	Brazil	HI06
50.078	OD5SIX	Lebanon	KM73
50.079	TI2NA	Costa Rica	EJ79
50.080	HC8SIX	Galapagos Is.	EI59
50.080	SK6SIX	Sweden	JO57
50.082	VE1MUF	New Brunswick	FN66
50.082	HC6SIX	Galapagos Is	EI59
50.085	9H1SIX	Malta	JM75
50.085	3D2FJ	Fiji	
50.086	VE2STL	Quebec	FN46
50.0865	LU1MA	Argentina	FF87
50.090	KJ6BZ	Johnston Island	AK56
50.091	9LIUS	Sierra Leone	IJ38
50.092	W5GTP	Louisiana USA	EM40
50.092	HC2FG/B	Ecuador	EI97
50.098	7Q7XX	Malawi	
50.100	5HIHK	Tanzania	
50.110	A61XL	United Arab Emir.	LL74
50.120	4S7EA	Sri Lanka	MJ96
50.314	FX4SIX	France	JN06
50.490	JG1ZGW	Tokyo	PM95
50.499	5B4CY	Cyprus	KM64
50.904	ZS1STB	South Africa	KF05
51.020	ZL1UHF	Nihotupa	RF73
51.030	ZL2MHB	Napier	RF80
52.510	ZL2MHF	Mount Climie	RE78
52.325	VK2RTV	Newcastle	QF57
52.330	VK3RGL	Mount Anakie	QF22
52.345	VK4ABP	Longreach	QG26
52.370	VK7RST	Hobart	QE37
52.420	VK2RSY	Sydney	QF56
52.425	VK2RGB	Gunnedah	QF59
52.440	VK4RTL	Townsville	QH30
52.445	VK4RMB	MacKay	QG48
52.450	VK5VF	Mount Lofty	PF95
52.470	VK7RNT	Launceston	QE38

## Six metres

During July, the six metre band has been very quiet, again. There have been the occasional winter-time Es openings to VK2 and VK4 but little else.

Peter VK8ZLX in Alice Springs reports everything quiet there. He also said he was moving QTH to the northern side of town and would not be in a position to use his M<sup>2</sup> six metre antenna, at least for the time being. He will be confined to a low profile antenna, possibly down to a vertical! So the usual VK8ZLX S9+ signal is likely to be less potent in the future. Pity.

Also, I understand that the Alice Springs VK8RAS beacon on 50.046 is due to be upgraded courtesy of VK8RH in Darwin.

Of course, where all the big things have been happening for months is in the Northern Hemisphere, particularly in Europe, where they have been enjoying a particularly good summer Es period. Geoff GJ4ICD on Jersey Island, during June extended his country tally to 132 with seven new countries and a total of 546 grids. His present aim is 150 countries on six metres! Knowing Geoff and the propagation conditions presented to him, he is very likely to reach that target! Ted G4UPS also has a very presentable country tally of 121.

For June, apart from beacons heard, prefixes worked or heard in the UK and Jersey Island included OK, OI, SV, SZ, F, EA, 5B4, 7Q7, YU, OE, DL, ON, PA, 4Z7, LX, TA, SM, OZ, YO, LA, OD, 9H, CT, IS0, ZB, CU, PZ1, T7, ES, OH, ZC4, 4N3, 3Z4, EI, CN, 9H, UZ2, 9K2, VE1, VO1, K1, VE3, W3, SP, LY2, IS0, HB9 (xband), OY, FM5, LU, LZ, Z23, IT9. That's 53 countries!

Of special note: an incredible day on 22/6 via Es, with virtually the whole of Europe working to VE and W, with most signals S9. Geoff GJ4ICD said the band was literally on fire with Es in every direction, and working country after country with S9 signals, with some Ws at S9+40dB. Apparently the Es carried over to 144 MHz with many contacts made. If these conditions are repeated in the Southern Hemisphere in December, then VK stations could be in for a treat, with a possible widespread coverage of the Pacific areas. But I assure you we will not be working 53 countries in a month!

However, despite the above, the UK in general, seems to have missed out to a large extent on working the island nations in the Pacific and some adjacent areas. It appears they have not worked ZL, H44, FK, 3D2, 5W1, FO, KC6, V85, KH0, KH3, KH4, KH5, KH6, KH7, KH8, KL7, JT, JD1, FW, BY, C21, A35, HL, HK0, P29, T20, T30, T31, T32, T33, VK9L, VK9N, VK9W, YJ to bring some to mind. A good F2 opening from the UK to the Pacific area would certainly make some healthy additions to their present scores.

## Report from Europe: Poland

Five stations were granted a special six metre permit which allowed operation from 5 to 15 June inclusive. During that time they had almost 1000 contacts with more than 500 to the UK.

### Luxembourg.

A beacon LX0SIX should now be operating on 50.023 MHz running 5 watts to a horizontal dipole.

### Kuwait.

Don 9K2WR left in early June at the conclusion of his tour of duty. Bob 9K2ZR and Tom 9K2TC have been very active. A station signing 9K2ZC was worked by some, but according to Bob 9K2ZR, the call sign does not exist!

### Spain.

Eighty stations have been granted permits to work on six metres from Spain, with a change of prefix to EH for working on that band and the first legal EH QSOs taking place on 10 July.

### New Republics.

G4UPS says the ITU has allocated call-signs as follows:

Croatia, 9A followed by a figure 0 to 9 and then by the old suffix from the previous call-sign e.g. YU2SB is now 9A2SB.

Slovenia, has been allocated S5 but the Slovenian PTT is trying to have the S5 call-signs changed!

Bosnia and Serbia will eventually receive call-signs, so in effect, there will be four new countries for the loss of one DXCC country — Yugoslavia.

### Poland.

Special six metre permits were activated from 20/7 to 31/8, using the SO, SN and SR prefixes. On 15/9 a meeting with the Polish PTT could result in a general allocation for operation on six metres.

### Albania.

A visiting OH dx-pedition activated ZA1A from 1/7 to 14/7.

Others to be opened up by dx-peditions were Russia UX1A from 5/7 to 10/7, Kaliningrad UZ2FWA from 20/6 to 28/6 and UA2F/DK2ZF from 5/7 to 15/7, Latvia when YL/ES9C operated from 17/7 to 19/7 and worked about 450 stations.

None of the above is much help to VK as the dates have expired and at this time of the year there seems little likelihood of us working Europe. However, they are mentioned to allow you to make notes in your little black book that some form of six metre operations has been permitted in those countries and this may lead to something more permanent. In the meantime, no one knows whether Europe may be worked again during the next two equinoxes! Don't write off six metres too soon.

It appears from the reports received from Ted G4UPS and Geoff GJ4ICD, they being the basis for this part of my notes, that

extensive use of beacons scattered all over Europe, plus the relative closeness of so many countries, forms part of the reasons why they are able to work so many stations/countries on a daily basis.

During June, they noted the following beacons: SV1SIX, ZB2VHF, 9H1SIX, EA3VHF, SZ2DH, OZ7IGY, 4N3SIX, 5B4CY, CT0WW, SK6SIX, OH1SIX, V51VHF, ZD8VHF, VO1ZA, OX3VHF, FY7VHF, plus the UK beacons. Also of interest is that the band is open for long periods, often 14 to 15 hours at a time. We in VK do occasionally have such long Es openings, but it happens so often in Europe because there are so many countries to work, thus, if the Es changes from one area to another, it simply means a new set of countries appear! The latest list from Ted G4UPS indicates 143 countries have been worked by UK stations to 20 July, but no one has worked them all.

### Ancient Six Metres!

Reading the Six News from the UK Six Metre Group, I was interested in a table prepared by Ken G4IGO which indicated the first known UK station to work a particular country on six metres and when the contact occurred. We tend to think that contacts have only occurred there since about 1986 but a number of much earlier contacts are listed.

For your interest they are: G6DH to F8ZF on 10/12/47, G5WB to LA7Y on 3/7/48, G6DH to MD5KW, 10/11/47, G5DB to OH2NY on 4/6/48, G6DH to PA0UN on 10/3/48, G5BM to SU7HF on 16/11/47, G5BY to VE1QZ on 6/11/47, G6DH to W1HDQ on 5/11/47, G5BY to ZS1P on 6/11/47 and G4LX to ZE2EJ on 1/1/58.

All the prefixes worked are current with the exception of MD5KW which is unknown to me — also, it is not listed in the ARRL DXCC deleted countries list. Any answers? ZE2 is now Z2 — Zimbabwe.

Six metre buffs will have already noted that the 1947/48 contacts were made during the peak of Cycle 18 and the lonely one of 1958 in Cycle 19.

### South Africa.

Again, by courtesy of Six News, Hal ZS6WB reports that they have had a very quiet period on six metres during 1992, with nothing over the east-west path, no VKs, JAs, South America or anything else. Hal said he was amazed how things could change from the good year of 1991 to the very poor year of 1992.

The only bright spot was a QSO in April with 5W1KF while he was beaming over Europe! However, he did work UL7GCC and ES6QB which gave him 89 countries worked and 84 confirmed, with cards yet to come from 5W1KF, 9K2, ES6, OD5 and UL7.

Hal says he has now worked 1522 different stations on six, just under 1400 of those outside Africa. Of the 1400 there were 54 JA, 30 Oceania, 16 other Asia, 26 North America, 35 South America, the balance in Europe.

He worked 363 UK stations, 224 in 1, 136 F, 126 PA and 106 DL. Hal concludes by saying.. "Conditions have been so good in the past that we keep thinking that tomorrow there will be an opening just as good. But it is frustrating to keep working the same stations over and over again, when you know there are other stations waiting in line for a contact."

Haven't we all heard that plea from others too? .... VK5LP.

### On the higher bands.

These too, seem to have gone into the doldrums with the onset of the cold weather as no reports have come in of anything special being done. Mark VK5EME, says he and David VK5KK have been maintaining almost daily skeds on 2304 MHz with very good results.

The VK5VF beacon on 1296.450 continues to enter the VK5LP shack at a steady S9 whenever I listen to its two watts! That seems reasonable for the distance of 130 km and without the use of the masthead pre-amp.

### Closure.

By the time you read this we will be entering another equinox. I suggest you continue to be vigilant for possible F2 contacts, particularly if assisted by Es. I am not convinced the F2 period has gone completely, what was worked after the peak of previous cycles should be kept in mind. As you never know when an F2 contact is possible, and not necessarily from your area and particularly when you are working via Es, please leave 50.110 clear for those who may have such an opportunity.

Closing with two thoughts for the month:

1. The wonderful world of home appliances now makes it possible to cook inside with charcoal, and outdoors with gas, and,
2. Time neither subtracts or divides, but adds at such a pace it seems like multiplication.

73 from The Voice by the Lake.

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**Help protect our  
frequencies —  
become an intruder  
watcher today**

# Divisional Notes

## VK2 Notes

Tim Mills VK2ZTM

VK2WI. A reminder to listeners that the planned change to the morning broadcast time will occur on Sunday 25 October to the new time of 10am. There is no change to the Sunday evening transmissions with the tape at 7.15pm and the news at 7.30pm.

While 10 am is currently a clear slot there will be a time share with VK4 during daylight saving periods now that Queensland has chosen not to adopt daylight saving this year, from what we understand.

The Dural site houses the VK2RSY beacons as well as the VK2WI broadcast system. The beacons have been operational for about 20 years, first with six and two metre units, followed at intervals by 10 metres, 70 cm and finally 23 cm. At about the same time six and two-metre SSB transmissions were added to the broadcast format, when the transmissions originated at VK2AW1, Crows Nest. When the broadcast returned to Dural these transmissions were added late in 1978. To allow reception of callbacks and to share antennas, the beacons on 10, 6 and 2 go off in the broadcast period.

A series of requests has been received from those who rely on the beacons for experiments not to take them out of service. There is also a request to either move the frequency on two metres, at present 144.12 MHz, or take the transmission off air to allow experiments to proceed on 144.100 MHz on Sunday mornings. Divisional Council would like to hear from users about these requests before committing funds to system changes. Please direct comments in writing to the Secretary at the Parramatta office.

## Recent New Members

A warm welcome is extended to the following who recently joined the VK2 Division:

N D Harris	Assoc	North Parramatta
S R McInney	Assoc	Yagoona
C U M Moser	VK2XSM	Chatswood

## Future Events

The next Trash and Treasure will be held in the car park at Parramatta on Sunday afternoon 27 September. The next Divisional exam to be held at Parramatta will be on Sunday 8 November, with a closing date for applications on 22 October. If you took part in the recent RD Contest, don't forget to send in your log for VK2.

## VK2RCW Improved on 80 Metres

Some recent work on the transmitter and antenna system of the continuous automatic slow morse facility of VK2RCW should

have resulted in improved coverage on 3699 kHz. The transmissions originate from Sydney with the addition of a local output on 144.950 MHz. VK2RCW was established during the 1970s by the Hornsby and District ARC, and it welcomes reports on both day and night coverage on 80 metres. Send reports to the club address, PO Box 362, Hornsby NSW 2077, or to Barry VK2AAB on packet at VK2RW1.

The morse machine has a block of text in its computer which is sent in about five-minute blocks. An ident is then inserted and another five minutes is sent. After a group of four segments at one speed the sending rate is increased for a further four periods. A third speed increase is introduced before the sending rate reverts to the slowest speed.

This service complements the WIA slow morse sessions conducted nightly on 3550 kHz, first from VK2 at 2000 hours, which is followed by VK5. Morse training transmissions are regularly listed in a column in the pages of Amateur Radio.

## Strange Signals on 70 Cm

No doubt VK2 is not the only part of the country to find that "our" 70 cm band is not always empty except for "us amateurs". We are the Secondary Service, and the Primary Service are systems used for radiolocation. Every so often such a device appears to shatter the quiet spectrum space.

A few months ago a signal appeared in the Illawarra region in the portion round 441 MHz used for repeater and packet links. It has a chirp-like transmission across a wide portion of spectrum. It was traced to and appeared to be operated by a Department of Defence service for perhaps radio location. A frequency change to the links moved them to the lower 420 MHz portion. The device is still operational.

During July 1992 in Sydney the various 70 cm repeaters began to be keyed up by a wide bandwidth signal round the 433 MHz segment. It remained active for a few days and is thought to have again been a radio location system operating near Sydney's northern beaches. It disappeared before bearings were confirmed.

A new signal has also appeared round 441 and this, at the time these notes were written, has been traced to the South Head region.

Some years ago the amateurs in Perth, about the time a certain yacht race was conducted, discovered similar signals appeared on 427 MHz.

If any reader is aware of other transmissions in the 70 cm band which are of ap-

parent non-amateur origin it would assist in building up a profile of band usage. Most will be those of a radio location or defence department nature which are primary users. There could be the odd "pirate" using a hand-held or similar above 440 MHz.

The main thing, however, for amateurs is to make the maximum possible use of the band for all the modes. Beacons, repeaters, packet, moonbounce, SSB and ATV. We have a lot of band space, and are one of the few countries with such a wide "chunk" of spectrum. Use it and help retain it.

Your reports and comments would be most welcome to your Division or to FTAC.

## VK3 Notes

Barry Wilton VK3XV

The 1992-93 council held its 1st meeting on Thursday, July 23rd. Its primary task was to elect office bearers for the next 12 months.

Council re-elected Jim Linton VK3PC as President making it his 8th term in that office. His appointment and those of other office bearer positions remain unchanged from the previous council.

Barry Wilton VK3XV is Secretary, Bill Trigg VK3JTW Broadcast Officer, George Hunt VK3ZNE Disposals Officer, and Peter Mill VK3ZPP was re-appointed to VTAC. The Treasurer, Rob Hailey VK3XLZ was appointed for a 12 month term last December.

# ELECTRONIC DISPOSALS

27 THE MALL  
SOUTH CROYDON

### Specials:

3 watt ceramic resistors 10c each  
40 amp 12 V relays single throw \$4  
5A Bi Metal cut outs 35c each  
CB/10m end fed mobile ant comes complete with coax and mount  
\$12.00

Mains caps 240 v \$1.00 each  
ECL — ICs 10.000 series \$3.50 per tube

2716 70c each or \$10 per tube  
9016 16k x \$12 per tube  
TL082 Low noise op amp \$1 each  
10 µF 40 v low leakage Electrolytics  
\$6 per 100

2200 µF 50 V axial 90c each plus lots components at reduced rates.

KITS (OR PARTS, BOARD, ETC.)  
AVAILABLE FOR DREW DIAMOND'S  
PROJECTS

The council meeting discussed a range of issues. These included finances, trading, office policies, federal affairs, the constitutional review, theory and Morse classes for 1993, repeater sites and technical data-base, and the Sherbrooke Shire's L61 planning amendment.

Council also decided to produce a new publicity brochure for 1993 aimed specifically at prospective radio amateurs thinking of joining the hobby and WIA Victoria.

### 5/8 Wave

*Roland Bruce VK5OU*

The more things alter.....! Jenny, VK5ANW, having decided to relinquish the Editorship of 5/8 Wave, found she had a volunteer in me, (I'm still not quite sure how it happened,) and it was agreed I should take over when I returned from a trip to the Northern Territory. So, first, Jenny, many thanks on behalf of the Division for the years you have devoted to writing this column. I remember the Council meeting when, almost apologetically, you told us that you had been asked to write a few words, and had taken it upon yourself to head them with the title 5/8 Wave. Those few words must be into the hundreds of thousands by now.

Secondly, whilst up North I was accosted at the Mindel Beach market by Spud, VK8ZWM, who brought me up to date on the SEANET Convention being organised by Darwin ARC in October.

It should be a great event. Have you wanted a business trip or a holiday at that time yet? The NT Tourist Bureau was extremely helpful in many ways whilst I was there; they should be able to answer any questions you may have.

The more things alter.....! I missed a couple of General meetings and Council meetings through being away. When I got back I found out that life goes on as normal despite one's absence. There were all the usual crises I had become used to in my term as President.

A: John Highman, our new Secretary, had been transferred interstate. Thanks for the tidy files you handed over John, to ... guess who? We need a replacement, quickly.

B: Mark Spooner, VK5AVQ, a man of many parts, especially ESC parts, is heading to VK0 once more. In particular we need a replacement Program Organiser.

C: Lindsay Collins, VK5GZ, has resigned as the Division's Intruder Watch Co-ordinator. John Harris, VK5ZRH, has agreed to take on that job. Thank you John, and welcome to the team.

D: At a Federal level, John Ingham, VK5KG, is resigning from the position of Video Tape Co-ordinator, and no doubt a replacement is needed urgently.

All these volunteers deserve our thanks. They have done sterling work, in most cases over many years. They will be sorely missed. So do we have any replacements? Don't be shy! On the other hand, it was good to hear Chuck, as Membership Secretary announce nine new members in the last two months.

Unfortunately I neglected to ask the names of those in June, but in July we welcomed VK5ZGC Gary Cook; Tony Yates; VK5KCT, ex-SP9RPT, Andrzes Tomczyk; VK5NYD, Nora Young and VK5ZWB, Peter Wilinski.

Diary: 22nd September — Members' Equipment Night. 8th December — Christmas social. Details to follow. 1993 — Buy and Sell Nights — January, May and August.

### VK6 Notes

*Harry Atkinson VK6WZ*

The Division is seeking the services of

both a meeting secretary and a broadcast officer. John Farnon and Nick Morgan have both found work pressures in their jobs have increased, hence their resignations. These vital positions must be filled — can you help?

Councillors are to look at a possible new venue for meetings; more next month. Also, the October issue may have some good news for ATV enthusiasts — a permanent, secure home for a Perth ATV repeater.

Surplus and duplicated gear goes to auction at the City of Melville main hall on 17 October, Almondbury Road, Ardross. More information by ringing the curator, Andrew Davey (090) 364 1558.

Upcoming events: Northern Corridor "Hamfest" 1/11/92; Special Event 80th anniversary of VIP coastal radio station 21-22/11/92. More details next month.

ar

## Spotlight On SWLing

*Robin L. Harwood VK7RH 52 Connaught Cres.,  
West Launceston Tas 7250*

September has arrived and as the Seasonal alterations are being made, it is interesting to note that there is a marked deterioration in the higher frequencies above 17 MHz. Although there are good signals still present, levels have gone down making weaker stations harder to copy. The lower frequencies are picking up and some interesting catches are being reported. The equinox is perhaps the best time to listen around on the tropical bands, that is between 2 and 6 MHz. As Summer approaches, the amount of QRN will substantially increase to the point of making these frequencies totally unusable.

Radio Ukraine in Kiev is being easily heard here of late around 0400Z on 11980 and 12060 with their World Service in Ukrainian. Radio Moscow formerly had a number of senders in the Ukraine at Lvov and Simferpol, but these are now being used for their own external programming. They are also being rented out to other CIS nations such as the Russians plus the Baltic Nations. I believe that Radio Kiev does have an English program of about 30 minutes, basically for North American audiences. The times for these will be changing at the end of this month, when Europe goes off Summer Time.

Incidentally I have also noted Adventist World Radio-Europe on 15125 at 0430Z in English. A German language program follows at 0500Z. Although AWR-Europe does give an address in Forli, Italy at the end of the transmission, the signal is in fact coming from leased senders in the former Soviet Union at Moscow, Ekaterinburg

(formerly Sverdlovsk) and Samara. Some of the English programming has been produced in Australia at the Adventist Media Centre in Sydney. AWR-Europe also uses Arabic, Croatian, Serbian, Slovenian, Romanian, Polish, Italian and Swedish from the leased former Soviet senders between 0230 and 2000 UTC. AWR did also rent time over the Gloria site in Portugal to broadcast to Europe and the Mid-east, but this was abandoned. AWR-Europe have their own sender based in Forli, Italy but this is only rated at 10 kilowatts compared to the leased CIS senders of several hundred kilowatts.

There has been some informal discussion, I believe, for the member clubs of the South Pacific Association of Radio Clubs (SPARC) to join together to produce a monthly bulletin. This would save duplication of information and the effort of compiling a monthly bulletin would therefore become a co-operative effort and relieve the load on each member club to produce a monthly bulletin. However, each club would still retain its own identity.

Radio Zagreb in Croatia is being heard here at 0500z on the non-standard channel of 13830 kHz. Signals are good. Broadcasting in Croatian, with an English news bulletin around 0605Z. It is also on 9830 at the same time but 21480 has been dropped. I believe that United Nations troops have their own programming over Radio Zagreb but I have not observed it yet.

Well, that is all for this month. Until next time, the very best of listening and 73 — Robin L. Harwood VK7RH.

ar

# Technical Correspondence

## A Morse Philosophy

I was a member of the VK5 slow morse panel for over three years, and used a Ten Tec twin paddle keyer, which is still in use after 13 years. The second half of my sessions commenced at 6 wpm, then the speed was gradually increased to 8 wpm whilst sending. I then read back by voice what had been sent. The final segment also commenced at 6 wpm, the gradual increasing speed finishing at 12 wpm. I felt my style of increasing speed gradually allowed the learners more time at copying morse, as they settled in at their own speed and kept on copying not realising I was gradually going faster. I felt that the start/stop idea at the various set speeds threw them off concentrating very quickly, and so gave it away.

After many exams I used to put on a learning live on air QSO at novice speed for one and a half hours, with VK5AWI calling CQ, my own call answered with QRZ de VK5NLC, I gave my name as Ebenezer and QTH as Timbuctoo, just to make any mind reading much harder. I explained on speech all that had been sent, and what the abbreviations meant.

Near exam time, I would say, "I am now going to send mixed groups," then sent a large group of the very hard amateur call signs composed of three, four, five and six symbols. If anyone was not able to copy them well, they were not good enough to take an exam.

It is one thing to learn "only" the letters and figures like a pet parrot, sit and pass the morse exams and be granted that licence without learning how to conduct a QSO live on air, using all the necessary abbreviations, plus being a bundle of nerves, many give in to the microphone instead of using the key and gaining proficiency with it and improving their speed ready for the full call.

I have tried for years without success to change the regulations which state anyone is allowed to operate ONLY provided a licensed operator is in attendance. If prospective novices with good CW operating efficiency (ex WW2 operators) were allowed to operate live on air, under supervision of an accredited operator, or at least a club station, they would soon learn how to conduct a QSO, also gradually overcome the nervous tension that always crops up.

The novice should use his or her CW a lot to get his speed up to 10 wpm, and then concentrate on learning the theory.

Many people said they could not find much CW on air as it was too fast. I suggested to them to scrounge an old 3-3/4 to 1-7/8 reel tape recorder, tune the CW note to a high pitch, and start recording at 3-3/4 speed. When played back at 1-7/8, it was at the normal CW note and copy at half speed, with a bonus of twice as much text.

When someone told me they had just bought a twin paddle keyer (they must be keen) I asked them to sit down and have a hard think about what band they should use. During WW2 I myself wrote and sent morse left-handed. On getting my novice licence in 1976, and being in all the world CW contests, I decided to use it with my right hand. At speeds of 25 wpm in contests etc, my right hand stayed at the paddle for instant use, my left hand did all the writing and returning. It also had to alter the sending speed at times. Sometimes both hands are working, as I pick out the file cards to match an amateur's callsign that

I am starting to work. Since June 1983 I have been running a home brew CW programmable caller, so with my VOV set at a speed of 7 wpm, I never use my hands for operation of RX/TX.

Referring now to Gilbert's article in June 1991 AR, I do vary my speed while calling CQ. Often a slow CW gets answered, so when I am signing over, I increase speed for a few moments at the end, the operator then returns with his faster morse. I work many slow operators and give them all the encouragement I can.

Even with CW filter and an audio filter, I don't recommend full break in, except on an empty band with strong signals. In contests at fast speeds, it is bad enough operating the twin paddle giving the correct RST and number and entering the time, without hearing up to five stations bashing your ears while you are sending. I still do pause at times and have a listen. Full break-in is very heavy wear on the relay contacts, mine in 10 years are due for another service. I also use BK for a break-in transmission when I have a request for some info.

Lindsay Collins VK5GZ  
12 Park Ave  
Rosslyn Park 5072  
ar

## Awards

John Kelleher VK3DP — Federal Awards Manager

From time to time, I will be featuring an inexpensive yet very attractive DX award to adorn the shack wall. Such an award is the "Nine Dragons Award".

To qualify, work one country in CQ zones 18.19 and 24 through 30 for a total of nine zones. The zone 24 contact must be with a VS6 (Hong Kong) station.

Contacts are valid after 1 January 1979. The fee is US\$3.00, and your application and certified log extracts (no QSL cards required to be sent) go to:

The Awards Manager  
HARTS  
GPO Box 541  
Hong Kong

While on the subject of awards, I would like to hear from some of the many Australian amateur clubs and organisations which still operate nets and issue certificates which would be of interest to overseas stations. My reason for asking is to include participating groups in the K1BV Awards Directory, which is produced annually, and is on world-wide distribution.

## Section V. Field Checking of QSL Cards

QSL cards for new DXCC awards may be checked by two DXCC field representatives. This program applies only to the first DXCC award for an individual or a station. Specifically excluded from this program are additional new DXCC awards and endorsements of existing awards. Also excluded are 5BDXCC, six-metre, two metre and Satellite DXCC.

1. Countries Eligible for Field Checking
  - (a) Eligible countries will be indicated in the ARRL DXCC Countries List, and are subject to change. Only cards from these eligible countries may be checked by DXCC field representatives. QSLs for other DXCC countries must be submitted directly to ARRL Headquarters.
  - (b) The ARRL Awards Committee determines which countries are eligible for Field Checking.
2. DXCC Field Representatives:
  - (a) DXCC field representatives must be ARRL members who have a DXCC

award endorsed for at least 300 countries.

- (b) To become a DXCC field representative, a person must be nominated by a DX club. (A DX club is an ARRL affiliated club with at least 25 members who are DXCC members and which has, as its primary interest, DX. If there are any questions regarding the validity of a DX club, the issue shall be determined by the Division Director where the DX club is located). A person does not have to be a member to be nominated by a DX club.
- (c) DXCC field representatives are approved by the Director of the ARRL Division in which they reside, and appointed by the President of the ARRL.
- (d) DXCC field representative appointments must be renewed annually by the DX club that nominated them. Renewal is requested on the club's Annual Report form, signed by a club official and is subjected to approval by the President of the ARRL.

### 3. Card Checking Process

- (a) Only cards from the list of eligible countries can be checked by DXCC field representatives. An application shall contain a minimum of 100 QSL confirmations from the list, and shall not contain any QSLs from countries that are not on the list of eligible countries. The application may contain the maximum number of countries that appear on the list of eligible countries. That is, if there are 245 countries on the list, the initial application for a field-checked DXCC award could contain 245 countries.
- (b) It is the applicant's responsibility to get cards to and from the DXCC field representatives.
- (c) Field representatives may, at their own discretion, handle members' cards by mail.
- (d) The ARRL is not responsible for cards handled by DXCC field representatives and will not honour any claims.
- (e) The QSL cards must be checked by two DXCC field representatives.
- (f) The applicant and both DXCC field representatives must sign the application form. (See Section I, No 11 regarding altered, forged or otherwise invalid confirmations).
- (g) The applicant shall provide a stamped A4 envelope (business size) addressed to ARRL HQ to the DXCC field Representatives. The applicant shall also provide the application fee (cheque or money order payable to ARRL — no cash) for the initial DXCC award.
- (h) The DXCC field representatives will forward completed applications and appropriate fee(s) to ARRL HQ.
- (i) Applicants and field representatives are

encouraged to submit application data on an IBM-compatible diskette in the format approved by the DXCC desk. (Details are available from the DXCC desk at ARRL HQ). Applications on diskette must be accompanied by a paper copy of the application that has been signed by the applicant and the two DXCC field representatives.

### 4. ARRL HQ Involvement in the Card-Checking Process

- (a) ARRL HQ staff will receive field-checked applications, enter application data into DXCC records and issue DXCC credits and awards as appropriate.
- (b) ARRL HQ staff will perform random audits of applications. Applicants or members may be requested to forward cards to HQ for checking before or after credit is issued.
- (c) The applicant and both DXCC field representatives will be advised of any errors or discrepancies encountered by ARRL staff.
- (d) ARRL HQ staff provide instructions

and guidelines to DXCC field representatives.

5. Applicants and DXCC members may send cards to ARRL Headquarters at any time for review or recheck if the individual feels that an incorrect determination has been made.

Subsequent to this information being published, I enquired of ARRL as to my qualifications as a field representative.

Their reply was as follows: "Thanks for your letter of 17 June regarding DXCC field checking. This program has been in operation for less than a year. We decided to proceed slowly in all aspects of the program. As you can see in the rules, field checking is now limited to first-ever DXCC awards. Section V2 (b) and (c) while not clearly stating so, does in practice limit field checking to the USA. We will be reviewing the rules as we gain more experience with the program".

Sincerely and with 73  
Charles L Hutchinson K8CH  
Membership Services Manager  
ar

## ALARA

Robyn Gladwin VK3ENX Box 438 Chelsea 3196

The ALARA birthday activities held on the last weekend in July were very successful. Birthday luncheons gave members in the various states an opportunity to meet with each other. I hope that OMs were able to make contacts towards the ALARA Award. Many thanks to Glen, ZL2KZ, Colin, VK3LO, and Laurie, VK3AW, for joining the informal birthday net. It was good to hear Mavis, VK3KS, on 80 metres phone after a long absence. The highlight of the birthday celebrations was the presentation of plaques for Outstanding Service to ALARA to Jenny Warrington, VK5ANW, Bron Brown, VK3DYF, and Poppy Bradshaw, VK6YF.

Congratulations go also to Dorothy Bishop, VK2DDB, for her first ALARA Newsletter as Editor. I feel her delightful cartoons deserve a wider audience.

With regard to the plea for increased membership of the W.I.A. from the new President, I would like to share with readers some recent ALARA statistics. There is a total financial membership of 226. There are 115 Australian members of whom 67 or 58% are WIA members.

DX members play an important role in ALARA. YL magazines from overseas are available from the ALARA Librarian, Kim Wilson, VK3CYL, 1

Maurice Circuit, Wantirna South. Victoria. 3152. The JL YLs are planning an Asian YL Meeting in Osaka from 3rd to 5th April, 1993. Further information may be obtained from Kyoko Miyoshi, 4-16 Kokawa, Chuou-ku, Osaka 540, Japan. The YLRL YL Anniversary Party Contest will be held for CW on from Wednesday, 14th October, 1400 Z to Thursday, 15th October, 1700 Z. The SSB contest will take place from Wednesday, 28th October, 1400 Z to Thursday, 29th October, 1700 Z. Mail logs to YLRL Vice President Carla Watson, WO6X, 473 Palo Verde Drive, Sunnyvale, CA94086.

"33"

ar



Don't understand how  
anyone enjoys these  
dogpiles!

# Over to you — Members Opinions

*All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.*

## Convert to Metric

I have read with some interest the comments of Mr. Reg Wheller VK4ARW in June AR, regarding the apparent lack of interest by the author to convert to metric in the antenna article for the Z-Match.

Mr. Wheller must have read just my article as he failed to mention the other imperial article in the very same issue of AR. Not very fair Mr. Wheller !! Not only that but he failed to notice all the previous ones, and they still keep coming, but I am not complaining.

To be fair to his students (future radio operators), I feel that they should be at least aware of imperial (a few conversion tables etc). That would save a lot of embarrassment for Mr. Wheller's students, when they read the ARRL and RSGB reference publications. Just may be these future amateurs might work some DX as well.

I think an open mind is called for.

Adrian Fell VK2DZF  
PO Box 344  
Baulkham Hills NSW 2153

## WIA Exams

Having just passed my exams and now licensed (unrestricted), I would like to commend the WIA and all those involved in the exam service as being excellent.

I would like to see the introduction of higher theory exams where extra class licences are available. However, I do not like to hear (inevitable ?) rumblings about a no code licence, and would put more interest in home brew projects together with more construction type questions in the theory exams.

I agree with Roger Harrison (VK2ZTB — July) that a more appropriate name emphasising "Amateur" would be better for the WIA. Also concurring with Thomas Knopp (VK3GTK-July) in that full call privileges be extended by any amount, if only to encourage.

As Dale Carnegie says in his book *How to Win Friends (Amateur) and Influence (Novice) People* — "It's not the size of the step that's important, it is the DIRECTION in which it is taken".

Also a good idea is to have WIA members highlighted in the call book as mentioned by Gareth Davey (VK3ANF-June)

Paul Clutter VK2SPC  
52 Keats Avenue  
Bateau Bay NSW 2261

## Name Change !!

I am writing in support of the proposed change of name for the Institute as suggested by Roger Harrison in his letter published in AR for July 1992.

I see in the proposed new name "Amateur Radio Institute of Australia" the potential for a publicity campaign that spearheads some of the changes of attitude needed amongst the majority of Australian radio amateurs. Along with the breath of fresh air (dare I suggest a gust!) that a change of name would bring, all aspects of our amazingly diverse hobby could be more publicly acknowledged and promoted both within and without the Australian amateur population.

In this way the presently widespread attitudes of non-communication, non-participation, non-involvement and disconcert for the future of the hobby may be able to be overcome with new energy, new blood and a new direction. I think that Roger has found the lever of the switch which, when thrown, will energise amateur radio in the 1990s and beyond in Australia.

Doug Friend VK4OE  
35 Cronin Street  
Annerley QLD 4103

## Name Change Again !!

I congratulate Roger Harrison for his forward thinking, Societies such as ours need regular self-analysis. We need to take stock of where we are, and where we are heading. Roger has brought to notice a vital element in any forward planning, that of presenting a modern, vital image.

In many respects amateur radio is at the cutting edge of technology, however rearranging the deck chairs on the Titanic is not going to have much influence on our future destiny.

Name changing is cosmetic, we need substance, not shadow. Real modernisation is called for, I suggest our proudest possession is being the oldest amateur radio society. Let us maintain our name and traditional background, and put all our effort and "thinking power" into grafting a modern image, based on real performance, onto our traditional background.

The secret of a strong society is a management committee properly informed about the requirements of a majority of members. "They" cannot bring the WIA into the 21st century, we need real member input. Surely for a hobby based on

communication, it is not beyond our wit to devise better feed-back from members to officials.

Radio operators will join a society which delivers the services the members want, at a price they are prepared to pay. I suggest the phrase needs to be emblazoned on the heart of all our policy makers.

H F Wise VK2HW  
4 Turner Street  
Balmain NSW 2041

## Thanks

I would like to use the "Over to You" column to thank an unknown benefactor. Back in June of this year, I advertised for a coil box for an old HRO receiver. Some week or so later I found by my back door not one, but a complete set of HRO coil boxes.

My delight at this find was a little clouded because the donor left no indication of who he was, and I was thus not able to thank him in person. Asking around has not led to a name, so I can only hope the donor will read this, and accept my sincere thanks for what I can only assume was intended to be an anonymous gift.

Harold L Hepburn VK3AFQ  
4 Elizabeth Street  
East Brighton Vic 3187

## Mode Clash

A year or two ago the Wireless Institute asked the membership what it thought about giving more space to the so-called narrow band modes. It was suggested that CW operators might consider giving up the 10 kHz between 14070 and 14080 to allow the growing number of keyboard operators to move down and ease congestion.

I, and I'm sure many other operators of CW, wrote to say that, if it was needed, why not? After all, we are all amateurs together and a little give and take is good for the hobby. So the AMTOR people moved into the 10 kHz and everyone was happy.

Alas, there are always one or two who spoil it for everyone. AMTOR stations are beginning to creep below 14070 and causing interference to CW stations who operate regularly on the frequencies just below. For example, the Royal Signals Amateur Radio Society, which uses 14065, is experiencing problems, some AMTOR appearing on, and even below, that frequency. In the USA, the certificate hunters' club also operates around there.

What is worrying is that some CW operators are trying to jam AMTOR stations with strings of dots and dashes. We can do without this. It's understandable, but profitless, it only increases the QRM and leads to acrimony. I would appeal to the few who transgress (and there are only a few, so far) to move back to their respec-

tive frequencies before it all starts getting out of hand.

I know it's just a gentleman's agreement, but we are all gentlemen or ladies — aren't we?

**Jeff Jeffrey VK6AS**  
129 Coode St  
SOUTH PERTH 6151

*(We have received several letters on this topic, from both members and non-members, some of whom preferred anonymity to avoid repercussions. Acrimony seems to be already with us! Must we (a few of us) behave like mannerless slob? — Ed).*

## And WICEN Again

Acts of Parliament make for rather dull reading, so I can't blame Mr Ellis ("AR" August '92) for not having taken the time to check his facts. If he cares to read section 53 of the State Emergency and Rescue Management Act 1989 (No 165), he'll realise it's not WICEN that restricts his "right" to engage in emergency communications.

Also, far from being "entitled" to assist, paragraphs 18-24 of DoTC brochure RIB72 REQUIRE the amateur station to notify the appropriate authority, then to STAY OUT OF THE WAY unless explicitly requested to transmit.

My "thongs and stubbies" hyperbole, which I used to illustrate the value of the uniform of an accredited organisation, was evidently lost on Mr Ellis. I suggest he don casual attire, attempt to join a police operation, and see how far he gets.

While Stan personally might not benefit from WICEN training, there are several hundred amateurs in NSW who HAVE done so, in controlled exercises with other organisations, and while combating real emergencies, WICEN is about providing a supplementary emergency communications service to these organisations. We do NOT aim to turn the police into radio amateurs, or to become firefighters ourselves.

If Stan doesn't want to take an active role in putting amateur radio to use for the community good, none of us in WICEN will try to force him. But he should at least have sense enough to sit quietly in the corner while the rest of us get on with the job.

"It's better to light a candle than to curse the darkness."

**Richard P Murnane VK2SKY**  
Manly-Warringah Local Co-ordinator,  
WICEN (NSW) Inc  
7/15 Grafton Cr  
DEE WHY 2099

## Publicity for Amateur Radio

By recently going through the process of becoming involved in amateur radio, I learned that information on existence of and contact details of radio clubs was not

readily available to prospective amateurs not already involved in the hobby. Being aware of the marketing aspects of maximising public exposure and recruiting new amateurs, I decided to check one major vehicle for public listings: Yellow Pages club listings. Listings can be verified (in Sydney) by calling the Yellow Pages publishing company and asking for "subscriber maintenance", and giving the club's telephone number. There must be an equivalent procedure for other states, and also for the Melbourne BIG in Victoria.

I discovered the following: (1) There is no category "Clubs — Amateur Radio"; (2) my own club had no listing at all; (3) the WIA had a listing buried at the end of a very long category called "Organisations — Cultural and Educational". None of this is helping to get exposure for amateur radio.

Every amateur radio club which has a telephone should have a Yellow

Pages/Melbourne BIG listing, because every non-private telephone subscriber has the right to such a listing free of charge.

Over the phone I managed to organise a listing for my local club for the next edition, but as there was no category for amateur radio clubs, and no time to organise one by the closing date, the listing had to go under "Clubs — Social and General", which is less than ideal.

I suggest that both the WIA offices and radio clubs which have telephones should lobby the Yellow Pages publishers (it requires only a letter) to create a listing "Clubs — Amateur Radio" and to get themselves listed in it. This would come at the very beginning of the clubs listing with corresponding excellent exposure.

**Brad McMaster VK2KQH**  
GPO Box 2094  
SYDNEY 2001

ar

## Pounding Brass

*Gilbert Griffiths VK3CQ 7 Church Street Bright Vic 3741*

Real on-air operating is actually EASIER than the exams. I will admit that the first few QSO's are usually difficult and everyone gets butterflies at first, but there is not the fear of failing hanging over our heads. The rules are available to you at any time, even while you are on air, and a little practice will soon get rid of the butterflies. You can go on air and use plain English if you like, but it will waste a lot of time. Some amateurs may not work you because of this, as their operating time may be restricted and they will want to make the best of it by using abbreviations, and even full QSK (break-in) etc.

Most amateurs use abbreviations, so you can copy down the ones you hear and make a list that you can pin up in front of you while operating. You can even write down some of the things you want to send on air. It is easier at first to send from written copy.

Here is the recommended form of CQ call, it is called the 3 by 3 call — CQ CQ CQ DE VK3CQ VK3CQ VK3CQ AR K.

Many operators have their own preferences, some will call CQ ten or even twenty times, then their call a few times and may even repeat that before sending K. This is OK if they are using full break in (QSK) so that you can interrupt them at any time, but unfortunately most are not using break in and you have to wait. If you are in a hur-

ry, you can shorten the call to something like CQ DE VK3CQ K, especially if you think someone is listening on the frequency.

If you hear calls like CQ RD, CQ TEST, CQ N, CQ FD etc., these are people who are competing in contests. They will only send you a RST report followed by some more digits which may be a QSO number or some other contest number. They will expect you to do the same. Have a good listen beforehand to find out what is going on, they will usually slow for you.

OK, now that we have sent our CQ call, here is what a reply should look like — VK3CQ DE VK3CDU VK3CDU VK3CDU KN.

Your own call is sent once only, you are expected to know it well enough. His call is a new one for you, so it is first sent three times. The prosign KN means that only the station called should answer.

AR means "end of message". At the end of the contact you will hear something like — ..... 73 ES CUL AR VK3CQ DE VK3CDU SK E E.

AR (end of message) is usually put before the callsigns, and SK is the abbreviation for "end of work". E E can be likened to a wave (as in waving ta ta's) and is answered by a single dit. Another ending you can send in place of SK is the prosign CL,

Abbreviation	Meaning	Remarks
ABT	About	
AGN	Again	
ANT	Antenna	
BCNU	Be Seeing You	
BFR	Before	
BK	Break	Quick break in QSO
CP1	Copy	
CU	See You	ie CU AGN etc.
CUL	See You Later	
DWN	Down	
ES	And	
FB	Fine Business	Expression of approval
FER	For	
GA	Go Ahead	
GB	Good Bye	
GE	Good Evening	
GM	Good Morning	
GN	Good Night	
GND	Ground	
GUD	Good	
HI	Laugh	Used to indicate humour
HR	Here	
HW	How	
MY OM	Husband	
NR	Near	
NW	Near	

Abbreviation	Meaning	Remarks
OM	Old Man	Complimentary term
OP	Operator	
PSE	Please	
PSD	Pleased	
PWR	Power	
R	Received All	Indicates you listened & copied.
RIG	Equipment	eg. Rig IC751A, Ant Dipole etc.
RPT	Please Repeat	
SIG(S)	Signal (S) (Strength)	
SRI	Sorry	
TNX or TKS	Thanks	
TU	Thank You	
UR/U	You Are/You	
VY	Very	
WKD	Worked	
WK	Work	
WL	Will	
WUD	Would	
WX	Weather	
TX	Transmitter	
YL	Young Lady	
XYL	Wife	
73	Best Wishes	72 is used now for QRP
ITT/5T	100/50 Etc	T is sent instead of 0.

this stands for "Closing Down". It tells the listeners that you are switching off so that if they call you they will not be heard. This can be helpful on a net as the other operators will know you are no longer listening. (you can eavesdrop).

Mal, VK6NV wrote to me recently saying that many new operators he has met are reluctant to try for DX because so many DX station operators use abbreviations. He sent me quite a list, to which I will add a couple of my own so that you can copy them and hang them on the wall where you can refer to them while on air.

AR means "end of message". At the end

### In Summary:

Listen.

3 by 3 calls or shorter.

Call CQ slightly slower than you can copy.

Use Q codes and abbreviations (learning will come with use).

Identify every 10 minutes, at the start and end of every over is not necessary.

Keep overs short.

Wait a few seconds between overs. ar

**Prevent pirates  
— make sure  
you sell your  
transmitter to a  
licensed  
amateur.**

**For technical reasons we are unable to bring you Intruder Watch this month. We apologise to all concerned for this unavoidable omission.  
The Editors.**

## Morseword No 66

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

### Across:

- How many Blind Mice ?
- Look hard at
- Harvest
- Box
- Bicycle
- Picture
- Pea-shell
- At rest
- Swamp
- Eased off

### Down

- Wild feline
- Experience
- Platform
- Part of a camera
- Long walk
- Crow
- Noise of derision
- Plate used in Mass
- Within
- Bedding

© Audrey Ryan 1992

# Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words.*

The WIA regrets to announce the recent passing of:

J R (John)	TAPPER	VK2AQ
F (Frank)	KRUGER	VK3AI
B (Boris)	SHESTOKOFF	VK3NCC
H T (Tom)	MULDER	VK6MK
P T G (George)	SHUTTLE	VK6OQ
B (Brian)	PEMBERTON	VK6VW

## Tom Mulder VK6MK

Tom passed away on 22nd July 1992 after hospital treatment for surgery from which he appeared to recover but this was followed by a serious stroke some few days later last November. He was 81 years of age.

Tom was licensed as VK6MK about 1948 when he joined the WIA having then recently been retired as a Staff Signals Officer with the British 8th Army in Africa and Europe where he saw service in World War II. I had the pleasure of knowing him from that time and we were involved keenly in DXCC Chasing which indeed became an "addiction" to us both. His greatest wish was that he had all "listed" Countries Confirmed which was eventually fulfilled with ZA being confirmed a year ago.

In later years from Albany he was very active on 14 MHz with his many "W" friends from his Collins "string", always kept in show-room condition, likewise his second interest — Jaguar cars driven since I met him. Fishing in local waters and in the North West were other interests he held whenever opportunity offered.

Tom never married but is survived by his niece and nephew and their families. He and I were close friends and competitors in DX working and I am sure our urging one another in this field kept it going.

He will be sadly missed by the World DX fraternity and many other of his friends in Radio. 73 Tom.

Jim Rumble VK6RU

## Boris Shestokoff VK3NCC

Boris passed away peacefully in his sleep on 24th July 1992 after a very long and hard illness.

Boris was a very good friend of mine and thanks to him and through his guidance I got my full call licence. He also helped quite a few others with their licences as well.

Boris was a member of Moorabbin and District Radio Club and very well known on their Tuesday morning groups.

He attended regularly on the 21.158 MHz net and made many friends on Japanese Language group. He also conducted his Spanish Language group on 21.161 MHz for quite some time until illness took the better of him.

He will be greatly missed by his children Mike and Natasha and his wife Tanja as well as other relatives and friends.

Thomas Knopp VK3GTK

## John Robert Tapper VK2AQ/VK6OA

(Originally VK6RJ)

John passed away at Hollywood Hospital in WA on February 29th 1992 at age 81 from an illness first diagnosed when John was in his twenties.

He first transmitted in 1929 with the call-sign VK6RJ. His professional career began in the 30's as a technician with WA's first commercial broadcaster 6ML, where he was closely involved with building the transmitter. John served in DCA, as OIC of various aerodromes in WA, in the PMG's department and was appointed as District Radio Inspector at Wagga NSW from whence he retired about 15 years ago.

Since retirement until very recently he maintained two homes, one in Wagga and the other in WA. He frequently crossed the Nullabor Plain to live alternately in each home, seeking to enjoy his home state where his roots and family were, and Wagga where he had some warmly regarded friendships.

Failing health caused him to settle finally in WA. Just a few months before he died he sold his home in Wagga, and kind friends packed up and freighted his possessions to John in WA.

John talked fondly and often about the Wagga Radio Club and his friends in the Eastern States.

Barrie Field VK6BR.

## Andrew Keith Ballantyne VK3AKB

Keith Ballantyne of Upper Beaconsfield died on 13th July 1992 aged 88.

Keith's interest in radio started at Scotch College and continued while he studied architecture.

When Keith's father and sister died, his mother took her three boys around the world.

In Evanston, Illinois, U.S.A., he met Bill Conklin, U9DBF, who arranged for Keith to address meetings of radio amateurs on the state of the art in Australia.

Later, Keith went into partnership with a school friend, Godfrey Barthold and traded as The Radio Equipment & Service Co. (later Radesco Pty. Ltd.) in Malvern.

They broadcast on Sundays on wavelengths between approximately 220 metres and 100 metres using Godfrey's amateur call sign 3GL (later 3BT). Keith had an experimental wireless license.

In 1927 Keith married Miss Elizabeth (Bessie) Coutie and moved to Frankston.

After World War 2 Keith obtained the call sign VK3AKB (circa 1947) and operated from QTHs at Brighton, Berwick and Upper Beaconsfield maintaining regular contacts with Bill Conklin (K6KA) and numerous other friends.

He was keenly interested in the WIA and was one of the first members of the Moorabbin & District Radio Club.

Keith was a member of the Radio Amateurs Old Timer's Club.

He leaves a wife, 3 daughters, 1 son, 15 grandchildren and 13 great grandchildren.

Keith will be sadly missed.

Dudley Cutler VK3ZDC

ar

**Repeaters —  
additions,  
deletions,  
alterations.  
Have  
you advised  
the WIA of  
changes  
needed  
to the  
repeater list?**

# HAMADS

## TRADE ADS

● **BAYCOM MODEM AND PROGRAM.** The German Baycom modem and version 1.5 of this packet program is now available. The modem is built into a D9 plug and connects to the RS232 port of an IBM compatible PC. This very compact modem does not need an external power supply. The modem is available with version 1.5 and printed manual for \$195 including postage from Australian Amateur Radio Association, 59 Westbrook Avenue, Wahroonga NSW 2076.

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne.

● **WEATHER FAX programs for IBM XT/ATs** \*\*\* "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAX-ISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

## FOR SALE NSW

● **WW2 equipment:** AT5 transmitter complete except ATU, \$50; receiver R1155B, RDF removed, mains p/supply & o/p stage installed, \$50; US Sigs receivers 453B (Q5er) 200-550 kHz, 454B 3-6 MHz, 455B 6-9 MHz, with rack FT220A, \$150 the lot; receiver BC348, all components but stripped for rebuild, \$25. Also transformer pri 170-260 V to 10 V taps, sec 100 V 15 A, steel case with V/meter, \$200 ONO. Keith VK2AXN, (02) 489 0304 QTHR.

● **COMPUTERS — PACKET — HF — VHF — UHF — 27MHz,** COMMODORE SX-64 complete with inbuilt colour monitor disk drive plus Epyx Fast-Load Cartridge, lots of software, games, etc and Joystick \$150; COMMODORE 64 PLUS COMMODORE 1541 Disk Drive (Device 8/9 switchable), PLUS Cassette tape drive, 5 inch B&W monitor, EPYX Fast Load cartridge, lots of software, games, etc and Joystick \$100; COMMODORE 1541 Disk Drive (Device 8/9 switchable) \$50; HOME BREW Exhaust fan for 1541 Disk Drive \$10; COMMODORE Super Fast Parallel Disk Drive SFD1001

for Commodore 64 — never used — \$50; COMPUTER CLASSICS 300 Modem to suit C-64 — \$50; APRA Packet Modem suit C-64 \$30; COMMODORE 64 Joysticks — NEW! \$5; COMMODORE 16 computer + software, games etc \$20; KENWOOD TR7400A 2m Mobile & mounting bracket S/N 560841 \$200; YAESU FT209RH 2m H/Held S/N 180659 with FNB3 \$150; ALINCO ELH-230g 2m 12v Linear suit above 5w/30w S/N 92101098 \$100; YAESU FT709R 70cm H/Held S/N 6C140052 with FNB4 \$200; YAESU YH-2 Headset mike for either H/Helds above \$20; YAESU MH-12 Speaker/mike for either H/Helds above \$35; YAESU NC-15 Fast charger for either H/Helds above \$65; YAESU FT 707 HF Tranceiver S/N OI060310 PLUS FV-707MD External Digital FVO OJ040248 PLUS YM-35 Scanning Mike PLUS YM-34 Desk Mike — the lot \$700; PACE 27MHz H/Held w/crystals 3w x 3 channel \$50; PRESIDENT 27MHz Marine H/Held w/crystals 5w x 6 channel \$75; Neil Cornish VK2KCN QTHR 018 243 880 — (A/Hrs) (02) 894 5678.

● **YAESU FTDX560 550 w input \$320; LINEAR AMP, home brew part wired 700-0-700 v 1.5 Kw input \$90; YAESU mobile whips, base with 2mx half wave and 80,40,20,15,10 MHz \$120; INDICATOR UNIT CRT type \$30; VZ300 DSE computer \$50; TANDY TRS80 computer \$25; STC191 radio phones \$10; CHIRNSIDE duo band beam 10 & 15 Mx \$90; Dave VK2OC QTHR (069) 485 267 evenings.**

## FOR SALE VIC

● **KENWOOD TM211A 25 w 2mx FM, EC \$275; YAESU FT747GX 100 w HF, EC, \$950; KENWOOD TS140S, GC, \$950; KENWOOD AT180 ATU GC, \$175; DICK SMITH 20 A PSU, \$150; Ron VK3OM QTHR Ph (059) 44 3019**

● **ALINCO DR590 dual band 2m/70cm txcvr 5/10/45 w, service/operational manuals, DIAMOND X-200A dualband vertical, DIAMOND diplexer UHF connectors, EC, \$1075-00, WILL NOT separate. VK3EPD (059) 83 1771.**

● **ICOM IC751 HF TXCVR in absolutely mint condition. Includes SM8 desk mike, service and workshop manuals. Can be inspected "on air". \$1500-00, HF LINEAR 1500 w key down. Commercial grade unit will load at legal limit. 100% duty cycle power supply. Brand new spare set Eimac 3-500Z final tubes. Can be inspected in operation. \$1500. VK3XV (059) 987 851 after 6 pm.**

● **COLLINS KWM2A HF txcvr and PSU, A1 cond, incl instr book, mic, spare tubes \$1000; DRAKE TR4C, RV4C, PSU, desk mic. all as new, \$750; Rob VK3JE (060) 37 1262 or (03) 584 5737.**

● **HAND HELD ICOM IC-2GAT with Nicad rechargeable batteries and step down transformer 1 or 7 watts, two antennae, 48 cm and**

122 cm. In leather case as new condition, \$395. Used less than a few weekends. rare opportunity for a keen two metre mobile person. Roth VK3BG (03) 725 3550.

● **YAESU FT 707 100 watt transceiver c/w microphone, leads, mobile bracket and workshop service manual. S/n IC160610 VGC \$625. VK3CCE Reg (03)509 1720.**

● **YAESU FT207R 2mx h/held txcvr, rubber whip antenna, spkr/mic, PLL 4 memory, needs on/off pot plus NiCad battery pack. With manual and Cct diag. \$300; AWA CARPHONE JUNIOR, VHF (High Band) FM Txcvr, 6 channel Xtal controlled. Transmitter OK. Receiver needs attention. \$25-00. VK3AJO Vincent QTHR (03) 872 3503.**

● **YAESU FT ONE general coverage Txcvr, 2 mics, full set new extension boards, filters, built in PSU, good condition \$1350, Tel (051) 992 811**

● **HIDAKA trapped vertical aerial VS80KR, approx 28 ft high, Andrew VK3BJW (03) 878 8593.**

## FOR SALE QLD

● **FT-101B Plus spare new finals CW filter, FTV-650B six meter xverter, FV-101B VFO, all cables and manuals, perfect condition \$500 the lot. VK4IT (07) 266 5922.**

● **KENWOOD TS940S HF txcvr, mic, VGC, \$2450, Brian VK4BOW (077) 862 367 (Bus), (077) 862 108 (A.Hrs).**

## FREE QLD

● **TWO SIEMENS 100 Teleprinters with quantity spare parts, incl motors. Noel VK4NB (07) 892 3458**

## FOR SALE SA

● **IC751, 726 HF/6M, R71A & EX309, KENWOOD TS520, RZ-1, SONY ICF 2020 (sim. 2001D), AEA PK232 with 8086 based HP laptop/terminal, 1989 ARRL Handbook, 1989 Callbook, PANASONIC 1081 printer and ribbons, NEC P52/5300 colour kit, YAESU G5400B Az/EI rotor, Image scanner, PC Fax card, AMSTRAD PPC640, 30 Amp PSU, MS Prog.Lib CD ROM, some MAC and PC software, (SASE for list) VK5CQ QTHR (08) 289 2146**

## FOR SALE WA

● **DECEASED ESTATE — TOWER self supporting 63 ft. with tiltover antenna rotating pole, HAM-M ROTATOR and remote controller,**

204BA four element 20M monobander, KENWOOD TS130SE solid state txcvr (full WARC) with PS40 PSU and MC10 mic, HF mobile multi-band whip (new), KENWOOD TS520S with TV502 2Mx Txcvr, VFO520, MC50 mic and (2) SP520 matching speakers. SHURE SM444D mic, HI-MOUND key, TECH 203 CRO, DATONG RF speech clipper, DATONG frequency agile audio filter. ICOM IC202 2Mx CW/SSB txcvr with 12v PSU. TRIO PF810 power meter, LAFAYETTE 99-2537 SWR meter. Four OSKER BLOCK SWR 100/200 bridge/power meters. YAESU FL2100 linear, KW1000 linear and a COLLINS 30L/1 linear. TYPE 3, MKIII "B2 spy set" TX/RX in case complete with coils, key and phones. All items in first class condition, with handbooks & documentation etc. Selection of rare valves, test equipment and parts. Enquiries to Alan VK6PG (09) 275 3348.

**FOR SALE TAS**

● KENWOOD TS 520S TXCVR S/n 840543 with DC/DC conv, MC-50 desk mic, handbook. Good condx. \$430. Price firm. Clarrie VK7HC QTHR (004) 31 8211.

**WANTED NSW**

● WAGNER SSB HF radio units in going or non funct cond. Ray VK2FW QTHR (063) 65 3410  
 ● FT101E must be working and in reasonable condition. Ray VK2FW QTHR (062) 65 3410.

● CUSHCRAFT HA-3 vertical antenna photocopy assembly instructions only. Ring David (048) 85 1470 to arrange cost of photocopy. David VK2DAJ QTHR.

● KENWOOD SM220 station monitor. M Barry VK2IH QTHR (043) 67 7499.

● MECHANICAL SSB FILTER 455 kHz with upper & lower crystals. Tuning capacitor 10-250 pf for final (2 x 6146). Peter QTHR (02) 411 1227.

**WANTED VIC**

● MANUAL for KDK VHF FM transceiver model FM-2025 Mark II. Reasonable costs reimbursed. Phone (050) 21 1452 Gordon VK3VFK QTHR.

● KINGSLEY AR7 RECEIVER complete and good order for Science Museum Victoria reference collection of Australian design and inventions. If you can help please contact Allan Double VK3AMD QTHR, phone (03) 570 4610.

● FM430 FM option for KENWOOD TS430S. VK3EPO (059) 83 1771.

**WANTED SA**

● DRAKE MN-2700 2kW Tuner matching DRAKE 7-line in exchange for MAGNUM MT3000A 3 kW tuner matching DRAKE 4-line S/n 761407. Harro VK5HK QTHR (08)382 8990.

● TERLIN OUTBACKER mobile antenna with base. VK5KWH QTHR (086) 822 363.

**When you buy something from one of our advertisers, tell them you read about it in the WIA Amateur Radio magazine.**

**Hamads**

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address  
 Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State: .....


**Not for publication:**

Miscellaneous

For Sale

Wanted

Name:..... Call Sign: ..... Address: .....

## Solution to Morseword No 66

Page 51

	1	2	3	4	5	6	7	8	9	10
1	—	.	.	.	.	.	—	.	.	.
2	.	.	.	—	.	.	.	—	.	.
3	.	.	.	.	.	.	.	.	—	—
4	—	.	—	.	.	.	.	.	.	.
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9	—	.	.	.	.	.	.	.	.	.
10	—	.	.	.	.	.	.	.	.	—

### Solution for Morseword No 66

Across: 1 three; 2 stare; 3 reap; 4 case;  
5 bike; 6 image; 7 pod; 8 idle; 9 bog;  
10 lax.

Down: 1 tiger; 2 felt; 3 stage; 4 lens; 5  
hike; 6 jay; 7 boo; 8 paten; 9 inner; 10  
sheet.

### TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

### VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING Industrial Printing  
AND PRINTING: Richmond

MAIL DISTRIBUTION: R L Polk &  
Co Pty Ltd.  
PO Box 140,  
Collingwood,  
Vic. 3066  
Tel: (03) 417 5161

The opinions expressed in this publication do not necessarily reflect the official view of the WIA, and the WIA cannot be held responsible for incorrect information published.

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## HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information  
about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

## VK QSL Bureaux

The official list of VK QSL Bureaux. All are Inwards  
and Outwards unless otherwise stated.

VK1	GPO Box 600 Canberra ACT 2601
VK2	PO Box 73 Teralba NSW 2284
VK3	40G Victory Blvd, Ashburton Vic 3147
VK4	GPO Box 638 Brisbane Qld 4001
VK5	PO Box 10092 Gouger St Adelaide SA 5000
VK6	GPO Box F319 Perth WA 6001
VK7	GPO Box 371D Hobart Tas 7001
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*ICOM Australia's warranty is only applicable to products purchased from their authorised Australian Dealers.*



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OCTOBER 1992

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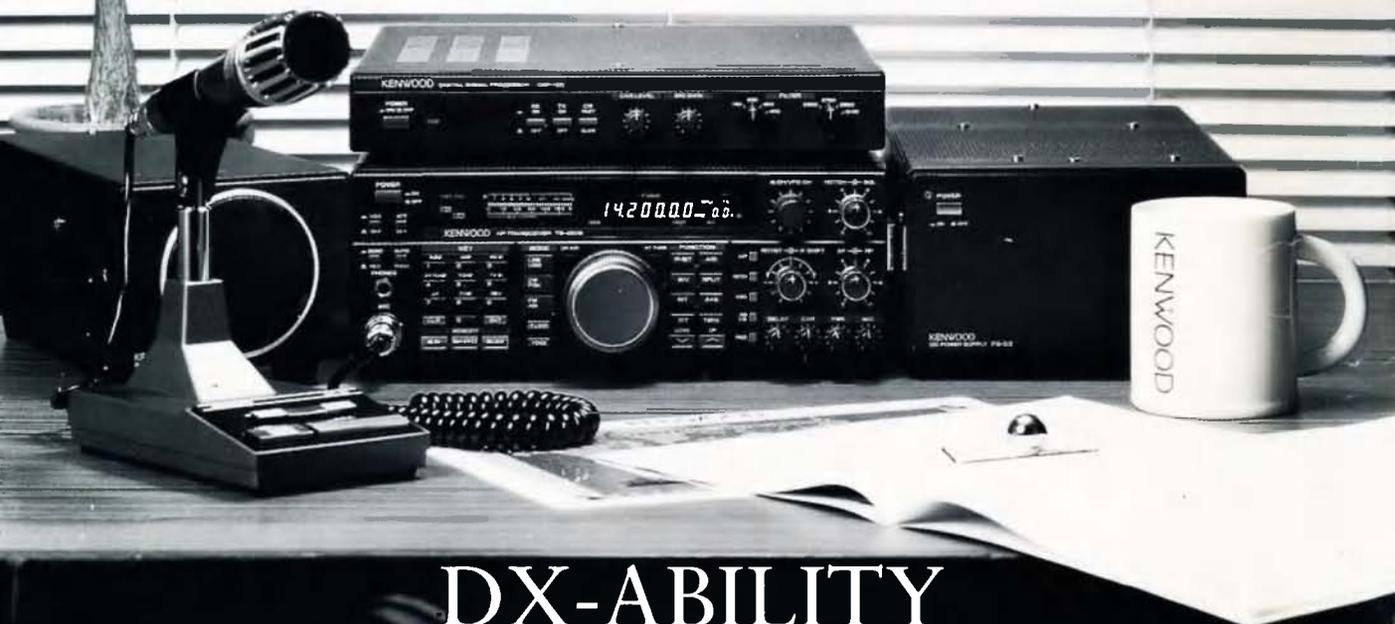
# R A D I O

- Dissimilar metals
- Coming in out of the cold
- 2 metres foxhunting . . .  
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- New packet radio column



THE WIA RADIO AMATEUR'S JOURNAL

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### Cover

This month's cover features a yacht in full sail, similar to the one owned by Richard Cortis VK2XRC, called "Mistress". Richard's article "Beware of Dissimilar Metals" is on page 10. Dissimilar metals in sea craft display some strange effects, and "... the Zinc anode is connected to the engine leg connected to the gear box, connected to the engine, connected to the ..."; read on!

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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## Editor's Comment

Bill Rice VK3ABP

Editor

### Ladies and Gentlemen

Perhaps the well known words of salutation to one's audience have lost some of their past significance. Perhaps today's audiences would prefer to be greeted with "Guys and Dolls", "Blokes and Sheilas", "Listen you mob", or, something even less formal or polite! Some might, but I suggest they would be a tiny minority even in these "enlightened (?) days".

What significance did the description carry once? I find it difficult to express in only a few words, for much of the civilisation of the English-speaking world is bound-up in phrases such as this. Books have been written on lesser trivialities. The word "civilisation" could be discussed for hours, if not days. But for our purposes, let us interpret "civilisation" as a process of learning to be civil, and "civil" in turn to mean being tolerant to all who behave like "ladies and gentlemen"! And how do THEY behave? They follow RULES of behaviour, not because they risk punishment otherwise, but because they have agreed that civil behaviour is better than arguments or insults or even worse. They may be said to observe a "gentlemen's agreement". (The absence of a "ladies" agreement" reflects the male chauvinism of a bygone age, not the absence of such agreement!).

We all know of the "gentlemen's agreements" which apply to many aspects of amateur radio. Mostly they concern band subdivisions between various modes

of operation. As a letter to "Over to You" told us last month, there is an agreement that 14.070 MHz marks the boundary between CW and AMTOR on 20 metres, but some have seen fit to disregard it. Even firmer than agreements are rules and regulations about transmissions of bad language, the sub-bands available to different licence classes, the operating procedures by which interference is avoided, and the topics which amateurs may and may not discuss on the air, not to mention put on bulletin boards!

Some people choose to ignore some or all of these rules, thereby producing interference, offence or harassment to others, for no other reason than their own malicious self-gratification. It "gives them a buzz". Such people are emotionally immature or psychologically warped. They are anti-social and uncivilised. Regrettably, they reflect the violence of a world in which "ladies and gentlemen" are becoming less numerous and less influential. Perhaps these misfits could do more permanent damage by running amok with a gun; perhaps we should be glad they are only mis-using a radio!

Invariably they are seeking notoriety. By being ignored as completely as possible they may go elsewhere in disgust. Eventually they will victimise themselves, by the operation of another rule, basic to all religions, and perhaps most succinctly expressed in the Koran (in Pickthall's beautiful translation) as "Wrong not, and ye shall not be wronged". ar

# WIA News

From the WIA Federal Office

## Progress of New Licence Conditions

Despite what some members may have read in a commercial magazine, the final version of the dramatically changed and improved deregulated licence conditions for radio amateurs in Australia has not yet been approved by the DoTC hierarchy, let alone released.

These members may have wondered why the publication, which has no standing as a representative of the amateur service, should be releasing information which purports to be the new licence conditions when the WIA, the amateur service representative body which spent considerable time negotiating the best possible licence conditions with DoTC, has not released any information.

Simple. The WIA has honoured the request from the DoTC that no publicity be given to any of the proposals under discussion or potential gains or losses of privileges until the final deregulated licence conditions are officially released by the DoTC. The WIA has been advised that a statement releasing the details is expected to be made by the Minister on 31st October 1992. At that time, the WIA will publish the full details for your information.

## Amateur Examinations

Since the announcement last month that the prices for amateur examination

material from the WIA Exam Service would be increased from 1st October 1992, the WIA has noted the ill-informed comment and misinformation being widely distributed about exams.

As is usually the case, the most vocal critics are the least well informed (perhaps obtaining the facts first is something that must not be done in case they ruin a good "stir"?).

Here are some facts.

As at 31st August 1992 there were 394 examiners around Australia accredited to WIA Exam Service, 68% of whom are WIA members. At the time the DoTC approached the WIA to take over the exams, considerably

## WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis Secretary Jan Burrell Treasurer Ken Ray	VK1DO VK1BR VK1KEN 3.570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Terry Ryeland Secretary Bob Lloyd Jones Treasurer Bob Taylor (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2YEL VK2AOE From VK2WI at 1045 and 1915 on Sunday on the following frequencies and modes: (*1045 only) 1.845 AM; 3.595 AM morning and SSB evenings; 7.146 AM*; 10.125 SSB; 24.910 SSB; 28.320 SSB; 52.120 SSB; 52.525 FM; 144.120 SSB; 147.000 FM; 438.525 FM; 1281.750 FM; On relay on behalf of VK2WI on 18.120 SSB; 584.750 ATV Sound, Ch 35, Sydney region. Plus automatic relays to 2m repeaters surrounding Sydney and manually to many country repeaters. News headlines by phone (02) 552 5188; General Divisional information (02) 651 1489.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Hailey Office hours Tue & Thur 0830-1530	VK3PC VK3XV VK3XLV 1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarsse Secretary Ken Ayers Treasurer David Travis	VK4QA VK4KD VK4ATR 1.825, 3.065, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen Secretary John Highman Treasurer Bill Wardrop	VK5BJA VK5PJH VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin Secretary John Farnan Treasurer Bruce Hedland-Thomas	VK6LZ VK6AFA VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Ave Lindisfarne TAS 7015	President Tom Allen Secretary Ted Beard Treasurer Peter King	VK7AL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

less than 100 people under the previous system were on the DoTC examiners list.

During the month of August 1992, examination material was mailed out for 56 exam events, which included 486 examination subjects. That was an average of 23.1 examinations prepared and sent out each business day.

Also during August the material from 59 exam events, including 538 examination subjects, was returned to WIA Exam Service for processing. That was an average of 25.6 examinations marked and processed each business day.

311 candidates sat for examination during August, with an average of 1.7 examination subjects per candidate. The average overall pass rate was 50.93%.

Over 90% of examination material ordered was prepared and mailed out the same day the order was received from the accredited examiners.

Over 94% of completed examinations were marked, processed and the official results certificates posted out by certified mail the same day the exam was received from the accredited examiners.

During the eight months to 31st August 1992, a total of 1402 candidates sat for WIA Exam Service examinations.

25 of the exam events conducted during August 1992 were one candidate examinations. This means many accredited examiners are taking advantage of the excellent service provided by WIA Exam Service and ordering examinations as required by candidates. While this is great for the candidates (who under DoTC would have had to wait three months for re-examination but can now re-sit within a

few days if desired), the unexpectedly high number of small events (not predicted by any of the many examiners under the previous system with whom the matter was discussed) has raised the costing considerably.

For instance, an order for one \$5.00 Regulations examination, which is a common request, costs this office \$5.20 in postage alone for mailing out the paper, and the results certificate in due course, before even looking at the salary costs and overheads in preparing and marking the examination.

In the original discussions with the DoTC which lead to the WIA accepting responsibility for examination administration, the agreement was that costs should be set so that the examinations fee income was not subsidising WIA members, but also that WIA membership subscriptions should not be subsidising examinations.

Now that all accredited examiners have been advised by mail of the increased fees, we now announce that as from 1st October 1992, examination materials will be supplied by WIA Exam Service to accredited examiners on the following scale:-

AOCP and NAOCP	
Theory	\$15
Regulations	\$10
AOCP and NAOCP	
Morse Receive	\$15
AOCP and NAOCP	
Morse Sending	\$10

This makes a total cost of \$50.00 for a full set leading to either AOCP or NAOCP qualifications (less of course for a Limited exam). Experience so far is that very few candidates attempt more than this at any one event. It must, of course, be remembered that examiners are entitled to add to these charges to cover costs involved with

hire of venue, copying of application forms, and return postage, etc.

## Response from "Choice" magazine

We reported previously that the WIA had sent a letter of protest to "Choice" magazine about a statement in their July 1992 issue. A letter received this week from "Choice" states:-

*"Your corrections to some of the information given in that article have been passed to our Managing Editor. Please accept our apology for any slur you feel we may have cast on the professionalism of licensed amateur radio operators. This certainly was not our intention.*

*Please be assured that it is our policy to publish corrections. However it is up to the Managing Editor to decide when this will be done, as space permits."*

## Intruder Watch

Federal Intruder Watch Co-ordinator, Gordon Loveday VK4KAL, presents the following item from the President of the IARU, Dick Baldwin W1RU, in the introduction to a manual for volunteer Intruder Watchers.

*"Your help is needed.*

*For all of us, the ability to enjoy amateur radio is a rare privilege, one to be guarded zealously. Sometimes the protection of the Amateur Service can be accomplished by a few people who have worked hard and long to be at the right place at the right time, such as at an ITU conference. Sometimes the protection of the Amateur Service can be accomplished by those who spend a major proportion of their time in preparation for public ser-*

*vice in the event of a natural disaster.*

*There is another way in which every one of us can serve, and that is in helping to rid the amateur frequency bands of "intruders", stations from other services who choose to operate in the amateur bands because of overcrowding in their own spectrum allocations. Unfortunately, such "out-of-band" operation is all too frequent, and it would be even more prevalent were it not for the dedicated work of a few volunteers, those individuals who make up the IARU Monitoring System.*

*How can those out-of-band stations get away with it? Well, paragraph 342 in the International Telecommunication Union Radio Regulations (the regulations which govern the use of radio internationally) says, "Administrations of the Members (of the ITU) shall not assign any frequency in derogation of either the Table of Frequency Allocations ... or the other provisions of these Regulations except on the express condition that harmful interference shall not be caused to services carried out by stations operating in accordance with the provisions of the Convention and these Regulations" (Emphasis supplied). Thus, if there is no harmful interference, no regulation has been violated.*

*Obviously, therefore, it is up to us radio amateurs to vigorously report the interference caused to amateur radio stations by stations from other services operating in our allocations. We need all kinds of reports. We need reports — we need many reports — which simply list the presence of an offending station. We need reports which go further and identify such an offending station. We need reports which go into detail on the technical*

characteristics of an offending station.

*Whatever your level of operating and technical skill, there is a place in the IARU Monitoring System for you. Your help is needed. It is a task which brings the participant little glory but the satisfaction of knowing that he or she is doing something worthwhile. It is a task which results in some frustration, because to effect the removal of an intruding station often takes a great span of time.*

*We are indebted to all of you who, whether representing your IARU member society or representing yourself as an enthusiastic and concerned individual radio amateur, take part in the work of the IARU Monitoring System to help maintain the amateur bands for radio amateurs. Your reward will come in knowing that you are contributing to the success of an important activity*

*which strengthens amateur radio internationally.*

*The primary goal of the International Amateur Radio Union is the protection of the Amateur Service. Please join us in working toward successful accomplishment of that goal.*

**73 R L Baldwin,  
WIRU. President"**

### **David Hunt Moves from DoTC Licensing**

While wishing David Hunt all the best with his new job of helping to set up the new computer system for DoTC, the WIA regrets the loss of such a dedicated and approachable officer from the Licensing Section of the DoTC in Canberra.

The WIA has had many occasions to negotiate with David over the years, most recently on the matter of

deregulation of amateur licence conditions and the revision of RIB 71. David has always given the Amateur Service a sympathetic hearing, and been willing to settle many controversial issues by discussion, un-emotive logic, and mutual compromise. Thank you, David, on behalf of WIA members, and all those non-member radio amateurs who have similarly benefited from these negotiations.

### **FCC Plans for Visitors Licences**

The ARRL Newsletter of 10th August 1992 releases a proposal for visitors to the US to be permitted to operate for 60 days on the basis of a home country licence and a pass in a short examination on local rules applying to the proposed type of operation. This is to apply

even to visitors from countries with which no reciprocal agreement is in place.

The examination of credentials, determination of appropriate privileges, and administration of the 20 question examination is proposed to be carried out by Volunteer Examiners already accredited within the US system. This proposal should greatly streamline the issuing of licences to qualified amateurs visiting the US.

### **How to Make a Complaint**

Most of us do not need guidelines on how to complain. Most of us are quite good at it already. But how much of the complaining you do has any effect? The Federal Office of the WIA receives its fair share of complaints, and takes appropri-

# O ICOM

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To most of us basic means you miss out on performance and quality, but not any more, the new Icom IC-728 might be Icom's 'basic' H.F. transceiver, but in fact it makes many other transceivers look pretty basic by comparison!

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You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

*"Getting the IC-728 up and running is a treat"*

*"It almost runs itself — the learning time is very low"*

*"DXing on 20 metres is a snap with a hot little receiver like this one!"*

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*"I must say that the IC-728 offers very good value for money indeed."*

Amateur Radio Action — 9 June 1992

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ate action as rapidly as possible.

Some of these complaints are simple, such as "My magazine has not arrived", or "My Call Book listing is wrong". These can be rectified easily, and the complainer (hopefully) remembers the service more than the original complaint.

However, when it comes to a matter of operating conventions or regulations, the rules must be:

1. direct the complaint to the correct body, and
2. provide evidence.

There is no point in complaining loudly on air, or on Bulletin Boards, that someone or something is not right. Take the complaint direct to the body concerned, in writing, and provide the evidence, the names, dates or recording of the offence. No authority can act on hearsay or unsubstantiated complaints.

The Amateur Radio service prides itself on being self regulating. Recent negotiations with the DoTC are leading to more deregulation than we have ever had, and it is expected that some operators will find this hard to handle. Some will feel that the DoTC is abdicating its responsibilities, but it must be realised that in the matter of complaints, as well as other fields, the amateur service is a very minor part of the DoTC's responsibilities, and resources cannot be allocated to complaints unless hard evidence is provided.

### **Interference to the 432 MHz Band**

Several members complained recently about non-amateur usage of the 420-450 MHz band in the Sydney area. In the segment 430-450 MHz, the Amateur Service is the secondary user,

but a number of signals had been heard which did not seem to be from the radiolocation service, the primary user. This issue was raised with DoTC early in August, to which a reply was received on August 28th, stating that:-

*"• Licences were issued to Hydrographic Surveys Pty Ltd to operate three Syledis services in the Sydney region on 432.982934 MHz,*

*• the licences were issued for the period 20/7/92 to 10/8/92 with a transmit power of 20 watts, and*

*• the licences were issued on the particular frequency as it was an urgent short-term operation and equipment on other frequencies was not immediately available."*

The WIA has been assured that any future allocations in this band will be made in line with the policy of using frequencies below 427 MHz, and such allocations will be discussed with the WIA prior to the issue of licences.

### **The Ultimate Callsign?**

We are reliably informed that the first "M" prefix callsign to be operated from the United Kingdom was MORSE, which was operated by members of a number of clubs to celebrate the Bicentennial of Samuel F B Morse, 1791-1991.

### **Museum Under Threat**

The WIA has been asked to add its weight to the protests being lodged in VK5 about the threatened closure of the Telecom Museum in Electra House in Adelaide. Apparently the building, which is "Heritage" listed and protected under the "City of Adelaide Development Control Act", currently belongs to AOTC, which

intends to put it on the market as a money raising venture.

The building was the birthplace of the Overland Telegraph Project, which linked Adelaide to Darwin, and, through Darwin and the Java cable, to Europe. It currently houses a vast amount of history of Telecom and the preceding PMG Department, as well as Australian history such as the "Inland Flying Doctors' Service" and Marconi's exploits. It has been stated that AOTC intends to store the exhibits, or donate them to other museums.

Understandably, those volunteers who gave considerable time and resources to collect, organise and display the masses of historic material feel that every effort must be made to keep this world class Museum in this historic building. WIA members are requested to take any action which they feel appropriate.

### **Canadians Vote to Merge Groups**

According to the ARRL Newsletter, the Canadian Radio Relay League and the Canadian Amateur Radio Federation have voted to merge. The respective societies will be dissolved, and the new combined body, the "Radio Amateurs of Canada" will be incorporated.

### **What's the Time?**

A reminder to members that Divisional broadcasts may change their schedule with the advent of daylight saving. VK2 has advised us that VK2WI will change to the earlier starting time of 10 am (local) on the 25th October. Please check with your local Division for local arrangements.

### **DoTC Reports on Intruders**

Intruder Watching (that is looking for and logging details of commercial intruders into the amateur bands) is a hard, slogging, but vital task carried out by a handful of "intruder watchers" around Australia. Monthly reports are compiled by the Federal Intruder Watch Co-ordinator Gordon Loveday VK4KAL and submitted to the DoTC in Canberra.

Gordon, and some of his intruder watching team, had been worrying lately whether the DoTC was taking any action on these monthly reports. The WIA Federal General Manager raised this subject during a recent visit to the DoTC in Canberra, and I now quote from a letter received recently from Ray Wyeth of the DoTC Monitoring and Interference section.

*"I am writing to inform you of the Department's progress in resolving the out-of-band transmissions within the Amateur bands which were provided through the Intruder Watch Report.*

*The Intruder Watch reports are an invaluable asset in the Department's spectrum management monitoring strategy. For several years, the Department has relied on the Amateur fraternity to report instances of intrusion into the Amateur band.*

*The information contained in these Reports are used as the basis for our monitoring programs of these bands. Before the Department can approach any country over such occurrences which I might add are not in contravention with any international regulations unless services are affected, the country of origin of the*

transmissions must be positively identified. This identification process involves extensive monitoring by the Department. The callsigns supplied in the Intruder Watch Report are not sufficient to identify the offenders as callsigns can be illegitimately used by bogus operators.

Falsely accusing another country of such operations would be both irresponsible and counterproductive to any resolution.

Extensive monitoring programs conducted earlier this year confirmed the countries responsible for a number of these out-of-band transmissions. As a result of these programs, approaches were made to the People's Republic of China, Viet Nam and Indonesia over specific instances. We also advised the International Frequency Registration Board which is the controlling body on spectrum management of our actions and they have asked to be kept informed on the evolution of these cases.

It is hoped that these countries will respond to our request and take action to remove these offenders as soon as possible. Depending on the circumstances, this may not be possible for several months. You can be assured that the Department does not intend to let the matter rest here. Should these services remain in operation after a reasonable period of time, further negotiations will take place.

### **500th Anniversary of Colombus**

To commemorate the 500th anniversary of the discovery of the New World by Christopher Columbus in 1492, the Bahamas Amateur Radio Society announces a Special Event through the

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month of October, using the special call C6A500. This call will be allocated for use by authorised operators on various Bahaman islands, each to have sole use for a specific period of time. Starting with continuous operation all day on Monday 12th October from San Salvadore, intermittent monitoring will be carried out on a wide range of frequencies. In addition, all authorised members of the Bahamas Amateur Radio Society may operate during the month of October with a /500 suffix to their regular call sign. Two awards are offered, one for three different /500 contacts, and one for 10 different /500 contacts including C6A500.

### **The WIA Travelling President**

During a recent business trip to South Australia the Federal President, Ron Henderson VK1RH, made time to attend the August monthly meeting of the VK5 Division. He took the opportunity to speak with the Divisional President Bob Allan VK5BJA, Councillors and members and bought a pre-amp kit from the VK5 equipment supply service. The meeting night was a buy and sell evening and Ron neatly avoided buying a series of 1960s Call Books when some caring member outbid him with a dollar for the collection.

This is the first of the Federal President's visits to Divisions and clubs to meet with the membership at large. Ron's work will take him to Alice Springs, Learmonth, Derby, Katherine and Darwin in October and he intends to contact amateurs in those areas.

### **SEANET Update**

The WIA Federal Office has received a copy of the second Newsletter from SEANET '92, which includes a registration form and accommodation information. Members seeking further information on this major event, to be held in Darwin from 29th October to 1st November 1992 should write direct to The Secretary, SEANET '92, at PO Box 37317, Winnellie, NT, 0821, or by fax direct to Gary Woods on (61) 89 47 0310.

### **Jamboree on the Air**

This is another reminder to members of the 35th JOTA to be held over the weekend of 17th and 18th October 1992.

Even if you are not involved in this activity, it may fall to you to work some of the young operators. Alternatively, it may be a matter of accepting that your favourite repeater or channel is occupied for large periods of time.

Please be patient and considerate. This weekend is one of the major showcases for amateur radio, and an excellent opportunity for recruiting new enthusiasts.

### **More on LPDs**

As members know, the WIA is keeping a close watch on any interference potential that Low Powered Devices (LPDs) may have for the amateur service in Australia.

The Federal President, Ron Henderson VK1RH has obtained a certain amount of information from the RSPCA on LPD identification chips for use with pets.

The coded chips, which are inserted beneath the skin of the pet are passive, activated by the readout device and return a unique code number. However, their interference potential seems quite low as they operate on 128 kHz, and have a reading range of only 16 to 20 cm.

### **Tall Stacks Celebration**

Members with an interest in steam riverboats may be interested in the 1992 Tall Stacks Celebration of America's river steamboating era throughout October. The Greater Cincinnati Amateur radio association and the OH-KY-IN Amateur Radio Society are sponsoring on-air operation and issuing QSL cards featuring the 17 historic steam paddleboats that will assemble on the Ohio river at the Port of Cincinnati throughout October.

Participating stations will identify using the call sign suffixes "Tall Stacks" or /TS. This may well be a QSL card to display on the wall.

### **Russian Amateurs Have Problems**

The ARRL Newsletter of 30th August 1992 reports an interview by Robert Howe K1MZZ, with the first President and Vice-president of the newly formed Union of Russian Radio Amateurs.

The interview took place in St Petersburg, at the third annual International Ham Convention. This 1 1/2 page article, the first of a series, notes the problems being encountered by the Russian amateurs under the new administration, in that most of their financial support has been withdrawn, including the free postage of QSL cards, and access to surplus military equipment.

In the last year, 40% of Russian club stations have been forced to close for lack of funds. Russian amateurs are anxious to maintain links with other countries, including the USA which has provided strong support over the years. We await further information.

ar

# **VK2WI**

## **Change of broadcast time**

# **V K 2 W I**

## **moves to 10.00am as from 25th October.**

### **See VK2 notes.**

# Coming in Out of the Cold

**Bob Hawksley VK2GRY  
21 Wallumatta Road  
NEWPORT 2106**

**A**FTER A QRT of 36 years Bob Hawksley is back on the air as VK2GRY. He looks at how things were, are and may be, but feels that although things have changed they've not changed all that much.

My log book has two consecutive entries: 25/12/55 and 02/4/92. As QRTs go it's a candidate for the record books, but when I was first licensed as G3GBP in 1949 the main concern was keeping tabs on frequency. No ham station could operate without a wavemeter and for a ham on an airman's meagre stipend (I was in the RAF) the prospect of ever owning such exotic gear was remote.

The RAF very kindly let me use the workshop one — a BC221 made by the Americans — a thing of beauty and a joy to own. In those days we had to log EVERY transmission so log books were replete with plaintive (and unanswered) CQs.

The rigs? To start with I had a valve-driven (6L6) crystal oscillator and, yes, even with a crystal, a wavemeter was mandatory. Later, I went QRP with a quarter of a watt and astounded G4KF (who never ran less than a kilowatt) by getting contacts. But then, he wasn't a CW man. With a few turns of wire around the oscillator coil crocodile-clipped to the workshop HF antenna (it stretched the entire length of the hangar high above the tarmac) my signals leapt into the aether.

Oh yes, it was the aether then — that "hypothetical non-material medium the existence of which is postulated for theoretical reasons to explain elec-

tromagnetic phenomena". That's what the textbook said, and that's what we RAF signals types chanted. This was before transistors or credit cards or ballpoint pens or frequency synthesisers and chips were things we had with fish on Saturday nights.

The RAF and I went to Malta, and I operated from there as ZB1GBP and even across into Libya under a private callsign because nobody was supposed to operate from there (this was well before the days of Gadaffi). Then back home to a long QRT. Why so long? I didn't want to turn my wife into a radio widow, or my children into radio orphans. I'd come across so many orphans of that nature it left a deep and lasting impression upon me. A hobby is degraded if it wrecks family life.

So fast-forward to March of this year, and I come out of the cold as VK2GRY. My emergence from the frozen depths was prompted by my buying a dud receiver from a pawn shop. I fixed it up — the receiver I mean. It was barely book size; it had its own frequency synthesiser, a signal-to-noise ratio which wasn't conceivable with valves, a tiny power drain and an incredible sensitivity so that from the dining room table I heard things I would have thought impossible without a gleaming antenna stretching into the vastness of the heavens.

I sat in front of this receiver and was amazed (partly at its strange innards, but mostly at having fixed it). Except for one thing. It didn't light up and it didn't have a big tuning knob spinning smoothly on well-oiled bearings

gathering up what the wild waves were saying. It lacked that essential romanticism but, nonetheless, I heard CQs and my heart went out to them.

Something had to be done. My family were grown up and had gone out into the world (or as far as the phone allows: "Hallo Daddy, ring me back!"). So, like the hosts of Midian, I prowled and prowled around the Aladdin's caves of York Street in Sydney and saw mystic and wonderful things.

"A 6L6, please," I asked of an elderly gent (well, my age, perhaps . . .). I had in mind to pick up where I'd left off with a crystal oscillator. He gave me the sort of sad look a lion might give when denied a Christian for lunch. "Haven't sold one for 25 years," he murmured, "but if you REALLY want one . . ." That REALLY was the unkindest cut of all. I promptly began a crash program to de-Rip-Van-Winkle myself until I felt able to face the world, and, what with one thing and another, I answered a CW CQ as VK2GRY, and how strange it all felt and how rusty my 20 wpm seemed to be.

It was that QRT-breaking QSO which started me off on an entirely new tack — a PC-operated CW encode/decode system. "You're nuts," growled a VK colleague. "Use RTTY!" But pigheadedness is an essential ham quality, and a prototype system is working (just), but there's lots of R&D to do before it will be anything but absolutely terrifying to use because of the speed with which one needs to execute a CW QSO.

Ultimately there will be a split screen and a CW QSO will be possible entirely from the keyboard and without the operator having to know a morsel of morse. Some people will think that's heresy and nonsense combined, but to me it makes sense and a logical extension of CW possibilities. After all, we live in an age where every man, woman and child is familiar with a keyboard and monitor. What's more, unlike RTTY, the traffic will be readable by any CW ham even though the system does go up to 50 wpm, but I can't type that fast. And the morse is lovely. Such a treat to take beautifully sent morse, and how proud one feels when sending it!

What of the future? PCs are still in their infancy and yet they have already

sired their own breed of ham — the hacker. And PC technology itself appears limitless as also its myriad of applications. Over the past 30 years the MTBF (Mean Time Between Faults) for commercial equipment has increased to the point where things no longer go wrong. Faults are now more pilot error than anything else. As always, the possibilities are boundless and the opportunities unrivalled.

Back in the seclusion of one's own shack things have changed but little. The exotic scent of the solder still lingers, RSTs come faithfully trotting back except that today some people send 5TT instead of 599 and overs conclude with HW? which was new to me. Tidal waves of FBs and CUAGNs and 73s still pour into one's ears, and often, with a good contact, callsigns are abandoned altogether (which mildly shocks me). Overall, though, CW operating is just as crisp as it ever was, but a touch more relaxed perhaps, and that's all to the good. Less pompous.

It's on phone though, that time has stood still. The ragchewers are still there grazing inconsequentially in the upper pastures of the band and calling to each other like star to faint star across the sky. The only real difference is that it's all LSB or USB, whereas in my early days it was nearly all AM. Operators don't have to keep logs any more or own wavemeters, but there are new noises — the chirping of impatient crickets for AMTOR and the diddle-diddle-diddle for RTTY. Yes, it's good to be home. Things have changed, but not much. It's really as if I never went away.

There is a youngish graduate in "my" (present) office (I am a freelance technical writer) who wants to get a licence, and I started the "concrete" way (one-to-one tutoring with key and buzzer), when it occurred to me that he would learn inadvertently if he wrote a program that gave him sound for vision, and vice versa.

The result was astounding. Within two weeks he was up to 10 wpm, because to write the program he had to understand how to introduce the morse. Impressive! Then we received Pounding Brass's disk and found to our delight that others have done the same thing but differently. Naturally, we think our way is better ....

ar

# Beware of Dissimilar Metals

Richard Cortis VK2XRC  
4 Victory Street  
Clovelly 2031

**A** PART FROM BEING an amateur radio operator, I occasionally attempt to pass myself off as a yachtsman. I am also the owner of a small sailing boat called "Mistress". Over the past year or so my boat has been suffering a lot of electrolysis.

Some electrolysis is always expected in boats, and zinc anodes are installed in various locations in an attempt to control the problem. However, the rate of loss of the sacrificial zinc anodes was particularly rapid on "Mistress". Anodes can normally be expected to last in excess of 12 months. However, mine were lasting only about six months, requiring the installation of additional costly anodes and, even more importantly, the slipping of the boat, which is particularly costly. The problem was critical because the boat has an aluminium "sail drive" leg which protrudes through the bottom of the boat and looks somewhat like the bottom end of the leg of an outboard motor. This aluminium leg is particularly susceptible to corrosion when electrolysis is present. Accordingly, urgent action was required.

## Possible Causes

All the usual things were investigated first. Stray currents from electric cables laid in the bilge were investigated and no likely cause was visible. A number of cables were replaced as a precaution. However, the electrolysis continued unabated. Further research was undertaken and there were suggestions that the copper based anti-fouling

paint on the boat beneath the waterline may have had some effect. However, the area on the leg and on the bottom of the boat around the leg had been coated with a different anti-fouling, and the general opinion was that this was not affecting the electrolysis. I continued my search.

Recently, I had the thought that the electrolysis problem first appeared at around about the time the new HF marine radio was installed. I commenced further investigation of the problem using my trusty salt encrusted multimeter. The usual installation for an HF marine radio in a sailing yacht involves the linking of the ground connection from the tuner to a keel bolt using a heavy copper strap. This provides a substantial and effective connection to earth either by capacitance if the keel is encased in fibreglass or by direct connection if not encased. During my investigation, the diver who cleans the marine growth from the bottom of the boat from time to time advised me that large areas of anti-fouling paint had become detached from the sides of the lead keel. As this area had been carefully prepared and primed prior to the last anti-fouling, my suspicions were raised.

## High Voltage Keel?

My investigation started at the accessible end of the earth strap between the tuner and the keel. The earth strap was detached from the ground connection of the tuner and I used the multimeter to measure the voltage between the earth strap and the tuner. Initially, I set

the multimeter to the lowest DC voltage setting, 0.25 volts, in order to get a meaningful reading. To my surprise the needle on the meter swung across full scale. The next scale was selected and a reading in excess of 0.5 volts was indicated. I cannot give a more accurate reading than that as the multimeter is a cheap but robust item which lives on the boat and, because of salt spray and rough service, requires replacement quite regularly. Accordingly, I cannot afford a more sophisticated device. However, I find this meter provides a satisfactory level of service between replacements.

Having discovered this large potential difference, I then switched the meter from the voltage setting to the current setting, first selecting the 50 milliamp range. Again, the needle swung to full scale deflection, and a higher range was selected. It appears that a DC current in the order of 250 milliamps was flowing between the ground connection of the tuner and the keel. This initiated further investigation and it was found that the negative connection on the battery was continuous through the HF radio and onto the outer braid of antenna connection on the back panel. I also discovered the tuner was continuous from the outer braid connection of the coax from the HF through to the ground connection on the back of the tuner. The negative on the battery is connected by a heavy starter cable to the engine block which is bolted to the gearbox which is in turn bolted to the engine leg which protrudes through the bottom of the boat into the sea water. I will not go into the details of the sealing of this engine leg through the bottom of the boat but, suffice to say it is durable and very flexible. The zinc anode is attached to the engine leg near the propeller.

### Connections

So now we have it. The zinc anode is connected to the aluminium engine leg, which is connected to the gearbox, which is connected to the engine, which is connected to the negative of the battery, which is connected to the HF, which is connected to the tuner, which is connected to the earth strap, which is connected to the keel bolt, which is connected to the lead keel. And there we have it, a zinc anode at one end of a piece of wire connected to a lead

cathode at the other end of the piece of wire. So why didn't I see it earlier? Well, thereby hangs a tale. The original HF radio installation in the boat had a different tuner which contained a capacitor in the ground connection. In the earlier radio, the negative from the battery was isolated from the ground connection by this capacitor which effectively blocked any DC current. So there was no electrolysis problem.

Now, having found the source of the problem, how do I remove the electrolysis? Happily, the solution to the problem was fairly simple and, perhaps, somewhat obvious. As the metal engine leg is of quite substantial dimensions beneath the water line, it was tried as a dyna-plate and proved to be generally satisfactory. No serious degradation in the level of the HF signal was detected. Accordingly, I made a more permanent connection between the ground connection of the HF tuner and the engine block. The connection between the tuner and the keel bolt was disconnected and removed.

### Messages

There are a number of messages to amateurs and yachtsmen in this problem I have suffered. Firstly, one must never assume that items of equipment which look similar and provide the same function are actually constructed in a similar manner. The second and most important moral is that

one must always avoid connections between dissimilar metals where any form of electrolyte may be present. Sea water in the sea is a particularly good electrolyte.

The HF radio referred to on the boat is a marine HF radio. It is not an amateur radio as I don't hold the appropriate licence. The radio is used for normal marine communications particularly during long ocean races and return voyages. For the interest of amateurs, the antenna system consists of a ground connection to the ocean, a manual tuner, and an antenna which consists of the back stay which holds the mast up. The length of antenna from the tuner to the top insulator is about 14 or 15 metres, with a further metre or so from the tuner down to the ground connection. The backstay acts as a random radiator and is tuned by the manual tuner. The system is useful up to about 6 to 8 MHz. Above about 6 MHz, the capacitance of the top insulator begins to look like a short circuit to the radio signal and the system loses efficiency. For 8 MHz and above, I normally use a supplementary whip antenna in amongst the forest of other (amateur VHF and UHF) antennas on the stern rail.

I hope this brief article may be of use to someone, and hopefully it will assist others in the removal of similar problems and save some wastage in materials which would otherwise be destroyed by electrolysis. ar

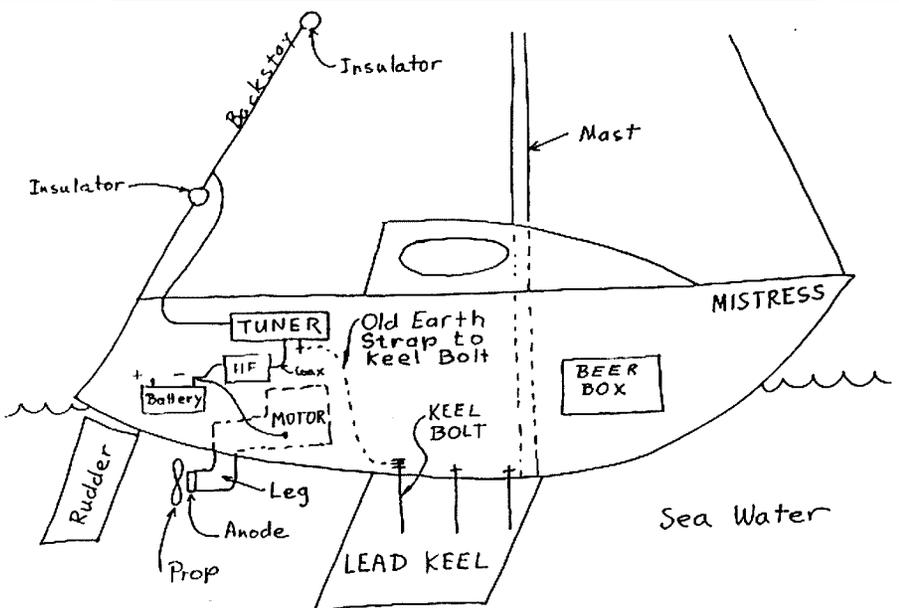


Figure 1.

# Two Metres Foxhunting Antenna- Update

Das Greenham, VK3CO  
16 Clydesdale Court  
MOOROPNA 3629

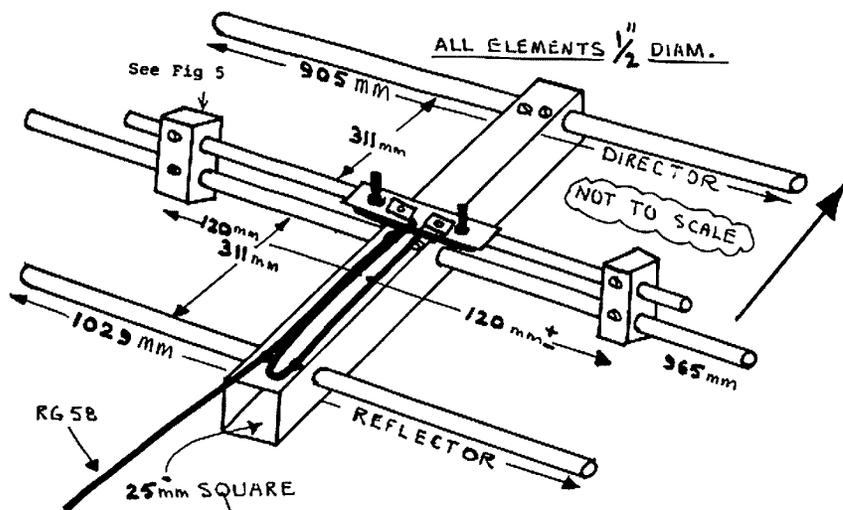


Figure 1. 2 Metres Three Element Yagi Antenna.

## Introduction

WITH THE EXCITEMENT of the Balloon Launch at Shepparton and Melbourne recently, there was increased interest in "Fox Hunting" should the balloon come to earth locally. To assist in this idea, a copy of the antenna suggested by Greg William VK3VT was printed in our local newsletter. Being a person always interested in antennas, I built this one exactly as per diagram only to find on test it had a poor impedance match, resulting in a SWR of 3:1. I tried all available adjustments, with no improvement. As a last resort, I read

Greg's article and found he also had a similar result! But, as he explained, for reception only this was not so important. I then became interested in improving the match so I could use the antenna whilst travelling "up north" for improved access to two-metre repeaters. The attached changes are submitted with due respect to Greg's original design.

## Design and Construction

The antenna is a basic three-element Yagi using standard configuration. The boom is 25 mm (1") square aluminium,

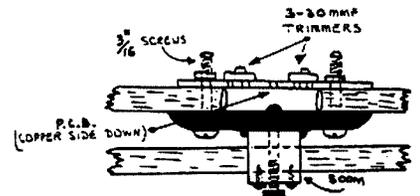


Figure 2.

and the elements are 12 mm (1/2") round tubing reclaimed from old TV antennas redundant since TV aggregation. The elements should be polished with steel wool and mineral turps to remove accumulated oxide. The element mounting is achieved by drilling 1/2" holes through the boom and, after passing the elements through, they are centrally locked in position by two self-tapping screws or pop rivets. To obtain a balanced feed, a 4:1 ratio balun is used. This will lift the impedance to 200 ohm balanced, from 50 ohm unbalanced co-axial cable. To obtain an accurate match, two series fed adjustable capacitors are used in conjunction with adjustable impedance bars. With the clamping blocks set at 120 mm each side of centre, and SWR of 1.1:1 can be obtained by careful adjustment of the trimming capacitors. Care should be taken to keep the two capacitors at the same value — this can be done by carefully moving the adjusting screws together to obtain minimum SWR.

The tuning stub bars are mounted on the boom using a TV antenna insulating block. The twin trimmer capacitors are mounted on a piece of PC board 100 mm x 20 mm (Fig 2). Gaps are cut through the copper using a file or chisel as shown in the diagram. Holes are drilled to mount the trimmer capacitors. After soldering the trimmers in place, the finished PCB is mounted copper side down and trimmers upwards on the TV insulating block. The 4:1 balun transformer is made from a length of RG-58 cable (NOT foam) cut to 680 mm measured from the ends of the braid (see Fig 4). The balun is taped to the boom and the feed cable brought

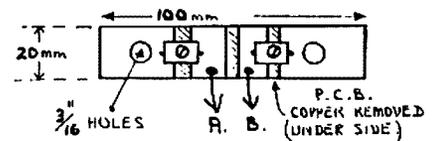


Figure 3.

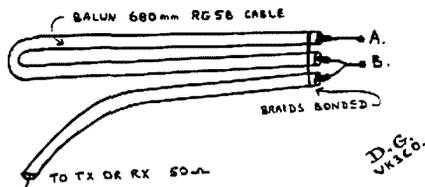


Figure 4.

out behind the reflector. The feed points A & B should be soldered to te PCB as shown. The plastic box suggested by Greg is another method of holding the balun, and may be preferred for fox hunting. The general construction is self-explanatory from the diagrams, and if followed carefully, good results should follow. Tests have shown the antenna to have a forward gain of 6-8 dB with substantial front/back and front/side ratio. For home operation and mast mounting the boom length could be extended 100 mm behind the reflector, and a TV clamp and U-bolt fitted. Holes should be drilled both directions to enable horizontal or vertical polarisation. Naturally, for outside operation, the trimmers need to be waterproofed. This can be done by using a plastic box as suggested by Greg, or sealing the trimmers with silicone sealer after adjustment. The normal silicone **MUST NOT BE USED** as it contains acetic acid and will soon cause corrosion. A non-acetic acid type should be used (this usually branded RTV type — Ed). this should be generously applied over and around the trimmers and also over the ends of the co-axial cable balun.

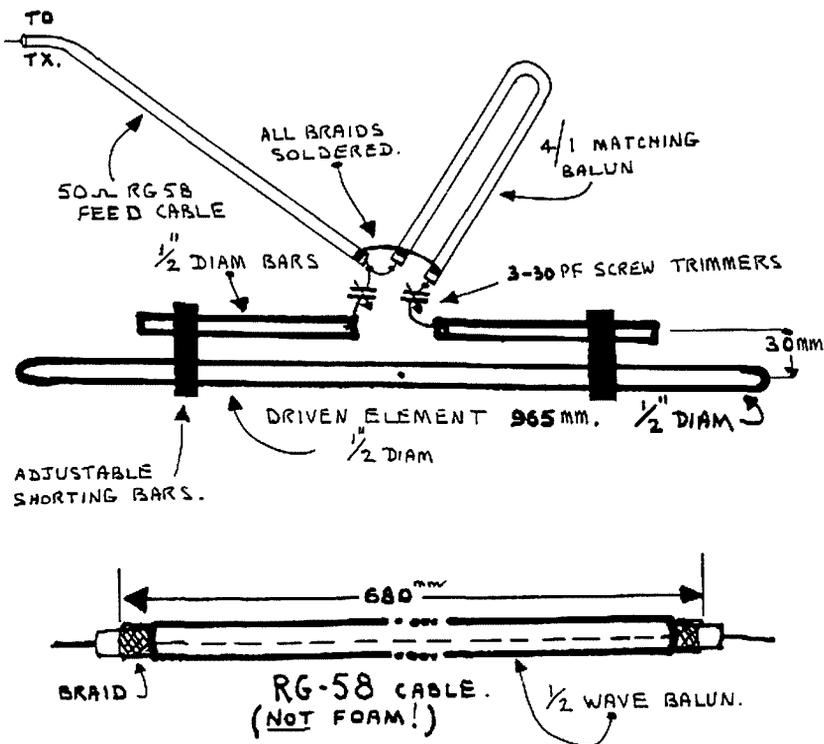
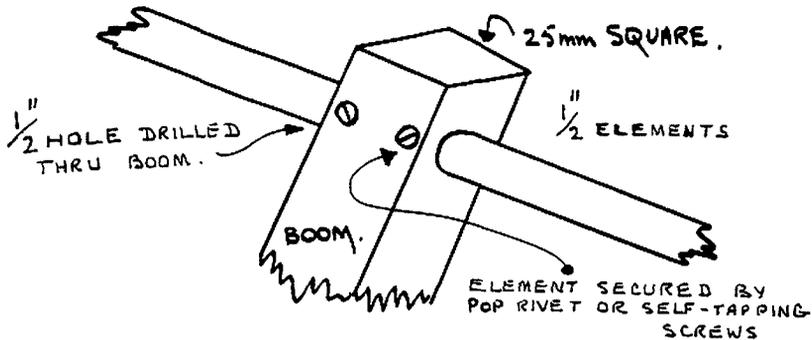


Figure 6.

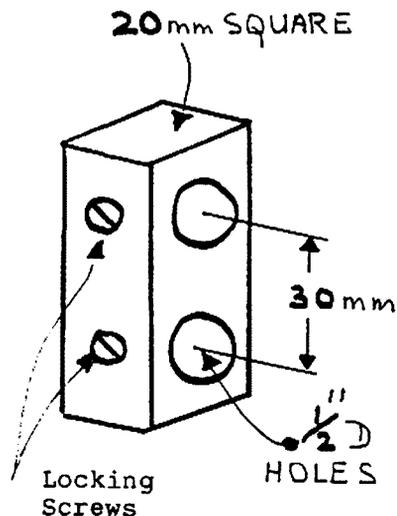


Figure 5.

For general use and fox-hunting, this antenna is simple to build and performs well. My thanks to Greg for the

inspiration. See "AR", October 1988 for full details of how to use this antenna for fox hunting. ar

**Have you advised the WIA Federal Office of your new Callsign? Use the form on the reverse side of the Amateur Radio address flysheet**

# Random Radiators

Ron Cook, VK3AFW and  
Ron Fisher, VK3OM.

## No Holes Antenna Mount

SO THE YF IS NOT at all keen about you drilling holes in the roof of the family sedan, or anywhere on the body. Unreasonable perhaps but probably an edict that must be obeyed. So how do you get your VHF or UHF antenna up high enough to avoid screening by parts of the car and maintain efficiency? Clip on mounts often have a low efficiency when used with quarter-wave whips because the resistance to the car body can be quite high. The answer is a glass mounted antenna a la mobile phone systems.

RF Industries are well known as Australian makers of commercial antennas but it seem few amateurs are aware that several of their On Glass (R) antennas actually cover the 2 m and 70 cm bands. Note that the phrase "On Glass" is an exclusive trade mark and can only be associated with their products. Their model APR151.3 can be adjusted to operate anywhere in the range 144-174 MHz. It can be purchased for around \$60 from any of the many RFI agents. Another model AP-143 can be adjusted to any frequency in the range 138-150 MHz, and it should also be suitable.

Both are half-wave antennas and therefore are essentially ground independent. The AP-143 is 66 cm long and has a self supporting loading coil about 1/3 of the way up its length. The APR151.3 is 83.8cm long. The VSWR can be adjusted to better than 1.5:1 and both have a 6 MHz bandwidth.

For UHF the model APR450.5G is recommended. This is a gain type collinear tuneable from 410 to 512 MHz and the 1.5:1 VSWR bandwidth is typically 8 MHz. The radiator has a phas-

ing coil in the centre and is 76.2cm long. The model AP454 covers 410 to 520 MHz and is an end-fed half-wave. It is 203 cm long.

The antenna is typically mounted centrally high on the rear window and the matching unit directly behind it on the inside. An adhesive coating allows installation to be completed in minutes but, using the correct solvent removal and clean-up is claimed to be just as easy. The antennas are easily removable for going through a car wash.

All antennas are rated at 100 watts and are made from stainless steel coated with a black finish for aesthetic reasons. Stainless steel and chrome plated hardware is used elsewhere. The VHF antennas and the UHF collinear are supplied with 4.7 metres of RG-58/U cable fitted with a PL-259 connector. The AP454 is supplied with 4 metres of cable with foamed dielectric.

Another product from RFI that may be of interest is a coupler designed to allow a VHF transceiver to share the AM/FM whip antenna. The cost of this is about \$50 and offers another alternative for the no-holes edict. Effi-

ciency is likely to be less than a glass mounted antenna.

## All in the Mind

Have you ever thought what radio waves look like as they radiate from your antenna? As we cannot see this event we can only imagine the process, augmented by our interpretation of measurements made with various instruments. I have always imagined that a snapshot of a radiating dipole, taken with a very special camera, would look like an onion, each successive cycle developing beneath its predecessor, and all expanding like a bubble until the curvature was negligible and far field or free space conditions prevailed. I suspect that many other radio amateurs also share similar images.

In the Spring (Northern Hemisphere) edition of Siemens Review on page 9 in an article by Uwe Leupelt, there is an interesting diagram showing a wave propagating from a dipole. Taking into account that it represents one side of the dipole and a slice through it as well, the picture is a bit different from my expanding onion. The field lines appear to form flattened circles on each side of the dipole. Actually they represent surfaces of constant magnetic field strength which form concentric tubes of somewhat flattened shape centred on the dipole axis. Thus with our special camera we would see a series of concentric doughnuts, each one layered internally like an onion. Can you imagine that? I shall leave the colouring to your imagination.

## Restricted Site Drives Amateur to Pot

Jim, VK2DJM, whom you may recall operates with a dipole wrapped

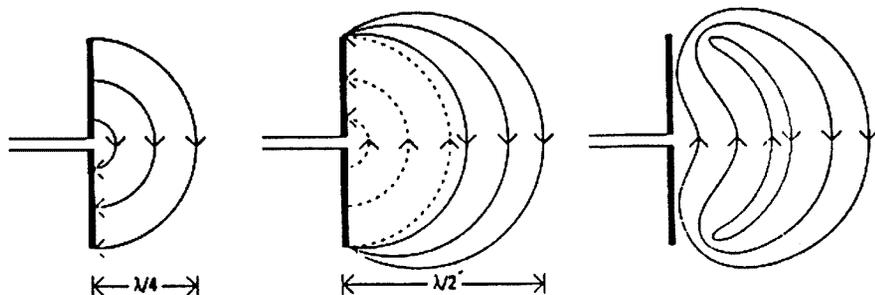


Figure 1 — Basic antenna principle: Wave propagation from a half-wave dipole.

around his home unit, has sent in a copy of an article from 73 Amateur Radio Today. The April issue has an article by David, NIGPH, called "The Flower Pot Special".

This describes another solution for the apartment or flat dweller who needs an antenna but doesn't want to make it too obvious. David's solution is to mount a mobile whip on a base which is set in concrete in a flower pot. The Outbacker all-band HF vertical is used in the system described but any mobile whip would do. The ground plane (or simulated automobile body actually) can be either a balcony rail or strips of copper foil hidden under carpet. Plastic imitation greenery wrapped around the whip is used to complete the indoor or balcony "plant". Some wood chips on top of the cement in the flower pot complete the deception.

There is of course always the possibility of interference problems and although the antenna may be well disguised, the neighbours will eventually find out the truth. As David says, while you do not need to advertise that you have an amateur station operating from the fourteenth floor, you should act as a responsible amateur and good neighbour. To do otherwise not only blackens your own image, it rubs off on all other radio amateurs.

Oh yes, Jim does use a balun with his dipole.

### The TH3JR Revisited

Ken, VK3AFJ, has written in describing his experiences with a TH3JR and his "threepennies worth" follows. Thanks Ken for an entertaining and educational article.

I originally purchased my TH3JR about 17 years or more back and it stayed in the air until December 1989, at which time it was dismantled and brought to a new QTH where it was left in pieces on the ground until a couple of weeks back, when inspired by "Random Radiators", I decided it was time to refurbish it and get it back into the air.

After a considerable amount of effort, and the purchase of a handful of bolts and nuts, the damage suffered over the past couple of years was rectified.

The first major problem was a source of supply for the weather caps. Ultimately a visit to the well known

rubber retailers produced some plastic caps which, by punching a hole in the centre, filled the job very well. They had nothing to fit the ends of the elements and eventually some oversize caps were glued on.

At this point I must admit that my perusal of "AR" had been very brief, but I had noted that the sketch showed a change in the length of the 20-metre section of the driven element.

So, armed with an assortment of spanners and screwdrivers, plus the copy of "AR", assembly was undertaken. The assembled beam was then supported on a couple of boxes 30 cm high to keep it off the grass. Just for the fun of it, it was connected to the rig and a trial call put out. A reply from VK4 and an S7 report. Not bad under the circumstances, except the beam was side on to VK4. Not to worry, the lawn had to be cut, so to get the beam out of the way it was set up on top of a step-ladder, but facing VK4. You guessed it — still S7.

At this point of time it was still undecided as to how, when or where the beam would be erected, as there is practically no space in my yard to swing even the shortened beam. Thanks to a very co-operative neighbour, who already supplies the tree to support one end of the trapped 80 m dipole, I had the okay to swing it over the boundary line. To sum up, the beam is now up and in competition with a 40-ft gum tree, the boss's clothes line and the roof of the house. Due to structural problems it is at the fantastic height of five metres.

Despite all these adverse effects, maybe we may just manage to work a bit of DX. But first, let us do some listening and find out how well or otherwise it works. Gain on all bands, only marginally better than the dipole, back to front ratio — nothing detectable, and only a slight drop in signals off the side. So far all I have achieved is to get the beam off the ground and out of the way. I could have achieved as much taking it to the local scrap-metal merchant.

Time to re-read (and study) "AR". Bingo! The sketch shows only the driven element altered, but the text says both driven and director elements are shortened. Down comes the beam and the director is shortened, then back up for some more tests. Perhaps there is

some improvement on 20, but then again, it could be my imagination. Leave it for a few days and think about the problem.

The only thought to come to light was the fact that the original manual gave the measurement in inches. Had somebody made an error in the conversions to metric? This really dropped my morale. Although I have been at this QTH for two and a half years, I still have half a dozen boxes and cartons to unpack, one of which contains over 40 years accumulation of instruction manuals, data sheets and miscellaneous scribbled notes, and to get to these boxes involved clearing out most of the garage. Okay, may as well as get on with it and found carton #3 had what I was looking for.

Instruction sheets for the TH3 and the BN86 balun found, conversions checked and found to be correct to the nearest millimetre. But, wait! Bob, in his letter, says that the director and reflector lengths are measured from the centre of the boom. Not in my book. It definitely shows the measurement as being from the outside edge of the boom. The only measurement shown from the centre of the boom is to the feed points on the driven element which is given as six inches. But why had I altered the dimension marked A on the driven element from 11-3/4" to 10"? This, in effect, reduced the inner section of the driven element from 2127 mm to 2083 mm. Let us read a bit more of the manual. Last page in italics "if you want maximum back to front ratio, change dimension A to 10 inches". Eureka!!!

Out came the spanners and screwdrivers once more. Again the beam comes down and element lengths are altered. Measurements checked and rechecked, back up with the beam, and some more listening checks. Results — a good two S points up on the dipole, three to four S points back to front, and very little off the side. Pretty close to the maker's specifications and, considering the adverse conditions under which it has to operate, quite acceptable.

While all the paperwork is out, may as well read up the info on the BN86 Balun. What's this? "Do not use this balun with any matchboxes, antenna tuners, transmatches or other such device. Out of resonance operation

causes the breakdown voltage of the balun to be exceeded .... etc, etc." I have been using a Z match coupler (RSGB Handbook 1962 edition) ever since I first acquired the beam, and have had no problems and, as the balun is rated at 2 KW PEP, I doubt that I ever will with my 100 or so watts.

This does raise an interesting point. The TH3 manual gives VSWR charts for the three bands, both for CW and phone element lengths. Briefly, the phone charts show for 10 metres, 2:1 at 28.2, 1.2:1 at 28.6, 1.5:1 at 29.4. On 15 metres they show 2:1 at 21.13, 1.4:1 at 21.25 and 1.8:1 at 21.4. On 20 metres the figures are 2:1 at 14.15, 1.25:1 at 14.25 and 1.6:1 at 14.35. No doubt these figures would be acceptable with valve finals, but I for one do not like them with solid state finals, hence my coupler will be staying in service. Perhaps there is now a better tribander available, but at my time of life, I doubt that I would bother to change over. My only concern now is the possibility of mental fatigue after so many years of swinging in the wind.

To finish the story, "she who must be obeyed" has issued an edict that for obvious reasons, the clothes line is to be moved from under the beam. Next week I might just start thinking about it.

### Coming Up Next

In the next episode or two we have an interesting item on a Balun for the G5RV. We will return to the topic of tree antennas and describe some early work (1919) done on them. Also we will cover a great idea that flopped, the underground DX antenna. As they say, it seemed like such a good idea at the time.

73 from him, and 73 from me.  
ar

## Stolen Equipment

Stolen from Dion VK2PD on 27 August 1992, on Standard C528 FM Handheld Transceiver, including manual. S/B OOE 150667.

# EMC Report

Hans F Ruckert  
25 Berrille Rd  
Beverly Hills 2209

More and different EMC problems do occur, as more use is made of RF emitting or sensitive services and appliances. This is the result of worldwide development. The vital question for us radio amateurs is "Who is to be blamed?"

### 1) "CQ-DL" 8/92:

There was again in June the "Ham Radio" fair and equipment exhibition at Friedrichshafen on Lake Constance in Germany, with over 20,000 visiting radio amateurs from many countries. The patron, the Federal Minister for Post and Communication, Dr Christian Schwarz-Schilling, was unable to attend, but his address contained some remarks about the new version of the "Law on Amateur Radio", which were not particularly liked by the radio amateurs. The wishes for a successful fair, and the noting of the good co-operation between the ministry and the competent representatives of the DARC were also mentioned. The original law from 1949 (and amended) served the radio amateurs well, and the planned total rewriting of the law, as now started by the present ministry, did not appear to be necessary to the DARC. Schwarz-Schilling stated: "We have to seek and find regulations which help to secure amateur radio in the future in an environment of threats of many kinds. One must not overlook that radio amateurs, together with all other radio communication users worldwide, are facing a new orientation, and that they will survive in the long run only if they fit into the EMC environment. Accept the challenge: "QRP and QRPP is the motto", if you wish to operate also in the future, often in close proximity to your neighbours!"

If one considers that the current unification of European Common Market EMC regulations is watering

down the already modest German levels of required passive immunity of consumer electronics (3 Volt/metre test cell), one can consider the minister's opinion only with the deepest pessimism. Does this mean that amateur radio with medium and higher transmitter power will in future only be possible in the Outback (not easy to find in crowded Europe), far away from neighbours and their unselective RF susceptible entertainment electronics? This would be the end of amateur radio as known so far. In contrast, it was pleasing to hear the remarks by Elmar Mueller, a member of Federal Parliament and assistant chairman of the Federal Parliament Committee on Post and Telecommunication on other EMC regulations.

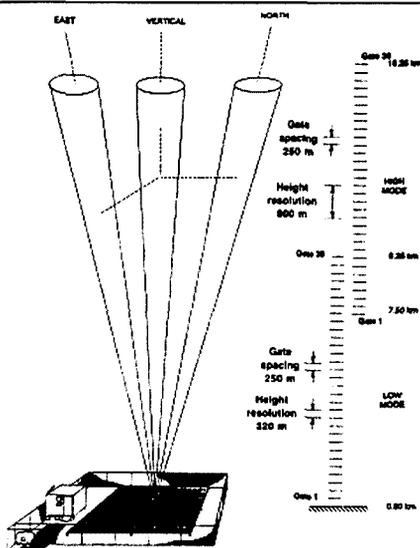
The executive of the DARC requested several meetings with the Minister and the EMC parliamentary committee, stating that the existing amateur radio law does not need a complete rewriting, and that present EMC susceptibility standard of entertainment electronic appliances is not ideal, but is better than the proposed European Common Market standards. These meetings took place, and it is hoped that the modified draft now placed before the Parliament will make amateur radio (as we know it) also possible in the future. Also the manufacturers and dealers exhibiting a wide selection of amateur radio electronics gear, who made a roaring success of the fair, would not have been happy with the "Minister's Opinion". Radio amateurs

of other countries can learn from this case of dealing with politicians.

## 2) "QST" April and June 1992:

### Wind Profiler Radar

We already have land-based weather radar for cyclone warning, and aircraft radar to warn the pilot of air turbulence, which may cause the aircraft to drop out of control several hundred metres. To improve weather forecasting in the US, a net of "Wind Profiler Radar Stations" is being set up, mainly in the less densely populated states. This development is of interest to radio amateurs, because the stations have been authorised to operate on 449 MHz, just inside the shared part of the 420-450 MHz amateur band. Radio amateurs are concerned that these radar installations may interfere with amateur repeater operation. But the wind profiler receivers may also be affected by UHF transmitters operating on nearby locations. The power level and the low-elevation peak side-lobe value are of particular interest to radio amateurs. See Figure 1. A metal fence is used to reduce this unwanted radiation. Other radar services have already had EMC problems of this type.



**Figure 1 — A typical wind profile radar emits one vertical and two nearly vertical beams from its 40 x 40 foot collinear array (Graphic reproduced from QST June 1992).**

## 3) Multi-storey Home-unit TV Reception and Amateur Radio:

I received a report from a radio

amateur (professional electronics engineer) who lives in a top-floor unit in a northern Sydney suburb. He tried to use his station with a ground-plane antenna installed on the balcony. No luck! The home units around him seemed to use untuned wideband mast-head preamplifiers (the type which is illegal in Germany).

Even when using low power of under 100 W, the phone will ring and a neighbour will complain about TVI. High-pass filters installed close to the TV tuner would provide the necessary selectivity the preamplifiers are lacking. But with so many cases involved, there is no hope for our friend.

## 4/1) Radio Communication June 1992 (submitted by Norm Burton)

There is a detailed listing of standards of alarm systems. There are intruder detectors using ultrasonic, microwave and passive infrared alarms. It will be interesting to see whether the immunity level of 10 V/m proves to be adequate in practice near amateur stations. In theory, an amateur station transmitting 100 W ERP (Effective Radiated Power) produces a free-space field strength of 10 V/m at a distance of seven metres from the antenna, ignoring near-field effects. In practice, these effects can result in considerably higher electric strengths at HF if the distance from the antenna is a small fraction of a wavelength. In the "far-field", the free-space field strength is inversely proportional to the distance in metres, so doubling the distance halves the field strength in V/M. Field strength is proportional to the square root of the power, so at a given distance, 400 W produces twice as much E field strength as 100 W.

4/2) A conference in Sweden discussed the RF susceptibility of many modern telephones. The test involved injecting a modulated RF voltage of one volt across the line and measuring the Sound Pressure Level (SPL) of the interference at the telephone earpiece. With the best telephone, this interference would be undetectable to the telephone user, while with the worst it would be about 40 dB louder. The Motala 198 kHz transmitter could also be heard this way!

## 4/3) Biological EMC

Several experts and others have dis-

cussed in the press the possible effect of electromagnetic radiation on exposed persons. The whole spectrum from 50 Hz with 100 kV to VHF handheld transmitters (telephones), and microwave ovens and radar transmitters is looked at. A report highlights possible problems which can arise if microwaves are allowed to heat parts of the body. As the eye has no blood supply to cool it down, it is particularly susceptible, and heating effects of microwave radiation can produce cataracts on the lens of the eye. By the time the lens has been affected, the rest of the surrounding facial tissue would be at 40 degrees Celsius, which is very much too hot to be comfortable. "Electronics Weekly", in an article of 8th January, estimated that you would need to transmit continuously on a cellular telephone for two hours to get to this point.

4/4: Young engineers seem to design electronic equipment by operating computers, and by doing so they do no longer learn what radio amateurs and hi-fi gear homebuilders experience: earth-loops, and how to overcome this problem. ar

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# A Packet of Packet

Kevin Olds VK1OK  
236 Southern Cross Drive  
Latham ACT 2615

**T**HIS IS THE FIRST in what I hope will be a continuing series of columns on the subject of Packet Radio. I will be acting as coordinator for the column, drawing on contributions and ideas from a variety of sources in order to bring the column together. It won't be a monthly column, rather it should be appearing every two months. However, for the column to be a success, I will need feedback from you, the readers, to tell me what you think and what topics you would like to see covered in future columns. Without the feedback, the life of the column will be relatively short.

To commence this column, I have reproduced part of the report on the Future of Packet Radio Seminar held in Canberra during April 1991. Although it is now over 12 months since that seminar was held, its findings are still relevant today. It is interesting to peruse the recommendations in the area of de-regulation of the Amateur Packet Radio arena and compare them to the recently published Draft Licence Conditions for the Amateur Radio Service. Most of what was recommended by the meeting has been incorporated in the Draft. Those attending the meeting knew they were recommending major changes in the licence conditions but were not hopeful of rapid progress. It just goes to show what can be achieved. Full credit to the WIA for its achievements in this area. I'm sure all Packeteers are like me awaiting the implementation of the final Licence Conditions so that our hobby can continue to grow.

Enough from me for the moment,

what follows is an edited version of the report I referred to above.

Future of Packet Radio Seminar —  
Report on Proceedings

## Introduction

On Saturday 6 April 1991, Packeteers from New South Wales, Queensland, Victoria, South Australia and the ACT met in Canberra to discuss the future of the Amateur Packet Radio Network in Australia. A number of agreements were reached in defining the aims and objectives of the Packet Radio Network, its levels of performance and characteristics. From this arose a number of related issues that need to be resolved in order for implementation of an acceptable, working network to proceed. These matters are documented later in this report.

## Function of the Amateur Packet Radio Network

The function of the Amateur Packet Radio Network is: to provide for the transfer of digital information between amateur packet radio stations.

Note that the concept of an Amateur Packet Radio Network does not include digipeaters. Digipeaters may have a role to play in providing some users with access to Network entry points.

Types of usage can be characterised by the speed of transmission required as follows:

**Lowest Speed** — for example keyboard to keyboard, including keyboard to BBS.

**Moderate Speed** — for example BBS to BBS and Computer to Computer.

**Higher Speeds** — for example digital voice.

**Highest Speeds** — for example 24 bit Colour Pictures.

The priorities for provision of Network facilities were seen as being inversely related to speed i.e. slowest speed, keyboard to keyboard should have the highest priority. The slower speed modes are considered to be "real time" modes and thus should have priority in traversing the network over other "non real time" modes.

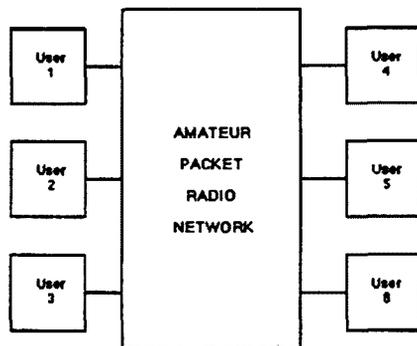


Figure 1.

## Coverage of an Amateur Packet Radio Network

The coverage of the Amateur Packet Radio Network should be Australia-wide. However, the same capabilities may not be provided at all points depending on issues such as traffic density, user density etc. The determination of what facilities are to be provided in an area is seen as an implementation issue.

In establishing the Network, implementation should be mindful of current and emerging international practices.

## Characteristics of an Amateur Packet Radio Network

The following characteristics of the Amateur Packet Radio Network are seen as being highly desirable but NOT mandatory:

**Connectivity** — all parts of the Network should interconnect to form a coherent whole;

**Transparency** — the Network should be transparent to network users, able to pass any form of data without user conversion;

**Access** — basic access to the Network should be available to all AX25 Level 2 users;

**Access** — other access methods should be provided according to local needs and practices;

**Redundancy** — where resources permit, the Network should provide redundant paths.

### Levels of Performance

The following levels of performance are seen as being desirable minima for the Amateur Packet Radio Network:

The round trip time for messages between capital cities should average about 10 seconds.

Within the Network, the target through-put is an average of 5 Kilobits per second.

This level of performance is seen as being attainable with current levels of technology. As better technology is developed and/or becomes affordable, these target levels of performance will be reviewed.

### Related Issues — Deregulation

The major issue facing the implementation of an acceptable Amateur Packet Radio Network is that of regulation. Consider the following conceptual picture of the Network.

For regulatory purposes, the Network should be considered as an entity(s) in its own right with a network Manager(s) responsible for its operation. Traffic within the Network is different from traffic between ordinary packet users (compare to the existing situation with linked repeaters — the link is considered in a different light to the repeaters and its users).

Within the Network, any band available to the Amateur Radio Service should be useable, within normal licence conditions, for the carriage of network traffic, without restriction, subject to normal Amateur Band Planning practice. This means that where HF Bands are proposed for sections of the Network, international co-ordination in terms of band plans etc may be required via IARU. Data being passed by the Network, belongs to the Network and should only require Network identification. Where necessary for Network Control or regulatory pur-

poses, Network traffic can be decoded by monitoring stations.

The legitimacy of contacts between users via the Network should be governed by the level of privileges held by the two parties and be determined as if the Network was not present. For Example, when User 1 wishes to connect to User 5 via the Network, then the links from User 1 to the Network and from User 5 to the Network must both take place on a band for which both User 1 and User 5 are licensed.

### Other Deregulation Issues

The current Australian definition of Third Party Traffic is too restrictive and out of step with international practice. The WIA should continue to press for its amendment.

With the rapid advances being made in technology and consequent changes on the packet scene, in keeping with the experimental nature of the Amateur Radio Service, station and message identification requirements should be relaxed to treat packet radio the same as any other mode of operation. The days when packet radio could be considered new and special and requiring special treatment are long passed.

### Editor's Note:

*We welcome the inclusion of "A Packet of Packet", the new Packet Radio column in AR, and repeating Kevin Olds' appeal "... for the column to be a success, I will need feedback from you, the readers, to tell me what you think and what topics you would like to see covered in future columns. Without the feedback, the life of the column will be relatively short".*

*We all know that as amateur radio operators, whilst we are experts at radio communication, we really do leave a lot to be desired in the communication of our thoughts. Please prove me wrong, and give Kevin and this new column your full support ... VK3UV. (Production Editor).*

ar

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# The Adelaide Telecommunication Museum — Future in Doubt

Lloyd Butler VK5BR  
18 Ottawa Avenue  
Panorama SA 5041

Even if you are only vaguely interested in the early history of radio and telecommunications and you haven't visited the Adelaide Telecommunication Museum, then you should have. Quite apart from its fine display of early telecommunication equipment, it houses what is well recognised as the finest display of vintage radio gear in the southern hemisphere and one of the best in the world. It is not only an asset to Adelaide but also a national asset.

The museum has a prime location in the heart of Adelaide. It is housed in an historical old telecommunications building called "Electra House" which was owned by Telecom and from the recent merger with OTC, is now owned by AOTC. It now seems that the museum must close because AOTC will sell the building.

The following feature article by well known journalist Des Colquhoun says it all. This article was published in the "Courier Messenger" of 12th August 1992, which is distributed to households throughout Adelaide.

## **"If only we could eat museums...**

Hard times mean hard decisions. When money's short, there are heart-ripping decisions to be made on priorities for spending it.

As a community, we can't allow our children to starve or freeze while we spend money on art and sport.

Yet man does not live by bread alone; we are, after all, mankind and we need mankind's trappings to retain our humanity.

Any people who ignore their past don't have much future.

Ignore our mistakes and we are condemned to suffer them again.

Yet if people are hungry they want food before history, the sick need hospitals before art, the homeless rightly demand housing before museums.

And so one of Adelaide's — and the nation's — most endearing museums finds itself in jeopardy.

It's the Telecom Museum in Electra House in King William St.

It used to be run by Telecom as a corporate bit of national sentiment.

Now it's owned by AOTC, which a Government strapped for cash says must pay its deregulated way.

So AOTC intends to sell Electra House.

The building itself, said by some to worth only about \$2.5 million because of heritage restrictions, is, thank God, safe from demolition.

And if you don't think that's important then take another look at it.

It's across the road from the Town Hall and really is an architectural one-off.

There could be no better place in the nation to house a communications museum.

It is the birthplace of the Overland Telegraph project, which magically

linked Australia with Europe through Darwin in 1872.

Messages to the world were actually tapped out in the old building.

Today it is crammed with fascinating and precious junk, the stuff of our history, the gear that helped overcome the tyranny of distance in our vast and remote homeland.

It is material that would be thrown out only by a Philistine. AOTC intends to store it or find another museum to take it.

But the volunteers who created and run the museum are devastated and have been seeking help from Federal and State governments and the Adelaide City Council.

They have nurtured it lovingly on our behalf.

The ghosts of Traeger of the pedal wireless and of Flynn of the Inland walk the museum's rooms along with those of Marconi and the Flying Doctors.

I'd love to see it stay; we can't, even in hard times, allow every decision to be made only on the grounds of finance and efficiency.

Seeing it's a museum of communications, you'd think AOTC could talk seriously to itself and work something out, wouldn't you?

— Des Colquhoun

*(Editor's note: Also we have received from the VK5 Division copies of correspondence between Museum staff, AOTC management, and the Division, from which it is apparent that many people are strongly opposed to the threatened closure of the museum ... VK3ABP)*

ar

**Support the  
WIA in order to  
protect  
amateur radio  
frequencies**

# ALARA

Robyn Gladwin VK3ENX PO Box 438 Chelsea Vic 3196

## ALARA Contest

The ALARA Contest will be held on Saturday, 14th November, 1992. All radio amateurs, YLs and OMs, are invited to take part.

**Eligibility:** All licensed operators throughout the world are invited to participate. Also open to SWLs.

**Object:** Participation: YL works everyone, OM works YLs only. One contest (combined phone and CW) run over 24 hours. **Starts:** Saturday 14 November 1992 at 0001 hours UTC.

**Ends:** Saturday 14 November 1992 at 2359 hours UTC.

**Suggested frequencies:** Bands to be used are 3.5, 7, 14, 21 and 28 MHz only. The following are suggested frequencies for easier location of contacts:

28.380 to 28.410

21.190 to 21.200:21.380 to 21.410

14.250 to 14.280

7.070 to 7.100

3.560 to 3.590

**Operation:** Phone and CW operation. Each station may be counted twice on each band for credit — once on phone and once on CW. All contacts must be made in accordance with operator and station licence regulations. No net or list operation, no crossmode.

**Procedure:** Phone: call "CQ ALARA CONTEST"

CW: YLs call "CQ TEST ALARA"

OMs call "CQ YL"

**Exchanges:** ALARA member: RS or RST, serial no starting at 001, ALARA member, name.

YL non-member: RS or RST, serial no starting at 001, or OM name.

**Scoring:**

Phone:

5 points for ALARA member contacted

4 points for YL non-member contacted

3 points for OM contacted

**CW:**

Contacts where at least one operator is novice class count double points, otherwise same as phone.

**SWL:**

5 points for ALARA member logged

4 points for YL non-member logged

**Logs:**

Single log entry (but Australian YL novices entering for the Mrs Florence McKenzie CW trophy should indicate their CW score separately also). Logs must show date/time UTC, band, mode, callsign worked, report and serial number sent, report and serial number received, name of operator of station worked, and points claimed.

## Logs Must be Signed

Logs also to show full name, callsign and address of operator, and show final score (points claimed). Logs must be legible. No carbon copies. No logs will be returned. Decision of the contest manager will be final. Logs must be received by the contest manager by 31 December 1992.

**Contest manager:**

Mrs Marilyn Syme VK3DMS

PO Box 91

IRYMPLE VICTORIA

AUSTRALIA 3498

## Mrs Florence McKenzie CW Trophy:

This will be awarded to the Australian YL novice operator with the highest CW score (not necessarily an ALARA member). Minimum score 50 points.

The actual trophy, because of the size and weight, will not be forwarded to the winner, but a certificate bearing a photo depicting the trophy will be sent to the winner each year.

Certificates will be awarded for the following:

Top score overall

Top score phone only

Top score Australian YL novice CW (Mrs F McKenzie cert)

Top score ALARA member in each country and VK call area

Top score YL non-member in each continent

Top score OM in each continent

Top score SWL in each continent

Top score VK novice

Top score overseas YL novice CW

Trophies will be awarded to the following:

Top scoring Australian YL

Top scoring DX YL

(Mrs Florence Violet McKenzie, 1892-1982, was the first woman in Australia to take out a transmitting licence, in 1921. She passed the Amateur Operator's Certificate of Proficiency in 1925 and obtained the callsign 2GA (later VK2FV). Mrs Mac taught morse code to thousands of people, particularly service personnel during the 1939-45 war years. In 1984, the Townsville Amateur Radio Club kindly donated a trophy in her memory.

## RD Contest

Many YLs participated in the Remembrance Day Contest, adding valuable points to their respective divisions.

## New Members

Our new members for this month are Elizabeth Carter and Beryl Bennett from VK5.



"Elizabeth (Liz) Carter VK3EJC"

Liz began studying the amateur radio course in February, 1990, with the W.I.A. When her husband changed from driving a conventional sedan to a 4 wheel drive with CB installed, radio began to fascinate her.

The challenge came when an acquaintance on CB excused himself by saying: "I know this will be beyond your understanding ..." Now, 18 months later, Liz has a full call and one quite proud husband who has no desire to "get hooked" — his hobby is fishing.

## Sample Log

Date/Time UTC	Band MHz	Mode	Callsign	RS(T) & Serial No sent	RS (T) & Serial No sent	Name	Points
14/11							
0135	28	SSB	VK6DE	59001	58028	Bev	5
0141	21	CW	VK3KS	599002	599045	Mavis	5
0600	14	SSB	FK8FA	59025	59011	Aimee	5
1100	3.5	CW	VK2PXS	599129	599004	Bobbie	10



**"Beryl Bonnett (VK5)"**

Beryl has 4 married daughters and 10 grandchildren. She has lived in the interesting world of medicine, including 12 years in General Practice in the country. She was introduced to amateur radio by Mrs Val von Holt, who lives in Hawaii and has had her radio licence for 30 years. Last year, she brought her radio to Australia when she visited Beryl, and went "on air" every time they went out in the car. Beryl is looking forward to another visit from Val later this year.

**Luncheons**

The VK5 luncheons continue to be held in Adelaide on the second Friday of each

month at 12 noon local time. The next one will be on 9th October. Members and guests meet at the Myer Centre, just inside the North Terrace entrance. Not only are these gatherings an opportunity for VK5s to meet together, they also provide a chance to welcome interstate and overseas visitors.

VK3 members are hoping that their luncheon programme, to be held on the first Friday at 11.30 a.m. in the first floor lounge, Victoria Hotel, 215 Little Collins Street, Melbourne, will be equally successful.

**1991 ALARAMEET**

Preparations are well under way for the 1993 ALARAMEET, to be held in Castlemaine, central Victoria, from 1st to 3rd October. The Convener is Margaret Loft, VK3DML, and she already has a list of 25 names on a "possible attendance" list and some are DX members.

Definite visitors are Aola, ZL1ALE and Dave, ZL1AMN, controller of the DX YL Net.

Speaking of the DX YL Net, this is an excellent opportunity for YLs to "work the world". Dave gives priority to YL callers but also arranges unusual OM contacts. Meralda, VR6MW, on Pitcairn Island, came up on this net earlier this year. The net is conducted every Monday on 14.222 MHz at 0600z.

**A Call to all Holders of a Novice Licence**

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCF and LAOCF Examinations.

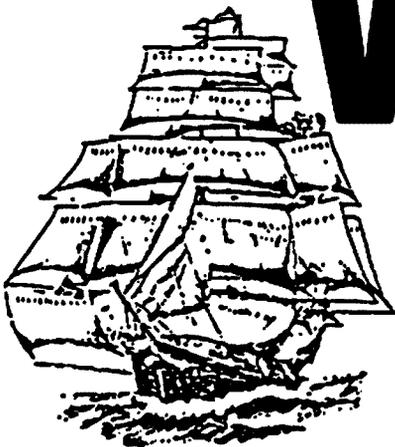
Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

*For further details write to:*

The Course Supervisor  
WIA  
PO Box 1066  
Parramatta NSW 2124  
(109 Wigram Street, Parramatta)  
Phone: (02) 689 2417  
Fax: (02) 633 1525

11am to 2pm Monday to Friday  
7 to 9pm Wednesday

H.M.S. BOUNTY



**VR6MW**

**MERALDA WARREN  
PITCAIRN ISLAND  
SOUTH PACIFIC OCEAN  
VIA NEW ZEALAND**

**73,**

Confirming QSO with:

Pse QSL Trnx

STATION	MO	DAY	YR	UTC	FREQ	REPORT	MODE
VK3ENX	2	3	92	6.19	14.222	5x1	TWO WAY SSB

K2QFL Print

**"The QSL from VR6MW — Pitcairn Island"**

# AMSAT Australia

Bill Magnusson VK3JT 359 Williamstown Rd Yarraville VIC 3013

Packet: VK3JT@VK3BBS

## National co-ordinator

Graham Ratcliff VK5AGR  
Packet: VK5AGR@VK5WI

Please take note of the AMSAT information nets:

## AMSAT Australia net:

Control station VK5AGR

Check-ins commence at 0945Z on Sunday nights Bulletin commences at 1000Z

## Frequencies:

Primary 7.064 MHz. plus/minus 5 kHz,  
Secondary 3.685 MHz.

AMSAT South West Pacific net:

2200Z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

AMSAT Australia newsletter and software service:

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Australia addressed as follows:

AMSAT Australia  
GPO Box 2141  
Adelaide SA 5001

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class soft-ware service for satellite users. New soft-ware is reviewed regularly in the newsletter.

## Satellite gateway stations:

There are now 31 World-Wide Satellite Gateways serving you as of 1st August 1992. Please note that the operation has now almost completely switched to UO22. The following tables set out the details of those gateways known to be active. There were 2 other stations on this latest list but they are not yet operational so I have not included them this time.

The satellite gateway system can be accessed in a number of ways. I'll detail these in a future column. If you are in VHF packet range of one of these stations and the recipient of your message is also within such range of another gateway, you can exploit the system by logging your mail directly to

your local gateway station and address it "via satellite" specifying the destination gateway. Operators report fast turn around times and high reliability when using this system. You don't have to be in VHF range of a gateway to take advantage of the system as all gateways are connected into their local packet mail forwarding networks. Just about every new satellite from now on will have 9600 bps mail capability so the reliability of the overall system can only improve. This may well be where the future of amateur radio international packet mail forwarding lies.

## KITSAT successfully launched.

The launch of the KITSAT package went according to plan and the commissioning is just about finished as I write this month's column. The Korean control station has been in charge and everything has gone smoothly. There was the usual confusion regarding keps in the early days. This is due to difficulty in identifying the various objects by radar ranging until they drift apart a bit. There still seems to be some confusion about just what to call the new bird. The main school of thought says KO-23 (Kitsat Oscar 23) and another uses the number 24 because (they claim) AO-23 rightly belongs to SARA. I thought this one had been resolved and laid to rest some time ago but it reared its head again recently. I hope someone with the authority to clear it up does so soon. It's been confusing enough trying to cope with the keps issue without this added complication. We can do without any more SARA episodes. Now I ask this

Call	@BBS	LOCATION	HIER ADDR.	Service Area
<b>NORTH AMERICA</b>				
KI6QE	KI6QE	Los Osos	#CENCA.CA.USA.NA	NOCAL CENCA OR WA ID NV AZ VE6,7,8
AA6QN	AA6QN	San Diego	#SOCA.CA.USA.NA	SOCA,MEX
NL7NC	KL7AA	Anchorage	#NAK.AK.USA.NA	AK
VE8DX	VE8DX	Baffin Is	#BAFCAN.NA	Baffin Island only
WA0PTV	WA0PTV	Fredonia	#WNY.NY.USA.NA	NY NH RI VT MA ME VE1 2 3
KF4WQ	KF4WQ	Lumberton	#NCLBT.NC.USA.NA	NC,SC
W0SL	K0PFX	Manchester	.MO.USA.NA	KS,MO,IL,IA,TN,KY,AR
NU9H	WV9O	La Porte	#NWIN.IN.USA.NA	IN,IL,MI
NR3U	NR3U	Selinsgrove	#NCPA.PA.USA.NA	PA,NJ,OH,MD,VA
N0GIB	N0GIB	Sioux Falls	SD.USA.NA	ND WY NE MN MT UT WI VE4
W5ERO	W5ERO	Lubbock	#WTX.TX.USA.NA	TX,NM,OK
KG4TM	KG4TM	Guantanamo	.CUB.CAR.NA	Guantanamo,Caribbean
WH6AQ	WH6AQ	Honolulu	.HI.USA.OC	US Pac. Area Guam
W7LUS	W7LUS	Ft Lauderdale	.FL.USA.NA	FL GA Central America
KF5OJ	KF5OJ	Alexandria	.LA.USA.NA	LA AL
<b>EUROPE</b>				
ON4KVI	ON4KVI	Vielsalm	.BEL.EU	Western Europe
EI6EH	EI6EH	Kells	.IRE.EU	Ireland, Denmark
EA3RAC	EA3RAC	Barcelona	.EAGC.ESP.EU	Spain Portugal France Italy
OH6KG	OH6RDW	Karleby	.FIN.EU	Finland Sweden Norway
GB7LAN	GB7LAN	Lancaster	#16.GBR.EU	UK
SV8RV	SV8RV	Zakynthos	.GRC.EU	Eastern Europe USSR
<b>OCEANIA</b>				
ZL2AMD	ZL2AMD	Napier	.#40.NZL.OC	New Zealand
VK5ZK	VK5ZK	Adelaide	.SA.AUS.OC	VK5, VK6
VK8SO	VK8SO	Alice Springs	.NTAUS.OC	Alice Springs
F05LQ	F05LQ	Tahiti	.TAH.OC	French Polynesia
VK3JAV	VK3JAV	Marnoo	.MARNOOVIC.AUS.OC	VK3,VK2,VK7
VK4BBS	VK4BBS	Brisbane	.QLD.AUS.OC	VK4,VK1,VK8,PHL
<b>MIDDLE EAST</b>				
4X1AS	4X1RU	Tel Aviv	.ISR.MDLE	Israel
<b>FAR EAST</b>				
JA6FTL	JA6FTL	Kagoshima	.JNET6.JPN.AS	JA,DU,VS6,BV,YB
<b>AFRICA</b>				
ZSIABM	ZSIABM		.ZAF.AF	South Africa
<b>SOUTH AMERICA</b>				
LU8DYF	LU8DYF	Olivos	.OLIVOS.BA.ARG.SA	CX CP OA CE PY YV LU/LW

question sincerely and I would like to have an answer. Does anyone out there know of any reason why SARA should be considered to be an amateur radio satellite? I know you can get a QSL card if you send in a report but then Radio Australia QSLs. Maybe I'm getting a bit touchy.

To finish on a bright note, it would seem from all reports that KITSAT is performing very well under test and we can look forward to a long period of excellent service from this satellite when it is released for general use. It came from the UoSAT stable and if their past record is any indication it should be a beauty. UoSAT-2 is still fulfilling its amateur radio and educational roles perfectly. It was launched in March 1984. Indications are that it has many years of useful life left. An aging satellite can be a valuable (perhaps the best) source of technical data on satellite longevity and as such the telemetry from UoSAT-2 will continue to be studied closely over the coming years.

#### **New G3RUH data demodulator:**

As announced last month James Miller has come up with an updated version of his well proven and popular 400 bps PSK telemetry demodulator for OSCARS (10), 13 and phase 3D. He has incorporated many features from a long "wish list" and from all accounts this new model has no bugs and requires no adjustments or set up

procedures. It is a "switch on and go" model. The demodulator can only be purchased directly from James. This is to ensure that the 50% pledged to AMSAT Phase 3D project is maximised. Cost is 27 pounds Sterling for the bare board and instructions and 99 pounds Sterling for the complete board, made up and tested. James may be contacted at; James Miller G3RUH, 3 Benny's Way, Coton, Cambridge, CB3 7PS, England.

#### **New Russian RS amateur radio satellite:**

Launch of the new amateur satellite RS-15 is planned for early 1993.

The orbit of the spacecraft is described as being near circular and polar with a height 2300 km and inclination of 67 degrees. There must be a mistake here, it can either have a near polar orbit OR it can have an inclination of 67 degrees, it can't have both. We will have to await clarification. The weight of the satellite is 70 kg. The satellite RS-15 will carry the radiotechnical complex "BRTK-11", designed in the Laboratory of Space Technology associated with the Tziolkowskii Museum of Cosmonautics in Kaluga, under the leadership of Papkov A.P. (UA3XWU), club station RS3X.

BRTK-11 consists of a linear transponder with two beacons, a bulletin board with 2

MB of memory and a command telemetry system of 64 parameters.

Working frequencies of BRTK-11 will be as follows:

Uplink passband: 145.857 MHz to 145.977 MHz

Downlink passband: 29.357 MHz to 29.397 MHz

Beacon 1: 29.398 MHz

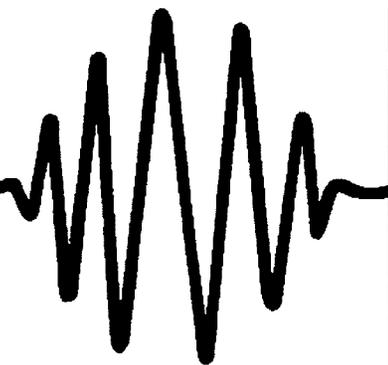
Beacon 2: 29.353 MHz

The transponder output power is 5 watts, while the beacons will run between 0.4 watts and 1.2 watts. Antennas are 1/4 wave monopoles. The Laboratory of Aerocosmical Technics belonging to the Russian Defence and the Technical Sports Organisation (ROSTO) have helped in the co-ordination of the satellite launch and operation. The laboratory is headed by Yamnikov V.S., and control station RS3A. The public relations are conducted by Dr. Alexander Zaitzev (RW3DZ). Any organisations or persons who are interested in the experimental work of RS-15 should contact with Mr V. Yamnikov at:

Laboratory of Aerocosmical Technics, ROSTO,  
ul. Zemlynoi Wal 46/48,  
Moscow 103 064 , RUSSIA  
or through e-mail : rw3dz@rw3dz.public.su  
for A. Zaitzev.

ar

# amateur radio action



“ Ηουσε αδωερτισεμεντιΠ φορ Αματευρ  
Ραδιο Αχιπιον μαγαζινε το αππεαρ ιν  
ΩΙΑ φουρνναλ Αματευρ ΡαδιοΠ. ”

For subscription details to just  
about anywhere, phone Grant  
Manson on (03) 601 4222

*If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.*

number CE and so

# AWARDS

John Kelleher VK3DP — Federal Awards Manager



August celebrates my first 12 months as Federal Awards Manager. During that time I gradually overcame obvious teething troubles, including a run-in with a certain high-profile amateur. But the good greatly outweighed the bad. I feel that I have made many friends, due mainly to my personal approach, and a helping hand, ready to sort out any problems for my eager correspondents.

One fact was obvious. the quest for awards goes on unabated, regardless of the opinions of some that it is only a "paper-hanging" venture, designed to patch up cracks in the shack walls.

To prove my point, here are some statistics for the aforementioned 12 months — Awards issued —

WAVKCA	— HF	—	125
WAVKCA	— VHF	—	3
HAVKCA	— HF	—	8
WAC	— HF	—	9
WAC	— VHF	—	3
WAC	— (SAT)	—	1
WAS	— HF	—	1
WIA GRID SQ	— HF	—	2
WIA GRID SQ	— VHF	—	1
WIA GRID SQ	— UHF	—	1
WIA 80	—	—	9
DXCC	— SSB	—	21
DXCC	— CW	—	7
DXCC	— OPEN	—	8
DXCC	— RTTY	—	1

The issue of some awards is still in abeyance due to irregularities in applications, wrong formats and fees for overseas awards, which seem to be changing each year.

Remember, if you want an overseas award, and the country concerned is an IARU-affiliated country, then I can help you.

My congratulations to those VK stations who have received awards during my tenure — it was a pleasure.

Continuing with inexpensive and worthwhile overseas awards, I can recommend the OHA Award from the Finnish IARU Society — The basic OHA award requires that you work 15 OH stations in at least five call areas — then follows - OHA 100-100 OH stations in all 10 call areas using at least two bands.

OHA 300 — work 300 OH stations  
OHA 500 — work 500 OH stations  
OHA 600 — work 600 OH stations

All contacts must be made with fixed stations after 6 June 1947 (after 1 February 1967 for OHA 500).

Do not send QSLs, send a list of QSOs checked by two amateurs, or the Awards Manager of your national amateur radio society.

The list must include the callsign, date, time (UTC), band mode, and report for each contact.

The fee for this award is 18 IRC or US\$2.00.

Contact Jukka Kovanen, OH3GZ, SRAL Awards Manager, Varuskunta 47 AS 11, SF-11310, Riihimaki 31, Finland. Or

Your friendly Federal Awards Manager

As a matter of policy, control of DXCC files must be regulated, and a firm base established. To this end, I must announce

that any or all files which have not been activated or added to since December 1987 will be transferred to the inactive list, in December 1992. So, if you have any countries to add to your list, do so now. this announcement naturally excludes those operators who work hard to add to their standings.

In conclusion, I again appeal to clubs and organisations which run Award nets to keep me informed of your progress, and to provide me with publishable information to further your efforts. If you need publicity for your cause, I am here to help.

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**Sign up a  
new WIA  
member  
today — use  
the form on  
the reverse  
side of the  
AR address  
flysheet.**

# Education Notes

*Brenda M Edmonds VK3KT WIA Federal Education Co-ordinator*

The RAE Manual is the successor to the Examination manual, which has been published by the RSGB for many years. The copy which I have recently examined is the 12th edition, dated 1988, but overprinted "Also valid for 1992 Examinations". About the size of a standard exercise book, the manual has about 100 pages divided into 13 chapters, plus appendices with circuit symbols, mathematics and syllabus outline.

In content it is a fairly straightforward coverage of the syllabus for the amateur examinations run by the City and Guilds of the London Institute, the only body authorised to conduct amateur radio examinations in Britain. (Examinations under the auspices of this body are held at sites throughout the country twice yearly.)

A sign of growth is that, whereas the Examination manual from about Edition 8 on included sample multi-choice questions after each chapter, this edition has only two sample examinations at the end of the book. However, it has a companion volume, "How to pass the RAE", which comprises a dozen pages of examination information, mathematical processes and hints on multi choice questions followed by nine sample examinations. Each examination consists of two separate papers, — 45 questions on licensing conditions, interference and electromagnetic compatibility, and 55 questions on operating practices, procedures and theory. To my mind, there is a case for a collection of questions at the end of each chapter as an aid to self testing.

The RAE syllabus puts more emphasis on practical aspects of running a station than does the Australian syllabus. One chapter in the manual is devoted to transmitter interference, one to EMC, and one to operating practices. This latter chapter includes the Q Code, the RST code, the phonetic alphabet, lists of common CW abbreviations, band plans, and hints on working through repeaters or satellites. Questions on all these topics are found in the sample papers.

The radio theory is well explained, with plenty of simple, clear diagrams. Where calculations occur, the procedures are clearly detailed step by step. The chapter on Safety, although short, gives a range of useful hints for both base and mobile operation. Overall the level of theory covered is above that required for an AOCPC candidate, but it would be a useful study book for either NAOCPC or AOCPC so long as the

student remembers that it has been produced for British conditions. The sample examinations are useful for self-assessment, but could not be used as trials because of the incompatibility with the Australian layouts.

The companion volume, "How to pass the RAE" would be useful for the student who enjoys reading multi-choice questions. Because many do not relate to the Aus-

tralian syllabus, the answers are not always obvious, and the papers could not be used as set for self evaluation. However, as a source of possible questions for group discussion or to throw to a class it would be ideal. A lot could be learnt by students trying to convert the questions to the local equivalent, and the operating questions are ones which should be considered before any new licensee takes to the air.

My thanks to Stewart Electronics for providing these copies for inspection.

RAE Manual, 12th Edition, RRP \$31-00  
How to pass the RAE, 2nd Edition, RRP \$31-00

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## Club Corner

### Special Amateur TV-CB Broadcast

Melbourne's Omega Radio Club celebrated the 12th birthday of its fortnightly CB UHF broadcast by televising it through the Melbourne ATV repeater.

The program was widely seen throughout the greater Melbourne area and lasted one hour and 15 minutes. It sparked an interest in watching ATV among CB operators.

The Omega Radio Club, often described as Australia's premier CB club, has quite a few active radio amateurs among its members. The club's activities include fox-hunting on UHF CB, and use of a portable UHF repeater at community events.

The ATV-CB broadcast through the VK3RTV repeater on 2 September this year had as guest speaker Phillip Portelli VK3AWG of the RAAF-Williams Radio Club. He talked about the history of the repeater and discussed the general aspects of amateur television.

His club is involved in ATV and has set up a studio at the RAAF Air Base, Laverton. Phillip told viewers and listeners to the Omega broadcast they did not have to spend thousands of dollars to get involved in ATV. He advised that anyone can watch the transmissions through VK3RTV, and it was not costly for radio amateurs to transmit in the mode.

The broadcast moderator Alex VK3XLI interviewed Phillip to draw him out on his knowledge. David VK3JDA operated a Sony vision mixer, and generated the call-sign announcements using a computer. The broadcast's newsreader Barry VK3JBR also doubled as the audio operator.

The regular Omega Radio Club broad-

cast heard on alternate Wednesday nights is a focal point for CB radio in Melbourne. Its normal format is to have a guest speaker, news announcements of interest to CB operators and hobby listeners, followed by a series of callback or "breaker" sessions.

The added element this time was ATV. During the broadcast a lot of CBers tried to adjust their domestic TV sets and antennas to receive the picture, and had some success.

One was located at Hoppers Crossing in Melbourne's south-west and 60 km from the VK3RTV site on Mt Dandenong. He was having trouble with reception, but experimented by using two VCRs as pre-amplifiers and then had a good picture.

A lot of CBers showed considerable interest and expressed disappointment that they could not get a picture. They asked questions about antenna dimensions and where to point for the repeater.

Those who missed getting a picture during the broadcast were told later one would be put up on their request, when they were ready to test reception. The Omega Radio Club is also hoping to hold another ATV-CB broadcast.

During a callback session on the Melbourne ATV liaison frequency on two metres, there was considerable favourable comment from radio amateurs who watched the transmissions. Most had heard news that the event was planned through an announcement on the VK3BWI WIA Victoria Sunday broadcast.

Custodian of VK3RTV, Peter VK3BFG, was complimentary of the club's efforts and said there should be further similar use made of the repeater by the club.

Barry Robinson VK3JBR



YAESU

# OPEN DAY!

**Saturday 7th November 1992 Only**

**Huge Savings  
On Ex-Demo  
Gear!**

**OFFICIAL LAUNCH** - The New Yaesu FT-890 HF mobile transceiver and FT-415 2m handheld will be on display, with a sneak preview of the new FT-2400H 2m MIL-SPEC mobile transceiver.

**Lucky Door Prizes**

- Special Prices on new and ex-demo equipment, plus hourly specials from 10am.
- Display of C.A.T. (Computer Aided Transceiver) software for the FT-990 and FT-1000.
- Qualified Amateur Staff for advice and assistance
- Huge range of all the latest Yaesu equipment on display, plus a large range of antennas and accessories.
- Bring your Licence with you for On-Air demonstrations
- It's under cover, so come along rain or shine!
- Light refreshments available
- See our range of Digitor - Plus IBM compatible computers.
- Don't miss the sensational savings, on a range of consumer and enthusiast products, at our Head Office Showroom ONE DAY SALE. (It's on the same day!)
- Plenty to do, plenty to see.... bring the family!

**SUPER SAVER HOTLINE  
Ph (008) 02 3591 Free Call**

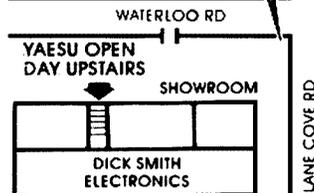
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"QUALITY AND  
RELIABILITY YOU  
CAN AFFORD"

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# THE SENSATIONAL YAESU FT-990 HF ALL-MODE TRANSCEIVER

Take a quick look at the all-new FT-990 and you'll soon see the similarity to the top-of-the-line FT-1000. The incredible FT-990 embodies many of the advanced features and ease of operation of the FT-1000, but in a more compact, economical package that sports several new advances in both transmitter and receiver design.

Cat D-3260



## BONUS SELECTION

Your choice of Yaesu MD-1 deluxe microphone (D-2125, valued at \$199), or Revex W502 H.F. PEP wattmeter (D-1360, valued at \$199)

Offer extended to 31st October 1992

2 Year Warranty!

AC Version \$ **3495**



12V DC version FT-990  
coming soon!

Cat D-3255

### Designed For Easy Operation

Just like the FT-1000, Yaesu have designed the FT-990 to be as easy as possible to operate. The front panel layout puts all frequently used controls right where they should be...at your fingertips. All controls are clearly labelled and the digital display provides an abundance of information in an uncluttered and easy to read format. The front panel keypad offers one-touch band selection (160m - 10m) with 2 independent VFOs per band and 90 memories that store the operating data held in both VFOs. You can't help but appreciate the large back-lit analogue meter rather than those confusing bar-graph meters found on other transceivers.

### Unique Features

- Customizable RF Speech Processor - Yaesu's unique Frequency Shifted Processor (FSP) lets you shift the IF passband of your transmitted SSB signal to provide maximum punch with your voice/microphone combination.
- Digital Audio Filtering - Razor sharp audio filtering is available for tough SSB and CW reception conditions through the use of an astounding dual digital Switched Capacitance Filter (SCF) with independently adjustable selectivity skirts.
- Packet/RTTY - Separate interface jacks for RTTY and a Packet TNC are provided, while the mode selection buttons disable the mic automatically in the digital modes.

### Direct Digital Synthesis (DDS)

Two 10-bit DDS and a magnetic rotary encoder provide silky-smooth VFO tuning, pure local oscillator signals, and very fast Tx/Rx change-over... and that's very important for QSK CW and digital modes. The DDS is teamed with an extremely low-noise, high performance receiver front-end using a PIN-diode controlled push-pull RF amplifier followed by a quad-FET ring mixer. The result is a very wide receiver dynamic range from 100kHz to 30MHz. Transmitter signal purity is also enhanced, with circuit noise nearly 90dB down from the carrier.

### Convenience Features

- A highly efficient AC power supply is built-in. It allows high duty-cycle transmission while keeping the weight low, saving space and the added expense of external power supplies.
- An in-built Automatic Antenna Tuner with 39 memories.
- Effective interface rejection is facilitated by IF Shift, IF Notch, IF bandwidth and SCF audio controls.
- An adjustable noise blanker, a 500Hz B/W IF crystal filter and a comprehensive, easy to read user manual are also supplied.

# HUSTLER

## HF 5 BAND TRAP VERTICAL ANTENNA

The Hustler tradition continues! The 5BTV is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1KW PEP power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m band resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable  
Cat D-4920

# \$299

### 30m Resonator Kit

Adds 30m coverage and includes all hardware. Cat D-4921

# \$79<sup>95</sup>

### VRK-1 Radial Kit

Provides a ground-plane for above ground mounting Cat D-4922

# \$59<sup>95</sup>

## HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality USA made 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL259 attached. It has 3dB gain with a power rating of 100W maximum and a flexible stainless steel radiator to minimise wind loading.

# HUSTLER

Cat D-4805

# \$49<sup>95</sup>

For Mail Orders, information, or a Brochure, phone DS XPRESS on Sydney (02) 888 2105 or Outside Sydney (FREE CALL) 008 22 6610

Yaesu stocks are not held at all stores, but may be ordered. Please contact your local store for stock availability or phone (008) 22 6610 for details of your closest Ham Shack.

Or write to DS XPRESS, PO BOX 321 NORTH RYDE NSW 2113

# SAVE \$10

DIAMOND ANTENNA

## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese disccone antenna covers the frequency range 25-1300MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware, stainless steel U-bolts and instructions.

Cat D-4840

# OUR BEST EVER PRICE \$149

## ST-7500 2m/70cm MOBILE ANTENNA

A high performance dualband antenna at a down to earth price! The ST-7500 is just 1 metre long and uses a ground independent design to provide high gain (3dB on 2m, 5.5dB on 70cm) with a maximum power rating of 150W. Quality construction plus a tiltable whip structure makes it especially ideal for the discerning mobile operator. Requires SO-239 antenna base (D-4035 recommended) Cat D-4810

# BRANER \$79<sup>95</sup>

## HUSTLER UGM 1/4 WAVE MAGNETIC ANTENNA

A great idea for extending the range of handheld transceivers! The Hustler UGM is a compact 1/4 wave magnetic mount mobile antenna supplied with 2.1m of mini coax fitted with a BNC plug. Simply use the supplied frequency chart to cut the flexible stainless steel radiator to the required length for your application (within the 140-500MHz range) and its ready to use. The high efficiency magnetic mount assembly is triple chrome plated for long life, and is provided with a protective mylar cover to prevent scratching your cars roof.

Cat D-4802

# \$39<sup>95</sup>

# DICK SMITH ELECTRONICS



NSW • Albury 31 6388 • Bankstown Square 707 8888 • Blacktown 871 7722 • Brookvale 885 0441 • Bondi 387 1444 • Campbelltown 27 2188 • Chatswood Chase 411 1985 • Chullara 842 8822 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 0033 • Hurlville 880 8622 • Kogarah 58 2082 • Liverpool 800 8888 • Maitland 33 7888 • Miranda 525 2722 • Newcastle 61 1888 • North Ryde 878 8855 • Orange 818 408 • Parramatta 888 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 207 8111 • Tamworth 86 1711 • Wollongong 28 3800 ACT • Belconnen (06) 253 1783 • Fyshwick 280 4844 VIC • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 880 8888 • Coburg 383 4488 • Dandenong 788 8877 • East Brighton 582 2388 • Essendon 378 7444 • Footscray 888 2055 • Frankston 783 8184 • Geelong 232 711 • Melbourne City 399 Elizabeth St 328 8888 & 248 Bourke St 838 0388 • Richmond 428 1514 • Ringwood 878 3338 • Springvale 547 0522 QLD • Booval 282 0200 • Brisbane City 229 8377 • Buranda 381 8233 • Cairns 311 515 • Capalaba 248 2870 • Chermide 359 8288 • Rockhampton 27 8844 • Southport 32 8833 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 8844 • WA • Adelaide City 232 1200 • Beverley 347 1800 • Elizabeth 285 8888 • Enfield 280 8888 • St. Marys 277 8877 WA • Cannington 451 8888 • Fremantle 883 8733 • Perth City 481 3281 • Midland 280 1480 • Northbridge 328 8844 TAS • Hobart 31 8800 NT • Stuart Park 81 1877 New Store Location Launceston (002) 344 555

## Moorabbin & District Radio Club

### Valve Bank

Moorabbin and District Radio Club runs a Valve Bank which contains thousands of new and used receiving valves and a smaller quantity of transmitting valves such as 807s and 1625s etc at reasonable prices. Larger and high-powered transmitting valves are extremely scarce, but the range of receiving valves is quite extensive. It contains valves with 7 pin mini and 9 pin noval bases, octal bases and even the older types with 4, 5, 6 and 7 pin bases. There is a smattering of types with Mazda octal, Philips "P" bases, European 9 pin lock-in bases (EF-50s) etc. the stock is never static as more valves are received as donations from various amateurs, and also from deceased estates.

The Valve Bank was originally set up by Ron Higginbotham VK3RN (now a Silent Key) to help amateurs keep their older equipment in working order. Lately, the Valve Bank has been very popular with the increasingly large number of amateurs and other enthusiasts restoring vintage commercial broadcast radio sets. It is amazing the new lease of life that some of the old sets take on when fitted with a new valve or two. Even if the exact valve you require is not in stock, it may be possible to suggest a reasonable replacement.

The manager of the Valve Bank is Ken Bridger VK3JII, who can be contacted on the following telephone number, (03) 580 5347, at any reasonable time.

Perhaps some of you have seen Ken with his valve display board and sample stock of valves at some of the recent Hamfests. If you see Ken, come and look at the display and have a chat about old valves and old valve equipment.

If you write to Ken requesting information about availability of valves, prices, etc, please enclose a self-addressed envelope for reply.

The address is: Ken Bridger, 29 Elliott Street, Mordialloc, Vic 3195.

Hopefully he will be QTHR in the new 1993 Call Book.

By the way, if you have any old valves that you no longer need, don't dump them — call Ken, who can use them in the Valve Bank.

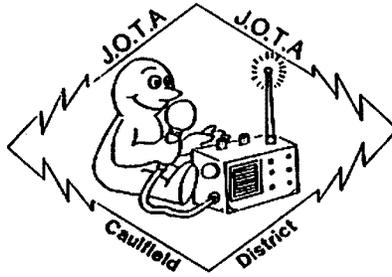
### New Mailing Address

The mailing address of the club has been altered, please note that all future correspondence is to be addressed to:

The Secretary  
Moorabbin and District Radio Club Inc  
PO Box 58  
Highett Vic 3190

Alan Doble VK3AMD

## Caulfield District Scouts



### Jamboree of the Air (JOTA)

Special event station V13SAC will be on the air from 12th to 18th October 1992.

The Caulfield District Scouts are congratulating Radio Operators of JOTA on their 10th Anniversary with an A4 size Special Event Award.

Only one contact is required, and the station will be operating on all frequencies.

This is the first Special Event Callsign that we know of given to Scouts.

Kindly forward your QSL card and three postage stamps, or one IRC, to QSL

Manager, C/- PO Box 71, Glenhuntly Vic 3163.

Shortwave listeners may apply for the Award by sending their QSL card, and an extract of their Log to the above address.

Garnet J Bowen VK3MTA (VK3SAC)  
Caulfield District JOTA Co-ordinator

## Bundaberg Experimenters Radio Group

Our group will be running a Special Event Station V14RUM from 1st to 31st October 1992, to celebrate the 125th anniversary of the City of Bundaberg.

The station can be heard on the following frequencies; 3.570, 7.080, 14.210, 21.163, 28.475 and 28.570 MHz.

A special award and QSL card will be printed for the event, and the cost of the award to VK stations is (AUD)\$5.00, and to others (USD)\$5.00. The address for the event is PO Box 23 Bundaberg Qld 4670.

The station will also be taking part in Jamboree of the Air.

Ron Brumley  
Secretary  
ar

## Divisional Notes

### VK2 Notes

Tim Mills VK2ZTM

#### Broadcast Time Change

On Sunday the 25th the morning session of the VK2WI broadcast will change to the new starting time of 10am (local) with the technical tape, followed by the news content at 10.15am. There is no change to the evening session which has the tape at 7.15pm and the news content at 7.30pm.

Some of the input to the recent forum provided comment as to the length of the broadcast, usually that it was too long. This question, as well as many other aspects of the broadcast presentation, is being reviewed by Richard VK2SKY who recently took over the broadcast preparation from Dave VK2KFU. It is difficult to tailor a broadcast to a set time since the submitted material differs each week, and each item is important to the group or person with that subject interest. Richard will be reporting changes in the broadcasts. Your input would be most welcome in writing to the Divisional office by mail or fax or packet to VK2WI at VK2RWI.

Broadcast items by cassette tape are most welcome. Please note the following basic requirements. Leave a quiet five-second pause before the item. Use an out cue followed

by silence. Record on both tracks when using a stereo machine. Use a good quality tape.

#### Those 70 cm Noises

The two frequencies mentioned in last month's notes are using the French Syledis Radio positioning systems. The operating frequencies of these devices are in two groups, the lower band of 408 to 434 MHz, and the upper band 422 to 448 MHz. Ninety-nine percent of the energy should lie within a bandwidth of +/- 1.25 MHz. The modulation is PSK in a pseudo-random modulation code of 127 bits. Duration of each bit is 0.52 us, which repeat every 66.666 us. The pulse width with 80 code sequences takes 5.33 ms. The accuracy can be down to one metre with the transmission range up to the horizon. Even at over twice the horizon it is in the order of five to 20 metres. Standard operating range is about 100-150 km, which can double to 300 km with special antennas and amplifiers.

The normal operating frequencies for these devices is at 427 MHz, but the one which visited Sydney to assist in a survey of the ocean floor off Sydney's northern beaches had to be programmed to 432.98 MHz as the usual systems were not available in the required time periods. It has now

ceased operation. There may be a return of these systems in a year or so when a cable is to be brought ashore. The systems on 441 MHz have been DF'd to South Head in Sydney and the south coast near Kiama. Both appear to be operated by the Department of Defence as Radiolocation systems, which is the primary permitted mode for the 70 cm sub band 420 to 450 MHz.

### New Members

Our usual warm welcome is extended to the following who joined the WIA via the NSW Division during August:

D M Brem	Assoc	North Ryde
S M Buck	VK2TOY	Collaroy
J L Christensen	VK2CAV	Albion Park
M Chylinski	Assoc	Winston Hills
E DeCelis	Assoc	Padstow Heights
R M Glass	VK2EGR	Baulkham Hills
W L Grindley	VK2WLG	Long Jetty
R Lorimer	Assoc	Tumbarumba
J W McCulloch	VK2CC	Saudi Arabia
B Markson	VK2TBM	Beverly Hills
J E May	Assoc	Collaroy
P J Mudie	VK2XZP	Berowa
B J O'Connor	VK2GTX	Northbridge
R B Poole	VK2DMJ	Kingscliff
C J Pratt	Assoc	Nelson Bay
M T Sedgwick	VK2XZW	Wetherill Park
P Semadeni	VK2GMN	Pymont
I L Weston	Assoc	Kingswood

### New Callbooks

Stocks will be available from the Divisional office. Check the price structure elsewhere in this issue of "AR". Call in, phone, write or fax the office for your copy. Your local club may have arranged for a bulk purchase.

### Final Exam

The final exam conducted by the Division will be held at Parramatta on Sunday 8 November; the closing date is 22 October.

### Reminder

A reminder that registration and payments for the VK2 QSL Bureau are to be made through the office. Send only outgoing cards, sorted in sequence, to PO Box 1, Teralba NSW 2284. Only written enquiries can be made via the office as the management of the Bureau is external to the office.

### Forum

This was held in the Parramatta Library on Saturday afternoon 29 August. By the end of the day the headcount had reached 40. there were 12 written submissions received. Several country members attended and their input was most welcome. Much of the discussion time was devoted to one-off problems or interests. the outcome will assist Divisional Council fine tune some of the services, or increase its workload, as the case may be.

A more detailed report will be given via the broadcasts and in these notes in a later issue.

### 5/8 Wave

*Roland Bruce VK5OU*

I returned from one of my country trips just in time for the August General Meeting of the Division, to hear the sad news that George Luxon, VK5RX, had died the previous week. George was one of our Honorary Life Members and will be greatly missed by many amateurs, especially the Old Timers, in South Australia and further afield.

It is not my intention to provide an obituary notice here, others knew George better than I, but I would like to pay my tribute to him. He was one of the first amateurs I met in S.A. (1971) when he held the position of QSL Bureau manager. In total he held it for over fifty years. Many will recall the DX News he contributed to the WIA weekly broadcast at that time. The meeting held a period of silence in his memory. Vale George.

October is a busy month for many amateurs. Besides those gearing up for the big DX contests, and others, like myself, who are hoping with the better weather to see to the antenna farm, there are those who involve themselves with JOTA, Jamboree of the Air.

The members of the scout and guide movements who experience amateur radio this way are usually very enthusiastic, they are a pleasure to know, and some of them may well be amateurs of the future. Peter Koen is the Project Commissioner, Scout Radio Activities and I am sure he would be pleased to hear from anyone wanting to lend a hand with JOTA over the weekend of October 17-18.

Even if you are not actively involved, remember that those JOTA stations you hear would like to make contact with you, and get to know about you and your shack. Peter's phone numbers are (08) 356 6990 (Bus), or (08) 353 9299 (A Hrs). Congratulations also to Peter (and Bob Dodd) who have been made Life Members of the Scout Association of Australia, presumably for services in the field of amateur radio.

New members: Trevor Cox; Tim Minchen, VK5NTM; Graham Smith and Les Williams. Welcome to the WIA gentlemen.

Diary: December 8. Christmas social. Woodville Community Centre.

1993 Buy and Sell Nights — January, May and August.

### VK6 Notes

*Harry Atkinson VK6WZ*

In August and September those brave souls who rise in the dark to work low-band DX in the "DX window", have been having a ball with European and North American contacts in the hectic few minutes each side of dawn. Prominent among them is Robin VK6LK.

After only six months service, Nick VK6ND had to relinquish the Sunday broadcast, thanks to saltmine demands. Welcome to Glenn VK6ZGT and a small team of helpers.

Welcome too, to our new secretary, Tony Lumley VK6ZTL.

The enthusiastic team NCRG is putting the finishing touches to Hamfest 1992, and it promises to be bigger and better than any yet. Make a note of the date, Sunday, 1st November 1992.

ar

## Murphy's Corner

AR September, page 9, article "An Interference Cancelling System for your Receiver or Transceiver". The SW4 legend and RF Transformer information in Figure 5 (on Page 13) was omitted, and is as follows:-

### SW4 Legend

- A 21-28 MHz
- B 14 MHz
- C 7 MHz
- D 3.5 MHz
- E 1.8 MHz

### RF Transformers (Refer Section A)

T1 — Short wave receiver aerial coil, slug tuned, secondary inductance approximately 4µH, turns ratio approx 1:4

T2, T3 — 8 turns tri-filar wound on an Amidon FT50-72 Toroidal Ferrite Core.

The author, Lloyd Butler VK5BR, also advises that he has devised a simpler

method of Phase Shifting, which we will be publishing in the near future.

(Editor's Note: We extend apologies to our readers and to the author for this omission, and for the inconvenience caused — VK3ABP.)

### BAYCOM MODEM and PROGRAM

1. The advertisers name should have read "Australian Amateur Packet Radio Association", and
2. The modem price (incl. manual) is only \$190-00, and not as stated.

ar

**Remember to leave a  
three second break  
between covers when  
using a repeater**

# HF PREDICTIONS

Evan Jarman VK3AN

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the five bands from 14 to 28 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1  $\mu$ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1  $\mu$ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50  $\mu$ V at the receiver's input and the S-meter scale is 6 dB per S-point.

$\mu$ V in 50 Ohms	S-points	dB( $\mu$ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	- 8
0.20	S1	-14

The tables are generated by the Graph\_DX program, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

**VK EAST** The major part of NSW and Queensland.

**VK SOUTH** Southern-NSW, VK3, VK5 and VK7.

**VK WEST** The south-west of Western Australia.

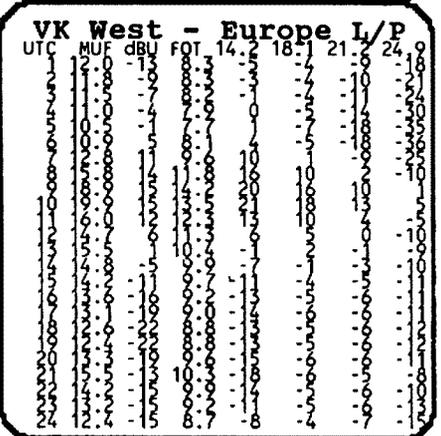
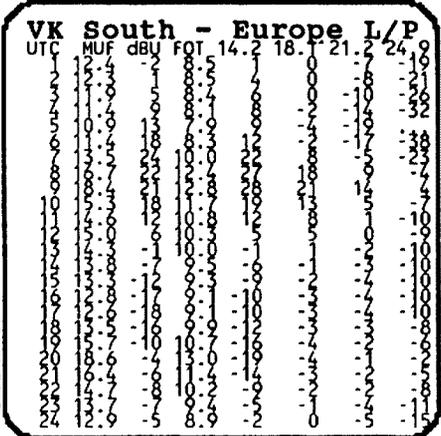
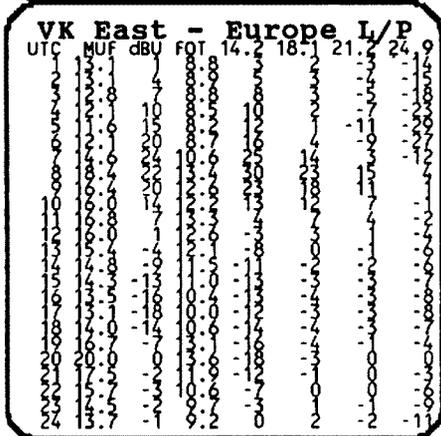
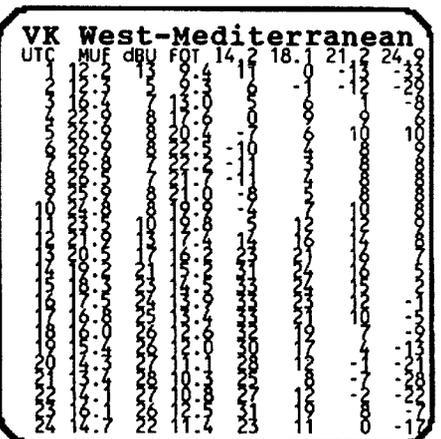
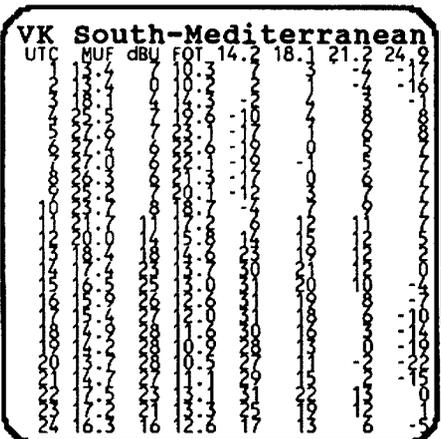
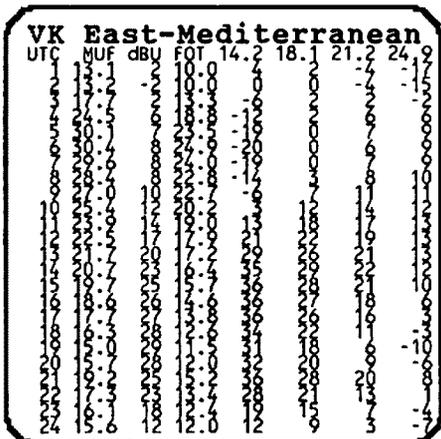
Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The relevant sunspot numbers used to generate the predictions are:

May	94
June	88
July	81
August	77
September	72
October	68

A change in production methods caused the lack of predictions a few months ago. These methods are still under review but the format should continue to the end of the year.

If a particular format or path is preferred kindly advise us, in writing, at the WIA Federal Office, PO Box 300, Caulfield South Vic 3162.



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VK South-USA/Caribbean UT  
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VK West-USA/Caribbean UT  
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# Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words.*

The WIA regrets the recent passing of:  
 D (Doug) Wilson VK3EIM  
 H (Harry) Kinnear (ex)VK4VJ  
 G W (George)Luxon VK5RX  
 C E Sangster VK6CS

## George Luxon VK5RX

I first met George in 1930 when he was operating his own business selling and servicing "wireless" sets. He came to the small factory where I was employed to purchase valves and other components. About this time the industry made the change from "wireless" to radio.

Like most of us at that time in the early to mid '20s, George encountered "wireless" at high school, where he made his first crystal set. In 1928, he gained his amateur licence with the callsign 5RX, and then moved into the radio industry.

In the early '30s, the Depression forced George from his business into the radio service department of several radio retailers. In 1940 he abandoned the rough and tumble of the private sector and joined the radio division of the PMG department, specialising in the studio recording section, where he remained until he retired in 1973.

He was very active as an amateur until 18 months ago, his health started to fail — a total of 62 years. George built his own equipment in 1928, including a transformerless power supply made up of 24 "slop jars" connected directly into the mains!

He operated exclusively on CW for the first 25 years, changing to phone c 1953. He collected many certificates, and had confirmed over 300 countries. He was attempting to obtain DXCC on all HF bands.

George was QSL card manager for 50 years — 1930 to 1980, and was granted Life Membership. During the mid-'30s he was Vice President. Some years ago, George set up the Old Timers annual luncheon, which has been a great success.

George died 12-8-92, aged 84 years.

Sincere sympathy is extended to members of his family.

John Allan VK5UL

## Doug Wilson VK3EIM

Doug passed away on 4th July 1992 aged 81 years, after a short spell in hospital with bronchio pneumonia. A perfectionist and a jack of all trades. Spitfires in the Battle of Britain began his aircraft association. In 1952 he, with his family migrated to Melbourne joining ANA and continued study-

ing airframes of DC3-4's. He was instrumental in setting up TAA's inaugural Helicopter Maintenance Division. His helicopters took him all over VK, the Snowy and Antarctica.

An accomplished musician he played both the trombone and piano.

His family became musical and jam sessions self started. He built a family home and a weekender at Torquay in his spare time.

Retired for 12 years, bowls was not enough. An article on Amateur Radio in the Green Guide, some determination and he became VK3MME, then VK3EIM within 10 months. Moorabbin Radio Club weekly meetings gave him a new found companionship. Talks, lectures, and Packet grabbed him, and he was into computers.

Becoming a proficient CW operator was his goal, thus he was a regular attendee on

the nightly 15 WPM 80 metres net. Membership of the Ex-G net VK group was automatic. His Scottish accent a give-away, even after 40 years in VK. His DX activity was slow, and he figured his setup was poor, but he became excitable when he did get through. I was privileged to share some of that joy. Doug's water pipe antenna farm was kept vertical through many windy days with pop rivets. He sure knew how far a rivet could be stretched. Four years of Amateur radio was jam packed, daily on phone or CW nets, RTTY or Packet frequencies. He will be sadly missed.

He was always appreciative of the help given to him along the way.

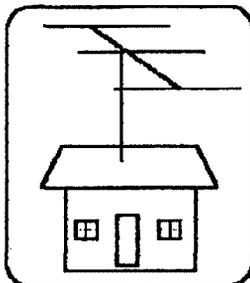
Our sincere condolences to his surviving wife Cathie, son Ron and daughter Sylvia, and their families of four grandchildren.

Ron VK3AEO

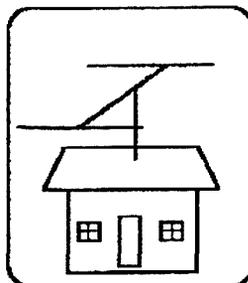
ar

## COMMUNICATION BREAKDOWN

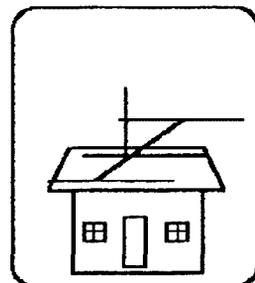
by VK3UV



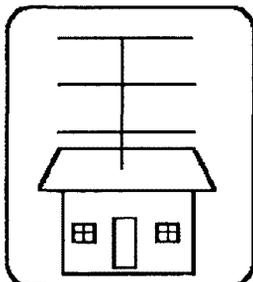
AS MARKETING REQUESTED IT



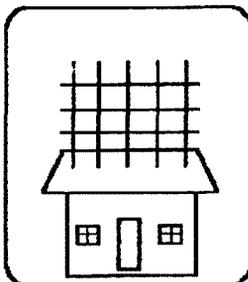
AS SALES ORDERED IT



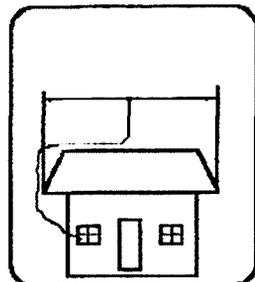
AS ENGINEERING DESIGNED IT



AS MANAGEMENT APPROVED IT



AS THE BUILDER INSTALLED IT



WHAT THE CLIENT REALLY WANTED!

# How's DX?

Stephen Pall VK2PS, PO Box 93, Dural NSW 2158.

Talking about DX, DXpeditions and special call signs, does it irritate you that, after waiting five or even 10 minutes and listening to an ever-increasing noise from a "dogpile", you still do not know the identity of the DX station?

Of course, not all the DX operators are behaving like this — there are a few rare exceptions. However, all in all, it is a bad practice and is getting worse as time goes by. I am sure you have heard all this before. The DX station calls constantly "QRZ?" and gives a continuous monotone "5x9" report, and identifies itself or its QSL manager only, when some impatient prospective "client" urges him to do so. It was found by others, and logic would indicate that by giving your full identification, quite often (say after five to 10 contacts) — namely: call sign, location, name of operator and QSL address — the QSO rate per hour can be speeded up considerably.

The DXpeditioner should never assume that every DXer has access to DX bulletins, press releases and/or cluster packet information which would tell the world who he is, and on what frequency he operates.

For a true DXer on an expedition, the "little pistol" with a 100 Watt output and a dipole antenna should be more important than the "big gun" with his kilowatt.

## Willis Island — VK9W

It appears that the joint Mellis Reef-Willis Island expedition planned by Jim VK9NS (see August AR) will concentrate only on the activity from Willis Island. Jim announced on the air on 30 August that, due to lack of support for the Mellis activity, a mini-expedition will be organised to Willis Island only. It is planned that Jim VK9NS, Kirsti VK9NL and Atsu VK2BEX will be the operators, and the activity is subject to official permission for seven or more days, probably from 7 October to 14 October, using the call sign VK9WW.

## Cocos (Keeling) Island — VK9C

Lionel VK6LA will return to Cocos (Keeling) Islands sometime in November 1992, and will be there for two or three months, giving everybody a good opportunity to work him, under the call sign VK9CB. He intends to operate mostly SSB, RTTY and some CW mode.

He will take a linear with him, a triband beam and some form of longwire multi-band antenna. His last operation from Co-



**"The Mayer of Harvey Bay (Qld) Fred Klein Schmidt opening the Club Rooms of the Harvey Bay Amateur Radio Club."**

cos was from 7 June to 2 July. All direct QSLs and Bureau cards were answered as at the middle of August. Lionel notes that, after he departed from Cocos, the call sign was pirated and was heard on 21 MHz CW. All cards for the pirate operation were returned to the senders with explanation.

## Tasmania — VK7

In the month of November, the call VI7AJT will be on the air celebrating the discovery of the island named Van Diemen Land by its discoverer, Abel Janson Tasman, 350 years ago.

## Bangladesh — S2

As predicted in last month's "AR" there was some new activity from this much sought after country. Jim Smith VK9NS slipped through Sydney unnoticed on his way to Bangladesh, where he became active as S21ZA from 5 August 1800 UTC (local time 0001 on 6 August) until 2359 local time on 12 August (1800 UTC on 12 August). Jim was active on all bands including WARC in the SSB, CW and RTTY mode, and worked some 6500 stations despite adverse propagation on some days. He used his trusty Icom 750 Butternut ver-

tical, plus a linear and other bits and pieces. Not to be outdone, Rudi DK7PE flew in from Angola, where he was active as D2CW, and was promptly on the air as S21ZC. He was active mainly on CW, and took part in the WAE contest. He left Bangladesh after a few days of operation. Eric WZ6C was in the USA on vacation, has not been heard yet. Rumour has it that he was issued the call sign S21AB.

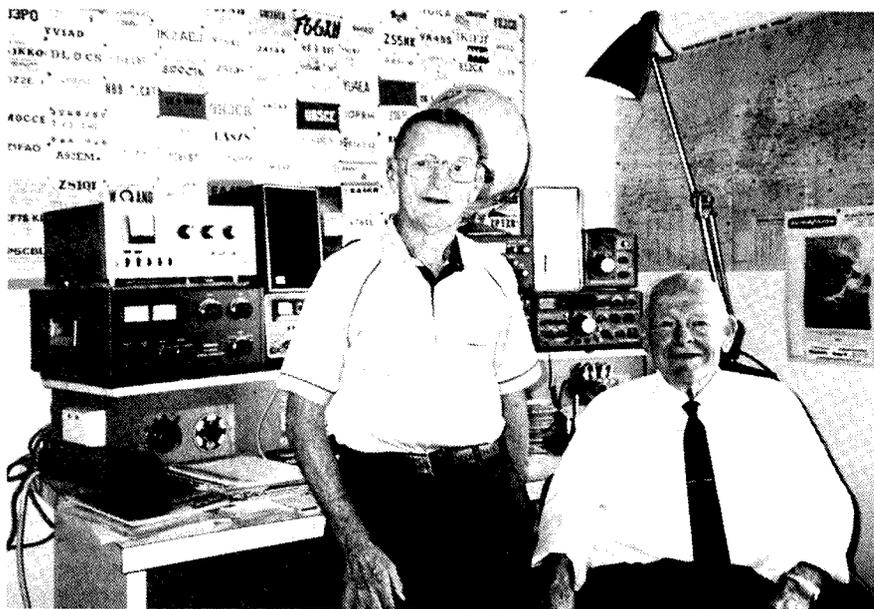
## Seanet 1992

As announced briefly earlier, the SEANET Convention will be held from 29 October to 1 November in the Beauford Hotel, Darwin. A full program has been arranged, including lectures, sessions and entertainment. If you plan to attend send your application urgently to: The SEANET Committee, Darwin ARC, PO Box 37317, Winnelie NT 0821, or phone Gary Woods, (B): (89) 84 3277 or (H): (89) 83 1620.

## Canton Island — T31

Canton Island is a small coral island in the Pacific Ocean belonging since 1979 to the independent state of Kiribati. It is part of the Phoenix Island group and, in amateur radio circles, is known as Central Kiribati.

The island lies at 2 degrees 50 minutes south and 171 degrees 43 minutes west, and it is of a typical circular atoll formation. The island was discovered by whaling ships around 1820, and when its potential for aviation use was realised in 1937, both the USA and Great Britain established settlements on the — until then uninhabited — island. The two powers controlled this and the nearby Enderbury Island by a joint agreement as from 1939. A weather station was established by the United States in 1938, and later a major airstrip and seaplane base was built during World War II. In those days the island had a hospital, two power stations, numerous buildings for utilities, and dozens of houses. The population in 1950 was 272. The base at that time was used by various commercial airlines flying between America, Australia and New Zealand. Progress caught up with the island, however, both politically and physically. In 1979, the island group became part of a sovereign nation called Kiribati. Modern jet aeroplanes bypassed Canton Island, the population dwindled, the established buildings and facilities have fallen into disrepair. At present only about eight families live on Canton Island, comprising about 40 people, which includes three policemen, and one of them is also the fire officer. However, all is not lost. According to an agreement recently signed between the government of Kiribati and Air Nauru, there will be an airlink between Tarawa (T30), Canton Island (T31) and Christmas



**"On the left is Jack VK2CX, with Chris VK2PZ, long time Dxers, and between them they have logged 103 years of Amateur Radio — not a bad effort!"**

Island (T32), which will facilitate closer contacts between the various island groups. There are plans to reopen the disused airbase which can carry aeroplanes as big as a Boeing 747.

Two Australian amateurs, Warwick VK4AP and Ken VK4WKB, dropped into this peaceful scenery on 22 August and began operations immediately, late at night (local time) with the aid of a hurricane lamp. They used the call signs T31AP and T31KW. They left the island three days later, on 25 August, and on 30 August were already on the air as 3D2AP and 3D2KW on Fiji. According to unconfirmed reports, they liked the short operation so much that they intend to return to Canton Island later during the year. QSL cards should go to their home call.

### Heard Island — VKO

The planned DXpedition by Jim VK9NS is now in a better shape than ever. Various DX organisations in the USA, Japan and in the United Kingdom promised good financial support. Liaison with the Australian Antarctic Division in Hobart has been maintained, various query points were clarified and an official formal application for permission to land, and for the use of existing facilities was lodged with the authorities. If you have not yet worked Heard Island, and you need it for your DXCC, a small donation from you will help towards achieving this goal. Please forward your donation to HIDXA, Heard Island Expedition, PO Box 90, Norfolk Island 2899, Australia.

### Future DX Activity

- Jacques FD1PJQ will be in Addis Ababa for the next three years. He will be active on 20, 15 and 10 metres as ET3JR. At the moment he operates with verbal permission only, but hopes to get written permission soon. QSL to FD10YK.
- Sigi DJ4IJ will be active from Benin as TY1IJ, probably at the end of December.
- John WA4WKY is with the American Embassy in Mozambique and will operate as C9RJJ. QSL will go to W8GIO.
- FR5AI/G expects to be on air for a month or so in October.
- HL900 will be on the air for the next 12 months. QSL to the home call N6PIC.
- SP0TPM will be the call sign of SP6TPM from 1 September to 31 December, to celebrate the 35th anniversary of the Policy Amateur Union, PZK.
- Detlef OE3DKS is the new operator activating XT2DK in Burkina Faso.
- Trinidad PY0TUP will be active until 15 October. QSL goes to PT7BI (SSB) and to PYIRO (CW).

### Interesting QSOs and QSL Information

Note: call sign, name, frequency, mode, UTC, month.

- XU8CW-14 MHz-CW-2348-July. QSL to FDIGTR.
- VP9MV-Luigi-14 MHz-CW-0556-July. QSL to Bureau.
- CO2MA-Ed-21 MHz-SSB. QSL to JHIGIO.
- 5Z4BI-Bill-14195-SSB-August. QSL to W4FRU John Parrott, PO Box 5127, Suffolk, VA 23435, USA.

- EA9KB-14225-SSB-0645-August. QSL to Callbook address.
- ZK1JR-Joe-1422-SSB-0627-August. QSL to AA5WY Joseph A Rodgers, PO Box 752910, Dallas, Texas 75275, USA.
- ZA1BM-Bujar-14192-SSB-0502-August. QSL to PO Box 5, Elbasan, Albania.
- AM92EM - Rafael - 14210 - SSB - 0723 - August. QSL Bureau.
- 9H4CM - Charlie - 14205 - SSB - 0449 - August. QSL via Bureau.
- T31AP - Warwick - 14222 - SSB - 0449 - August. QSL to VK4AP.
- GJ4HSW - Frank - 14204 - 0622 - August. QSL via Bureau.
- ZF2SQ-Blaine-14226-SSB-0606-August. QSL to WA0JTB Blaine A Malmedal, 121 W Logan, Serling, CO 80751, USA.

### From Here and There and Everywhere

- The SO prefix is issued to foreign radio amateurs operating from Poland.
- Donald J Shearer W0JRN advises that he is QSL manager for the following stations: ZK2AP, 4S7OL, VP2VGS, HI3RST/KP5 and WP4ATF/KP5.
- FG4FR receives his QSL cards via FG5BGN or via QSL Bureau.
- Sid VK2DID passes on some information he received from G4AYO about the VP8 situation. VP8CBA arrived on South Georgia on 5 April after a stormy ride from South Sandwich. He was active from South Georgia from 6 April 1330 UTC until 1100 UTC on 8 April. During that time he made 5000 CW contacts. Before his South Georgia activity he was part of the VP8SSI team which arrived there on 20 March. The South Sandwich activity started as 2340 UTC on 21 March, and the team left on 3 April, after 39,000 QSOs, which were mainly in the CW mode. G4AYO further advises that, contrary to the information contained in the "Callbook", there is no QSL Bureau on the Falklands. Box 260 is for the use of MPA members (civil contractors working at Mount Pleasant Base) only, and cards may be addressed to MPA/xxx where the xxx the three letters of the call sign. Two-letter suffixes are not members of the MPA, and it is suggested they should be addressed as VP8xx, c/- Postmaster Port Stanley, Falkland Islands, or addressed to the QSL manager, if such is given.
- If you need a card from VK0ML (who lives now in Tasmania) write directly to M Loveridge, c/- PO Kingston, Tasmania, Australia.

- Romeo 3W3RR, Victor UH8EA and Roman UBIKA had a brief activity in Iran as 9D0RR, most of it in the CW mode. QSL to NT2X Ed Kritsky, c/- PO Box 766, Brooklyn NY 11230, USA.
- 9X5HG is active again, mainly on CW. He was on vacation in the USA.
- Bing VK2BCH — of Rotuma fame — was in hospital lately, and is recuperating. We wish him a speedy recovery to regain his full strength for a future DX activity.
- The address for the Croatian QSL Bureau is HRS-QSL Bureau, PO Box 564, 4100 Zagreb, Croatia. Cards with the following prefixes will be handled: YU2, YT2, YZ2, 4N2 and 9A.
- The DX Bulletin, edited by Chod VP2ML in Fulton CA, celebrated its 13th birthday on 14 August. Congratulations!
- The Zimbabwe Amateur Radio Society sponsors the Beacon Z21ANB, which you might hear on 28250 KHz.

- The proposed Japanese activity from Lord Howe Island VK9L has been postponed, until possibly February 1993.
- The ZS3 callsign is not Namibia any more. It is a new call area being part of the Cape of Good Hope Province, north of the Orange River.
- Amateur radio is banned in Uganda 5X.
- The Hervey Bay Amateur Radio Club (Qld) made 20,000 contacts with 127 different countries during the past 12 months, operating with the special calls VI4HBW, VI4SZF Fraser Island, and this year as VI4FOW. They now have well-appointed clubrooms. The local council and the regional tourists boards are very supportive of the club activities. Members of the club were also the instigators for the establishment of the local community FM broadcast station.

### QSLs Received

Note: W=week; M=month; Y=year;  
FM=from; MGR=manager/call;  
OP=operator/call.

### Direct QSLs Received

BY5HZ(30 M FM OP), T32LN (4M FM MGR VK4CRR), T30RT (4 M FM MGR) HL9HH (2Y FM OP), C21BR (4M FM OP).

### Bureau Cards Received

YJ0ABF (2Y FM OP DF5WA), 9VIYS (5M FM OP), P4/WB3EFQ (8M FM OP) C31SD (4Y FM MGR CT1AMK), KB6CC/V63 (10M FM OP KB6CC), JW6WDA (3 Y FM MGR LA5NM), V63ST (12M FM OP), VP9WS (1Y FM MGR) HP6AYU (12M FM OP).

### Thank You

Many thanks to all those who sent in news, reports and snippets of information. An especially big thank you to: VK2BEX, VK2DID, VK4AP, VK4OD, VK4OH, VK6APK, VK6LA, VK7JC, VK9NS, OY7ML, W0JRN, and the following publications: QRZ DX, the DX Bulletin and the DX News Sheet.

*Good DX and 73.*  
ar

## VHF/UHF An Expanding World

*Eric Jamieson VK5LP PO Box 169 Meningie South Australia 5264*

*All times are UTC*

### Six metres

This band continues to remain very quiet, particularly from the F2 propagation viewpoint. Evidence of this is the absence of operators letters and the phone rarely rings.

However, by the time you read this we may be in a short period of equinoxial activity, failing that then November should see an increase in Es activity as the summer period approaches. If we are in fact really down at a low point following Cycle 22, then we can expect increased Australia wide coverage via Es and if the short skip prevails at any time then we should be trying two metres, in fact, operators would be wise to monitor 144.100 during all periods of intense Es.

The northern hemisphere has been enjoying vast quantities of Es during their summer and if the same pattern is repeated in the southern hemisphere summer then we should be in for some good times. Call on 50.125 to initiate contacts.

### From the log of GJ4ICD

1/7: 9H. 3/7: 7Q7, ZA1A, 9K2ZR. 5/6: OH, SM, LA, OY6A, UX1A (new country — 133), UA2, YU, I, DL, OE, 4X4, 9A3.

6/7: OE, DL, CT1, ES5, UX1A, OX. 7/7: UX1A, IK0, CN8. 10/7: EH5CJ (new country — 134), 7Q7, UA2. 12/7: EA6, ZS6WB, 7Q7. 15/7: IK0, CU1. 16/7: EH3, TA2/OZ1DOQ, YU, F. 17/7: I2A, 9H, TA5ZA, YO, YU, 4X1, TA6, 7Q7. 18/7: ES5, EH9, EH6 and these three are new countries for a tally now of 137 worked! 4X1, YL/ES9C. 19/7: I, YU, 9H, EA9. 20/7: EA8, CN8, EH9, EA, LA, SM, OH, 4X4, 5B4, YU, I, IT9, 9H, OK, DL. 21/7: G3KOX worked W1, W2 late at night. 22/7:

G3NSM worked W, G0JHC worked SP. A great Es month.

On 10/7 Spanish stations were granted 50 MHz privileges with 80 stations receiving permits and they will be operating using the prefix EH. This makes 150 legal countries that have been worked from the British Isles on 50 MHz and is the highest score in the world so far, however, no one operator has worked them all.

Scattered amongst Geoff's report are mentioned some very good contacts on 144,



**The GJ4ICD monitoring station — see text for details.**

432 and 1296 MHz. He also said that GJ7LJJ had sent him a copy of his 50 MHz dx log, using an indoor dipole — it reads like an HF log with most of Europe listed. Who needs high power?....VK5LP.

The photograph shows the monitoring station of Geoff GJ4ICD who adds that it is above my TV shop and tells me what is going on when I'm at work, then it takes me six minutes to get to my elevated site on the north coast of Jersey, three minutes if the band opens to VK and one minute for ZL! Some monitoring station....VK5LP

### The G4UPS report

This report from Ted Collins G4UPS again illustrates the variations of the 50 MHz band between his location at Devon and that of Geoff GJ4ICD on Jersey Island. Its worth taking a few minutes to make some comparisons and to again observe just how much is available to be worked on a daily basis in the UK/Europe area.

Stations heard or worked — 2/7: 4N3/b, TA5, YO2, 12, 5B4, ZC4, OK2. 3/7: 4N3/b, ZA, 4X7, 9H5, OY3, 9K2, YU7, CT1, ZB0, CT0. 4/7: OY3, EA1, 9H1, ZA, CT0, ES6, 5B4, 4X1, 1, OZ, LZ1. 5/7: SM, YU, UA2, ES1, OH, KP3, KP2, OH, LA, UX1, 4N3/b, HB9, 9A3, DL, OE, 2E0. 6/7: IC8, 9H5, EA3/b, 5B4/b, CT0, ZC4, TA5, 4U1TU, 9A1, ES1, OH1/b, UX1, SM, OZ, OH, LA. 7/7: UX1, KP4, LY2, UA2, OH, ES5, SM, CN8. 8/7: ZA, IK0, 4N3/b, 9K2, YO7, F6, ES5, UX1.

9/7: OH1/b, SM3, 4N3/b, UA2, SZ2/b, Y2, 9A1, OE5, OK2, ES5. 10/7: 9H5, IS0, IK8, ZB0T, CT1. 11/7: EH6, GB6/b, CT1, 9H1, IM0, 9H5, 7Q7, OE6, YU1, 4N3/b. 12/7: YU3, ZB0T, ZS6WB, EH3, 7Q7. 15/7: EA3/b, CT1, ZB0T, F6. 16/7: DL2, LZ1, EH3, YU1, OK1, OZ7, SM, CT1, ZB0T, IS0. 17/7: 12, F, YT3, LZ1, IS0. 18/7: YL/ES9C, OH1, 12, 9H5, CT0, ZB0T. 19/7: 10, 9H5, ZB0T, CT1, EA8, CN8. 20/7: ES5, OK2, OZ, SM, LA, OH, DL, OK, SO5, OZ7, 4N3/b, TA5, IN3, YT3.

### 50 MHz QSL managers

Courtesy the UK Six Metre Group via Ted Collins G4UPS, comes a QSL manager listing covering more than 500 operators. This list is published once a year by Harry Schools K3AB, 1606 South Newkirk St, Philadelphia, Pennsylvania, 19145 USA and can be obtained from him for \$1 in US funds. Harry says it is accurate as he can make it.

If you have been spending long hours trying to find a QSL route, maybe it is on this list. A stamped self addressed envelope to VK5LP may elicit the information you need or I can advise you if it is not on the list. I would like to publish the list but it is far too long — I can hear the editor saying now that it's just as well you didn't ask!

### The VK9/P29 position

In the July issue of AR under the heading ARRL DXCC List I referred to the situation prevailing in regard to when New Guinea changed from VK9 to P29. Some more sleuthing has taken place and I report the following.

I have been in contact with Brian Stevens, VK5BAS, who was the Senior Military Communications Officer for some years, both before and after independence (16/9/75), and he was responsible for the issue of all call signs relating to the country. He said that the P29 call signs for amateurs became valid at midnight on 19/12/73, which in reality would really be 20/12/73 and this was some 21 months before independence. He confirmed this by reference to the log book of his station, P29FV, for his first contact ten minutes after midnight on that date.

So, despite what the ARRL DXCC desk says, P29 call signs were actually being issued prior to independence, after that, the whole country still remained P29. This means that VK9 was in use for the two divisions of the country until midnight on 19/12/73, after which date P29 was also valid for the two divisions. With the joining of the two countries at independence, P29 became the prefix for the whole country.

Therefore, in reality, it is still possible to have QSLs for three countries for that area — nothing has changed from my original statement except the commencing date, which is now as accurate as we can get it. Thus, for instance, those with confirmation of P29GA at Lae during 1974, do have a valid QSL for the Territory of New Guinea and there are probably others, but look very closely at the date and location on the card! For the purposes of my Six Metres Standing List, three confirmations will be possible. Now some operators will be happy, others unhappy, but that is the luck of the game!

### The Microwave Bands

Apropos my recent comments that I received very little information regarding any activity on the bands above 50 MHz, especially the microwave bands and it seemed appropriate that we should be hearing more with the wind down of Cycle 22 and its application to F2 propagation on 50 MHz.

In response, I received a letter from Keith VK6XH from Eden Hill, Western Australia with some information regarding 10 GHz activity in the west. As his letter is not long I repeat some of it here: Eighteen months ago, Barry VK6ZSB, Brian VK6YBR and I got together to get 10 GHz up and running. I had been active in the UK ten years ago where I held GIGHZ as the Merseyside Microwave Group. The end

result is a 30 MHz receiver and transmitter board and a C+K 10 GHz linear mixer available from us for \$40. So far 38 heads and 42 boards have been sold and at least ten people are now on the air. The regulars are the three above and Greg VK6YBI. Greg and I have operational 10 GHz FM ATV and as of last week 24 GHz wideband FM. Wally VK6WG in Albany is still active on all the microwave bands and is now playing around with 10 GHz.

The above news is a start and thanks for sending it Keith. But apart from news from the "aircraft enhancement" boys in VK1,2 and 3, who inevitably, must feel they cannot be constantly going over the same written ground all the time, little else arrives regarding 144, 432 and 1296.

### Fanning the flames

Re 144/432/1296 etc. Has all activity along the Queensland coast ceased? What does the Brisbane gang do between solar cycles? Does anyone from VK2 try to work ZL these days? There used to be some activity southwards towards Perth along the west coast of WA, and north east to Darwin. Is anyone planning to do anything on 144 and 432 MHz from Darwin and Alice Springs — perhaps 144 Es during summer from Alice, or more contacts to Japan, but why not 432? There must surely be occasions when 432 should extend from Alice Springs to Adelaide. The VK5s no doubt will hope for the usual contacts to Albany in October and again at the end of next January, but little is exchanged between VK5 and Melbourne except from Mount Gambier. There are limited contacts between VK3 and VK7.

I do accept that in many cases the high solar activity of Cycle 22 has kept a lot of operators on 50 MHz, both day and night, but with F2 disappearing, now may be the time to look elsewhere. I accept that I am guilty too, but due to my physical impairment I cannot be around early morning on any band and it is often difficult at night too. Others have drifted into Packet, ATV etc. VK5 has initiated activity on 1296, 2304 and 3456 MHz with kits available for assembly, and already there has been an increase in contacts on 1296 and 2304 MHz., but I lack information.

Whenever I start stirring the pot, as above, I inevitably become nostalgic and think back to the AM days of the 1960s when it was a thrill to work into VK3 and VK7 on 144 and 432 MHz. My notebook of the time shows that from my then disadvantaged position at Forreton in the Adelaide Hills, up to 1970 I had worked 106 stations in VK3 on 144 MHz AM but I have not been able to do that on SSB, the stations seem not to be available. And how I used to envy Mick VK5ZDR, who from his

prime seaside location of Henley Beach, could consistently work over the Mount Lofty Ranges to Herb VK3NN at Yanac, on both 144 and 432. It was rare for me to do it! To work Wally VK6WG and Aub VK6XY in Albany through my 60dB hill to the west was an art in itself — they would be SI at Forreston but S9+ in Adelaide! But it was all marvellous stuff and great fun! Sometime, maybe I should write more about it for there is a lot to tell!

So it's all possible and been done before, it only needs some keen operators at both

ends for it to be done again. Maybe the above discourse will fan the flames and we will be hearing about some interesting contacts before long. Generally, I think it is in the hands of the younger operators to start fanning those flames and no doubt their increased activity will stir the older members to join in. But please tell me about it.

#### **New land record on 3456 MHz**

From The World above 50 MHz in August QST, Bill Tynan W3XO/5 reports a new USA land record for 3456 MHz between A1 WB5LUA and Ron W9ZIH for

a distance of 1177 km (736 miles) on 1 May 1992. A1 runs 50 watts to a 1.52 m (5 foot) dish and Ron 10 watts to a 0.91 m (3 foot) dish.

Signals were 339/449. A good effort.

#### **Closure**

Closing with two thoughts for the month: The freedom of any society varies proportionately with the volume of its laughter and Speak when you are angry and you will make the best speech you will ever regret.

73 from *The Voice by the Lake*.  
ar

## **Knutshell Knowledge**

*Graham Thornton VK3IY PO Box 298 World Trade Centre Melbourne 3005*

What follows is a brief overview of what other magazines have to say. If copies of complete articles are required, your Divisional library may be able to help; or perhaps some member of your club has the information.

### **Amplifiers**

#### **HF Linear**

*A Solid State HF Linear Amplifier (2).* Mike Grierson G3TSO, RadCom vol 68 No 2 Feb 1992 pp 30 — 31. il ccts. The output filters, TR switching, ALC and SWR circuits are considered in this part. Setting-up and testing is also discussed, with emphasis on the precautions necessary to avoid parasitic oscillations.

*Ameritron AL-811 MF/HF Linear Amplifier.* (Product Review) Bart J Jahnke KB9NM, QST vol LXXVI No 2 Feb 1992 pp 61 — 62. il graphs and photos. A review is given of this amplifier, which includes laboratory measurements.

#### **VHF/UHF**

*A Five-Component Wideband Amplifier for Your Receiver.* J S "Stu" Gurske K9EYY, 73 issue #377 Feb 1992 pp 12, 49. il diags and photo. A simple pre-amplifier is described which covers a range of 100 to 2000 MHz. Its gain at the lower frequency is 33 dB.

### **Antennas**

#### **Loops**

*A Portable Short Loop Antenna for the 20 Metre Band.* Robert Craighero I1ARZ, RadCom vol 68 No 3 March 1992 pp 66-68. il diags and photos. A loop of 1.62 m diameter is described. The radiating loop, and its small companion used for inductive coupling, are both constructed from RG213 coax.

### **Product Reviews**

*Cushcraft A50-6S 6-Meter Beam.* Mark J Wilson AA2Z, QST vol LXXVI No 2 Feb 1992 pp 62-62. A report, with measurements, is given for this antenna.

*The AL800 High Gain HT Antenna.* David Cassidy NIGPH, 73 issue #377 Feb 1992 p 20. il photo. A 2 m and 70 cm dual band extendable handheld antenna is reviewed. Considerable improvement is claimed over a rubber ducky. The antenna is manufactured by ANLI International Corp, 15333 E Valley Blvd, Unit C, City of Industry CA 91746. Price is about US\$40.

*VBI-360 Beam Indicator.* Dick Goodman WA3USG, 73 issue #377 Feb 1992 p 15. il photo. A review is given of a commercial azimuthal display of beam heading, provided by illumination of LEDs around the periphery of a map. The home QTH is at the map's centre. The display unit is available from Vector Control Systems, 1655 North Mountain, Suite 104 — 45, Upland CA 91786.

#### **Quads**

*PVC Cubical Quad for 10 Meters.* Wayne Mishler KG5BI, 73 issue #377 Feb 1992 pp 38, 40, 42 — 43. il diag and photos. A cubical quad is described, constructed from PVC pipe and dowels. With a series feed capacitor and a reflector tuning stub, the bandwidth is 600 kHz between 2:1 SWR points.

#### **VHF/UHF**

*The Copper Cactus J-Pole.* John Post KE7AX, 73 issue #377 Feb 1992 pp 9,10, 27. il diags and photos. Half inch copper pipe is used to construct a dual band J-pole antenna which works as a half wave dipole on 2 m, and three half waves on 70 cm. A double J-pole is also described.

### **Computers**

#### **Accessories**

*10-Channel RS232 Device Selector.* Ranjit Singh, EA vol 54 No 2 Feb 1992 p 50. il cct. A single PC can successively control ten different devices, via its RS232 output.

*LED Display Board.* Anthony Nixon, EA vol 54 No 2 Feb 1992 p 51. il cct. An LED "billboard" is controlled by a PC.

#### **Hardware**

*The ROMloader, an EPROM Emulator* — 2. Peter Baxter, EA vol 54 No 2 Feb 1992 pp 68-70, 98. il diag and photo. This part deals with the setting-up and practical application of the device described in part 1.

*Using Your PC to Control Radio Gear* — 3. Tom Moffat VK7TM, EA vol 54 No 2 Feb 1992 pp 58-64. il cct, cmp and photos. An interface is described which converts RS232 output to the TTL levels required by both Icom and Yaesu transceivers. Software to control these transceivers is available from High-Tech Tasmania, 39 Pilling Drive, Fern Tree Tas 7054 Australia.

#### **Software**

*"Easy-PC" for both PCBs and Schematics.* (Product Review) Rob Evans, EA vol 54 No 2 Feb 1992 pp 116-119. A review is given for this CAD program for use on IBM machines. It is available for Aust \$275 from Breakthrough Computers, PO Box 432, Garbutt, Townsville Qld 4814 Australia.

### **Electronic Devices**

#### **Keyer**

*IROESK — an Infrared Optoelectronic Straight Key.* L B Cepik W4RNL, QST vol LXXVI No 2 Feb 1992 pp 30-34. il ccts, diag and photos. A finger breaking an infra-red beam causes transmitter keying. Sidetone is also provided.

## Miscellaneous

*Light Switch.* Peter Murtagh, EA vol 54 No 2 Feb 1992 pp 80-82. il cct, cmp, diag, pcb and photo. A circuit is given for a light sensitive relay, using an LDR. A sensitivity adjustment is provided.

## Narrow Band Modes

### AMTOR

*AMC — The AMTOR Controller.* Armin Bingemer DK5FH, translated by Don Moe KE6MN/DJ0HC, QEX #120 Feb 1992 pp 3-11. il ccts, cmp, pcbs and photo. A controller for AMTOR, which functions in a similar manner to a TNC for Packet, is described. The hardware contains an input filter, de-modulator, AFSK, RS-232 interface and a processor. A 16 LED display acts as a tuning indicator. The software is not described, but is promised in a forthcoming article.

## Propagation

*Plotting of Magnetic Deviation and Aurora (1).* D J Smillie GM4DJS, RadCom vol 68 No 2 Feb 1992 pp 51-53. il cct, diag, graphs and photos. A "jamjar" magnetometer is described, which, when used in conjunction with an indicator circuit, displays magnetic variation in the horizontal plane. The readings are used to predict auroral propagation.

*Plotting of Magnetic Deviation and Aurora (2).* D J Smillie GM4DJS, RadCom vol 68 No 3 March 1992 pp 31-33. il graphs, map and photo. The practical applications of the equipment described in part one are discussed.

## Power Supplies

### Batteries

*Getting the Most Out of Nickel-Cadmium Batteries.* Ken Stuart W3VVN, QST vol LXXVI No 2 Feb 1992 pp 40-45. il diag and photos. A general dissertation is given on the technology of NiCad batteries, and how to ensure long battery life.

### Battery Chargers

*Solar Charger.* Peter Phillips, EA vol 54 No 2 Feb 1992 pp 72-75. il cct, cmp, graphs, pcb and photos. A DC-DC converter is described which allows a 6 V solar panel to charge a 12 V battery. Up to one watt power can be delivered by the panel under optimum conditions.

### Inverters

*Powerhouse 1200: Twice The Power — 1.* Peter Harris, EA vol 54 No 2 Feb 1992 pp 52-57, 91. il ccts, graphs and photos. A design is presented for a 240 V inverter, which operates from 12 or 24 V DC. A continuous rating of 1200 watt, with a surge rating of twice this value, is claimed. 28 TMOS FETs control the switching at high efficiency. A crystal oscillator holds the frequency

at 50 Hz. The output waveform is not sinusoidal, but approximates a square wave. Output voltage regulation is provided. Special circuitry protects the transformer from inductive transient voltages. Available battery capacity would appear to be the limiting factor in the application of this device. It can be activated by load switching; very little current is drawn in the absence of a load.

## Receivers

### Product Review

*Drake R8E.* Peter Hart G3SJJ, RadCom vol 68 No 2 Feb 1992 pp 33-35. il graph and photos. A review, with measurements, is given for this receiver.

### Satellites

*VFO Tracking for Less than Two Pounds.* Dave Camac G1100, RadCom vol 68 No 3 March 1992 p 30. il cct. A tracking system is described which allows both a VHF and UHF transceiver to compensate for Doppler shift, using one set of controls.

## Technology

### Microwave

*Getting Started on the Microwave Bands.* Rick Campbell KK7B, QST vol LXXVI No 2 Feb 1992 pp 35-39. il ccts and photos. An introduction is given to the techniques used for microwave communication. A design is given for a 5760 MHz transverter for use with a 2 m transceiver.

### Miscellaneous

*A Radio-Control Primer.* George A Wilson Jr W10LP, QST vol LXXVI No 2 Feb 1992 pp 18-22. il cct, and photos. A broad overview is given of modern techniques to control model "planes, boats and cars?"

## Test Equipment

### Signal Generator

*An NE-602 RF Signal Generator.* Julian Kerr, 73 issue 377 Feb 1992 pp 22, 24-26. il ccts, cmp, graphs and pcb. A signal generator is described in detail, which uses crystal control and can be modulated. A general discussion is also given about the NE-602 and its application to other oscillator circuits.

## Transceivers

### Product Reviews

*QST Compares: The Radio Shack HTX-100 and Ranger Communications RCI-2950 10-Meter Mobile Transceivers.* Bruce S Hale KB1MW and Rus Healy NJ2L, QST vol LXXVI No 2 Feb 1992 pp 63-67. il photos and graphs. A side-by-side comparison is made of these two transceivers with laboratory measurements.

*The Radio Shack HTX-202 2 Meter FM Transceiver.* Gordon West WB6NOA, 73 issue #377 Feb 1992 pp 28, 30, 32-33, 44. il photos. A review, with measurements, is given for this "Realistic" handheld transceiver.

### Glossary of Abbreviations

il The article contains illustrations, a list of which follows.

cct A circuit diagram

cmp A component layout drawing

EA Electronics Australia

diag A mechanical drawing

pcb A master drawing from which printed

circuits may be produced

QSTVE QST Canada

RadCom Radio Communication

73 73 Amateur Radio Today

The above items are reproduced from Amateur Radio Technical Abstracts Volume II 1992 ISSN 1036-3025 — to be published.

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**Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.**

# Repeater Link

Will Mc Ghie VK6UU @ VK6BBS 21 Waterloo Cr Lesmurdie WA 6076

## Repeater Antenna

The RF performance of your repeater is dependent on how well the antenna works. Repeater antennas have to be first class in all respects. Poor SWR not only indicates low overall performance, but how well the duplexer can provide that all important isolation between receiver and transmitter. The cavity duplexer has the job of providing up to 100 dB of isolation between the receiver port and the transmitter port, with as little loss between the receiver and antenna, and transmitter and antenna, as possible. If your repeater antenna is not working well, the duplexer will not be seeing 50 ohms. This can result in not only poor duplexer performance, but confusion with the correct setting up of the duplexer.

If you find that the repeater duplexer gives different results with different lengths of cable between receiver and duplexer, and transmitter and duplexer, then this is an indication that there is an impedance mismatch some where. Even changing the length of aerial cable can change the desense characteristics and losses in your repeater set-up.

There is a further important requirement for the repeater antenna, and that is perfect electrical connections within the antenna construction. Any poor connections show up as intermittent desensing. Weaker signals are characterised with a crackle scratchy sound. This effect is worst in windy conditions. As the antenna moves in the wind any intermittent connection produces this crackle type of noise.

The reason why poor metal to metal connection is a problem with repeater antennas, and not general Amateur type use, is because of the transmitter and receiver sharing the antenna at the same time. The transmitter power applied to the antenna will produce wide band noise at any poor metal to metal connection. This noise is then applied to the repeater receiver and hence the crackle.

Having tried many different types of repeater antennas, one in particular stands out as being the worst for this type of noise. The all Aluminium Ringo Ranger of a few years ago, gave no end of trouble when used as a repeater antenna. There were several metal to metal joints that were crimped together with hose clamps. After a period of use intermittent desensing would show up. Cleaning and the addition of Alminox

would solve the problem for a time, but the problem would always come back. The only solution was to aluminium weld all the joints together. Not always a simple solution. Eventually this antenna was removed from the list of suitable repeater antennas.

One simple home built antenna that has stood the test of time is a variation of the dipole. I first saw this antenna described in 73 magazine many years ago, and it has appeared in several publications over the years under various names. I call it a coax dipole. If you know its correct name and a description on how it works let me know so I can pass the info on.

The advantages this antenna has are many. All coax cable construction, all solder connections, easy to water proof, little or no tuning, and best of all, "always works". Note the quotation marks. The more years you spend in electronics the less sure you become of everything.

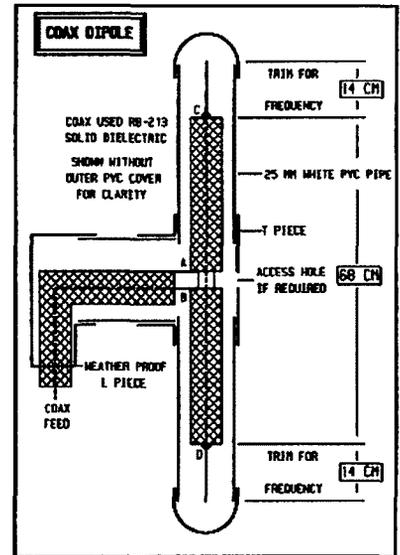
By placing the whole antenna inside white plastic water pipe, a perfect weather proofing can be achieved. The PVC pipe must be white, as other colours such as grey and orange are poor at RF.

The antenna performs as a dipole and has 0 dB gain. Varying spacing from the supporting tower modifies the radiation pattern, and tuning slightly. The closer the antenna is to the tower the lower the resonant frequency becomes. To compensate for this, shorten the length of the ends. The coax length remains unchanged. Any distance out from the tower from one eighth of a wave length, to three eighths of a wave length, will produce a cardioid pattern. At a half a wavelength spacing, a figure eight pattern results, with a null in the direction that the antenna is pointing.

Soldering the feed coax to the coax dipole can be tricky. As the antenna is inside the T piece there are a couple of solutions. With 25 mm plastic fittings it is possible to squeeze the solder iron into one of the openings and solder the feeder to the antenna. If not then it is necessary to drill a 10 cm hole in the T piece to allow access. After soldering, seal up the hole with silicone sealant. I hope the drawing makes all this clear.

The drawing is not to scale and exaggerated for clarity. Points A, B, C, and D are solder points. A and B are the solder connections for the feeder coax to the antenna. About 1 cm of coax braid is removed at the centre of the antenna, and the feed-

er coax soldered to points A and B. C and D are where the inner and outer of the coax part of the antenna are soldered together. The cross-hatch represents the coax braid. The outer PVC covering of the coax is not shown for clarity in the drawing, it is only removed where needed for the solder connections. The centre conductor is continuous in the antenna, as is the dielectric.



I hope that the diagram and description are sufficient for anyone wanting to construct the antenna. Trying to draw and describe any technical item is not easy. If you are like me I have trouble easily understanding these types of articles.

The antenna represents a DC short to the feeder coax. The SWR should be better than 1.3. Changing the spacing from the tower affects the SWR. With optimum spacing for the particular antenna, and or trimming the ends, an SWR of 1 to 1 is possible. RG 8 or RG 213 are easier to work with than the smaller RG 58 coax. Once the plastic pipe is fitted together it can be glued using the weld type blue glue that is made for it. Once glued it is impossible to pull apart, except with a hacksaw. The bottom of the L piece where the feeder coax enters, is best left open. Once completed the weather proofing is excellent.

This antenna can also be scaled down to work on 70 cm. Just divide all dimensions by 3. In a later article in Repeater Link, will be a description on what the effect tower to antenna spacing has on the radiation

characteristics. By choosing the correct spacing for your repeater location, improved coverage can result.

### Still True

Now that the dust has settled on the new draft repeater regulations, there is time to collect your thoughts and start planning your new repeater network. At the time of writing, there has been no changes to my understanding of the liberal new regulations. All sorts of rumours fly around, particularly on packet, but to me the new regulations are a repeater builder's dream.

One interesting comment I saw on packet was "Where are all the comments on the new regulations". Could be that there was little to comment on. The new regulations are just what the repeater scene has wanted all along.

When the new regulations become official, what requirements have to be met, when putting a new repeater or link into service? My understanding is there are only two. Firstly, receive approval from your local WIA Technical Advisory Committee, so that the frequency and location you have chosen do not clash with other Amateur systems, and secondly, directly or through the WIA, inform DoTC of the transmitter frequency and location. My understanding may be incorrect but in its simplest form I believe that these are the only two requirements.

### Club Business

How does your club run its administrative business? In VK6, The West Australian Repeater Group (WARG), do most of their administration via packet radio. Club minutes are posted on the local BBS for all on packet to read. The treasurer is kept informed of expenditure and notified business is sent to the secretary. There are so many ways that packet has made the running of the club easy.

For those doing the repeater development, circuits fly back and forth for use or modification. One interesting use I put packet radio to recently, was to find out the latest on a voice repeater under construction in a town ESE of Perth at Esperance.

This town is some 600 km from Perth, on the Great Australian Bight. There had been no news of this repeater for a couple of years. To find out if the repeater was on air, I consulted the latest listing of Amateurs on packet radio, and to where their packet mail is directed. I came up with 2 Amateurs on packet in Esperance and their home BBS as VK6SR. A request to both Amateurs was sent for information on the voice repeater. A couple of days later I received a message from a Sysop telling me that VK6SR BBS no longer had a HF port.

The only access that Esperance Amateurs have to the outside world on packet radio is via HF. The new home BBS for Esperance Amateurs is all the way over in Tasmania, at VK7EKA ! The request for information was redirected by the Sysop, and a couple of days later I received a comprehensive run-down of the current state of the Esperance voice repeater, all thanks to packet radio. By the way the repeater on 6750 is still not on air, but one day it will be, and chances are packet radio will let me know.

### New Zealand

With all this deregulation heading our way, just what will the repeater scene be like in a few years? New Zealand has a deregulated Amateur service, so when I heard a local Amateur relating his recent experiences with repeaters in New Zealand, I asked him to write a short article on his impressions of using ZL repeaters. Thanks Jeff VK6JKR for the following.

On a recent holiday in New Zealand, I was able to experience their repeaters firsthand. Linking of repeaters is used on both 2 metres and 70 cm to overcome difficult terrain. I operated through several links and was not aware of it until I was told.

Considering some of them were linked through numerous repeaters (especially the 70 cm "National Link"), there was no appreciable loss in audio quality. The repeater network was user friendly and just like using a non linked repeater, except for an extended tail.

It is certainly a credit to the NZART branches and Amateurs who maintain them. New Zealand Amateur repeaters do not require identification, however I did notice some used a CW idnet.

My first experience with Autopatch (Phone patch) was met with enthusiasm. The audio quality again showed no appreciable loss considering a phone line was used. In Auckland the autopatch is linked to one of the repeaters on 2 metres.

The repeater had a dual use as a standard repeater and autopatch, thus eliminating the need for a separate repeater for autopatch alone. Again it was user friendly with operating procedure as simple as stating your call. Most of the calls were to non Amateur spouse advising them of location and ETA. I found it a superb way of keeping in touch and provided added security for the spouse if the Ham was late home.

Some repeaters incorporated a synthesised voice which indicated your access signal strength into the repeater by way of DTMF coding. It is an excellent way of checking antenna performance.

Anyone who knocks these ideas should visit New Zealand and experience the superb technology being used by Amateurs

now. I know I came away thinking, why haven't we got this in Perth?

Thanks Jeff for the comments on the New Zealand repeater scene.

Australia is behind not due to lack of technology or know-how, but because of regulation that has prevented the use of much of this technology. With these restrictions now about to be lifted, big changes will start to take place.

*(Editor's Note: The new regulations have not been declared as yet. An announcement is expected soon — VK3ABP)*

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## IARUMS

Gordon Loveday VK4AL  
Aviemore Rubyvale QLD 4702

Most Divisions have State Co-ordinators, VK3 being the exception. VK5 have a new Co-ordinator, John VK5ZRH, who is shaping well into the system. Observers in that state should forward their logs to him, this will help him keep in touch.

Could VK2s new co-ordinator kindly contact me, as we appear to have lost communication. I hope he received the mail I sent him via VK2 Division.

Intrusions into the amateur frequencies are on the increase again as we move into summer. Most prevalent are those on the following frequencies, 14.010 MHz, non-amateur mobiles in Indonesia, also to be found on 14.109 and 14.024 to 14.026 the ID in this case. MANADO, 79 loggings of this one alone in July. All are listed as J3E LSB. They appear to "peter out" around 14.343 MHz. Please keep a watch on these frequencies.

The VIET station VRQ normally heard on 14.073 to 14.076 is now also to be found on or about 14.283 to 14.290 MHz. Operators can successfully move this pest out of our bands by sitting on top of him, but make sure you do this with extreme accuracy, otherwise he will ignore you, CW of course. Karl VK6XW finds it pleasing to escort him out of the band.

Remember for monitoring service you only require your own two ears, and a receiver of normal sensitivity. Be satisfied with the gear on hand as we need all types of information. Listen while hunting that rare DX station. Send your reports to your state co-ordinator, except VK3 (we will accept ANY sort of paper) please send direct to me, FREEPOST No 4 A G Loveday Rubyvale Qld 4702, or VK4Kal @ VK4UN-1.

73, Gordon, Federal MS Co-Ordinator.

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## Over to you — Members Opinions

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

### Amateur Radio Astronomy

Wanted: People with an interest in this fascinating and challenging application of radio receiver, antenna and computer processing technologies to form a group for the purpose of sharing ideas and techniques and for presenting a group approach to use facilities not normally available to individuals.

Please contact Bruce Carroll VK2DEQ, PO Box 128, Orange 2800. Fax (063) 62 7950.

### Restoration Help Required

I restore ex-Armed Services vintage communications equipment, and now have in my possession an Australian Army Radio Set No 208 made by Radio Corporation Pty Ltd of Melbourne. I would like to know if any of your members could help me with any information on this radio to help with restoration.

Dennis Seymour ZL1UET  
PO Box 88061  
Manurewa West  
New Zealand

### Pager Interference

I was interested to read the contribution in AR September 1992 from Andrew Davis VK1DO regarding pager interference and some possible cures.

Some time ago a few customers here started complaining about interference to their packet operation from paging transmitters. Fortunately, Lex Patterson of Jenlex in Mulgrave offered to design and construct some cavity filters at very reasonable prices. I have had the opportunity to try several of Lex's cavities and found them to be very well built, of high performance and extremely reasonable cost compared to other commercial products.

It wasn't long, however, before Lex realised that even these reasonable prices would be too much for most amateurs to come to terms with. So he experimented with a range of helical resonator filters which I also had the opportunity to spend some time trying and experimenting with. My own measurements confirmed the claims made for the Jenlex filters.

A few practical examples might not go

astray. Chris Edmondson VK3CE/VK3YID now uses a Jenlex helical filter with the Kenwood TM-741A in his car. Chris spends a lot of time in the Melbourne CBD and, like most of us, finds two metres virtually useless. Well, not any more! He now proudly boasts that he can comfortably work two metres all around town.

Personally I am fortunate enough to avoid the city and most other areas of high RF levels. But I do drive through an area in Mt Waverley near some community base sites, and also Doncaster Shoppingtown, which is a bit of a radio nightmare. Using a home-made helical resonator filter similar to the Jenlex HNF2 with a recently departed IC-2400A, or my new IC-2410H I can now operate in both those areas with no pager or other intermodulation or overload effects.

Cavity filters are excellent for base station applications, but only where the level of interference you experience cannot be coped with by the simpler, less expensive and much more compact helical resonators. Any two-metre installation that suffers from overload or intermodulation interference can benefit from one of the nifty little filters that Lex produces. I can certainly say that many of my customers are more than happy with the solutions he has provided to their problem, especially when he isn't an amateur himself!

John Day VK3ZJF  
c/- Stewart Electronic Components  
PO Box 281  
Oakleigh 3166

### A Touch of the Past

At a recent meeting in Perth it was agreed to form "The Beaufighter Association of Western Australia".

The main function of the association is to bring together, for social, nostalgic and similar purposes, those connected with that remarkable aircraft, either as flying or ground personnel. The aircraft was crewed by pilot and observer — the latter also known as Navigator/Wireless Operator — being trained to Morse speeds of some 20/22 wpm, using radio equipment usual of Type 1154/1155.

The purpose of this letter is to enquire whether any current amateurs were involved

with Beaufighter, and who may be interested in the activities of the association.

The prime mover in forming the association is Mr Keith Nicholson, who served as a pilot with 30 Squadron RAAF, and contact can be made with him at (09) 384 4627, or with me at the address below.

Sam Wright VK6YN  
19 John Street  
Gooseberry Hill WA 6076  
Ex-254 Squadron RAF

### ARIA

I have read the letters on this subject, and stayed out of it, believing the WIA had better things to do than consider a name change.

However, a recent experience has changed my mind. If a newcomer wanted to find out something amateur radio, where would they look in the telephone directory? Certainly not under "wireless"! It would be a long time before they got to the "W" entries and, in the meantime, they might stumble across another entity!

Go to it — "Amateur Radio Institute of Australia (ARIA)". As other correspondents have noted, it's short, to the point, and conveys the message. Get the name registered before somebody else does (if they haven't already). It's also what new-

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comers to the hobby will be expecting to find, and looking to the future is more important than clinging to the past. Perhaps a compromise can be worked out — "ARIA trading as WIA" or something?

While we are at it, how about changing the name of the magazine to "Amateur Radio Australia"?

**David I Horsfall VK2KFU**  
PO Box 257  
Wahroonga 2076

## New Name

In reference to my recent letter on renaming the WIA to "ARIA" (Amateur Radio Institute of Australia), it has been brought to my attention that "ARIA" is the registered name of the Australian Recording Industry Association.

"Amateur Radio Society of Australia", whilst initially attractive, has scatological undertones, as does "Australian Amateur Radio Society", so perhaps "AARI" (Australian Amateur Radio Institute) is the way to go.

**David I Horsfall VK2KFU**  
PO Box 257  
Wahroonga 2076

(One should also consider the resulting change to one's designation, MWIA at present. RAI is another possibility. Ed)

## That Swastika!

I refer to VK5CQ's letter in the August issue of "AR" and must admit that the reproduction of a 1935 QSL card from Danzig (Gdansk) and bearing the sign of the swastika did send a shiver down my spine.

I would have been quite happy to let the matter rest with the publication of Charles' letter; however, the editor's comment that "Nazi atrocities were years into the future from the date of the QSL" indicates a surprising lack of historical knowledge by the editor.

As one who grew up in Nazi Germany (I arrived in Australia in 1937), let me assure you that Nazi brutality in Germany commenced immediately after the election of that party on 30 January 1933, and grew progressively worse. In 1935 there were already a great number of concentration camps, and the extermination of Jews was well on the way.

To put it mildly, I would say that the publication of this document was in extremely poor taste.

**Tom Peyser VK2ETP**  
10 Broughton Street  
Bundanoon 2578

## Signal Reports

I'm beginning to think that most amateurs are not really familiar with the RST system — judging by the number of ridiculous comments I've heard off air.

How many of you know what readability 5 actually means?

A quick look in the "Bible" (the ARRL Handbook) under the "Operating a Station" chapter will show the RST system and how to interpret it.

Readability

- 1 — Unreadable
- 2 — Barely readable, occasional words distinguishable
- 3 — Readable with considerable difficulty
- 4 — Readable with practically no difficulty
- 5 — Perfectly readable

Now, consider these comments I've heard off-air:

"... you're 5x9, but I missed the last two letters of your call ..."

"... you're also 5x8, but I didn't catch your name, much QRM ..."

"... name here is Bill!" "OK Bob, 100 percent, you're 5x9 ..."

How on earth can you give out a R5 report and NOT receive EVERYTHING the other station said???

"... lots of QRN around tonight; you're 5x7 in the clear."

In the clear??? Good grief!

The whole point is that the signal is not always in the clear, therefore some difficulty is being experienced, so why give a report contrary to actual band conditions?

Are you afraid you might offend the person at the other end if you give them only a R3 or R4 instead of R5?

In order to get a fair assessment of my station's performance I like to get signal reports I can believe. They may not be 5x9 every time, but at least I can get an idea of where I might need to improve things.

Now, as for these "DX" stations that give out automatic 5x5 or 5x9 reports — that's another pet hate!

**Adam L Maurer VK3ALM**  
1 Jeffrey St  
Dandenong North 3175

## The Olive Cam

In "Over to You" in August "AR", I asked "where the "Olive Cam" finished up". My thanks to Mick VK2NBF who supplied the answers which I repeat here for other readers with an interest in the Olive Cam.

In September 1939 she was acquired by the Navy as an auxiliary minesweeper, and participated in the search for survivors from the HMAS "Sydney" in the Indian Ocean in November 1941.

She was paid off from the Navy in 1945 and returned to trade operations. However, in November 1954 she was wrecked near Green Cape, which is south of Eden, NSW.

**Rod Torrington VK3TJ**  
4 Thistle St  
Pascoe Vale South 3044

## Home Built TX

It was pleasing to see something very familiar from a past era. Once amateur radio was all about putting together a transmitter out of WW2 supplies which gave us the satisfaction of working well to make many DX and local contacts. My own home-built rig was built into a 6' steel rack which I bought and transported for about 13 miles, protruding out of my then-very-small soft-top-hood Ford Anglia car. One could not do that today without being pulled over by the first police car!

The screen dropping resistor for the 807 final measured about five inches long, rated at 50 watts, covered with some sort of vitreous enamel, and worked well.

It may be old hat, but over all we had fun. Those were the days when it was "real amateur radio" at its best.

I have moved into the electronics explosion with more headaches and less money in my pocket.

The article was most interesting. Try a few more.

**Kevin M Doherty VK5EP**  
22 Railway Tce  
Hove 5048

## Morse Debate

Congratulations to Bob VK2GRY on his letter regarding "Is Morse Necessary Any More?" There is a similar debate currently "raging" on Packet BBS Bulletins, and I fully support his views.

It is very easy to become emotional and not remain totally objective. CW has its place on our bands, and I suggest always will. However, to make this the sole means of entry to HF is archaic, to say the least. Please try to remain objective while reading the following proposal:

The proposal is to simply have a multi-choice of subject type of exam, including CW, with each subject chosen worth so many points and each class of licence being worth so many points. This system would allow the aspiring amateur a choice of subjects of interest. I would go even further by saying that any subjects chosen require as much study time as CW does — ie, say between 30 to 100 hours of study each. That way we would eliminate the undesirables (ie, the Good Buddy type from you-know-where!).

It's 1992, not 1932. How about moving with the times with an innovative type of examination. That might even reduce the "Reciprocal Licensing" problem. We could go one step further, and perhaps turn this type of licence into a "World Amateur Licence" acceptable to all countries.

These are all ideas "pinched" from ideas floating about on the Packet BBS Bulletins, and I make no claim to them being my own original ideas.

There is a real threat of losing some bands — I see this as one way of populating them before they are gone forever. Let's keep any debate on this issue objective.

Peter Whellum VKSZPG  
PO Box 317  
Willunga 5172

## Proposal for Change of Name

I refer to several letters which have suggested a change of name. The Wireless Institute of Australia (WIA) has the distinction of being the oldest organisation of its kind in the world. The word "wireless" is synonymous with the early development of what we now prefer to call radio, and the word, as used in our name, provides a historic link with that early development.

The Wireless Institute of Australia is an established name well recognised by radio amateurs and by other communications organisations and authorities throughout the world. Its name ranks with that of other similar organisations such as the RSGB and ARRL. Surely no one with any connection with amateur radio could have any doubt as to the function of these organisations, independent of whether the words "wireless" or "radio" are used in their name.

Not to mention the cost and inconvenience incurred in changing letterheads, office records, badges, personal QSL cards and who knows what else, deletion of the word "wireless" severs the reference to our historic beginning. Personally, I would be dismayed if the name were changed.

Lloyd Butler VKSBR  
18 Ottawa Av  
Panorama, SA 5041

## WICEN

It was interesting to read, in response to my earlier criticism of WICEN (NSW) Inc, a reply from that body's State Co-ordinator. This was chiefly notable for the irrelevancies it contained, such as the alleged age group of WICEN critics, and references to my past association with Waverley ARC. His claim regarding the former is certainly not borne out locally, and the significance of the latter, whatever views his visit to that club may have elicited, escapes me.

It is gratifying that Mr Greentree deplors the amount of publicity given to minority groups. WICEN (NSW) Inc, with a membership of 270 in a State having an amateur population of 5000, is a case in point. Perhaps he hopes to see memberships mushroom. He is certainly lavish with his application of fertiliser.

My protests have not been aimed at the motivation of WICEN members, but at attempts by its officials to restrict emergency communications to WICEN control, and to intimidate amateurs — especially new-

comers — into believing they face penalties for participating in such communications unless members of that body. This is wrong and misleading.

Every interested amateur should weigh the needs of his local rescue organisation/s against those of WICEN and act accordingly.

S V Ellis VK2DDL  
82 Taree St  
Tuncurry NSW 2428

## Personally Speaking

Our claim to be the only effective bargaining unit for Australian amateurs is not winning new members. Why do we persist? We might be alienating many potential members who prefer to speak for themselves.

I will speak for myself, thank you, it is a habit I find hard to break. If I disagree with a WIA/DoTC proposal, or if I have an opinion which I want to communicate to the Minister, I will do that through my MHR. That is my usual practice.

If diverse views are suppressed or "politely and effectively ignored" because of WIA council and DoTC collusion, both parties are guilty of discreditable conduct,

conduct which erodes the foundations of a free society. I know it is a common practice, but that doesn't make it right.

"Join the strength" are the catchwords. Where is the strength in a body which is supported by less than 38 per cent of the people it claims to represent? The 11,000 non-member majority is not impressed, neither are the 1000 who have deserted us since 1987.

We must abandon our querulous octogenarian pleading for support, and develop a new and original personality. We could become a real learned society, a society respected by the modern young adults with their advanced technical awareness and literacy; they will all have technical education beyond year 12 by 2000. We are getting nowhere catering for the primary school level minority.

The Herald-Sun of 10 August reported the following extract from a speech by Sir Arvi Parbo: "May I make a plea against the creeping intolerance of expressing a diversity of views which goes under the label of "political correctness".

Lindsay Lawless VK3ANJ  
Box 112  
Lakes Entrance Vic 3909  
ar

# Contests

## Results of WIA 1992 Novice Contest

Ray Milliken VK2SRM Novice Contest Co-ordinator

This year's contest attracted 47 entries, with 34 in Section A (phone), 13 in Section B (CW), with no entries being received for Section C (SWL).

Logs were generally of a high standard, with very few incorrect or duplicated entries recorded.

The Keith Howard VK2AKX Trophy will be awarded this year to VK2JSK for the highest aggregate Novice score.

The Clive Burns Memorial Trophy for the Novice entrant with the highest CW score has been awarded to VK4VHN.

Both of these perpetual trophies are held on permanent display at the Executive Office. In each case the winner will receive a suitably inscribed wall plaque.

Section A Novice Winner	VK2JSK
Section B AOCF Winner	VK3BML
Section B Novice Winner	VK4VHN
Section B AOCF Winner	VK3EFO
Section C SWL No entrants	

## WIA 1992 Novice Contest Winners

VK1KLB Lawrie Brown

VK2AFO Dale Cavies
VK2BML Ballarat Amateur Radio Group Inc
VK2JSK Peter Hodgins
VK2MJV David Marks
VK3APC Moorabbin & District Radio Club
VK3EFO Albert Stevens
VK3VFK Gordon Hayward
VK4MWK Bernard Terry
VK4VHN Clayton Hansen
VK5AYD David C Young
VK5MAP Angus Meier
VK6LL Andrew Hartley
VK6NTJ Terence J Javens
VK6XG Andy Russell
ZL2LOW Chris Lowe

## Individual Scores — Section A — Phone

VK3BML (c)	1052
VK6XG	999
VK3APC (c)	931
VK5AYD	842
VK2JSK	811
VK4MWK	785

VK6LLL	758
VK3VFK	680
VK3GH (c)	540
VK5ATU	538
VK2MJV	525
VK7SHV (c)	489
VK5MAP	452
VK4MSO	435
VK5NRC	420
ZL2LOW	365
VK5PMC	329
VK2WO	274
ZL1AGO	232
VK4KJD	211
VK2GJS	209
VK1BR	208
VK6NWK	194
VK4NGA	155
VK2FUH	144
VK1KLB	143
VK6APK	136
VK5KCX	130
VK1PBT	112
VK2ATZ (c)	108
VK8AV	89
VK2MKL	72
VK2STD	69
VK6BWI (QRP)	28

**Individual Scores —  
Section C — CW**

VK3EFO	116
VK4VHN	107
VK5AFO	78
VK5AGX	77
VK6NTJ	74
VK3XB	71
VK2SPT	68
VK2AZR	53
VK2PIF	49
VK3KS	46
VK5NRC	26
VK2GJS	19
VK8AV	12

**Additional Certificates  
Recommended**

For the highest aggregate Novice score for each state, excluding national winners.  
VK1KLB, VK2MJV, VK3VFK, VK4MWK, VK5MAP, VK6LLL, VK7 No entrant, VK8 No entrant

**Other Special Awards  
Recommended**

Section A  
VK6XG, VK3APC, VK5AYD,  
ZL2LOW  
Section B  
VK5AGO, VK6NTJ

Comments  
This year's Novice Contest was quite a success, even after a mix-up with the dates. However, after perusing the logs, I noted that there were a few operators who would have had reasonably good scores, but no logs were received from them.

Some contestants were confused as to the scoring for the Novice/Combined call, which is five points.

Comments from across the Tasman were that there was very little promotion of the contest in NZ. I hope this situation can be corrected in the future.

There was only one late log and that was from VK6ANC.

Finally, I would like to thank all the participants in this year's contest and hope to hear from you next year.

**Sunshine State Jack Files  
Memorial Contest —  
Results 1992**

Ted Mulholland VK4AEM  
PO Box 35  
Caloundra 4551

**Section 3b Stations within  
VK4, TX HF Phone**

VK4AVR	760	VK4JJB	336
VK4AKH	625	VK4KFQ	312
VK4OR	607	VK4BAY	304
VK4NE	585	VK4PJ	276
VK4IS	424	VK4PVH	272
VK4KJD	166		

**Section 3e Club Stations,  
TX, HF Phone**

VI4AAF 372 ar

# Pounding Brass

*Gilbert Griffith VK3CQ 7 Church Street Bright Vic 3741*

By definition, morseiacs are supposed to be old-fashioned and conservative. Brass-pounders are usually looked upon as those old timers who have the magical ability to build a transmitter using valves or even tap out a distress call on a ship's hull with a spanner as portrayed in at least one famous movie. Many of us will recall stories of messages sent by banging on the water pipes, or some genius building a secret prison-camp radio transceiver from scrounged parts. Some of them even true.

Today most Amateurs would recognise CQ if you beeped it on your car horn, but how many could use Morse to save their own life? Even though it was forced upon me as part of qualifying for a ticket, I am glad that I can.

I don't consider myself overly conservative, I have a couple of computers and packet on VHF and have even had a "go" at aircraft enhancement mode at one time. I don't consider any facet of our hobby to be "better" than another. Some may be more interesting to some of us, and some may seem ridiculous to some, so there is always plenty of hot debate flying around.

If you are fortunate enough to have packet in your shack you will have noticed the Morse debate has been on again for the last few months. A debate which should probably be called an argument between those who don't use it and don't want to, and those who do and want to stir up a little action.

The whole debate is to me an entertaining waste of time, mainly because the regulation requiring Morse is international and not subject to local preferences. Furthermore, some of the most outspoken opponents to code requirements can change their colours when given the right incentive, and

when they find out how much fun they have been missing.

Still, many ideas come about through the idea of "progress" and dropping Morse is just one of them. Another idea recently promoted through the "Over to you" column in Amateur Radio (July), is a proposal that the name "Wireless Institute of Australia" is outdated and unsuitable, and that we should change it to "Amateur Radio Institute of Australia". This doesn't make me want to sing, quite the opposite in fact. The following month another name was suggested, "Australian Institute of Radio Amateurs" which would be OK, I guess, if all amateurs in Australia were members.

Various reasons for a change were given, mainly that it is difficult to explain to non-hams what wireless is, etc. Or that wireless is old-fashioned. We could, I suppose, come up with equally relevant suggestions like "Radio, Television and Computer Hobbies Club" or "Morseiacs Anonymous" if we wanted, but why should we want to change a name?

Maybe because the American Amateurs are thinking about changing the ARRL name to the AARL, should we copy them? Do some people really think that changing a name will make our hobby easier to understand, or more attractive to the masses, ha?. I shudder at the thought of the cost of changing all the badges, logos, QSL cards, letterheads that have been fairly consistent for years. We have the oldest radio society in the world and should be proud of the name and of the past members who formed the Institute and gave it its name. It is not the fault of the name, but of our inability to explain, to sell the hobby, that requires change. Let those who want a different name start their own institute. This too has been tried. ar

# Spotlight on SWLing

Robin L. Harwood VK7RH 52 Connaught Cres West Launceston Tas 7250

I have received news that a major international broadcaster changed its title on the first of this month. Radio Beijing has been the title of China's external broadcasting service, ever since the Chinese Revolution of 1949. Now this station is reportedly now known as Radio China International. The title of Radio Beijing is being kept for the domestic radio programming within the city.

The Southern Cross DX Club Inc in Adelaide has kindly forwarded me a sample copy of another of their publications. It is called "The Australian Long Wave Radio Guide" and has been mainly compiled by Peter McMillan together with John Smith, who is the Utilities Section Editor of "DX Post". The cost is \$2.50 postpaid anywhere within Australia, and outside of Australia please add four IRCs for postage. The guide covers from 200 kHz to 500 kHz, mainly covering non-directional and locator beacons used by aeronautical and maritime services, although I was surprised to learn that several spot frequencies are used in underground mining for radio communication. These are extremely low powered and do not apparently interfere with other users.

If there is a fault with the Guide, it is that it does not give the frequencies of the stations below 200 kHz such as Omega plus the US Naval Communications Base at Northwest Cape (NWC). True the number of services below 200 kHz can be counted on the fingers of one hand, but it would have been handy to have them included. Also some call signs of the NDBs were altered prior to the publication. For example "DV" at Devonport (TAS) on 281 is now signing as "DPO". Similarly "WY" in Wynyard (TAS) on 302 kHz signs as "WYY", Laverton (VIC) on 344 kHz is now "LVT" etc. Yet despite these small errors, I find this small publication very useful in assisting me to identify these beacon stations.

Recently the Australian Army Signals closed down their HF facility — VMA at Digger's Rest in Victoria, after 50 years continuous service. To commemorate this occasion, the Unit mounted a special 14 day operation on USB on various HF channels to allow SWLs and DXers throughout the World to log the station before it went QRT on August 25th. I believe that many hundreds of reports were received and are being processed.

## Summer Time

This month also sees the re-introduction of Summer Time in New South Wales, Victoria, Tasmania and South Australia. Tasmania will be slightly different with six months of summer time from 3rd October 1992, to the last Sunday in March 1993.

Queensland has opted out of Summer Time, as has Western Australia.

The Kiwis begin their Summer Time on the second Sunday of this month until the second Sunday in March 1993.

Well, that is all for this month. Until next time, the very best of listening and 73 — VK7RH.

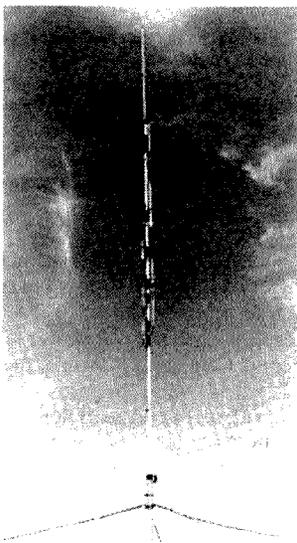
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## AR Showcase

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Cushcraft has introduced the next generation of its eight-band quarter-wave vertical antenna.

The 26-foot AP8A covers 10, 12, 15, 17, 20, 30, 40 and 80 metres and weighs only 9.5 pounds.



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ing strength for high wind survive-ability. Low-loss design and high efficiency trap adds up to maximum output.

Today's active amateur will get superior eight-band operation with automatic band switching in one compact package. With quick assembly and a clean profile, the rugged AP8A will provide years of pleasure for amateurs and SWLs alike.

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Enquiries on pricing and supply for both of the above items may be directed to: Stewart Electronics Components Pty Ltd, 44 Stafford St, Huntingdale Vic 3166. Tel (03) 543 3733. Fax (03) 543 7238.

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# The IARU HF Beacon Project

Kevin Olds VK1OK 238 Southern Cross Drive Latham ACT 2615

## Why HF Beacons?

For most Amateurs, this is probably an unnecessary question, but the answer is worth reviewing anyway. Beacons are used primarily as a means of determining whether radio signals can be received from a particular geographic location. Most of us are familiar with the use of VHF and UHF beacons for precisely this purpose within Australia. VHF beacons, especially those on 50 MHz are used by experienced operators to determine likely propagation conditions from their QTH to the area of interest.

In exactly the same way, we can use HF beacons to determine whether the band is open to a particular location in which we have an interest. For best results, this would require beacons in each HF band and in most countries in the world and could quickly occupy all available HF band space, just for beacons.

But imagine also being able to use an HF beacon to provide an "in-band" time and frequency standard, or as a means of comparing the performance of different antennas, receivers or just checking ionospheric predictions. These things can also be done with current HF beacons as we shall see.

## The NCDXF Beacon

### What Is It?

The NCDXF Beacon was developed by the Northern California DX Foundation (NCDXF) for the international 14.1 MHz beacon project. This network of beacons has been operational for many years now and was originally established by the NCDXF. The Beacon is a frequency-sharing, time-sharing and power-stepping beacon and represents a very efficient usage of today's scarce RF resources. The overall beacon transmitter concept and RF power-level switching was designed by Dave Leeson, W6QHS. Jack Curtis, K6KU designed the clock, the microprocessor and the programming components of the original beacons. The original network comprised eight stations in New York, California, Hawaii, Japan, Israel, Finland, Madiera Island and South Africa.

### What Does It Do?

An NCDXF beacon has a set transmitting pattern that contains identification and transmitter power level information. These beacons are co-ordinated worldwide to transmit in sequence, all on the same frequency. The transmission sequence is

repeated regularly (currently 10 minutes). Thus the requirements of a time-sharing, frequency-sharing and power-stepping beacon are met.

The beacon transmits CW at 20 wpm in a fixed format as follows:

Power Level	CW Message
100 W	QST de (callsign) beacon
100 W	..... (9 second dash)
10 W	..... (9 second dash)
1 W	..... (9 second dash)
.1 W	..... (9 second dash)
100 W	SK (callsign)

This transmission takes approximately 58 seconds from start to finish. Beacons are set to commence transmission at the start of their allotted minute. Note the power stepping in 10 dB steps.

### What Do We Get From It?

As well as monitoring, these beacons can also provide an "in-band" time and frequency standard. The transmitter frequency can be locked to a suitable reference as can the start time of the transmission sequence. With the long dash transmissions, we have adequate time to compare antenna and receiver performances, both short range and DX performance, depending on the beacon(s) chosen for the experiment.

In addition, the stepped power levels can enhance studies of propagation forecasts. The beacons can also act as a lesson to the high power merchants. Observations show how often the 1 Watt part of the transmission can be consistently and reliably read.

## The Multi Band Beacon — W6WX/B

### Developments of the NCDXF Beacon

Since its first development in the early 1980's, developments of the NCDXF beacon have continued. These developments have occurred in three major areas:

#### Transmission Time.

The length of the transmission can be varied. For example, it is possible to have each beacon transmit its call followed by a long dash at each of four power levels in a 10 second time slot. It would therefore take 12 world wide beacons just two minutes to identify and send their message in rotation. This is a fast observation of round the world propagation. The one minute format detailed above can also be used, either alone or in combination with the shorter transmission to provide better coverage.

**Beacon Timer.** The beacons time clock

can be automatically set if WWV or WWVH can be received at the transmitter site. The Clock can be set based on a certain signal sequence from the time reference and thus prevent time drift of individual beacons. It can also be used to reset the clock after a power failure, thus removing the need for human intervention.

#### Band Coverage.

The beacon can be readily programmed to transmit, in sequence, on any band covered by the transceiver. The cost of this is negligible.

#### Three Band Operation

Enter W6WX/B. This beacon, located in California, transmits on three bands, in sequence and can be readily tracked by the user. Immediately after it has sent its one minute transmission and signed off on 14.1 MHz, it switches automatically to 21.15 MHz (the 21 MHz band beacon frequency) and sends its one minute message again. It then switches to 28.2 MHz and sends the same message there. A listener can follow this sequence by quickly switching his receiver and thus gain an interesting comparison of propagation over three bands from the same beacon, an economical way of serving three bands.

#### Extension to Five Band Operation

As was noted above, extension of the beacon to five bands, 14, 18, 21, 24 and 28 MHz is a straightforward exercise. All that is required is for beacon frequencies to be established on 18 and 24 MHz. Recommendations to the IARU on the establishment of such frequencies were made at the IARU Region III meeting in Bandung in October 1991. Once they are established, the concept of rapid, 5 band determination of propagation to any area in the world becomes a reality.

## The International Beacon Project

### Aims

In 1986, the Administrative Council of the IARU revised the guidelines for the future development of IARU sponsored HF beacons. The aim of the guidelines is to introduce modern techniques into beacon systems to make them as efficient as possible, both in their operation and the use of the frequencies allotted to the Amateur Service. While the Administrative Council resolution was aimed at the 28 MHz band, the concepts apply just as readily to the other HF bands.

The position of International Beacon Project Co-ordinator has been established by the IARU to oversee and co-ordinate the implementation of the guidelines and establish an international set of co-ordinated beacons on the HF bands.

The NCDXF beacons detailed above have all the desired characteristics of a good HF beacon and are being used as the models

for the International Beacon Project.

#### Transition Period

In the past, either under Regional Band Plans or by tacit action, 28 MHz beacons have been set up between 28.2 and 28.3 MHz. The 1986 resolution calls for the beacons segment to be reduced to 28.19 to 28.225 MHz, with beacons in the old segment to be phased out by 1 January 1993. Full IARU recognition will only be given to beacons which meet the new technical specifications to be drawn up by the IBP International Co-ordinator. New beacons should be built to this standard and existing ones can be recognised by being upgraded to the new specifications. Interim recognition will be given to those stations in the process of satisfying the requirements. In all cases, beacons will have to be sponsored by the appropriate national member society.

#### Frequency Plan — the Three/Five Band Network

On the 21 MHz and 28 MHz bands, it has been decided to follow the successful example of the 14.1 MHz network established by the NCDXF. The frequencies involved are 21.15 and 28.2 MHz. Beacons will be three band units, similar to W6WX/B, transmitting sequentially in frequency as well as time. In this way it will be possible to compare the propagation on the different frequencies from the various locations which themselves will give worldwide coverage.

When the 18 MHz and 24 MHz beacon frequencies are sanctioned, these bands will be added to the network to give five band coverage of the beacons. The proposed frequencies for these bands are 18.110 MHz and 24.930 MHz.

#### Frequency Plan — the Regional Networks

The Three/Five Band network, by virtue of its single frequency and time sharing operation will be limited in terms of the number of stations it can support and hence its geographic coverage, especially when compared with the current number of beacons operating on the 28 MHz band, albeit mostly on low power. Therefore it is planned to make provision for regional networks on the 28 MHz band. Each network will comprise up to 15 stations, using NCDXF style beacons on a single frequency. This arrangement will allow operators looking towards a particular area of the world to choose the appropriate frequency and thereby have the chance of more frequent observations.

These regional networks are limited only by the imagination. IARU Region II is already considering a regional network involving North and South America, all on a single frequency. Beacons transmitting in sequence from South America would be followed by beacons from North America, and then the cycle would repeat.

Also being considered is an east and west

coast network. A string of east coast beacons would extend from Greenland, through Canada, US, Bermuda, the Caribbean Islands, thence down the east coast of South America. These beacons would be keyed in sequence. On another frequency would be a network with a string of stations from Alaska, Canada, US, Central America and on down the east coast of South America. Two networks such as these, with only three or four beacons on each coast of South and North America, could provide a very comprehensive worldwide picture of what is happening on 28 MHz in the Americas. More beacons could be easily added as required. If the two frequencies were only 1 KHz apart, a receiver with no filter could copy both strings of beacons at the same time, if the band were open.

## Summary

The IARU International Beacon Project, when complete, will provide a spectrum efficient global beacon network that will allow Amateurs to readily determine propagation conditions from their QTH to anywhere in the world. Even now, and during development of the network, many of the aims of the project can begin to be realised.

## References

The IARU Beacon Project, Letter and Attachments, Document 91/VIII/71 to the IARU Region III Conference, Bandung, Indonesia, October 1992.

Worldwide Beacon Net: The Possibilities Abound, QST, June 1983.

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# TRY THIS A New Antenna Design ... in the Year 1927

Emil Geles, a Roumanian then living in Bucharest, was granted a UK patent for an antenna he had invented and described in his written application dated 24 March 1927.

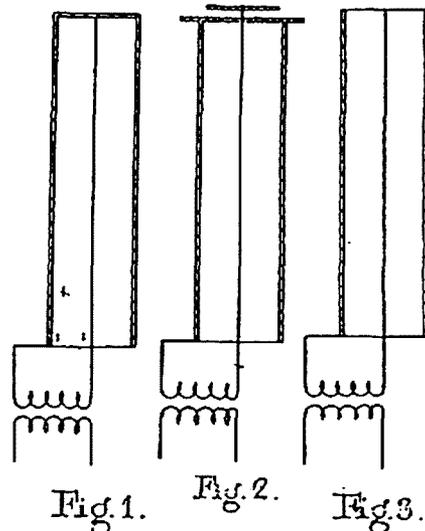
Present-day radio amateurs may wish to experiment along similar lines. Brief details of the invention follow, although information concerning the optimum size of the device was not provided.

The antenna, in three variations as shown in figures 1, 2 and 3 at right, consists of a metal tube inside which, throughout the length of the tube, is a wire which is insulated from the inside surface of the tube. The wire is either: joined to the tube at the top (fig 1), joined electrically via a capacitor (fig 2) or isolated (fig 3). Geles was of the opinion that the isolated version would suit most applications.

The RF energy is applied between the tube and the wire which, according to the inventor, not only eliminates the need for earthing or a counterpoise but, because radiation from the wire is prevented by the surrounding tube, prevents distortion of the field. Radiation of course occurs from the outside surface of the tube due to RF skin effect.

Clive Cook VK4CC  
PO Box 161  
Bribie Island 4507

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# WIA Divisional Bookshops

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Antenna Collection - RSGB	BX391	\$39.60	Morse Code 6 Tapes 5-13 WPM Code Course - Gordon West	BX230	\$63.90
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Antenna Compendium Vol 2 - ARRL	BX294	\$21.80	Morse Code Tapes Set 1: 5-10 WPM - ARRL	BX331	\$18.70
Antenna Impedance Matching - ARRL	BX257	\$27.00	Morse Code Tapes Set 2: 10-15 WPM - ARRL	BX332	\$18.70
Antenna Note Book W1FB - ARRL	BX179	\$18.00	Morse Code Tapes Set 3: 15-22 WPM - ARRL	BX333	\$18.70
Antenna Pattern Worksheets Pkt of 10	BX902	\$2.70	Morse Code Tapes Set 4: 13-14 WPM - ARRL	BX334	\$18.70
Antennas 2nd ed John Kraus - 1988	BX259	\$93.60	Morse Tutor 35' IBM Disk	BX187A	\$18.00
Easy Up Antennas	MFJ38	\$35.30	Morse Tutor 5.25' IBM Disk	BX187	\$18.00
HF Antennas - Les Moxon - RSGB	BX168	\$27.90	<b>OPERATING</b>		
Novice Antenna Notebook - DeMaw W1FB - ARRL	BX162	\$18.00	Amateur Radio Awards Book - RSGB	BX297	\$22.50
Physical Design of Yagi - 35' IBM Disk	BX388B	\$18.00	Amateur Techniques - G3VA - RSGB	BX393	\$32.40
Physical Design of Yagi - 35' Mac Disk Excel Format	BX388C	\$18.00	DXCC Companion - How to Work Your First 100	BX345	\$10.80
Physical Design of Yagi 5.25' IBM Disk	BX388A	\$18.00	DXCC Country Listing - ARRL	BX366	\$4.10
Physical Design of Yagi Antennas - The Book	BX388	\$38.00	FCC Rule Book - A Guide to the FCC Regulations	BX379	\$18.20
Practical Wire Antennas - RSGB	BX298	\$28.60	Locator Map of Europe - RSGB	BX398	\$5.40
Reflections - Software 5 inch disk	BX358	\$18.00	Log Book - ARRL - 9' x 11' Wire Bound	BX202	\$6.30
Reflections Transmission Lines and Antennas - 5.25' IBM	BX348A	\$18.00	Low Band DXing - John Devoldre	BX195	\$18.00
Reflections Transmission Lines and Antennas - ARRL	BX348	\$38.00	Operating Manual - ARRL - 4th Edition	BX192	\$32.40
Simple Low Cost Wire Antennas	BX216	\$23.00	Operating Manual - RSGB	BX359	\$27.90
Smith Chart Expanded Scale PK of 10	BX903	\$5.90	Passport to World Band Radio	BX346	\$30.60
Smith Charts S/Scale 1 SET Co-ord Imp/Admir Pack of 10	BX901	\$5.90	Prefix Map of North America	BX235	\$7.20
Smith Charts Stand Scale 1 SET Co-ord. PK of 10	BX900	\$5.90	Prefix Map of the World - RSGB	BX397	\$9.90
The Antenna Handbook - ARRL 1991 edition	BX370	\$38.00	Short Wave Propagation Handbook	BX286	\$16.70
Transmission Line Transformers - ARRL	BX329	\$36.00	The Complete DXer - W9KNI	BX194	\$21.60
Vertical Antenna Handbook - Lee - 1990	BX284	\$18.70	Transmitter Hunting	BX222	\$34.20
Yagi Antenna Design - ARRL	BX164	\$27.00	World Grid Locator Atlas - (Maidenhead Locator) - ARRL	BX197	\$9.00
MATV The ATV Compendium - BAIC	BX270	\$15.80	<b>PACKET RADIO</b>		
<b>CALL BOOKS</b>					
Radio Call Book International 1992	BX339	\$57.60	AX.25 Link Layer Protocol - ARRL	BX178	\$14.40
Radio Call Book North America 1992	BX338	\$57.60	Gateway to Packet Radio 2nd edition - ARRL	BX169	\$21.60
<b>FICTION</b>					
CO Ghost Ship - ARRL	BX204	\$9.40	Packet Computer Networking Conference 1-4 1982/5	BX168	\$27.00
Death Valley OTH - ARRL	BX205	\$9.40	Packet Computer Networking Conference No 10 1991 - ARRL	BX376	\$21.60
DX Brings Danger - ARRL	BX206	\$9.50	Packet Computer Networking Conference No 5 1986 - ARRL	BX167	\$18.00
Grand Canyon QSO - ARRL	BX207	\$9.40	Packet Computer Networking Conference No 6 1987 - ARRL	BX168	\$18.00
Murder By QRM - ARRL	BX208	\$9.40	Packet Computer Networking Conference No 7 1988 - ARRL	BX168	\$18.00
SOS At Midnight - ARRL	BX209	\$9.00	Packet Computer Networking Conference No 8 1989 - ARRL	BX295	\$18.00
<b>HANDBOOKS</b>					
ARRL Handbook - 1992	BX369	\$47.60	Packet Radio Made Easy - Rogers	MFJ32	\$18.50
Electronics Data Book - ARRL	BX201	\$21.60	Packet Radio Primer - G8UYZ - RSGB	BX440	\$28.80
Mobile Radio Handbook	MFJ33	\$22.50	Packet Users Notebook - Rogers	BX285	\$18.70
Motorola RF Device Data - 2 Volumes	BX047	\$23.00	<b>SATELLITES</b>		
Radio Communication Handbook - RSGB	BX268	\$50.40	Oscar Satellite Review - Ingram - 1986	MFJ31	\$15.30
Radio Theory For Amateur Operators - Swinston - 1991	BX265	\$38.70	Satellite AMSAT 5th Space Symposium - ARRL	BX182	\$15.80
Space Radio Handbook - GM4IHJ - RSGB	BX439	\$49.50	Satellite AMSAT 6th Space Symposium - ARRL	BX189	\$15.80
World Radio TV Handbook	BX450	\$36.00	Satellite AMSAT 9th Space Symposium - ARRL	BX449	\$21.80
<b>HISTORY</b>					
200 Meters and Down 1936 - ARRL	BX198	\$14.40	Satellite Anthology - 1992 Edition - ARRL	BX180	\$14.40
50 Years of the ARRL - 1981	BX196	\$7.20	Satellite Experimenters Handbook	BX177	\$38.00
Big Ear - Autobiography Of John Kraus W8JK - 1978	BX363	\$11.30	Space Almanac - ARRL	BX299	\$45.00
Bright Spark of Wireless - RSGB	BX394	\$39.80	Weather Satellite Handbook - ARRL	BX324	\$38.00
Dawn of Amateur Radio	BX395	\$52.20	Weather Satellite Handbook Software 5.25' IBM Disk	BX326	\$18.00
Golden Classics of Yesterday - Ingram	MFJ30	\$19.40	<b>VHF/UHF/MICROWAVE</b>		
MIR Space Craft 1991 - RSGB	BX443	\$18.00	International VHF FM Guide - G3UHK - RSGB	BX399	\$12.60
Spark to Space - ARRL 75th Anniversary	BX310	\$22.50	Microwave Handbook Vol 1 - RSGB	BX318	\$34.20
<b>INTERFERENCE</b>					
Interference Handbook - Nelson - 1989	BX181	\$23.00	Microwave Handbook Vol 2 - RSGB	BX437	\$51.30
Radio Frequency Interference - ARRL - 1992 Edition	BX186	\$27.00	Microwave Handbook Vol 3 - RSGB	BX447	\$51.30
<b>MISCELLANEOUS</b>					
Amidon Ferrite Complete Data Book	BX044	\$9.00	Microwave Update Conference 1987 - ARRL	BX174	\$15.80
Design Note Book W1FB - ARRL	BX357	\$18.00	Microwave Update Conference 1988 - ARRL	BX183	\$15.80
Ferraris Confidential Frequency Listing	BX387	\$36.00	Microwave Update Conference 1989 - ARRL	BX321	\$21.50
First Steps in Radio - Doug DeMaw W1FB	BX385	\$9.00	Microwave Update Conference 1991 - ARRL	BX446	\$21.60
G-QRP Circuit Handbook - G Dobbs - RSGB	BX441	\$27.90	Mid Atlantic VHF Con. October 1987 - ARRL	BX175	\$15.80
Ham Radio Communications Circuit Files	MFJ37	\$22.60	Spread Spectrum Source Book - ARRL	BX385	\$36.00
Help For New Hams DeMaw - ARRL	BX308	\$18.00	UHF Compendium Part 1 & 2 Vol 1	BX250	\$67.50
Hints and Kinks 13th edition - 1992 - ARRL	BX330	\$18.00	UHF Compendium Part 3 \$ 4 Vol 2	BX251	\$67.50
National Educational Workshop 1991 - ARRL	BX384	\$21.60	UHF Compendium Part 5 German Only	BX354	\$50.20
Novice Notes, The Book - QST - ARRL	BX288	\$10.80	UHF/Microwave Experimenters Manual - ARRL	BX325	\$38.00
ORP Classics - ARRL - QST	BX323	\$21.60	UHF/Microwave Experimenters Software - ARRL	BX327	\$18.00
ORP Note Book - DeMaw - ARRL	BX170	\$18.00	VHF 21st Central States Con. 1987 - ARRL	BX172	\$15.80
Radio Astronomy 2nd edition - John D Kraus - 1986	BX262	\$71.90	VHF 23rd Central States Con. 1989 - ARRL	BX286	\$15.80
Radio Auroras - RSGB	BX361	\$24.30	VHF 24th Central States Con. 1990 - ARRL	BX322	\$21.60
Radio Buyers Source Book - ARRL	BX377	\$27.00	VHF 25th Central States Conference 1991 - ARRL	BX436	\$21.60
Shortwave Receivers Past and Present	BX253	\$19.80	VHF 26th Central States Conference 1992 - ARRL	BX449	\$21.60
Solid State Design - DeMaw - ARRL	BX171	\$21.60	VHF West Coast Conference 1992	BX444	\$21.60
<b>MORSE CODE</b>					
Advanced Morse Tutor - 35' Disk	BX328A	\$38.00	VHF/UHF 18th Eastern Conference - ARRL	BX445	\$21.60
Advanced Morse Tutor - 5.25' Disk	BX328	\$38.00	VHF/UHF Manual - RSGB	BX267	\$38.00
Morse Code - The Essential Language	BX223	\$10.80	<b>WIA MEMBERS SUNDRIES</b>		
Morse Code 2 Tapes Novice Code Course - Gordon West	BX228	\$17.90	Log Book Covers		\$18.00
Morse Code 6 Tapes 13-20 WPM Code Course - Gordon West	BX231	\$63.90	WIA Badge - Diamond		\$4.00
			WIA Badge - Diamond With Call Sign Space		\$4.00
			WIA Badge - Traditional Blue		\$4.00
			WIA Badge - Traditional Red		\$4.00
			WIA Car Window Stickers		\$0.50
			WIA Tape - Sounds of Amateur Radio		\$7.00
			<b>WIA PUBLICATIONS</b>		
			Australian Radio Amateur Call Book - 1992		\$10.00
			Band Plans Booklet		\$2.60
			WIA Log Book - Horizontal or Vertical Format		\$5.00
			WIA Novice Study Guide		\$1.60

Not all above are available from all Divisions (and none is available from the Federal Office).

If the items is carried by your Divisional Bookshop, but is not in stock, your order will be taken and filled as soon as practicable.

All prices are for WIA members only — postage and packing, if applicable, is extra.

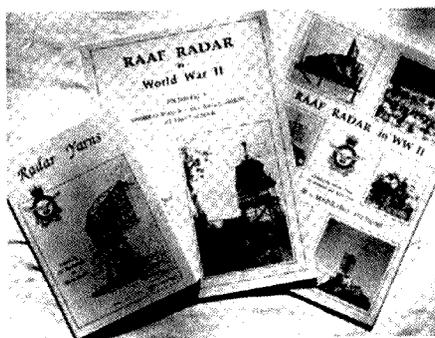
All orders must be accompanied by a remittance.

# “Radar Yarns”, plus “RAAF Radar in WW2, Pictorials I and II”

Reviewed by Colin MacKinnon, VK2DYM

To commemorate the 50th anniversary of the introduction of radar to the RAAF in World War 2, Ed Simmonds, Norm Smith and Morrie Fenton, all ex-RAAF radar personnel, have produced several very interesting publications. The first in the series is “Radar Yarns” which contains a brief history of RAAF ground radar, and a most interesting compendium of anecdotes and experiences from participants. These eyewitness accounts give a new understanding of the difficulties the men and women faced in getting radar into the field and operational, often actually behind enemy lines. Maps are included to show where the many stations were located. “Radar Yarns” consists of about 230 pages in A5 size.

Whilst “Radar Yarns” has some photos, the next two books in the series are priceless for their photographic documentation of Australian ground radar stations. “Pictorial I” has around 150 photos covering overseas radar stations, ie those that were located in the islands



north of Australia, plus photos from early radar and radio schools.

“Pictorial II” also has about 150 photos, but of mainland stations and personnel etc. When you consider that cameras were forbidden in wartime, and radar was the most secret of secrets, it is amazing how many photos have surfaced! It is very fortunate that the Aussie aversion for rules prevailed, because very few official

photos exist, and the unofficial photos in these two Pictorials provide the only available record of the outstanding efforts of the RAAF ground radar crews, the Army guards, the technicians, the mechanics and the cooks! The Pictorials are both A4 size, and around 70 and 90 pages respectively.

A fourth book is planned for later this year, giving technical details and photos of the various radars used by RAAF ground forces. This will include the locally designed AW and LW/AW sets as well as the sets that were imported, such as the UK CHL, ACO etc, and the little known use of USA gun laying SCR-268 and early warning SCR-270 sets. Information is still being sought on all of these sets.

The three books produced to date were a very limited print run of 500, but some may still be available at \$24.00 each including post, from: C MacKinnon VK2DYM, 52-54 Mills Road, Glenhaven NSW 2156. ar

## Try This — Home Brew Trimmers

Paul Clutter VK2SPC 52 Keats Av Bateau Bay 2261

In the process of building a selective pre-selector, I needed a couple of trimmers, controllable from the front panel. I decided it would be quicker and cheaper to make my own, but needed some kind of bearing/bush to hold the rotor shaft. The junk box offered nothing, but my box of miscellaneous plugs, sockets etc, came to the rescue. A panel mounting RCA audio socket was exactly right as a 1/8” (3.5 mm) diam rod fits through it with just the right tension. The centre conductor can be tightened if necessary, with a pin or pointed tool or, if you have a few sockets, select as required — they vary. If the shaft is longer than about three inches (7.5 cm), two sockets would be better to stop the vertical and/or horizontal movement when tuning (see Fig 1).

### Making and Mounting the Trimmer Plates

Take a 1/8” or 5/32” brass screw (round head) and increase the width of the slot

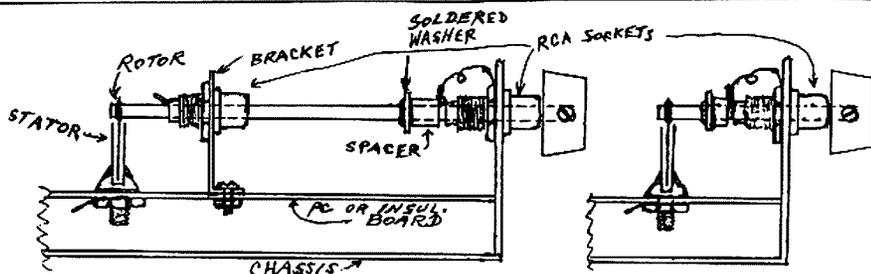


Figure 1 RCA Socket — Panel (screw mount) cat no P1430 — Dick Smith.

with a hacksaw or needle file. After cutting the plates from thin metal (I used a tin can) of your own shape etc, align them (2) in the slot of the screw head and wedge them in with a piece of cardboard. Solder the outsides to the screw head (see Fig 2). Adjust end play of the rotor shaft with spacers and/or washers to keep the rotor plate in the centre of the stator plates. Finally, solder the centre conductor tab of the RCA socket to chassis for a good rotor contact. ar

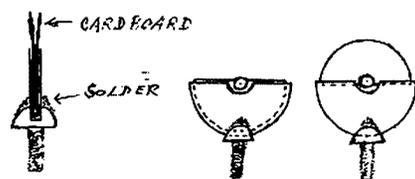


Figure 2 Expanded View of Trimmer.

# Early Days of Television

H Karl Saville VK5AHK 2/1290 North East Road Tea Tree Gully 5091

When I think of it now, it does seem such a long time ago. It was 1934 and Doris and I had been married the year before. I had been very interested in radio and now Baird was transmitting television test programs from the BBC transmitters. It was a low definition system, 30 lines at 12 frames a second. I did not keep any records of this exercise at the time, so have to rely on my memory, although I have checked out the dates of the various stages of television progress mentioned below.

Baird had been experimenting with television since the early '20s, as had Jenkins in America and others in various countries, but these systems used mechanical scanning.

The modern system had already been worked out in 1907 by the Russian, Boris Rosing, and an Englishman, A A Campbell Swinton, who independently suggested the use of electron beams for the reconstruction of the image at the receiver.

In 1911 Campbell Swinton suggested, for a television camera, the use of a photosensitive mosaic which would accumulate electric charge and be discharged by a moving cathode ray.

This concept was realised in practice by the American Zworykin (who had studied under Boris Rosing) who applied for a patent for the Iconoscope in 1925.

P Nipkow, in Germany, had taken out a patent for transmitting and receiving an image over a single communication channel in 1884. He used a mechanical scanning device, a rotating disc, which bears his name.

## Do It Yourself?

As I mentioned earlier, I was very interested, so decided to make a television receiver. There was a design for one in one of the wireless magazines, which used a Nipkow disc for the scanning, and I decided I would make one up to this design.

The vision signal for a 12-frame 30-line system works out at about 10,000 cycles or, as we say today, 10 kilohertz, and this signal was transmitted by the BBC on one of its national audio stations. The television audio signal was sent out on another station.

The BBC arranged for tests by the Baird system to be carried out each evening from 11 to 12 o'clock.

The main item in the receiver was the disc, and here I was fortunate, because Doris' father was the Production Engineer at the Chiswick depot of the London General Omnibus Company, as it was then known, and I managed to get him interested enough to get it made for me.

The specifications called for 30 concentric circles to be inscribed on a 24-inch aluminium disc. They were equally spaced at 0.028 inches, the largest one being one inch inside the edge of the disc.

The next operation was to draw 30 radii at 12-degree intervals so the disc was divided into 30 equal segments.

Starting from the outermost circle, a 0.028-inch square hole was punched at the intersection of a radius and circle, then one for the next radius and next inner circle, and so on, spiralling inwards until all 30 intersections have a hole punched into them.

The square holes were arranged so that as the disc turned, the outermost hole would scan the right-hand side of the picture from top to bottom against the modulated light source in a 0.028-inch-wide path. As the first hole left the picture area the second hole, 0.028 inches further in, would scan the next 0.028 inches to the left of the first scan. And the rest of the holes would scan in a like manner until the whole picture area had been covered.

One complete rotation of the disc completes one frame, and as there are 12 frames per second, the disc has to rotate 12 times a second to keep in step with the transmission.

Apparently it was a very tedious operation making the disc and I was told afterwards that the workman who made the disc needed eye treatment later! We now had the disc and the next thing we needed was a gas tube which was modulated to provide the picture illumination. I think I got one from Baird for a small sum.

## Synchronisation

In addition to the disc I needed a synchronising device which consisted of two electromagnets acting on an armature attached to the shaft on which the disc was

to be fixed. Also a motor was needed to rotate the shaft, and a lens system to magnify the very small picture which the system produced.

The tests on the radio did not last long, and the making of my receiver had taken longer than I expected. Time was running out, and I was never able to fit a motor to drive the disc and also to fit the synchronising equipment, but we made do with what we had and did see the television pictures.

Ever resourceful, I took the handle and gearing off Doris' sewing machine and managed to fit it to the Nipkow disc shaft and arranged to turn the disc by hand.

I connected the gastube to the output of my high fidelity amplifier and tuned into the BBC station with the video signal on it, and turned furiously on the sewing machine handle.

It was not easy to get the picture into synchronisation. In fact, it was very hard, and harder still to keep it steady. The picture went into all shapes. First I would have two pictures, then four or more, and, if I was lucky, one picture, and all the while there would be about six other big fat heads trying to see the little picture that could, or might, be seen through the rotating disc against the flickering gastube. We did not have any lens to build up the picture, it was just as seen through the 30 0.028-inch rotating holes on the disc.

I can remember seeing the eight step-sisters dancing, and when you consider the system used vertical scanning of 30 lines, each of the dancing sisters would have been produced by 30/8, or nearly four lines.

My set-up was not very good, and often by the time we had everything set up the one-hour program would be finished and we might be just in time to see the final curtain come down with GOOD NIGHT written on it.

In the meantime Baird had been working on an all-electronic television system, and by the time he was ready to broadcast in 1935, EMI also had a rival system to test, and the BBC arranged for Baird and EMI to transmit on alternate evenings so comparative tests could be made.

It is history now, but EMI proved to be the better, technically, of the two, and was officially adopted by the BBC when it started television broadcasts from Alexandra Palace in 1936.

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# Non-Radiating Tune-up Unit

Karl Saville VK5AHK 1290 North East Rd Tea Tree Gully 5091

I was prompted to offer this project to your readers after reading an article by Peter Phillips VK2EPP entitled "Transmatch Tuning Noise Bridge" which was published in AR September 1991. This simple tune-up device is easy to build, simple to operate but, more importantly, won't annoy other amateurs whilst you go through the tune-up process.

The tune-up device simply connects between your transceiver and your antenna system. It can remain connected into the circuit permanently; it's as simple as switching to tune, adjust the ATU then switch to operate. This procedure ensures you don't blow up the final transistors in your favourite solid state rig due to a high VSWR, as you don't know if a 3:1 VSWR represents 150 ohms or 17 ohms. One-hundred-and-fifty ohms may not cause damage, but 17 ohms might. If you are an experimenter in antenna systems, this device could save you a lot of problems.

## Description

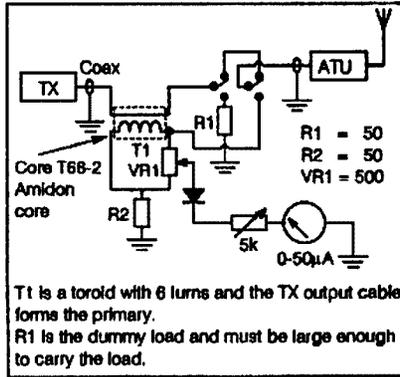
One section of the two-pole two-way switch connects the transmitter to a 50 ohm dummy load mounted in the tune-up unit; R2 is the reference arm of the RF bridge. The other section of the switch connects the ATU and the antenna to the bridge unknown termination. The output of the transmitter passes through a small toroid along a piece of coaxial cable to the changeover switch. This forms the primary winding of the transformer which couples RF energy to the generator arm of the bridge via a six-turn secondary winding.

## Initial Set Up

Use a separate 50 ohm dummy load in place of the ATU and antenna. Switch to tune-up and adjust the balance potentiometer until the meter reads zero with a small amount of power from your transmitter. Mark this position as 50 ohms. Now replace the external dummy load with your ATU and antenna. Again apply a small amount of power. The meter should read zero to indicate the antenna system is 50 ohms. If it does not, adjust the ATU until a zero reading is obtained.

## Calibrating the meter

After the unit has been set up to 50 ohms, the meter can be calibrated to indicate relative SWR. Place a non-inductive



T1 is a toroid with 6 turns and the TX output cable forms the primary.  
R1 is the dummy load and must be large enough to carry the load.

100 ohm resistor in place of the antenna and ATU, power up the unit and mark the 2:1 SWR position. Next use 150 ohm to mark 3:1 and 200 ohm for 4:1. Depending on the meter you have available, it may be necessary to include a series trim pot in the meter circuit to reduce the sensitivity before SWR calibration.

The unit should be mounted in a metal box to reduce RF radiation. Once your unit

is completed, tuning up is a simple matter. Switch to tune, adjust the system, then switch to operate — that's all there is to it. Most of the parts required can be found in the junk box, but be sure to use a good quality switch for the changeover switch.

**Prevent pirates  
— make sure  
you sell your  
transmitter to a  
licensed  
amateur.**

## Morseword 67

Solution Page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

### Across:

- Set of rooms
- Stern
- Sovereign
- Scene
- Certain
- Mist
- Passenger
- Sudden blast
- Harden
- Shakesperian king

### Down:

- Rind
- Not right
- Lose colour
- Jeer
- Escape
- Cornet
- Old form of have
- Not against
- Grill
- Finished

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# HAMADS

## TRADE ADS

- **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne.
- **WEATHER FAX programs for IBM XT/ATs** \*\*\* "RADFAX2" \$35-00, is a high resolution short-wave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAXISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm OLD 4005. Ph (07) 358 2785.

## FOR SALE NSW

- **KENWOOD TS820S** with external VFO handbook \$550; **HEATHKIT** monitor scope \$100; **HEATHKIT** audio generator \$50; **VARIOUS** HF mobile whips from \$30; **70CM** long 39 el wide spaced Yagi \$100; tel (02) 971 9795 **VK2HL QTHR**.
- **DRAKE STATION T4XC R4C MS4 PSU**, VG cond, Mic, Manual, Spares, \$475; prefer exch for FT7, TS120V or similar. Max **VK2GE** (065) 855 732.
- **YAESU FT211RH 2M 45w** mobile txcvr, \$350; **WERNER WULF 6M-6el** antenna \$120, Blair **VK2XFS** (02) 971 8378.
- **SWAN MK II LINEAR**, has two 500Z valves, covers 80 to 10 m, loafs along at legal pwr limit. \$1100; **DISH** for **SATELLITE** or microwave DX, 2M Diam, Solid construction with 10M 25mm **HELIAX**, \$600; **TOWER** 70 foot crank up, tilt over, h/duty. \$1000. C.McKinnon **VK2DYM**, 52 Mills Rd, Glenhaven NSW 2156. (02) 634 6259.
- **HYGAIN TH7DXX** \$1000; **HYGAIN V25 5/8** Collinear 2m vert, \$150; **HILLS 75ft 3** sect winch up guyed mast, guys, fittings, \$1000; **LOWER** part **HILLS 2** section mast (climbing rungs) 25 ft, \$50; **KENPRO KR2000RC HD** rotor, cont, cable, \$500; **ATN 13-30MHz** 8 el Log Periodic, \$300; **VK2ZZV SA270** Satellite ants, 2x20 el UHF, 2x12 el VHF crossed Yagis with f/glass boom, KR5400 az/el rotator, cont, suit auto tracking, \$900; **PHILIPS FM828** xtls 144.900 and 144.750 simplex for packet, EC, \$150; **STELMA DATA** analysis group US Forces 1962, manuals, mobile stand, 240/110 V Tfrmr, \$20; **TELONIC Sweep** Gen HD-1A, \$20; **SIEMENS 100 Series II** Teleprinter, punch, reader, some docs, \$20; **ASTOR**

**VM14S B/W** studio monitor, GC, \$20. John **VK2CFJ QTHR** (02) 457 9570 any time.

- **COMPLETE AMATEUR STATION**, SAE for details, **VK2YN QTHR**.
- **CR5SS MULTI BAND VERTICAL** trapped antenna, \$200; **VK2VMB** (065) 686 754.

## FOR SALE VIC

- **LOG PERIODIC ATN 13-30-8** ex. cond, buyer to assist with removal. Try before you buy, \$500 firm. Bob **VK3AQK** (057) 441 676 **QTHR**
- **ALINCO DJ100T 2m** hand held, EC, \$250, Paul **VK3CAB** (050) 246 273 (A.Hrs).
- **PHILIPS FM828 VHF HI Band**, 10 ch, 25 W, Tuned to two metres, c/w Philips PSU, Mic, Philips Steel Rack to house both units, VGC, \$350; **YAESU FT712RH 70cm 35W** Txcvr, in box, fitted with all options, incl new **MMB37** mobile bracket, EC \$510 **ONO**; **DAVID VK3THY QTHR** (03) 434 7152.
- **ANTENNA MASTS "DEEKO"** 24 ft (4x6ft), 9" Trian \$20 per section; **OREGON 2** pce 24 ft \$30; 47mm Aluminium with **ACCS** \$30; **ARMY TYPE 122** kit \$30; **AWA AF OSC 20 Hz-200 kHz** \$20; **40V 3A PSU** \$20; **24V LED Computer PSU** \$10; **S T Clark VK3ASC QTHR** (059) 71 1861.
- **YAESU FL2050 2 Metres Linear Amp**, S/N 11030043, \$200 **ONO**, Jim **VK3DPO** (03) 857 5342.
- **REALISTIC HTX100 10m** mobile, 5/25W, SSB/CW, Perfect condx with 2CG mobile antenna to suit; \$225, Derek **VK3DD** (03) 730 1557.
- **KENWOOD TS530S** spare valves and driver, \$700; **SP230** \$120; **AT230** \$280; **PWR/SWR** meter model **HS260**, \$40; **ALINCO DR590** twin band mobile \$800; Paul **VK3EPD** (059) 831 771
- **HF LOG PERIODIC** beam ATN 13-30, as new \$500, A Styles, **VK3TV RMB** 2943 **Benalla** 3673.
- **EX-SEC HD SELF SUPPORT GAL TOWER**, height 119ft, base 20ft x 10ft, top parallel section 5ft x 5ft, catwalk 12ft x 5ft, weight 7 tons (+/-), internal gal ladder and cage, fitted with HD custom built rotator, torque device, 2ft diam disk brake, 3" masting and bearings, dismantled in four sections, on site price \$8,500 **ONO**; John **VK3HW QTHR** (053) 32 4011.
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- **IC751** with ext PSU, ex cond, \$1800, Ian (057) 522 631 (A Hrs).
- **ICOM MICRO2A 2 mx** Handheld FM **TXCVR**, c/w Spkr/Mic, manuals, carrycase, beltclip, 12v converter pack for mobile use, spare battery pack, new condx, \$250; **REG VK3CCE QTHR** (03) 509 1720.
- **YAESU FAS-1-4R** remote antenna selector to suit **FC757 ATU**, brand new, unused, \$150; **HYGAIN TH6DXX** triband Yagi, needs some work, \$275; Phil **VK3IN** (059) 622 832.

- **C64 COMMODORE**, 1541 disk drive, Packet module, **AMTOR**, **RTTY** and maintenance software, \$450, **RON VK3AEO** (03) 707 3405.

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- **DENTRON CLIPPERTON LINEAR**, new, never used, complete tubes, S/N 2157, \$1,500, ask for Doug (079) 921 146.
- **KENWOOD TS820S** with sep **VFO820**, **DRAKE** filter, **QUEMENT SWR/Pwr** meter, Mic, Manuals, plus **HB antenna tuner** 10/15/20 metres, new finals just fitted, \$550; **VK4LD QTHR** (075) 35 3491.
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- ARTWORK for MDRC Digital Display and Frequency Synthesiser for ICOM IC22S, any expenses cheerfully re-imbursed, Bill VK3TAJ (057) 572 174 (AH), (057) 572 005 (BH).
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Miscellaneous

For Sale

Wanted

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## Solution to Morseword No 67

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1	.	.	.	.	.	.	.	.	.	.
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9	.	.	.	.	.	.	.	.	.	.
10	.	.	.	.	.	.	.	.	.	.

### Solution for Morseword No 67

Across: 1 suite; 2 grim; 3 king; 4 view;  
5 sure; 6 fog; 7 fare; 8 gust; 9 steel; 10  
lear.

Down: 1 peel; 2 left; 3 fade; 4 sneer; 5  
flee; 6 cone; 7 hast; 8 for; 9 toast; 10  
ended.

## HOW TO JOIN THE WIA

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## WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.240 MHz and 147.425 MHz

VK3RCW Continuous on 144.975 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 2535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

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- 1992 RD Contest Results
- Little "L" Inductance Bridge for RF Coils
- Morse Trainer for GW Basic

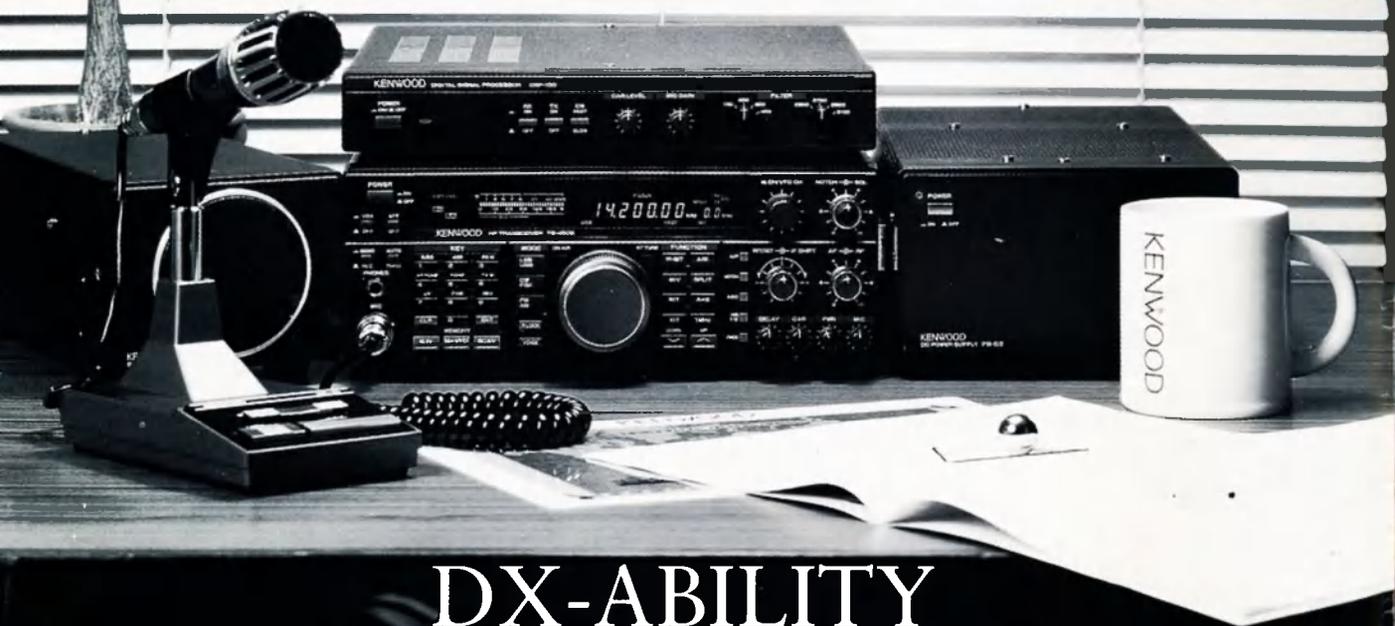
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### Cover

This month's cover shows Marilyn Syme, VK3DMS, with her award-winning collection of postal items entitled "Radiomania", which traces the history of radio and its use by amateur operators. The full story of Marilyn's success appears in the ALARA column on page 26, in this issue.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

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Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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## Editor's Comment

Bill Rice VK3ABP  
Editor

### Miscellaneous Observations

This month's comment will be something of a "hotch potch" of unrelated topics for two reasons. Most significant is the fact that my XYL and I (together with another couple, friends of long standing) have just returned from a 23 day visit to Indonesia.

Travel, it is said, broadens the mind. In my case the profusion of new experiences will take quite some time to be absorbed. My mind certainly feels broadened. Rolled out flat might be nearer the truth! The second reason is simply that a number of small items do call for comment at this time, but none is in itself big enough to warrant a whole editorial.

The trip to Indonesia does however deserve a whole article, even if restricted purely to the amateur radio aspects. Hopefully, you will be able to read it early next year. Some of the most outstanding impressions needing advance mention are:-

- a) We Australian amateurs should be very grateful that English is our mother tongue (for most of us, anyway), so that its use for amateur radio world-wide saves us having to learn another language. Some Indonesians can converse in four or five languages!
- b) In Australia, amateurs have the choice as to

whether or not they will be members of the WIA. Some of us have no doubt that we should; but the choice is free. Not so in Indonesia. If not a member of ORARI, one will not be licensed.

- c) By Australian standards, the road traffic (in Java and Bali at least) is incredible, and at times terrifying. Java is about twice the area of Tasmania, but its population is about 80 million. Many of its roads are surprisingly narrow.

Now for something different! Partly because of the demands this magazine makes on my time, not to mention time spent recently in "travelling North", I don't often "get on the air". In fact most of my antennas have fallen down or come apart in the wind over the past few months, and Melbourne's recent record rains haven't helped with repair work. For these and other reasons, although it would be gratifying to get involved with newer modes like fax or packet, one should first do justice to phone, maybe even CW?

Having explained why I do not yet have packet facilities, what I hear about bulletin boards in particular from others makes me wonder whether I want it anyway. It seems that there is a great deal of half-baked rubbish on BBSs, including material which may be un-

true or defamatory. The problem appears to be world-wide. We have some idiotic individuals already on the FM repeaters, where at least their inanities are transient. On a BBS, material is on display to all, perhaps for days or weeks, or may be printed-out in more permanent form. Untruths become libellous, rather than slanderous. You may think you have a good story; it may seem that someone deserves to be attacked or accused; but first of all, be sure you have the facts! If in doubt, DON'T! Unless, that is, you really want to be sued for libel!

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# WIA News

From the WIA Federal Office

## Clarification of WIANEWS Item

In last month's magazine I included a WIANEWS item entitled "Progress of New Licence Conditions". In that item I explained why the WIA had not released any details of the final version of the new deregulated licence conditions for radio amateurs in Australia.

It has come to my notice that some people misinterpreted a part of what we said. Can I make it quite clear to those people that

there was no intention to suggest that the commercial magazine referred to had in any way ignored a request from the DoTC not to release any details of the new licence conditions. The WIA knew that DoTC had simply forgotten to pass on to them the same request that had been made to the WIA.

Even though the WIA does not always agree with what is written in the pages of *Amateur Radio Action* magazine, I know from several years of working in

conjunction with them that the folks at ARA are ethical people and have never dishonoured the confidentiality of an "off the record comment" or an embargo date on release of a news item.

## Electrical Hazard

The WIA believes that the following letter from the Chief Electrical Inspector of the State Electricity Commission of Victoria deserves maximum publicity.

*I am writing to ask for your assistance in alerting your members of the potential danger associated with High Voltage Probes as used in testing television receivers, transmitters and other equip-*

# WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1992 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601 Phone (06) 247 7006	President Christopher Davis Secretary Jan Burrell Treasurer Ken Ray	VK1DO VK1BR VK1KEN 3.570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Terry Ryeland Secretary Bob Lloyd Jones Treasurer Bob Taylor (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	VK2UX VK2YEL VK2AOE From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.120, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilton Treasurer Rob Halley Office hours Tue & Thur 0830-1530	VK3PC VK3XV VK3XLV 1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900 FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 146.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarsse Secretary Ken Ayers Treasurer David Travis	VK4QA VK4KD VK4ATR 1.825, 3.065, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen Secretary Roland Bruce Treasurer Bill Wardrop	VK5BJA VK5OU VK5AWM 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, ( 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin Secretary John Farnan Treasurer Bruce Hedland-Thomas	VK6LZ VK6AFA VK6OO 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(R) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfame TAS 7015	President Tom Allen Secretary Ted Beard Treasurer Peter King	VK7AL VK7EB VK7ZPK 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$67.00 (G) (S) \$53.65 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x3 times.

Note: All times are local. All frequencies MHz.

ment requiring High Voltage measurements.

The result of a recent coronial inquest in this state has highlighted the dangers associated with the use of such test equipment. The victim in this incident was a qualified "A Grade" Licensed Electrical Mechanic who was testing a Radio Frequency Welding machine. He had extensive experience in testing and repairing this type of equipment.

The test instrument used in this instance was a Leader High Voltage Probe LHM80 which was designed to measure voltages up to +25,000 Volts DC, however care must be taken when using any test instrument on live electrical equipment.

Always ensure that the test equipment is maintained at earth potential. It is essential that the earth clip is connected and securely attached to the earthed frame. Serious injury or fatality can result if the earth clip is not securely connected to earth or is at any time connected to the "hot" side of any high voltage circuitry

Particular attention was drawn by the Coroner to the growth of the service industry associated with microwave ovens. The Coroner noted that the high voltage supply in microwave ovens is negative with respect to earth. Its existence can be measured with a high Voltage probe, similar to this instrument, used inversely which may prove fatal.

This incident has highlighted the need to ensure that:

- tools and equipment are kept in good working conditions;
- equipment is used within the manufacturers guidelines;
- the earth connection is intact and operative;
- extra care is taken when

working in the vicinity of live electrical equipment.

There has been an increase in the occurrence of Electrical fatalities and serious electrical accidents involving electrical workers including engineers, technicians and mechanics in the past year.

We must all take greater care when working with any electrical equipment.

I request your assistance in warning your members, many of whom are involved with the testing, repair and manufacture and design of electrical equipment that caution should always be exercised when working on live equipment.

### Major Overhaul of Radio Frequency Policy

A statement recently released by Mr Bob Collins, the Minister for Transport and Communications, announces a major review of policy on the management of the radio frequency spectrum. This follows the Government's receipt last year of the "Management of the Radio Frequency Spectrum" report from the House of Representatives Standing Committee on Transport Communications and Infrastructure.

Members were kept informed of the progress of this review, and the input to it supplied by the WIA.

The statement establishes Government policy for all spectrum users except broadcasting which remains under the control of the Australian Broadcasting Authority. The reform strategy adopted is in three parts. It intends to:

*"\* carry out the phased introduction, in selected areas of the spectrum, of a market based system of spectrum management using tradeable spectrum access rights;*

*\* improve legislation and administration by*

*— introducing a more flexible standards regime;*

*— introducing class licensing for small, low-power users of the spectrum;*

*— eliminating the practice of allowing users to reserve unused spectrum at reduced fee levels;*

*— allowing users to renew licences at banks, post offices, etc; and*

*\* create a Spectrum Management Agency to implement the reforms."*

Although the Amateur Radio Service as such does not rate a separate mention, it is noted that "there will be special arrangements for public and community use", with provision for spectrum to be allocated for the exclusive use of such services, and the power to buy or resume if a need arises.

The market system will allow licensees to trade, amalgamate, or mortgage licences, and vary equipment or technical parameters and type of use. However, safeguards, particularly against interference will be included.

Other proposed changes in the administratively based system of licensing include provision for auditing of spectrum use, and introduction of class licences to allow regulation of low power equipment not requiring individual licensing. The existing system of licence categories and prices will also be overhauled and simplified, and "the Department's outmoded computer-based spectrum management information system, known as SMIS, is to be replaced by a new system that, among other things, will provide a publicly accessible on-line database on licences and frequency assignments."

### Courtesy On Air

A number of members have recently voiced criticism

of the behaviour of other amateurs on air, particularly about some of the material that is promulgated via the various Bulletin Boards. While there has been a certain amount of deregulation over the past years, and more is before us, a majority of Australian radio amateurs believe that there is a need to maintain an accepted standard for both spoken and written transmissions.

Perhaps the digital mode Bulletin Boards are worse than the repeaters, where the offending remark is lost for all time as soon as it is uttered. Anyone who has demonstrated the use of a repeater, or amateur radio in general, to a non-amateur and found the listener exposed to a stream of objectionable language will agree that there must be standards.

Apparently the problem is not unique to Australia. I quote from part of an editorial comment, modified slightly to fit the Australian scene, written by David Sumner K1ZZ, Executive Vice President of the American Radio Relay League (ARRL), which was published in the August 1992 edition of QST, the journal of the ARRL:

*"A lot of amateurs are pretty upset with the antics of a few in our midst — the tiny handful of folks who don't seem to understand that the ham bands are a public place, demanding a higher standard of behaviour than might apply in private.*

*Look at it this way. Nobody cares what you and your buddies talk about when you're sitting around your living room, when you're car pooling together, or anywhere you're out of earshot of an unwilling audience. If your group taste runs to the risqué or the argumentative, that's your business. But you wouldn't sub-*

ject strangers at the next restaurant table, or in line with you at the supermarket, to an off-colour joke or a fractious debate. That's simple common courtesy that you learned in kindergarten, if not before.

How this principle translates to Amateur Radio ought to be obvious. To some, apparently, it's not. Your microphone and keyboard carry your words a lot farther than just to the station or roundtable you're in contact with. Lot's of people, licensed amateurs and just listeners, are tuning around the bands at any given time. Too often we hear from hams who've been embarrassed by what they've heard while showing Amateur Radio to a friend, or even worse, to a young person. By the time they realise what's happening, the damage is done.

Now, no one should ex-

pect the regulatory authority to enforce common courtesy. That's not their job, for a lot of good reasons. . . . Some complaints we hear are about people who simply don't think before they hit the push-to-talk switch or upload a flaming packet message. They're not bad guys, they're just insensitive; help them to see themselves as others see them, and their share of the problem will go away.

Unfortunately, for reasons better explored in psychiatry than in Amateur Radio journals, others relish notoriety. Tell them they've offended you, and you've made their day. Tell them you're going to report them to the authorities and you've REALLY made their day, particularly if, as is often the case, what they're doing is in poor taste but not illegal.

What about the tiny (and we know it's tiny because the

same call signs keep popping up as examples) hard core whose favourite expression is...well...hard core? There's a general feeling that "nothing's being done" about this part of the problem. That feeling is not accurate and is about to become even less so."

David's editorial then proceeds to outline some of the steps being taken in the USA to overcome the problems.

What is the amateur community in Australia doing to combat the lowering of standards by a small minority? More to the point, what are you doing about it?

### **Congratulations to Pakistan**

The WIA Federal office has just received a copy of the Pakistan Amateur Radio Society Guide and Call Book for 1992. This very creditable production is the first ever such publication for this society.

The record of licensees (144) occupies four of the 156 pages. About 50 of these licensees each have a single page of personal and operating information. The remainder of the book is a mine of information from the examination syllabus to satellite communications, including frequency allocations, band plans, international regulations, prices of rigs, antenna building and setting up a station. Congratulations to PARS on this major achievement. We are advised that further copies are available from PARS for \$6.00, presumably US \$.

### **WIA President Moves Around**

The Federal President of the WIA, Ron Henderson VK1RH, has continued his visits to Divisions and clubs with two more recent visits.

Ron went to Sydney in late August to attend the VK2 Division's forum. That fo-

# O ICOM

adds a new sophistication to the meaning of the word basic...

To most of us basic means you miss out on performance and quality, but not any more, the new Icom IC-728 might be Icom's 'basic' H.F. transceiver, but in fact it makes many other transceivers look pretty basic by comparison!

**\$1678** r.r.p. Call for special introductory pricing!

Please allow \$35 for postage and insurance within Australia mainland or Tasmania. Other areas please call for pricing. E&OE, all prices and information subject to change without notice.



You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

*"Getting the IC-728 up and running is a treat"*

*"It almost runs itself — the learning time is very low"*

*"DXing on 20 metres is a snap with a hot little receiver like this one!"*

*The manual "is an absolute pleasure to use"*

*"I must say that the IC-728 offers very good value for money indeed."*

Amateur Radio Action — 9 June 1992

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rum identified a number of matters of concern to members and VK2 amateurs. Some thirteen large sheets of paper were filled with key points and examined at some length.

Ron would like to compliment the VK2 Council and, in particular, the forum organisers Bob, Terry and Julie for their efforts. Listeners to the VK2 broadcast will already be aware the Divisional Council has started actions arising from the forum.

The second visit was to the Canberra Amateur Packet Radio Group's technical symposium in early September. Actually Ron is a member of that group and was one of the seven presenters delivering a technical paper during the day. The topics ranged from radio astronomy through digital communications to interference sources. A complex packet display, with equipment valued collectively at over ten thousand dollars, was also demonstrated to those present.

### **ARRL Interference Leaflet**

The Federal Office recently received from the ARRL copies of a leaflet entitled "What to do if you have an electronic interference problem". It is directed at both the amateur and the neighbour who may believe the amateur is at fault, and explains in detail the meaning of "interference" and possible types, some of the causes, the responsibilities of manufacturers, operators and users and how to go about seeking help.

Emphasis is placed on cooperation with authorities or neighbours, and simple tests which can help to identify the source of the problem. In addition, of course, it includes a plug for the newly revised ARRL publication Radio Frequency Interfer-

ence — how to Find It and Fix It".

### **Good Publicity for Amateur Radio**

The ARRL Newsletter of 24th September 1992 reports on the amateur activities of the latest Space Shuttle Mission, which landed on 20th September. We quote one of the beacon messages from the shuttle's packet robot:

*"1400 UTC 18 September. We had a nice demonstration today of amateur radio's ability: The White Sands, New Mexico, ground station for the data relay satellites NASA uses for our shuttle air-ground comms went off the air unexpectedly for about 15 minutes. As it happened, this was just prior to a planned school contact via Andy VK4KIV. Andy relayed to Houston's mission control centre for us and bridged the gap in communication via ham radio! We were able to learn exactly what the problem was, and told MCC what our plans were, averting any possible confusion. Thanks Andy".*

More than 600 amateurs connected to the Shuttle's robot packet station in the first 24 hours of the mission. 456 amateur stations were logged as "worked" on packet, and many excellent voice contacts were achieved. QSL or SWL cards should be sent (with an SASE) to Jay Apt, N5QWL, 806 Shorewood Drive, Seabrook, TX77586, USA. The next scheduled flight will be on 18th February 1993.

### **More Good Publicity**

The WIA Federal Office has also received a 2-page extract from the Pakenham Gazette for 26th August 1992, which presented an extended article, with photographs, about Cyril Minns VK3AUM, who has been an amateur for most of his life.

Cyril was one of the very first blind amateur radio operators to be licensed, in 1957. One of the main points made in the article was that the hobby can be enjoyed by all, noting that Cyril has modified much of his equipment, and participates in WICEN and other such activities.

The Federal Office is always pleased to receive such items for addition to the print media "Scrap Book".

### **Compatibility Agreement**

We quote from the ITU Press release of 18th September 1992:

*"For some time, experts have considered the problem of interference between FM sound broadcasting stations and aeronautical radio systems. At a meeting of Task Group 12-1 of ITU's International Radio consultative Committee (CCIR) held at ICAO Headquarters (Montreal Canada), 36 international experts drafted a recommendation that will allow countries to assure compatibility between the broadcasting and aeronautical services which both utilise the radio frequency spectrum in the vicinity of 108 MHz".* "Participants included representatives from 10 countries, 4 international organisations and 3 operating agencies."

### **Australian Broadcasting Authority**

The Australian Broadcasting Authority (ABA) began on 5th October 1992. It will assume some of the powers and functions of the former Australian Broadcasting Tribunal and the Station Planning Branch of the Department of Transport and Communications. It will have responsibility for all the planning, licensing, programming and ownership

and control functions for broadcasting services within Australia.

### **Amateur Radio Early Closing**

Contributors, columnists and advertisers are reminded that the closing date for editorial copy for the January edition of Amateur radio magazine is 30th November. This is to allow for time lost due to the holiday period.

### **HF Bandplanning in IARU Region 2**

The ARRL Newsletter of 24th September reports on the meeting of the General Assembly of Region 2 of the IARU, held in Netherlands Antilles from 31st August to 4th September.

Amateurs from 34 Western Hemisphere nations, including 10 proxies, attended. One of the main topics discussed was HF bandplanning, with emphasis on digital segments to reflect current usage and to align the Region 2 plans with Regions 1 and 3. Apart from the 7 MHz band, where the USA allocation does not coincide with allocations in other parts of the Region, agreement was fairly well achieved.

The resultant agreement designates segments for "Digital Modes," with a sub-segment designated "packet Priority". Recommended HF band segments for CW and for radiotelephone (including SSTV and FAX) were unchanged: CW is still acceptable in all segments.

The agreed HF digital segments are as follows:

- 80 metres: 3580-3635 kHz, packet priority 3620-3635 kHz.
- 40 metres: 7035-7050 kHz, packet priority 7040-7050 kHz (international), 7100-7120 kHz (within Region 2).
- 30 metres: 10.130-10.150 MHz, packet priority

- 10.140-10.150 MHz.
- 20 metres: 14.070-14.112 MHz (with 1 kHz guard band at 14.100 for the beacon network), packet priority 14.095-14.0995 MHz, packet shared with SSB at 14.10005-14.112MHz.
- 17 metres: 18.100-18.110 MHz, packet priority 18.105-18.110 MHz.
- 15 metres: 21.070-21.125 MHz, packet priority 21.090-21.125 MHz.
- 12 metres: 24.920-24.930 MHz, packet priority 24.925-24.930 MHz.
- 10 metres: 28.070-28.189 MHz, packet priority 28.120-28.189 MHz.

### 1993 Call Book

The 1993 edition of the Australian Radio Amateur Call Book was finally received at the Federal office on Friday 9th October 1992. This is the biggest and best Call Book yet, with over 18,000 entries, as well as a vast amount of reference material. Orders have been despatched to Divisions, so those of you who had orders in should have received your copy by now.

Order your copy now of the 1993 Australian Radio Amateur Call Book while stocks last.

### WIA helps Bangladesh

In response to a request from David Rankin 9V1RH/VK3QV, Chairman of IARU Region 3, the WIA Federal Office has been in touch with the President of the Bangladesh Amateur Radio League. BARL has been asked to consider taking over the task of running amateur examinations for Bangladesh, and the WIA was happy to supply materials and advice to assist. We await word on further developments.

Bill Roper VK3ARZ  
Brenda Edmonds VK3KT  
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# Equipment Review - The ICOM IC-728 HF transceiver

Ron Fisher VK3OM  
"Gaalanungah"  
24 Sugarloaf Rd  
Upper Beaconsfield 3808

**A**RE YOU IN THE market for a budget priced HF transceiver? If so, could I suggest you read this review carefully. The new ICOM IC-728 might be just what you are looking for. Budget prices often mean that some essential features are missing but, on the other hand, are all the features on many of the mid or top-priced rigs really essential or just nice to have from time to time? On the transmit side, does the operator at the other end of the contact really know if your transceiver cost \$1500 or \$5500? In most cases I rather doubt it.

However, this is getting a bit ahead of the subject in hand. What is the IC-728? What does it have to offer?

The IC-728 is an updated replacement for the IC-725. Added features have really transformed the 728 into the top performer in the low priced field.

The IC-725 has been marketed for just over three years, and in that time has been established as an excellent no-nonsense HF transceiver, ideal both for mobile and base station use. It featured a full general coverage receiver, 100-watt transmitter power output and 26 multi-function memories. Perhaps the only features lacking were a speech processor and any form of receiver interference rejection. Well, ICOM has incorporated both in the new IC-728. Not only that, but the speech compressor has a level "set" control which puts it way ahead of the others in the class. The receiver now has "pass band tuning" which gives excellent rejection against unwanted interference. All this in a package the same size and weight as its predecessor.

In weight, the ICOM comes in at 4.6kg. When you consider that it has

a full metal cabinet and a very large transmitter heat sink, this is a very reasonable figure.

Let's take a detailed look at the IC-728.

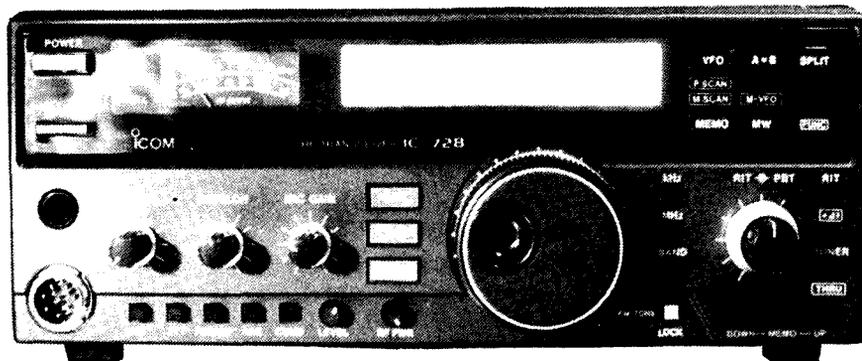
The 728 measures 241mm wide, 94mm high and 239mm deep. As mentioned earlier, it weighs in at 4.6kg. The finish is typical ICOM charcoal grey. The rig requires an external 13.8 volt DC supply rated at about 20 amps peak. ICOM produces a variety of power supplies capable of doing the job. A DC power cord is supplied with the transceiver, and this is terminated in the now standard six-pin plastic connector.

Frequency and status display is a high-contrast LCD readout which is illuminated by an orange background. Below this is an eight-pin microphone connector. What a pity these do not have standardised connections like the DC power connector mentioned above! One day, perhaps? To the right are three rotary controls that set AF gain, squelch and microphone gain. Under these are five small push buttons and two miniature rotary controls. The push buttons (in order) are for noise blanker on/off, the receiver 20dB RF attenuator switch, the receiver preamp switch which provides about 10dB of extra gain, the AGC fast/slow decay switch and the transmitter speech compressor switch.

The two rotary controls are for compression level and transmitter RF power level. The three vertically placed buttons are for mode selection. The AM/FM button will select AM receive only unless the optional UI-7 is installed. This will then allow FM transmit and receive and AM transmit. The FM mode is usable only above 29MHz.

The main tuning control is typically ICOM. It's large, well weighted and a delight to use. The four buttons to the right of the main tuning control are the tuning step selectors. Push the kHz button and the tuning changes in one kHz steps. With the MHz button selected, the tuning changes in one MHz steps. This would be used mainly to select general coverage tuning ranges.

The band button selects consecutive amateur bands. With the ICOM band stacking register, the last frequency used on an amateur band is retained, a very handy feature which I note is



now being used by a few other manufacturers. Below the "band" button is the lock button which locks all the functions of the main tuning control.

The top right-hand section of the panel is devoted to the memory function controls. Compared with the older 725, these have been improved to a large extent by moving the memory channel up/down buttons to the bottom right-hand corner.

This frees two buttons which are now used for the A=B function, previously accessed via two buttons, and the function button which has been moved up from the bottom corner. A concentric rotary pair of knobs are for the RIT and passband tuning. A couple of buttons on the right-hand side are for RIT on/off and control of an external optional automatic antenna tuner.

The rear panel has a selection of connectors which gives access to the following facilities. The main RF connector is a standard SO-239. A 3.5mm jack connects to an external speaker. A small latching push button selects the CW break-in function, and a rotary control is used to adjust the delay for this. The CW key jack is a standard 6.5mm three-circuit (stereo) type. Two accessory sockets provide connection to a variety of matching ICOM units such as linear amplifiers, automatic antenna tuners and a TNC for data communications. However, if you wish to use a non-ICOM linear amplifier, there are Phono connectors for transmit control and ALC input.

A second latching push-button switch selects either of ICOM's AH-3 or AT-160 auto ATUs. Finally, there is a connector that can interface with your PC for full remote control of the transceiver. It seems that ICOM has thought of just about everything.

### **The IC-728 on the air**

Like most modern solid state rigs, the 728 is easy to get on the air. Of course, a suitable power supply is needed, and I already had an ICOM PS-15 which is compatible with most ICOM transceivers, including this one. By the way, AC power switching to the PS-15 is controlled via the power switch on the 728. Plug in the microphone or CW key and an antenna with a 50 ohm impedance and you are on the air.

First thing noted was the smooth

tuning control. There is a screw adjustment on the front panel to set the tension on the knob. I must say I prefer it in the free spinning position, but that's up to you. The display is very clear, with black lettering against the orange background. I would have liked a slightly larger meter, but it is adequate and the illumination is good. Meter functions are limited to "S" meter on receive and relative power output on transmit; fairly spartan, but an indication of ALC action is given by the transmit indicator LED next to the meter.

Band selection is very easy to get used to. It is, of course, done with the "step" buttons and the tuning knob to step through the bands. The system has been used by ICOM for many years on most of its HF transceivers.

Tuning around the amateur bands, the receiver sounded very lively with the preamp switched on. AGC action was excellent on SSB in the slow position, although I would have preferred it a little slower in its decay time. There is no provision to switch the AGC off, which might be a concern to some dedicated CW operators.

The received audio quality was not to my liking at all. It appeared to be lacking in both high and low frequency response, which gave it a very hollow sound. Suspecting the internal speaker, I connected a good quality external unit and the difference was amazing. The audio now came to life, proving that the audio section of the receiver was, in fact, first class. I was also amazed at the amount of audio output the IC-728 produced. Even under very noisy mobile conditions, I am sure there would be plenty of acoustic output. The 728 does not have an RF gain control, in common with some other low-priced rigs. I must say I do like to have an RF gain, and feel unhappy about its omission.

My solution to this would be to make the squelch control a preset on the rear panel and substitute an RF gain for the squelch control on the front panel. After all, the squelch is generally only used with FM operation and, as the FM board is an option, why not sell the squelch control with this? Well, that's my idea anyhow.

Tuning was as expected, very smooth. At normal tuning speed, the rate is two kHz per revolution. At a

faster rate of knob rotation this speeds up to about 10 kHz per revolution. However, if neither of these suits your taste, you can custom set the tuning rate to 10Hz steps (normal), 20 Hz steps — which gives 4 kHz per knob revolution — or 50 Hz steps, which gives 10 kHz per knob revolution. With AM mode selected, the normal tuning rate is in 1 kHz steps, which I think is a bit fast. However, it is simple to select any of the above steps in the AM mode if required. These features are not available on any other of the budget priced transceivers.

I checked the frequency stability and read-out accuracy and found both to be first class. Our review transceiver had a small problem with the lower sideband carrier oscillator drifting slightly. This took about 15 minutes to stabilise and, during that time, moved about 100 Hz. This was, in fact, the major part of the drift that I measured, and I suspect would go unnoticed by most operators. The above drift notwithstanding, you can specify as an option a high stability master oscillator which should bring the total drift down to  $\pm 0.5$ ppm.

The new band pass tuning worked very well. When selected, you can actually narrow down the selectivity either from the top end down or from the low end up. This is a better system than IF shift where the selectivity remains the same but is shifted relative to the received signal. In the latter case, you can move into interference on one side, while escaping it on the other! The noise blanker works very well on ignition-type interference, which is probably where it would be most needed. The blanking level is non-adjustable so you have to take it as it comes. Its action on power line noise was only fair; however, it produced very little cross-modulation on received signals.

The RIT control has a range of  $\pm 1.2$  kHz in 10 Hz steps. ICOM has included a most useful facility with the RIT. Let's say you are offset 250 Hz. Push the "function" button, then the RIT button, and you are transmitting on the offset frequency which now becomes your normal receive and transmit frequency. However, with the RIT in use, there is no indication of what your received frequency is. Not even the main display changes. This appears to

be an oversight which I am sure could be easily corrected.

The memory functions are extremely well thought out. The 26 memories, I think, are plenty for most applications. All the memories take frequency and mode, and two allow for separate transmit and receive frequencies such as operating through a 10m FM repeater. Another two can be programmed to set upper and lower limits for band scanning. Talking about scanning, there are two different memory scan modes. Firstly there is the normal memory scan where all channels are scanned in succession. Additionally, it is possible to scan only those sharing a common mode. The instruction book also describes some modifications that can be made to change certain scan parameters such as scan speed.

### **Transmitter operation**

Before transmitting, it is essential that a suitable power supply should be obtained. All of my tests were carried out using an ICOM PS-15 power supply which is rated at 20 amps peak output. Output power was checked on all bands and found to be in excess of 100 watts with steady carrier output. SSB was up to 120 watts PEP output on all bands except 10 metres, where it was a fraction less.

Actually these tests created a slight problem, as there is no way that steady carrier can be produced by using any of the front panel controls. You have to actually plug in a key, or at least a shorted plug into the key socket on the rear panel. I wonder why the key socket doesn't have a shorting contact in it? SSB tests were in the first instance carried out with the hand microphone supplied with the IC728. Reports indicated the quality was acceptable, with perhaps a slight emphasis on the high end of the audio scale. The tests were repeated with the compressor switched in. This made a startling improvement with the audio response filling out in the low end and producing excellent audio quality.

Adjustment of the compression control is a bit "hit-and-miss" as no metering of the compression is provided. I found that with the compressor knob at the one o'clock position it was just about right. Microphone gain is set so that the "transmit" indicator (just left

of the meter) just starts to blink. I repeated the tests using an SM-6 desk microphone. Results were much the same but with a little more sparkle in the high audio end.

Back on the subject of power output, while there is no problem with the maximum output, there might be a few with the minimum. This is 10 watts. However, the QRP operators require a maximum output of five watts. Give that some thought, ICOM. No doubt a suitable mod will be available in the near future.

CW operators have not been forgotten in the design of the IC728. While no VOX is included for SSB, a VOX system is available for CW. While it's not full break-in, it's nonetheless very good. The delay to return to receive is adjustable on the rear panel. The transmitter keyed very nicely with a sharp-sounding note.

Two sharp CW filters are available as options. These are 500 Hz, the FL-100, and a 250 Hz, the FL-101. CW reception is actually quite good using the standard SSB filter with the band pass tuning wound in to produce a 1 kHz pass band. Not perfect, and not as good as using a proper CW filter, but certainly not bad, either.

### **The IC-728 Instruction Book**

As an operations manual, the IC-728 instruction book is first class. There are plenty of drawings of both the front and rear panels, with clear descriptions of all control functions. Several pages

are devoted to maintenance, adjustment and the installation of optional extras. Adjustment data include PA idling current setting, RIT adjustment, BFO adjustment, CW sidetone level preset, installation of diodes for alternate scan functions, frequency calibration and the main tuning control brake adjustment.

There is also information on fuse replacement in the DC power cable and an interesting one in the PA unit which could be a little hard to find without the manual. Full marks to all of this. Now if there were only a few pages of technical description, I would give ICOM 10 out of 10. In its absence I would award only seven out of 10.

### **The ICOM IC-728 conclusions**

With the improvements that ICOM has incorporated in the IC728, it has become the leader in its field. Receiver performance is first class except for the muffled audio from the internal speaker. The IC728 is compatible with a wide range of ICOM optional equipment, which includes at least three automatic antenna tuners, a linear amplifier, two power supplies plus many smaller items such as microphones, speakers and interface units. As ICOM says, "Count on us!" You sure can! Thanks to ICOM (Australia) Pty Ltd for the loan of the IC-728 used in our review.

ar

**Sign up a new WIA  
member today — we  
need the numbers  
to protect our  
frequencies and  
privileges.**

# “Little-L” Inductance Bridge for RF Coils

Drew Diamond, VK3XU  
Gatters Road,  
Wonga Park Vic 3115

**T**HE CONSTRUCTOR who does not have an LCR bridge generally must fall back on the “resonance dip method” to find the value of unknown radio frequency inductors and capacitors, which in most instances is adequate for our purposes. The problem of small capacitance measurement has been solved, and several designs for direct reading meters have appeared in electronics journals. However, I have long felt the need for a handy little bridge for direct measurement of coils used in HF applications, including antenna tuners, receivers, transmitters and so on. My own experience has shown that a measurement range of 0.5 to about 20  $\mu\text{H}$  would cover just about all of the most commonly encountered requirements. Here is a simple inductance bridge with

a calibrated measuring range of 0.5  $\mu\text{H}$  to about 20  $\mu\text{H}$ . Accuracy is in the order of  $\pm 10\%$ , which is probably adequate for most amateur purposes.

## Circuit

The measuring element is based upon the classic Wheatstone bridge. Our test signal is supplied from a crystal controlled Colpitts oscillator at (nominally) 3.580 MHz. A high Q coil of about 5  $\mu\text{H}$  establishes the mid-range measurement point at that perceived median value. Inductors which differ from 5  $\mu\text{H}$  will require bridge balance, as indicated by a dip on the meter, by manual adjustment at some other point along the travel of the 1 K ohm linear pot. By “exciting” the coil at a radio frequency (rather than 1 kHz, which is the case with most LCR

bridges) we obtain a much better idea as to inductance and “Q-ness” of the coil, particularly where a core or slug is involved.

## Construction

The instrument is housed in a standard aluminium box measuring 10 x 10 x 7.5 cm. Any metal box with slightly smaller or larger dimensions will do. A test frequency of 3.580 MHz was chosen because it lies in an amateur band, so oscillator operation can be easily checked by listening for the signal at that frequency. Naturally, other cheap crystal frequencies such as 4.0, 4.433, or 5.0 MHz may be used if desired.

The oscillator was made “ugly” style on a small rectangle of printed circuit board. But other favoured methods, including tag strip will work satisfactorily, provided all signal carrying leads are kept reasonably short. The same applies to the bridge circuit wiring. By using a smallish box, leads must perform be short, so keeping stray inductance and capacitance to a minimum. Ordinary disc ceramic capacitors are acceptable. A new pot is recommended. To use an old scratchy pot as the adjustable element in a bridge application would be false economy. The meter sensitivity may be 1 mA or preferably, 500  $\mu\text{A}$ . As large a meter as can be accommodated is recommended for a good clear indication of the dip point.

## Calibration

First, confirm that the bridge is operating; oscillator function may be checked by inserting a screwdriver blade into the “hot” LX terminal, and listening for the signal on the station

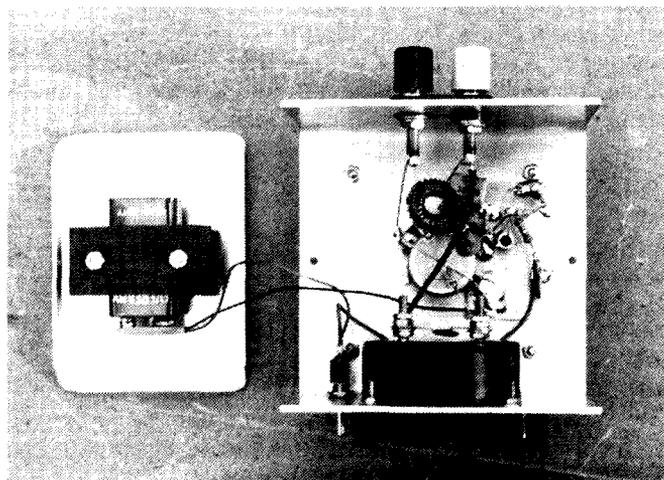


Figure 1 — Internal view showing suggested battery mount.

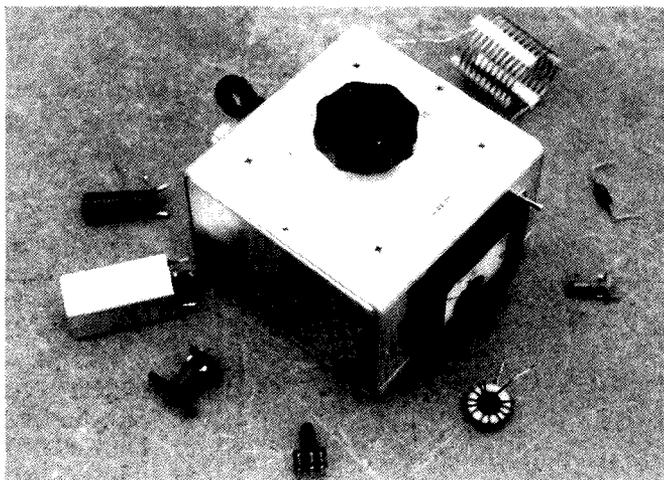
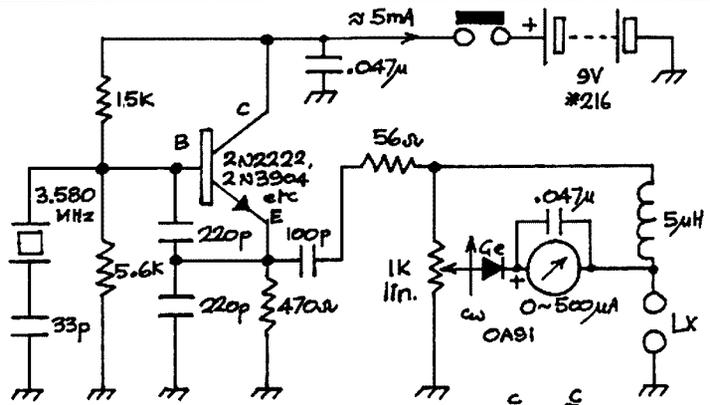


Figure 2 — “Little L” Inductance Bridge.

receiver. The meter should also be indicating FSD or near FSD. Place a short across the LX terminals. You should obtain a pronounced dip at the extreme counter-clockwise (CCW) end of the pot travel, indicating zero  $\mu\text{H}$ . An open circuit should dip (but probably not as deep as 0  $\mu\text{H}$ ) at or near the CW end (infinite  $\mu\text{H}$ ). Connect a coil of about 5  $\mu\text{H}$ . You should obtain a clearly defined dip at about mid pot travel.

We need a number of coils to calibrate the bridge. If you do not have any coils of known inductance, a set of "standards" will be required. Shown are details for values of 0.5, 1, 2, 4, 8 and 16  $\mu\text{H}$  which were measured with a laboratory inductance bridge. By using these singly, and in series combinations, calibration points beyond 20  $\mu\text{H}$  in 0.5  $\mu\text{H}$  steps may be obtained. Or a set of ready-made choke coils of (say) 1, 2.2, 4.7 and 10  $\mu\text{H}$  may be purchased from most parts suppliers. Mark salient calibrations lightly at first with pencil. Do not try to crowd in lots of points, as interpolation will supply any missing information. Use a typewriter, press-on numbers or fine black pen for the final calibration markings. The scale may be protected with a square of perspex, and a disc of perspex attached to the knob skirt as shown.

In actual application, the coil being measured should be connected to the  
(Continued on page 18)



All resistors 1/4w 5%  
All capacitors disc ceramic.  
5 $\mu\text{H}$ : 28 turns #22 B&S (0.63mm) on Amidon T6B-2 core.

Inductance Bridge for HF Coils.  
— VK3XU —

# Morse Trainer for GW Basic

Laurie McInnes VK3AAJ  
7 Gwenda Avenue  
Blackburn Vic 3130.

**T**HIS PROGRAM was prompted by the article CW Trainer by Neil Cornish VK2KCN AR March 1992. It follows the same logic as Neil's program but uses the SOUND command of GW-BASIC or similar dialects of Basic.

The program sends random groups of 2 to 7 characters. You can adjust the speed and the number of characters in the test and choose whether letters only or letters and numerals are transmitted. Start and Finish signals have been included.

After the message has ended you can receive a new random transmission by typing R without going back to the beginning.

Copy the program omitting all REMs except line 10.

The speed is OK on my machine. The easiest way to check it is to set Letters only, 10 wpm, and 50 characters. The average duration of several such messages should be about one minute. To adjust the speed change the number 16.5 in line 160.

```

10 REM GW-BASIC Morse Test. L McInnes VK3AAJ Jun 92. After Neil Cornish, "AR",
    Mar 92
20 CLS: KEY OFF: RANDOMIZE TIMER: DEFINT A-C, E-R
30 FT=1000: REM Freq of tone. Change if desired.
40 F0=32767: REM Designates silence.
50 PRINT TAB(24);"RANDOM MORSE TEST FOR GW-BASIC"
60 PRINT TAB(24);"===== "
70 PRINT:PRINT:PRINT"This program sends up to 250 characters in random groups 2-7
    characters long"
80 PRINT:PRINT"Start and End signals are included to simulate exam conditions."
90 PRINT:PRINT"Select Letters only, or Mixed letters and numerals."
100 PRINT:PRINT"You must tap 'Enter' after each entry"

```

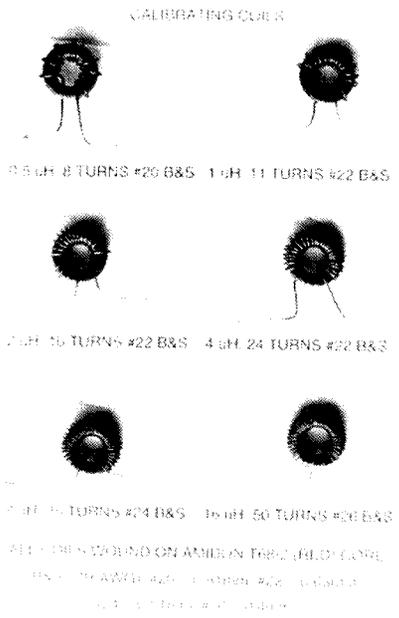


Figure 3 — Calibrating Coil Details.

```

110 PRINT"Get ready to copy before you do the third "Enter" on this page!"
120 PRINT:INPUT "ENTER L OR M",CH$
130 CH=36: IF CH$="L" OR CH$="I" THEN CH=26
140 PRINT:INPUT "Enter No. of Characters",KK
150 PRINT:INPUT "Enter Required Speed in W.P.M.",S
160 DUR=16.5/S:REM Increase 16.5 to slow speed and vice versa.
170 DIM A$(36),B$(36),C$(100),D$(100)
180 A$ = "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789"
190 FOR L = 1 TO CH: A$(L)=MID$(A$,L,1)
200 READ B$(L): NEXT L
210 CLS
220 PRINT:PRINT:PRINT"GO!"
230 C=1: K=0: REM This line & next clear varies for Repeat function.
240 FOR H=1 TO CH: C$(H)="": D$(H)="": NEXT H
250 Q = INT(RND*6) + 2: REM Length of group.
260 FOR N =1 TO Q
270 J = INT(RND*CH)+1 :K=K+1 :REM J is no. in alph; K is no. of chars.
280 C$(C)=C$(C)+A$(J):REM The word to print
290 D$(C)=D$(C)+B$(J)+"2":REM The word to sound
300 NEXT N
310 C =C+1
320 IF K × KK THEN 250
330 T=TIMER: WHILE TIMER (T+.5: WEND
340 A=0
350 SIG$="31313":REM Start signal.
360 GOSUB 610
370 FOR A =1 TO C-1 :REM You added 1 in 310, now subtract 1.
380 GOSUB 530
390 NEXT A
400 SIG$="13131":REM End signal.
410 GOSUB 610
420 T=TIMER: WHILE TIMER (T+1: WEND
430 BEEP
440 CLS:PRINT:PRINT"STOP WRITING!"
450 PRINT:PRINT
460 FOR JJ=1 TO C-1
470 PRINT C$(JJ),
480 NEXT JJ
490 PRINT:PRINT:PRINT"To repeat with same parameters, type R."
500 PRINT:PRINT"Else type Q. You can then RUN from the start!"
510 PRINT:INPUT "Type R or Q",Y$: IF Y$="R" OR Y$="r" THEN 210
520 PRINT:END
530 FOR E = 1 TO LEN(D$(A)):REM Subr. to sound "words"
540 P$ = MID$(D$(A),E,1)
550 IF P$;"2" THEN 570
560 SOUND F0,DUR*2 :GOTO 580
570 SOUND FT,DUR*VAL(P$) :SOUND F0,DUR
580 NEXT E
590 SOUND F0,DUR*5: REM Between-words space. You can increase.
600 RETURN
610 FOR E=1 TO 5: REM Subr. for "Start" & "End"
620 P$= MID$(SIG$,E,1)
630 SOUND FT,DUR*VAL(P$) :SOUND F0,DUR
640 NEXT E
650 SOUND F0,DUR*6
660 RETURN
670 DATA 13,3111,3131,311,1,1131,331,1111,11,1333,313,1311,33
680 DATA 31,333,1331,3313,131,111,3,113,1113,133,3113,3133,3311
690 DATA 33333,13333,11333,11133,11113,11111,31111,33111,33311,33331

```

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# Technical Abstracts

Gil Sones VK3AUI

## The Iron Glove

TELEPHONE RFI is a world wide problem and some of the cures used overseas are novel. Bill Orr W6SAI in CQ May 1992 relates the approach of Sol N4IXO who used a rubber glove filled with steel wool as shielding in a phone.

The glove was filled with steel wool and then placed around the internal components as shielding. Both magnetic and electrostatic shielding would result. The steel wool would be fairly lossy at RF frequencies.

Some care would be needed to avoid shorting out the works. Also experimentation in placement and being able to shut the box again would be in order.

Other cures mentioned were filtering the phone lead. This can be done simply with no modifications to the phone by winding excess lead or maybe an extension lead around a suitable core. A toroid or an old TV EHT core would be fine or maybe a ferrite rod or the core from a TV deflection yoke would all be suitable for experiment. Remember good RF performance is not the main criteria but rather the sopping up of the unwanted stray RF.

For those wanting more information an article in QST May 91 by Pete Krieger WA8KZH is worth reading. Pete has a company K-COM which sells RFI suppressed phones and suppression equipment such as filters in the USA.

Locally my attention was drawn by a local broadcast item from the WIA Vic Div concerning AOTC TF200 phones and RFI. The Vic Div has a letter from AOTC concerning such problems.

AOTC or maybe you know them as TELECOM are working on a TF200 phone which has an improved immu-

nity to RFI. A certain amount of persistence and patience may be required however to obtain the desired result. Be aware that it is not a free service. The problem is not common and so may take some explaining.

## Hybrid Quad for 70 cm or 23 cm

An interesting quad variant appeared in Radio Amatoori May 92 written by Matti Vilppula OH3AWW. The antenna is two quad loops with a common feed backed by a reflecting screen.

The antenna is simple to make and should have worthwhile gain and front to back ratio. The diagram fig 1 shows the construction and does not really need translation.

The coaxial cable is fed through a tube which supports the quad elements. This provides for adjustment of the quad to reflector spacing and acts as a form of balun to suppress currents on the coaxial cable outer. Adjustment of this spacing affects both SWR and Front to Back Ratio. On 70cm the tube is 15cm long and 20mm diameter. For 23cm try 5 cm long. The cable is RG58 and I would recommend a change to something like 9913 or Heliax as close to the aerial as possible for the run to the shack.

The reflector is a square of mesh or foil or similar and is non critical.

Dimensions are:-

Band	70cm	23cm
Loop Sides	17-17.5cm	6cm
Element Dia	4mm	4mm
Reflector Size (Square) (h)	55cm	25cm
Reflector Spacing (a)	10cm	3cm

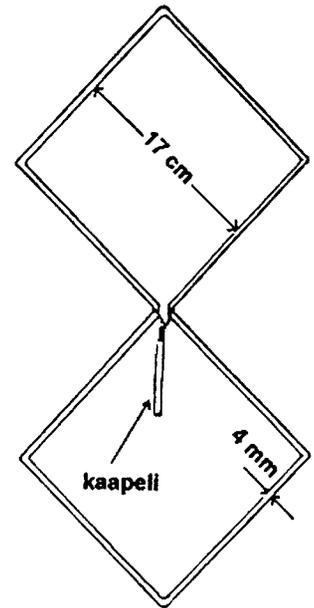


Figure 1A

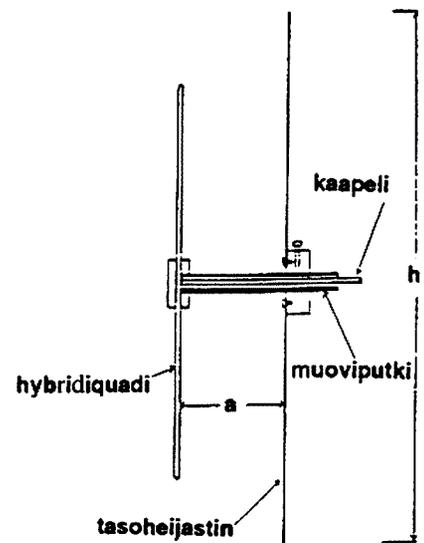


Figure 1B

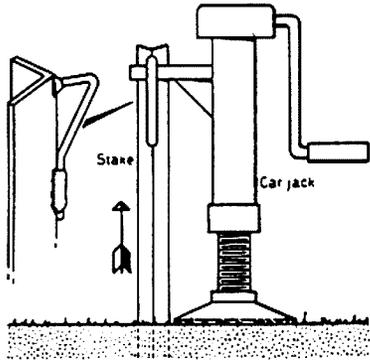
Figure 1 — Hybrid Quad

## Guy Rope Anchor Removal

A neat trick to remove guy rope anchor stakes without ruining your back appeared in Pat Hawker's Technical Topics Rad Com Aug 92. The item from Cliffe Sharpe G2HIF concerns using a car jack to remove guy stakes. Cliff welds a hook onto the stake which engages the car jack.

The diagram is self explanatory. Fig 2 Judicious use of bricks under the jack provides sufficient lifting range.

If you have a different type of jack to that shown then a different hook welded to the stake would do the trick.



**Figure 2 — G2HIF's recommended method of removing stakes from the ground using a standard car jack of the type which has a short arm that plugs into the side of the car.**

ar

# Try This - Variations on 24-Hour Theme

**Bernie Ferguson VK3FN  
96 Glenroy Road  
GLENROY 3046**

**C**ONGRATULATIONS to Tony Zuiderwyk VK3ZMP for his 24-hour UTC clock idea.

Quite frankly I did not know 24-hour units existed in this form, and I lost no time chasing one up. Eventually, after much phoning, JAYCAR admitted it had them "on special at \$9 odd".

My approach is somewhat different from Tony's. A little more expensive perhaps. The picture shows how I went about my UTC.

The 12-hour clock I purchased had its unit firmly clipped into position, so

was ideal, as the 24-hour unit is of virtually the same dimensions (some slight differences easily overcome). I wanted to save the face and unit of the clock for EST use in the shack, so removed the face. Anyone wishing to do the same should take care!

The face is attached with double-sided adhesive tape and easily damaged. Believe me, a very sticky job, but thankfully successful. It now chuffs away on the shack wall.

PS: I used rub-on numbers and dots obtained from newsagents.

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## Special 24-Hour Clocks



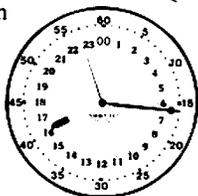
10"  
Quartz

### "ZONE VIEW GLOBAL CLOCK"

This rotating World Map Clock gives times in 30 colour differentiated time zones. \$82 + P&P.

### "ORBIT 24"

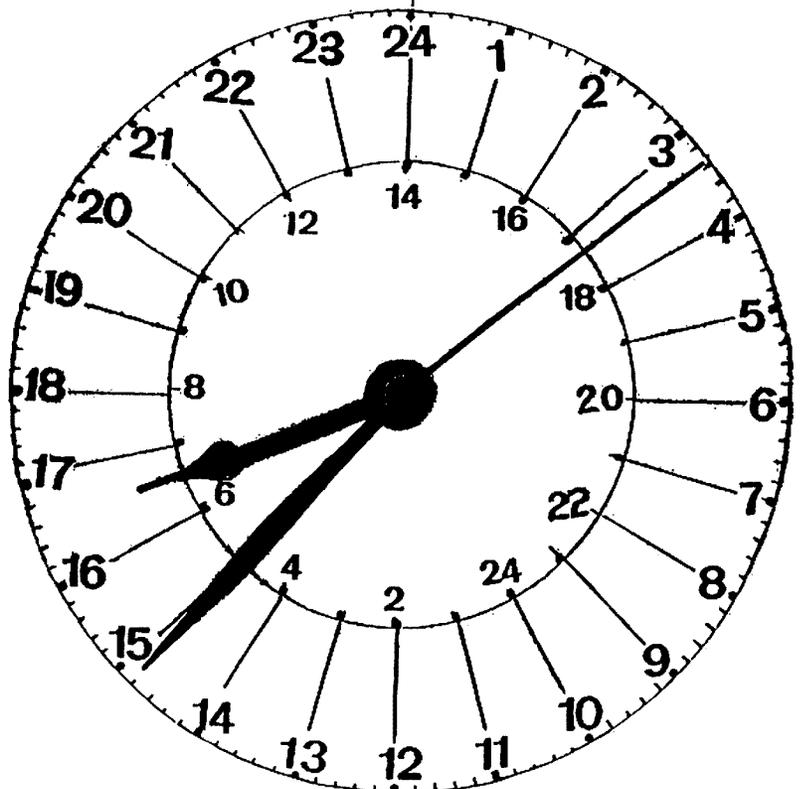
24-Hour clocks can be confused with 12-Hour clocks. But NOT THIS ONE!  
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Twenty-four-hour clockface.

# Antenna Handbook

compiled and edited by  
**P Linaley Q3PDL and T Nicholson KA9WRI/GWOLNQ**  
 Reviewed by **R G Tait VK3UI**

**T**HIS EXCELLENT publication features 155 pages crammed full of useful data and practical antenna and test equipment anybody can make at home. The information has been gathered from 68 issues of SPRAT, the official journal of the G-QRP club. This book is essential reading for anybody interested in low power operation.

The book is divided into seven sections, and they are:

1. ATUs and Test Equipment
2. HF Beam Antenna
3. HF Wire Antenna
4. HF Vertical Antenna

5. HF Loop and Restricted Space Antenna
6. Antenna for VHF Bands
7. Appendices

The interesting thing about this book is that it covers the very old antenna to the very new innovations. It features V beams, a variety of magnetic loops, Bobtail curtains, Bruce, Sterba Curtains, Toast racks, Pocket Zepp, Multi bands etc. The list goes on. It is written in very clear and precise terminology; no long-winded mathematical expressions to confuse the less technical among us.

It is considered this book is an ideal companion for the QRP Classics reviewed in a previous issue of AR, as it fills in the gaps and, to repeat that old saying, "If you can't hear them you can't work them!"

The review copy was kindly supplied by Stewart Electronic Components of Melbourne. The ordering number is BX452, and the cover price of \$22.50 is very reasonable for this excellent book.

It should be available from your WIA Divisional Bookshop in the near future.

ar

# Amateur Enthusiasm in India

**Ian Milne VK7IR**  
 25 Lewis Avenue  
 Seven Mile Beach 7170

**H**AVING JUST returned from a two-month working visit to India, one of our many impressions of that complex and interesting country is of the enthusiasm and hospitality of the amateur community.

I was working with the staff of the Government Monitoring Station at Madras; it was very fortunate that the officer-in-charge of the station is Mohanraj VU2AMJ, who acted as a most effective bridge into the amateur activities in the district, providing us with the opportunity to make many new friends. The high spot of these activities was undoubtedly the February 1992 convention at the National Institute of Amateur Radio at Hyderabad.

The NIAR is an impressive organisation which is set to transform the amateur scene with government-supported promotional projects; the enormous requirement nationally for disaster and emergency communications has stimulated this support, thanks to the great PR efforts of Suri, the director of the Institute, and his dedicated staff.

A team of designers at the Institute has produced a range of kits for aspiring amateurs; commercial equipment is very expensive in India, and there is much more incentive to home-brew, though components can be a problem. The kits answer this demand with a choice of single-band receivers and

transceivers which can be upgraded or modified as funds permit; they would be excellent training experience for introducing amateurs to the hobby in any country, perhaps reducing the current dependence on "black boxes".

In addition, club stations have been funded and provided with equipment to carry out educational programs, which will produce a large group of trained people out in the country as young amateurs come through the system. This will generate considerable activity, and will make quite an impression on the air. The program of speeches and sessions was chaired by regular and popular visitor to the convention, Tom King VK2ATJ, who kept speeches to a strict 10 minutes, using a long whip (gently!) to enforce it. XYL Janet and myself were privileged to be honoured guests and to speak briefly on the Australian scene from our perspective. DX fanatic Valery (Larry) Saldin RA4HA, and Christoph Grandt DL2KAW were also guests. As Janet was the first foreign XYL to attend a convention, she was given the role of presenting trophies to various "young achievers". This went well, in spite of it being a complete surprise.

Many speakers described their activities in all technical branches of the hob-

by and from all parts of the country; a most enlightening experience for us, and there was an exhibition of the new kits and other individual home-brew products. The "flea-market" so popular at such conventions elsewhere is not a feature in India yet; people tend to hang onto any bits they can get, but we were told this would be tried soon.

At the end of a full weekend of activities, and after meeting countless new friends, the foreign guests enjoyed a special dinner with Suri and some of the staff of NIAR. This was typical of the hospitality we received throughout our visit to India, often from complete strangers; it would be nice to repay a fraction of that to visitors from India.

As a small token of our appreciation, we presented a prize for the greatest number of VK7 stations worked before our next convention, hoping that this would help to cement our new bonds with more regular contacts. I am sure any VK station would be valued as a contact . . . everyone knows the Aussie cricket team and recognises Tasmania by David Boon! So, please, if you hear those rather rare VU stations on the bands, give them a call and a welcome; you will enjoy it. Our special thanks go to VU2AMJ Mohanraj, and to all friends in the Madras Amateur Radio Society, who so enriched our experience of their country.

ar

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member  
today — use  
the form on  
the reverse  
side of the  
AR address  
flysheet.**

# Resistors to Order

**Robert R McGregor VK3XZ  
2 Wiltshire Drive  
Somerville 3912**

**M**ASS PRODUCTION supplies resistor values from about 10 ohms to 10 megohms in typically third, half and one watt ratings. Unless consistently building minimum or maximum sized gear, a range of half-watt resistors usually suffices. There are the odd spots where a higher wattage is necessary or, say, on a circuit board to distribute the heat released over a wider area. Option one is to place two resistors of twice the value in parallel. Option two is to connect two resistors of half the value in series. These are valid and useful design procedures. However, when using stock values, they do not usually result in a "preferred value".

The third option, especially applicable when more than one watt is required, is to series/parallel units of the final value required. This allows direct replacement of high wattage "preferred values".

A simple rule gives all the information needed; if the number of parallel strings equals the number in series in each string, the final result is the same

as the individual resistors. The dissipation in each one is equal and the total is the sum of the total resistors used.

For example, if we wire up three in series three times and parallel them, the resistance is that of an individual resistor, and the dissipation is  $9 \times 0.5$  watt = 4.5 watts. (For 1/2 watt resistors). This rule also applies to capacitors and inductances.

It can be desirable to use a series string for other reasons. By this means the shunt capacity across the total resistance can be reduced nearly in ratio of the number in series; handy in feedback circuits around op-amps. For high ratio dividers, a better bandwidth is achieved by using a sufficient number of equal resistors in series; across the output one a carefully adjusted capacity will increase the bandwidth as shown by the improved square wave response. This is handy for "built in" test points for a CRO where using a probe can upset the operating conditions, or a spurious signal that is being investigated.

ar

## ATN ANTENNAS & Accessories

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- Aust/NZ distributor for Create antennas/rotators & Phillystran (Kevlar) non-conducting guying materials.
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- Butt section triangular aluminium towers for fixed or tilt-over applications (refer March/April 1987 AR).
- Selections of power chips and TX tubes at friendly prices.
- VSWR/PWR meters by Diamond to 1300MHz 5 models. All in stock.



# Technical Correspondence

## That Ionosphere Again!

IT IS GRATIFYING to note the interest of Robert VK3XZ in Near Vertical Incidence Skywave (NVIS) transmission in the lower part of the HF band, and also his observations that this type of transmission applies to other low horizontal radiators as well as dipoles (Ref AR Jan 1992 — "Antenna & Ionosphere in Partnership").

However, the section dealing with the radiation resistance of dipoles falling to a very low value as height is reduced applies only above a perfectly conducting groundplane, and is so specified in earlier editions of the ARRL "Radio Amateur Handbook" and the "Antenna Book". Editions from the mid-80s on include in the relevant impedance/height diagram a dashed graph showing the effect above real earth in which the lowest impedance of 45 ohms or so occurs between 0.05 and 0.1 wavelengths, then increases sharply to 90 or 100 ohms at zero levels. This general case can be confirmed in the practical situation with minor variations due to ground conditions and measurement inaccuracies.

This range of impedance matches quite well to 50 or 75 ohm co-axial cable, as appropriate, so no difficulty arises except that the loss resistance tends to exceed the radiation resistance as the radiator approaches zero level and the power efficiency of the communication system rapidly decreases!

The trick is to balance losses against cost in terms of convenience, portability and financial aspects. It is suggested that this balance occurs somewhere close to the height of 0.05 to 0.1 wavelengths quoted above. Unfortunately one cannot compare against a dipole at 0.5 wavelength above a ground plane as it has no vertical lobe, and for 80 metres, for example, requires a mast height of 40 metres!

The loss for a 40-metre dipole two metres above ground surface appears to be of the order of 6 to 8 dB, almost the same as the 7 dB quoted for the 3/4 wave radiator tuned against ground, although on most solid state receivers this looks more like two "S" points than the theoretical one!

Insulated radials or counterpoise can at least eliminate the contact resistance of a ground spike, but do nothing for the poor ground conductivity usually encountered. In fact, the practical real earth should be considered as a lossy dielectric with the losses for a counterpoise approaching those of a ground spike! With 1/4 wave insulated radials on the surface treated as a one-wire transmission line, these dielectric losses are transferred to the low impedance end and add to the input impedance as series losses.

This is the basis for those recommendations for 32 or more radials, and even up to 100 by the American experimenters some years ago trying to achieve a one ohm virtual

## "Little-L" Inductance Bridge for RF Coils

(Continued from page 12)

LX terminals with minimum lead length. However, a pair of clip leads each of 2 or 3 cm should not add appreciable stray inductance for coils larger than about 1  $\mu$ H. No other components should be allowed to remain connected to the "hot" end of the coil during measurement, or significant errors may result.

### Parts

All parts are available from the usual electronics retailers. Near Melbourne, suppliers of radio components include; Stewart Electronics, and Truscotts Electronic World. Both firms will an-

earth! At this point, all portability and convenience are lost, and a complete commercial earth mat may as well be selected. So most amateur portable stations must settle for some considerable loss on the dirty end of the stick! That is, unless there is a desert sandhill, as a perfect insulator, to radiate from surface level as suggested by Tom VK5TL (also in Jan AR).

William A McLeod VK3MI  
42 Capon St  
Chadstone 3148

## Footnote: Response by VK3XZ

I would like to express my appreciation to William VK3MI for enlightening us further on the practical radiation resistance that is realised under average ground conditions for dipoles. No sandhills, thank you, I am not long back from Longreach and, before that, Broome and Halls Creek. I have had my quota for the year, about 9000 km! I do recall now a past trip around Centre, where the driver would open the door of the coach, throw out a crumpled 20/25 feet of wire on to the ground for an aerial, peak it on the Codan's tuning and call base on around 4 MHz, never missed! There is room for investigation; explanation might take longer! Thanks OM!

Robert R McGregor VK3XZ  
2 Wiltshire Drive  
Somerville Vic 3192  
ar

swer mail orders. Other suppliers of Amidon cores advertise in the Hamads of this journal. Write to me at the address above if you cannot make your bridge work satisfactorily, or require a loan of my inductance standards (SASE please).

## References and Further Reading

1. Radio & Electronic Laboratory Handbook- Scroggie, Newnes Butterworth.
2. Radio Handbook- Orr, Sams (good discussion on bridge circuits).
3. The Handy Inductance Bridge- Brumbaugh, KB4ZGC, 73 Mag., May '91.
4. Direct Reading LC Meter- Brown, VK3YGB, AR May '78. ar

# Mini Equipment Review

Ron Fisher VK3OM

## The MFJ-910 HF Mobile Antenna Matcher

MFJ seems to be a manufacturer which can produce the right piece of equipment at the right time. One such piece is the 910 HF mobile antenna matcher. This works on the principle that when the usual mobile whip is resonant, the base impedance is anything but 50 ohms. This is where the MFJ-910 comes in. It provides a capacitance divider to match the antenna's normally low impedance (perhaps about 20 ohms) to a 50-ohm line to the transceiver. The 910 is built into a very neat metal box measuring 75mm square by 28mm deep. An SO-239 coax connector is mounted in each end, and

a six-position switch is on the front. There is a mounting flange on either side of the cabinet. The six-position switch gives five matching combinations, while the sixth position is used to bypass the matcher.

### The MFJ910 on the air

I took the 910 along on our Northern Territory expedition and used it with my old Hustler mobile whip system. On 20 metres, the best match that could be obtained by adjusting the length of the whip was 1.5:1. Putting the 910 into the system soon brought the SWR down to 1:1. Side-by-side tests indicated little or no difference in the output signal. However, there is no



doubt that the transceiver was much happier with the correct match. The instruction sheet recommends the matcher should be placed within two feet or less from the antenna. In my case, the closest I could get was nearly two metres, so this could have had an adverse effect on the operation of the unit.

A few points should be noted about the operation of the MFJ-910. It is not an antenna coupler. Its purpose is to match a resonant whip antenna to a 50-ohm load. If you are not using a mobile whip then in all probability you should consider one of MFJ's antenna tuners such as the 945D review also in this issue.

Our thanks to Stewart Electric Components for the loan of our review mobile antenna matcher.

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# SOME THINGS HAVE NO COMPARISON

amateur  
**radio**  
action

The magazine for the serious radio operator

AT YOUR NEWSAGENT EVERY MONTH

# A Different Opinion !! Is It Really Amateur Radio?

Harry Atkinson VK6WZ

**(Editor's Note — The following item is the author's personal opinions only, and are not those of VK6 Divisional Council, nor individual members .. VK3ABP).**

**L**ONG BEFORE you were born — for some of you, long before your parents were born — a famous amateur wrote articles in "QST" about "Rotten Radio". He was Hiram Percy Maxim, the original holder of the call WIAW. Under the pen-name "The Old Man" he attacked attitudes and activities which he saw as detrimental to the hobby.

He didn't attack new techniques as such, but he spoke out strongly against malpractices on the part of a minority of operators. Deliberate QRM — out-of-band operating — bad sending — use and abuse of higher-than-legal power. He held strong views on what the word "amateur" meant. To him it meant the pursuit of the hobby to the best of one's abilities, avoidance of commercialism, the observance of the radio regs and — laugh if you must — gentlemanly consideration for others.

One wonders what The Old Man would think about the ratbag fringe whose vocabulary on our bands sounds like R-rated movie dialogue? Just because some CB operators choose to talk that way doesn't make it acceptable on our bands. Simply on the grounds that there hasn't been a DoTC prosecution in recent years, it doesn't follow we should use pub language in our QSOs.

If he were alive today, Maxim wouldn't be the least bit impressed with

the American operator who, some years ago, bragged he'd blasted the Australian Traveller's Net off the air with his kilowatt of packet if the net didn't QSY. Lovely! As a highly proficient practitioner of the world's first digital mode, The Old Man would probably marvel at and warmly welcome packet radio . . . but we'd expect him to be scathing in his comments on some of the tripe sent out on packet by a minority of immature minds.

How would he react, one wonders, to the sweetheart deals between some sections of our hobby and bodies such as Aussat and others to carry amateur signals to places where, for one reason or another, amateur transmissions cannot reach? At a recent WIA Divisional Council meeting the writer dared to question the use of commercial satellite links for such modes as ATV, packet and JOTA voice traffic, asserting that these arrangements might be an excellent way to secure media publicity for amateur radio but, strictly, they were NOT amateur radio. You wouldn't expect such radical remarks to pass unchallenged, would you? They didn't.

"Did you build your transceiver?" he was asked. The answer, of course, was "no". The implication there seemed to be that if it's okay to use factory-made transceivers, there's nothing wrong in using commercial links to carry amateur traffic. Well, nothing wrong certainly if you take "wrong" as meaning "breaking the law". But isn't it wrong in principle? Isn't it an admission of defeat . . . of inadequacy? Let's see how it stacks up alongside other hobby pursuits.

You're an amateur angler. You catch fish for fun — not for profit. Sure, your fishing gear came from a factory, but you catch your own fish — you don't cadge some from the professional fisherman. You own a yacht — maybe you built it, maybe you didn't. But when you take family or friends out for a sail you don't charge money for it — and you don't expect a tug or a cargo ship to tow you. You use nature's winds and your sailing skills to get you where you want to go and back again. You are a true amateur.

Can you imagine an amateur woodturner passing off professional work as his own just because the task got a bit difficult? Would an amateur artist get a professional painter to finish off every one his pictures?

Justification for these sweetheart deals with commercial bodies was that they encouraged amateurs to "keep up with technological progress". It seems to this writer that continued — even possibly expanded — use of these facilities could actually stifle technological advances. Remember, we have our own orbiting satellites up there. We should be using them for "technological advances". We paid for them. We own them. We are beholden to no-one outside our own ranks. But if we take the easy option of using commercial channels to link amateur to amateur, why bother pouring more time, brainpower and money into the Oscars?

Furthermore, who authorised these groups to place our hobby under an obligation to outside interests and — it seems on the limited and grudgingly given information to hand — without any documented agreements on rights, responsibilities or whatever?

The fact that DoTC when approached on this matter did not raise any objections should not be taken as making it right. Remember, DoTC gets so little revenue from us when contrasted with the spectrum space we enjoy, it doesn't want to be bothered too much with details. In any case, we're talking here about principles, not law. There is a difference. DoTC couldn't care less about amateur tradition — as witness the disgraceful business of the GOD callsign suffixes.

We should not be using commercial facilities. Isn't it better to own your own car than thumb a ride with a truckie?

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# Try This

Jack Swalinger VK3IP  
26 Lording Street  
Ferntree Gully 3156

## Convert Your Hand-Held Into a Base Station

AS MENTIONED in January '92 AR by Ron VK3OM in his review of the YAESU CA-2 desktop stand, hand-helds just don't want to stand up and be counted! When I first came on 2 metres, all I had was my hand-held FT411. Other considerations then became apparent, such as difficulty in reading the LCD readout in many, if not most, lighting conditions. Also, they run very hot when used on the five watt setting. That I didn't like.

If you have not got a speaker/mike accessory it is very awkward trying to talk into it when sitting at the bench, as was the case with yours truly in the early days of my 2 metres work.

Herewith photos of my way around these problems. Made from plywood and metal, all from the junk box. It supplies light and cooling from a swing down lamp and a miniature tape recorder motor running off the 13.8 volt supply via a 100 ohm series resistor.

A pivoted "U" shape wire clamp prevents the rig from falling forward.

The fan blade was cut from aluminium shim with scissors.

The tubular elevating stand is not really needed if you have the speaker/mike combination, but I did not have it originally.

The stand as shown will accept the 411 with or without the DC adaptor.

By the way, Doug VK3KMN has, or did have, some 12 volt motors complete with a multi-bladed fan. I am using one of them to keep my Alinco DR110 cool. There is a very convenient 5/32 Whit tapped hole in the rear heatsink, just for fixing a clamp and bracket.

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## BOOK REVIEW

# Space Radio Handbook

by John Branegan GM4IHJ  
an RSGB publication

THIS BOOK IS A worthy addition to the already well known RSGB publications, and is cast very much in the same mould. It is authoritative, complete and easy to read.

The author successfully draws together the wide range of topics related to space science and the depth of coverage is more than adequate for the amateur experimenter. His treatment of the ionosphere is one of the best I've read. He spends considerable time detailing the way in which the ionosphere affects VHF/UHF and microwave communication, an area often neglected in other texts, but vitally important to satellite users. There are formulae for those who need them, but the bulk of explanatory material is handled using computer-generated graphics and tables. The book is well indexed and has a useful glossary of terms and addresses.

There are 13 chapters:

### Space Radio Physics 1 & 2:

The ionosphere and near space physical conditions affecting HF, VHF, UHF and microwave propagation.

### Types of Satellites:

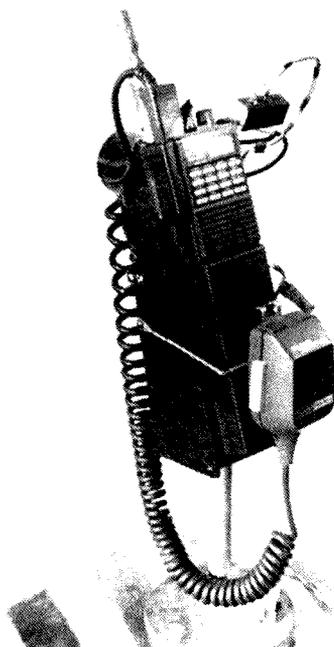
Covers just about every known kind of artificial earth satellite from amateur Oscars to killer satellites.

### Orbits and Tracking:

A very comprehensive, easy to follow view of orbital geometry with an historical perspective on Johannes Kepler. Covers all the usual orbits along with problems posed by the Van Allen belt. An interesting account of some rather unusual deep space orbits.

### Satellite Radio Reception:

A practical discussion of problems and solutions associated with reception of weak signals from space.



### **Amateur Radio Satellites:**

Historical and technical account of all amateur radio satellites from Oscar-1 to phase-3 and the present generation of digital store and forward micro-satellites.

### **Weather and Experimental Satellites**

Good general explanation of the reception of weather satellite pictures.

### **Experiments In Space Radio:**

The longest and possibly most interesting chapter (42 pages). It details many experiments for the amateur or school science teacher. The book is worth reading for this chapter alone.

### **Man In Space:**

A detailed look at the manned space programs of USA and LONGER with a special emphasis on their communication problems and solutions.

### **Space Radio Computing:**

A comprehensive summary of the computer's role in space communications. Tracking, telemetry, command and control, digital comms etc.

### **Meteors, Comets, Moons and Asteroids:**

Discusses the effect of these bodies on the ionosphere and space communications. Good coverage of moon-bounce problems.

### **Amateur Radio Astronomy:**

Practical radio astronomy suitable for the amateur experimenter.

### **Future of Amateur Radio In Space:**

A bit of crystal-ball gazing.

### **To Summarise:**

The book answers many questions for newcomer and experienced amateur alike. It covers a wide and complex field in a very readable and informative way, without resorting to jargon or higher mathematics. It's a good general text on space science and will find a place in secondary school libraries as well as on the experimenter's bookshelf.

**Review**  
by Bill Magnusson VK3JT  
359 Williamstown Road  
Yarraville 3013

ar

# Australia Celebrates 50 years of Electronic Track Guidance

Rod Torrington VK3TJ

**N**INETEEN-NINETY-TWO is the golden anniversary of the introduction of electronic track guidance for aircraft navigation on the Adelaide-Darwin route.

In July and August 1942, Ted Betts and myself installed 33 MHz radio ranges at Alice Springs and Daly Waters. The AS facility was not that far removed from its site occupied by the present VOR on the western side of the aerodrome. Both ranges were installed within the period 9-31 July 1942.

These two nav aids were the only guidance that Guinea Airways had between Adelaide and Darwin, an area where VFR navigation can be notoriously difficult. Most aeradio stations, however, had Bellini-Tosi direction finders to assist with navigation.

These range transmitters started life as 38 MHz Marker Beacon transmitters, and part of the 33 MHz radio range systems supplied to DCA by AWA. The markers were modified at Essendon to operate on 33.3 and 33.8 MHz, and an extra tray was added to

house the aerial relay power supply and keying motor. The transmitter used valves type 807 in the minor stages, finishing up with push/pull 807s in the final. The aerial system consisted of a vertical half-wave radiator plus two half-wave (nominal) reflectors spaced approximately a quarter wavelength from the radiator, depending on the required bend in the course.

The aerial system was mounted on a wooden structure atop three poles about eight metres high, located in a triangular arrangement.

Fifty years has seen the 33 MHz radio ranges replaced successively by VAR (Visual Aural Range), a four-course system, then VOR (VHF Omni Range), which has a nominal 360 tracks to choose from.

The above item has been reprinted from the Aviation Bulletin, September 1992, and we gratefully acknowledge with thanks their permission to do so .... VK3UV Production Editor.

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**Have you advised the WIA Federal  
Office of your new callsign?  
Use the form on the reverse side of the  
Amateur Radio Flysheet.**

# 1992 Remembrance Day Contest Results

Neil Penfold VK6NE, Federal Contest Manager

## CONGRATULATIONS TO VK3

VK3 has again shown a clean pair of heels to the other Divisions. A good effort despite band conditions. Their participation factor was good, and there was some organisation evident.

Comments from operators range over a variety of contest related subjects. Some of these are included as they show just how diverse opinions are on contest matters.

Now to the results.

### Results in numerical order

- 1st VK3
- 2nd VK6
- 3rd VK1
- 4th VK2
- 5th VK5
- 6th VK4
- 7th VK7

$$\text{Final Score} = \frac{\text{No. Logs}}{\text{No. Licences}} \times \text{Total points} \times \text{WF}$$

- VK1 51/ 246 x 4569 x 1.04 = 570.21
- VK2 45/5455 x 4755 x 8.47 = 322.19
- VK3 140/4992 x 12720 x 4.59 = 1634.77
- VK4 42/3293 x 4185 x 5.51 = 299.77
- VK5 48/2067 x 6953 x 1.92 = 307.04
- VK6 106/1704 x 10679 x 1.55 = 964.10
- VK7 19/ 645 x 2625 x 2.24 = 176.4

## Individual Scores

HF Phone	HF CW	VHF Phone	VHF CW
<b>VK1</b>			
DX 567	CEE 50	DO 333	DF 36
BR 200	DD 47	DI 211	CEE 31
CEE 153	DH 34	DF 210	RH 23
RH 129	NR 21	KNP 171	KHW 16
KLB 112	DO 20	7ZNP/1 163	DW 13
DF 105	DA 15	KLB 126	
ZX 103	CC 12	ED 114	
KNP 65		CEE 109	
VP 62		DW 94	
DW 59		RH 87	
DO 56		RG 87	
W1 47		KMA 61	
DH 35		KCJ 61	
NR 33		ZQR 52	
PC 22		DA 46	
DT 21		KHW 37	
DI 12		AWH 33	
		OK 30	
		YYZ 28	
		DX 24	
		ACA 21	
		NRU 18	
		VP 10	

HF Phone	HF CW	VHF Phone	VHF CW
<b>VK2</b>			
ARJ 525	EL 100	ANK 66	
BO 420	GS 91	BDT 25	
BUV 389	AWD 83	EY 20	
DCL 306	II 77		
EJW 244	BO 50		
ZL 210	AZR 41		
CJH 206	QF 41		
PS 206	GJS 37		
LEE 161	ED 17		
RE 147	RJ 15		
ANK 146			
CJT 143			
ALZ 124			
NW 118			
JIM 99			
EY 99			
BDT 66			
XT 59			

- BYY 50
- AIC 48
- PEJ 45
- GSU 42
- FBN 41
- WF 40
- GV 28
- GT 27
- SW 22
- NCE 21
- 5BS/2 20
- CF 17
- PY 12
- RJ 11

HF Phone	HF CW	VHF Phone
<b>VK3</b>		
DDU 450	SM 67	DP 203
FR 303	BMK 60	FC 106
DDX 278	LBA 59	XB 71
JY 227	EUZ 59	JJA 67
BHU 213	OZ 49	DVW 66
BML 220	ABB 46	ANJ 45
TU 205	NFJ 43	KS 39
DUQ 204	DY 41	WEG 38
CX 161	SV 47	IY 34
YH 160	AEB 34	DNC 31
AEO 154	KRH 33	AMD 30
JTW 153	DRX 32	DRX 32
DS 151	WEG 32	DG 25
ALK 151	HJ 32	XF 22
APC 151	VQ 31	AL 17
AHY 145	DNC 31	VB 15
DD 140	DYF 30	BML 11
ALM 123	VGK 29	HJ 110
ENX 123	CRA 26	XDV 101
CAY 123	PQ 25	CAP 98
ZI 118	ABP 25	IP 96
JK 115	DG 22	XEC 93
AKK 115	CKH 22	SM 80
XF 113	ALD 18	CKH 79
EUL 103	DET 17	CAY 77
RC 102	AWZ 17	CRA 71
DCS 100	IY 17	DD 70
MGZ 100	KTO 16	WWW67
ATJ 97	NV 16	YZW 65
OM 93	AU1 14	WEG 57
ANP 93	AGH 12	DG 54

UJC 79 IP 12 BII 50  
 INCO 75 AMD 10 KBD 45  
 (/3)  
 JJJ 74  
 KSD 72 Check Log  
 BFN 68 VK3KF

**VHF CW** — No Logs submitted from VK3

HF Phone	HF CW	VHF Phone	VHF CW
<b>VK4</b>			
HF 579	LV 141		No Logs Submitted
LT 323	OR 127		
AAF 254	XW 117		
BTW 239	CI 93		
IS 231	OD 62		
BBA 219	XA 37		
DRC 204	BRZ 33		
KEL 127	RE 27		
DI 117	ZW 19		
AQD 106	YG 13		
ZT 90			
PS 89			
YG 88			
AAK 80			
PJ 77			
OD 63			
WIT 60			
ACW 57			
ZW 57			
MUY 50			
BSH 50			
AGL 50			
EZ 43			
MDG 38			
AAH 38			
CD 37			
FUY 36			
WRM 32			
BF 30			
OX 27			
BG 15			
KIG 10			

HF Phone	HF CW	VHF Phone	VHF CW
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**VK5**

ADD 542	CJP 100	AGX 126	TTY 531	No Logs Submitted
ATU 379	ST 76	HO 78	DL 450	
AYD 377	BVJ 75	TL 33	BKC 415	
BRC 352	ZX 70	JG 22	AKK 202	
ARC 344	PC 63	FX 20	BW 171	
CN 250	ZQ 50	YL 20	SE 83	
EE 219	BWG 44		RV 67	
ATN 179	NEI 36		NEI 62	
GN 146	RK 30		GN 61	
BWH 141	NF 27		XY 55	
APC 138	ANW 20		ANW 41	
RV 116	KJT 16		PC 40	
WO 115	MCG 14		SUX 38	
XY 107	CKP 14		ZKK 35	
UE 101			KIA 34	

HF Phone	HF CW	VHF Phone	VHF CW
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**VK6**

SZ 565	GGA 70	AFW 134	KS 441	THR 55
WJH 459	QN 70	AJ 75	ZDW 264	NE 50
ANC 425	TTY 63	IV 60	SH 222	SMH 50

BK 374	SMH 60	BEB 45	ZLZ 212	RO 43
JBL 300	FRE 55	BW 37	RG 217	JRL 42
ED 248	SAA 50	WT 14	YF 211	FJA 35
RG 225	GW 50	ED 14	XPS 206	UV 32
BA 218	KAD 47	RU 11	CX 206	KTN 27
VZ 205	RZ 45	GA 10	SAA 199	IV 26
JP 197	PAK 33		HU 175	MCB 26
VSD 173	NKB 27		SAN 174	MB 26
AMB 150	AN 26		JIP 154	FC 25
YF 139	KWN 26		GGA 147	ANC 25
RU 136	MM 22		ZPP 135	APK 25
LZ 130	UW 22		PDR 128	HK 21
ABS 112	WU 20		KWN 120	FRE 20
WIA 102	OV 14		AMB 118	RZ 15
SCS 97	AO 11		BW 115	RU 15
GGD 92	HD 10		CC 113	WT 14
OE 75	PDR 10		BWI 110	KXH 12
KH 75	APK 10		ZBP 98	AO 10
HU 74	KTN 11		KAR 83	
RRG 74			AN 83	
SH 72			ON 66	
SAN 72			NEB 65	

HF Phone	HF CW	VHF Phone	VHF CW
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**VK7**

PC 454	RY 51	ZBX 178	No Logs Submitted
CK 349	GB 23	ZMF 67	
SHV 263	RK 13	GL 62	
KC 255		YW 49	
NDO 208		MAT 40	
VK 94		RM 38	
NGC 87			
HK 75			
JP 70			
AL 63			
PP 60			
YW 46			
LS 28			
NBF 20			
ASN 20			
RM 12			

**VK8**

AV 306	HA 86
NUE 25	AV 55

**ZL**

IBGT 242	2ALJ 82
2ADN 170	IBGT 12
2TT 148	2TT 8
IAGO 106	
IIM 124	

**Receiving Section**

HF Phone	VHF Phone
VK4PVH	72
VK6 — P Kenyon	235
VK6 — L60250	33
VK6 — M Ang	14

## Comment from the Logs

Conditions changeable with heavy QRN on 3.5 and 7 MHz bands. The majority of operators exercised great patience during exchanges. But some so-called "experts" at excessive speeds. Let us keep our contest friendly. Nothing heard on either 21 or 28 MHz. Was I the only one? Looking forward to next year. VK5AGX.

Time wasted scanning 28 MHz. No signals heard. 21 MHz, one contact, heard VK8AV, ZL2ALJ, but they were gone before I could change antenna equipment from 14 MHz. Stuttering fists and gummed up keys keep scoring down. Too many RST reports, ignorance of rules. Rag chewing wasting time. VK4XW.

The RD contest always had a special significance for me. I think of it as our "Anzac Day" of the air. It's a place where old friends meet. Hopefully we will meet again next year in friendly rivalry. VK4BAY.

Regarding restriction to VK, ZL and P29 callsigns, reason that rules are directed towards "amateurs who died during WWII". This is against the aim as published. Were not the USA and England etc, also involved in the south-west Pacific area? Surely discriminating against those "other" amateurs who also died in our area? VK1PJ.

The RF seems to be dying in VK5, participation, particularly on 2m, seems less and less every year. Many people have said to me, "It's not like the old days when interstate points counted for something?" Can't we go back to the "old ways" or a new "revitalised version" before it dies out altogether. VK5ANW.

Enjoyed the contest. Good manners prevailed. Missed a few well known calls. VK4IS.

I worked a total of 156 VK stations more than I have worked in the past 32 years on the air. ZL2TT (ex VK4DRW).

I found the content enjoyable with quite a lot of activity. Nice to hear old friends and work new amateurs. VK6YF.

After a lapse of 10 years since participating, it really was enjoyable and an excellent way of keeping my CW capability for the rest of the equinox on six metres! Lest we forget. VK2QF.

Enjoyed the contest. As usual, all operators were friendly and patient. This is a good contest over the 24-hour period. Nice to have rules in Break-In magazine. ZL2ADN.

Again an excellent contest. Conditions not as good as in recent years. Not one novice contact on CW, and not many on 80 and 15 phone. Only one contact on 28, and the VK8 beacon was pounding in.

Without the old point scoring system, all contestants showed greatly improved operating manners, eg QSY" after numbers were given. A jolly good contest. VK2BO.

We enjoyed six hours operation of local club station. Additional contacts, own call-sign, from home on Sunday. Much enjoyed the contest, other operators friendly and courteous. Thank you for your part in making this tie of remembrance a special day for amateur radio operators. VK3OZ and VK3VB.

My first RD contest and first use of Iambic Paddle outside of practice sessions. VK2YL.

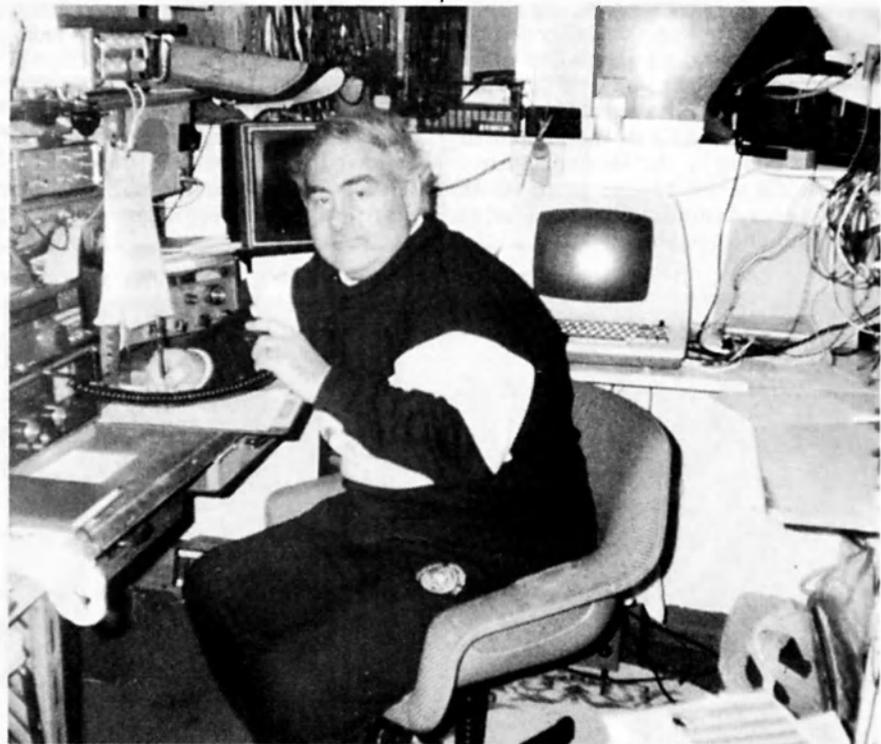
I was available only on Saturday, and usually use CW only in this contest. Having filled a page with HF/CW, I had a couple of bursts on VHF phone and then fired up on HF phone. Hence three logs! Contest seemed as busy — or better than — other years. 73. VK3AMD  
Single operators seem to be fading away in favour of club stations. VK6QN.

Good propagation on both 80 and 40 but 15 was poor and 28 non-existent. Mel-

bourne and district stations on VHF rack up a lot of points for Victoria, not shared with another state. Has there been a change in the number of HF and VHF participants in years Victoria has won the contest? Thank you for being the co-ordinator. VK3FR

## Federal President active in RD Contest

The WIA Federal President, Ron Henderson VK1RH, took time out from his voluntary WIA duties, and participated in this year's Remembrance Day contest. Ron was very active and he submitted three log summaries. On HF, he used a FT747 with G5RV and TH3JR antennas tuned through a MFJ 910 ATU. On VHF he used a FT290R, 4 element yagi and a G0BSX Mk1 TNC with a dumb ASCII terminal cast off by a credit union. ar



**Help stamp out stolen equipment — keep a record of all your equipment serial numbers in a safe place.**

# ALARA

Robyn Gladwin VK3ENX PO Box 438 Chelsea Vic 3196

## "Radiomania"

Marilyn Syme, VK3DMS, has been working on stamp collections and entering them competitively for some years. Two years ago, she decided to put together her collection on the history of radio and its use by amateurs. This type of collecting is known as "thematic" and is probably the most difficult form of philately. Last year, Marilyn won a Silver medal at a State competition in Melbourne and this encouraged her to enter the National Exhibition Stamp Show '92 in Brisbane in June.

This time, her "Radiomania" collection of stamps, covers, telegrams and other philatelic memorabilia won her a Large Silver medal. She was also given a special encouragement award for the most improved thematic exhibit by the Thematic Society of Australia a two volume set of books depicting our Australian Wilderness full of wonderful photographs.

Marilyn enjoys combining her two hobbies. She has plenty of ideas for expansion but it is not easy to find the right items. She would like to include a section on Alf Traeger and the pedal radio but is finding difficulty locating suitable materials.

## ALARA Awards.

This month, ALARA members join with the editorial team of "Amateur Radio" to acknowledge the contribution of all women amateur radio operators and short wave listeners to the hobby of amateur radio. Bron Brown, VK3DYF, Jenny Warrington, VK5ANW, and Poppy Bradshaw, VK6YF, are pictured receiving their respective awards for outstanding service to ALARA. However, they are also to be congratulated for supporting and representing women in other fields of amateur radio.

ar



Bron Brown VK3DYF with her ALARA award presented at the ALARA VK3 birthday lunch, 26th July 1992.



Poppy Bradshaw VK6YF with her ALARA award at the Westrail Centre, Perth, during the Radio Ladies lunch on 24th September 1992.



Jenny Warrington VK5ANW receiving her ALARA award at the VK5 ALARA birthday luncheon, 26th July 1992. In the photograph are from left Myrna VK5YW Foundation Member (seated), Jenny VK5ANW, Christine VK5CTY, and Mary VK5AMD.

**Help protect our  
frequencies —  
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# OPEN DAY!

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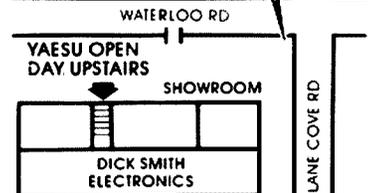
The easy way to save! Just phone us on our special One Day Only toll-free number between 9am and 4pm (Sydney time). We'll quote you our Open Day Special Price on new or ex-demo equipment. Simply quote your credit card number and we'll forward your purchase promptly to you. (Post and packaging extra)



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The FT-212RH is an ideal mobile FM transceiver that also doubles as an easy to use base station. With 45 watt output over the 144-148MHz range, rugged diecast chassis (for superb RF isolation) and extensive use of surface mount components. What's more, it has a large back-lit LCD with a bargraph P0/S-meter, 5 selectable tuning steps and a total of 21 memories (18 general purpose, 1 call channel and 2 sub-band limit memories for band scanning). As well, there's inbuilt C.T.C.S.S. encode and a variety of scanning functions. Complete with mobile mounting bracket, MH-14A8 microphone and DC power lead.

Cat D-3494



**\$569** With Bonus



Purchase an FT-212RH in November and you'll receive **BONUS** Dick Smith Gift Vouchers Worth \$70! You can use them yourself for future purchases, or even give them as gifts (great for Christmas). But hurry, this offer expires 30th November '92.



### FT-747GX COMPACT H.F. TRANSCEIVER

The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts PEP output on all 1.8-30MHz amateur bands, and general coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and an easy to read backlit digital display, dual operator selectable tuning steps for each mode, dual VFO's for split frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM and narrow 500Hz CW IF filters are also a standard feature. Complete with Yaesu MH-1 hand microphone.

Cat D-2930

**COMING SOON!** Remote front panel mounting kit for FT-747GX. Great for HF mobile operation where space for full size rig is limited.

2 Year Warranty

**\$1299**

### FT-650 6m, 10m, 12m ALL-MODE TRANSCEIVER



Yaesu's FT-650 all-mode mobile transceiver has been designed with the 6m enthusiast firmly in mind. With continuous reception from 24.5 to 56MHz you can follow the rising M.U.F. and work the 6m DX as soon as the band opens. Output is a powerful 100 watts on the 24.5, 28 and 50MHz bands (SSB, CW, FM), and the use of 3 Direct Digital Synthesizers results in extremely clean Tx and Rx operation. Particular attention has been made to the receiver's performance, with 6 Band Pass Filters and a 2 stage, low noise RF Amp being used to provide exceptional sensitivity (SSB/CW, 0.125uV) and wide dynamic range. Includes user selectable tuning steps, manual or automatic tuning IF Notch filter, an IF Shift control for interference rejection, an IF bandwidth control, 105 scannable memories, an RF Speech processor and an effective noise blanker. Includes Yaesu MH-1 hand microphone.

Cat D-3250



2 Year Warranty

**\$2295**

**SUPER  
BONUS!**

Purchase an FT-650 in November and receive a **BONUS** 5 element U.S.A. made Yagi, complete with stainless steel hardware, valued at over \$300. This offer is strictly limited to the first 6 FT-650 purchases, so be quick for this never to be repeated offer.



## HF 5 BAND TRAP VERTICAL ANTENNA

The Hustler tradition continues! The 5BTV is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1KW PEP power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m band resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable  
Cat D-4920

# \$299

### 30m Resonator Kit

Adds 30m coverage and includes all hardware. Cat D-4921

# \$79<sup>95</sup>

### VRK-1 Radial Kit

Provides a ground-plane for above ground mounting Cat D-4922

# \$59<sup>95</sup>

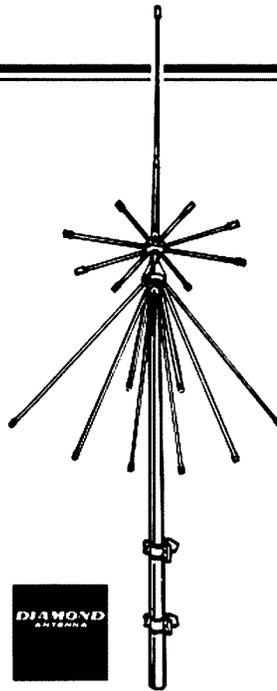
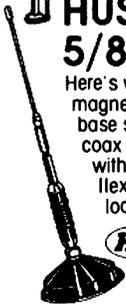
## HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality USA made 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL259 attached. It has 3dB gain with a power rating of 100W maximum and a flexible stainless steel radiator to minimise wind loading.



Cat D-4805

# \$49<sup>95</sup>



## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese disccone antenna covers the frequency range 25-130MHz, and was designed to be easy to assemble and install. The extensive use of stainless steel in the D-130J makes it very durable, while allowing transmission on the 6m, 2m, 70cm and 23cm bands with a maximum power rating of 200W PEP. Comes complete with mast mounting hardware, stainless steel U-bolts and instructions.  
Cat D-4840

## OUR BEST EVER PRICE

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## 2m 1/2 WAVE BASE STATION ANTENNA

An outstanding value for money, compact, Australian made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. Its fitted with an SO-239 socket mounted into the base for easy coax connection.  
Cat D-4820

### 5 YEAR WARRANTY

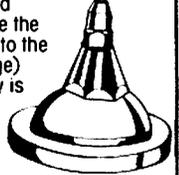


# \$49<sup>95</sup>

## HUSTLER UGM 1/4 WAVE MAGNETIC ANTENNA

A great idea for extending the range of handheld transceivers! The Hustler UGM is a compact 1/4 wave magnetic mount mobile antenna supplied with 2.1m of mini coax fitted with a BNC plug. Simply use the supplied frequency chart to cut the flexible stainless steel radiator to the required length for your application (within the 140-500MHz range) and its ready to use. The high efficiency magnetic mount assembly is triple chrome plated for long life, and is provided with a protective mylar cover to prevent scratching your cars roof.  
Cat D-4802

# \$39<sup>95</sup>



# DICK SMITH ELECTRONICS



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# AMSAT Australia

Bill Magnusson VK3JT 359 Williamstown Road Yarraville VIC 3013

Packet: VK3JT@VK3BBS

National co-ordinator  
Graham Ratcliff VK5AGR  
Packet: VK5AGR@VK5WI  
Please take note of the AMSAT information nets:

AMSAT Australia net:  
Control station VK5AGR  
Check-ins commence at 0945z on Sunday nights  
Bulletin commences at 1000z

Frequencies:  
Primary 7.064 MHz. plus/minus 5 kHz.  
Secondary 3.685 MHz.  
AMSAT South West Pacific net:  
2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

AMSAT Australia newsletter and software service:

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Aust. addressed as follows:  
AMSAT Australia  
GPO Box 2141  
Adelaide SA 5001

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

## MIR report

The erratic signal strengths from MIR remain a mystery and it seems they are having some problems with the TNC. Many repeat packets are seen and it has been difficult to have a complete un-interrupted connect or digipeat. They are aware of the problem and hopefully a fix is not far away. One would have to say that the signal strength is not a patch on what it was a year or so ago. The most likely cause is shading of the antenna due to structural changes and additions to the spacecraft. Signals can peak up to S9+, but only for very short periods.

## New tracking software, STSORBIT PLUS

This program is currently doing the rounds of the BBSs and is definitely worth a look. It comes as a zipped file called SOP9218.ZIP (300K) and can be expanded using pkunzip. It expands out to 533K. It is public domain free ware.

It was designed to produce a map and details similar to the large wall screen we are all familiar with at NASA/NORAD mission control centre and is the result of much hard work by several people associated with NASA and feedback from within the organisation itself. It is used on their own PCs in the control room.

The graphics display is similar to IT, QT, GT etc and it contains many excellent features (and several short comings for amateur radio use). The map uses circular equidistant projection similar to IT but it does not require a fancy graphics VDU to work. It will work on Hercules, CGA, EGA and VGA on colour or monochrome. It gives a very useful display in monochrome (but of course it's much prettier in colour).

The features include a very detailed world map with "zoom in" facilities. It draws the satellite footprint and the circle of visibility of the ground station. It draws the ground track for 90 mins before and 180 mins after the current satellite position. It works in real time or can be put into fast forward or reverse with adjustable time steps. You can load in current 2 line keps from a BBS and it contains a massive (103K) data bank of nearly 700 commercial and amateur satellites.

It shows features such as the "South Atlantic anomaly", a region where the Van Allen radiation belt drops to a very low altitude and can interfere with low earth orbiting satellites. It displays all NASA NORAD tracking stations around the world and the orbit positions of the NASA global geostationary data relay satellites. You can set your own lat/lon co-ordinates or use the nearest city.

It has some drawbacks from an amateur radio point of view. It's important to remember that this program was originally devised to work with the STS shuttle missions and these are all low inclination, almost circular orbits. There appears to be a problem with the footprint algorithm when dealing with satellites in highly ellip-

tical orbits. It draws "ghost" footprints when satellites approach the polar regions and it tends to over-estimate the area of coverage. It is VERY slow without a math co-processor. Once the map and details come up on the screen it works satisfactorily enough to be useful but it takes a long time to draw that map and redraw it for zoom etc.

As an example on my old XT which has a co-processor it takes about 30 seconds to draw the map, do all calculations and position all other info on the screen. Without the co-processor it takes some minutes just to draw the map. On a fast 486 it does everything almost instantaneously and responds to all commands in a flash. It does not have the capability to drive a set of antenna rotators like many of the current amateur radio programs do.

It could not be construed as a replacement for Instantrak or Quiktrak as these are amateur radio programs specially written to meet amateur radio needs. STSORBIT PLUS lacks features like next rise and set times, transponder schedules, squint angles, text screens, mutual co-visibility, multiple observers etc, all of which are important to amateur satellite operators.

Despite this it would be just the bees knees for space shuttle QSOs as it has a "mission elapsed time" read out (MET). This is a great feature when pre-arranged QSOs are coming up or to work out exactly what the crew could be expected to be doing at any time during the mission. It would have been good to have this program running on a machine alongside Instantrak on the occasion of our radio club's scheduled QSOs with the shuttle. As well as MET you can see at a glance whether the next pass will be available at your QTH by looking at the ground tracks.

The documentation is massive. It has on screen help, a "quick help" document to help you get going and a very detailed 60 page document file.

The map data base is so detailed that it is archived and has to be unzipped each time the map is drawn. This and the very accurate maths is what takes the time on a slow machine. If you come across this program, run it up and have a look. I think you'll be impressed. If you run a 486 you'll certainly be impressed.

## Earthwinds project:

This manned, round the world balloon voyage was postponed last year due to inclement weather conditions during the launch window. It is again scheduled for launch this month. Unfortunately it won't be carrying any transponding equipment. It will however be carrying a 10 metre beacon transmitter and it will be an interesting tracking exercise. It should be rather like

an extended version of one of the recent spate of local balloon launches here in VK/ZL. These were followed by many satellite enthusiasts.

This is a much more ambitious project but it is intended to be of main interest in the northern hemisphere as it will be using the northern jet stream to drift right around the world. Since the beacon is on 10 metres we may hear it from time to time. The beacon will be on 28.303 MHz. Using the call sign KB7JGM it will transmit digitised voice readout of the balloon's latitude, longitude and speed in knots. It will transmit at 15 and 45 minutes past the hour and possibly at 30 and 55 minutes past the hour if power budget permits. Transmit power will be between 10 and 100 watts, again depending on available power.

The balloon will be flying at about 35,000 feet and the journey is planned to take from 11 to 22 days depending on wind speed. Larry, KB7JGM may make contacts during the flight but these will definitely NOT be made on the beacon frequency. Using the jet stream winds the intended flight path will take the balloon across the Atlantic ocean, western Europe, Russia, Japan, the Pacific and back (hopefully) close to the launch site.

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## A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AACP and LAACP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor  
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11am to 2pm Monday to Friday  
7 to 9pm Wednesday

## Club Corner

### V17AJT, Special Event Station

The Special Event callsign V17AJT has been issued to commemorate the discovery of Tasmania by Abel Jansen Tasman 350 years ago.

Tasman, aboard the "HEEMSKIRK" and in company of the "ZEEHAN" sighted the West Coast of Tasmania on the 24th November 1642.

The special event callsign will be used at various locations around Tasmania for the month of November, but will be on the West Coast on the actual anniversary date of the discovery, viz 24th November 1992.

An award will be available to amateurs working this station.

See "QRM from VK7" in "Divisional Notes" for further information.

Frank VK7ZMF  
Co-ordinator

### Western and Northern Suburbs Amateur Radio Club

The WNSARC held their Hamfest on 30th August 1992, and a most enjoyable day was had by all. Over 350 visitors attended the Ham Fest. It was especially pleasing to see the support from the amateur traders, and AR advertisers, in particular ICOM, Dick Smith Electronics, Stewart Electronic Components, and ZRV Electronics (Drake). They all contributed with colorful stands and provided excellent service and information.

The Melbourne Packet Radio Club under the direction of Peter Hallgarten VK3AVE, provided an excellent display of Packet Radio.

Slow Scan ATV was also demonstrated by John Wilson.

The flavour of the Ham Fest centred on being a "family" involvement day, and in particular involving the ladies. Many old and new acquaintances were made, and everyone attending were looking forward to next year's Ham Fest.

73 from Tom Page VK3AGH  
Secretary WNSARC

Pictured in front of the WICEN Communication stand are from left Jamie Baker VK3KPU, Bert Horan VK3BH, Werner Wulf VK3BWW, Tom Page VK3AGH, John Weir VK3ZKV.



### Westlakes Amateur Radio Club

Club Information update.

Westlakes Amateur Radio Club, PO Box 1, Teralba NSW 2284. Open each Saturday afternoon and Tuesday evening.

Club callsigns are VK2ATZ and VK2ZL. Voice repeaters VK2RTZ 146.775, VK2RZL 147.100. Digipeater VK2RPN 147.575.

Club nets each Thursday on 146.775 MHz at 2000k, each Saturday on 3.588 MHz at 0600k, and on 146.775 MHz at 0800k.

Weekly broadcasts each Sunday on 146.775 MHz at 1000k and 2000k. Broadcast in CW each Sunday on 7.070 MHz at 1300k, callbacks follow.

Amateur examinations held each three months.

Chairman Rod Freedman VK2WO.

Membership enquiries to (049) 58 1588.

Greg Smith VK2GJS

Acting Secretary

## Coral Coast Group

### 25th Anniversary

On the 28th September 1992, the 25th anniversary of the Coral Coast Group took place. A net which has been running continuously for 25 years. It initially comprised of the following stations:- VK4LZ, VK4BQ, VK4XZ, VK4ZW, VK4GR and VK3QZ, starting each morning at 0700am, seven days a week on 7.060 MHz.

As at 26th September 1992, the Coral Coast net has made 105,804 contacts with 1,286 different call signs and 55 different prefixes. Including two aeronautical mo-

biles, two tractor mobiles, and numerous maritime and motor vehicle mobile contacts.

The indigenous net controller is Les Bell OBE, VK4LZ, Airlie Beach, QLD, whose wife Bertha efficiently keeps the station log, and handles the statistics.

Les Daniels VK2AXZ

## Mackay Amateur Radio Association

### Meetings:

Activities evening 1st Friday each month, 1930k at the SES building, Swain St, North Mackay.

Club Net: VK4WIM/P

Friday 1945k, 147.000 repeater

Monday 1930k, 3,597 MHz (+/- QRM) (Note: Daylight Saving time does not apply in Queensland)

Club Repeaters:

Two metres

Voice — VK4RMK Tx 147.000, Rx 146.400 MHz, HASL 320 metres ERP 25W. Good coverage Mackay area.

Packet — VK4RMK 144.900 MHz, same location/power as voice repeater.

Packet — VK4RZM 144.900 MHz, location 30km ENE of Nebo, HASL 800 metres, ERP 25W. Links Mackay/Central Highlands, thence Rockhampton and South. 70 centimetres

Voice — VK4RMU Tx 438.125, Rx 433.425 MHz, HASL 40 metres. ERP 75W. Horiz Polarised North/South from Andergrove (North Mackay).

Warwick H Lake VK4AP  
Secretary

## Moorabbin and District Radio Club

Please note that all mail should now be sent to the club's new mailing address, viz :-  
The Secretary  
Moorabbin and District Radio Club  
PO Box 58  
Highett Vic 3190

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## BOOK REVIEW

# Amateur Radio Technical Abstracts. Volume 1, 1991

Editor; Graham Thornton. VK3IY.

ISSN 1036-3025. Thornton Publishing. PO. Box, 298, World Trade Centre, Melbourne. 3005. Australia.

16 Chapters, 123 A5 pages.

Prices: Victoria; A\$32.00, Australia; A\$32.65, Asia/Pacific; US\$24.75, USA/Canada; US\$25.00, Europe/Africa; £13.50 (Surface Mail).

Reviewed by: Bruce R.Kendall. VK3WL.

Many individuals, clubs, and libraries have collections of technical magazines that often contain some very worth while articles. The problem is finding out; a-what type of articles they are, and b-what topics are covered in any given publication. Admittedly some do provide an annual or continuous index service, but this necessitates looking up multiple indexes, if they are available.

ARTA is a publication that lists individual articles from the best amateur radio and hobby electronics magazines by subject and author. The book is divided into chapters with such headings as; Amplifiers, Antennas, Satellite equipment, and Transceivers. Entries appear in alphabetical order by title and include the authors name, the publication that it appears in along with relevant

issue number, dates and page numbers concerned. A series of abbreviations then tell the reader what in the way of circuit diagrams, component layouts, mechanical drawings, illustrations, or art work, etc., are included in the particular article. A concise summary is then provided to give an overview of what each article is actually about. This is done as all to often the title is not the best indicator of what is really being discussed by the authors.

Additional appendices include; a glossary of acronyms and abbreviations used in amateur radio, and an authors index.

Periodicals abstracted include; Amateur Radio, Electronics Australia, Elektor Electronics, Everyday Electronics, Practical Wireless, QEX, QST, QST Canada, Radio

communication, Radio ZS, Sprat, and 73 Amateur Radio Today.

With nearly 1000 entries, being case bound and printed on high quality acid free paper, a planned five year cumulative index, and mailed direct to any where in the world, this book is a must for radio or electronics clubs and societies, educational institutions, public, and private libraries. And at this price it will not preclude the individual from owning a copy.

Amateur Radio Technical Abstracts is recommended to anybody with a collection of technical magazines, or where one wishes to source copies of particular articles from a magazine publisher or local library, as both of the above usually provide a photo copy service.

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# AWARDS

John Kelleher VK3DP — Federal Awards Manager

## The Tasmanian "Devil" Award for Overseas Amateurs

Tasmania, the island state of Australia, has many unique features. The "Devil" award is named after one of these.

### To Qualify

It is necessary to make contact with a certain number of different VK7 amateurs, depending on your location. Contacts may be made on any band or mode available to you in terms of your licence and need not be made on nets.

Oceania and Antarctica	30 contacts
North America and Asia	20 contacts
Europe and South America	10 contacts
Africa	7 contacts

### To Claim

Claim logs, with applicant's name, address and callsign to show station contacted, date, time, band and mode and signal reports exchanged. The claim to be signed by applicant (no counter-signatures are required). QSL cards are not required. A fee of AUD\$3 or equivalent to cover cost of award and postage is required.

### Applications

Log extract and fee should be sent to the Award Manager VK7NBF, A R Jackson, Falmouth, Tas 7215. Any contacts made since 1 January 1978 are valid.

## Central Coast Amateur Radio Club Award

The qualifications needed for the Central Coast award are as follows:

1. Overseas operators must contact two Central Coast stations or the club station (VK2AFY or VK2EH).
2. VK operators (other than those residing on the Central Coast) must contact four Central Coast stations plus the club station (VK2AFY or VK2EH).
3. Central Coast operators must contact 10 Central Coast operators plus the club station (VK2AFY or VK2EH).
4. Short-wave listeners must log two-way contacts in accordance with the conditions of 1, 2 or 3 above.

A Central Coast station is one being operated:

- (i) by a member of the Central Coast Amateur Radio Club Inc (even if the member resides outside the boundaries of the Central Coast);
- (ii) by a person who resides on the Central Coast who is not a member of the CCARC Inc;

- (iii) in a portable capacity on the Central Coast;
- (iv) in a mobile capacity on the Central Coast.

The Central Coast is defined as that area bounded by the boundaries of the City of Gosford and the Shire of Wyong combined.

The postcodes for the Central Coast are: 2250, 2251, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263.

A copy of log entries, certified by the operator and one other amateur operator, must be submitted to:

The Awards Manager  
Central Coast Amateur Radio Club Inc  
PO Box 238  
Gosford NSW 2250  
Australia

## Awards Profile



Peter Forbes VK3QI  
First licensed 1967 as VK3QI  
QTHs Box Hill (Melbourne) 1967-1971  
Swan Hill 1972-1975, 1982-1984  
Lake Boga 1976-1981  
Glen Iris (Melbourne) 1985-present

### Interests in Amateur Radio

Propagation (especially chordal hop)  
HF antenna design and HF band DXing  
160mx DXing (47 US states, 55 countries)  
196kHz LF propagation as AX3T36 experimental licence

### Current DX Scores

Mixed 323/333  
Phone 323/332

CW 316/323 (have worked 320, but await four confirmations)

### Notable Awards

#### Current Band Scores

5 Band DXCC 10mx 260 20mx 323 160mx 55

5 Band Worked All Zones 15mx 293 40mx 230

5 Band Worked All US States 17mx 170 80mx 173

### Equipment and Antennas

TS430S transceiver with built-in keyer  
MA1000B (400 watts PEP output) 12 volts DC solid state.

The station is run from a 110-amp-hour 12-volt battery supply, either solar charged or trickle charged from a battery charger.

### Antennas

Werner Wulf four-element tribander up 50 feet

Two-element 17m yagi up 42 feet  
Quarter-wave slopers for 80, 40 and 30 metres

Shunt-fed tower for 160 metres

### Tips to being a successful DXer

1. Listen, listen, listen, .....
2. Understand ionospheric propagation
3. A sharp CW filter (250Hz)
4. A good network of DX information sources
5. Never expect to work a new and rare DX station on a net (I have never worked an all-time new one on a net!)
6. Be prepared to operate at inconvenient times for Australia, which are convenient times for the DX station.
7. Listen, listen, listen, .....

### Best-over DX

EP2BQ (Iran) and several European countries on 160 metres.

### Occupation and Other Interests

Age 43 — teacher of physics and mathematics Golf, badminton, tennis and supporting the Melbourne Football Club, house renovations and extensions, computers. ar

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# Contests

Neil Penfold VK6NE Federal Contests Manager  
2 Moss Court Kingsley 6026

## Contest Calendar

November

8 OK-DX, M  
28-29 CQ, WW, CW, CW

December

5-6 ARRL 160m, C  
6 Special: Independent Finland 75 years anniversary contest 24 hours  
12-13 ARRL 10m, M  
20 Ross Hull 1991/92

## Independent Finland 75 Years Anniversary Contest

The Finnish Amateur Radio League (SRAL) has great pleasure in announcing a special event contest for celebrating the 75th year of independence of the Republic of Finland. This special occasion will be held on Sunday 6 December on the day of independence.

The aim of this contest is to establish as many friendly contacts as possible between the OH operators and the rest of the world in celebration of this special occasion. The Finnish stations can be identified by their OH and OG prefixes.

### 1. Contest Period

Twenty four hours, 6 December 1992 from 0000 UTC to 2400 UTC.

### 2. Bands and Modes

Eighty, 40, 20, 15 and 10-metre bands, CW and SSB simultaneously. The Finnish stations will operate in the vicinity of the following frequencies: 3525, 7025, 14025, 21025 and 28025kHz and 3775, 7075, 14225, 21325 and 28525 kHz.

### 3. Categories

a: Single operator, multi-band  
b: Single operator, single band  
c: Multi operator, single TX  
d: QRP stations, multi-band (max 5W output)  
e: SWL

### 4. Contest Exchange

RS(T) and serial number, starting 001. OH/OG stations will be giving RS(T) and a three-digit OHC number. OHC is the Finnish county number.

### 5. Points

Every valid QSO is one point. Same station can be worked once on CW and once on SSB per band. The CW and SSB contacts must be made on appropriate sub-bands.

### 6. Multipliers

Each OHC number (Finnish county) is a multiple once in the contest. Additionally, 10 special event FIN-suffix stations (eg OG1FIN, OG2FIN etc) will be activated. Each FIN station gives five extra multipliers on each band.

### 7. Scoring

Total QSO points x total multipliers = final score.

### 8. Logs

All times must be UTC. The multipliers (OHC numbers and FIN suffixes) need to be indicated once per band. An entry with more than 300 QSOs must include a dupe sheet.

### 9. Awards

Certificates and special prizes will be awarded to top scorers in each category. Each DXCC country and US and Japan call-area winner will be awarded a special certificate.

### 10. Log deadline

All entries must be postmarked no later than 31 December 1992 and sent to: The Finnish Amateur Radio League SRAL attn: Jukka Kovanen OH3GZ PO Box 44 SF-00441 Helsinki Finland.

## International Amateur Radio Direction Finding Contest

The first international ARDF contest for IARU Region III will be held in Beijing, China, during September 1993.

Further details will be available shortly; however, expressions of interest are called for from amateurs interested in joining an Australian team.

Copies of the international rules are also available. Please contact Wally Watkins VK4DO PO Box 262 Airlie Beach Q 4802 Phone (079) 47 1036 — home Fax (079) 45 1375

## 1992 Australian Sprint Results

David Box VK5OV  
Adelaide Hills Amateur Radio Society  
Lists of the logs submitted for the 1992 sprints, together with the points claimed (or, in some cases, allowed) are shown below. Certificate winners are indicated by asterisks.

## CW Sprint

VK3OZ	*	4
VK4OD	*	9
VK4VHN		7
VK4TT		7
VK4BTS		4
VK5AFO	*	12
VK5NOT	*	11
VK5AU		7
VK5UE		5
VK5BE		3
VK6AFW	*	4
VK8AV	**	13

## Phone Sprint

VK1PJ	*	61
VK3DDU	**	68
VK3YH		60
VK3DVT		22
VK3OZ		21
VK4YZ	*	53
VK4OD		40
VK4NAD		20
VK4KJD		20
VK6APK/P6	*	32
VK8AV	*	51
P29RB	*	14
L40018	*	22
VK5PO	*	65
VK5AFO		57
VK5DL		56
VK5KYM		55
VK5AYD		52
VK5NYD		52
VK5KCX		52
VK5MAP		50
VK5ON		48
VK5NOT		42
VK5UE		41
VK5ATN		40
VK5KGS		31
VK5RV		31
VK5TY/P3		27
VK5OV		25
VK5CJP		24
VK5LMB		22
VK5BE		15
VK5DUG/P4		4

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**Support the  
WIA in order to  
protect  
amateur radio  
frequencies**

# Divisional Notes

## VK2 Notes

Tim Mills VK2ZTM

### VK2WI

A couple of weeks have now passed since the change to the 10am (local time) start for the morning session. This is a permanent move, and is NOT related to daylight saving as thought by some from the comments being received.

A reminder that news items submitted for the broadcast by whatever means must arrive at the Parramatta office, or on Packet, by 6pm on the Friday. There is need for all submissions to indicate the author/submitter, and if submitted on behalf of a group or club, the position held. Anonymous items are not considered. The inclusion of a contact number is beneficial to the Broadcast Officer, Richard VK2SKY.

As part of streamlining the broadcast presentation, some items are being slightly edited to remove statements etc. This also allows your item to be typed into general text, which in turn finds its way to the Packet network, and other electronic mail systems. Don't forget, tell others about your group's events.

## Council News

One of the flow-ons from the August general forum is the need for particular interest gatherings. An ATV forum is in the planning stages, but no date had been set when these notes were compiled. The date for Packet has been set as Sunday 22nd November, a 10am start at Amateur Radio House.

The Division's technical sub committee, NTAC, which includes the function of repeater and beacon assessments has been reformed into a basic core of five. In turn they will call upon other special interest groups like Packet and ATV as required. It is important that these groups develop into a working sub-committee, and formulate guidelines to benefit the users of that mode.

Those using the mode are the best qualified to determine these guidelines. Matters handled by NTAC which requires passing on to the DoTC, like a repeater application, or need to be incorporated into policy, are passed on to Divisional Council for ratification.

A reminder that new applications or alterations to an existing Repeater service has to be co-ordinated first by the WIA before it goes to the DoTC. This requirement is detailed in RIB70 — Information for Prospective Amateur Operators — clause 20(a).

## Types and Happenings

A couple of errors crept into last months notes. The address for sending outwards cards to the VK2 QSL Bureau should have read PO Box 73, Teralba NSW 2284. The box I indicated is that of the Westlakes ARC who conducted the card handling on behalf of the Division. It should also be noted that any other matter pertaining to the Bureau should be directed in writing to the Divisional office at PO Box 1066, Parramatta NSW 2124.

The last exam conducted by the Division for this year will be on Sunday 8th November 1992. The first exam for 1993 will be Sunday 28th February 1993, with applications closing on 11th February 1993. Exams are then each three months, viz, May, August and November. To find out about exams conducted in your area, consult the listed personnel in the Amateur press, or enquire from the office.

The last Trash and Treasure for the year will be Sunday afternoon 29th November 1992. The first for 1993 is most likely to be in January, so watch these pages or the broadcasts.

## VK3 Notes

Barry Wilton VK3XV.

### Zero Subscription Increase.

Members at the 1992 Annual General Meeting recognised that a substantial subscription increase was warranted if the Division is to preserve its current financial strength, and be in a position to provide and further improve services in the future.

The meeting authorised an increase of \$6.00 in the Division component for all grades of membership with the exception of Concessional members.

Following much deliberation, and having regard to the current economic circumstances, Council has decided to postpone the increase until 1994. **THERE WILL BE NO INCREASE IN THE 1993 SUBSCRIPTION.**

### "Who bears the cost?"

For a long time members have subsidised services provided to non-members. WIA Victoria provides the best repeater network in Australia along with an efficient QSL Bureau, and assistance with antenna mast and interference problems. The majority of non-members are decidedly ungrateful, and many are vocal "knockers" of WIA Victoria.

The time for change is here, and no longer can we afford to service and

represent "all Amateurs" at the expense of our own loyal members. The year 1993 will see a significant reduction in services provided to non-members.

It is time the old adage "The WIA represents the interests of all Amateurs" was scrapped, and we looked toward improved "representation of the interests of our MEMBERS!"

Who bears the cost of international representation at WARC and the IARU? Who pays for national representation with DOTC? Who pays to maintain the repeater network and the licences? **WIA MEMBERS PAY!**

It is appropriate that costs of these services be met by all those Amateurs who benefit from them. The best way to achieve this, is for you the member who does contribute, to **PUT CONSIDERABLE PRESSURE ON NON-MEMBER AMATEUR FRIENDS TO JOIN THE WIA NOW AND BE A CONTRIBUTOR AND NOT JUST A USER.**

### Recruiting.

Following the boost our hobby received from the influx of CB operators in recent years, it would appear our recruiting efforts may well have been misdirected.

In accord with Federal policy, the WIA has attempted to woo the computer enthusiasts, and a significant number have joined the ranks of Amateur Radio, but not necessarily the WIA.

The WIA has actively promoted lower levels of technical competence for basic entry to the hobby, and sought extra privileges for Novice licensees. Not a great deal has been achieved for Limited and Full Call holders.

Statistics show that the great majority of WIA Victoria members are, in fact, "Full or Limited" operators, and many recently recruited Amateurs have only joined our ranks so as to provide themselves with a medium in which to pursue their primary interests. Not many in the latter group contribute to the service they so freely use!

The WIA Victoria Council believes that a change in direction is warranted, and greater emphasis placed on the retention of loyal members and greater consideration given to their needs.

### Antenna Masts

The new edition of the popular WIA Victoria "Antenna Masts Guide" which was revised and reprinted in September has been withdrawn following the receipt of legal advice. Wide diversity in the regulations of local authorities make it impracticable to produce a "Guide" which is sufficiently broad in application to cover all contingencies. WIA Victoria has several people who have had wide experience in this field, and who are happy to provide advice on an individual basis for any members experienc-

ing difficulties, or who simply want to know how to approach their local authority.

Assistance from WIA Victoria does not extend to professional legal advice which is sometimes required in the case of a major dispute. However in some instances we may be able to provide a suitably qualified negotiator to represent an applicant with a local authority, or at an Administrative Appeals Tribunal. In this case the applicant would be required to meet the costs involved.

If you have a mast problem, it is far better to discuss it in the early stages, but please telephone the office first, so we can arrange for an experienced person to attend your queries. WIA Victoria does not have the resources available to provide assistance to non-members.

### **5/8 WAVE**

*Roland Bruce VK5OU*

People who know me, or for that matter, have been reading this column of late, are aware that my work involves being out of Adelaide for ten or more weeks a year. That is one of the reasons we need a secretary to take over the reins I temporarily hold. (In fact, next year will be worse. Already seventeen weeks out of the state have been blanked out in my diary.)

Unfortunately, I don't get too much time to meet other amateurs, although the sight of antennae farms etc. are tempting diversions. However, one does hear quite a lot of what is going on in other places by keeping an ear to the repeaters and so on. Also, the public media are sources of information too. My latest trip involved being in Hawaii. I had one spare day to myself before flying out at mid-night, and intended visiting an electronics shop or two and getting some addresses of KH6's to call upon. So what happens? Hurricane INIKI hits us. No shops were open and the police cleared the streets in anticipation of 285 km per hour winds. Sensible stuff!

As you probably know, the hurricane veered from its projected course over Oahu and hit Kauai instead. The event was carried live on the local television channel, with "experts" making predictions, and flashbacks to the previous hurricane, together with on-the-spot interviews such as we get here on election night. About mid-day the power was lost on Kauai, and the anchor ladies spent the next four or five hours telling the viewers that the sole contact with the island was via Amateur radio, and asking that any HAMS (sic) receiving messages to let the TV station have whatever information they had available. I did meet in the hotel lobby a man wearing an ARRL badge, and we got to talking, of course. He was of the opinion that although there was some sort of disaster communications system within ARRL most amateurs did not be-

long to it, and he doubted that it was very effective. Are we the same here? I don't belong to WICEN, for one thing my peripatetic lifestyle would make me more of a hindrance than an asset, but there must be many who could be immensely useful, who keep meaning to join, but haven't got "a round tuit!" Are you one of them? In SA Ian Watson is your contact, either via Box 1234 or QTHR.

Talking of the efforts of mother nature reminds me, yet again, that the rains of recent weeks have held up my plans to build a tower base. Roll on summer.

Finally this month, we had quite a protracted Council meeting in September. It finished at 2.10 am (officially..., we were still there at 3.05 discussing things informally!) One discussion in particular was lengthy, following the earlier decision of Chuck, VK5CQ, to resign, on a matter of principle, his position as examination coordinator. Happily, he is continuing his very effective role on Council as membership secretary. Thanks Chuck. What it means though, is that once again I am making the plea, that if President Bob approaches you as a potential volunteer, please give it some thought. We need help. Come to think of it, why not volunteer before you are asked? **DIARY DATE:** Don't forget the Christmas Social to be held at the Woodville Community Hall, December 8th. 7.00 pm. This year a magician will be the speaker. He will talk about his hobby/job and demonstrate his art. Why not bring the family,, not just the XYL? You can always leave early if they get tired. Drinks provided; bring a plate please.

### **VK6 Notes**

*Harry Atkinson VK6WZ*

#### **Special Event Station VI6VIP**

The weekend of 21/22 November 1992 will see the operation of special event station VI6VIP operating from Wireless Hill in the City of Melville WA, to mark the 80th anniversary of the coastal radio service through station VIP.

VIP, the first transmitter of its kind in Western Australia, and only second in all of Australia, began work in 1912. It was originally built by the German Telefunken Company, and taken over by the forerunner of Amalgated Wireless at the outbreak of WW1. It remained with that firm until

the establishment of the Overseas Telecommunications Commission in 1947.

VI6VIP will operate on or near the following frequencies:-

SSB 3.585, 14.195, 21.195 MHz

FM 146.500 MHz

CW 3.540, 14.050, 21.130 MHz

Organisers hope it will be possible to have the station operating on at least one of the above frequencies for the full 24 hours.

For the first 56 years of its history, VIP operated from the Wireless Hill Park site, then known as Applecross. During that time operations expanded from solely wireless telegraphy work to housing and supervising transmitters for police, AM commercial broadcasting, Navy, small ships and Australia's third overseas shortwave broadcaster 6ME, sister to 3ME Melbourne and 2ME Sydney, pioneers owned by AWA, and forerunners of today's Radio Australia service.

### **QRM from VK7**

*E A Beard VK7EB*

*VK7 Divisional Secretary*

On 24th November 1642, that is 350 years ago, the famous Dutch explorer Abel Jansen Tasman sighted two large mountain peaks which he named Heemskirk and Zeehan after two of his ships. The island from which the mountains rose Tasman called Van Diemens Land, later to be called Tasmania.

In this month of November 1992, the Dutch community and the Tasmanian Division of the Wireless Institute of Australia are celebrating the 350th anniversary of the discovery of our picturesque island.

### **Special Event Station VI7AJT**

A special event station under the Callsign of VI7AJT will be operating from several areas of Tasmania during the month of November. There have been some very professional QSL cards designed by artistic members of the Division, also a very handsome certificate.

To qualify for the certificate, Australian stations must contact one (1) of the VI7AJT stations, and nine (9) VK7 stations. Overseas stations must contact one (1) VI7AJT station and two (2) VK7 stations.

The cost of the certificate shall be AUD\$5.00 or the equivalent in IRCs.

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# HF Predictions

Evan Jarman VK3AN1

The sunspot number used to generate this month's predictions is 70. Last month the numbers published showed a decline in activity over the past months, this time there is an increase in activity. Hopefully a portent of things to come.

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for the four bands from 14 to 24 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1  $\mu$ V (dBU) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1  $\mu$ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50  $\mu$ V at the receiver's input and the S-meter scale is 6 dB per S-point.

$\mu$ V in 50 Ohms	S-points	dB( $\mu$ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22
6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	- 8
0.20	S1	-14

The tables are generated by the Graph\_DX program, assuming 100 W

transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

**VK EAST** The major part of NSW and Queensland.

**VK SOUTH** Southern-NSW, VK3, VK5 and VK7.

**VK WEST** The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

The relevant sunspot numbers used to generate the predictions are:

- September 72
- October 68
- November 70

Changes are being contemplated in the format and information presented. If a particular format or path is preferred please advise us, in writing, at the WIA Federal Office, PO Box 300, Caulfield South Vic 3162.

VK East-Mediterranean					VK South-Mediterranean					VK West-Mediterranean				
UTC	MUF	dBU	FOT		UTC	MUF	dBU	FOT		UTC	MUF	dBU	FOT	
14.2	18.1	21.2	24.9		14.2	18.1	21.2	24.9		14.2	18.1	21.2	24.9	
15.0	19.0	22.0	25.8		15.0	19.0	22.0	25.8		15.0	19.0	22.0	25.8	
16.0	20.0	23.0	26.7		16.0	20.0	23.0	26.7		16.0	20.0	23.0	26.7	
17.0	21.0	24.0	27.6		17.0	21.0	24.0	27.6		17.0	21.0	24.0	27.6	
18.0	22.0	25.0	28.5		18.0	22.0	25.0	28.5		18.0	22.0	25.0	28.5	
19.0	23.0	26.0	29.4		19.0	23.0	26.0	29.4		19.0	23.0	26.0	29.4	
20.0	24.0	27.0	30.3		20.0	24.0	27.0	30.3		20.0	24.0	27.0	30.3	
21.0	25.0	28.0	31.2		21.0	25.0	28.0	31.2		21.0	25.0	28.0	31.2	
22.0	26.0	29.0	32.1		22.0	26.0	29.0	32.1		22.0	26.0	29.0	32.1	
23.0	27.0	30.0	33.0		23.0	27.0	30.0	33.0		23.0	27.0	30.0	33.0	
24.0	28.0	31.0	33.9		24.0	28.0	31.0	33.9		24.0	28.0	31.0	33.9	

VK East-Europe L/P					VK South-Europe L/P					VK West-Europe L/P				
UTC	MUF	dBU	FOT		UTC	MUF	dBU	FOT		UTC	MUF	dBU	FOT	
14.2	18.1	21.2	24.9		14.2	18.1	21.2	24.9		14.2	18.1	21.2	24.9	
15.0	19.0	22.0	25.8		15.0	19.0	22.0	25.8		15.0	19.0	22.0	25.8	
16.0	20.0	23.0	26.7		16.0	20.0	23.0	26.7		16.0	20.0	23.0	26.7	
17.0	21.0	24.0	27.6		17.0	21.0	24.0	27.6		17.0	21.0	24.0	27.6	
18.0	22.0	25.0	28.5		18.0	22.0	25.0	28.5		18.0	22.0	25.0	28.5	
19.0	23.0	26.0	29.4		19.0	23.0	26.0	29.4		19.0	23.0	26.0	29.4	
20.0	24.0	27.0	30.3		20.0	24.0	27.0	30.3		20.0	24.0	27.0	30.3	
21.0	25.0	28.0	31.2		21.0	25.0	28.0	31.2		21.0	25.0	28.0	31.2	
22.0	26.0	29.0	32.1		22.0	26.0	29.0	32.1		22.0	26.0	29.0	32.1	
23.0	27.0	30.0	33.0		23.0	27.0	30.0	33.0		23.0	27.0	30.0	33.0	
24.0	28.0	31.0	33.9		24.0	28.0	31.0	33.9		24.0	28.0	31.0	33.9	

<p><b>VK East-Africa</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK South-Africa</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK West-Africa</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>
<p><b>VK East-Asia</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK South-Asia</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK West-Asia</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>
<p><b>VK East-South Pacific</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK South-South Pacific</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK West-South Pacific</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>
<p><b>VK East-USA/Caribbean</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK South-USA/Caribbean</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>	<p><b>VK West-USA/Caribbean</b></p> <p>UTC MUF dBu FOT 14 18 21 24</p>

# How's DX

Stephen Pall VK2PS PO Box 93 Dural, NSW 2158

"In this life, never take anything for granted!" My wise old grandmother told me this many decades ago. To prove her point, the Production Editor of AR wrote me a letter not so long ago and asked me to reduce the length of this column to one-and-a-half pages, including photographs. The reason? To allow the production team to make the best possible use of the available space.

During the past three years — since I started writing this column — the average length of it was two-and-a-half pages. On a number of occasions it was less than that, and, out of the 36 issues, on six occasions the length of the column was three pages.

To comply with this request, some sections have to disappear. Which ones? The decision is not mine, but is yours alone, the readers of this column.

What shall we leave out? The introduction bit to the column? No more "Interesting QSOs and QSL Information? No more DX-related photographs? No more "QSLs Received" information? What about cutting out the section "From Here and There and Everywhere"? Maybe you do not want to be informed about future DX activity? Maybe you do not want the short informative stories about various DX activities?

Your urgent and written opinion is sought now, otherwise the alteration will follow without your — the readers' — input.

Send your letters directly to me — now, not next week! There is no time left. After collating the information received, copies of your letters will be forwarded to the Production Editor for his final decision.

If you feel you have to write directly to the editor of AR, then please send a copy of your letter to me also, so I will be better informed. My address is at the beginning of this column.

If you are one of the silent majority who reads this column, enjoys it, and finds the information useful, but never yet expressed an opinion about it, this is now the time for action.

Remember, this is the last call before the meat cleaver hits the chopping block.

## QSLing the VK9/VK0 QSL Bureau

From time to time, Neil VK6NE, the WIA VK9/VK0 QSL bureau manager, sends me interesting snippets about his bureau's problems. It should be noted by all DXers that the facilities provided are self-funding. Unless the DXer leaves adequate funds with the bureau for both incoming or outgoing cards, the pile of uncollected or unforwarded cards is mounting at Neil's place. Here are some examples: VK9LA cards of Tony — QSL manager DJ5CQ — are stuck in Neil's boxes due to lack of forwarding funds.

The following operators of DXpeditions in the year 1987: VK9AB (ZL1AMO), VK9LB (VK2BCH), VK9NP (VK2BPC) have not made arrangements for forwarding of VK9 bureau cards. On the other hand, the recent expeditioners from Cocos-Keeling and Christmas Islands, VK9CL, VK9CK, VK9XN and VK9XM, have left adequate funds and bureau cards are being

sent to the overseas addresses. VK9CB is looking after his own cards via the VK6 Bureau. The lesson from all this for all those who need a VK9 or VK0 QSL card, irrespective of the locality of the operator: QSL direct only.

## Heard Island VK0

The proposed DXpedition to Heard Island has been cancelled because the proposed budget figure of \$63,000 was not covered by donations and pledges which, at the time of cancellation by HIDXA, was less than \$20,000. It appears that Heard Island is not wanted by the majority of DXers, whilst the UK donations and pledges organised by RSGB DX News Sheet were admirable. The lack of support from Europe and other parts of the world was noticeable. Future DXing from Heard Island does not look very promising. The proposed listing on the World Heritage Register of the island will make future physical access and permission to operate almost impossible.

## Sable Island — CY0

This small (32km long and 1.6km wide) sand island lies about 140km in a south-easterly direction from the Canadian province of Nova Scotia. Besides a small herd of wild ponies, only the essential meteorological-cum-lighthouse staff is living on the island.

A multi-operator group with the callsign CY0NSM was active from the island for about a week early in October. QSL goes to Wayne King VE1CBK, PO Box 32, Site 35, RR#1, Windsor Junction, NS, B0N2VO Canada.

## DXCC Accreditation of DX Stations

The following activities have been accepted for the DXCC award: 5R8JD (July 1988), S93IJ (10 March 1992) S21ZA (Aug 1992), XO0NU and XU1NU (6 July '92 to 6 Jan '93, 10/15/20m only), F6/BLQ/D2 (from 23 June '92 until 23 Jul '92, 10/15/20m only), C9RJJ from 20 July 1992, 717CE from 4 June 1992, ZA/KA6ZYF and ZA/G3MHV operations from 13 June to 13 July 1992.

## Future DX Activity

- Shane Wheller, son of Reg VK4PL, departs for Antarctica, Casey Base, late November, and hopes to be active with a VK0 callsign early in the new year. His Antarctic callsign and QSL information are not yet known.
- There is unconfirmed news that Macquarie Island will be heard on the air soon.



Jim VK9NS operating in Bangladesh as S21ZA.

- According to some news from an official of the Ghana Frequency Registration and Control Board amateur radio will be permitted as from 15 January 1993.
- Kiyoko NH6RT, who was active on the various Pacific islands one and a half years ago, is now in Nepal for a longer stay and hopes to get a licence soon.
- The amateur group Pete N0AFW, Charlie N7QQ, Jay WA2FIJ, ON6TT Peter, N9NS Mike, John KA7CQQ, Arie PA3DUU, Ron WA6FGV and Vincent G0LMX/FIMBO — the group which had a successful operation on Clipperton Island with the call FO0CI — plans to activate Baker/Holland Islands (KH1), Palmyra/Jarvis Islands (KH5), and Kingsman Reef (KH5K) in March 1993.
- Paul WC5P will be active from Christmas Island as T32BE between 24 November and 7 December.
- XU7VK op HA7VK, was on home leave in Hungary. Will go back to Cambodia at the end of October. QSL to HA0HW.
- XU1NU and XU0NU will operate until 6 January on 14, 21 and 28 MHz only. QSL to F6FNU.
- Bob N6BFN is moving back to Kuwait City and intends to be on the air with the callsign 9K2ZZ.

### Interesting QSOs and QSL Information

- Note: callsign, name, frequency, mode, UTC, month.
- TF3DX-14035-CW-0800-July. QSL to V T Kjartansson, Njor Vasundi 4, IS 104 Reykjavik, Iceland.
  - 9H3PB-14004-CW-0615-Sept. QSL to DF4EK.
  - C9RJJ-14029-CW-0445-Sept. QSL to W8GIO, Paul R Vets, RT1, Box 140-42, Bunker Hill, WV 25413, USA.
  - XU0NU-21040-CW-1000-Sept. QSL to F6FNU A Baldeck, Box 14, F-91291, Arpajon, Cedex, France.
  - JY5IN-Ibrahim-14252-SSB-0445-June. QSL to I Naser, Box 925677, Amman, Jordan.
  - CUOC-Antonio-14210-SSB-0410-July. QSL to CU3AN, Jose Gabriel Alves Silva, PO Box 157, P-9702, Angra Do Heroismo Codes, Azores.
  - 4K4NN-3504-CW-1216-Sept. QSL to KC4UG.
  - OE53SGU-Hannes-13167-SSB-0715-Oct. QSL to OE3SGU.
  - OD5/SPIMHV-14023-CW-0348-Sept. QSL to SPIMHV via the Bureau.
  - FW1DJ-Joseph-14186-SSB-1103-Sept. QSL to PO Box 300 Wallis Island, South Pacific.

### From Here and There and Everywhere

- News from Bing VK2BCH after he spent one month in a Sydney hospital: "Done my best until I was forced to evacuate myself (from Rotuma) on 1 August. I am slowly recovering, but still very weak. I am making every effort to work the computer and radio every day"
- F6FNU is the QSL manager for many DX stations with French-speaking operators or stations connected with former French possessions. According to his own QSLing rules, you have to QSL directly within six months of the activity, and the return postage is USD\$2 (no IRCs, no bureau cards).
- By the time you read this the Willis Island mini-DXpedition by Jim VK9NS, Kirsti VK9NL and Atsu VK2BEX is over. They met in Cairns on 10 October, and left by charter seaplane for Willis Island on 12 October for a seven-day operation.
- The amateur population of Pitcairn Island has increased by one. VR6RC is Raelene, daughter of Tom VR6TC and Betty VR6YL.
- The operator under the Yemeni callsign 7O1ZZ is a pirate and V37ZZ is not his QSL manager.
- Karl VK6XW was active from Cocos-Keeling Islands for 14 days in mid-September as VK9CY.
- Jack T3OJH is back on the air again after severe illness which required four weeks hospital treatment in Sydney. We wish you a speedy and full recovery, Jack!
- Duane W6REC is advising he is not the QSL manager for JT1JA as he has no logs nor QSL cards.
- Chuck K8CH, manager of membership services of the ARRL (this also includes the DXCC desk) replied to Monk Apollo's SV2ASP/A complaints regarding the DJ6SI/SY operation (see AR Sept "92 issue). Regretting the disturbance caused to the Holy Community by amateur operators, Chuck says that the ARRL was unable to make a distinction between Baldur's operation and other operations in the past which were counted for the DXCC. — "We cannot undo the past, and it is not possible for us to erase credits from DXCC records," writes Chuck.
- W6RO, the famous Queen Mary amateur radio station in Long Beach, California, has been closed down by the Disney Corporation after 20 years activity.
- IRCs (International Reply Coupons) are not acceptable in Lesotho, according to 7P8SR.

- It is illegal in India for nationals to receive foreign currency. Send IRCs only.
- Novices in Cuba are now allowed on 1.8, 3.5 and 7MHz bands and use the CL prefix. there are 1151 (1991) licensed amateurs in Cuba.
- OE35SGU was celebrating the 35th anniversary of the JOTA activity.

### QSLs Received

Note: W=week. M=month. Y=year. FM=from. MGR=manager/call. OP=operator/callsign.

### Direct QSLs received

7X2DG (7W FM OP); Y11BGD (7W FM MGR JY3ZH); 5Z4BI (4W FM MGR F4FRU); V73DC (5W FM OP); 4S7NMR (16M FM OP); ZC4CZ (4M FM MGR G4SSH); FO0CI (8W FM MGR N7QQ); S21ZA (1W FM VK9NS).

### Bureau cards received

9M2DW (WY FM OP), OD5MM (18M FM MGR HB9CYH), HB0/HB9NL (20M FM MGR HB9NL), 5T5FA (2Y FM FM MGR IK5BHN), JA7FTJ/JDI (EY FM OP JA7BIJ), T30DS (17M FM MGR DJ9ZB), 5N0ETP (1Y FM MGR N6QLQ), OY2VO (11M FM OP). BV2DM (9M FM OP).

### Thank You

We are living in difficult times, therefore, more than ever many thanks to the supporters of this column, especially to: VK2BEX, VK2BCH, VK2DIS, VK2KFU, VK3DD, VK4DA, VK4OD, VK4OH, VK4XW, VK6NE, VK9NS, N0AFW, and the following publications: *QRZ DX*, *The DX Bulletin* and *the DX News Sheet*.

*Good DX and 73*

### Production Editor's Note:

*Space restrictions are the bane of every magazine editor, these are unfortunate, but necessary. As AR is a "Member" magazine, we do not have the luxury of unlimited pages. We try to publish the broadest range of material available, within the economies placed on us. Our policy is to allow more members to have the opportunity to express their thoughts, either in articles written, or letters etc. Should a submitted item exceed space allocations, as determined by member surveys and feedback, then it is possible it may be part serialised to another issue. To date we have not had to resort to this, but unfortunately several other contributors' articles have had to be deferred for another month.*

*I also have a wise old grandmother, she gets a little confused now, but she mentions things about the problems of putting quarts into pint pots!*

*Comment from members is most welcome ... VK3UV.*

ar

# IARUMS — Intruder Watch

Gordon Loveday VK4KAL Federal Intruder Watch Co-ordinator  
Freeport No 4 Rubyvale, Qld 4702 or VK4KAL@VK4UN-1

## CB Made for 10 Metres

"BV1RL reports seeing CB radios from a manufacturer ready for transmission on the 10m band, 28.005, 28.015, 28.025 and 28.035 MHz.

## Reports

The Spanish administration has started taking action against intruders. Some have been fined up to 100,000 pesetas!

Reports are requested on the Ethiopian Diplomatic Net, operating daily on 21.061 MHz between 0600-1200 UTC. Please check the frequency and advise.

Intruders from Indonesia continue to cause problems for legitimate amateur operators in Singapore and Australia — mainly on the 20m band. A determined effort is being made to counter this area of concern.

From Holland we have a report that the intruder on 14.058 MHz is F7B four-

frequency two-channel diplex with a baud rate of 100. The pulses are 10ms long. The frequency of tones are spaced 400Hz and are 1260, 1660, 2060 and 2460Hz. The on/off pulse has a duration of 175ms and appears to be on top of the tones. It is, as we know from other sources, Chinese military.

Reports from Region 1 co-ordinator Ron Roden G4GKO/4X8RR:RSGB, requests to Govt Radio Administration to take action on: (1) Radio Russia and Radio Ukraine on 7120 kHz producing a very strong harmonic on 14240 kHz. (2) Radio Bucharest resident on 18080 and 18150 kHz. (3) CIS, a station on 14171 kHz is F1B transmitting on a 40Bd, 200Hz shift.

From R2 come complaints about Arabic operations on 14 MHz, centring around 14.090 MHz. Any input from our area? Solar conditions poor?"

I got copies of all regions summaries for July, which I find very interesting to say the

least. Many intrusions are on a worldwide scale, with only signal strength varying, as of course, the time.

I must say the Spanish have certainly had a crackdown. Maybe we should follow suit, in case you have not seen the extract of translation by DJ9KR DARC, as under.

In a letter from the Spanish Telecommunications authorities, the DARC Monitoring System was informed that in those cases where the information given by amateur is sufficient to identify and localise unauthorised users of the amateur bands, they would take the appropriate action. In 1992 they dealt with 1358 CB operators, 496 in the Terrestrial Mobile Service, 46 in the amateur service, 233 radio equipment manufacturers or dealers and 138 other persons. The fine for infractions is SPp100,000 (100,000 pesetas). Spanish authorities are pleased to invite the DARC Monitoring System to send information to them and promise adequate action against those responsible.

This possibly would cover our "pirates", but some action should be taken with those dealers who sell transmitters to all and sundry, no questions asked or licences sighted. If Spain can do it, where does that leave us???

73, Gordon VK4KAL  
ar

# Knutshell Knowledge

Graham Thornton VK3IY PO Box 298 World Trade Centre Melbourne 3005

What follows is a brief overview of what other magazines have to say. If copies of complete articles are required, your Divisional library may be able to help; or perhaps some member of your club has the information.

## Antennas

### ATUs

A Single Coil Z-Match Antenna Coupler. T J Seed ZL3QQ, *Break-In* vol 65 No 2 March 1992 pp 10-12. il ccts and graphs. A design with analysis is given for a single coil coupler suitable for the amateur bands. A single centre-tapped coil replaces the two coils previously used.

Quiet Tune Revisited. A M Wooler ZL1AUW, *Break-In* vol 65 No 1 Jan/Feb 1992 p 5. il cct. An improved noise bridge for silent ATU tuning is described. The device offers extended operation into the VHF band. The noise source is protected against inadvertent transmission, and this condition is indicated by illumination of incandescent lamps. An LED flasher shows the state of the internal battery.

## Mechanical Details

**The Fold-Over Mobile Mount.** Bob Dickinson KD6AAI, *QST* vol LXXVI No 3 March 1992 pp 43-44. il diags and photos. A self-closing door hinge, adapted as an antenna mount, allows the complete antenna system to fall back under impact. Under normal driving conditions, antenna operation is unaffected.

## Amateur Television

An ATV Downconverter with a Difference. Don C Miller W9NTP, *73* #378 March 1992 pp 22, 24, 26, 28. il cct, cmpts, graphs and pcbs. The upper sideband of 439.25 MHz ATV signals is subject to interference from FM repeaters. A device is described which detects the ATV lower sideband instead. When reproduced on a standard TV receiver, the interfering FM signals are greatly attenuated.

## Electronic Devices

### Automotive

"El Cheapo" Car Voltmeter. Norm Bush and Peter Phillips, *EA* vol 54 No 3 March 1992 pp 90-91, 95. il cct, cmp, diag, pcb and

photos. Three LEDs, of different colours, are used in combination to indicate battery voltage. The unit fits neatly into a 35 mm film container.

## Miscellaneous

**Sound Switch.** Peter Murtagh, *EA* vol 54 No 3 March 1992 pp 75-77. il cct, cmpts, diag, pcb and photos. A microphone operates a relay, the closure of which may be sustained for an adjustable interval.

**Sprinkler Timer.** Leo Aravidis, *EA* vol 54 No 3 March 1992 p 56. il cct. Four sprinkler systems are energised in sequence. The timing for each may be set independently. When the period of the fourth sprinkler has elapsed, the system awaits a reset signal.

## Filters

The JPS NF-60 DSP Notch Filter. (Product Review) Bill Clarke WA4BLC, *73* #378 March 1992 pp 36, 38. An appraisal is given of this commercial equipment, which can eliminate multiple heterodyne tones automatically. A deep narrow notch is generated whenever a constant pitch is detected.

## Narrow Band Modes

**Connecting Two Modems to One Transceiver.** Walter E Kaelin KB6BT, *QEX* #121 March 1992 pp 7-8. il cct. An interface circuit is presented which allows two modems to be switched to a single transceiver. The switching is controlled via a computer. AMTOR and PSK modems can be switched in this way.

**Getting Started in Digital Communications (1).** Steve Ford WB8IMY, *QST* vol LXXVI No 3 March 1992 pp 33-37. il ccts, diags and photos. An introduction is given to the various digital modes. The options available to the beginner to get involved are discussed.

## Propagation

**Eleven Years of Sporadic E.** Emil Pocock W3EP and Patrick J Dyer WA5IYX, *QST* vol LXXVI No 3 March 1992 pp 23-28. il graphs and photo. The daily measurements of sporadic E activity observed at San Antonio over an eleven year period are discussed and analysed. A previously unreported 5 day cycle is revealed.

## Power Supplies Batteries

**Lemonized QSO.** Bob Culter N7FKI and Wes Hayward W7ZOI, *QST* vol LXXVI No 3 March 1992 pp 18-19. il cct and photos. A zinc-plated nail and a copper tube inserted into a lemon, produces an open circuit voltage of 0.93 volts. This energy source may be used to power a single transistor transmitter, producing "QLP" emission.

## Battery Chargers

**Longer Life for Nicads (2).** James Moxham, *EA* vol 54 No 3 March 1992 pp 104-106, 119. il ccts. Various charging circuits are described. Periodic current reversal, to avoid dendrite formation, is discussed and a suitable circuit provided. Another PCR circuit gives alternate constant current charging and discharging. Battery voltage monitoring circuits are also described, one of which automatically disconnects the load in the event that one cell goes flat.

## Inverters

**Powerhouse 1200: Twice The Power (2).** Peter Harris, *EA* vol 54 No 3 March 1992 pp 68-74. il cmpts, diags and photos. The construction and commissioning details are given in this part.

## Series Regulated

**The Lappack.** Brian Kassel W5VBO, 73 #378 March 1992 pp 52, 54, 60. il cct, cmp, pcb and photos. A 9 V output regulator is described which supplies 2.5 A from a 12 V source. It is designed for extended portable use of a laptop computer, used for packet operation. An overvoltage crowbar protection is included.

## Receivers

**The Drake R8 Shortwave Receiver.** Jim Kearman KRIS, *QST* vol LXXVI No 3 March 1992 pp 72-75. il photo. This review includes laboratory measurements.

## Satellites

### Miscellaneous

**Using RS-12.** Pat Gowen G3IOR, 73 #378 March 1992 pp 32, 34, 35, 38. A comprehensive description is given of the features available on RS-12, and how to use them. Particular emphasis is given to HF transponder operation, for over the horizon DX.

## Weather

**Simple APT Weather Satellites Interface.** Robin Ramsey ZL3TCM, *Break-In* vol 65 No 2 March 1992 pp 4-8. il ccts, cmp, graphs, pcb and photos. A design is presented for a low-cost interface which gives display of weather pictures from Automatic Picture Transmission satellites. Various antenna systems are discussed, together with methods of display.

## Technology

**Do You Know Where Your CW Signal Is?** Randy Henderson W1SW, *QST* vol LXXVI No 3 March 1992 pp 40-42. il ccts and graphs. The importance of transmitting exactly on the calling station's frequency is discussed. Techniques are described to measure the offset between received and transmitted frequencies.

**Phase-locked Loop FM Demodulators.** Bryan Maher, *EA* vol 54 No 3 March 1992 pp 54-55, 98. il ccts. The theory of operation of PLL ICs as FM demodulators is discussed. Suitable ICs from various manufacturers are listed.

**Rubbersat — The Balloons.** Robin Ramsey ZL3TCM, *Break-In* vol 65 No 2 March 1992 pp 14-16. il graphs and photos. The techniques used and the results obtained from a series of balloon transponder experiments are discussed.

**Rubbersat — The Electronics.** Murray Hely ZL4TIB, *Break-In* vol 65 No 2 March 1992 pp 18-19. il ccts. The design of transponders used in the Rubbersat flights is described. 2 m uplink and 10 m downlink was chosen. A linear transponder is described, together with an FM receiver/SSB transmitter combination.

## Test Equipment

### Field Strength Meters

**A Remote Field Strength Meter.** Ken Cornell W2IMB, 73 #378 March 1992 pp 44, 46. il ccts and diag. A remote system uses 510 to 1705 kHz for field strength telemetry. The detected HF signal is applied to a varactor diode; the pitch of the signal received in the shack is an indication of relative field strength.

**Field-Strength Indicators.** Hugh Wells W6WTU, *QEX* #121 March 1992 pp 10-11. il ccts. This review article discusses a variety of circuits which may be used as field-strength indicators in the near field, and to plot polar patterns in the far field.

## Frequency Meters

**A ZL DIY Rubidium Frequency Reference.** David Fraser ZL3AI, *Break-In* vol 65 No 2 1992 p 9. The ZL TV1 and TV2 channels synchronise line frequency oscillators to a rubidium reference, accurate to one thousandth of a part per million. The line oscillator frequency is 1/64th of a megahertz, which is a sub-multiple of most counter timebases. Application of the counter timebase to the Y amplifier of a CRO, with the line oscillator signal operating the trigger, gives a stationary pattern if the frequencies have an exact multiple relationship.

**Digitmax D-1200 Frequency Counter.** (Product Review) Thomas S Rowinsky KAIMDA, 73 #378 March 1992 pp 18, 20-21. A review, with measurements, is given for this equipment which may be used up to 1.2 GHz.

**Simple Pulsed Crystal Signal Source.** Leslie K Bartoloth KAIMJP, 73 #378 March 1992 pp 14, 30. il cct, cmp, pcb and photo. A Pierce crystal oscillator is keyed at 5 Hz. This recognisable signal provides spot calibration for transceivers. A continuous signal is also available.

## Function Generators

**Low Cost Sine/Square Wave Oscillator.** Rob Evans, *EA* vol 54 No 3 March 1992 pp 58-64. il ccts, cmp, diags, graphs, pcb and photos. A Wien bridge oscillator, with incandescent lamp stabilisation, gives a sine wave output from 20 Hz to 50 kHz, with less than 0.1% distortion. An output up to 2 V RMS is available in three switched ranges. A 555 timer provides a square wave up to 2 V amplitude over the same frequency range, with a rise and fall time of less than 50 ns.

## Miscellaneous

**Capacitor Leakage Tester.** Ian Johns, *EA* vol 54 No 3 March 1992 p 57. il cct. A DC voltage of 180 V is applied to a series circuit consisting of a neon lamp, a resistor and the capacitor under test. The flashing rate of the neon is directly proportional to the leakage current, and inversely proportional to the capacitance.

**Transistor Leads Identifier.** Len Ahearn, *EA* vol 54 No 3 March 1992 p 57. il cct. A switching arrangement with four LEDs, determines both the polarity of a bipolar transistor, and the identification of its leads.

**Transmitter Noise Loading.** John White VE7AAL, *QEX* #121 March 1992 pp 3-6. il cct and graphs. A technique is described for measurement of transmitter spectral characteristics by using audio white noise

as a substitute for a two tone test signal. It is claimed that this approach provides a more relevant result for speech transmission.

## Transceivers

### Product Reviews

**The Japan Radio Company JST-135HP ME/HF Transceiver.** David Newkirk WJ1Z, *QST* Vol LXXVI No 3 March 1992 pp 67-72. il graphs and photo. A review is given of this transceiver, including laboratory measurements.

## Transmitters

### Home Brew

**40/80 Meter Wave Ryder.** Charles D Rakes KA5IZ, *73* #378 March 1992 pp 40, 41. il cct, cmp, diag and photo. A single tube crystal oscillator power amplifier gives up to 2 W output. It operates from 12 V DC.

The filament is supplied via a three terminal constant current regulator. A transformer/rectifier, fed by a transistor pulsed by a 555 timer, produces 150 V DC for the anode.

## Glossary of Abbreviations

il The article contains illustrations, a list of which follows.  
 cct A circuit diagram  
 cmp A component layout drawing  
*EA Electronics Australia*  
 diag A mechanical drawing  
 pcb A master drawing from which printed circuits may be produced  
*QSTVE QST Canada*  
*RadCom Radio Communication*  
*73 73 Amateur Radio Today*  
 The above items are reproduced from *Amateur Radio Technical Abstracts* Volume II 1992 ISSN 1036-3025 — to be published.  
 ar

# Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words*

The WIA regrets the recent passing of :  
 D B (Don) Shaw VK2BDS  
 C M Allison VK3AZC  
 L G (Len) Herman VK3NF  
 W J (Bill) Hehir VK3RE  
 R J (Jack) Gayton VK4AGY  
 (Honorary Life Member)  
 K V (Ken) Wragg VK4AKQ  
 J G (Graham) Colley VK4BQZ  
 H H Davis VK5AFK

### Kenneth Vincent Wragg VK4AKQ

Ken passed away on 29th September 1992. He hailed from Adelaide and moved to Queensland following his second World War service as a signaller in the Armoured Corps. He was a foundation member of the Brisbane North Radio Club, and the Kedron-Wavell Services (RSL) Club. Other interests included his Masonic Lodge in which he also took an active part.

Ken will be missed by all who knew him, especially by his daughter Margaret, her husband Graham and their children.

Peter W J Parsons, VK4NJQ

### Bill Hehir VK3RE

It is with regret that we record the passing of Bill Hehir, VK3RE on the 26th August 1992, at Hamilton, aged 80. Bill was born at Richmond Vic. After completing an engineering degree at university, Bill became a member of the Institute of Radio Engineers in April 1935. On the 22nd August 1935, he received his AOC.P. August 1936 saw an experimental wireless station with authorised transmitting of 25 watts for a fee of £1-10-0.

February 1938 saw Bill with his Broadcast Operators Certificate of Proficiency. The same year he took up flying, after a friend Eddie Connellan, had taken him for

his first flight in a DH82. Within six months, Bill had his Commercial Pilots Licence. In September 1940, Bill and his wife Sheila took up residence in Hamilton to fly the "Airspeed Envoy" for Ansett Airways to Essendon and return.

It was during 1942 that Bill was required to instruct at the Melbourne Technical College (now RMIT) in Radio Location (RADAR) to Australian and American Army, Airforce and Navy personnel for the rest of WWII.

The high point of his life was the stage sound amplification for the American entertainers of the late 1950s. Such as Frank Sinatra, Nat King Cole, Louis Armstrong, Frankie Lane, Chuck Berry, Johnny Ray.

Bill retired from Radio and TV servicing in 1972, and spent his retirement experimenting with antennas, and improving his radio station and many improvement projects.

Our sympathies to his wife Sheila, sons Peter, Stephen, Timothy and families.

Ron Hartwich VK3KN

### Dud Charman G6CJ

RAOTC member no 83, Dud Charman G6CJ known to countless CW Dxers the world over is now a Silent Key. He passed away in his sleep on the morning of Friday 25th September.

Dud was a former president of the RSGB, and of the British Radio Amateurs Old Timers Association. He was responsible for reviving this club over the last ten years. Dud was also a member of the First Class CW Operators' Club.

For his wartime work as a back room boy, designing antennas etc for defence equipment, he was awarded the MBE. Many members will recall Dud's expertise on antennas, and the demonstration of his

"Antenna Circus" which he gave during his visit to Victoria in 1976.

Until illness overtook him seven months ago, he had regularly kept scheds with VK3XB and VK3KS on 7, 10, 14 and 18 MHz, for a period of 20 years.

His absence from the CW section of all HF bands will be sorrowfully accepted by the many amateurs who knew him.

Vale Dud ... ..

Ivor Stafford VK3XB  
 and  
 Mavis Stafford VK3KS

### Bob Stancliffe VK5VG

Bob Stancliffe VK5VG, G3VIT, VS9ARS died on 13th January 1992 after a short but painful illness. Bob lived with his family on a farm at Yalunda Flat (Heaven help anyone pronouncing it Yalumba Flat), near Tumby Bay on South Australia's Eyre Peninsula.

Bob was a much travelled amateur very largely due to his 22 years service in the Royal Marines. It was during these years that David (ex G3LQV now VK5ADE) first met Bob and had many long QSOs about their service in the corps. Bob was not the gruff man that one first met. He was very sentimental but tolerated fools badly. He was a dedicated friend and a good amateur. Friends throughout the world will acknowledge this. Bob liked to build in particular he loved experimenting with antennas (quads and the bobtail curtain his favourites). His collection of technical information was proof of this consuming interest. (Need information?, "See Bob" was the saying). Bob had recently taken the plunge into Packet Radio, this occupying lots of his spare time.

His many friends in Australia and overseas will miss him from their regular skeds.

We send our collective sympathy to Brenda, his wife, and Emmy his beloved daughter.

David VK5NU  
 Max VK5KCF  
 Dave VK5ADE  
 ar

# Over to you — Members Opinions

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondents.

## WICEN

Although reluctant to prolong discussion of WICEN issues already covered, I feel compelled to respond to the wildly inaccurate letter from VK2SKY in September 92 AR.

Firstly, far from requiring amateurs — after notifying specified authorities of an emergency — to “stay out of the way”, paragraphs 18-24 of RIB72 instruct them to remain involved in any way practicable, and to assist if required.

Secondly, if VK2SKY understood our laws, he would know that where Federal and State laws conflict, Federal laws prevail. Consequently, additional State restrictions on communications would be invalid.

Thirdly, amateurs not already part of recognised emergency services would not seek uninvited participation in emergency operations. Rather, after indicating their availability, they would await the decision of authorities as to whether to use them. However, where their use could be advantageous, rejection of their services on any grounds by authorities would have to be justified in the light of subsequent events.

Finally, there is no way I will sit quietly in a corner when individual rights are threatened. Those who know me are aware that I have never done so.

S V Ellis VK2DDL  
82 Taree Street  
Tuncurry, NSW 2428

## WICEN a Vocal Minority?

Only one in 20 NSW amateurs is a member of WICEN (letter from S V Ellis VK2DDL, AR Oct '92).

Only one in 100 Australian amateurs took the trouble to respond to DoIC concerning the new licence conditions (WIA News, AR Sept '92).

Only one in 18,000 Australian amateurs “bagged” WICEN three times this year in the pages of AR.

Talk about a vocal minority! For heaven's sake, Stanley, who rattled your cage?

Richard P Murnane VK2SKY  
Local Co-ordinator, Manly-Warringah  
WICEN (NSW) Inc

(Editors Note: Further discussion on this topic would seem unlikely to be beneficial, so this correspondence is now closed. .... VK3ABP)

## HF Predictions

Congratulations on the new HF Predictions tables by Evan Jarman VK3ANI.

The tables are excellent, but I have one complaint! You need a magnifying glass to read them as the figures are very small and compacted.

These tables are sufficiently important to warrant a spread over two pages.

Sydney Bockner VK5VN  
The Coach House  
1 Atkinson Road  
Crafers, SA 5152

(Editor's note: The very fine print and compaction were not intended, and resulted from technical difficulties. We hope the matter is now resolved. .... VK3ABP)

## VK2 Management

Recently the NSW Council of the WIA asked its members:

- 1) What needs to be done to improve services to members?
- 2) Who will do it?

As I see it, the council needs a professional full-time manager/secretary. While the Division is about amateur radio, the administration should not be amateur. The Council members may be well meaning, but they obviously do not have administrative skills.

A full-time manager could co-ordinate the division's needs and implement the policies of the council. His presence would allow the owners of 109 Wigram Street to utilise their property much more.

The question, of course, is where is the money coming from?

The NSW Division should consider breaking away from the present system whereby all the members' money goes to Victoria. The NSW members should be able to pay their fees direct to their own division, which could then forward a small amount for Federal funding.

Members could then subscribe to Amateur Radio magazine if they wished to.

Similarly, a full-time paid manager could handle the QSL bureau performances and operation — preferably both on the same site.

John Saunders VK2DEJ  
8 Toni Cres  
Ryde NSW 2112

## Reply to John Saunders

Your suggestion that a full-time manager/secretary be hired by the NSW Division is one that is under consideration by the Council. It has, in fact, been considered by previous Councils in recent years.

However, it is implicit from your letter that having a paid manager/secretary would somehow magically solve the Division's “administrative problems”, which you haven't enumerated.

Your perception that “all the members' money goes to Victoria” is erroneous. By “Victoria”, I assume you mean the Federal Office.

Membership money is paid to the Federal Office by agreement of all Divisions, the Federal Office providing membership record administration at a single central point, among other agreed-on services, such as publishing AR. A proportion of each membership fee goes to the Federal WIA for running the Federal Office, international representation, etc, and the remainder remitted to the Division. All this was agreed to over 20 years ago.

If, for arguments sake, the Federal Office were located in Sydney, what then would be your claim about where members' money goes?

The VK2 QSL Bureau operation is the largest in Australasia, with over 350,000 cards passing in and out annually. In recent years, Council has considered at length various options for restructuring the Bureau operation. On the administrative side, the late Reg Brook VK2AI (a Councillor) made considerable progress in upgrading the Bureau's administrative operations, with the help of a few dedicated members, to the general satisfaction of users.

The whole Bureau operation is too complex to be handled alone by one person, without going to an automated or semi-automated operation, which cannot be afforded at this time. In suggesting a manager/secretary could handle the Division's administration and the Bureau operation, I believe you fail to appreciate just how much work the current Bureau volunteer team puts in.

Roger Harrison VK2ZTB  
Vice President

## Travellers Net

Having just returned from a 14,000km trip to the top end and central Australia, I thought I should put pen to paper and reflect on some aspects of AR learned from our wanderings.

Those familiar with these parts of Australia will appreciate the vast distances between settled areas and so, not surprisingly, 2m FM is of limited value in anywhere but the major settlements.

Many (read hundreds) of local vehicles are adorned with HF antennas — either multi-tapped helicals or base-tuned verticals. In spite of the advances in satellite technology, HF radio is still the favoured mode for mobile communication.

And so it was in our case. Both HF and VHF were taken — a TS120V (yes V) and a set of helical whips about one metre long, gutter mounted, and the ubiquitous five-eighth wave for two metres.

With this set-up we regularly checked into the 14.116 MHz travellers net run by Roy VK6BO and Peter VK6HH. This net allowed us to regularly report our progress and/or destination and provide a reliable access point should family or friends in VK3 need to reach us. Our thanks to the net for its umbrella.

While the major roads are in superb condition, many lesser roads are corrugated to an extent that your fillings nearly shake loose. Radio installations need to be fairly rugged — don't use self-tappers or plastic fittings. Do bolt equipment down using nuts, bolts and spring washers.

Liberally coat cable entries/fittings with silicone grease or similar, and ensure coax connections can't work loose (they do!). Finally, regularly check the system — you'd be surprised how quickly fittings come adrift on rough roads.

I would encourage amateurs who haven't seen the centre or "top end" to consider doing so. You don't need a four-wheel-drive vehicle to visit 90 per cent of the "tourist" areas — the family sedan is quite adequate. Take along your HF gear — there are daily nets on 21 MHz as well — to provide some extra security, and your 2m gear to chat to the locals in the "bigger" towns!

The NT Tourist Bureau is well equipped to provide you with ample printed information, and the larger national parks are well documented — so away you go, but give yourself six or eight weeks to take in the sights this part of the country has to offer.

Danny McManus VK3NG  
23 Alexandrina Road  
Mt Martha, Vic 3934

### SS "Mantua" — Thank You

Thank you, Arthur Brown, for your interesting article on the SS "Mantua" (AR September 1992). You state that, in 1938, the main transmitter on the SS "Jervis Bay" was spark and the back-up transmitter was valve. The radio equipment on the MV "Manunda", when I joined her as 3rd RO in August 1940, was the reverse of this. The main transmitter was valve and the emergency transmitter was spark.

The valve transmitter used only one valve, to the anode of which was applied about 10,000 volts of "raw" AC. This alternating current had a frequency of about 800Hz

(cycles per second in those days) and the valve conducted on the positive half-cycles. The negative half-cycles simply didn't go anywhere. The alternating current was generated by an inductor alternator, mounted on the same base and driven by a 220-volt DC motor. The speed of this motor could be varied to some extent, and this in turn varied the note emitted by the transmitter. This was "interrupted continuous wave" (ICW). Later transmitters used "modulated continuous wave" (MCW). At that time, all communications with ships at sea was in Morse code; there was no such thing as voice communication — that came much later. The transmitter operated on 600, 700 and 800 metres. (We talked in metres in those days, now only amateur operators talk in metres). The actual wavelength transmitted was determined partly by the aerial constants and partly by coils and condensers within the transmitter, selected by controls on the front panel.

A 100-watt spark transmitter was the emergency stand-by. This was operated from 24-volt lead-acid batteries which drove a DC motor/inductor alternator combination.

George Craggs VK2AYG  
56 Oatley Park Avenue  
Oatley, NSW 2223

### Name Change

Much has been written on this subject and I don't want to labour the point, but not one of the protagonists seems to have given any thought to the costs involved. Every document in regular use would have to be reformatted, the Corporate Affairs Commission would become involved, the constitution would have to be rewritten involving a referendum of the membership.

There are a lot of other expenses I have probably missed, and all this just because somebody thinks the name is old-fashioned. After all, cuffs on trouser legs will probably become fashionable once more.

B L McCubbin VK3SO  
3 Kildare Street  
Burwood, Vic 3125

### Compulsory Membership

I would like to support comments made by Ted Ross VK4TR concerning the compulsory membership of the WIA by all licensed amateurs (AR Aug '92). This would guarantee 100 per cent membership by licensed operators.

To keep the cost within reason, I would suggest a fee for combined licence and WIA membership only. AR should be an optional extra, and run as a profit-making commercial enterprise if possible.

Sally Grattidge VK4MDG  
Clark Road  
Majors Creek  
Woodstock, Qld 4816

### Mathematics in AR

As a long-time user of mathematics I know the advantage of fluency in that language and the disadvantages of a lack of fluency. The article, "Writing for AR", in the August edition, attempts to argue the case for verbal and geometric statements, rather than maths. This letter is an argument in favour of mathematics.

Any logical reasoning which can be done verbally or geometrically can also be done mathematically, but the accuracy essential for technical and scientific purposes can be achieved only with mathematics.

Our education institutions deplore the fact that many students do not develop their maths knowledge to a level suitable for advancing to tertiary level. Much of their poor development can be attributed to the lack of encouragement outside their classrooms. The unsupported statements in the "Writing for AR" article are examples of disincentives which should not appear in the journal of a society which claims to support "self-training and technical investigation".

The editorial preference for non-mathematical texts is dictated by considerations of convenience, economy and the skills and techniques available to them. I find that reproduction of even simple maths statements is beyond the capability of keyboard operators (and their keyboards?) and many proofreaders cannot detect maths mistakes. Efforts and upgrading of techniques to overcome those and other difficulties would help to interest a wider section of the amateur community in the technical content of AR.

AR is not required to educate professors or to entertain children; it should cater for the middle, most populous level of technical literacy, those people who are not scared of maths and prefer it to the almost incomprehensible verbal substitutes offered by "popular authors".

Lindsay Lawless VK3ANJ  
Box 112  
Lakes Entrance, Vic 3909

### Help Still Wanted

Some months ago we sought contributions from amateurs to our Dictionary of Biography of Western Victoria. We are most appreciative of the help given by those who responded, not only from VK3, but also from other VK areas. If other amateurs would like to contribute, we will be only too willing to send details of the Dictionary of Biography on request.

We probably lack information about amateurs who contributed in a quiet way to the service and to their community. As an example in a different field, when the Rural Fire Brigades are mentioned there is a chorus of "Hugh O'Rorke" because of his

immense contribution to the art of fire-fighting in Western Victoria. We are probably lacking in information about other VLS so we would be pleased to hear of VLS and other rural brigade people who should be included.

I have some specific requests. Firstly, we have access to some material about 3YB, the train-mobile FM broadcast station, but very little about the operators. We need information about Western District people who were part of 3YB before it became fixed.

Secondly, the first "Call Book", the 1914 WIV "Wireless in Australia", lists four experimenters for this region:

XKJ L Osburne, Terang  
XLG T J Entwistle, Camperdown  
XMS W Bishop, Queenscliff  
XJDV T A Crerar, Hexham

We have no biographical material about them.

Finally, we seem to have missed out on some amateurs who have made notable contributions to the Western District, perhaps because people thought they would simply be duplicating other material. For example, we need a biography of VK3TW whom many people remember as the broadcast life of 3HA.

Again, thanks for your interest, and we will be pleased to receive more contributions.

**Ros Lewis VK3YMR**  
Centre for Australian Studies  
Faculty of Humanities  
Deakin University, Vic 3217

## The HF Marine Earth

Richard VK2XRC's article on dissimilar metals (October 1992 AR), set my mind back to when my work included the electrical and electronic maintenance on a series of customers' pleasure boats. During the times when the corporate chequebook had a bottomless limit, a new vessel appeared with all the accessories still to be fitted.

A HF marine transceiver and tuner was one of the accessories!

The required location for the tuner was above the cabin window line with the whip antenna just above on the side of the fly bridge. This was some distance from any effective earth. The HF installation on the previous boat came with it and was a poor performer, so I was determined to achieve a result this time. Asking around I found the secret of a good marine HF installation was a substantial path between a tuner and the ocean below. It is tempting to use a stranded insulated cable for ease of installation, but this becomes a good inductor, depending upon its cross-sectional area. Richard referred to the need for a heavy copper strap.

Ideally, the tuner would be nice directly on the point of earth contact with the ocean

earth, either the through keel metal points or the capacitance point, where a metal mesh is sandwiched into fibreglass construction. However, it is not very practical to locate the tuner down in the bilge. Instead, one has to transfer this earth point to the tuner and the transceiver by a path of least inductance. This means a large cross-section in the earth strap.

The vessel I was fitting out was of fibreglass construction with twin engines. The props were unsuitable due to short shafts and flexible couplings. This left only the twin rudders which, fortunately, were metal. Whether the right metal, I don't remember. An examination of the boat's construction showed, although difficult, there were channels in the mouldings from

the stern, under the deck, up the sides into the space between the cabin roof and the fly deck floor. I was able to obtain a roll of about 20-gauge copper sheet 300mm wide. The space available was about 150mm along many of the joints. This copper was split into 150mm strips, and it was fairly easy to feed up to the tuner. A copper braid, similar to the older battery straps in cars, made the connections at both ends. The resulting HF signal, both ways, was impressive. The boat owner was able to outdo all his mates, and didn't he let them know!

**Tim Mills VK2ZTM**  
PO Box 204  
Willoughby, NSW 2068  
ar

## Pounding Brass

*Gilbert Griffith VK3CQ 7 Church Street Bright Vic 3741*

Morsum Magnificat is one of the very few Morse Magazines available anywhere in the world and will be 10 years old in 1993. You can subscribe by contacting Geoff Arnold G3GSR, 9 Wetherby Close, Broadstone, Dorset BH18 8JB England. Tony Smith G4FAI, (consultant editor) has written with information on the new changes to the UK Amateur Morse Test.

## Changes to UK Amateur Morse Test

Britain's radio licensing authority, the Radiocommunications Agency, has announced changes to the format of the 12 wpm Amateur Morse test. Following the success of the 5 wpm Novice test introduced last year, it has been decided that the 12 wpm test should also be in a QSO format. This is considered to be better at preparing candidates for the sort of operating conditions they can expect to encounter on the air.

The existing test, although an efficient method of assessing the ability of a candidate to read English plain text at 12 wpm and figures at a slower speed, says the Agency, falls far short of preparing anyone to actually understand a live message on the air. Most successful candidates cannot read mixed letter and figure groups, which means that they cannot read call signs and are therefore incapable of communicating on the air using Morse code.

The new style test will be available from 1st January 1993, but candidates who have studied under the old format will be able to take the old style of test until 31st March 1993, when the new test will become compulsory.

As from 1st January 1993 a new procedure for the identification of candidates will also be introduced. Instead of written proof of identity, candidates will be required to bring to the test centre two recent passport size photographs of themselves. In the new test, the candidates will receive a minimum of 120 letters and 7 figures in the form of a typical exchange (QSO) between radio amateurs. A manual morse key will be used to send the message, which will last approximately 2 minutes and 30 seconds. A maximum of 6 uncorrected errors will be permitted.

In the sending test, the candidate will send a given text, on a hand key, comprising not less than 75 letters and 5 figures, also in the form of a typical QSO. This will last approximately 1 minute and 30 seconds. There must be no uncorrected errors in sending and no more than 4 corrected errors will be allowed.

The test can include any of the following abbreviations, Q-codes or procedural characters: AGN, ANT, BK, CPI, CPY, CQ, CUL, CW, DE, DR, EL, (?) ES, FB, FER, GA, GD, GE, GM, HPE, HR, HVE, HW, K, MNI, MSG, NW, OC, OM, OP, PSE, PWR, R, RPRT, RST, RX, SIG, SRI, TEMP, TKS, TNX, TU, TX, TXR, UR, VERT, VY, WID, WX, XYL, YL, 73, 88.

QRA, QRG, QRK, QRL, QRM, QRN, QRO, QRP, QRQ, QRS, QRT, QRV, QRX, QRZ, QSA, QSB, QSL, QSO, QSY, QTH. AR, BT, CT, KN, VA, ?, /, Erase.

Both the 5 wpm and the 12 wpm tests are conducted by the Radio Society of Great Britain on behalf of the Radiocommunications Agency.

Back in July this year I mentioned some

items of punctuation and their Morse characters. Martin VK6ANE has sent me the following punctuation marks and miscellaneous signs printed in a manual for the maritime mobile and maritime mobile-satellite service, published by the general secretariat of the ITU in 1976.

full stop ..... (AAA)  
 comma ..... (MIM)  
 colon or division sign ..... (OS)  
 question mark ..... (IMI)  
 apostrophe (minute) ..... (WG)  
 hyphen, dash or subtraction ..... (DU)

fraction bar or division ..... (DN)  
 left-hand bracket ..... (KN)  
 right-hand bracket ..... (KK)  
 inverted commas ..... (AF)  
 double hyphen ..... (BT)  
 understood ..... (SN)  
 error .....  
 cross or addition sign ..... (AR)  
 invitation to transmit --- (K)  
 wait ..... (AS)  
 end of work ..... (VA)  
 starting signal ..... (NK)  
 multiplication sign ..... (X)

According to Martin the rarity of occurrence of the other undefined symbols does not warrant memorising (I agree) and that the symbol & could be sent simply as "and" or "es", and \$ "DLR" etc.

I must admit, and I am sure that you will agree, that it is often quicker and easier to spell something out the longer way in plain english the first time around anyhow.

Thanks to the others who sent in symbol codes from various sources (all older than 1976) from as early as 1918 too!

ar

## QSLs from the WIA Collection

Ken Matchett VK3TL Hon Curator WIA QSL Collection

4 Sunrise Hill Road Montrose, Vic 3765 Ph: (03) 728 5350

### Rotary and Amateur Radio Share Common Ideals

Particularly since the Second World War, many amateur radio operators throughout the world have made mention of both their occupation and interests. Sportsmen and sportswomen, firemen, policemen, scout leaders and many others have shown their interests on their own QSL cards. Rotarians are no exception. Rotary is the world's oldest international service organisation. There are now more than one million service-minded business and professional leaders in Rotary, and over 25,000 Rotary clubs in more than 170 nations. In Australia alone, there are over 1300 clubs, with a membership exceeding 100,000.

### ZS5DRC

Rotary was founded in 1905 by Paul Percy Harris, a Chicago lawyer who wanted to establish the principle of service and fellowship amongst his business acquaintances. His motto was "Service Above Self". The name "Rotary" is derived from Paul Harris' custom of meeting with close friends on a weekly basis at their respective offices in rotation. The idea quickly spread, the first club outside the USA being Dublin, formed in 1911, followed closely by London. Most people know of Rotary through its community service embodying such projects as the provision of playground facilities, meals on wheels, visitation programs and the like.

Weekly meetings of Rotarians are the rule by which the expertise and experience of men in various occupations can be utilised in carrying out the ideals of Rotary. District Rotary Conferences (DRC) are conducted at local level, the QSL of ZS5DRC being an especially allocated callsign for such a conference held in Port Shepstone,

South Africa. The slogan "International Friendship through Amateur Radio", which appears on many QSL cards, is linked with the ideals of Rotary itself. In the centre of the card can be seen the toothed wheel which is the symbol of the Rotary movement.

*Port Shepstone Rotary Club*

Host Club  
**DISTRICT 230**  
 17th-21st March



to the  
**CONFERENCE**  
 1968

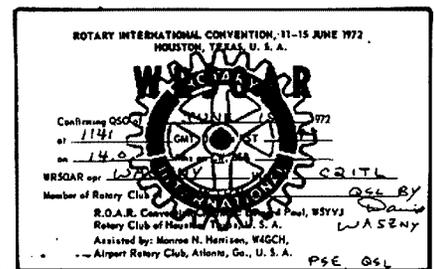
# ZS5DRC

*"International Friendship through Amateur Radio"*

### WR5OAR

The WR5OAR card is another special event QSL. This one celebrated an international Rotary convention in Houston, Texas, and was sent to the writer when he was operating out of Nauru Republic as C2ITL during 1972. The acronym ROAR stands for "Rotarians of Amateur Radio" which, as the name suggests, are associations of licensed amateur radio operators who are also Rotary Club members. The considerable work done by Rotary in the international field is probably not as well known to the general public as it should be. Many millions of dollars are raised annually by Rotarians for international relief, particularly of disease and illness (eg Polio Plus campaign), the provision of food and housing, as well as supporting campaigns for the fight against illiteracy and natural disasters. The Rotary Volunteer Program provides the opportunity for dentists, doctors, teachers, engineers and others to carry out vital work in the under-privileged areas of the world.

Overseas scholarships and Youth Exchange programs are also offered by Rotary International.



### 6K89ROAR

Radio amateurs are now becoming accustomed to working stations with unusually long callsigns such as 6K89ROAR from Korea (do readers remember when, 30 years ago, that strange callsign, UBSARTEK took us all by surprise?). The 6K89ROAR was an especially allocated one and was for the 80th international Rotary conference at Seoul in 1989. The special station was operating for only six days (19-24 May); licensed operators from overseas, being Rotarians, were able to operate the station.

The WIA Collection also contains QSLs of individual members of Rotary who make mention of the fact on their cards, such as G5FH of the Milton district ROAR, and W6SD, who operated on the occasion of the Annual International Amateur Radio Operators' Recognition Day sponsored by the San Fernando Rotary Club. Just as Rotary started in the USA, the Rotarians of Amateur Radio Club had its origin in that

The 80th Annual Convention  
 at Dallas, Texas, U.S.A.  
 Seoul, Korea  
 19-24 May 1989

WAZR  
 19-24  
 14.6  
 6K89

# 6K89ROAR

QTH: Fencing Hall in the Olympic Park

country. It was a movement fostered by the Glencoe Rotary Club of Illinois, USA.

The first Rotary Club established in Australia was the Rotary Club of Melbourne (April 1921). In that year, Rotary Administration HQ in Chicago sent two Canadians, Lt Col Ralston and Mr James Davidson, out to Australia to establish the movement in this country. They landed in Sydney but, because of the Royal Sydney Show week, were obliged to move on to Melbourne. Sydney had to wait another month or so before the Rotary Club of Sydney was formed. Excellent work has been done by Rotary Clubs in all states of Australia, both at local and international level. It was the Sydney club that started the Police Citizens Boys' Clubs. The formation of Administrative Staff Colleges, the building of International Houses at universities, and the establishment of old people's welfare bodies all originated from Rotary. The Victorian Rotary Clubs did pioneer work with the Apprenticeship Scheme.

Ballarat launched its Young Farmers' Club (1926) and Geelong its Apex Club in 1931, (itself now an international organisation of young men with the same ideals as

Rotary). The Brisbane Rotary Club received its charter in 1923. The Mount Isa club established its internationally famous rodeo in order to gain funds for welfare and city improvements.

The Adelaide RC started also in 1923, and played a major role in establishing the Fighting Forces Comfort Fund during WW2, and in its work for crippled children (as did the Hobart Rotary Club, established in 1934). The Perth Rotary Club received its charter in 1926, and was instrumental in organising a central government control for charities, as well as establishing a medical school at the University of WA. Rotary Clubs have also been established in the ACT (1928) and in the NT which, until the 1960s, was linked with South Australia Rotary. Alice Springs' famous "Henley on the Todd" is but one more of the many diverse activities initiated by Rotary for the realisation of its quest for both communal and international service and friendship.

### Author's Note

These series of articles on the history of amateur radio depend, in part, upon information gained from QSL cards kindly do-

nated by radio amateurs throughout Australia and overseas. Could you help? All QSLs are welcome. Please get in touch with the author, who is also the honorary curator of the collection, if you would like to offer your help.

### Thanks

The WIA (Vic Div) would like to thank the following for their kind donations of QSL cards: (Supplementary list)

Alf	VK3LC
Vince	VK2VA
Lionel	VK6LA
Mike	VK6HD
"Snow"	VK3MR
Lindsay	VK5GZ
Ivor	VK3XB
Mavis	VK3KS
Barry	VK5BS

Also, thanks to the family and friends of the following "silent keys": (Supplementary list)

Arnold Holst	VK3OH
John Tapper	VK6RJ & VK6OA (courtesy of Barrie VK6BR)
Syd Sim	VK2AVG
George Luxon	VK5RX

ar

## Repeater Link

*Will McGhie VK6UU@VK6BBS 21 Waterloo Crescent, Lesmurdie 6076*

### Technical Tips

To measure a length of coax running up a tower at a repeater site, usually means a climb up the tower with tape measure in hand, or a rough estimate of the length by comparing the cable length to the height of the tower.

Neither of these methods have ever appealed to me, so in a moment of pure inspiration an idea came from nowhere. Could I measure the capacity of the coax with my recently acquired digital capacitance meter, and from that work out the length?

The cable to be measured was RG 213. A quick look at the specifications of the cable revealed that the capacitance per metre is 101 pF. What a simple value to do the sums in your head. 100 pF is near enough. Measure the coax capacity between inner and outer at one end, and divide this figure by 100, to give you the length in metres. The coax on the site measured 6,440 pF so the length is 64 metres. Measurements with known lengths of cable confirmed the results to be correct. This method only works on cable that has a DC open circuit at both ends. Many aerials represent an open circuit at DC, so it is possible to meas-

ure the length of coax cable even with these types of aerials connected. The capacitance per metre for RG 213 is 100 pF, RG 58 100 pF and DD 450 73 pF.

Expanding on the idea of using a digital capacitance meter to measure cable length, it is also possible to tell where the break in a cable is. If you have a cable, any cable not just coax, that is open circuit, measure the capacitance between the conductors at each end. A few picofarads at one end means that the break is at that end, probably the connector. Even a break part the way along a cable can be estimated. If you read 40 pF at one end and 60 pF at the other, then the break is 40% down the cable from the 40 pF end. Great piece of test gear the digital capacitance meter.

### UHF Diplexer

The need to run two link frequencies from the one site will occur more and more as repeater linking grows. The link frequencies usually being 420 and 440 MHz. With such a large spacing of 20 MHz between these frequencies, it is not too hard to run them into separate antennas only a few metres apart, without any interaction. However the need for a second antenna is not always easy on crowded radio masts.

It is possible to duplex the two link transceivers together into one aerial with the aid of two cavity filters. I tried joining two 4 inch UHF cavity filters together with a T piece, and from this point connecting the aerial. The link transceivers were connected to each of the remaining ports on the cavity filters. To put it another way, place a cavity filter in each transceiver aerial lead, one tuned to 420 MHz and the other to 440 MHz, then join the outputs of each filter to a T piece, and then to the aerial.

The isolation between the transceivers is 40 dB, more than enough at 20 MHz separation to cause no desensing to either. The T connection must be as short as possible, otherwise this connection reflects an impedance other than 50 Ohms. This is because each transceiver after passing through its respective cavity sees an open circuit presented by the other filter.

If the length of the connection to the other filter approaches a quarter of a wave length, then a low impedance is reflected back. Connecting this simple diplexer to a broad band UHF link antenna can solve some of the overcrowding on your repeater site when two link frequencies are required.

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# Spotlight on SWLING

Robin L. Harwood VK7RH 52 Connaught Crescent  
West Launceston Tas 7250

In last month's column, I stated that Tasmania was, at last, going to synchronise the dates when Daylight Saving commences in those mainland states. Sadly, it was wishful thinking, because the Tasmanian Government did an about-face, deciding to stick with the six month period from the beginning of October, to the end of March. This puts Tasmania out of step for almost two months a year. The commercial community and electronic media are naturally annoyed for it increases costs, while the tourist lobby are delighted at the decision.

It is going to be confusing with Queensland, WA, and the Northern Territory all on Standard Time, while NSW, Victoria and SA being on Daylight Saving Time for four and a half months, and Tasmania being on it for half the year (there has even been a proposal by a "Green" state MP for this state to be permanently 11 hours ahead of Greenwich). Will the Federal Government use its external powers under the Federal Constitution to legislate some sanity into our time zone standards?

While we are on Daylight Saving — both the UK and the USA reverted to Standard Time on the 29th of October, while the Brazilians also went on to Summer time at about the same time.

It has been confirmed that both the BBC and Radio Netherlands have signed agreements with the Russians to utilise former jamming senders to relay programming into China and the Indian sub-continent. No commencing date has been given yet. The BBC is also being relayed over the RSA transmitters at Meyerton, South Africa. Frequencies in the 16 and 19 metre bands are being employed to target central and eastern Africa. Incidentally, Radio RSA is now known as "Channel Africa" and external broadcasts are confined to the African continent.

I don't know if Radio Japan is still using the BBC site in Skelton.

When the new European winter schedules came into force at the end of September, the 9770 English program at 0700 UTC from Tokyo was missing. They maybe are using a higher frequency. I will listen to the Radio Japan relay from Moyabi, Gabon on 21700 kHz and see what channels are being used. The regional broadcasts to Australia from Tokyo continue on 15270 at 0900 UTC. 11815 is also a good back-up channel, although directed to Asia.

As you are possibly aware, Czechoslovakia is going to become two separate and independent nations, as from January 1st. The external service of Czechoslovakia — Radio Prague, was retitled to become Radio Czechoslovakia International. Now what the future holds and who gets this and that in the way of senders, studios etc, has yet to be determined. However, listeners can follow developments over Radio Czechoslovakia International in English, at 0700 UTC on 7345,9505 and 11990. The signal level on the latter channel is excellent.

Another interesting trend I have recently noted from American shortwave religious

broadcasters, is to use non-standard allocations outside of the international broadcasting bands. KHBI in Saipan uses 17555 to broadcast the "Herald of Christian Science" at weekends. WWCR in Nashville Tennessee has used 7435, 12160, 15690 and is now heard on 13815 kHz from 1100 UTC. WHRI in Indiana is trying to lure listeners and monitors away from WWV/WWVH by transmitting on 9985. Listen around 0530 UTC. The new Catholic-based "Eternal Word Network" — WEWN is reportedly going to use 18930 kHz at various times. Apparently a small allocation was made at WARC for broadcasting to use this segment, sometime in the future. WEWN may be the first station there. They are scheduled to commence on Christmas Day.

Well that is all for this month. Just a reminder that news can now be forwarded to me via Packet. The address is as follows: — VK7RH @ VK7BBS Launceston TAS AUS. OC. 73 DE VK7RH.

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## Truckie's Travels

Ian Rosser VK2WAG 13 Pemworth Close Wyoming, NSW 2250

(An occasional column of road and radio bits and pieces!)

*Wonder of wonders, even burnt-out truckies are occasionally allowed holidays. Recently, Barbara and I were able to take a whole WEEK off!! During this time (you guessed it) we went for a drive ... that was a change for me!!*

*One thing I learned was that unless you have really good access to the local digipeater, you better use something a little better than a quarter-wave on a handheld!! I was situated at the Bendemeer Pub, and I reckoned on having a really good "shot" at RTM . . . Result: not a sausage heard. Next time the better half can expect an outdoor half-wave device included in the list of must takes!!*

*If you happen to be visiting the Tamworth, NSW, area, I would thoroughly recommend taking a wee small drive out to the village of Nundle! They say it's historic, and they're not wrong. Whilst in the Nundle district, go an extra half-hour up into them tar hills, and have a look at Hanging Rock. I tell you, it will take your breath away — so will the view!! We went there in early June and it was just a little nippy. Just through the village there is a little dam that is most pleasant for a barbeque. Fireplaces are provided, and there is no shortage of wood for the fire.*

*If you happen to be travelling in the Tamworth area, don't be frightened to give them*

*a call on the local repeater (146.750). They are a bit slow to come forward, but when they do you are assured of a little repartee to occupy your time whilst travelling. Notable calls are VKs 2 ZOO, KDK, UNE, FMT, VP, BBD, JUG (a commercial traveller), BGR, and a cast of thousands!*

*VK2BGR — now there is a thorough gentleman if ever there was one. I'm sure Geoff wouldn't mind me saying this; for a man who is totally blind in one eye, and can't see much out of the other, he has an extraordinary ability to get the most difficult things done! Geoff informs me that the worst thing about being nearly blind is the summer scenery . . . if you know what I mean. My thanks to Geoff and Heather for putting up with us in their home.*

## The Voice of Experience

If you are travelling anywhere though western NSW at the moment, either fit an enormous bull-bar (such as is on my Kenworth), or travel only after about 0900 hrs local, and even then with great care. Fair dinkum, the roos are in plague proportions, and it doesn't matter how slowly you drive, I've had them commit suicide by charging head-first into the truck — and that's no bull.

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# WIA Divisional Bookshops

The following items are available from your Division's Bookshop  
(see the WIA Division Directory on page 3 for the address of your Division)

	Ref	Price to Members		Ref	Price to Members
<b>ANTENNAS</b>					
Ant. Compendium Vol 2 Software 5.25' IBM Disk	BX293	\$18.00	<b>MORSE CODE (Contd)</b>		
Antenna Collection - RSGB	BX391	\$39.60	Morse Code 6 Tapes 5-13 WPM Code Course - Gordon West	BX230	\$63.90
Antenna Compendium Vol 1 - ARRL	BX183	\$18.00	Morse Code 8 Tapes Novice Code Course - Gordon West	BX229	\$63.90
Antenna Compendium Vol 2 - ARRL	BX292	\$21.80	Morse Code for Radio Amateurs - RSGB	BX451	\$14.40
Antenna Compendium Vol 2 - ARRL	BX294	\$21.80	Morse Code Tapes Set 1: 5-10 WPM - ARRL	BX331	\$18.70
Antenna Impedance Matching - ARRL	BX257	\$27.00	Morse Code Tapes Set 2: 10-15 WPM - ARRL	BX332	\$18.70
Antenna Note Book W1FB - ARRL	BX179	\$18.00	Morse Code Tapes Set 3: 15-22 WPM - ARRL	BX333	\$18.70
Antenna Pattern Worksheets Pkt of 10	BX202	\$2.70	Morse Code Tapes Set 4: 13-14 WPM - ARRL	BX334	\$18.70
Antennas 2nd ed John Kraus - 1988	BX259	\$93.60	Morse Tutor 3.5' IBM Disk	BX187A	\$18.00
Easy Up Antennas	MFJ38	\$35.30	Morse Tutor 5.25' IBM Disk	BX187	\$16.00
HF Antennas - Lee Moxon - RSGB	BX188	\$27.90	<b>OPERATING</b>		
Novice Antenna Notebook - DeMaw W1FB - ARRL	BX162	\$18.00	Amateur Radio Awards Book - RSGB	BX297	\$22.50
Physical Design of Yagi - 3.5' IBM Disk	BX388B	\$18.00	Amateur Techniques - G3VA - RSGB	BX393	\$32.40
Physical Design of Yagi - 3.5' Mac Disk Excel Format	BX388C	\$18.00	DXCC Companion - How to Work Your First 100	BX345	\$10.00
Physical Design of Yagi 5.25' IBM Disk	BX388A	\$18.00	DXCC Country Listing - ARRL	BX386	\$4.10
Physical Design of Yagi Antennas - The Book	BX388	\$36.00	FCC Rule Book - A Guide to the FCC Regulations	BX379	\$16.20
Practical Wire Antennas - RSGB	BX296	\$26.80	Locator Map of Europe - RSGB	BX388	\$5.40
Reflections - Software 5 inch disk	BX358	\$18.00	Log Book - ARRL - 9' x 11' Wire Bound	BX202	\$6.30
Reflections Transmission Lines and Antennas - 5.25' IBM	BX348A	\$18.00	Low Band DXing - John Dewardere	BX195	\$18.00
Reflections Transmission Lines and Antennas - ARRL	BX348	\$36.00	Operating Manual - ARRL - 4th Edition	BX192	\$32.40
Simple Low Cost Wire Antennas	BX218	\$23.00	Operating Manual - RSGB	BX359	\$27.90
Smith Chart Expanded Scale PK of 10	BX900	\$5.90	Passport to World Band Radio	BX346	\$30.60
Smith Charts S/Scale 1 SET co-ord Imp/Admir Pack of 10	BX901	\$5.90	Prefix Map of North America	BX235	\$7.20
Smith Charts Stand Scale 1 SET Co-ord. PK of 10	BX900	\$5.90	Prefix Map of the World - RSGB	BX397	\$9.90
The Antenna Handbook - ARRL 1991 edition	BX370	\$38.00	Short Wave Propagation Handbook	BX288	\$16.70
Transmission Line Transformers - ARRL	BX329	\$36.00	The Complete DXer - W9KNI	BX194	\$21.60
Vertical Antenna Handbook - Lee - 1990	BX284	\$16.70	Transmitter Hunting	BX222	\$34.20
Yagi Antenna Design - ARRL	BX184	\$27.00	World Grid Locator Atlas - (Maidenhead Locator) - ARRL	BX197	\$9.00
MATV The ATV Compendium - BATC	BX270	\$15.80	<b>PACKET RADIO</b>		
<b>CALL BOOKS</b>					
Radio Call Book International 1992	BX339	\$57.60	AX 25 Link Layer Protocol - ARRL	BX178	\$14.40
Radio Call Book North America 1992	BX338	\$57.60	Gateway to Packet Radio 2nd edition - ARRL	BX169	\$21.60
<b>FICTION</b>					
CO Ghost Ship - ARRL	BX204	\$9.40	Packet Computer Networking Conference 1-4 1982/5	BX166	\$27.00
Death Valley QTH - ARRL	BX205	\$9.40	Packet Computer Networking Conference No 10 1991 - ARRL	BX378	\$21.60
DX Brings Danger - ARRL	BX206	\$9.50	Packet Computer Networking Conference No 5 1986 - ARRL	BX187	\$18.00
Grand Canyon QSO - ARRL	BX207	\$9.40	Packet Computer Networking Conference No 6 1987 - ARRL	BX188	\$18.00
Murder By ORM - ARRL	BX208	\$9.40	Packet Computer Networking Conference No 7 1988 - ARRL	BX184	\$18.00
SOS At Midnight - ARRL	BX209	\$9.00	Packet Computer Networking Conference No 8 1989 - ARRL	BX295	\$18.00
<b>HANDBOOKS</b>					
ARRL Handbook - 1992	BX369	\$47.80	Packet Radio Made Easy - Rogers	MFJ32	\$18.50
Electronics Data Book - ARRL	BX201	\$21.80	Packet Radio Primer - G8UYZ - RSGB	BX440	\$28.80
Mobile Radio Handbook	MFJ33	\$22.50	Packet Users Notebook - Rogers	BX285	\$18.70
Motorola RF Device Data - 2 Volumes	BX047	\$23.00	<b>SATELLITES</b>		
Radio Communication Handbook - RSGB	BX286	\$50.40	Oscar Satellite Review - Ingram - 1988	MFJ31	\$15.30
Radio Theory For Amateur Operators - Swainston - 1991	BX255	\$38.70	Satellite AMSAT 5th Space Symposium - ARRL	BX182	\$15.80
Space Radio Handbook - G4IHL - RSGB	BX439	\$48.50	Satellite AMSAT 6th Space Symposium - ARRL	BX199	\$15.80
World Radio TV Handbook	BX450	\$38.00	Satellite AMSAT 9th Space Symposium - ARRL	BX449	\$21.80
<b>HISTORY</b>					
200 Meters and Down 1936 - ARRL	BX198	\$14.40	Satellite Anthology - 1992 Edition - ARRL	BX180	\$14.40
50 Years of the ARRL - 1961	BX196	\$7.20	Satellite Experimenters Handbook	BX177	\$36.00
Big Ear - Autobiography Of John Kraus W8JK - 1976	BX363	\$11.30	Space Almanac - ARRL	BX299	\$45.00
Bright Sparks of Wireless - RSGB	BX394	\$39.60	Weather Satellite Handbook - ARRL	BX324	\$38.00
Dawn of Amateur Radio	BX395	\$52.20	Weather Satellite Handbook Software 5.25' IBM Disk	BX326	\$18.00
Golden Classics of Yesterday - Ingram	MFJ30	\$19.40	<b>VHF/UHF/MICROWAVE</b>		
MIR Space Craft 1991 - RSGB	BX443	\$18.00	International VHF FM Guide - G3UHK - RSGB	BX399	\$12.60
Spark to Space - ARRL 75th Anniversary	BX310	\$22.50	Microwave Handbook Vol 1 - RSGB	BX318	\$34.20
<b>INTERFERENCE</b>					
Interference Handbook - Nelson - 1989	BX181	\$23.00	Microwave Handbook Vol 2 - RSGB	BX437	\$51.30
Radio Frequency Interference - ARRL - 1992 Edition	BX186	\$27.00	Microwave Handbook Vol 3 - RSGB	BX447	\$51.30
<b>MISCELLANEOUS</b>					
Amidon Ferrite Complete Data Book	BX044	\$9.00	Microwave Update Conference 1987 - ARRL	BX174	\$15.80
Design Note Book W1FB - ARRL	BX357	\$18.00	Microwave Update Conference 1988 - ARRL	BX163	\$15.80
Ferrites Confidential Frequency Listing	BX387	\$38.00	Microwave Update Conference 1989 - ARRL	BX351	\$21.60
First Steps in Radio - Doug DeMaw W1FB	BX385	\$9.00	Microwave Update Conference 1991 - ARRL	BX446	\$21.60
G-QRP Circuit Handbook - G Dobbs - RSGB	BX441	\$27.90	Mid Atlantic VHF Con. October 1987 - ARRL	BX175	\$15.80
Ham Radio Communications Circuit Files	MFJ37	\$22.50	Spread Spectrum Source Book - ARRL	BX365	\$36.00
Help For New Hams DeMaw - ARRL	BX308	\$18.00	UHF Compendium Part 1 & 2 Vol 1	BX250	\$67.50
Hints and Kinks 13th edition - 1992 - ARRL	BX330	\$18.00	UHF Compendium Part 3 & 4 Vol 2	BX251	\$67.50
National Educational Workshop 1991 - ARRL	BX384	\$21.80	UHF Compendium Part 5 German Only	BX354	\$50.20
Novice Notes, The Book - OST - ARRL	BX298	\$10.80	UHF/Microwave Experimenters Manual - ARRL	BX325	\$38.00
ORP Classics - ARRL - OST	BX323	\$21.80	UHF/Microwave Experimenters Software - ARRL	BX327	\$18.00
ORP Note Book - DeMaw - ARRL	BX170	\$18.00	VHF 21st Central States Con. 1987 - ARRL	BX172	\$15.80
Radio Astronomy 2nd edition - John D Kraus - 1986	BX282	\$71.90	VHF 23rd Central States Con. 1989 - ARRL	BX286	\$15.80
Radio Auroras - RSGB	BX381	\$24.30	VHF 24th Central States Con. 1990 - ARRL	BX322	\$21.80
Radio Buyers Source Book - ARRL	BX377	\$27.00	VHF 25th Central States Conference 1991 - ARRL	BX438	\$21.80
Shortwave Receivers Past and Present	BX253	\$19.80	VHF 26th Central States Conference 1992 - ARRL	BX448	\$21.80
Solid State Design - DeMaw - ARRL	BX171	\$21.80	VHF West Coast Conference 1992	BX444	\$21.80
<b>MORSE CODE</b>					
Advanced Morse Tutor - 3.5' Disk	BX328A	\$38.00	VHF/UHF 18th Eastern Conference - ARRL	BX445	\$21.60
Advanced Morse Tutor - 5.25' Disk	BX328	\$38.00	VHF/UHF Manual - RSGB	BX267	\$36.00
Morse Code - The Essential Language	BX223	\$10.80	<b>WIA MEMBERS SUNDRIES</b>		
Morse Code 2 Tapes Novice Code Course - Gordon West	BX228	\$17.90	Log Book Covers	\$18.00	
Morse Code 6 Tapes 13-20 WPM Code Course - Gordon West	BX231	\$63.90	WIA Badge - Diamond	\$4.00	
			WIA Badge - Diamond With Call Sign Space	\$4.00	
			WIA Badge - Traditional Blue	\$4.00	
			WIA Badge - Traditional Red	\$4.00	
			WIA Car Window Stickers	\$0.50	
			WIA Tape - Sounds of Amateur Radio	\$7.00	
			<b>WIA PUBLICATIONS</b>		
			Australian Radio Amateur Call Book - 1993	\$11.00	
			Band Plans Booklet	\$2.80	
			WIA Log Book - Horizontal or Vertical Format	\$5.00	
			WIA Novice Study Guide	\$1.50	

Not all above are available from all Divisions (and none is available from the Federal Office).

If the items are carried by your Divisional Bookshop, but is not in stock, your order will be taken and filled as soon as practicable.

All prices are for WIA members only — postage and packing, if applicable, is extra. (Phone for postal rates.)

All orders must be accompanied by a remittance.

The prices are correct as at the date of publication but, due to circumstances beyond the control of the WIA, may change without notice.

# VHF/UHF An Expanding World

Eric Jamieson PO Box 169 Meningie SA 5264

All times are UTC

## Regarding prefix MD5

In September AR I mentioned the prefix MD5 was unknown to me. I have received two responses, from Roger Pullem VK5ZKK, and Bob Oldfield ex VKORO, now VK3UY/VK3EFD. Both have confirmed MD5 as being that of the post war occupation forces of the Suez Canal Zone, being in addition to the usual SU prefix for Egypt. Roger sent me a copy of the ARRL Handbook DXCC Prefixes for 1950 which confirms his statement, whilst Bob said that the prefix still existed in 1958 at the time of his stay in the Antarctic. It is interesting to note that in 1950 the International Prefixes block MAA-MZZ was allocated to Great Britain, in addition to GAA-GZZ and 2AA-2ZZ. In 1992, in addition to those mentioned, the UK also has been allocated VPA-VSZ, ZBA-ZJZ, ZNA-ZOZ and ZQA-ZQZ. Thanks, I appreciate your interest and information.

## News from Cairns

John VK4TL from Malanda QH22, near Cairns, has written to say that due to the regulations in regard to operating within a Channel 0 area, he ceased operating on six metres in June 1989 and did not resume until October 1991, after the Ch 0 translator at Gordonvale ceased operation.

Since then he has lifted his countries score to around 45. His last European contact was ON4ANT on 9/5/92; new countries worked have been — 10/5: ZK3TPY, 15/6: JU830C and 9/8: NH6YK/KH4. Recent openings to JA have occurred on 16/6, 12/7, 6-8-10-21-22/8 and 8/9. John does not believe six metres is finished and is expecting to work Europe again.

John says he has semi-retired and will be moving to the perfect amateur radio site on the Atherton tablelands, two-thirds of a hectare of land with 360° views, not a house in sight and no electrical interference! His former 9.1 m tower has been extended to 15.2 m and will support the TH6 and the 5 element six metre beam. A second tower will support Az-El satellite antennas.

QSLs for JD1BF1 now go through his QSL manager JA5FFJ.

Anyone with access to the JA CQ ham radio magazine should note on pages 222/223 the photographs of VK4s TL, ZJR, FP, ABW, TUB, FNQ, ZAZ, ZAA,

ZJB, KU, ZAL and 2BBR. These were taken by Yutaka JH1WHS during his recent tour of Queensland using the callsign VK2WHS/4.

## Repeat contacts — again

John VK4TL, would like to voice his comments about second contacts with DX stations, which has been the subject of some discussion in these columns during recent times, and where I said that at times there would appear to be extenuating circumstances for a station to be called again. He says For example, 9HI station calling CQ; after working him I can still hear him coming through two hours later but with no contacts.

He has a pipeline into Cairns and nowhere else. In the amateur spirit I am duty bound to call again to reassure him that his signal is still OK and he has propagation to this area. This isn't the only such example, others have included NH6YK/KH4 and JU830C being heard for more than an hour on various nights but only making the occasional QSO.

I think the point being made by those stations not seeking second contacts arose from when propagation was not restricted to a limited area, and they had to work through a string of previously worked stations before being allowed to seek stations elsewhere. I know the ZLs were furious at having to stand by on their only reasonable opening to Europe, whilst VKs who had previously worked Europe, did so again!

However, there is no simple answer which will suit all occasions and there never will be. I suppose the best that can be asked is for operators to act in the true amateur spirit and be prepared to share contacts with other areas.

## The UK report

Ted Collins G4UPS, says that George PA0FM, will spend the European winter in Aruba as P43FM, from November 1992 until March 1993. QSL via his home address.

Ted supplies a list of 42 EH stations from Spain who were worked or reported until 31 August, so it seems a lot of stations were waiting on the side ready to operate the moment permission was given to do so.

In general, Ted's August report indicates a considerable reduction in six metre con-

tacts, no doubt due to the disappearance of Es as their summer progresses. Best days appear as 10/8: SM1LPU, OK2/YU, HF7PAR, SR3PAR, YU3GO, EH2AGZ, EH2BLR, CT0WW/b. 19/8: OH1LEU, OH3MF, LA9ZV, OK1MAC, SM0CHH, SM7FJE, YU3DKS.

Big opening on 25/8 from 0640 to 2110, with 4N3SIX/b, YU3UF and others, DJ1ZU, 9A1CCY, SVIUN, 14RRZ, I1YK, OE, OK, EH3IH and many others, F8IH, GB3LER/b, YU1EU, V51VHF/b, heard ZS9A working CT1LN, ZB0T, CT0WW/b, ES6PZ, SM1LPU, OHISIX/b, OG1AF, LA5TGA and others, OZICSL/A. Much the same conditions prevailed on 28/8 and 30/8 with the most prominent stations being from LA, SM, OH, OZ, ES and I.

Geoff GJ4ICD had a quiet month due to holidays and work, but says he has written to 3V (Tunisia) to try for a permit for spot frequencies of 50.110 and 28.885 MHz for an expedition in 1993. He says his final country count on six metres stands at 137 confirmed and still awaiting two confirmations from YU to make 139.

GJ amateurs report TEP to 7Q7RM, while GW7NGP worked nineteen countries during the August Perseid meteor shower, all via SSB/MS.

## Report from G3WOS

Chris Gare G3WOS in Hampshire, sent a letter in August which I had to hold over, saying After reading your column forwarded to me by Geoff GJ4ICD, I thought I would send you a copy of my six metre logs from last autumn onwards, to make you jealous! Isn't that nice of him...5LP.

Seriously though, you are right that European operators are in a luxurious position with regard to six metres DX. In this period we had access to Oceania, North and South America, Caribbean, Africa and Europe. Recent Es has brought many new countries either by dx-peditions or newly licenced countries. e.g. FR/DJ3OS, TA5ZA, OD5SK, 3Z4PAR, LZ1BB, UZ2FWA, 9K2ZR, UX1A, EH, EH6, EH9, YL/ES9C. These have taken my countries count to 130 with still more to be contacted.

Contacts from 01/01/92 include: 2E0AAX, 2E1ACB, 3Z4PAR, 4N2CCY, 4X11F, 4Z7OIF, 5B4YX, 6Y5/WS4F, 7P8SR, 7Q7JL, 9H2KY, 9H5EE, 9K2ZR, 9Y4VU, AA4NC/KPI, CN8BA, CN8ST, CO2KK, CUICB, CX4HS, DJIOJ, DJ9KG, EH3KU, EH6VQ, EH9IB, EH9MH, EI2EFB, ES5RY, ES6QB, FIHGT, F8OM, FR/DJ3OS, GD7ANS, I/G10GDH, I2WSG, I4XCC, JA4MBM, KITOL, K2QE, K7VAY, K3QOM, KE9I, KG6UH/DUI1, KN1E/C6A, KP4BZ, LA3EOA, LA9ZV, LY2WR, LZ1BB, OD5SK, OE8HEJ, OK1DIG, OK1MAC, OK2BI1, OK3LQ, OZ3SDC, P43FM,

PT7NK, SM3GHW, SP4TKK, SVIEN, TA5ZA, TI2NA, TM6CHU, TU2OJ, UL7GCC, UXIA, UZ2FWA, VEIHO, VEIQX, VEIYX, VK4FP, VK4JH, VK4WJS, VK5BC, VK5KK, VK6AKT, VK6KRC, VK6PA, VK6RJ, VK6RO, VK6WD, VK6ZP, VK6ZPP, W3JO, W8UCI, W9MBL, YL/ES9C, YT3EY, YU3ZV, YU7AU, YV4AS, YV5ZZ, ZAIA, ZB0T, ZC4KS, ZK4DRY, ZS4S, ZS5W, ZS6AXT, ZS6JOW, ZS6XJ, ZS6XL, ZS9A.

In addition, there are pages of extra contacts with many of the above prefixes, particularly to W, JA, VE, ZS6 and most areas of G.

### Countries worked from Australia on six metres

With the recent publication in the UK Six Metre Group Newsletter — Six News — of the UK (G) Country Firsts on Six Metres, and following a suggestion from Steve VK3OT that we in VK should consider the same, a move to provide such information has been initiated.

A readily available data base is provided by the Six Metres Standings List. All the entries from that list have been brought together and sorted into country order, then the first VK operator to work into each country has been determined and a new list for six metres created, as shown below. This list has produced some interesting facts. The known results from some amateurs not on the Standings List are also included.

For a long time, we in Australia have said our geographical isolation has worked against us when it came to working overseas countries. That may still be so to some extent, but the present list shows that we have collectively worked 161 countries!! Of course, no one has worked all of them, the highest scores so far being in the 90s. A list in descending order of total countries first worked by each operator is included and includes 37 callsigns. There must be many more who could be added. 50 and 52 MHz have been combined under a new heading of Six Metres.

Station	Date	Country	Claimed by
3D2AG	23/03/92	Rotuma Is	VK2QF
3D2SM	20/05/90	Conway Reef	VK4BRG
4S7AVR	29/03/91	Sri-Lanka	VK9YJ
4XIIF	01/04/91	Israel	VK9YJ
5HIHK	05/04/89	Tanzania	VK4BRG
5WIGA	05/12/86	West Samoa	VK3AMK
5Z4CS	28/03/82	Kenya	VK8GB
6WIQC	12/11/90	Senegal	VK4BRG
6Y5RC	28/03/81	Jamaica	VK4PU
7Q7JA	27/03/91	Malawi	VK9YJ
8P6JW	18/04/89	Barbados	VK2QF
8RIAH	02/04/89	Guyana	VK8RH
9HIHT	25/03/89	Malta	VK8RH
9K2WR	03/04/92	Kuwait	VK8RH

9LIUS	08/10/90	Sierra Leone	VK4BRG
9M2FMX	11/06/89	Malaysia	VK6HK
9M8STA	13/08/89	Malaysia E.	VK8ZLX
9N1BMK	02/05/79	Nepal	VK8GB
9Q5EE	06/04/91	Zaire	VK3OT
9VIES	17/11/89	Singapore	VK8ZLX
9Y4LL	10/04/82	Trinidad	VK8GB
A22BW	28/04/91	Botswana	VK6HK
A35JT	12/04/80	Tonga	VK8GB
A45ZM	04/04/90	U.A.E.	VK8RH
AH8A	19/04/81	Am. Samoa	VK2BNN
BV2DP	22/09/91	Taiwan	VK6PA
BY5RA	28/09/84	China	VK8GB
C2IAA	06/03/71	Nauru	VK4ALM
C6ANY	21/04/92	Bahamas Is	VK2QF
CE0DFL	24/04/90	Easter Is	VK4ZJB
CE3/KB6SL	14/10/90	Chile	VK4BRG
CN8ST	20/10/91	Morocco	VK8RH
CO2KK	16/04/89	Cuba	VK2BA
CR9AJ	24/08/78	Macau	VK8GB
CTILN	09/03/91	Portugal	VK6PA
CU3/N6AMG	27/11/91	Azores	VK2QF
DK5UG	31/10/90	Germany	VK5RO
DU6/WB5LBJ	11/10/77	Philippines	VK8GB
EA8/G3JVL	/11/89	Canaries	VK8RH
EI6AS	12/10/89	Ireland	VK8ZLX
EK0JA	20/04/92	Asiatic Russia	VK8ZLX
ES5PC	29/01/92	Estonia	VK6PA
F9DI	13/10/89	France	VK8ZLX
FK8AX	15/12/78	New Caledonia	VK3OT
FM5WD	11/04/90	Fr. Martinique	VK8ZLX
F00CI	13/03/92	Clipperton I	VK4ZJB
F08DR	12/04/81	Fr. Polynesia	VK2BA
FW/W6JKV	31/03/90	Wallis & Fortuna	VK4BRG
FY5AU	30/03/89	French Guyana	VK4BRG
G4FJK	20/03/89	England	VK6KXW
GD3AHV	28/02/90	Isle of Man	VK6HK
G14OPH	12/10/89	North Ireland	VK8ZLX
GJ4ICD	12/10/89	Jersey Is	VK4ZJB
GM4GDT	28/02/90	Scotland	VK6HK
GU2FRO	06/03/91	Guernsey	VK6PA
GW3LDH	12/10/89	Wales	VK8ZLX
H44DX	26/04/79	Solomon Is.	VK8GB
HB0AHB	13/10/91	Liechtenstein	VK6PA
HB9SJV	03/01/92	Switzerland	VK6PA
HC2BI	29/03/91	Ecuador	VK9YJ
HH7PV	19/09/89	Haiti	VK2BA
H18WPC	02/04/89	Dominican Rep	VK2BA
HK0/W6JKV	01/04/92	San Andreas Is	VK2QF
HK0/W6KV	04/04/92	Malpelo	VK4ZAL
HK1JXV	19/03/90	Colombia	VK4ZJB
HL9WI	20/10/74	Korea	VK4ALM
HP3XUH	31/03/89	Panama	VK8ZLX
HRIWPK	02/04/90	Honduras	VK5RO
HS1WR	15/03/80	Thailand	VK9XT
I2CCD	03/03/91	Italy	VK8ZLX
IS0AGY	10/11/91	Sardinia	VK4ZJB
JA3CF	02/02/58	Japan	VK5RO
JDIADP	05/05/79	Ogasawara Is	VK8GB
JDIYAA	31/03/84	Minami Torishima	VK8GB
JTICO	28/09/91	Mongolia	VK6HK
K6ERG	16/03/58	USA	VK4ZA
KC6GV	01/09/90	Belau W.Car.Is	VK4BRG
KC6IN	23/03/80	East Caroline Is	VK8GB
KC6YE	16/10/82	Caroline Is	VK2DDG
KG4SM	25/03/89	Guantanamo	VK2QF
KG6DX	04/03/78	Guam	VK8GB

KG6RO	24/09/78	Saipan	VK8GB
KH0/			
JJAEB	14/04/90	Mariana Is	VK5RO
KH1/			
VK9NL	03/04/89	Howland Is	VK4TL
KH3AB	28/03/81	Johnston Is	VK8GB
KH4AE	28/02/91	Midway Is	VK4BRG
KH5/			
W6HHT	17/04/81	Jarvis/Palmyra	VK5RO
KH6/			
W7ACS	22/08/47	Hawaii	VK5KL
KH7/			
KH6JEB	23/03/90	Kure Is	VK9LE
KL7/			
W44TNV	13/03/79	Alaska	VK2KAY
KP2A	27/03/89	Am. Virgin Is	VK3OT
KP4AAN	13/04/81	Puerto Rico	VK2DDG
KR6BU	20/03/51	Okinawa	VK9XK
KX6/			
KH6HK	22/03/72	Marshall Is	VK4ALM
KZ5NW	/03/81	Canal Zone	VK4RO
LA3EQ	25/02/89	Norway	VK6HK
LU7DZ	20/04/91	Argentina	VK3OT
LXISI	31/10/90	Luxembourg	VK6PA
OA8ABT	12/10/90	Peru	VK4BRG
OE2LFA	03/03/91	Austria	VK8ZLX
OH1YP	25/02/89	Finland	VK6HK
OKIDIG	08/02/91	Czechoslovakia	VK6PA
ON4PS	31/10/90	Belgium	VK6RO
OZIDJJ	08/02/91	Denmark	VK3OT
P29MJ	28/11/75	Papua N.Guinea	VK3ZAZ
P43AS	27/03/89	Aruba Is	VK4ZJB
PAORDY	12/10/89	Netherlands	VK8ZLX
PI9JT	02/04/89	Bonaire	VK4ALM
PYOFF	26/03/92	Fernando/Norona	VK6PA
PZ1AP	30/03/89	Suriname	VK4BRG
SM6PU	13/10/89	Sweden	VK8ZLX
SVIDH	17/10/89	Greece	VK8RH
T20AR	15/12/87	Tuvalu	VK2BA
T30DJ	29/03/89	Kiribati West	VK4ALM
T32AB	15/03/82	Kiribati East	VK2DDG
T33JS	19/05/89	Banaba Is	VK4BRG
TG9AWS	28/03/89	Guatemala	VK2BA
TI2KD	26/03/89	Costa Rica	VK4ZJB
TL8MB	04/04/91	Central Africa	VK6IQ
V51E	26/04/91	Namibia	VK6RO
VE7AAQ	08/04/59	Canada	VK2ADE
VK0WW	10/12/72	Macquarie Is	VK2BNN
VK2BKE	15/01/75	Lord Howe Is	VK3ZAZ
VK5MK	09/09/50	Australia	VK5RO
VK9DJ	17/11/73	Papua	VK3NM
VK9XK	29/12/50	T.New Guinea	VK5RO
VK9XT	10/03/80	Christmas Is	VK8GB
VK9ZM	13/01/89	Mellish Reef	VK2BA
VK9ZM	22/11/78	Willis Is	VK2BNN
VK9ZNG	27/11/75	Norfolk Is	VK2ZRU
VK9ZYX	22/11/81	Coroc Keeling	VK8GB
VP1MT	13/04/79	Br. Honduras	VK5RO
VP2MO	01/04/89	Montserrat	VK2BA
VP2VGR	10/03/81	Br. Virgin Is	VK3OT
VP5D	25/03/89	Turks/Caicos	VK2QF
VR2CG	19/02/54	Fiji	VK5RO
V5SDX	26/11/80	Brunei	VK8GB
VS6AB	05/03/80	Hong Kong	VK8GB
XE1FU	01/11/59	Mexico	VK3ALZ
XF4L	14/04/89	Revilla Gigedo	VK2QF
YB9X	03/01/80	Indonesia	VK6OX

YJ8KM	01/11/76	New Hebrides	VK4ZSH
YO7VY	21/10/91	Romania	VK8RH
YSIECB	30/03/89	El Salvador	VK2BA
YU3ES	17/10/91	Yugoslavia	VK6PA
YV5/DL3ZM	19/03/81	Venezuela	VK2DDG
ZAIZJ	27/10/91	Albania	VK6PA
ZBOT	22/10/91	Gibraltar	VK8RH
ZC4MK	31/10/90	Sov/Bases Cyprus	VK6RO
ZD7BW	21/03/81	St. Helena Is	VK4TL
ZD8TC	20/03/82	Ascension Is	VK5RO
ZF2DN	28/03/81	Cayman Is	VK2BA
ZK1CG	01/04/89	South Cook Is	VK5BC
ZKIWL	28/03/89	North Cook Is	VK2QF
ZK2RS	29/12/82	Niue Is	VK2BA
ZK3KY	13/10/90	Tokelau	VK4BRG
ZLIWW	27/12/50	New Zealand	VK5RO
ZL4OY/C	19/06/83	Chatham Is	VK2BA
ZL9TPY	21/01/90	Auckland Is	VK4BRG
ZM8OY	10/12/85	Kermadec Is	VK2BNN
ZP6XDW	28/04/91	Paraguay	VK4BRG
ZS6XL	29/04/90	South Africa	VK6RO

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### Country tally in descending order

VK8GB	18	VK2DDG	04	VK4ZAZ	01
VK4BRG	15	VK6RO	04	VK4ZSH	01
VK8ZLX	13	VK9YJ	04	VK5BC	01
VK2BA	12	VK3ZAZ	02	VK5KL	01
VK5RO	11	VK4TL	02	VK6JQ	01
VK6PA	11	VK2ADE	01	VK6KXW	01
VK2QF	09	VK2KAY	01	VK6OX	01
VK8RH	09	VK2ZRU	01	VK9LE	01
VK4ZJB	07	VK3ALZ	01	VK9XK	01
VK6HK	07	VK3AMK	01	VK9XT	01
VK3OT	06	VK3NM	01		
VK4ALM	05	VK4PU	01	Total	161
VK2BNN	04	VK4RO	01		

Spread across Australia, there are many good six metre DX operators whose efforts are not included. After referring to their log books, those operators are invited to add to the list as appropriate. At this stage no QSL cards are required, just a list of your first contacts and date with whatever countries you find. Your call sign and entries will not be added to the Standings List without your approval.

At the present time, there is no suggestion that the above list and dates is complete and correct. But if operators can submit information which allows the list to be upgraded and expanded, then that is the result required. With the co-operation of as many operators as possible we should be able to leave for posterity at least one aspect of the written history of six metres. I believe it is very important that such a history be completed without delay, especially that section which relates to the very early contacts. To allow for Australia wide dissemination of the information the above lists are being published simultaneously in both AR and ARA. Details of contacts with overseas countries may be forwarded to

VK5LP or VK3OT. We are particularly interested in contacts which could have been made starting with solar Cycle 18 (from 1946) onwards, or maybe earlier. As the gentlemen then operating would now be elderly citizens, that early information will be lost forever when they pass on.

All VK operators who have participated in six metres DX, for whatever period, are urged to please make time to search your logs and advise of your first contact with a particular overseas country, and where the date is appropriate, to allow for its inclusion in the above list.

Far from being a boring task, the searching of log books becomes an interesting project, particularly when certain entries bring back memories of the circumstances at the time.

At an appropriate time, a revised list will be published.

### Closure

It has been difficult cramming everything in this month. No room for any chit chat, anyway, six metres has been very quiet and no other reports have been received.

Closing with two thoughts for the month; Ignorance is a form of environmental pollution, and, You can't build a reputation on what you are going to do.

*73 from The Voice by the Lake.*  
ar

## Stolen Equipment

Stolen from Dick Smith Electronics, Coburg branch (Victoria) during late August 1992, one YAESU FT470 Dual Band Hand Held FM Transceiver, serial number IK 430817. Contact George Alexandrakis, Victorian Supervisor, Dick Smith Electronics, 656 Bridge Road, Richmond Vic 3121, Tel (03) 428 1614.

Stolen from car on 27 August 1992, one Standard Hand Held FM Xcvr, model No C528, plus manual, serial number OOE150667, Dion VK2PD and VK2XSB.  
ar

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## Morseword 68 Solution on page 56

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
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6										
7										
8										
9										
10										

### Across

- 1 Taxi
- 2 Not me
- 3 Prevalent
- 4 Cuddle
- 5 Be concerned
- 6 Flower Holder
- 7 Floating Platform
- 8 Frosted
- 9 Fail to Catch
- 10 Copied

### Down

- 1 Donated
- 2 Simple
- 3 Dug for
- 4 Corrosion
- 5 Laughing
- 6 Doorways
- 7 Lump
- 8 US state
- 9 Part of the eye
- 10 Annoy

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# HAMADS

## TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albury; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne.

● **WEATHER FAX programs for IBM XT/ATs** \*\*\* "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAX-ISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 358 2785.

## FOR SALE NSW

● **WIA MORSE PRACTICE TAPES** speeds from 6wpm to 12wpm. Good for upgrade, exc cond, sell for \$2 ea inc postage; (02) 99 2933 after 6.00pm, ask for Steve.

● **KENWOOD TS520S TXCVR**, exc cond, desk mic, manual, two spare finals, brand new, \$600, VK2GZ QTHR (069) 62 3576.

● **DECEASED ESTATE, KENWOOD Comms Rx QR666, VGC, \$200; EMTRON EAT300A ant tuner, virt new, \$150; METEX digital m/meter, virt new, \$50; DICK SMITH Q1140 m/meter (in case), virt new, \$50; SANWA m/meter, GC, \$10; HIOKI meter (in case), GC, \$15; QMAX dip meter & coils, GC, \$20; HUNG CHANG OS620 oscilloscope, virt new, \$600; ROYAL soldering station & cntrlr, GC, \$80; DICK SMITH TV pattern gen Kit, \$15; DICK SMITH Zener Diode tester Kit, \$10; PATON ELECTRIC Co m/meter MX30, Golden Oldie, \$20; H/BREW lab PSU AEM 251 kit, \$40; PANTHER PSU 13.8v 2A, GC \$30; KIKUSUI DENPA Co Rc Sig Gen ORC27 (18Hz-200kHz), \$50; DICK SMITH RCI meter Kit, GC, \$15; DICK SMITH transistor tester, GC, \$15; DICK SMITH stereo TV sound Rx, GC, \$50; DICK SMITH CR subst box, GC, \$20; SANSUI ELEC CORP sight tracer & injector, VGC, \$30; INTEGRATED circuit extractor kit (var tools), as new, \$15; SIG Injector, GC, \$10; LEADER sig gen LSG11, GC, \$20; MOTOR CYCLE CB (rear mounting), 18 ch, virt new, \$60; SCOPE soldering iron, wkg, \$50; SWR meter, RC, \$20; PTT mics, 2 off, \$20; SANYO hand dictaphone, \$30; EA digital cap meter kit, OK, \$30; LOW**

FREQUENCY oscilloscope circa 1950, GC \$25; all enquiries Tel (02) 960 1627.

● 6 MX ATN 5 el LP Yagi, 9.7dbi gain, \$100 ONO, Steve (02) 674 2104 after 6pm EST/EDST.

## FOR SALE VIC

● **DECEASED ESTATE of the late Len Herman, VK3NF; KENWOOD TS820 txcvr s/n 611299, SP520 spkr s/n 53C674, VFO820 remote VFO s/n 510849, \$1,100; HELRAY Peak Power Indicator 400W s/n 811-024-400, \$55-00; YAESU FT200 txcvr s/n 339182, FP200 spkr/PSU, \$575-00; HEATH HN-31 1kW Cantenna Dummy load, s/n 14007, \$75-00; VARIABLE AUTOTRANSFORMER, SB5 5amp, 240v, \$50-00; TRIO SG402 RF signal generator, s/n 440454, \$129-00; TRIO AG202A audio generator, s/n 464104, \$159-00; DATONG FL1 frequency agile audio filter, s/n 4292, \$190-00; HEWLETT PACKARD 410C VTVM & RF probe, \$50-00; HYGAIN TH3JR 3 el HF beam antenna, \$100-00; HAM-M Cornell CDR Ham Rotator, \$75-00; HYGAIN 14AVQ HF trapped vertical antenna, 10,15,20 m, \$30-00; LINEAR AMPLIFIERS (2), class "B", 200W, 2x811As, \$450-00 ea; LINEAR AMPLIFIER class "B", 8873, \$450-00; OUTPUT VALVES, 10 x SP6146s, \$30-00; VALVES 2 x 6JS6Cs, \$10-00; 2 x 8873 VALVES, Sockets, Heat Sink, \$2-00; enquiries to John Sanders, (03) 802 1849.**

● **DECEASED ESTATE of the late Bill Hehir, VK3RE;** All equipt listed below is in mint cond; KENWOOD TL922 lin amp, c/w tubes, manual, orig pack, S/N 750056, \$1950; KENWOOD TS820S Xcvr, manual, S/N 740782, \$850; KENWOOD SP820 spkr box, c/w filters, sell with txcvr, \$85; YAESU FTDX400 xcvr, manual, S/N 5033652, some spare tubes, c/w AIWA DM13 mic, \$350; YAESU FTDX400 remote VFO (sell with xcvr), \$85; YAESU FTDX400 spkr box (sell with xcvr) \$30; YAESU FL2100B lin amp, C/w tubes, manual, \$850; YAESU FF50DK to pass filter, \$25; ICOM IC701 xcvr, matching PSU, base & mobile mics, S/Ns 80002371, 7801310, WEBSTER Band Spanner ant & spring base, 4 mob whips, mag mount, \$950; ICOM IC22S FM xcvr, S/N 11977, 146-148 MHz, manual, mic, \$250; KW ELECT PWR/SWR meter KW103, 1kW, 52 ohm, S/N 424, \$40; KYORESTU SWR meter K109, \$25; PALOMAR Noise Bridge, manual, \$50; KAISE ELECTRIX low ohm meter, 0-5, 0-25 ohms, 2% accur, leads, case, \$25; COAX SWITCHES (2), 1x3 IPB, 1 rotary, SO239 conn, \$10 pair; TRANSCO COAX relay USA, S/N 9412, 1x2 pos, 2x28VDC, SOLEN type N, small, \$75; NIDAC PPS-3 alarm PSU, \$25; DUMMY LOAD HRL250, 12" long, \$50; DSI 3600A freq counter, manual, S/N 7984, \$50; JAPAN SERVO CO LTD fan motor approx 4.5" square, cast alum, model CU52133, 208-230V,

14/12W, 50-60 Hz, 1" deep, \$20; RG213 COAX, new, app 200ft, \$80; SML SWR-15 meter, 3.5-150 MHz, \$30; 2xIRC 5000 ohm 80W WW resistors, type HO, tol 2%, trop coat, new, c/w mounting bkts, 12" long, \$10 each; 2x6146B GE USA tubes, \$50 pair; 1 new boxed Richard Allan twincone HIFI spkr, type CG8T, 80 ohms, 1 new boxed GOODMAN AXIETTE 118 spkr, \$30 each; 2 pair NATIONAL stereo headphones, HIFI model EAH 65, 8 ohms, \$25 each; the following items are in VGC cond, TOWER crank up, 3 sect, HD Gal, ext 70 ft, Bot sect 12" tri, Tiltover base plate, mounted prop pitch motor, mast Selsyn indicators, 150 ft RG8, 150 ft all other cables incl AC power, 2 sets steel rope guys, 1 set (top) poly prop rope, all very long, mounted power tranny in wx proof box, \$1500; HYGAIN TH6DX Tri Band beam, balun, manual, was fitted to above tower, \$350; HYGAIN 204BA 20 m 4 el mono band ant, manual, \$200; all enquiries to John VK3HW, QTHR, (03) 324011.

● **RACAL RA17L communications RX, VGC, Tech Manual \$470; HEATHKIT SB301 RX, HEATHKIT SB 650 Freq Display SB600 Spkr, exc. cond, serv man, \$300; contact (052) 48 1410 A Hrs.**

● **YAESU FT102 TXCVR with FV107 EXT VFO, YD148 desk mic, \$725 the lot; Syd VK3DSP (059) 85 2170.**

● **IRON CORE 240/24v 41A transformer with three large heat sinks plus screw-in rectifiers mounted on metal plate, offer; COMMERCIAL ITT RX/TX type FRS-1/25/ft innards mounted on two slide out drawers, 50ft x .375" HELIAX cable plus 10ft fibre glass enclosed 470 MHz co-phased vertical antenna to match, going cheap; VK3YJ QTHR (03) 315 9387.**

● **BAYSIDE QTH, three Bedr, Brick, sep shack, great VHF/UHF area, Nally Tower, sea view, Ted VK3TG (052) 59 3225.**

● **YAESU FTDX570 Xcvr, with mic, manual, some spare valves, GC, capable of 400w PEP, \$220; Stewart VK3NV (059) 87 3592.**

● **TRANSFORMER A&R 2kv at 350mA; AWA 3ph 1.5kV at 0.3A, ea sec \$20; 70 GAL HW tank 30 lbs Cu for Earth strips, \$30; HD Copper wire 16 & 12 SWG, \$1 lb; COAX RG8 & RG11, \$1 m, BAMBOO Poles 14'-18', BO FG rods 6" & 8", \$1 p/ft; ALUMINIUM tube various sizes, \$1 lb; Syd Clark VK3ASC QTHR (059) 71 1861.**

● **NALLY TOWER complete with Daiwa rotator, tower already on ground, good cond, Denis VK3XP (03) 364 9733 (Bus) or Mobile (018) 178 920.**

● **MICROBEE 128K series 3 CP/M computer with dual 3.5" and 1 x 5.25" floppy drives, mono monitor, manuals, orig software, includes Elect Aust RTTY Modem, vy good cond, \$350, Bruce VK3UV QTHR (03) 580 6424, Mob (018) 386 030.**

● **KENWOOD TS530S, MC 35S, AT230, SP230, spare Mullard valves/driver, MALDOL**

HS-Z60 VHF/HF PWR/SWR meter plus boxes, manuals, service/op, \$1100 all in EC, Paul VK3EPD (059) 83 1771.

**FOR SALE QLD**

- TH6 6 el YAGI complete, dismantled, \$340-00; VK4CBD, (07) 395 2720.
- YAESU FT301 TXCVR, drum dial, transistor 100W, 1.8 to 30 MHz and FP301 PSU 13.8V 25A, \$600; DAIWA SWR Power meter X-Needle, 1.8 to 150 MHz, to 1 kW, \$100; Peter VK4APD QTHR (07) 397 3751 A Hrs.
- HILLS 104/0 ch 0 5 el yagi, easily converted to 6 m, new \$50; HT tfrmr 3300v 500mA "C" core, \$200; FIL tfrmr 2x5v or 10v 15A CT, \$40; FIL bias tfrmr 5v 15A, \$40; 16µF 7.5 kW capacitor, \$100; 8 µF 4 kV cap, \$40; 4 µF 4 kV cap, \$30; 4 µF 2.5 kV cap, \$20; QB 3.5/750 (4-250) tubes, tested, \$35; same new in boxes, \$50; 813 tube, new, \$25; CERAMIC sockets 4-125, 4-400, 3-500Z etc used \$20; new \$30; SWINGING choke 5-12H 800mA, \$40; OSKER BLOCK SWR 200 as new \$75; PSU 3 kV 300mA or 1.5 kV 600mA (vacuum relay switched) \$250; MTR151 STC highbanders 25W, \$20; HOME BUILT 6 m linear amp, POA; 2x4CX250; desktop mounting cane; metal cabinet professionally built; various variable and fixed Trans caps, write or phone for details; HL166V TOKYO 6 m amp 3-10W in, 80 or 160W out, \$400; J D Bisgrove, VK4KK QTHR (07) 269 6647.
- KENWOOD TS830s HF txcvr S/N 1041812, VGC, fitted with CASCADE SSB filters and External VFO230, \$1,080; VK6LK (097) 57 2613.

● YAESU FT767GX txcvr, YAESU MD188 mic, cables & manual, \$2750; YAESU FT7 txcvr, YAESU FTV700 t/verter & 2 m and 6 m modules. Complete ubit incl mic, cables & manual, \$675; MADOL HS-620 Duplexer 50 & 144 MHz, \$20; Gordon VK4WF (07) 356 6638.

**FOR SALE SA**

● INTEL 80287XL co-processor chip with diagnostic software, \$100; Ivan VK5QV QTHR, (087) 25 5514.

**FOR SALE WA**

- COLLINS mechanical filters 455 J-31 and 455 J-60 in orig pkts, unused, as fitted in Collins 75A-4 Rx, \$110 pair; HEWLETT PACKARD sig gen model 606A, 6 ranges 50 kHz to 65 kHz, calibrated attenuator, instr manual incl, S/N 009-01180, operation from 115/230v AC 50/60 Hz, weight 21 kg, \$150 delivered Perth area; VK6RU QTHR (09) 385 9664.
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manufactured circa 1986. Bruce Kendall VK3WL (03) 741 1127 (Bus), (03) 741 7654 (A Hrs), (03) 741 8435 (Fax).

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**MISCELLANEOUS**

● HAVING A SHACK CLEAN-OUT ? Please dont throw out those QSL cards. Old and new QSLs are very welcome by the WIA QSL collection. Contact Hon Curator, Ken Matchett, VK3TL, 4 Sunrise Hill Road, Montrose Vic 3165. Tel (03) 728 5350. ar

# Hamads

Please Note: If you are advertising items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

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\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

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State: .....


**Not for publication:**

Miscellaneous

For Sale

Wanted

Name:..... Call Sign: ..... Address: .....

**Solution to  
Morseword No 68**  
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	1	2	3	4	5	6	7	8	9	10
1	—	.	—	.	—	—	.	.	.	.
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10	.	—	—	—	.	—	—	.	.	.

**Solution to Morseword No 68**  
Across: 1 cab; 2 you; 3 rifle; 4 hug; 5 care; 6 vase; 7 raft; 8 iced; 9 miss; 10 aped.  
Down: 1 gave; 2 easy; 3 mined; 4 rust; 5 riant; 6 gates; 7 mass; 8 lowa; 9 iris; 10 rile.

**HOW TO JOIN  
THE WIA**

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information about the WIA.

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Call Sign (if applicable):.....

Address:.....

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.....

State and Postcode:.....

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- VK2 PO Box 73 Teralba NSW 2284
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- VK4 GPO Box 638 Brisbane Qld 4001
- VK5 PO Box 10092 Gouger Street Adelaide SA 5000
- VK6 GPO Box F319 Perth WA 6001
- VK7 GPO Box 371D Hobart Tas 7001
- VK8 C/o H G Andersson VK8HA  
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- A concise Instruction manual with photographs and diagrams which takes you through all areas of operation.
- Each FT-26 comes with a superb long-life 7.2V 700mA/H NiCad pack as standard!
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2 YEAR WARRANTY

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**IC-R7100**



**IC-R100**



**IC-R72**



**IC-R1**

# RADIO AMATEUR

DECEMBER 1992

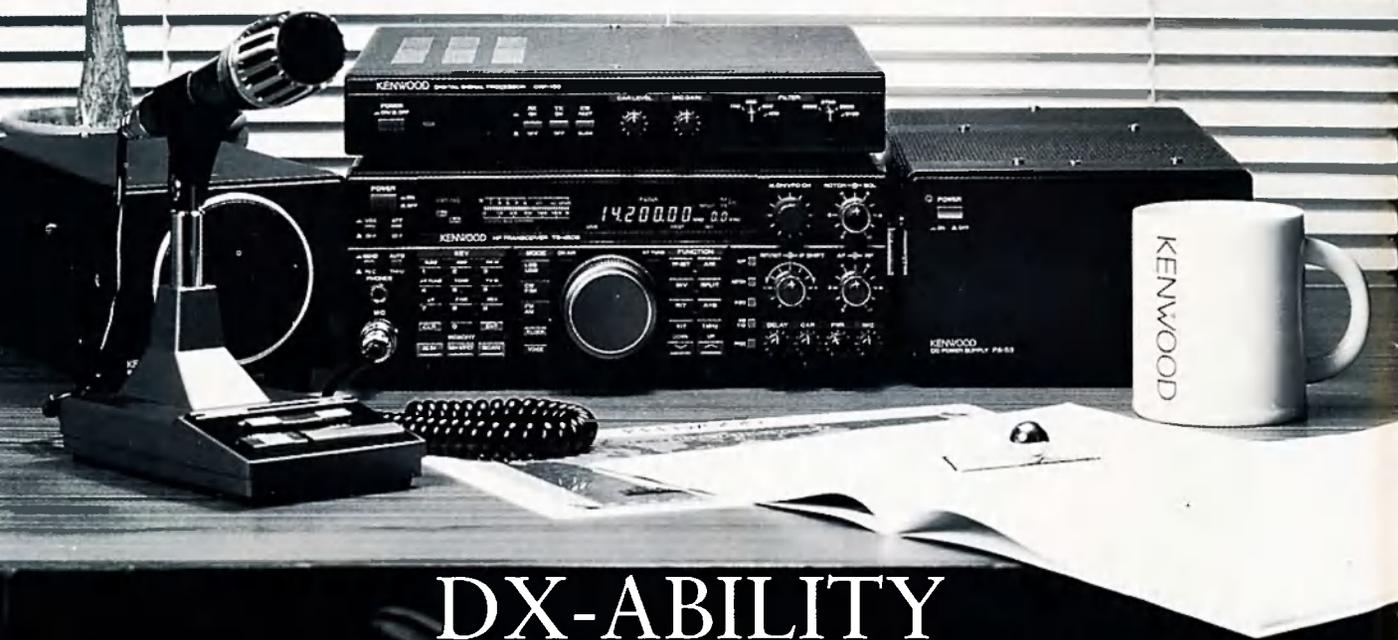
RRP \$3.25

- Melbourne's Lord Mayor opens VI3 MEL
- WICEN — What is it?
- Review — Yaesu FT2400 H



THE WIA RADIO AMATEUR'S JOURNAL

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# TS-450S/TS-690S

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Model.....



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### Cover

Melbourne's Lord Mayor, Councillor Desmond Clark looks on with obvious interest, while Tad Dobrostanski VK3UX establishes contact with overseas amateur radio stations, using the special event call sign V13MEL, during the inaugural stages of the celebrations commemorating the 150th Anniversary of the incorporation of the City of Melbourne. Refer to the special article on page 8. Photography by P Slodowy.

## Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

## Wireless Institute of Australia

The world's first and oldest National Radio Society Founded 1910

Representing the Australian Amateur Radio Service — Member of the International Amateur Radio Union

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## Editor's Comment

Bill Rice VK3ABP

Editor

### Re-Cycling

As all good Greenies know, re-cycling is the process of using things again, either in original form or re-processed into something else. The wasteful alternative is to throw things out as garbage after using only once. Classic examples are plastic bags and aluminium cans. One of these days I hope to write an article on how aluminium cans can become a propeller for a wind-driven generator.

However, it is not recycling of physical hardware that I want to mention now. The perennial problem of an appropriate editorial topic arose again. This time it was our Production Editor, Bruce VK3UV, who came up with the suggestion, "Why not repeat some of the stuff you wrote years ago? There is a whole host of new readers now, who haven't seen it before!" So here is the recycled editorial for July 1984!

Hey, just a moment, people! Don't stop reading now! I'm not going to repeat all that eight year old stuff just as it was. But I think we can have a lot of fun comparing now with then, particularly where once or twice I put on the Nostradamus hat! The latter is a very unreliable piece of headgear unless one makes one's predictions in such vague ambiguous language as to be capable later on of any interpretation, including what actually happened!

In 1984, Ron Henderson VK1RH had just joined Executive, the first non-VK3 to do so, and I suggested that he represented the dawn of a

new era. By 1994, I surmised, we might be holding all-Division Executive meetings with members participating from their own homes via amateur satellite 3-D TV, with "computerised data links providing hard copy of all paperwork to all concerned".

That last bit sounds very like the packet systems we now have; but the TV system may be unlikely, as soon as 1994.

Even now, as we all know, Ron Henderson has progressed in eight years from being the new boy on Executive to being Federal President. Unfortunately, some of the other suggestions were a little farther from present reality. Use of packet, or any other amateur communications, for the conduct of Institute business would contravene the present amateur regulations ("private and unimportant messages, etc"). But holding Executive meetings now would be rather difficult, in view of the fact that Executive was abolished at the 1992 Federal Convention.

Maybe Federal Council or Board meetings, or Extraordinary Conventions could still develop into something like that 1984 pipe-dream. Perhaps? Incidentally I WAS still smoking a pipe in 1984, but gave it up in 1987. But that's another totally irrelevant story.

On behalf of the Publications Committee and staff at the Federal Office, I wish all readers the compliments of the coming festive season, and trust 1993 will be one where we can all progress.

ar

# President's Seasonal Message

Ron Henderson VK1RH

The season of "Peace on earth and good will to all" has slipped around again. We might ask how does that affect us radio amateurs? Have you detected a shortening of attitude towards others in recent times? I have! It's obvious when reading the correspondence sent to the WIA, when listening on air, or reading the packet bulletin boards or just talking to amateurs. Is it

a sign of the difficult times we are enduring? Some would say yes and point to the increases in violent crime in support of their views. But do we radio amateurs have to let ourselves become involved in unpleasantness, for we have a lot of good going for us?

I look back at the year just closing and all the WIA has achieved. Matters such as provision of the amateur ex-

amination service, the impending deregulation of licence conditions, a new limited novice licence, and recognition of the qualifications of combined licence holders, have all been positive changes. On the international scene the satisfactory outcome of WARC92, the re-introduction of amateur radio in several countries and the consequent expansion of the DXCC list are all satisfying signs. Speaking of money matters, the holding of licence fees for next year, the holding of subscriptions by all WIA Divisions and the steady prices for new equipment are also all positive indications.

So, say the prophets of

doom and gloom, where are the downs? Well, I would be less than honest if I did not recognise some. There has been a fall-off in volunteer workers in recent years. So much for the emerging age of leisure! This has affected the WIA, for we often now have to pay a person to do some task we could have found a reliable volunteer to do in years gone-by. There has been an increase in intolerance and less thought for others using amateur radio. It's seen in repeater abuse, wide and splattery signals, some particularly offensive bulletins on the packet system. It's also seen in a lowering of respect of a neighbour's right to enjoy

## WIA Divisions

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Waekly News Broadcasts	1993 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2801 Phone (06) 247 7006	President Christopher Davis VK1DO Secretary Jan Burrell VK1BR Treasurer Ken Ray VK1KEN	3.570 MHz 2m ch 6950 Rebroadcast Mondays 8pm 70 cm ch 8525 2000 hrs Sun	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK2	NSW Division 109 Wigram Street Parramatta NSW (PO Box 1066 Parramatta 2124 Phone (02) 689 2417 Fax (02) 633 1525	President Terry Ryeland VK2UX Secretary Bob Lloyd Jones VK2YEL Treasurer Bob Taylor VK2AOE (Office hours Mon-Fri 11.00-14.00 Wed 1900-2100)	From VK2WI 1.845, 3.595, 7.146*, 10.125, 24.950, 28.320, 52.120, 52.525, 144.120, 147.000, 438.525, 1281.750 (*morning only) with relays to some of 14.160, 18.120, 21.170, 584.750 ATV sound. Many country regions relay via a local 2 metre repeater. Sunday 1000 and 1915. Highlights included in VK2AWX Newcastle Monday 1930 on 3.593 plus 10mx, 2mx, 70cm, 23cm. News headlines by phone (02) 552 5188. Some broadcast text can be found on the Packet network.	(F) \$66.75 (G) (S) \$53.40 (X) \$38.75
VK3	Victorian Division 40G Victory Boulevard Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton VK3PC Secretary Barry Wilton VK3XV Treasurer Rob Halley VK3XLV Office hours Tue & Thur 0830-1530	1.840MHz AM, 3.615 SSB, 7.085 SSB, 53.900FM(R) Mt Dandenong, 146.700 FM(R) Mt Dandenong, 146.800 FM(R) Mildura, 148.900 FM(R) Swan Hill, 147.225 FM(R) Mt Baw Baw, 147.250 FM(R) Mt Macedon, 438.075 FM(R) Mt St Leonard 1030 hrs on Sunday.	(F) \$72.00 (G) (S) \$58.00 (X) \$44.00
VK4	Queensland Division GPO Box 638 Brisbane QLD 4001 Phone (07) 284 9075	President John Aarsee VK4QA Secretary Ken Ayers VK4KD Treasurer David Travis VK4ATR	1.825, 3.065, 7.118, 10.135, 14.342, 18.132, 21.175, 24.970, 28.400 MHz. 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday. Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK5	South Australian Division 34 West Thebarton Road Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Bob Allen VK5BJA Secretary Roland Bruce VK5OU Treasurer Bill Wardrop VK5AWM	1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000 147.000 FM(R) Adelaide, 146.700 FM(R) Mid North, 146.900 FM(R) South East, ATV Ch 34 579.000 Adelaide, ATV 444.250 Mid North Barossa Valley 146.825, 438.425 (NT) 3.555m 146.5000, 0900 hrs Sunday	(F) \$70.00 (G) (S) \$56.00 (X) \$42.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 388 3888	President Cliff Bastin VK6LZ Secretary John Farnan VK6AFA Treasurer Bruce Hedland-Thomas VK6OO	146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz. Country relays 3.582, 147.350(V) Busselton 146.900(R) Mt William (Bunbury) 147.225(R), 147.250(R) Mt Saddleback 146.725(R) Albany 146.825(R) Mt Barker broadcast repeated on 146.700 at 1900 hrs.	(F) \$60.75 (G) (S) \$48.60 (X) \$32.75
VK7	Tasmanian Division 148 Derwent Avenue Lindisfarne TAS 7015	President Tom Allen VK7AL Secretary Ted Beard VK7EB Treasurer Peter King VK7ZPK	146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.750 (VK7RNW), 3.570, 7.090, 14.130, 52.100, 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$87.00 (G) (S) \$63.65 (X) \$39.00
VK8	(Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three-year membership available to (F) (G) (X) grades at fee x 3 times.

Note: All times are local. All frequencies MHz.

leisure time pursuits without annoying radio frequency interference.

At this time of the year we traditionally make good resolutions and promises to do better next year. Will you all join me in trying to make amateur radio in Australia a better thing? A pursuit everyone can all enjoy, amateur and non-amateur alike. Will you pay attention to your operating habits, give

only honest signal reports, fit that low pass filter in your transceiver output and "switch on mind before engaging keyboard"? While you are about it what about taking office in the WIA for a while, share the load and let your hard working friends have a year or so off to do some operating?

A merry Christmas and a happy new year to you all.  
ar

Satellite Service — A Microcosm of Radio Communications" was prepared by David Wardlaw and Ron Henderson and accepted for publication in the conference proceedings. David presented the paper to the conference.

Communication '92 was sponsored by The Institution of Engineers, Australia and co-sponsored by The Institution of Radio and Electronics Engineers, Australia; The Institute of Electrical and Electronic Engineers Inc; Telecommunications Society of Australia; Australian Information Technology Council and Standards Australia.

The WIA's paper covered the whole gamut of amateur communications, with emphasis on the wide variety of modes and frequency bands available to amateur operators. The opportunity was taken to inform the audience of the range of activities in which radio amateurs take part. In particular, emphasis was placed on satellites, data communications and the more exotic modes such as meteor scatter, moon bounce and VHF/UHF communications via "aircraft trails".

Exposure to professional audiences of this nature provides valuable publicity for Australian radio amateurs and the WIA. A large number of professional engineers and communicators are licensed amateurs, but are often reluctant to admit it in some circles.

As a matter of interest, at WARC92, the IARU left out registration sheets and by the end of the conference some 10% of delegates had signed-in with their callsigns. The WIA will continue to raise the profile of amateur radio with the learned societies in Australia wherever and whenever the opportunity arises.

## Amateur Radio In the Yellow Pages

The WIA is to seek the listing of a special category heading in the Yellow Pages telephone directories in each state.

This action came out of a motion put before the WIA Board Meeting over 24-25th October.

The WIA is requesting a national heading of "Clubs, amateur radio" be created, so that the WIA and amateur radio clubs and societies who want to be listed can be readily contacted by people seeking information on amateur radio and amateur radio organisations.

## WIA News

*From the WIA Federal Office*

### Membership Renewals

Membership renewal notices for the 3870 members whose membership is due for renewal as at 1st January 1993 were forwarded out in the mail in the last week of November. The notices are new and very different from the previous notices. They are larger, printed in blue and black and white, and have a section for members to tear off and keep for their records.

Also, payment methods have been expanded to make it easier to renew. In addition to mailing cheque or credit card details to PO Box 300 Caulfield South VIC 3162 with the tear-off notice, members can now pay by phone using their credit cards, or by facsimile, also using their credit cards.

### Delivery of Amateur Radio Magazine

Commencing with the December 1992 issue of Amateur Radio magazine, 64% of WIA members will have their copies of the magazine delivered by Street-

file, an alternate delivery system to the Australian Post Office.

Savings are expected to be in the order of \$4,500 in a year. Deliveries will be made by hand, sometimes on a Saturday and Sunday. The flysheet for Streetfile deliveries will look like the usual flysheet, but will be printed in red.

The delivery times are expected to be little different to APO, although Victorian members may receive their copies a day or two later than usual, and more distant members a day or two earlier.

### WIA at Communications '92

The WIA was invited to submit a paper to Communications '92, a conference for professionals on communications technology, services and systems held over three days at the Sydney Hilton in late October.

The invitation came as a result of the WIA's participation in the Australian WARC92 delegation earlier this year.

A paper entitled "The Amateur And Amateur

### Wireless LANs

One of the latest trends in the computing world is to link computers via radio or infra-red transmissions. Dubbed "wireless" local area networks (hence, wireless LANs) they are replacing the collection of cables and conduits draped around office walls or ceilings that interconnect networked computers at present.

As this emerging technology may impinge on amateur radio, the WIA has been monitoring their introduction over the past year and a half.

At the recent Communications 92, a session was devoted to wireless LANs and our speaker at the conference, David, VK3ADW reported on a LAN operating in the Industrial, Scientific and Medical (ISM) band at 2400 — 2500 MHz. Whilst amateurs have an allocation from 2300 to 2450 MHz we use it on a basis of accepting interference because of that ISM status. Domestic microwave ovens operate in this band.

A variety of wireless LAN

systems were surveyed in an article in the Feb 92 issue of PC Magazine. They were: CarrierNET, a system using carrier current technology on the building's power mains with a carrier frequency of 200 kHz.

WaveLAN, ARLAN, RadioLink and LAWN, all interfaces operating at 902 to 928 MHz over ranges under 100 metres.

RadioLink, operating in the ISM band of 2400 to 2480 MHz.

Altair, an Ethernet interface operating at 18 to 19 GHz over ranges under 30 metres.

InfraLAN, a Token-Ring interface working in the infra-red band, 350 thousand GHz for the purist, over ranges under 30 metres.

### President Visits VK8

Federal President Ron Henderson VK1RH took the opportunity while on a bus-

iness trip to northern Australia in October to meet with amateurs from the Alice Springs and Darwin Amateur Radio Clubs.

In Alice Springs Ron met with Geoff Kong VK8TJ, the Alice Springs Amateur Radio Club President and Peter Sumner VK8ZLX, an office bearer. The club operates a repeater and a bulletin board. It also conducts FCC examinations through the USA Volunteer Examiner scheme for US citizens resident in Alice Springs. The Club will shortly start conducting Australian examinations through the WIA Exam Service.

Geoff and Peter explained proposals for a move of the clubrooms to more suitable premises and the possibility of setting up a local radio museum there. We look forward to a photographic report of the opening of the new premises in due course.



**Ron Henderson VK1RH, WIA Federal President, with Bill "Spud" Murphy VK8ZWM, Darwin Club president and Coral Haworth VK8KCH, past president.**

Perhaps the associated museum could be added to the attractions of that inland city, if only for passing amateurs!

In Darwin, Ron attended a family barbecue farewell held by the Darwin Amateur Radio Club to see off Henry Newland VK8HN, who is moving with his wife to VK3.

The evening barbecue also doubled as a planning evening for JOTA the following weekend and SEANET 92, which was hosted by the Darwin club at the end of October.

Ron was shown the Darwin Club's beacons; three professionally built units

# O ICOM

adds a new sophistication to the meaning of the word basic...

To most of us basic means you miss out on performance and quality, but not any more, the new Icom IC-728 might be Icom's 'basic' H.F. transceiver, but in fact it makes many other transceivers look pretty basic by comparison!

**\$1678** r.r.p. Call for special introductory pricing!

Please allow \$35 for postage and insurance within Australia mainland or Tasmania. Other areas please call for pricing. E&OE. All prices and information subject to change without notice.



You might think that a few years of reviewing H.F. transceivers would make any amateur a bit jaded, well obviously not, here is what Neil Duncan, VK3OK, had to say about the IC-728...

*"Getting the IC-728 up and running is a treat"*

*"It almost runs itself — the learning time is very low"*

*"DXing on 20 metres is a snap with a hot little receiver like this one!"*

*The manual "is an absolute pleasure to use"*

*"I must say that the IC-728 offers very good value for money indeed."*

Amateur Radio Action — 9 June 1992

## Stewart Electronic Components Pty. Ltd.

A.C.N. 004 518 898

Bankcard, MasterCard and Visa welcome here.

44 Stafford Street Huntingdale : PO Box 281 Oakleigh 3166

Phone (03)543-3733  
FAX (03)543-7238

operating on 10, 6 and 2 metres. They are shortly to be joined by a fourth unit on 70 cm. Ron was also shown the Club's bulletin board system and HF transmitters used to re-radiate the VK5 Division's broadcast each Sunday.

### Federal News Dissemination

As announced on the Division's broadcast each in November, the manner and form in which news and information from the Federal WIA will be produced and disseminated is to change.

Two major changes were decided. Firstly, Federal Tapes will no longer be produced on a regular basis. While they have been part of the Divisional news broadcast scene for the past 17 years, the Board, in reviewing Federal News dissemination, concluded that the effort used to produce the Federal Tapes placed excessive demands on the time and resources of the Federal Office, and that more use should be made of modern communications means to replace them.

Secondly, in examining how the flow of news and information would be best coordinated, without further taxing the Federal Office, the Board saw the need for a WIA Federal Media Officer. Roger Harrison VK2ZTB, a member of the Board, was appointed to the position.

In bringing the long running Federal Tapes to a conclusion, at least as they existed, the Board was mindful of the need to maintain an adequate news and information flow in their place. The Board was also aware that the state Divisions, through their weekly news broadcasts, may wish to present WIA Federal news in their own distinctive styles, from

which they may have felt constrained in the past.

With almost all news source material produced on computers, it is now possible to send disks containing up-to-date news to Divisions and other organisations. These disks can be used for locally generated broadcast scripts, electronic mail, packet and RTTY bulletins, FAX and hard copy in magazine news columns.

Whilst the WIA Federal Media Officer, the president and, on occasions other Board members, will be involved in preparation of media releases, in order to meet the ASC requirements all news releases will flow formally through the WIA Federal Board of Directors' secretary, a position currently held by the General Manager, Bill Roper VK3ARZ.

The news and information now disseminated on computer disks will be augmented with the wide ranging snippets that are regularly seen in the WIANEWS column in *Amateur Radio* magazine.

In looking back over the seventeen years of Federal Tapes, the WIA Federal Board expressed its sincere appreciation and gratitude for the enormous effort expended by the two Federal Tape co-ordinators, Bill Roper and Ron Fisher, who almost singlehandedly provided the service.

### One for the Ladies

Simone Buck, VK2TOY/P, has gained a Certificate of Achievement for an ATV contact on 1250 MHz with VK2ZQW/P for a distance of 105.7 km.

According to John Martin 2VK3ZJC, Chairman FET-AC, the first YL member to gain a distance record was

Joan Wallace, VK4BJE, who with her husband VK4KHZ set a 50 MHz record of 21,754 km in March 1991.

### Contest News

There is no winner of the WIA Contest Championship for 1991, according to Neil Penfold, the WIA Contest Co-ordinator.

This Award receives rather less publicity than some of the others, as it is awarded on the basis of the aggregate score for at least three of the WIA contests. It can therefore be won only by a member who has submitted logs for at least three contests. Full details of this Award will be published in the contests column of *Amateur Radio* magazine in the near future.

Neil also reports that a number of Remembrance Day logs were received after the closing date of 2nd October 1992. They included two from VK2, seven from VK3, and one each from VKs 4, 5 and 6. It is intend-

ed that next year the closing date be brought forward from seven weeks after the Contest to three weeks after.

Perhaps members will remember to send them in earlier then.

### 1993 Call Book

Divisions should by now have adequate stocks of the 1993 Australian Radio Amateur Call Book. This edition contains over 40 pages of reference material and information about band plans, repeaters, distance records and contests, DXCC countries and accredited examiners, as well as the listing of over 18,000 Australian Callsigns.

Described by some early readers as our "best ever" production, this year it uses a clearer typeface than some previous editions, for which some of our members with poorer eyesight will be very grateful. Be sure to get your copy early while stocks are plentiful.

### WIA Exam Service Report

The WIA Exam Service has concluded a successful first year of operation, since commencing on 1st October 1991, accrediting over 400 examiners around Australia, and providing over 3000 individual exams for nearly 2000 candidates in total.

It must be remembered that for the first three months, examinations were also being run under the previous system.

Here are the figures as at 30th September 1992:-

Accredited examiners registered:	410
Percentage of examiners who are WIA members:	68.05 %
Examination material forwarded for:	413 Exam Events
Exam Events completed:	395
Total number of candidates:	1873
Total number of individual exams:	3202
Average candidates per Exam Event:	4.74
Average individual exams per candidate:	1.71
Average pass rate:	51.44%

It interesting to note that to that date, although in many cases there is a considerable time delay while the materials are in the hands of Australia Post, only one set of examination materials has failed to arrive at its destination.

## Saving Money on Riggs

Imported transmitters and transceivers are effectively "duty free" for Australian radio amateurs, so long as the equipment is not capable of transmitting outside the permitted amateur bands.

By an agreement between Customs and the WIA, the WIA Technical Equipment Advisory Committee (TEAC) inspects incoming equipment and, where appropriate, certifies that it cannot transmit out of band, and cannot be simply modified to extend its range.

It is an expensive procedure for an individual to have a piece of equipment certified and then claim reimbursement of Customs duty paid because a large handling charge is applied by Customs. Suppliers who import transceivers in quantity are granted an Import Duty Exemption Certificate based on examination of a sample of each model submitted for assessment.

If the TEAC consultants determine that modifications must be made to keep the transmitting ability within the approved limits, these modifications are the responsibility of the supplier/importer, who must certify that all subsequent imports will be modified accordingly.

If later versions of the same model show design changes which extend the transmitting range beyond the amateur bands, they must be re-certified. Or if it becomes known on the "network" that a new modification has been designed, it is the responsibility of the importer to remedy the situation.

This procedure is to ensure that Australian amateurs have access to equipment

free of unnecessary duty charges. It is one of the WIA services which benefits all amateurs, both members and non-members alike.

## Repeater Operation

Many amateurs still don't get the "hang" of repeater operation, it seems. While customs vary from state to state, the basic principles remain, but many repeaters are misused at times, either deliberately or unintentionally.

The 1993 Call book includes a short guide to use of voice repeaters.

Normal good manners should prevail during repeater operation as well as on HF. Despite some deregulation, it is still necessary to identify your transmissions at the appropriate intervals, and to refrain from unidentified transmissions.

If you're new to repeaters, you should listen for a while before participating to ensure that you observe the local conventions. Hopefully, more experienced operators will educate the newcomers in correct usage.

Unfortunately, bad habits tend to spread if allowed to persist. Do those who attempt to join into a group using a repeater by saying only "Break" or "Breaker" realise that they are emitting an unidentified signal, and so should be ignored? Do you always remember the three second break before replying?

## Hurricane Andrew

The ARRL Letter for 12th October 1992 is devoted to a report on communications by amateur radio in the aftermath of Hurricane Andrew in Florida on 24th August.

Over 150 amateurs provided communications to a range of agencies for nine days, using VHF, HF, packet and other modes. This operation proved once again the value and versatility of amateur radio and the dedication of the members of RACES (Radio Amateur Civil Emergency Service), says the ARRL.

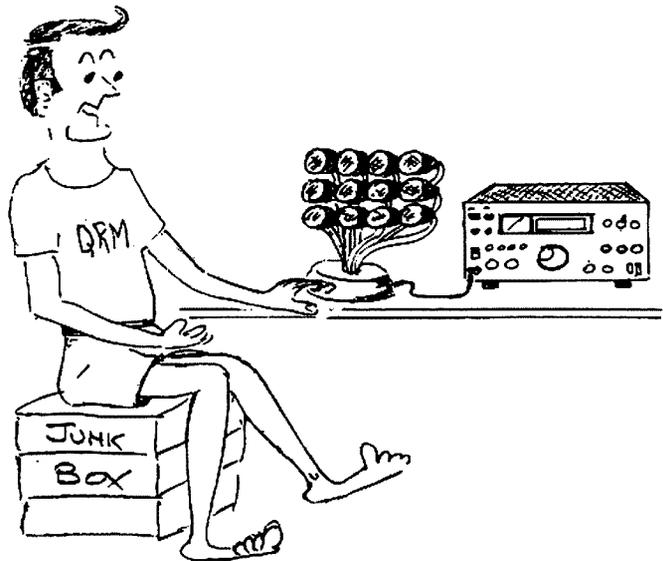
The report notes the problems suffered due to loss of repeaters and established antennas, interference from damaged commercial systems, overloaded telephone lines and damage to cellular telephone cell sites. It also emphasises the need for planning for mobility and flexibility, for keeping the systems as simple as possible

and for self-supporting response or "jump" teams, while commenting that the ability of amateur radio to provide hardware to others may be as effective as providing a total network.

## Advertisers

The WIA is always pleased to receive information which may help to sell advertising in the pages of *Amateur Radio magazine*. Members also are welcome to use the magazine to advertise their businesses. Rates and planning schedules are available from this office on request. Please also remember to tell suppliers when a sale or enquiry is a result of an advertisement.

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LOL'S LAW  
VK4BBA.  
THE MICROPHONE HERE IS A TRIPLE FOUR!

# ARC Polonia Activates VI3MEL Melbourne's 150th Anniversary

**George Kaska VK300,  
and  
Tad Dobrostanski VK3UX  
Amateur Radio Club 'Polonia' Inc  
PO Box 2376  
Richmond South Vic 3121**



**Listening intently to special event station VI3MEL are Melbourne's Lord Mayor Councillor Desmond Clark, Tad Dobrostanski VK3UX, and the Consul General Republic of Poland Dr Grzegorz Plenkowski.**

**T**HE IDEA OF CELEBRATING Melbourne's 150th birthday in August 1992 with an amateur radio transmission to the Sister Cities of Melbourne was put forward to the members of ARC Polonia by the president Tad Dobrostanski VK3UX at the Club meeting in February 1992. The concept was accepted by all present with enthusiasm.

The request for a special event call sign AX3MEL150 was turned down, the next best call allowed was VI3MEL (to those unfamiliar with it MEL is the formal marine and aviation radio abbreviation for Melbourne). Following a lot of hard work in organising, coordinating all the official time tables, and locating a suitable venue, the D-DAY and the hour was set.

The launching of VI3MEL was to take place on the 28th of August 1992 at 3.30 pm by the Lord Mayor of Melbourne at the Polish Association Club (Syrena) Stud Road, Rowville. Following the opening addresses, the first 15 radio transmissions to the world were to be made by the Lord Mayor personally, one contact for each 10 years of Melbourne's anniversary. We would have liked 150 contacts but were aware that the time factor and possibly propagation would be against such an idea.

Many VIPs were invited to witness such an important event. They included not only the Lord Mayor himself, but the Consul General of the reborn Republic of Poland Dr Grzegorz Pienkowski, who agreed specially to fly from Sydney, the Mayor of City of Knox, WIA Federal representatives, WIA Victorian Division president Jim Linton and secretary Barry Wilton, ICOM Australia representatives Chief Executive Mr Kyoshi Fukushima, and well known Melbourne amateur ICOM's Duncan Baxter VK3LZ, representatives from Moorabbin Radio Club, DoTC and many others.

Early in the morning on the 28th August, Doug Rowe VK3KMN from Nally Towers arrived with his truck and the 50 foot tower. With the help of Club members, Werner Wulf's tribander was mounted and raised ready for the operation. The rest of the equipment on loan from ICOM Australia was set up in the building. It included an ICOM IC765 and ICOM 2KL linear. The ARC Polonia VK3CRP was ready to

use VI3MEL in about two hours. All of the "workers" exchanged their overalls for business suits; some were unrecognisable in their new-found respectability!

Propagation was checked about 1 pm but unfortunately Murphy had already exercised his authority, as the bands were almost lifeless. A few weak stations were heard but certainly nothing that could have been recognised by the untrained ear. The contacted stations reported some drift in the transmitted signal. Tad began to panic, blaming everything except the climatic conditions. The standby transceiver, an ICOM IC735, was used to monitor the IC765 and no drift was apparent. It was hoped the situation would improve by "D" hour.

The VIPs began to arrive at about 2.30 pm. They were welcomed by Tad with drinks, and savouries in the foyer. At the same time operators were trying to "prepare" the station for the contacts by the VIP in the radio room.

Following the speeches, the Official party moved over into the "operating theatre". The Lord Mayor, Councillor Desmond Clark, in presence of Tad VK3UX made the first contact with Ed W6KCB, in Colorado USA at 0415Z. Next was Bulgarian station LZIKOZ.

The Lord Mayor very quickly mastered the microphone and appeared to be enjoying himself. His last contact was made at 0511Z. Overall seven contacts were made with the USA including one with W5MEL, one with Bulgaria, three with Poland, one with Austria, one with Germany and two with Australia VK4OD and VK3JI. The Consul General of Poland Dr Grzegorz Pienkowski then made three contacts. The station was then closed for operations from Rowville.

For the following month many Club and guest operators worked from their own stations, on HF bands and two metres, to give the opportunity for all operators to make contact with the special event station.

Special colour diplomas signed by the Lord Mayor have been produced to confirm the contacts made by him as well as contacts made by the Consul General of Poland. Very attractive QSL cards have been sent to confirm all the other contacts.

We wish to acknowledge special appreciation to ICOM Australia for the



**VI3MEL**  
A Special Event Station  
Organized by A.R.C. Polonia Inc. VK3CRP  
Melbourne, Australia.



**MELBOURNE**  
**150**

On this day August 28, 1992 the Right Hon. the Lord Mayor of Melbourne Councillor Desmond Clark launched the Special Event Amateur Radio Station VI3MEL, commemorating the 150th Anniversary of the Incorporation of the City of Melbourne.

**QSL Card especially designed for all contacts with VI3MEL.**

loan of the transmitting equipment, Werner Wulf VK3BWW for the loan of a specially built and assembled 5 element tribander, to Doug Rowe VK3KMN who made a special return trip from the country so that his Nally Tower could be used on the day free of charge, and to the Committee of the Polish Club Syrena for their effort in supplying the venue, friendly staff, food and the drinks. As well we must mention all the silent members of the ARC Polonia who worked behind the scenes and without whose effort it would have been impossible to stage an event like this.

There were some disappointments. It would have been nice to establish con-

**AMATEUR RADIO  
CELEBRATES**



**VI3MEL**

**The publicity poster prepared by the ARC Polonia to celebrate Melbourne's 150th Anniversary.**

tacts with the Lord Mayors of the sister Cities such as Los Angeles, Osaka, St Petersburg etc. All the appropriate people were notified, but all declined due to the time table.

The local media, including TV stations were notified but only the Ethnic radio stations 3EA and 3ZZZ, and the Polish paper turned up to report the event.

In summary the launching of the special event station VI3MEL did promote Amateur Radio, and put Melbourne on the map of the world once again.

The photographs published with this article were kindly supplied by P Slodowy.

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**Help stamp out stolen  
equipment — keep a  
record of all your  
equipment serial  
numbers in a safe place.**

# What is WICEN?

**Leigh Baker,  
Federal WICEN Co-ordinator  
Australia**

**A**T THE LAST Federal Convention I was asked, as Federal WICEN Co-ordinator, to conduct a Review of WICEN status and operations around the country. I thought that results of the Review should be put before the Amateur fraternity. Some of the news is good and some not. It may surprise many that WICEN Membership is about 10% of all Amateur Radio operators and the percentage is growing yearly. This is a good opportunity to let WICEN members and other Amateurs know what is happening within WICEN around our country as too often we simply assume that they know what is happening.

Most of the information given in these articles was produced either for the review or for general publicity purposes. We are grateful to the editors of AR for the opportunity to present it to you.

## **WICEN'S Objective**

To make the resources of the Amateur Radio Service most effectively available to the community in times of disaster or sudden need.

## **WICEN Goals**

1. To identify the potential services that WICEN can provide.
2. To provide, when called upon, those services in an efficient and effective manner.
3. To ensure those organisations that WICEN supports are able to effectively utilise WICEN Services.
4. To respond as best as possible to requests for assistance from appropriate Authorities under DISPLAN.
5. To investigate new avenues/technology which can assist us in our objectives.

A Federal WICEN Co-ordinator is appointed by the Federal Convention of the Wireless Institute of Australia and is an ex-officio member of the Federal Council. The Federal WICEN Co-ordinator acts as a WICEN focal point of contact and co-ordinator between the State Co-ordinators and the Natural Disasters Organisation (NDO) and co-ordinates any amateur communication facilities required on a national scale for disaster purposes. The Federal Co-ordinator also assists the State WICEN organisations in matters of common concern such as allocation of frequencies, procedures and training together with liaison with the Federal Executive. Each State WICEN division has its own Co-ordinator and controls its own divisional structure.

WICEN operators offer the disaster control authorities various communications modes, with an equally wide range of sophisticated equipment, and the trained disciplined manpower to operate the facilities, and if required, competent relief personnel for the Authorities' own communications terminals — all at little or no cost to the Authorities, the Government or the general community.

The trained operator core of WICEN is available on request and in the case of a larger emergency would act as a nucleus to enable the rest of the Amateur Radio population to be put to use.

Due to the number of exercises that we are asked to assist with, WICEN throughout Australia has a fairly deliberate policy of being a low profile organisation, preferring to keep our list of "customers" small to prevent over-extending our resources.

From the Amateur viewpoint participation in WICEN training and exer-

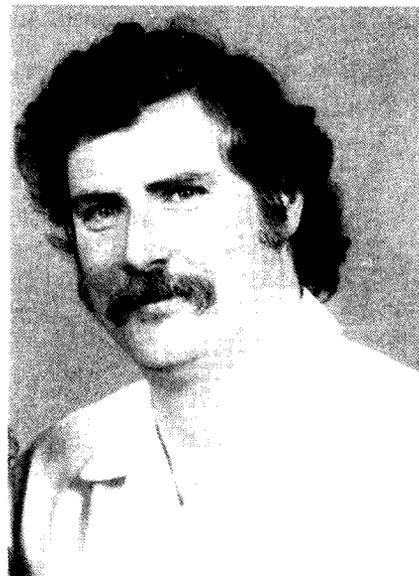
cises is a preparation for the time when the amateur can offer a unique service to the public during a time of need and hence put something back into a hobby which is capable of offering so much in return. It must be remembered, however, that the Emergency Services which will call on amateurs for assistance such as, the Police, Ambulance, Red Cross, Health Department or the State Emergency Services are professionals involved in the preservation of life and property. Hence assistance which is uncoordinated or untrained in the special requirements of these services is not acceptable.

Accordingly the WICEN organisation provides the necessary liaison and training so that the assistance that is given is a reliable communications facility capable of working in conjunction with any of the emergency services.

## **Capabilities**

Applications typical for WICEN during emergencies are:-

- Providing radio links for groups with no communications of their own, ranging from a link between two points, to providing a network of stations many kilometres from a control station.
- Providing radio links between different services with no direct communications, eg Community relief field services and their respective Headquarters.



**Ian Watson VK5KIA WICEN SA/NT  
Director**

- Providing links between services with no compatible radio frequencies, eg Fire Brigades working in another area where their own frequencies are not applicable.
- Providing additional radios or other communication equipment where all available equipment is inadequate, eg FAX or RADIO TELETYPE, Packet, etc, for emergency services.
- Providing links for low priority traffic which does not justify diversion of a channel from other uses, eg a link from evacuation centres to relief organisations.
- Providing a health and welfare message distribution network where no telephones are available so that disaster survivors can inform relatives etc.

## National WICEN Telephone Bulletin Board Network

### Introduction:

With the advent of computers and data communication it is now a relatively simple process to exchange information quickly between groups of Amateur Radio Operators around the country or, for that matter, the world. The purpose of this paper is to discuss and define the possible uses of a national Bulletin Board Network for WICEN.

It should be noted that Packet radio and BBS's have other advantages and that these types of systems can be linked together in Emergencies.

### Does WICEN Need a BBS System?

As the various WICEN Divisions undergo changes in their structure and in the way they carry out their duties they are often trying to re-invent things that have already been done by some other state. Apart from being a waste of resources this is a long and tedious process. A national forum is also required for discussions on many subjects like National WICEN standards, Net Control operation, maximising field efficiency, new training techniques, research into new technologies, administration, procedures, etc.

A BBS Network can also form the basis of an efficient administrative message handling system with other Agencies in Emergencies. Sitreps can

be directed at pre-determined intervals to pre-determined Agencies during the Emergency by people with no knowledge of the system or the network.

The only way that WICEN can function efficiently as a national entity is to maximise our communications with each other and with other appropriate organisations.

### Who Can Access WICEN BBS Information?

Anyone! All that you need is a computer, phone modem and any type of communications software. However, there are several levels of information and access for different groups, ie General public, WICEN members, State or Federal Executive, or other Disaster Agencies. Access to information at higher levels is by pre-arrangement. For more details see one of the Boards or write to any of the WICEN contacts

### Node BBS

At this time the WICEN Victoria BBS is being used as the node from which all other BBS's input and output as it is the only BBS dedicated to WICEN-only matters and therefore its set up is designed exclusively for WICEN purposes.

The WICEN Victoria BBS currently has the following areas :

#### Message Areas

- 1 Local WICEN Victoria Message area
- 2 Fido National/International Net Mail Area
- 3 WICEN Needs Message Area.
- 4 WICEN Vic Events Message Area.
- 6 Repeater Message Area.
- 7 Radio Modification Message Area.
- 8 Situation Reports from UNDRO and other sources.
- 9 For Sale and Wanted Items Message Area.
- 10 National Region Co-ordinators Echomail Conference.(VK's 2,3,4)
- 11 WICEN Victoria Database Updates Message Area.
- 12 DISPLAN Vic Database Updates Message Area.
- 30 WICEN National Echomail — General Interest (VK's 2,3,4)
- 31 WICEN National Echomail — National Co-ordination (VK's 2,3,4)
- 40 Disaster Management — General Interest (Public Mail Only)

- 50 Emergency Communications Conference (Public Mail Only)
- 60 TCPIP Group International Echomail Conference.
- 70 Victorian Technical Advisory Committee Message Area.
- 71 FTAC National Echomail Conference.
- 81 WICEN Nat Tech Support Group Echomail Conference.(VK's 2,3,4)
- 82 WICEN Nat Data Communications Echomail Conference.(VK's 2,3,4)
- 83 WICEN Vic Think Tank Message Area.

#### File Areas

- 1 General WICEN Vic File Area
- 3 WICEN Needs File Area.
- 4 WICEN Vic Events File Area.
- 5 WICEN Vic Forms File Area.
- 6 Repeater File Area.
- 7 Radio Modification File Area.
- 8 General Programs File Area.
- 9 Disaster Research Newsletter and SITREPs
- 10 Vic Region Co-ordinators Report File Area.
- 11 WICEN Victoria Database File Area.
- 12 DISPLAN Vic Database File Area.
- 13 State and Federal File Area.
- 40 Common DISPLAN Agencies File Area.
- 70 Victorian Technical Advisory Committee File Area.
- 80 WICEN Vic Newsletter Prep. Area.
- 81 WICEN Vic Technical Support Group File Area.
- 82 WICEN Vic Draft Document File Area.

The Victorian WICEN BBS has been designed to have a series of access levels each to achieve different ends. When a person logs on to the system he will only see and be able to use those file and message areas that he has been given prior access to, ie a general user won't be able to use those region, state or DISPLAN agency areas. If you feel that you need to have access to an area currently denied you must get permission from the State Co-ordinator or Federal Co-ordinator as appropriate.

The Bulletin Board also has restricted areas for specific projects that are being undertaken by WICEN. To enter areas such as this an additional access flag code is required to be programmed against the person's user record before

entry will be granted. In this way groups, such as members of the Victorian Technical Support Group, the Victorian Technical Advisory Committee and WICENEWS, or the Federal co-ordinator can prepare and distribute documents in confidence prior to presentation to meetings etc.

The FIDO address of WICEN is 3:633/404. The InterNet address of WICEN is VK3UR@CSOURCE.OZ.AU

### Inter BBS Conferences

On application and subject to certain conditions various conference areas on the WICEN Vic BBSs are available to other BBSs for use and information, these being Message Areas 30 — 60. While the WICEN general is freely accessible through the echo some of the others may have (local) restricted access due to the nature of the contents. Any BBS wishing to echo these areas should apply through their Divisional WICEN Co-ordinator or to the Federal Co-ordinator.

### List of BBSs Currently Linked Into the WICEN Data Network BBS

#### VK2:

The Serviceman BBS (02) 698 1565 The North Sydney Packetgate (02) 954 0934

#### VK3:

WICEN Victoria BBS (03) 802 0913

#### VK4:

SunMap BBS (07) 393 0311 Ampak Northgate (07) 263 7070

#### VK6:

Perth Omen (09) 244 2111

### Network Roles

Any WICEN phone BBS Network must be capable of filling three separate roles:

The first role of a BBS is one of local administration, news and information dissemination.

The second function is that of forming part of a "network" of Australian Amateur and Emergency Service BBS's (see article on the ADMIX and ADMIN networks) that can either feed into or feed out of a node (dedicated) WICEN BBS. The same applies to International systems. Our equivalent organisations in many other countries would probably like to swap informa-

tion on organisation and systems as well as having the appropriate contact information in case of emergency. After all, many have gone through problems which we have not yet discovered and vice versa.

The third is the creation of an operational system so that the BBS network can be used as an effective tool in an emergency.

### Re the Third Role

An operational network system would need to have :

- A. Multiple line access and "on line" editing at the responding BBS. Where possible WICEN should also try to develop a system of using the dedicated line "commercial" data network systems for this phase to reduce reliance on the Telecom exchange network. Redundant linking paths are essential to ensuring messages and files can get through to the desired recipient.
- B. Built in secure (encrypted) message transmission capability throughout the network.
- C. The capability to be tied to the Amateur Packet Radio BBS and transmission linking systems during emergencies. It is noted that this does not fit the normal licensing requirements of the Department of Transport and Communications.

### Australian Disaster Management Information Network:

In July 1990 a National Workshop on Information Exchange Needs Assessment was held at the Australian Counter Disaster College (ACDC) in Mt Macedon Victoria. This workshop was attended by representatives of Agencies from all parts of the Commonwealth who had roles in the prevention, mitigation or recovery from Disasters.

Part of the workshop included discussions on how to make information more freely available between the Agencies during all phases of a Disaster and the principles of Phone Bulletin Board systems were examined. Although WICEN was not a participant in this workshop the model that they examined was based on ours as it was the only one used by a DISPLAN agency in Australia (at that time).

In June of last year, WICEN was asked to join in discussions with the

Australian Counter Disaster College, other DISPLAN agencies and the Centre for International Research on Communication and Information Technology (CIRCIT) regarding data communications and how it can benefit disaster related agencies. Meetings have been held monthly and WICEN has been represented by Leigh VK3TP (Federal WICEN Co-ordinator), Mark VK3ZR (Victorian State Co-ordinator) and David VK3UR.

A pilot project is now under way to form a data network based on Bulletin Board Systems. Discussions have been based in many areas including network integrity security, disaster mitigation as well as activation and recovery phases of operation. As WICEN was the only DISPLAN agency with BBS experience we have played a key role in these discussions. The Australian Counter Disaster College has set up its test BBS called ADMIX — Australian Disaster Management Information Exchange at CIRCIT in Melbourne so that preliminary trials can be made with the WICEN BBS. When this test phase has concluded the ADMIX board will be moved to ACDC at Macedon, to the North of Melbourne. Agencies from other States and Federal Authorities will be asked to join in as the system is more fully developed.

One of CIRCIT's roles in the pilot project is in the development of links into other data networks so that research facilities and their users can gain access to the information available. This will also provide redundancy for the primary links. With assistance from CIRCIT and WICEN other DISPLAN agencies are also preparing systems which will integrate into the network. When established the network will allow for electronic mail between participating DISPLAN agencies and for conferences to take place on subjects common to various groups.

In Victoria, VK3UR and myself have had several meetings with Community Services Victoria (who are responsible for the Recovery phase), Victoria SES, the Country Fire Authority, and the DISPLAN Officers of the Victoria Police to assist with equipment and software purchase and installation and also with training. All of these Agencies are now in the process of prepar-

ing submissions for funding of their own BBS systems for their own internal use. There will be "Disaster" areas and echo mail facilities between these systems.

Through ADMIX and CIRCIT we have knowledge of and access to some information from many other systems around this country and around the world. These include:

## EPIX

The Emergency Preparedness Information Exchange — is a computer based bulletin board system sponsored by Emergency Preparedness Canada and managed through Simon Fraser University, British Columbia, Canada. EPIX is designed to stimulate networking and to facilitate the exchange of ideas and information among federal, provincial, local, and private-sector organisations about the prevention of, preparation for, and mitigation of risk associated with natural and human-made disasters.

EPIX provides electronic mail service and also has specialised message and file areas containing discussions and information about selected topics in emergency preparedness. EPIX provides 24-hour direct communication with persons working in this field; thus, it is a means to exchange ideas with others in a given field, particularly during times when it is difficult to meet in person.

## UNIENET

UNIENET is a network of computers linked together electronically. It places members of the world-wide disaster management community in direct contact with each other, and provides them instantaneously with both background and operational disaster related information. UNIENET operates as a joint venture between United Nations agencies and other governmental and non — governmental organisations.

UNIENET will provide you with direct communication with persons working in the field of disaster management, through the electronic mail facility. It also has bulletin boards and databases of disaster-related information. It is possible to send telexes and faxes via the network as well as to access commercial databases.

The following organisations maintain bulletin boards on UNIENET:

UNDRO	Office of the United Nations Disaster Relief Co-ordinator
PCDPPP	Pan-Caribbean Disaster Preparedness and Prevention Project
PAHO	Pan-American Health Organisation
AIT/ADPC	Asian Institute of Technology/Asian Disaster Prep. Centre
IDNDR	International Decade for Natural Hazard Reduction

OAS/DRD	Organization of American States/Dept. of Regional Development
UNHCR	United Nations High Commissioner for Refugees
WHO	World Health Organization
FAO	Food and Agricultural Organization

One of the participants in the original ADMIX workshop was Dr David Butler of the Natural Hazards Research and Applications Information Center of Boulder, Colorado, USA who is an expert in computer information dissemination techniques. Many Agencies present wished to get access to the Center's Monthly bulletin on Disaster Research and the meeting was told that if they could get into the WICEN Vic BBS they could get the information as we were already getting the Bulletin and could pass current and old issues on.

## Computers and WICEN don't mix — or do they?

"Computers and WICEN don't mix!" and "I got into WICEN to talk to people, not to type to them!"

These statements and others similar have been heard on odd occasions over the last few years relating to computers, data modes and WICEN, but just how true are they? This article intends to dispel the myth and show why WICEN is experimenting with these one-eyed



ADMIX project steering committee, From left: N Kanarev (ACDC), J Salter (ACDC), R Fleming (Sysop Admix), M Haikler (Eastcom P/L), D Tilson (WICEN), M Dods (WICEN), M Whelan (CFA), L Baker (WICEN), D Craven (VicSES), C Jenkin (CFA), P Buckle (CSV), Q Davis (VicSES), P Anderson (CIRCIT)



Some of the delegates at the NSW State conference from left Brian Mennis Queensland State Co-ordinator, Ken Ray ACT Co-ordinator, Phil Greentree NSW Gps co-ordinator, Leigh Baker WICEN Federal co-ordinator, Ian Nance NSW State President.

cyclops and why voice is still an integral part of its strategy.

What is the aim of WICEN? Quite simply, the aim of WICEN is to pass messages when called upon by DISPLAN as accurately, efficiently and swiftly as possible. How this is to be achieved is possibly the most contentious issue confronting WICEN planners in recent times.

The advantages of voice over data:

- a) It is better for informal messages as questions can easily go back and forth;
- b) It can be easily monitored by other stations in the network to keep track of what is going on;
- c) More people have voice facilities than data facilities;
- d) Voice is faster to establish than data;
- e) Voice is more portable than data.

The advantages of data over voice:

- a) It is easier to transfer large amounts of information;
- b) It can easily be encoded for the transfer of sensitive information;
- c) "What you type is what they get" due to error correcting protocols;
- d) It is easier to extend data communications over longer distances compared to voice at VHF and UHF;
- e) Data can be easily transferred into the recipient's computer system;
- f) Screen layouts can be easily customised for each individual service, negating the need to carry different types of message pads;
- g) Hard copy and soft copy records are kept for future reference;
- h) New formats can be transferred across the link, allowing everyone to be kept up to date.

As can be seen by the above, like the various frequency bands available to Amateurs, each mode by themselves is valuable but when combined they make WICEN better able to perform its duties.

Why does WICEN have a telephone BBS, aren't we supposed to use radios?

As was stated in the aim of WICEN, we have to be able to pass messages efficiently and swiftly. Every time a message is passed through a digital repeater a delay is added and throughput drops. At times it is more efficient to utilise a packet radio link out of a disaster-affected area and then enter a Gateway which converts the radio signal to a tel-

ephone signal, which can be passed by high speed modem to the required destination point.

Other times, your radio location may be suffering from so much interference, it is impossible to hear anything over the local noise; a solution still must be found.

Let's take a recent exercise as an example: WICEN was activated as part of a DISPLAN training exercise in Gippsland Victoria. The function WICEN was asked to perform was to pass casualty and evacuation traffic back to Red Cross in South Melbourne. The operator arrived at Red Cross and found that there was only one VHF frequency that was useable due to an incredibly high noise floor generated by paging transmitters, and other noise generating devices. No repeater was useable as the local interference (noise floor) swamped the receiver, and HF could not be used for similar reasons. Packet Radio was one option. Using the Phone network and a modem, with or without the BBS, was another.

## Data Communications using Radio

### Introduction

Data Communications has been a steadily growing area of interest for all Amateurs over the last 5 years. For WICEN to make use of data communications an essential requirement is to ensure both error free message transfer and that the message gets through. Other requirements that WICEN places on all forms of communications mediums are that they can be used in portable circumstances and that they are commonly available. WICEN gratefully acknowledges the assistance of the many individuals and specialist clubs for their assistance in the projects described below. We cannot do it alone and we also will need their help in any activations. If there is a choice between protocols WICEN will almost always be driven by popular choice rather than by what would suit the individual.

## Different methods of data communications

### Radio Teletype (RTTY):

RTTY, the oldest of commonly used forms of data communications, is a simplex form of data transfer. Simplex communication meaning that there is

no form of acknowledgment sent back from the desired recipient. RTTY utilises the Baudot code which only allows Upper Case characters to be used. Traditionally RTTY operates at data rates of 45.45 and 50 baud. To generate a RTTY signal requires the user to have a RTTY Modem and a terminal. RTTY modems can be built by the user or can be purchased as part of a multimode data controller for approximately \$600.

Comment: RTTY is not used much in WICEN exercises these days due to its slow data rate and lack of error correction and flexibility. Additionally many of the older mechanical machines are line frequency sensitive. Allowing Upper Case characters and minimal punctuation could also be detrimental due to the limited character set.

## AMTOR

AMTOR is a form of data communication that provides FEC (Forward Error Correction). It is popular for HF communications but has not had much exposure to VHF FM. AMTOR is a half duplex form of communications between two stations. When configured, the two stations act as a Master and Slave combination. A disadvantage of AMTOR is the fact that the Master and Slaves are always talking to each other, which prohibits other usage of the frequency in use. Similar costs and equipment are required to RTTY except the radio requires a very fast Tx/Rx switching time.

Comment: At this time WICEN does not use much data transfer on HF (one event in the last year). If and when it does this will probably be the preferred choice. In addition there are AMTOR to Packet Gateway systems that will transpose the protocols for HF AMTOR to VHF Packet and vice versa.

## Packet Radio

Packet radio is a rapidly growing method of transferring data from point A to B. Packet radio is a full error correcting system operating at speeds ranging from 300Baud on HF up to 56kB on UHF with commercially available equipment. At the current time typical data rates are at 1200 Baud on VHF, with 2400, 4800 and 9600 Baud systems slowly becoming more readily available.

Packet Radio allows for digital repeating to occur between stations. The data throughput rate will be approximately halved for every digital repetition and will vary dependent on channel usage. For example, two stations (A and C) can talk through a third station (station B). Packet Terminal Node Controllers (TNCs) can be purchased from approximately \$200 and can be used with a dumb terminal or a computer with software emulating a terminal.

**Comment:** In the last 18 months, the availability of portable and laptop computers at domestically affordable prices and the number of Packet Radio Terminal Node Controllers (TNCs) have made it justifiable for WICEN to perform research into data communications across radio.

To this end, WICEN Victoria has purchased a Paccom Tiny 2 TNC for use with the WICEN Laptop Computer and constructed a Portable VHF Frequency Agile Digital Repeater, licensed as VK3RPW.

### Electronic Message Pads

WICEN Victoria is designing a form of electronic message pad that will allow a rapid form of transferring messages across either the PSTN or Packet systems. The page layout is being designed to allow for multiple formats depending upon the application. For example an electronic message for State Emergency Service will have the same layout as per their normal message pads, likewise for other DISPLAN agencies that have preferred message pad formats.

The key behind this is to have a list of different style layouts stored on each computer, then while the message is being generated a code will be selected for the desired layout. The receiving station will then recognise which layout is required and assimilate the message into the desired format. Care is being taken to ensure whatever programs are written for this task that they are compatible between different forms of computers, ie Apple Mac, Amiga, IBM, etc. If this is not followed then compatibility problems will occur.

Methods of encrypting the message are also being experimented with to allow the secure transfer of sensitive information.

### NRIS Data

A scenario has been put forward to WICEN by Victoria Police and the Red Cross to transfer casualty and evacuation information out of a disaster area. This system is known as NRIS, an acronym for the National Registration Information System.

Currently cards are filled out at the disaster site and hand carried back to Red Cross in South Melbourne. The information is then keyed into the Department of Health computer located in Canberra. Delays of more than 8 hours can be experienced in the transfer of these details from the disaster site to the central computer.

WICEN has been asked to develop a means whereby data can be rapidly transferred from the disaster site to the central computer, thereby minimising the delay and maximising efficiency of the Police personnel currently assigned as the couriers.

Two methods are currently being developed to overcome these problems:

- (i) The first is by entering the NRIS information into a database which is then sent by radio to Red Cross in Melbourne. The information is then printed out and rekeyed into the Department of Health computer.
- (ii) The second involves establishing a PSTN modem at the Department of Health computer and running a terminal emulation program at the disaster site. If telephone lines are not available in the disaster area then a packet radio station will be established with a Packet Radio/PSTN Modem Gateway system outside of the affected area. This last method allows for real time entry and interrogation of the NRIS data.

At this time packet is still only considered useful to WICEN for short haul operations due to the extremely slow throughput when used through multiple digipeaters. Hopefully long distance throughputs will improve as the proposed high speed interlinks are integrated into the existing network.

### Packet Cluster

Packet Cluster is a major refinement of traditional packet radio. Cluster uses the AX-25 protocol and revolves around users being connected to a

Node. Dependent on the type of TNC in use at the Node, between 32 and 104 users can be connected at the same time. In essence a Node acts in a similar fashion to a Local Area Network (LAN). A Node can still be accessed through Digital Repeaters which can extend the coverage of the Node if required. Each Node or LAN allows for:

- 1) Local announcements to be made to all users connected to the Node,
- 2) Mail functions like that of traditional Packet Radio and Telephone BBSs,
- 3) File uploads and downloads,
- 4) Conferencing within a node,
- 5) Access to databases setup on the host nodes computer.

Expanding on the idea of a Local Area Network, Packet Cluster has been developed so that Cluster Nodes can be linked together via an RF backbone to form a Wide Area Network (WAN). Potential applications of a Wide Area Network for DISPLAN could be for electronic mail, message and file transfer within a DISPLAN agency or between DISPLAN agencies.

## ELECTRONIC DISPOSALS

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### Specials:

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2716 70c each or \$10 per tube  
9016 16k x \$12 per tube  
TL082 Low noise op amp \$1 each  
10  $\mu$ F 40 v low leakage Electrolytics \$6 per 100

2200  $\mu$ F 50 V axial 90c each plus lots components at reduced rates.

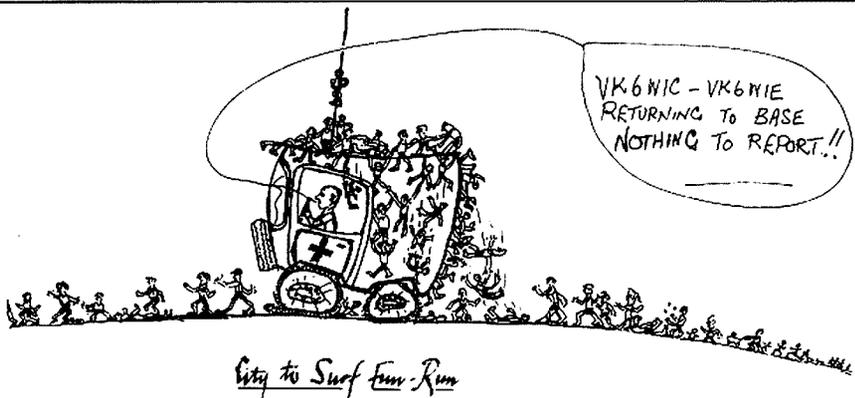
KITS (OR PARTS, BOARD, ETC.)  
AVAILABLE FOR DREW DIAMOND'S  
PROJECTS

When Nodes are linked to form a WAN, facilities include:

- 1) Announcements to ALL users in the network,
- 2) Conversation to any user in the network,
- 3) Access to databases common to all users in the network,
- 4) Wide Area Network conferencing,
- 5) Potential links into existing computer networks.
- 6) Traffic destined for use within a Node, ie local announcements and local conferences, will not affect the operation of the WAN as it will not appear on the backbone.

A Packet Cluster Network could be established between DISPLAN agencies, including multiple Nodes for an agency. Usage of digital repeaters could be established to extend the coverage of an agency's Node, and usage of a Node for common usage by agencies not requiring a separate Node.

**Comment:** WICEN is currently evaluating a copy of the Cluster software and will probably adopt it for the



purposes set out above. Cluster also has many uses in smaller events and can be used in conjunction with the scoring programs being developed so that all stations in a net will have access to scoring information and, more importantly to us, who is missing and their last reported location.

### Summary

As can be seen by the above systems there are many paths that WICEN

need to investigate further due to their inherent advantages and disadvantages.

It is felt however the key criteria in determining how WICEN will best utilize data communications in the future are:

- 1) Flexibility;
- 2) Compatibility;
- 3) Data Integrity;
- 4) Survivability;
- 5) Portability;
- 6) Ease of usage; and
- 7) Cost to the end user. ar

# Some WICEN History — 1962

## Emergency Services and SSB

Geoff Thompson VK3AC

**D**URING THE 1962 Bushfires, I had a communications receiver tuned to the bushfire frequency, and was struck with the complete inadequacy of the old AM communications method being used, with its interference and squeals when more than one station came on at once.

In any disaster plan which may be formulated for the future, communications will be most important. With the new Single Sideband method of communication, the system works without whistles and squeals. A group of people can all occupy the one frequency and exchange a conversation together, as though they were all in the one room, even though they may be separated by hundreds of miles.

Following those disastrous 1962 bushfires, Group Captain W R Garrett MLC, in whose southern province most of the 1962 fires occurred, spoke to CFA communications people and learned that interference on the emergency channel had been quite serious and had hampered the handling of the fire-fighting traffic. The idea of a demonstration of what SSB nets are doing every day on 7.1 was decided on, and a date set for such a demonstration.

Group Captain Garrett duly arrived at VK3AC's shack on a Thursday afternoon at four o'clock, where 12 active sidebanders were ready and waiting to go.

The method of clearing the air was

to use a 500 Hz tone at VK3AC's rig. VK3AC functioned as the controlling station to carry out the following demonstration with these stations in the net:

*VK3JK	Jim	Mornington
*VK3OZ	Percy	Ringwood
*VK3HG	Neil	Coleraine
VK3AHO	Bill	Kyabram
VK2AKC	Cec	Tomingley
*VK3XM	Les	Ormond
*VK5EF	Comps	Gawler (mobile)
*VK3KB	Alf	Brunswick
VK2ADV	Mac	Forster
*VK2ABD	Col	Edgecliffe
*VK3IY	Angus	North Balwyn
VK3AC	Geoff	East Hawthorn

\* = Silent Key

At VK3AC's QTH, all stations were five and nine, with the exception of VK5EF, who was five and six from his car near Gawler.

The program was carried out as follows:

1. Each station was called in to identify itself and to give its location.
2. It was explained that when a 500 Hz tone was heard all stations should cease transmitting and should listen. All stations using fast-action vox.
3. All stations were asked to insert carrier wave and to detune to give



The WICEN stand at Moorabbin and District Radio Club "Hamfest". From left Roger Baker, VK3BKR, David Tilson VK3UR, Leigh Baker VK3TR Photo by Keith Stewart VK3CWT.

how four stations could carry out two QSOs on upper and lower sideband on the same frequency. It was possible to tune from one sideband to the other and resolve each separate QSO without trace of interference from the suppressed sidebands, which disappeared below a strength five noise level that was prevailing.

Group Captain Garrett replied to the stations concerned and thanked them for their interest in the emergency services. He promised to bring the details of SSB before the special meetings of parliament which were convened to deal with the problems associated with emergency operations.

Later Geoff VK3AC forwarded to Mr Garrett details of the single frequency crystal locked transistorised 4 MHz 10-watt transmitter receiver designed by VK2EN which provides talk power the equivalent of a 60-watt AM transmitter, also upper and lower sideband operation. The suggestion is that one sideband be used for general traffic and the other sideband reserved for the extreme emergency as it may arise.

It should be pointed out that the absence of carrier waves and the provision of only one control — the audio gain control — means that many nets operating in their own districts can operate with a minimum of interference with one another, by turning down the audio level on the SSB rig to a point where reception is satisfactory, and limiting the range of the signals to that required at the particular moment. Many problems have been caused in the past by heterodynes from stations situated many miles away from other networks. SSB and the simple use of the audio gain control will eliminate a lot of these problems.

(Editor's Note: Geoff VK3AC was once VK3GT, and also operated experimental stations VHM and VHO for the Melbourne Herald newspaper in 1930 .... VK3ABP)

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ADDRESS: .....

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- Group Captain Garrett a demonstration of heterodyning by a number of AM signals slightly off frequency. However, for the one minute of the demonstration, all that could be heard were a couple of low frequency growls. It appeared that each station had relied on the other fellow to detune his rig. So this one was repeated with stations detuned various amounts up to about 3 kHz. This then resulted in a duplication of the chaos we sometimes hear on Sunday mornings on 7.1.
- The next demo was to ask all 11 stations other than VK3AC to hold an 11-way QSO, throwing the ball around, as it were. This resulted in a most interesting performance. It was noted that particular voices could be picked out and followed when more than one person was talking.
  - The next demonstration was to show

**Have you advised the WIA Federal Office of your new callsign? Use the form on the reverse side of the Amateur Radio Flysheet.**

# Equipment Review - The YAESU FT-2400H two metre FM Transceiver

Ron Fisher VK3OM  
"Gaalunungah"  
Beaconsfield Upper

OVER THE LAST five years or so, the average two metre FM transceiver has decreased in size and weight and at the same time the power output has increased and now averages around 50 watts. As all owners of these transceivers know, all of this adds up to one thing, lots of heat. It's interesting to note that as FM transceivers went from 25 to 50 watts output, the overall size and weight remained much the same. As the overall efficiency remained similar, the heat output just about doubled. Well, maybe the trend is about to change.

## Enter the FT-2400H

The new FT-2400H is a 50 watt output two metre transceiver which has reversed this trend. It also offers improvements in other areas as well. But more on this later. It is quite a bit larger and heavier than the FT-212RH. In fact, it could be an interesting exercise to look at how Yaesu two metre transceivers have evolved in size and weight over the last few years. The ten watt output FT227 makes a good starting point. It weighs 2.7 kg and measures 180 x 60 x 220mm and I don't recall ever hearing about overheating

problems with this rig. It still performs well and can be an excellent second hand choice for a beginner on two metres. Next was the FT230. Output was now up to 25 watts, the weight halved to 1.3 kg and the size at 150 x 50 x 174mm. Heating was up with the 230, but still not too much of a problem.

Following the FT230 came an interesting but not well known transceiver, the FT270R/RH. The "R" was rated at 25 watts output, and the "RH" at 45 watts output. The important feature of these rigs was the use of a ducted air flow system with a small blower to keep the air moving. As I have never seen one of these, I cannot comment on just how well the idea worked, but it sure looked good on paper. Next in line was the FT211RH again a 45 watt output transceiver.

Weight was 1.5 kg and the overall size 160 x 50 x 175 mm, or, just 10 mm wider and .2 kg up on the 25 watt FT230. With extended transmissions, the FT211 can get very hot but overall it's not too bad.

Next up was the FT-212RH. Rated at 45 watts maximum output, the overall weight was down to 1.25 kg and the size just 140 x 40 x 160 mm. Compared to the earlier 25 watt FT230 it was both lighter and smaller. Heating with the FT-212RH could be a problem at times.

The new FT-2400H in contrast to the earlier models weighs in at 1.5kg and measures 160 x 50 x 180 mm, a step in the right direction at last. Just how this works out in actual use will be revealed later in this review.

Yaesu claim that the FT-2400H is built to professional standards, and is in fact a special version of their premier range of commercial transceivers. Yaesu also state that the FT-2400H is the first two metre amateur transceiver to take full advantage of the military grade mechanical and electronic construction techniques, which was previously reserved for the top of the line professional grade commercial land mobile transceivers. In fact, it is built to meet the USA MIL-STD-810C for shock and vibration. I must state now that I did not try any of these tests on the FT-2400H.

One thing that the FT-2400H does have is simplified operation. Seldom used controls are situated behind a drop down flap on the front panel.



The Yaesu FT-2400H showing the alpha name display facility.

This leaves only five operational push buttons plus squelch, audio volume, tuning control and power on/off visible on the front panel. The LCD is larger than usual and displays a multitude of information, some of which is quite new and most interesting.

While the frequency readout is larger than average, the "S"/power output bargraph is somewhat smaller than average. But as the "S" meter usually reads full scale on most signals, this is not of great importance. At the three transmitter power output settings, the output scale gives a reasonably good comparative reading. The readout also includes an excellent selection of status indications for many transceiver functions.

### **The FT-2400H Transmitter Tests**

For a comparative test on heating, I set up the FT-2400H and an FT-212RH side by side running into dummy loads and keyed the transmitters on and off at the same time to simulate normal operating conditions. The heat sink on the FT-212RH became too hot to handle much quicker than the FT-2400H, and after an hour of operation, the FT-2400H was noticeably cooler than the FT-212RH. The extra size and weight of the FT-2400H does indeed help with cooling.

### **The FT-2400H on the Air**

If you intend to use the FT-2400H as a home station transceiver, you will need a solid power supply that can deliver a maximum output of 12 amps at 13.8 volts. Used as a mobile rig, your normal car electrical system should take care of the power requirements without trouble. Setting up for operation is simple, but a look through the excellent instruction manual is very desirable. The FT-2400H has a capability of storing thirty memories and any one channel can include, frequency, repeater offset or simplex information, CTCSS encode/decode, DTMF status. I started off by loading the memories with several of the local repeater and simplex channels. With this done, one of the interesting features of the FT-2400H can be used. There is a built in option which enables you to give your frequencies a name. Have a look at the photo and you will see what I mean. Once you have entered the

frequency and offset, you can proceed to give it a name. In the example shown, the Shepparton repeater on 146.650 MHz has been named SHEP. Touch one button and you can have either the name or the frequency. The actual characters of the display are also somewhat larger than usual although the "readability" is not as good as might be expected. I think that the reason for this is due to each segment of the character being longer than usual but no thicker. Also some of the letter characters use somewhat less than ideal layout. Having said that, I think it is a step in the right direction and I am sure we will see more like this in the future.

The transmitter has three levels of power output, 50, 25, and 5 watts. The two lower powers are adjustable either up or down so that the five watt level can be set as low as .5 watt. Current drain at the normal power settings is 12, 9 and 5 amps. Normal transmit coverage is 144 to 148 MHz but the receiver is tunable from 140 to 174 MHz. The tuning steps are user selectable at 5, 10, 12.5, 15, 20, 25, and 50 kHz. I set the FT-2400H up for 25 kHz steps which fits our band plan and enables quick tuning through the range. Current consumption on receive is around 400 mA.

Our review transceiver was supplied with two microphones, the MH-27a8j which has a DTMF keypad on the front and a MH-26g8j which is the standard up/down scanning type supplied with the unit. The MH-27a8j will be an option which can be purchased separately. The MH-27a8j in addition to the DTMF feature also has a couple of transceiver operating functions on the front. Memory/VFO selection and priority channel selector. A small switch on one side allows the entire key pad to be rear illuminated. Both microphones are connected to the transceiver via an eight pin plastic telephone type jack. Just when I thought we had standardised on the eight pin metal connector albeit with several different connections patterns, here is a new one to battle with. If you intend to use the FT-2400H as a base station and would like to use a desk microphone such as the MD1, then you could be in trouble. I wonder if Yaesu intend to make adapters available for this?

On-air tests were carried out in two

ways. Firstly, I transmitted to a friend and then the transceiver was taken to his location so that I could hear just what it sounded like. We both agreed on the result. Firstly the difference between the two microphones was minimal, but both sounded rather spitty on sibilant sounds. Overall we would rate the transmitted audio as fair only. Deviation was rated as good.

Receiver operation proved to be excellent. Firstly though, it should be stated that two options were not installed in our review transceiver. These are the FTS-17A CTCSS tone unit and the FRC-6 DTMF pager unit. This is unfortunate, as I feel many amateurs could be interested in using these units.

Receiver audio quality is good through the internal speaker and very good through a better quality external speaker. I note that Yaesu offer a new external speaker (the SP-7) as an option, and I look forward to testing this soon.

One of the features of the FT-2400H, as sold in Australia by Dick Smith, will be a special microprocessor customised for the Australian band plans. What this means is that if you activate the automatic repeater shift facility, the transceiver will automatically select the correct repeater offset. This feature can be overridden if so desired.

There are 31 memory channels available and these can be used in a wide variety of ways. I have already mentioned the four character display which can be used in conjunction with the actual frequency display. It is also possible to "tune" away from a memory frequency if required, a most useful feature. The memories also can include repeater offset, CTCSS tone information and can be programmed to set band scanning limits. Channel "one" can be used as a priority frequency which is checked for activity every five seconds. Unfortunately, this will only work with one other channel in use. It is not possible for instance to have the transceiver scanning the memories or in band scan mode and have the priority channel checking feature operating. I must admit that I prefer to be able to scan all channels and still have the priority alert working. Perhaps that's one Yaesu might think of for the next model. The scanning system can only be initiated via the up/down but-



The two microphones as referred to in the text.

tons on the microphone. There is no scan button on the transceiver itself.

### Front end performance.

Do you get pager interference? The FT-2400H might be just what you are looking for. The front end performance has been improved in several aspects over the FT-212RH. Firstly, there is more front end selectivity, and this is tunable using information supplied by the CPU. The RF stage is an improved dual gate FET system which has better strong signal handling characteristics. The FT-2400H was set up at a location where pagers were a problem with a certain transceiver. The FT-2400H proved to be a great deal less susceptible to interference than the normal rig. It was estimated that while the FT-2400H was not immune from the trouble, it was at least 20 dB better off than our comparison transceiver. In terms of overall sensitivity, the FT-2400H was a few dB worse than our comparison rig, but still excellent in overall terms.

A feature carried on from the FT-212RH is the automatic lighting intensity of the display and control knobs. This is controlled by a photo sensor on the left hand side of the front panel. In theory, this could be a good idea, but in practice, I find it an annoying feature. Often, putting your hand on one of the controls is enough to shade the sensor and suddenly reduce the light intensity. I would prefer the lighting intensity to be adjustable via one of the front panel controls.

It is unfortunate that our review transceiver was not fitted with the CTCSS and DTMF units. It appears from the instruction book that they are

capable of providing some very useful features.

### The FT-2400H Instruction Manual

In a word, it's good. Yaesu manuals overall now set the standard. Although not set up in the glossy fashion of the FT1000 or 990, it is very well presented. You might initially get the idea from the coverage of the manual that the FT-2400H is a complicated rig to operate, but nothing could be further from the truth. Most of the basic functions can be mastered very quickly and the instruction book is very easy to follow. The separate circuit is easy to follow, but as is unfortunately the usual thing these days, there is a noticeable lack of technical information. There are however a few pages devoted to basic adjustments such as power output setting and deviation setting. Instructions are also included on the installation of the two optional boards.

### The FT-2400H Conclusions

If you are in the market for a top line 50 watt two metre FM transceiver, then the FT-2400H must come high on your shopping list. Being somewhat larger than average, it operates at a more moderate temperature and should have a much longer life. The solid construction will also help in this regard. The larger display could be an advantage, although the smaller than average "S" meter and power output bargraph is a small disadvantage. The variable LCD illumination may or may not be to your liking. The memory naming facility is an interesting feature which is certainly a first for Yaesu. I wonder if this might be carried on to HF equipment. I would think it could be most useful on a HF communications receiver, but perhaps six letters would be better than the four on the FT-2400H.

All in all, a very innovative rig which

puts Yaesu right in the front line of VHF transceivers.

### Specifications

#### General

Frequency range: 144-148 MHz, Tx, 140-174 MHz Rx  
 Channel steps: 5, 10, 12.5, 15, 20, 25 & 50kHz  
 Frequency stability: (10ppm (-20 to +60 degrees Celsius)  
 Mode of emission: F3  
 Antenna impedance: 50 ohms, unbalanced  
 Supply voltage: 13.8V DC +/- 10%, negative ground  
 Current consumption (typical): Rx: 400 mA, Tx hi/med/low: 12/9/5A  
 Operating temperature range: -20 to +60 degrees Celsius  
 Case size (WHD): 160 x 50 x 180mm (w/o knobs)  
 Weight: 1.5kg (3.31lb)

#### Transmitter

Output power (high/med/low): 50/25/5W  
 Modulation type: variable reactance  
 Maximum deviation: +/- 5 kHz  
 Spurious radiation: less than -60dB  
 Microphone impedance: 2kΩ

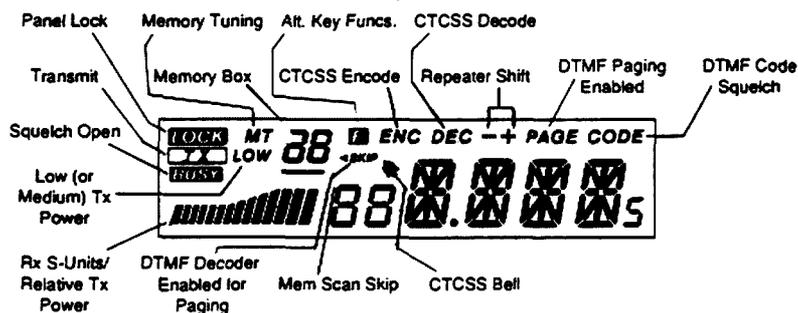
#### Receiver

Circuit type: double conversion superheterodyne  
 IFs: 21.4MHz & 455kHz  
 Sensitivity (for 12dB SINAD): better than 0.2 μV  
 Selectivity (-6/-60dB): 12/30 kHz  
 IF rejection: better than 70 dB  
 Image rejection: better than 70 dB  
 Maximum AF output: 2W into 8 ohms @ 10% THD

Specifications subject to change without notice or obligation.

The FT-2400H will retail for \$699-00 and will soon be available from most Dick Smith outlets.

Our thanks to Dick Smith Electronics for the loan of our review transceiver. ar



The Yaesu FT2400H front panel display as shown in the manual.

# PACTOR.....Here and Now

Probably most amateurs will now be familiar with the "chirp-chirp" sound of AMTOR, and possibly also have used that mode. They may also have wondered at the strange slower "chiiiiirp-chiiiiirp" signals around 14079 kHz. This is the sound of PACTOR.

**Roy Philpott DJ0OW,  
Wilhelmstraße 19,  
D-7600. Offenburg.  
Germany.**

**U**SERS OF AMTOR, though enthusiastic over the error correction and ability to communicate over poor radio links, also complain about the slow speed, and under poor conditions, errors that creep into the received text. PACTOR overcomes both these problems, with the additional major advantages of using the full ASCII character set and transmission speed automatically adjusted for the radio link quality.

PACTOR has been developed by a group of German radio amateurs, for amateur radio use within the experimental radio service regulations. It has been designed as an improvement on AMTOR, mainly for use on HF links where signals are weak, fluttery and/or with phase distortion. Under these conditions packet radio will not work at all, and even AMTOR has difficulties.

Great importance has been placed by the designers of PACTOR on the following:-

- Error free transmission.
- Correct binary code transmission (eg:full ASCII character set.)
- Efficient use of channel capacity.
- Link maintained even under very weak signal conditions.
- Easy and fast to initialise contacts.
- Shift direction unimportant. (mark and space definition become redundant)
- Simple hardware. (Europacard sized board with Z80 CPU)
- Maximum required bandwidth 600 Hz.

Easy monitoring by a third party. (eg:- Post/telecoms or SWL's)  
Full compatibility with future system software updates.

As a PACTOR user for the last 8 months, the author can fully endorse that these goals have been well met.

## Simple System Description

PACTOR uses basically the AMTOR or SITOR systems of half duplex ARQ with data packets (blocks) that contain the transmitted data, and a short acknowledgement signal that confirms receipt (or lack of) by the receiving station. Blocks or packets of data that are not correctly received by the receiving station are automatically repeated until they are.

AMTOR uses only simple parity checking for its error detection. This means that AMTOR can detect single bit errors. With two (or more) bit errors it is possible that the erroneous bits cause a correct parity and the error would be undetected. PACTOR has a full 16 bit CRC checksum (like packet) for error detection. CRC means Cyclic Redundancy Check, and is a well known means of protecting data integrity used in computer disk drives and packet radio (amongst others). With a CRC it is not only the binary value of the data that is checked, but also its position within the data stream. This makes it virtually impossible for two data values to be swapped without being noticed, and any data corruption

is almost certain to be detected. This means the probability of errors is very low. (In practice around  $1 \times 10^{-5}$ ). The transmitter builds the checksum from the data within a packet and sends this number at the end of the data. The receiver makes its own checksum calculation, then compares it with the received number. If the two tally, then everything is fine. If not, then an error has occurred and a repeat is requested.

## Its Fast!

PACTOR transmission speed is either 100 or 200 baud depending on link quality, however, together with the built-in Huffman data compression, the actual data throughput can exceed 300 baud. The Huffman coding is designed for text, and is based on the number of times a particular letter occurs in normal language. Those letters appearing most often have the shortest codes, those appearing the least have the longest, and all others are arranged between.

Essential system characteristics are as follows:-

Total cycle time 1.25 sec

Packet time 0.96 sec

Window for control signal reception 0.29 sec

Control signal length 0.12 sec

There remains 170 msec for switching and propagation delays. Like AMTOR this gives a maximum communication distance of approximately 20,000 km.

## Long Path ARQ

In the latest software versions (V1.3 or later), this limitation of maximum distance has been improved to approximately 40,000km. This has been achieved by increasing the total cycle time to 1.4 seconds, leaving a much longer window for received signal reception. The transmitting station sends a special "Long Path" control signal during the initial calling phase.

Receiving stations with the latest versions of software then switch automatically to "Long Path mode" with the longer cycle time and acknowledge in the normal way. This system enables ARQ contacts from and to virtually anywhere long or short path. The "Long Path mode" can also of course be used for normal short path contacts, but the total data throughput is slower

(approx 90 percent) than the norm due to the longer cycle time. Stations with the earlier software versions cannot of course acknowledge the "Long Path mode" and do not answer.

Transmitted packets contain a header (for synchronisation/software version) etc, data area (64 bit for 100 baud, 160 bit for 200 baud), status byte (packet counter and system info), CRC 1, CRC 2. To compare, AMTOR has a total of 3 characters (21 bits) data per block.

Total cycle time 450 msec.

Packet (block) time 210 msec.

Control signal length 70 msec.

Window for control signal reception 170 msec.

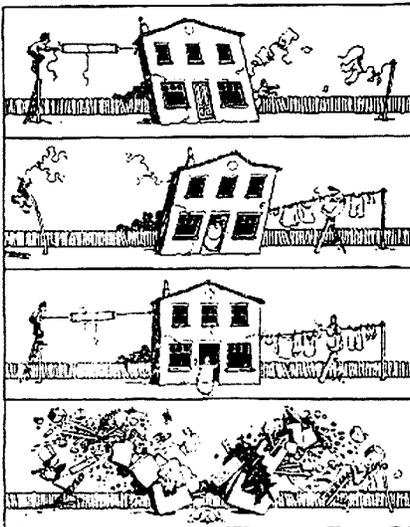
The timing of AMTOR is fixed, and the reception window cannot be lengthened. AMTOR therefore cannot be used for long path ARQ contacts.

### Memory ARQ

Under poor signal conditions, AMTOR performs very slowly with errors or not at all. PACTOR however has a system known as Memory ARQ which automatically reconstructs corrupted packets. In a corrupted packet, some of the data is normally correct. The packet is stored, and compared with the repeated data sent perhaps many times when conditions are very poor. Eventually, enough correct data is collected to reconstruct a complete packet. A statistical correlation method is employed, and as the shift direction of the transmitted signal alternates on each transmission, constant errors due to interfering carriers are also cancelled out. This enables a link over circuits with which the author (an ex Merchant Marine Radio Officer) would have trouble having a CW contact. At times, switching on the loudspeaker produced only noise, with hardly a trace of signal to be heard. Despite this, the system produced error free (if slow) copy.

### Mailbox

A personal mailbox is built into the PACTOR Controller software. This enables the system to be left running and at any convenient time the mail read, without tying up valuable computer time. It is planned, that in the next software release, this personal mailbox will be available for both AMTOR and PACTOR users. At present it is only for PACTOR. It has around 21K



DJØ OW G3VCH  
VP9HX/mm

of battery backed RAM and can contain up to 31 entries.

### PACTOR, AMTOR and RTTY

When in the PACTOR standby mode, the software will automatically check for any AMTOR ARQ calls to the system and switch automatically to AMTOR and acknowledge in the normal way. After the AMTOR contact is finished, it will then revert back to PACTOR standby. AMTOR FEC transmissions will also be read (if required) in the PACTOR standby condition. The software also contains "steam" RTTY, which due to the system of demodulation employed also perform generally better than on many other systems. Instead of using active filters and a limiter and discriminator to extract, mark and space information, the PACTOR Controller uses an analogue to digital converter to convert the rectified and smoothed tones into digital information. The microprocessor can use this to decide what is a mark and what is a space.

This means that information lost in the normal chopping of the signal is retained. This information is required in order that the PACTOR Memory ARQ system can correctly store and rebuild corrupted data. The PACTOR Controller also uses a computer controlled switched capacitor filter to optimise the bandwidth for either 100 or 200 baud operation.

### Status Request

The data from the PACTOR Controller can (on request of the computer), contain a status byte. This contains information on the present condition of the link and the controller and is updated in real time. It uses a system similar to the AMT-1, AMT-2 and AMT-3 AMTOR controllers, and can be used to control a fully fledged BBS. Data flow between the PACTOR Controller and the computer uses the well known X-on X-off RS232 protocol.

A full technical description of the system would be outside the scope of this short article which serves only to introduce this exciting new mode.

Details of the PACTOR Controller are available from Dr Thomas Rink DL2FAK, and a handbook (in English) is also available. Please enclose a SAE with any inquiry.

Other literature describing PACTOR are:-

Hans-Peter Helfert, DL6MAA and Ulrich Strate, DK4KV.

PACTOR-Funkfernschreiben mit Memory ARQ und Datenkompression. CQ-DL 11/90

Martin Clas, DL1ZAM and Peter Mack, DL3FCJ.

PTC der PACTOR-Controller. CQ-DL 7/91

PACTOR a short system description. RTTY-Journal, Volume 40, Number 6, July/August 1991

PACTOR controllers, software and further details are also available in Australia from BLAMAC Computer Services, 26B Bombala Street, Cooma NSW 2630 Tel (064) 52 3112.

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# Random Radiators

Ron Cook VK3AFW  
Ron Fisher VK3OM

**T**O START OFF this month, a few thank-yous to readers who have sent in material for use in this column.

Firstly, thanks to Gerry McCulloch VK2BMZ who is a temporary resident in Japan. Gerry has sent us a most interesting antenna book published by the Japanese CQ magazine. The title is "Verandah Antennas" so, as you might guess, it describes dozens of methods of setting up an antenna farm on the balcony of a flat or home unit. Over the next several months, we might try to reproduce some of their ideas in Random Radiators. Again, many thanks Gerry.

It seems the TH3JR is forever a favourite. Just when we thought we had sorted it out, Mr A Topp VK2AXT has sent some most interesting information, including a copy of the Hy-Gain Beam Antenna Trouble Shooting Guide, which is something new to us. As this guide runs to 16 pages, it's not possible to reproduce in this column in one hit. However, we might publish a few useful sections from it over the next several months.

Anyhow, for the final word on the TH3JR, it's over to VK2AXT.

## The TH3JR Saga

"After studying the articles in AR Feb 1988, April and Oct 1992, and the data supplied by Telex Hy-Gain, getting my beam back to optimum performance seemed a pipe dream.

The frequencies obtained with my director and radiator 10 and 15m traps are close to those given by VK3CO Feb 1988 "AR", so if these trap figures give good beam performance, they will be left as is.

The trap frequencies given by Telex Hy-Gain are very much lower as listed below:

Director	10m trap resonance	23.4 MHz
	15m trap resonance	17.7 MHz
Radiator	10m trap resonance	23.3 MHz
	15m trap resonance	18.0 MHz
Reflector	10m trap resonance	22.8 MHz
	15m trap resonance	17.7 MHz

All frequencies are + or - 25 kHz.

Prior to receiving the beam at my QTH, it had had a rough life. When repairs were carried out and the beam put into operation all was not as expected. It appears that the director and radiator were reasonably effective, but doubts existed about the reflector.

As the reflector traps were about 6MHz high, the worst one, a 15MHz trap, as a trial was rewound, the frequency checked at 18.3MHz with the outer sleeve at maximum capacitance, the frequency being more than 500kHz above those quoted by Telex Hy-Gain. All reflector traps have been rewound and will be given a trial.

As a comparison, my 14AVQ vertical traps were checked and found to be spot-on at the frequencies quoted by Telex Hy-Gain.

The technical description of the Beta match ("the hairpin match") is covered in QST April 1962, page 11, and the balun used is homebrew from data in AR Dec 1982, page 31.

Hope what has been done will improve my beam performance." Thanks to VK2AXT for all of that. With all the information we have published over the past few months on the TH3JR, you should have yours working right up to top performance.

On another subject, I found a most interesting rundown on ATUs. Called Dos and Don'ts with ATUs, originally

published in CQ for April 1989, but very well summarised by Pat Hawker G3VA in his popular Technical Topics in the RSGB magazine Radio Communication. While we don't agree 100 per cent with all that is said, it at least is a good starting point if you are considering the purchase of an ATU. Over to G3VA.

## "Do's and Don'ts with ATUs

Practically since the beginning of amateur radio, various forms of antenna tuners have come and gone, along with various opinions as to their value in a station installation. The following notes are a brief digest of my main findings.

- 1) Don't use an ATU to disguise a poorly dimensioned or improperly constructed antenna. (In other words, if a conventional dipole or other antenna which should provide a good match to the transmitter results in an excessive SWR, find out why rather than using an ATU to overcome the problem - G3VA).
- 2) Don't waste power in an ATU by using a short random length of wire as an antenna if this can be avoided. The shorter the length of the antenna wire, the greater the proportion of output power that will be dissipated in the ATU. It is better to get out more wire, even if it has all sorts of twists and turns, than to use a very short (in terms of wavelength) length of antenna wire.
- 3) Do be kind to your ATU when using a (voltage-fed) random length of wire about a half-wave or multiple thereof in length antenna. Avoid arc-overs by increasing capacity/component ratings or increase the length of the antenna to provide current feed.
- 4) Do use a good ground (earth) with an ATU even if the antenna itself does not work against ground.
- 5) Don't rely on an ATU alone to provide harmonic attenuation. The amount of attenuation provided by an ATU can vary enormously from band to band, with the ATU providing insignificant attenuation with some antenna loads.
- 6) Do be aware that some ATU networks can show false resonances. Obtaining a near unity SWR does not necessarily mean that all the

power is going to the antenna. Occasionally it may indicate that much of the power is being "dumped" into the ATU coil. In general, tuner settings should be such that the minimum amount of inductance is used that permits the system to tune-up properly. "Dumping" can often be detected by the coil running warm — a sure sign that power is being wasted.

- 7) Don't expect too much from "automatic antenna tuners" which are meant to cope with only moderate SWRs (1:3 or, at most 1:5) as may be encountered at band edges with a beam array or sometimes with a dipole: "if such tuners are grossly mistreated, their components can readily arc over or burn up. Just by the nature of their compact size, the components used in such tuners cannot be "jumbo" size."

While on the subject of ATUs, you might remember our reference several months ago to a single coil "Z" match. Well, a prototype has been built and is undergoing tests at the moment. Keep tuned. At the moment it looks most promising.

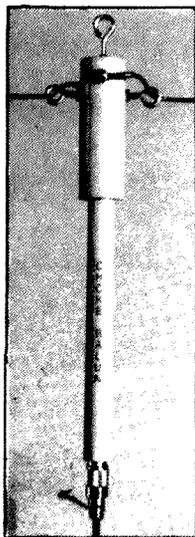
### A Balun for the G5RV

The G5RV just won't go away. As an antenna it is attractive from the point of view of being simple to build and is a little shorter than its rival, the trapped dipole.

Bill, VK6BIL, writes to let us know of a balun designed to give a balanced match to the antenna. This is what he has to say.

"In the original article it was suggested that a balun be used at the point of connection of the coax to the matching section, but in the update it was mentioned that a balun was not found to be necessary due to reasonably good balance without one on all bands except 10 metres. The other point made was "that if a balun is connected to a reactive load with an SWR of 2:1, its internal losses increase. The result is heating of the windings and saturation of the core, if one is used. In extreme cases, with relatively high power operation, the heat generated in the device can cause it to burn out". This is all true, of course.

After extensive use of G5RV antennas, both full size and half size in a location of "normal surroundings", ie



**A BALUN suitable for the G5RV**

surrounded by other properties, trees etc, current balance was measured in the antennas and found to be very much unbalanced in the case of one end of the antenna being in the clear and the other in close proximity to a tree or building.

It is in this situation a balun is needed, but if a normal transformer wound balun is used at the end of the balanced matching section, as mentioned above, problems will occur as described; but, not only that, even if they did not arise, there would still be a problem due to the transformer wound balun which is a voltage balun and produces equal voltages at its output terminals. The current is what needs to be balanced, as it is important to have equal currents flowing in that matching section as it's part of the feedline and not the antenna proper, as a lot of people seem to think.

Without getting into a lengthy technical explanation of feedline mechanics I will explain only that in the matching section of the feedline the currents flowing are in opposite directions but should be of equal amplitude, the results being they cancel and no signal is radiated from the feedline. When the currents become unequal you then have your feedline radiating as well as the antenna. This is a situation to be avoided. As well as the feeder radiating, RF can flow back down the outer of the coaxial braid and cause all sorts of problems in the shack as well as in other surroundings. A properly balanced antenna can have benefits on

receive also by reducing general noise and TV timebase QRM.

Going back to the imbalance experienced on our G5RVs, it was mentioned in the update on this antenna that "under certain conditions a current may flow on the outside of the coaxial outer conductor. This is because of inherent unbalanced-to-balanced effect caused by the direct connection of a coaxial feeder to the base of the (balanced) matching section, or to pickup of energy radiated by the antenna. So it was suggested in the update article that an RF choke be made up by coiling a few turns of coax at the junction of the matching section, which is a well known way of trying to prevent unwanted current flow back down the outer of the braid.

Our tests have proved fairly reasonable effectiveness of the coax cable type of choke at the higher frequencies, but at lower frequencies the large number of turns required to do an effective job are rather a lot, and if the bottom end of the matching section is not able to be supported, then the size and weight of the choke will be totally impractical.

We can perform the same task using a ferrite sleeved "choke balun" and it will do the job more effectively; it is small and light in weight.

First of all it is a "current" balun, which means at the point where it is connected to the matching section it will force equal amounts of current into the matching section regardless of asymmetry, therefore the matching line will not radiate due to imbalance, and equal currents will appear at the antenna proper. TVI/BCI problems can be reduced as well.

Secondly, because this balun is not a transformer type wound on a rod or toroidal core, in spite of a high SWR on the feedline on most bands, there is no core to heat up and saturate or break down due to overheating during high power operation. The ferrite sleeve in this unit is acting only on the coaxial braid outer, so regardless of the reactance and high SWR on the inner conductor and braid inner of the case, the performance and balancing action are not affected.

Thirdly, the RF choking performance, reducing or prohibiting the flow back to the shack of current on the coax is better than a coiled-up ca-

ble choke, and only a fraction of the weight.

Just one other point to remember: if your feeder itself, or the matching section, comes away from the antenna at an angle which brings it within the radiation field of the antenna itself, it may be necessary to put a choke inside the shack, in the coax line before it is connected to the ATU. If so, we can supply a choke for this purpose with a SO239 on one end and PL259 on the other. So, if you experience RF in the shack, this is the cure.

After many months of experimenting with both full size and half size G5RV antennas, and bending the top at various points and angles, the proof of effectiveness of the ferrite sleeved "choke balun" has been conclusive. It's no gimmick, but a simple unit that balances the current effectively and stops RF coming back down the coax line into the shack.

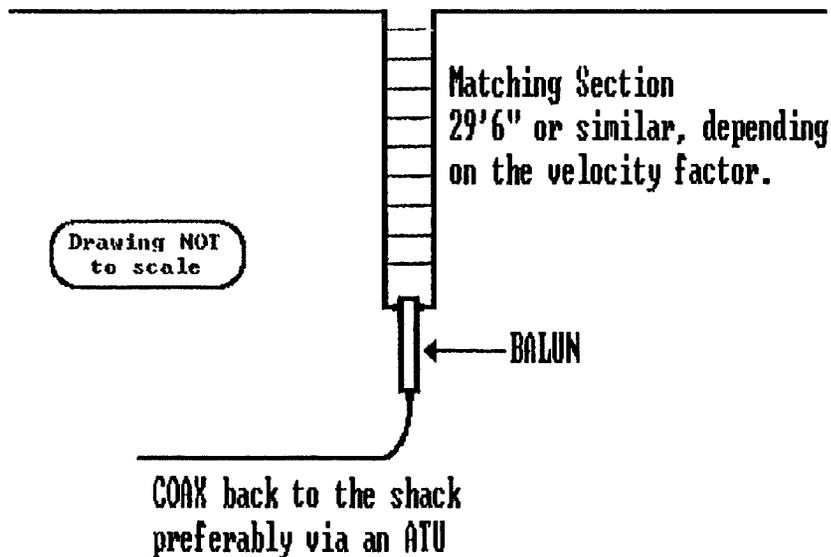
Finally, if your full-size G5RV is used on 160m with strapped feeders and tuned against earth, or your half-size one is used the same way on 80m and 160m, the fitting of the "choke balun" will not affect the operation of the system at all; it will tune up just the same.

The choke balun is housed in a UPVC tube and is .85" in diameter and 12" long. There is a SO239 connector at the base, and it has terminal connectors for making up to the open wire line or ribbon etc, whichever you use for the matching section, and a hang-up hook is fitted at the top to enable the balun to be tied to the matching section. The whole unit is sealed and filled with the highest quality potting compound.

### Specifications

Frequency coverage: 1.7-30MHz  
Input impedance: 50 ohms  
Input connector: SO239 mil spec  
Insertion loss: 0.01dB  
Power handling: 2kW+  
Weight: 8.5oz/240 grams

The thing to stress is that this choke balun is a true "current balun" and will perform two tasks on the G5RV. Firstly, it works as a balun and forces equal currents into the matching section and consequently into the antenna proper. Secondly, it works as a choke and stops any RF coming back down the coax outer to cause problems in the shack. The same or similar effect can be ob-



Full or half size G5RV Antenna

tained by winding a choke using coax, but I have found the number of turns required to be effective at 7 and 3.5 are so great that it becomes impractical. The choke balun unit is so small and fairly light in weight that it is far more practical and more effective on the lower bands."

It appears that Bill intends to supply the balun to VK amateurs so enquiries should be directed to him. If a balun becomes available we would like to test it on our own G5RV and publish our findings.

Now a note for the experimenter. It appears that the balun is of simple construction, consisting of between 20 and 50 toroidal cores slipped over a piece of RG213 coax. After fitting a terminal block at one end of the coax and an SO239 line socket at the other, a covering of heat-shrink tubing completes the construction. The number of cores used depends on the lowest frequency to be used and the characteristics of the cores.

The coax forms a one turn coil through each core and the assembly should have an inductive reactance of the order of 500 ohms, or more, at the lowest frequency of operation. While details of the core type are not known, we have been told that two regular advertisers in this journal, Truscotts Electronic World and Stewart Electronics can supply suitable cores.

The cores need to be big enough internally to slip over the coax and should have reasonable permeability and modest losses over the frequency range of operation. When we obtain further details they will be published in this journal.

The claim, that the choke will not affect operation at half the design frequency, if used with the feedline strapped and loaded against earth, seems a bit shaky. The balun will, we think, provide some inductive loading and may actually improve the efficiency of the system.

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**Don't buy stolen  
equipment — check the  
serial number against the  
WIA stolen equipment  
register first.**

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# DICK SMITH ELECTRONICS



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## 2 Year Warranty FT-212RH MOBILE 2m FM TRANSCEIVER

**\$569**

The FT-212RH is a compact mobile FM transceiver that can also double as an easy-to-use base station. Provides 45-watt output over the 144-148MHz range, with a rugged diecast chassis for superb RF isolation and extensive use of surface-mount components for greater reliability. What's more, it has a large back-lit LCD with a bargraph PO/S-meter, 5 selectable tuning steps and a total of 21 memories ( 18 general purpose, 1 call channel and 2 sub-band limit memories for band scanning). As well, there's inbuilt C.T.C.S.S. encode and a variety of scanning functions. Complete with mobile mounting bracket, MH-14A8 microphone and DC power lead.  
Cat D-3494

**With  
extended  
bonus  
offer!**



**BONUS**

Purchase an FT-212RH in November or December and receive **BONUS** Dick Smith Electronics Gift Vouchers worth \$70. A fantastic Christmas gift for you or a lucky friend. Hurry, this offer definitely expires on the 25th of December!

## FT-411E 2m DELUXE HANDHELD

Superb performance on the 2m band. Top of the line features, reliability and value-for-money from the name you can trust...Yaesu. Only the compact FT-411E offers these features as standard

- 144 to 148MHz transceive operation, with enhanced receiver performance
- Ultra long life 1000mAh 7.2V NiCad battery pack (supplied as standard!)
- 2.5 watts RF output as standard, 5 watts with 12V DC (or optional FNB-11 NiCad)
- Better than 0.16uV (12dB SINAD) sensitivity
- Stand-by current consumption (1sec SAVE) only 7mA
- Programmable power-saver for extended operating periods
- Keypad or dial frequency entry, with selectable tuning rates
- 49 tuneable memories which store repeater offsets
- Band, memory, priority or limited-band scanning
- Just 55 x 155 x 32mm
- Carry-case, belt clip, carry-strap and approved AC charger
- Now with enhanced receiver sensitivity and improved strong-signal handling!

2 Year Warranty

**\$479**

**BONUS**

Receive a **BONUS** PA-6 DC adaptor/charger (Cat D-3498) valued at \$39.95 with each FT-411E purchased before the 25th of December 1992



**Hurry buy now and beat the price rise!**



## FT-747GX COMPACT H.F TRANSCEIVER

The FT-747GX is a compact SSB/CW/AM and optional FM transceiver providing 100 watts PEP output on all 1.8-30MHz amateur bands, and general-coverage reception from 100kHz to 30MHz. Convenient features include a front panel mounted speaker and an easy-to-read backlit digital display, dual operator-selectable tuning steps for each mode, dual VFO's for split-frequency operation and 20 memory channels (eighteen of which can store split Tx/Rx frequencies). Wideband 6kHz AM and narrow 500Hz CW IF filters are also a standard feature. Complete with Yaesu MH-1 hand microphone.  
Cat D-2930

2 Year Warranty **\$1299**

FM unit to suit FT-747GX **\$99<sup>95</sup>**  
Cat D-2932

**COMING SOON!** RMK-747 remote front-panel mounting kit for the FT-747GX. Great for HF mobile operation where space for a full-size rig is limited. See ARA review volume 15, No 7.  
Cat D-2931

(Includes installation on your FT-747GX) **\$450**



## FT-757GXII ALL-MODE HF TRANSCEIVER

We've got a limited number of ex-demonstration FT-757GXII transceivers, complete with a hand microphone and 2 year warranty, to clear at our best ever price! These rugged transceivers provide 100W RF output, extended receiver coverage and a heavy-duty diecast heatsink/top-panel for long term reliability. But hurry, stocks are strictly limited.

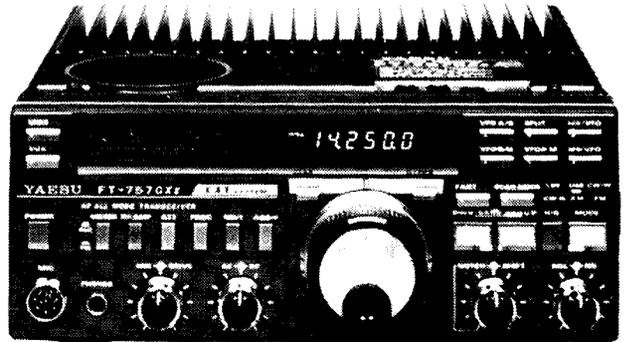
### Features:

- All-mode operation - SSB, CW, AM, FM (160m-10m)
- 100W output on SSB, CW, FM (25W AM)
- High performance receiver - 150kHz to 30MHz
- Dual VFO's with VFO/memory swap functions
- Inbuilt 600Hz CW filter, IF Shift and IF Notch filter, variable noise blanker, speech processor, iambic CW keyer and SWR meter. Cat D-3492

Some units may be slightly shop-soiled. All units are covered by a 2 year warranty.



**CLEARANCE**



Now Only **\$1495**



Now Only **\$1995**

THIS OFFER SUPERSEDES ALL PREVIOUS OFFERS

## FT-650 6m, 10m, 12m 100W TRANSCEIVER

Now's the time to enjoy the summer DX season on the 6m and 10m bands, and the Yaesu FT-650 mobile transceiver allows you to do it in style. It's all-mode operation, 100W RF output (SSB, FM, CW) and continuous receiver coverage of the 24.5 to 56MHz range allows you to work stations as soon as the band opens. The use of 3DDS's and a 2-stage low noise RF pre-amp results in a very quiet and sensitive receiver (SSB/CW, 0.125uV) so you'll hear weak signals more easily than ever before. To cater for the FM enthusiast, the FT-650 provides repeater offsets, an FM narrow mode as well as exceptional 0.16uV (12dB Sinad) sensitivity. Other features include selectable tuning steps, manual/auto IF notch filter, RF speech processor, IF shift control, 105 scannable memories and an effective noise blanker. Includes MH-1 hand microphone. Cat D-3250

*2 Year Warranty*

## FT-990 H.F. ALL-MODE TRANSCEIVER

The FT-990 offers many of the advanced features of the legendary FT-1000, yet in a more compact and economical base-station package. It's excellent front-panel layout, together with clear labelling, a large back-lit meter and an uncluttered digital display provides very straightforward operation. The receiver performance is excellent, with a very wide dynamic range front-end circuit and two DDS's providing a very low noise level and excellent sensitivity over the 100kHz to 30MHz range. Transmitter output is 100W on all HF Amateur bands (SSB, CW, FM) with the internal AC power supply allowing high duty cycle transmissions. An internal auto antenna tuner with 39 memories is a standard feature, while the customizable RF speech processor and Digital Audio filtering facilities are unique to the FT-990. Other features include IF Shift and IF Notch, IF bandwidth selection, an effective adjustable notch filter, 500Hz B/W CW filter, 90 memories and one-touch band selection. Microphone optional extra.

*2 Year Warranty*



AC version FT-990

Cat D-3260

**\$3495**

DC version FT-990

Cat D-3255

**\$3195**

# Kenwood Communications Technical Manual

Ron Fisher VK3OM

**J**UST HAPPENED to spot this at Stewarts Electronic Components the other day. It looks like a typical Kenwood instruction manual but, as they say, you cannot judge a book by its cover. It's actually a complete technical run-down on just how a modern transceiver works.

Naturally it's based on Kenwood equipment with plenty of references to well known transceivers.

There are 10 sections in the book, and a quick run through them will give you an idea of the scope of the information covered. Section one is a background to the ideas that initiated the book. Section two covers the design philosophy of the receiver section of a modern transceiver. It also gives examples of how these circuits were developed from some of the earlier Kenwood transceivers.

Section three describes circuits used in transceivers, including such things as auto antenna tuners, linear amplifiers and speech processors.

Section four goes into digital circuits, and section five follows up with microcomputer circuits. Section six is called Applied Technology, and talks about RTTY, Baudot and ASCII code, shift/width controls, frequency readout and AMTOR and packet communication.

Section seven is devoted to measurement methods and performance evaluation, divided into three sections. Firstly, carrier to noise ratio measurements are described. Second, dynamic range and intercept point are explained and, finally, reciprocal mixing measurements are described.

Section eight is on anti-static electricity. "What's that?" You might well

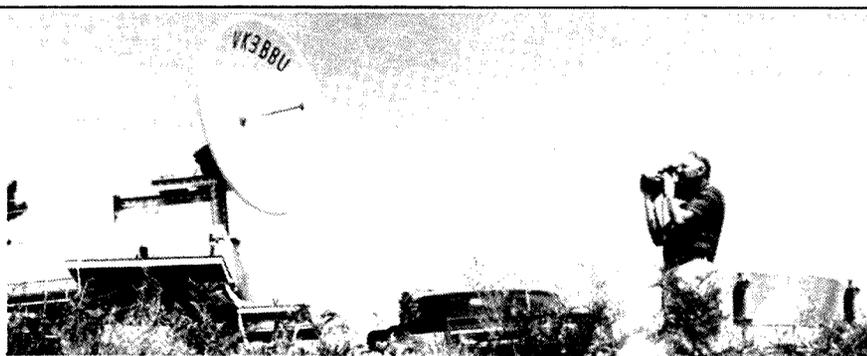
ask. Semi-conductors are divided into three sections according to their susceptibility to static electricity. Then methods on preventing static electricity are discussed. The final section, part

nine, contains a selection of useful data which includes charts showing VSWR as a function of forward and reflected power, conversion between dBm level and  $\mu$ volts output from a signal generator, plus much more.

From this you can see that all parameters of transceiver operation are covered. Well, almost! One very conspicuous omission is any mention of intermodulation distortion measurement in linear amplifiers. Strange, to say the least. However, I would still recommend this book to all those interested in the technical aspects of modern communication equipment. Hopefully it will soon be available from your local Divisional book shop.

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## 10 Gigahertz Record Broken



Max Chadwick VK3WAD testing equipment in readiness for the epic making 10 GHz ATV transmission.

**O**N FRIDAY 23rd October 1992, a small group of Melbourne amateurs transmitting 30 milliwatts (yes, milliwatts !!) of ATV, were successful in breaking the 10 Gigahertz distance record. The distance was 63.4 km.

### Why does one attempt such feats?

"Because it is there." a quotation from Sir Edmund Hillary when asked why he climbed Mount Everest in 1953. Such is the spirit encompassed by this group in their pursuit of something different. For some time, the group has

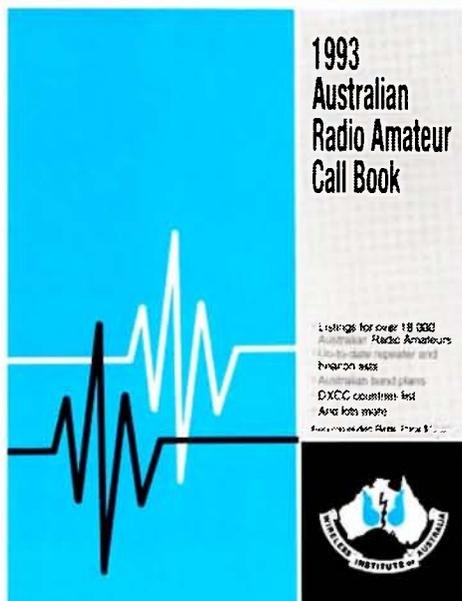
been experimenting, testing and rebuilding in an effort to enhance their knowledge of little known parts of the spectrum available. Contacts with others using electromagnetic waves of various frequencies is a common goal, with the ability to establish this over ever increasing distances adding an extra challenge.

The previous paragraph is the introduction to an excellent article written by Peter Ford VK3TAF. Next month, we will bring our readers Peter's descriptive and interesting article, together with photographs of the group's activities.

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# IDEAL CHRISTMAS PRESENT

## 1993 Australian Call Book



**18386 Up-to-date Callsign Listings**  
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**Australian Repeater Directory**  
**Australian Beacon Listings**  
**Comprehensive Australian Band Plans**  
**Complete DXCC Countries List**

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# FT-890

## COMPACT HIGH PERFORMANCE HF TRANSCEIVER



# LOOKS LIKE THE FT-757GX

Every now and then a truly remarkable innovation takes place... and you know immediately, that a legend is born! There's little doubt that the sensational new FT-890 HF Mobile Transceiver is just such a legend. Yaesu have incorporated many of the features from their renowned base-stations into this very compact mobile, so much so that we like to think of it as 'the FT-990 of mobile rigs'. Just like the FT-990, the new FT-890 continues Yaesu's design goals of making technically superior, feature packed transceivers that are fun to use and yet very reasonably priced. Compare the FT-890 with the rig you're using now!



### Clean Transceiver Operation

The FT-890 uses the very latest Direct Digital Synthesis (DDS) technology to provide much higher purity local oscillator signals than traditional PLL designs. The two DDS's ensure exceptionally low noise transmitter output, improved receiver performance and the very fast transmit/receive times needed for digital modes like packet radio. Together with the magnetic rotary encoder used by the main tuning dial, the DDS's provide the feeling of the best analogue VFO's... but with all the advantages of digital control.



### Exceptional Receiver Performance

The FT-890's triple conversion receiver covers the entire 100kHz to 30MHz range with high sensitivity and a wide dynamic range. For clearer reception of weak signals, the receiver uses a low noise dual FET RF amplifier followed by an active quad FET mixer with a high first IF of 70MHz. All this ensures excellent image rejection and, together with the use of DDS local signals, results in receiver performance that is noticeably superior to previous designs.

### Flexible Transmitter Operation

Yaesu's innovative die-cast top panel heatsink and duct-flow cooling allow high duty-cycle transmissions with up to 100 watts output in SSB, CW and FM modes, or 25 watts carrier on AM. For the easiest operation the transceiver offers VOX, an iambic CW keyer, full/semi break-in CW, an inbuilt SWR meter and an all-mode RF power output control. What's more, an RF based speech processor lets you tailor transmitter audio to your voice/microphone combination for greatly improved SSB talk-power.

### Automatic Antenna Tuner

An enormous bonus for the mobile HF enthusiast is the optional automatic antenna tuner (ATU-2) which is internally mounted and operated from the front panel. The ATU-2 uses its own microprocessor and 31 memories to automatically store tuner settings for exceptionally fast recall when you change frequency.



### Interference Rejection Facilities

For better reception under crowded band conditions the FT-890 provides both IF Shift and IF Notch controls.... and you can install optional filters for enhanced SSB skirt selectivity, as well as a choice of optional 250Hz or 500Hz bandwidth CW filters. Other valuable features include an effective variable noise blanker and a direct-feed mixer button for clear copy of even very strong signals.

### Frequency Control

With a 16-bit main processor and four co-processors frequency control is incredibly simple. Two independent VFO's per band hold their own frequencies and modes, while 32 tuneable memories store all of the data for both VFO's. Split frequency operation as well as memory/VFO transfers are a breeze.



# FT-890

COMPACT HIGH PERFORMANCE  
HF TRANSCEIVER



## GOES LIKE THE FT-990\*

### Incredibly Small & Light

The FT-890 is incredibly small and rugged, so it's ideally suited to both mobile and base station operation. Weighing in at under 6kg and measuring just 238(W) x 93(h) x 243(d)mm, it uses quality epoxy PCBs and surface mount components for high efficiency, superb reliability and serviceability. What's more, there's no overhanging rear heatsink to hinder mobile installation and the duct-flow cooling system ensures the FT-890 runs cool, even with high duty cycle transmissions. A comprehensive array of rear panel connections gives added flexibility for base-station operation.



### Technically Advanced

This outstanding mobile HF transceiver incorporates a host of standard features which are simply not available on most other rigs in this price range. Take a look.....

- The optional internal automatic antenna tuner operates on all HF amateur bands.... even 160m. All of the rivals internal ATU's only cover 80 to 10m! So, why limit your operations?
- Unlike the inferior audio-based processors used on some competing models, the FT-890 uses RF-based speech processing because it's recognised as the most effective. In tough conditions Yaesu's unique frequency shifting RF processor will provide more punch to get your signal through.

- The audio-based notch filters used by some of it's competitors can suffer from AGC lock-up. The FT-890 took the smart approach by using an IF-based notch filter to effectively reduce interfering carriers without being affected by AGC lock-up, even when notching strong signals.
- Wouldn't you like to have noise blanker performance that's referred to as 'the best in the mobile business' (ARA Vol.15 No4). Only Yaesu has it!
- Yaesu transceivers are covered by a 2 year warranty.... Why accept anything less?

A delight to use and an outstanding mobile rig by any standards. The sensational new FT-890 mobile HF transceiver is packed with features and offers performance and flexibility that until now was unheard of at this price.

Cat D-3270

Stock due early November,  
so place your order now  
to avoid disappointment.

## YAESU

# \$1995

#### OPTIONAL ACCESSORIES:

a) ATU-2 Automatic antenna tuner — An easily installed internal auto tuner designed for coax feedlines. Operation is controlled from the FT-890 front panel and the tuner can match impedances up to about 3:1 with the transmitter.

Cat D-3272 \$469

b) SP-6 External speaker with filters — A deluxe desktop speaker with 12 selectable audio filtering combinations and input terminals for two rigs. A large loudspeaker and audio filtered headphone socket will enhance the sound reproduction of most transceivers

Cat D-3265 \$249

c) DVS-2 Digital voice recorder — The DVS-2 electronically stores audio either as a continuous receiver recorder or as a microphone audio recording for on-air playback. Excellent for voice contesting!

Cat D-3220 \$299

d) Filter options — A range of FT-890 crystal filters for enhanced CW and SSB operation are available from our Sydney Service Centre.



## DIAMOND VHF/UHF BASE STATION ANTENNAS



These high quality, vertically-polarised base station antennas are ideal for the discerning Amateur operating on the 2m or 23cm bands. They're beautifully constructed 'Diamond' brand antennas from Japan that provide high gain plus a low radiation angle for maximum range. Constructed from robust F.R.P. (fibreglass reinforced polyester) tubing for excellent all-weather operation, with compact ground-plane radials for a clean radiation pattern. Complete with stainless steel mounting hardware.

### 2m ANTENNA F-23A

Frequency: 144 - 148MHz  
Gain: 7.8dB  
Max. Power: 200W  
Max. Wind Speed: 144km/h  
Length: 4.53m  
Type: 3 x 5/8"  $\lambda$ co-linear  
Connector: SO-239  
Cat D-4850

**\$199**

### 23cm ANTENNA F-1230A

Frequency: 1260 - 1300MHz  
Gain: 13.5dBi  
Max. Power: 100W  
Max. Wind Speed: 144km/h  
Length: 3.06m  
Type: 25 x 1/2"  $\lambda$ co-linear  
Cat D-4870

Limited Stocks!

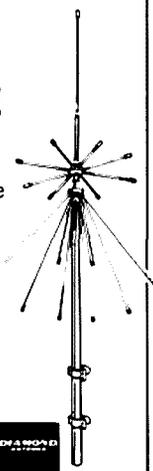
**\$299**

## DIAMOND D-130J DISCONE ANTENNA

This quality Japanese disccone antenna covers the frequency range 25-1300MHz and is easy to assemble and install. With extensive aluminium and stainless steel construction it's extremely durable, while allowing transmission on the 6m, 2m 70cm and 23cm bands with a maximum power rating of 200W PEP. Complete with mast mounting hardware, stainless steel U-bolts and instructions.

Cat D-4840

Now Only **\$149**



## HUSTLER

### HUSTLER RX-2 2m 5/8 WAVE MOBILE

Here's value! A quality American 2m 5/8 wave magnetic mount antenna for mobile or temporary base station use. Comes complete with 4.5m of coax cable with a PL259 attached. It provides 3dB gain with a power rating of 100W maximum and uses a flexible stainless steel whip to minimise wind loading.

Cat D-4805

**\$49<sup>95</sup>**

### HUSTLER 1/4 WAVE MAGNETIC ANTENNA

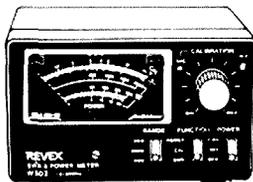


A great idea for extending the range of handheld transceivers! The Hustler UGM is a compact 1/4 wave magnetic mount mobile antenna supplied with 2.1m of mini coax fitted with a BNC plug. Simply use the supplied frequency chart to cut the flexible stainless steel whip to the required length for your application (within the 140-500MHz range) and it's ready to use.

Cat D-4802

**\$39<sup>95</sup>**

## REVEX SWR/ PWR METERS



Revex meters feature quality Japanese construction, large meter movements and low-loss wideband SWR/PWR sensors. We carry 2 of their popular models, the W502 and the W540, each of which provide 3 power reading scales plus SWR measurement, but with differing frequency coverage.

Hurry, buy now and beat the price rise!

### W502 HF/6m METER

Covers 1.8 - 60MHz and has an accurate P.E.P. metering circuit. As well, it has 20W, 200W and 2kW scales and a backlit meter. Requires 13.8V DC.

Cat D-1360

**\$199**

### W540 VHF/UHF METER

Covers 140 - 525MHz and has an average-reading metering circuit. It has 4W, 20W and 200W scales. Requires no DC power.

Cat D-1370

**\$179**

## HUSTLER

### HF 5-BAND TRAP VERTICAL ANTENNA

The tradition continues! The 5BTV is yet another masterpiece from the people who have been making antennas for over 33 years. This rugged 5 band HF trap vertical uses Hustler's exclusive trap design (25mm solid fibreglass formers, high-tolerance trap covers and low loss windings), for accurate trap resonance with 1kw(PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, less than 2:1 SWR at band edges), with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands.

High strength aluminium tubing and a 4mm (wall thickness) extra heavy-duty base section provides optimum mechanical stability. What's more, stainless steel clamps and hardware guarantee a longer life. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike other antenna designs the 5BTV can be fed with any length of 50 ohm coax cable.

Cat D-4920

Hurry, buy now and beat the price rise!

**\$299**

### 30m RESONATOR KIT

Adds 30m coverage and includes all hardware.

Cat D-4921

**\$79<sup>95</sup>**

### VRK-1 RADIAL KIT

Provides a ground-plane for above ground antenna mounting positions.

Cat D-4922

**\$59<sup>95</sup>**

### 2m 1/2 WAVE BASE STATION ANTENNA

An outstanding value-for-money, compact, Australian-made base station antenna which is only 1.69m long. It uses a single section F.R.P. radome for excellent all-weather operation and covers 144-148MHz with less than 1.5:1 SWR. The antenna provides approximately 3dB gain with a maximum power handling of 200W FM. It's fitted with an SO-239 socket mounted into the base for easy coax connection.

Cat D-4820

5 Year Warranty  
-MOBILE ONE  
**\$49<sup>95</sup>**

For Mail Orders, information or a brochure phone  
DS XPRESS on Sydney (02) 888 2105 or  
outside Sydney (free call) 008 22 6610.

Yaesu stocks are not held at all stores but may be ordered. Please contact your local store for stock availability or phone (008) 22 6610 for details of your nearest Ham Shack. Or write to DS XPRESS, PO BOX 321 North Ryde NSW 2113.

#### STORE LOCATIONS:

**NW** • Albany 21 6398 • Bankstown Square 707 4888 • New Store Location - Blacktown Shop 301, 22-24 Patrick St 67 1722 • Brookvale 805 0441 • Bondi 387 1444 • Campbelltown 27 2188 • Chatswood Chase 411 1955 • Chullora 842 8822 • Gore Hill 438 5311 • Gosford 25 0235 • Hornsby 477 8833 • Hurstville 500 8822 • Kotara 58 2082 • Liverpool 800 8888 • Marland 33 7888 • Miranda 525 2722 • Newcastle 81 1888 • North Ryde 878 3855 • North Sydney (Greenwood Plaza) 884 8487 • Orange 818 400 • Parramatta 888 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 287 8111 • Tamworth 88 1711 • Wollongong 28 3800 ACT • Belconnen (88) 253 1785 • Fishwick 280 4844 VIC • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 880 0088 • Coburg 383 4455 • Dandenong 784 8377 • East Brighton 582 2288 • Essendon 378 7444 • Footscray 888 2055 • Frankston 783 9144 • Geelong 322 7111 • Melbourne City 399 Elizabeth St 328 8088 A 246 Bourke St 838 0388 • Richmond 428 1814 • Ringwood 878 5338 • Springvale 547 0522 QLD • Boval 282 8200 • Brisbane City 328 8377 • Buranda 391 8233 • Cairns 311 515 • Capalaba 245 2870 • Chermside 358 8255 • Maroochydore 781 800 • Rockhampton 27 8844 • Southport 32 8033 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0844 • SA • Adelaide City 232 1200 • Beverley 347 1800 • Elizabeth 255 8088 • Enfield 280 8088 • St. Marys 277 8877 WA • Cannington 451 8888 • Fremantle 335 8733 • Perth City 481 3281 • Midland 250 1480 • Northbridge 328 8944 TAS • Hobart 31 0800 • Launceston 344 555 NT • Stuart Park 81 1877 STORES ACROSS AUSTRALIA AND NEW ZEALAND



# ALARA

Robyn Gladwin VK3ENX Box 438 Chelsea 3196 VK3ENX@VK3YZW

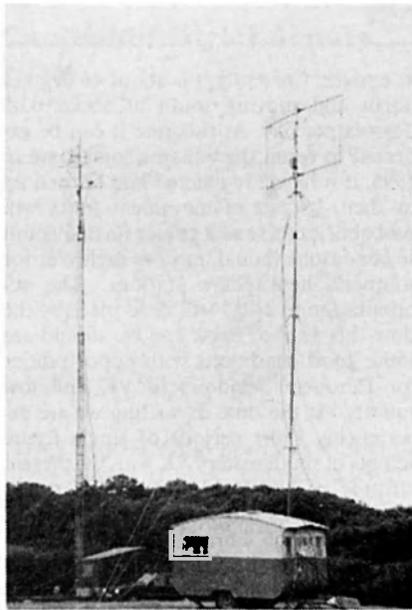
## The Over 30 Club

Recently, a list of ALARA members who have held their licences for more than 30 years came to light. They must have seen many changes over the years, for better or worse, in the radios, test equipment and the people who use them. One lady in the group has had her licence for 62 years and another for 53 years. Maybe not everyone is on the list and it would be appreciated if readers could supply any additions. The Club includes Australian members Austine VK3YL, Mavis VK3KS, Joyce VK2MJ and Denise VK5YL, and DX members Karla WA1UVJ, Phyllis W2GLB/7, Jerrie K6INK, Joan KD7YB, Ann K9RXK and Raija SM0HNV.

## YLs on Packet

As more ALARA members are starting to use packet radio, Margaret Schwerin VK4AOE has suggested that a list of ALARA packeteers be compiled. ALARA subscription renewal forms will now include space for a packet address but, if a more direct approach is preferred, Margaret's address is VK4AOE@VK4CXX.BNE.QLD.AUS.OC.

Sharon Feerick VK4SW@VK4CAB.QLD.AUS.OC. would like to make contact via packet with any amateur in Bury, Heywood or Rochdale in Lancashire, England.



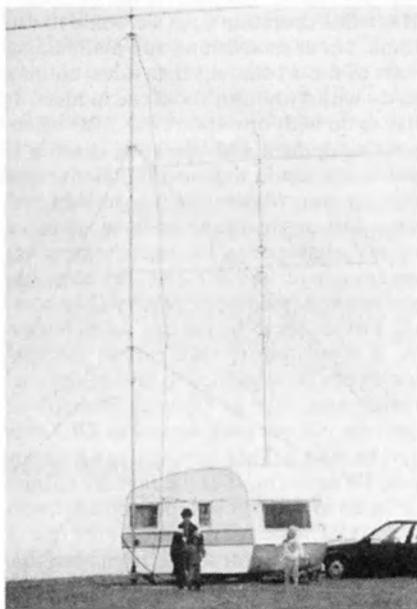
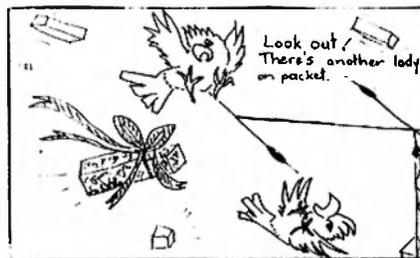
Left 23cm and 13cm on tower, Right 70cm, Field Day DX.

Many thanks again to Dorothy Bishop VK2DDB@VK2XY.SYD.NSW.AUS.OC. for a cartoonist's view of YLs and packet radio.

## DX on VHF and above in England.

ALARA DX member, Joanna Sims G1VEQ and OM Russ G4CVX belong to the Flight Refuelling Amateur Radio Society which has over 100 members. Joanna is pictured with children Rosemary and Elizabeth.

The masts they put up on the south coast of England for field days are quite something.



The G1VEQ Field Day portable antennas for VHF and UHF.

## Castlemaine Alarament 1-2-3 October, 1993

Preparations are well under way for next year's event. Already, 24 ALARA members, 18 OMs and 4 harmonics have registered. There are 4 coming from New Zealand and hopefully this number will be added to in due course. A creche will be arranged for AM Saturday to enable everyone to participate fully in the activities.

Further information may be obtained from Margaret Loft VK3DML QTHR or by packet to Meg Box VK5AOV@VK5WI.ADL.SA.AUS.OC.

Best wishes for a safe and happy Festive Season.

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Australia 3095

# AMSAT Australia

Bill Magnusson VK3JT 359 Williamstown Road Yarraville VIC 3013

Packet: VK3JT@VK3BBS

## National co-ordinator

Graham Ratcliff VK5AGR

Packet: VK5AGR@VK5WI

Please take note of the AMSAT information nets:

## AMSAT Australia net:

Control station VK5AGR

Check-ins commence at 0945z on Sunday nights

Bulletin commences at 1000z

## Frequencies:

Primary 7.064 MHz plus/minus 5 kHz.

Secondary 3.685 MHz.

AMSAT South West Pacific net:

2200z Saturday on 14.282 MHz.

Experienced satellite users and newcomers alike are welcome on the nets. A large body of experience is on hand to answer queries. Listen to the WIA divisional broadcasts for regular up to date AMSAT information.

AMSAT Australia newsletter and software service:

Satellite users whether experienced or newcomers will benefit by subscribing to the AMSAT Australia newsletter and software service. The newsletter is published monthly by Graham VK5AGR. Subscription is \$25 for Australia, \$30 for New Zealand and \$35 for other countries by AIR MAIL. It is payable to AMSAT Aust. addressed as follows: AMSAT Australia  
GPO Box 2141  
Adelaide SA 5001

The newsletter provides up to date information on all current and planned amateur radio satellite activities. Graham also provides a first class software service for satellite users. New software is reviewed regularly in the newsletter.

Oscar-10 is providing some very good contacts late in the passes. The transponder is still turning itself off at odd times but when it's on the signals are quite good with only a few watts of up link power required at MA 180 to perigee. Activity is sparse but some of the old regulars are returning and it will probably pick up over the summer period. The beacon is sometimes on when the transponder is off and vice versa so don't be fooled, check the pass band and up-link a signal. Signals have been so good recently that the pass-band noise is clearly audible when the transponder is on.

Oscar-13 continues to move slowly south

at apogee. Currently it is about 46 degrees north and moving south at about 0.05 degrees per day. At this rate it can be expected to reach the equator some time in 1995, if it hasn't re-entered and burned up by then. Its rate of movement south will probably increase as it comes further south so conditions should improve each year for southern hemisphere stations. The re-orientation to 210/0 will be in place by the time this goes to print and we should see some good conditions with opportunities for European windows to VK and low squints. At the time of writing we are experiencing short periods of single figure squints in south eastern VK with the present attitude of 180/0. Unfortunately, rather poor sun angles will necessitate a few departures from the normal run of attitude changes over the next few months. We could normally expect an attitude of 210/0 to remain in place over the December to February period but poor illumination will make it necessary to change to 130/0 in mid December. This will result in rather poor squint angles for just about everyone and to help the situation the omni-directional antennas will be switched on for longer periods than normal. The attitude will gradually be brought back 10 degrees at a time as the sun angles allow. It should be back to 180/0 by early March 1993 and will remain there until May 1993. It's going to be more than a little difficult to juggle things for optimum communications over the next couple of months so spare a thought for the control stations who have the onerous task of making it all happen.

Coming events: It was announced at the recent AMSAT-NA Space Symposium in Washington, DC that there are 8 amateur radio satellites currently either under construction or soon to be launched. The following list gives the name of each satellite and their origin:

- |              |   |
|--------------|---|
| 1) RS-15     | AMSAT-UA                                |
| 2) ARSENE    | FRANCE                                  |
| 3) UMAMSAT-1 | AMSAT-XE                                |
| 4) ITSAT     | AMSAT-IT                                |
| 5) PHASE-3D  | AMSAT                                   |
| 6) TECHSAT   | ISRAEL                                  |
| 7) SUNSAT    | AMSAT-SA                                |
| 8) SEDSAT-1  | University of Alabama<br>Huntsville, AL |

The next couple of years certainly looks like being an exciting time for amateur radio satellite enthusiasts.

DX contests and AO-13: A couple of observations regarding some recent packet bulletins that have been circulating around the traps. One group in particular referred to DX contest style operation on AO-13 with a long list of stations heard and virtually encouraging "dog-pile" operation. It then went on to bemoan the fact that "alligator" (big mouth) behaviour is becoming more prevalent. Alligator behaviour is the very undesirable practice of winding up the up-link power to ridiculous levels in an attempt to blot out your opposition. This is both un-productive and anti-social. It has been part and parcel of the HF DX dog-pile scene for many years. It is un-productive in that AO-13 transponders have AGC circuitry to prevent such overload and anti-social in that all it does is turn down the overall system gain to the detriment of ALL users. Design steps are being taken in future transponders to turn this practice back on the perpetrator and protect the user who is trying to do the right thing, ie to use only enough up-link power to result in a down-link signal no stronger than the beacon. It seems to me that to promote DX dog-pile activity on a satellite transponder is just asking for this kind of thing to happen. It's an unfortunate reality that there are some (perhaps many) among us who will not abide by the spirit of any operational procedure requests and in the heat of contest style operations will ignore any reasonable convention. I believe that we should do everything we can to discourage the introduction of DX dog-pile contests on satellite transponders. If we want to demonstrate to others how good we are, we should take part in the only valid, non-invasive, non-destructive "contests", ie the ZRO tests. If satellite operation is, as we would like to think, about establishing and maintaining state of the art stations then it has nothing to do with "who can shout the loudest". It has to do with operations like ZRO where your equipment and operating practice is put to the test in the most productive and positive way. Maybe one way to help prevent destructive activities is to promote more desirable ones. I'll devote some space next month to the ZRO tests, their aims, objectives and philosophy. With AO-13 coming further south by the day we will again be in a position to take part in the tests which can be scheduled to favour any particular area such as Oceania. Perhaps we can even run our own. As well as ZRO tests and to start off the new year on a happy note I'll devote most of the January column to an up to date status report on all operational OSCARS. All the best for the festive season. Look out for signals from Mt Skene from Boxing Day 1992 until 7th January 1993. All bands, all satellites to 2.4 GHz, HF and ATV.

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# Club Corner

## Moorabbin and District Radio Club

The Moorabbin and District Radio Club has had a busy and successful year. Under the leadership of Keith Turner VK3CWT and his committee night meetings have been moderately well attended, and we have had a series of very interesting speakers.

The Tuesday morning group ranges from 40 to 70 in attendance, and nearly always includes one or more visitors from interstate or overseas.

The various club kits continue to be popular and attract enquiries and sales from all over.

Our 80 metre club net on Mondays evening does not get as many new contacts as we would like to enable us to give out more of our very attractive club net awards. The rules have been commended recently, and will be published in "AR" early in the new year.

The club scored very well in the novice contest and the RD contest where we achieved the top score in VK3.

JOTA was another event in which the club participated. Club members operated at six locations, enabling about 1000 young folk in the Scout movement to see and take part in our hobby of amateur radio.

A new venture which has just started up is a Hobby Night at the clubrooms on Tuesdays. The idea is for members, under the guidance of Chris Arthur VK3JEG, to bring along items on which they feel the need for advice or help in home construction, trouble shooting or alignment etc.

The club station VK3APC continues to be upgraded and now has some new antennas as well as being fully operational on packet.

The Hamfest in May was a great success, and plans are already under way for next May at the same location. Visitors and new members are always welcome.

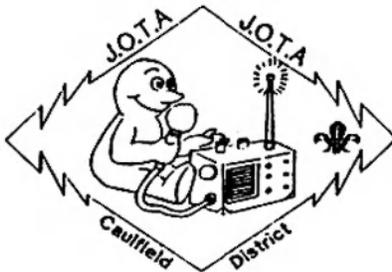
## New Mailing Address

Please note that all mail should now be sent to the club's new mailing address, viz:-  
The Secretary  
Moorabbin and District Radio Club  
PO Box 58  
Highett Vic 3190

Allan Doble VK3AMD

## Caulfield District Scouts

VI3SAC  
JOTA report



This year the radio operators moved in on the Sunday, 11-10-92, and started setting up the radio masts and equipment, including two caravans, portable toilets, portable room and showers.

The masts this year were two cherry-pickers, one from BE Hire (14 metres), which held a two-element duo-band hi-gain beam, the other from Coates Hire (20 metres), which held the three-element tri-band, Chirside beam, both being operated by remote-controlled rotators.

We also had a multi-band vertical and a multi-band dipole suspended from an ex-army portable, 13-metre mast, as well as a two-metre vertical and a beam.

The radios this year were two Yaesu 101Es, a 1960 Galaxy 5, a Kenwood 530S, and a few 2m radios operating packet as well as RTTY (radio teletype) and IBM computers tracking satellites. So, with this amount of equipment, the Guides and Scouts were able to work the world.

Contacts within Australia — 98 — 60 within Victoria, and 38 with other states.

We had 27 overseas contacts with 14 different countries; two contacts on Morse Code; one with Russia; and one with Norway.

Contacted were: Russia, New Zealand, Washington State, Vancouver, Canada, Japan, Korea, West Siberia, China, Norway, Kuwait, Solomon Islands, Pakistan and New Guinea.

We also had contact via a teleprinter (RTTY) on the 2m band with the Gippsland Gate Radio and Electronics Club, which was running JOTA for the Cranbourne Guides.

Highlights of the radio were when we contacted Canberra (VK1BP) at 2.00pm Saturday for the official opening of JOTA and, to everyone's surprise and disbelief, at 2.16pm we again managed to be on the official callback with Canberra, not once, but twice, speaking with Neil Westerway, the Chief Scout of Australia, who wished us all well for our JOTA.

Operators: Greg and Cinzia Andersen, Roland Walker, Alan Weeks, Allan Tubb and Craig Cunningham were camped on-site, with many operators visiting us and having a turn on the radios assisting the Scouts and Guides to talk with other groups that were contacted.



At the final parade, Roland Walker VK3NYV (left) was presented with a plaque by Garnet Bowen VK3MTA (right), congratulating and thanking Roland for his five years of radio operation services to JOTA.

A marvellous effort by all our operators to allow the Scouts and Guides to talk to others throughout the world, and they would like to say a special thank you to the radio operators for the use of their equipment, and for spending the whole weekend with them. It was very much appreciated.

**Garnet Bowen VK3MTA (VI3SAC)**  
**Caulfield District JOTA Co-ordinator**

#### Attention Club Secretaries

*This column is for you to inform Australian amateurs about your club activities. Please talk to me, so that I may QSP on your behalf. Photographs also help to convey a message. Although space is limited let me have your submissions, preferably on disk in ASCII, or any MSDOS Word Processor. Failing that I will accept material with double spaced typing, or legible hand writing. Although I may have to cut a few lines out, I will endeavour to give you full coverage*

.... VK3UV, Production Editor, AR.

ar



**Guides from 3rd Box Hill and Cubs/Scouts from 10th Caulfield listening to the official JOTA opening from Canberra VK1BP, on our own station VI3SAC.**

## Divisional Notes

### VK2 Notes

*Tim Mills VK2ZTM*

With another year drawing to a close may I, on behalf of the Council, wish everybody all the best for the coming festive season.

The end of the year is also the close of the Divisional year, and as we move into 1993 it becomes time to think about the AGM and the new Council. These dates will be given in the January notes. The last formal broadcast from VK2WI will be 20 December. The first for 1993 is expected to be on 10 January. Most likely there will be special pre-recorded morning-only broadcasts between these dates. These details, along with the office arrangements, will be given on the broadcasts later this month.

Moving into next year, the first Trash and Treasure towards the end of January, and the first Division exam late February.

During last month there were forums for both ATV and Packet operation held at Amateur Radio House. It was also the month with the special national broadcast hookup from VK8SEA, with the announcement of the new regulations on 1 November.

### WIA in the Park

The first of November was also an important day when the NSW Division set up a display at Parramatta Park on the occasion of the ABC's 60th birthday. The weather was not kind, and the wet conditions kept the crowd down to a mere

200,000. The WIA display was housed in a fibreglass and glass cube, which contained an HF station under the call VI150SYD, packet from VK2RWI, ATV across the park, WICEN and pieces from the Division's antique radio equipment.

Many members spent the week leading up to Sunday working on the display and their efforts paid off. There was high and continued interests in all aspects of the hobby.

### VI150SYD

This is the last month that the special call will be available as part of Sydney's 150th birthday celebrations. Any member, club or group wishing to use it during the month should contact the office for available dates and registration. A most attractive QSL card is available for contact confirmation.

### New Members

Our usual warm welcome is extended to the following who joined the NSW Division recently.

R Bunn	VK2NRX Metz
L A Castelli	Assoc Werris Creek
P J Chubb	VK2FPC Kingsford
B Edge	Assoc Cardiff
W D Edge	Assoc Spit Junction



**The Amateur Radio display in Parramatta Park**

R S Foote	Assoc	Ermington
R Fraumann	VK2RLF	Cremorne
J J Gleeson	Assoc	Emu Heights
L Hayter	Assoc	Lismore
S Highley	Assoc	Cambridge Park
I R Jones	VK2IRJ	Cudal
K H Lee	VK2GUF	Marsfield
D Luks	VK2GRN	Bathurst
C Pinckney	Assoc	Cambridge Park
W K Scott	Assoc	Guildford
O G Stanley	Assoc	Springwood
J Thurston	VK2AP	Blackheath
P C Woolhagen	VK2PSW	Albury

### VK3 Notes

Barry Wilton VK3XV.

Secretary — Manager

WIA Victoria

### Christmas holidays.

The Victorian Division office will close on December 17, 1992 and reopen on February 9 1993. Membership applications received by post will be processed during this period.

### Sherbrooke Shire and Antenna Masts

Information received from the Shire of Sherbrooke indicates that it is most likely we will be successful in our bid to have the proposed Planning Amendment L61 reworded to allow for the erection of radio masts used for the purposes of Amateur communications.

As a result of our formal written submission, we have been invited to provide a representative at a panel hearing to be held early in December, and we believe the final outcome will be favourable to the interests of members in the shire.

Members will be kept informed of the progress and final outcome of this outstanding matter.

### Special Interest Groups.

It is pleasing to note the resurgence of a number of special interest groups specialising in different aspects of the hobby such as ATV, Slow Scan TV, Weather Fax, Spread Spectrum and other exotic transmission modes.

Amateur Radio has, until the advent of the "black box," been the province of experimenters, and these groups deserve to be encouraged in their endeavours, and WIA Victoria will provide encouragement and assistance whenever possible.

### Sunday Broadcast — VK3BWI.

The dedicated team of volunteers who, under the guidance of the Broadcast Coordinator, Bill Trigg, have put so much time and effort into improving the quality of our broadcast over the last year, are to be congratulated.

This small team of very hard working people need your co-operation if the con-

tent of the regular broadcast is to be maintained.

The broadcast is not a news service established with "reporters" to seek out and write news stories, and the content can only reflect the material which is contributed by the members at large.

The broadcast team needs material of a newsworthy nature which is of interest to other members, and if you can contribute, especially on a regular basis, your efforts will be appreciated.

If you feel you could make a little time available Bill would be very pleased to hear from you!

The last broadcast for 1992 will go to air on December 20.

Transmissions will recommence on Sunday February 14, 1993.

### Nominations for Council

Nominations for the 1993/1994 Victorian Division Council close at noon on Tuesday, January 15, 1993. Nominations will only be accepted on forms available from the Secretary.

Nomination forms must be obtained prior to close of business on Thursday, December 17, 1992. Nominations may be returned by ordinary mail to the office, and will be processed during the holiday period.

### RD Contest.

All those who participated in the 1992 RD contest are congratulated for their efforts and team spirit which resulted in another win for Victoria. This makes three in succession and hopefully 1993 will make four! Well done!

### 1993 and Beyond.

The coming year will see significant advances in communications technology, together with further changes in government and community attitudes toward Amateur Radio.

We will need to contend with the effect of "deregulation" and major changes to the conditions imposed in our licences.

Increased pressure from the community at large in relation to RF interference is most certainly looming.

We are no longer able to pursue our hobby in isolation from the rest of society and the cost both financially, and in terms of human resources, will increase if we are to continue in existence.

Many members may not appreciate the amount of administrative work entailed to make it possible for the Amateur Radio Service to successfully interface with commercial enterprise and government and statutory bodies.

The best way of ensuring the ultimate survival of the hobby as we know it, is for all individual Amateurs to put aside personal self interests and parochial attitudes, and provide support and encouragement

for the organisation which is trying very hard to represent its members.

**MERRY CHRISTMAS AND BEST WISHES FOR THE COMING YEAR TO ALL MEMBERS OF THE DIVISION.**

### VK4 Notes

From the summary of the minutes of the WIAQ Council held on 1st November 1992, supplied by Ken Ayers VK4KD.

John Aarsse VK4QA presided. Council approved with acclamation the applications for 17 new members.

The president spoke on the recent passing of Jack Gayton VK4AGY, who was the station manager for WIAQ, and responsible for originating the Sunday news broadcasts.

Rodger Bingham VK4HD has been appointed as the VK4 Federal Councillor, to fill the vacancy following the retirement of Murray Kelly VK4AOK.

Councillor Ross Marren VK4AMJ has agreed to accept the position of QTC editor, a job performed by the late Jack Gayton VK4AGY for many years.

Club Liaison — Bill Sebbens VK4XZ reported on his visit to the Regional Amateur Conference held under the auspices of the Townsville Amateur Radio Club on 24th October 1992. Some 12 motions were moved, and where applicable these will be agenda items for the Council in the near future.

QSL Delays — The Queensland bureau is up to date with Inwards cards, and Outwards cards are despatched on a monthly basis. Any delays experienced can be attributed to overseas bureaus. The council has been assured by Australia Post that no delay is apparent in Australia.

Thanks to VK4OF — A vote of thanks was carried on behalf of David Jones VK4OF, for the work he has carried out on behalf of the WIA(Q) during his period in office.

An attachment to the minutes summary advises of the availability of the well known Roger Davis Morse Instruction Tapes and study books. Learn Morse by the sound method. Novice Pack \$12, Higher Morse speeds available \$3 each, Novice Study Guide \$4.50, Theory Textbook \$8.50. Postage etc \$3-00. Enquiries to WIA Queensland Division, PO Box 638 Brisbane Qld 4001.

compiled by VK3UV

### 5/8 Wave

Roland Bruce VK5OU

I mentioned in last month's 5/8 Wave that I had met an American amateur and that we had discussed some aspects of amateur radio. One area we touched upon, which opened up debate at a recent meeting, was the question of the costs involved

in pursuing our hobby. You are probably aware that there is no fee for a licence in the States. I raised the question of who it was, then, who paid for it. Obviously there must be a cost involved somewhere along the line. An official would have to check the application, process it, issue the licence and post it off to the amateur. The official's time would cost money; the printing and distribution of the licence would cost money. Where did it come from?

He agreed that with the number of amateurs in the USA the cost would be quite considerable, but nevertheless he seemed quite happy that the money would be found from what he called "general revenue" In other words, taxes. This troubles me somewhat. I do not see it as fair that a group of people, pursuing a moderately expensive hobby, should have a subsidy from the taxes imposed on other people, especially as those very people might well be financially less advantaged than the recipients. An interesting extension of this concern was voiced at the meeting. Despite its shortcomings, the Australian health system seems to be superior to the American one. "Which would you rather have," asked

the speaker, "user pays, or money being taken from taxes, to the detriment of hospitals for example?"

I think I know your answer, but it is worth considering next time someone questions the cost of being an amateur. We chose the hobby, no-one has forced us to take it up. In this day and age everything costs money, especially time, even the time of the volunteer. The volunteer's time may cost him or her money directly or indirectly, or it may cost his employer money, the cost being passed on to the customer. Perhaps, in future, we need to look at these things with an accountant's eye, rather than the heart.

I have also been talking to Milton Gooley, the curator of the Telecom Museum in Adelaide. He told me that it is not true that the museum is to be closed down. Cataloguing and packaging of the items are well under way, in preparation for the museum being transferred to the History Trust, and that the Trust is expected to announce the appointment of a curator within a few days, (it may well be that by the time this is published the announcement will have been

made). Apologies to those if any who have been misled over this.

Finally, this month, welcome as a new member, to Lee MacDonald, VK5YLE.

## VK6 Notes

*Harry Atkinson VK6WZ*

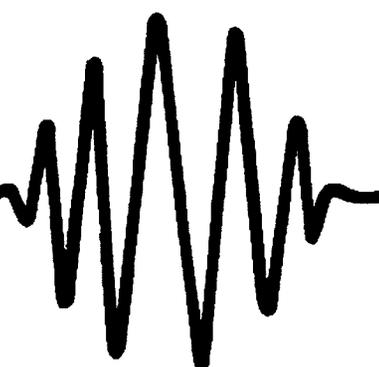
The big news this month is, of course, the 1992 Hamfest of the Northern Corridor Group, which will doubtless be the subject of a news release from the club for this or a future issue. Suffice for now to report that although numbers appeared to be down on last year, the enthusiasm of the club, exhibitors and patrons was high.

The sad news — although not expected — is that Bernie Gates passed away peacefully in the Albany Regional Hospital on the evening of 6 November. VK6KJ was a familiar callsign and voice on the bands for many years and his 7am and 8am nets on 7 and 3.5 MHz attracted a large following among amateurs and SWLs alike.

Amateur television continues to attract participants, and there's every likelihood 1993 will be a big year for VK6 ATV.

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# amateur radio action



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Ραδιο Αχτιον μαγαζινε το απλεαρ ιν  
ΩΙΑ φουρναλ Αματευρ ΡαδιοΠ. ”

For subscription details to just  
about anywhere, phone Grant  
Manson on (03) 601 4222

*If all this looks Greek to you, perhaps it's because you're not reading the authoritative source — Amateur Radio Action magazine... at your local news outlet every fourth Tuesday.*

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# HF PREDICTIONS

Evan Jarman VK3ANI

The sunspot number used to generate these predictions is 62.

The September issue of the "IPS Solar-Geophysical Summary" predicts a slow decline in this number over the next few months. The numbers are:-

Jan 1993 61.2

Feb 1993 60.0

Mar 1993 58.8

Using the more long term indication provided the IPS T-index (for use with the ASAPs computer program), activity is predicted to decline until the end of 1996. It should be pointed out that this is using monthly averages and is a prediction. Activity will be there for those who seek it.

## The Tables Explained

The tables provide estimates of signal strength for each hour of the UTC day for

the four bands from 14 to 24 MHz. The UTC hour is the first column; the second column lists the predicted MUF (maximum useable frequency); the third column the signal strength in dB relative to 1  $\mu$ V (dB $\mu$ ) at the MUF; the fourth column lists the "frequency of optimum travail" (FOT), or the optimum working frequency as it is more generally known.

The signal strengths are all shown in dB relative to a reference of 1  $\mu$ V in 50 Ohms at the receiver antenna input. The table below relates these figures to the amateur S-point "standard" where S9 is 50  $\mu$ V at the receiver's input and the S-meter scale is 6 dB per S-point.

$\mu$ V in 50 Ohms	S-points	dB( $\mu$ V)
50.00	S9	34
25.00	S8	28
12.50	S7	22

6.25	S6	16
3.12	S5	10
1.56	S4	4
0.78	S3	2
0.39	S2	- 8
0.20	S1	-14

The tables are generated by the Graph\_DX program from FT Promotions, assuming 100 W transmitter power output, modest beam antennas (eg three element Yagi or cubical quad) and a short-term forecast of the sunspot number. Actual solar and geomagnetic activity will affect results observed.

The three regions cover stations within the following areas:

**VK EAST** The major part of NSW and Queensland.

**VK SOUTH** Southern-NSW, VK3, VK5 and VK7.

**VK WEST** The south-west of Western Australia.

Likewise, the overseas terminals cover substantial regions (eg "Europe" covers most of Western Europe and the UK).

ar

### VK East-Mediterranean

UTC	MUF	dB $\mu$	FOT	14.2	18.1	21.2	24.9
0000	10.0	20	10.0	100	100	100	100
0100	10.0	20	10.0	100	100	100	100
0200	10.0	20	10.0	100	100	100	100
0300	10.0	20	10.0	100	100	100	100
0400	10.0	20	10.0	100	100	100	100
0500	10.0	20	10.0	100	100	100	100
0600	10.0	20	10.0	100	100	100	100
0700	10.0	20	10.0	100	100	100	100
0800	10.0	20	10.0	100	100	100	100
0900	10.0	20	10.0	100	100	100	100
1000	10.0	20	10.0	100	100	100	100
1100	10.0	20	10.0	100	100	100	100
1200	10.0	20	10.0	100	100	100	100
1300	10.0	20	10.0	100	100	100	100
1400	10.0	20	10.0	100	100	100	100
1500	10.0	20	10.0	100	100	100	100
1600	10.0	20	10.0	100	100	100	100
1700	10.0	20	10.0	100	100	100	100
1800	10.0	20	10.0	100	100	100	100
1900	10.0	20	10.0	100	100	100	100
2000	10.0	20	10.0	100	100	100	100
2100	10.0	20	10.0	100	100	100	100
2200	10.0	20	10.0	100	100	100	100
2300	10.0	20	10.0	100	100	100	100

### VK South-Mediterranean

UTC	MUF	dB $\mu$	FOT	14.2	18.1	21.2	24.9
0000	10.0	20	10.0	100	100	100	100
0100	10.0	20	10.0	100	100	100	100
0200	10.0	20	10.0	100	100	100	100
0300	10.0	20	10.0	100	100	100	100
0400	10.0	20	10.0	100	100	100	100
0500	10.0	20	10.0	100	100	100	100
0600	10.0	20	10.0	100	100	100	100
0700	10.0	20	10.0	100	100	100	100
0800	10.0	20	10.0	100	100	100	100
0900	10.0	20	10.0	100	100	100	100
1000	10.0	20	10.0	100	100	100	100
1100	10.0	20	10.0	100	100	100	100
1200	10.0	20	10.0	100	100	100	100
1300	10.0	20	10.0	100	100	100	100
1400	10.0	20	10.0	100	100	100	100
1500	10.0	20	10.0	100	100	100	100
1600	10.0	20	10.0	100	100	100	100
1700	10.0	20	10.0	100	100	100	100
1800	10.0	20	10.0	100	100	100	100
1900	10.0	20	10.0	100	100	100	100
2000	10.0	20	10.0	100	100	100	100
2100	10.0	20	10.0	100	100	100	100
2200	10.0	20	10.0	100	100	100	100
2300	10.0	20	10.0	100	100	100	100

### VK West-Mediterranean

UTC	MUF	dB $\mu$	FOT	14.2	18.1	21.2	24.9
0000	10.0	20	10.0	100	100	100	100
0100	10.0	20	10.0	100	100	100	100
0200	10.0	20	10.0	100	100	100	100
0300	10.0	20	10.0	100	100	100	100
0400	10.0	20	10.0	100	100	100	100
0500	10.0	20	10.0	100	100	100	100
0600	10.0	20	10.0	100	100	100	100
0700	10.0	20	10.0	100	100	100	100
0800	10.0	20	10.0	100	100	100	100
0900	10.0	20	10.0	100	100	100	100
1000	10.0	20	10.0	100	100	100	100
1100	10.0	20	10.0	100	100	100	100
1200	10.0	20	10.0	100	100	100	100
1300	10.0	20	10.0	100	100	100	100
1400	10.0	20	10.0	100	100	100	100
1500	10.0	20	10.0	100	100	100	100
1600	10.0	20	10.0	100	100	100	100
1700	10.0	20	10.0	100	100	100	100
1800	10.0	20	10.0	100	100	100	100
1900	10.0	20	10.0	100	100	100	100
2000	10.0	20	10.0	100	100	100	100
2100	10.0	20	10.0	100	100	100	100
2200	10.0	20	10.0	100	100	100	100
2300	10.0	20	10.0	100	100	100	100

### VK East-Europe L/P

UTC	MUF	dB $\mu$	FOT	14.2	18.1	21.2	24.9
0000	10.0	20	10.0	100	100	100	100
0100	10.0	20	10.0	100	100	100	100
0200	10.0	20	10.0	100	100	100	100
0300	10.0	20	10.0	100	100	100	100
0400	10.0	20	10.0	100	100	100	100
0500	10.0	20	10.0	100	100	100	100
0600	10.0	20	10.0	100	100	100	100
0700	10.0	20	10.0	100	100	100	100
0800	10.0	20	10.0	100	100	100	100
0900	10.0	20	10.0	100	100	100	100
1000	10.0	20	10.0	100	100	100	100
1100	10.0	20	10.0	100	100	100	100
1200	10.0	20	10.0	100	100	100	100
1300	10.0	20	10.0	100	100	100	100
1400	10.0	20	10.0	100	100	100	100
1500	10.0	20	10.0	100	100	100	100
1600	10.0	20	10.0	100	100	100	100
1700	10.0	20	10.0	100	100	100	100
1800	10.0	20	10.0	100	100	100	100
1900	10.0	20	10.0	100	100	100	100
2000	10.0	20	10.0	100	100	100	100
2100	10.0	20	10.0	100	100	100	100
2200	10.0	20	10.0	100	100	100	100
2300	10.0	20	10.0	100	100	100	100

### VK South-Europe L/P

UTC	MUF	dB $\mu$	FOT	14.2	18.1	21.2	24.9
0000	10.0	20	10.0	100	100	100	100
0100	10.0	20	10.0	100	100	100	100
0200	10.0	20	10.0	100	100	100	100
0300	10.0	20	10.0	100	100	100	100
0400	10.0	20	10.0	100	100	100	100
0500	10.0	20	10.0	100	100	100	100
0600	10.0	20	10.0	100	100	100	100
0700	10.0	20	10.0	100	100	100	100
0800	10.0	20	10.0	100	100	100	100
0900	10.0	20	10.0	100	100	100	100
1000	10.0	20	10.0	100	100	100	100
1100	10.0	20	10.0	100	100	100	100
1200	10.0	20	10.0	100	100	100	100
1300	10.0	20	10.0	100	100	100	100
1400	10.0	20	10.0	100	100	100	100
1500	10.0	20	10.0	100	100	100	100
1600	10.0	20	10.0	100	100	100	100
1700	10.0	20	10.0	100	100	100	100
1800	10.0	20	10.0	100	100	100	100
1900	10.0	20	10.0	100	100	100	100
2000	10.0	20	10.0	100	100	100	100
2100	10.0	20	10.0	100	100	100	100
2200	10.0	20	10.0	100	100	100	100
2300	10.0	20	10.0	100	100	100	100

### VK West-Europe L/P

UTC	MUF	dB $\mu$	FOT	14.2	18.1
-----	-----	----------	-----	------	------

**VK East-Africa**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK South-Africa**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK West-Africa**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK East-Asia**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK South-Asia**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK West-Asia**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK East-South Pacific**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK South-South Pacific**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK West-South Pacific**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK East-USA/Caribbean**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK South-USA/Caribbean**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

**VK West-USA/Caribbean**

JTC  
MU  
DBU  
FOT  
14  
18  
21  
24

# IARUMS — Intruder Watch

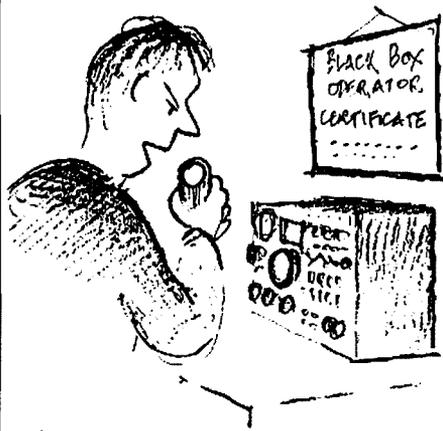
Gordon Loveday VK4KAL Federal Intruder Watch Co-ordinator  
 Freepost No 4 Rubyvale Qld 4702 or VK4KAL@VK4UN-1

The International Amateur Radio Union Monitoring System (IARUMS) is set up to record, report, and encourage the removal of non-amateur stations from amateur band allocations. Stations targeted are usually broadcast or commercial stations from other countries. Priority is not given to local "pirates". Each country appoints a Co-ordinator, who is responsible for collating reports and forwarding them to the appropriate regulatory authorities (DoTC in Australia).

Each WIA Division, apart from VK3, has a Divisional Co-ordinator to collect reports from that Division and forward them to the Federal Intruder Watch Co-ordinator. But the main strength of the service is in the individual amateurs who spend time regularly listening on the bands and identifying types of signals and stations.

More Intruder Watch listeners are always required. Volunteers who contact either their Divisional Co-ordinators or me direct will be supplied with information, log sheets and tapes to assist in identifying modes.

Here is a recently logged list of intruders into the amateur bands:-



"Yes, I got the certificate. I'm going for the fifty knob endorsement next".

## Summary of Intruders as at October 1992

Frequency	UTC	Date	Mode	Comments	"x"
7002	1040+	061092	NON	Carrier only	
7002.5	1130+	230992	A1a	"V" beacon	30
7065	1129	210992	NON	Carrier only	
14001	1042	"	"	" ' No ID	
14003	1020	061092	XXX	Very raw AC note	
14003	1105	151092	A3/J3?	B/C phone, For language	3
14006	1037	131092	J3E	" " 2 voices, no ID	
14010	1050	141092	"??	Voices over CW no ID	
14020	2300	131092	A1A	VZA — CQ de VZA	
14050	mny	240992	"	PKJ KG SQVN TAIJ Indonesia	11
14057	0640+	230992	mny	NON holding free, A1a, F7b	42
14070/1	mny	mny	A1a	VPO DE VBX QSV K TFC OUT	17
14074/5	mny	mny	A1a	KFB-CQ DE KFB TFC OUT	15
14080	0130+	230992	A1a	KFB/VRQ TFC IN & OUT	2
14092	1025	280992	A1a	RGT77 5 letter groups TFC OUT	3
14095	0200+	230992	A1a	VPC-CQ DE VPC QSV	7
14140.5	1115+	021092	F1B	UMS group (MNR) RTTY (CIS)	10
14148	1020+	061092	A1a	PELT & OBAW. RP31B DE PELT K	
14177	"	091092	F1a	UID80, UZZAA DE UID80 QSA ?	2
14192	1012+	280992	A1a	GSTR/HLNC/WEWN/ZMV2 on freq	4
14209.5	1045+	250992	F1a	CW & DATA (CIS)	
14210	0920+	mny	A3e	Harmonic of 7105 kHz	14
14212/25	mny	300992+	A1a	P9K DE P7A QSA? QSV K	12
14211/15	mny	250992	2xF1B	2 Ind channels 250 Hz	16
14217.5	1107	mny	mny	NON/F1B/F1CW/A1a UMS CIS	17
14235.5	1103	231092	F1b	RTTY 4 kHz wide no shift	
14250	1107	mny	NON	Carrier only no ID	8
14284/5	mny	021092+	A1a	VRQ TFC, rough sigs, key clicks	30
14320	1500	141092	A3E	B/C News in English, Asian	
18093	0630+	091092	AC3	Old type WX fax D Sp 120 rpm	5
Note; easily recognised as "A squeaky wheel" listed as LRD 84 Buenos Aires, Argentina					
18125.5	0930	280992	A1a	"MBW QSA" slight key clicks	
18126.5	0800+	071092	"	Poor op. PWTY calling ZQWX	3
18140	1237	031092	mxd	M/East B/C, FM + A3E CIS	10
18165	1301	071092	F3E?	ID "Radio Armenia International" with news in English. Transmx observed down to 18127 kHz CIS	
21001	0500+	290992	NON	no ID, more info please	16
21031.5	0415	230992	F1b	UMS(MNR) 250 Hz + A1a 5 fig plus WX report, CIS	32
21083	0600	071092	A3e	B/c not in English, no ID	3
21115	0545+	241092+	A1a	CQ DE P7A QTC unhrd freq since 300992	8
21325	0500+	280992+	"	P8S DE P7A QSA?	10
21369	0530	091092	F1b/A1a	ID AS "VVH"	3
21450	0630+	230992	A3E	Radio Moscow-Yerevan (Armenia) program to Africa CIS	31
21445	1126	011092	"	B/c V + mus/2nd stn zero beat under transmx at same time, this wins friends!	
24950	0300	071092	A3e	Radio Peking 5th harmonic of 4.990 MHz	15
24978 also				Very unstable A3e stations extend from 24895 to 24999	12
24896					
28515	0947	041092	A3e	B/C Middle East no ID	
20 m jammers observed on 14119 @ 1218z on 221092 4 kHz wide					
PON "Motor Boat" type up to 30 kHz wide from 21100 to 21300 kHz					
Observers this month : VKs 4AKX, 4BHI, 4BTW, 4BXC, 5TL, 5LG, 6AJ, 6RO, 6XW. ar					

# Over to You

All letters from members will be considered for publication but must be less than 300 words. The WIA accepts no responsibility for opinions expressed by correspondence

## VI3SAC Not the First

I noted in the October 1992 AR magazine that the Caulfield District Scouts have special call VI3SAC allocated to them. This is not the first time that a Scout group has been allocated a special call.

On the weekend of 10 and 11 November 1990, the Mount Keira Scout Camp near Wollongong NSW held its 50th anniversary. First Keiraville Scout Group obtained the special call VK2KEIRA for the weekend (try reading that in phonetics during a CQ!).

Publicity was non-existent due to the last-minute allocation; HF propagation was pathetic; and the geography markers VHF and UHF working difficult. My log shows seven contacts, of which only one was simplex. Still, we did have the callsign and QSLs.

Can anyone pre-date this allocation of a special call to a Scout group?

Graham Denney VK2GID@VK2XGJ  
2/2a Macquarie Street  
Wollongong NSW 2500

## Murphy in the Covers

Murphy's done it again, but this time with a little bit of originality. Usually his efforts cause all kinds of trouble, but this time he made me smile. I refer to his interference with the typographer in the October issue of AR, which arrived in the mailbox this week.

He tries to kid us that old Sam Morse was a grander old man than we realised: "... Samuel F B Morse, 1791-1991" (page 6). Then he gets a bit risqué (on page 31) and tells us that we should take three-second breaks (when we are) between the covers. Really, Murphy, I think we know our own limitations in the boudoir.

In these days of political gloom, I think our politicians should take a look at Poland. According to Murphy (page 36) that country's PZK, equivalent of our WIA, has introduced an "amateur union policy". If we could get such a thing into Canberra, who knows ...?

Alan Roocroft VK5ZN  
505a Milne Road  
Ridgehaven SA 5097

## Don't Ditch a Treasure

For months I have been following the discussions about a name change for the Institute and I wish I could regard it as a bit

of a banter, but it seems to have become too serious to dismiss it as such. Then I read the heartening and refreshing letter from Lloyd Butler in the October 1992 journal and I was delighted. I hope there are a great many amateurs out there who think alike. Please voice your opinion before any harm comes to a respected, world-renowned (in amateur circles) perfectly fitting name which no other organisation in the field has, or can have, having been so since the organisation's inception way back. And, please, someone tell me, what is wrong with the word "wireless"? Is there one single mode in amateur radio communication which is not wireless? Please, let us not ditch a treasure. It is one which NO-ONE ELSE has.

Jeroen Vette VK4AJV  
Lot 5 McAuliffe Road  
Hillsdale via Kingaroy Qld 4610

## HMAS LEEUWIN 50th Anniversary

A reunion is proposed for ex-crew members and families of HMAS LEEUWIN to commemorate the 50th anniversary of her commission.

My brother-in-law Ken Taylor of Sydney, NSW, served on her, and I have volunteered to find crew members. The reunion is in Brisbane in August 1993, and possibly Cairns.

It is hoped that the Australian Government and US Navy will be involved as well. Newsletters and more information will be to hand as we progress.

Thanking you. Best 73.

Joan Wallace VK4BJE  
26 Kuranga Av  
Southport Qld 4215

## Thank You

Thank you for the item "A Packet of Packet" in your October issue of AR.

I am in the process of building up some of the items required for packet operation, but I have had no contact or association with this mode, and am looking forward to future contributions from Kevin Olds.

I hope they will assist me in familiarising myself with the general modus operandi of the packet system.

Best wishes,

George Moss VK6GM  
24 Michael Crescent,  
Boya, WA 6056

## QSL Cards

I have lately been receiving an increasing number of QSL cards with a computer printout confirmation stuck at the back of the card. In many cases the sender has not bothered to sign the card.

Apart from the fact that these cards may possibly not be considered valid, I object to being treated just as computer data; I have therefore decided not to answer such cards.

I wonder how many other amateurs feel about the absence of a little courtesy like a personal signature?

George Cranby VK3GI  
PO Box 22  
Woodend Vic 3442  
ar

## Murphy's Corner

A couple of good Murphys last month :-

1. He even made it into Hamads — the contact phone number in respect of enquiries for the equipment of the deceased estate of the late Bill Hehir VK3RE should read (053) 32 4011 and not as published. Apologies to the executor for any inconvenience caused.
2. The VI7AJT award, see page 36, QRM from VK7, the tom-toms are really beating on this one, it appears the qualifications for the certificate are; contact three (3) of the VI7AJT stations, and seven (7) VK7 stations. We published the original details correctly from the information received, and as the award qualifying conditions will be finished by the time you receive this, the VK7 Divisional Secretary has agreed that a cer-

tificate will be issued to any amateur who, in good faith, has attained the required contacts as previously published. Apologies from VK7. ar

**Support the  
WIA in order to  
protect  
amateur radio  
frequencies**

# Contests

*Peter Nesbit VK3APN Federal Contest Co-ordinator  
24 Sovereign Way Avondale Heights 3034*

## Contest Calendar 92/93

Dec 4/6 ARRL 160 Metre CW Contest  
Dec 12/13 ARRL 10 Metre CW/SSB Contest  
Dec 26 to Jan 16 Ross Hull Contest  
Jan 1 Straight Key Night  
Jan 2/3 ARRL RTTY Roundup  
Jan 16/17 WIA VHF/UHF Field Day Contest  
Jan 16/17 HA CW DX Contest  
Jan 22/24 CQ 160 Metre CW Contest  
Jan 23/24 UBA (Belgium) SSB DX Contest  
Jan 23/31 ARRL Novice Roundup (all modes)  
Feb 13/14 PACC (Holland) CW/SSB DX Contest  
Feb 13/14 RSGB 160 Metre CW Contest  
Feb 13/14 Spanish RTTY Contest  
Feb 20/21 ARRL DX CW Contest  
Feb 26/28 CQ 160 Metre SSB Contest  
Feb 27/28 RSGB 7 MHz CW Contest  
Feb 27/28 UBA (Belgium) CW DX Contest

Welcome to this month's column, from your new Federal Contest Coordinator. Sincere thanks to Neil Penfold VK6NE for taking on this role over the last three years or so, in addition to his many other WIA commitments. Well done Neil.

For those of you who don't yet know me, I have been licensed for 28 years, and mainly work low band CW with occasional forays into SSB. Despite a modest station I greatly enjoy contesting, and find it to be an excellent incentive for station improvement.

My early days as a contester were spent as a teenage ham living at home with my mother who was (and still is) a keen gardener. Her ability to make things grow taller and greener than anyone else was amazing. For most of the year this was not a problem, and the garden and I co-existed quite well. However come November and my favourite contest (CQ-WW), the RF absorption characteristics of foliage took on a new and sinister meaning, especially when so much of it poked up into "my" antenna field.

A yearly ritual developed whereby I would volunteer to "prune" my mother's plants, whereupon she would issue threats about my fate if she found a single leaf missing. A standoff developed, which was usually settled by a commando raid on the garden whilst she was out shopping. Mind you I thought my pruning efforts were quite aesthetic, because nothing was touched at ground level. It was just that everything above 4m was chopped off, as if by a cruise

missile. Unfortunately my mother did not appreciate the horticultural effect as much as I did, even when I told her each metre of foliage was worth at least 10 dB, and that the only thing standing between me and contest champion was her garden. I would then beat a hasty retreat to the shack, hoping that things would settle down by the end of the contest. Upon staggering out when it finished, bleary eyed but content, my mother would usually take pity on me and the meal supply would recommence. Those were the days!

With the CQ-WW having been and gone, the temptation is to wind down over the Christmas break. However, don't forget there are some interesting contests in December and January, including two 160m DX contests, 10m and RTTY contests. New Year's Day sees the Straight Key "Night", and for VHFers there's the Ross Hull and VHF/UHF Field Day. Who said there's nothing to do!

Please forward material, suggestions etc. to me at the above address, at least five weeks before the month of issue. Until next month, good contesting!

73  
Peter VK3APN

## ARRL 160 Metre CW Contest

This contest runs from 2200z Friday to 1600z Sunday, Dec. 4-6. The object is to contact as many US and VE stations on 160m as possible. DX to DX contacts are not permitted for contest credit.

The categories relevant to VK are: single operator "low power" (up to 150W O/P), QRP (up to 5W O/P); and multi-operator single transmitter.

Exchange RST only; W/VE will send RST and ARRL section. Contacts are worth 5 points each. The final score is the number of points times the number of ARRL sections.

Indicate the multiplier in the log only the first time it is worked. Include category entered, station details, and a signed declaration that all rules were observed. Mail your log by January 4th to: "ARRL 160 Metre Contest", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring station in each category, in each DXCC country.

## ARRL 10 Metre CW/SSB Contest

This contest runs from 0000z Saturday to 2400z Sunday, Dec. 12-13. The object is to contact as many local and overseas stations on 10m as possible. The same station can be worked on SSB and again on CW for QSO points.

The categories are: single operator SSB only, CW only, or mixed mode; and multi-operator single transmitter, mixed mode.

Exchange RS(T) and QSO number starting from 001. W/VE stations will send RS(T) and state/province, and maritime or aeronautical mobile stations will send RS(T) and ITU region. Novice and US Technician stations will identify as /N or /T respectively.

A maximum of 36 hours operating time is permitted out of the 48 hour contest period.

Contacts are worth 2 points on SSB, 4 points on CW, and 8 points with Novice/Tech stations on CW. The multiplier equals the total of the US states, Canadian provinces (NB, PEI, NS, VE2-8, VO1, VO2, VY1), DXCC countries, and ITU regions (1, 2 and 3). The final score equals the total number of points times the multiplier, per mode.

## A Call to all Holders of a Novice Licence

Now you have joined the ranks of amateur radio, why not extend your activities?

The Wireless Institute of Australia (NSW Division) conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a successful conclusion.

For further details write to:

The Course Supervisor  
WIA  
PO Box 1066  
Parramatta NSW 2124  
(109 Wigram Street, Paramatta)  
Phone: (02) 689 2417  
Fax: (02) 633 1525

11am to 2pm Monday to Friday  
7 to 9pm Wednesday

Indicate the multiplier only the first time it is worked. Dupe sheets are required for logs with 500 or more QSOs. Include category entered, a signed declaration that all rules were observed, and mail your log by January 15th to: "ARRL 10 Metre Contest", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring stations in each category, in each DXCC country. The usual disqualification criteria (violation of rules, excessive duplicate contacts, etc.) will apply.

### **ARRL Straight Key Night**

This runs from 0000 to 2359z on New Year's Day, Friday Jan. 1, and is a yearly activity period for stations using a straight key only. Suggested frequencies on 80, 40 and 20 metres are 60-80 kHz up from the band edge.

Use "SKN" instead of RST in the exchange, to indicate to other stations you are using a straight key. This is not a contest, serial numbers are not exchanged, and rag-chewing is encouraged.

Send a list of stations worked plus your vote for best fist heard, most interesting contact etc., by January 8th to: "ARRL SKN", 225 Main Street, Newington, CT, USA 06111.

### **ARRL RTTY Roundup**

This contest runs from 1800z Saturday to 2400z Sunday, Jan. 2-3.

The object is to contact as many local and overseas stations as possible on Baudot, RTTY, ASCII, AMTOR, and/or packet. More than one digital mode may be used, but QSOs and multipliers are counted once only regardless of mode.

The bands allowed are 3.5-30 MHz, on frequencies recommended for digital operation (no 10, 18 or 24 MHz). The categories are single operator, single band or multi-band; and multi-operator single transmitter multiband.

Exchange signal report and QSO number. W/VE stations will send signal report and state/province.

A maximum of 24 hours operating time is permitted out of the 30 hour contest period. Two rest periods must be taken in two separate blocks, and the on and off times clearly marked in the log. Each rest period must be at least 15 minutes. Listening time counts as operating time.

Contacts are worth 1 point each. A station may be worked once on each band for points credit. The multiplier is the total of the US states, Canadian provinces, and DXCC countries worked. KH6 and KL7 are countries; VO1 & VO2 count as one VE province. Multipliers are counted only once, not once per band. The final score is the total points times the multiplier.

Indicate the multiplier only the first time it is worked. Dupe sheets are required for logs with 200 or more QSOs. Include category entered, a signed declaration that all rules were observed, and mail your log by February 5th to: "ARRL RTTY Roundup", 225 Main Street, Newington, CT, USA 06111.

Certificates will be awarded to the top scoring stations in each category in each DXCC country.

### **WIA Ross Hull Memorial VHF-UHF Contest 1992 — 1993**

by John Martin VK3ZJC

This year's contest will begin on Saturday, December 26, and run until Sunday, January 17, to again allow three full weeks and four weekends. Due to the lack of complaints last year, there have been no major rule changes!

The 1800 UTC start for each contest "day" has been retained, so that contest days will correspond to local days. The 1800 UTC start is 0500 local summer time in the eastern states or 0200 local time in WA. Times in your log should be in UTC. If you use UTC dates, the first contest day would be December 25/26. Using local dates, this would be December 26/27. Either is acceptable — just mark the date column in your log "UTC" or "local".

I would like to repeat last year's request to keep the DX calling frequencies clear as much as possible. Last year a number of DX contacts were missed — especially on 2 metres — because interstate stations could not fight their way through the QRM. Hopefully this year will be different! If you make contact on the calling frequency, please move somewhere else to chat or exchange contest numbers. I again suggest a frequency of .150 on each band for contest working — further up the band would be better still.

On six metres, the international DX calling frequency (50.110 MHz) must not be used for contest exchanges, and I will not accept logs from stations heard exchanging numbers on 50.110 MHz. I suggest 50.150 MHz and above — for local contacts 52 MHz would be even better.

Once again the VHF-UHF Field Day will coincide with the last weekend of the Ross Hull Contest. The contest exchanges have been made the same for both contests (except for the locator square required for the Field Day). A single contact can be entered in both logs. More details below.

I wish everyone good luck in the contest, and I hope everyone who participates will send in a log. Even a check log will do — just to show that VHF DX operation is still alive and well!

### **Ross Hull Contest 1992 — 1993: Rules**

The WIA maintains a perpetual trophy in honour of the late Ross Hull and his pioneering achievements in the VHF-UHF field, especially the discovery and investigation of VHF tropospheric propagation. The name of each year's contest winner is engraved on the trophy, and he/she will receive an attractive wall plaque and certificate. Other certificates may be awarded to top scorers in the various divisions of the contest.

The contest is not confined to WIA members.

### **Duration**

1800 UTC Friday, December 25, 1992 to 1800 UTC Sunday, January 17, 1992. In Eastern Summer Time that is 5 a.m. Saturday, December 26, to 5 a.m. Monday, January 18.

### **Sections**

A. Multiband. B. Single band. All entrants will be scored for both Section A and Section B.

### **General Rules**

All bands above 30 MHz may be used. Single operator only. One contact per station per band per contest day. Crossband contacts, repeater contacts and satellite contacts are not permitted. Contest exchanges should not be made on recognised DX calling frequencies. Entrants may operate from any location.

### **Contest Exchange**

RS (or RST) numbers plus a three-digit serial number. Serial numbers may be cumulative or begin again at 001 at the start of each contest day. Maidenhead locator numbers may be exchanged as an aid to distance calculation.

### **Scoring**

One point per 100 km or part thereof (ie up to 99 km: 1 point, 100 — 199 km: 2 points, etc). On 6 metres only, as above but up to a maximum of 10 (ten) points per contact.

Scoring will be based on the best seven contest days (ie 1800 — 1800 UTC) on each band, as nominated by the entrant. The seven scoring days may be different for each band.

### **Band Multipliers**

6 m 2 m 70 cm 23 cm 2.3 GHz Higher  
x 1 x 4 x 7 x 10 x 13 x 16

## Logs

Logs should cover the full contest period. Distance estimates need only be made for the seven chosen days on each band. Separate logs for each band would help, or alternatively common logs with separate score columns for each band.

Logs must contain the following for each contact:

- Date (UTC or local) and UTC time.
- Station location (if operating portable).
- Callsign of station worked, band and mode.
- Location or Maidenhead locator of station worked (if not QTHR).
- Reports and serial numbers sent and received.
- Estimated distance worked and points claimed.

The contest manager reserves the right to correct distance estimates on the basis of computer calculation, and his decision will be accepted as final.

## Cover sheet

Logs must be supplied with a cover sheet containing:

- Operator's callsign, name and address.
- Station location (if different from the postal address).
- A scoring table set out as the example below.
- A signed declaration that the station has been operated in accordance with the rules and spirit of the contest.

## Deadline

Logs must be received by Monday, February 1, 1993. Early logs would be appreciated. Post logs to: WIA Ross Hull Contest Manager, PO Box 300, Caulfield South, Vic 3162.

## Disqualification

The normal rules apply. Entrants may be disqualified if there is evidence that claimed contacts were not made, or if logs are in-

## Sample Scoring Table

Ross Hull Contest 1992 — 1993: Log of VK0XXX

6 metres		2 metres		70 cm		etc.	
Date	Score	Date	Score	Date	Score	Date	Score
Dec 29	xxx	Dec 27	xxx	Dec 29	xxx		
Jan 7	xxx	Dec 31	xxx	Jan 6	xxx		
Jan 10	xxx	Jan 6	xxx	Jan 9	xxx	etc.	
Points	xxx		xxx		xxx		
Mult	x 1		x 4		x 7		
Total	xxx +		xxx +		xxx =	xxxx	

(GRAND TOTAL)

Note on Calculating Distances

Absolute accuracy is not needed. All you need to know is whether the distance is above or below the nearest multiple of 100 km. An easy method is to use a compass to draw 100 km circles around your location on a map. Better estimates can be made from six-digit Maidenhead locators, using simple computer programs published in De-

complete or illegible. Persistent use of DX calling frequencies for contest exchanges may lead to scoring penalties.

## Awards

The overall winner will be the top scorer in Section A. Awards will also be made to the top scorers on each of the following bands: 6 metres; 2 metres; 70 cm; 23 cm; 13 cm; microwaves (bands above 3 GHz).

ember 1990 and January 1991 "AR". A more accurate and fully error-trapped version of this program (IBM only) is available from John Martin, VK3ZJC (QTHR), if you send a floppy disc (any format) in a mailing box, together with return postage.

ar

# Pounding Brass

*Gil Griffith VK3CQ 7 Church Street Bright Vic 3741*

## A History of the Australian Telegraph, Part 1

Eight years after Samuel Morse sent his famous first message, "What hath God wrought", in May 1844, news of the discovery of gold in Australia reached America. The young Irish-Canadian entrepreneur, Samuel Walker McGowan, then 23 years old and having been taught telegraphy by Professor Morse himself, heard the news and eventually arrived in Melbourne early in 1853 on the ship, *Glance*, bringing with him several sets of Morse instruments, batteries, insulators and a first class electrician. He captured the interest of investors with public demonstrations of working Morse apparatus in June 1853.

In September 1853 the Victorian government called for tenders for the construction of an experimental 11 mile line between

Melbourne and Williamstown. McGowan won the contract and a fellow Canadian, William Henry Butcher (later to become superintendent of telegraph works in Queensland) built the first Australian line using local timber and imported galvanised iron wire.

In March 1854 McGowan was appointed general superintendent of Victoria's newly created Electric Telegraph Department and two days later the first line was opened for service. The Melbourne end of the line, situated on the corner of William Street and Little Bourke Street, employed a staff of 5 under Samuel McGowan, consisting of one morse operator, 2 messengers, a line repairer and an instrument fitter. The Williamstown end staff consisted of the station master and a messenger. In the first year of operation 4000 telegrams were sent, increasing to more than 12,000 within two years.

In that same year, 1854, offices were opened in Geelong and Sandridge, followed in 1855 by the telegraph office at Queenscliff and in 1856 offices at Bendigo and Ballarat and 1857 one in Castlemaine.

The opening of the telegraph office at Geelong was to coincide with the Eureka riots, and the first news of the Ballarat upheavals was flashed from the new office to Melbourne on 6th December 1854.

The rate of expansion was enormous, with new lines and more stations opening all the time. The main telegraph office of Melbourne moved from its original site to the Hall of Commerce in 1857 (site of the old Stock Exchange) and again in 1859 to the corner of William Street and Flinders Lane. In 1872 it again moved to the post office at the corner of Elizabeth and Bourke Streets, with McGowan being appointed inspector of the postal and telegraph service when the two departments merged in March 1869. He was appointed to the post of deputy postmaster-general in 1885, and died in 1887.

Meanwhile in the colony of South Australia, Charles Todd was appointed the first superintendent of telegraphs, arriving in Adelaide in November 1855. The same day,

a private contractor, James McGeorge, opened a line between Adelaide and its port using his own imported equipment. Tbbd completed his own line to Port Adelaide (nine miles) and beyond to Semaphore, which opened two months later on 18th February 1856. James McGeorge's earlier line was bought by the South Australian government in 1856 for 80 pounds, and dismantled.

In Tasmania, William Henry Butcher (who built Australia's first line) won the contract to build a line from George Town to Launceston (40 miles), to Hobart (120 miles), to Mount Lewis (20 miles) with a quote of 12,000 pounds. The first telegram was sent over the line on 8th July 1857 by Mr E S Chapman of the Australasian to Mr Davies of the Mercury, and was officially opened to public traffic a month later.

William Butcher was the colony's first superintendent of telegraphs in Hobart, and his brother, G B Butcher, was in charge of the Launceston office.

By 1861, only 6 years after the introduction of the telegraph to Australia, the four colonies of South Australia, Victoria, New South Wales and Queensland were linked by a line which was built entirely with hand hewn poles spaced every few hundred yards. The line from Melbourne to Adelaide had been joined by July 1858.

The line linking Melbourne and Sydney via Beechworth, Albury and Gundagai was completed by November the same year. In 1859 a submarine cable was laid to join Victoria and Tasmania, but it failed after only two weeks and was abandoned in 1861.

The final barrier, the Nullarbor, was conquered after nearly two years of building, on 8th December 1877. It had nine repeater stations which were manned stations staffed by telegraph operators who relayed the weakened messages on their way. The most famous of these stations was Eucla, where the two colonies' networks met. Here a long table separated the operators, who, because of the different code used by the two colonies, would decode the message and pass it on to their counterparts through a hole in the partition for further transmission.

To add to the confusion, the two parties kept to their own time zones with clocks showing times ninety minutes apart.

(to be continued.... material from Telecom Publicity)

### Modern Uses of Morse Code

I have seen a mention of morse code being used on a cash register as warning codes of "XXX" and "OK" in *Morsum Magnificat* by G3GSR.

Many film buffs will remember the RKO Radio Picture logo that features the use of the code.

The latest discovery which was pointed out to me by my own children can be heard by anyone with the full Wolfenstein 3D games and a soundblaster card fitted to their computer. In the background one hears the message at high pitch and about 15wpm which says, "TO BIG BAD WOLF DE LITTLE RED RIDING HOOD ELIMINATE HITLER IMPERATIVE COMPLETE MISSION WITHIN 24 HOURS OUT". I had to listen to about three repeats as the noise of all the fighting and dying makes copying the code quite difficult.

I would be interested to hear of any other occurrences of the use of Morse code in these times, so if you come across any examples, please let us know.

### Morsum Magnificat

... The Morse Magazine  
Issue No 24 — Summer 1992  
Reviewed by Evan Jarman VK3ANI

*Morsum Magnificat* is a quarterly publication for the Morse code devotee. Its aim is to provide international coverage of all aspects of Morse telegraphy, past present and future. However it seems to be aimed at those Morse operators who are fond of remembering, for there are certainly plenty of memories. There are articles on Morse

code operation on railways, ships and in the military. *Morsum Magnificat* included current news such as the annual Alice Springs/Canberra Morse telegraph circuit, reviews of new equipment, discussions of operating procedure, letters, contest information and even a poem. It seems to be tailored to the person who just can't get enough Morse code by simply operating.

An article on Alfred Vail was welcome for few know of his work with Morse and how much of the creation of Morse code was indeed the work of Alfred Vail.

The letters section for example went for six pages and the diversity of topics discussed is impressive. Did you know that after the second world war one general had a victory message engraved in Morse code on his teeth or that the television program "Inspector Morse" musically spells out MORSE in the program theme. If you need more Morse or information about it than you can get on the air then *Morsum Magnificat* could be for you.

*Morsum Magnificat* a 48 page (210mm by 145mm) magazine, is published quarterly for a current annual charge of 9 pounds sterling. The publisher is: CC Arnold Partners  
9 Wetherby Close,  
Broadstone DORSET BH188JB  
ENGLAND

ar

## How's DX?

*Stephen Pall VK2PS PO Box 93 Dural NSW 2158*

The other day, the August 1937 issue of "The Australian Radio World" passed through my hands. A short article titled "Ham Jargon" by D E Evans caught my eye. The author was trying to explain to the uninitiated the meaning of some special expressions used at that time by radio amateurs. Expressions like "signal squitter", "Johnson Q", or abbreviations like "BLV", "CKS", "CPSE", "MO", "OW", "RAC" were explained.

I wonder who will explain the present-day expressions of "packet", "RAM", "node", "remote", "ports", "terminal", "dummy", "log" to the readers in year 2050?

But there were some expressions which did not change. Page 39 of the magazine is headed by the title "The All Wave All World DX News", and there was even an "All Wave All World DX Club", the address of which was 214 George St, Sydney. You could become a life member of that club for the princely sum of three shillings and sixpence, which translates into today's lan-

guage as 35 cents. Good old days . . . and a Merry Christmas to you all!

### Wills Island — VK9W

Jim VK9NS, Kirsti VK9NL and Atsu VK2BEX made over 18,000 contacts on CW, SSB and RTTY. The callsign used by Jim and Atsu was VK9WW and Kirsti used VK9NL/W. It was an all-bands 160m to 6m activity, from 12-19 October. QSL for VK9WW goes to HIDXA, PO Box 90, Norfolk Island 2899, Australia. VK9NL/W cards go in a separate envelope to Kirsti at the same box number at Norfolk Island.

### Trindade — PYOT

The correct spelling of this island's name is Trindade, not Trinidad. Trinidad is the Caribbean island state of Trinidad and Tobago (9Y) in the Antilles just north of Venezuela. Trindade Island, on the other hand, is one of the three island groups in the Atlantic Ocean belonging to Brazil. The others are Fernando de Noronha (PY0F)

and St Paul and St Peter Rocks (PY0S). The island lies almost in the middle of the Atlantic Ocean and is part of the Martin Vaz group and the approximate co-ordinates are 30 degrees W and 20 degrees S. Alberto PY3ASN was active on the rocky island of Trinidad whilst on a scientific mission for two months in October and November, with the callsign PY0TSN. Due to propagation patterns and geography, this very rare DX country is most difficult to work from the VK/ZL area.

A net operation would be ideal, but it is known that Alberto does not like nets or lists, which make a possible contact even more difficult. Bill VK4UA and Remi VK8CP and a very large group of hopeful VK and ZL DXers were holding almost a constant vigil around the 14190 frequency at about 07:30 UTC for weeks, with very little result. A few VKs and ZLs made the difficult journey to the island, the rest of the 100 or so hopefuls, including your scribe, were in the large group of "no contacts". However, as a side bonus, Andre PY0FF on the island of Fernando de Noronha appeared on the frequency one day, and made many VK/ZL operators very happy with their "first" contact.

The frequencies on which Alberto was heard in our area were 14190 and 21290. QSL for PY0TSN goes to his home call PY3ASN, direct only with SAE, two IRCs of \$US1, to Alfredo S Miranda, Ave Bento Goncalves 536/301 90650-000, Porto Alegre, RS, Brazil.

### HA5BUS — VK5BUS

The "bus" and its crew left Australia at the end of October. The bus was shipped to Los Angeles, USA, and the expected arrival date of the ship is in the second part of November. The crew flew out of Sydney on 31 October. Whilst in Australia, they made a quick tour of Canberra (VK1), Melbourne (VK3), Adelaide (VK5), Alice Springs (VK8), Queensland and Brisbane (VK4) during September and October. In Sydney they visited the station and transmitting facilities at VK2WI Dural, and the bus was inspected by the few VK2 amateurs who took the trouble to call on them in person whilst they were at Dural.

The future callsign in the US is not yet known; do not expect any activity from them before the beginning of December.

### Slovenia — S5

During the recent CQ World Wide SSB Contest quite a number of new prefixes popped up. Among them many from the new Republic of Slovenia. Slovenia (the most north-western part of the former Yugoslavia) has converted the old YU3 callsigns into the following groupings: 1. Two-letter suffixes: S51 (ex-YU3), S52 (ex-YT3),

S53 (ex-YZ3), S54 (ex-4N3), S55 full HF licence.

2. Three-letter suffixes: S57 HF Novices (ex-YZ3 and 4N3), S58 Radio clubs (ex-YU3), S50 Special callsigns reserved for "organisations".

The callsigns in use in territories of what is left of the former old Yugoslavia, now often called "New" Yugoslavia, is as follows: Serbia (YU1), Montenegro (YU6), Vojvodina (YU7) and Kosovo (YU8).

This leaves two more independent republics — Bosnia-Herzegovina (YU4) from where, due to hostilities, there is no activity, and Macedonia in the south near the Greek border with the callsign YU5. The DX Advisory Committee (DXAC) of the ARRL is recommending the re-grouping of the former YU callsigns into various "new" DXCC countries. However, a final decision cannot be expected in this matter before the beginning of the next year.

### Eritrea — 9E A new DXCC country?

Carl WB4ZNH and his XYL, Martha WB4FVU, operated recently from the "independent" Eritrea with the unusual callsigns of 9ER1TB and 9ERITA respectively. Eritrea is located on the Red Sea, and was administered by Britain from 1945 to 1952. In November 1952 the legislature of the country decided that Eritrea became part of Ethiopia and lost its status as a separate DXCC country. When the rebel forces which ousted the previous Ethiopian regime took control of Ethiopia in July 1991, the Province of Eritrea won the right to seek independence. A UN-supervised formal referendum will be held in May 1993 to legalise the independent status. There is hope that another DXCC country will be added to the list next year.

### Future DX Activity

- Late 1992 or early 1993 PA3CXC intends to be active from South Sudan as 6U0XC and from Rwanda as 9X5CX, for three weeks only from each location.
- Mirek VK2DX will be active from Singapore as 9V1XE till the end of the year. QSL to DL4DBR.
- John XQ0X will be active from San Felix Island for about four months. QSL to CE3ESS.
- Duane W6REC is active from McMurdo Antarctic Base as KC4AAF until 1 February 1993.
- According to the DX News Sheet, plans are well under way to activate Baker & Howland Islands (KH1) at the end of January.
- JK1ABF will be active until 14 January on all bands from Miami Toroshima as JA9IPX/JDI on the usual HF bands and as JK1ABP/JDI on the WARC bands.
- For the IOTA island number chasers, Koh Samui Island offers a challenge. A short DXpedition is planned with the callsign E28DX for 10-12 December.
- There are plans to organise a multi-operator DXpedition to Equatorial Guinea (3C) in January next year.

### Interesting QSOs and QSL Information

- Note: callsign, name, frequency, mode, UTC, month.
- 6W7JS-14023-CW-0600-October. QSL to F6FNU Antoine Baldeck, Box 14, F-91291 Arpajon, Cedex, France.
  - YJ0B-14042-CW-1000-October. QSL to SM5LNE Jan Skoldin, Rettarv 18, S-73600, Kungors, Sweden.
  - CN8FR-Idres-14243-SSB-0719-October.



"Dusty" ZL2VS, well known DXer, and one of the net controllers of the "222" net on 14.222 MHz.

QSL to PO Box 990 Fes, Morocco, Africa.

- HC8A-Rich-14222-SSB-0336-October. QSL to WV7Y Betsie D Townsend, PO Box 644, Spokane WA 99210, USA.
- PY0FF-Andre-14180-SSB-0814-October. QSL to W9VA William B Smith, 1345 Linden Ave, Deerfield, IL 60015, USA.
- V51HL-14275-SSB-055-October. QSL to W3HNK J Acure, Box 73, Edgemont, PA 19028, USA.
- ZK2XX-Marcel-14195-SSB-0555-November. QSL to ON4QM Marcel Dejonin, Evererst Raat 130, B-1940, Sint Stevens, Woluwe, BT, Belgium.
- VK8SEA-Steve-14226-SSB-1140-November. QSL to Darwin ARC, PO Box 37317, Winnellie, NT 0821.
- HL9WW-Willie-14237-SSB-1109-November. QSL to WA1GUD Warren C Ely, 4306 Corona St, Tampa, FL 33629, USA.
- VI7AJT-Frank-14226-SSB-1228-November. QSL to VK7 Bureau.

### From Here and There and Everywhere

- Les VK4DA is on the mend after a fall which damaged his lower spine.
- The results of the 1991 WADEC (the 37th European DX Contest) show that the Oceania Continental winner in the CW section was VK2DXI/9M8 with 580,339 points, and the Australian winner was VK2APK with 371,184 points. In the SSB section, Australia had only one entry, VK2APK with 123,414 points.
- HA92ITU was active until 30 October. QSL to HA5NK via the Bureau.
- The reason why one does not hear visiting foreign amateurs operating in Singapore is that no temporary operations are allowed. You must be a resident and wait 90 days before your application is dealt with. Maximum operating power is 100 watts.
- Thailand is rapidly running out of the HS prefixes, due to the large number of amateurs on VHF and UHF. The next likely prefix to be used by Thailand will be E2.
- Constantly rising postal charges are creating difficulties for direct QSLing. An ordinary air mail letter from Germany to Australia costs at least DM2.70, which translates into \$A2.55. According to various reports, the LABRE (Brazil) QSL Bureau has stopped sending out cards due to high postal costs.
- Saif S21A has made more than 3500 QSOs since he received his licence, mostly with Europe and Japan. He can be heard on 14256kHz at around 1735 UTC.

- YV500EA, the Venezuelan station was active in October, celebrating the 500th anniversary of the discovery of the Americas. QSL to YV5ARV.
- The RSGB DX News Sheet announced the first World Wide Islands on the Air Contest to take place from 1200 UTC Saturday 24 July to 1200 UTC Sunday 25 July 1993. The aim of the contest is to promote contacts between IOTA stations on accepted island groups and the rest of the world.
- For contacts with DU8DX, UX0AA and XU0JA, QSL Manager JA1NUT requests DXers to use the bureau and do not QSL direct.
- The Laccadive Islands were active during October, with the callign VU7DVP and VU7CVP on 15, 20 and 40m bands.
- On 25 October VK1, VK2, VK3 and VK7 began using Daylight Saving Time, which is now called Eastern Summer Time. However, not all the Australian states followed this example. It is a ridiculous situation; Australia now has five different time zones until March next year, when daylight saving ends. At present VK4 is one hour behind, VK5 is half an hour behind, VK8 is one and a half hours behind, and VK6 is three hours behind their eastern neighbours. You might be interested to know that as we in Australia advanced our clock forward one hour, many time zones in the northern hemisphere shifted back one hour as summer time ended there. As a result, the following time zones relative to Eastern Summer Time are as follows: (note: — = minus) Britain -11 hours; Europe -10 hrs; South Africa -9 hrs;

Hong Kong -3 hrs; Tokyo -2 hours; PNG -1 hr; US West Coast -19 hrs; US East Coast -16 hrs; NZ +2 of VK2 Eastern Summer Time. Due to these changes there is no doubt that quite a number of amateurs, when QSLing, are confused with the correct UTC date and time. Some dates on cards are out by one day, but a two-day difference is not rare. Of course, there are those DXers (inexperienced? Confused? Or just plain ignorant?) who use local time and local date and who will complain when their card is returned with the comment "not in the log".

### QSLs Received from the Bureau

Note: W=week; M=month; Y=year; FM=from; MGR=manager/call; OP=operator/call.

GJ2LU (WY FM OP), M0RSE (1Y 6M FM G3RTE), 3A2LF (1Y 9M FM OP), 4K4QQ (WY FM MGR RAIQX), ZF2PX (18M FM MGR I5JHW), KB5LRO/KH9 (1Y 2M FM MGR WA2NHA), ZS2JH (1Y 6M FM OP), QA4QV (2Y FM OP), CO2HQ (2Y FM OP), JP4DMX/HI8 (2Y FM OP).

### Thank You

Many of you must be busy with something else. This is the reason for the relatively small number of contributors to this issue. Special thanks to VK2BEX, VK2DEJ, VK2DID, VK4DA, VK4OH, VK5BUS, and the following publications: QRZ DX Bulletin and the DX News Sheet.

*Good DX and 73*  
ar

**Sign up a new WIA member today — we need the numbers to protect our frequencies and privileges.**

# QSLs from the WIA Collection

Ken Matchett VK3TL Hon Curator WIA QSL Collection

4 Sunrise Hill Road Montrose Vic 3765 Ph: (03) 728 5350

## Goa — Portuguese India

Goa, only an hour's flight from Bombay, lies about halfway down the west coast of India. A little over 500 years ago, the Portuguese navigator Alfonso de Albuquerque sailed nearly halfway around the world in mostly uncharted waters to found the former Portuguese enclave. Albuquerque became Portuguese India's first viceroy and established a thriving colony, Goa being a most important link for trade between Europe and the Far East. It was the administrative centre of Portuguese India. Remarkable examples of Portuguese renaissance style architecture still remain, which fact has made Goa a valuable tourist attraction. Possibly the most memorable thing about Goa nowadays is that it is the resting place of the famous Jesuit missionary, St Francis Xavier. Goa was one of many Eastern territories in which St Francis Xavier worked. Although he died on a small island off the Chinese coast, he was re-buried in Malaysia and re-interred in Goa. The body was finally laid to rest in a silver casket in the basilica of Bom Jesus as late as 1975. Every 10 years the basilica becomes the centre of a religious exposition. Despite being absorbed into the Republic of India in 1961, there still remain street signs in the Portuguese language as well as a sizeable Christian community in the area. In fact, approximately two-fifths of the Goan population are still Christians, the remainder being Hindu. Goans are proud of their cultural heritage and have to this day resisted attempts to integrate them into the bordering Indian societies.

## CR8AA

TO RADIO *VK3ZW* CW BY *405* ON *Q* (C) *USA* *3* S *T9*  
 QRH *4* *QRN* - *QAT* *QSH* *WX hot*

Transmitter *MOPA* Receiver *Regional*  
 Circuit *CR8AA* Circuit *Regional*  
 Inputwatts *20* Aerial *1/2* *1/2* *1/2*  
 Aerial *Windom* REMARKS

TNX FOR QSO OM OPE CUAGN BEST 73 DE  
 QRA - JOHN PIMENTA. PORT. INDIA  
 VASCO DA GAMA. GOA. TNX QSL DIRECT.

Goa first appears in country listings as early as the latter part of the 1920s. Even in the days of intermediates, the precursors of callsign prefixes (See AR Nov 1991), Goa was grouped together with India under the

intermediate AI. The letter A indicated the continent (Asia) and the letter I the individual country (India). In those days Australia had the intermediate OA (Oceania — Australia). Such intermediates became effective on 1 February 1927 but were replaced on 1 Jan 1929 by what we now know as callsign prefixes. All Portuguese colonies carried the prefix CR allocated from the international prefix block of CRA-CRZ. (Nowadays Portugal and its territories may use prefixes from the block CQA-CUZ). In the early 1930s the CR prefix was modified by the addition of a series of numerals which differentiated the various colonies. Thus Cape Verde carried the prefix CR4, Angola CR6, Portuguese India CR8, Portuguese Timor CR10 and so on. In the mid-1930s people were asking the question "What IS a country?" There were several lists of "countries" put forward by many amateurs, one of the best being the list from W9ADN, reproduced in the April 1935 edition of AR in an article by the late Bob Cunningham VK3ML. Portuguese India was suggested as a separate country. It should be pointed out that at that time Portuguese India included the territories of Daman (frequently spelled as the Portuguese Damao) and nearby Diu as well as that of Goa. Daman and Diu were to become one separate country to Goa at a later date. The last DXCC country listing before the Second World War (QST Jan 1939) listed Goa as CR8 but without any reference to Daman or Diu.

Both before WW2 and after, Goa was regarded as one of the rarest of DXCC countries. In the August 1954 edition of QST, a list of the most sought after countries was given. It was based upon a survey of the DXCC countries still required by the top DXers on CQ's DXCC Honour Roll. Of 70 listed countries, Goa ranked third just behind Seychelles and Albania. The QSL shown, CR8AA was sent to VK3ZW by John Pimenta for a QSO in October 1935. John describes his transmitter as MOPA (ie master oscillator, power amplifier) and the antenna as a Windom. This type of antenna enjoyed considerable popularity during the 1930s. It was a multi-band off-centred antenna consisting of a half-wave length cut to the lowest frequency to be used and employing a single-wire feeder. The Windom worked well on the even harmonic frequencies, but with the single-line feeder

some sort of antenna coupling system became necessary. More modern versions make use of twin lead and a balun which considerably reduce the amount of rf in the shack.

CR8AA must have been fairly active since it was reported under the heading "DX Notes" in the Jan 1936 issue of QST that W6CXW had QSOd the station who informed him that the latter had "made WAC", quite a reasonable achievement in those days, considering the low power used and the paucity of stations in both South America and Africa. The station was reported as having a T9 note on the 40m band.

## CR8AC

EX *CR8AL* "PORTUGUESE INDIA" WAC *DPV*

**CR8AC**

To *VK5W* Confirming our QSO on *3-72-1053*  
 Your RST *Phone/CW 589* Here at *34* QMT on *1* M.  
 Ura-Raul Fernandes-Box 32 Vasco da Gama.  
 Many Thanks for QSO on *3-72-1053*

There was little activity from Goa after the war. DXCC chasers were fortunate indeed that a Portuguese amateur CR8AC was operating in the late 1950s and early 1960s. Raul Fernandes had been active at an earlier date from the Cape Verde Is as CR8AL. His Goan QTH is given as Vasco da Gama, a small town within the former enclave named in honour of the Portuguese explorer who had opened up the new trade route around the Cape. The WIA Collection contains only one other post-war QSL card from Goa. This is HB90P/CR8 which was for a portable operation from the Goa airport. Received from the estate of the late Tom Mulder VK6MK, it is dated October 1959, and expresses thanks to Raul for the assistance given in the operation.

After the partition of British India in 1947, the new Indian Government demanded (but without success) the Portuguese withdrawal from Goa, Daman and Diu. There followed 14 years of guerrilla activity and border skirmishes. Finally the Portuguese capitulated on 18 December 1961. The April 1962 edition of QST announced that no further credits would be given for contacts with the Portuguese Indian colonies, effective from 1st January 1962. They then joined the growing list of deleted DXCC countries.

## Author's note

The first article on "QSLs from the WIA Collection" appeared nearly five years ago in the March 1988 edition of Amateur Radio. If you have enjoyed reading the stories

behind QSL cards and recognise this to be an important aspect of the history of amateur radio, perhaps you would add your name to the hundreds of amateurs who have given generously toward the WIA QSL Collection. As previously stated, although we particularly look forward to receiving rare DX QSLs, special and commemorative issues, rare prefixes, pre-war and pictorial QSLs, we do welcome donations of all QSLs. Your donation will receive a personal acknowledgment as well as an acknowledgment in AR. Please contact the writer, who

is also the honorary curator of the collection. Special arrangements can be made for the transport of large numbers of QSL cards. Will YOU help?

### Thanks

The WIA (Vic Div) would like to express its thanks to the following who have kindly donated QSLs to the collection. (Supplementary list)  
 Aubrey VK2AXT  
 Lay VK3CF  
 Fred VK3CFK

Errol VK3GG  
 Peter VK3QI  
 Andrew VK3WAB  
 Stan VK4LF (VK3TE)  
 Ray VK5DI  
 Mike VK6HD

Also to the family and friends of the following "silent keys" (Supplementary List):  
 Dave Richards VK4UG  
 Jerry Bahre VK4YB (courtesy of Stan VK4LF)  
 Tom Mulder VK6MK (courtesy of Jim VK6RU) ar

# VHF/UHF An Expanding World

Eric Jamieson VK5LP PO Box 169 Meningie 5264

All times are UTC

### Countries worked from Australia on six metres

Below is an amended list following advice from amateurs as the result of the list published last month. The list remains an interim list only and is subject to further alterations as they are made available. From now on only alterations will be advised until the final list is published. The total of countries worked now stands at 169.

It is encouraging that sufficient interest has been stimulated by this list for various amateurs to review their log books and QSLs in an endeavour to arrive at a correct list. If you have a date which corresponds with that listed, please advise this, along with the time of your contact. However, do not delay advising of adjustments as the exercise cannot be continued indefinitely.

Advance notice will be given as to the cut-off date for alterations, but this is likely to be several months down the track. The final list will contain the times of the various contacts — for the moment those times are confidential.

### Complete List — as amended at 31/10/92

Station	Date	Country	Claimed by
3D2AG	23/03/92	Rotuma Is	VK2QF
3D2SM	20/05/90	Conway Reef	VK4BRG
4STAVR	29/03/89	Sri-Lanka	VK6KXW *
4XHIF	01/04/91	Israel	VK9YJ
5HIHK	05/04/89	Tanzania	VK4BRG
5W1AU	05/04/82	West Samoa	VK4ZNC *
5Z4CS	28/03/82	Kenya	VK8GB
6W1QC	12/11/90	Senegal	VK4BRG
6Y5RC	28/03/81	Jamaica	VK4PU
7Q7JA	27/03/91	Malawi	VK6RO *
8P6JW	18/04/89	Barbados	VK2QF
8RIAH	02/04/89	Guyana	VK8RH
9H1BT	25/03/89	Malta	VK8RH
9K2ZR	03/04/92	Kuwait	VK6JQ *
9LIUS	08/10/90	Sierra Leone	VK4BRG

9M2DQ	26/09/88	Malaysia West	VK6BE *
9M8TA	13/08/89	Malaysia East	VK8ZLX
9N1BMK	02/05/79	Nepal	VK8GB
9Q5EE	06/04/91	Zaire	VK3OT
9V1ES	17/11/89	Singapore	VK8ZLX
9Y4LL	10/04/82	Trinidad	VK8GB *
A22BW	28/04/91	Botswana	VK6HK
A35JT	10/04/82	Tonga	VK4ZNC *
A45ZM	04/04/90	U.A.E.	VK8RH x/band
AH8A	19/04/81	Am. Samoa	VK2BNN
BY5RA	28/09/84	China	(SK)(KH8) VK8GB
C21AA	06/03/71	Nauru	VK4ALM
C6ANY	21/04/92	Bahamas Is	VK2QF
CE0DFL	24/04/90	Easter Is	VK4ZJB
CE3/KB6SL	14/10/90	Chile	VK4BRG
CN8ST	20/10/91	Morocco	VK8RH
CO2KK	16/04/89	Cuba	VK2BA
CR9AJ	24/09/78	Macau	VK8GB *
CT1BH	23/02/91	Portugal	VK8ZMA *
CU3/N6AMG	27/11/91	Azores	VK2QF
DLOS1	05/11/89	Germany	VK6JQ *
DU6/			
WB5LBJ	11/10/77	Philippines	VK8GB
E16AS	12/10/89	Ireland	VK8ZLX
EK0JA	20/04/92	Asiatic Russia	VK8ZLX (UA0)
ES5PC	29/01/92	Estonia	VK6PA
F9DI	13/10/89	France	VK8ZLX
FK8AX	15/12/78	New Caledonia	VK3AKK *
FM5WD	11/04/90	Fr. Maritimie	VK8ZLX
FO0CI	13/03/92	Clipperton Is	VK4DDC *
FO8DR	12/04/81	Fr. Polynesia	VK2BA
FW/W6JKV	23/03/90	Wallis & Fortuna	VK4ZJB *
FY5AU	30/03/89	French Guyana	VK4BRG
G4FJK	20/03/89	England	VK6KXW
GD3AHV	28/02/90	Isle of Man	VK6HK
GI4OPH	12/10/89	North Ireland	VK8ZLX
GJ4ICD	12/10/89	Jersey Is	VK4DDG *
GM4GDT	28/02/90	Scotland	VK6HK
GU2HML	01/11/89	Guernsey	VK4JH *
GW3LDH	12/10/89	Wales	VK8ZLX
H44DX	26/04/79	Solomon Is.	VK8GB
HBOAHB	13/10/91	Liechtenstein	VK6PA
HB9SJV	03/01/92	Switzerland	VK6PA
HC2BI	29/03/91	Ecuador	VK9YJ

HCSK	11/11/91	Galapagos	VK8RH +++
HH7PV	19/09/89	Haiti	VK2BA
H18WPC	02/04/89	Dominican Rep	VK2BA
HK0/W6JKV	28/03/92	San Andreas Is	VK4JH *
HK0/W6KV	04/04/92	Malpelo	VK4ZAL *
HK1JXV	19/03/90	Colombia	VK4ZNC *
HL9WI	20/10/74	Korea	VK4ALM
HP3XUH	25/01/89	Panama	VK4ZNC *
HRIWPK	02/04/90	Honduras	VK5RO
HS1WR	15/03/80	Thailand	VK9XT (VK30T)
I2CCD	03/03/91	Italy	VK8ZLX
IS0AGY	10/11/91	Sardinia	VK4JH *
J73PD	03/04/89	Dominica	VK4KJL +++
JAIHHS	22/01/86	Japan	VK4NG *(SK)
JDIADP	05/05/79	Ogasawara Is	VK8GB
JDIYAA	31/03/84	Minami Torishima	VK8GB
JT1CO	28/09/91	Mongolia	VK6HK
KC6IN	23/08/80	East Caroline Is	VK8GB (V63)
KC6SZ	14/10/79	Yap — W.Car.Is	VK4JH *
KG4SM	15/03/89	Guantanamo Bay	VK4PU *
KG6DX	04/03/78	Guam	VK8GB (KH2)
KG6RO	24/09/78	Saipan	VK8GB (KH0)
KH0/			
JJ1AEB	14/04/90	Mariana Is	VK5RO
KH1/VK9NL	03/04/88	Howland Is	VK4TL
KH3AB	28/03/81	Johnston Is	VK8GB
KH4AE	28/02/91	Midway Is	VK4BRG
KH5/WGHTH	17/04/81	Jarvis/Palmyra	VK5RO
KH6/WTACS	26/08/47	Hawaii	VK5KL
KH7/KH6JEB	23/03/90	Kure Is	VK9LE (VK30T)
KL7/WA4TNV	13/03/79	Alaska	VK2KAY
KP2A	26/03/89	Am. Virgin Is	VK3OT
KP4AAN	13/04/81	Puerto Rico	VK2DDG
KR6BU	20/03/51	Okinawa	VK9XK (VK4XA)
KX6AF	20/03/58	Marshall Is	VK4NG *(V73)
KZ5NW	/03/81	Canal Zone	VK4RO +++
LA3EQ	25/02/89	Norway	VK6HK
LU80B	28/04/58	Argentina	VK4NG *(SK)
LX1SI	27/10/90	Luxembourg	VK6JQ *
OAB8BT	12/10/90	Peru	VK4BRG
OESPAM	01/03/91	Austria	VK6JQ *
OH1PY	25/02/89	Finland	VK6KXW *
OK1DIG	08/02/91	Czechoslovakia	VK6PA
ON7YD	28/10/90	Belgium	VK6JQ *
OZ1LO	20/10/90	Denmark	VK4JH *
P29GR	23/11/75	Papua N.Guinea	VK4ZJB *
P43AS	26/03/89	Aruha Is	VK4KJL *
PAORDY	12/10/89	Netherlands	VK4ZJB *
PJ9JT	02/03/89	Curacao/Bonaire	VK4PU *
PYOFF	26/03/92	Fernando/Norona	VK6PA
PY5CC	20/04/91	Brazil	VK7IK
PZ1AP	30/03/89	Suriname	VK4BRG

S2IZE	11/10/92	Bangladesh	VK8RH+++
SM6PU	25/02/89	Sweden	VK6KXW*
SVIDH	17/10/89	Greece	VK8RH
T20AR	15/12/87	Tuvalu	VK2XJ*
T30DJ	28/03/89	Kiribati West	VK4PU*
T32AB	15/03/82	Kiribati East	VK2DDG
			(VK4DDG)
T33JS	19/05/89	Banaba Is	VK4BRG
T70A	21/10/91	San Marino	VK6JQ*
TC9AWS	28/03/89	Guatemala	VK2BA
TI2NA	26/03/81	Costa Rica	VK2DDG
			*(VK4DDG)
TL8MB	04/04/91	Central Africa	VK6JQ
VSIE	25/04/91	Namibia	VK6KXW*
VE7AQQ	08/04/59	Canada	VK2ADE
			(VK4QM)
VK0WW	10/12/72	Macquarie Is	VK2NN*
VK2BKE	05/01/75	Lord Howe Is	VK32NJ
			*(VK3AKK)
VK2BZ	05/12/48	Australia	VK7LZ*
VK9BW	25/04/58	T.New Guinea	VK9XK*
VK9XK	29/11/51	Papua	VK4BJ*
VK9XT	10/03/80	Christmas Is	VK8GB
VK9ZM	13/01/89	Melish Reel	VK2BA
VK9ZM	22/11/78	Willis Is	VK2BNN*(SK)
VK9ZNG	27/11/75	Norfolk Is	VK2ZRU
VK9ZYX	22/11/81	Cocos Keelings	VK8GB
VP1MT	13/04/79	Br. Honduras	VK5RO
VP2MO	01/04/89	Montserrat	VK2BA
VP2VGR	17/03/81	Br. Virgin Is	VK3OT
VP5D	25/03/89	Turks/Caicos	VK2QF
VR2BC	18/12/49	Fiji	VK2AH*
VS2DQ	19/04/58	Malaya	VK6ZAV*
VSSDX	26/11/80	Brunei	VK8GB
VS6AB	05/03/80	Hong Kong	VK8GB
VU2JPN	17/03/81	India	VK8GB+++
W6PUZ	14/03/58	USA	VK4HD*
XE1FU	01/05/59	Mexico	VK3ALZ
XF4L	14/04/89	Revilla Gigedo	VK2QF
YB9X	03/01/80	Indonesia	VK6OX
YJ8KM	01/11/76	New Hebrides	VK4ZSH
YO7VY	21/10/91	Romania	VK8RH
YSIECB	06/04/84	El Salvador	VK2DDG
			*(VK4DDG)
YU3EA	03/03/91	Yugoslavia	VK6JQ*
YV5/DL3ZM	19/03/81	Venezuela	VK2DDG
ZAI2J	27/10/91	Albania	VK6PA
ZBOT	22/10/91	Gibraltar	VK8RH
ZC4MK	31/10/90	Sov/Bases Cyprus	VK6RO
ZD7BW	21/03/81	St. Helena Is	VK4TL
ZD8TC	20/03/82	Ascension Is	VK4RO*
ZF2DN	28/03/81	Cayman Is	VK2BA
ZK1WL	28/03/89	North Cook Is	VK2QF
ZK1WZ	29/03/89	South Cook Is	VK4ZJB*
ZK2RS	29/12/82	Niue Is	VK2BA
ZK3KY	13/10/90	Tokelau	VK4BRG
ZL2DS	29/12/48	New Zealand	VK4HD*
ZL4OY/C	19/06/83	Chatham Is	VK2BA
ZL9TPY	21/01/90	Auckland Is	VK4BRG
ZM8OY	10/12/85	Kermadec Is	VK4PU*
ZP6XDW	28/04/91	Paraguay	VK4BRG
ZS6XL	29/04/90	South Africa	VK6RO
ZS9H	25/04/91	Walvis Bay	VK6KXW+++

The above list is copyright to Amateur Radio, VK5LP and VK3OT.

\* = change of details; +++ = added entry.

The above represents 56 changes to the original list and 6 additions.

As lists are published there are bound to be alterations, but please send the date and time of your claimed contact. Delete BV2DP or BV2DQ and EA8/G3JVL.

Please note: VK2DDG now VK4DDG, VK2ADE now VK4QM, VK2BNN deceased, VK9BP now VK8RH, VK9XK now VK4XA, VK9ZLX now VK8ZLX and VK3ZAZ now VK3OT. Thanks to VK2BBR, VK2QF, VK3AMK, VK3OT, VK4JH, VK4PU, VK4XA, VK4ZJB, VK4ZNC, VK5KL, VK5NC, VK6BE, VK6JQ, VK6KXW, VK6RO, VK7LZ, VK8RH for their assistance with the list.

The UK (G) Country Firsts at July 1992 totalled 138 with 128 showing details and 10 awaiting details. First contacts were made in 1947. The Netherlands Firsts at October 1992 totalled 138 countries, all made since 1/3/88 except for 11 which were made in 1981 — I presume there is a logical explanation for those earlier contacts. Source: UK Six Metre Group Newsletter.

### Tasmania

Received a nice letter from that well known old timer, Col VK7LZ who mentioned that he sat for his licence exam in November 1932! He said he has enjoyed many years of amateur activity.

Col received a major setback to his operating in 1984 when the Government acquired his home to make way for the main Hobart to Launceston highway. Following that disruption he did not re-erect his old towers. However, last September he came on six metres again, using his former four element beam and 50 watts and will be looking for Es contacts this year. In addition he enjoys working the satellites. Very pleased to hear from you Col.

### Lismore

Another letter I was pleased to receive was from Robert VK2BBR at Lismore. He mentioned the good contacts we had years ago on 52 MHz and is ever ready to QSY there for a chat. At the moment, his time is somewhat limited due to being in the fifth year of a six year university degree course in chemistry, and doing it by correspondence!

Robert's equipment consists of an Icom IC 575A, dual gate GaAsFET pre-amp and a 100 watt amplifier. This is attached to a stacked pair of 8 element LP yagis fed with 22 mm (7/8 inch) heliax, at a height of 15 m (50 feet) and 19.8 m (65 feet) respectively. This equipment has resulted in 64 countries being worked.

### San Andreas Expedition

This expedition from 1/4 to 13/4/92 resulted in 203 stations from 16 countries being worked on six metres. They were W4-22, W5-39, W6-38, W7-8, VK-25,

ZL-23, LU-24, CE-3, ZP6-1, KH6-2, XE-1, PY-7, ZK-1, 3D2-2, TI-3, FO-1, CX8-1, 9H1-1 and EA8-1. Callsign was HK0/W6JKV and Jim used an IC-575 plus amplifier, 10 element M<sup>2</sup> antenna at six metres. Jim also worked 21 stations on 144 MHz EME, using a TR-751 and amplifier, the antenna being a single M<sup>2</sup> 2M-5WL at three metres.

While on the subject of dx-peditions, the Clipperton Island (FO0CI) jaunt lasted for nine days from 6/3/92 and resulted in 48,000 QSOs! I have no advice how many of these were on six metres. There were seven complete stations with nine operators.

### Six metres in general

Lyn VK4ALM from Rockhampton, in a brief letter advising of three more confirmations for his place on the Standings List, said that up to 3/10 six metres had been quiet, including the absence of JAs. However, he had managed two QSOs with Louie HL9UH, now at Seoul. He was formerly KG6UH/DU1 and worked many VK stations.

John VK4ZJB from Brisbane, said that the last rare DX station he worked was UZ0CWW in April. The V73 and KH6 beacons have disappeared. The monthly Smoothed Mean Average is down to 118.7 which corresponds to a MUF of about 39.9

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MHz. Even the north-south TEP is not working normally so there have been few JA openings. However, John is not despondent, he said those who wanted to work six metres DX were well rewarded and will have pleasant memories of the last five years.

Steve, VK3OT from Hamilton, had a good TEP opening to Japan on 15/10 when he worked 5 stations. Even better were the results on 18/10 when he worked 40 JAs between 0335 and 0445, all signals being 5x9. Areas worked were 1,2,9,0. He also reported that on 7/10 at 1100, NI6E copied the VK3SIX beacon.

Geoff, VK3AMK from Frankston, sent in some interesting facts regarding the present six metres list. In response to a recent comment from me, Geoff writes and I totally agree that we, in Australia, have collectively done extremely well on six metres when you take all factors into consideration.

I think any of the European big guns would wonder what had hit them if they had to work a season or two under our limitations. What I think most VKs don't realise is that a lot of European "DX" is worked under similar conditions to typical VK-ZL, VK-JA propagation.

It's just simply a matter of so many active countries grouped in a similar geographic area where we have very few; eg compare say, our northern path, we have to go through about 30 degrees of latitude from Melbourne to reach our first country (P29). A GJ station doing the same thing looking south would have crossed the Mediterranean and be down around Mali etc. The Melbourne to Tokyo path is virtually identical in length to the GJ to Walvis Bay path. Enough said I think!

In stating the above, I am sure Geoff has no wish to denigrate the efforts of the European stations, but simply to place the matter in perspective. Personally, we are both very happy for the Europeans, that finally, after a long wait in the wilderness, they were granted 50 MHz and certainly put it to good use, proving at the same time that they could operate without causing widespread problems for other spectrum users. They also provided many contacts for VK stations.

### Bangladesh

Rex VK8RH in Darwin now has in his log what must be considered a "plum" contact, when he worked S2IZE on CW, at 1405 on 11/10/92. Rex was alerted by Andy VK8AH, who a few minutes earlier had heard S2IZE but was unable to complete a contact with the dx-pedition of JAIUTE and JAIUPA.

In a letter to VK3OT, Bill VK6JQ from Broome, says he heard the S2IZE (Bangladesh) beacon on 50.115 at 1258 on 8/10/92 RST 519 sending — S2IZE Pse Rpt .125 K — each minute.

Bill's equipment is a TS600 with an output power of 12 watts to a six element long yagi up 12 metres. He believes the best six metre QTH in VK6 must be Karratha where lives VK6PA. He says Steve hears Europe up to an hour before he does in Broome and for an hour after they leave Broome. Interesting!

### Overseas on six metres

Ted Collins G4UPS reports the club station UZ2FWA was activated from 20/6 to 28/6, and UA2F/DK2ZF from 4/7 to 11/7, during which time 35 countries were worked, two outside of Europe being Canada and USA. UA2F/DK2ZF worked 684 stations on six metres during his week of activity. Not a bad effort!

Ted's September report shows that with the gradual disappearance of Es, the number of European contacts has fallen dramatically. Best day was 5/9 from 1800 to 2230 with the following prefixes available: SP, YU, 4N3SIX/b, IK, SV1SIX/b, EH, ZD8VHF/b, CT, PY5CC, ZB0T. On 15/9: 1814 to 1840: LU2, LU7, ZD8VHF/b, CT0WW/b. Solar data on 28/9 — 116 10 2.

Geoff GJ4ICD from Jersey Island also reports a quiet month for September! He says that during the August Perseid meteor showers, GW7NGP worked 19 countries by that mode, using SSB. An ES opening between 1200 and 1400 on 8/9 produced 4N4VO, OE, DL, YU and OK. Good tropo opening on 16/9 with all bands from 50 to 1296 MHz being involved. A late item

included in Ham Radio Today for January 1993 says that Hal ZS6WB is to dispatch a 50 MHz radio to C9RDM in Mozambique. Ivo ZS6AXT reported poor 50 MHz propagation to the end of September, having only worked Italy and Spain, compared with 17 countries last year.

### Closure

I know I have been at it for a long time, but with this month's columns I commence my 24th year of writing for AR. That's more than a third of my lifetime and only the first seven years of my time as an amateur, have I not been so writing! Geoff VK5TY — please note how you passed the buck and got me involved! Compliments of the season to all my readers and a big "thank you" to those who write, including correspondents from overseas, all of whom keep me informed of band happenings. Also to the Editor of AR, and his staff, who, at times, have to tolerate my ramblings, for their help and guidance over the year, especially during that run-in period when we changed over to computer disk for the submission of information.

Closing with two thoughts for the month: In more homes than ever, a new challenge for Father Christmas this year will be sneaking in without setting off the burglar alarm and Worry is today's mouse eating tomorrow's cheese.

*73 and good DX from The Voice  
by the Lake.*  
ar

## Technical Correspondence

### Substitute ICs

In reference to the article in the August issue by VK5BGZ concerning substitute programmable ICs for the IC-22S transceiver, I would advise that I also encountered a faulty TC5080P in a friend's unit some years ago. However, I substituted a Motorola MC14569 (4569) dual four-bit programmable divider rather than two 4526s, at approximately the same cost. Either divider in this chip may be configured for either binary or BCD operation, and it will therefore replace the 5080.

The substitution may not be made directly, as the pin-outs are different. This was overcome by mounting a 16-pin DIL socket on a piece of vero-board four holes wide by eight holes long. Wires from a short length of telephone cable were taken from each pin to the appropriate 5080 termination points on the PCB. They were used to draw the vero-board as close as possible to the PCB before terminating. This enabled the MC14569 to be mounted within the

shielded enclosure. This arrangement also allowed for ease of future replacement of the IC.

The equivalent pin-outs are:

MC14569	5080
Pin 1	Pin 10
Pin 2	Pin 12
Pin 3	Pin 1
Pin 4	Pin 2
Pin 5	Pin 3
Pin 6	Pin 4
Pin 7	Pin 13
Pin 8	Pin 9
Pin 9	Pin 15
Pin 10	Pin 11
Pin 11	Pin 5
Pin 12	Pin 6
Pin 13	Pin 7
Pin 14	Pin 8
Pin 15	Pin 14 (n/c)
Pin 16	Pin 16

S V Ellis VK2DDL  
82 Taree Street  
Tuncurry NSW 2428

ar

# Spotlight on SWLing

Robin L Harwood VK7RH 52 Connaught Crescent  
West Launceston Tas 7250

1992 is rapidly coming to a close and once again we have been able to follow developments via shortwave radio. The major news story for the year undoubtedly was the fratricidal war in the former Yugoslavia. During the year, Radio Croatia appeared on shortwave, both from near Zagreb and also via a relay of Radio WHRI in Noblesville, Indiana. Radio Yugoslavia in Belgrade continued to be heard, although not as easily as before. Listen around 9620 at 2100 for an English transmission. Croatia has inserted a brief 5 minute English newscast at approximately 0600 and the best channels to observe this are 13830 or 9830 kHz. The conflict in the former Yugoslavia looks likely that it will drag on indefinitely and seriously affect stability in Central Europe, with a resultant increase in political tension, based on ethnic rivalry.

This year some international broadcasters decided to change their names. For example, Radio Beijing is now known as China Radio International and the BRT in Belgium is now "Radio Flanders International". You may not know that there were two separate external broadcasters, reflecting the linguistic divisions within Belgium. This year, the French speaking RTBF was closed and amalgamated with the Flemish speaking BRT.

There are also changes in the offing. Radio Norway International is announcing that they will be suspending their weekend English and Spanish broadcasts as of December 31st. All broadcasts will be exclusively in Norwegian. Radio Luxembourg this year closed down their English MW service on 1440 kHz although an English service continued on the "Astra" satellite and on shortwave on 15350 kHz. Now this too is going to cease as from December the 30th. The future of Radio Luxembourg on shortwave is in doubt, as there will only be the Flemish service on 6090 kHz. As Radio Luxembourg is heavily involved with cable systems and on MW, the high costs of HF broadcasting could easily force another international station off shortwave.

As mentioned last month, Radio Czechoslovakia is going to be split into two, when the two republics end their federation and become sovereign states on January 1st.

The break-up of the former Soviet Union has seen the rapid emergence of independent radio stations in the various republics. Most of these independent broadcasters are located within the Russian Fed-

eration, while Radio and Television seems to be more controlled in other CIS nations. Also the continued utilisation of the extensive HF radio network within the Russian Federation by international broadcasters has noticeably increased. Deutsche Welle in Cologne is now virtually broadcasting around the clock from Novosibirsk and Irkutsk in Siberia.

The BBC External Services and the VOA recently commenced broadcasting via the senders of Radio Tashkent in Uzbekistan. The BBC are targeting the Indian sub-continent with Hindi and Urdu broadcasts, while the VOA are in Farsi and Pushtu to Iran and Afghanistan.

An era ended in November, when the last edition of "London Calling" was published. It was a monthly guide to upcoming BBC World Service programming and was extremely useful to listeners. However the cost to the listeners and presumably the BBC was ever increasing. A subscription was around 25 pounds sterling annually. "London Calling" has been around for over 50 years. We will miss it.

I recently acquired the 8th Edition of "Gilfers Confidential Frequency List". This is a guide to Utility Frequencies and is very

helpful to the serious monitor. I obtained my copy from Arthur Cushen in Invercargill NZ for around \$40 Australian, but it may be in the Technical Bookshops. The latest edition now includes 1.6 to 4 MHz, which was left out of previous editions of the CFL.

All the alterations to the Maritime Services as from July 1st 1991 have been included. However, there are some slip-ups, eg the Radio Australia feeder frequency of 12190 kHz is included, although the site at Lyndhurst is now vacant and the senders have been mothballed. Likewise the ANARE frequencies are still listed although all comms are now by satellite; presumably the HF channels are there in case there are no satellite links.

The omission of the numerous Russian 500, 1000 and multi-channel systems is a serious drawback, as previous editions included these. Fortunately I have a copy of the 7th edition plus the "Press and RTTY Guide" which I can refer to. The latest guide also confirms what I have suspected, that most press services are no longer on HF. TASS, DIPLO, the VOA, Reuters, AP, UPI and ANSA are all gone off shortwave. Only the North Koreans, the Japanese Kyodo News Service and the Taiwanese Central News Agency appear to be left.

In conclusion, may I wish you the compliments of the Season and hope that 1993 will bring along more surprises on Shortwave!

73 de VK7RH.

ar

## Education Notes

Brenda Edmonds, VK3KT, PO Box 445, Blackburn, VIC, 3130

In the hope of catering to the widest possible range of interests in the limited space available in this magazine, this column will henceforth appear only every second month. This does not mean that my interest in the field of education will be reduced, — simply that as new columns or topics are added, something has to go. It may mean that I have to give more attention to the column, to be sure that I get my message across efficiently.

In the ten years or so during which I have been writing this column, there have been major changes to the hobby, both in technological developments, and in the facilities and activities generally available. Some of the most significant changes for some time are those that will come into force under the revised Regulations. When they are released, they will need to be read careful-

ly by all amateurs, preferably before they start to debate the merits or otherwise on air or on the Bulletin Boards.

This is the first occasion on which proposed changes to any part of the Regulations have been published for scrutiny or comment by the amateur body before negotiations were completed. Many operators, WIA members and others, took the opportunity to submit their views on the proposals to DoTC and it is the understanding of the WIA that all submissions were given due consideration. Obviously, not all amateurs will be pleased with the final result, but I think most will agree that a goodly measure of deregulation has been achieved, and the amateur service as a whole has benefited.

There will, no doubt, be as much opposition to some of the changes as there was

to the establishment of the Novice grade of licence, or the granting of VHF privileges to Novices. Please remember that most of the proposals put to DoTC had been part of WIA policy for several years, and the time for opposition was when the proposals were first advanced. It is expected that most of the changes will make both entry to the hobby and operation by licensees simpler, and so will benefit the amateur body as a whole.

But as well as the entry level, the attitudes of the operators must be considered. So long as the amateur service is at the forefront of technical developments, and members are increasing their knowledge and skills, we are justified in seeking more privileges for our members. From the range of authors and articles published in Amateur Radio magazine, and the lengthening list of accredited examiners, our members' enthusiasm is not in doubt.

Incidentally, statistics show that the majority of Novices do indeed continue on to a higher grade of licence, which was the intention of the Novice licence. In fact, the figures from WIA Exam Service show that the number of examinations per month for AOCP theory is slightly higher than for NAOCP theory.

While on examinations, it is obvious that there will have to be changes in the question banks as a result of the deregulation. The Regulations bank in particular will be reduced. The Examinations Sub-committee has been working on modifying the existing bank and preparing new questions to be added, but any possible questions contributed by readers will be welcome. Extra theory questions will also be welcome, especially any relating to new privileges for Novice level. Questions can be sent to me c/o the Federal Office.

Thank you all for your support and input over the year. May I wish all readers the Compliments of the Season, and a safe and successful New Year. ar

**Sign up a  
new WIA  
member  
today — use  
the form on  
the reverse  
side of the  
AR address  
flysheet.**

## Awards

*John Kelleher VK3DP — Federal Awards Manager*

I have been publishing details of some awards which are not only easy to acquire, but colourful additions for the shack wall. I did this to activate interest in awards, and to allow all grades of licence to participate.

Some operators have criticised this, saying that my procedure is only "dime-a-dozen" activity, and asking for details of some awards which are more difficult to obtain, possibly hinting that because they are more difficult to attain, then they must be more prestigious. NOT SO. One operator can get as much joy out of receiving a local club award, as another will in achieving say WAS or DXCC. It is a matter of taste. So it has always been my intention to satisfy both camps.

You would help me greatly, if you specified the particular awards you want published. Space permitting I will oblige.

To whet your appetites, here is one award which is not too easy, not too hard. It is the French DTA award. More commonly known as the Diplome des Terres Australes. To obtain this award, fulfil the following requirements :

Provide proof of contacts with the following French territories.

FT8X Kerguelen Island  
FT8Z Amsterdam & St Paul  
FTF8W Crozet Island  
FT8Y Adele Island

It comes in two classes, the DTA, for proof of contact with three of the four territories, and DTA Excellence for proof of contact with all four territories.

Send your application, along with a fee of USD6-00 to :

Max Pomel  
FE6AXP  
PO Box 73  
Lempdes F-63370  
France

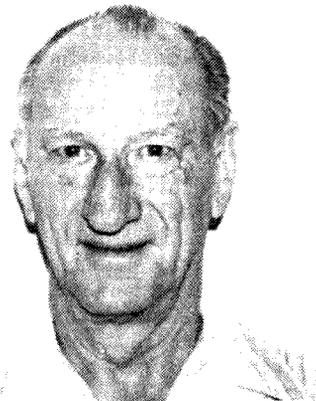
or through your friendly awards manager.

Many thanks to those who sent me details of their club awards for publication in the KIBV world directory. These have been published in AR, and forwarded to Ted Melinosky, K1BV.

### **DXCC Profile No 2**

**Keith Schleicher VK4KS**

Keith, now 74, became an amateur in 1937. During WWII he was an Army signals instructor. While employed by a radio and electrical organisation, he assisted in designing and manufacturing the first two-way multi-channel radio for use in the taxi industry. He was one of four operators who



**Keith Schleicher — VK4KS**

established Mellish Reef as a separate DX country.

His early amateur equipment was a TNT grid and plate modulated with a 201/A final. Since then he has used Swan, Kenwood, and now has a IC751A, which he uses in conjunction with a TH6DXX.

His DXCC listings as at 1st June 1992 were; Phone 323/365, CW 127/134 and Open 323/365.

Keith's advice for up comers is to be patient, listen, listen, and have a good information source.

### **DXCC Profile No 3**

**Mike Bazley VK6HD**

Mike began his amateur radio career as an SWL. He was first licensed in 1950 as G3HDA. He became VK6HD in 1969. He also served the WIA admirably as the Federal Awards manager for some time.

His early equipment was built around some war surplus gear, an old Marconi T1155, and a 40 m dipole. He now has more sophisticated equipment, and a greater range of antennas. These include a 160 m dipole, switched slopers, and beams on 40 m and 20 m as well as GPs on 30 and 15 m, with plans for more.

His one particular aim is to achieve total DXCC on 40 m, and to rack up 300 countries on 80 m.

He says that most of his DXing is carried out 300 minutes before, and 30 minutes after sunrise, bearing in mind that most VK stations are still enjoying their nocturnal rest.

His advice is to listen, listen, listen. Do not ignore the WARC bands, where there is good DX, and little or no opposition.

Mike's current DXCC listings are ; Phone 323/336, CW 314/331, Open 323/343. ar

# Repeater Link

Will Mc Ghie VK6UU 21 Waterloo Crescent Lesmurdie WA 6076

Packet : VK6UU@VK6BBS

## Broad Band

Pagers have brought about overload problems in the amateur 2 metre band. There are many articles now on pagers and how to live with them. Most reviews of amateur 2 metre equipment now make mention of the receiver's ability to handle strong signals close to the 2 metre band. There is usually a comment about the broad band nature of 2 metre receivers. Receive coverage many megahertz above and below the 2 metre band is now the norm. This wide receive coverage is usually put forward as the main reason for the poor rejection of out of band pager transmitters.

In the absence usually of performance tests on the receiver's overload characteristics, I doubt that the conclusions reached are always correct. It is true that most of the new breed of FM transceivers can receive a wide frequency range, but this does not always mean that the RF front end is broad band. Some of these receivers, if not all, have varicap tuned front ends. Tuning the front end to track the frequency that the receiver is tuned to is essential to maintain any performance over such a wide band width. This front end tuning is not usually done on the UHF band, only VHF. The assumption that your new 2 metre transceiver or dual band transceiver has a wide front end band width on VHF is not necessarily true.

My reason for commenting on the supposed poor performance of amateur 2 metre transceivers, is that in my experience with a wide range of VHF receivers, this blanket assumption is not true. There are many factors that influence a receiver's overload performance. To focus on the broad band receive ability of the receiver can be wrong. It is true that a more selective front end is the answer most of the time, but the point is that the selectivity required is impossible to achieve.

For example if you have a receiver that has a front end only 20 kHz wide, and all other frequencies attenuated by 100 dB, then you have the ultimate in rejection of all other frequencies. Overload of this receiver would be impossible. However no other frequencies could be tuned to, only those in the 20 kHz passband.

In the real world good front end selectivity for 2 metres must cover all of the 4 MHz of this band. Outside of this 4 MHz

the front end tuned circuits gradually introduce more and more attenuation. However with the pager band being so close to the top of the 2 metre band, there is almost no attenuation by the front end tuned circuits. To achieve any useful attenuation in the pager band, a sacrifice of sensitivity of the top megahertz of the 2 metre band has to be made. Even then the attenuation of the pager transmitters may only be 10 dB.

The point is that with typical front end selectivity, be it a professional radio or an amateur radio, rejection of strong signals so close is a big problem. Looking at circuit diagrams of professional radios and amateur radios makes you wonder why the assumption that the amateur radio is so much poorer in overload performance. The differences, if there are any, are subtle.

One area where amateur VHF radios may be poorer in performance is the IF filter. Ceramic filters are often used rather than crystal filters. The resultant IF selectivity as a consequence does not offer as much attenuation to frequencies that pagers are on. This can mean that pager transmissions could be heard, not due to receiver overload, but insufficient attenuation of the strong signals in the IF.

One such example was to be found in our 7350 repeater, VK6RBN. The repeater mute would open in a random fashion with a very noisy signal and a trace of pager audio. As the nearest pager was 50 km away, front end overload was considered unlikely. A change in IF filter removed the problem. At a later time this same repeater suffered pager interference again, this time from a new pager about 8 km away. Front end cavity filters in the repeater's receiver would not remove the problem. The receiver was an Icom IC22A with lots of front end tuned circuits, 6 in total. The final cure was to replace the receiver with a FM 828 receiver. The problem with the IC22A receiver, even though not positively identified, was probably the IF ceramic filter. Even after changing this filter to the best ceramic filter that we could find, it still lacked the performance of a crystal filter. The FM 828 receiver required no extra front end selectivity. This receiver has less front end tuned circuits than the IC22A. This further supports the idea that the problem with the IC22A receiver was not in the front end selectivity.

IF rejection is one topic rarely covered in articles on amateur VHF receivers. The IF filter is required to pass a narrow band of frequencies, (about 30 kHz) and reject all others. This filter is the main reason why a transmission on one frequency is all you hear, and not all the others. Frequencies further away from the wanted bandwidth are attenuated. The attenuation at + and - 20 kHz would be typically 20 dB, and increasing rapidly so that at + and - 50 kHz it reaches its ultimate rejection. This ultimate rejection remains about the same for all frequencies greater than + and - 50 kHz from the centre frequency. Depending on the type of IF filter your radio is fitted with, this ultimate rejection varies from 50 to 100 dB. If the worst case is taken where the IF ultimate rejection is 50 dB, then it is not hard to understand why a



This quarterly publication, especially covering VHF, UHF and Microwaves, is essential reading for the serious VHF/UHF enthusiast.

The original is published in German by Terry Bitton, OHG, and the English language version is published by Mike Gooding, G61QM.

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Separate remittances for W1A membership subscriptions and VHF Communications please.

strong pager transmission could be heard, not due to overload, but poor IF rejection.

For example, a pager may be received by your 2 metre receiver at 1000  $\mu$ V. That's right 1 millivolt. This pager is say 200 kHz away from the frequency you are tuned to. The IF rejection being 50 dB attenuates the pager to the equivalent signal strength of about 4  $\mu$ V. This means that it is as if the pager is a 4  $\mu$ V signal on the frequency you are tuned to. This is an over simplification because other factors in the receiver contribute to attenuating the pager signal, but the point to be made is that strong pager signals can pass through the IF and be presented to the detector circuits. The resultant demodulated output would be distorted, but could show up as the mute opening with distorted pager audio. IF ultimate rejection is a big factor in assessing the per-

formance of a receiver, not just front end selectivity.

The point to stress again about front end selectivity is that pager transmissions are so close, that front end tuned circuits have no effect on attenuating these signals, maybe a few dB if at all. The subject of receiver performance is a complex one. Blanket comments like broad band receiver coverage means wall to wall pager problems can be wrong.

My work uses several VHF and UHF base radios in the inner city area. These radios are Philips FM 814's and 815's, (FM 828's in rack mounting boxes). Not modern but with a good name for performance. However our systems are not fitted with CTCSS and suffered greatly from overload. The result of two cavity filters and a front

end crystal filter have reduced the intermod problem by about 90%. Even with good quality professional receivers and a stack of extra front end selectivity, overload is still a problem.

CTCSS encoding decoding is the best way of reducing the effects of intermod to acceptable levels. Until CTCSS is more widely used in the amateur service to greatly reduce intermod problems we are stuck with unpleasant noises. Blaming the "wide band" amateur receiver is at times misplaced.

My knowledge of FM receivers has its limitations and there must be many amateurs who have a better understanding. If you fit this category how about sending me an article for inclusion in Repeater Link.

ar

## FTAC Notes

John Martin, VK3ZJC FTAC Chairman

### New FM TV Records

Two inaugural ATV records have been added to the list. The first is an FM TV contact on 1250 MHz between Simone Buck, VK2TOY, and Chris Hales, VK2XQW. The distance was 105.7 km. The second is a new 10 GHz ATV record between Mal Crew, VK3BBU, and Jim Collins, VK3ZYC, using Gunnplexers over a path of 63.4 km. Other members of Mal's team were Peter Ford, VK3TAF and Max Chadwick, VK3WOD, and Jim was assisted by Bill Trigg, VK3JTW.

Congratulations to all involved in these new records. It looks like interest in micro-waves and portable operation is on the in-

crease, so hopefully there will be more of this kind of activity over the summer season!

The photos show the portable equipment and antennas used by Simone and Chris in setting their 1250 MHz record. Details of the 10 GHz record set by Mal and Jim are given elsewhere in this issue.

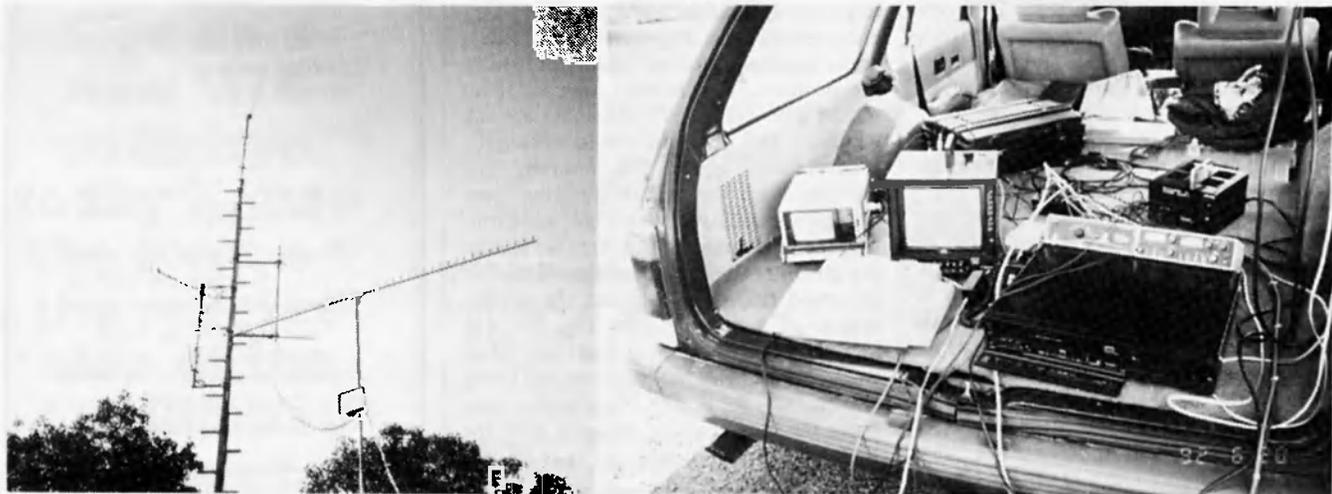
### 50 MHz Records

Lance Bickford, VK4ZAZ has supplied details of several 50 MHz contacts, including mobile contacts with 9H1JN and PE1BNK, a short path contact with 9Y4VU, and a long path contact with

9LIUS. The mobile contacts do not break Lance's existing record with FM5WD, but the long path contact with 9LIUS is a new VK4 long path record. The contact was made on October 16, 1990 and the distance is 22550 km. Congratulations Lance.

A typing mistake on my part caused a 50 MHz contact between Moss VK7IK and W4EQM to be listed in the latest Call Book as a VK7 long path record. This is of course incorrect — the contact made by Moss with W4EQM was his previous VK7 short path record, now superseded by his contact with PA0LSB. No claim has been made yet for a VK7 long path record.

ar



# Silent Keys

*Due to increasing space demands obituaries should be no longer than 200 words*

The WIA regrets the passing of :  
W A (William) Miller VK2MWA  
G C (Gavin) Douglas VK3YK  
B H (Bernie) Gates VK6KJ

## Jack Gayton VK4AGY

Jack passed away 22 October 1992, just two days short of his 68th birthday, "in harness", while putting the finishing touches to November's QTC.

Although he left school in Grade 6, due to very bad eyesight, Jack nevertheless became an innovative self-made electronic experimenter, culminating in a Novice licence in the '70s, and quickly upgrading to "Full-Call" status as VK4AGY.

A great family man, Jack still found the time to help the amateur fraternity in Queensland, first as councillor (on and off for some 15 years), then as editor and printer of QTC from the early '80s onwards. Shortly after, he was broadcasting officer for VK4WIA news, spending much of his own money on computers, copiers and gear to keep the quality top-notch.

It was a joy to be associated with him; he was bubbling over with great and achievable ideas to improve QTC, and "his" news service.

Unfortunately, his final test, the rebroadcast of the Darwin epic, something he had looked forward to, came just too late for him.

Jack has not only left a big empty space in his family, but also in the VK4 amateur world, especially the news team of Peter, Annette and myself.

It was an honour to have been able to present Jack with the badge and certificate of Life Membership in Gympie — his birthplace — during the Gympie Gold Fest, even if it was only two weeks before his untimely passing.

Personally, I will continue to remember the real friendship established over the past 15 years.

John Aarsse VK4QA

## Graham Colley VK3QZ (for 50 years) latterly VK4BQZ

I am sad to report that Graham passed away on 12 October 1992. Born on 8 June 1906, he was educated at Sale Technical School to the level of Electrical Engineer, and at the same time became interested in wireless, built some simple sets and joined the WIA.

In Melbourne in 1925 he attended the WIA Dinner to welcome Fred Schnell IMO-1XW and officers of the visiting American Fleet.

In 1930 Graham and Olive were married — a happy marriage which lasted over 60 years.

During the Great Depression, with his electrical engineering status, he was able to take charge of township electric supplies in the country.

With the outbreak of war Graham was the first to enlist from Quambatook into the RAAF, where he was briefly flying as "Sparks" on coastal surveillance, but was soon selected to go into intensive training for radar.

After discharge, Graham took a job with the SECV checking motors etc in sawmills, quarries, factories etc. He eventually became so knowledgeable and experienced with these problems that he was sometimes called in for advice re difficulties in the big Morwell generating plant.

While travelling about Gippsland for the SECV Graham visited virtually every ham in the area, and set about organising radio clubs, conventions and group visits.

In 1985 Graham and Olive moved to the Palm Beach area south of Brisbane, and Graham got the call VK4BQZ.

It was very unfortunate that a brain tumour progressively affected Graham's speech and mental processes during the last four or five years of his life.

Bruce Mann VK3BM

## Harry Kinnear VK3KN 12.12.1902-26.8.1992

It is with deep regret we record the passing of Harry Kinnear — formerly VK3KN and VK4VJ.

He was the president of the WIA Victorian Division for 1934-35 and 1945-47, and editor of Amateur Radio magazine 1933-36.

Harry Kinnear deservedly gained the title of "the father of Amateur Radio magazine", having been its founding editor.

His peers on the Divisional Council and those involved in the early days of AR magazine described him as the driving force behind getting the magazine started.

As a young and enthusiastic member of Council in 1933, Harry promoted the idea of having a house magazine, and found himself given the job.

The name "Amateur Radio" for the magazine was his idea.

Harry Kinnear in the post-World War II period played a continuing role in WIA affairs, and was federal vice-president in 1953.

The Victorian Division and its members benefited from Harry's involvement in obtaining disposals equipment and organising sales, and his businesslike contribution to the administrative side of the Institute.

In October 1983, on the occasion of AR magazine reaching its golden jubilee, the Victorian Division made Harry a life member in recognition of his outstanding service to amateur radio, being a past divisional president, and the far-sighted attitude he had in pushing for an Institute journal.

He received this, the highest honour awarded by the WIA, with humility and great pleasure.

Harry Kinnear has gone, but left a lasting and valuable contribution to our Institute. We extend sincere condolences to his family, friends and surviving contemporaries.

Jim Linton VK3PC  
President

WIA Victorian Division  
ar

# Stolen Equipment

Stolen from the residence of VK3XCE on or about 5th October 1992.

YAESU FT280R 2m Transceiver S/N 2F22898, YAESU YM24A Mic/Speaker.

STANDARD CI46A 2m Transceiver, S/N unknown, missing its battery case, extra XTALS fitted for RPT 6700, 7000 and Simplex 6500.

STANDARD CAT08 Mic/Speaker.  
STANDARD CMP08 Rubber Duckie Antenna.

Both above units have carry cases fitted. Contact point for recovery is Croydon (Vic) CIB (03) 725 1977.

Stolen from Grant Jeffrey VK3KGM on Wed 4th November 1992, KENWOOD TM221A 2m FM Txcvr, S/N 8022583, distinguishing feature: one LED backlighting lamp inoperative. Radio was fitted to a Toyota 4WD S/Wagon which was stolen from Linlithgow Drive near Botanical Gardens. Vehicle has not been recovered at the time of publication.

Details to 1 Pinniger Street, Broadford, TEL (057) 84 1681, or (03) 808 1357, BUS (03) 282 4394.

ar

# HAMADS

## TRADE ADS

● **AMIDON FERROMAGNETIC CORES:** For all RF applications. Send business size SASE for data/price to RJ & US Imports, PO Box 431, Kiama NSW 2533 (no enquiries at office please ... 14 Boanyo Ave Kiama). Agencies at: Geoff Wood Electronics, Sydney; Webb Electronics, Albany; Assoc TV Service, Hobart; Truscotts Electronic World, Melbourne.

● **WEATHER FAX** programs for IBM XT/ATs \*\*\* "RADFAX2" \$35-00, is a high resolution shortwave weatherfax, morse and RTTY receiving program. Suitable for CGA, EGA, VGA and Hercules cards (state which). Needs SSB HF radio and RADFAX decoder. \*\*\* "SATFAX" \$45-00, is a NOAA, Meteor and GMS weather satellite picture receiving program. Needs EGA or VGA & WEATHER FAX PC card, + 137 MHz Receiver. \*\*\* "MAX-ISAT" \$75-00 is similar to SATFAX but needs 2 MB of expanded memory (EMS 3.6 or 4.0) and 1024 x 768 SVGA card. All programs are on 5.25" or 3.5" disks (state which) plus documentation, add \$3-00 postage. ONLY from M Delahunty, 42 Villiers St, New Farm QLD 4005. Ph (07) 356 2785.

## FOR SALE NSW

● **IC2GA Broadband VHF 2M FM handheld xcvr.** Complete with huge battery and bench charger, \$425; Doug VK2DHK, QTHR, (063) 31 7775

● **TASCAM M32 & M34 tape machines, TASCAM M30 mixer, misc recording eqipt, CD & vinyl sound effect records, tapes, bargain prices, VK2WW QTHR (02) 546 1927.**

● **YAESU FL2100B Linear Amp, S/N 7190424, \$750 ONO plus freight, VK2CYI QTHR (075) 24 6844.**

● **PSU 240VAC-14VDC adjustable 15A, voltage regulation, meters, 0-20VDC, 0-20ADC, one owner-maker, \$200, 3 mth warranty, (065) 53 1365.**

● **YAESU FT620 6m SSB/CW/AM Tx/Rx, YAESU VC75 Speech Proc, Mic, Cables, both in good cond, \$250; Chris Williams VK2YMW (02) 487 2764 AHrs.**

● **YAESU FT200 working but needs some attention, suit restorer or useful for spares, S/N 4121257, \$150; LAFAYETTE HA600 comm Rx, suit student, \$50; DSE EXPLORER 70cm FM Txcvr, S/N 6300338, \$150; Peter VK2BEU, QTHR, (02) 872 3381.**

● **YAESU FL2100B Linear, S/N 5H310330 plus four slightly used 572B finals \$2400; KENWOOD TS520S xcvr with manual, desk mic, & 2 unused finals, exc con, \$600 S/N 811249, separate or together; Bob VK2GZ QTHR (069) 62 3576.**

● **Icom 551-D 6 metre all mode transceiver, VG cond, original packing, manuals, schematics, etc. 100W, \$520. Kenwood HT 2M TH-215A, Ex cond, belt clip, 2 battery packs, original packing, manuals, etc. \$495. 6M 5 el beam, VG condn, \$60. Brian VK2MQ PH (069) 471 213.**

## FOR SALE VIC

● **YAESU FT200 xcvr \$295; loud speaker box with PSU; HEATHKIT Txcvr 40m, 12V PSU, \$195; DX100 Comm Rx \$100; all working OK, Frank VK3CFF, (053) 38 1927, transceivers only to licensed operators.**

● **YAESU FRDX 400 Rx, No WARC bands, \$75; WILSON SY2 Triband beam antenna, requires minor attention, \$150; VK3MJ QTHR (03) 439 6068.**

● **YAESU YM-24A speaker/mic, suit FT-208 etc, \$30; YAESU NC-9C NICAD wall charger \$10; STANDARD SR-CSA base master suits standard h/held C146A, \$10; ICOM BP82 battery pack, new unused, \$65; Rodger VK3XCE QTHR (03) 726 0409.**

## FOR SALE QLD

● **TEN TEC "CENTURY 21" xcvr 80-10 QSK CW, S/N 570-2182, \$420; ROLLER INDUCTOR with turns counter, \$75; VK POWERMATE 5 Amp PSU, full kit inc trfmr \$50; EMOTATOR 105 rotator \$100; ELECTRONIC keyer \$70; "DOC" VK4CMY (076) 61 6200 (076) 61 7494.**

● **VALVE SOCKETS for 4CX1000A, QB3/300 & QQEO6/40, .5" AMPEX recording tape, 10 in spools, 100W AM modulation trfmrs, John VK4AAF (079) 28 6573.**

## FOR SALE SA

● **KENWOOD TS930S, inbuilt ATU, SHURE 444D mic, Bencher key & keyer, all orig books & boxes, \$2000; VK5UW (08) 332 5068.**

● **ICOM 2KL SS auto Linear Amp, ICOM matching 30A PSU, selling out station, \$1000 off standard price; HT trfmr Gen Elect 2000V super power; VK5DC QTHR (08) 31 4194.**

## WANTED NSW

● **FIM-3 plug-in module; FV101B ext VFO with lead; FRG7 gen cov RX; Ray VK2FW (063) 65 3410 am, (063) 62 4488 pm.**

● **YAESU FT707, will pay \$500, Doug VK2DHK QTHR or (063) 31 7775.**

## WANTED VIC

● **STANDARD 2m amp CPB58 working or not working; George VK3GWK (051) 74 3930.**

## WANTED QLD

● **REPAIRING old test equipment, would appreciate any details/circuits of:- UNIVERSITY Supertracer model AST, ADVANCE timer counter TC9B, PALEC TV-M VT Voltmeter, can pay costs plus; VK4EF 97 Jubilee Tce, Bardon, Brisbane 4065, (07) 366 1803.**

● **CIRCUIT diag & h/book for Commonwealth Electronics RF amp type AM17A DCA type Y5/1351, all costs paid, Paul Kay, 20 Gilbert Rd, Windsor QLD 4030.**

● **ICOM IC202 2m ssb Txcvr, working order, price to Gordon VK4KAL QTHR (079) 85 4168 after 6pm.**

## WANTED SA

● **6 POS DUAL bank HD ceramic bandswitch; 1000pF AIR variable cap 1/16 in spacings; SMALL prop pitch motor; NATIONAL microwave oven transformer type ANE6005-57; details to Paul VK5TT (086) 45 3971 BH (086) 45 5019.**

ar

**Repeaters —  
additions,  
deletions,  
alterations.  
Have you  
advised the  
WIA of  
changes  
needed to the  
repeater list?**

# Morseword 69

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

**Across:**

- 1 Silly
- 2 Roast
- 3 Local Taxes
- 4 Drop down
- 5 Tack
- 6 Indian Dress
- 7 Singer
- 8 Everyone
- 9 Successor
- 10 Attempts

**Down:**

- 1 Cheeky girl
- 2 Shoot
- 3 Fine sediment
- 4 Spoken
- 5 Musical title
- 6 Balk
- 7 Edges
- 8 Fearful
- 9 Love
- 10 Waves

*Solution Page 60.*

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## Hamads

Please Note: If you are advertising Items For Sale and Wanted please use a separate form for each. Include all details; eg Name, Address, Telephone Number (and STD code), on both forms. Please print copy for your Hamad as clearly as possible.

\*Eight lines per issue free to all WIA members, ninth line for name and address  
Commercial rates apply for non-members. Please enclose a mailing label from this magazine with your Hamad.

\*Deceased Estates: The full Hamad will appear in AR, even if the ad is not fully radio equipment.

\*Copy typed or in block letters to PO Box 300, Caulfield South, Vic 3162, by the deadline as indicated on page 1 of each issue.

\*QTHR means address is correct as set out in the WIA current Call Book.

\*WIA policy recommends that Hamads include the serial number of all equipment offered for sale.

\*Please enclose a self addressed stamped envelope if an acknowledgement is required that the Hamad has been received.

Ordinary Hamads submitted from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

Conditions for commercial advertising are as follows: \$25.00 for four lines, plus \$2.25 per line (or part thereof) Minimum charge — \$25.00 pre-payable.

State: .....


**Not for publication:**

Miscellaneous

For Sale

Wanted

Name: ..... Call Sign: ..... Address: .....

## Solution to Morseword No 69

Page 59

	1	2	3	4	5	6	7	8	9	10
1	—	.	.	.	—	.	.	—	.	—
2	—	.	.	.	—	—	.	—	.	.
3	.	—	.	—	—	—	.	.	.	.
4	.	.	.	.	—	—	—	—	—	—
5	—	.	.	—	.	.	.	—	.	.
6	.	.	.	.	.	.	.	.	.	.
7	—	.	—	.	—	—	—	.	.	.
8	.	—	.	.	.	.	.	—	.	.
9	.	.	.	.	.	.	.	.	.	—
10	—	.	—	—	.	.	.	.	.	.

### Solution for Morseword No 69

Across: 1 draft; 2 bake; 3 rates; 4 sink; 5 nail; 6 sari; 7 tenor; 8 all; 9 heir; 10 tries.

Down: 1 minx; 2 fire; 3 silt; 4 said; 5 cats; 6 jib; 7 rims; 8 timid; 9 like; 10 tides.

### TRADE PRACTICES ACT

It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

### VICTORIAN CONSUMER AFFAIRS ACT

All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

TYPESETTING AND PRINTING: Industrial Printing  
122 Dover Street,  
Richmond, 3121  
Telephone: 428 2958

MAIL DISTRIBUTION: R L Polk &  
Co Pty Ltd  
98 Herbert St,  
Northcote,  
Vic. 3070  
Tel: (03) 482 2255

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## HOW TO JOIN THE WIA

Fill out the following form and send to:

The Membership Secretary  
Wireless Institute of Australia  
PO Box 300  
Caulfield South, Vic 3162

I wish to obtain further information  
about the WIA.

Mr, Mrs, Miss, Ms:.....

Call Sign (if applicable):.....

Address:.....

State and Postcode:.....

# WIA Morse Practice Transmissions

VK2BWI Nightly at 2000 local on 3550 kHz

VK2RCW Continuous on 3699 kHz and 144.950 MHz 5 wpm, 8 wpm, 12 wpm

VK3COD Nightly (weekdays) at 1030 UTC on 28.240 MHz and 147.425 MHz

VK3RCW Continuous on 144.950 MHz 5 wpm, 10 wpm

VK4WIT Monday at 0930 UTC on 3535 kHz

VK4WCH Wednesday at 1000 UTC on 3535 kHz

VK4AV Thursday at 0930 UTC on 3535 kHz

VK4WIS Sunday at 0930 UTC on 3535 kHz

VK5AWI Nightly at 1030 UTC on 3550 kHz

VK6RAP Nightly at 2000 local on 146.700 MHz

VK6WIA Nightly (except Saturday) at 1200 UTC on 3.555 MHz



ICOM

Count on us!

# icom puts “intelligent” transceiver power in your hands



**T**he future is yours today, in the brilliant new Icom range of handheld transceivers, that put real power in your hands.

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For further information call free on (008) 338 915 or write to Reply Paid 1009 Icom Australia Pty Ltd P.O. Box 1162 Windsor Victoria 3181 Telephone (03) 529 7582 A.C.N. 006 092 575

*ICOM Australia's warranty is only applicable to products purchased from their authorised Australian Dealers.*