July/August 1990 $3.50

CB Action

AUSTRALIA'S ONLY CB MAGAZINE

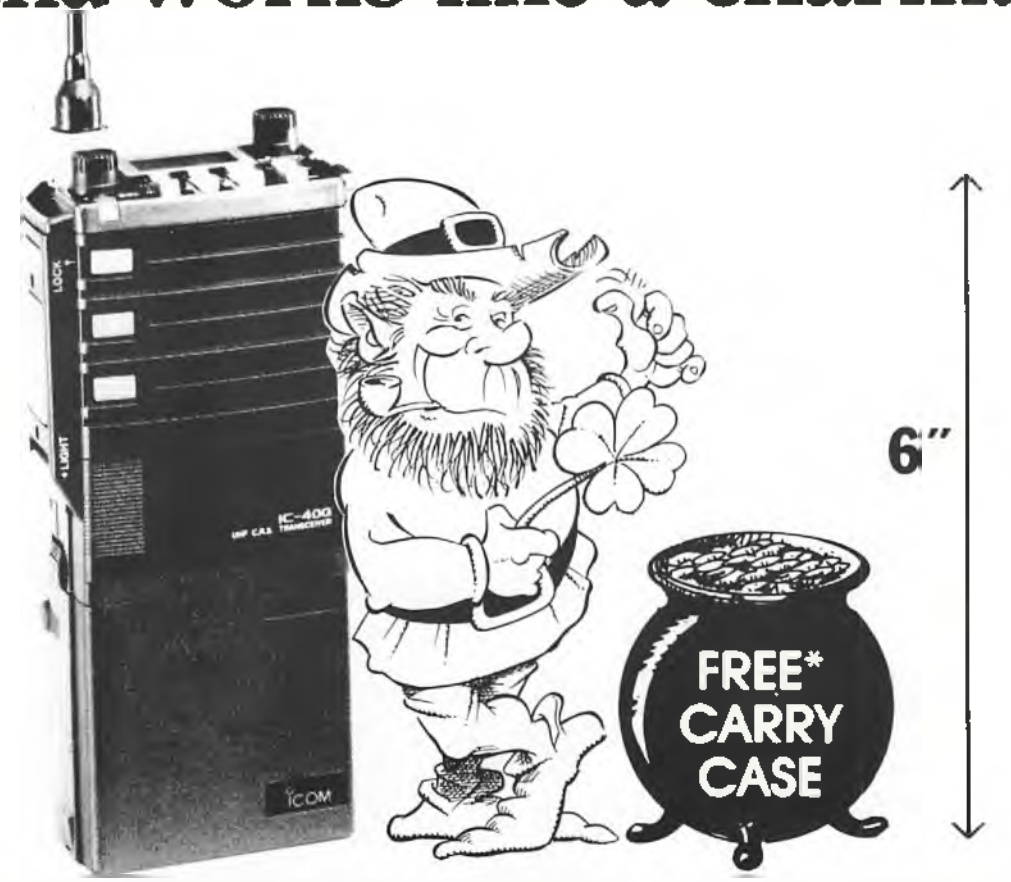
WIN THIS TX-475S UHF HANDHELD

WHICH ONE . . . GRANT OR 640E?
TECH SPECS . . . PART 2
MIDLAND 1001 AM . . . HOW GOOD?
UTILITY DXING . . . HOW TO DO IT.

COMMEX & YUPITERU SCANNER REVIEWS
SCANNER FREQUENCIES . . . LOTS TO LISTEN TO . . .

PLUS ALL THE USUAL COLUMNS — SCANNING, UHF, 27MHz, SWL, REPEATER LISTS DX INTERNATIONAL & DX FORECAST . . . AND MORE!

What's six inches tall and works like a charm?



the new ICOM IC 40G UHF C.R.S. Transceiver.

Some people think it's magic the way ICOM manage to pack so many features into such a small package. Others think it's a minor miracle that ICOM have simplified operation of the IC 40G without compromising on a wide range of sophisticated functions.

ICOMs high sensitivity receiver and full 5 W output ensures longer-distance communications on all 40 UHF C.R.S. channels. All these features packed into 6 inches of tough, splash resistant construction. Check out the full range of features and options on the new IC 40G at your ICOM stockist – we're sure you'll be charmed.

- Full Scan on all 40 operating channels.
- Dual watch for monitoring channels other than the one you're on.
- 12 memory channels with memory scan.
- Power saver during standby.
- Options include speaker microphones, desk top charger, handsfree headset, battery packs to suit conditions.

*Purchase the IC 40G before May 30th 1990 and receive a free carry case

Call ICOM on (008) 338 915 for details on ICOM products and your nearest stockist.
Melbourne callers (03) 529 7582. ICOM Australia Pty. Ltd., 7 Duke Street, Windsor, 3181.

ICOM

ICOM Australia's warranty is only applicable to products purchased from their authorised Australian Dealers

NCAA 4616

■ MARINE ■ LAND-MOBILE ■ AVIATION ■ CB ■ AMATEUR ■ MARINE ■ LAND-MOBILE ■ AVIATION ■ CB ■ AMATEUR ■ MARINE ■ LAND-MOBILE ■ AVIATION ■ CB ■

CB Action

Managing Editor:
Len Shaw VK3NLS

Production Manager:
Paula Parker

Editorial Office:
603-611 Lt. Lonsdale St.,
Melbourne 3000
Postal — GPO Box 628E,
Melbourne 3001
Phone: (03) 601 4222
Fax: (03) 670 9096

CONTRIBUTORS

Russell Bryant
P.O. Box R16,
Roselands, NSW 2196

David Flynn
P.O. Box E160,
St. James, NSW 2000

Rod Fewster
P.O. Box 29,
Kallangur, Q 4503

Greg Towells
P.O. Box 514,
Toukley, NSW 2263

Rob Williams
P.O. Box C111,
Clarence St P.O.,
NSW 2000

Ken Reynolds
1290 Nepean Highway,
Cheltenham, Vic 3192

Stephen Newlyn
24 Justinian St,
Elizabeth Downs, SA 5113

Patrick McDonald
P.O. Box 357,
Round Corner, NSW 2158

CONTENTS

REGULARS

REVIEW

FEATURES

WIN AN ELECTROPHONE TX-475S UHF HANDHELD

Read the report on pages 22-23 and then try your luck on the wordmaze—page 49

TIME PLUS PTY. LTD.

CB RADIO EXPERTS FOR 16 YEARS

16 YEARS IN BUSINESS

PRO 640E

* New improved model
* Illuminated controls
* SWR meter built in
* Mic gain
* Many other features

Refer review this issue
NORMALLY $399

SPECIAL PRICE $299

GRANT

* Use mobile or as a base station

All features, superb set
* Read review this issue

NORMALLY $389

SPECIAL PRICE $299

OTHER TIME PLUS SPECIALS

* Palomar Linear TX2250 100W/200W RX Amp **$279**
* 25 AMP Electrophone power supplies **$379**
* Uniden Washington base station CB as reviewed last edition **$419**

TIME PLUS PTY. LTD.

55 Sydney Road
BRUNSWICK VIC 3056

Phone: (03) 380 4942, (03) 380 4172
Fax: (03) 387 0401

OPEN MON - FRI: 9AM to 6PM, SAT: 9AM to 12.30PM

MAIL ORDER SPECIALIST
MAIL ORDER HOTLINE

(03) 380 4172

ON CHANNEL

A MESSAGE TO THE MINISTER

The re-election of the Hawke Labour Government in March this year was followed by the obligatory shuffle of ministers. With 'micro-economic' reform being a priority of Labour's historic fourth term, the portfolio of Transport & Communications has become more influential and exacting than ever before. In Communications alone we are seeing reviews of Telecom, OTC and Aussat: proposals for pay television; and an increasingly aggressive private sector demanding everything from competition to privatisation in almost every area of telecommunications.

The new Minister for Transport & Communications is Kim Beazley, former Minister for Defence. Beazley made great impact in this portfolio. Although the public perception of his gung-ho approach led to such nicknames as 'Rambo', 'Bomber Beazley' and 'Minister for World War III', Beazley is also credited with having shifted Australia's defence policy from super-power dependence to self-reliance.

For the benefit of our new Minister, here are some figures on the Australian Citizens Band Radio Service. We will not venture into the history, social roles and needs/wants of CB operators, all of which is detailed at great length in existing Departmental files and submissions. Numbers and dollars will be the battleground of Mr Beazley's new office, with DoTaC pushing more and more for 'spectrum efficiency and equitability' — where applicable, the user will pay.

Given that the 27 MHz and 477 MHz bands together occupy only 1.4 MHz of spectrum, the CBRS must give the Department more cash per kilohertz than any other service.

Since 1987 CBRS fees have accounted for around 8% of radiocommunications licence revenue. To 30 June 1989, CB licence fees contributed $4.26 million to the coffers, an increase of 15 percent on the previous year.

For the same period, licences rose 7.78 percent, totalling 285,624 over both 27 MHz and 477 MHz. The number of licences continues to display a constant growth which represents increased revenue and makes the CBRS a reliable dollar-earner year in, year out.

Based on projections from the beginning of this year, licenced CB stations will top 300,000 by the close of the 1989-90 financial year. The number of UHF licencees and their share in the overall figure has risen from 36,480 (28 percent) in 1984 to over 120,000 (40 percent) in the present year.

We would like to assure Mr Beazley that CBA will continue to award bouquets and brick-bats whenever his Department merits them and will watch with interest moves towards a review of the CBRS later this year.

Will CBA and CB operators in general be ready to do their bit towards a continued successful growth of the CBRS ?

Yes, Minister.

CB Action

SUBSCRIPTIONS
P.O. Box 257C
Melbourne, Vic. 3001

Surface Mail — Australia	$19.20
Surface Mail — NZ, PNG, Asia	$28.80
Surface Mail — Other	$31.20
Airmail Australia	$28.80
Airmail NZ & PNG	$34.00

ADVERTISING
Victoria:
Kate Shaw
(03) 601 4222

New South Wales:
Norman Palmer, Syme Magazines, Melbourne Age Office, 7th floor, 50 Margaret Street, Sydney, 2000
Phone (02) 29 6271 FAX (02) 29 7269

South Australia:
Tony Giuliani, Cumberland Media
12 Eaton St., Cumberland Park,
SA 5041. Phone: (08) 373 1142.

Western Australia:
Frank Hall Media
4th Floor, 102 James Street,
Perth. Phone:(09) 328 2539.

PRINTER AND PUBLISHER:
Leonard J. Shaw
38 Granya Grove, Mt Eliza 3930.

PLACE OF PRINTING:
Hannanprint Victoria
3 Lake Dve, Dingley, Vic.
(03) 551 3333

PROPRIETOR:
Syme Magazines, a division of Syme Media Pty Ltd, 250 Spencer Street, Melbourne 3000.

CB Action is distributed in Victoria by Magdiss Pty. Ltd. 250 Spencer St, Melbourne, 3000; in SA by John Fairfax & Sons Limited; in Tasmania by the Mercury, 93 Macquarie St, Hobart 7000; in NSW, Queensland, WA by Newsagents Direct Distribution Pty. Ltd., 180 Bourke Road, Alexandria 2015.

ULTRA HIGH FREQUENCY

6db Megablaster
Stacked Co-linear Mobile Whip

This 1.2mtr (48") stacked co-linear has been manufactured to provide maximum gain with minimum fuss providing a low angle pattern with a minimum 6db gain. The braided fibreglass whip can be mounted on any standard UHF mobile base without the need to incorporate messy plugs and springs. The special phasing incorporated in this design has been tested to provide a low angle of radiation and maximum output gain for 477 MHz. The extra length of this design has prooved a real winner amoung Scanner enthusiasts due to the Megablaster's ™ excellent receiving capabilities. Weatherproofing is accomplished by utilising the finest Polyolefin heat shrinks to give this unique antenna a finish that will protect it long into the future.

M476

S474

S474
Super Stainless Steel 4.5db Gain Mobile Whip

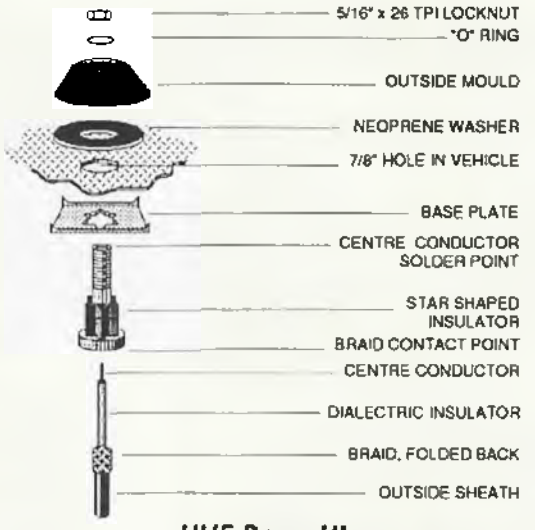
This rugged stainless steel co-linear whip represents the **"State Of The Art"** in mobile UHF whip technology, providing a low angle pattern with a minimum 4.5db gain.

The sturdy 1.25mm diameter stainless steel whip will remain vertical at high speeds and is ideal for applications that require a rugged and durable antenna, such as farming, industrial, mining, heavy-transport etc. All component parts of the S474 are of Brass and Stainless Steel for total protection against the elements. This product has been optimised for Magnet Mount (MAG36C) or Roof Mounting. It may also be used with Mobile One's patented UHF base mount (BASE UL) or with the Mobile Dipole Mount (DM36) which is suitable for Roof Rack or Mirror Mounting.

BASE UL UHF Mobile Antenna Base Mount

Ordinarily, UHF antenna bases are difficult to terminate and cumbersome to install. However, the Mobile One UHF Base UL's patented design overcomes any difficulty in this regard without sacrificing the needed qualities of strength and weather resistance.

Made in Australia to exacting specifications for the UHF Band, the Mobile One Base 'UL' is an antenna mounting system for UHF whips with the Australian Standard 5/16" 26TPI female screw thread. The Base UL is suitable for use with Mobile One's patented Boot Mount.



UHF Base UL

BMS & BMB Stainless Steel Mobile Boot Mount

The unique feature of the Boot Mount is that it can be used to install antennas without drilling any holes in the vehicle.The Mobile One Stainless Steel Boot Mount is an Australian made antenna mounting system, designed as a substitute for front or rear guard mounting and will fit the bonnet or boot of most vehicles. Constructed in stainless steel, it can be obtained in either black finish *(BMB)* or plain *(BMS)*. The Boot Mount has been designed to utilise all of mobile One's standard antenna mounts such as the UHF Base UL, HF/VHF Base A and the Mobile Dipole Mount. All Mobile One products are covered by Trademark, Patent, Design and copyright protection.

BMS & BMB

ULTRA HIGH QUALITY . . .

Mobile One Australia Pty Ltd
P.O.Box 166,Picton, N.S.W. 2571
Telephone (02) 603 5000 FAX (02) 820 1515

MOBILE ONE COMMUNICATIONS SYSTEMS

JUST COMMUNICATIONS

"we'll get you talking"

PH (03) 873 3710 P.O Box 50 Mitcham 3132 FAX (03) 872 4229

552 WHITEHORSE RD., MITCHAM

THE YELLOW SHOP near Mitcham Rd.

CB
UHF
MARINE
AMATEUR

PAGERS
TELEPHONES
MOBILE PHONES
ANSW. MACHINES
DIVERTERS

SWR METERS
SPEAKERS
MICROPHONES

SCANNERS

ANTENNAS
HAND HELD
MOBILE
BASE

ALL RELATED EQUIPMENT

"BARRETT" FLYING DOCTOR (RFDS) UNITS *NOW IN STOCK*

All channels — user programmable — auto tune antenna — pop in for a demo of this latest gear — you can even make phone calls Australia wide, using OTC's "Radphone" system, already fitted.

WHAT IS CB RADIO ???

A HANDBOOK FOR THE AUSTRALIAN C.B. RADIO OPERATOR.

A COMPLETE NON-TECHNICAL GUIDE ON HOW TO OPERATE YOUR SET, WHAT RANGE YOU CAN EXPECT, WHAT ANTENNA TO USE, A.M. & S.S.B. DIFFERENCE ETC.

$4.00 incl postage

Dealer enquiries welcome

TUF DUCK®

REPLACEMENT ANTENNA

MADE IN USA

¼ STUBBY-UHF **$29.00** plus $2 p&p

The Stubby Antenna — TUF Duck from the USA, specifically designed for the UHF CB frequencies. Only 2 inches long, with very marginal decrease in performance over a standard antenna they are ideal for on-site and handheld communications. Save on wear and tear of normal antenna abuse by replacing your antenna with a Stubby TUF Duck!

2 metre 5/8 Amateur Telescopic Whips available. These really lift amateur 2m handhelds performance!

Dealer Inquiries Welcome.

Ground Independent CB Antennas? We have one, the ZG140 from ZCG Antennas. With a three foot radiator, this antenna will perform hanging from a tree. Ideal for boats, trucks, portable use, in fact any application where no ground plane is available.

Need a replacement antenna for a carphone? We have a variety that will amaze you. We have gutter mount, guard mount, bonnet mount, on glass, boot mount, in roof floppy and gain, and hi lift, plus magnetic (phew), and handheld TNC replacement of course!

PORTABLE or FIXED Base Stn Antenna "ITRON"

¼ wave pre-tuned 27 MHz base antenna 3dB gain, SWR 1-1 18' vertical pretuned base antenna. This is a precision-built antenna with a gain of about 3dB over a groundf plane. Every antenna is individually factory tuned. No adjustments are necessary.

No rings — no coils — no tuning whatsoever. SWR is 1-1 across the board.

FULLY MANUFACTURED IN AUSTRALIA

$69.00

SALES SERVICE REPAIRS HIRE

MAIL ORDER: PO Box 50, Mitcham 3132, Vic Add $12 Freight

Name .....

Address .....

.....

p/code .....Phone.....

Please send me.....

.....

CBA 790

Payment enclosed for $.....

Please charge my:

☐ Bankcard ☐ Master Card ☐ Visa

Card No:

Expiry Date.....

Signature .....

AUSTRALIA'S CB SPECIALISTS

Looks good, works well . . .

YUPITERU MVT.6000 MOBILE SCANNER

Following the success of the MVT 5000, the first continuous coverage handheld, Yupiteru has released the MVT 6000 mobile. Scanning Action columnist RUSSELL BRYANT takes a look at the latest from this little known manufacturer.....

You want a mobile with continuous (almost) frequency coverage; you neither need nor want 400 memories; you want better than normal specifications — boy, have I got a scanner for you!

Not that long ago Yupiteru — for the sake of our editor it means Jupiter in Japanese (let's not get too smart young Russell...Ed) — marketed the MVT 5000 handheld. It featured a frequency coverage of 25-1300 MHz with a gap between 550-800 MHz, preset (or user selectable) services search bands and superior image and adjacent channel rejection.

Subscribing to the old commercial, "when you're on a good thing stick to it", Yupiteru has now brought out the MVT 6000, a mobile version of the handheld. Now, I could simply leave the review here and tell you to read the 5000 article, just delete 5000 whenever it appears and replace it with 6000. Except, the obvious difference when comparing a portable to a mobile is the size, because the compactness of the handheld necessitates a compromise when it comes to shielding vital areas against RF leak (in the case of a birdie) or susceptibility to interference.

A mobile is another story, larger boards make it easier to enclose RFI prone areas in cans, or protective metal cases. The end product is a scanner better able to handle city living or environs affected by heavy radio frequency interference.

EDGE OF THE WEDGE

When I took delivery of the 6000 from Andrews Communications (which probably has the largest range of receivers in Australia) I was somewhat surprised. The appearance of the Yupiteru MVT 6000 is a departure from the usual boxlike scanner. The simplest way to describe it would be as a wedge that doesn't quite make it to a thin edge.

Arguably the smallest mobile scanner on the market, the MVT 6000 measures 16.5 x 17 x 3.5 cms and weighs in at around a kilo. All of the features of the handheld have been retained in the mobile, things such as auto band search, AF scan and auto scan resume after seven seconds of transmission plus selectable AM/FM and much, much more.

The LCD display leaves nothing to the imagination, all details of the program are displayed for no-mistake scanning. The push buttons are floating individual keys with an accompanying beep, acknowledging the key has been pressed. The concentric, or piggy back controls, for volume and mute have been retained as has the separate on/off power switch. Keyboard layout of the mobile is similar to the handheld although there are minor variations in order to

keep the overall size reduced. Also mounted on the front panel are the Keyboard Lock and Reset switch.....no more groping around trying to find a switch mounted somewhere on the back panel.

The MVT 6000 has excellent image rejection, its triple IF conversion contributes to that. The first IF (intermediate frequency) of 705 MHz puts any image signal beyond the receiving range of the scanner. For strong incoming signals the Yupiteru can attenuate (reduce) the level by 10dB, thereby removing most front end overload problems.

Further enhancing the 6000 and protecting it from cross-mod or inter-mod transmissions is the fact that the whole thing is enclosed in a metal case. As plastic becomes the medium used for scanner cases so the incidence of unwanted radio signals overloading the scanner will increase, metal helps keep annoying RF overload to a minimum.

The 10 pre-programmed search banks allow instant access to the designated services or any frequency between the two limits you enter into the radio. As with the MVT 5000 the Japanese search bands are:

A quick glance tells you that only two or three factory set limits have any relevance to Australian conditions.

The BAND WRITE function alters the set parameters as well as receiving mode and search increment. Search increments are 5, 10, 12.5, 25 and 30 kHz, and are available irrespective of the frequency band nominated.

One feature which I like is the SKIP mode. If the receiver locks onto a carrier or overly long transmission while scanning, it will automatically resume scanning after seven seconds using SKIP, this is ideal for the mobile user as you don't have to remove your eyes from the road to operate the scan again.

CONSERVATIVE FIGURES

The figures quoted for the MVT 6000 regarding sensitivity seem a little conservative given that they are identical to the handheld. For the low band (25 - 550 MHz) sensitivity is said to be .5 microvolt for FM and 1.5 microvolts AM. High band spec (800 - 1300 MHz), is .8 microvolt, FM only.

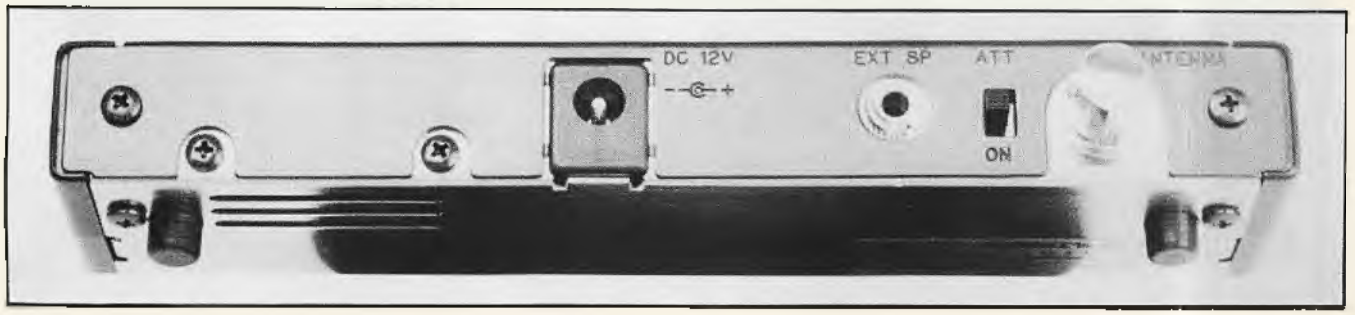
I decided to use some Motorola test equipment to check out these numbers and low band FM came in at .3 microvolt and AM at 1 microvolt. For frequencies 800 MHz and above .5 microvolt was the mean.

The MVT 5000 handheld has an audio output of 100mV which is fine for most listening applications, however, when it comes to driving an external speaker, it lacks the necessary oomph. The 6000, on the other hand, pumps out 300 mV and can power an external speaker to the point of being too loud.

The programming functions of the 6000 are the same as the 5000 and require the handbook to be read before

1	AIR VHF 1	108.000-136.010	AM	10 KHz	INCREMENT
2	AIR VHF 2	225.000-261.500	AM	25 KHz	INCREMENT
3	AIR UHF	275.500-327.500	AM	25 KHz	INCREMENT
4	POLICE	146.010-154.500	FM	10 KHz	INCREMENT
5	MARINE	156.000-162.050	FM	5 KHz	INCREMENT
6	POLICE U1	347.7125-348.2125	FM	12.5 KHz	INCREMENT
7	POLICE U2	361.500-362.500	FM	12.5 KHz	INCREMENT
8	MCA BASE	850.025-859.975	FM	12.5 KHz	INCREMENT
9	CAR TEL	870.025-884.975	FM	12.5 KHz	INCREMENT
0	PERSONAL	903.0375-904.9875	FM	12.5 KHz	INCREMENT

The thin end of the wedge. . . rear panel of rig contains 12v socket, extension speaker outlet, attenuator and antenna socket.



Side view shows unique styling.

attempting operation. Instead of simply entering a frequency, you then have to write it to a memory channel and this is an extra step not found on the usual type of scanner.

An interesting aspect of the Yupiteru is, for example, when you wish to program the 40 UHF CB channels into memories 1-40. After entering the lower frequency and increment, you can automatically enter the remaining 39 channels in sequential order.... a real time saver!

Should you wish to mount the MVT in the car, Yupiteru includes a cord for hard wiring into the car's electrical system. If your auto electronic abilities are not up to it, a cigarette lighter lead is also supplied. The mounting bracket is well suited to the scanner (given its weight) while for desktop use the standard telescoping whip that accompanies the 6000 is adequate, however, it is also impractical for mobile work.

Overall the Yupiteru MVT 6000 mobile/desktop will cause some concern to the 'big boys' given the frequencies covered, compactness, memories, additional functions and, of course, the price.

Andrews Communications retail the MVT 6000 for around $599.

RUSSELL BRYANT'S

SCANNING ACTION

All frequencies are in FM unless otherwise stated, all times are in local time, unless indicated differently.

SCANNING THE MULTIPOINT DISTRIBUTION SERVICES.

Background, piped and elevator — all describe a type of music we are familiar with, but never think of in depth. Department stores, clubs and business offices all use background music to help create a relaxed and pleasant atmosphere. Most forms of background music and subscriber information services are delivered via landline, leased from Telecom Australia. One form of piped information, however, is being transferred to its subscribers via radio. Known as ***VAEIS,*** or Video and Audio Entertainment and Information Services, it makes for interesting listening for scanner owners.

Most, however, not all capital cities have VAEIS services available.

Program content varies, from ethnic music to stock-market reports and travellers' assistance. All broadcasts occur on frequencies easily received by any programmable scanner and transmissions are in the lower portion of the VHF high band, around 150 MHz, with reception possible in many of the outer suburbs and regional areas of the capitals. The transmission mode is narrow band FM with a power output of 50 watts (83 watts EIRP).

Piped music is not the only service available, some carry news from the homeland of many of the tourists who visit our country. It is estimated 300,000 Japanese tourists will visit Australia during any given year and a service known as ***TRAVRAD*** or Travellers' Radio will broadcast news and information likely to assist our Asian visitors.

Such assistance will benefit tourists who have difficulty understanding or coping with Australian currency, language, custom and lifestyle.

How does it all work?

Rather simply actually!

In the case of a social club, the management pays a subscription to the broadcasting company which, in turn, provides the equipment such as receiver and amplifier with the continuous transmissions then being piped throughout the subscriber's premises. For the tourist, hotels and motels will hire special narrow band portable receivers which allow monitoring on the move.

In case you are thinking of pirating the service, don't. Not only will you be in breach of the Radio Communications Act, but, also the copyright laws. This is a criminal offence and the cost in fines alone would be massive.

The following information is supplied strictly for the purpose of identifying what you might hear when scanning through a band of frequencies and suddenly encountering music and/or information where you didn't expect to hear it.

Companies offering the service and their frequencies are:

151.425, 152.025, 152.150 — Fidelity Communications Corporation, servicing Canberra, Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart and Darwin.

152.075 — Japan Australiasian Tourist Radio Enterprises, broadcasting in Canberra, Sydney, Melbourne, Brisbane, Adelaide and Perth.

152.150 — International Tourist Radio Enterprise, transmitting in Sydney, Melbourne and Brisbane.

152.175 — Ethnic Broadcasting Radio, supplies its services in Sydney only.

152.225 — Australian Associated Press (AAP), broadcasts news in Canberra.

152.250 — Corporate Data Services, carries company information in Sydney, Melbourne and Brisbane only.

154.050, 154.100 — Margan Delta, transmits Greek music to many of the clubs in Melbourne.

154.125, 154.150 — Margan Delta, uses these frequencies in Sydney for the same purpose.

Plans are under way to develop the MDS further with stock and commodity exchange prices, information and news relating to SES, police, fire and ambulance personnel, races and results fed to TAB agencies and finally medical and health material for distribution to doctors, nurses and associated groups.

This is an interesting sideline to the use of radio as, while subscriber services are not new, most are either encrypted or in bands outside the frequency range of our scanners.

MAILBAG

John, in Shepparton, VIC, says the Victorian Ambulance have 413.225 in operation in the Melbourne area. He reports a good copy in Shepparton. The signal makes the journey via a repeater atop Mt Macedon. "Not bad," says John for a UHF signal.

In the May/June column I listed the 100 and 200 series radio codes for the South Australia Police. Here is the next installment.

301 LARCENY 401 ALARM 501 ASSAULT 302 ROBBERY
402 BREAKER/PREMISES 502 INDECENT ASSAULT
303 ARMED HOLD UP 403 INTRUDER/PREMISES 503
HOMICIDE 304 SHOPLIFTER 404 SUSPECT LOITERING 504
DECEASED
405 UNSECURED PREMISES 505 RAPE 406 BREAKING 506
INDECENT EXPOSURE
507 ADMIT BODY TO MORGUE

The remaining series of 600, 700 and 800 will be in the next issue of the magazine, stay tuned.

*** *** ***

A request from Glen, in the Barossa Valley, SA, requesting information on frequencies to be used at the Adelaide Grand Prix... how about a quick note to 'Scanning Action' if you can help with this one as there will be several interested readers.

*** *** ***

David, in Jerry's Plains, NSW, sent along three frequencies being used by the State Rail Authority in the Newcastle/Broadmeadow area. They are from the 410 MHz National Railway allocation. David says he can sit at home with 417.075 MHz programmed into his PRO 2004 and keep track of all locomotive movements in and out of Broadmeadow depot. The two other frequencies being used, 418.400 and 418.500 MHz, have not, as yet, had the section of the railway using them identified.

*** *** ***

A request from Bob in Granville, NSW, for the taxi 'M' codes. He says he likes listening to the cabbies but can't understand their job codes... okay Bob here are the most heard 'M' codes.

M3 NO FARE M6 LOCAL FARE
M7 ACCOUNT FARE M8 WAITING TIME ON A RADIO FARE
M9 DRUNK FARE M10 REGULAR FARE
M11 INCAPACITATED FARE M12 REPEAT LAST MESSAGE
M13 DRIVER IN TROUBLE M14 OPERATOR BUSY, FIRST CAR TO BID GETS JOB
M15 DRIVER DOING A SPECIAL JOB M16 PARCEL PICKUP
M17 OFF LOADED FARE M20 PRICE OF FARE
M21 ONE PASSENGER M22 TWO PASSENGERS
M23 THREE PASSENGERS M24 FOUR PASSENGERS
M25 FIVE PASSENGERS M30 FIVE PASSENGER VEHICLE REQUIRED (BUS)

*** *** ***

Some brickbats from Edward, in Kingsley, WA, the first...when a frequency is given I don't disclose the mode...whether it is AM, FM or whatever. His next complaint is that the frequencies for the Sydney To Hobart Yacht Race were of little use to WA readers. Thirdly, the various designators used to list time...ZULU, GMT, UTC and Co-Ordinated Universal Time...where no

reference is made as to what each means. Finally, he is unhappy that I don't always print channel numbers against the frequencies supplied.

Dealing with each complaint in order...granted, it is not always made clear what the RX (receiver) mode is, however, given that most scanners have fixed receive modes, there is, I think, little point when listing bands such as 138-174 MHz. Even so, obviously it is a problem to some readers and it is remedied from this issue...please note the beginning of the column.

Onto the next complaint...when it comes to a specific event such as the Sydney to Hobart, unfortunately I (and Rob Williams for that matter, he also rates some criticism from Edward) cannot please all of the people all of the time. The Sydney to Hobart is, as far as scanner owners are concerned, of limited interest. If you live outside the metro areas of Sydney or Hobart it is obvious that the frequencies are of little use, just as are those of the Australian GP if you live outside Adelaide. This is a big country and I try to give a mix of letters and information from all points of the compass. My strongest source of that information is you, the reader. If you stop writing then you would be looking at two or three blank pages or information only applicable to my own home area.

And the next...GMT or Greenwich Mean Time was the original bench mark for recording time worldwide. Greenwich is located on the geographical zero meridian, the point from which time is measured. Several years ago the Greenwich Observatory ceased operations, however, it is not possible to simply alter time on a global scale. To avoid the massive logistical problem, the same time zones were maintained, but, with the method of labelling altered...GMT, UTC, ZULU and Co-Ordinated Universal Time all describe the same thing...the TIME! The name used is irrelevant...to simplify it even further, even though the local time in Sydney might be 6am on 30 May, but, noon in Los Angeles on 29 May, the GMT, UTC or ZULU time will be the same.

Finally, with regard to not listing channel numbers, I refer to my previous answer...if the readers, who supply the information, don't include them I can't magically make them up...if they are sent to me, I publish them.

*** *** ***

David, from Campbell ACT, has some questions about the Realistic PRO 2020. David, it is only recently that Realistic scanners have been able to be modified. Previously, the company manufacturing Tandy receivers (GRE Japan) has maintained a rigid control on specs. Altering the 12.5 kHz stepping to 25 kHz may mean you'll miss out on certain UHF traffic, when the bands are re- allocated in the near future to allow 12.5 kHz steps on UHF — DoTaC is working on a band plan at the moment — for release soon. The CPU or Central Processing Unit has been set at a given step-rate depending on the band, it is most unlikely that you would be able to alter it.

Without seeing the service manual, it is hard to say if the scan speed could be increased. In early receivers the scanning rate was controlled by an IC, several resistors, capacitors and diodes made up the circuit. Check the service manual to try to locate the chip. Varying a resistor value may increase the speed but it's best to check with a technician before carrying out the modification.

The harmonics, or more correctly images, are a problem in the early scanners. The use of a 10.7 MHz IF, 10.8 for early Bearcats, caused more worries than they are worth. Band pass filters may work, however by the time you purchased them, (one for each band or portion thereof), you have probably spent enough money to purchase a 2004 / 5 / 6, which does not suffer from the image syndrome. In short, the answer is no.

The VHF lowband can be restored, it could mean the loss of the mid band VHF. Again check the service manual, carefully following the circuitry, a jumper lead or diode restores or removes a given band from the sequence. A simple method to check the mod afterwards, is to program in a pager frequency of 40.680 or 40.750, if nothing is heard after several hours, then something is missing from the mod. Simply reverse the steps to restore the mid band VHF, if lost.

(continued over)

RUSSELL BRYANT'S

SCANNING ACTION

(continued)

The PLL chips for the PRO 2020 were programmed for 30-54 (for the American market), 68-88 (for the European and Australian markets), 108-136, 144-174 and 380-512 MHz, the bands cannot be altered. One suggestion I might offer, is sell the 2020 and purchase a new or good secondhand 2004 / 5 — the solution to all your problems will be enclosed in one neat package. The secondhand price for a 2020 is around $150-$200 whilst the 2004 sells for $350-400 and the 2005 between $400-$450.

*** *** ***

Bob, in Chatswood, NSW, would like to know where he can purchase the ESG Frequency Guides. Bob, ESG sells through Captain Communications stores in Parramatta, telephone 02 633 4333. A friend of Bobs says, "the lists are continually going out of date and suggests I get an automatic scanner to do the lot and even tap into the USA".

The lists do date, it would be boring if they didn't, however the emergency services (which is by far the most popular of scanning targets) don't change frequencies all that often. My frequency lists are about three years old and I won't be updating for a few more years yet. As to an 'automatic scanner', I don't quite know what your friend is referring to. It is possible to monitor transmissions from the US, however, only on certain bands.

*** *** ***

From an informed reader in Adelaide comes a comprehensive list of frequencies and channel numbers for the South Australian State Emergency Service. 1. 167.380 2. 167.410 3. 167.350 4. 167.320 5. 167.290 6. 164.080 7. 164.170 8. 163.120 (CFS) 9. 163.990 (Disaster) 11. 167.410 repeater RX 164.080 repeater TX 12. 164.080 repeater RX 167.410 repeater TX
13. 167.380 repeater RX 164.170 repeater TX 14. 164.170 repeater RX 167.380 repeater TX

*** *** ***

The 'Secret Republican,' checks in with some unusual frequencies for the ACT and NSW. The first is the studio-to-transmitter link for radio station 2GB, on 958.850 WFM. This is a low power signal and may not be received in all areas. Next, 404.325 is being used by OTC for the marine telephone service, linking remote sites back to the control centre at La Perouse. Moving to the ACT, the Feds can be monitored on 468.850 working radar in the national capital. This frequency doesn't appear on any lists and may be a new allocation.

*** *** ***

For those interested in marine communications, Gary, in Tanilba Bay, NSW, sends along some frequencies used by the Port Stephens Coast Guard. A 24 hour watch is maintained on 2524 kHz USB, VHF channels 16 (156.800 MHz), channel 67 (156.375 MHz), 27.880 MHz AM, 27.910 MHz AM and finally UHF CB channel 11 (476.675 MHz). Gary also included the Cessnock Bushfire frequency of 171.930 MHz and an ambulance link channel 154.625 MHz.

*** *** ***

Andrew, from Windsor Gardens, SA, is considering selling his scanner. He has heard that the South Australian Police are intending, in July this year, to introduce Computer Aided Dispatching to their network. He parts by saying, "what is the use owning a scanner if the police communicate using a computer". Andrew, there is more to listen to than the police, fire and ambulance channels, with hundreds of thousands of RF waves floating about I am sure you could find something just as entertaining. For reasons that I won't go into just now, I rarely monitor the local police channels, I find them boring and annoying. Still, I can understand your frustration if your main enjoyment from scanning is suddenly cut off.

*** *** ***

In a past column, Wayne, in Hobart, TAS, requested assistance with the callsigns used by VKT units. From Jason, in Prospect Vale, and Wayne, of Launceston, comes some of the callsigns. I have just returned from a trip to Tasmania and my observations make up the remaining entries.
B = Burnie C = C.I.B (all areas)
D = Devonport E = East Hobart
F = Georgetown G = Glenorchy
H = Hobart (inner city units) K = Kingston
L = Launceston M = Motor cycle patrols
N = New Norfolk O = Outer (outer Hobart suburbs)
Q = Queenstown (includes Zeehan) S = Scientific (all areas)
T = Traffic (all areas) U = Ulverstone
X = Footpatrols Y = Search & Rescue

PROPAGATION

I have mentioned it before, within the hobby of scanning the VHF/UHF bands there are a number of specialist groups, railway fans, police monitors and those who have their heads in the clouds, whilst remaining firmly on the ground, I am talking about airband enthusiasts. A new book written by the well-respected aviation radio expert and journo Bob Bell, features very detailed information, frequencies, callsigns, selcal codes and airport details to delight the airband monitor. Called the ***AUSTRALIAN AIRBAND GUIDE,*** it is available for $24.95, plus $3.00 post and handling from AIRBAND COMMUNICATIONS, PO BOX 301, CHESTER HILL, NSW 2162.

*** *** ***

Rumor has it, AOR has decided to drop the AR 3000 from its catalogue. Plagued with problems from the beginning, the AR 3000 was too much radio in the one box. It is unfortunate for those waiting patiently for the arrival of this super scanner, however if you are one of the lucky dozen or so in Australia to own a working model in good condition, be reluctant to part with it — it may be a true collectors' item. It is also rumored that a few hundred refurbished AR 3000s may find their way into Australia. I am told that although these scanners were returned to the factory with faults, they have been thoroughly checked and repaired by AOR technicians. The arrival date and price is undetermined.

*** *** ***

Due to a recent US Supreme Court decision, scanner enthusiasts in America will cease to have the range of receivers and scanners they previously enjoyed available. The court action was commenced by Uniden, owners of the Bearcat brand name, against ACE Communications, agents for AOR in America, for breaches of patent rights. Attorneys for Uniden alleged, that since purchasing the right, title and interest in Bearcat, that they, Uniden, are also owners of the patented design of the circuitry that makes a scanner scan. Suing for damages, Uniden stated that ACE had not approached them for a waiver of patent rights, and, in fact, had ignored the patent altogether.

In their defence, ACE maintained that Uniden might be the holder of the patent, however Uniden and the previous owner of the patent, Electra Corporation, had not exercised their rights and since that was over a period of many years, Electra/Uniden had abandoned their right to enforce the patent. Uniden argued that, since they owned the scanning

circuitry design incorporated in today's scanning receivers, they could enforce or waiver their rights and therefore payment, for use of the design as they saw fit. The jury found in favor of Uniden. The court's decision will not only affect the cost of scanners in the US, but exclude many from retail sale. Models such as the Yupiteru MVT 5000 and 6000, AR 1000 / Fairmate HP 100 as well as Shinwa scanners may never be seen on US dealers' shelves.

Those recent events in the US could have beneficial affects on scanners in Australia. Models previously destined for America, and now not permitted there, could find themselves in Australian stores.

*** *** ***

A little closer to home, Telecom has announced the winding up of the PAMTS mobile telephone network. It is anticipated that NSW and Victoria will have vacated the band in June, 1991, with Queensland leaving in June, 1992 and Western Australia and South Australia following in June, 1993. Those portions of the band, namely 501-504 and 511-514, will be open to tender for exploitation by "entrepreneurs including those wanting to establish large communications systems throughout Australia". We, as scanner users, were prohibited by law from monitoring the bands.....maybe the new services will make up for the loss!

CONTACTS

Several issues ago I gave an undertaking to put readers in contact with others so they could exchange information. The popularity has exceeded my expectations, so, to lighten my workload, a new segment to assist readers will be introduced to Scanning Action.

To be known as ***CONTACTS,*** it will work as easily as this... send me your name, address (preferably a PO box, as it will be printed) and area/s of interest. Maybe you are into the airbands, as mentioned above, it doesn't matter. Readers who share scanning interests can then contact you directly. If you are reluctant to have your residential address printed, a telephone number (including cellular phones) and don't forget area code, or even a fax number will do. The address to write to is, CONTACTS, PO BOX R 16, ROSELANDS 2196.

That's it for another issue. If you wish to write to me about anything to do with scanning or scanners the address is.

SCANNING ACTION PO BOX R 16
ROSELANDS, NSW 2196

and please include a stamped self-addressed envelope if you desire a personal reply:

ACBRO — 10 YEARS DOWN THE TRACK

The Australian Association of Citizens and Band Radio Operators, better known as ACBRO, celebrated its 10th anniversary on 26 May. A multitude of CB organizations and associations have come and gone in this time but ACBRO has not only survived, it has grown.

It produces a bi-monthly newsletter for its members and has regular meetings and events. Its current list of affiliated clubs now totals 15 with clubs joining from WA, SA, Tasmania and NSW.

One of the club's current activities is to obtain a 'petition to improve the citizen band radio service.' This is a serious campaign to have channel 35 (27 MHx. CBRS) established as a legal call channel. A circular has been forwarded to all members and affiliated clubs and can also be made available to non-members upon request.

If you wish to assist with this petition, please drop a note to ACBRO, Box 170, Walkerville, South Australia 5081 . . . but do it now as ACBRO need the signed petitions back to them no later than 31 July.

WE WON'T BE BEATEN ON PRICE!!

BE QUICK

★ WE WILL FREIGHT ANYWHERE ★

UNBEATABLE PACKAGE OFFERS

Limited Stocks
Limited Time

COMPLETE BASE STATION

1 x Uniden Washington complete with inbuilt power supply, microphone, power cord and 2 year warranty.
PLUS
1 x Station Master Antenna
PLUS
15 mtrs of RG213 heavy duty coax cable and connectors.

ALL THIS FOR JUST $499.00

COMPLETE MOBILE STATION

1 x Uniden PC 122 complete with microphone mounting bracket, power cord and a 2 year warranty.
PLUS
1 x 5 foot Helical Whip Antenna
PLUS
1 x base, lead and plug cable assembly

ALL THIS FOR JUST $299.00

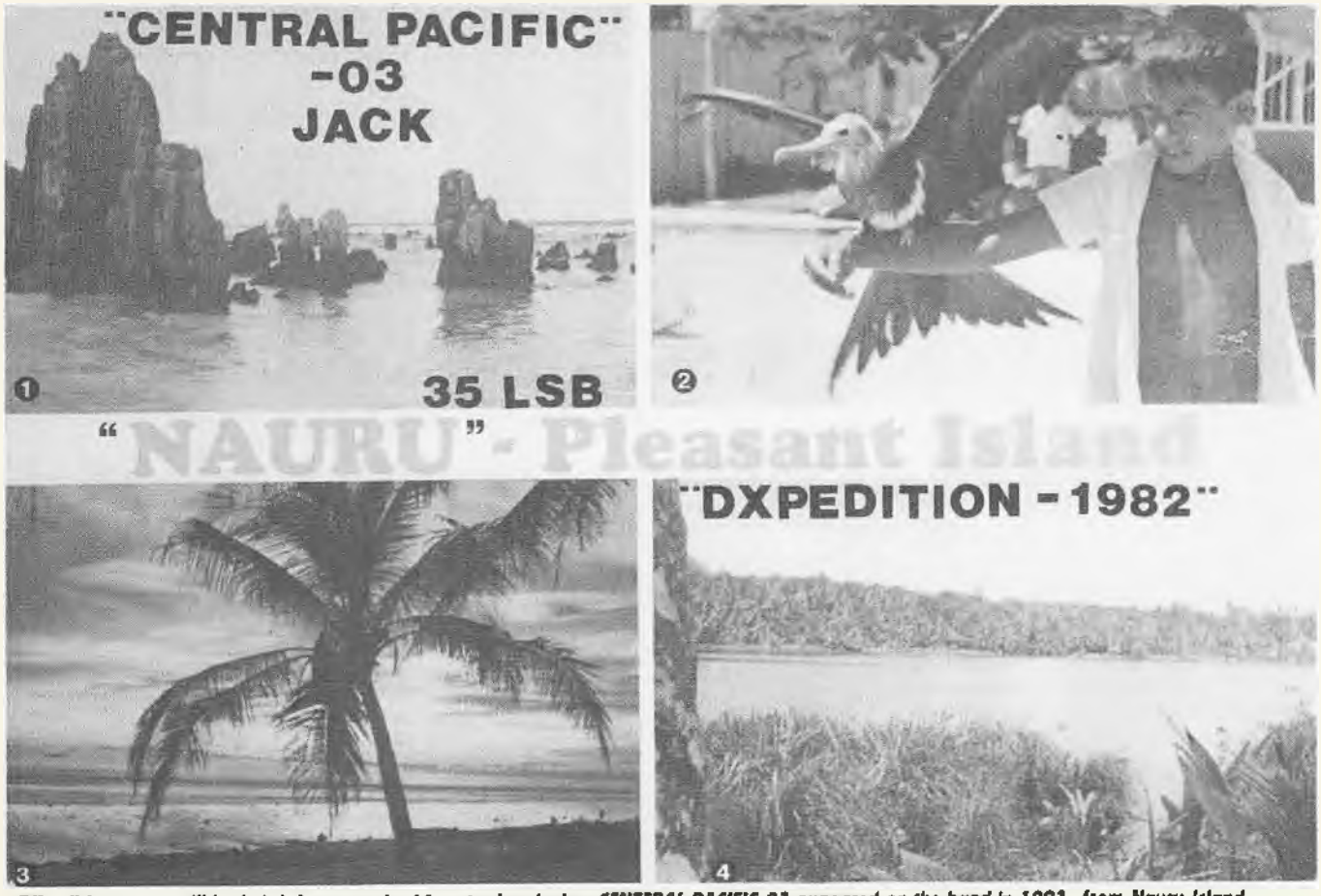
ASK ABOUT OUR UHF PACKAGE DEALS

WE ACCEPT BANKCARD, MASTERCARD, VISA CARD, AND AGC CREDIT LINE

PHONE AND MAIL ORDERS MOST WELCOME

JENSEN ELECTRONICS PTY LTD

75 PROSPECT RD, PROSPECT, SA 5082
PH (08) 269 4744 3 LINES FAX (08) 269 7021



DXpeditions were still in their infancy on the 11 meter band when CENTERAL PACIFIC-03 appeared on the band in 1982 from Nauru Island.

Jack Haden explains . . .

DXpeditions — WHAT ARE THEY?

A DXpedition occurs when a group of serious DXers band together and set off to some remote or rarely activated country. They then establish and maintain a radio station for the sole purpose of making contacts outside of that DX location, of course, via propagation.

The success of the whole operation depends on two factors, the first one being getting the equipment into the country desired without having it confiscated by local authorities at the country's entry point (particularly if CB radio is illegal there). The second and just as equally important factor concerns our old ally and friend, propagation, without ionospheric propagation the whole programme would be a complete waste of time and money.

One question that I often get asked is: "How do those Alfa Tango DXers and other DX groups pull off these DXpeditions?" This question crops up when some rare country suddenly appears on the air for a brief period of time, usually only two or three days at the most. In the past year we have heard and been told to look out for DXpeditions to such rare places as: Bulgaria, Brunei, Czechoslovakia, East Malaysia, Djibouti, Market Reef, Mount Athos, Mozambique, Libya, South Yemen, Tunisia and the North Pole.

Quite a few of the just mentioned DXpeditions fail to eventuate, in other words they just don't make it on air at all. This can be attributed to the operators failing to land equipment in the country concerned, or sometimes just not having enough money available to pull off the planned operation. Quite often some of the operators get "cold feet" and back out at the last moment as they are too scared of the chances of being apprehended by the authorities for establishing and maintaining an illegal radio transmitting station.

Personally speaking, I would not like to entertain the prospects of spending a few days in a foreign jail after being caught operating an illegal radio station. Imagine being placed in the proverbial slammer in such countries as Libya, Iran or South Yemen for example. You could be held on such charges as espionage, anti-government activities, or be suspected of planning a coup to overthrow the government in power at the time, all this stemming from being caught with a CB radio on a foreign land where CB radio is a no no.

For those of you who watched the documentary series "Frontiers" (commenced 22 April) screened on A.B.C. television, which dealt with borders between countries, you will no doubt appreciate how open or in some cases, how closed, some of these borders really are. Award winning journalist Mr John Swaine presented a great series on this subject. After viewing the series, a DXer can appreciate how easy it is to pull off a "bogus" DXpedition. One can be so close to the country which is the object of the DXpedition, but can also be safe and sound within ones own country, then again, if desired, one can also sneak across in the cover of darkness and actually activate a foreign land for a brief period of time.

We all remember those old wartime movies where people snuck across the unfenced boundary in the hours of darkness escaping to freedom. With the exception of the now defunct Berlin Wall and the Great Wall of China, most borders between countries exist only as lines drawn

DXpeditions

on a map or a brief river crossing separating them.

So one can see that there is no problem in finding a secluded rural border area, and thus, sneaking across it with a generator and some equipment to activate the country on the air waves for 48 hours or so. One must always remember, however, by doing this, you are in fact entering illegally and if caught you will be treated as an illegal immigrant and thus receive the full weight of the law.

In the past there have been some rather shonky DXpeditions pulled off with operators saying that they are actually in the country concerned when in fact they are not, they are in fact safely within their own country but possibly a stones throw from the border of the country concerned. We in turn are not to know this and thus rely on their word and integrity, and not surprisingly they do get caught out from time to time.

Not to be forgotten, but very important, is the privilege of having a pre-arranged contact already established, radio wise, in the country of the planned DXpedition. This, in turn relieves the burden and worry of having to land equipment in the foreign country and thus avoid questioning and the possible impoundment of the equipment by authorities at the frontier.

Even though CB radio may be banned, or operate on a different mode or frequency allocation, there is often someone around that has what you need in that country. On rare occasions this can be traced to the "crooked" radio amateur who uses 27MHz from time to time to delve into some illicit DXing. This character usually falls under the category of the serious DXer and thus only appears when the band conditions are right or appears when he hears a country that he needs.

The "crooked" radio amateur proves to be a valuable asset to the DXpedition planner, and usually when the DXpedition team arrive in the country to be activated all they do is pack up the gear, procure a generator, and take to the bush for a brief 48 hour operation. As mentioned, this type of operation in activating a country via the "crooked" radio amateur is rare, but it has happened in the past and no doubt will continue from time to time in the future.

What really happens on most occasions is that there is usually one or two pirate CB radio stations already established in the country of question. These people are not very active, usually due to severe policing of the spectrum, they relish in entertaining the odd passing DXpedition from outside of the country, and benefit from the chance of packing the station up and going bush for a few days worth of solid DXing. Such was the case of Hungary, Poland and East Germany in the past.

Another popular way of launching a DXpedition is by way of maritime mobile operation. A lot of DX buffs have pulled this one off from yachts and small boats. Some have even taken dangerous risks by landing equipment ashore on a secluded beach and thus activated the country via this method. This usually takes place on an uninhabited or scarcely populated island within a particular country's sovereignty or group. Then again if they are sprung by a passing naval patrol boat, or dobbed in to police by a vigilant local, they are then in very hot water when it comes to the Immigration Act.

WHO PAYS THE COSTS?

As we all know with the majority of DXpeditions, one must send along with their QSL card a couple of IRC's or at the very least one "greenstamp" (US$1) to help cover the "costs". It is a religion with all DXpeditions, the sending of some form of payment, not only DXpeditions on the 11 meter band exclusively, but also on the amateur radio band too. The sending of the greenstamp or a couple of IRC's has been going on for longer than I can remember on the amateur bands. I suppose it boils down to, if you want the country so bad then you must pay to get it and that's that.

Many DXpeditions are payed for out of the operators own pocket, and are usually mingled in with the annual holiday or a paid working holiday abroad. In which ever case there are expenses to be born, the cost of printing QSL cards for the occasion is one of the main reasons. This is only the case when an individual is concerned. When a major organisation such as the Alfa Tango Group is concerned a lot of the costs are provided out of the clubs coffers. With a DX Group as big as Alfa Tango the mind boggles at the thought of the dollars flowing in annually from members around the world. Where does this money go and what is it used for?

Most of the money from membership subscriptions goes to the costs of the actual production of club materials, such as callbooks, QSL cards, Award certificates, rubber stamps, Annual General Meeting costs etc. The remainder is made available for the partial funding of the numerous DXpeditions that take place at various times throughout the year.

How much of this money is actually channeled into DXpeditions I do not know, but what I do know is quite a considerable sum of the actual costs are born by the club headquarters. After all it is to the club's benefit that the DXpedition takes place. It's their callsign prefix that is being used and it's being used by their members, so the club does get quite a bit of credit and glory out of the whole event. Popularity is what the name of the game is all about, the more popular the club, the more people want to join it. So you can see, the more exposure the club gets the more potential members the club procures, it's like any business, the success of business is the marketing of the product. DXpeditions at times, become a way of marketing a particular group, whether it be on 11 meters or the amateur radio bands.

Big DX Groups on the 11 meter band continue to baffle me, not only because of their size and growth rate, but the amount of money that is channelled into them every year. Do they pay taxes in their home country? With all that foreign money coming through from members worldwide the local authorities in their home country must be asking some questions. If you tried to pull something off as in the magnitude of the Alfa Tango Group here in Australia you would be under investigation before you could say Paul Keating's giving tax cuts. How do they get away it? It is little wonder that some of these enterprising DX Groups can afford to fund DXpeditions. Their coffers must be virtually overflowing with foreign exchange in the form of American currency year around, how they get away with it I do not know.

Although these types of DX groups are prevalent on the 11 meter band, they are in turn not confined to it as a whole. Those of you who hold Novice or Full Call amateur licences will no doubt know that there are ample DX Clubs and organisations that exist on the amateur bands, all for the cost of a few dollars each year, and like the 11 meter band groups they have often been the subject of question from time to time.

As we all know, if you belong to a prominent club, whether it be the local branch of the RSL or the Journalists Club, both of which I belong to, one always gets a statement each year explaining the clubs financial situation to its members. I have yet to receive such a statement from one of these big DX groups telling me where all this money goes each year and what profit or loss they run at.

NON-OFFICIAL DXPEDITIONS

Often referred to as a "semi" DXpedition by older hands around the DX traps these non official DXpeditions appear unscheduled and float about the band from time to time. We have all heard them and even possibly worked them, they are the people who usually have landed a work contract in a foreign country for a specified period of time and thus drag their radio gear along with them.

I myself have fallen under this category many times along with others such as Mel, who signed as ONE MAN ARMY from Johnston Atoll and Paula, who signed as RADIO 643 from the Bijago Archipelago off the coast of Guinea Bissau. These people provided us with a unique opportunity of picking up a new country from a rarely activated country.

Some of these people just mentioned, who actually work in communications, have no need to take equipment with them. The equipment in the workplace is often capable of 11 meter band transmission, and thus, if they have a passion for DX on 27MHz they duly appear there sooner or later and in turn activate an often much needed new country for some.

When is a DXpedition not a DXpedition? Anyone can launch a DXpedition to anywhere one fancies, within reason, whether it be to a foreign country or simply within the boundaries of ones own country. Over the past few weeks I have heard some DXpeditions which I have placed under question. One was signing as 2-AT-0 somewhere within the USA, as we all know the Americans are virtually dime a dozen on the band so what was the purpose of it? Another one which did the rounds recently was 49-DF-0 DXpedition from somewhere within New Caledonia, again there is an abundance of New Caledonians on the band so why the DXpedition within an already active country?

Some DXpeditions, in the past 12 months, have been very poorly run. A good example of this was the recent operations from 254-AT-0, Mount Athos, in Greece and the 93-CHB-0 operation from Malta are two that come to mind. These operations, although clearly heard in the Pacific, even though their signals were poor at times gave ultimate preference in working the "Big Guns" of Europe who run the proverbial ton most of the time.

I listened in for over an hour to each of these operations and at no time did I hear the various operators involved ask the European pile ups to standby for a moment whilst they checked to see if there was anyone in the Southern Hemisphere wishing to make a contact. While the Big Gun signals from Europe are there you have virtually yours and Buckleys, so to speak, of getting through.

Any DXer worth his salt operating a DXpedition would be well aware of the current propagation paths and opening times to various regions, and he should, in the interests of good DXing, look for signals from other regions well outside of the region he is operating from and thus give others a chance to have a crack at a new one.

Fair enough, the DXpedition is within Europe, but does that guarantee that every other station in Europe has a monopoly on the activation? We all know that most stations in Europe run big "grunt" on the band and thus blot out everything else from around the globe but the blame rests firmly on the shoulders of the DXpedition operators for failing to operate the show properly in the first place.

The majority of DXpeditions performed on the amateur bands are run amazingly well, the operators know their band opening times and thus work different regions at various times, this gives everyone a fair chance to work the stations concerned, working the DX contacts on split sometimes has its advantage, but more often than not this can also lead to the deliberate jamming or QRMing of the DXpedition station, one of the more unpleasant sides of amateur radio.

A perfect example of the "anti social" behaviour that can be found on the amateur bands was when the Club Bouvet DX Group launched an operation from Bouvet Island signing as 3Y5X, at times, whilst I listened in, the band around the DXpedition was nothing short of an utter fiasco, stations were heard calling out of turn, out of prefix, and out of region and at times there was no law and order at all on the band. As usual, with most DXpeditions on the amateur bands, there was the usual five by nine plus 20DB jamming carrier and an assortment of other jamming devices used.

The jamming of DXpeditions on the amateur bands is nothing new, although it has become progressively worse in the past six to eight years, it seems a lot of people take delight in jamming the DXpedition station and thus prevent others from making the contact. Also whilst listening to the Bouvet operation I heard quite a bit of foul and obscene language being vollied about, I thought for a moment I was on 11 meters and not 20 meters and it disgusted me so much I ended up switching the radio off.

The deliberate QRMing of DXpeditions stations on 11 meters is nowhere as bad as it is on the amateur bands, but it has happened in the past on rare occasions and no doubt will happen again with future DXpedition operations, a sad and often frustrating part of the hobby that we all have to tolerate to a certain extent.

QSL PROTOCOL WITH DXPEDITIONS

We have all heard it many times, mostly associated with DXpeditions, the request for one "greenstamp" and a self addressed envelope to be sent along with your card. A lot of DXers detest this request and often say: "Why should I have to pay for a QSL card from them?"

Those of us who are keen DXers will no doubt be well aware of the costs involved when it comes to the mailing of QSL cards to foreign destinations, it is not cheap and it will not get any cheaper. The costs of getting the actual QSL cards printed, along with buying envelopes to mail them in all adds to the costs of the hobby.

Imagine launching your own DXpedition to somewhere remote and a rare DX country at that, it all sounds and looks good until the QSL cards start to roll in from around the world. A typical amateur band DXpedition may net thousands of contacts in a short period of time and thus hundreds of cards start to come through the postal system straight away, waiting for your eventual return.

On the amateur bands it is part of the courtesy of QSLing to send at least two IRC's or a greenstamp to the DX station to ensure a quick reply, it even costs money to send cards via the bureau. This trend has quickly been adapted to the DXpeditions on the 11 meter band, if you need the card then you should be prepared to pay the price.

This practice, despite what some people say, is not turning the radio hobby into a money spinning venture, why should the DX station worked have to spend quite a considerable amount of money on mailing costs? Imagine sending 100 QSL cards AIRMAIL to the European Continent at one dollar ten cents per item, that's $110 all up, without adding the costs of envelopes and the initial QSL card printing costs.

One must place one's self in the position of others and thus weigh up the situation. I know on the amateur bands it is a part of the formalities to send return postage to the DX station, and the DX station expects this as it keeps costs down to a minimum. This is now catching on within regard to the 11 meter band as operators are feeling the pinch as the costs of mailing QSL cards abroad become more expensive each year.

I clearly remember quite a bit of whinging and moaning going on when Serges, the 303-SR-01 from Sakhalin Island in the USSR requested a greenstamp to be included with each card for return postage costs. Quite a reasonable request in my book and warranted to the fullest. By now Serges must have received hundreds of QSL cards from around the world and you can well imagine the costs involved when it comes to returning cards, especially if some failed to send the requested greenstamp.

On the amateur bands I would not hesitate at all in sending a greenstamp, or in the case of some countries two or three IRC's (International Reply Coupons), I know the chances of a quick return are excellent. On the 11 meter band I would be most hesitant in doing this, unless of course it was in fact a well publicised DXpedition and not some slim doing the rounds making a fast buck from the unsuspecting DX fraternity.

I know quite a few of us find it hard obtaining greenstamps, most of the people in the rural areas of Australia would have a slim chance of finding any trace of US currency at the local bank let alone in single one dollar bills.

So in this case you would have to go to your local Post Office and procure some IRC's. I haven't bought them for years but I do know they are over $1 each and usually you will need at least two to make sure the DX station sends your card back AIRMAIL, so it can work out to be very expensive.

Yes, it is illegal to send any form of cash currency through the mail, but it is done, and quite regularly at that. The most secure way of sending cash with your card is by registering the article, but then more expense comes into it again. International Money Orders are very expensive these days so the best method again is the greenstamp. One must also remember if sending IRC's to check and see if the country of destination accepts them, I know for a fact a small number of countries no longer accept IRC's anymore.

So after you have worked that DXpedition station see what he needs for return postage, nine out of 10 times it will be one greenstamp or at the least two IRC's, maybe three at the most. Send him nothing and you could be in for a long wait for your QSL card as there are no QSL Bureaus on the humble old 11 meter band. And don't forget, make sure it is a publicised DXpedition that you have worked and not a slim, otherwise you could end up with nothing at all in return. Good DX . . . Jack

Market Reef which appeared as 213-AT-0 generated a lot of interest over the period 22 to 23 July 1989 and proved to be most sought after.

POWER BAND COMMUNICATIONS

1289 NEPEAN HWY, CHELTENHAM VIC. PHONE (03) 584 7631 FAX 583 0846

(OPPOSITE CHELTENHAM POLICE STATION) Melway Ref. 86 J1

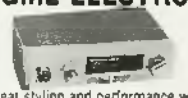
The people who brought you the world's first permanent UHF CB repeater...Channel 7 Melbourne

SCANNER FANATICS FREQUENCY REGISTER

New Third edition available now in offset printed book format. Victoria only including country areas. Compiled from DoTaC Micro-fiche records. Low power stations edited out for your convenience. Includes new Police District Maps and Codes etc.

NOW only **$25** P&P $2.50

GME ELECTROPHONE TX-826



Brand new version of a popular GME AM only 'Compact'.

Great styling and performance with the new space saving power and antenna leads. DX/LOCAL switch. Highway channel 8 priority switch on mike and more.

P&P $7.50 Ins. $3.50

THE ULTIMATE 27MHz MOBILE WHIP

Always in stock . . . the legendary 'Smokey and the Bandit' 9 foot stainless steel whip with heavy duty spring and adjustable ball mount assembly.

Available again by popular demand. . . 'SUPER-FLEX' 2.7 metre quarter wave tapered fibreglass whips to suit standard 5/16 inch thread mobile base.

NOW ONLY

$49

Enquire about delivery

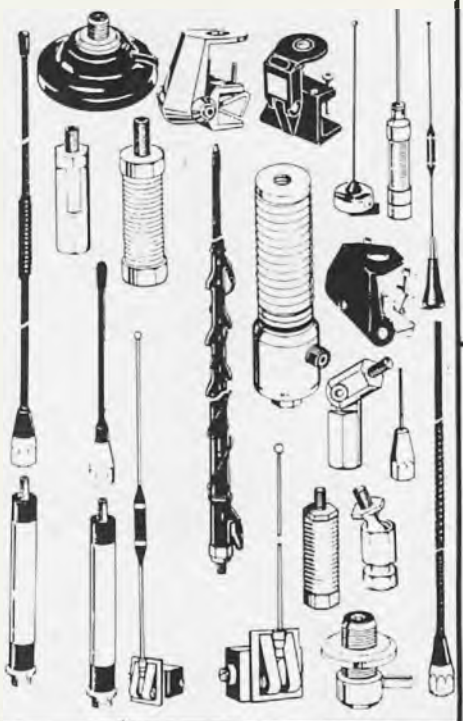
TURN YOUR ORDINARY MIKE INTO AN ECHO/POWER MIKE

$129

$179 wired to suit your rig — mail order customers please advise make and model.

2 mike inputs and 1 music level input, mike volume & input volume control, echo delay, repeat time and echo level controls. Foot switch socket and multiple outputs. Operates off power supply or internal 9 volt battery

A SELECTION FROM OUR WIDE RANGE OF ACCESSORIES

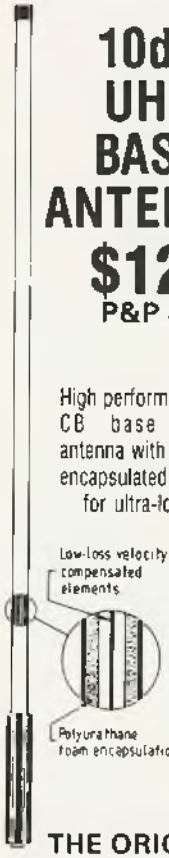


PB-900

10dB UHF BASE ANTENNA

$120

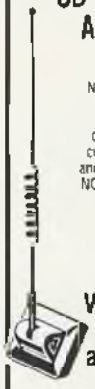
P&P $15



High performance UHF CB base station antenna with polyfoam encapsulated elements for ultra-long life

THE ORIGINAL AND STILL THE BEST

NEW HI PERFORMANCE UHF CB ON GLASS ANTENNA



No holes or any other fittings hardware required. Supplied complete with cable, connectors, adhesives and full instructions, etc NOW PRICED RIGHT AT

$65

Wide range of 'On-Glass' antennas now available 27MHz, phone etc.

NEW MOBILE SCANNER ANTENNA

Double loaded to cover efficiently VHF and UHF bands. Suits standard 5/16 inch mobile CB antenna mount. Available in black or white. Adaptor base available for SO-239 mount. Two sizes — 75cm & 90cm.

COMET SWR METER

Last remaining stock ready for shipment. Hurry to secure yours now. Reads forward and reflected power. Pocket size, power swr meter. Only 50 units left so hurry.

$79.95 Post & Pack $5.50

WORLD BAND COMMUNICATIONS RECEIVER ATS-803A

Continuous coverage from 150kHz to 30MHz and FM broadcast band decoded stereo output. 3 tuning modes — dial knob, scanning, keyboard. AM/SSB reception. Built-in alarm clock and 'sleep timer' mode. 14 memories.

Great value at only **$289** P&P $7.50 Insurance $5

COMET SUPER WIDE BAND DISCONE ANTENNA

All stainless steel construction including mast clamps and other hardware. Receive only from 25MHz to 50MHz. Full 200 watt transmit capability from 50MHz to 1300MHz with low VSWR across the band. 3dBi gain. Length 1.8 metre. Takes PL-259 connector. Cable not included.

$189 $15 P&P

NEW SWR POWER METER

with extended UHF range

A top quality VSWR power meter covering from 3MHz to over 1,000MHz in two ranges. A must for the serious UHF enthusiast. Australian made. 'Eats' the imported competition.

FULL RANGE OF UNIDEN CB RADIOS AND SCANNING RECEIVERS

POWER BAND COMMUNICATIONS

1289 NEPEAN HWY, CHELTENHAM VIC. PHONE (03) 584 7631 FAX 583 0846

(OPPOSITE CHELTENHAM POLICE STATION) Melway Ref. 86 J1

OPEN 6 DAYS

TRADING HOURS

Mon	9am – 5.30pm
Tue	9am-5pm
Wed-Fri	9am-6.30pm
Sat	9am-5pm

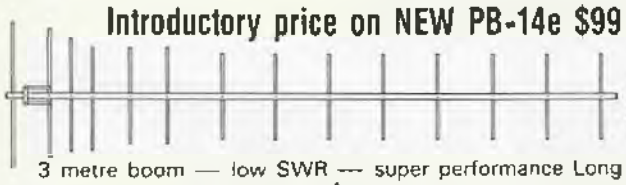
GME ELECTROPHONE TX-840

40ch AM/SSB 27MHz — quick release mount — compact size — space saving power and antenna entry — front mount mike — channel 8 priority etc.

P&P $7.50 Ins. $6.00

ON SALE FOR ONE MORE TERM PB-11e $59

Introductory price on NEW PB-14e $99



CBA SUPER BUY

3 metre boom — low SWR — super performance Long Yagi Array

UNIDEN BEARCAT 200XLT

200 ch. Intelligent memory 12 bands with 10 priority ch. ch. lockout scan delay. Clip-on batt pack.

$435

See review CBA Mar/Apr.

NEW RELEASE

HI PERFORMANCE UHF CORNER REFLECTOR ANTENNA

Specialised directional array with unique directional properties. Polar pattern is virtually free of side-lobes and has very high back to front ratio. Ideal for repeater operation for stations who usually access multiple repeaters on a single channel. Wide frequency range from 460MHz to 490MHz. Ideal high performance UHF scanner antenna. Offers good gain and directivity from 420MHz to 550MHz. Works well on 800/900MHz too. Variable feed impedance and frequency range. Short mounting mast supplied. Complete kit with detailed instructions.

$128 P&P $15

ROTATORS LIGHT DUTY

Suit ATV, UHF antenna arrays. 50kg load. 200kg/cm min torque. Stationary braking torque 1000kg/cm min.

$155 P&P $15

NEW!!

Frequency Register VHF-UHF.
Combiation Vic.- Tas.
Offest Printed - Plastic Cover.

$25 P&P $2.50

GME ELECTROPHONE TX-472S

40 channel CB with two programmable scan groups and programmable priority channel. Front mounted speaker and mike. Quick-release mount. Memory back-up and space saving power antenna connections.
SELCAL available.

P&P $7.50 Insurance $6.00

SUPER SPECIAL OFFER

The commplete PB-60 System including new high reliability mount, screw-on weatherproof mount cap, 6dB whiptop and half wave unity gain whiptop.
Outperforms most similar style antennas including a popular 'so called' 9dB unit

$59 the lot. P&P $7.50

BLACK OR WHITE

UPDATE YOUR TANDY PRO-2004 SCANNER

$35 Installed at our premises.

Conversion features:
400 channels. 30 channel per second scan rate. 30kHz channel spacing in Cellular Phone Band. Improved squelch control. Conversion includes overlay.

DIY kit of parts and detailed instructions. Includes professional keypad overlay. Mail order customers must pay freight to and from POWER BAND. Extra keypad overlays $7.95

$15 P&P $5

MAIL ORDER FORM

Send to **POWER BAND COMMUNICATIONS**
1289 Nepean Highway, Cheltenham 3192

Please rush me the following item/s.

.....

.....

.....

.....

.....

.....

NOTE:—
Please include phone number so we can advise of any difficulty with processing your order. Australia Post will not accept some large items and alternate transport must be arranged. P.O. Box & R.S.D. etc. delivery addresses are not acceptable to private freight companies.

I enclose Cheque/Money Order
Please debit my Credit Card VISA ☐ BANKCARD ☐
MASTERCARD ☐ Please send goods COD ☐
ALL Orders must include phone number for confirmation.

Phone ( ) .....

Signature .....

Expiry Date.....

Name.....

Address.....

.....P/code .....

David Flynn looks once again at the Wordmaze prize for this issue . . .

THE SMALL BUT BRILLIANT TX475S UHF RIG

It was some five years ago, if I remember rightly. I was enjoying a drink with a sales rep from GME-Electrophone, at the Hospitality Bar of a communications trade show, when he offered to show me the latest in UHF portables. He produced from his coat pocket one of the smallest handhelds I had then seen, attached a stumpy antenna and presented it for my inspection.

INCREDIBLY COMPACT

The TX-475S is incredibly compact, the only 477 MHz rig that can honestly be labelled 'pocket-size'. But it isn't a dainty or petite rig by any means. The casing and chassis, the weight (just shy of 450 grams) and almost military styling give the TX-475S a rugged appeal. The stumpy helical antenna enhances the picture, even though it loses nothing to the traditional tall'n'skinny whip. The rig is almost totally black, except for splashes of a light blue to label the controls and the rig itself — even the metal band around the wrist- strap is the same shade of blue, so here we have a totally color co-ordinated transceiver for the fashion conscious UHFer. Controls are evenly distributed on the top and front panels. Topside are the recessed volume and squelch knobs. Instead of using a tiny dab of paint atop each control, marking their setting clockwise or counter-clockwise, the TX- 475S uses a numerical '0 — 10' scale on the knob's outer surface, facing the front panel.

Also on the upper deck are three sockets. The first allows connection of an S/RF meter, although I have never seen such a device. The next two are for the ubiquitous external speaker and microphone, in the standard speaker-mike size and configuration. A bright red LED denotes transmission, and by default acts as a battery charge indicator — if the LED doesn't come on when you hit the PTT, you aren't transmitting and thus the battery is probably run down.

GOOD PANEL DESIGN

The front panel is an interesting study in design. Two switches, one for power level (low/high) and the other for selective calling (marked 'dial/tone', although the former is unpainted and almost invisible), are long flat vertical devices, removing much of the hit-or-miss element of smaller switches. A third, for simplex or duplex (repeater) operation, is more conventional. Channel selection is via two very small thumbwheels, although for their size the term 'thumbnail wheel' might be more accurate — nail-biters and women with delicately decorative nails, be warned.

The internal speaker and microphone are housed behind a grill in the upper- right corner. In all, The TX-475S is easily driven in one hand, the left seeming most natural. If it is the compact build of the 475S which appeals in the flesh, the main technical specifications do so on the bench and in the field. Power output is a beefy 2.5 watts, enough to be a practical improvement over the 1 watt of most other UHF handhelds.

This can be switched down to 500 mW for close-range work, either simplex or through repeaters, which greatly lengthens battery life. The nicad battery itself holds another plus for the TX-475S — it can be fast-charged and back on air in no more than a few hours, using the supplied 240 volt charger. This unit includes an electronic sensor which monitors current flow and permits charging in two modes. From near zero charge the battery is fed in 'boost' mode, to approximately 75 percent of its total capacity, which takes around four hours.

QUICK BATTERY CHARGE

The charger then cuts over into the 'trickle' state, which tops up the battery for another two or three hours.

Operation in either mode is indicated by a pair of LEDs on the charger, red for boost and green for trickle. The whole procedure should take an average of six hours, which is half the charge time of most other handhelds.

The TX-475S can even be pressed into service on the boost charge alone, although allowing a few hours of trickle charge will increase the operating lifetime of the nicad pack. The handbook makes a further recommendation that once every couple of weeks the TX-475S be let run down completely and then charged for up to 10 hours. This prevents the nicad pack developing a 'memory' of being fully charged, which inhibits peak performance. Other specs are very tight and respectable — the sensitivity figure 0.18 microvolts (at 12 dB SINAD) indicates a very hot receiver, borne out in on-air usage.

There was no evidence of overloading from channels adjacent or further removed from the operating frequency, even in areas that had an abundance of repeaters. Audio output sounds as if the given figure of 600 mW is a mite conservative, as signals received came through loud and very much in the clear in most environments.

The in-built electret condenser microphone is also sensitive and true, so I could only see a speaker-mike being required in the noisiest of situations.

EXCELLENT PERFORMANCE

Shortly before writing this review I found myself making a few trips outside of Sydney, and so the TX-475S became my travelling companion (in lieu of any better offers from the office girls).

As expected, it performed beautifully. The size meant it could go from car glovebox or centre console, to attache case and then to suit pocket without trauma. I ran it on low power most of the time which gave the rig a usable life of days between charges. I would prefer that the thumbwheels were larger and easier to manipulate and also that the decadic or 'tens' dial was divided into two sets of '0-4' rather than the '0-9', but, you get used to both characteristics with a little practice.

I couldn't fault the TX-475S for anything more than those two preferences.

The unit is very well built, making extensive use of surface-mounted componentry to increase reliability and reduce over-all size; the internals show a sensible, considered design with attention to detail. And you have to realise that almost half of the 475S' size is due to the battery pack, the transceiver itself is the same size as a pack of cigarettes (and much healthier !).

On the whole the TX-475S is an extremely well crafted radio. On the same jaunt I tested the latest battery pack from Brisbane accessory manufacturer Marktronics. This is the BP-1000, which I would highly recommend to anyone who uses a TX-475 or 475S for the better part of their working day.

The BP-1000 is a 1000 milliamp-hour (mAh) nicad battery which replaces the standard TX-475S pack, rated at a lower 450 mAh. Being the same voltage (9.4 v) the BP-1000 provides the same power output as the standard TX-475S, but more than doubles the time between charges.

COMPATIBLE SELCALL

Business or private users will find the optional internal selcall to be of great benefit. This plug-in module uses the standard five tone group and is fully compatible with all other selective calling systems (except that accursed three-tone set of the Sawtron 990).

Other accessories for the TX-475S include a speaker-mike, headset, mobile charger (fed from the 12 vdc cigarette lighter), mobile mounting bracket and a 3 dB flexible whip antenna. Included with the TX-475S is the nicad pack and charger, the stumpy (10cm) helical antenna, belt clip, soft carry case and a fabric wrist strap. GME-Electrophone have put some thought into the handbook, which includes a channel usage chart and explanations of repeaters and selective calling.

I used to own a TX-475, which eventually made its way into the hands of fellow columnist Russell Bryant, but, having renewed my acquaintance with this little gem of a radio I cannot think how I ever justified selling the handheld at all. I could happily take home the TX-475S in an instant and I think almost every UHFer would feel the same. If you are after a UHF handheld that is compact, reliable and full of performance, you've just found it.

CB ACTION recently (November/December 1989 issue) featured a simple do- it-yourself 27 MHz antenna called the Thunderstick. This is effectively a quarter-wave (nine foot or 2.75 metre) whip made from two sections of aluminium tube. I'm a keen DXer and can vouch for the Thunderstick's performance.

It can be made in an hour or so for around $15 and matches or out-performs a lot of the store-bought short whips and DX sticks that cost four times as much, so it has got to be value for money. The Thunderstick comes apart into two sections, the longest is 1.8 metres and so it fits very easily into my RV (recreational vehicle) or any station wagon.

But, although it's a good omni-directional whip, there are times when you could really do with a bit of gain and directivitiy to send your signal towards a certain station or country.

It's a bit much to carry around and put together a proper yagi, but, there is an alternative.

This is my design for what is basically a small two element beam designed for vans and wagons.

I call it the 'mobile mini-beam'and it will give you about 2 dB of gain both to the front and rear. Now this is not going to let you log the AT's entire DXCC list in half a day, but, it will give you better noise-free copy and could make the difference between getting that QSO and missing out.

THERE'S NOT MUCH MATERIAL REQUIRED

What do you need to make the mobile mini-beam ?

Nothing you can't buy from any decent CB shop or electronics store...and you might even have some of the parts in your shack or junk box. The beam consists of two normal mobile CB whips, two antenna bases, a T-connector and an inline SO-239 socket or joiner (I used Dick Smith Electronics as my source, catalogue numbers were P-2384 and P-2380) and some 75 ohm co-ax.

Greg Wright tells you how to build

A MOBILE BEAM ANTENNA

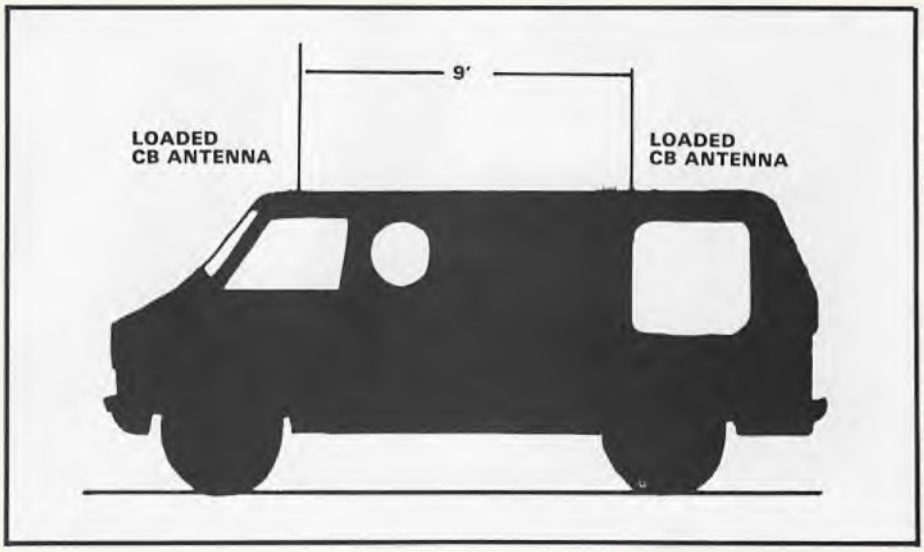
That's right, 75 ohm co-ax, the same as for your TV set. You use normal 50 ohm co-ax from the rig to the T-connector and then two runs of 75 ohm cable from the T connector, one to each whip.

To tune the system you will need an SWR meter, a 100 ohm resistor and a spare PL-259. The two whips are mounted on the roof of your vehicle and must be a quarter wavelength apart. The wavelength of 27 MHz CB is 11 metres or 36 feet so this means 9 feet separation. I have a lot of trouble thinking in metric and never was much good at division once you got past the first decimal point so from now on I'll talk in the old Imperial measurements.

The maximum gain will be in line with the antennas, towards the front and rear of the vehicle...so to 'point' your mobile mini-beam you actually steer the van in the direction of the DX station.

This obviously makes it hard to work DX if you are mobile although the system will extend your normal mobile range on a fairly straight highway because your signal will travel further to both the front and rear.

The two whips can be any kind — helical, centre-loaded or whatever, but, the longer the better and for best results they should both be the same type of antenna. Mount the antennas in the usual way and try to locate them at the same height above the ground.



YOU NEED TO CO-PHASE THEM

You are now ready to make up the kit which co-phases the two whips together and makes them work like one antenna.

Estimate the length of cable from each antenna to the rig, allowing plenty of room for error. Murphy's Law says that any length of co-ax will either be six inches too short or six feet too long, so, if you are going to get it wrong then err on the side of generosity.

In order to tune the mobile mini-beam and let it work at its best these lengths will have to meet certain standards which are all to do with the wavelength of the CB signal at 27 MHz...and remember that we are now talking about 75 ohm co-ax, called RG-59, which acts as an impedance transformer to match the two antennas together. The cable to the front antenna must be an odd multiple of 3 feet. That is, it can be 3, 9, 15, 21 or 27 feet long. Connect this to the rear antenna base and fit a PL-259 plug onto the other end. The cable to the rear antenna must also be an odd multiple of 3 feet, but, also has to be an odd multiple of 6 feet longer than the cable to the front antenna.

If you think this is getting confusing, imagine doing it in metric !

What it really means is that if the front cable is 3 feet the rear must be either 9, 21 or 33 feet. If the front is 9 feet, the rear must be at least 21 feet. There is nothing wrong with having a bit more co-ax than you need. It wouldn't hurt to use good quality co-ax like RG-58/CU as this will keep signal loss down and the shielding helps to keep out ignition noise and interference. When both cables are fitted to their respective antennas, run the co-ax back towards the rig and join them at the T-connector. Then use a short length of 50 ohm RG-58 to join the T to the rig — the T will need a co-axial jack, basically an in-line version of the SO-239 socket found on the back panel of most CBs as the antenna socket.

Connect it all up and you're almost ready. The trick with tuning a co-phased antenna system is that both ends of the system must be 'loaded'. This means that you can't just tune one antenna and then the other.

To accomplish this first connect the SWR meter inline between the rig and the T-connector. As the rig-side of the T is a 259 socket and the SWR meter has a 259 plug, you can connect them directly without a jumper lead.

Next disconnect one of the antenna cables from the T-connector and replace it with the 100 ohm resistor (it's easiest if you solder the resistor onto a PL-259). You've now got a temporary dummy load which will fool the mobile mini-beam into thinking it has a perfectly matched 100 ohm load on one side.

Tune the antenna that is still connected in the normal way. Now disconnect the tuned antenna and replace it with the 100 k load, then connect and tune the second whip.

That's all there is to it, your mobile mini-beam is ready to go where you do — sort of 'take-away DX' !

Catch you on the lower side of 35 !

WINWINWINWINWINWINWINWINWINWINWINWIN

Turn to page 49 for a chance to win
An Electrophone TX-475S
UHF HANDHELD

WINWINWINWINWINWINWINWINWINWINWINWIN

Andrews Communications Systems

EST 1976

AUSTRALIA'S WIDEST RANGE OF SCANNERS

ICOM IC-R1

$649

SUPER WIDEBAND SCANNER
0./1,300 MHz. AM/FMN FMW. 100ch memory
(YAESU FRG 965 $950 IND)

$529

YUPITERU MVT — 5000
250550 MHz, 800-1300 MHz AM/FMN, 100 ch.

$529

100 ch FAIRMATE HP 100
810-1, 300 MHz AM/FMN/FMW 15-600

$349

BEARCAT BY UNIDEN BC100 XLT
Aust. Lo, Hi, UHF, Air 100ch Mem

$429

NEW!
AOR AR-900
Aust. Lo, Hi, UHF, Air 800 MHz

$429

BEARCAT BY UNIDEN BC-200 XLT
Aust. Lo, Hi, UHF, Air 800 MHz. 200ch memory

(AR 2002 **$950,** IND)

(AOR AR 950, AR 880 & SAIKO SC 8000 available)

YUPITERU MVT — 000 $599
25-550, 800-1300 MHz, 100ch, AM/FMN

~~$1650~~
AOR AR-3000 $1399
Super wideband all-mode scanner

100ch
STANDARD AX-700 $879
Spectrum analysing 50-905 MHz scanner

100ch
ICOM IC-R7000 $1699
Professional Grade 25-2, 000MHz scanner

100ch
ICOM IC-R100 $950
Super wideband 0.1 — 1856MHz scan

★ BC 50XL 10ch h/h **$169** ★ BC-70XLT 20ch h/h **$269** ★ BC 760 XLT 100ch mobile **$429**

UHF CB TRANSCEIVERS

Some prices too low to print, call now!
(cellular carphones from $1049 FITTED IN SYD/MELB)

ELECTROPHONE TX 472S **$379**
ELECTROPHONE TX 475S **$579**
PHILIPS FM-620 UHF Mobile **$399**
ICOM IC-40G UHF handie **$699**
SAWTRON 999 UHF Mobile **$749**
UNIDEN UH-005 UHF handie **$?29**
REGENCY AR-477 UHF H/H **$?99**
UNIDEN UH-001 UHF Mobile **$?99**

UHF CB ACCESSORIES

★ **Unity** gain S/S flexible whip..... **$8**
★ **4dB** gain F/G mobile whip..... **$19**
★ **6dB** gain F/G whip, ground ind **$45**
★ **6dB** + gain Chirnside whip..... **$45**
★ **18dBi** High gain 13el yagi, 2m... **$119**
★ **ELECTROPHONE** PSA 1210 supp **$179**
★ **ALINCO DM-130** MVZ supply kit **$479**
★ **6/9dB** electrophone S/S whip..... **$79**
★ **8dBi** collinear, N socket, 2m..... **$69**
★ **12dBi** collinear, "N", 5m tall..... **$189**
★ **20dBi** + (?) Super gain 20el yagi on long 3.8 boom, fold dipole **$149**
★ **HIGH QUALITY RG-213** **$2.50m**
★ **REVEX W140** UHF meter **$89**
★ **REVEX W160** 2m + UHF, meter **$139**
★ **UHF splitters,** 2ant $99 4 ant (1.5dB better than coax) **$129**
★ **SELCALS** supplied & fitted ..... **$POA**
★ **3dB** whips .. **$29** N/PL-259s... **$85ea**

CALL (02) 349 5792 or 344 7880
SHOP 7 GARDEN ST, MAROUBRA JUNCTION NSW 2035 (cnr. Maroubra Rd)
PO BOX 33 KENSINGTON. NSW 2033
BANKCARD. MASTERCARD VISA. AGC CREDITLINE
FAX (02) 349 3366

CALL (03) 720 5900 NOW!
6 CHURCH STREET BAYSWATER VIC 3153 (cnr. Mountain Hwy)
FAX (03) 720 5280
BANKCARD ● MASTERCARD ● VISA ● AGC CREDITLINE

Andrews Communications Systems

EST 1976

NEW STORE:— Shop 8, 41 Bathurst St., Greystanes,

Sydney, N.S.W. 2145. CALL OUR OTHER STORES FOR PHONE NUMBERS

uniden CB SLASHED

★ PC-122 Compact SSB/AM **$?29**

★ AX-144 Full feature SSB/AM **$?49**

★ PRO-640E Latest SSB/AM **$?99**

★ GRANT Famous SSB/AM CB **$?99**

★ WASHINGTON Superb SSB/AM base **$?29**

★ PRO-520E Top line AM mobile **$1?9**

★ PRO-510E Compact AM mobile **$?9**

★ PRO-500D Economy AM mobile **$?9**

CALL FOR PRICES!

TOKYO HY-POWER

UHF HI-PERFORMANCE LINEARS

★ **HL-130U,** 3/10725-120W o/p ...**$759**
★ **HL-63U, 10-6DW o/p, adj rx..$499**
★ **HL-36U, 3-30W o/p $399**

All above feature GaAsFET rx. preamp. Not legal for CB use. Factory direct Imp.

PALOMAR

High-performance HF linear amplifiers

Factory direct importer. Made in USA

★ **TX-200** 180W output on SSB.....**$179**
★ **TX-200/3,** 3 o/p levels, 180W SSB.....**$219**
★ **TX-200/3/R,** 3 o/p levels, rx. preamp. **$249**
★ **TX-2250** 190W, 4 pos, rx amp.....**$299**
★ **TX-2250NP** 250W, 30W in SSB.....**$349**
★ **TX-5500** 375W, 4 pos, rx amp.....**$479**
★ **TX-7000** 500W+, rx. preamp.....**$679**
★ **KW-1** 100W output on SSB.....**$1299**

Most feature tr. bias. TVI filtering

EMOTATOR ROTATORS

Factory Direct Importer

★ ***105 TSX*** *Med./h.d. rotator **$429***
★ ***1105MSAX*** *Extra, h.d. dble gears**$899***
★ ***1200FXX*** *Super h/duty rotator..**$999***

KENPRO ROTATORS

Factory Direct Importers

★ **KR 250** Hi-quality, light duty.....**$199**
★ **KR-400** Medium duty.....**$379**
★ **KR400RC** M. duty round control**$429**
★ **KR-800S** Heavy duty, RC.....**$549**
★ **KR-1000S** Extra heavy duty.....**$649**
★ **HR-1300** Super heavy duty.....**$849**

Speech processor, top bearings, etc.

WARNING: Ka- band radar is now on test. Consider the new triband radar detectors.

NEW! RD.3XL X-K-Ka UNIDEN RADAR DETECTOR.....**$499**
Features no X-band audio in CITY mode.
UNIDEN RD.9XL X-K $CALL. Features switchable X-band audio. TALKER, Records your voice.....**$249**

All X-K detectors in stock below cost. Radar detectors not legal in Vic & Tas

DIAMOND ANTENNA

Factory Direct Importer

RF,SWR WATTMETERS *Made in Japan (duty now applies)*

★ **SX-100,** 1.6-60MHz, 30/300.3kW **$219**
★ **SX-200,** 1.8-200MHz, to 200W.....**$169**
★ **SX-400,** 140-525MHz, 200W.....**$189**
★ **SX-600,** 1.8-525MHz, 200W.....**$279**
★ **SX-1000,** 1.8-160, 430-1300MHz **$349**
★ **SX-2000,** 1.8-200MHz, Auto.....**$229**
★ **SX-9000,** Up to 1300MHz, Auto **$399**

DIAMOND SCANNER ANTENNAS

★ **D707E** 0.5-1500MHz Active **$229**
★ **D130E** 25-1300MHz Discone **$169**
★ **CS-21DA** Super low loss switch..**$79**

REVEX SWR/RF WATTMETERS

• W120 144MHz **$89** • W140 UHF **$89** • W160 144MHz/UHF **$139** •W500 2kW **$199** • W520 200MHz **$169** • W540 UHF **$179** • W560 • W570

CALL (02) 349 5792 or 344 7880
SHOP 7 GARDEN ST, MAROUBRA JUNCTION NSW 2035 (cnr. Maroubra Rd)
PO BOX 33 KENSINGTON, NSW 2033
BANKCARD, MASTERCARD VISA, AGC CREDITLINE
FAX (02) 349 3366

CALL (03) 720 5900 NOW!
6 CHURCH STREET BAYSWATER VIC 3153 (cnr. Mountain Hwy)
FAX (03) 720 5280
BANKCARD ● MASTERCARD ● VISA ● AGC CREDITLINE

HF LINK

WITH ROB WILLIAMS

Welcome back to the column which fills the spaces between AM broadcasts and scanning...it's here that true long distance propagation is promoted. This time around we take a special look at U.S. utilities and see what's happening on that side of the world. All broadcast stations are in AM and utilities are in SSB...remember that all frequencies are in kHz and all times UTC (Universal Co-ordinated Time) unless stated otherwise.

SAC FREQUENCIES

A dispatch on the computer bulletin board network's international shortwave 'echo' says that America's Strategic Air Command (SAC) can be heard on 6761 (primary night frequency) and 11243 (primary day frequency). Also, 15041 ad 13203, originating from Andrews Air Force Base. Worth a try, especially during maneuvers.

NEW FEES HIT U.S. SHORTWAVE STATIONS

American SW correspondent Glenn Hauser reports an FCC proposal to instigate fees to administer the selection of frequencies for US shortwave broadcasters, based on the cost of processing these allocations.

Charges include $US1705 for a construction permit with licences at $US385 for the first year and $US95 per renewal. Now maybe you think that's cheap ? Well the buck doesn't stop here because, under the new system, SW broadcasters will be the first to pay the FCC's new spectrum usage fee which is to be charged on the use of every frequency for every hour.

With American broadcasters chalking up approximately 650 'frequency-hours' per day, the US Treasury will reap more than $90,000 per year. There will also be a charge for the seasonal change of frequencies at the rate of $US35 per quarter.

WYFR, the USA's largest private shortwave station, will be charged $US42,000 annually based on their log of around 300 frequency-hours per day, in addition to any frequency changes made to their schedule during the year.

Government stations VOA and RFE/RL will not be affected by the charges.

For most private broadcasters, who survive on donations and subscriptions, these fees represent a very heavy burden. Additionally, the money will not be going to the FCC but into consolidated US revenue, and broadcasters have already been warned that despite this new fee structure they shouldn't expect to see a more efficient service from the FCC.

SCHEDULE CHANGES TWICE YEARLY

Those who study frequency schedules will have noticed that U.S. broadcasters are moving to only two frequency changes per year, instead of four. With the wide use of daylight saving throughout the world there was no standard conversion times between daylight saving and normal time. This resulted in broadcasters having to introduce two extra schedules to cater for this, and the whole planning structure for frequency schedules started to become a nightmare.

With the new FCC fees (see previous story) it will be even more expensive to have six schedule changes per year. I've also noted that Canada's RCI refers to their extra transmission schedule from 1 April to 30 September as 'Z-90'.

NASA ON HF

Continuing on from last issue...here is more info. on NASA's HF channels used for the Space Shuttle. With some persistence you should be able to hear background traffic on : 5810 for NASA ships; 6693, 6708, 7461, 7765, 8981, 9043, 9132, 13170 and 18200 for support aircraft; 6723 and 6896 for Kennedy Space Centre with 7675 and 13213 for operations; NASA tracking on 6893, 14456 and 15015; NASA Pacific Support on 11205; U.S. Navy Atlantic support on 8972 with booster rocket recovery on 11405.

U.S.A.F Cape radio is heard on 20390. 14295 carries NASA ground communications, courtesy of an American radio amateur.

I've heard good signals from 1000 to past 2200 daily when the shuttle is up.

WRTH ON LINE

Talk on the BBS International Shortwave Echo has recently carried rumors of the WRTH being put online via a computer. WRTH Editor Andy Sennitt confirms this is a long-term goal, but first expects to see the Handbook available on floppy disk. Andy is also considering setting up a subscriber-based 'updater' service for Handbook U.S.ers.

A trial run is planned for 1991, through a similar BBS system already used for America's Radio Amateur Callbook which, like the WRTH, is published by Billboard Magazines. However, any such service can only be run on a sound commercial basis and must make a profit.

Personally I don't expect many Australian DXers would subscribe to such a service due to the cost of overseas phone calls.

NORWAY'S ENGLISH SERVICE

Effective from 6 May to 1 September, Radio Norway will be using the following to Australia: at 0800 on 25730, 0900 on 17840 and 1400 on 21710. At 0600 a transmission to the Pacific is on 15165. On Sunday their half hour English program carries 'Norway Today' with important news items from the past week, interviews, short features and music.

ANOTHER SERVICE FROM AUSTRIA

A second airing of Radio Austria's popular 'Shortwave Panorama' program has been introduced in their Sunday transmission directed to Australia at 1130 on 21490 and 15430. This is in addition to the regular broadcast at 1430 on 21490 which is usually the best frequency.

DC TO DAYLIGHT CHANGES

Earlier this year the Commonwealth Government Gazette carried a 139 page draft spectrum plan for Australia. This table includes all radio frequencies from the long waves to highest allocated channels at 400 GHz. The document reflects changes in the frequency spectrum following earlier WARC meetings. For those interested in finding out how our spectrum is divided up, this issue of the Gazette makes a good reference book. No doubt once the draft is finalised DoTaC will publish it at their usual inflated price.

A copy of the Gazette is available from your local AGPS bookstore for $5.95.

While on this topic, 1992 sees the last WARC conference to be held this century. The meeting will examine frequency allocations for shortwave broadcasting and see if a need exists for changes to the current plan. CBA will try to determine what position Australia is taking and I'll report any news here in HF LINK. I'd also be interested to hear any comments and suggestions you may have as to changes to the HF bands.

NEW BBC TRANSMITTERS

Probably the most respected broadcaster in the world is doing a little remodeling to one of their transmitter sites. The famous BBC World Service is to close down part of their Skelton site, located in the north-west corner of England, to make way for a new and more efficient station. Skelton was established in 1943 to allow the BBC to supply a strong signal into Europe and the 750 acres site was considered safe from enemy attacks during WW2.

There are really two separate sites, known as Skelton-A and, about 1.5 km away, Skelton-B. The original names, OSE/8 and OSE/9, represented these eighth and ninth extensions to the overseas service.

With 47 years of duty behind them, the remaining 6 x 100 kW wartime transmitters at Skelton-B are finally being retired. Skelton-A began with 6 x 100 kW senders and seven months later Skelton-B followed with 12 transmitters, 6 x

100 kW and 6 x 50 kW. The antenna farm surrounding the site contained 52 aerial arrays which is why, in 1950, 'London Calling' described Skelton as 'the world's most powerful radio station'.

In the last few years Skelton has been used to serve Central and South East Europe, as well as South Europe and North Africa. Over recent years the older transmitters have been replaced and new units added to the site, which now boasts 11 x 250 kW units. The new site, Skelton-C, will be commissioned in 1991 and will contain four new transmitters of 300 kW each although the BBC tends to run them at a more conservative 250 kW.

MAILBAG

Following CBA's well-received article on monitoring the Sydney-Hobart Yacht Race, Mr Roberston from Sawtell writes to request details of other yacht races to be heard on HF. I've already started looking around Australia and overseas and so far have come up with a few that are on the yachting calendar for this year.

On August 8 is the Sydney-to-Southport and on October 27 the Lord Howe Island yacht race. I'll try and get further details, however, you should expect to find the yachts using the same HF frequencies as used in the Sydney- Hobart 1990.

One overseas race for keen maritime utility listeners is the BOC Challenge, which is scheduled to start from Newport, Rhode Island on September 15 and will take eight months beore they return to Newport. Most Ozzie high seas yacht races are held during our warmer months so HF LINK will feature frequencies and sked timetables as they draw closer.

Have any readers heard the Whitbread 'Round The World' yacht race, and on what frequency ?

QUEENSLAND POLICE ON HF

Queensland Police (callsign VK4RR) were very active on HF during the recent flooding throughout outback Queensland. One frequency, 6905, carried traffic from stations at Charleville, Roma, Yanna, Brisbane and several other areas.

SCHEDULE CHANGES

there have been some major changes affecting shortwave DX programs with the move into a new transmission period. KTWR now broadcasts their DX show to Australia on 11805 on Saturday at 0900.

Since Kaz Matsuda left his job at NHK the regular DX show has been put on hold, but, I am pleased to report that the program has returned and has been expanded to 25 minutes a week starting at 0930 each Sunday. Current frequencies are 11840 and 21610 which offers best reception here in Sydney.

This schedule is current until 1 September. RCI has dropped their airing of 'SWL Digest' at 2130 on Saturday UTC so Australian SWLs now have little chance of hearing the program.

HCJB MAKE PROGRAM CHANGES

Beginning 6 May, HCJB has made major changes to their program format. While frequencies currently in use will not change, HCJB feel the arrangements will provide a better service to listeners and make more efficient use of their limited staff resources. The new look is made up of a one hour block containing features which will be repeated at various times throughout the day, beamed at their main target areas.

To be called 'Studio 9', the program will begin with a bulletin of Latin American news, after which there will be a 15 minute current affairs/magazine program. Following that will be a different 30 minute feature each day, the hour ending with world news. There will be slight variations to this on weekends. 'Studio 9' will be broadcast to the South Pacific at 0730 and 1900, with 9745 and 11925 providing good reception. 'DX Party Line' will only be heard on Saturday, commencing 20 minutes into the hour block, ie to Australia at 0750 and 1020.

And that's it for another issue. Any comments, questions, complaints and of course news can be sent to me at PO Box C-111, Clarence St, Sydney NSW 2000, or via the Shortwave Possum BBS on Fidonet 3:713/605. If you want a personal reply to mail, please enclose a SASE.

BAND SPREAD

FROM DC TO DAYLIGHT

WITH GREG TOWELLS

This is your Bandspread column for another issue. Thanks to all readers who have taken the time to voice their opinions by letter. Remember, this is your column and for everyone out there to know what's been going on, I rely on reader input. So come on, get those pens and paper working, and let everyone know. The address is P.O. Box 514, Toukley NSW 2263. Good to hear that a great many licensed amateurs take the time to read this column and to let me know what they think of things happening on their various bands.

So then, a few snippets from them.

DoTaC has released a new publication called 'Commercial TV and Radio Service Area Maps'. This handbook details *all* commercial radio and TV transmitters licensed to operate throughout Australia and its territories. It spells out transmitter locations, callsign, frequency, power, and their 'intended' coverage area. Note that the maps show only ***intended*** coverage area, since actual coverage area could vary to some degree. Each station has a map showing the service area. This publication is available from the Australian Government Publishing Service, publication number 8906293.

CODELESS HAM LICENCE

The FCC has recently put forward proposals for a new code-less class of amateur license for the United States. The ideas put forward for comment offer a new entry level to amateur radio for those applicants who prefer not to learn the code yet have the technical know-how to pass the theory exams. The new class allows for use of all bands except for HF, 2m or 6m, all types of emissions and up to 200 watts output.

EMERGENCY MONITORING

Here is some good news for those involved in emergency monitoring, particularly those around Darwin. A team of Royal Australian Air Force telecommunication riggers has helped CREST NT to upgrade its 24 hour emergency radio monitoring service to include coverage of two popular recreation areas south of Darwin. Leading Aircraftsmen Darren Berry and Brendan Ross and Aircraftsmen Graham Toms and Nigel Utting, all from RAAF Base Darwin, helped the Citizens Radio Emergency Service Teams erect a 22 metre radio tower near Acacia Hills.

RAAF CALLED IN TO HELP

CREST NT director, Ian Birbeck, called in the Air Force because it had people with the specialised skills needed to set up a radio mast and the RAAF had helped build CREST masts at Grose Island and Hayes Creek. He said CREST NT now covered 210 kilometres of the Stuart Highway from Darwin to south of Hayes Creek and its highway service would eventually be extended south to Katherine and west to Litchfield Park near Batchelor. Due to the increase in population in Katherine, with Tindal RAAF Base going ahead, there has been an enormous increase in the amount of traffic now travelling the highway to Darwin. The CREST station at Gunn Point monitors all emergency channels in the Citizens Band spectrum 24 hours a day and has direct radio communication with police and ambulance. He pointed out that the service also provides people living near the highway with a cheap form of emergency communications.

THOUGHTS ON EMERGENCY MONITORING

Some interesting thoughts on emergency monitoring come from David Clark, from the Cowra area of NSW (and your 'low budget' word processor is just fine, just keep writing. Thanks!). David is concerned that throwing the emergency allocations open to use by all and changing the present setup to which people have become accustomed could lead to confusion on the channel and possible loss of life as a result. David says that in his listening area, which includes repeaters channel 7, Cowra and channel 3 Mt Canobolas, they have local SES, Bushfire Control and Police on air, as required. David's suggestion is, in his words:"I would like to suggest that the emergency monitoring could be handled by the Police Force as the benefits are many:

...they have a radio operator on their own channels so to monitor one or two more channels should not be overtaxing them;

...they have local knowledge of what services are available and where they are. They also have ready access to a telephone;

...knowing that Police are monitoring may also make the ratbay fraternity think twice before showing their communication prowess;

...they are unlikely to carry on in the same manner as some of the infamous monitors that received some bad press.

I personally think that they have all the necessary resources and expertise to handle the job. The Ambulance services could also be a handy monitoring crew.....I think that if we looked to the organisations that already have the technology and are funded by all taxpayers rather than try to generate a new resource, we may find a solution to the ongoing dilemma."

Some good points raised by David and I think that readers should give them some consideration. In many areas of the country, particularly smaller country towns, the above suggestions are already in sucessful operation. Think about it and let me know your thoughts.

REACT REACTS

I am very pleased to report that I received an almost overwhelming response to my questioning of the Citizens Band emergency monitoring services. It certainly gives me renewed confidence to rely on my radio, be it 27MHz or UHF, for assistance in that difficult situation.

Here then is a last word from REACT, Radio Emergency

Associated Communications Teams, based in SA.

This is their, "an answer to the roll-call";

"Where are the emergency monitors ? Given the fact that they are CBers like everyone else, at work, at home, trying to live a normal lifestyle but still trying to provide a service as much as possible.

I can remember when, in the early 70's of CB in Australia, there was so many emergency services that a call for assistance was almost fought over. Progressively over the years, small services have competed for membership with larger organisations, only to find that both services have eventually lost the potential monitor.

There are a million reasons for the downturn in monitor coverage and the following are but a few of them: harrassment, abuse, non-recognition egos, skip conditions, service names, lack of co-operation between services...the list is endless...only the time-hardened monitor of yesteryear is still there, trying to teach some up and coming new member how to be tolerant, how not to take offense to abusive words, and, oh yes, how to process an emergency call.

Yes, I believe they are still there, few and far between, the older and more experienced ones don't make on-air announcements, as this tells the idiot, bucketmouth, etc, that an audience awaits their pleasure.

Public relations are hopeless as monitoring is not a novelty anymore, no glory, just basic tolerance and persistance. We don't hear or read about the emergency services except in local media so recruiting is conducted by other means. Your acticle will no doubt generate some interest again and some newcomers may realise that there are volunteer services available, or, it may also go against us with another onslaught of abuse, who knows ?

Then again, who cares ?

Most average CBers have an opinion of emergency services created by the image they experience. As an example...Rod Fewster's article indicates that the emergency monitors have an ego problem, but, this also reflects on his training — if any — and also reflects on all of us. The old saying, one bad apple in the barrel eventually effects the lot, appears to be true.

For instance, try listening to the emergency services from the eastern states when skip is running. You can guarantee that monitors from all services can be identified telling all the idiots to get off the emergency frequency for the duration of the skip."

Those thoughts come from the National Director for REACT, Mr Peter Rowe, and thank you. REACT's motto is, appropriately, 'The Quiet Achievers'. To contact REACT, write to P.O. Box 1110, Murray Bridge, SA, 5253.

REACT SA also have a Marine Rescue Service. This is a specialised service of the South Australian division. The purpose is to provide a maritime emergency radio service for inland rivers and lakes. The service is available to sporting clubs, associations, emergency services and local authorities.

The service has the following facilities:

Limited coast station (24hr) HF SSB Marine VH5BHO;
Mobile limited coast station HF and VHF marine;
Ship station class B HF marine, UHF, VHF marine VJS2742;
Ten manned rescue craft and three support craft, and
Welfare and support sections. ***The REACT Marine Service provides:***

Radio controlled safety craft for river closures, escort and pilot duties;
Craft recovery;
Night lighting;
Basic first aid and rescue facilities;
24 hour monitoring of the following radio frequencies:
HF SSB, 27.680MHz/27.880MHz,
UHF CB channel 5,
HF SSB channel 9 USB/AM.

....and I bet most readers did not know before reading this that service existed for boaties. Good work REACT. And before I get the "you are biased toward REACT",it is up to you to let me know all about *your* organisation and what it does to benefit CB.

My address is P.O. Box 514, TOUKLEY, NSW 2263. Until next time.....good CBing!!!!

Discovering the shortwave 'action' frequencies

UTILITY LISTENING-

It's where the shortwave action is!

Rob Williams introduces you to 'utility DXing' and takes you on a 'magical mystery tour' through the bands.

Readers of CBA's HF LINK column often see me refer to the term 'utility' listening or DXing. But you may ask 'What is utility DXing, and how can I get started?'. Well, this article is your guide to the world of utility or 'ute' monitoring, which is often the most exciting part of the shortwave bands.

First, let me show you what makes up these bands. The SW spectrum is generally accepted as being between 1.6 MHz and 30 MHz, which takes in part of the medium frequency (MF) band as well as the entire HF segment.

The shortwave bands contain three categories of users. The first and most common are international broadcasters such as the BBC, Radio Moscow, the Voice of America and our own Radio Australia.

Another well-known group are amateur radio operators, also known as hams. Together, these two groups occupy much of the shortwave bands. The remainder of the band is a collection of stations generally known as 'utilities', and includes any radio transmitter not intended for reception by the general public yet providing information or specialised services for a select group of people.

THREE MAIN FIELDS OF UTILITY STATIONS

Utility stations can be divided into three main fields. The first is aeronautical stations — communications between aircraft and ground stations or aircraft to aircraft. There are also maritime stations, either land-based broadcasts to ships (such as OTC's Coast Radio Service) or any communications between ships. The third and by far largest group are 'fixed' stations. The name doesn't really explain what these stations are, but, they include base stations as well as mobiles. Among these are the Royal Flying Doctor Service (RFDS) and School Of The Air (SOTA), State and Federal police HF channels, the State Emergency Service, the military, government departments and even businesses such as interstate trucking companies and mining operations.

The division between these three user groups has been made to that services don't clash and cause harmful interference between one another.

However, some frequencies can be shared, providing interference doesn't occur, due to the limited resources of the shortwave bands and the many thousands of users.

The task of co-ordinating these allocations falls to the International Telecommunications Union. The ITU is a specialised agency of the UN involving 166 member countries. International meetings are held to oversee these allocations and the last such meeting of major importance was the 1979 World Administrative Radio Conference (WARC '79) which organized changes to the bands to take into account developments in radio communications which would carry over to the next century.

There are some variations exist to these allocations, as different regions of the world have varying needs for certain frequencies. This occurs mostly with African and Latin American stations which use what are called 'tropical band frequencies' to allow domestic broadcasters to use shortwave signals to cover vast areas of a country without the need for an expensive network of FM or MW transmitters.

Yes, the services use HF radio and Rob tells you where to link for some real action DX'.

WHERE TO START

Okay, that should explain what utility DXing is all about.

Now for the more complex question of 'Where do I start ? '. There is no hard and fast answer, but, here are some suggestions which will get you going and help you to get maximum enjoyment from your shortwave radio.

Try and hear Australian utility stations first off. Not only are they in English, but, they are relatively closer to you than stations in Europe and the US so they should be stronger and easier to locate.

NO REGULAR SCHEDULES

Look over some previous HF LINK columns in CBA, where you will find lists of some of the common stations

to log and also information on callsigns and operating procedures. You must remember that most utility stations don't have regular schedules, they only transmit when information needs to be exchanged.

So have some patience and monitor the well known frequencies for a few hours, this way you will achieve more satisfaction. Also, be aware that conversations heard between utility stations not dealing with the direct technical operation of the transmission are protected under the provisions of the Telecommunications Act. Most voice transmissions from utility stations are made using single sideband (SSB) in preference to AM, which is the mode used by international broadcast stations. This allows more stations to operate on the finite number of channels and provide more effective use of the transmitter.

For this reason moves are also in progress to switch international broadcasters to SSB. Other utility transmissions include data, fax, radioteletype (RTTY) and even slow scan TV pictures. There are heaps of different transmission techniques offering special advantages. However, you need specialised equipment to pick up these stations, something the average person doesn't own, so I'll concentrate on voice-only services.

Utility stations have been around since the birth of radio and will be with us well into the next century. Although modern communications is possible using advanced satellite links, even satellites have problems. A shortwave transmitter can cost as little as a few thousand dollars to own and operate and can be made portable if needed.

A satellite link can cost hundreds of thousands of dollars and is not so portable. This means that if I want to set up a temporary or transportable HF radio in some distant location and transmit back to my QTH I could do so quickly and at little cost, once I buy the equipment and a license.

Even though satellite communications costs are coming down and dishes are getting smaller, this is still the more expensive option. It has only been in the last ten years that we have seen satellite communications making an impact on utility DXing.

A very good example of this is the HF service to Australia's Antarctic bases at Macquarie Island, Davis, Casey and Mawson. It was less than three years ago that we saw satellite communications begin to take over the role of the base station HF radios. This type of utility broadcast is called a point-to-point service in that the transmission is from one fixed location to another and these were the first users to move to satellites. But, there are still many companies and also third world countries who can't afford to switch to satellite communications and they will rely on HF radio for many years. Most long-distance aeronautical communications outside controlled airspace uses HF radio for telephone calls and dealing with emergencies, as well as routine navigational information. A new satellite communications package for aircraft has only just finished the experimental stage and plans are under way to set up an international network of ground stations with the service expected to commence late next year.

HF HAS DRAWBACKS

One drawback with using HF radio is the unpredictable propagation conditions which exist. Constant changes which occur on the sun and in our ionosphere cause transmissions to vary in signal strength. Make the effort to learn something about propagation and use this to your advantage. You will save hours of trying to hear something that just won't propagate.

I've been DXing for over ten years now and I still have a lot to learn. Utilities come and go, change

(continued over)

frequencies and procedures, but they all make interesting listening. Some of the stations and broadcasts I've heard include the search and ultimate discovery of the Air New Zealand DC10 crash on Mt. Eribus; the annual Sydney-to-Hobart yacht race; support crews for NASA space shuttle missions; numerous air/sea rescues and military operations.

Given the right conditions (and with a bit of knowledge) you too can hear what goes on behind the scenes. These days, with digital radios which can give accuracies greater than 1 kHz, it is much easier to tune into and monitor a given frequency. It pays to have a tape recorder next to your radio when listening to utilities, as the station may come and go before you catch what they've said...!

SOME USEFUL PUBLICATIONS

There aren't many books on the subject of utility DXing, so you have got to know where to look for the information you'll need. For example, OTC have a range of free publications devoted to maritime and Skycom (aircraft telephone links) services. And a very comprehensive list of HF aircraft frequencies is to be found in a publication called the Enroute Supplement, used by pilots and aircraft enthusiasts. Contact the DoTaC for details of price and availability. For those who have a bit of experience and want to venture beyond Australian services, consider American DXpert Dave Gilfer's 'Confidential Frequency List',which contains a wealth of information and makes utility listening so much easier.

The price at time of writing was $US19.95 plus $US4 P & P and the address is Gilfer Shortwave, 52 Park Ave, Park Ridge, NJ 07656 USA. Also from the states comes 'Monitoring Times', an excellent monthly magazine which devotes several pages to HF utilities in the USA and around the world. For more details write to Grove Enterprises at PO Box 98, Brasstown, NC 28902 USA. From the other side of the world, Klingenfuss Publications are gaining a good reputation for their 'Guide To Utility Stations' which, with 500 pages of 'good guts', will keep you busy for years. Cost is 60DM airmail to anywhere in the world, order from Klingenfuss Publications, Hagelloch, D-7400 Tuebingen, West Germany, and also ask for their catalogue on radio publications.

PERSONAL RESEARCH HELPS

Personal research is a major part of utlity DXing.

Keep an ear open for major events, stay in touch with the news of the day — this will give you clues as to when you may hear certain stations, be they emergency, military or aeronautical — on the air. If you have a computer and modem, log onto a BBS that carries the 'International Shortwave Echo' message area, which often has details of major world-wide events and the frequencies in use.

If your local BBS doesn't have the ISWE, ask the system operator if it can be arranged (the echo is available free from Shortwave Possums, Fidonet 3:713/605).

FASCINATING FREQUENCIES

At the time of writing no Australian DX club magazines had a utilities column, which does make it hard to discover what is out there, but through HF LINK, CB Action will try and help fill those gaps in your log. Okay, now it's time to turn on that radio and tune in to the world of utilities. To begin, these are some of the bands used for various utility services. Remember that they could be filled with utilities that just won't transmit when you want them to, so be patient and you'll be rewarded with some fascinating listening.

Frequencies are in kilohertz and SSB is the most common mode.

Aeronautical mobile stations are at 5480-5730, 6525-6765, 8815-9040, 10005- 10100; fixed services: 5730-5950, 6765-7000 and 7300-8195 (from 8100-8195 frequencies are shared with mobile services); maritime services can be heard on 4063-4438, 6200-6525 and 8100-8815. Here are a few selected frequencies...keep in mind they represent just the tip of the utility iceberg...so you'll have to look and listen for more — and when you find them, how about sending them with other SW enthusiasts through HF LINK ?

AERONAUTICAL:

5526 & 8876 — South-east Australian domestic aircraft frequency

5643, 8867 — international aircraft in the South Pacific region

6637, 10078, 17949 — Qantas company communications

2863, 2965, 6676, 6679, 8828, 11387,13282 — Volmet weather forecasts

4666, 8930, 11342, 13300, 17940 — Skycom radio telephone calls

8975 — RAAF general

LAND MOBILE and FIXED:

Police — 4560 and 7660 (NSW & WA); 5915 and 8939.5 (NT); 7800 and 10295 (SA); 6905 (Qld).

The State Emergency Services have a number of common frequencies around Australia, but the use of each varies between regions, so tune in and find your local SES channel from the following : **2563, 2566, 2569, 2572, 2575, 3729, 3732, 3735, 3743, 3746, 4564, 4567, 4570, 473, 4576, 5833, 7330, 9300, 10280, 11435 and 14745.**

Others to listen out for include Telecom on 3724, and the Australian National Railways on **4475, 5900 and 9785. On 5000, 10000 and 15000 is the VNG time signal station, and if you can't hear this you've got real problems !**

military: The Defence Forces are a favorite with ute listeners, see if you can log these: **RAAF, on 3032 and 5695 (Darwin, Perth, Sydney and Townsville), 3300 (Canberra) and 18023 (south-east Asia operations); Navy, on 4083 (Western Port Control), 4140 (Sydney Control), and US Navy ships visiting Australian ports on 8530; and the Army, on 6238 and 26130.**

maritime:

4143.6 & 8291.1 — day-time high seas weather forecasts

4143.6 & 6221.6 — night-time high seas weather forecasts (both these transmissions originate from various OTC coastal stations)

2182 — international emergency frequency.

4428.7 & 2201 — OTC weather forecasts

Ship-to-shore telephone calls are made on the following 'Radphone' channels through OTC's coast radio stations: channel 404 (CRS tx 4366.7, ship tx 4072.3); 405, 4369.8/4075.4; 412, 4391.5/4097.1; 415, 4400.8/4106.4; 417, 4407.0/4112.6; 419, 4413.2/4118.8; 802, 8722.0/8198.1; 806, 8734.4/8210.5; 811, 8749.9/8226.0; 815, 8762.3/8238.4; 817, 8768.5/8244.6; and 822, 8784.0/8260.1. You can hear OTC's CRS at Adelaide, callsign VIA, on 412, 419 and 817; VIB Brisbane on 404, 412, 415 and 811; VID Darwin on 415, 419, 811 and 815; VIH Hobart on 404; VIM Melbourne on 404, 417 and 811; VIP Perth on 404, 415, 806, 811 and 815; VIS Sydney on 405, 417 and 802; and VIT Townsville on 404, 412, 419, 817 and 822. There are also several other frequencies used in the 12, 13, 16 and 22 MHz bands.

Good utility DXing....!

Ken Reynolds of Power Band Electronics conducts the

SIDEBAND SHOOTOUT-

Uniden Grant v PRO 640e

Our usual policy with rig reviews is to examine individual items of equipment and attempt to give CBA readers an objective, unbiased report of performance and characteristics as we see them. This issue, in a departure from our normal approach, we have decided to take a comparative look at Uniden's two deluxe mobile rigs and see how they differ from each other.

The Grant has been Uniden's flagship model for many years and in earlier days it was marketed under the President banner. The latest AM/SSB offering in mobile CB transceivers from Uniden is the PRO-640e which is targeted at the top-shelf 27MHz market in the same price bracket as the resilient Grant.

It was thought for some time that the PRO-640e would supersede the Grant and that the latter would pass gracefully into CB history...not the case it seems.

The reason for this is that the two transceivers differ markedly from each other in so many ways that each has developed a dedicated following of its own.

Both rigs have been reviewed previously in CBA so instead of making this a double review, we will mainly examine the pros and cons of each with the intent of seeing if there is a clear winner.

Physically, the Grant and the PRO-640e are worlds apart.

GRANT — A BIG RIG

The Grant dates back more than a decade to an era when rigs were engineered with plenty of substance to mount in cars with lots of room and steel framed dash boards under which you could sling a hefty five pound (2.3kg) CB rig — which just happens to be the weight of the Grant.

Its other measurements are 20cm (7.875 inches) wide by 6cm (2.375 ins.) high with a massive depth of 23.5cm (9.25 ins.).

The PRO-640e is by no means a small rig, however, it is 2.5cm less across in width, 1cm less in height and 2.5cm less in depth.It is also noticeably lighter than the Grant by nearly two pounds. As you will see from the photographs, the styling of the two contenders is completely different with the Grant persisting with a matte silver front panel highlighted by bright silver controls while the 640e sports the latest charcoal black fascia with matching black knobs that are back-lit in filtered green light from within the case.

The Grant's styling, however, is still 'classy' by todays standards and is not easily rivalled by many competitors from either past or present. By and large, the complement of operator controls are the same except for an extra audio filter circuit in the 640e which can be an advantage under some types of noise interference, however, the Grant offers such excellent filtering and bandpass shaping that its recovered audio is still smoother and easier to understand under most conditions.

In fact, under test conditions the Grant excels in both transmitted and received audio with low ambient background noise. The 640e has a 'crisper' transmitted audio which is very understandable but it lacks the 'studio' quality of the Grant.

BOTH RIGS SOUND GOOD

As if to compensate for the lesser audio fidelity the 640 offers double the audio output in receive and PA modes where it can out-shout any other rig we have encountered. In the transmit mode both rigs only require about 25 per cent of their microphone gain level controls to produce good rounded modulation with occasional 100% modulation peaks.

Under these conditions the signals from both rigs sound good.

At about half control level the sets perform similarly with brief excursions of over-modulation and compressed dynamic range. With the mike gains 'flat- out' the transmitter stages are 'pushed' hard — like a power mike — and average speech level drives the transmitters to the limits of their ALC (automatic level control) circuitry. Individual voices are still recognizable, but, they are distorted by clipping and compression from the limiting circuitry.

GRANT — WINNER ON OUTPUT

On the AM output power test the Grant was a clear winner for frequency stability and ability to maintain constant power level over a lengthy operating period. After the 'five minute' transmit test the PRO-640e had shifted about 100 Hertz and its power had declined by a little over 0.5 watts. By comparison, the Grant — which was 200 Hertz off frequency before we got started — only shifted frequency by 8 Hertz and remarkably was within 0.1 watts of its starting power of 4.08 watts.

We extended the test to 20 minutes at which time the frequency varied another 5 Hertz and the output power climbed to 4.1 watts. The transceiver case was also just barely warm at the end of such a lengthy transmission.

The Grant still offers a mechanical metering system which 'eats' the bargraph type indicators except for legibility, especially at night when every calibration on the analog scale seems like a needle.

Still, there is no substitute for the old fashioned continuous moving coil meter and, in transmit mode, the Grant's meter offers the dual functions of output power and percentage modulation, both of which are unusually accurate — at least on our test rig.

The PRO-640e also has dual functions on transmit with transmit power and SWR — neither of which were particularly accurate, however,

this can be accounted for by the fact that the indication is by bargraph LEDs which are a bit tricky in their representation of the information. The reason for this is that there appears to be more segments to the display than really exists and it all becomes somewhat confusing.

GRANT — POOR MIC. LOCATION

As if to spoil a clear transmitter victory for the Grant, someone went and 'stuck' the mic. socket down one side of the case and generally wrecked the points score in no uncertain terms. A debatable point I guess, because the side mounted mike is sometimes desirable when, for example, the rig is mounted in an overhead console. Personally, I far prefer a mic. to be mounted to the front of the rig, but, this might not suit everyone.

Both rigs give a good account of themselves in the receive mode, but, the Grant still seems to have a slight edge over the PRO-640e. Receive sensitivity on AM using the SINAD test saw the Grant slot in at 0.28 microvolts compared with the PRO's 0.35 microvolts performance. By using the HI-CUT filter switch, the 640e improved its status to 0.3 microvolts but stayed a whisker behind the 'old-timer'.

The result was pretty much the same in SSB mode with the Grant gradually adding up the points score.

The squelch threshold was easier to set on the Grant at 0.27 microvolts with the 640e opening at 0.45 microvolts. At squelch 'tight' (fully clockwise) 900 microvolts seemed the order of the day, however, the hysteresis of the PRO- 640e was much more desirable. Hysteresis of the squelch circuit is its ability to remain 'open' for some time after the signal which caused it to open has been removed or reduced in level.

EXCELLENT NOISE BLANKER

The noise blanker operated in the usual Uniden manner on both rigs with excellent results for most types of noise. The RF gain control on the Grant is continuously adjustable against the single step attenuator on the 640e, but, both offered about the same maximum attenuation of about 35dB.

It would appear to us that the Grant has slightly the upper hand of the competition when it comes to performance and finesse, however, what about the mechanics of the situation ?

GRANT — TOO BIG FOR VEHICLE

In considering the weight, the bulk and sheer clumsiness of the Grant, it is necessary to carefully weigh up its advantages over the 640e when it comes to installing it in your car. We tried a few cars and found that installation in most was almost out of the question, unless of course you are looking for fame as a martyr. The Grant just won't fit easily into today's pretty plastic cars without a major renovation of the trim. Not only is the space usually inadequate, but the weight of the rig is such that after a short time one would expect the rig to rip itself out of the dash or centre console.

640e — GOOD MOBILE RIG

The 640e on the other hand is sufficiently lighter and smaller to be accommodated in most vehicles but could still be a real test of ingenuity in others. The overall display legibility of the PRO-640e is better than the Grant and the backlit controls excel for night time operating where the Grant suffers from the usual midnight fumbles...unless/until you become really familiar with the position of the controls.

SUMMARY

In my opinion the Uniden Grant is one of the best 27MHz AM/SSB rigs ever marketed in this country and shows its grit in being a survivor in a market that has seem hundreds of rigs come and go over the last two decades.

The PRO-640e, a relative newcomer in the market place, is based heavily on the highly successful PC-122 mobile transceiver and most of the workings are almost identical except for the few additions like SWR indicator, filter circuits and trendy new styling.

When weighing up the pros and cons of both rigs, there is no clear winner because, where one radio excels over the other, there seems to be a similar disadvantage to balance the scale.

So, in the final analysis, the Grant offers excellence in performance, however, its bulk makes it more suitable as a base station rig with the PRO- 640e leading the way as a mobile and 'sometime' base station.

PART TWO

SPECIFICATIONS What do they mean?

By Ken Reynolds

(Powerband Communications)

Last issue we ran out of room just before we exhausted the last of the general specifications — namely those relating to the GME UHF rig, the TX-472s. So, let's briefly look at the remaining general specs before we tackle the transmitter details.

Looking at the 'spec' tables published in the last issue of CBA you will notice there is no mention of a PA(Public Address) facility on the TX-472s. Many readers would expect the more expensive transceiver to be better equipped than the sideband rig, however, AM/SSB rigs generally offer the PA facility more as a'spin-off' from the way the transmitter is modulated rather than by market pressure.

AM and AM/SSB transceivers usually employ high level modulation where part of the speaker amplifier is used to boost the microphone signal to about half the power level of the transmitter output power, usually several watts.

Since the circuitry is already provided for the transmitter's high level modulation it only requires a small switching operation to mute the transmitter stages and route the amplified speech to a PA speaker.

UHF CB rigs, however, only require low level audio signals to modulate the transmitted FM (Frequency Modulation) signal and therefore the modulation amplifier is not so readily adapted for PA use.

You might have also noticed that channel spacings between 27MHz and UHF are quite different — the HF band uses 10kHz while UHF sets use 25kHz between channels — for a variety of reasons most of which are beyond the scope of this discussion.

It is also interesting to note that the frequency stability of the 27MHz transceiver is quoted as part of the General Specification Table while the UHF spec sheet offers stability figures for transmit and receive...why the anomaly?

LET'S COMPARE FIGURES

Let's compare the two sets of figures. In our last issue we had the 27MHz transceiver with a stability of +/- 20ppm (parts per million) which amounted to 27 times 20 equals 540 Hertz in either direction giving us a total possible range of 1080 Hertz.

The UHF specification has a much tighter range of +/- 3ppm...or has it?

If we perform a similar calculation for the TX-472s you might be even more surprised by the outcome ! Let's round off the frequency to 477MHz and multiply this figure by the maximum frequency error of 3ppm. 477 times 3 equals an amazing 1431 Hertz up or down variation giving a total range of 2862 Hertz. Remember that this is offered as the very worst case and the specification sheet states that the stability is better than this figure.

NOW FOR THE TRANSMITTER SPECS

Readers will note the variation between the output power levels of the two rigs. The UHF set states the output power to be 5 watts RMS at 13.8 volts while the 27MHz rig has 4 watts RMS power on AM and 12 watts PEP (Peak Envelope Power) on single sideband. We have encountered the first real 'snag' of this discussion and if you have no previous knowledge of RF power measurement techniques you will need to concentrate a bit harder than usual to grasp the meaning.

5 WATTS OUT...NO !

Most CB operators familiar with AM CB rigs generally expect their AM only rig to output 5 watts of RF power. When their rig is tested on a proper test instrument they are frequently disappointed to find the output to be in the order of 3 watts RMS to 4 watts RMS. About 3 to 4 watts RMS is the proper level to expect when you understand the way the original power measuring method is contrived.

Many people assume the specification refers to the output power being 5 watts when in fact the correct interpretation relates to how much power is absorbed by — or

through if you like — the output stage of the transmitter. As with all human contrived devices, the RF power amplifier of a CB transmitter is not anywhere near 100 per cent efficient, in fact, about 75% is closer to the mark. This means that if we measure 5 watts of power being consumed in the 'final' amplifier stage of the transmitter we can only rely on about 75% of this power emerging as transmitted power to the antenna, the rest being consumed within the 'final' stage and appearing as heat in the output transistor.

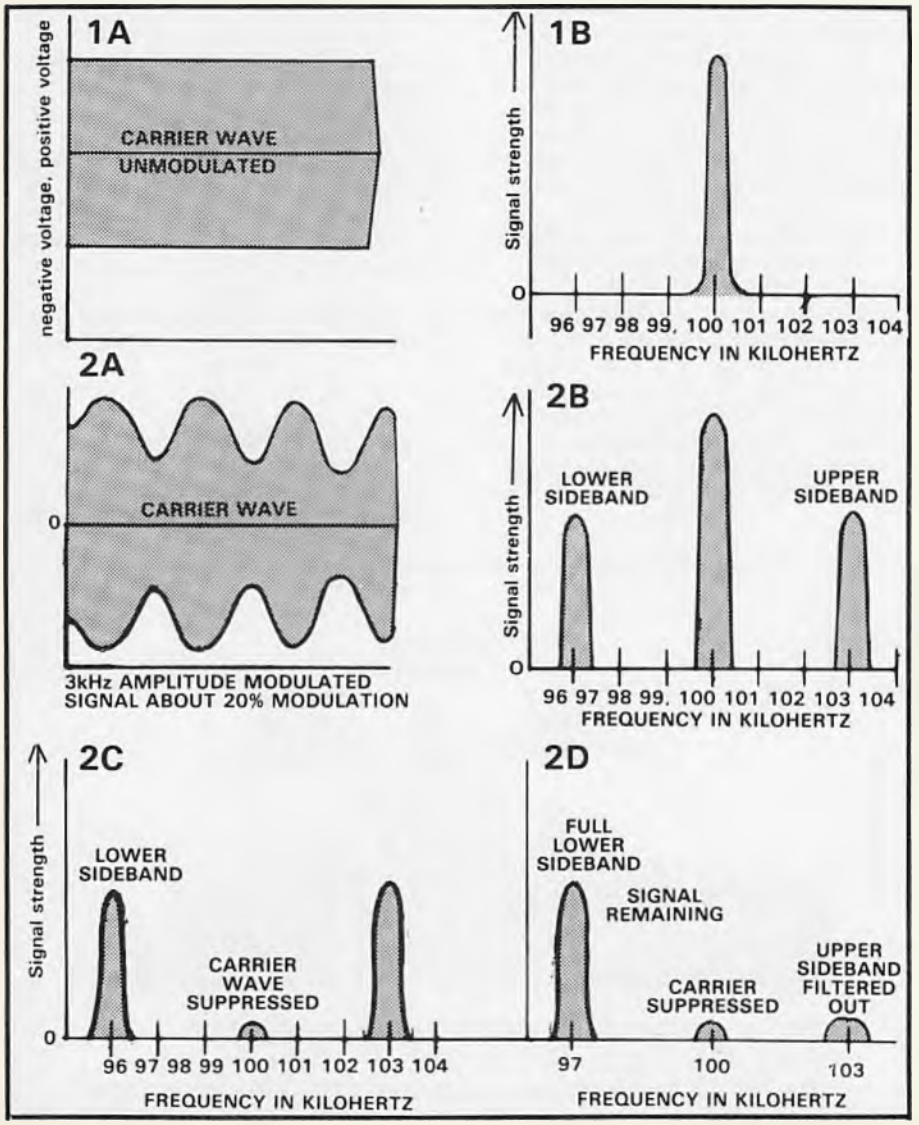
By contrast, the specification for UHF CB transmitters allows for direct measurement of Radio Frequency power delivered to the antenna, so, in effect, the rules permit a higher output for UHF CB than its poorer 27MHz AM relation.

RMS OR PEP...?

You may have also noticed that both the AM and UHF FM power levels are quoted in terms of RMS power while single sideband transmissions are measured in PEP (Peak Envelope Power) watts — a different term again.

Lets examine what is meant by RMS power. Root Mean Square is related to alternating currents like radio frequency signals or the electrical current available from the 'mains' wall outlet in your home. It is a complex mathematical expression used frequently in probability and statistical analysis which is basically summarized as the square root of the mean level of the square of a voltage or current during one complete cycle or alternation.

The complexity of measuring the power of an alternating current is brought about by the fact that the current may not be anywhere near symmetrical in its positive and negative going half cycles. Further, the actual shape of each half cycle may not be regular or predictable within itself. While this procedure might appear complicated — as indeed it is



TX472S SPECIFICATIONS

GENERAL

Frequency Range:	476 425-477 400 MHz
Frequency Control:	Microprocessor Controlled Synthesised single loop phase locked loop
No. of Channels:	40
Channel Spacing:	25 kHz
Antenna Impedance:	50 Ohms
Antenna Connector:	PL259 Plug
Voltage Range:	10.5-15.2 Volts D.C.
Polarity:	Negative Earth System
Temperature Range:	– 10°C to + 70°C
Dimensions:	171mm(W) x 175mm(D) x 52mm(H)
Current Protection:	3 Amp on line fuse (32mm, 3AG)
Reverse Polarity and Over Voltage Protection:	Shunt 18 Volt Zener Diode
Speaker:	2 Watt High efficiency front mounted
Scan Rate-OPEN:	0.2 seconds (5 channels/second)
-GROUP:	0.4 seconds (2.5 channels/second)

TRANSMITTER

RF Output Power:	5 Watts RMS @ 13.8 Volts
Frequency Stability:	Better than ± 3 ppm
Modulation Mode:	F.M.
Frequency Response:	500 Hz – 5dB 2000 Hz + 4dB
Modulation Deviation:	± 5 kHz (+ 20dB limiting @ 1 kHz)
Hum and Noise:	Better than – 45dB
Modulation Distortion:	3% @ ± 3.0 kHz Deviation
Microphone Sensitivity:	3 mV RMS
Spurious Emissions:	Better than – 70dB
Current Consumption:	1.9 Amps

RECEIVER

Circuit System:	Double Conversion Superheterodyne Direct Injection Method
I.F. Frequencies:	1st 21.40 MHz 2nd 455 kHz
Frequency Stability:	Better than ± 3 ppm
Sensitivity:	0.35 uV for 12 dB SINAD 0.5 uV for 20 dB NOISE QUIETING
Selectivity:	– 6dB @ ± 7.5 kHz, – 70 dB @ ± 25 kHz
Image Rejection:	1st I.F. – 66 dB 2nd I.F. – 84 dB
Spurious Rejection:	Better than – 70 dB
Blocking:	Better than – 80 dB @ ± 200 kHz
Intermodulation:	Better than – 70 dB
Hum and Noise:	– 40 dB
Frequency Response:	500 Hz 0 dB, 2000 Hz – 6 dB
Squelch Range:	Threshold = 0.2 uV, Tight = 0.6 uV
Audio Output:	5 Watts RMS @ 4 Ohms
Current Consumption:	Squelched 280 mA Full Volume 550 mA

mathematically — our ultimate aim is to calculate the total 'real power' or heating value or the energy contained within the alternating current, or, in our case, the radio wave travelling to the antenna.

In 'laboratory type' power meters the energy level is actually measured by its ability to heat a sensor within the instrument with the resultant calorific value being interpreted and displayed as RMS power in watts on a meter scale or digital readout.

ABOUT PEAK ENVELOPE POWER

Having looked at RMS power let's turn our attention to Peak Envelope Power, our means of describing the communications value of a single sideband transmitter signal.

Diagram 1A shows a representation of an unmodulated radio wave (carrier wave) as it can be viewed on a cathode ray oscilloscope (CRO) — this is the radio frequency wave which controls the actual frequency or channel on which the rig transmits its signal. Fig 1B shows the same unmodulated signal as it appears on a spectrum analyzer displayed in terms of frequency while Fig 2A shows the same signal now Amplitude Modulated (AM) with a 3 kilohertz audio frequency signal.

Notice how the height or amplitude of the original signal changes in sympathy with the intensity of the modulating signal. Notice also that the signal impressed on the top of the carrier wave also has a mirror image signal which appears on the lower portion of the carrier wave. This is a representation of an amplitude modulated (AM) radio signal which can be viewed on the CRO and it is known as the Modulation Envelope.

Figure 2B shows the frequency representation of the Amplitude Modulated signal — the carrier wave is the center peak while the lower peaks adjacent to the carrier wave are the Upper and Lower Sidebands which are actually the sum and difference of the two signals. Assume the carrier wave frequency is 100kHz and the modulating frequency is 3kHz, then the upper sideband will be 103kHz while the lower sideband will be 97kHz.

As you can see, we now have three radio frequency components in our AM signal. Another name for this signal is Double Sideband with full carrier. If you consider carefully this double sideband signal you can see that it is not very efficient in terms of energy use or spectrum use. The modulation signal is transmitted twice — both sidebands carry the same information — and the carrier signal just sits there consuming power and filling up the band for no apparent reason.

With a bit of electronic manipulation we can remove the central carrier wave from the total signal and just leave behind the two sidebands as shown in figure 2C. This is known as a double sideband suppressed carrier signal. We have now saved power and space on the band without losing any signal quality.

WITH A BIT OF FILTERING WE CAN...

With a bit of filtering we can selectively remove almost completely either the upper or lower sideband leaving only the desired signal thus saving even more power and band space. The remaining signal is our single sideband with suppressed carrier, figure 2D.

In brief, if we now observe this remaining signal ENVELOPE on our oscilloscope we can measure the PEAK voltage on the screen and a quick calculation will reveal the PEAK ENVELOPE POWER. In the 'composite' original Amplitude Modulated signal the carrier wave accounted for about two thirds of the total power in the transmission. Suppressing the carrier and filtering out the unwanted sideband has given us a considerable power saving — or improved efficiency if you prefer — contained our use of the radio spectrum while retaining all the modulated information impressed on the signal.

There are many other advantages to SSB transmissions that we can examine another time.

Figure 3A depicts an AM signal with only a low level (small percentage) of modulation while 3B shows a signal with 100 per cent modulation. It follows that 50 per cent modulation will cause the troughs and peaks in the carrier wave to occur somewhere between the levels shown in these two diagrams.

Therefore, we can use a CRO display to indicate quite accurately the percentage modulation on an AM signal. When the modulation level of 100 per cent is reached, as depicted in fig 3B, we have reached a point where the modulating signal is strong enough to almost 'cut-off' the carrier wave entirely. If the modulating signal is increased past this point the effect is to 'over-modulate' the transmitter. Such a signal is shown in fig 3C.

SPLATTER..YOU DON'T NEED IT

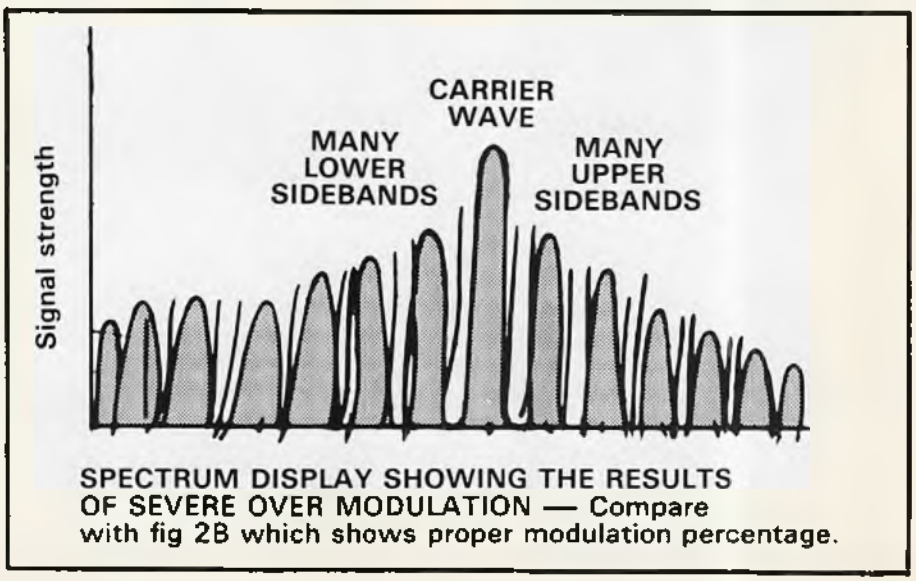
You will notice that the carrier wave has been strangled for a short time and the smooth variations of the modulating signal have become grossly distorted. This is the type of signal that commonly produces the effect known as 'splatter'. It is also the type of badly distorted signal that we don't need to hear on the bands.

Most rigs are designed to combat this problem by some quite clever circuitry, however, if you crank up your power mike and get the bloke down the street to disconnect the automatic leveling circuitry in the rig there is little doubt you can get yourself the 'dirtiest' signal in the neighborhood caused by excessive overmodulation — something like that shown in Fig 3D. This type of signal can result in your transmitter producing thousands of 'spurious' or unwanted signals that can effectively ruin TV reception in the local area as well as producing strange little clicking sounds right across the band.

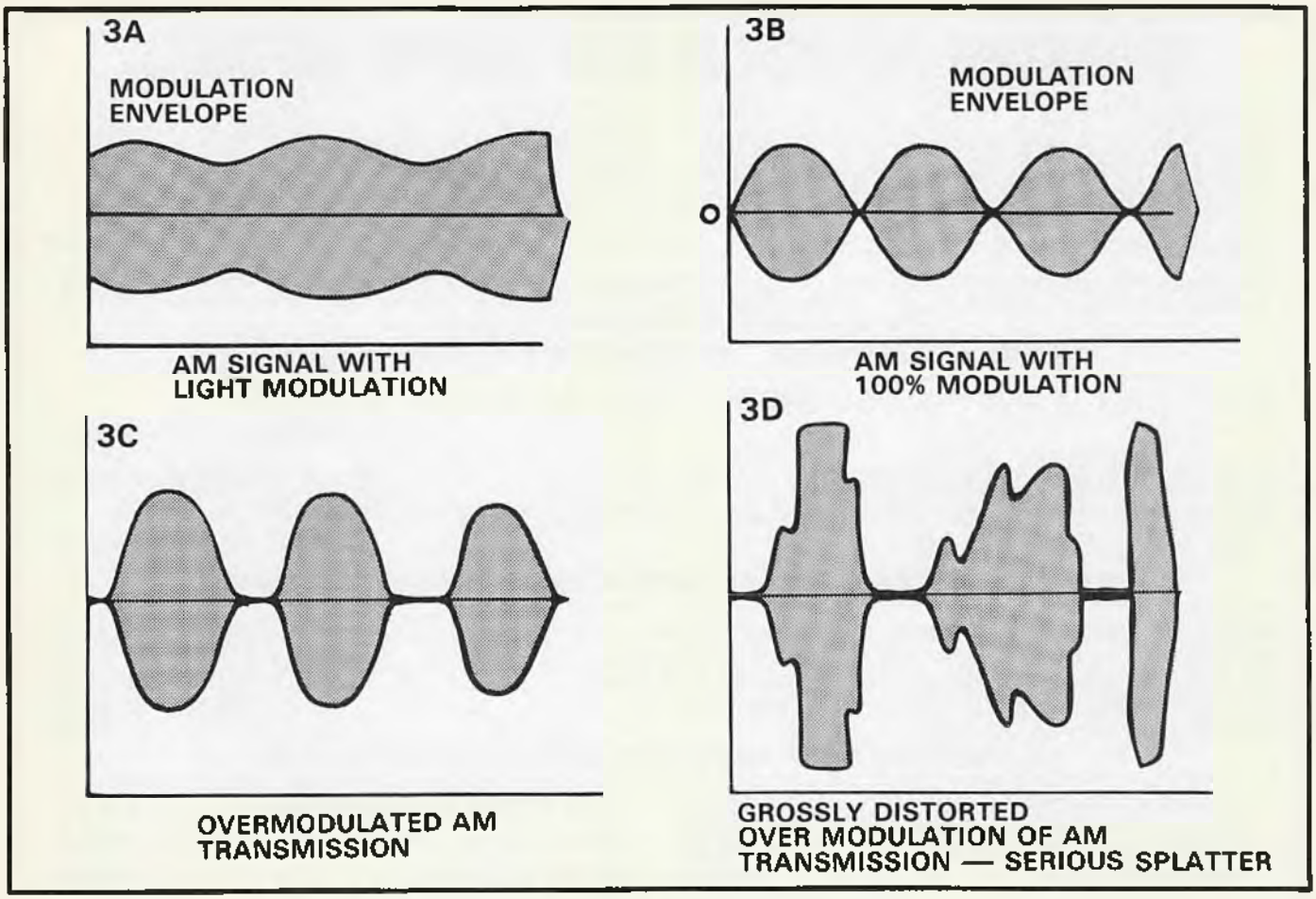
Running a signal like this is also a great way to be 'nicked' by the DoTaC troops...

ABOUT FM

Frequency Modulation is more difficult to display in the form of a graphic diagram, but, is probably just



SPECTRUM DISPLAY SHOWING THE RESULTS OF SEVERE OVER MODULATION — Compare with fig 2B which shows proper modulation percentage.



as easy to understand as amplitude modulation.

We begin with a carrier wave — blank transmission — as with AM but instead of varying the amplitude or level of power transmitted corresponding to the modulation level and frequency, we change slightly the carrier wave's frequency causing it to 'deviate' from its 'rest' frequency in sympathy with the modulating signal.

In simpler terms, the unmodulated carrier wave is a stable transmission said to be at rest and in this condition it will hold its operating frequency very closely, perhaps varying only a few Hertz (cycles) per minute. If we change any of the conditions existing in the frequency controlling elements of the transmitter the usual result is a corresponding change in frequency of the transmitter — the amount of frequency shift determined by the level of disturbance.

If we were to use the voltage variations produced by a speech amplifier to effect the transmitter's frequency stability it stands to reason that the carrier frequency might be able to shift in exact harmony with the audio signal. This is in fact the way frequency modulation is achieved. So, the modulating voltage from the speech amplifier will cause the carrier wave to 'deviate' from its original rest frequency, the amount of deviation being dependent on the change of level in the modulating signal.

In other words, a louder sound produces a greater output from the modulator in turn causing the transmitter to deviate further from its rest frequency.

Immediately the modulating voltage is removed the transmitter will once again resume its 'rest' frequency position. If the modulating signal causes the transmitter to shift in frequency by 5kHz (kilohertz) we could say that the transmitter has a deviation of 5kHz.....just like it says in the TX-472s spec sheet.

GAIN AND DEVIATION

FM transmitters usually have two internal adjustments that control the deviation within strict limits — microphone gain and deviation control. These are factory preset and operators are best advised to leave them well alone. In servicing these radios we frequently find the deviation increased to anywhere between 10kHz and in some sets around 40kHz.

It is a common misconception that increasing the deviation of your transmitter will give a more powerful signal and therefore greater range. The reverse in fact is more likely the case.

I don't deny that a small increase in deviation can often make the received audio sound 'sharper' and louder — this is part of the built-in safeguard of the system which must by necessity be designed to cope with small variations between transceivers. However, UHF CB uses narrow band FM and by design the filtering circuits are quite narrow, allowing only a restricted range of frequencies to pass through what we might call a 'window'.

If, in their ultimate wisdom, a mysterious person adjusts the transmitter deviation beyond the view from this 'window', only the signals which are within the window frame will appear as received audio.

This means the received signal will be reduced in signal strength (by the limits of the filter) and the signal will be noticeably distorted.

I hope that you're still with us...the above will clarify many misconceptions and, candidly, if you take your time and absorb all of the above you will have a good basic knowledge of several important factors governing the operation of both CB and amateur radio transmitters.

NATIONAL SPECTRUM ANARCHY

— FURIOUS FEWSTER TELLS IT AS IT IS —

This is going to be just about the smallest column I've ever written. Either bugger-all happened in the CB world recently or no-one's bothered to write and tell me about it.

I can't be everywhere all the time you know and ***unless some of you extract the finger and feed me some info next issue's column will be even smaller .... so bloody small you won't be able to find it !!***

ANOTHER REPEATER GOES OFF AIR

Brisbane 7/37 has lately been a verbal battleground after hours to such an extent that the owners of the repeater have turned it off numerous times .... for the night.

The constant threats of grievous bodily harm and the 'tough guy' posturing would be amusing if it wasn't for the gutter-filthy language coming from both sides of the argument .... PRACTICALLY EVERY TIME THEY SPEAK !!

Normally I'd be first-in-line to object about repeater proprietors switching their repeaters off for extended periods merely because of stirring, however, in this instance and in the absence of action from DoTaC I reckon Bernie is doing the right thing.

Even so, it's a pity that the dozens of decent CBers who use 7/37 at night are having their enjoyment of their hobby spoiled by the switching off of what is, after all, a CITIZENS BAND repeater, thanks solely to the foul-mouthed antics of COMMERCIAL operators.

The latest victim of DoTaC's anti-harassment campaign was a Bundaberg CBer who copped substantial fines for interfering with other users on 27MHz and my spies in the Department tell me that several other complaints are currently under investigation in various parts of the State.

NEW ACT MAY OUTLAW SCANNERS

With hardly a whisper, the Telecommunications Interception Act of 1979 has been amended *to make it an offence under the Commonwealth Crimes Act to manufacture, advertise, use, display, sell, possess, or probably even THINK about an 'apparatus' which is capable of intercepting telephone conversations.*

The offence carries a five-year jail sentence with no provision for a monetary penalty whatsoever.

The Amendment waffles on about knowlege and ability and such, so presumably a technically-qualified person who is fully aware of 'what' the 'apparatus' is and is capable of installing and using it would be more likely to be prosecuted than some kid who made a 'bug' from one of the numerous do- it-yourself articles which have been published in Australian and imported electronics hobbyist magazines over the past few years.

The Amendment doesn't specifically state that the 'apparatus' has to be a dedicated 'bug' and, in the absence of such a definition, I imagine that a judge could rule that a SCANNER capable of picking up car 'phone or cellular phone conversations is such an 'apparatus' and possession, etc of same constitutes an offence under Section 7(1).

Maybe CB Action's Legal Department can comment on this in a future issue.

LARSEN ANTENNA PRICE HIKE

I had planned to do a test report in this issue on the Larsen 5/8-over- 5/8 UHF-CB mobile antenna, but, the recent 30% ex-factory price hike has virtually priced Larsen antennas out of hobbyist market and I think a test report in CB Action would be a waste of editorial space .... like writing about a Rolls Royce in a go-kart magazine.

Because of high import tariffs, good-quality imported 27 MHz mobile antennas are seldom seen in Australia.

The most popular mobile antenna by far in the USA is the bottom-loaded whip, but, try finding one over here.

Long-time CBers will remember the K-40...one of America's best. I haven't seen a K-40 on sale here for years and I imagine that if they were available they'd be well over a hundred bucks apiece these days.

There are still a few El Cheapo Taiwanese jobs available, but, apart from that the cupboard has been practically bare .... until now !!

A new Australian-made bottom-loaded whip has just hit the market.

It's about four feet long overall and it exhibits about the same performance as the old five-foot 'licorice stick' helical which has been the 'standard' mobile antenna in Australia since CB first arrived on the scene.

This new whip is made of tapered stainless steel and VSWR adjustments are made with a hex-key. The loading coil is a 'slimline' job...a far cry from the chunky old K-40...and is wound around a solid fiberglass inner core which would be almost impossible to break unless you were really trying.

The best part about it is that the antenna will fit the 'standard' Australian helical whip base so you won't have to rip out your old wiring and start all over again from scratch.

It's a bit more expensive than a helical whip at around forty bucks, but it should last for many years so it should work out cheaper in the long run.

Our test antenna came from South Pacific Radio under their own 'SPR' brand, but, I've heard that the same antenna will also be marketed by Electrophone in the near future.

MONORAIL MONITORING

– It's different!

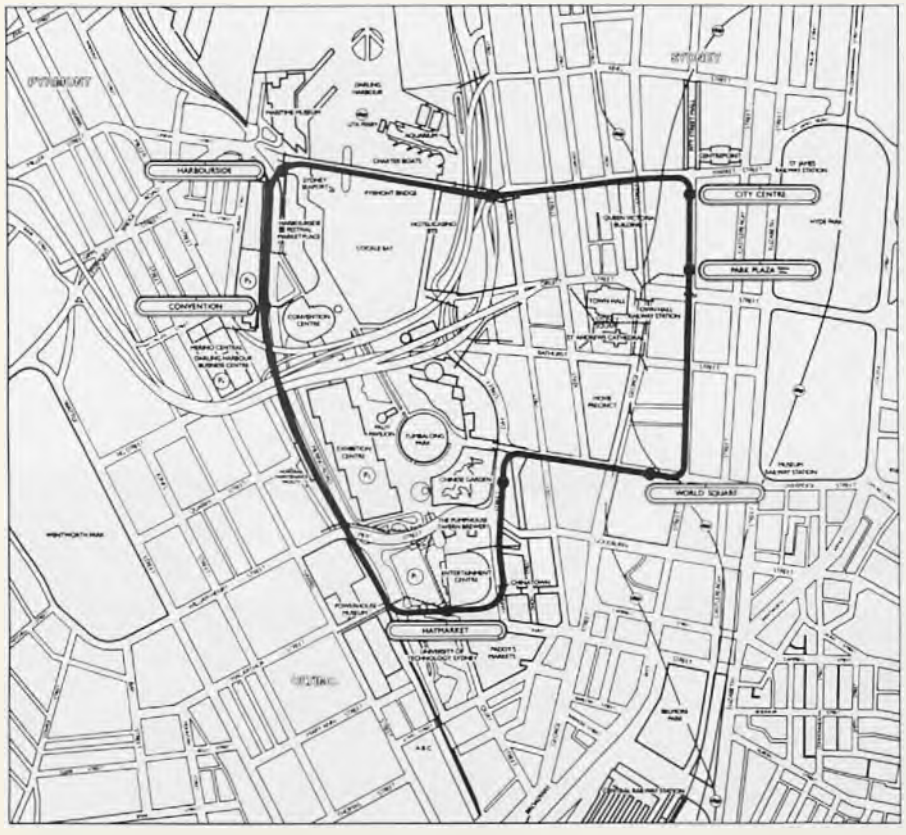
Robert Lopaka's guide to monitoring Darling Harbour's high-tech people- mover.

New and exciting communications systems attract me like a bee to a honey- pot, so an opportunity to have a close look at Sydney's TNT Harbourlink monorail made the blood rush to my head!

Harbourlink's Wayne Ferguson and Ian Hamilton are both very enthusiastic when discussing anything to do with their monorail, so right from the start of the visit I knew I was going to learn a great deal about the nuts-and-bolts working of the system.

For those not familiar with Darling Harbour, it is one of Australia's most exciting re-development projects. With funding from both the state government and private enterprise, 50 hectares of derelict railway yards on the western edge of the CBD were transformed into a vital recreational and tourist area.

The Darling Harbour precinct includes the Sydney Entertainment Centre, Powerhouse Museum, Exhibition and Convention Centres, a Chinese Garden, Sydney Maritime Museum, Sydney Aquarium and the Festival Marketplace. There are also business offices, many quality shops, fine restaurants, night spots and daily free entertainment scattered along the gardens, parks and walkways.



Although only 20 minutes walk from the centre of the city, it was recognised from the start that some fast, comfortable and cost-efficient way was needed to move people from the city to Darling Harbour, as well as within the area itself. The result was the Harbourlink monorail, established and run by TNT. This is the first monorail system in the world to operate as public transport in the heart of a major commercial centre.

The 3.6 km monorail route runs along the western perimeter of Darling Harbour, past Chinatown and thence into the CBD itself, with six stations along the way. These are Harbourside (located near the Harbourlink offices, maintainence facility and control tower, and servicing patrons of the Aquarium, Maritime Museum and the Ultimo Business Centre); Convention Centre; Haymarket, located adjacent to the Entertainment Centre and Chinatown; World Square, a massive office development currently underway; Park Plaza, near Town Hall railway station; and City Centre, opposite Centrepoint Tower and the Pitt Street Mall. From here the track crosses Darling Harbour over the Pyrmont Bridge and returns to its point of departure. Provision has been made for two additional stations — the first alongside the Chinese Garden, and another between City Centre and Harbourside, which is the site of a possible international hotel/casino complex.

IT ONLY COSTS $2

A ride on the monorail is certainly worth the $2 ticket price, and overseas visitors can be seen displaying great pleasure during the course of the journey, an average of some six metres or more above ground level. Even long-time Sydney residents are discovering a new facet to their hometown which many find extremely enjoyable. Darling Harbour has plenty of room to park the car and plenty of things to do both before and after your monorail ride. It's an ideal way to see Sydney.

The TNT Harbourlink monorail employs an extremely high-tech communications system, utilising both radio and fibre-optic cable landline-telephone equipment to ensure the monorail is operated smoothly, reliably and, above all, safely. Four semi-duplex radio frequencies in the UHF band have been allocated by DoTaC to TNT Harbourlink. The first is a dedicated voice channel, followed by two computer data channels (known as DATA 1 and DATA 2) and a common standby frequency.

SIX MONO VEHICLES OPERATING

There are up to six monorail 'vehicles' in operation at any given time. The normal running speed is around 30 km/h, providing a regular service for each station every two minutes. Each monorail comprises seven individual cars, the leading or number one car is equipped with three quarter-wave stainless steel UHF whip antennas mounted just above the driver's compartment, and spaced a half-metre apart. Advanced AWA UHF mobiles are used between these cars and the Harbourlink Control Tower, located near the Harbourside Station. AWA's 'Fleet Management' system was slightly modified to accommodate the interfacing of data modems, which send a stream of signals to the tower to be processed by specialised computer software and allow the complete operational status of each monorail to be monitored.

BENDIX-KING OR AWA

Each monorail driver also carries a portable UHF radio, either a Bendix-King LPU4140A or an AWA M1200. The Bendix-King unit is synthesised, with 14 channel capability and an output of 4 watts, while the AWA model has six crystal-locked channel positions. In both cases, channel 1 is for semi-duplex voice and channel 2 is a simplex channel using the base tx frequency. Quarter- wave handheld whip antennas are used in all cases, as stubby helicals proved to limit range along the route.

Using a semi-duplex system, each radio has separate transmit and receive frequencies through operating through a repeater, as do many other two-way users. But although the Control Tower transmits to all units, replies from mobiles and handhelds are not re-transmitted on the link and so are heard directly by only the tower. This means that drivers and the public cannot hear other units on the frequency, only the CT operator. This arrangement assists security and prevents unnecessary annoyance.

CALLSIGNS AND CODES ARE SIMPLE

The callsigns used are straightforward. Monorail number 6, car 1 is called as '6-1'. Stations are given numbers from the '200' series, and are referred to as '201', '202' and so on. Maintenance teams use '300' series calls, and administration/management uses the '100' series block.

Special codes are used in the event of emergencies, but are rarely heard and will require further monitoring given that TNT Harbourlink is understandably reluctant to discuss these codes in detail. One reason they are heard so little by monitors is that such incidents are quickly handed off to the secure fibre-optic landline circuits wherever possible. Obviously this cannot be done in the case of monorail vehicles themselves, but where problems do crop up, within the vicinity of a station, then use of the landline is much preferred by Harbourlink staff.

One portable radio is allocated to each operational monorail, one also to each station, and two to maintenance teams, so there are roughly 14 handhelds on issue during operating hours. Although the TNT Harbourlink is licensed to operate from 6am to midnight every day, monorail services run from 7.30am to 9pm Sunday to Thursday, and 8am to 11pm Friday and Saturday. There are some 100

permanent and casual employees on the Harbourlink payroll. Shifts are generally staggered, with the mainstays being 6am to 2pm and then 2pm to shutdown. The Control Tower is always staffed by two System Managers. The configuration of the console is still being experimented with at this stage, and the administration is to be complimented on its flexibility and good sense in dealing with this vitally important area of the operation.

A computer software package, designed by Texas Instruments, allows the System Managers to initiate and receive calls from any unit on an individual or group basis, so that messages can be directed into a single monorail car or throughout the entire network of cars, stations and portables. Pre-recorded messages of a routine or emergency nature can be broadcast by radio or landline. TNT's control of the Harbourlink system is so all-embracing that even the passenger elevators at each station can be spoken to, with closed- circuit video also being an integral part of the supervision equipment.

The TNT Harbourlink monorail was heavily panned by its critics even before a single passenger had been carried. My own experience from overhearing street conversations indicate to me that there is no fence-sitting being done — Sydneysiders either hate or love the monorail. Personally, I have longed to see the project get underway right from the day it was first announced. I believe it is a monorail to be proud of, one that is generating dollars for all kinds of businesses in the Darling Harbour complex and the CBD generally.

The monorail presently uses semi-automatic operation of cars — the driver merely closes the doors and sets the cars in motion, from where the Control Tower takes over. TNT aims for fully automatic operation in the future, but is testing exhaustively before a decision is made.

TNT HARBOURLINK MONORAIL STATIONS AND CALLSIGNS

Harbourside.....201
Convention Centre.....202
Haymarket.....203
Gardenside.....204
World Square.....205
Park Plaza.....206
City Centre.....207

EMTRONICS

THE AUSTRALIAN RADIO COMMUNICATION CENTRE!

FEATURES:

- 40 Channel UHF CB
- Repeater offset
- RF Output: 2W high, 0.4W low, 3W with 10.8V battery
- Illuminated channel selection switch for night operation
- Small in size
- Big in performance
- Full range of accessories

GENERAL SPECS

Freq range: 476.425 - 477.400 MHz UHF/CB
Freq control: Digital PLL synthesiser
Type of emission: 16F3
Antenna impedance: 50 ohms
Power supply: 8.4V - 15%
Operating temperature: -10 to +60°C

THE FABULOUS ACE STILL THE BEST IN QUALITY AND PRICE

$549

Dealer enquiries welcome

EMTRON ACE

AUSTRALIA'S MOST POPULAR 40 CHANNEL GENERAL PURPOSE HAND HELD

DESIGNED SPECIALLY FOR AUSTRALIA With features and specs better than most commercial grade transceivers. EMTRON-ACE covers the UHF CB band both simplex and duplex. It comes complete with nickel cadmium battery pack, belt clip wrist strap, flexible antenna — all standard at no extra cost.

APPLICATIONS

- Commercial & Professional Work
- Motor Sports
- Factory Management
- Hunting and Fishing
- Building & Road Construction
- Boating
- Flying & Gliding
- Farming & Pastoral
- Crowd Control
- Bushwalking
- Marshalling
- Construction Work
- General Sport
- Surveying
- Personal Communication

OPTIONS:

- KT-SM1 Ext mic
- KT-PA DC/DC converter
- KT-BA dry cell case
- KT-LC carrying case
- KCS-100 Desk top dual charger

ICOM NEW IC-40G FOR THE C.R.S. BAND

THE UHF CB PORTABLE YOU HAVE BEEN WAITING FOR

- ★ 5 WATT OUTPUT
- ★ CHANEL SCAN
- ★ 10 MEMORIES
- ★ ILLUMINATED LCD DISPLAY
- ★ OPERATES DIRECT OFF 13.8 Vdc
- ★ COMPACT RUGGED CONSTRUCTION
- ★ VARIABLE CH. STEP RATE
- ★ WIDE RANGE OF ACCESSORIES

uniden

UH-001	SUNDOWNER UHF	$399
PRO-640E	40ch AM/SSB DELUXE MOBILE	$339
PRO-5000	40ch AM MOBILE	$69
AX-144	40ch AM/SSB MOBILE	$249
WASHINGTON	40 AM/SSB base	$445
HR-2510	10M ALL MODE TRX, 50 CH MEMORY	$565
PANTHER	4 AMP PSU POWER SUPPLY	$89

WE WILL MATCH OR BETTER ANY OTHER UNIDEN PRICE

GME/ELECTROPHONE

- ★ TX 475 UHF HANDHELD **$799**
- ★ GX 558 VHF MARINE INCL SEAPHONE **$479**
- ★ MARINE ANTENNAS FOR 27 MHz AND VHF

EMTRON EAT 300

EMTRON'S latest selling 300 watt antenna tuner with SWR meter, built-in 1:4 balun, heavy duty ceramic switch and top components. Works with all rigs and is found in Amateur, Commercial and Marine services.

ONLY $259

ACCESSORIES

CO-AX CABLE RG58 $1 pm

★ METRES

REVEX W560 1.6 - 500 MHz	$299
EMTRON EP2000 1.6-30 MHz	$110
EMTRON EP 1 26-29 MHz	$59
★ CO-AX SEAL	$5
★ FREQUENCY REGISTERS	$20
★ CO-AX SUITABLE 2 POSITIONS	$79
★ KENWOOD MC 85 POWER MICS	$199

NEW ICOM R-7000

Communication Receiver with new freq. range from 500 KHz to 2000MHz

ONLY $2665

EMTRON'S HF SWR METER EP-1

$59 & $7 P&P

Specially designed with PRICE, QUALITY AND ECONOMY IN MIND. Freq range from 3.5OMHz. Reads forward and reflected relative power. Ideally suited for amateur and CB services.

DIRECT FROM USA

NEW UHF ISOPOLE WITH ZERO DEGREE RADIATION IS THE MOST EFFECTIVE OMNIDIRECTIONAL ANTENNA YOU CAN FIND ON THE MARKET TODAY. EXTENSIVELY USED FOR REPEATED & COMMERCIAL APPLICATIONS.

PRICE **$179**

ICOM SEE US FOR BEST PRICES ON ALL ICOM PRODUCTS

New IC-R1, 2-905MHz AM-FMN-FMW	POA
New IC-R100, 0.5-800MHz AM-FMN-FMW	POA
IC-R9000, 100KHz-2GHz COMM RECEIVER	POA
IC R7000, 25MHz-2GHz COMM RECEIVER	POA
IC R71A, HF COMM RECEIVER	POA

SEE US FOR BEST RESULTS

- ★ ANTENNA ROTATORS
- ★ HF & UHF CB TRANSCEIVERS
- ★ HF & VHF MARINE TRANSCEIVERS
- ★ COMM RECEIVERS
- ★ EVERYTHING FOR RADIO COMMUNICATION

EMTRON'S PRECISION CROSS NEEDLE RF EP2000 SWR METER

Yes this new from EMTRON — highly accurate CROSS-NEEDLE SWR & POWER meter, model EP 200 with a freq range from 1.8 MHz and power rangers 20, 200 watts, gives instantaneous reading of forward/reverse power and SWR plus 2 KW.

ONLY $110

AUSTRALIA WIDE SCANNERS GALORE

New from A.O.R. Ltd

AR1000

FROM HF TO MICROWAVE

WITH 1000 MEMORY CHANNELS
8MHz-13GHz, AM-FM (N)-FM (W)

FEATURES:

- ★ Ultra Wide Frequency Coverage: AR1000 covers two wide bands 8-600MHz and 805-1300MHz without having a gap in the band
- ★ Multiple programmable search limits: 10 different search bands can be programmable to find unknown active frequencies very easily.
- ★ CPU controlled: A Powerful microprocessor controls variety of function modes, frequency selections, memory channels and others to ensure simple yet versatile monitoring performance.
- ★ Multiple power sources: AR1000 can be operated from AA size x 4pcs Ni-Cad. batteries (standard), optional AA size x 4pcs of dry cell batteries. Mobile charger and AC/DC charger are standard accessories.
- ★ Permanent memory back up: EEPROM (Electrically Erasable Programmable Read Only Memory) maintains the programmed frequencies and function modes without having memory back-up battery which protects you from the disaster of losing 1,000 preprogrammed channels' information even at the time of battery failure.

SPECIFICATION

Frequency Coverage	8-600MHz/805-1300MHz
Sensitivity	N.FM 0.45uV @ 12dB SINAD W.FM 1.0uV @ 12dB SINAD AM 1.0uV @ 10dB S/N
Scanning Speed	Minimum 20 channels/second
Audio output	130mW into 8ohms 10% THD
Size	70(W) x 170(H) x 39 (D) mm
Weight	370 grams without antenna

Only $549

WHY PAY MORE FOR LESS

AR3000 FROM LF TO MICROWAVE

100KHz 2036 MHz CONTINUOUS

LF-MF-HF-VHF-UHF-SHF all mode AM—SSB-FM monitoring and surveillance

PROFESSIONAL RECEIVER

The AR3000 now extends your listening horizons further than anyone believed was possible. Covering the entire frequency spectrum from 100KHz to 2036MHz without any gaps in the range. The AR3000 brings the general coverage receiver to a new level of performance and utility.

LIMITED STOCKS TO BE AVAILABLE

ONLY $1650

WRITE FOR MORE INFO

SR STANDARD

AX-700E SPECTRUM SCANNER AM-FM (N) — FM (W)

FEATURES:

- **Large size spectrum display**
- **Fast frequency selection**
- **100 Ch memory**
- **Multiple search functions**
- **Continuous freq coverage from 50-905 MHz**
- **Multi mode AM, FM W, FM N**
- **Many other features**

THIS UNIQUE RECEIVER IS YOURS FOR ONLY

$885

WRITE OR PHONE FOR COLOUR BROCHURE

JRC HF GENERAL COVERAGE COMMUNICATIONS RECEIVER NRD-525

Japan Radio's proud tradition of excellence in communications is further enhanced with the introduction if the sophisticated new NRD-525 receiver.

ONLY $1979

Following in the footsteps of the now famous "505" and "515", the NRD-525 offers a level of technology, performance and capability previously unavailable to listeners — at any price. If you could close your eyes and imagine the ultimate communications receiver, chances are it would come out looking much like the new JRC NRD-525! The high performance level for which JRC is famous is now coupled with the latest in advanced features.

FEATURES

★ Wide frequency range ★ Large Memory Capacity — 200 channels ★ Scan Reception ★ Sweep Reception ★ Teletype Reception (option) ★ Electronic Tuning ★ Direct Access Tuning ★ Wide Dynamic Range ★ Clock/timer ★ Interface with P.C. (option) ★ Fully Solid State Modular Design

uniden Bearcat SCANNERS

50XL 10CH	$179	200XLT	$429
70XL	$239	760XLT	$449
100XL	$279		

ANTENNAS FOR SCANNING

- D 130 Discone Base.....$159
- D707 Active Base.....$219
- D505 Active Active.....$189

BANKCARD MASTERCARD & VISA

EMTRONICS

MAIL ORDERS WELCOME

NSW & HEAD OFFICE:
92-94 Wentworth Ave, Sydney
NSW 2000. TLX: AA73900
P.O. Box K21 Haymarket, NSW 2000
Ph: (02) 211 0988
Fax: (02) 281 1508

VICTORIA
288-294 Queen St, Melbourne
Vic. 3000
Entrance from Lt. Lonsdale St.
Ph: (03) 670 8551 or 670 0330
Fax: (03) 670 0671

QUEENSLAND
416 Logan Rd, Stones Corner
Qld. 4210
Ph: (07) 394 2555
Fax: (07) 394 4316

WESTERN AUSTRALIA
336 Albany Highway
Victoria Park, WA 6100
Ph: (09) 470 1118
Fax (09) 472 3795

GME | Electrophone:::

27MHz CITIZENS BAND TRANSCEIVERS

AUTO RECALL OF TRUCKIES ROAD ALERT CHANNEL 8

TX821 AM

■ Ch.8 Recall ■ Compact Size ■ Last Channel Memory ■ Modulation & Signal LED Indicators ■ Digital Channel Display ■ Electronic Channel Change ■ Separate Volume & Squelch Controls ■ Local/Distance Selection

TX830 AM SUPER DELUXE

■ Ch.8 Auto Recall on Mic. ■ Powerful Front Speaker ■ Interference Suppression Circuit (ISC) ■ Variable RF Gain ■ Signal Level Indicators ■ Power/Modulation Indicators ■ Dimmer Control

TX826 AM DELUXE

■ Ch.8 Recall ■ Compact Size ■ Last Channel Memory ■ Modulation & Signal LED Indicators ■ Digital Channel Display ■ Rotary Channel Selector ■ Combined Variable RF Gain/Squelch Control ■ Built in Noise Limiting

TX840 AM/SSB

■ Unique Auto Recall on Ch.8 ■ Separate Volume, Squelch & Clarifier Controls ■ Remote Speaker & PA Facility ■ LOC/DX & ANL Switching

TX472S 40 CHANNEL UHF/FM MOBILE TRANSCEIVER

AUSTRALIAN MADE

- Built-in Micro Computer
- Front Panel Field Programmable in 2 Modes
  —**Group Scanning**
  —**Open Channel Scanning**
- Memory Protection Circuit
- Hi Intensity L.E.D. Display with Dimmer Control
- Sel-Call Option

NOW WITH SEL-CALL OPTION

TX475S 40 CHANNEL UHF/FM HANDHELD TRANSCEIVER

- 450mA Quick Charge Ni-Cad Battery Pack
- 240V Electronic Wall Charger
- Inbuilt Electret Condenser Microphone
- Positive Thumbwheel Channel Selection

REGULATED POWER SUPPLIES

240V AC TO 13.8V DC
PSA123 3 AMP
PSA126 6 AMP
PSA1210 10 AMP
PSA1225 25 AMP

REGULATED VOLTAGE REDUCERS

24V DC to 13.8V DC

VR1-3 3 AMP	VR5-30 30 AMP
VR2-5 5 AMP	VR7-280 20 AMP
VR3-10 10 AMP	VR8-410 30 AMP
VR4-20 20 AMP	Single & Multi Circuit

Distributed via National Dealer Network by:

GME | Electrophone:::

A DIVISION OF **STANDARD COMMUNICATIONS** PTY. LTD.

SYDNEY (02) 816 4755, MELBOURNE (03) 584 8099, BRISBANE (07) 273 4355, ADELAIDE (08) 363 1888, PERTH (09) 330 5322, AUCKLAND (09) 274 0955

CB ACTION

Standard Communications
Marktronics —
Captain Communications

WORDMAZE

Having read the review of the GME-Electrophone TX-475S UHF handheld in this issue there's a halfway reasonable chance that you wouldn't mind owning one.
So here's your chance . . . courtesy of Standard Communications, the prize for this issue's WORDMAZE is just that — a TX-475S — plus a long-life BP-1000 battery pack and matching heavy-duty carry case from Marktronics and Captain Communcations
. . . and . . . a 3 dB flexible whip antenna from Mobile One.
. . . and it's all up for grabs.
It will go to the first correct entry opened after 15 July.
You do, however, need to answer the following questions and circle them in the WORDMAZE.

1. "Should you wish to mount the ??? (what are the three missing letters?) in the car . . . etc."
2. Another quote from an article in this issue read, "In the past there have been some rather ?????? (what's the missing word?) . . . etc.
3. In a recent issue we featured a simple do-it-yourself 27MHz antenna called the ???????????? (what's the missing word?).
4. What is the name of the regular column missing from this issue? . . . it arrived tooo late for inclusion but should be back next issue.
5. What is the name of the monitoring service which also has a marine rescue service (we only want the name, not the State in which it is located)?
6. Which service (initials only) helped CREST build masts at Grose Island and Hayes CreeK?
7. Which monorail station has the callsign 203?
8. Which rig (in this issue) is a great performer, but, "too big for vehicles?"
9. What does the South Australian police code number 302 mean?
10. 'Guide to utility stations' is published by ??????????? (missing name?) Publications?

B	A	N	A	T	A	A	G	K	E	K	A	N	Y	K	N	T	B	S	C
T	F	T	H	U	N	N	T	L	F	N	E	T	C	K	L	R	N	O	N
V	T	M	G	T	A	K	K	I	O	A	F	U	N	A	R	K	A	F	I
T	N	C	R	C	E	Y	R	N	S	A	H	A	I	B	E	O	F	T	F
R	U	V	A	A	N	T	A	G	T	A	C	K	N	N	E	E	S	O	K
Y	N	M	I	E	I	E	N	E	R	N	Y	H	Y	E	A	R	A	N	E
T	K	K	T	L	R	E	R	N	S	A	N	O	N	L	I	N	E	S	R
U	D	N	B	N	R	A	T	F	H	S	E	O	K	T	K	A	T	T	O
N	F	S	O	A	U	S	E	U	A	A	R	R	Y	F	B	K	T	H	C
A	N	E	S	H	T	E	R	S	R	K	R	I	G	G	H	T	G	U	O
Y	N	N	N	A	S	I	T	S	R	F	E	F	N	A	E	R	A	N	R
B	S	N	A	I	T	Y	I	T	N	S	A	N	Y	N	V	N	N	D	R
E	Y	A	M	E	K	T	S	K	E	R	T	M	A	B	E	O	T	E	F
T	A	F	A	A	R	T	E	I	R	T	A	F	Y	R	N	H	A	R	O
G	K	E	V	G	N	T	R	N	V	R	Y	E	Y	N	E	K	U	S	C
R	R	O	Y	G	C	R	U	M	K	I	H	C	T	L	E	A	T	T	Y
A	A	E	O	A	R	E	F	E	Y	K	A	T	K	I	H	O	T	I	A
N	N	S	R	K	T	R	T	S	N	R	T	Y	N	N	E	A	T	C	R
T	Y	E	N	H	A	A	T	E	I	T	B	B	N	L	A	F	N	K	A
A	L	R	N	R	O	B	B	E	R	Y	A	N	F	A	K	C	U	E	B

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

The answers to all of the above are to be found within this issue.
NOTE: The correct answers MUST be circled in the WORDMAZE — photostat copies are acceptable, HOWEVER only one per reader — if we find a reader sending in more than one photostat entry all that reader's entries will be excluded. You can of course send in as many entries as you like using the original page torn from the magazine . . . that way we get to sell more of 'em!

The closing date is 15 July and the winner will be the first correct entry opened after that date. The draw will be conducted in the offices of CB Action and the results, answers and winner will be published in the next issue.
Entries should be addressed to: CB Action/Standard Communications Wordmaze, PO Box 628E GPO, Melbourne 3001.

DAVID FLYNNS'

477 Report

UHF NEWS AND HAPPENINGS

UHF ASSISTS IN FLOODS

CB radio in general, and 477 MHz in particular, once again proved its value as a public resource during the floods which hit south-eastern Queensland, mid-west NSW and the Gippsland region of Victoria in April and May of this year.

Entire townships and districts were evacuated or cut off from life around them as the record floods swamped more than one million square kilometres of the outback. Charleville and Nyngan are two names which have swapped relative obscurity on the map for a remembrance as the flood towns of Queensland and NSW. I was unable to make contact with anyone who had direct experience of the situation in Queensland, however, it was UHF CB which played the largest part in NSW and was also vital to efforts in Victoria.

The band is of course almost a 'community radio service' in many country areas, used by almost every farm, business and emergency service, and it was this that put 477 MHz in the frontline. Another advantage was the number of handhelds used in the service, and their high level of performance — when homes are flooded and vehicles overturned or swept away by the rush of water, portable operation is the only option.

One of the largest roles of UHF was in NSW, where the floods struck from Bourke through to Cobar and Forbes. All these are relatively close to Dubbo, which is the heart and home of NSW CREST and, through their efforts, 477 MHz was put to full use in every part of the evacuation and relief operations. Mark Evans, CREST's National Public Relations Officer, says that their remote link through UHF channel 5 saw thousands of messages passed through CREST Dubbo and other monitoring stations within range.

The Dubbo Civic Centre was used as reception point for evacuations from Nyngan and, as all buses in the mid-west are fitted with UHF CB, CREST was able to assist with co-ordination of the work, checking on the number and physical condition of evacuees, determining any need for medical assistance upon arrival and so on.

It appears that since the NSW State Rail Authority cut rail services to these outer-lying areas, the local railway stations and bus lines that link them have all been equipped with UHF CB. This also placed the railway stations in an advantageous situation, as most are on slightly higher ground than surrounding land and became the focal point for rescue activities in each town.

3/33 Orange was also pressed into service, especially for its reach into Forbes, where the town was cut into three isolated areas.

There was also an aspect of the floods in which CB and amateur radio worked together. Just south of the township lives Lee, VK2DGX, who in addition to his full-call amateur licence also operates UHF CB. Locals were able to call Don on UHF and pass messages, requests and information to him; from there Lee would relay this onto the VHF 2 metre repeater of the Orana Region Amateur Radio Club (also sponsors of a local channel 1/31 UHF CB repeater), to fellow club member Don, VK2KDB.

Don set up his station at the Trangie Agricultural Research Station, which was used to co-ordinate feed drops to stranded cattle and sheep. The RAAF fodder-drop flights were made from Dubbo and later Narromine airports, farmers could thus call on UHF with their location and requirements and, shortly afterwards, receive their order.

UNUSUAL COMBINATION OF RADIO

An even more unusual combination of radio was to be found in Bourke, where local community or public AM station 2WEB also acts as the local CREST post. The radio station, on 505 kHz, boasts of a coverage area the size of France — outback NSW, Queensland and even South Australia. The CREST base is monitored by 2WEB staff 24 hours per day and often works in tandem with the CBRS, not just channel 5 but also the highway channel. ***"It's most effective when we use it to broadcast road information or missing persons details on 2WEB"***, says station announcer and local CREST administrator Dave Kesby. ***"A message passed through CREST can be re-broadcast on the highway and call channels of 27 MHz and 477 MHz and also on 2WEB, which gives it a guaranteed coverage far in excess of CB and makes it a sort of souped-up two-way system !"***.

When floods first hit Bourke the only mode of contact with many of the properties was, for some time, only UHF CB. On the very first night, when panic was most likely, all telephone lines west of Dubbo were down for 10 hours and UHF was the only way in which residents and emergency services could keep in touch with the situation.

Later on, says Kesby, ***"people on property roads or sidetracks could report on their condition as detours from the flooded main roads on UHF or 27 MHz, direct to CREST, and we would then relay this on 2WEB."***

The local and regional SES also used UHF CB heavily, as did aircraft fitted with portables.

"UHF CB works in Bourke because of the discipline on air", offers Kesby. ***"There is a very disciplined use of the emergency frequencies and the band as a whole and I think this is because there is a clear recognition that CREST is an emergency organisation there to serve the community, the radios are there for them to use, and the whole system gets respect instead of the profanity, abuse and so on that you find in the cities."***

REPEATER NETWORK ALSO DID ITS BIT IN VICTORIA

Gippsland Repeater Association secretary Bill Morris also tells me that their repeater network and UHF simplex also did their bit in the Victorian floods. ***"There was less tendency to panic, in the sense that everybody was in touch through 7/37, which was going non-stop for three days."This kept them informed, they knew where everyone was and I would say that a lot of lives were saved through UHF"***.

The local SES, realising that most locals were on UHF, wisely decided to utilise channel 15 as a public liaison frequency.

NEWS FROM THE ACBRA

Les Hume, President of the Australian CB Repeater Association, advises that they have now become incorporated and received a very good response to news of their formation in the last issue of CBA. ***"From the letters received so far, it appears that all UHFers have the same problems with the mad minority"***, says Les. He also notes that the ACBRA has ***"formed a good relationship with DoTaC and hope to meet the new Minister for Communications in the near future. A Parliamentary Inquiry into communications will commence shortly and it is also hoped to have a Departmental Inquiry and for the ACBRA to have some input in both inquiries."***

Again, enquiries on the ACBRA are invited - write to PO Box 83, Wangaratta Vic 3687.

REMOTE LINKS ON 5

Earlier in this column, in reference to CREST and UHF, mention was made of a 'remote link' for channel 5. This is a new concept to most readers, so it is worth looking at — especially given the level of debate on the issue of 5/35 repeaters against the calls for a simplex-only 477 MHz emergency allocation.

The remote link or remote base concept allows calls to be made on 5 simplex.

All signals received on 5 are relayed onto a discrete out-of-band frequency and received by a monitor. The monitor replies on a second discrete channel, which is relayed through the link onto 5 simplex. So you can see there is an element of repeater or duplex operation, but, it occurs at the other end of the conversation from the user.

The system was first developed for UHF CB by CREST National Director Steve Harding and to date three remote 5's have been installed in Dubbo, Junee and Cobar, with a fourth due to be commissioned in Bourke around June and another planned for Sydney at a later date. Typical range is said to be one hundred kilometres in either direction for country areas, depending of course on the elevation of the site itself — effectively the same as a simplex station or conventional 5/35 repeater at the same location.

There are advantages and disadvantages in remote links for 477 MHz. Definitely a plus that you can call on 5 simplex — this not only ensures that a local non-CREST monitor will hear you direct, but, also means that people with earlier UHF rigs not fitted with repeater access can still call for assistance.

CREST's Mark Evans maintains that this is one reason why they chose a remote link, to cater for the thousands of farmers in the NSW areas where early FM320s were doing duty. Another point in favour of remote links is that the monitor always maintains control of the channel through his station and the input/output frequencies back to the base — there is no way that the monitor can be jammed out and emergency communications from that end interfered with.

ON THE DOWNSIDE

In order to work the system requires three channels in all — UHF 5, and two UHF channels for linking 5 with the monitor. CREST have these two out of band frequencies licenced on a commercial basis, a pair at each site, and luckily it is the same pair at all four locations to date. Monitors are using commercial UHF mobiles purchased at a 'bargain basement' price from the NRMA when they swung their network over to predominately data transmission.

The discrete channels also act as 'private frequencies' for CREST operations, messages and chit-chat — and it is better there than occupying channel 5. Non-CREST monitors cannot of course use the system. CBA will be looking further in depth at various aspects UHF 5 in a future edition. ***Now, who said that monitors in general were "less than useless these days ?"***

David Flynn reports on the...

REAL PIRATES OF THE AIRWAVES

They are bootleggers, radio renegades and outlaw radio in the USA. Underground or off-shore radio in Europe. Alternative radio and free radio, to the operators. Clandestines, to the DXers. By any name and by all, they are pirates. None of your 'a few extra channels' CBers, these pirates, but broadcasters on the AM, FM and shortwave bands.

The good ship Radio Caroline, circa 1964. Radio Caroline was one of the original airwave pirates and made life difficult for UK officialdom during her early days...the enormous mast is of course the antenna.

They are the real, the genuine item pirates and their names reflect their nature.

Modern and highly commercial efforts abound in the UK, where music lovers have given themselves the listening choice that Thatcherism has been strangely slow to implement — underground stations such as JAZZ-FM, Rock2Rock, Sky and London Wide Radio.

The political strategies of countless governments have included support for pirates and legit broadcasts during times of peace and war. Amongst them are stations such as W-KRAP, WDOG, Radio Lymph Node International, Voice of the Tibetan Housewives Association and ZIT-FM and, of course, Radio Confusion; and unforgettable deejays, Crazy Charlie and Dr Klystron.

And the famous stations ... Radio Caroline, Voice of the Voyager and the short-lived RNI/Radio Sarah.

Consider too their 'studios'. Some no more than the corner of a bedroom, others a professional mini-studio inside a house or apartment, still more an entire ocean vessel anchored offshore of their target country. These very different stations all belong to the league of pirate broadcasters. They are unlicenced and as such illegal. Large scale radio piracy is a criminal act in many countries, so what drives them to operate outside the law, risking fines, loss of equipment and property and possibly imprisonment ?

U.S.A. — A LONG AND COLORFUL HISTORY OF PIRATES

The USA has one of the longest and most colorful history of pirate broadcasters. The first station recognised as such was Ohio's WUMS, which first went to air in 1925 and operated for almost thirty years despite enormous government efforts to the contrary. Another was RXKR, which surfaced in 1933 during the prohibition era, transmitting from a floating speakeasy off the coast of Los Angeles — the world's first offshore pirate.

Others were run along the lines of commercial broadcasters, successfully passing themselves off as legitimate stations. WGM Pasedena was on air for almost ten years before they were caught, and the townsfolk were astonished to learn that their local station was unlicenced. Tom Kneitel, radio nut and editor of America's Popular Communications magazine delights in telling of a pirate FM station located in an isolated valley under-served by regular radio networks. The operator is on air every night with country and western music, local news, births, deaths and marriages announcements, community activities and phone-in requests. "Nobody complains" says Kneitel, "and perhaps no-one outside the valley even knows !".

ENTER 'PSYCHEDELIC RADIO'

The anti-establishment mood of the '60s was fertile soil for bootleggers,

and 'psychedelic radio' became the tag for a string of pirates across the country ... I suppose it was these stations to which one was supposed to 'tune in' before you would 'turn on and drop out' ! "These stations were free-wheeling, satirical and outrageous", recalls the magazine. "Some stations used self-assigned FCC-like callsigns, but there was little doubt over the legal status of those who called themselves King Kong Radio, Pirate Radio Central or Jolly Roger Radio."

Much of the 'music and madness' style of today's youth-oriented FM stations has its roots in the '60s, when these pirates started to break all the long- standing conservative rules. They played new music and live recordings of local bands, parodied commercials (advertising, which promoted the materialistic society, was scorned by hippies), were strong on causes and politics, presented comedy skits and were generally as irreverent as possible.

Interesting to note, then, that early last year commercial Los Angeles broadcaster KQLZ-FM ditched their 'light adult contemporary' format and the matching 'K-lite' ID, and was relaunched as Pirate Radio 100.3 FM !

COMMERCIALS EVEN IMITATE THE PIRATES...

"Time was when pirates tried to imitate the legit broadcasters", says Tom Kneitel. "Now heavy duty deejays are trading on the image created by pirate radio, and big-time broadcasters are borrowing from radio's renegades."

Pirates had little trouble finding a spare, unallocated frequency in the early days of broadcasting, but now the dials are becoming crowded. Unused FM channels are always a popular choice. In New York City, some dozen pirates share 91.9 MHz, the only spare frequency, and have drawn up a roster and appointed a 'frequency co-ordinator' so that everyone gets a turn !

Another option is to transmit on or just outside the band edges (88 MHz and 108 MHz). Off-shore stations do likewise on AM and can often be found around 1620 kHz. Shortwave pirates select a frequency spot which will best reach their audience, so this varies between stations.

Peter Bunn, from Australia's OzDX, notes that American clandestines are usually around 7.3-7.6 MHz, or between 14 and 15 MHz. European stations favour the lower frequencies, such as the 49 metre (6.2-6.5 MHz) band and sometimes 7.3-7.5 MHz. But there's nothing, apart from money, to stop a pirate from being active on all three broadcast bands. Consider Radio Sarah, which fired up on 1620 kHz AM, 6240 kHz shortwave and 103.1 FM, with a longwave facility in reserve !.

ENTER RADIO SARAH

Radio Sarah is in fact an excellent 'case study' of a modern off-shore pirate broadcaster. The station began as an effort by Americans Allan Weiner, J.P Ferraro and Randi Steele, to establish a radio station in the New York metropolitan area. Attempts to obtain a conventional licenced station were unsuccessful, as was the creation of the Falling Star Network, which with two unlicenced stations was probably the first pirate network.

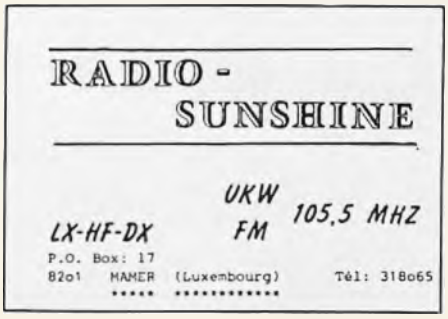
Following the lead of famous broadcasters such as Radio Caroline, Weiner decided that the only way to achieve his goal without breaking the law was to operate a station from a boat in international waters. He found such a site off Point Lookout, Long Island — the mooring was outside the U.S. territorial waters limit and thus beyond the legal reach of the FCC, yet more than close enough to New York to ensure high quality signals would reach the city.

Weiner and his companions purchased a Japanese fishing vessel, renaming her the Motor Vessel Sarah and building a complete studio and station from scratch. Offshore broadcasters such as this are far removed from the popular 'backyard' image of pirates.

Radio Sarah, also known by the callsign RNI (Radio New York International), was equipped with a 5 kW Gates transmitter on AM, feeding a 150 feet long sloping T antenna which used the ship's hull as ground; a 300 watt military surplus radio for shortwave, firing through a half-wave dipole beneath the AM antenna; and a 1 kW FM transmitter fed a two-ring horizontal array above Sarah's 100 foot mast. Also readied for use was a 75 watt longwave unit.

RNI, Weiner was fond of saying, was "radio with a conscience". 10 per cent of all advertising profits were earmarked for recognised charities to help the homeless of New York ... "a totally free and uncensored radio station dedicated to love, peace and understanding". This message of universal goodwill was lost on the FCC who, with the assistance of the Coast Guard, boarded the seized the MV Sarah less than a week after she began broadcasting in July 1987. Most of the ship's equipment was dismantled, Weiner and two crewmates arrested but later released without fine or sentence.

Barely a year later, RNI was back on the air from her Point Lookout mooring and ready to recommence broadcasts.


RADIO -
SUNSHINE

UKW
FM
105,5 MHZ

LX-HF-DX

P.O. Box: 17
8201 MAMER (Luxembourg) Tél: 318065


RADIO OHM

OHM BREWED RADIO

OHM SWEET OHM

Q. S. L.

OHM'S LAW: I = E/R E = ER R = E/I = FFFR!

TO

WE ARE PLEASED TO CONFIRM YOUR RECEPTION OF RADIO OHM ON 7420 KHZ

BETWEEN AND GMT ON AT

BROADCAST # QSL #

This time the MV Sarah had been registered with the Principality of Sealand, a 'sovereign nation' located on an old artillery platform off the coast of England which had some years earlier declared itself an independent state (similar to WA's Principality of Hutt).

This arrangement was made so that Sarah's country of registration would not grant permission to the FCC or the US Government to seize the ship. RNI returned to the airwaves on October 14, and three days following was served a temporary restraining order by the US Coast Guard at the request of the FCC.

EXIT RADIO SARAH

There was little choice but to agree to the order and the crew of Radio Sarah entered the courts. Once again no charges were laid, however, a federal judge imposed a permanent silence on RNI/Radio Sarah and she was left to the memory of fellow pirates and shortwave listeners. Yet rumours abound that RNI will return, and soon ... so stay tuned for more in the saga.

BUT NOT RADIO CAROLINE

Arguably the most famous off-shore pirate is Radio Caroline, which over her many years has become a respected broadcaster as well as a much-loved shortwave legend. Caroline was one of many pirates transmitting to the UK and Europe from international waters. Like her comrades, Caroline — aboard the MV Ross Revenge, anchored 14 miles off the coast of south-east England in the North Sea — was spurred on by British legislation that until recently put all AM and FM broadcasts in the hands of the BBC, who operated all four radio services. The station runs 3 kW on 558 kHz, with a relay noted on 6215 kHz. Caroline and co. have also become a training ground for DJs and announcers, with personalities such as

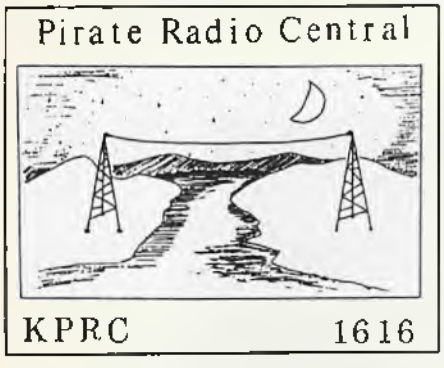
Kenny Everett making pirate radio their launch pad into success on the legit stations.

The growth of FM radio has seen hundreds of small-time pirates hit the UK airwaves, each catering for vastly different markets, with some two dozen in London alone. Their programming is incredibly diverse. Some are a voice of the disembodied, the poor and underprivileged they claim Thatcher has forgotten and condemned to a life of injustice — these are the fiercely proud socialist, left-wing stations. In addition to the spoken political messages, their playlist includes music with an emphasis on socially aware and outspoken artists, from moderns U2 and Tracy Chapman to favourites from The Style Council and The Housemartins — a sort of left-wing 'hits and memories' !

Tune through London's pirate FM dial and you'll also hear music. Lots of music. Hi-NRG, SAW, rap and dance. House, reggae, rock, metal and thrash. Stations for the larger ethnic groups, the Greeks and Turks. Stations which raise money through the support of local record stores and hold regular dance nights. Stations so enjoyed by the listening audience that on more than one occasion government pop station BBC1 has lost in the ratings war to pirate Capital radio !

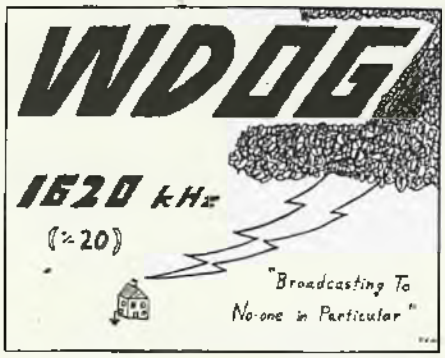
IRISH PIRATES GET THE ADVERTISING..!

Likewise, Irish pirates Radio Dublin and Radio Sunshine have many a time out-rated official broadcasts from government network RTE...it got to the point where the Irish Army and national airline Aer Lingus both chose to advertise on these pirates rather than RTE so they would reach the widest audience. Due to a loophole in Irish law these stations are not exactly prohibited — they certainly aren't legal, but nor are they illegal, and in their fine style the Irish make the most of the situation.



The Japanese are considered masters of miniaturisation and their approach to pirate radio is no exception. Local regulations provide for a class of low- power licence-free FM broadcast stations. Their range is effectively limited to a suburban block but in the densely populated cities this still gives a potential audience of hundreds if not thousands.

As mentioned earlier, pirates have long been tools of the politician. Angola's Black Cockerel, Colombia's Radio Patria Libre ('Free Country') and still on air, the Voice of Peace. VoP is another offshore, an U.S. registered charity operating from the MV Peace, anchored 2 miles off Tel Aviv. This station aims to ease the middle east tensions through its broadcasts on 1539 KHz AM and 100 MHz. Programs are mostly in English, with a few hours daily in Hebrew and Arabic.



OFFSHORE POLITICAL STATION BROADCASTING TO CHINA ....WELL ALMOST !

In recent months we saw the build-up to a possible new off-shore political station, which planned to beam pro-democracy messages to mainland China from the 1200 tonne vessel Goddess of Democracy. Backed by 19 foreign press organisations and the Paris-based Federation for Democracy in China, the Goddess was due to commence medium wave AM broadcasts from the East China Sea on the first anniversary of the student-led protests and subsequent massacre in Tiananmen Square.

The ship was,however, refused passage through waters controlled by the British territory of Hong Kong, a diplomatic decision given the incredibly sensitive relations between China and Hong Kong at present. In the meantime, the Chinese government cited two provisions of the ITU regulations which it claimed prohibited the operation of radio or television stations from ships outside national boundaries. The Goddess of Democracy operation was wound down, and proves that the seas of piracy are rarely smooth sailing.

AUSTRALIA'S CLANDESTINE RADIO NETWORK

With all this pirate activity both on land and at sea, you may wonder if Australia has a role in this game of radio 'cops and robbers'. Luckily no-one thought to rename Australian pirates as 'bushrangers' or anything with a similar indigenous cringe during the CB slang craze of the late '70s.

As it stands we've never gone in for pirate broadcasting on a large scale.

Perhaps this is because our broadcasting system is regulated and controlled more tightly than that overseas, or maybe it is our lack of numbers. Whatever the reason, Australia's sole claim to free radio fame is CBN, the Clandestine Broadcasting Network. Peter Bunn recalls that, "CBN made several brief appearances during 1979 using frequencies around 25 MHz and 27 MHz, and was heard well in the Sydney area. It was later heard in Mt Gambier, South Australia on FM, before resurfacing in Sydney on 7350 kHz."

CBN then disappeared for good — does anyone know if there is a story behind this ?

LOGGING THE PIRATES

It's clear by now that listening to the clandestine stations can be a thrilling and enthralling part of shortwave radio and some tyros have made it their speciality. But pirates can come and go within days, if they last that long, while others are planned and publicised months in advance. As always, knowledge is the key — knowledge of frequencies, schedules, of what is happening in the scene.

Although sometimes out-dated by the time they reach our shores, American magazines can be a goldmine — and even if the signals noted don't propogate to Australia, the information alone makes great reading. Popular Communications has two columns on the topic, 'Pirates Den' on 'free radio' and 'Clandestine Communique' on the more politically-motivated stations. The far superior 'Monitoring Times' features pirate news and loggings in 'Outer Limits', plus a stream of well-written articles that put you way in front.

A fast first-hand source are the DX programs heard on many shortwave stations, although some programs are now devoting more time to the broader issues of communications and the media and less to the hobbyist aspect itself. Finally, if you have a PC and a modem, then log onto any computer bulletin board which carries the International Shortwave Echo. This is a common message area with DX and radio notes originating from BBSs throughout the world and 'echoed' or relayed to your local BBS. Here you'll find radio nuts from around the world swapping frequencies, news, notes and listening tips on anything that can be heard on radio.

Rod Fewster reviews the "fairly basic"

COMMEX SCANNER — 1

Scanning is the latest 'in' hobby among CBers...it's got to the stage where, if you don't have at least one scanner in your collection, you're in the Good Buddy category.

Ranger, the world's second-largest CB manufacturer, have just released their first scanner in Australia under their Commex brand. The Scanner-1 is a fairly basic 50-channel unit when compared against super-scanners like the Icom IC-R7000 or Tandy's PRO-2004/2005, but, it has the three most-wanted features...Lockout, Delay, and Priority Channel function.

It doesn't have automatic search-and-store or unattended tape-recording facilities, but, it does everything most mobile users would want it to do...and does it well.

NO SPECS — BUT WHO NEEDS THEM ?

The manufacturer does not provide specifications in the user manual and the test rig arrived too late for me to perform extensive bench tests in time for inclusion here, but, I was never too fussed about specs anyway.

To me, on-air is where it all counts and the Commex showed no sign of weakness during on-air testing.

The Scanner-1 covers 26-30 MHz, 68-88 MHz, 118-178 MHz and 380-512 MHz with five blocks of ten programmable channels.

When a signal is received in the Air Band(118-138 MHz) the scanner automatically selects AM or FM. It's a pity it doesn't do the same between 26 MHz and 30 MHz too...there isn't much FM traffic in this part of the spectrum.

ALL POPULAR FREQUENCIES ARE COVERED

The lack of 'continuous coverage' isn't much of a loss...all the 'popular' frequencies are covered and voices 'in between' the Commex's bandspread are almost non-existent anyway.

Programming, as with most scanners, is a nightmare unless you read the instructions carefully, however, once you've punched in a couple of frequencies it's a piece of cake. The unit has an inbuilt memory-backup system (no batteries needed) which will retain programmed channels for two weeks if power is disconnected.

A keylock switch prevents accidental erasure of programmed information.

The keypad and command buttons are 'positive-feel'.

Volume and squelch controls are piggy-backed with the volume knob doubling as a push-on/push-off power control. The display is backlit liquid crystal with decent-sized channel and frequency digits which surprisingly don't disappear altogether in sunlight.

THIS IS A DEDICATED MOBILE RIG

The display indicates selected functions (Lockout, Priority, Limit, Delay, Scan, and Manual) clearly by full name, as well as channel step and mode. The Scanner-1 is a dedicated mobile unit and is supplied with a three- pin fused DC lead, although it could be used as a base if connected to a 13.8VDC power supply.

In a cost-cutting move Ranger have used the case, basic chassis and mounting bracket from one of the smaller rigs in their CB range and the mounting bracket is typical Ranger 'overkill'...a substantial angle-adjustable steel bracket with two mounting knobs on each side.

Once installed, this baby ain't goin' nowhere !

The antenna socket is an SO239, which takes the same PL259 plug used on practically every CB radio ever made.

In a couple of places the user manual tells you to,"Connect the supplied antenna rod to the antenna jack"...forget it...there isn't one...it's a mistake in the manual.

IT COMES UP WELL UNDER TEST

I tested the Scanner-1 right across its operating range alongside my own trusty old Realistic PRO-2004 for comparison as a base installation through an SPR Scantenna-XLR discone.

Mobile testing was all done on and around the 'police channels' (where most mobile scanning takes place) with the scanner connected at various times to the glass-mounted 450-500 MHz Larsen half-wave (which is my own personal permanent mobile scanning antenna), a helical 'special purpose scanner antenna' which shall remain nameless because it's performance was so bloody pathetic I'd rather forget it even existed and a simple stainless whip cut to resonate as a quarter-wave on 468 MHz.

Switching between the PRO-2004 and the Commex through the Scantenna-XLR (using a DAIWA two-way UHF switch with N-type connectors and 10DFB cable) showed no discernible difference between the two scanners.

Everything one could hear, the other could hear equally as well.

I normally drive around with a Realistic PRO-32 handheld scanner hooked up to the Larsen and I have a pretty good idea of what I can expect to hear and from where.

Initially the Commex seemed a bit deaf.

CHUCK THE ADAPTOR OUT !

The Larsen's cable is terminated with a BNC to suit my PRO-32 and I was running the Commex through a BNC-PL259 adaptor. To be fair to the Commex I replaced the BNC with a PL259 and the improvement in performance was so dramatic that I advise anyone who has one of these adaptors to throw it in the nearest rubbish tin.

As further proof of the total uselessness of adaptors at UHF frequencies I connected the PRO-32 through an S0239-BNC adaptor and its performance went right out the window. Just to satisfy my own curiosity I then set up a quarter-wave 'cop' antenna on a gutter-mounted UHF base and lead and ran each scanner in turn on the Larsen and the 'cop' antenna side-by-side after changing the connectors.

The Larsen won every which way,but, so it should at the price.

My conclusion...at a recommended retail price of around $450 (you can pick one up for under $400 if you shop around a bit)...the Commex Scanner-1 represents excellent value for anyone considering a scanner specifically for mobile use.

CONTEST RESULT FOR THE

ICOM IC-40G UHF HANDHELD

It's pretty obvious that a whole lot of readers would like to own an ICOM IC-40G UHF handheld — the number of entries to the competition was staggering.

We realise that question one: "What is the power of the IC-40?" should have referred to the IC-40G, however, this error has been taken into account when deciding the winner.

. . . and the winner is . . . Andrew Kovacs of Mount Isa, Queensland.

Congratulations Andrew, and our thanks to all our readers who entered the contest. Thanks also to ICOM Australia for their generosity in supplying the rig.

Andrew, your IC-40G will be on its way to you within a few days . . . have fun.

DELTA BASE COMMUNICATIONS

SALES SERVICE & REPAIRS

C.B. AMATEUR MARINE

We stock a full range of Mobile Units; Base Stations, and Hand Helds: New and Used with a comprehensive choice of accessories & antennas.

LICENSED SECOND HAND DEALER
TRADE-INS WELCOME

SPECIALS

5/8 Ground Plane Verticals	**$129.00**
Station master Base Verticals	**$59.00**
Beams from	**$139.00**
4 AMP Power Supplies	**$79.00**
Leson TW232 Base Microphone	**$125.00**

"Wanted to Buy or Sell on consignment any CB Amateur & Marine Radios & Accessories"

Also a large range of second hand amateur radios & accesories.

889 HIGH STREET,
THORNBURY, VIC.
FAX/PHONE: (03) 484 0059

MasterCard VISA

RADIO AUSTRALIA BACK TO THE FUTURE

REPORT BY ROB WILLIAMS

In November 1988, across the last two months of our bicentennial year, the ABC announced a major review into Radio Australia. The Review committee consisted of three of the most powerful senior personnel from within the ABC and followed on from a Government discussion paper suggesting that RA should be removed from the control of the ABC.

Unlike previous reports into RA, this review was generated internally. The terms of reference were briefly to investigate the role and functions of RA, consider the structure of management and funding necessary for the station, and examine policy, target areas and hardware requirements. Nine reference points were set, to guide the review panel through the tangled web of neglect that had left RA dangling on a very fine budget.

The problems facing RA weren't new. Previous Governments had allowed the broadcaster to run down to a point where its main transmission site, at Shepparton Victoria, is only on the air through the efforts of dedicated technical staff. The current Government has only now realized this and in the 1989 budget allocated some $2.5 million to replace the station's vital antenna switching matrix.

Other events during the year also illustrated how dilapidated the shortwave 'Voice of Australia' has become.

The 'people's revolt' in China proved that even though RA has a very large following on the mainland it wasn't able to be heard in several large aeas of China. This fact was picked up by the Australian press, which reported this lack of audibility. An ABC press release earlier that year had already admitted that RA transmitters were only 'sufficiently powerful to reach Northern China occasionally and fortuitously'.

But,the decision to review Radio Australia wasn't new. DXers and followers of RA had seen it all before. While most reports have been supportive of the broadcaster's role, very little has been done to bolster the facilities at its disposal. Clear evidence of this is the rebuilding of the transmitter site at Cox Peninsula, which took ten years to become fully operational again after being heavily damaged by Cyclone Tracy.

The review was held in a most professional manner. Public comments were called for and public hearings held in Melbourne and Canberra. In all some 86 submissions were received, 72 of these from individuals. The review committee also decided to analyse a typical day's transmission. 13 March was chosen and, in addition to putting RA's daily programming and operations under the microscope, the committee also arranged for transmissions from other major overseas broadcasters of that day to also be recorded.

Of the hundreds of international broadcasters, Radio Australia is one of the most prolific, transmitting 49 hours of material in 9 languages daily (through their split-feed network). Programs consist of 24 hours of English, eight in Indonesian, six and a half Mandarin, two in pidgin Tok Pisin, one in Pacific 'simple English', two in Japanese and French, one and a half in Cantonese and one in Thai and Vietnamese. RA's budget for 1988-89 was $12.02 million, representing 2.6 percent of total ABC expenditure.

THE OBJECTIVES

The ABC Corporate Plan states RA's brief objectives as being 'to foster international understanding of Australia and to reflect Australia's perspectives on the world'.

LANGUAGE CONTENT

Various submissions called for increasing the number of languages broadcast, however, the committee found that most of the suggestions were for languages spoken in areas of lower priority or where shortwave listening wasn't popular and under current economic circumstances this would not be feasible. The only recommendation made was to terminate the Japanese language broadcasts, in line with the declining Japanese interest in shortwave listening.

POLITICAL INFLUENCES

The review supported the widely-held belief that RA should be independent of any government control. However the appointment of former diplomat and ambassador Richard Broinowski to the new post of General Manager has cast doubts on RA's future relationships with Foreign Affairs.

PROGRAMMING NEEDS

The review identified three types of RA listeners: leaders of national opinion, indigenous listeners with an interest in the world around them, and Australian expatriates. RA has some 30 journalists producing their news and current affairs programs and the program format revolves around a two hour cycle. The first hour is made up of a 13 minute news service, consisting of 10 minutes of world news and three minutes of Australian news.

The next hour has a 25 minute current affairs program. The committee pointed out the need to maintain accuracy over speed of presentation. RA is highly respected by its overseas audience and this should be retained. Since then there have been major changes to Radio Australia's program structure. Morning services (1700-0400 UTC) are now made up of news and current affairs, with the rest of the day offering a more relaxed style of broadcasting features.

TRANSMITTER REQUIREMENTS

The review panel made it quite plain that the state of RA's transmitters were of major concern, and identified several problems at each site. Shepparton is not only considered under-powered, but, there are increasing technical problems as the local township grows and moves closer to the site. Darwin, while a very important and strategically located site, suffers from excessive outage times, frequent-

ly with two of the three transmitters off air for repairs.

In addition, the company which manufactured the transmitters has ceased production, creating a difficulty with spare parts. Carnarvon suffers from a lack of room for future expansion, with the growing township encroaching on the site. It was also realised that no Australian transmitter site is capable of providing a high grade of service to the target areas of North or South Asia.

Transmitter facilities have become a series of short term, ad-hoc decisions, the review found, and all these problems have reduced RA's reliability. This also highlights the fact that little investment has been made in facilities, and with growth in international shortwave broadcasting, transmitters need to be even more powerful to be heard through the noise and congestion.

To rub salt into the wound, the British Government is presently spending 100 million pounds to improve BBC World Service facilities around the world, with a similar program for VOA underway at a cost of $US 1.3 billion. Over the last five years an estimated $A120 million has been spent on the BBC and $A490 million on VOA, compared to less than $3 million on Radio Australia.

RA has a traditionally large following in the South Pacific and Asian regions, but, through lack of funds, it is gradually losing out to other broadcasters who are prepared to improve their signals to these areas. Even our closest neighbour, New Zealand, has recognized this and earlier this year established a new transmitter site to serve the South Pacific. While Australia may not be able to fund an international service to the same degree as the BBC or VOA we could at least provide enough capital to maintain or replace the existing facilities of RA.

It was also noted in the report that with optimal locating of transmitters, RA could reach regional audiences in the South West Pacific and South East Asia, however, it is not possible to adequately cover the other target zones.

The rapid expansion of overseas relay stations and program exchanges developed over past years has helped provide many international broadcasters with stronger signals into these areas. Radio Australia is in an excellent position to capitalise on its geographical position, close to the Pacific and South East Asia and could generate revenue by leasing transmitter facilities to overseas broadcasters wishing to transmit to these regions.

The Review Committee called for RA to be allowed to broadcast from transmitters external to Australia, by leasing or sharing airtime from the transmitters of other broadcasters and, in turn, for RA to let other stations utilise RA's own transmitters. The committee also suggested that all RA sites have sufficient facilities to provide at least two transmission to the one target zone from different sites, although RA will of course need more transmitters and antennas to achieve this.

The preferred configuration is to have three transmitter sites across Northern Australia and one off-shore. Shepparton would become the second transmitter site for the south-west Pacific region and all new transmitters would be at least 250 kW. The committee called on the government to immediately establish one site in Northern Queensland for transmissions to the Pacific and Eastern Asia, a need which arises due to the aging facilities at Shepparton. A further proposal was the establishment of off-shore facilities for broadcasts to Northern China, including Beijing and Shanghai.

WHO SHOULD CONTROL RADIO OZ ?

There has been speculation as to who should control RA, with three options discussed. Those suggesting the establishment of RA as a government agency similar to VOA, and that RA be brought under the wing of the SBS, were not in general supported as real alternatives. The advantages of RA remaining as part of the ABC were thought to outweigh feelings that RA should be its own agency. There were also calls for greater interchange of material between the ABC and RA, and this has already begun. Relay of Radio Australia over the ABC Radio National network from midnight to dawn is claimed to have developed a strong audience.

STRUCTURAL CHANGES

'In some ways', considered the review panel, Radio Australia comprises '9 broadcast stations, each having a distinctive audience'. Before the review, staff were allocated to sections formed on a language basis, such as the English Language Department, and produced material regardless of the target area. RA has now been reorganised and is moving towards establishing regional or 'zone' departments. VOA uses the same arrangement and this seems to be very successful, as staff specialise in one particular region.

A NEW SITE ?

Even before the Review there was a proposal to move RA from the present Burwood site into the planned ABC Melbourne Radio Centre, with the aim of better integrating staff and facilities through co-siting. However the majority of RA personnel prefer to remain at Burwood and so the Review Committee has simply recommended that a study take place into the possibility of a move. A number of areas have also been earmarked as possible revenue-raisers, including the bilingual staff, audio production and RA's news sources, and the review team recommends that a marketing and publicity position be created to investigate these possibilities.

MOVES UNDER WAY

Events which have taken place since the report was tabled indicate a hopefully bright future for Radio Australia. The review has been a catalyst for similar investigations into the ABC. The Auditor-General's Department has been considering the current transmitter contract between the ABC, DoTaC and Telecom.

This is a complicatd arrangement under which the RA/ABC transmitters are operated by Telecom staff, through funding provided by DoTaC. The AGD hopes to determine if current targets are being met and ensure that the ABC is getting value for money under contract terms. DoTaC is also looking into solutions for the many technical problems mentioned in the review. One rumor is of a new northern Australian transmitter site, on the Atherton Tablelands near Cairns, but located inland, away from the cyclone belt.

The establishment of an internal Frequency Management Unit has enabled RA to take control of frequency selection from Telecom. The group has been loaned resources from Telecom to set up a fully operational environment from which the ABC can gain a better understanding of frequency selection. This also relies upon the assistance of paid monitors living in major target areas, the USA and the UK.

The recently established site in Brandon Queensland, using a trio of old 10 kW transmitters, has resulted in improved signals to audiences in PNG, Vanuatu and the Solomon Islands, according to RA Frequency Manager Hugh Murray.

GM Richard Broinowski has already visited Thailand for preliminary discussions on establishing a relay site of two 250 kW trnsmitters to serve China, Japan and Korea.

In conclusion, the RA review made 30 recommendations to improve RA. For now, the Government must inject some greatly needed capital to rebuild Radio Australia into the highly valued broadcaster it once was.

KENWOOD . . . The "Rolls Royce" of car stereo

The world in your pocket!

***ICOM IC-R1 Communications Receiver ONLY $725!**

NEW!

- ❑ Compact body! Measures only 49(W) x 102.5(H) x 35(D)mm and weighs a mere 280g
- ❑ 100 memory channels
- ❑ Accepts an external battery pack
- ❑ Covers 100KHz–1300MHz Ccontinuous
- ❑ Equipped with AM, FM & wide FM modes

ICOM

KCA-R200

- ❑ Controls KDC-C200 auto-changer & optional KTC-T100 tuner module
- ❑ New DIN size removable panel
- ❑ 10-disc random roulette play
- ❑ Bi-directional seek and manual tuning

KDC-92R KENWOOD

- ❑ High-rigidity anti-vibration mechanism
- ❑ Theft prevention chassis with opt. lock (CK-50)
- ❑ Optimum servo control
- ❑ 3-beam laser pickup

KENWOOD

- ❑ NEW DIN chassis

KRC-3003

- ❑ Quartz PLL synthesized tuner
- ❑ 18 ch. preset memory
- ❑ Computer flat chassis
- ❑ Digital clock

***Minelab Eldorado MK II**

The affordable, professional gold prospecting tool

ONLY $495

NEW!

- ❑ Light weight rugged construction
- ❑ 8 inch search coil
- ❑ Two operating modes
- ❑ Built in stand on arm rest
- ❑ Ignores ironstone & other goldfields mineralisation
- ❑ Stereo headphone socket
- ❑ Long battery life approx. 80hrs with low battery warning signal
- ❑ Ten turn ground balance control

MINELAB

SYDNEY:
26-28 Parkes Street,
Parramatta NSW 2151
Ph (02) 633 4333
Fax (02) 891 2271

CAPTAIN PTY. LTD. COMMUNICATIONS

BRISBANE:
3401 Pacific Highway
Springwood Qld. 4127
Ph (07) 808 5122
Fax (07) 808 5288

Bankcard, VISA, Mastercard, AGC, Diners, Leasing, Layby and Mail Order.
FREE DELIVERY BY AUST. POST COURIER ANYWHERE IN AUSTRALIA (*MARKED PRODUCTS ONLY)

*MINELAB EUREKA ACE DUAL

Two detectors in one, 19.5KHz and8KHz at the flick of a switch!

ONLY $895

- ❑ Ignores ironstone and other goldfield mineralisation
- ❑ Two search coils as standard equipment, 6" and 8"
- ❑ Long battery life with low battery warning signal
- ❑ Three operating modes in both frequencies
- ❑ Finds small surface nuggets in 19.5KHz and deeper nuggets at 8KHz
- ❑ Light weight rugged construction and hip-mount as standard
- ❑ Ten turn ground balance control

NEW!

MINELAB

*IC-R100 COMMUNICATIONS RECEIVER

Bring the world to your car!

NEW!

A MERE $1059

ICOM

- ❑ Finds stations quickly
- ❑ Built-in 24 hour system clock
- ❑ Fully covers 500kHz-1.8GHz
- ❑ Programmed, memory, priority, selected memory and auto memory write scan functions
- ❑ 100 memory channels, 20 scan edge channels for programmed scan and a priority channel are available

NEW Victorian Frequency Register!

1990 – All new – All bands.

❑ Order now, to avoid dissapointment. Stocks due mid June.

Only $33 including postage

AUTHORISED KENWOOD AND ICOM DEALER: All Kenwood and Icom products sold by Captain Communications are supplied through the Australian Distributor and come with a full Australian warranty. Don't risk non-authorised units from discounters – the distributors won't touch them! **ACCEPT ONLY THE BEST**

CB & ANTENNA WORLD

Linking Voices CB Linking Hands

AT LONG LAST IN THE WEST

100% WEST AUSTRALIAN MADE ANTENNAS & MASTS

WE MANUFACTURE AND WE INSTALL THEM

ANTENNAS
HAND HELD
MOBILE
BASE

CB
UHF
MARINE
AMATEUR

NOW OPEN

Call in and talk to our friendly staff

ALL RELATED EQUIPMENT

SWR METERS
SPEAKERS
MICROPHONES

Why pay for freight and insurance?

You will not buy a cheaper new beam in Western Australia

Make your 3 & 4 element beams into 5 or 6 element etc.
Kit extensions made to order.

SALES SERVICE & INSTALLATIONS
FULL RANGE OF UNIDEN CB RADIOS AND SCANNING RECEIVERS

MasterCard VISA

BUY THE BEST SHOP IN THE WEST!

STIRLING GATE COMMERCIAL CENTRE

Cnr Wanneroo Rd and Balcatta Rd
BALCATTA
Ph: (09) 344 2218

"Still good, but dated" . . . says David Flynn

Midland's 'Precision Series' 1001 AM Mobile

This review was going to be boldly titled 'Midland Returns!' . . .that is until I realised that Midland haven't really been away. They're alive, well and lying low at Dick Smith Electronics where this once well known brand has led the quiet life for nearly fifteen years since the CB boom days of the 70s.

How things have changed.

Time was when Midland and DSE were the unbeatable, undisputed champion 'tag team' in the hurly-burly CB world. For a memorable few years past 1976 when the still-illegal channels were filled with pseudo-American accents and all things holy came from the US of A, Midland was THE radio. The range began with an incredibly popular 2 channel handheld which was the first rig for more pirates and walkie-talkie boys than anyone cares to remember.

It was later crowned by the ultimate sideband mobile, the 13-892. Those who owned a Midland were anointed as 'real' CBers and those that didn't could always dream. No exaggeration this — the good buddies were very serious about being the best buddies and there was more ego per square metre than Hollywood and Parliament House combined.

...And the best buddies went to DSE. This was also the era in which Dick Smith was still at the helm, he and his company almost indivisible — vigorous, dynamic, maybe even a bit manic.

Even C.W. McCall, whose song 'Convoy' went from anthem to embarrassment in less time than it takes to say 'Rubber Duck', was signed up to promote Midland. How things have changed, indeed. Despite the fact that Midland manufacturers some of the world's best commercial two-way mobiles and handhelds, their Australian presence is now limited to a single rig from Dick Smith Electronics.

That one radio is a very neat and compact AM-only transceiver competing in the fiercest segment of the 27 MHz CB market. The sub-$100 price bracket is the preserve of small AM rigs from a half-dozen brands, all chasing the same buyers — the first-timer, the holiday motorist, and the surprisingly high amount of government departments fitting rigs to their vans, wagons and trucks. There are more models of AM CBs under the hundred dollar barrier than all the sideband rigs combined. Although DSE give this rig no more identification than as catalogue number D-1445, it is known overseas as the model 77-001 or more commonly the 1001, and is from Midland's 'Precision Series'. The 1001 is one of the more attractive budget mobile rigs. In a field dominated by ill-matched chromes and colours, the predominant olive tones of the Midland are rather pleasant. The analogue signal/RF meter is light green and the channel readout uses fluorescent green LEDs which are a definite improvement over the more common but less readable red. Not so good for mobiles is the position of the microphone socket, on the rig's side panel rather than up front. Not a major flaw, but, if you want a rig to be mounted in a dashboard or console cut-out then the 1001 won't make your short-list unless you are prepared to fit a mike extension cord and place the plug in a more convenient nook or cranny.

All controls on the 1001 are smooth, positive and effective. There are few frills, apart from the CB/PA (public address) switch and the ANL (automatic noise limiter), which would tend to stay in the 'on' position to minimise ignition and atmospheric noise.

Overall construction could be best described as 'value for money'. While fitting is good, the case itself is plastic — which contributes to the 1001's light weight, but, in doing so loses points against competitors with a metal chassis. Inside the rig, and it's like a time trip — back to the days of thick orange circuit boards and a high component count due largely to the absence of surface-mount devices. SMCs are found in increasing numbers in most modern two-way radios, even including some AM CBs. This dates the design of the 1001 more than anything else. Assembly and soldering workmanship is to the standard of what must be expected in a low-cost radio. There is rather a lot of wiring, from short-run jumper leads and a scraggly main loom, and this is something else that the latest rigs have overcome.

The handbook is surprisingly detailed for such a budget radio. Okay, the 24 pages may include a list of 10-codes (oh, for joy !), however, there are also concise notes on noise, mobile mounting, and — something you rarely see in any rig these days — pcb layouts and schematic diagrams.

Having not visited AM frequencies for some time, I welcomed the chance to fit the Midland into my car and give it a few week's workout. Best feature was the green LED readout which, unlike red, is not washed out in direct sunlight and is far easier on the eyes at night. Audio from the internal bottom-fired 4 watt speaker was quite adequate and the transmitted signal was reported as excellent.

Things certainly seemed a lot quieter on air, both in the city and suburbs and on a brief country run, and I was curious as to the sensitivity of the receiver. The handbook promised 'less than 0.8 microvolts' and on the bench this came to 0.74 - better than spec., but, still a fair margin short of modern AM sets which typically achieve 0.4 microvolts or less.

The Midland 1001 was without a doubt a very neat radio in its time, however, with superior and more up-to-date technology rigs costing just a few dollars more, it's main selling point is largely its price...just a dollar less than $100.

I'm certain that Dick Smith Electronics have sold hundreds and will sell hundreds more, on this basis alone...

ODDS and SODS

SCRAMBLER FOR TWO-WAY RADIOS

Imark Communications Pty Ltd have released the completely new Integrated Digital Security Protocall (IDSP) Voice Security System for use with most FM-AM-SSB two-way radios.

The new ISDP operates by "scrambling" your voice into an unintelligible signal before transmitting it using your standard radio. Obviously, other radios will be able to hear the signal but would not be able to understand the conversation. When this signal is received by the companion two-way radio, the signal is decoded and heard from the speaker as a normal intelligible voice conversation.

The new IDSP is NOT a voice inversion type scrambler which can be decoded and understood quite easily. The ISDP is NOT compatible with the previous DIGISCRAM.

The ISDP is a high security digital time and frequency domain type scrambler. There are a total of nearly 26 million code combinations of which each ISDP module can be programmed for one receive code identity and 99 transmit code identities. Naturally, all transceivers within a system MUST have the same precode setting to operate and conversely, if they have an incorrect code setting, they will not be able to decode the signal. Transceivers not fitted with a DIGISCRAM will not be able to decode the scrambled signal.

The new ISDP now includes DIGITAL SELECTIVE CALLING with provision to flash a "called indicator light" and an audible "alert tone" which sounds through the speaker for a preset time. With SAWTRON transceivers, the last two numbers can be encoded thus providing 99 calling combinations. A GROUP CALL facility is provided to allow group broadcasts if required. Additionally, an auxiliary alarm output is available to activate a further alarm such as the vehicle horn or a flashing light.

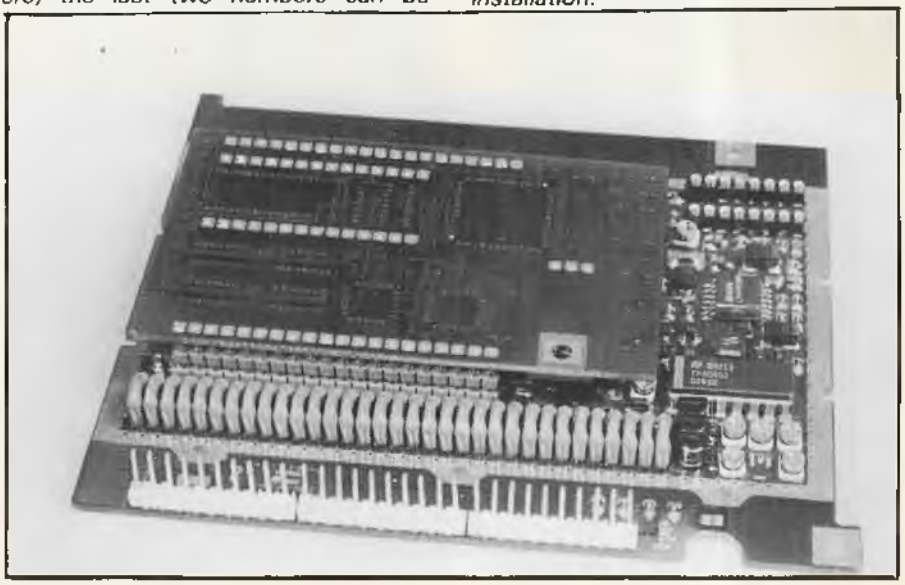
Thus the ISDP can also be used as a selcall system and thereby save the purchaser the cost of a normal selcall facility.

A CTCSS option PCB can also be fitted for customers using community repeaters and it can be programmed to provide different CTCSS encode/decode combinations on all channels. Naturally, the CTCSS modules include Community Repeated, Transmit Lockout, Transmit Inhibit when Busy and Full Privacy functions.

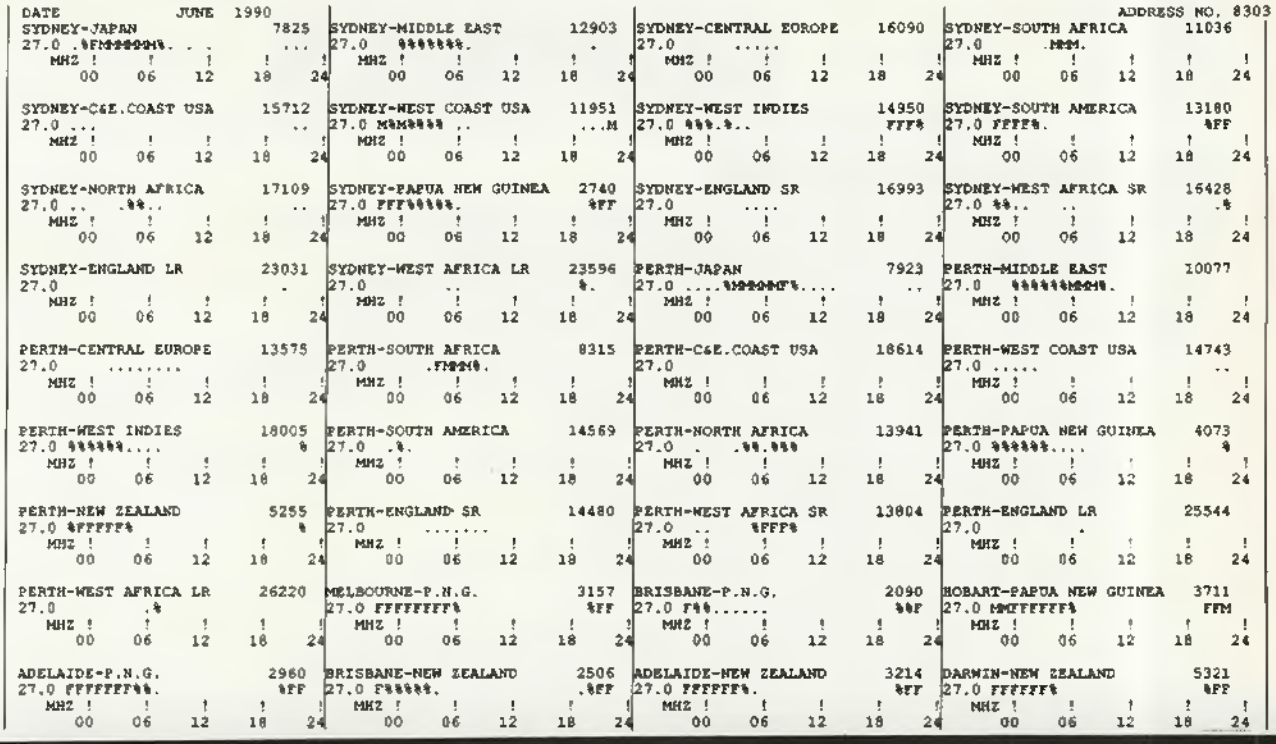
There are many other benefits/features with this new ISDP some of which include Late Entry Decoding, Transmit Time Limiter, Automatic Selcall Mute/Unmute, programmable Lead In Delay, Voice Message capability, Automatic Scramble Encode/Decode and several confidential security enhancement capabilities.

Two versions of the ISDP are available. One version is designed for the now very popular SAWTRON transceivers and fits nearly within the transceiver body. The other version is designed for fitment to any other type of transceiver, eg Philips, Motorola, Tait, Kenwood, Icom, etc.

The new ISDP is compact and weighs approximately 300g. Both versions are supplied complete with a diecast enclosure, mounting hardware and instructions to enable easy installation.



NOTE: Skip conditions are virtually the same from Sydney as they are for all other East Coast areas — likewise Perth predictions can be taken as similar to those for other West Coast areas.



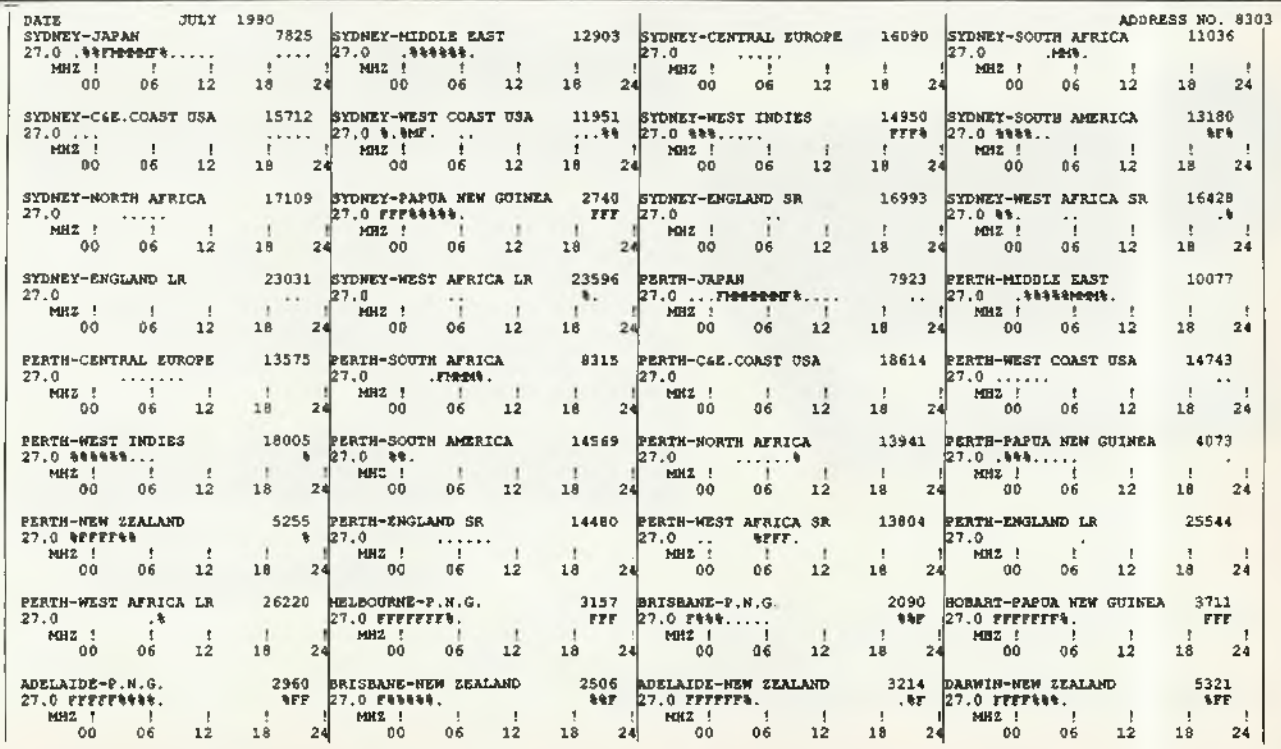
These GRAFEX style predictions present in pictorial form the expected HF propagation conditions between Australia and a number of important DX areas. For each circuit, the "East" terminal refers to the eastern half of Australia. The horizontal axis of each graph represents the hours of the day in Greenwich Mean Time from 0000 hours to 2300, reading left to right. The vertical axis represents increasing frequency.

A GRAFEX symbol represents the predicted propagation conditions for a particular frequency at a particular time. The meaning of each symbol used is given in the key on the next page. The letter "F" designates the best conditions for HF communications.

Grafex prediction charts supplied courtesy of the Ionospheric Prediction Service, 162-166 Goulburn Street, Darlinghurst, NSW.IPS offers pre-recorded telephone information. To access the service, please phone (02) 269 8614.

LEGEND TO GRAFEX SYMBOLS

- . Propagation is possible but probably on less than 50% of the days of the month.
- % Propagation is possible on between 50% and 90% of the days of the month.
- 'F' Propagation is possible by the First F modes on at least 90% of the days of the month.
- 'E' Propagation is possible by the E modes on at least 90% of the days of the month.
- 'M' Propagation is possible by both the First and Second F modes on 90% of the days of the month.
- 'S' Propagation is possible by the Second F mode on 90% of the days of the month.
- 'A' High absorption — above the ALF but probably too close to it for good HF communication.
- 'X' Complex mixture of modes including the Second E mode.



DX INTERNATIONAL

WHAT'S BEING HEARD ON THE DX CHANNELS — JACK-67-W-07

As the DXer's adage goes, "If you can't hear them, you can't work them". Never a truer word said, and, as usual, the 11 meter band is still as unpredictable as ever. Sometimes the band is wide open for a day or two then dead quiet for the next few. Solar flares haven't helped the band, even the radio amateurs are finding things difficult on bands like 20 metres — if 20 metres is dead then most of the other bands will be in a similar state too.

As usual the noise from AM and FM-mode traffic from our Asian neighbors continues to be a problem when the band is open. This type of noise makes it hard work, especially when you are trying to hear a weak SSB signal from abroad. However, we are not alone in this arena. The radio amateurs are getting more than their fair share of it on the 10 metre band. This comes by way of out-of-band CBers, fishing trawlers, or just straight-out pirate radio operators, you call them what you will.

Some rather excellent longpath openings have been about too, but, then again, the conditions on the longpath route have been so unstable and erratic you just have to be about at the right time to cash in on the act so to speak.

How well do you know your 11 metre band DXCC country list? Well enough to pick the mistake in the DXCC Country List published in the last 'CB Action'? The Kingdom of Tonga appeared twice, as 96-AT — which was correct — and again as 153.AT. Delete Tonga from 153-AT and replace it with the Kingdom of Thailand. My apologies for this small error.

AFRICAN & INDIAN OCEAN REGIONS

Recently we have been experiencing a double assault from this region so to speak, with longpath and shortpath openings presenting us with the odd surprise or two. On the longpath I logged the MX-660 operated by Karl, on the band at 2006z, with an unstable five by two report from the city of Monrovia, the capital of Liberia in Western Africa. Karl was looking for the Pacific area and was using a President Washington base into a five element beam barefoot.

Also on the longpath I managed to hear Paula, operating as the RADIO-643 from the Bijago Archipelago, off the coast of Guinea Bissau, West Africa. Paula was only a four by one at the time and was chasing after a station in the USSR who I couldn't hear.

At 2054z, via the longpath, I heard 34-CI-101 operated by Miguel in the Canary Islands. Miguel wasn't a bad report coming in at five by six with heavy fade at times and was calling for Asia.

A real surprise for the books was the appearance, via the longpath, of TRIPLE K-001 operated by Yusef. At 1948z Yusef was a poor four by zero from his home in Fez, Morocco. He soon faded out and I failed to hear him again.

On the shortpath there has been quite a bit of activity, although band conditions haven't been too stable or opening times reliable to this part of the world. At 0450z I was surprised to hear the 106-AT-106 operated by Fernando appear on channel 35 LSB at a good signal of five by five peaking seven. Fernando is one of the more active stations from Ceuta-Melilla in northern Africa.

A number of South African stations have been about at odd times, the usual 44-AT members have been in plentiful supply and at 0612z I noticed 44-RI-101 appear by way of Seun. He was a good five by five and at 0652z was followed by 10-259, name unknown, also from South Africa with a good solid five by eight report.

Reunion Island, as usual, is still about, and at 0511z I logged a YL operator signing as 173-AT118 putting a fairly healthy five by six report into eastern Australia. She was closely followed by 173-AT-149 at 0530z with a good five by six report and was looking for New Caledonia or French Polynesia at the time.

Botswana has made another appearance on the band by way of German expatriate Gunther, who has been signing as 105-BO-101 from his home at Ghanzi in Botswana. Gunther was five by seven at 0501z and was using a Cobra mobile radio into a cubicle quad at 40 feet barefoot. It just goes to show you do not need a linear if the band is right.

Zimbabwe has also been about by way of Bob, who signs as the LION-01. He was noted at 0545z with a rather poor four by two report. Bob hails from Harare and was operating from a mobile some 30 kilometres north of the city.

The odd weak signal has been heard from the Republic of Namibia but nothing strong enough to note. The best time to look for these folk is around 0430z onwards on the shortpath.

Mauritius Island is still about for those who need it. At 0633z I heard the 168-DX-01 operated by Alain appear. Alain was five by six and was calling in French for Wallis Island in the Pacific.

Mayotte Island made a brief appearance on the band by way of Bernard, who signs as the BB-231. Bernard was logged at 0935z with a good five by seven report and was mainly concerned with a contact into French Polynesia as he appeared to ignore calls directed to him from Australia and Indonesia.

Don't forget that Walvis Bay is now a new DXCC country, well it is on the amateur bands anyway. The Alfa Tango group has still yet to allocate Walvis Bay with an Alfa Tango country prefix number, so if you hear Walvis Bay, South West Africa about, grab it.

MIDDLE EAST & ARABIA

Some good openings have appeared to this region from time to time, usually about 0430z onwards via the shortpath, and anytime from 1930z onwards, via the longpath. The only problem is the lack of new DXCC countries appearing, most likely due to the absence of active operators.

Big gun signal from the United Kingdom is Jon, the 26-WW-908, note the seven element beam atop the tower!

DX INTERNATIONAL

On the longpath there have been some rather good openings to this region and at 2015z I logged the RADIO-633 operated by Abdul, from Tel Aviv in Israel. Abdul was a good five by five report and was closely followed by a station in Kuwait signing as 102-AT-108, name unknown, and at 2050z. The Kuwait station, a good five by nine report, was still about at 2330z, although somewhat weaker in signal strength.

Plenty of shortpath activity is about the band, although all I seem to hear is the old regulars from the region. At 0500z I noted Ali, who signs as 102-AT-102 from Kuwait, with a good five by seven report, and at 0610z another station by the name of Ali appeared, this time from Lebanon, and signed as the 112-NF-002 with a reasonable five by two signal report.

A good signal from Israel came by way of oldtime regular Tolly, who signs as DELTA-STATION. Tolly was logged at 0650z with a good solid five by six signal into eastern Australia. A large number of New Zealand stations were in hot pursuit but none had any luck, suggesting Tolly was after some of the harder-to-get Pacific Island countries.

Qatar has been about on odd occasions with a station using the brief callsign of "QA" being heard at 1007z. His signal was so poor it took me about three attempts to get his callsign logged correctly.

Quite a number of Italians were heard calling a station in Dubai at 1133z but I failed to hear any trace of the station called in this region. Actually the pile-up of Italians calling became so bad I moved on and listened elsewhere.

The odd weak signals from Saudi Arabia and Iran have been about, but due to excessive noise from the Europeans calling I failed to get anything down worth logging. Let's hope the band picks up so we can hear what is going on, early afternoon from 0330z onwards is the best bet before the Europeans pick up in strength.

EUROPE

The longpath to Europe has been rather sporadic. The best time to listen for signals, via the longpath, are from 1945z (just after sunrise) onwards. On one particular morning I logged Italy, France, Belgium, Spain, Andorra, Balearic Islands, Portugal and the United Kingdom on the longpath as well as the odd signal from Scandinavia.

On the shortpath side of things the 11 metre band has been up and down like the proverbial yo-yo, although shortpath still provides us with more reliable band conditions than longpath. There have been occasions when the odd new country or two has been about, providing, of course, you can weed them out of the big gun noise from Italy, France, etc.

Iceland was heard quite well on the band at 0910z by way of a station signing as VIKING-232 from Reykjavik. He was a good five by six at times but faded out very quickly. Actually he had quite a pile-up on his hands consisting mainly of Europeans.

Andorra was logged at 0956z with station VC-101 operated by Claudio doing the honors. Claudio, only a five by two report, was using a stainless steel whip antenna from a stationary mobile home in the Principality. Cards go to his home address in Vercelle, Italy.

The Republic of San Marino is still around for those who need this one . Fabrio, signing as SIERRA FOXTROT, was noted at 0650z with a good five by five peaking seven signal report.

Azerbijan, in the USSR, was heard at 0850z by way of station 306-SR-01, and was operated by Micko from the capital of Azerbijan, Baku. Although only a poor four by two, Micko had quite a pile-up on his hands from the big gun operators in western Europe. QSL cards go direct to Micko's address in Baku.

More activity from the USSR has been noted, this time from the city of Leningrad and came to us by way of Felix, who was signing as the 50-RR-01. Felix was a poor five by one at 0905z and was busy working the big guns of Europe, although a couple of Japanese DXers did make it through the pile-up. QSL route unknown.

A little activity from Eastern Europe has been noticed on the band, and at 0745z I picked up station MWD-01 from Poland putting out a few DX calls. Despite many replies direct to him, he vanished from the band only to re-appear sometime later, this time with a weaker signal of only five by three — previously he was five by eight.

A huge pile-up of western Europeans were heard at 1155z calling an unidentified station in Bulgaria using a Sugar Radio group prefix. I could just make the station out here under all the commotion and he was barely moving the meter. The following night, at 2230z there was another pile-up calling a station supposedly in Romania. Again I failed to hear the station concerned due to persistent calling from western European DXers.

Hungary was logged at 0944z by way of HOTEL-116 from Budapest. Operated by Tibor, using a Belcom radio into a dipole, he was a fair five by four report considering his power was only 15 watts input. Tibor wasn't QSLing as he is ony new to radio and had just set the station up that very day.

Corsica Island appeared on the band by way of 104-AT-108, name unknown. He was logged at 0810z with quite a good five by four signal but was suffering horrific problems with western European noise at the time.

Rhodes Island has been most active with 59-AT-102, operated by Sava, leading the way at 0922z with a solid five by nine report.

The Azores Islands were noted at 0511z by courtesy of PC-300, operated by Manuel in Pico. Although only a five by two report, Manuel had no shortage of takers from the Pacific and Asia to his calls.

The Balearic Islands have been coming through on a regular basis, and 49-AT-133, operated by Pepe, was leading the way with a good solid five by nine report at 0957z. After monitoring Pepe, I found three other Balearic Island stations on the band with good signals.

Turkey made a brief appearance at 0602z by way of 116-AT-113, name unknown. He was a poor four by two report and seem to have some trouble hearing the Pacific region due to the noise from Europe.

Greece has been about the band in abundance when the conditions are right. At 0511z I heard Nektarios, who signs as the 18-PNP-06 from Thessaloniki in northern Greece. Nektarios was a reasonable five by six and uses a Superstar radio into a "City-Star" antenna.

As usual, when the band is open to Europe, the old regulars are about, including Scandinavia, United Kingdom, Republic of Ireland, Italy, France, Belgium, Spain, etc.

CENTRAL/SOUTH AMERICA & THE CARIBBEAN SEA

Apart from the usual rabble from regulars such as Ecuador, Colombia, Venezuela, Brazil, Chile, Panama, Costa Rica, Guatemala, etc. there has been the odd new country about for the taking.

The Falkland Islands were heard rather briefly at 1952z by way of Howard, who signs as DS-219 from Stanley. Howard was a poor four by zero report and never improved much at all for the 15 minutes or so that I tuned in to him. Still something is better than nothing and let's hope the band picks up to this rare part of the world.

Argentina has picked up slightly in signal strength with Ruddy, who signs as 4-AT-203 from Tucuman, being the best with a five by six signal at 2210z.

Uruguay is also about. At 2213z I noted station VIPER, operated by Julio from Punta De Este, a popular seaside resort town in Uruguay. Julio was five by five at the time but faded quickly.

One of the best signals out of Paraguay would have to belong to Anna, a German lady who signs as 67-PR-03 from just north of the capital, Asuncion. Anna was five by nine plus ten at 0115z and was looking for an FM-mode contact. Anna is multi-lingual, speaking English, Spanish and French as well as her native German.

The Alfa Tango group recently booted a number of Brazilian members out of the club for operating as slims on the band. Those who went were: 3-AT-108, Mike, who was caught out signing as 290-AT-0. Flavio, the 3-AT-181 was sprung signing as 285-RJ-0 and had the audacity to solicit "donations". Also given the flick was 3-AT-126, Bilo, who hoaxed everyone by saying he was on St Peter Island, and last of all is the 3-AT-702, Waldir, who was flushed out using St Peter Island also. Jolly good show old man.

The West Indies and the islands of the Caribbean Sea have produced some real choice DX recently starting with the appearance of Worrell, who signs as 128-AS-001 from the British Virgin Islands. Worrell was logged at 0420z with a reasonable five by four signal report.

The Cayman Islands have been about by courtesy of Earl, who operates as the KP-535. Earl was heard at 2310z with a steady five by four signal report.

The French West Indies have been about on a regular basis with Christian, who signs as 196-AT-103 from Guadeloupe, leading the way. At 0528z Christian was a massive five by nine plus 10DB.

Also from the French West Indies was the 136-SK-109, name unknown, from the island of Martinique. He was noted at 0426z with a solid five by seven report, and, as usual, he had no shortage of takers

Well known Arabian DXer Mohamed is very active on the band from Kuwait as the 1-KA-06, and wow, what a station!

to his call suggesting that there are still a few who need this one.

The island of St Kitts appeared on the band at 0510z by way of Ray, who signs as the UNIT-064. Ray was a good five by nine plus into eastern Australia at the time.

Haiti, in the West Indies chain, was noticed at 0606z by courtesy of 103-VL-101 operated by Michele, with a reasonable five by five signal. Michele was concentrating on small islands in the Pacific.

Curacao, in the Netherlands Antilles, has been noticeable on the band with more and more stations popping up from time to time. Rafael, who operates as the 7-AT-103, was heard at 0538z with a five by three peaking six at times report.

One of Puerto Rico's top DXers was active on the band at 2156z. Ozzie, who signs as the 11-AT-116, was chasing after northern African contacts only and wouldn't be moved by calls from other countries.

Trinidad and Tobago have been about in abundance too with 9-KP-138, operated by Chris on Trinidad Island, being heard calling the Pacific with a five by three report. He was closely followed by Andy, the TC-889 on Tobago — the sister island — at the same time at 0448z. He was five by five and looking for an FM-mode contact.

ASIA & THE PACIFIC REGION

A surge of activity has been noted from Saipan in the northern Mariana Islands. The first to appear was 133-SR-01, name unknown. At 2331z he was a good five by nine plus. Another station from Saipan appeared at 0055 signing as RENEGADE. Operated by Alvin, he was a five by eight at the time. Also doing the rounds is RADIO SAIPAN, name unknown. He was logged at 0115z with a five by nine plus 20DB signal and was calling for the Philippines.

The eastern Caroline Islands have featured prominently on the band recently.

Old time regular Luke, who signs as the KO-583 was a good five by six report at 0014z from the Truk group of islands.

Also from the Truk group I logged Manny, who operates as the 134-VP-101. Manny was a good five by seven at 0755z and also signs as 134-KL-755. I believe Manny has applied for his Alfa Tango number and should soon be appearing with the prefix 230—AT.

The Marshall Islands are still about for those who need it. Alden, the 132-AT-101, was logged at 0730z with a good five by nine report. Alden mentioned that he is a little bogged down with QSL cards at the moment, so those of you who are still waiting, just be patient.

Taiwan was logged on the CW mode at 0199z by way of Tony, who signs as TW-029. Tony was calling in CW at around eight words per minute and was five in strength at the time. Although he didn't appear to rouse up too much response to his calls, he carried on regardless.

Hong Kong is still about for those who need it and at 0705z I logged 60-AT-103, name unknown, with a good five by eight report. Speaking of Hong Kong, I haven't heard the once regular 60-AT-101, operated by Ray, for some time now.

Thailand was briefly heard on the band at 0715z by way of station 13-TM, name unknown. He was a good five by six and was calling for the Middle East only. It was evident he wasn't interested in any stations from Australia at the time.

East Malaysia appeared on the band with Tony, who signs as 58-AR-001. Tony was logged at 1015z and was a fair five by three although he suffered a battering with noise from Indonesia at the time.

Singapore made a brief debut on the band by way of FAR EAST RADIO-01, name unknown. He was logged with his distinctive Australian accent at 0629z with a good five by eight report. Maybe a slim, maybe not, again time will tell.

South Korea is most plentiful these days on the 11 meter band. I suppose by now most of you have it in the bag so to speak, anyway I did manage to log old time favorite Han (100-AT-101), signing as the UNIT-101 at 0923z with a five by nine report. Also noted was a station called the 102-JE operated by Koko from South Korea, at 0931z with a five by three report. Shortly after I snared another one whilst tuning about and this was station T-259, operated by Toty. Toty was heard at 1001z with a five by two report.

Nothing heard from North Korea at the present time, a pity really, as quite a few of us still need this one and in turn it would relieve us of the boredom on the band.

Whilst on the subject of Indonesia, popular Indonesian DXer Frankie, the well known 91-AT-104, has been logged many times operating portable from Sydney, Australia recently. It appears Frankie will be with us here in Sydney until the end of the year. Welcome to Australia Frankie!

Quite a few stations were heard calling 1-PB-03, operated by Jack in Antarctica. Although I couldn't hear Jack at all I do know there is some additional radio activity from down there as Greenpeace has set up a radio network from its newly established base in the cold south.

A station signing as RADIO AFGHANISTAN appeared on the band at 1150z with a poor four by one report. So many stations answered the call I failed to hear RADIO AFGHANISTAN again, maybe a slim, maybe not, time will no doubt tell.

DXPEDITION NEWS

Not a great deal happening in this department with regard to new, or hard-to-get countries being activated. Although several of IOTA point islands have been, and will be, activated, I don't think we will go into detail about them.

The planned DXpedition to Czechoslavakia signing as 179-AT-0 failed to appear at all. It was supposed to have appeared 30 March to 1 April but, as mentioned, failed to do so.

British Guyana, the 131-AT-0 DXpedition failed to appear also during April. Details on this one were sketchy, perhaps it was just all rumor. We all know how rumors get blown out on the 11 meter band.

The US Virgin Island DXpedition signing as 127-AT-0 went off as scheduled. Cards go to Ozzie, 11-AT-116, with return postage.

Desecheo Island should have appeared on the band by the time you read this. Signing as 299-AT-0 it was due to appear from May 24th through to the 28th. QSL route is via 11-AT-116 with return postage funds included.

Hungary is on the agenda for a DXpedition from 15 May through to 4 June. The operator will be Gert, who will sign as 109-AT-329. QSL route is via Gerty, 19-AT-329, with the usual trimmings.

East Germany may be activated via a DXpedition launched by 13-AT-114. The date is still unannounced, but it will sign as 46-AT-0. The QSL route will be via 13-AT-114. A good chance to work East Germany whilst it still is East Germany — listen in the month of June.

Market Reef (213-AT) does not look like appearing this year, although this could be due to a group of radio amateurs who will be on Market Reef from 28 July to 4 August signing as OHOM. Sture, the 212-AT-105, informed me last year that they go to Market Reef only when there is no amateur radio activity there, for obvious reasons.

Minami Torishima (270-AT) is now off due to lack of suitable transport to and from Minami Torishima and the overall costs involved.

The Republic of the Marshall Islands should have appeared on 13 May through to 19 May by way of Steve, the 43-AT-421, who will be active from Majuro, the capital as 132-AT-KX. QSL route is to Steve's home call of 43-AT-421 in Queensland, return postage would be appreciated.

The Federated States of Micronesia should have appeared also by the time this magazine hits the stands. Steve, the 43-AT-421 from Queensland, planned to head to Moen Island in the Truk group after his stint in the Marshall Islands. Steve will be signing as the 230-AT-KC and should have appeared May 19th to 25th. QSL route is to his home call 43-AT-421, don't forget to include the return postage to help Steve meet his costs.

Gallinara Island, off the coast of Albenga, Italy, was activated for IOTA points and was heard on 23 April signing as 1-AT/1P-1. QSL route for this one is via 1-AT-926 in Italy.

One of the tiny islands off the coast of Florida USA, was activated for IOTA points during April 7th to 9th. Signing as 2-AT-0, they were clearly heard here in Australia. QSL route unknown.

Another IOTA point Dxpedition was logged from somewhere in New Caledonia over the period April 14th through to the 16th, signing as 49-DF-0. QSL route not available.

Quite a number of islands off the coast of Denmark and Finland have been activated with more to follow. Signing as 47-E-0, 47-AT-0 and 56-AT-0 they will only be good for IOTA points and are not new countries. QSL routes announced on air.

Thanks as usual to those who have kept me posted. Good Dx, Jack.

AUSTRALIAN UHF CB REPEATER LIST

AREA	CHANNEL
ACT	
Canberra	2/32
New South Wales	
Albury	8/38
Armidale	6/36
Bathurst	4/34
Bega	8/38
Belbora	6/36
Binya	1/31
Blue Mountains	3/33
Bombala	2/32
Booral	8/38
Bowral	7/37
Braidwood	6/36
Brewarrina	3/33
Brindabella Ranges	1/31
Broken Hill	7/37
Broken Hill	4/34
Buladelah	7/37
Casino	7/37
Cobar	6/36
Coffs Harbour	8/38
Coolah	6/36
Cooma	6/36
Coonabarabran	4/34
Corowa	4/34
Corowa	2/32
Cowra	5/35
Deepwater	7/37
Deniliquin	5/35
Dungog	3/33
Eden	3/33
Glen Innes	2/32
Grafton	7/37
Grenfell	8/38
Goulburn	1/31
Gundagai	4/34
Guyra	7/37
Warden	1/31
Hay	1/31
Inverell	4/34
Jindabyne	2/32
Junee	1/31
Lismore	5/35
Mururundi	2/32
Muswellbrook	3/33
Narrabri	4/34
Narranderra	2/32
Narromine	8/38
Narromine	5/35
Newcastle	6/36
Newcastle	1/31
Newcastle	2/32
Newcastle	5/35
Orange	6/36
Port Macquarie	3/33
Sydney (south)	2/32
Sydney (west)	1/31
Sydney (outer-west)	3/33
Sydney (north)	4/34
Tamworth	7/37
Tenterfield	1/31
Tumbarumba	3/33
Tumut	3/33
Tweeds Heads	6/36
Wagga Wagga	4/34
Wagga Wagga	1/31
Walbundrie	5/35
Walcha	2/32
Warrumbungles	8/38
Wingham	1/31
Wilcannia	1/31
Wollongong	1/31
Northern Territory	
Bushy Park	8/38
Darwin	1/31
Erlunda Station	1/31
Katherine	3/33
Maryvale Station	2/32
Mt Swan	4/34
Queensland	
Atherton	2/32
Amiens	8/38
Ayr	8/38
Barcaldine Downs	3/33
Bathurst Heads	1/31
Biloela	1/31
Brisbane	7/37
Brisbane	1/31
Brisbane	5/35
Bundaberg	7/37
Bundaberg	1/31
Caloundra	4/34
Chinchilla	6/36
Chinchilla	3/33
Clermont	8/38
Clermont	6/36
Crows Nest	7/37
Dimbulah	6/36
Dingo	6/36
Dirranbandi	6/36
Disraeli Mine	8/38
Drummond Range	8/38
Emerald	2/32
Miriam Vale	8/38
Gladstone	2/32
Goondiwindi	6/36
Gunalda	4/34
Double Island Point	2/32
Gympie	3/33
Gympie (portable)	5/35
Hayman Island	7/37
Pialba	4/34
Ingham	8/38
Inglewood	2/32
Innisfail	1/31
Ipswich	1/31
Jericho	4/34
Kilcoy	4/34
Lakeland	3/33
Longreach	2/32
Mackay	3/33
Mackay	1/31
Marlborough	6/36
Maryborough	2/32
Monto	6/36
Moranbah	3/33
Moura	4/34
Mt Isa	1/31
Mt Kynoch	1/31
Mundubbera	2/32
Murgon	6/36
Port Douglas	7/37
Quilpie	6/36
Rockhampton	2/32
Rockhampton	1/31
Roma	4/34
Springsure	1/31
Sunshine Coast	3/33
Sunshine Coast	6/36
Tambo	8/38
Taroom	6/36
Thargomindah	2/32
Toogoolawah	6/36
Toowoomba	1/31
Toowoomba	2/32
Townsville	4/34
Wavell Heights	1/31
Yaraka	2/32
South Australia	
Adelaide	7/37
Adelaide	1/31
Adelaide	3/33
Angaston	5/35
Blinman	4/34
Carnetown	3/33
Ceduna	1/31
Clare	1/31
Cleve	7/37
Coonalpyn	2/32
Coppuduba Hill	6/36
Hawker	1/31
Kangaroo Island	7/37
Manum	4/34
Mt Bryan	8/38
Mt Gambier	8/38
Mt Gambier	5/35
Myponga	7/37
Naracoorte	2/32
Orroroo	4/34
Port Lincoln	2/32
Port Pirie	8/38
Renmark	4/34
Snowtown	6/36
Tarcoola	6/36
Wilkatana	6/36
Yorketown	8/38
Tasmania	
Burnie	7/37
Central Highlands	6/38
Devonport	7/37
East Coast	1/31
Fingal	6/36
Hobart	3/33
Hobart	1/31
Launceston	5/35
Midlands	2/32
North East Coast	4/34
West Coast	7/37
Victoria	
Alexandra	6/36
Ballarat	1/31
Ballarat	2/32
Barnsdale	5/35
Beech Forest	7/37
Bendigo	3/33
Cavendish	4/34
Currajung	8/38
Echuca	4/34
Euroa	6/36
Falls Creek	3/33
Foster	3/33
Geelong	6/36
Halls Gap	4/34
Hamilton	6/36
Harcourt	5/35
Hawkesdale	8/38
Horsham	4/34
Kerang	3/33
Mansfield	2/32
Melbourne (north)	2/32
Melbourne (metro)	1/31
Melbourne (metro)	3/33
Melbourne (south)	5/35
Mildura	7/37
Moe	3/33
Mornington Pen.	2/32
Mt Cann	8/38
Mt Concord	6/38
Mt Delegate	6/36
Mt Terrible	3/33
Myrtleford	8/38
Penshurst	8/38
Shepparton	1/31
St Arnaud	7/37
Swifts Creek	1/31
Talangatta	1/31
Wangarrata	7/37
Wanbra	6/36
West Australia	
Albany	7/37
Albany	2/32
Augusta	3/33
Boyup Brook	7/37
Bunbury	4/34
Carnamah	2/32
Carnarvon	2/32
Coolgardie	2/32
Darkin	7/37
Denmark	6/36
Esperance	1/31
Kalgoorlie	4/34
Kambalda	2/32
Katanning	1/31
Kellerberrin	1/31
Kulin	1/31
Lancelin	4/34
Mandurah	4/34
Manjimup	7/37
Margaret River	8/38
Meekatharra	6/36
Merredin	1/31
Mia Mia	2/32
Manypeaks	1/31
Mt Barker	6/36
Mt Saddleback	5/35
Mt Solus	1/31
Nannup	4/34
Perth	3/33
Perth	1/31
Perth	3/33
Perth	5/35
Ravensthorpe	8/38
Stirling Ranges	8/38
Wickham	7/37
Wongan Hills	1/31
Wyalkatchem	8/38
York	6/36

Note: This list includes repeaters licenced but maybe not yet operational. It is compiled from various sources and relies upon reader input to remain accurate. Corrections and up/dates should be sent to: CBA Repeater Listing, PO Box E160, St James NSW 2000.

The 146, that's all anyone has to say.
More truckers have talked on it than any CB in America. Now its in Australia.
That's the 146. So good, we've renamed it the 146GTL Classic. Because it's part of the road, part of the air, part of some people's blood. Maybe it was meant to roll forever.

DISTRIBUTED EXCLUSIVELY IN AUSTRALIA BY HATADI ELECTRONICS CORPORATION PTY. LTD.
SYDNEY AUSTRALIA. TELEPHONE: 02 - 997 7077. FAX: 02 - 99 1229. TELEX: AA122205.

Models also available: Cobra 18 plus, 19 plus, 146GTL Classic, 148GTL

Cobra

Realistic® — The Ultimate In Communications

Renowned Quality at Affordable Prices

Your nearby Tandy store offers a wide selection of quality communications equipment and accessories.

For all the action grab the **PRO-34** hand held scanner. Scans up to 200 channels in 10 selectable 'banks'. It's packed with features like 2-second scan delay and hi-speed search. Only $579.95 20-9135

You can play it safe when you're driving or have fun using the **TRC-800** as a 40 Ch UHF/FM CB radio. Features a frequency synthesizing circuit with PLL circuitry, squelch control, duplex switch for operating via a repeater station and tone call switch for optional selcall operation. Optional scrambler module can also be installed. Only $399.95. 21-9500 D.O.C. Aproval No. #250031

Or how about the **HTX-100** amateur transceiver for just $499.95! The easy to program memory stores 10 favorite frequencies, and provides USB (upper sideband) voice operation and CW(code) with semi break-in keying, plus selectable 25 or 5-watt output and on-mike tuning controls. Ideal for a novice's first ham radio. 19-1101 Morse Code Key is not included.

Visit Tandy today for these and more.

® Trademark of Tandy Corp.

Over 400 Stores Australia Wide

We Service What We Sell Prices Apply at All Tandy Stores and Participating Dealers

INTERTAN AUSTRALIA LTD

Tandy ELECTRONICS