

THE PROPAGATOR

NO. 6/77

JUNE 1977

NO. 6/77

THE MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

A Member Club of the Wireless Institute of Australia.
Published by the Illawarra Amateur Radio Society
PO Box 1838
WOLLONGONG NSW 2500

PRESIDENT

Bill Calvert VK2DJ
19 Springfield Ave
FIGTREE 2525
Ph 71 3569

SECRETARY

Brian Boseley VK2NBB
Figtree Hotel
FIGTREE 2525

NOTICE OF MONTHLY MEETING - JUNE 1977

Members are advised that the monthly meeting of the Illawarra Amateur Radio Society will be held at the Wollongong Town Hall Meeting Room on Monday, 20 June 1977 at 7.30 pm.

AGENDA

- 1 Apologies and welcome to visitors.
- 2 Minutes of previous General Meeting.
- 3 Correspondence.
- 4 Financial Report.
- 5 General Business.

THIS MONTHS LECTURE

This month Keith VK2BUU will give a talk on his NOISE CANCELLING DEVICE. This is basically the same as appeared in A.R. some months back. Keith has had some very good results from this piece of equipment and he will attempt to demonstrate its operation as well as outline the modifications he made to the unit.

73's GEOFF 2ZHU

MOONBOUNCE REPORT - JUNE 1977

The scheduled EME tests for May were carried out in pouring rain on 28 May. The quantity of water on the ground almost made it seem like a maritime-mobile operation, with Charlie VK2ZEN, having quite a damp few hours attending the dish.

First time contacts were made with K9AQP/1, 'M'/'O' copy and then with K3NSS, who use an 85 ft dia dish. Their signals were very good on their first transmissions, at 11 dB and more on peaks, allowing 5 3 9 reports to be exchanged. However, the strength then dropped for some reason to approximately 6 dB above noise. They are certainly not obtaining results which could be expected from a dish of this size.

A half hour VK2AMW CQ period then followed, during which we were called by a station which was almost certainly W7GBI. 'T' reports were exchanged but no contact resulted.

As there is no other VK station on 432MHz/EME yet and we are not allowed to transmit with the dish pointing lower than 10 degrees above the horizon, the only way to make our 70cm band WAC was to arrange a low power scheduled test with VK2AYF, some 8 miles distant!! Local reflections from side lobes radiated from the dish were used.

VK2AYF is the only station, apart from VK2ALU, who operates on 70cm in the Wollongong area, so this contact doubled his score! As Stuart, VK2AYF is leaving Wollongong this month to live in Sydney, VK2AMW had to get in quick to catch him. At the present rate of progress of amateur activity on the UHF bands in Wollongong, the CBer's will be showing us the way!

Lyle VK2ALU.

OSCAR News.

VK2ALU has been putting RTTY into Oscar 7 Mode B to try out equipment capabilities. Any one interested in trying to make a contact in this mode?

VHF AND TV GROUP FIELD DAY

The VHF and TV Group is conducting a field day contest over the June long weekend.

As information we expect the following groups to be active:-

VK2BAD/p at high range, Mittagong - 2 and 6m SSB/FM, 432 to 436 SSB/FM.
VK2BSU/p at Mt. Bindo - 2 and 6 SSB/FM, possibly 70cm.
VK2APF/p at Mt Piddington - as above.
VK2ATZ/p at Mt Warrawolong - as above.
VK2ZEH/p at Mt Bald - 6m SSB and 2m FM.

Other possibilities are VK2TK and the ACT Division, with the Brisbane VHF Group near Lismore.

Drew Diamond VK3XU
55 Winbirra Pde, Ashwood, Vic, 3147

6

7
:
:
:
:
:
:

the
the
a
T
p
a
S
H
C
e
H
H

T
n
s
d

rg

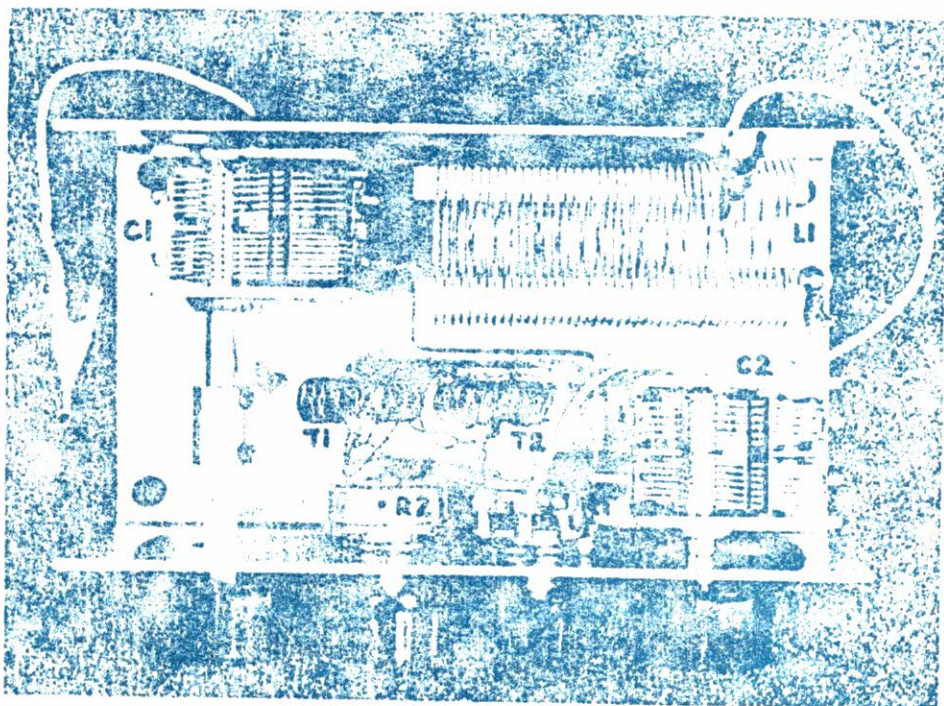
flu
at
to
le
is

at
cl
us
co
ea
a
of
R

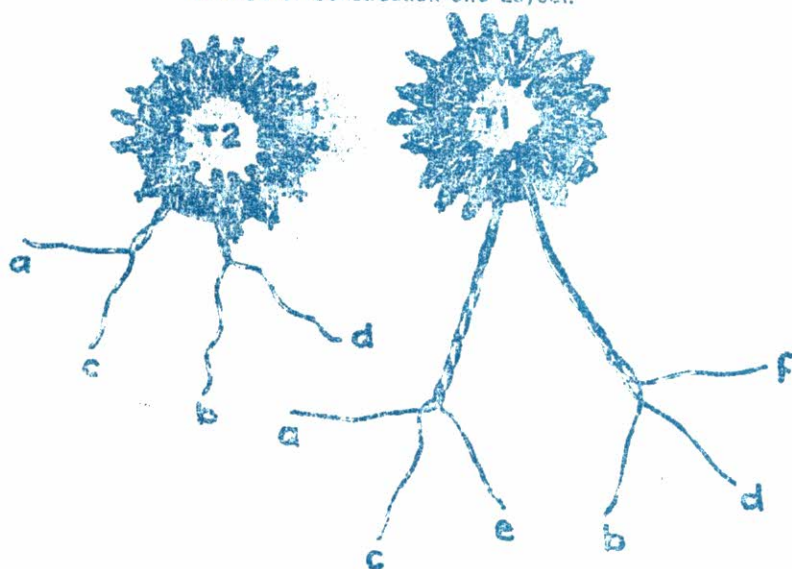
sim
is
ha
be
of

A
no
pin

for



Method of Construction and Layout.



Amateur Radio October, 1976 Page 11

Transformer Windings

About any cure will do) and are critical in only one respect, the connections must be right. Number 22 B & S enameled wire is used. For T1, cut off three lengths each about 50 cm long and for T2, two lengths about 60 cm long. T1 is trifilar wound. Twist the three wires together at one end and clamp about 2 cm in a vice. Twist the other ends together and fix them firmly in the chuck of a hand drill. Give the drill a few turns to take out the wire kink, then twist them up to about two twists per cm, at the same time keeping the wire taut. The two wires of T2 are twisted up in the same manner. The number of turns for T1 and T2 is not critical, just fill the former neatly as shown in the photo. Remove the insulation from the ends and using an ohmmeter, locate the respective wires ab, cd and ef. Join a to d, Pair on c and f which leaves b and e.

Adjustment is fairly simple. A good level of noise voltage must first be established. Turn R1 to max. and R2 to min. Then adjust C1, L1 and C2 for maximum received noise. Now R2 is advanced to max. and R1 to min. Rotate R1 from min.

and a point will be reached where the noise will drop. Alternately adjust R1 and R2 for best noise null but try to achieve this with R2 near its max. setting. If a null is achieved too far down R1 and R2, receiver noise begins to become apparent. Some final adjustment of C1 and C2 may be necessary. A piece of plain cardboard could be placed behind the knobs upon which the settings for each band are marked.

I see no reason why this circuit could not be used at VHF for radio or TV reception. The noise antenna could be a small, low beam pointed at the source of noise. The Z matching becomes unnecessary of course. R1 and R2 should be step attenuators with 10 and 1 dB steps.

The device seems to be particularly useful when the noise has reached S6 or more. During periods when the level has reached S9 it is possible to restore an otherwise unusable band. Sometimes, unfortunately, it appears to be impossible to obtain a deep null on the noise, due possibly to there being more than one leaky manifold in the area.

MACELEC
99 KENNY STREET, WOLLONGONG.
PHONE 29 1455

TS 820S 160 Thru 10 metres. FSK - CW complete with true
Digital Frequency Readout. Variable I.F. Bandwidth -
Full Speech Processing - Speech Monitor ETC ETC.
.....\$998.00ea

TS 520 80 Thru 10 metres AC. or DC. SSB- CW- Speech Compressor
25KHZ Calibrator ETC. ETC.
.....\$660.00 ea



TR 7400 A 2 metre F.M. Transceiver. Utilizing a Unique Squelch
System - Digital Readout - Fully Synthesized with 5KHZ steps
from 144 Thru 148 MHZ.
.....\$390.00ea

R300 Kenwood Receiver all Bands from 170 KHZ to 30 MHZ -,
Selectivity selectable 2.5 KHZ or 5KHZ. Sensitivity Better than
0.3 microvolt. Inbuilt 500 KHZ marker AC or DC External or Internal
Batteries
.....\$260.00 ea



HC2 Kenwood Hamclock. A must for every Amateur Operator or SWL.
Limited Stocks at\$ 29.50 ea

We also stock a range of Oscilloscopes, Signal Generators, Audio
Generators, TVI Filters, ETC As well as a limited stock of selective
27 MHZ equipment.

MACELEC
99 KENNY STREET, WOLLONGONG.
PHONE 29 1455
or Contact Barry Hartley VK2FE.

F O R S A L E

MR3 HIGH-BAND A/C BASE STATION

Two (2) of these units available. Output is from a QQE03/12. The receiver has a 2MHZ block filter. Unit consists of two (2) boxes approximately five inches high bolted together with the power supply and speaker in one box. Converted to 14⁶MHZ, complete with microphone and circuits but no crystals - \$20.00 each.

G Cuthbert VK2ZHU 2 Nioka Avenue Keiraville Phone 28 9085

PYE AM LOW-BAND BASE

One (1) low-band PYE AM unconverted base station. 3/12 driver, pair of 3/12 output. Circuits and instructions. Included also one (1) MR6A low-band FM unit, not working (Intended to combine units for a 52.525 base.) - lot of work involved. - \$10.00

G Cuthbert VK2ZHU as above.

SOLID STATE 40 METRE TRANSCEIVER

Solid State 40 metre Transceiver 75 watts PEP. This is an AFQ building blocks unit and is complete with microphone and speaker. Size of the unit is 8" x 6" x 3". *1/10*

Contact Barry Hartley VK2FE 29 1455 Work or 84 2439 at home.

HIGH RANGE 2 METRE BEACON

This experimental beacon is situated on High Range, 15 km north west of Mittagong, 2700 feed above sea level, with omnidirectional get-away. Transmitter is on 144.12 MHz, 10 watts to 5 el. collinear vertical antenna, MCW Ident. VK2RHR.

Reports of reception would be welcomed by the Beacon Officer, Barry VK2ZAG at P.O. Box 318, Mittagong, 2575, or at I.A.R.S. meetings.

It is proposed to develop the site for a repeater if it proves satisfactory. A shack with 240V A.C. power has already been constructed.

WANTED URGENTLY

Information from other groups etc for inclusion in the PROPOGATOR, similar to above. (How about something from the southern repeater). We would also welcome articles on any interesting subject or some small device you have built and think other people may be interested in.

Switched polarization cubical quad

by C. J. McCLOUD, G8IBQ*

A high-gain aerial which could be vertically or horizontally polarized by operating a simple control in the shack was required by the author, and this led to the development of the following design.

Aerial details (Fig 1)

The aerial consists of eight closed loops, mounted on an alloy boom. Each loop is made of $\frac{1}{2}$ in aluminium tubing and held in position by $\frac{1}{2}$ in doweling which is bolted to the main boom.

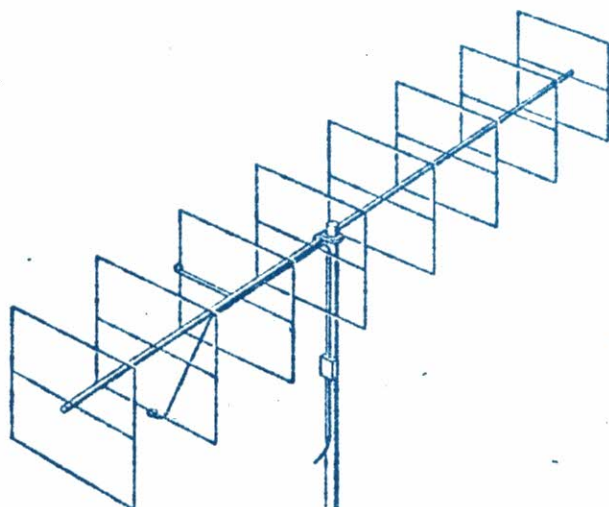


Fig 1. Aerial construction

The reflector is 21in on all sides and is spaced 20in behind the horizontally-polarized driven element. This driven element is 20in on all sides and is fed half way along the bottom leg. The vertically-polarized driven element is placed 14 $\frac{1}{2}$ in in front of the first driven element and is of the same size. It is fed half way along one of the vertical legs. The sizes of the two driven elements can be arranged so that the horizontal element is tuned to 144-145MHz and the vertical element tuned for 145-146MHz. This will improve the swr, as with the band plan fm simplex is largely in the top half of the band and vertically polarized. At the frequency to which the driven element is tuned the swr is 1:1.1 and rises to 1:1.4 at the band edge. The directors are placed 14 $\frac{1}{2}$ in apart in front of the driven elements. The first director is 19 $\frac{1}{2}$ in on all sides, the second 19in and the rest are 18 $\frac{1}{2}$ in on all sides. The dimensions of the completed aerial are 107in long and 21in wide. The element spacings given above may be varied between 0.15 λ and 0.25 λ to improve gain.

Reprinted from

RADIO COMMUNICATION July 1975

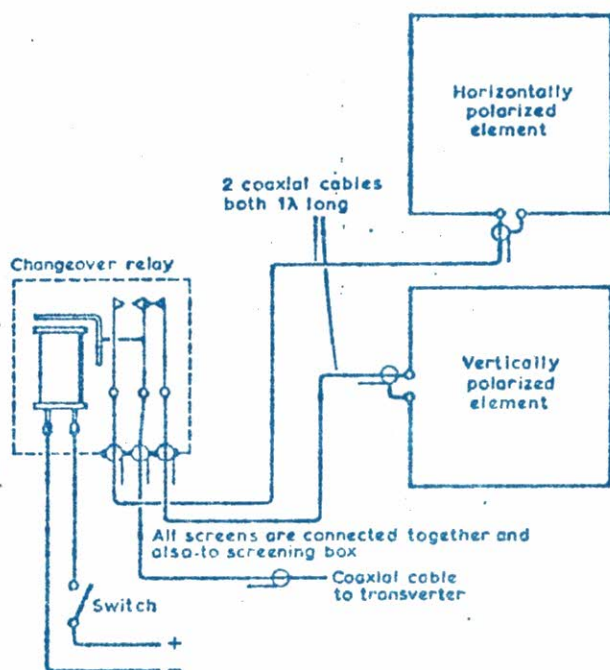


Fig 2. Element switching details

Element switching (Fig 2)

A coaxial cable 1 λ long is connected to each of the two driven elements. These two cables are taken to a change-over relay mounted in a metal box on the mast. A coaxial feeder from the transceiver is also brought to this relay. The screens of the three cables are joined together and connected to the relay box. The centre conductors of the cables are connected to the relay so that in one position the vertically-polarized element is connected to the feeder and in the other position the horizontally-polarized element is connected to the feeder. The relay can be of any type available, but a coaxial relay is to be preferred.

Conclusion

The author has had very good results from this aerial and it out-performs the eight-element Yagi which it has now replaced. He will be pleased to hear from readers who make use of the design.

1. Oil all RF stages to reduce noise levels.
2. Rotate tubes and check air pressure.
3. Adjust heaters to 100 degrees.
4. Plug all grid leaks and check padding on padders.
5. Check RH group of all bleeders.
6. Check water levels in tank circuits and reservoir capacitors.
7. Check sharpness of trimmers and reshapren if necessary.
8. Replace all screens in filters dropped by screen droppers.
9. Check weights of all plate loads.
10. Empty ion traps and clean excess flux from all magnets.
11. Sweep all IFT'S and empty IFT cans.
12. Check and if necessary instal new beaters in mixers.
13. Clip new lambswool on all buffers.
14. Check licenses of drivers and renew if necessary.
15. Check linears with ruler.
16. Fit new hoppers on all feeders.
17. Look down all flat transmission lines for reflections.
18. Check taste of PI output with product detector and mop up any splatter.
19. Check that rate of PI output matches feed lines.
20. Grind seats of all standing waves.
21. Discard all out of date complementary output stages.
22. Keep more than one ion in the fire at all times.
23. Replace all spent 'T', 'Q', 'Z', gamma matches.
24. Check high and low beams for distance.
25. Dust and replace all images at a standard frequency.
26. Count quads.
27. Make sure that all guys are tight and all plate circuits are loaded (suggest a bus bar for this). Beware end effect.
28. Tighten lids on biscuit containers.
29. Oil all crystal locks.
30. Dredge all net channels.

ex WESTLAKES

THE WIRELESS INSTITUTE OF AUSTRALIA

- INFORMATION
- EDUCATION
- FREE MONTHLY MAGAZINE "AMATEUR RADIO"
- VALUABLE MONEY-SAVING SERVICES:
 - Components, disposals, surplus gear — Magazines and books
 - QSL Bureaux — Sales and exchange facilities
- Modest membership target is 8000 for WARC 79.
- REPRESENTATION
- ADVICE
- SOCIAL ACTIVITIES
- CONTESTS
- AWARDS

GET WITH IT — GET FACTS NOW

Sideband Electronics Sales

HF TRANSCEIVERS

ASTRO - 200 digital solid state 200 W.P.E.P. P.O.A.

TRIO KENWOOD model TS 520 - D AC - DC 10 to 80 M. \$590

TRIO KENWOOD model 520 - D AC only 10 to 80 M. \$650

TRIO KENWOOD model TS - 820 - S AC only 160 to 10 M. with digital readout \$980

TRIO KENWOOD model TS - 820 AC only 160 to 10 M. \$850

TRIO KENWOOD DS 1 DC Converter \$ 65
VFO - 820 \$145
DG - 1 Digital Display \$160
YG. 88C Crystal Filter \$ 64
SP. 520 - 820 \$ 36

TRIO KENWOOD model TS - 700 - A FM-AM-CW-SSB transceivers. Full 144-148 MHz coverage, 10-Watt output, VFO controlled, self contained, AC-DC operation. \$650

TRIO KENWOOD model TS-600-A FM-AM. SSB transceiver full 50-54 MHz coverage 10 Watt output variable form 1 Watt to full power. VFO controlled AC-DC operation. Styling as TS-700-A. P.O.A.

TRIO KENWOOD model TR-7400 2 meter FM transceiver 10 to 25 watts output. Frequency range 144.00 to 147.995 MHz No. of channels 800, Double conversion superheterodine sensitivity better than 0.4 UV for 20 DB. \$385

KYOKUTO 2 M FM 15 W output transceivers with digital read-out and crystal synthesized PLL circuitry now tiwh 800 transmit and 1000 receive channels 5 KHz apart, covers all of 144-148 MHz, receive to 149 MHz. No more crystals to buy. Includes simplex, repeater and anti-repeater operation. only \$310

NOVICE OPERATORS

All above HF transceivers will be modified for low cost to suit novice. Requirements 27 MHz conv. x-tals in stock now for kenwood models.

IT IS HERE AGAIN, the well known SE-501 in new style case 15 Watt pep 23 AM SSB for as low as \$215
Same model with AC built in supply and DC built in SWR power meter and many goodies. \$260

ICOM

VHF TRANSCEIVERS SSB

ICOM model IC-202 2 M SSB portable transceiver 144-144.4 MHz \$215

ICOM model IC-502 6 M SSB portable transceivers 52-53 MHz \$215

USED EQUIPMENT

Collins KWM-2 - A in new condition with power supply \$1,600

PM.2
6146 - b valves RCA new Large stock \$10 each.

FDK MULTY QUARTZ with 24 channels 10 sets of crystals supplied 10 Watts, new style. \$265

YAESU MUSEN model FT-101-E AC - DC transceivers 10 to 160 M with speech processor P.O.A.

YAESU MUSEN model FT - 301 P.O.A.

YAESU MUSEN model FT 301 - D P.O.A.

YAESU MUSEN model FT - 301 - S P.O.A.

YAESU MUSEN model FP - 301 P.O.A.

YAESU MUSEN FR 6-7. Uses Wadley loop principal

YAESU MUSEN model YC-500 \$300

FREQUENCY COUNTERS P.O.A.

HY - GAIN ANTENNAS

14AVQ 10-40M. verticals, 19' tall, no guys \$ 65

18AVT-WB 10-80 M. verticals, 23' tall no guys \$ 95

TH3JR 10-15-20 junior 3 el. Yagi 12' boom \$ 160

TH3MK3 10-15-20 senior 3 el. Yagi 14' boom \$220

TH6DXX 10-15-20 senior 6 el. Yagi 24' boom \$250

HY-QUAD 10-15-20 cubical quad Yagi 8' boom \$250

TIGER ARRAY 204BA 20M4el. Yagi 26' boom \$250

BN-86 balun for beam purchasers only \$ 25

CUSH CRAFT ANTENNAS

A144-11 11 Element 2M-Yagi \$ 45

A147-11 11 Element 2 M Yagi \$ 45

A147-20 combination horizontal vertical 2 M \$ 70

A144 20 combination Yagi with matching harness circular polarization \$ 75

ANTENNA ROTATORS

Model CDR Ham-11 for all hf beams except 40 M \$200

Model CDR AR-22 L junior rotator for small beams \$ 65

KEN model KR-400 for all medium size hf beams with internal disc brake \$110

KEN model KR-500 for vertical control of satellite tracking \$110

All models rotators come complete with 230-volt AC indicator-control units.

6-conductor cable for KR-400-500 65 cents per metre

Sideband Electronics Sales

For personal attention: 24 KURRI STREET, LOFTUS

P.O. BOX 184, SUTHERLAND, 2232

OPEN ON SATURDAYS TILL 12 NOON

TELEPHONE: 521 7573

PETER SCHULZ, VK2ZXL

COMPONENTS FOR SALE

SCOTCHCAL

Photosensitive panel material for making professional looking front panels to pretty up your gear. See article in November issue.

Sheet size 10" x 12" \$3.50

BOOKS

Basic Electronics A very useful book, especially for beginners. Published by Electronics Australia. \$3.00

Projects and Circuits Over thirty Electronics Australia projects combined into a book of 112 pages. \$4.50

Westlakes Novice Licence Manual This excellent book is being revised. At the time of writing, we have run out of copies for sale, but we might have supplies of the revised Manual by this meeting.

GENERAL

Pair meter leads with alligator clips	50c
Vernier dials 35 mm. 4 turns knob for $\frac{1}{2}$ turn dial	\$1.50
DPDT slide switches	25c
Four pin plug and socket - pair	15c
Alligator clips - large, insulated. Red or Black	20c
Ground Plane Antenna Base	\$1.00
Edge connectors	\$1.00
Tag strips	10c

CONDENSERS

Ceramic trimmer, mica insulation	30c
Small solder type feed through capacitors	5c
Wire wrap type trimmers	10c
Ceramic bolt-down trimmers	10c
25V Electrolytics, double ended	
4.7 uF	6c
100 uF	12c
220 uF	15c
470 uF	20c
Greencaps 100V	
.0047, .002	8c

NEOSID

Formers	8c
Balun formers - small	12c
- large	15c
Cans - single	10c
- double	12c
Slugs - F 16,	7c

METERS

S Meter 400uA $1\frac{3}{8}$ " x $5\frac{7}{8}$ "	\$2.50
Level Meter dual 200uA meters, illuminated	\$3.00
0 - 1 mA Meter 50mm square	\$4.00
0 - 1 mA Meter 75mm x 50mm.	\$5.00

RESISTORS

Bag of 160 $\frac{1}{2}$ watt resistors.
10 each of values 10, 47, 68, 100, 220, 470, 680, \$4.00
1K, 2.2K, 4.7K, 6.8K, 10K, 22K, 47K, 68K, and 100K.

ANTENNA WIRE

Bronze alloy wire, single strand, 1.2mm diameter. See sample at meeting.
Lengths cut to order 5c/metre

The I.A.R.S. Store is stocked with selected purchases of good quality components. A small profit is marked up on these items yet prices are very reasonable. The profit goes towards expanding the range of items kept in stock.
Bring your money on meeting night and keep stocked up with those often needed components.

I.A.R.S.

P.O. Box 1838,

WOLLONGONG, NSW 2500

MR. L. PATISON VK2ALU
98 HEASLIP STREET
WOLLONGONG

2500

7

THE PROPAGATOR

Newsletter of the Illawarra
Amateur Radio Society

