

DEC

THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

P.O. BOX 1838 WOLLONGONG N.S.W. 2500

IARS is a Member Club of the Wireless Institute of Australia

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166 Osborne Parade
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MONTHLY MEETING- Second Monday of each month, 7.30pm at:-

The Congregational Hall, Coombe St. Wollongong.

CLUB STATION- VK2AMW

CLUB REPEATERS- VK2RAW, Channel 5 2 metres.
VK2RUW, Channel 1 70 centimetres.

MONTHLY BROADCAST- 7.15pm EAST on the Sunday preceeding the meeting night. IARS Broadcast frequency:-

Repeater Ch5 or Simplex Ch40

Relay on 28.460 MHz & UHF repeater Ch1

CLUB NETS- 6 Metres 8.30am Sundays - 52.525 MHz FM.
10 Metres 8.00pm Sundays - 28.460 MHz USB.

MURPHY'S LAW ;

IF ANYTHING CAN GO WRONG, IT WILL.

COROLLARIES:-

1. Nothing is as easy as it looks.
2. Everything takes longer than you plan.
3. If there is a possibility of several things going wrong, the one that will cause the most damage will be the one to go wrong.
4. If you perceive that there are four ways in which a procedure can go wrong, and circumvent these, a fifth way will promptly develop.
5. Left to themselves, things tend to go from bad to worse.
6. Whenever you set out to do something, something else must be done first.
7. Every solution breeds new problems.
8. It is impossible to make anything foolproof because fools are so ingenious.
9. Nature always sides with the hidden flaw.

CONCLUSION:-

1. Smile.....tomorrow CAN be worse.
2. Murphy was an optomist.

NEXT MEETING: MONDAY 10 - DEC - 79

MERRY XMAS

GET YOUR AMATEUR LICENCE IN 1980

Get your licence, and start making friends throughout Australia every evening on 80 metres - talk to amateurs around the world on 20 and 15 metres - operate through amateur satellites - run radioteletype - try slow-scan television - use VHF repeaters for reliable mobile communication.

Learn enough to start building your own equipment.

The School of General Studies at Wollongong Technical College is running its approved course in Electronics again in 1980.

The course includes all the information and training you need to get your Novice, Limited, or Full Amateur Licence, as well as practice problems and trial examinations to prepare you for the real thing.

If you have NO knowledge of electronics - but are prepared to study hard, you should be able to pass the Novice Examination in November 1980.

If you have a Novice Licence, or electronics background - you should be able to pass the Full or Limited Examination in August 1980.

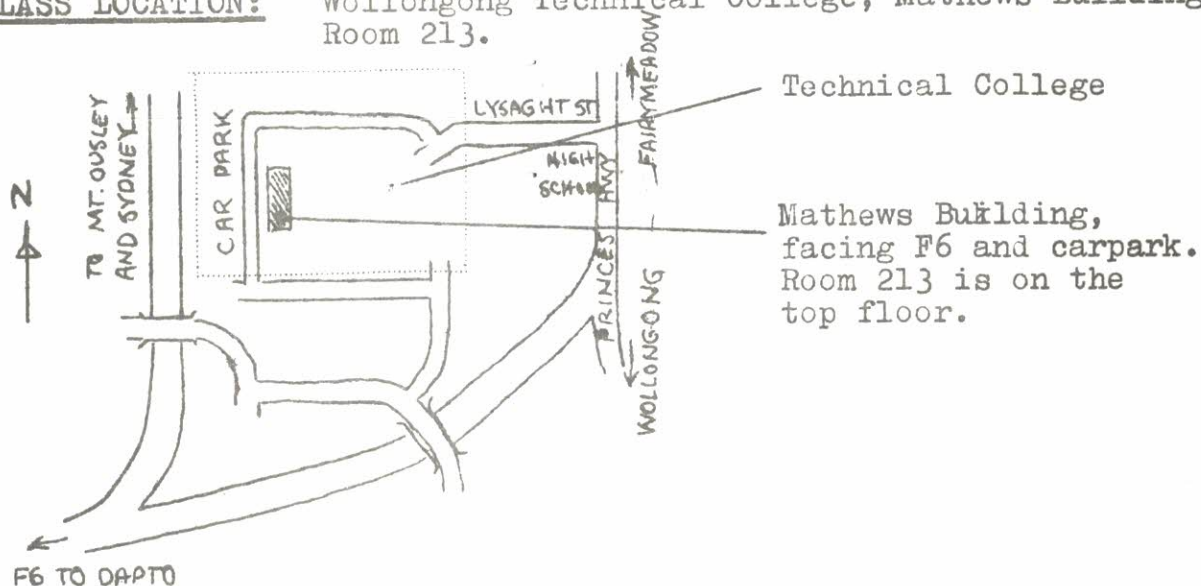
So - enrol in the course - and become an Amateur Radio Operator in 1980 - or upgrade your existing Novice or Limited call.

ENROIMENT DETAILS

ENROIMENT: Enrol on the first night of the course, Friday 15th February, 1980 at Room 213, Mathews Building, at 6 p.m.

CLASS TIMES: 6 - 9 p.m. Friday nights, starting on Friday 15th February.

CLASS LOCATION: Wollongong Technical College, Mathews Building, Room 213.



FURTHER INFORMATION: Contact Brian Wade, VK2AXI. Phone (after hours) (042) 84-1381 .



MACELEC PTY. LTD.

Professional & Industrial
Electronics



<u>KENWOOD</u>	TL120 - Linear Amplifier 3-30MHZ.....	\$234.00
<u>KENWOOD</u>	TS520S - H.F. Transceiver.....	\$650.00
<u>KENWOOD</u>	TS8205 - H.F. c/w Digital Display (1 only).....	\$890.00
<u>KENWOOD</u>	TS120V - H.F. Mobile 10 Watt Output.....	\$600.00
<u>KENWOOD</u>	TS120S - H.F. Mobile 100 Watt Output.....	\$730.00
<u>KENWOOD</u>	AT200 - Antenna Tuner-SWR.....	\$160.00
<u>KENWOOD</u>	AT120 - Antenna Tuner-SWR.....	\$96.00
<u>KENWOOD</u>	RD300 - Dummy Load 300 Watt to 150 MHZ (1 KW Peak).....	\$79.00
<u>KENWOOD</u>	MC501C - New Economy Base Station Microphone.....	\$29.00

* * NEW PRODUCTS AVAILABLE SOON * *

- * KENWOOD R1000 - Digital Reciever 200KHZ to
30 MHZ P.L.L.....\$498.00
- * KENWOOD TR2400 - Digital Hand-Held 2M Transceiver
L.C.D. - 10 Memories - Scanning.....\$ POA
- * KENWOOD Programmable Digital World Time Clock.....\$ POA

* * *

We also Stock.....

H.F. Antenna's - Ringo Rangers - Morse Keys - Oscilloscopes
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- Keyboard entry of frequency
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Cat D-2888

\$358⁰⁰

Price includes NiCad battery pack.

The Yaesu FT-207R 2 metre hand held

This is the receiver you've dreamed of. Gone are the horse-and-buggy days of crystal controlled hand-helds. This new Yaesu uses a four-bit microprocessor to give you more features, more control than you'd imagine possible. If you really want to get into 21st century amateur radio, the Yaesu FT-207R is the transceiver to take you there.

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For the discerning amateur who wants the best technology available today. Vox, FM unit, RF speech processor, digital frequency display, RF negative feedback, crystal filter... you name it, the 901D has it! Outstanding value. Cat D-2854 **\$1266.00**

FT901D Options:

FC-901 Antenna tuner	Cat D-2855	\$265.00
DC-DC Converter	Cat D-2856	\$75.00
Memory Unit	Cat D-2858	\$149.50

FT-101Z all HF band transceiver. 180W DC input.

A worthy successor to the FT-101E. All the features of the previous model, but with 6146B finals, selectable AGC, front panel VOX control, Rx/Tx clarifier, and fully compatible with the FT-901 series of accessories. Superb! Cat D-2862 **\$849.00**

(For accessories refer above to FT901)

FT-7B: Up-rated mobile HF transceiver. 100 W.

Now a massive 100 watts with AM, USB & LSB, the FT-7B is a force to be reckoned with. Designed for mobile use (single knob tuning makes it a breeze) but makes a great base station, too. 13.5V operation, a superb performer. Cat D-2868. **\$649.00**

FT-625R: 6 metre, all mode transceiver.

The sunspot cycle is nearing its peak. Don't miss the chance of some rare DX! The 625R will get it for you. ALL modes, so you aren't going to miss any of the action. Cat D-2886. **\$795.00**

FT-227RB: 2 metre mobile transceiver.

Here's a chance to go 2m mobile and save. We've reduced the price of this unit by \$46.00! Simplex, repeaters, etc etc, all easily accomplished! 1W or 10W output. Cat D-2891 **\$399.00**

CPU2500RK: The ultimate 2 metre transceiver!

Central processing unit (CPU) controls the action. And there's plenty of that. 800 channels from 144-148MHz, LED readout, dual gate front FET front end, 25 watts output... it really is a brilliant piece of gear. Call in for a test drool! Cat D-2889 **\$549.00**

FRG-7: listen to the world! 0.5 - 30MHz coverage.

This extremely sensitive communications receiver is used by monitoring services throughout the world. It runs from mains or 12 volt, is a delight to use. Cat D-2850 **\$395.00**

YAESU MOBILE ANTENNAS

The greatest mobile system you'll find: Buy the gutter mount base and 2 metre stub and you're on the air immediately on 2m. Then, as you need them, buy the whips for the HF bands you want to operate on. It's as simple as that. Now there's no excuse not to go mobile — with Yaesu mobile antennas from Dick Smith Electronics.

RSE-2-M
Gutter mount
Cat D-4190
\$32.50

RSE-2A
2 metre stub
Cat D-4102
\$10.95

RSL-145
6 & 2 metre antenna
Cat D-4104
\$23.95

RSL-3.5
80 metre antenna
Cat D-4110
\$19.95

RSL-7
40 metre antenna
Cat D-4112
\$19.95

RSL-14
20 metre antenna
Cat D-4114
\$20.95

RSL-21
15 metre antenna
Cat D-4116
\$20.95

RSL-28
10 metre antenna
Cat D-4118
\$20.95

DICK SMITH ELECTRONICS

263 KEIRA STREET, WOLLONGONG
PHONE 28 3800

MAIL ORDER CENTRE: PO BOX 321, NORTH RYDE, NSW, 2113.



WOLLONGONG REPEATER

The last month has been a busy one for all involved with the channel 5 repeater.

At the begining of the month a savage storm caused damage to the receiver, transmitter exciter, and the control unit. Five transistors had to be replaced in all, and it was amazing that damage was not more serious, considering that some tussocks of grass in the vicinity of the transmitter cubicle were burnt by lightning. A large tree on the lower side of the hill from the mast was burnt down one side and the adjacent paddock was littered with half-burnt twigs.

Again, two weeks later, another storm took its toll of transistors, this time in the control unit.

Last week's hailstorm which hit Sydney had its epicentre in Robertson. The force of the hail tore holes in the top of the transmitter cubicle, causing water to penetrate. The water got into the decoder for the auxiliary receiver used for the relay of the Sunday broadcast so there may not be a broadcast on Ch 5 until it has been fixed. Since the first lightning hit, a ground stake was installed at the receiver in an attempt to reduce currents in the landline due to surge currents from lightning. Although many hours have been put in by various members in maintenance of the repeater, the "OFF AIR" time has been minimal.

The cost of repairs to the repeater has amounted to five dollars thanks to the generous donations of transistors from a local source. During the next week from this writing, it is planned to waterproof and paint the transmitter cubicle.

REPEATER HIGH & LOW POWER OPERATION

There have been a few comments heard on the air like "why do they have to complicate things by putting high and low power switching into the repeater?"...."surely it does not save much power....." Well, here are a few facts:- The high power amplifier in standby mode (filaments, HT and blower on) consumes 30 watts. Running 24 Hrs. a day for a year, that works out at 262 Kilowatt Hrs. At rural electricity rates of 16 cents a KWHr., the running cost is \$42.00 a year.

The repeater normally runs at 5 watts output from the solid state exciter.

If a continuous signal is transmitted into the repeater for ten seconds this is sufficient to distinguish the difference between button pushing and a real QSO, and the filament supply is switched on to the PA. The repeater will remain on low power for approx. a further 30 seconds while the final valve warms up. Upon the first keying up after warm-up the output will be 90 watts. Note that the repeater will not go to high power during a transmission, only at the beginning of a transmission. Once high power has been initiated, the amplifier will remain in standby for the whole of a QSO, and for 10 minutes after the end of the last transmission. If no signal is heard by the repeater for a 10 minute period, it will revert to 5 watts again, requiring the 10 second input to bring it to full power again.

If there is a mains failure at the repeater site (a very common occurrence) it will run at 5 watts. High or low power can be identified by the pitch of the ident tone. High tone = low power, Low tone = high power.

Both tones together mean that the cubicle fans have switched on as the thermostat has reached a temperature of 50 degrees C. The repeater may be used normally in this condition.

GRAEME VK2CAG.

KLIPSTEIN'S LAWS

(as applied to design and prototyping.)

1. Tolerances will accumulate unidirectionally toward maximum difficulty to assemble.
2. If a project requires 'n' components, there will be 'n-1' components in stock.
3. A motor will rotate in the wrong direction.
4. A failsafe circuit will destroy others.
5. A transistor protected by a fast-acting fuse, will protect the fuse by blowing first.
6. A failure will not appear till a circuit has passed final inspection.
7. A purchased instrument will meet its specs. for a minimum of 90 days.
8. After the last of 16 mounting screws has been removed from an access cover, it will be discovered that the wrong access cover has been removed.
9. After the access cover has been secured by 15 hold-down screws, it will be realised that the 16th screw was left inside.
10. After a device has been assembled, extra components will be found on the bench.

JONES'S LAW :

The man who can smile when things go wrong, has just thought of someone to blame it on.

A MULTIBAND VERTICAL

This year I operated JOTA from a small suburban block and tried a vertical antenna which proved rather successful.

It is basically a $\frac{1}{4}$ wave radiator worked against ground on 40M. The antenna was constructed from readily available aluminium tubing. this tubing was in 2M. lengths and sizes used were 12, 16, 20, 25, and 32mm O.D. 1.6mm wall. Using stainless hose clamps and scrap aluminium for shims, where necessary, a vertical is made that is a little over 30' in length. I used the base section from a defunct 4BTV trap vertical. Realizing that a good earth is essential for efficient operation of a vertical

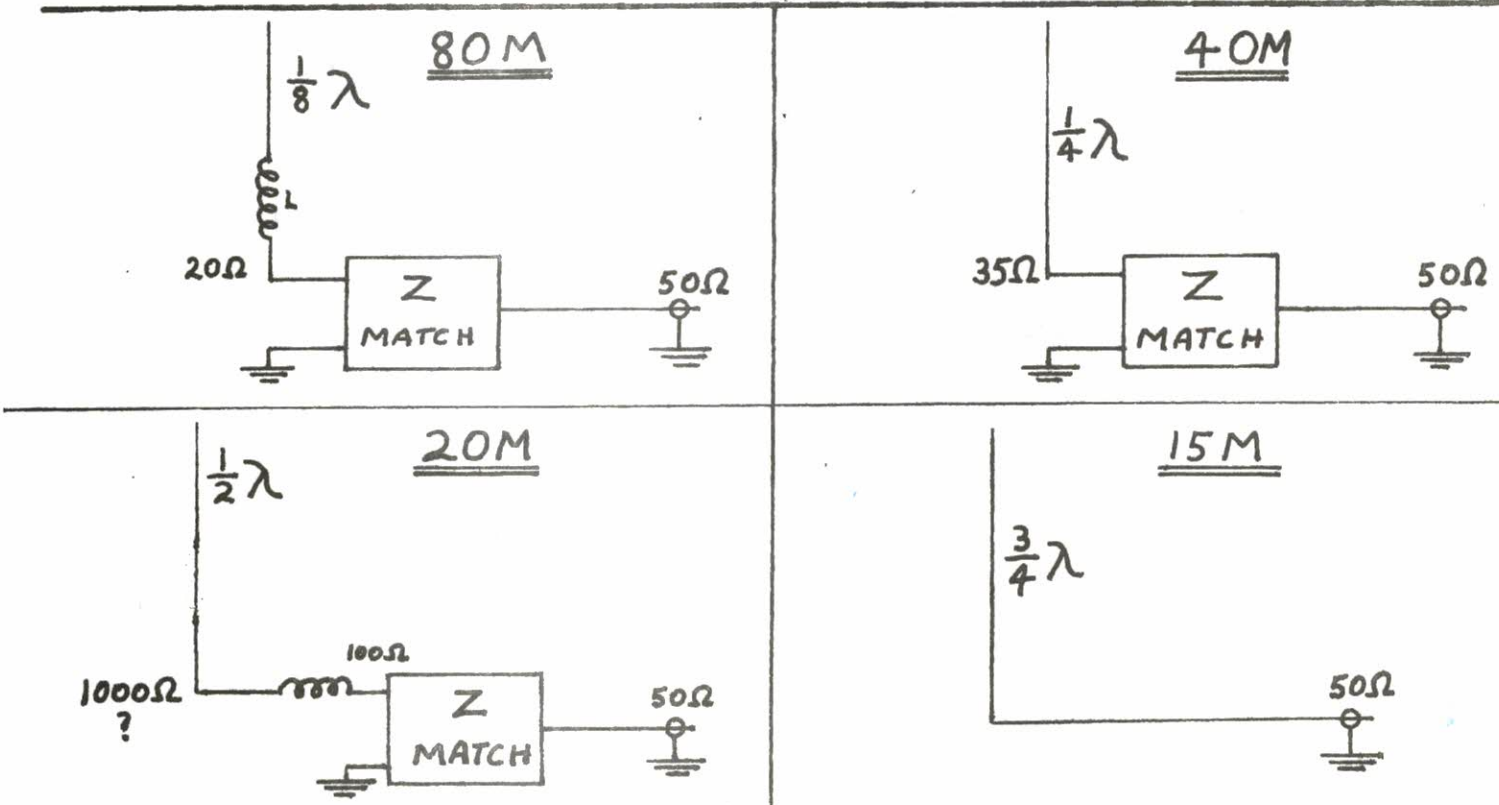
I used a radial system of 40 wires each 27' (0.2Wave on 40M). These radials were obtained by removing the P.V.C. sheath from a piece of scrap telephone cable 27' in length which proved to be a very convenient way of obtaining a large number of wires. The radials can be laid on top of the ground in a circle. In a domestic situation they could be slowly blended into a lawn by topdressing the lawn over a period of time.

Once the antenna is erected it should be fed direct with 50 ohm co-ax through a SWR bridge and the resonant frequency checked. The length can be adjusted to give lowest SWR near the low end of 40M. The length of the antenna should be about 31'-32'6" depending on actual surroundings and the SWR less than about 1.4 : 1 . To improve the matching I used a toroidal transformer removed from an old AWA Marine A.T.U., SWR was reduced to 1.15 : 1 using Tap "F" suggesting a feedpoint impedance of about 30 ohms. The antenna can be made to work rather effectively on 80, 20 and 15 metres. 15 metres is the easiest to set up, feeding it direct with 50 ohm co-ax. The antenna acts as a $\frac{3}{4}$ wave which gives an interesting radiation pattern with two lobes, one at a medium angle and the other at a low angle. To use the antenna on 80 metres I added some inductance at the base and the impedance transformer again. this resulted in an antenna which seemed to perform every bit as well as the usual "bent" 80M dipole while not requiring near as much real estate to erect.

Using the antenna on 20 metres is rather more difficult as the feedpoint is a high impedance. I did however tune up the antenna by using inductance to bring the antenna to $\frac{3}{4}$ wave electrically and then matching with the transformer once again. (an L-network could be used) On 20 metres the antenna is $\frac{1}{2}$ wave in length which gives a very low radiation angle which could make it a good (simple) DX antenna. In conclusion this antenna seems to be a good performer and more efficient than a trap vertical. If you can get your hands on a second hand AWA marine A.T.U. (Type-ATU 1), do so because all the required matching components are contained therein. It is possible to remotely select (by relay) any of nine matching arrangements. It is important to use an adequate radial system for best results. 30 or more radials 25' or more in length are recommended, the wire type and size is relatively unimportant. For portable operation it is possible to get reasonable results using just a piece of 'AIR DUX' coil and SWR meter selecting the required number of series turns with an alligator clip. 10 metres was not tried, it is felt that as the length is a full wave most of the radiation would go straight up.

The antenna can be guyed using nylon 'blind' cord or free standing on $1\frac{1}{2}$ " pipe driven into the ground about 4-5'.

BAND	TURNS	'Z' TAP	SWR	ANTENNA
80M	37	'H'	1.1:1	1/8 Base loaded
40M	--	'F'	1.2:1	$\frac{1}{4}$
20M	16	'A'	1.05:1	$\frac{3}{4}$
15M	--	---	1.3:1	$\frac{1}{2}$



FIELD DAY

SUNDAY, 23rd MARCH, 1980.

Catherine Fields Hall, Cnr Catherine Fields Rd. and Chisolm Rd.,
Catherine Fields. (opposite P.O.)

Come one, come all - there's something for everyone! including displays, disposals, distantly disappearing foxes, distressingly difficult radio quiz, deceptively easy general knowledge quiz, disingenuous kids crossword and colouring competition, disillusioning 'meet the people' contest, devilishly disconcerting observation trial and delightful country surroundings in which to mingle with fellow amateurs.

Herewith the program:

- 8.30 on Registration
8.45 - 9.00 HF scramble - hand sheets in to registration desk by 12 noon.
9.30 - 10.00 10m and 2m short DF hunt - no sniffer. (28.3 and 146)
10.30 - 10.45 VHF scramble - repeater operation allowed. Sheets in by 12 noon.
11.00 Disposals opens for business.
11.00 - 11.30 8 years and under - Find the Beeper (audible)
16 years and under - pedestrian 2m AM sniffer hunts (144.48)
11.30 - 12.00 Open pedestrian 2m AM sniffer hunts (144.48)
12.00 - 1.30 Lunch - bring your own or buy at the shop opposite. Barbecue facilities and tea and coffee provided.
1.30 - 2.30 Two transmitter DF hunts on both 10 and 2m - sniffer required. (28.3 and 146)
1.30 - ? Observation trial. No time limit but sheets in by 3.30.
3.00 - 3.30 Talk in hunt on 10m, 2m and 70cm. No penalty for asking questions. (28.3, 146 and 439)
3.45 - 4.00 Open pedestrian 2m AM sniffer hunt. (144.48)
4.00 - ? Afternoon cuppa and prizegiving.

ALL DAY radio quiz, general knowledge quiz, kids crossword, kids colouring competition, 'meet the people' contest, cups of tea or coffee (free) cans of cold soft drink will also be on sale. Brochures showing local places of interest will also be available for those who don't wish to participate in all events. A map will be provided to all those taking part in mobile events and all foxes will most definitely be within the confines of the map.
At the field day site there will also be trade displays. If you have anything you wish to sell, bring it along on the day, for the disposals desk.

Cost: children 16 years and under and pensioners - £2.
adults single - £4. family £6.

For further information or to make booking accommodation enquiries, ring 721107 or 6054461 or write to Lloyd Anderson, 105 Willan Drive, Cartwright, 2168.

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