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September/October 1992 $3.75

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The November/December issue will be on sale 20 October

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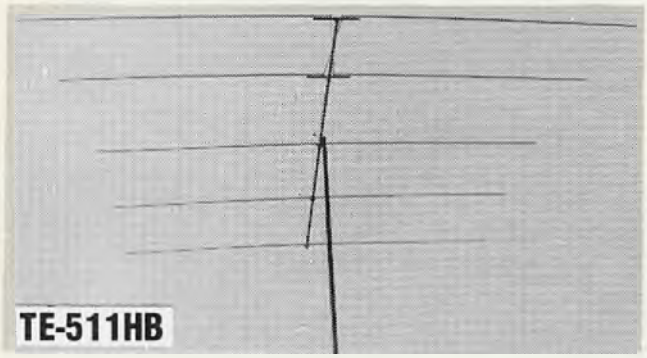

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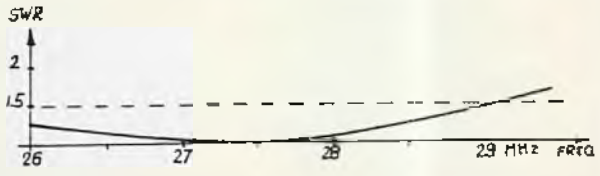

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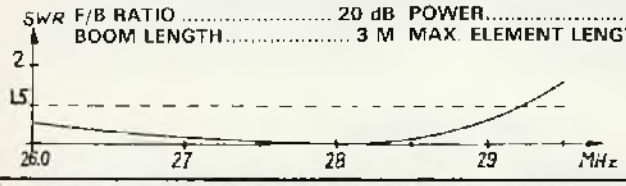

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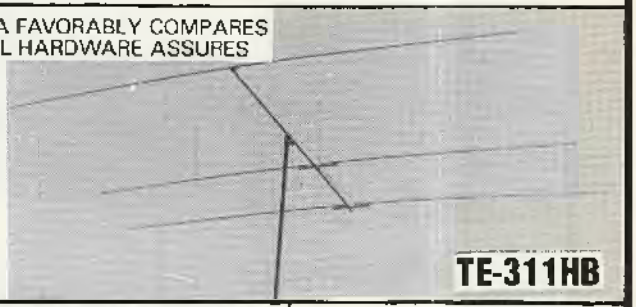

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ON CHANNEL

READER FEED BACK

Thanks for your recent comments about CB Action. We appreciate you telling us what you want (and also do not want) to read as it assists us in providing the type of information that the majority of readers want to see. The mailbag was heavier than usual since our last issue went on sale and it's obvious that a high percentage of readers have more than just a passing interest in radio communication in general.

The new 'novice notes' by Paul Butler generated a lot of favorable comment, most of which said that this was the right level at which to pitch the series.

A surprisingly high number of letters asked us to provide more information on amateur radio, however, that is not what this publication is about. Sure, we drift into 'amateur type' news now and then but our sister publication Amateur Radio Action is directed at 'hams' and 'would be hams' whereas CBA is aimed at 'hobby' communications in general.

As a 'sortof' compromise, we have started a new column by Chris Edmondson (VK3CE), editor of ARA, and he will have a regular piece about amateur operations in CBA as of this issue.

IN THIS ISSUE

As always, there's a good spread of columns and articles with the release of the brilliant new GME-Electrophone UHF rig - the TX-4000; a list of Alpha Tango DX callsigns, part two of the antenna and SWR piece by Ken Reynolds and a report on Australia's own pirate station Radio G'Day by Tony Santos.

WIN A TX-4000

Standard Communications (GME-Electrophone) has generously donated two of the new UHF rigs as prizes for working out this issue's crossword. It's not all that difficult and the prizes are well worth the effort - the crossword is on page 61 - go for it...

Russell Bryant has come up with his 'best bets' for scanner fans with frequencies for the big Bathurst motor race, Adelaide's Formula One GP and the upcoming big air show at Avalon while Greg Towells has a few hints for owners of Kenwood TS440S transceivers - keep in mind any modifications (other than those carried out by the authorised agent) will almost certainly result in a voided warranty.

TELL US...

While we try to be all things to all people, we know there are areas of interest which we do not cater to in much detail...one such is 'utilities'. By utilities we mean most of the noises that you hear as you tune across various frequencies which can in fact be translated and read from a monitor or computer screen if you have the right equipment.

There really is a whole new world of radio communications out there with only a knowledgeable few actually exploring this area.

The equipment is not expensive and the results will be quite amazing to those who have not yet discovered 'utilities'.

We're interested to know how many of you are ready to further expand your listening enjoyment into this area of communications. If we receive a worthwhile response we'll broaden the utilities' content to cover reviews of equipment, books, antennas, etc....but we need to hear from you whether or not you want it.

We're waiting for your letters.

Have fun and enjoy this issue's read.

CB Action

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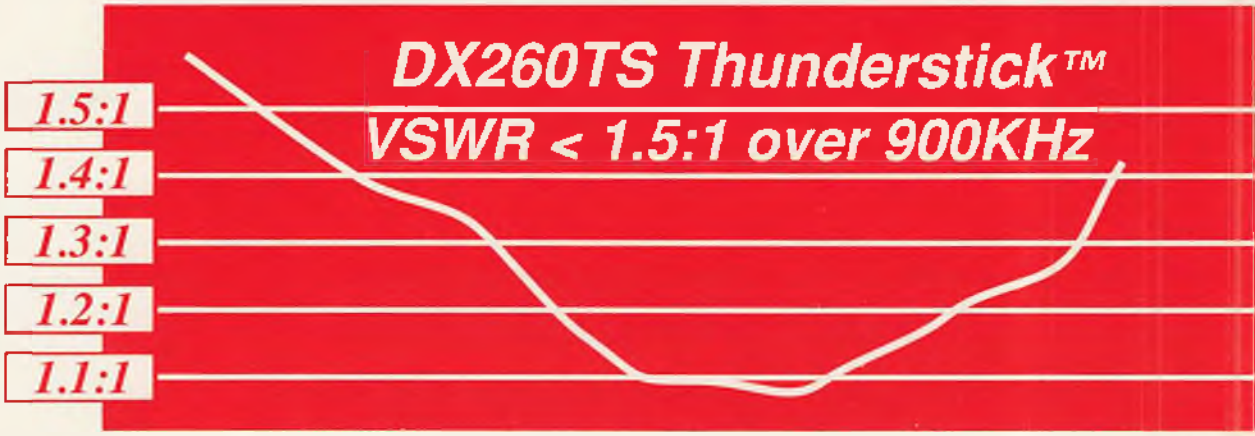

MHz .9 **27** .1 .2 .3 .4 .5 .6

Specifications

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NEWCOMERS TO SCANNING - START HERE

Scanning is basically the VHF/UHF version of shortwave listening. Whilst there is no special language associated with scanning, there are a few phrases and terms that may confuse the newcomer. While it is not necessary to understand or even know what these terms mean, it does enhance your enjoyment of the hobby if you obtain a basic knowledge.

Anyone who purchases a scanner can find out enough information on the basic operation of the receiver from the accompanying handbook or magazines such as CBA. However, there are a number of words that may not mean a lot to the newcomer, or have significance outside the engrossing hobby of scanning.

Unlike other aspects of hobby radio, such as amateur and CB, scanners do not require any licence, either to purchase or operate. Apart from transmissions which are in some way connected to a telephone conversation, scanner enthusiasts are free to monitor whomever they choose.

This page is designed to introduce you, the newcomer, to scanning radio receivers.

One of the first things that you will come across are the different types of transmission **MODES**,such as **AM** or Amplitude Modulation,it is found mainly on 27 **MHz CB** and **VHF /UHF** aircraft frequencies. The primary mode encountered however, is **FM** or **Frequency Modulation, FM** comes in two types - **narrow band**, which is for normal two way radio transmissions, and **wide band** which is used for **TV audio transmissions and FM broadcast stations.**

A portion of the radio spectrum is called a **BAND. Bands** are made up of **MEGAHERTZ** ,(usually shown as **MHz)** and **KILOHERTZ** (usually seen as **kHz**). As far as the scanner owner is concerned the main bands are **VHF (Very High Frequency)** - all frequencies between 30 MHz and 300 MHz. Frequencies between 300 MHz and 3000 MHz are known as **UHF (Ultra High Frequency)**. Some scanners can also receive **HF (High Frequency)**, which are the frequencies between 3 and 30 MHz.

There are many type of users through out the spectrum.

AERONAUTICAL MOBILE - for the exclusive use of aircraft and associated services. **MARITIME MOBILE** - for the exclusive use of marine craft and associated services. **LAND MOBILE** - for services where both stations are terrestrial, or land based. As scanners become more and more sophisticated, other radio bands, such as space to earth, earth to space communications can be monitored. However for this introduction we will stick to the three standard user types.

Many operators in the Land Mobile bands use **REPEATERS**. A repeater is a combined receiver (using one frequency) and transmitter (on a second frequency) which retransmits the received signal in real time - this is known as **DUPLEX**. Other repeaters use **SIMPLEX** frequencies. **Simplex** is the method in which two way transmissions are made on the same frequency - for transmit as well as receive. Transmitters (including handheld, mobile and fixed) are rated in **WATTS**. A watt is a unit of power.

Scanners have the ability to **SEARCH** out new and interesting frequencies. **An upper and lower frequency** is programmed into the receiver which then seeks out active frequencies within the assigned limits. If there is a frequency that has special status, it can be entered into a **PRIORITY** channel. The scanner will then sample that channel for activity ,overriding any other functions being carried out at the time. If a channel is carrying too much traffic it can be **LOCKED OUT** of the scan sequence. To open a scanner's microprocessor to receive the frequency data, it is often necessary to press **PROGRAM**. By pressing **MANUAL** your scanner will advance channel by channel through it's memory banks.

Scanners normally come with an antenna of some description - either a **TELESCOPING WHIP** or **RUBBER DUCKIE**. To further enhance the reception, an external aerial can be employed. The most common external antenna is a **DISCONE**. This is a broadband aerial well suited to most listening applications. If, however, you live outside built up areas or wish to monitor services well away from your location an **ACTIVE ANTENNA** may be the best for you. **An active antenna** has a **wideband RF (Radio Frequency)** amplifier built into it. This boosts the incoming signal by as much as **20 dB (decibals) in gain**. Most scanner antennae have an **IMPEDANCE** (or the resistance to current of a circuit) of 50 **OHMS**. A **ohm** is a unit of resistance.

A glance at most scanner handbooks will reveal words like **SENSITIVITY** and **SELECTIVITY**. Sensitivity is the minimum usable input required to activate the receiver. It is usually expressed as a decimal of a **microvolt (0.2 microV or 1.0 microV)** or similar). The lower the figure the better the **sensitivity. Sensitivity** is sometimes given with a reference - either **S/N** or **SINAD. S/N** is the ratio of signal to the background noise. **Sinad** is the ratio of signal ,noise and distortion. **Selectivity** is the receiver's ability to discriminate between closely located signals. **AUDI OUTPUT** is the power output of the speaker - usually given in watts or part of a watt.

As you become more familiar with your scanner another term that may be encountered is **IMAGE. An image** is the receiver duplicating a false transmission on a frequency some distance from the genuine one. To determine whether or not a received signal is an **image** or not it is necessary to determine the **IF** or **Intermediate Frequency** of your receiver. The **IF** is sometimes given in the 'Specifications' section of the handbook.

By doubling the **IF** then either adding or subtracting it from the suspect frequency you can easily check to see if it is an image or not.

While searching out new frequencies, the scanner may stop on a frequency where no signal is present, just a humming noise.

The noise is being generated from within the circuitry of the scanner and is known as a **BIRDIE. To ascertain if a frequency is a birdie**, simply remove the aerial.

If the signal is still there , chances are it is a **birdie**. Little can be done to eliminate these annoying channels.

Strong singals can overload a scanner. The result is a transmission that sounds like several people talking at once. If this is the case, some scanners have **ATTENUATORS** built into them. The **attenuator** reduces the strength of the signal being fed to the receiver thereby cutting the overload.

It doesn't matter if you have a scanner worth $100 or $10,000, the principals are the same. **These devices are to be used in a responsible manner.** Don't chase ambulances and don't hang around accident scenes or fire incidents with your scanner blasting out the channel being used by the emergency services personel.

All handheld and most mobile scanners have some method by which an **EARPHONE** can be connected so you and you alone can overhear what is going on.

In the car, a scanner can be an excellent travelling companion, alerting you to possible dangers or holdups ahead.

At a sporting event or in the pursuit of another hobby, a scanner can enhance your particular following.

Whatever your reason for having a scanner, welcome to an engrossing hobby.

We hope you enjoy Scanning and CB Action.

IS THIS THE BIG MOVER FOR 1992?

Ken Reynolds tests this new one from GME-Electrophone and gives it a rave review'

GME has made a serious statement with the introduction of their new TX-4000 series UHF CB transceivers; "WE WANT ALL THE MARKET". And they will probably deserve a big share too. And what's more, it's Australian designed and manufactured at GME's plant in Gladesville, NSW.

We've been telling ourselves for 10 years that it is only a matter of time until one of the CB manufacturers realises that if you build a UHF rig with ALL the whistles and bells at a price acceptable to the user, then they would create a pretty big dent in the market.

Wait no longer because here comes the greatest little UHF CB package we've seen in over a decade. At first sight the transceiver is impressive in its new color scheme (thank God) of black and grey with its matching color co-ordinated microphone. We could tell GME was serious by the color change.

The transceiver is attractive and compact sporting the now standard GME front mounted speaker and a brand new liquid crystal (LCD) information display.

The operating panel design is clean and uncluttered with extra functions provided by clever usage of the three rotary controls - each has a 'press-button' detent action switch that provides economical, efficient use of the available space.

But what's even more astounding is the other model, the TX-4000R which is a fully remote mount head version of the same transceiver - but it might as well be another rig because of the total redesigned fascia using all keypad entry functions in an attractive, slim-line control head.

It is fortunate that GME were slow off the mark getting the remote version to us because we would not have had enough room in this issue to do justice to both transceivers.

The rear panel of the TX-4000 employs the previous features of flying leads for power and antenna connection with the usual 3.5mm phono socket for extension speaker, but this time, a second socket labelled ALARM has been added. Its function will be described later.

The extra power wire for retention of user-programmed memory has vanished due to the application of an EEPROM (Electrically Erasable Programmable Read Only Memory) for all memory functions. What this means to the user is permanent retention of transceiver programmable features even when the set is turned off for long periods.

The microphone socket and three rotary controls set at the four corners of the LCD display window lend a neat, symmetrical appearance to the uncluttered front control panel.

The top left hand control is the standard combination on/off volume control, however, the integrated 'push' button function introduces a brand new feature to the world of UHF CB radio.

When depressed momentarily the button changes the display back lighting from bright to dim. The display resets to 'bright' each time the TX-4000 is powered-up. However, the button when pressed in combination with the CALL button (located on the microphone like the TX-472s) activates the PAGER function which causes the TX-4000 to transmit a user-programmable pager code to alert a remote or portable station that the main station has been called.

How does the TX-4000 know it has been called . . . ? Because it comes with CCIR five tone SELCALL fitted as standard equipment, silly. The detent switch of the squelch control located at the upper right of the LCD window activates the OPEN/QUIET mode for transmitting and receiving the SELCALL code. Each radio's receiver code is preprogrammed at the factory but the transmit codes are user-programmable and three memory locations are provided to store frequently called or favorite numbers.

The SELCALL operates in conjunction with the stereo phone ALARM socket fitted to the rear panel. The ALARM socket provides a switching circuit able to carry a current of about one ampere, enough to drive a piezo alarm or similar external alert device. If larger currents are to be switched the use of an external relay can provide ample scope. The alarm circuit is activated for about 10 seconds every time the TX-4000 recognises its unique

GME TX-4000 SERIES . . . Promises the World, and Delivers !

SELCALL code.

The best is yet to come. The ALARM socket also accepts a 'grounded' input which has priority over all other functions of the radio. When the TX-4000 senses a closed circuit at the alarm input it immediately goes into the PAGING mode and transmits the PAGE code three times to be sure there is a good chance of it being received by the appropriate station. Even if the power is turned off at the on/off switch, on sensing an alarm input signal the TX-4000 'powers-up' - all on its own - and goes into its alarm routine before returning to its dormant mode. Ideal for connecting to your car burglar alarm and a dozen other applications.

The channel selector knob, located beneath the volume control, is smaller than usual and a bit close to the volume control for total comfort. It also has multiple functions including MEMory set, SKIP channel in the SCAN mode and it also programs all the programmable digital features like SELCALL codes and the like. The lower right hand corner holds the microphone socket which is also worthy of mention in this revolutionary new CB transceiver. The old dynamic style microphone has been replaced with an ELECTRET type insert which provides crisper, 'brighter' sounding audio on the transmitted signal.

Appearance is anything but 'flashy', however, this new rig marks a major step forward by GME-Electrophone and their already top quality manufacture has moved up another step.

A row of three rectangular, flush mounted, soft touch buttons located below the LCD display are also assigned multiple tasks. The user-programmable SCANning (similar to the TX-472s) function is accessed and toggled between OPEN SCAN and GROUP SCAN through two of these buttons while repeater operation is selected via the third button. They are also used to review a SELCALL code on the LCD display and to store new codes as desired. There are various configurations available for SELCALL including provision for automatic QUIET operation on user-selected channels.

Those who have complained for years about the loss of a signal strength meter can now breathe a sigh of relief with the inclusion of a five section LCD bar graph style indicator for transmit and receive. Unfortunately, the 'meter' appears to be under direct control of the microprocessor with no service calibration adjustment and in our test rig a signal strength of just over a microvolt showed up as a full scale signal while an almost unreadably weak station 'lit' up strength 3 on the display. Bear in mind our test rigs are not production models and there is still time for GME to finetune the bugs. The remainder of the LCD display consists of three groups of dual 7 segment characters, the largest to display selected channel number and two smaller supplementary pairs for several functions including caller or calling SELCALL code, last channel recall, priority channel number and more.

A variety of other designations appear in the LCD window which include:

TX for transmit, BUS-y, DUP-lex, SCAN, QUIET, M for memory, Q for special quiet function and combination block that indicates CALL TO or CALL FROM with the appropriate SELCALL number displayed directly below.

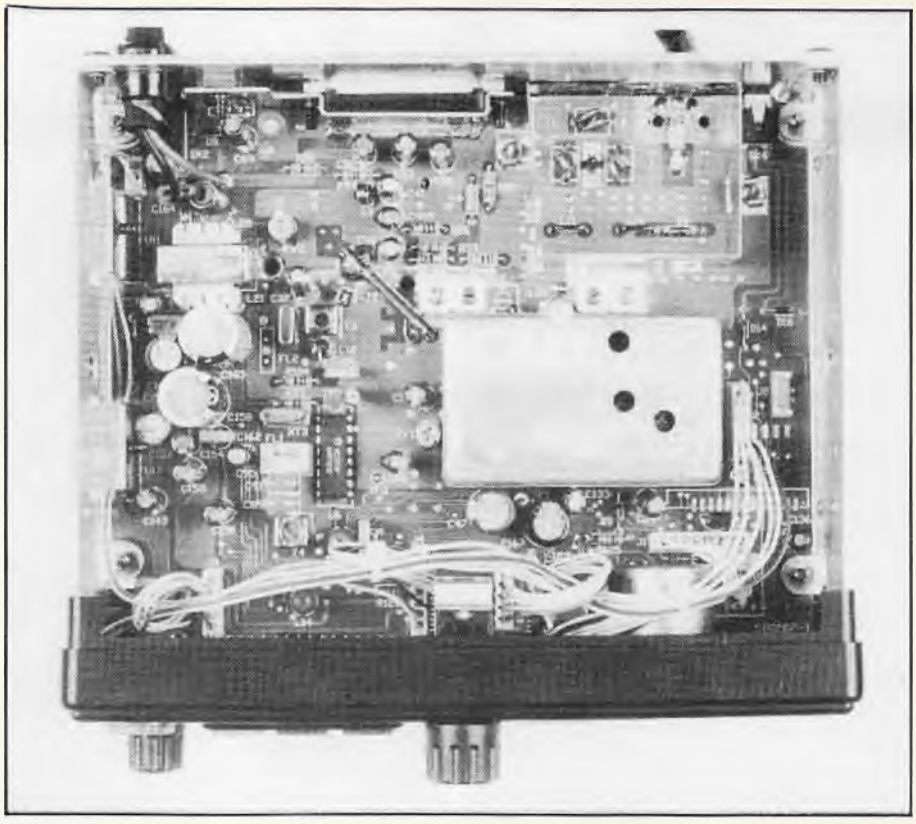
The TX-4000 measures only 171mm x 143mm deep by 52mm high and with the covers removed the internal view is of neat layout and good quality componentry. The sensitive frequency generation section is now housed within a zinc diecast compartment bearing the GME insignia in raised letters. The TX-472 con-

tained a clumsy secondary circuit board for the 'micro' and with the SELCALL board fitted the rig suffered severely restricted service access that virtually closed off the main circuit board. Although there are striking similarities in circuit board design style between the old and new, the TX-4000 is much more accessible with the whole main circuit board in view from above and below. Extensive use is made of SMD (Surface Mount Device) technology on the underside of the main circuit board with the conventional hardware items and power ICs and electrolytic capacitors etc mounted on the topside of the board. The perimeter frame is strong, fabricated from pressed and shaped sheet steel sides with the rear section stamped from aluminium sheet. The panels are joined together with machine screws while the main circuit board is retained with self-tapping screws.

PERFORMANCE

The transmit and receive performance of the radio follows along similar lines to its predecessor and while it lacks the blistering receive performance of the SAWTRON our test rig turned in a healthy sensitivity of 0.25 microvolts for 12dB SINAD which is better than the claimed spec of 0.3 microvolts.

Because this review had to be 'bashed out' in short order we have not had time to fully test the receiver under our usual stringent Melbourne Group Site radio pollution conditions, however, the results of that test will appear in the next issue when we hope to also evaluate the TX-4000R remote head model.



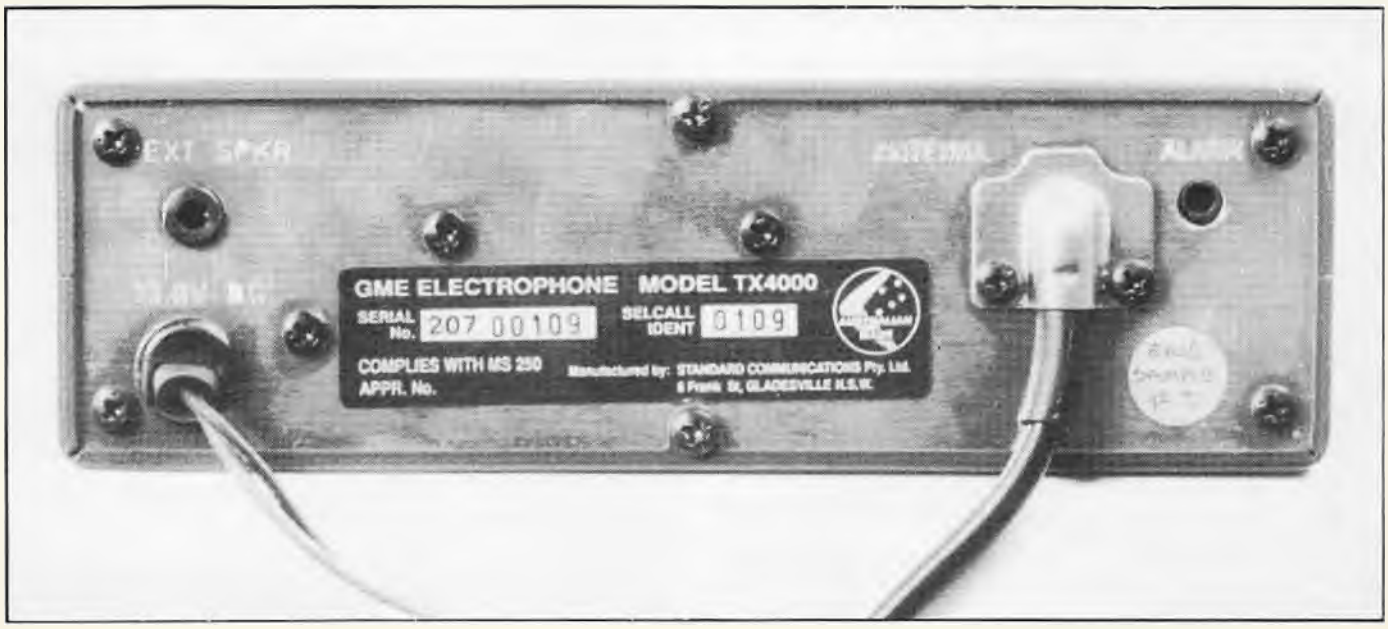
Internal quality is excellent with service access hugely improved.

Squelch threshold sensitivity is 0.1 microvolts with the tight (maximum) level set at 1 microvolt however we felt a touch more hysteresis would be in order to hold up 'choppy' signals a bit better. There is heaps of recovered audio level and with the use of an external speaker the quality is very good - the internal speaker is not bad either, however, with its restricted size it doesn't quite do the receiver capability justice. Transmitted audio is excellent - hats off to the ELECTRET microphone insert - with the deviation 'spot-on' and frequency stability also good.

The transmitter power comes up to the expected five watts, and seems to be pretty fade-proof for average length transmissions.

SUMMARY

.....Beudy mate!



scan

by Russell Bryant

FREQUENCIES, CODES and EVERYTHING ELSE YOU WANT TO KNOW ABOUT SCANNING

All frequencies are FM and all times are local,unless stated otherwise.

SCANNING AMERICAN LOW BAND

I could be flippant and say it's easy - you take your scanner in the left hand, a bag in your right, board a 747 jumbo and fly there.

However,I won't.

Believe it or not, it is possible to monitor police, fire and paramedic or EMS, (Emergency Medical Service) from the comfort of your own radio shack right here in Australia.

The American radio bands are slightly different to ours - for example - in lieu of 70 MHz the US has 30 MHz. These lowband VHF frequencies are still widely used across mainland USA as well as it's territories and outposts.

So you'll need a scanner that covers 30-50 MHz in 5 kHz increments. A decent antenna helps and it almost has to be external, however, it seems to matter little if it's a discone or active or something homebrewed.

SAFETY RADIO SERVICES

Almost since radio began, the Amercians have allocated blocks of frequencies to specific user groups in a similar manner to our national 64 police channels and ambulance allocations. Police, fire and rescue services all come under the heading of 'Safety Radio Services'. Together with aviation, marine, local government, forestry, highway maintenance and special emergency organisations, Safety Radio Services use frequencies from all parts of the VHF and UHF bands. As far as Australia is concerned it is the lowband that interests us.

Because of their ability to 'skip' over long distance, frequencies below 30 MHz are used for extra long distance communications, sometimes over thousands of kilometres. Offically, 30 MHz to 300 MHz is the VHF portion of the spectrum. Generally VHF is less likely to travel therefore making it ideal for medium to short distance contacts.

Simply because a bureaucrat places an invisible line across a naturally occuring resource doesn't mean that the radio waves are going to comply with this arbitrary rule - no such luck.

It is because of RF's disregard for convention that we can enjoy communications not intended for our shores (or ears).

Mixed with a measure of the necessary 'skip' conditions, it can make for interesting listening.

Whilse the United States is not the only user of lowband frequencies, they are by far the largest. Because of their high transmitter site locations and high radiated power levels, the volume of traffic likely to be hears is surprisingly high.

LOW BAND ASSIGNMENTS

The following is a list of assignments from the 30-50 MHz band made to users of the Safety Radio Service by the Federal Communications Commission.

For best results, search in one or two MHz increments.

The number in brackets denotes the channel spacing.

STATE POLICE - 42.020-42.160 (20 kHz), 42.180-42.300 (20 kHz), 42.320-42.640 (20 kHz), 42.660-42.780 (20 kHz), 42.800-42.940 (20 kHz), 44.760-44.900 (40 kHz), 44.620, 44.660, 44.700, 44.740, 44.940, 44.980, 45.020, 45.060.

Maximum power output permitted on these frequencies is 7, 500 watts.

MUNICIPAL POLICE - 37.040-37.320 (20 kHz), 37.360, 37.400, 39.020, 39.040, 39.080-39.240 (20 kHz), 39.280-39.400 (20 kHz), 39.420, 39.440, 39.480-39.980 (20 kHz), 45.460-45.700 (40 kHz), 45.900-46.020 (40 kHz).

ADDITIONAL MUNICIPAL POLICE - 37.020, 37.340, 37.380, 37.420, 39.260, 39.300, 39.340, 39.380, 39.660, 39.700, 39.740, 39.780, 45.260, 45.300, 45.380, 45.740, 45.780, 45.820.

These frequencies may be used for inter-system working as well as intra-departmental operations.

LOCAL GOVERNMENT - 37.100, 37.180, 37.260, 39.100, 39.180, 39.500, 39.580, 39.820, 39.900, 45.080-45.640 (40 kHz), 45.520-46.580 (20 kHz).

FIRE SERVICE - 33.440-33.680 (40 kHz), 33.460-33.660 (40 kHz), 33.700-33.980 (20 kHz), 46.060-46.200 (20 kHz), 46.220-46.340 (20 kHz), 46.360-46.500 (20 kHz), 33.420, 45.880, 46.300.

Many fire departments also operate the ambulance services.

Check the fire channels for ambulance calls.

SPECIAL EMERGENCY - 33.020-33.100 (20 kHz), 37.900-37.980 (40 kHz), 45.920-46.040 (40 kHz), 47.460-47.660 (40 kHz).

Services found here include hospitals, volunteer rescue squads, ambulance and associated paging systems.

RED CROSS - 47.420 is assigned to the Red Cross and is used on a nationwide basis.

THAT'S NOT ALL FOLKS

The above is but a small section of lowband frequencies that may find their way to Australia. Instead of monitoring your local police, fire and ambulance services, try listening in on those of the greatr US of A. It is a real buzz when you have a signal emenating from 12,000 kilometres away booming out of you scanner.

HIDE AND SEEK or FREQUENCY HOUSE KEEPING

Frequencies - to the scanner users they are the life blood of our hobby. Without them our scanners are nothing more than a box of diodes, coils, resistors and semi conductors.

It is only because of these electromagnetic pulses that we can pursue our absorbing pastime.

In the good old days there were a few frequencies that could be called mandatory listening.

They were always programmed into a scanner while the rest, in my own case, were recorded on cards and kept in boxes. One box for government allocations another for non government.

THE 97 PERCENT FACTOR

I prided myself on the fact that my data was 97 percent accurate. A friend and I would employ some pretty dastardly tricks in an attempt to track down the user of a particular frequency that we had targetted. Because some of our methods may be seen as vaguely illegal (fancy that - editor), I won't expand on them. Sorry.

However, as time passed more and more cards were being consumed by the increasing number of frequencies being collected. The whole thing was getting out of hand and it became obvious that a better and more effective method of house keeping was needed.

About this time I was introduced to fellow CBA scribe, David Flynn.

It was Dave, (sorry David), who convinced me that a computer was the only way to go - and so it was. All my frequency information and associated data is now firmly encapsulated on a dozen or so bits of floppy plastic.

A SHOPPING WE WILL GO

In retrospect, a computer is the most valuable tool a scanner user can own, apart from the scanner of course. But alas not everyone can afford a computer - or can you?

A trip to any Dick Smith, Tandy, Grace Bros, Myer or other large stationery or departmental store will reveal a range of devices that can only be described as fantastic.

They're called electronic appointment directories, pocket diaries, electronic memo directories or any one of half a dozen other names.

These marvels of silicon chip technology sell for anything from $100 to $300 and can handle as much as 128K of memory. The most common, however, can handle either 32K or 64K. Now this might sound a minimal amount of memory by today's standards, however, when you think about it, it was a computer with just 64K of memory that went to the moon in 1969.

These devices are heaven-sent to the scanner user on a budget.

Frequency information, radio codes and callsigns can be kept, altered and deleted at the touch of a button and best of all, retrieval of information is almost instantaneous.

Enter the frequency, user or callsign and the associated information is immediately shown on the screen.

DICK TRACY CALLING....

For more years than many wish to remember, cartoon character Dick Tracy communicated with all and sundry via his wrist watch

Continued over page...

radio. Although the watch was the figment of Chester Gould, Tracy's creator, the concept is still valid, especially today when micro-technology has reached heights undreamt of by Mr Gould.

The Casio company markets a wrist watch that can store up to fifty entries.

If you have a specific interest group or reside in a small community, the watch may well have sufficient 'computer/memory' space to hold your records.

If you decide you have no need of an electronic notebook and prefer to the manual method of filing you should consider an alphabetical index book. Services can be easily accessed by selecting the appropriate letter and flipping the page.

I would suggest keeping two books, similar to the old card index I had years ago. One book for government frequencies, the other book for commercial operators.

The size of the book you use will depend on the area in which you live. Sydney or Melbourne hobbyists will obviously need a larger size book than, say, someone who lives in Mt.Gambier or Alice Springs.

Whether you use a computer, pocket diary, index book or a loose leaf folder containing a dozen plastic envelopes with the data typed or handwritten, it has to meet your requirements.

Some people would rather have access in frequency order while others prefer it available in alphabetical order.

It really doesn't matter just so,long as you keep it simple and keep it up to date.

But above all, don't keep it a secret.

Others would like to share the information you have and our regular SCAN column is the best place to do just that.

MAILBAG

ST.JOHN AMBULANCE

Ian Wedderburn, NSW asks, "Would SCAN be able to tell me the frequencies for St.John Ambulance?" St.John uses the following at various sporting and community events, 83.130, 84.150, 157.840 and 462.850. Ian would also like to know if his RR 880 can be modified to receive the AM aircraft band. Even if the frequency could be entered into the memory, the receiver doesn't support the electronics to detect AM signals.

The cost of installing the same would exceed the value of the scanner.

YELLOW KNIGHTS OF THE ROAD

In the May/June edition of SCAN I listed two frequencies for the RAA in Adelaide. A 'Yellow Knight' has written saying that 488.275 is the voice channel for the southern suburbs with 488.200 being voice in the northern suburbs. Our correspondant states that because the RAA is using data, it is not uncommon for a patrol unit to complete a shift without voice contact.

BRISBANE BITS AND PIECES

Using a Realistic PRO 2022, Glen of Jindalee QLD keeps an ear on his favorite frequencies. They are, the city police channel 468.400, fire 466.925, QLD Newspapers 162.400, Wormald Security 160.585, Coca Cola Bottlers 462.700, ABC TV outside broadcast 474.275, news helicopter 487.925 and QLD Prisons 464.425.

MISSING FREQUENCIES

A reader from Burnie TAS, asks why (in the ESG Registers) certain frequencies are listed as .737 or .337? As you correctly note, it is due to the conversion of the band to 12.5 kHz spacing. In lieu of three places after the decimal point, 12.5 kHz will produce four. However, because most scanners round off the fourth digit, ESG have done the same.

This will have little impact on the frequency being received, even though it is slightly off frequency. Our reader supplies a number of users for the Burnie area.

First up is Georgetown Police 76.085, Burnie Police 76.700, Forestry Commission 76.940, Country Fire Service Burnie 77.405, Ambulance NW ops 78.130 and north ops 78.160, various Port Authorities in the north 156.800, Redline Coaches 159.640 and finally MTT buses in Burnie 463.600.

GEELONG AMBULANCE

Several issues ago a reader requested the 'new' frequency for Geelong Ambulance. I suggested that they may have moved to the national UHF ambulance channels. This information was incorrect. They moved from the statewide VHF channel 1 (76.670 MHz) to channel 4 (76.490 MHz). Channel 1 is still used when vehicles are outside the area covered by channel 4.

A number of readers indicated the change, one of which was John, North Geelong VIC, who would like to know to where Corio Shire Council has moved. They previously occupied 80.070, with 460.450 as a link. If any reader knows their whereabouts please write to SCAN.

WHAT'S ON IN WALLAROO

Alan of Wallaroo SA checks in with some frequencies from his area and across Spencers Gulf with Kadina Police 169.300, BHP Iron Knob 77.570, Kendall Air 126.325 AM and St.John 159.190. Alan asks for help in locating other radio users in the Yorke Peninsula region. First up, 463.300 is BHP, Pioneer Concrete 82.860, Volunteer Coast Guard Wallaroo 155.925, Metro Fire 168.880, CFS Maitland 488.300, CFS Kadina 488.875 and Dept Road Transport Maitland 492.025.

MYSTERY FREQUENCIES

Because of the work generated by CBA, I am not always in a position to cross reference material from previous issues. Sometimes you will find things repeated or even duplicated. I am therefore grateful to those readers who note something out of order and write in with the correct information. This is one such occasion. Henry, Woolgoolga NSW identifies some of the mystery transmissions that Wayne, Busselton WA, noted on 263.6 and 263.8 MHz. These frequencies, (channels 3 and 11 respectively) are part of the USN FLTSATCOM wideband system. 269.750 is Fleet Relay channel Alpha 11 and is used extensively by the USN McMurdo Base in the Antarctica Region and the USAF detachment in Christchurch NZ. The music heard on this channel is from DYRI, (1107 kHz), Phillipines. How the music is re-transmitted on the sat is yet to be determined. 269.850 is Fleet Relay channel Bravo 11.

To assist Allan, Eagle Farm SA, Henry offers the following info - 255.550 is FLTSATCOM Fleet Relay channel Charlie 5 which is a part of the Indian Ocean Network. For Stephen, Stuart Park NT, our correspondant started scanning with a Diamond D 130 discone attached to a Icom ICR 7000. He later changed to a Diamond D 707 active antenna and discovered considerable improvement over the D 130.

MISSING FRIENDS

Mark, North Manly QLD, is attempting to locate an old friend from their early days on CB. If Warwick Foster is reading this or anyone knows of his whereabouts, drop me line here at SCAN. Warwick and Mark were members of the 'Whiskey Hotel' Club, he, (Warwick), lived in Dee Why, then Avalon and finally the Blue Mountains.

TASSIE TALES

Jason, Summerhill TAS, updates some of the changes in various Tasmanian radio users. Melbourne Control (it covers flights in and out of northern Tasmania) has changed from 119.7 to 123.6 MHz AM. When communications fail in the North Eastern area, the Tasmanian Ambulance Service change from 78.160 to Police channel 4 - 76.085.

Jason includes a recent list of VKT callsigns, Alpha=Administration, Bravo=Burnie, Charlie=CIB, Delta=Devonport, Echo=East Hobart, Foxtrot=Georgetown and N.E Tasmania, Golf=Glenorchy, Hotel=Hobart City, India=Northern Midlands (worked through Deloraine Base), Juliet=Special Operations Group, Kilo=Kimgston, Lima=Launceston, Mike=Motorcycles, Mike Charlie=Motorcycle before duty is assigned, November=New Norfolk, Oscar=Southern Midlands and east coast, Papa=Unknown, Quebec=Queenstown and west coast, Romeo=Mobile Operations Office, Romeo Papa=Cars before duty assigned, Sierra=Scientific, Tango=Traffic, Uniform=Ulverstone, Victor=Radio Technicians, Whiskey=Unknown, X-Ray=Foot Patrols, Yankee=Search and Rescue and Water Police, Zulu=Helicoptere and miscellaneous units.

scan

....CONTINUED FROM PRIOR PAGE

WA POLICE CHANNEL?

Steven of Geraldton WA would like to know the frequency for Perth Police channel 26 and the answer is 468.475. In the original master plan Channel 26 was to be an Australia-wide emergency frequency,however, many departments have allocated it for general work, or, have just not allocated it all.

RACING RADIO

Garry, Eltham VIC, has a list of frequencies used by a variety of motor racing operations. The numbers are 158.410, 159.520, 160.210, 164.530 - Calder Park Raceway; 471.525, 484.975 - Nissan Racing; 450.300, 450.450 - Brock Racing; 472.025 - Dick Johnson Racing; 161.350 - Toyota Racing; 472.000 - Glenn Seton Racing; 471.375 - Michael Preston Racing and 471.925 - Kalari Racing.

OVER THE HILL

Adrian, Broken Hill NSW, dropped me a line with some of the frequencies he listens to in the far western NSW town. Ambulance 76.670, City Council 83.580, Fire 78.040, Pasminco Mining 77.780 and 169.630, Police 83.760 and 84.000, RFDS 485.200, Silver City Security 471.125, City Cabs 71.180 and finally Telecom 158.680.

WHERE ARE YOU?

Sean, Adelaide SA would like to know the various emergency service frequencies in and around Adelaide.

First up, the police use two systems. UHF frequencies can be found by searching 467.850 to 469.425 MHz while the VHF channel can be located between 169.030 to 169.450 MHz. The Metro Fire Service can be found on the following CH 1. 168.820, CH 2. 168.850, CH 3. 168.250, CH 4. 168.340, CH 5 168.880. St John Ambulance operates 158.470, 158.530, 159.070, 159.160, 159.190, 159.250, 159.310 and 159.730.

The frequencies for Unley (assuming they haven't changed recently) are 467.900 Tasking, 468.475 Info, 468.775 and 468.825 Emergency. The callsign prefixes are Region B Adelaide, Region C Port Adelaide, Region D ParaHills, Region G1 Murray Bridge, Region G2 Nuriootpa, Region G3 Mt Gambier, Region G4 Berri, Region G5 Kadina, Region H2 Port Pirie, Region H3 Port Augusta, Region H4 Port Lincoln, Region H5 Whyalla, Region T Traffic, Region O Communications.

ROAD TO EDUCATION

Jon of Hallam VIC is interested in the frequencies used by the Victorian Department of Education and the VICROADS Enforcement Branch.

Education was allocated one of the following 490.250, 490.350, 490.425 or 490.725, I can't recall which. However, recent mail from Victoria indicates that they may have moved to a commercial trunking network...maybe a reader can enlighten us.

The VICROADS Enforcement Officers are listed as operating on channel 8 462.625 around Melbourne, however, if their duties take them to other parts they use the channel appropriate to that region. One final request from Jon covers the NSW police frequencies for the Hume Highway.

Starting at Albury 167.890 or 83.760, Tarcutta 83.910, Gundagai 83.910, Yass 83.865, Goulburn 83.910, Moss Vale, Mittagong and Bowral 83.910, Campbelltown 468.550 and Liverpool 468.375. Your suggestions re Royans is being investigated, also I am planning an entire article on a trip from Melbourne to Sydney with a carload of scanners, CBs and ham gear so stay tuned.

FROM OVER THERE

David, Busselton WA, has sent in his log of frequencies from the south west corner of the state and they are Gosnells Shire 160.540, WA News 163.180, Telecom 164.860, SES CH.1 163.390, Forestry 168.910, RSPCA 463.775, 6PR News 172.770 and TVW7 News 165.450.

A MOD-ERN RADIO

Michael, Deception Bay QLD is wondering if his Bicon 835 CC2 multi band radio can be modified to receive more frequencies. Michael, I am not familiar with the Bicon, however, very few receivers lend themselves to easy modification. I suspect the Bicon is probably one of them.

INDEX

I often receive requests from readers asking when a particular rig was reviewed or when a special subject was mentioned.

To assist with these inquiries I have indexed all articles, rig reviews and scanning columns I have authored since the beginning of my time with CBA.

Scanning Action, later SCAN, has a lead-in mini article, the topic covered in the column has been included. Mail Bag (except when used as a lead-in) and Propagation etc. have been omitted because of their varied and general nature.

This index covers the issues from November 1987 to May 1992.

The list is:

NOV/DEC '87 Scanning the NSW Railways.
MAR/APR '88 Review Bearcat 800 XLT scanner, Monitoring VHF Maritime band.
MAY/JUN '88 Review Cobra SR 15 scanner.
NOV/DEC '88 An Introduction to Scanning, Scanning Action 1 - New UHF band plan.
JAN/FEB '89 Review Seiko SC 8000 scanner, Low Cost DXing, A Guide to Used Scanners, Scanning Action 2 - Australian Railway Allocations.
MAR/APR '89 Review Belc one antenna, Review PRO 34 scanner, Scanning Action 3 - Northern Territory frequencies.
MAY/JUN '89 Scanning Action 4 - Mail.
JUL/AUG '89 Review PRO 2005 scanner, Scanning Action 5 - Railway Update, Military frequencies.
SEP/OCT '89 Review Sony PRO 80 receiver, Scanning Action 6 - Mail.
NOV/DEC '89 A Good Scanner Antenna, Review Yupiteru MVT 5000 scanner,Scanning Action 7 - Mail.
JAN/FEB '90 Look Back on the '80s-Scanners, Sydney to Hobart Yacht Race - Scanners,Review PRO's 2022, 2024, 57 scanners, Review Road Runner RR 880 scanner, Scanning Action 8 - Police Communications.
MAR/APR '90 Review FRG 9600 scanner, Review Bearcat 70 XLT,100 XLT,760 XLT scanners, Scanning Action 9 - Ambulance Communications.
MAY/JUN '90 Review Road Runner RR 900 and 950 scanners, Scanning Action 10 - UHF repeater offsets.
JUL/AUG '90 Review MVT 6000 scanner, Scanning Action 11 - Multi Point Distribution Services.
SEP/OCT '90 Review AR 1000 scanner, Bathurst 1000 Classic frequencies, Scanning Action 12 - Mail.
NOV/DEC '90 Review DSE Masthead Amplifier, Review AR 3000 scanner, Are You Ready To Listen, Scanning Action 13 - Scanning 800 MHz Trunking.
JAN/FEB '91 Review PROs 2006,2023,36,2025 scanners, Scanning Action 14 - Scanning the USN Fleet Satellite System.
MAR/APR '91 Review AR 2500 scanner, Review GRE Super Converter and Super Amplifier, SCAN 1 - Confessions of a Scanner User.
MAY/JUN '91 Review SCC R 535 and 537S airband receivers, SCAN 2 -I n The Beginning part 1.
JUL/AUG '91 Review MVT 7000 scanner, SCAN 3 - In The Beginning part 2.
SEP/OCT '91 Review PROs 41,35,37 scanners and Tandy Magnetic Mount Aerial,SCAN 4 - In The Beginning part 3.
NOV/DEC '91 Review IC R 7100 scanner, SCAN 5 - In The Beginning part 4.
JAN/FEB '92 SCAN 6 - In The Beginning The Final Chapter.
MAR/APR '92 Multi Purpose Scanning,

Review TV R 7100 Adapter, Review SCC R 550 airband receiver, SCAN 7 - Scanning Laws Overseas.
MAY/JUN '92 Review Alinco DJ-X1 scanner, Review AOR 900 J scanner, SCAN 8 - Scanning UHF simplex.

CONTACTS

NAME : Roberta Kirkup.
CONTACT : Horse Point, BUNGWAHL POINT, NSW 2423.
INTEREST: Anything.

NAME : Glen Mackintosh.
CONTACT : PO Box 564, MT.OMMANEY, QLD 4074.
INTEREST : Triple O, plus anything else of interest.

NAME : Geoff Philips.
CONTACT : PO Box 175, WAROOKA, SA 5577.
INTEREST: As per last issue, plus shortwave.

PROPAGATION

A AR 3000/3000A FIX

The AR 3000 is probably one of the most sophisticated receivers ever to grace our shores. Its frequency coverage and functions have endeared it to many enthusiasts, however, many have also discovered that it is radio that can and does have a number of bugs.

One of the main problems is its habit of locking up, usually when being operated with the supplied power plug pack. It is usually the plug pack which is causing the lockup.

The remedy is simple. The plug pack is a non-regulated supply, in other words the 12VDC coming out can vary from as little as 6 VDC to 18 VDC depending a a number of factors.

The AR 3000 likes a constant 13.8 VDC. When it gets the up and down effect from the plug pack the micro-processor shuts down, sometimes requiring a trip to Japan to revive it.

A regulated supply will overcome the lock-up syndrome. These power supplies are available from most if not all radio stores for under one hundred dollars. They can save a lot of heartache.

To further eliminate the problem a switch should be installed between the receiver and the supply.

Plug the regulated power supply into the 240 VAC then plug the cord into the AR 3000, switch on the mains supply followed by the inline switch. It should be the end of your problems.

A WORD FROM WARC

The World Administrative Radio Conference earlier this year made some significant changes to the radio spectrum that will affect Australian allocations.

Those changes within the range of the average scanner are - Digital Audio Broadcasting 1452-1492 MHz for Terrestrial and Satellite services. Stationary and Low Orbit Satellite 1.6 - 2.4, 2.0 - 2.2, 2.5 - 2.6 GHz. Position Locating satellite systems 137 - 401 MHz. The frequencies listed above will come into use from now through to the year 2007.

NEW FROM ESG

Attention NSW and ACT readers, ESG has just released the 'Complete NSW and ACT Frequency Register'. Its 1,257 pages are loaded with ALL frequencies from 27 - 2000 MHz. Repeater services, data, links and fax channels are just some of the transmission types found among the pages of frequency users.

A 'must have' for any serious scanner user, the Complete NSW and ACT Frequency Register is available for $149.50 including postage from ESG, PO Box 1200, Adelaide SA 5001.

Other 'Complete' guides are available for Victoria (only from ESG $99.50),

Tasmania (again only from ESG $39.50) and South Australia (only from Jensen Electronics $54.50). All prices include postage. Please note these publications are in book form and are not available on disc. That brings to an end another serving of SCAN.

Remember a stamped self-addressed envelope please for personal replies.

All mail should be addressed to;
SCAN
PO BOX 344
SPRINGWOOD NSW 2776

Australia's Newest Shortwave Pirate

Radio G'day Hits The Airwaves!

The Australian shortwave scene isn't a very lively one. Most of the activity centres around DXpeditions which are nowadays few and far between, and of course the occasional squabbles between SW clubs.

But the hobby swung into the fast lane in recent months with the unexpected arrival of Radio G'day, a shortwave pirate radio station operating from somewhere in Victoria.

With just two test transmissions Radio G'day became the talk of clubs and computer bulletin boards and came to the attention of newspapers and radio stations.

The unlicenced broadcaster and its resident DJ "Claude Crowe" (named after a puppet on the old children's TV show "Shirl's Neighbourhood") also drew more than passing interest from the DoTaC.

G'day's First Appearance

As best we can tell, the story of Radio G'day for most people began on the Easter weekend of April 1992.

Operating from an undisclosed location which listeners believed to be somewhere in south-eastern Australia, Radio G'day fired up in the 11 MHz shortwave band. It transmitted a three-hour program which looked at famous radio hoaxes such as Orson Welles' dramatic "War Of The Worlds" radio-play broadcast over American radio in the 1930s.

Crowe gave a postal address in Boroko, Papua New Guinea, to which reception reports could be sent. QSL cards were sent in reply.

Many Australian shortwavers logged the station. One of them was Patrick McDonald, Sydney shortwave buff, CBA columnist and operator of the Shortwave Possums computer BBS.

"The signal was patchy at times" he says, "but it was only 16 watts - less powerful than the average two-way radio.

Even so, a number of Americans heard Radio G'day clear across the Pacific".

Patrick's BBS carried many similar reception reports as people exchanged stories of what they heard, and most listeners received a QSL card. In an interesting co-incidence, the Boroko post office box was said to have belonged to a monitoring station of the PNG Department of Telecommunications!

Shortly after, Radio G'day sent out word of a second test broadcast to be held in June.

Shortwave buffs once again geared up to log the signals around 11400 kHz, with Crowe hinting that a more powerful transmitter would be used.

G'day made its second appearance as promised, although the output power was down from expectations.

The signal was also aimed more towards America and carried a special program dedicated to the famous shortwave pirates of Europe. The transmitter was believed to have been located at Mount Burrowa in north-eastern Victoria.

Tony Santos has been keeping an eye on shortwave pirate Radio G'Day - here's his report.

Adelaide shortwave listener Jerome Van Der Linden was one of the few Australian DXers to log G'day's second US-aimed transmissions.

"I was able to tune them in on Monday morning from about 2330 to around 0112 UTC when G'day left the air abruptly.

During this part of the transmission they did say they had been having tx and antenna difficulties".

Newspapers Take Notice

This broadcast caught the attention of journalist Steve West, a contributor to The Australian who says he heard about the station from a cab driver who listened to shortwave radio as a hobby. West wrote a feature article for his newspaper, quoting Patrick McDonald and fellow CBA writer and shortwave expert Rob Williams. He also was able to piece together a brief over-view of pirate radio for readers. "Historically, many pirates have evaded prosecution in their own country by broadcasting from an ocean vessel anchored in international waters" says West.

"This placed them just beyond the boundaries of their country's jurisdiction yet still able to beam their broadcasts back to the shore. This method was first employed by American broadcaster RXKR, which operated from a floating speak-easy anchored of the coast of Los Angeles during the prohibition era of 1933".

"Arguably the most famous off-shore pirate is Radio Caroline, a well-established station that broadcasts to the UK and Europe from the MV Ross Revenge, 14 miles off the coast of England in the North Sea. Caroline can be heard on both sides of the English Channel on the AM and shortwave bands, and has become a valuable training ground for DJs and announcers such as the zany Kenny Everett, who have made pirate radio their launching pad to success on legit stations". West claims that these days it is more common for pirates to set up shop in a house, an apartment, a caravan, or almost anywhere that has room for a transmitter, a tape deck and a microphone. "The Japanese approach pirate radio with a style typical of their miniaturised mass-appeal market" he says. "Regulations allow for low-power licence-free FM broadcasts stations. While their range is effectively limited to a suburban block, this amounts to an audience of hundreds if not thousands in the densely populated cities". "Pirates are also an important part of modern warfare. The US and

Iran both established shortwave broadcasters during Desert Storm to broadcast music, news and propaganda to their own troops and the enemy. A similar battle of the airwaves was fought between the British and the Argentines during the Faulklands War". "The most recent attempts to harness the power of pirate radio as a political tool occurred in early 1990, following the student protests and horrific massacre of Tiananmen Square. The Paris-based Federation for Democracy, backed by 19 foreign press organisations, announced their intention to launch the 1200 tonne vessel Goddess of Democracy to beam pro-democracy messages to the Chinese mainland from the haven of international waters.

The plan floundered when the ship was refused passage through waters controlled by the British territory of Hong Kong.

DoTaC Tunes In - Better Late Than Never!

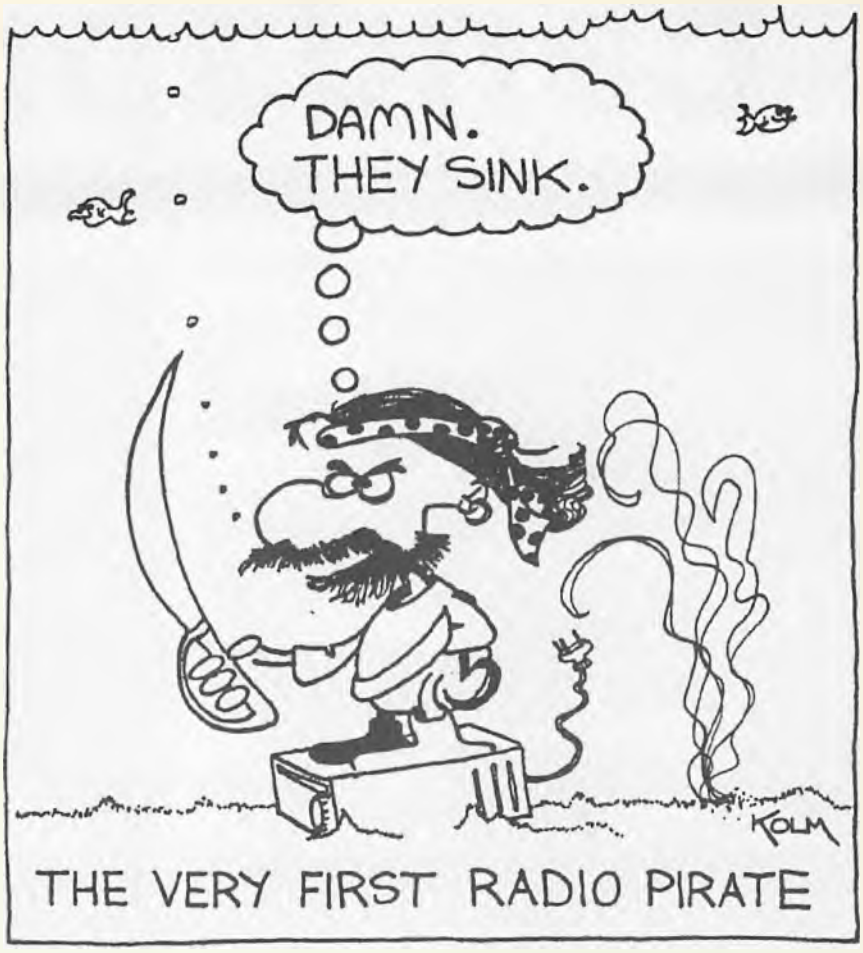
West's article in the mainstream press caught the eye of several radio stations, who rang Patrick McDonald for on-the-air interviews.

It was also noticed by the DoTaC, and I am told that the head office in Canberra came down quite heavily on monitoring station staff who were completely unaware of the presence of the shortwave pirate who had by this time held two test broadcasts and been logged halfway around the world!

Rob Williams explains that the fuss about Radio G'day was due to station's novelty. "Radio G'day is causing such a stir because shortwave pirate stations are extremely rare in Australia.

Our last pirate operation of note was the Clandestine Broadcasting Network. CBN made several appearances in Sydney during 1979 - both on the 25 MHz and 27 MHz bands. It resurfaced sometime later in Mt Gambier on the FM band before a final Sydney appearance on 7.35 MHz".

Pirate broadcasters are extremely popular with shortwave listeners, according to Rob Williams.



"The challenge is that they appear on air with little warning, often transmitting for only very short periods, and tend to do so in very crowded parts of the shortwave bands where it is hard for Australian listeners to get a clear signal".

"Local shortwave enthusiasts need good equipment, up-to-date information and plenty of patience. American stations are usually heard around 7.3 - 7.6 MHz and 14 - 15 MHz, while their European counterparts often appear on the lower frequencies of 6.2 - 6.5 MHz".

As this issue of CB Action was being prepared for printing Radio G'day was due to commence a third weekend of broadcasts across July 17-19 on 11400 and 15040 kHz. SW DXers are ready to try their hand at another catch of this rare pirate, as are the DoTaC, who are rumoured to have requested weekend staff and 4WD vehicles to catch Claude Crowe in the act.

Operating without an appropriate licence, Crowe could face fines of up to $10,000, forfeiture of equipment and possible imprisonment if caught.

For his part, Crowe has indicated that he will use a different transmitter site plus highly portable equipment to allow him to change sites over the weekend.

Stay tuned to the next issue of CBA for the continuing episode of this shortwave soap-opera!

bandspread

FROM DC TO DAYLIGHT *with Greg Towells*

As most of you are aware, Morse code is a requirement for the Full Call and Novice Amateur radio license.

Learning Morse can be a fun activity (especially looking back on all the hard work after you pass the exam!), but, for many it can be an extremely frustrating affair.

One only needs to recall the last edition of CB Action to see the problems our esteemed editor struck in his first attempt at a 10 words per minute Morse exam.

No worries Len, you're not alone.

Just about everyone I learnt Morse with suffered the same fate at their first, second, third, or in my case fourth attempt at the receive exam.

The transmit side generally is not so bad, however, if you attempt it straight after a receiving exam the nervous shakes tend to make a real mess of your sending.

All this can be made even more frustrating when, after months of practice, you can copy at well over the 10wpm requirement on your computer or whatever you practice on, yet it turns to mush at the real thing.

First thing to remember is DON'T GIVE UP.

Keep up the practice at whatever rate suits you. I spent 20 minutes a day for three months before I attempted an exam...and even then it took me four attempts before I was successful.

The next suggestion is to really take advantage of the devolved examinations system that is in place now and contact DoTaC or the Wireless Institute of Australia in your state for a list of accredited examiners.

In the old days, if you attempted an amateur exam, which were only held by the Department of Communications every three months, and failed, you faced a lengthy wait for the next one. With the new system, you can contact accredited examiners and book any number of exams until you pass, even to the extent of one every weekend, if it is possible in your area, with a different examiner.

I found that the day after I failed an exam, I could copy Morse extra well and the sooner I went out and sat the next exam the less errors I made.

Also, don't worry about failing exams, after all you have probably spent months practicing Morse but how much practice have you had at Morse EXAMS!!

MOST FAIL AT FIRST ATTEMPT

No wonder so many people fail at their first attempt. The surroundings are different in many cases, the Morse sounds different, and it's an EXAM!

Another way of preparing for Morse exams is to practice Morse from a number of different sources.

First is the variety of different Morse programs available for IBM compatible computers. These programs allow the operator to change any number of parameters to suit their own system of practice.

My own choice of program is SUPER Morse V3.16 which is available on most phone BBS systems, including Shortwave Possums in Sydney.

This program allows a number of different methods of practice, including random groups, variable random groups, increasing speed random, and even your own or a friend's disk file.

The character speed and spacing can be altered and you can even connect your Morse key to the computer and see how your sending is going!

You can also try copying Morse off the air using your HF communications receiver. The advantage of this is to allow copy of different sounding Morse under all kinds of trying situations such as fading signals and static crashes.

WIA slow Morse sessions can be found on 3.550 MHz at around 2000 hours nightly while in Sydney Morse sessions can also be found on 147.300 MHz on Sunday nights.

Most radio clubs hold weekly Morse code practice sessions at a local hall and while the format of practice will certainly vary from group to group this is a great way of practicing Morse while getting advice and tips from others and making new friends.

It is also a way of assuring you that you are not the only one finding it difficult in passing the amateur Morse code requirements.

You will be surprised at the number of others having the same problems as you and it is a real confidence booster to share your tales of woe with others having the same difficulties.

The club I practiced at, and still do, is the Chifley Amateur Radio Club in outer western suburbs of Sydney.

Basically what we do is copy randomly generated code from a Datong machine or at times from the Super Morse program on a computer.

We then pass the Morse key around the table for some sending practice.

Anyhow, after all the hassles and frustration of failed exams and months of practice, you will feel a REAL sense of achievement when you finally pass the exam.

If you are like me, you suddenly find copying Morse a breeze with not even a trace of nerves.

Still, once you've passed the Morse, keep up to date with it, even if you continue to practice ONLY once a week at a radio club.

That way, you can encourage everyone who is still battling to make it and you retain that unique ability that took months to attain.

GET THE BEST FROM YOUR SONY

Many shortwave listeners around the world own and enjoy great results from Sony ICF-2001Ds (ICF2010s as they are known in North America). Introduced around 1985/86 and still current today, the radio covers 150kHz - 30MHz, 76 - 108MHz and 116 - 136MHz and has features like 10 key direct tuning, rotary tuning, synchronous detection, 32 memories and a 4 program timer.

All this combined with easy operation ensured a winner for Sony. Now available for Sony 2001D owners are two books. The first is titled *'Get The Best From Your Sony ICF-2001D'* and the other *'Get Even More From Your Sony ICF-2001D'*...and that is EXACTLY what these books enable you to do.

The first book starts with an introduction to the 2001D, an introduction to the evolution of modern SWL radios and the history of Sony SWL radios leading up to the 2001D.

Then the really interesting chapters begin. Beginning with *'Hot-Rodding the Sony ICF-2001D'* comes information on Memory Wipeout, Filter Bandwidths, Restricted Tuning Ranges, Receiver Overload, S-Meter, VHF-FM sensitivity and info on the use of the tape audio output. Hints and Tips follow with items on batteries, aerial whip and connector and static damage.

Questions and Answers about pricing, Synchronous Advantage, Loop and Beverage antennae make up the next segment, followed by full specifications and a list of useful addresses for parts and help.

'Getting Even More'...deals further with Memory Wipeout, Battery tips, Squelch use, Keyboard Clear, Dead Tuning Knob, Remote Cassette Control and Tape Audio Output plus heaps more invaluable information for 2001D owners.

I consider that no owner of a Sony 2001D should be without both of these very informative books as the wealth of hints, tips and suggested mods will make the use of a 2001D even better.

Both books are available from Steve Whitt, Medium Wave News, Hunts Cottage, Kiln Lane, Buxhall, Stowmarket, Suffolk 1P14 3DU UK. Cost if both ordered together is Seven (7) pounds Sterling which includes airmail postage.

The best method of payment is International Postal Money Order which is available from Post Offices.

KENWOOD TS-440S HINTS

Lots of readers own Kenwood TS-440S transceivers, a fine, easy to drive radio. However, there are lots of things the radio is capable of that is not in the instruction manual.

Here are some of them.

There is a collection of configuration options that are controlled by clipping or inserting diodes on the back of the control board.

You get to them by taking the top and bottom covers off (a heap of silver screws), loosening the front panel (4 flat-head silver screws, NOT the black ones!) and removing a shield cover (loosen 5 small silver screws).

Right, changes can be made as follows:

DIODE	CONTROLS	IN	OUT (cut diode)
D65	mode confirmation	Morse	Single Beep
D66	display resolution	100 Hz	10 Hz
D67	memory protect	none	on
D73	CW shift	800 Hz	400 Hz
D78	WARC 24MHz band TX	disabled	enabled
D79	WARC 18MHz band TX	disabled	enabled

NEW DOTAC REPEATER RULES

NEWS FLASH:

New DoTAC rules for repeater construction have been released. Owing to recent and continuing problems,the following changes will have to be made to all two-metre and UHF CB repeaters. See whether the new changes will affect you.

1. Liquid nitrogen final to prevent overheating.
2. The installation of sprinklers to put out any fires that are started.
3. Heavy blast proof radio covers ... to take the force of explosive comments.
4. Asbestos coax to withstand rushes of heated comments.
5. Ice dispensers to cool tempers.
6. Stronger radio benches to hold the weight of extra people who rush out of the woodwork.
7. The removal of all woodwork to prevent people from coming out of it.
8. The installation of long range Kenworth (or whatever they drive) detectors.
9. Traffic lights ... to handle the rushes.

These changes are to be implemented immediately in all areas exposed to the (insert callsign) threat.

All right,maybe it's not a requirement,but what a good idea in some capital city repeaters.

This lot originally turned up on the Packet radio mailbox of a well known Sydney and Central Coast truck driver and Amateur who has the uncanny gift of turning many a boring conversation into a lively and controversial affair.

Thanks to Ian VK2WAG (wonder if the callsign was a co-incidence,after VK2PUP!!),who was the reason the message appeared,and VK2XRX who sent it.

DICK SMITH ELECTRONICS

MORE PEOPLE TURN TO US *for* uniden®

COMPACT PRO 510e AM CB

Very high quality and extra reliability make the Uniden PRO 510e a popular choice among avid CB'ers. You only have to use the PRO 510e once, to realise the outstanding performance and build quality. A full range of features are packed into this compact 155 x 35 x 167mm unit and you can pack it under your dashboard with ease. DOTC approved.

- Switchable noise limiter to reduce ignition noise
- Front panel mic socket for tight installations
- Bright LED channel display
- Signal/power output LED meter
- Complete with mic and mounting hardware

Cat D-1108

2 year warranty **$119**

Our Most Popular UHF CB

UNIDEN UH-001 CB

It's easy to see why the Uniden Sundowner UH-001 UHF CB is a proven long time favourite amongst UHF CB'ers. Not only is it incredibly durable and reliable, but it's amazingly easy to operate. As well, it comes complete with a quality microphone, mobile mounting hardware and Uniden's famous 2 year warranty.

- Straightforward mobile operation with easy to use controls and front panel mounted mic socket.
- Easy to read LED channel display with separate Tx/Rx indicator lights
- Duplex switch for repeater operation
- External speaker socket
- It's incredibly compact at just 150(w) x 50(h) x 190mm(d)
- D.O.T.C. approved

Cat D-1806

LIMITED STOCKS

2 Year Warranty **$299**

UNIDEN PRO 640e AM/SSB CB

The very best in Citizen Band radio! Uniden's stunning modern design with a Digital Bargraph meter for SWR, Signal and RF output, pushbutton selection for many features and individual illumination for every control. DOTC approved.

- Pushbutton control of noise limiter, SWR, PA facility, Hi-cut and RF attenuation
- Mic gain, Volume, Squelch and Clarifier controls
- LED bargraph meter for Signal, RF output and SWR
- Direct access to emergency channel 9
- High power 7 watt audio amplifier
- Includes mic, mounting hardware and instruction manual

Cat D-1480

2 Year Warranty **$329**

EXCLUSIVE BONUS FOR CB ACTION READERS

Present this advertisement when you purchase a PRO 640e and receive a 5ft helical whip pack (Cat D-4076 valued at **$19.95**) at no extra cost.

Exclusive to Dick Smith Electronics

UNIDEN 70XLT HANDHELD SCANNER

Now here's value! This high quality handheld receiver from Uniden is a gem. It's very easy to operate, has 20 memories, 8 band coverage, receiver track tuning and it comes with a rechargeable NiCad battery pack, approved AC charger and durable carry case. What's more it's lightweight and small enough to fit in the pocket.

Frequency Coverage: 66-88 MHz
136-174MHz
406-512MHz
Sensitivity: 0.4uV 66-88MHz
0.5uV 136-174MHz
0.7uV 406-512MHz

Cat D-2740 **$269**

Remote Mountable Panel

UF-2020 SCANNING UHF CB

NEW '92

The new Pearce Simpson UF-2020 is our most sophisticated scanning UHF CB and has new features for greater convenience and enhanced performance. A remote mountable front panel with an inbuilt speaker and supplied extension cable allows you to mount the rig's panel on your dashboard and have the main body of the rig relocated out of the way under a seat). In addition, its dual microprocessor design provides a number of scanning functions (including open scan, group scan and a priority channel with 4 selectable modes) plus a repeater reverse mode, programmable one-touch recall CALL channel and digitally adjustable squelch system. Specialised functions include a programmable timeout timer and selectable squelch hysteresis. All settings are stored in an internal memory located in the transceiver's front panel and automatically saved when the transceiver is switched off at its on/off switch. Comes complete with a microphone, mounting brackets (rig and front panel), extension cable and DC power cable.

Cat D-1802

PEARCE-SIMPSON

$449

THE BEST ANTENNAS IN THE BUSINESS

DIAMOND D-130J DISCONE ANTENNA

This quality Japanese discone antenna covers the frequency range 25-1300MHz and is easy to assemble and install. With extensive stainless steel construction it's extremely durable. A wide frequency coverage makes it ideal for use with scanning receivers, as well as transmitters for the UHF CB, 6m, 2m, 70cm and 23cm amateur bands. Complete with instructions and mast mounting hardware.

Cat D-4640

NEW '92

DIAMOND

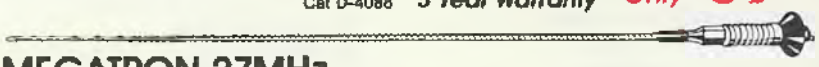
Now Only **$159**

1.5m HEAVY DUTY ANTENNA KIT

MOBILE ONE

A complete, heavy duty 27MHz CB antenna kit in one pack! Comes with 1.53m 'Superhelical' medium to long range antenna, heavy duty stainless steel spring and heavy duty base with cable and plug. The economical way to buy!

Cat D-4088 *5 Year Warranty* *Only* **$69.95**



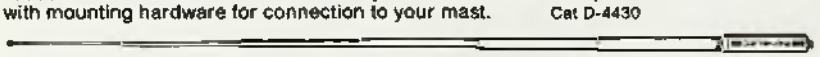
MEGATRON 27MHz BASE STATION ANTENNA

BENELEC

A superb 5.75m ground independent base station antenna, from Benelec. It uses a tuned matching network in a sealed, thick walled, base housing giving excellent protection from corrosion. As well, it allows high power operation (up to 1000 watts) while maintaining low SWR across the band. High quality T81 grade aluminium tubing and stainless steel screws ensure excellent reception and durability. The base section is water sealed with a DC ground path for static reduction and an SO-239 socket for easy coax connection. Complete with mounting hardware for connection to your mast. Cat D-4430

5 Year Warranty

$89.95



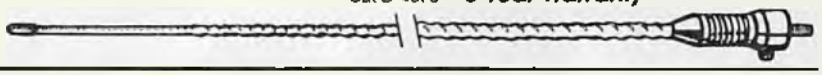
1.8m SUPER HEAVY DUTY 'SKIPWHIP'

MOBILE ONE

We consider this our best 27MHz 4WD antenna... and most people agree. The rugged fibreglass rod features oversize helical windings (using copper braid rather than wire), 'Super Spring' assembly for extra strength and a high impact polycarbonate base with 1/2" bolt for bull-bar mounting. Comes with 3.5m coax cable fitted with PL-259 plugs.

Cat D-4078 *5 Year Warranty*

$149



PHONE ORDERS: SYDNEY AREA 888 2105 OUTSIDE SYDNEY (FREE CALL) 008 22 6610

NSW • Albury 21 8399 • Bankstown Square 707 4888 • Blacktown 671 7722 • Brookvale 905 0441 • Bondi 387 1444 • Campbelltown 27 2199 • Chatswood Chase 411 1955 • Chullora 642 8922 • Gore Hill 439 5311 • Gosford 25 0235 • Hornsby 477 6633 • Hurstville 580 0622 • Kotara 56 2082 • Liverpool 600 9888 • Maitland 33 7888 • Miranda 525 2722 • Newcastle 61 1896 • North Ryde 878 3855 • Orange 618 400 • Parramatta 689 2188 • Penrith 32 3400 • Railway Square 211 3777 • Sydney City 267 9111 • Tamworth 66 1711 • Wollongong 28 3800 **ACT** • Belconnen (06) 253 1785 • Fyshwick 280 4944 **VIC** • Ballarat 31 5433 • Bendigo 43 0388 • Box Hill 890 0699 • Coburg 383 4455 • Dandenong 794 9377 • East Brighton 592 2366 • Essendon 379 7444 • Footscray 689 2055 • Frankston 783 9144 • Geelong 232 711 • Melbourne City 399 Elizabeth St 326 6088 & 246 Bourke St 639 0396 • Richmond 428 1614 • Ringwood 879 5338 • Springvale 547 0522 **QLD** • Booval 282 6200 • Brisbane City 229 9377 •Burarida 391 6233 • Cairns 311 515 • Capalaba 245 2870 • Chermside 359 6255 • Rockhampton 27 9644 • Southport 32 9033 • Toowoomba 38 4300 • Townsville 72 5722 • Underwood 341 0644 • **SA** • Adelaide City 232 1200 • Beverley 347 1900 • Elizabeth 255 8099 • Enfield 260 8088 • St. Marys 277 8977 **WA** • Cannington 451 8888 • Fremantle 335 9733 • Perth City 481 3281 • Midland 250 1460 • Northbridge 328 6944 **TAS** • Hobart 31 0800 • Launceston 344 555 **NT** • Stuart Park 81 1977

LISTEN TO THE BEHIND-THE-SCENE ACTION WITH THESE FREQUENCIES

BATHURST 1000

Every October the quiet hills surrounding the mid-western NSW town of Bathurst echo to the roar of high powered car engines. Mt Panorama is the scene of one of Australia's premier car races, the Bathurst 1000.

As can be expected radio plays an important role in the event.

The scanner user can listen in on the cars, pit crews as well as the media covering the spills and thrills.

There's no guarantee that the listed teams will use the listed frequencies, however, you will find most in use one way or the other.

Some of those frequencies are;

27.212 Paging Simplex
165.640 Engineering Control
166.030 OB 2 Helicopter
414.575 Production Duplex
463.200 Floor Managers
463.200 OB 1 Low Band
463.475 OB 2 Low Band
469.575 Pits Runners
469.975 Pits Runners
470.125 Operations Portables
470.725 ATN Equipment Security
470.725 Computer Engineering CH.2
470.725 Operations Portables
471.125 Computer Engineering CH.1
471.125 ATN Equipment Security
471.125 Operations Simplex
472.175 Pro Image Simplex
472.275 Pro Image Duplex
472.800 X Band audio
473.000 Telemetry
473.375 OB 2 High Band
473.375 Director helicopter
477.250 Maintenance Control Simplex
478.000 Audio
479.125 Racecam Simplex

Some of the drivers and teams competing at Bathurst can be monitored on the following frequencies;

166.510 Crompton
168.550 Crompton
450.300 Peter Brock
450.450 Peter Brock
461.050 Allan Moffat Team
461.250 Allan Moffat Team
461.850 Allan Moffat Team
469.700 ?
469.725 ?
471.525 Nissan Racing
471.900 Jim Richards
472.025 Dick Johnson
475.175 Australian Racing Drivers Club
484.975 Nissan Racing
495.150 CAMS

As always a large police contingent will be on hand to control trouble makers.

The police will be using 83.760, 83.820, 83.880 and 468.475.

Ambulance personnel can be monitored on 76.745, 76.670 and 76.775.

While we can't absolutely guarantee scanner frequencies, chances are good that you'll hear the Formula One action in Adelaide if you take a note of Russell Bryant's 'ho t tips'.

ADELAIDE GRAND PRIX

Every year around this time the normally reserved and peaceful Adelaide throws off it's subdued image to host the Adelaide Grand Prix.

Many weeks before the actual event, the streets of the South Australian capital are transformed into a world class raceway. Because of its international status, the Grand Prix attracts drivers from across the globe. They bring with them their cars, crews and local radio systems. These are often incompatible with Australian allocation, however, all attempts are made to accommodate the foreign frequencies a little closer to the race. In the meantime, these are some frequencies that were monitored during a previous GP - their use this year is anybody's guess.

Nevertheless here they are; 157.540, 157.600, 157.690, 164.650, 168.070, 169.030, 169.370, 172.050, 173.850-174.000, 410.0125-412.325, 419.9875, 454.3125, 461.650-463.825, 466.825, 470.875, 488.075, 493.975-405.025.

Where a lower and upper limit has been indicated, several frequencies can be located therein. The emergency services will of course be very active during the GP - frequencies vary from year to year, however a quick search of the usual bands will reveal their whereabouts.

AVALON AIR SHOWS

Now for speed a little higher off the ground. The Avalon Air Show is being rated as one of the biggest ever to be seen in Australia. Military and civilian aircraft will be put through their paces over the three days of the air pageant.

While Avalon is primarily a military airfield, both VHF and UHF communications are used in the area for military and civilian planes. Avalon Tower can be monitored on 118.2 AM, 120.1 AM and 314.6 AM MHz. The only other frequency is 260 AM kHz which carries the ATIS transmissions. Because of its approximation to Point Cook, frequencies from that airfield may also be in use in and around the Avalon area. Point Cook Tower can be monitored on 135.5 AM, 269.8 AM and 419 AM kHz. Approach uses 118.2 AM, 258.2 AM, 285.4 AM and 131.3 AM. Air to Ground Operations 132.5 AM and 305.4 AM MHz. The majority of aircraft at Avalon will be visitors, therefore frequencies not normally found in and around the skies of the Victorian centre may be employed.

The RAAF Roulettes have been heard on the following frequencies while attending other airshows (all are AM mode), 264.5, 268.8, 288.6, 325.8, 335.8 and 375.4. For additional civil and military aircraft activity search between 118 and 136 MHz and for exclusive UHF military traffic 243 to 390 MHz. Additional to aircraft transmissions, many ground-based civilian organisations will also be involved including police, fire and SES personnel, to mention a few. The SES is often called upon to perform and assist the police with traffic control.

Bathurst is action all the way and along with the competing vehicles you can also check out the police/fire action.

Werribee SES is within the Ballarat Region and its HQ callsign is '927'.

Frequencies are;

CH.1 468.600 Melbourne

CH.2 468.625 Melbourne and

CH.3 468.650 all of which are repeaters, the last being used in Geelong.

Channels 4, 5 and 6 are the simplex of the repeater outputs listed above.

As communications are required over a small area, it is more than likely that simplex will be used. As mentioned before, the police presence at the Avalon Airshow will be significant. Avalon is a part of 'J' District which is serviced by three UHF channels from the 64 channel block. 468.150, 468.200 and 469.400 form vote channel 65. The Total Area Coverage channel, or TAC for short, is 468.425 CH.24. Should medical assistance be required, ambulances from the metropolitan and Geelong areas maybe utilized. Werribee is covered by the new UHF ambulance allocations - 413.075, 413.150 and 413.225 MHz. St John Ambulance may be providing initial response first aid. It can be monitored on 469.525 simplex.

If fire fighting services are required the CFA units in the area can be heard on 163.150, 163.810 and 163.660 MHz.

The logistics of organising a display like Avalon are enormous and should not be second guessed. Any frequency is likely to be pressed into service.

online

by Patrick McDonald

ALL ABOUT COMMUNICATION RELATED COMPUTER PROGRAMS

Time once again, gang, to launch into the latest digital delights to help you get the best from your radio, be it receiver, transceiver or whatever.

But first... one avid CB ACTION reader who says he always picks up lots of useful tips here at ONLINE about using his IBM compatible computer within his many and varied radio pursuits, has taken me to task for my unimaginative name "Patrick McDonald?" he says. "Why can't you follow the example of one rather popular American communications monthly and call yourself Patricia Flannigan or something?" He even suggested that I add a fetching photo to the ONLINE masthead. That way, he reasoned, naive CBA readers would imagine that this shy, nerdish radio-besotted author was really a vivacious, gorgeous 20 year old part-time model with blond hair to the waist! Jeepers creepers, I thought, the secret's out. How did this reader know I was a bottle-blond version of Elle McPherson? I took on this stupid CBA nom de plume to avoid ruining my day job. Who's going to hire me to do lingerie modelling now, and what will my boyfriends think? I'll have to talk to the editor about these damn security leaks!

Meanwhile, however, let's get away from all that and talk about some new computer software that has recently arrived at the Shortwave Possums computer bulletin board headquarters... it's much more interesting than mere lingerie advertisements. Unless otherwise noted, programs mentioned here are suitable for IBM compatible computers and not commercial but 'shareware', written for the radio and computer hobby world. Please remember, however, that shareware authors really do deserve the modest donations they request.

ScannerBuff Professional

First on my list is a ScannerBuff Professional upgrade. Regular readers will recall that I have reviewed this state-of-the-art 'ultimate radio database' here before. Nevertheless, since author Bob Ricci keeps making the program better and better, I thought the latest (May 1992) version deserved to be brought to your attention.

ScannerBuff has indeed really come a long way since its initial release. Not only have we seen three prior upgrades, each with many improvements, but now Ricci has made almost a brand new start with a complete rewrite of the entire program. "ScannerBuff is for you if you are a person that enjoys sitting for hours listening to police and fire calls, chasing covert low frequency 'number' stations, listening in on the shortwave bands, and are even into amateur radio" he says, although there are many other database programs written specifically for hams.

In a nutshell, ScannerBuff is an easy to learn, multi-capability database program that allows you to catalogue all your thousands of radio frequencies. You may have as many database records as you like and are only limited by your disk space. The latest version also allows you up to 250 pages of per record, more than any other similar program. Features available in this new release are quite extensive. You may search by agency, by frequency, by callsign, or display all records to the screen. You may add, edit or delete any or all individual records. You may print lists of data to any IBM graphics printer based on agency name, frequency, or callsign. You also have a choice of printing to an ASCII text file. You may search for any radio codes you have placed into the code database, whether they be police, fire, public works, etc. Additionally, you may add, edit, or delete individual codes, or display all to the screen. Another new ScannerBuff feature means that you can clone an empty database file with a new name and its own set of index files. This enables you to have separate data files for different needs, such as 'police only', 'fire only', etc. You may also switch data files at any time, or pack and reindex the files. You can establish drive and path information and save your configuration for use at future boot-ups and have so your most frequently used data file opened automatically.

Finally, a new do-dad called 'Groups' has been added. This sets a filter so that only those radio records belonging to a specific type of service are accessed... quite a nifty and useful feature, in my humble opinion.

ScannerBuff can be run on any IBM compatible or near compatible computer with at least 384k of available RAM, although program execution is faster and data integrity is improved with a minimum of 400k RAM. It is completely VGA compatible. All colors are designed to be clearly visible on even monochrome screens, however, and of course, the software works fine with CGA and EGA monitors too. Note that ScannerBuff will run on computers with only floppy drives, but even a small hard disk sure makes things a lot easier.

There has been a longtime bug in ScannerBuff fixed in the latest version: the built-in word processor that writes and saves comments was only allowing one line of text to be recalled, although many lines were entered. This error has been corrected and users may now enter and recall a maximum of 32k of comments per record. This will allow you to keep truly 'War and Peace' size volumes of notes if you so wish! As well, the text editor has been completely re-written, with a handy little pop-in time and date stamp feature.

Look for the file named SCANR375.ZIP at SWP BBS or other fine computer bulletin board services that cater to the radio crowd.

Morse Code Tutor

OK, let's move on to something completely different. MOR21.ZIP is designed to do just one thing - help you to learn that damn Morse Code for your amateur radio licence! This is 'freeware' software which requires no donation, and it hails from Hawaii, courtesy of GHZ Engineering. MOR21 has 14 built-in lessons that take you through all the necessary code at slow speed, allowing you to familiarize yourself with the sound of each character via your computer's speaker.

You can also set up the program to use any speed you like, and any frequency of tone. In its non-lesson mode, MOR21 will send you random or non-random letters and numbers in whatever screen colors tickle your fancy. After using this software for a few weeks, my guess is that you will realise that 5 words per minute is very slow indeed, and that Morse Code need not be a serious obstacle to gaining your amateur radio licence.

There are many other programs, both shareware and commercial, similar to MOR21, but I think you'll find this one 'user friendly', as they say in the computer trade. Why not give it a whirl?

New TrakSat

Lots of people have been ringing SWP BBS lately looking for TrakSat, the highly recommended US software that I reviewed favorably in the last issue of CBA. Well, a newer version - filename of TRAK280.ZIP - has just made its way across the Pacific.

In case you were visiting Paraguay when our last ONLINE column went to press, TrakSat is a general purpose satellite tracking program. Designed originally for use in finding NASA's Space Shuttle, TrakSat reads the standard NASA 2-line element

set, in text file format, and tells you exactly where in the sky each and every satellite is located. If your radio hobby involves satellite communications, or even if it doesn't, I'm sure you can imagine many uses for this software.

Some new features include: an increased maximum number of satellites in a data file (now 30000); user star data is increased to 1800 stars; land fill color can be turned on or off, as you prefer; the satellite coverage circle has been improved; and special output for the amateur radio users has been added, such as phase and Doppler.

These aren't enormous changes, I know, but if you're madly involved in this special radio area, you'll want the latest release of TrakSat!

☐ EarthWatch

Finally, I want to mention EarthWatch, a graphics program similar to the well-known GeoClock and Mapper software previous reviewed in these pages.

EarthWatch presents in real-time a dynamic Mercator projection map of the world. Updated every 5 minutes, it includes almanac information such as present daylight and night areas of the earth, sunrise and sunset times for a specified location, a comparison of sunrise and sunset times with those of the previous day, present sunrise and sunset zones throughout the world, time of day in every world time zone, dates on either side of the international date line, complete info on the position (including age and phase) of the moon and much more.

I assume that EarthWatch is not intended primarily for radio enthusiasts, however it would be very useful for 'grayline DXing' in determining which areas of the world are on your location's sunrise/sunset line.

It's also incredibly entertaining just to watch!

All you have to do to get started is to enter the co-ordinates of your own location (and there are lists to help you with this) and then punch in the time. Voila! Sacre bleu!

You are now watching the planet Earth as if from space, with your own little QTH winking back at you... very impressive! EarthWatch is best by far in its dazzling coat-of-many-colors VGA mode, but works with CGA too.

☐ SPECTRUM Goes Online!

Now, some good news has just come in from Melbourne, from the SPECTRUM computer bulletin board service that specialises in radio info, programs and the like.

Sysop Michael Evans reports that he has just installed a new database program that allows users to search for various frequencies while online via their modems.

Unfortunately, yours truly is known for running into deadlines, such as those for the publication of this great mag, headfirst and at very high speeds, sometimes in excess of 50 MHz, so I haven't yet had a chance to try out SPECTRUM's newest feature.

However, you can do this yourself, can't you?

Just ring (03) 819-9167 24 hours daily with your modem. You may also find that Michael has upgraded his system with a nice, shiny new 9600 baud communications machine, so those of you who have moved on from the old 2400 bps standard will be able to pick up your files at super duper velocities!

Speaking of the computer BBS scene, radio news continues to flow around the world very conveniently via several 'echomail conferences' carried by SPECTRUM, SWP and a number of other systems in Australia.

For example, the proprietor of the infamous Radio G'day shortwave radio pirate station has taken to leaving his latest broadcasting schedules with the Australian BBS network, from which this information spreads quickly to international listeners.

As well, computer bulletin board systems carry all the frequency lists you'll ever want: international shortwave radio station schedules, the local police and fire channels, air and marine frequencies... you name it and it's there.

And if you can't find what you want, you simply have to ask and thousands of other radio buffs are ready to help you out.

Wow! Look at the time!

That's gotta be it for now, gang.

The editor down in Melbourne is starting to froth while waiting for me to stuff this column into the telephone line, and I don't want any of you to wait even a minute longer than you have to, to read the next action-packed issue of CB ACTION magazine.

Remember that you can get in touch with me at Shortwave Possums BBS via your modem 24 hours daily on (02) 651-3055, and your ideas and suggestions are always welcome, as long as you're moderately polite.

The postal address for those still wary of electronic communications is;

PO Box 357
Round Corner
NSW 2158

And no, I will not send you 8 by 10 color glossy photographs of myself even if you include lots of return postage. It would only distract you from important radio activities!

AR 2800 WIDE RANGE MONITOR RECEIVER RIG REVIEW

AOR have cemented themselves firmly as a leader in the communications field,with innovative and technically superior products. The AR 2800 scanner continues the trend.

For Access Communications,a major dealer in AOR products,the AR 1000 proved to be a popular handheld scanning receiver.

Mainly due to the features it offered,like 1000 memory channels,10 user programmable independent search banks,tri mode (AM,FM,WFM) reception capabilities,frequency lock-out during search,plus many other functions not seen on contemporary scanners.

One of the main selling points that attracted many to the 1000 was the extended frequency coverage,from half a megahertz to well over 1000 megahertz.

LACK OF SSB

The one thing the 1000 lacked was resolution of SSB or Single Side Band transmissions.

Given that new modes of radio such as ACSB or AM Compandored Side Band are making inroads into the VHF bands,SSB is almost essential in today's scanning receivers. Another problem associated with handhelds like the 1000 is the lack of shielding around their RF sensitive areas.

Known in the industry as 'cans',these metal covers protect components from interference from external radio sources and electrical energy alike.

If you took the characteristics of the AR 1000,added SSB signals via a BFO,put the whole thing into a mobile case where RF protection could be enhanced and kept the price down well under the $1000 mark,then you must be getting close to a top-of-the-range scanner.

AOR keep the good things coming with the AR 2800.

SIZE ISN'T EVERYTHING

The new AR 2800 offers all of the above. It is decked out in the now familiar AR 950/2500 case. For those who don't know it,the case measurements are 52 X 145 X 180mm (HWD),so it is small enough for the car yet not so small that it can't be used safely while driving.

Frequency limits are 500 kHz to 600 MHz then 800 MHz to 1300 MHz.

Any frequency within these parameters can be stored in one of the 1000 memories. For easy cataloging the memory channels are arranged in 10 groups of 100. Don't confuse the 2800 with its predecessor,the 2500.

They may look alike and have similiar features,but that is where the comparison ends. The 2800 is a superior receiver that DOESN'T suffer from the 2500's inability to accurately resolve SSB.

The 2800 also has properly designated channels,not banks of positions as found on the 2500.

AF SCAN

Anyone familiar with the AR 1000 will have no trouble coming to terms with the 2800.

Programming and operation are identical,as is the function terminology. AOR have added,apart from the BFO,an AF scan facility. Only when a suitably modulated signal is present on the carrier will the scanner lock on to a frequency. Annoying constant carrier and occasional birdies are scanned over without locking up the receiver. The AR 2800 supports some of the most advanced features found on today's scanners.

Many receivers have factory set search increments,these are often unable to be altered by the end-user. The 2800 has default settings on all bands that usually correspond to the Japanese standards,they bear little relevance to us.

If,for example the default is not applicable to Australian conditions or you wish the skip through the band a little quicker than normal,the 2800 allows you to dial-up any search step between 5 kHz and 995 kHz,in 5 kHz increments.

While searching out new and interesting frequencies,it can be annoying to have to continually hit the arrow or search keys to resume searching,after the receiver has locked onto a birdie or uninteresting user. To overcome the problem,the 2800 permits lock-out while searching.

Up to 100 unwanted frequencies can be removed from the sequence,thereby permitting uninterrupted listening.

PUSH-BUTTON ACCESS

Reception of AM,SSB,WFM or NFM modes can be selected at the push of a button. Single sideband is resolved by using the BFO,two shift controls are employed.

Main Shift (MS) moves the sideband either to the upper or lower side.

The Fine Shift (FS) dial peaks the signal for optimum readability. Both shift controls are mounted concentric with the volume and mute knobs respectively.

Because the lowest step rate is 5 kHz,the AR 2800 will 'round off' any HF frequencies that don't end in a 5 or 0.

Therefore the aeronautical frequency 8867 kHz will appear on screen as 8865 kHz. Although 2 kHz off frequency the BFO is sufficiently wide enough to compensate.

It took no more than it would with a standard HF comms receiver to enjoy crystal clear SSB transmissions.

A word of warning,the plug pack supplied with the 2800 is okay for the VHF and UHF bands,however because it is not a regulated source,it generates a degree of noise on the HF bands.

A better,noiseless signal can be obtained using a regulated CB power supply.

Dick Smith and Tandy,as well as any good radio supply shop will stock regulated 13.8 VDC 2 amp power supplies.

SENSITIVE SCANNING

Many scanner enthusiasts look for the lowest possible sensitivity figures for the scanner they are contemplating buying. The manual lists a figure of .5 microvolt or better on FM and 3 microvolts or better on AM. The quoted sensitivity is conservative at best,0.2 microvolts would be closer to the truth.

Testing the AOR on a variety of antennas,including the venerable discone,I concluded that the AR 2800 is best connected to an aerial exhibiting little or no gain.

The Diamond D 707 active antenna will overload the front end by driving it too hard. Apart from one error of describing the operation of the light key (the 2800 doesn't have one,obviously a re-write of the 1000 manual),the handbook is well written.

As indicated in the first chapter,the handbook is not indexed,it is meant to be read from begining to end.

Rear panel has extention speaker outlet, 12V DC socket and AF scan on/off switch plus of course the antenna socket.

ALL THE USUALS

The AR 2800 comes with all the usual accoutrements,including a hefty 12 VDC 500 mA AC/DC converter,mounting hardware,the aforementioned handbook,mobile DC power lead,aerial and a curious wire contraption that took a while for me to work out it's purpose. It is a stand to elevate the front of the receiver off the horizontal to facilitate easier operation.

The path to scanning often starts at Shortwave Listening. Hobbyists then discover the bands beyond 30 megahertz,and invest in a scanner.

The AR 2800 is somewhat of an enigma,it isn't a scanner,although it scans.

It isn't a HF communications receiver,yet you can monitor HF/SSB signals on it. What is it?

The 2800 is the start of a revolution in wide band extended frequency receivers.

The technology packed into this grey box is nothing short of incredible.

The AR 2800 will retail for around $900.

hf utilities

with Richard Jary

WHERE TO LISTEN and WHAT'S BEING HEARD

Well, here we are with another issue of CB Action and another HF Utilities. How time flies!

By the time you read this I may be heading over to Asia to install networks for the United Nations Transitional Authority in Cambodia.

If this happens I'm sure there will be plenty of traffic to listen to, just about all of it military, and probably a lot around the VHF low band.

Whether there will be much on HF I don't know, but I'll have at least a portable shortwave set of some sort, and possibly invest in something capable of picking up the military communications, provided they aren't horrible scrambled! More on that next time if it goes ahead, though I'd be pleased to hear from anyone who might be able to tell me what I can listen to over there.

Back to Australia, where our roving shortwave guru Rob Williams tells me that OTC have announced an extension of HF/VHF weather forecasts for boats in Tasmanian waters. The service is broadcast over Melbourne Radio and can now be heard at 0615 and 1815 EST on 2201, 4426/4134, 6507/6206, 8176 and Ch 67 VHF. These times translate to 2015 and 0815 UTC, though this may change when daylight saving is introduced in the area during October.

» News About Xinhua

The Xinhua news agency from China has the following English language broadcasts aimed at Europe. These may be audible in Australia. Times are in UTC and frequencies in kHz. Starting at 2330-0200 and 1730-1900 from BZP59 on 9417 and BZR69 on 9491; 0530-0830 and 0930-1230 BZP54 14367 and BZR68 18872; 1330-1600 BZP51 11680 and BZR62 12265.

» Loggings From "The Yobbo"!

I've been sent in some loggings by "The Australian Yobbo" in Sydney. He's heard VKG, the NSW police, on a number of shortwave channels, all loud and clear. These include 7657, 10505, 13730 and 17677 kHz all in LSB, and in 4560 kHz in Morse. He's also logged Air Force 1 at various places, such as 11180, 13215, 15048 and 18027 kHz - this time all in USB. He has some other unidentified loggings, 2801.5 kHz LSB at 0515 UTC - "I'm coming up behind you now, mate. Tell Johnno to go to the side of it." This is listed as a police frequency but Mr. Yobbo has his doubts. Another unidentified call was on 6756 USB at 0857 UTC - "This is Mac on track" in an American accent. No other traffic heard here.

The Australian Yobbo also requested a "contacts" section where people can exchange addresses so people with similar interests can write to each other. I don't have any objections to this, so if anyone wants to send in their address and a bit of info on what they are interested in, I'll put it in the next HF Utes.

» Which Receiver?

I've had another request from someone asking what sort of receiver he should buy to receive HF utilities. As with any radio gear, you get roughly what you pay for. The main difference between Utility and broadcast listening is that most of the utility traffic is transmitted in single sideband mode, so your set should be capable of receiving SSB. This is likely to eliminate some of the cheaper receivers. CBA has reviewed a number of receivers, and the three 'esses' - sensitivity, stability and selectivity - apply as much for utility listening as they do for shortwave DXing.

In some cases stability may be more important as a drift of one or two hundred Hertz won't matter much while listening to the Voice of America, but on a sideband signal it can make things sound decidedly off-key. There are plenty of good units out there: the Sangean 803A portable is perfectly adequate, of course if you are feeling really rich then you could go for a top-of-the-range Icom set!

» More Facts on Fax

Onto fax and RTTY broadcasts, I've had letters from a pair of Victorian ute fans, Tom of Wodonga and David from Red Hill. Tom has been using a similar set up to mine - the RADFAX decoder kit available from some electronics hobbyist shops throughout the country. Tom has noticed the same problem I have - it works great on fax, and not at all on Morse. Whether this is a problem with the kit/software or both our tuning methods I don't know.

Tom does note that it is very easy to install the middle switch (bandwidth control) about 180 degrees from where it needs to be as the guide pin hole in the circuit board is well away from where it needs to be. I had found this with mine when building it, but it doesn't seem to have solved the problem. Has anyone had any success with the Radfax kit on RTTY broadcasts - if so can they drop me a line with some hints to solve the problems.

» Modified Listening Post 2 Kit

David is using a different setup, being a modified version of Tom Moffat's well-known Listening Post 2 kit.

This kit uses an XR2211 PLL chip to lock to the signal, and David's version produces a 2400Hz crystal controlled signal with an external potentiometer for adjusting the centre frequency.

The original kit had a rotary switch for the different bandwidth settings for Morse, RTTY and fax.

David's version sends the data, clock, and "signal locked" signals to the joystick port rather than the parallel port of his computer. He has written his own software in Pascal.

The current software only provides fax decoding, but future plans are for Morse, RTTY and maybe even packet capability. If you get it all working nicely David, I'm sure we'd love to see some details here, and may be able to run the circuit as a special project. I guess that if this goes ahead software would need to be available from you. Please keep in contact.

And that's another HF Utes. Keep those letters rolling in, and share your loggings and ideas with the rest of us. Remember that I'm happy to publish names and addresses if you wish to correspond with those of similar interests.

So until next month, 73s.

CHECK THE CROSSWORD IN THIS ISSUE FOR A CHANCE TO WIN ONE OF TWO NEW GME-ELECTROPHONE TX4000 UHF RIGS COURTESY OF STANDARD COMMUNICATIONS.

ROAD RUNNER

RR477X UHF CB TRANSCEIVER

The Roadrunner compact, full power handheld UHF CB transceiver offers high performance at an affordable price. Advanced microcircuit design, rugged construction and surface mount technology allow maximum legal output power with small size.

NEW MODEL IMPROVED PERFORMANCE

Functions not found on other transceivers include:

- High/low output power control to ensure maximum battery endurance
- Channel scan - ensuring all channels are continuously monitored
- Lockout function to eliminate unwanted channels from scan schedule
- Backlit LCD display for low light operation
- Electronic channel control - avoiding hard to turn miniature channel switches
- User selectable simplex/duplex for repeater operation

Units are fitted with plug connections for external speaker, speaker microphone, antenna, and battery charger.

Supplied with quarter wave antenna, Nicad battery, AC charger, carry case, and belt clip.

A full range of accessories including:

- Speaker Microphone
- Drop in Desk Charger
- Vehicle Adaptor
- Communications Headset
- Glass Mount Antenna
- Communications Headset
- CTCSS Board
- Spare Batteries are available
- DOTC approval # 2500079

SPECIFICATIONS

TRANSMITTER

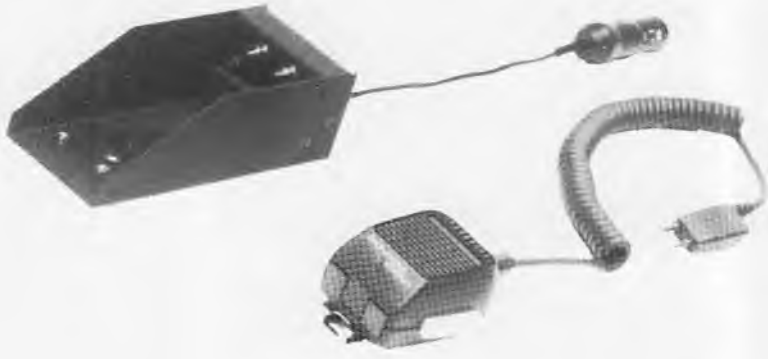
Output power: 5 watts
Spurious Emissions:-65db
Current Drain:1.6 amps (high power)
0.45 amps (low power)
Hum and noise: 40db or better
Frequency tolerance:1 KHz or better

RECEIVER

Sensitivity: .25uV for 12dB sinad
Audio output power: 0.5 watts
Hum and Noise: 45dB or better
Current drain: 20mA (power saver mode)

GENERAL

Power source:10.8 V DC 450mAH Nicad battery
Operating temperature:-10 to +60 degrees C
Number of channels: 40
Frequency range:476.425MHz-477.400MHz
Microphone:Electret
Antenna Impedance: 50 OHMS
Size:130(H) 5 53 (W) 5 44(D) mm
Weight: 470 grams (incl battery pack)



Customers are urged to check the compliance plate of all transceivers to ensure they are purchasing DOTC approved equipment from the authorised importer. Ring us for the name of your local dealer. Access Communications will not warrant imitations of this product.

EXCLUSIVE IMPORTER

ACCESS COMMUNICATIONS P/L

SYDNEY
33-35 Alleyne St. Chatswood 2067
TEL:(02) 417 5311 • FAX:(02) 417 6976

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12 Stratton St. Fortitute Valley 4006
TEL:(07) 252 1420 • FAX:(07) 854 1453

MELBOURNE
51 Johnston St. Fitzroy 3065
TEL:(03) 417 1022 • FAX:(03) 417 1234

CB Action - DX International DXCC COUNTRIES LIST 1992

Compiled by Jack Haden

The world is a changing place, governments, coups, invasions and revolutions change countries and often their geographical boundaries, and this in turn flows through, from time to time, to alterations in the DXCC countries listing. Often we gain a new DXCC country, then again, we often lose the odd one or two.

As I write this, trouble is brewing in Czechoslovakia. Perhaps if the country divides we could see another DXCC country emerge, and when things settle down in war torn Yugoslavia, some more new "countries" will be no doubt be added to the DXCC list. Also a potential new country exists right near our own proverbial doorstep with the ongoing pressure of the troubles on Bougainville Island and their wish to become independent from Papua New Guinea.

The observant DXer will no doubt notice that I have made some required adjustments to the 1992 list in order to keep you all as up to date as possible. Some deletions still stand, prefixes yet to be reallocated and of course some additional countries have been added.

With sunspot Cycle 22 slipping rather quickly into the sunset, the list will still be a handy adjunct to those DXers who, despite declining conditions, will still persevere in the search for that much needed new one on the band. With the bank quickly deteriorating, it will be a hard earned new one at that.

Good luck and good DX.....Jack Haden, Nauru, Central Pacific.

Prefix	Country	Continent	Worked	Confirmed
1	Italy	EU		
2	U.S.A.	NA		
3	Brazil	SA		
4	Argentina	SA		
5	Venezuela	SA		
6	Colombia	SA		
7	Neth Antilles	SA		
8	Peru	SA		
9	Canada	NA		
10	Mexico	NA		
11	Puerto Rico WI	NA		
12	Uruguay	SA		
13	Fed Rep of Germany	EU		
14	France	EU		
15	Switzerland	EU		
16	Belgium	EU		
17	Hawaiian Islands	OC		
18	Greece	EU		
19	Holland	EU		
20	Norway	EU		
21	Sweden	EU		
22	French Guyana	SA		
23	Jamaica WI	NA		
24	Panama	NA		
25	Japan	AS		
26	England U.K.	EU		
27	Iceland	EU		
28	Honduras	NA		
29	Ireland (Eire)	EU		
30	Spain	EU		
31	Portugal	EU		
32	Chile	SA		
33	Alaska	NA		
34	Canary Islands	AF		
35	Austria	EU		
36	Rep of San Marino	EU		
37	Dominican Rep WI	NA		
38	Greenland	NA		
39	Angola	AF		
40	Leichenstein	EU		
41	New Zealand	OC		
42	Liberia	AF		
43	Australia	OC		
44	Rep of South Africa	AF		
45	Yugoslavia	EU		
46	deleted.....see 13 prefix			
47	Denmark	EU		
48	Saudi Arabia	AS		
49	Balearic Islands	EU		
50	European USSR	EU		
51	Andorra	EU		
52	Faroe Islands	EU		
53	El Salvador	NA		
54	Luxembourg	EU		
55	Gibraltar	EU		
56	Finland	EU		
57	India	AS		
58	East Malaysia	OC		
59	Rodi Dodecanese	EU		
60	Hong Kong	AS		
61	Ecuador	SA		
62	Guam Island	OC		
63	St Helena Island	AF		
64	Senegal	AF		
65	Sierra Leone	AF		
66	Mauritania	AF		
67	Paraguay	SA		
68	Northern Ireland	EU		
69	Costa Rica	SA		
70	American Samoa	OC		

Prefix	Country	Continent	Worked	Confirmed
71	Midway Island	OC		
72	Guatemala	NA		
73	Suriname	SA		
74	Rep of Namibia SWA	AF		
75	Azores Islands	EU		
76	Morocco	AF		
77	Ghana	AF		
78	Zambia	AF		
79	Philippines	OC		
80	Bolivia	SA		
81	San Andreas & Provadencia	NA		
82	Guantanamo Bay	NA		
83	Tanzania	AF		
84	Ivory Coast	AF		
85	Zimbabwe	AF		
86	Nepal	AS		
87	deleted.....see 323 prefix			
88	Cuba	NA		
89	Nigeria	AF		
90	Crete Island	EU		
91	Indonesia	OC		
92	Libya	AF		
93	Malta	EU		
94	United Arab Emirates	AS		
95	Mongolia	AS		
96	Kingdom of Tonga	OC		
97	Israel	AS		
98	Singapore	AS		
99	Rep of Fiji	OC		
100	Rep of South Korea	AS		
101	Papua New Guinea	OC		
102	Kuwait	AS		
103	Haiti WI	NA		
104	Corsica Island	EU		
105	Botswana	AF		
106	Ceuta & Melilla	AF		
107	Monaco Principality	EU		
108	Scotland U.K.	EU		
109	Hungary	EU		
110	Cyprus	AS		
111	Jordan	AS		
112	Lebanon	AS		
113	West Malaysia	AS		
114	Pakistan	AS		
115	Qatar	AS		
116	Turkey	AS/EU		
117	Egypt	AF		
118	The Gambia	AF		
119	Madeira Islands	AF		
120	Antigua & Barbuda WI	NA		
121	Bahamas WI	NA		
122	Barbados WI	NA		
123	Bermuda Island	NA		
124	Amsterdam & St Paul Is	AF		
125	Cayman Islands WI	NA		
126	Nicaragua	NA		
127	U.S Virgin Islands	NA		
128	British Virgin Islands	NA		
129	Macquarie Island	OC		
130	Norfolk Island	OC		
131	Guyana	SA		
132	Rep Marshall Islands	OC		
133	Mariana Islands	OC		
134	Rep of Belau (ex Palau)	OC		
135	Solomon Islands	OC		
136	Martinique Is FWI	NA		
137	Isle of Man U.K	EU		
138	Vatican City	EU		
139	deleted.....see 323 prefix			
140	Chilean Antarctica	AN		
141	St Pierre/Miquelon Is	NA		
142	Lesotho	AF		
143	Saint Lucia Island	NA		
144	Easter Island	OC		
145	Galapagos Islands	SA		
146	Algeria	AF		
147	Tunisia	AF		
148	Ascension Island	AF		
149	Laccadive Islands	AS		
150	State of Bahrain	AS		
151	Islamic Rep of Iraq	AS		
152	Maldive Islands	AS/AF		
153	Kingdom of Thailand	AS		
154	Islamic Republic of Iran	AS		
155	Taiwan ROC	AS		
156	Cameroon	AF		
157	Montserrat WI	NA		
158	Trinidad & Tobago	SA		
159	Somalia	AF		
160	Sudan	AF		
161	Poland	EU		
162	Zaire	AF		
163	Wales U.K	EU		
164	Togo	AF		
165	Sardinia Island	EU		
166	St Maarten Saba Eustatius Is	NA		
167	Jersey Island U.K	EU		
168	Mauritius Island	AF		
169	Guernsey Island U.K	EU		
170	Burkina Faso	AF		
171	Svalbard Island	EU		
172	New Caledonia	OC		
173	Re Union Island	AF		
174	Uganda	AF		
175	Chad	AF		
176	Central African Rep	AF		
177	Sri Lanka Island	AS		
178	Bulgaria	EU		
179	Czechoslavakia	EU		
180	Sultanate of Oman	AS		
181	Syria	AS		
182	Guinea Republic	AF		
183	Benin	AF		
184	Burundi	AF		
185	Comoros Islands	AF		
186	Djibouti	AF		
187	Kenya	AF		
188	Malagasy Republic	AF		
189	Mayotte Island	AF		
190	Seychelles Islands	AF		

Prefix	Country	Continent	Worked	Confirmed
191	Swaziland	AF		
192	Cocos Is (Cen America)	NA		
193	Cocos Keeling Is	OC		
194	Dominica Island WI	NA		
195	Grenada WI	NA		
196	Guadeloupe FWI	NA		
197	Rep of Vanuatu	OC		
198	Falkland Islands	SA		
199	Equatorial Guinea	AF		
200	South Shetland Islands	SA		
201	French Polynesia	OC		
202	Bhutan	AS		
203	China	AS		
204	Mozambique	AF		
205	Cape Verde Islands	AF		
206	Ethiopia	AF		
207	Saint Martin Island	NA		
208	Glorioso Island	AF		
209	Juan De Nova Island	AF		
210	Wallis & Futuna Islands	OC		
211	Jan Mayen Island	EU		
212	Aland Islands	EU		
213	Market Reef	EU		
214	Congo	AF		
215	Gabon	AF		
216	Mali	AF		
217	Christmas Island	OC		
218	Belize	NA		
219	Anguilla WI	NA		
220	St Vincent & Dep	NA		
221	South Orkney Islands	SA		
222	Sandwich Islands	SA		
223	Western Samoa	OC		
224	Western Kiribati	OC		
225	Sultanate of Brunei	OC		
226	Malawi	AF		
227	Rwanda	AF		
228	Chagos Arhipelago	AF		
229	Heard Island	AF		
230	Fed States of Micronesia	OC		
231	St Peter & St Paul Rocks	SA		
232	Aruba DWI	SA		
233	Romania	EU		
234	Afghanistan	AS		
235	I.T.U Geneva	EU		
236	Bangladesh	AS		
237	Myanmar (Burma)	AS		
238	Cambodia (Kampuchea)	AS		
239	Laos	AS		
240	Macau	AS		
241	Spratly Island	AS		
242	Vietnam	AS		
243	Agalega & St Brandon Is	AF		
244	Pagalu Island	AF		
245	Niger	AF		
246	Sao Tome & Principe Is	AF		
247	Navassa Island	NA		
248	Turks & Caclos Islands	NA		
249	North Cook Islands	OC		
250	South Cook Islands	OC		
251	Albania	EU		
252	Revilla Gigedo Island	NA		
253	Andaman & Nicobar Islands	AS		
254	Mount Athos (Greece)	EU		
255	Kerguelen Island	AF		
256	Prince Edward/Marion Is	AF		
257	Rodriguez Island	AF		
258	Tristan de Cunha Island	AF		
259	Tromelin Island	AF		
260	Baker & Howland Island	OC		
261	Chatham Islands	OC		
262	Johnston Atoll	OC		
263	Kermadec Island	OC		
264	Kingman Reef	OC		
265	Central Kiribati	OC		
266	Eastern Kiribati	OC		
267	Kure Island	OC		
268	Lord Howe Island	OC		
269	Mellish Reef	OC		
270	Minami Torishima Island	OC		
271	Rep of Nauru	OC		
272	Niue Island	OC		
273	Palmyra & Jarvis Island	OC		
274	Pitcairn Island	OC		
275	Tokelau Islands	OC		
276	Tuvalu Islands	OC		
277	Sable Island	NA		
278	Wake Island	OC		
279	Willis Island	OC		
280	Aves Island	NA		
281	Ogasawara Islands	AS		
282	Auckland & Campbell Is	OC		
283	St Kitts/Nevis Is	NA		
284	Saint Paul Island	NA		
285	Fernando de Noronha Is	SA		
286	Juan Fernandez Island	SA		
287	Malpelo Island	SA		
288	San Felix & Ambrosio Is	SA		
289	South Georgia Island	SA		
290	Trinidad & Martin Vaaz Is	SA		
291	Sovereign Base Cyprus	AS		
292	Abu Ail & Jabal At Tair	AS		
293	Guinea Bissau	AF		
294	Peter Ist Island	AN		
295	Sudan	AF		
296	Clipperton Island	NA		
297	Bouvet Island	AF		
298	Crozet Islands	AF		
299	Desecheo Island	NA		
300	West Sahara & Rio de Oro	AF		
301	Armenia	AS		
302	Asiatic Russia	AS		
303	Azerbaijan	AS		
304	Estonia	EU		
305	Franz Josef Land	EU		
306	Georgia	AS		
307	Kaliningrad	EU		
308	Kazakhstan	AS		
309	Kirghizia	AS		
310	Latvia	EU		
311	Lithuania	EU		
312	Moldavia	EU		

Prefix	Country	Continent	Worked	Confirmed	Prefix	Country	Continent	Worked	Confirmed
313	Tadzhikistan	AS			320	Banaba (Ocean) Island	OC		
314	Turkmenistan	AS			321	Conway Reef (Fiji)	OC		
315	Ukraine	EU			322	Walvis Bay	AF		
316	Uzbekistan	AS			323	Yemen Republic	AS		
317	Byelorussia	EU			324	Penguin Islands	AF		
318	Sov Mil Order of Malta	EU			325	Rotuma Island	OC		
319	U.N HQ New York	NA			326	Malyi Vysotski Island	EU		

ZONES

AF = Africa NA = North America AN = Antarctica OC = Oceania AS = Asia SA = South America EU = Europe

ADDITIONAL NOTES

**** The 46 prefix still remains unallocated.***

**** The prefixes 87 and 139 have been amalgamated to form 323 prefix.***

**** The 230 prefix encompasses the island nations of Yap, Chuuk (Truk), Pohnpei (Ponape) and Kosrae to form the Federated States of Micronesia.***

**** The 249 prefix is now reallocated to the Northern Cook Islands.***

**** The old 249 prefix is transferred to the 124 prefix and is now known as Amsterdam and Saint Paul Islands.***

**** The prefix 258 Tristan de Cunha Island also includes Gough Island and thus counts as same DXCC wise.***

**** Rotuma Island (325 prefix) is an external territory of Fiji.***

**** North Korea, although now recognised as a separate DXCC country has still not been allocated a prefix.***

**** Submissions have been made to DXAC to make Ceuta and Melilla (106 prefix) separate DXCC countries, although a firm decision has yet to be made in this regard.***

**** Future DXAC proposals call for the deletion of Midway Island (71) and Kure Island (267) from DXCC and inturn include them under the jurisdiction of Hawaii (17). A firm decision has not yet been made yet so work them while you can.***

Antenna Review

THE PB-11E UHF BEAM KIT

The UHF CB band provides a unique opportunity for the CB user accustomed to 27 MHz to experiment on a band and mode with a completely different feel to 11 metres - varying range, superior voice quality and manageably sized antennas.

Since a full wavelength at 477 MHz is around 62 cm, antennas can be constructed which are far smaller than their 27 MHz counterparts, yet offer greater performance.

I have used all manner of vertical antennas for UHF CB - from quarter-waves on cars to 12 dB base aerials, plus plenty of home- made attempts. So, inevitably it was high time for me to upgrade to directional arrays.

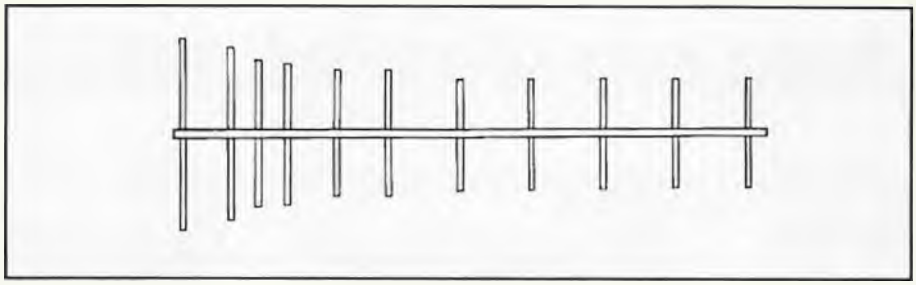
The decision to purchase a Powerband PB 11E kit came after many weeks investigating what was available in the pre-assembled market and comparing the claimed gain to size and price - especially price.

The PB-11E offered high gain at a most affordable price, as well as the opportunity to assemble the antenna myself. The hard work of gathering and cutting boom and element lengths and working out spacings was left to someone else!

Almost immediately, Powerband's efficiency became apparent - I ordered and received the PB-11E in the same week. Upon opening the package, two things pleased me.

Firstly, there was plenty of documentation and easy-to-follow instructions supplied. Secondly, everything from elements to nuts, bolts and screws were neatly packaged...and it continued.

With the Mk-I kit you had to select the correct length element and insert it through the appropriate hole in the boom, not overly difficult even then. In the latest model assembly is even easier. The elements are now already attached to the boom in their correct positions and then folded in along its axis for easy shipment. All you need to do is twist the elements at right angles to the boom and push down to locate the little plastic saddles in position and then tighten the mounting screws to secure them in place.



You simply can't get it wrong even if you try.

Next is the construction of the balun, or co-axial matching transformer and its attachment, to the array.

Again, this is simple to accomplish.

The easy-to-follow diagrams, aided by step-by-step instruction, ensures no problems occur during this stage and continues on to the connection of your co-axial feedline...and construction is complete.

The instructions assure an SWR of better than 1.5:1 if the kit is assembled correctly.

However, being ever doubtful of manufacturer's claims, I took the liberty of throwing a UHF SWR meter in line, the result of which confirmed Powerband's assurance.

Good one...someone got it right!

Greg Towells checks out Powerband's top-selling UHF beam antenna kit.

The supplied leaflet then continues with 'a few pointers on installation' which includes procedures for waterproofing connections.

These 'few pointers' go into quite a few paragraphs of well-written advice and I compliment whoever puts it together. Anyone (everyone for that matter) should get things right first time off.

Now the most important bit...on-air performance.

Having used directional arrays before on 27 MHz, I had a good idea of the operational characteristics of beams. However, the difference between this antenna and an omni-directional vertical was astounding!

Stations 'down in the mud' on the vertical were almost pinning the meter in many cases.

The ability to put out a much improved signal in a particular direction, especially towards repeaters, is an excellent feature. Also, the ability to get a reasonably sharp directional fix on a station comes in handy at times.

Specifications quote a gain figure of 17 dBi (over a theoretical or isotropic radiator) which is a pretty hefty power increase in anyone's language.

However, it is on-air performance that really counts and the performance is outstanding.

Also included in the extremely comprehensive instructions is information about stacking PB-11E beams for still more gain...maybe my next project!

In summary, the PB-11E is solidly constructed and easily assembled with well laid-out instructions. An excellent antenna, both mechanically and on air.

What more can you ask for..except maybe a phased set of 'em ?

The PB-11E is available from Powerband Communications for $75, plus postage.

So there you have it - all you mud stations have no excuse why you can't upgrade your signal into a worthwhile output.

SO YOU WANT TO BE AN AMATEUR ?

The path to amateur radio

Part Two of a regular series by Paul Butler VK3DBP
(Paul Butler teaches physics at Mentone Girls' Grammar School in Victoria)

Welcome to Part 2 of the CBA Novice theory course.
How did you go with the questions last time?
By now, you should be raring to get on with the next section of theory, having convinced yourself (and several of your friends, perhaps?) that it's definitely worth having a go at the Novice amateur radio exam.
The level of the previous article in this series was just right for the Novice exam, so I am sure you will agree that things are not TOO difficult at this level.

RADIO WAVES

Here we go, then, with a look at radio waves. It is important to have a clear idea about what radio waves are and how they behave. Radio waves are fundamental to amateur (and CB) radio and a little knowledge goes a long way in increasing your enjoyment of the hobby. The powers-that-be require you to know some essential facts, too, so that you can keep your radio emissions within the legal constraints. You must avoid generating interference and be able to recognise and correct problems which may cause illegal transmissions.By the way, why don't you have a look at the regulations in this area, in preparation for the unavoidable regulations exam? CBA's companion publication, Amateur Radio Action, recently reported that nearly half of the candidates for the regulations exam from October 1991 to May 1992 FAILED the exam! Getting to grips with the regs is straight hack work - get a copy of the regs and LEARN THEM!

Anyway, back to the theory . . . Radio waves form part of the electromagnetic spectrum, which includes all types of electromagnetic radiation.

Other parts of the spectrum are occupied by visible light, infra-red radiation (heat), ultra-violet radiation, X-rays and gamma rays.All forms of electromagnetic radiation exhibit wave properties, behaving rather like waves in water.

Unlike water waves, however, they do NOT need a medium (solid, liquid or gas) through which to travel or propagate. Electromagnetic radiation can propagate in a vacuum - after all, that's how we get heat and light from the sun. Radio waves have the following properties:They have a frequency (f), equal to the number of complete waves (cycles) passing a fixed point each second and measured in cycles per second or Hertz (Hz).They have a period (t), which is equal to the time taken to complete each complete cycle and is measured in seconds (s).They have a wavelength, which is the length in space of each complete wave or cycle and is usually measured in metres (m).

They have a velocity, which is the rate at which they propagate and is measured in metres per second.

To convert between wavelength and frequency, you have to resort to a little maths.

A simple relationship called the Wave Equation holds true for all radio waves:

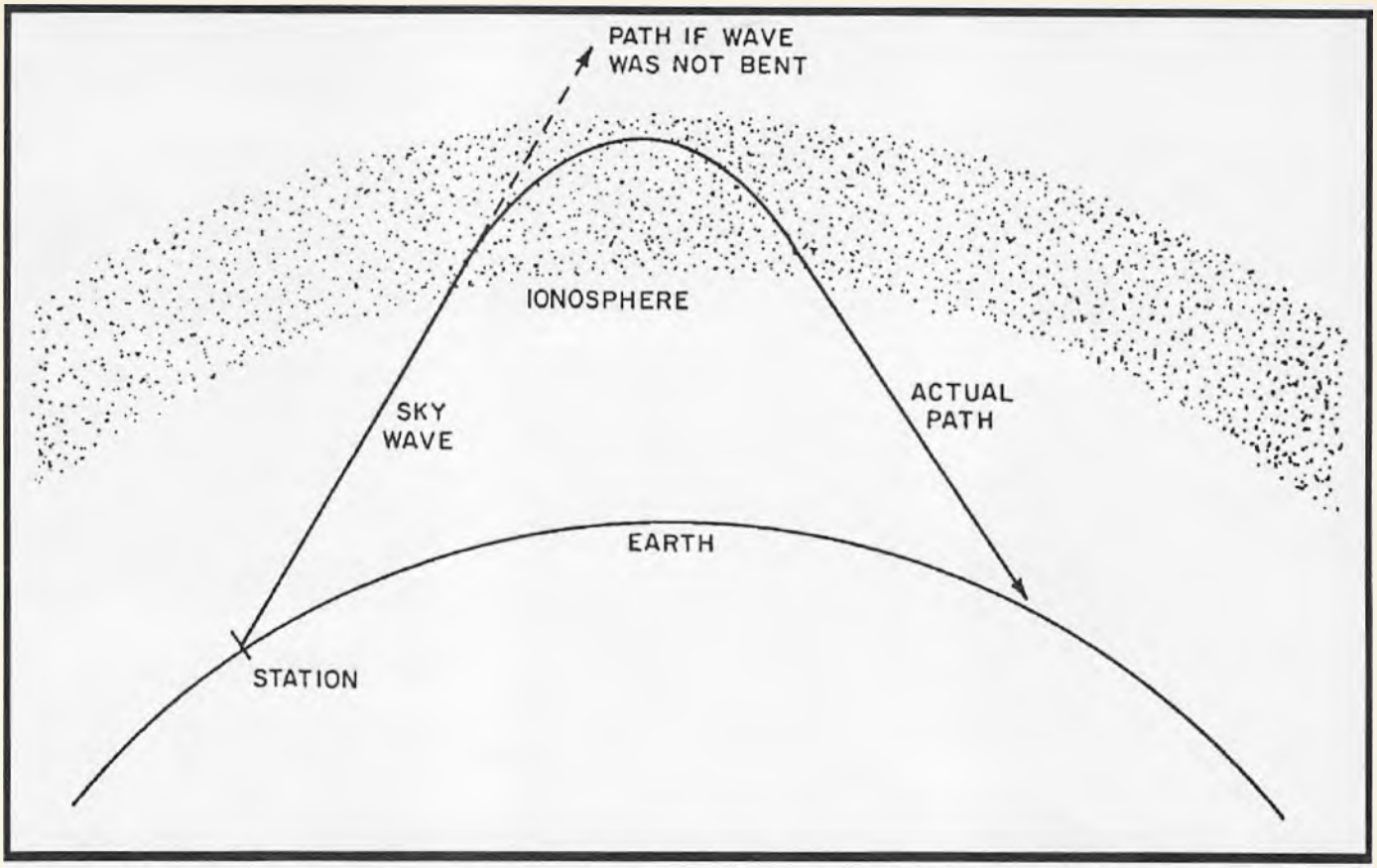
velocity = wavelength x frequency

A simpler approach is to note that for electromagnetic radiation propagating in space (and, to a good approximation, in air):

wavelength (in metres) =
300 / frequency (in MHz)
(Note: 1 MHz = 1 megahertz =
1 million cycles per second)

All forms of electromagnetic radiation travel at the same velocity in a vacuum, equal to 300,000,000 metres per second. They propagate more slowly through other substances. For example, in pure water, the speed is reduced to about one-ninth of that in free space.Polarisation and attenuation

Radio waves carry energy associated with interacting electric and magnetic fields. The electric field is always at right angles to the magnetic field, and both are at right angles to the direction of propagation. The particular orientation of the electric field for a given wave is random, unless the wave is polarised. Whether a radio wave is polarised or not is determined by the type of antenna used to produce it. For example, in the vertically polarised radio wave produced by a vertical antenna, the electric field is vertical and the magnetic field is horizontal. Similarly, a horizontal antenna produces a horizontally polarised radio wave, which has its electric field horizontal.Polarisation is an important characteristic of the wave, since a mismatch in polarisation between a wave and a receiving antenna will weaken the received signal. The polarisation of a wave is often altered as it travels from transmitter to receiver, because of the properties of the layers of atmosphere with which it interacts.The strength or intensity of a radio wave will



also be affected during propagation. Under optimum conditions, the field strength of a radio signal decreases directly with distance from the source, so that, for example, doubling the distance halves the field strength. In practice, the actual reduction in intensity, or attenuation, will be much greater than this, because of energy losses along the way.The ground wave

The term ground wave is used for waves that stay close to the earth as they travel from transmitter to receiver. A ground wave can propagate in contact with the ground or directly between two antennas arranged in line-of-sight, or it may be refracted or reflected by the atmosphere near the surface of the earth (the troposphere). A ground wave in contact with the surface of the earth is called a surface wave. These waves provide broadcast reception during daytime over distances up to about 160 km. The attenuation of ground waves is high, however, and increases with frequency, so their value to amateurs is restricted mainly to the 1.8 MHz and 3.5 MHz bands.Reliable long-distance radio communication on the higher HF bands does not rely on ground wave propagation but uses sky wave or ionospheric propagation instead. To understand how the charged upper layer of the earth's atmosphere called the ionosphere affects radio wave propagation, we need to take a quick look at how light waves behave.Reflection and refraction

All types of electromagnetic radiation, including radio waves, undergo reflection and refraction if the conditions are right. This behavior is best understood by first considering light waves, which we encounter every day and can literally see as they reflect and refract.Light waves are reflected at any boundary between two materials - the energy simply bounces off the boundary.Sometimes the reflection is almost total, as in the case of light hitting a metallic surface. At other times, some of the light is reflected while the rest passes from one transparent substance to the other. Similarly, radio waves are reflected by the ground, buildings, trees, cars, ionised layers in the upper atmosphere and even boundaries between air masses at different temperatures. Refraction takes place when a light wave passes from one medium (the substance through which it is travelling) into another, at an angle other than 90 degrees to the boundary.

The result of refraction is a change in direction of the light wave. Refraction occurs because of the change in speed of the wave as it crosses the boundary. The amount of refraction which occurs depends on how different the two media (plural of medium) are from one another, and on the frequency - higher frequencies bend more. The sky wave

The ability of high-frequency (HF) radio waves to travel long distances is a result of refraction in the ionosphere, a region of the earth's atmosphere about 50 to 400 kilometres high in which charged atoms (ions) and electrons coexist. The density of charged particles in the ionosphere is high enough to affect radio waves, particularly at frequencies below 30 MHz, and cause them to be refracted, often bending them enough for them to return to earth. Depending on the frequency in use and the time of day, ionospheric propagation can provide communication from short range, as little as 100 km, to long range, more than 10,000 km, or to the other side of the globe.Layers in the ionosphere

The ionosphere consists of several distinct layers which behave quite differently from one another and make prediction of propagation conditions somewhat complex. Knowing a little about each of the layers of the ionosphere will help you to interpret prediction charts in amateur radio publications such as Am-

NOVICE NOTES.....(continued over

ateur Radio Action.The D layer is closest to the earth's surface (70-90 km high) and its degree of ionisation depends directly on the intensity of the sun's rays. Its effects are most noticeable, therefore, during the day. The lowest frequencies used by amateurs (1.8 and 3.5 MHz) are almost totally absorbed by the D layer, making such low frequencies of little use during daylight hours. The E layer (100-120 km high) is the lowest layer of the ionosphere which can bend radio waves enough to return them to earth.

Its ability to do so depends on the presence of sunlight, since the ions and electrons are close enough to one another to be able to recombine easily. This means that ionisation is at a maximum at midday and disappears soon after sunset. Unlike the D and E layers, the F layer (140-400 km high) is present all the time. although its properties vary quite radically over the 24-hour period of each day. That part of the F layer called the F2 layer is the most important part of the ionosphere for amateur HF communications. It can provide communication by single hops up to about 4000 km each and even greater distances can be achieved by multi-hop propagation. The band of frequencies usable for communication between two points varies constantly throughout the day and is often described in terms of the maximum usable frequency (MUF) and lowest usable frequency (LUF).

Both are linked closely to the position and state of the sun, since these factors determine the state of each layer of the ionosphere. The values of MUF and LUF depend on the particular propagation path considered, so communication conditions to Europe at any given time may be very different from those to North America.Observations over many decades have shown a strong correlation between the number of disturbances on the surface of the sun, called sunspots, and radio propagation. Quite regular variations in sunspot numbers follow a cycle lasting about 11 years, and HF propagation is best when the sunspot activity is greatest.

It is difficult to predict the extent of a sunspot maximum and so reliable HF communication requires a mixture of mathematics and guesswork!Now let's look at the actual path of a radio wave on its way from transmitter to receiver.The angle above the horizon of the transmitted wave is called the radiation angle. The smaller this angle is, the less refraction is needed to bring the ray back to earth. This is why HF antennas are designed with low radiation angle in mind.At high radiation angles, radio waves pass straight through the ionosphere and are lost into space. The angle at which just enough refraction takes place to bring the wave back to earth is called the critical angle.In the area between the limit of the ground wave and the point at which the sky wave first returns to the surface, no signal will be heard. This is called the skip zone. The distance from the transmitter to this point is the skip distance.Long path, short path?

A great circle is any circle drawn on a sphere which has its centre at the centre of the sphere. The equator, for example, along with all lines of longitude and many other possible imaginary lines on the surface of the earth, are all great circles. Radio waves propagate along a direct line between two points, that is, along a great-circle path.Propagation can take place in either direction around the earth. The shortest part of the great circle which passes through both transmitter and receiver is called the short path, while the other, longer part is the long path. Long path and short path directions are always 180 degrees apart and conditions often favor one over the other. To take advantage of particular paths, a directional antenna is needed.A radio wave may reach the receiving antenna by two different paths. If one path takes longer than the other, the signals may arrive out of step (phase) with one another and cancel partially or totally. Because the degree of cancellation varies over time, the received signal will fade in and out.A summary of the HF bands Because of the behavior of radio waves and their interaction with the earth and its atmosphere, each segment of the radio spectrum will have different properties. Here is a summary for each of the amateur HF bands - this is the incentive to pass not only the Novice exam but the full-call exam, too.

The 1.8 MHz (160m) band or "top band"

Because of D layer absorption, propagation during the day is limited to about 120 km. At night, when the D layer weakens, signals will travel thousands of kilometres.

The 3.5 MHz (80m) band

Because the degree of absorption decreases as the frequency goes up, signals in this band travel further during the day than those on 160m. Daytime absorption restricts the range during the day to about 400 km. At night, communication is possible around the world. Susceptibility to atmospheric noise makes winter a better season than summer on this band.

The 7 MHz (40m) band

Typical range during the day is about 800 km but at night worldwide communication is possible. The night-time skip distance is about 500 km. Atmospheric disturbances are less than on 80m, giving this band year-round usability.

The 10 MHz (30m) band

Lying between the low frequency and high frequency bands, this band has characteristics of both and provides 24-hour use. Communication over 1600 km is not unusual during the day and signals at night provide world coverage. This band is least susceptible to changes in conditions due to the solar cycle.

The 14 MHz (20m) band

This is possibly the most popular amateur band for long-distance communication. It shows sizeable skip distances (day - 800 km; night - 1600 km) but offers worldwide daytime communication and low levels of atmospheric noise. Long distance propagation can extend throughout the night during a solar maximum.

The 18 MHz (17m) band

The higher frequency bands are more susceptible to variations due to the 11-year solar cycle. During solar maxima, the 17m band supports reliable long-range communication during the day, continuing well after sunset. As the solar activity decreases, the band opens only during daylight hours. At solar minima, the band is of limited use.

The 21 MHz (15m) band

This band behaves rather like the 17m band, providing good communication almost 24 hours a day at times of peak solar activity but hardly opening at all during solar minima.

The 24 MHz (12m) band

The solar cycle continues to become more important on the highest HF bands. The 12m band offers daytime communication even during low and medium sunspot activity but solar maxima result in long-distance contacts well into the night.

The 28 MHz (10m) band

When the 10m band is good, it is

very. But when it is bad, it is AWFUL! During solar maxima, long distance contacts are possible at quite low power levels, even extending beyond sunset. During a solar minimum, 10m appears DEAD, apart from a few openings due to more exotic propagation effects such as sporadic E, meteor scatter and so on. The hardy 10m enthusiasts, though, can still make use of the band during this time but they have to work much harder than at other times.

This edition's questions:

1. The distance from a transmitter to the point where the signal first returns after refraction from the ionosphere is called:
(a) multi-hop
(b) skip zone
(c) skip distance
(d) ionosphere prediction distance

2. Communications over 500 km on the 80-metre band at night depend mainly on:
(a) surface wave propagation
(b) ground wave propagation
(c) sky wave propagation
(d) direct wave propagaton

3. Ionisation in the ionosphere is caused primarily by the:
(a) magnetic effect and axial rotation of the earth
(b) magnetic effect of the sun
(c) ultraviolet and other radiation from the sun
(d) rotation of the moon

4. The polarisation of an electomagnetic wave radiated by an antenna is:
(a) dependent upon the transmitter's power output
(b) independent of the type of antenna used
(c) specified by the direction of the electric field
(d) specified by the direction of the magnetic field

5. The standard color code used to identify the earth conductor of a flexible 3-core AC power cord is:
(a) green/yellow
(b) red/yellow
(c) brown
(d) blue

6. The main reason for earthing mains powered equipment is to:
(a) reduce RF interference
(b) reduce eddy currents
(c) reduce shock hazards
(d) reduce stray coupling

7. A decrease in the height of the ionosphere will cause the skip distance to:
(a) decrease
(b) become more dependent on the transmitter's output power
(c) remain the same
(d) increase

8. The bending or refraction of high frequency radio waves in the ionosphere:
(a) becomes greater as the frequency is increased
(b) remains the same regardless of the frequency
(c) becomes less as the frequency is increased
(d) depends on the radiated power

9. Radio waves travel in free space at a speed of:
(a) 300 x 10^3 metres per second
(b) 3 x 10^9 metres per second
(c) 300 x 10^6 metres per second
(d) 3000 x 10^6 metres per second

10. The main advantage of ground wave propagation is that it:
(a) reduces power requirements
(b) requires a small antenna array
(c) is not affected by ionospheric disturbances
(d) has highly directional properties

ANSWERS
1 (c), 2 (c), 3 (c), 4 (c), 5 (a), 6 (c), 7 (a), 8 (c), 9 (c), 10 (c).

NOVICE NOTES *(this series will be continued in the next issue)*

Book Review

A Frequency List Worth Getting

Rob Williams

A compendium of frequencies is a must for utility DXers. Without a concise and up-to-date reference you'll be lost on the bands. And the new Confidential Frequency List from Gilfer Associates is a "must-buy" for ute fans.

This 8th edition has been expanded to over 500 pages, something which surprised me when you consider the number of stations that have left the HF bands for satellite comms. This shows how the HF spectrum is still in big demand. Frequency coverage is from 1613 kHz up to 27998 kHz, just about everything outside the broadcast and amateur bands. Ute DXers around the world know the reputation of the CFL and its high standard of accuracy. Utility stations don't change channels or times as often as shortwave broadcasters, but change they do - many are moving to satellites as the technology becomes available and affordable, so keeping up with these changes can be a big project. ITU publications are not the answer because many Governments tend to retain their HF channels even thought the service has moved to satellite - and the ITU books are just too expensive for the average DXer.

The previous CFL was bound at the spine, but because of the expanded size of this latest edition a spiral ring-binder has been used, allowing you to lay the book down flat. The only problem I can see with this is that pages may start to fall out after constant use. Each page is crammed with data in frequency order. Mode, station name and callsign allows you to scan many the book quickly to find what you are after. Author Geoff Halligey is a veteran utility DXer who has spent most of his professional life in radio communications. For beginners Geoff has broken down the HF bands into their allocated services with a comprehensive listing of ITU callsigns. The guide is very easy to use, allowing DXers who tune across the bands to quickly and easily search the book to identify what they are listening too. When I started writing for CBA I introduced myself to Geoff and over the last few years have been helping him fill in parts of the puzzles from Australia.

This edition updates the latest changes both with WARC and the International Maritime Organisation (IMO). The list of airport abbreviations, a set of international aviation maps and hundreds of HF civil and military comms channels makes this into an almanac of information for air-band buffs.

Details on Interpol and other European Police networks have been included as well as known "numbers channels". The back of the book has a reverse frequency list. Callsigns followed by their location, type of service, mode and operating frequencies. Exotic modes of transmissions like fax and digital selective calling (DSC) are included, with broadcast hours (where known) and RTTY shifts. A common flaw of publications full of so much information is that by necessity they tend to use a large number of abbreviations, however within minutes I was used to 90 percent of abbreviations in the CFL.

The Confidential Frequency List is one of those rare books with which you just can't survive!

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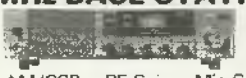

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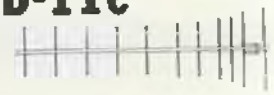

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dxlogbook

with Rob Williams

WHAT'S HAPPENING IN THE WORLD OF SHORT WAVE RADIO...

Welcome back to CBA's DX Logbook. For the newcomers this column is devoted to all those shortwave broadcast stations out there. Some are easy to hear, other are not. But with some patience and time, together with the right ammunition you will be able to log many of these international radio stations. To keep information simple and to conform with normal reporting practices all schedules and broadcast times in DX Logbook are given in UTC (same as GMT) and all frequencies are in kilohertz, unless mentioned otherwise. Most shortwave broadcasts are in AM mode.

☐ Pirate Radio Is Alive And Well

If you follow the DX scene closely over the last few months you will have noticed that there has been plenty of coverage devoted to Australia's only pirate station, "Radio G'day".

Significant coverage in The Australian newspaper, as well as several AM radio stations, has brought a glimpse of part of our hobby to people at large. Elsewhere in the magazine you'll find a complete run-down of Radio G'day. If you hear it on air, why not write to us with details? G'day is issuing QSL cards which are certain to become "collectors items", so get it while you can.

☐ Receiver Update From Sony

According to a report from Ian Baxter, Sony intends to release the new SW-77 in Australia in the near future. The catch is it's going to cost you around $1000. Keep your eye on these pages for a future review of this impressive new radio.

Also from Sony is the new ICF-SW15, a budget shortwave radio aimed at the traveller who wants to keep up-to-date with world news.

Expected to retail for around $100 US dollars, the SW-15 covers the 6, 7, 9, 11, 15, 17 and 21MHz bands, although it misses both the new 13 MHz band and provision of SSB. I wonder if we'll see this one in Australia?

☐ Japan Sked Update

Effective to 5/9/92 NHK has the following frequencies in use for their English "General Service" broadcasts to Oceania: 0500-0600 and 0700-0800 on 17860; 1900-1930 on 11850 and 9640; 2100-2200 on 17890.

Meanwhile for those who are chasing NHK's new English language service to Europe from the BBC's 250kW transmitters in Skelton, UK, try the following:

on 9770 and 9695 between 0500-0600; 0700-0800 on 9770 and 9670; 2300-0000 on 6025 and 6160. Their "Regional Service" to Oceania is heard at 0900-1000 on 15270 and 17860; 0800-0830 on 9670 and 9770; and 1930-2000 on 6025, all in English. Radio Japan's DX program "Media Roundout" is aired to Oceania on Sundays at 0930-0955 in their General Service.

☐ Bad News and Good News From AWR

Followers of AWR's Asian station KSDA regularly received news updates via a small newsletter called AWR-Asiawaves.

Unfortunately, like so many international broadcasters suffering from hard financial times, those who are on the current mailing list will no longer received a copy unless they write to AWR each quarter and request the newsletter, except for listeners in KSDA's nominated target zones, which doesn't include Australia.

While I acknowledge that stations, both religious and government funded, need to save money, cutting loyal listeners from your mailing list is like having a TV set without a TV guide to let you know what's on each night.

Many stations have taken this approach which in my opinion is detrimental to the hobby. Stations make regular changes to both program times as well as frequencies, so it's hard enough for DXers to keep up with things as it is. How are they going to know if and when their favorite broadcasts are on without regular updates?

It was AWR-Asiawave which informed us about AWR's moves into Russia only a few months ago, now we will have to find out through other sources about pending changes.

I'll get off my soap-box now, but I'd like to hear from you on this subject.

While we're talking about AWR, the network broadcasts English from Radio Moscow at 0430 and 1600 to North Europe on 15125.

Three transmitters are used, a 250 kW at Samara, at Ekaterinburg a 200 kw sender, and 250 kw transmitter in Moscow broadcasts to Rumania, Yugoslavia and Italy.

This new broadcasting venture for AWR not only brings in hard currency for Radio Moscow but also allows AWR to pick up many new listeners.

It was also reported that AWR's Italian shortwave station is still on course with the station to be built in northern Italy.

☐ CSM Remains On Air

Christian Science Monitor (CSM) has been in the spotlight over the last few months with debate over the future of their broadcasting services. Their TV service seemed to suffer the most, but if financial problems weren't brought under control it was expected that their shortwave broadcast arm would be cut-back.

At their annual meeting in June in the USA it was announced that there would be changes in the operations of the shortwave service to enhance the service areas they are aiming too, and a surprise to all was the approval for extra staff, although I think this must have been at the expense of their TV service.

Another important factor is the need to reach new CIS countries. CSM provided special coverage of the meeting on shortwave radio, enabling DXers around the world to hear what went on.

☐ Schedule Updaters

The latest English sked for Polish Radio is as follows. 1200-1255 on 11815, 9525, 7145 and 6135; 1500-1555 on 11840, 9525, 7285; 1700-1755 on 9525, 7270; 1930-2025 on 9525, 7270, 7145, 6135 and 6095.

KNLS from Alaska has released their new sked for 27/9/92 to 27/3/93. English transmissions are at 0800-0900 on 7365 and 1300-1400 on 7355.

Far East Broadcasting (FEBA) has began a dual-broadcast service with two English language programs. Both services are aimed to south-east Asia. The first service airs at 1500-1540 on 11690, the second Mondays to Saturdays from 1500-1800 on 9810 and 15330.

☐ Back In the USSR

Keeping track of the new shortwave services originating from the old USSR is nearly impossible! I'm sure that WRTH editor Andy Sennitt has just about pulled out all his hair as he tries to keep up with the latest for the WRTH's next edition, and things are no better at my desk.

The situation has given DXers many chances to QSL new stations.

DX hunter Alex Wellner has sent me his latest list of catches from that part of the world, including the following tally: Radio Ala from St Petersburg on 5040, a regular catch hear in Sydney; Radio Echo from Moscow on 9535 at 0500; Radio Polyus, another from St Petersburg on 6045; Radio Yunost on 9810 at 1000; Radio New-Wave on 11630 at 0630; Radio Galaxy on 11630 at 0630; Radio Space on 12075 at 1400; and Radio Trek on 6910 between 1600 and 1800.

dxlogbook

Most of these broadcast from Moscow.

That's a fine catch Alex, lets hope you can get a QSL card out of them. I wonder where these stations are getting their funds, and what will happen to them once the dust settles?

And while on the subject of CIS, news from Shigenori Aoki in Nagoya via Internet is that a new religious broadcaster from Japan has hired air time over transmitters belonging to Radio Moscow, to broadcast English programming as "Radio Aum Shinrikyo".

First sked is as follows: 0430-0500 on 21830, 21790, 21760, 21690, 21630, 21615, 21585, 21545, 17890, 17880, 17870, 17860, 17850, 17740, 17735, 17730, 17720, 17685, 17655, 17635, 17590, 17570, 17560, 15590, 15550, 15535, 15470, 15415, 15280, 15210, 12040, 12015, 12010, 11980, 11960, 11915, 11850, 11710, 11690 and 7315; 2030-2100 on 17795, 17710, 17695, 17655, 15580, 15560, 15525, 15500, 15485, 15425, 15405, 15385, 15375, 15355, 15190, 15175, 15130, 13775, 13725, 13665, 12050, 12020, 11995, 11970, 11920, 11900, 11870, 11850, 11810, 11685, 11675, 10344 (usb), 9880, 9810, 9800, 9785, 9775, 9740, 9640, 9480, 7315, 7280, 7115 and 6065 (usb).

Programs end with "This is Radio Aum bringing the message from the holy heaven". QSL reports to 381-1 Hitoana Fujinomaya, Shizuoka, Japan 21801.

☐ Middle Eastern News

Alex Wellner has scored a QSL from Abu Dhabi together with a new sked: English on 9605, 13605, 11965 and 17855 from 2200-0000, then 11710 from 0000-0200.

Harry Bloomberg reports the current English sked for Israel to 5/9/92 as 0400-0415 on 11588; 1000-1030 on 17545; 1300-1325 on 11605 (except for Fridays, Saturdays and Jewish holy days); 1700-1715 on 15640 and 15590; 1900-1930 on 11605, 17575, 15640, 11587, 11675 and 17630; 2130-2200 on 15590, 11603, 11587, 15640, 17575 and 15100. Their Mailbox and DX programs are aired at 1900 on Sundays, just a bit too early for me!

☐ Signals from Spain

Media Network has reported that Radio Exterior de Espana are well on the way to commissioning their new relay station in Costa Rica to provide a service to the Americas.

Three 100 kW transmitters will serve Central America, South East USA, Colombia and Venezuela. Some small delays have hindered the installation but by mid-August they will commence service with six to seven hours per day of air time in Spanish.

The remainder of the air time has been given over to Costa Rican authorities. Spain has sought frequencies in the 60 metre tropical band as well as the 6, 9 and 11 MHz bands.

Signals are feed via satellite from Madrid to the site.

Spain is continuing with its plans to use shortwave transmitters in Romania, although it will be some time before they can begin broadcasts.

While many shortwave stations are suffering from a lack of funds it seems the Spanish shortwave broadcasters have somehow been able to raise the money necessary for these major expansions.

☐ VOA On The Move

News from Andy Sennitt and his WRTH team is that the US State Department has recommended that VOA cancel its plans for a $US30 million transmitting station in Israel.

It now seems that the US is to build the site in Kuwait. I'm unsure if this is a political move by the US over environmental issues, financial costing or fallout from the Gulf War but, time will tell.

☐ DX News From OZ DX

Here are some of the latest catches from OZ DX to finish off the column. I wish I could hear half of these myself.

* 4970 at 0702: Radio Rumbos from Caracas, heard later at 1005.
* 4990 at 0500: Radio Ancash from Peru - fairly good signal with local music and Spanish announcements.
* 6231.5 at 0611: Jolly Roger Radio from Ireland, a genuine pirate.
* 6911.6 at 1950: Community Radio Dublin.
* 7173 at 1518: RRI Serui - signed on straight after Jakarta relay, through to 2000.
* 7446 at 0537: Radio Stella International from Scotland, with 70s and 80s pop music to 0620.

Well, that was quite a bit of info this time around and plenty of opportunities to add a QSL or two to your collection. If you have any questions on the hobby or tips of your latest loggings then drop me a letter with a SSAE and I'll do my best to help you. The address is;

PO Box 108,
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Those with a computer and modem can send electronic mail to me on the Fidonet network at 3:713/605.

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G'day from the UK

If you think Oz CB is tough, feel some pity for the Poms.

Hello CB Action!

A friend of mine visited your country recently and brought back a copy of CBA and although I knew you had 477MHz CB, I was very surprised to learn that you have repeaters on your UHF allocation. What I'd like to know is, who sponsors them, is there a governing body and how much power can they radiate?

In the UK, apart from five channels of licence exempt low powered 'kids' CB on 49MHz - like your 55MHz, we have two different sets of 40 channel FM allocations on 27MHz which are virtually useless during the day due to very strong skip signals, [SSB is the only mode to use on 27MHz during the daytime], but, when there's no skip FM works very well with no television interference as with AM or SSB.

We also have a 20 channel 8 watt FM UHF CB system on 934MHz - simplex only.

It was going to be expanded to 40 channels, but due to the cost of equipment [375 pounds for a new Cybernet Delta 1 rig = A$700+ approx.], the band was never really accessible to the masses, and although this makes for nice clear channels for those that use it, the resulting underpopulation has meant that the specification for this band was withdrawn three and a half years ago, just seven years after it was introduced as the preferred CB frequency over and above 27MHz. Further importation of 934 equipment is now prohibited, and although this makes for a very healthy second hand market, in the long run it looks as though we'll lose the use of 934MHz.

The authorities will probably re-allocate it to the extensive cellular phone system we have above and below 934 which causes terrible interference to UK UHF CB. If it was 934 users causing interference to the phones they'd be down on us like a ton of bricks!

Horizontal polarisation on Yagi beams gets rid of the phones, but mobiles of course use vertical antennas, and using beams means a lot of twiddling with the rotator and switching from the beam to the vertical colinear antenna when several stations are on.

There's a 12 element antenna UK legal maximum.

Some 934 equipment, such as masthead pre-amps and antenna switchers which most stations have, is adapted from the Japanese UHF system, but some other equipment like antennas is the same as the Swiss system on 933/4Mhz.

Despite the almost microwave frequency of our allocation, antenna restrictions and bad band planning of cellular phones by the powers that be, I'm happy to report that 934 works very well. The band has a very enthusiastic, almost cult following, and when lifts occur everyone crawls out of the woodwork and the band becomes very busy indeed, with conversations being held on nearly every channel from one end of the country to the other.

It's a shame we in the UK couldn't have had a lower frequency for UHF CB - 934 is just so expensive for many - 1,000 pounds = $2,000 approx. being the cost of a new 934 station with the necessary ultra lo-loss everything.

Prior to legal CB here in November 1981, 200MHz which hasn't been used since world war two, was being bandied about as a possible place for VHF UK CB, but it never happened. Television in the UK is on UHF, from 400MHz to 850MHz, so if you tried to use your 477MHz UHF rigs here you'd upset the folks next door when they'd settled down to watch 'Neighbours'!

If there's any 477MHz UHF enthusiasts [or 440MHz NZ?, 903MHz?, 933/4MHz?], who'd like to write to me, I'd be only too happy to receive your letters and to compare notes on these differing systems.

Many thanks

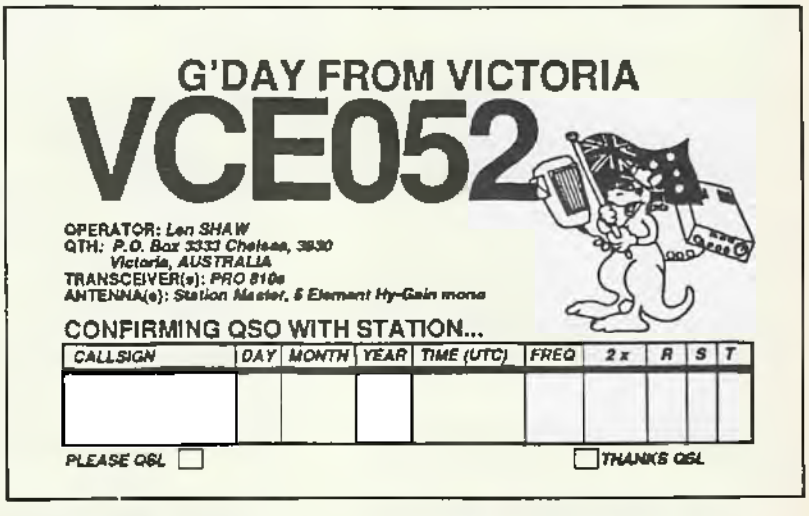
Ian Penhaligon 89 Capel Road, Enfield, Middlesex, EN1 4SS UK

QSL CARDS FROM BINT SERVICES

Bint Services have been supplying QSL cards to CBers and amateurs for many years and the one to the right is an indication of what you receive for your money...the actual quality is considerably better than this reproduction ! It contains callsign, name, QTH, rig and antenna details, logo, plus of course the essential QSO panel.

The cards are competitively priced and turnaround time is about 14 days from receipt of order to delivery of cards.

Similar cards, but without a design logo, are also available at less cost and there are also pre-printed, multi colored cards at varying prices. For some samples and prices, drop a note to BINT Services, P.O. Box 323, Cheltenham 3192 and please enclose a 90 cent stamp to cover return postage.



Ken Reynolds looks at...

ANTENNAS and SWR

Part one of this article was published in the last (July/August) issue

Last issue we discussed the evolution of a practical mobile CB antenna and how the feed impedance alters with different basic antenna configurations.

While very short loaded antennas for 27MHz CB may be desirable they seldom offer the level of efficiency and frequency band width required by the user.

This lack of efficiency manifests itself as poor transmission and reception while the lack of band width appears at the band edges as excessive SWR (standing wave ratio), commonly known as SWeR; hence the term SWeRing an antenna and various distortions like SWeRving or SWeaRing.

SWRing the antenna in fact describes the operation of tuning the antenna's characteristics to produce a state of resonance at the operating frequency while simultaneously achieving the desired feed point impedance - for CB antennas it is 50 ohms. For an antenna operating in the proper environment both resonance and the desired non-reactive 50 ohm impedance will occur at the same point in time and space.

Non-reactive impedance is a condition where the values of inductance and capacitance cancel each other out leaving only a load of pure resistance - in this case 50 ohms resistance.

So, when the 50 ohm output of your transceiver sees exactly the same impedance at the other end of your 50 ohm characteristic impedance co-axial cable it finds the right conditions for the most efficient transfer of power from the transmitter to the load (antenna) - allowing for any losses that might occur in the transmission line.

Transmission line loss in a mobile 27MHz CB installation is usually negligible.

In simple terms SWR, (Standing Wave Ratio) describes the correct MATCHING of impedances between the transmitter, the antenna load and the cable that joins them together. When all the values are the same (50 ohms) the maximum transfer of power from the generator (transmitter) to the load (antenna) is achieved.

This is also the condition required for minimum SWR and your SWR meter should indicate closest to the legendary 'one to one' Standing Wave Ratio indicating that all the power from the transmitter is being consumed by the antenna.

Any other condition will produce a less than perfect SWR. It is generally accepted that it is impossible to achieve a perfect SWR but you can get pretty damned close if your system is fine tuned properly.

WHERE DOES THE POWER GO

So what happens when the impedances are not properly matched?

Unlike your CB rig that only 'lights-up' when you turn on the power switch, Radio Frequency (RF) energy, once generated, has to go somewhere and if the system elements provide the right conditions the power travels down the cable and into your antenna which consumes all but the smallest amount of the energy and hopefully radiates it efficiently for other stations to hear.

Low SWR and high antenna efficiency do not always go hand-in-hand. In this issue we look at some of the variable factors that affect SWR and efficiency.

If your antenna impedance is not correctly 'matched' to the transmitter, the antenna will not absorb all the power presented to it. If the mis-match is only minor most of the power will still be consumed, however, a large error in matching will cause less and less power to be accepted by the load.

Since the RF power has been generated by the transmitter and has to be consumed within the circuit somewhere ... where does it go?

It takes the obvious path and travels back down the cable from whence it came attempting to empty the left over energy back into the transmitter - which it does very nicely.

If, however, the impedance mismatch is very bad it is possible for most of the generated power to be rejected by the antenna load resulting in it being REFLECTED back to the transmitter.

Everyone will agree that result must lead to reduced efficiency for your station, however, something far more insidious is really taking place.

Your CB transmitter is designed to safely produce a few watts of RF energy which emanates from the antenna connector. Consider what happens if almost all that power is returned from the antenna back to the transmitter.

You guessed it in one! The transmitter doesn't understand this situation and keeps on transmitting - it relies on you to make sure the antenna is properly matched - and is suddenly hit with a power surge coming back down the line and into the output transistor causing instant overload. Bingo ... what they call a 'blown final'.

So, it is important to provide a proper operating environment for your transmitter. Receivers are also affected by poor antenna impedance matching and its performance will also suffer but at least it shouldn't be burned-out in the process.

The chart in **Figure 2** allows you to determine values reflected power for

nominated values of forward power and standing wave ratios.

The point plotted (in bold) is for 10 watts forward power with an SWR of 1.5:1 which shows on the bottom scale that 0.4 of one watt will be returned to the source as a reflection.

To find the reflected power for 10 watts forward at an SWR of 4:1 is not as difficult as it looks.

You will find the horizontal 10 watts line misses the diagonal 4:1 SWR line by a wide margin.

The horizontal and vertical power scales are logrithmic and relative to each other. In other words, if you multiply the Forward scale by a factor of 10 you will also do likewise to the reflected scale.

For example, move up the left hand scale from the 10 watt graduation to the 1 watt graduation near the top left corner.

This line extended intersects the 4:1 SWR line. If this plotted point is extended down to the base line a value of 0.35 watts reflected power is indicated. To find the value for 10 watts simply multiply the 1 watt level by 10 and the 0.35 reflected power level also by 10.

The result is: 10 watts forward power in a circuit with an SWR of 4:1 has a reflected power value of 3.5 watts.

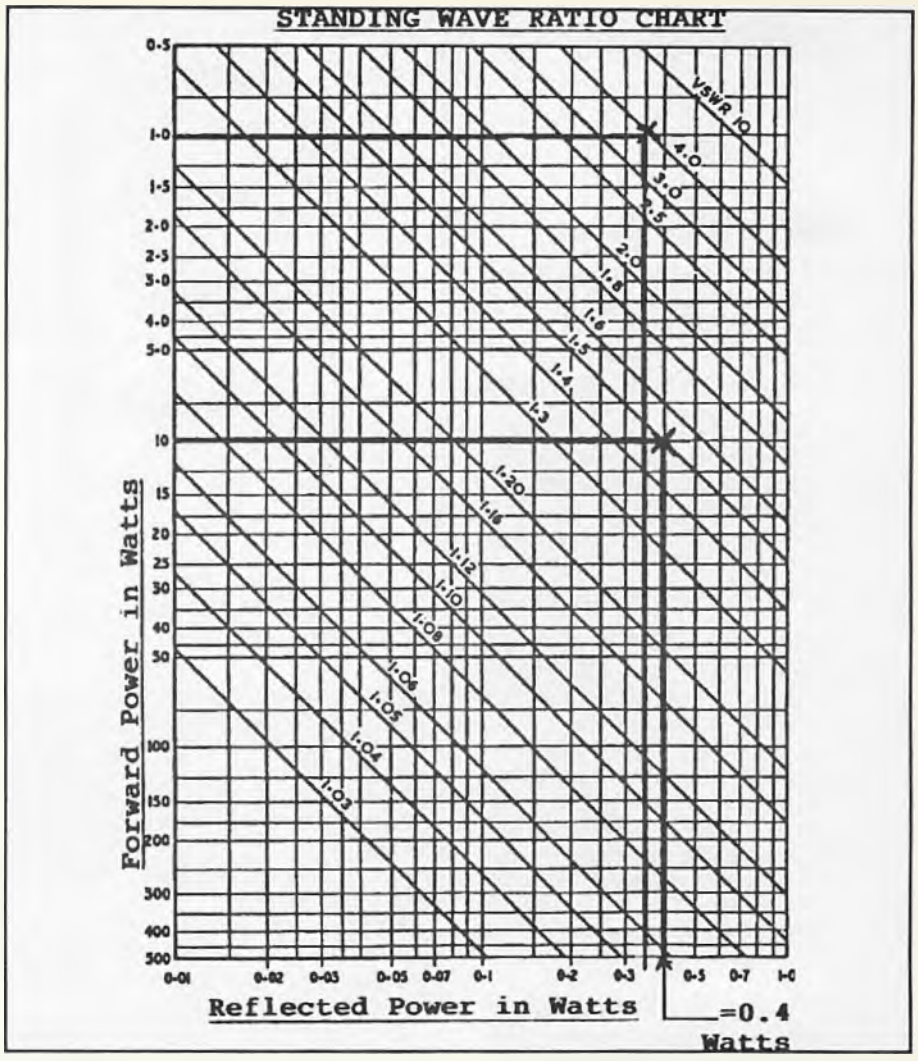
You will see from the graph that even an SWR of 2:1 is still more than 85 per cent efficient and no dangerous levels of power are returned to the transmitter. If, however, your rig has been BOOSTED the story may be different.

A standard rig hs a built-in safety margin to allow for a reasonable high SWR. When the output is raised to peak power the first thing sacrificed is the operating safety margin.

For example, if your rig outputs 4 watts and through a poorly tuned antenna 3 watts are returned to the transmitter, the total power your output transistor must endure is 7 watts - there is already some power dissipated in the transistor due to its lack of efficiency in the beginning. If your rig has been boosted to 8 watts output - and many rigs can be - the returned power with the same SWR will be 6 watts. The total power is now 14 watts and is probably a tad more energy than your 'final' might find comfortable. So, if you have got more than legal power your rig's reliability factor has been seriously eroded, especially if you don't watch that

ANTENNA EFFICIENCY

Just because your antenna has a low SWR doesn't mean you are going to radiate bags of power. The low SWR



certainly means the power is going somewhere - but where is it really going? This is a point that most operators don't even consider.

The perfect example of a signal going 'nowhere' is when you test your transmitte output into a DUMMY LOAD. A dummy load is exactly what its name implies - a load that represents a good impedance match for the generator by absorbing all the power, but it radiates virtually none.

So, it produces a very low SWR but is a very poor antenna. It is important to understand that just because your SWR is low it does not necessarily follow that your antenna efficiency is high ... it simply means that you are being kind to your transmitter in providing the right operating environment.

There are many reasons for lost efficiency but let's just confine this part of the discussion to mobile antenna efficiency.

Again, unlike the direct current that powers your CB transceiver, Radio Frequency energy exhibits totally different characteristics in the way it propagates around an electrical circuit. With direct current the electron flow is in one direction and it travels through the whole cross section of the wire conductor. A quite small wire conductor offers little RESISTANCE to the flow of a sizable electric current.

RF (Radio Frequency) energy continually changes its direction of flow.

The alternating current from your AC mains wall outlet similarly changes direction about 50 times a second, however your 27MHz CB transmitter output current changes direction 27 million times per second.

Without getting too technical here, the strong electromagnetic field - produced by the RF current flow - that surrounds the conductor produces opposing force fields within the conductor that 'push' the current flow to the outer surface.

This is known as SKIN EFFECT. Skin effect causes most of cross section of the conducting wire to become redundant and therefore the resistance to the passage of RF currents becomes higher. This is why there is no special advantage to be gained from using

ANTENNAS and SWR

continued.....

solid metal rod for antenna elements because hollow tube is lighter, less costly and performs just as well.

There is virtually no effective current flowing deep within a solid conductor.

RESISTIVE LOSS

One of the main causes of energy loss in electrical circuits is resistive losses in cables and components.

A general rule of thumb with wires is the smaller the conductor size the higher the resistance loss that can be expected.

And, where skin effect is involved, much of the effective conductor area is lost producing an even higher RF resistance to the flow of current.

Most conductors employ copper because of its low resistance to electrical currents, however, a number of other metals are sometimes used including steel products for added strength. Copper, aluminium and silver are the best common materials used for low resistance conductors with sometimes combinations of two or more being employed.

Sometimes it is convenient to electroplate steel wire with copper and or silver to exploit the most desirable properties of both metals:- steel for the extra physical strength and copper or silver for their excellent electrical conductivity.

Full size antennas - depending on the circumstances - can use large conductors which offer low RF resistance and therefore very little power is dissipated in the resistance value of the antenna.

A tubular aluminium base station CB antenna for example is very effective because it exploits most desirable qualities in a compact design: light weight, low losses and mechanical integrity.

On the other hand, manufacturers of reduced size, loaded antennas are less fortuitous in their selection of materials and this is where efficiency can be seriously degraded.

Most readers will be familiar with the old fashioned electric radiators or electric jugs. In both cases the principle of operation depends on passing electric current through a coil of 'resistance' wire.

This wire - often a nickel-chrome alloy - is specially formulated to offer high electrical resistance causing the electric current to give up its energy in the form of heat. The heating bar of a radiator is designed to consume a nominated power level, usually 750, 1000 or 1200 watts - in its own way it is a type of dummy load that dissipates power without doing any other work except producing a controlled level of heat and perhaps some light.

Unless, in the unlikely event an antenna is 100 per cent efficient, there will always be resistive loss in the conductors which also appears as heat.

You probably will not feel the radiated heat from your antenna because its level of efficiency should be reasonably high and your available transmitted power level is only a few watts.

However, those operators who have used a power amplifier to enhance their signals will know the folly of using an antenna designed for average CB power levels - some of them go off with a flash and a bang while others just smoulder away.

The destruction of the antenna usually causes a rapid rise in SWR which puts paid to the amplifier power transistors also in a 'flash'... pardon the pun. This is a demonstrable example of antenna losses in action.

Passing from the ridiculous back to the sublime, it is fact that even the 3 or 4 watts of RF energy emanating from a CB transmitter can cause a noticeable heating effect (power loss) in some well tuned antennas.

A few very short base loaded mobile whips available on the market have a tightly wound coil of fine wire that offers enough resistive losses to produce considerable heat after a few seconds transmission with normal CB power level. The efficiency of these antennas is poor and this style of radiator is not recommended unless a larger 27MHz CB antenna is not acceptable.

Short antennas exhibit CAPACITIVE REACTANCE which is another type of resistance to the passage of electrical energy.

INDUCTIVE REACTANCE is the type of resistance produced by a coil of wire and is the opposite form of resistance to CAPACITIVE REACTANCE.

Therefore, by introducing a LOADING coil to our antenna we can effectively cancel out the CAPACITANCE with an equal and opposite value of INDUCTANCE provided by the coil.

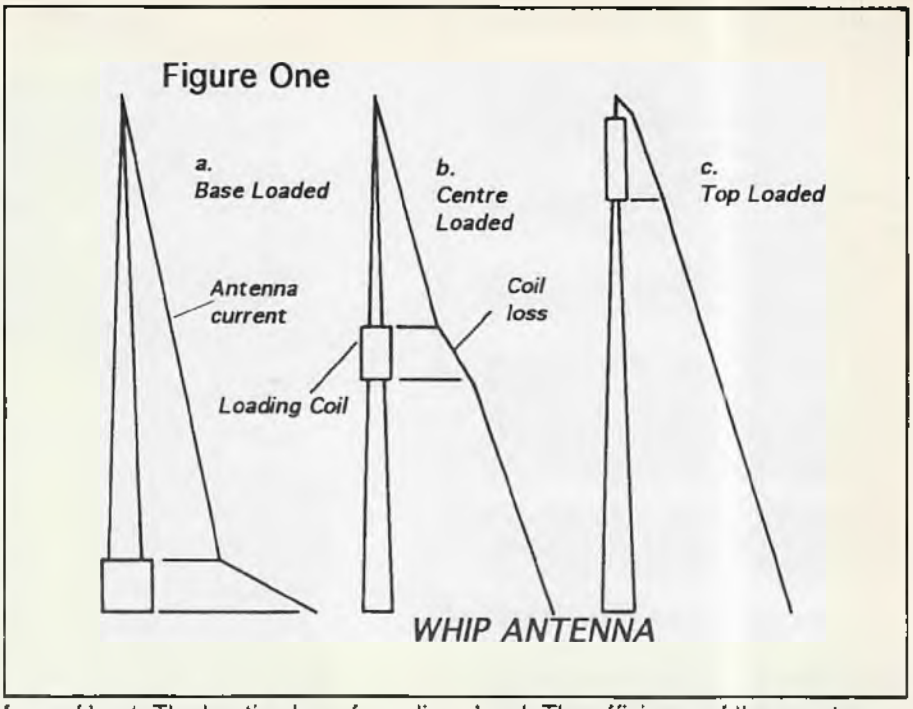
The result is that our antenna now exhibits only pure resistance which is the desired condition.

So, when we are SWeRing a mobile we are really adjusting the value of inductance and capacitance so that one value will cancel out the other leaving us with a pure resistance - at the operating frequency.

At either side of this target frequency the values of inductive reactance and capacitive reactance will rise quickly as will the STANDING WAVE RATIO.

Figure 1 illustrates the types of loading used on most CB antennas and shows graphically how the current distribution varies according to the position of the loading coil.

The loading coil in each case becomes the main resistance in each antenna and as you can imagine if the coil (resistance) is placed at the feed point (base loading) some of the power is lost before the main radiating portion of the antenna is reached.



ANTENNAS and SWR

continued.....

Centre loading is better with top loading appearing to be the most efficient. Helically wound (Linear Loading) antennas are debatably as efficient as top loaded whips of similar size, however, a number of variable factors must be taken into account if a fair assessment is to be made.

A great deal depends on the diameter and composition of the conductor used to wind the loading coil.

The larger the diameter the lower the metal losses will be.

Of course there are practical limits to permissible wire sizes that can be used ... especially for top loaded antennas that would become top heavy with severe aerodynamics problems.

The performance of a loading coil is described by the term 'Q' factor - Quality factor - which is a combination of factors we will not dwell on here. However, large diameter coils using large diameter conductors with wide spaced turns having a low loss coil former (preferably air) generally exhibit the highest 'Q' factor and offer the lowest electrical resistance.

OTHER FACTORS

Fibreglass mobile whip antennas have established themselves as the standard in Australia and of the many brands available there are certain points that should be considered when choosing an antenna for yourself.

In these days of financial uncertainty the market is more 'price-driven' than ever before. With the odd exception to the rule, real bargains don't exist and if you buy a cheap antenna, that is what you are going to get.

Apart from higher performance, which usually goes hand in hand with the more expensive products, you should pay attention to the types of materials used in their manufacture.

Not all plastic covering materials are the same. A number of the cheap plastics are not really suitable for outdoor use.

They may be too thin; they may have poor resistance to ultraviolet light that quickly causes the material to 'breakdown'; they are often brittle in cold weather, etc..

Some of the economy plastics last no more than a few months in the weather before they fracture easily under minimum stress.

The more expensive coverings contain ultraviolet inhibitors to retard the 'breakdown' process, they are often thicker and more pliable over an extended temperature range and have a greater fracture resistance - these points mean longer life for your antenna.

Some plastics are intended for outdoor use and although they are very expensive - four or five times the cost of the 'cheapies' - their life expectancy in the weather is between 10 and 15 years.

This alone can justify the more expensive products if you are looking for longevity.

The more expensive fibreglass whips are usually carefully assembled and many use a multi-strand, woven copper braid as a low resistance covering to carry the RF power up to the centre or top loading coil.

The braided conductor also provides considerable resistance to metal fatigue having 50 or more fine stranded conductors for added flexibility that connect to the mounting nut ferrule.

Some antennas also take into account the aerodynamics of the whip travelling through the air at high speed and employ a carefully designed taper to reduce the wind resistance toward the tip of the antenna.

BANDWIDTH

A full size CB antenna, when correctly tuned, will present a low SWR throughout the whole 40 channels - it should cover the equivalent of more than 200 channels (about 2 megahertz) before the SWR rises dangerously high.

This is referred to as the usable Bandwidth of the antenna.

As the length of the antenna is reduced the operating bandwidth narrows proportionately until we find that some very short loaded whips (about 25 centimetres) long exhibit a usable bandwidth of only a few channels.

Medium size antennas offer a wider bandwidth and so on ... antenna about a metre long usually have adequate bandwidth to comfortably cover the 40 channels provided they are properly tuned.

I've been asked to keep you up to date with happenings in the world of amateur radio.

That shouldn't be too tough - as the Editor of CB Action's sister publication Amateur Radio Action, I write about amateur radio for a living!That means I'm in a pretty useful place to see what's going on.The world of amateur radio is, for me at least, a fascinating place to be.

The technology is amazing, and what you can achieve with it is even more so.

Of course, many of the so-called 'old timers' would probably argue - with some justification, I suspect - that what they achieved 50 or more years ago was equally good or better.Be that as it may, what we'll do here is look at some of the new (tricky) gear around, and discuss on-going changes to the hobby.I guess the hot item at the moment is the news released in June's ARA about the proposed new amateur regulations. The conditions of licence, as the document is more correctly known, determines the requirements to be met by each amateur operator. Under the proposal, which is due to become law at the beginning of next year, a new grade of Novice licence will be introduced. The big plus is that it requires no test in Morse Code, and has only the basic theory test of the present Novice qualification. The introduction of the Limited Novice grade of licence could well revolutionise amateur radio in this country. In Japan, where amateur radio formerly had a relatively limited following (when one considers the total population, that is) the Telephone licence took total amateur numbers from well under 100,000 to well over a million, and that number is increasing daily.

But Japan also has an excellent CB service, so what's the attraction of amateur radio? Why are the Japanese converting from CB to amateur radio like there's no tomorrow?What we're really asking here is the most fundamental question of all for a radio buff: why bother with amateur radio at all when CB obviously works fine?Is amateur radio better than CB?To start with, the Japanese haven't all deserted their citizens radio service in droves; in many cases they have added to it. An enormous number of them use both services, and the situation is little different in other parts of the world. Many active amateurs also use the CB bands to some extent - your editor is a very good case in point. Len is a very active amateur, but he' an active CBer as well. And why not? Each service has something unique to offer. Whether you came into CB through a work-related requirement, or wanted to talk to some of your friends, or simply because you were curious about the world of communications and wanted to know more, perhaps you have on occasion felt frustrated at the clear limitations of CB. Maybe amateur radio is your next goal, but you'e a bit worried about this 'formal requirements' business.

Why an exam anyway? And what can amateur radio have to offer me?

CQ CQ ANYONE....! de Chris Edmondson VK3CE

As a general rule, the amateurs have access to more attractive bands (and more of them, too; if all of the amateur allocations were channelised there would be millions of channels, not just two lots of 40). If chasing the DX is your thing, the 20 metre amateur band would knock your eyes out! Wall-to-wall DX is there for the taking at just about any time of the day or night. But amateur radio offers lots more than 'just' DX. Would you believe me if I told you that more than one station has worked into more than 100 countries on UHF - by bouncing his high-power signals off the moon? Amateurs also have more than 20 operational orbiting satellites, and many Russian and US space flights are crewed by cosmonauts and astronauts who are also amateur radio operators - and yes, they take their radio gear into orbit and they talk to 'ordinary' people on the ground.

On one recent occasion, the US space shuttle Atlantis passed within 50km of Mir. Despite having millions of dollars worth of communications equipment between them, the only way the astronauts could talk to the cosmonauts was via amateur radio!I have spoken to both US and Russian amateurs in earth orbit, and have regularly connected to the computer BBS on the Russian space station Mir to leave and collect messages.

A BBS in orbit? Yes indeed! One of the biggest developments in amateur radio of recent years has been the way amateur operators hook their computers together over the radio, in quite a similar manner to dialling into a telephone bulletin board system (BBS) using a modem. For the technically-inclined, the data is exchanged between two stations on a simplex link using 'packet switching' technology modified for amateur use. So the amateur is not limited to using AM or SSB, which is a great attraction of the hobby. In fact, the amateur is offered a large variety of transmission modes, including facsimile, telex and even television.

Dare I say we amateurs have another clear advantage? While history saw the radio amateur as a person who constructed the equipment used in 'the shack', a growing number of operators became amateurs because they wanted to explore the communications side of things rather than the purely technical side of things. Some people prefer to experiment with different kinds of antennas rather than making radio equipment, for example. So some of the commercial equipment manufacturers seen in the CB world - Icom is a good example in this country, as is Uniden to a lesser extent - also operate in the amateur scene, producing very sophisticated and high-performance equipment. While none of the DoTC-approved CB transceivers sold in this country are junk (government regulation makes sure of that!), you'd have to agree that an amateur rig costing, say, $1500, is probably going to work a hell of a lot better than a CB rig costing $59.97 at K-Mart. And, believe me, most amateur rigs are stove hot!

That technical and regulatory qualification also gives the amateur another rather enticing carrot: an upper power limit in some modes of 400 watts output, and that's a rather handy 80 times more than the input power for a CB rig. The potential difference at the other end is a stupendous improvement in legibility and readability. Some of you probably think the amateurs are a spoiled bunch. Why should they get such generous frequency allocations when the CBers are so restricted? And why such a dramatic difference in allowable power levels? For that matter, why are the amateurs encouraged to talk to overseas stations when CBers are not even allowed to?

I guess the answers to these questions are all tied up in intention. The intended use of the CB service is primarily as a means of communication between two people who want to talk to one another, even when recourse to the phone system may be inconvenient or downright impossible. Its (absolutely unavoidable) social spin-offs weren't really anticipated at the outset, though. Perhaps the officials underestimated the then-new CB service's attraction to so many people. Four-wheel-drive owners, truck drivers and people who regularly drive in the bush chose to fit CB radios as life-saving insurance, but these people weren't really the enthusiasts. In a similar manner, most people who use CB for business communications saw CB as just that - a means of communication and little else. And while these people are still the mainstay of CB in this and many other countries, it's the other group of users - those who use CB for fun - who probably stand to gain the most from seriously considering a move to amateur radio. How many times have you been frustrated at that puny five watts, or felt that a better grade of radio might just work a bit better or get out further? Are you sick of being treated as some sort of lidiot because you're on CB? Does the behavior of some individuals leave you gnashing your teeth? Perhaps the world amateur fraternity may have something to offer you!

Until next time, then,
73 from Chris Edmondson, VK3CE.

Shortwave DXpeditions

Trips into the wireless wilderness aren't just for CBers and hams, says Richard Jary.

If you hear the term DX-pedition the image which may well leap to mind is a group of keen ham or CB radio freaks, travelling off to an exotic location to "make it active", getting 20,000 contacts over a week, and then returning home to presumably spend the next 3 years filling out QSL cards!

Well, a DX-pedition doesn't have to be quite on that level. For shortwave or mediumwave DXers the purpose is more to get away from the noise that you often get when trying to listen from the middle of the suburbs, and have a chance to try out a longer aerial than you may have at home.

FIRST COME THE DECISIONS

If you decide that a DX-pedition is something you want to try, there are several things to decide. Do you wish to go it alone, or are there other people who may wish to join you? Many DX Clubs organise these trips, and apart from giving everyone a chance to hear new stations (and play with radios better than their own!) they are also a great chance to socialise in a more informal way than the average club meeting. Do you like roughing it? There are a number of factors that come into play here. Many trips are to caravan parks or the like, where power and other facilities are readily available.

THERE CAN BE PROBLEMS

The drawback of having power available is that you may still get interference, especially if the van park is full of holidaying families all watching portable TVs! Another consideration is that the owner may object to you hurling wires over every available tree, so it is a good idea to try for a site at the edge of the park near the bush. The other way is to camp out. National parks with camping areas, and uncontrolled bush abound around our capital cities, so get your camping gear together and head out.

SUPPLYING THE POWER

Of course, you will have to ensure your radio gear runs from batteries or the 12V car battery, and remember to start the car every so often, it can be embarrassing to find you have flattened the battery after a heavy night's DXing! Also remember that the middle of the night can be somewhat chilly even in summer, so rug up well. One recent trip undertaken was by the Australian Radio DX Club's Sydney Branch to the town of Bargo, about 100km southwest of the city. Five people got together and stayed at the Wirrimbirra Sanctuary, an area with bushwalking trails and a native plant nursery, to provide other entertainment when the eyes and ears are overloaded from peering at digital displays and listening to faint African signals.

SET UP THE ANTENNA(S)

The first arrivals set up the antennas, using the tried and true construction method of tieing the wire to a heavy object, and pitching it over a tree. After that came the fun of tuning in the receivers and noticing the lack of noise. One advantage of having several people is to help you keep awake, and also so you can work the receivers in shifts if you desire. The group made several good loggings of hard-to-hear Latin American and African stations, and found the weekend worthwhile.

Setting up an antenna(s) usually involves little more than throwing a wire over a tree.

That's one example of a DX-pedition. Travel 100km for a weekend. Of course you can go further afield, such as a trip I undertook about eight years back to Wallaga Lake, on the far south coast of NSW. After about five hours drive I met up with some Melbourne club members, and we ended up spending about three nights, comfortably ensconced in a cabin, with about 200 metres of wire dragging in signals for us. The most surprising thing noted on this trip, in the dead of winter, was the number of New Zealand mediumwave stations audible during the day. One particular site, on the Sunshine Coast just north of Brisbane, had a great reputation for North American mediumwave reception, unluckily tourist development put an end to that a few years ago. However you may well find a special location where signals seem to boom in. So you've bitten the bullet and decided to go. What should you take? It depends on whether you've decided to camp out or use the luxury of a caravan park, however a good start is one or two radios, maybe more if you have a larger group; as much wire as you care to carry - preferably at last hundred metres; your logbooks, plenty of writing paper for those reports, and remember a spare pen. Nothing worse than hearing all the stations and being unable to write them down! If you are camping then a gas stove to keep the coffee hot during the late nights is a must, but remember to check any local fire regulations before you consider lighting a campfire. It looks like being a long hot summer in the eastern states, and prime bushfire weather. And of course take any rubbish back out with you, it doesn't belong in National Parks!

There's usually little if any interference and the group can work in shifts to catch any and all DX that happens to be about - results are usually good to excellent.

Successfull DXpeditions are an art form to themselves, and this just touches on ways to go about it... but why not call a few mates and join in the fun?

Communications In The Coalfields

SCANNING NEWCASTLE

Situated about 160 km north of Sydney, Newcastle is the second largest city in NSW. But, unlike many other cities Newcastle has substantial activity on all of the main scanner bands. There is constant action on the VHF mid-band (66-88 MHz), VHF high (144-174 MHz) and UHF bands, mostly in the UHF mid-band at 470-520 MHz. And there's plenty of traffic on the 800 MHz cellular band (oops!). Add to this the civilian and military aeradio bands (at 118-136 and 225-400 MHz, respectively) and you can see that Newcastle is indeed "radio active".

So much so, in fact, that the city now has its own scanner enthusiast's club, one of the first in Australia. The Newcastle District Scanner Group has carefully compiled a scanning directory of the Newcastle, Hunter and Central Coast region of NSW, and with their invaluable assistance we have been able to prepare this brief but thorough scanners' guide to Newcastle.

MONITORING THE MINES

Newcastle was founded as a convict settlement in 1804, when convicts were sent from Sydney to work the mines after coal was discovered at the entrance to Newcastle Harbour.

To this day, coal mining - aided by BHP's iron and steel operations - still plays a major part in the region's continued growth. It also provides some of the most fascinating listening for scanner enthusiasts in the Newcastle and Hunter region.

There are many companies operating coal mines in the Hunter area. The larger operations include Coal & Allied Mining, on 76.145, with coal preparation on 76.13; NewCom (487.) and Elcom (Electricity Commission) on 72.365, 485.25 and 460.725. The coal loader at Newcastle Harbour (Port Waratah) uses 466.95, 474.6, 475.075 and 472.75 MHz. It is an unfortunate fact of mining life that accidents do happen, so Newcastle has two mines rescue operations - Newcastle Mines Rescue (on 167.395 MHz, with a receive link on 460.025 MHz) and Hunter Valley Mines Rescue (167.35 MHz).

BHP's Rod & Bar Division have been logged on several frequencies, including 489.275 (steel manufacturing), 471.225 and 471.80 (cranes) and 83.1 (locomotives). Other miscellaneous BHP activity occurs on 165.58, 169.93, 474.85 and 486.9 MHz.

MARITIME FREQUENCIES

Newcastle's role as one of Australia's largest exporters sees a constant flow of cargo ships from dozens of countries entering and leaving the harbour each day, so effective communications is essential.

Try listening to BHP Fleet Operations (156.775 MHz), Newcastle Harbour Control (156.65), Waratah Towage tug boats (157.66) and Australian Customs on 489.6 MHz and 489.725 MHz.

Other frequencies used on and around Newcastle Harbour and Lake Macquarie include 156.8 (marine distress and calling), 156.375 (safety) and 156.675, which is used by various groups for ship-to-ship and ship-to-shore.

Seaphone is carried out on channel 28, a duplex arrangement of 162.0 at shore and 157.4 for ships.

The Maritime Services Board can be heard on 450.3, 452.075 and 469.925 MHz.

The 27 MHz marine band is also very active, being the most popular form of communications amongst the large number of pleasure boats in the area. If you own one of the "you beaut" go-anywhere scanners then tune to 27.86 (safety), 27.88 (distress and calling), 27.9 and 27.91 (ship-to-shore), 27.94 (boating clubs), 27.96 (ship-to-ship) and 27.98 (Surf Rescue). Surf Rescue also use 488.65 and 489.225 MHz, with 484.95 and 485.0 used for contact between Surf Rescue Base and the Hunter Region Rescue Helicopter.

POLICE NOW ON UHF

Police communications for the greater Newcastle, Hunter Valley and Central Coast areas are conducted from Newcastle Police Station. Luckily, the callsigns now used by VKG are fairly easy to decipher.

Car callsigns consist of the name of the station the vehicle is from, followed by a number which indicates the particular vehicle in use and often the type of vehicle it is.

Numbers 1 to 9 are for general duties caged vehicles and 10 to 19 are general duties sedans; 20-29 are supervisors, inspectors or patrol commanders of varying ranks; 100 through 199 are detectives; 200-249 are Highway Patrol sedans, and 250-299 are Highway Patrol motorcycles. For example, "Toronto 1" would be a general duties caged truck from Toronto station, whilst "Newcastle 251" is a Newcastle Highway patrol cycle.

All mobiles in the Central Coast area have recently been converted to the standard 65 channel police band. Four UHF channels are now used - channels 14 (468.175 MHz), 42 (468.875), 55 (469.2) and 61 (469.35).

These are all linked in a "voting" or scan group - each carries the same VKG signal and so the same transmissions are heard on all four channels, each of which covers a different area of the Central Coast. This allows cars to travel throughout the region and still keep in touch with VKG.

The Newcastle police use a combination of VHF and UHF, with the following channels: VHF 2 (83.775 MHz) as a secondary inquiry or "back" channel; VHF 3 (83.79), originally the Central Coast VHF channel, is still used by Newcastle cars and other vehicles fitted with VHF-only transceivers; VHF 7 (83.65) for the Hunter Valley to Maitland; VHF 9 (83.88) as the primary inquiry or "back" channel; VHF 12 (83.925) for towns north of Newcastle through to Taree; VHF 14 (83.955) for the Hunter valley to Muswellbrook; VHF 17 (84.0) for Newcastle city; and VHF 19 (84.03) for Newcastle Police Rescue.

On UHF, channel 9 (468.05 MHz) is a Newcastle city crossband link with VHF channel 17, allowing UHF-only cars to join

If you live in or around Newcastle, or are just passing through on your way north or south, here are the hottest frequencies in town!

the city's VHF network. The UHF output is quite strong and has even been logged in some parts of Sydney. Other allocations are UHF 48 (469.025) for Newcastle and UHF 65 (469.825) as a simplex car-to-car channel.

FIRE FREQUENCIES

Newcastle Fire Brigades conduct operations from their station at Cooks Hill and can be monitored on 78.1 MHz, with Central Coast Control on 78.055. Handhelds use 471.35 and sometimes 471.525, which can be crossband linked into 78.1 to permit fireground crews to communicate with all other units.

Although 471.7, 471.725 and 471.85 are also allocated for brigade handhelds these are not usually used in Newcastle.

During the forthcoming summer months the action on Newcastle's Bush Fire Brigade channels can be "hot and furious".

Almost every local council maintains their own bushfire units, sometimes operating on the council frequency, although the NSW BFB does have several statewide allocations for all brigades. Tune to the following:

168.79 (NSW Unit Command), 172.8 (NSW fireground ch. 1), 172.95 (NSW fireground ch. 2), 171.93 (Cessnock), 160.21 (Dungog BFB) and 157.95 (Dungog council), 171.66 (Gosford BFB) and 170.4 (Gosford council), 172.23 (Lake Macquarie BFB) and 164.35 (Lake Macquarie council), 173.64 (Muswellbrook), 163.03 (Port Stephens ch. 1) and 162.82 (Port Stephens ch. 2), and 163.21 (Wyong). BFB administration operates through 465.925 MHz.

From their station at Hamilton, the NSW Ambulance Service control operations in Newcastle (76.715) and the Hunter Valley (76.67). Hunter Valley is linked via 154.625 MHz, which is quite audible in most areas. Central Coast Control are heard on 76.64. Other "ambo" channels to keep handy in your scanner include 76.73 MHz (car-to-car) and 76.775 MHz, the state-wide disaster frequency.

At the time of writing, local ambulance operations were gearing up for a move to the 412-413 MHz band and even the NSW Ambulance Brigade were uncertain of which frequencies they would be allocated. As always, keep an eye on Russell Bryant's SCAN column for these frequencies as soon as they become known.

VOLUNTEER SERVICES

Numerous volunteer rescue and emergency services operate throughout the region.

The State Emergency Service are often activated during severe storms and other mishaps - tune to 168.82 (channel 1), 168.85 (ch. 2), 165.295 (ch. 3), 165.52 (ch. 4), 165.28 (ch. 5) and 168.79 (ch. 6). The SES UHF allocations are 468.6, 468.625, 468.65, 467.25, 467.85 and 467.875 MHz.

The Volunteer Rescue Association or VRA are mainly used for motor vehicle accidents and missing or lost persons.

They can be heard on 84.48 and 491.35. The Central Coast VRA use 72.485 and 84.94, Cessnock VRA are on 171.93 and Denman VRA on 84.94 MHz (a shared allocation with the Central Coast).

With all this action you can be certain that the Newcastle media will get in amongst it, and their own transmissions can be very informative. NBN TV use 160.99 for news crews and outside broadcast units. Local AM broadcaster 2HD is on 492.55, 2KO on 487.75 and 2NX on 494.075. A couple of new media stations are now active but most if not all contacts are via the 800 MHz cellular phones.

FOR THE AIRHEADS...

Newcastle has three airports and one RAAF base. Most air traffic is controlled by Sydney Flight Information Service on 125.7 for the Newcastle area, 124.8 in Cessnock and 121.6 for Forster. AeroPelican at Belmont use 128.9.

The Williamtown RAAF base also serves as a local civilian airfield, so all radio traffic is transmitted on channels in both the civilian/commercial allocation of 118-136 MHz, plus the military UHF aeradio segment between 225-400 MHz. This cross-band linking allows aircraft with either comms sets to hear and be heard in both bands.

Try the following for some sky-high scanning:

Tower: 118.3, 121.8, 257.8, 243.0 and 264.3
Approach: 133.1, 135.7, 261.4, 243.0, 293.4
Departure: 135.7, 293.4
Traffic: 254.7
Precision Approach Radar: 133.9, 134.8, 317.8, 338.5
Sector or "enroute" control: 269.0 and 306.0 (Sydney), 243.0
ATIS: 316.1
Surface Movement Control: 118.3, 121.8, 257.8, 264.3
SMC vehicles: 121.8, 259.6
Fire fighters: 259.3

Three of Williamtown's RAAF units fly the swift and deadly F/A-18 Hornets - 2 Operational Conversion Unit, heard on 256.5 MHz; 3 Squadron, 301.1; and 77 Squadron on 311.6. Hornets use a number of callsigns including Baron, Classic, Despot, Firebird and Maple. You may also hear the training aircraft of 76 Squadron, both Macchi (listen for Alladin, Charlie and Stingray) and Winjeel (Dagger). The airfield is host to many gliders during the weekends, so also keep an ear on the gliding club channels of 122.7 and 122.9 MHz.

ON THE BUSES!

Newcastle's Government buses have now joined the ranks of the radio-controlled services run by the NSW State Transit Authority. All 200 buses in the city fleet are equipped with Philips FM900 UHF transceivers operating on a multiple-channel "voting" system. The buses use three frequencies - 485.575 MHz (transmitted from Belmont North), 486.925 (Mount Sugarloaf) and 486.475 (Sheppards Hill). Inspectors are on 486.2 (Sheppards Hill) and 486.5 (New Lambton Heights). In both cases the transceiver locks onto the strongest signal present.

There is also a link to the Mt Sugarloaf transmitter on 460.525 MHz. For those who like to listen to taxi cabs, we can recommend Newcastle Taxis on 70.67, 70.43 and 70.73 MHz.

These channels are for jobs in the outer suburbs, inner suburbs and city respectively. You'll also hear Toronto Taxis on these frequencies, although they still use their old allocation of 167.2 for car-to-car. Other cab services include Beresfield (75.92), Budgewoi (73.655), Central Coast (73.745, 158.965 and 159.535), Cessnock (167.23), Dora Creek (74.575), Kurri (160.3), Maitland (76.16), Morisset (75.56), Singleton (166.84) and Williamtown (75.65).

ODDS AND SODS

Finally, here are a few miscellaneous frequencies to fill those few remaining channels in your scanner.

The NSW Roads and Traffic Authority: 172.56 and 172.575 MHz in Newcastle; 172.62 and 172.575 MHz on the Central Coast; 168.91 Maitland and 154.875 Singleton.

Shortland Electricity: 80.52, 80.64 and 79.36 Newcastle; 75.725 Maitland, 76.34 Musswellbrook and 75.775 Singleton

The Hunter Water Board: 77.39, 77.54 and 77.78

The State Rail Authority: locos and guards can be heard on the state-wide channel of 450.05, plus 417.075 and 484.85 for the Broadmeadow yards.

The bulk of these frequencies were drawn from the Newcastle District Scanner Group's latest frequency register, a publication covering services operating in and around Newcastle, the Hunter Valley and the NSW Central Coast - and there's plenty more where this lot came from!. Everyone from scanning masters to newcomers to the hobby are invited to contact the group at:

PO Box 728,
Charlestown
NSW 2290

(please enclose a stamped self-addressed envelope for reply).

AUSTRALIAN ASSOCIATION OF CITIZENS and BAND RADIO OPERATORS INC.

INC

CBERS BIBLE

In recent times ACBRO have been known to have referred to CB ACTION as the CBers Bible, but this was not always the case.

Fifteen years ago with the introduction of the legalising of CB, the recognised controlling body, whose name has changed over the years, published the first CBers Bible, it being known as RB14.

"On-air" discussions, or groups of good buddies having a chat, and references to rules of CB operation were always made to RB14. This was a document in small book form that although confusing to some, basically laid down the ground rules of operating on the CB. After all, it appeared that on CB you could do as you liked providing it was not that which RB14 said you could not.

The text of RB14 was generally, in layman's language, an interpretation of the appropriate Act to do with wireless and telegraphy, and served its purpose fairly well in informing the CBer of how to act in this form of radio (hobby) communications.

WHEN IS RB14 NOT RB14?

Today this question may well be asked. In pursuing this in ACBRO's Archives of CBers, a glance at an early copy of the well recognised RB14 book showed that the one selected was the 1984 edition which was branded as DOC 14 with the RB14 in brackets. Despite this change of title it was true to the label as the cover described it as containing "Conditions governing the licensing and operation of stations in the Citizens Band Radio Service".

Despite page 1 having a third of the page offering a short text, and page 2 having nothing on it, with page 3 having four lines of contents, pages four to nine contained what on today's standards could be classed as a wealth of information related to conditions outlined on the book cover.

It covered "Methods of calling" useful for beginners under "Principal operating conditions", and being the 1984 edition it had a page allocated to CB Repeaters which at that time were becoming prolific.

It listed frequencies for each channel, nominated and emergency channels for special use, and even indicated that CB came in two varieties, HF and UHF. Perhaps it was right to have it referred to as the CBers Bible.

RB14 or DOC 14 was suggested to be essential reading for new chums who approached ACBRO in those days to enquire about getting into CB. ACBRO's standard recommendation to such people was: "Go to DOC, get a license and a copy of RB14" despite it now being DOC 14".

Another lucky dip into ACBRO's archives file produced another copy of DOC 14 (revised Dec '88).

ACBRO AFFILIATED CLUBS

Below is a list of clubs and organisations affiliated with ACBRO Inc. If you have one of them in your area, please give them your support of membership. Full details can be obtained by ccontacting the group of your choice from below.

ALPHA WHISKY ALPHA RADIO CLUB	P.O. BOX 1457, ALBANY, W.A. 6330
ALBANY COMMUNICATIONS GROUP	85 HASSELL ST., ELLEKER, W.A. 6330
RADIO CITY AUSTRALIA	P.O. BOX 87, GREENACRES, S.A. 5086
PIONEER RADIO ASSOCIATION (SA)	P.O. BOX 58, KINGSWOOD, S.A. 5062
PLANTAGANET REP'R IN'TE OF W.A.	PMB 306, CRANBROOK, W.A. 6321
BURNIE CITIZENS RADIO CLUB	P.O. BOX 655, BURNIE, TAS 7320
TRANSWORLD C.B. RADIO CLUB	DAW PARK, S.A. 5041
CANNING RIVER RADIO CLUB	53 PARKSIDE AVE, MT. PLEASANT W.A. 6153
OVERLAND RADIO CLUB	P.O. BOX 1010, MURRAY BRIDGE, S.A. 5235
EUREKA C.B. RADIO CLUB	P.O. BOX 27, REYNELLA, S.A. 5161
HACKHAM RADIO CLUB	P.O. BOX 13, HACKHAM, S.A. 5163
EAGLE RADIO GROUP	P.O. BOX 302, MORPHETT VALE, S.A. 5162
ROTTEN RADIO GROUP	P.O. BOX 4, DRY CREEK, S.A. 5094
BROKEN HILL UHF REP'R CLUB INC	BOX 1023, BROKEN HILL, N.S.W. 2880
RIVERLAND C.B. CLUB	P.O. BOX 742, LOXTON, S.A. 5333
GIPPSLAND REPEATER ASSOC. INC	P.O. BOX 555, MAFFRA, VIC. 3860
MURRAY BRI. AGRIC. & HORT. SOC	P.O. BOX 315, MURRAY BR, S.A. 5235
SAMBA CLUB	P.O. BOX 16, SALISBURY, S.A. 5108
TWEED RADIO DX GROUP INTNL.	P.O. BOX 773, MURWILLUMBAH, N.S.W. 2484
THE PATHFINDER RADIO SOC. CLUB.	P.O. BOX 24, WOODBRIDGE, QLD. 4114
DIRTY DOZEN RADIO GROUP	P.O. BOX 380, BLAIR ATHOL, S.A. 5084
HOTEL ZULU RADIO GROUP INC.	P.O. BOX 66, ELIZABETH, S.A. 5112
WHITE FOX RADIO CLUB	P.O. BOX 16, SALISBURY S.A. 5108
MEGA MOUTH INTERNATIONAL	P.O. BOX 1534, LAUNCESTON, TAS. 7250
THE TRIPLE "R'S" GROUP	43 CROSS KEYS ROAD, SAL'BURY, S.A. 5108
TRU BLUE RADIO GROUP	P.O. BOX 379, BLACKWATER, QLD. 4717
BLUE O RADIO GROUP	P.O. BOX 53, MONARO CRESC, A.C.T. 2603
CHARLIE SIERRA RADIO CLUB	P.O. BOX 27, MOANA, S.A. 5169
SYDNEY RADIO GROUP	P.O. BOX 185, GORDON N.S.W. 2072
UHF ASSOC. OF W.A. INC.	P.O. BOX 1238, EAST VICTORIA PK, W.A. 6101
RATBAG C.B. RADIO CLUB	P.O. BOX 227, WELLAND, S.A. 5007
PEGASUS CB RADIO CLUB	Cab 1, 100 Jabez St, BROKEN HILL,NSW, 2880
SUN CENTRE C.B. RADIO CLUB.	P.O. BOX 912, SWAN HILL, VIC. 3585
SOUTH AUSTRALIA RADIO	P.O. BOX 162, CAMPBELLTOWN,SA,5074
PORT ADELAIDE RADIO CLUB	P.O. BOX 218, ALBERTON, S.A. 5014
CHEROKEE INDIA AUST. GROUP	P.O. BOX 1679, MILDURA, VIC. 3502
STH WESTERN CB RADIO CLUB	P.O. Box 620, WARRNAMBOOL, VIC, 3280
AMOS CB RADIO CLUB INTNL	P.O. Box 351, BROKEN HILL, NSW, 2880
PIONEER RADIO ASSOC. AUST	P.O. Box 112, BENTLEY, WA, 6102
NARACOORTE UHF ASSOC	P.O. Box 465, NARACOORTE, SA, 5271
VICTORIAN RED HEELER	P.O. Box 1429, GEELONG, VIC, 3220
GOSFORD CITIZENS RADIO CLUB	P.O. Box 447, GOSFORD, NSW, 2250
FELIX RADIO CLUB	P.O. Box 78, GOODNA, Q'land, 4300
INLANDER CB RADIO CLUB	P.O. Box 5712, ROCKHAMPTON, Q'land, 4702

This was now not a book, but took the form of a folder which when opened out created a "spread sheet" about 30 inches wide, printed on both sides.

It contained similar, but more, information than the 1984 book and continued to serve as a useful tool for the novice CBer or the "Pro" to keep up to date with minor changes.

So over the four years, other than economical production costs of these CB Bibles, little had changed, and the policy established in 1977 was that the CBers could still be adequately informed by this RB14 style of production.

Now, a further four years down the track, ACBRO's file has a current copy of the "Bible" which, would you believe, is now not DOC 14 or RB14, but RIB14. And, as a reference as a "Bible" for the CBer to settle a regulation argument or debate, it is totally useless.

It still takes the form of a green folder-cum-spreadsheet of less pages, but its contents are generally devoted to "repeaters", as if the CBRS had no other facility. Other than a little preamble and a list of contents, it contains three parts: an "introduction" covering its scope and representing 15 per cent of the total text; part two - "Advisory Matters" being installation, state law and telephone connection representing a further 15 per cent of the text; and the balance of 70 per cent is about repeater stations, giving all that one would wish to know about this UHF facility.

Where is all the good information that the novice operator, who just purchased a 27 MHz rig, would expect to find?

CBers have recently seen an unannounced change to CB policy with the introduction of a new callsign system. Could this latest RB14, come DOC 14, come RIB 14 be a sign of a further unannounced change where no mention of HF CB is made in the "Bible"? Is this a sign that HF CB is to be phased out as was the early intention of a government of yesteryear?

Readers, get yourself a copy of the new "Bible" (RIB 14) and contemplate the thought.

Observations expressed here are presented to be thought provoking and to enable the "old timers" to reminisce while mention is made of RB14.

The membership of ACBRO Inc at this time has made no request to the committee to pursue the reason why this form of sacrilege to their "Bible" has occurred, but perhaps at their next general meeting, some bright CBer member may just raise the issue of the possibility of the hallowed grounds of HF (27 Meg) being snatched from them.

Mr T G Colwell
Hon Treasurer
Australian Association of Citizens and Band Radio Operators Inc
PO Box 170
WALKERVILLE SA 5081
Dear Mr Colwell

Thank you for your letter of 25 March 1992 on behalf of Australian Association of Citizens and Band Radio Operators (ACBRO) to the Minister for Transport and Communications concerning the control of antisocial behaviour in the Citizen Band Radio Service (CBRS). The Minister has asked me to respond on his behalf.

I share your association's concern at the level of antisocial behaviours that occurs from time to time in the CBRS.

The Department of Transport and Communications has an ongoing program of monitoring and investigating all written complaints concerning persistent abusive behaviour by individual operators.

For instance, during 1990-1991 over one hundred fines were issued for CB misuse and more than fifty people were prosecuted for offences under the Radio Communications Act 1983. In addition over a thousand CB stations were inspected.

I believe these regulatory programs have had some effect in containing antisocial activities on the air-waves. However, given the size of the CBRS it is not possible to entirely eliminate, by regulation and associated enforcement, abuse of the band. Some measure of antisocial activity will always exist.

It should be recognised that the Department's resources are finite and must be shared equitably between the many categories of service using the spectrum.

Should members of your association have information regarding specific offenders misusing the CBRS, they should contact the State Manager, Department of Transport and Communications in their respective state.

Yours sincerely,
Warren Snowdon.

June 22, 1992.
Senator Bob Collins
Minister for Communications
Parliament House
CANBERRA ACT 2600
Dear Sir,

The Committee of this organisation (Acbro Inc.) congratulate you on being made Minister for Communications, and look forward in anticipation, to your consideration being given to any matters that we bring to your attention, on behalf of the many thousand Citizens Band Radio operators around Australia that we represent.

One such matter has not been addressed to our satisfaction by your predecessors.

This pertains to a petition lodged and recorded in Hansard on 11th October 1990 (copy attached) requesting a mere change, or an addition, to regulations governing Citizens Band Radio Service (CBRS) operations.

This petition was a request to have channel 35 in the 27MHz band being regulated as an official call channel for single side band operation in the HF section of the CBRS.

A decision to act as requested would greatly assist this service in self regulating itself as has been previously declared that it must.

We would appreciate your researching the past request made on your department by us and others in this regard, and making an effort to satisfy the wishes of the thousands of taxpaying CB radio operators throughout Australia.

If there is any hesitation to acceding to this request for change, we seek your answer to a question previously posed but not answered.

The question asked on behalf of these people who think that government is about providing that which is called for by a majority, is:

"How many signatures (as petitioners) from his constituents and CBers around Australia are required to have this modification made to regulations governing the CBRS?"

The answer to this question will provide us the opportunity to make a concerted effort on your behalf, to provide you with the support necessary to effect the desired change.

We feel confident of having the appropriate number of petitioners confirm, that the sample already provided on October 11th 1990, is consistent with the current wishes of those who pay for the privilege of using the service.

It should be pointed out also, that our requests for change are few and far between, and the nature of this request upon Government is not one, like many others, that calls for a costly contribution from the public purse.

We trust that you will view this communication as one of long standing concern to our members and respond accordingly as they would wish.

Yours faithfully,

for the ACBRO Inc. Committee
T.G. COLWELL (Mr.)
Treasurer.

26 May 1992

WIN A GME TX4000 UHF RIG

Here's your chance to win a brand new GME-Electrophone TX4000 UHF rig which received a 'rave review' from tester Ken Reynolds. Ken considers this to be a top quality UHF rig and something well worth winning.

We will accept entries up to September 15 and will draw two winners from the entries received to that date.

Address your entries to CB XWORD, P.O. Box 628e, GPO, Melbourne 3001.

Don't forget to include your name, and mailing address.

Good luck !

CLUES ACROSS

3. Russell Bryant does this.
6. You don't hear a radio called one of these very often these days.
7. Red Indians.
8. An omnidirectional antenna.
10. A Ham.
13. A type of transmission (init).
15. Alternating current.
18. Illegal but readily available (5,10).
20. A Mobile One UHF antenna.
21. A member of Pearce-Simpson's cat family.
23. The managing editor's suffix.
24. You'll hear the truckies on this channel.
28. An operator who talks but doesn't listen would be called this.
31. A fading signal.
32. Not 27MHz (init).
33. Going the long way around.
35. Amateur jargon for 'please stand by'.
36. A type of computer program where you usually pay the creator.
37. A generic name for a transceiver.
38. A type of antenna - usually mobile.
40. A fullcall amateur will have one of these (init).
41. If it's on you'll be busy.
42. Amateurs often bounce signals off one of these.

CLUES DOWN

1. Direct conversion.
2. It comes before sink.
3. It's essential that you get this right before transmitting (init).
4. An amateur who has passed regulations, 5 wpm Morse code and an examination is one of these.
5. A make of antenna advertised in this magazine.
6. A leather-clad female might wield one of these.
9. This item can cause bulk TV if not correctly setup (6,9).
10. Usually used by kiddies.
11. The first name of the bloke who used to write Spectrum Anarchy.
12. Jack Haden writes this (2,13).
13. Not a legal channel (5,3).
14. The missing words involve a baby and something you carry (5,4).
16. Is a power microphone legal?
17. Not base.
19. ??259.
22. A Tandy brand name.
25. Multiband antennas usually use these.
26. Not duplex.
27. A voice from America (init).
29. It helps direct the signal.
30. This sort of mount will keep it on the roof.
31. Where you transmit from.
34. A well known electronic company.
35. To confirm a contact you — .
39. Headphones (slang).

The solution to this crossword will be published in the next issue with the names of the two lucky winners..

The solution to the crossword in the *July/August issue* is published elsewhere in this issue along with the names of the 6 free sub winners.

NAME.....

ADDRESS.....

.....

TELEPHONE.....

dx international

DX - UP, DOWN and AROUND 11 METRES ...*with Jack Haden*

Conditions on the 11-metre band have been far from perfect in the past few weeks, poor signals and an excessive amount of noise on the band, both manmade and ionospheric, have diverted a lot of DXers attentions to other pursuits. Previously I thought the noise was just associated with action around Sydney but a letter form Neil, the 43-AT-174 in South Australia, informs me that he too has been getting rather high levels of noise on the band in the past five to six weeks.

On the brighter side, the absence of many big gun signals from the Europeans has meant that some DXers have made contacts into central and western Africa, and strangely enough, the noise from our Asian neighbors has been down on usual levels making a relatively clear interference-free path to this region. The best times to look for paths to central and western Africa would have to be around one to two hours before our sunset and about one hour at the most past our sunset.

Scheduled predictions indicate on past patterns the band will in fact pick up as we approach the next equinox, which will be around September onwards, hopefully we will see an improvement in conditions with most signals coming up and the paths staying open to various regions longer. It is no secret that sunspot cycle 22 is rapidly declining, faster than most of us previously thought, so there is some time left on our side to prepare our equipment in time for the next scheduled equinox. Don't forget, the better the antenna the better your chances are so it may be time to trade in the old but faithful vertical and replace it with a decent beam, preferably a five-element job which will give you a good edge.

A QUESTION OF ECONOMICS

Over the past few months a number of DXers have expressed deep concerns about the increasing amount of overseas DX stations that are requesting a minimum of US$2 towards costs in returning QSL cards to stations worked.

We all know that times are hard, but the steep price of two American dollars for QSL cards seems to me to be verging on greed more than anything else. I guess it all depends on how desperate you are to receive the card, a case of user pays, if you want it bad enough then you have no option but to pay for it and that is that.

With our poor exchange rate on the world currency market it doesn't take long before a "few" lots of two American dollars soon mounts up to big money after conversion rates are taken into account.

It is well known that some stations in the new Commonwealth of Independent States (CIS) or formerly the old Soviet Union are now riding high on the proverbial gravy train. They realise that any hard foreign currency is big bucks in their own country, especially on the black markets which thrive on illicit dealings in currency.

However, it is still no reason to abuse the goodwill of the hobby of radio and DXing to screw fellow DXers and thus line their own pockets along the way at the expense of others, especially when times are hard right around the world. Most of us already know their QSL track records are often questionable, so why be lumbered with the onus of sending them $2 instead of $1?

The DX world can be a vicious circle. I have been informed that some Australian DXers have sent the equivalent of $2 in the form of IRCs (International Reply Coupons) only to have their contribution ignored while those who sent "hard" cash enjoyed a better return average.

There are no two ways about it, there are people out there, and there always will be, who use the hobby of radio and DXing to line their own smutty little pockets along the way at the hard earned expense of others and they don't lose any sleep over the matter either, you can rest assured!

You may be interested to know that the Alfa Tango DX group has rules in place limiting all users of Alfa Tango callsigns a top line limit of $1 for QSL costs. If a member asks for more than the $1 limit, then he or she will be automatically expelled from the group with no grounds of appeal.

MARITIME MOBILES . . . DO THEY COUNT FOR DXCC?

This has been a rather contentious issue for many years now, not only on 11 metres but also on the amateur radio bands as well. The question is whether an established two-way contact with a maritime mobile or aeronautical mobile passing through or temporarily in a foreign port counts for the DXCC. The answer is a clear NO, they do not count, even if the vessel concerned is tied up at the wharf - it still doesn't count. The guidelines are quite clear in this regard, and in all fairness to the hobby are quite acceptable and serve their purpose quite well. So there you are, maritime or aeronautical mobiles do not count, never have counted, and never will count for DXCC purposes.

AFRICAN & INDIAN OCEAN REGIONS

As I mentioned earlier there have been some quite surprising paths to this region on 11 metres, although sporadic to say the least. If you are about at the right time no doubt you will hear the odd signal or two, before and after sunset seems to be the best times.

* ***Gabon,*** on the central west coast of Africa, has been noted at O617z with Alain, who signs as the 215-AT-101 making poor headway here at a miserable three by two report, although a station in Western Australia gave him a five by six at the time.
* ***Mali,*** in north west Africa, appeared on the band at O619z with a quite impressive five by six report. The station 216-SL operated by Laurent held quite a good steady signal until O703z when he quickly faded away. Some operators have reported that Laurent doesn't exchange QSL cards while others have, a case of trying your luck.
* ***Zimbabwe*** is still about for those in need of this one. At O652z I logged 85-AT-105 operated by Arthur and at the time he was a very healthy five by nine report. Again, as with most African signals here on the east coast it soon faded after sunset.
* ***South Africa*** is still with us in abundance, I heard quite a few good signals from this country, the strongest belonging to Peter who signs as the 44-AT-110. At 0654z Peter was five by eight.
* ***Walvis Bay*** was logged at O625z by way of XX-999 operated by Sife from a mobile installation, possibly a long distance truck. Sife managed a meagre five by two at best but had no shortage of people wishing to work him. QSL route unknown.
* ***Botswana*** made a weird appearance on the band by way

of RADIO-BBB and when asked what the triple 'B' stood for the reply was "Bad Bloody Barry". It appeared to me that Barry had consumed more than his fair share of drink for the day but at O7O1z was a good five by five.

* ***Malawi*** was noted on the frequencies at O638z with a horde of DXers in Western Australia in hot pursuit, although none of them seemed to secure a contact. The Malawi station was barely readable here, so poor that I failed to record a complete callsign.

* ***Mayotte Island*** is still around most evenings with the most regular station being the 189-AT-115 operated by Annie, at O745z her signal was a fair five by four peaking six at times with heavy fading.

* ***Reunion Island*** is another regular on the bands most evenings. At O557z I logged the 173-AT-1O4 with a massive five by nine signal and later, at O622z, Philippe, the 173-AT-112, was also noted with a good five by eight report.

* ***Sri Lanka*** made a brief appearance at O62Oz by way of Chetty who signs as 177-AT-1O1. Although a poor four by three at best he had no shortage of takers with a number of Europeans in hot pursuit.

* ***Madagascar***, a much sought after new one for many in the Pacific region, appeared at O711z by way of Sean who was signing as the 188-RB-1O1. Sean was five by three at the time and soon faded out on darkness setting in here. Sean was using only 15 watts into a homemade vertical antenna at 30 odd feet, not a bad effort in anyone's book.

* ***The Canary Islands*** are still with us from time to time although the longpath route, enjoyed by many here on the east coast, has been a little on the downside in the past few weeks. I did hear 34-AT-138 operated by Javier at 2136z via the longpath, his report was a poor three by two at the time.

MIDDLE EAST & ARABIA

Not a great deal to report from this area due to poor conditions although some of the regulars are still coming through from time to time although their signals are down from what we previously enjoyed. Apparently DXers in Western Australia are receiving this region better than those on the east coast of Australia.

* ***Kuwait*** continues to dominate this region. A number of stations have been heard in recent weeks with a variety of signals, the most dominant were 1O2-AT-1O1 at O629z five by seven, 1O2-CT-1O1 at O653z five by four, 1O2-ON-1O3 at O651 five by two from Safat. Note that the times to this region coincide with that of the African openings so keep this region in mind while looking for the Africans (west coast DXers exempt).

* ***Lebanon*** has gone way down the gurgler in the signal strength stakes. Once always around the five by nine, they are now right down near the noise level, however, at O652z I managed to hear Ali, who signs as the 112-EC-O8, with a meagre four by two report.

* ***Saudi Arabia*** was logged at O545z with a good five by eight signal coming from 48-SR-O2 and although subject to fade he had no shortage of takers to his calls.

* ***Israel*** has been with us from time to time but again signals have been very poor. At O555z I noted 97-DX-9OO operated by John with a fair five by three report and he was closely followed by Matti who signs as the 97-AT-1O1 at 0645z - Matti was a poor four by two.

EUROPE

Not a lot of surprises from this region at all. As usual, the big gun signals from western Europe pop their ugly heads up from time to time with their over-modulated signals accompanied by over-driven linears further complemented with their stupid whistling before calling.

* ***Rhodes*** was logged at O655z by way of 59-AT-1O3. At the time his signal was a fair but rapidly fading five by five, still, this didn't prevent DXers in the Pacific from joining the chase.

* ***Crete*** appeared briefly by way of 18-AT-1O1 operating portable 90 division. At O72Oz his signal report was a poor four by two and most Pacific region stations found the going tough against the competition from the big gun signals within Europe. Continual calling, tuning up, etc squashed his signal here for the majority of the time.

* ***Iceland*** made a welcome appearance on the band at O8O6z when the band was on the verge of closing for the night. Maritime Mobile 453 operated by Frank was a very weak three by two but by O81Oz had faded away.

* ***Monaco*** generated a lot of interest in our region at O715z by way of 1O7-DX-OO1 operated by Michel. At O72Oz his signal was at is best with a fair five by two being recorded here.

* ***Poland*** is still proving to be quite popular with most DXers but with more and more stations coming on, the demand for this country should have declined somewhat: 161-AT-279 O645z four by two, 161-ED-O1 O639z five by one, 161-EKM-OO1 O7O5z four by two, 161-PLS-111 three by three at O645z. As you can see there has been a variety of stations about from Poland belonging to various DX groups.

* ***Ukraine*** is also with us on most occasions, band permitting, with popular DXer Alex signing as the 315-AT-111 being most active of recent. At O658z Alex was a readable four by two here. Also from the Ukraine I logged 315-OC-O1 operated by Alec, at O5O8z Alec was a good steady five by four and peaked at six at times.

* ***Latvia*** has been about from time to time with the most noticeable station being Al who operates as the 31O-AT-1O2. At O748z Al was coming in quite well considering the band was poor with a good five by seven peaking nine report. Al had no shortage of takers to his call.

* ***Czechoslovakia*** appeared at O7O2z by way of 179-CZA-02, name unknown. With a very good signal but shocking audio, he bumped the metre up to a seven but readability was a mere three at the most. The added problem of a drifting transmit stage, common to many eastern block stations, made keeping track of him on the band difficult. At times he drifted up to two kilohertz either side of the frequency center. This problem often stems from the older style tube equipment that many operators in these countries use and a fair percentage of it is homemade. Put simply, it is a case of having to "chase" them about the band if you need the contact although a constant drift can be annoying at the best of times.

* ***Corsica*** managed to make it through the high noise level during mid-July to record a poor four by one signal at O745z. This signal came from the 1O4-FR-222 with Monique at the controls. Monique seemed to have his heart set on making a contact into New Zealand at the time and appeared to ignore calls directed to him from Australia.

(continued over page...)

dx international

 ...continued from previous page

CENTRAL/SOUTH AMERICA & THE CARIBBEAN SEA

The path to this region has slipped rapidly in the past few weeks although on some days there are often good, but brief, openings. It is a case of being about at the right time to secure anything worthwhile - nothing a good five element at a decent height shouldn't be able to cure.

* ***St Maarten/Saba Eust*** has been with us on various occasions with 166-AT-1O1 operated by Ronny making the odd noises on the band. At 2152z Ronny was a good five by seven but at 22O5z had dropped to virtually nothing.

* ***Grenada*** appears on an irregular basis with the latest station being heard on the band being the UNIT-295 with operator Colin at the helm. At O2O1z Colin was a fair five by three and was looking for small islands in the Pacific region only, at the time.

* ***Saint Vincent*** was noted on the band at 2352 by way of Mick, who signs as the KR-868. At the time Mick was a mere four by two and after a short period of time dropped away to nothing. Although I could just hear Mick, I noted two New Zealand stations continued to work him for a further 30 minutes or so.

* ***Guadeloupe*** made a brief appearance at 2209z with the appearance of Louis signing as the 196-FG-1O1. He was subject to heavy fade and interference from the North Americans and the best he could manage was a four by two. Not a bad effort when you consider Louis was only using 10 watts into a two-element quad at 40 feet.

* ***Montserrat*** also appeared despite poor conditions. At 2251z I made note of 157-SZ1O1, name unknown, on the band - at the time the best he could manage was a poor four by one report.

As usual some of the regulars out of Mexico, Costa Rica, Panama, Honduras, El Salvador, Nicaragua and Guatemala have been about, although they too have been down in signal strength.

Not a great deal of good signals from South America either with some of the big gun signals just nudging the 'S' five mark from time to time.

ASIA & THE PACIFIC REGION

As the saying goes, "there's no place like home" and this would be quite applicable to our own region. Although here too the signals have been far from outstanding, it is better than nothing and there has been a variety of DX about for the taking.

* ***Macquarie Island*** has made the odd rare appearance on the band by way of Jack, who has been signing as the 129-AB-O5. At O655z he was a poor three by two here but despite this had no shortage of callers, especially from our south east Asian neighbors.

* ***Easter Island*** has been about too, although this prefix is not too popular with a lot of DXers who complain about the lack of QSL cards being responded to after hard earned dollars have been parted with. At the rather early hour of 1919z I logged the 144-AT-1O4 operated by Lucia on the band. Lucia was a fair five by five at the time. Interestingly enough, Lucia was in fact 'bailed up' twice while I was monitoring and queried about the lack of QSLs being received from past contacts . . .

* ***Chuuk Island*** group (formerly Truk) has been around on a more or less regular basis by way of John who has been signing as the KO-233 from the main island of Moen. At 23O5z John was a good five by eight here and seemed to enjoy a rag chew with his many Australian contacts.

* ***Western Kiribati*** is still around for those who need this one. At 232Oz I logged the 224-SR-O45 operating from South Tarawa atoll in the Gilbert Island group. At the time the signal was a fair five by five.

* ***Papua New Guinea*** has made the rare appearance by way of 1O1-WW-07, name unknown, at the rather late hour of O717z - the signal was a good five by eight. I noticed a number of operators yelled "slim" at his appearance, a case of work it now and worry later I think.

* ***Guam Island*** plays host to a variety of operators and at 2350z I did note the presence of 62-ON-1O6, name unknown. At the time the signal was a fair five by five but did peak seven at times.

* ***Singapore*** is still well represented by way of resident operator Dave who signs as the FAR EAST RADIO-O1.

DXPEDITION NEWS

- ☐ *DXpedition activity has been down with the poor band conditions, although the odd one or two pops up now and again if you are about at the right time.*
- ☐ *Tazhikistan appeared in the period 13 to 18 May signing as 313-SA-DX0. Signals varied, some evenings the operator, Alex, was five by nine and on other occasions was only five by three. If you need a card then cards with all the trimmings go via the following: 1-SA-O41, PO Box 1O816, MILANO, Italy, 2O11O.*
- ☐ *Lesotho made a prominent appearance on the band on 17 May and signed as 218-AT-0 - at O621z it was a poor four by one report.*
- ☐ *Then Lesotho made a grand reappearance on the band on 24 May and signed as 142-CL-01. Operated by Peter, at O6OOz he was an impressive five by nine on Nauru and received similar reports from DXers in Australia. QSL route for this one is via 44-AT-155.*
- ☐ *Belize, in Central America, made an appearance on 17 May signing as 218-AT-0. Signals were poor on Nauru but many Australian ops were heard calling, QSL route unknown.*
- ☐ *St Lucia was activated on 31 May as 143-AT-DX0 by Peter. At 22O9z the station was a good five by seven, QSL route is via 13-AT-286.*
- ☐ *The Republic of Croatia was noted on the band by way of CROA-AT-0 on 22 June at O721z. At the time the report was only a four by two, QSL route via an address in Solin.*

Dave was a good five by nine at O7O7z while maintaining his regular schedule with his close friend in Melbourne.

* ***Taiwan*** seems to be about in ever increasing numbers and by now most DXers should have this one in the bag so to speak. At O71Oz I logged station TW-2O4 operated by the strange name of "Lion". Mr Lion was five by nine plus at the time. Later, at O723z I noted 155-AT-111 operated by another seemingly strange name, this time "Straw". At O73Oz Straw peaked a five by nine.

* ***South Korea*** opens up from time to time with a variety of callsigns and at O859z I logged 1OO-RC-1O2 at a good five by eight report - he had no shortage of takers to the calls given.

* ***Asiatic USSR*** is a regular on the band by way of Mr Vlad who signs as 3O2-UR-1O1 and at O655z was a fair five by three report.

* ***Georgia,*** in the CIS, was logged at O65Oz with Mike, who signs as the 3O6-AT-1O1, leading the way. Mike was a reasonable five by two at the time and was working quite a number of Australian stations at the time.

* ***Kazakhstan*** has been heard on many occasions with 3O8-ON-1O1 being the most regular on the band. At O638z Alex was a healthy five by eight but appeared to have a drift problem with his radio and required constant tracking at the time. Also logged was 3O8-AT-1O5, another Alex, at O82Oz. Alex was a good five by nine and had a number of stations keeping him occupied.

* ***Kirghizia*** still proves to be quite popular on the band judging by the reasonably sized pile-up that the 3O9-AT-1O3 had on his hands at O5O1z. At the time he was a good five by nine report in the clear and was closely followed by 3O9-AT-1O1 at O545z with a lesser report of five by two.

* ***Uzebekistan*** is around at various times by way of Vasia, the 316-AT-1O1 one of the most active from this prefix. At O633z Vasia was an excellent five by five and peaked a good five by seven at O658z before the band dropped out at O71Oz.

* ***Kermadec Island***, north of the mainland islands of New Zealand appeared on the band via a 'slim' signing as DX-1O1. This person succeeded in conning a few Australian stations before his cover was blown.
On Nauru he was a good five by nine plus 1ODB with the beam to Australia but while beaming to the Kermadecs he was only five by three at the most. Apparently he was five by nine plus not far from Penrith so I will leave it to you for further judgment. At least he had a good New Zealand accent and as mentioned, did suck in a few people during his brief stint from 'Kermadec' via the western suburbs of Sydney!

My apologies for the decreased amount of news in the edition. Poor band conditions and constant travel between Nauru and Australia has taken time also.

Thanks to those who have written. Please remember that if you want a direct reply from me about any questions you may have a, self-addressed envelope with a 45 cent stamp attached is a must. As usual thanks to those who have kept in touch via the usual methods . . .

73 Jack, Republic of Nauru.

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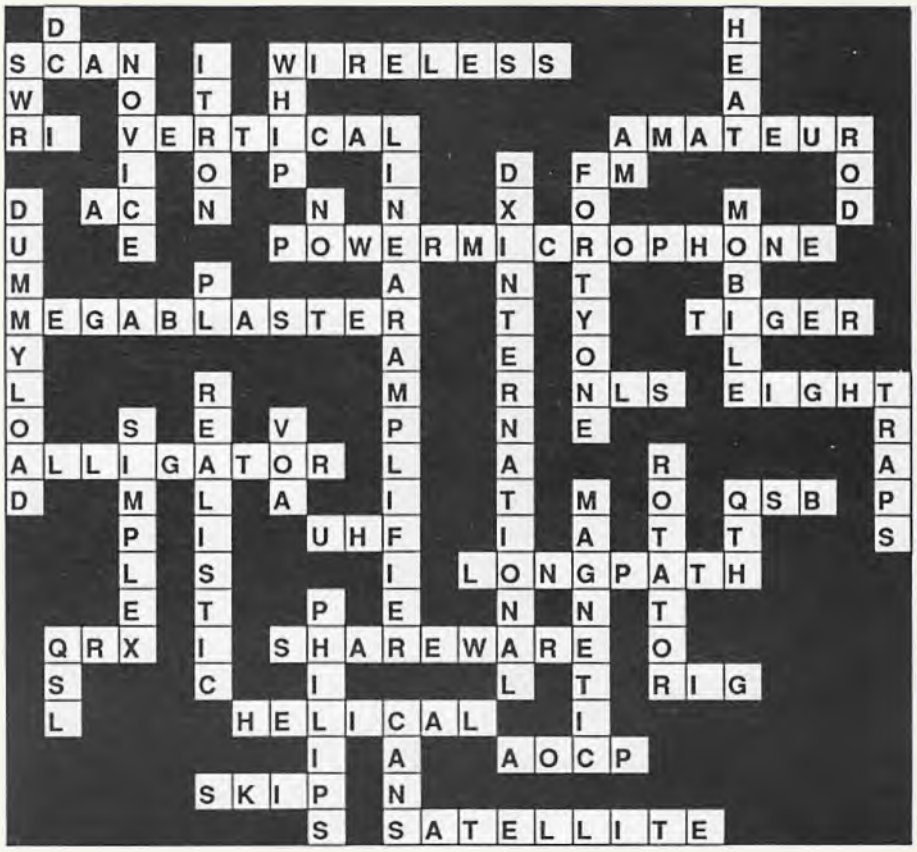

AUSTRALIAN UHF REPEATER LIST

NOTE: Corrections and updates may be sent to: CBA Repeater Listing, PO Box E160, St James, NSW 2000.

ACT

Canberra	2/32
Canberra	8/38

New South Wales

Albury	6/36
Armidale	4/34
Barraba	6/36
Bathurst	8/38
Bega	6/36
Belbora	1/31
Binya	3/33
Blue Mountains	2/32
Bombala	8/38
Booral	7/37
Bowral	6/36
Braidwood	
Brewarrina	1/31
Brindabella Ranges	7/37
Broken Hill	4/34
Broken Hill	7/37
Buladelah	7/37
Casino	6/36
Cobar	8/38
Coffs Harbour	6/36
Coolah	6/36
Cooma	4/34
Coonabarabran	4/34
Corowa	2/32
Corowa	5/35
Corwa	7/37
Deepwater	5/35
Deniliquin	1/31
Dungog	3/33
Eden	2/32
Glen Innes	7/37
Grafton	8/38
Grenfell	1/31
Gundagai	7/37
Gunnedah	2/32
Guyra	1/31
Warden	1/31
Hampton	1/31
Hay	4/34
Invereil	2/32
Jindabyne	1/31
Junee	5/35
Kariong	8/38
Lismore	2/32
Manilla	3/33
Monkey Hill	6/36
Mt Lambie	2/32
Murrurundi	3/33
Muswellbrook	4/34
Narrabri	2/32
Narranderra	8/38
Narromine	5/35
Narromine	8/36
Newcastle	1/31
Newcastle	2/32
Newcastle	5/35
Newcastle	6/36
Nundle	7/37
Orange	3/33
Port Macquarie	2/32
Sydney	5/35
Sydney (south)	1/31
Sydney (west)	3/33
Sydney (outer-west)	4/34
Sydney (north)	7/37
Tamworth	4/34
Tenterfield	3/33
Tumbarumba	3/33
Tumut	6/36
Tweeds Heads	4/34
Wagga Wagga	1/31
Wagga Wagga	5/35
Walbundrie	2/32
Walcha	2/32
Walcha	6/36
Walcha	8/38
Warrumbungles	1/31
Wingham	1/31
Wilcannia	1/31
Wollongong	8/38
Northern Territory	
Bushy Park	1/31
Darwin	1/31
Erldunda Station	3/33
Katherine	2/32
Maryvale Station	4/34
Mt Swan	2/32

Queensland

Alpha	2/32
Atherton	8/38
Amiens	8/38
Ayr	3/33
Barcaldine Downs	1/31
Bathurst Heads	1/31
Bauhina Downs	4/34
Biloela	7/37
Blackall	8/38
Blackwater	6/36
Brisbane	1/31
Brisbane	5/35
Brisbane	7/37
Bundaberg	4/34
Bundaberg	7/37
Cairns	3/33
Chinchilla	8/38
Clermont	6/36
Clermont	7/37
Crows Nest	6/36
Dimbulah	6/36
Dirranbandi	8/38
Double Island Point	3/33
Edward River	3/33
Emerald	8/38
Gladstone	6/36
Gold Coast	3/33
Goondiwindi	4/34
Gympie	2/32
Gympie	5/35
Gympie	7/37
Hervey Bay	8/38
Hughenden	1/31
Ingham	2/32
Inglewood	1/31
Innisfail	1/31
Ipswich	4/34
Jericho	4/34
Kilcoy	3/33
Lakeland Downs	2/32
Longreach	3/33
Mackay	3/33
Mackay	6/36
Marlborough	2/32
Maryborough	6/36
Maxwelton	2/32
Miles	6/36
Monto	3/33
Moranbah	4/34
Moura	1/31
Mt Isa	1/31
Mundubbera	6/36
Murgon	7/37
Quilpie	2/32
Rockhampton	1/31
Rockhampton	4/34
Roma	1/31
Springsure	3/33
Sunshine Coast	6/36
Sunshine Coast	8/38
Tambo	5/36
Taroom	2/32
Thargomindah	6/36
Toowoomba	2/32
Toowoomba	4/34
Townsville	1/31
Townsville	4/34
Wavell Heights	2/32
Warwick	1/31
Wide Bay	1/31
Yaraka	7/37

South Australia

Adelaide	5/35
Angaston	4/34
Blinman	3/33
Carrietown	1/31
Ceduna	1/31
Clare	7/37
Cleve	2/32
Coonalpyn	6/36
Coppuduriba Hill	1/31
Hawker	7/37
Kangaroo Island	4/34
Manum	8/38
Mt Bryan	8/38
Mt Gambier	5/35
Mt Gambier	7/37
Myponga	2/32
Naracoorte	4/34
Orroroo	2/32
Port Lincoln	8/38
Port Pirie	4/34
Renmark	6/36
Snowtown	6/36
Tarcoola	6/36
Wilkatana	8/38
Yorketown	7/37

Tasmania

Burnie	8/38
Central Highlands	7/37
Devonport	1/31
East Coast	6/36
Flinders Island	1/31
Hobart	1/31
Hobart	5/35
Launceston	2/32
Launceston	6/36
Midlands	4/34
North East Coast	3/33
North West Coast	4/34
North West Coast	6/36
Sandfly	2/32
West Coast	2/32

Victoria

Alexandra	1/31
Ballarat	2/32
Ballarat	5/35
Bairnsdale	7/37
Beech Forest	3/33
Bendigo	4/34
Cavendish	8/38
Currajung	4/34
Echuca	6/36
Euroa	3/33
Falls Creek	3/33
Foster	6/36
Geelong	4/34
Hall's Gap	6/36
Hamilton	5/35
Harcourt	8/36
Hawkesdale	4/34
Horsham	3/33
Kerang	2/32
Lavington	4/34
Mansfield	2/32
Melbourne (north)	1/31
Melbourne (metro)	3/33
Melbourne (metro)	5/35
Melbourne (south)	7/37
Mildura	3/33
Moe	2/32
Mornington Pen.	8/38
Mortlake	7/37
Mt Cann	8/38
Mt Concord	6/36
Mt Delegate	3/33
Mt Terrible	8/36
Myrtleford	8/36
Penshurst	1/31
Shepparton	7/37
St Arnaud	1/31
Swifts Creek	1/31
Talangatta	7/37
Wangaratta	6/36
Waubra	7/37

West Australia

Albany	3/33
Augusta	7/37
Bencubin	2/32
Boyup Brook	4/34
Bunbury	2/32
Carnamah	2/32
Carnarvon	2/32
Coolgardie	7/37
Darkin	6/36
Denmark	1/31
Esperance	4/34
Kalgoorlie	2/32
Kambalda	1/31
Katanning	1/31
Kellerberrin	1/31
Kulin	4/34
Lancelin	4/34
Mandurah	7/37
Manjimup	6/36
Margaret River	6/36
Meekatharra	1/31
Merredin	2/32
Mia Mia	1/31
Mt Manypeaks	6/36
Mt Barker	5/35
Mt Barrow	7/37
Mt Saddleback	1/31
Mt Solus	4/34
Nannup	2/32
Perth	1/31
Perth	3/33
Perth	5/35
Perth	8/38
Ravensthorpe	8/38
Stirling Ranges	7/37
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