

THE PROPAGATOR

The Monthly Newsletter of the Illawarra Amateur Radio Society.

Published by the Illawarra Amateur Radio Society,

PO BOX 1838,
WOLLONGONG, NSW. 2500.

I.A.R.S. is a Member Club of the Wireless Institute of Australia.

<u>PRESIDENT.</u>	<u>SECRETARY.</u>	<u>EDITOR.</u>
Jim Potts, VK2BBG, 14 John St., WOONONA. 2517.	Brian Boseley, VK2BCI, Figtree Hotel, FIGTREE. 2525.	Ian Bowmaker, VK2ZJA, 15 Akuna St., Keiraville. 2500.

MONTHLY MEETING. Held on the Second Monday of each Month,
at 7.30 pm, at the Wollongong Town Hall Meeting Room.

I.A.R.S. MONTHLY BROADCAST.

The Monthly Broadcast takes place on the Sunday preceeding
Meeting night each month, at 1915 Hours EAST.

Frequency used by VK2AMW for the broadcast is -

Repeater Channel 5, or Simplex Channel 40.

Relay by Brian, VK2BCI, on 28.460 MHz.

4/78

APRIL 1978

4/78

APRIL MONTHLY MEETING. ----- Monday, 10th April 1978.

Members are advised that the Monthly Meeting of the
Illawarra Amateur Radio Society will be held at the
Wollongong Town Hall Meeting Room at 7.30 pm on
Monday, 10th April 1978.

AGENDA.

- 1 Apologies and welcome to Visitors.
- 2 Minutes of previous Monthly Meeting.
- 3 Correspondence.
- 4 Financial Report.
- 5 General Business.
- 6 Presentation of WARC 79 Donation.

DONATION TO WARC '79

A cheque for \$400, being the proceeds of the raffle
held towards the end of last year, will be presented
to Tim Mills, President of NSW Division of the WIA.

Our thanks go to John, VK2BHO, for the work he put
into making the raffle such a financial success.

THE SEX LIFE OF AN ELECTRON

BY EDDY CURRENT.

One night when his charge was pretty bright Microfarad decided to seek a cute coil to enable him to discharge. So he picked up Milli Amp and took her for a ride on his Megacycle. They went over the Wheatstone Bridge and around the sine curve, eventually stopping in a magnetic field beside a flowing current. Microfarad was attracted by Milli Amp's characteristic curves and soon he had her fully charged.

After he lowered her resistance to a minimum he pulled her to ground potential and removed her reluctance. He then moved her Eigen values into the left plane. Pulling out his high voltage tube, he plugged it into her socket connection, coupling them in series-parallel and thus proceeded to short circuit her shunt resistance. Resonance was produced and Milli Amp mumbled "Ohm, Ohm, Ohm". With his tube operating at a maximum and her field pulsating with coulomb flow, her shunt began to overheat while Microfarad was rapidly discharged and drained of every electron.

They fluxed around all night trying various sockets and connections until his magnet had a soft iron core and no field strength. Afterwards Milli Amp tried self inductance, but damaged her solenoid. With his capacitance fully discharged Microfarad was unable to excite his field so they spent the rest of the night blowing each others fuses.

UNDERSTANDING MORSE "LANGUAGE"

Dick Goslin VK3NAY
40 Hardwicke St., Balwyn, Vic. 3103

This article is written with a view to assisting newcomers to CW operation who, although conversant with the "Q" code, may not be familiar with the abbreviations generally used, and which enable a good deal of information to be exchanged in a relatively short period.

It is prompted by two recent instances heard on air—(i) "Please send plain language, I do not understand abbreviations". (ii) "Thank you for a very nice contact. I will send you my card through the bureau, could you please send me one of yours? Thank you again and I hope we will have another contact soon." The latter could have been expressed adequately in a fraction of the time as follows—"Tnx fb QSO. QSL via buro? Pse cfm. Tnx agn es hope cul."

An effective way to "learn" the language is to listen to a QSO at about the speed you can copy with reasonable comfort—there are plenty at the lower end of 80 metres. Write down each character exactly as you hear it, just as you did at the exam (?). Do not concern yourself at this stage whether the letters or words make sense.

Later on, with the receiver switched off, read through your copy several times until

you can correlate what was sent with what was meant. Some words may still be vague, possibly through sending or receiving errors, or perhaps because some abbreviations are a little harder to follow than others.

Main thing is to listen often, say 10-15 minutes a night if possible, until you can recognise and understand abbreviations without actually having to think about them. Try to find a QSO in which characters and spacing are well defined—it will make your "read-back" so much easier.

A few final points—

1. Don't be afraid to tackle a QSO above your "normal" speed. There is no penalty for missed or incorrect speed. Give it a go, and you'll be surprised how quickly your receiving ability will improve.
2. Don't "invent" abbreviations. Stick with the generally accepted ones for good understanding by both parties.
3. Upgrade your sending speed after increasing receiving speed.
4. Remember that practice up to 14-16 w.p.m. (plain language, code groups and figures) is available for approximately two hours nightly from 0930 GMT on or about 3550 kHz.

abt	about
agn	again
ant	antenna
buro	bureau
cfm	confirm
condx	conditions
cu agn	see you again
cul	see you later
es	and
fb	fine business
fer	for
ge	good evening
gn	good night
gud	good
mx	metres
nite	night
pse	please
rx	receiver
tnx	thanks
tnks	thanks
tx	transmitter
u	you
ur	your
vy	very
wx	weather
xtal	crystal

These are some of the abbreviations in general use—others will become familiar as you listen and put them into context in your "read-back".

Moonbounce Report - April 1978

University staff have evaluated alternative sites for the radio telescope and have selected one. An estimate is being made of the cost of the move from Dapto before a decision is made whether to proceed with the relocation of the facility. A decision is expected soon.

Charlie, VK2BOZ, disconnected the connections from the dish control cubicle last weekend. It will be removed to a safe storage place next weekend, together with other gear, with assistance from Geoff, VK2ZHU and Peter Laughton.

LYLE VK2ALU.

WANTED ... WANTED ... WANTED

Technical articles, For Sale advertisements,
Personal Items, etc., ... ANYTHING!

For inclusion in forthcoming issues of
the Propagator.

Any material for publication should be in
the Editors hands not later than 1½ weeks
before Meeting nights.

Ian, VK2ZJA.

A REMINDER —
SUBSCRIPTION DUE

IF YOU MISPLACED LAST MONTH'S ISSUE
HERE'S ANOTHER FORM.

ILLAWARRA AMATEUR RADIO SOCIETY

Subscriptions are now due for 1978-1979

Subscription rates are \$3.

Pensioners and Students half price

The subscriptions cover the costs of postage of the Propagator and hall hire.
The rest of the running expenses of the Club and of the Channel 5 repeater are covered by the monthly raffles and profit from sale of components.

Please fill in this form and bring to the meeting (or post in) as it is easier to post the receipt in your newsletter and we can also use the form to check your call and address.

Subscription to the Illawarra Amateur Radio Club

Attached is \$3.00 in payment for membership for the period April 1978 to March 1979.

Name

Address

Call Sign If Any

Please send to: The Honorary Treasurer,
Illawarra Amateur Radio Club,
P O Box 1838
WOLLONGONG. NSW 2500.

Sideband Electronics Sales

Distributors of COMMUNICATIONS TRANSCEIVERS

HF TRANSCEIVERS

ASTRO - 200 digital solid state 200 W.P.E.P.	\$1,000
TRIO KENWOOD new model TS-520-S	\$ 685
TRIO KENWOOD model TS-820S AC only 160 to 10 M with digital readout.	\$1,050
TRIO KENWOOD MODEL TS-820 AC only 160 to 10 M.	\$ 900
TRIO KENWOOD model TS-600-A FM - AM	\$ 680
TRIO KENWOOD model TR-7400 2 meter FM transceiver 10 to 25 watts output Frequency range 144.00 to 147.995 MHz	\$ 400

ICOM

VHF TRANSCEIVERS SSB

ICOM model IC-502 6 M SSB portable transceivers 52-53 MHz	\$ 215
ICOM model IC-245	\$ 450
ICOM 701 new model	\$1,160
ICOM model IC-211	\$ 785

YAESU MUSEN FT 901 new model	\$1,575
YAESU MUSEN FT 7 new model	\$ 570
YAESU MUSEN model FT-101-E AC-DC transceivers 10 to 160 M with speech processor	\$ 849
YAESU MUSEN model FL-2100-B Lineal Ampl.	\$ 569
YAESU MUSEN FRG-7 Wadley Loop Receiver All solid state, 0.5-29.9 MHz in thirty 1MHz bands. Electronic band selection	\$ 338
YAESU MUSEN FL110 Solid State Linear Amplifier. Companion unit to FT-301S. 10-15W drive, 200W PEP Input, 160-10mx.	\$ 249
YAESU MUSEN YC-500E 500MHz Freq. Counter. Accurate to .02ppm.	\$ 574
YAESU MUSEN YC-500S 500MHz Freq. Counter. Accurate to 1ppm.	\$ 446
YAESU MUSEN YC500J 500MHz Freq. Counter. Accurate to 10ppm.	\$ 319
YAESU MUSEN YO100 Monitorscope. Matches the FT-101E, but can be used with other Yaesu equipment. (IF kits 455 kHz and 9MHz optional extra). (IF Kits \$12.00 each)	\$ 285
YAESU MUSEN FTV-650B Six Metre Transverter. Converts 28 MHz. SSB to VHF, and includes receiving converter. 50W PEP. Primarily designed for coupling with Yaesu transmitters.	\$ 249
YAESU MUSEN FTV-250 Two Metre Transverter. Similar FTV-650B. 10W-15W output, but all solid state and built-in AC PS.	\$ 249
YAESU MUSEN FT227 New model	\$ 370
YAESU MUSEN QTR-24 24 Hour World Clock. At a glance the time anywhere in the world can be read.	\$ 33

AUSTRALIA'S SOLE DIST. OF KLM PRODUCTS

KLM SOLID STATE POWER AMPLIFIERS

(MHz)	144-148 PA10	80BL	80 OUTPUT (watts)
"	PA10	140BL	140 "
"	PA 10	160BL	160 "
"	PA 2	70BL	70 "
400-470	PA10	70CL	70 "
	PA 2	12B	12 Watts
	PA 2	25BL	25 Watts P.O.A.

New Shipment expected soon.

For personal attention: **24 KURRI STREET, LOFTUS**
P.O. BOX 184, SUTHERLAND, 2232 TELEPHONE: 521-7573

SIDE BAND ELECTRONICS SALES

OPEN ON SATURDAYS TILL 12 NOON

PETER SCHULZ, VK2ZXL

All prices quoted are net SYDNEY, N.S.W., on cash with order basis, sales tax included in all cases, but subject to changes without prior notice. ALL-RISK INSURANCE from now on free with all orders over \$100; small orders add 50c for insurance. Allow for freight, postage or carriage; excess remitted will be refunded.

MARK MOBILE ANTENNAS

HW - 40, 6 feet long for 40M	\$ 25
Swivel mounts and chrome-plated springs for all	\$ 13

ANTENNA ROTATORS

KEN model KR-400 for all medium size hf beams with internal disc brake	\$ 138
KEN KR500	\$ 150
All models rotators come complete with 230-volt AC indicator-control units.	
6-conductor cable for KR-400-500	65 cents per metre

Emotator.

1213 Mast clamp for 502CXX	\$29.50
300 Mast Stay bearing for above	\$32.00
301 Tower top bearing	\$32.00

HF ANTENNAS

HADAKA VS 40-80 Vertical	\$ 115
HADAKA VS 33 Tribender	\$ 265
DX 33 Western	\$ 240
HADAKA VS-22-3 Element 15-10m in balun	\$ 173
HADAKA VS-RG Radial kit for VS41	\$33.50

COAX CABLE CONNECTORS

PL-259	\$ 1.20
SO-239 Chassi Mount	\$ 1.20
Male to male joiner	\$ 1.20
Female to female joiner	\$ 1.20
Angle connector	\$ 2.00
T-connector	\$ 2.50

SWR METER

Twin meter model: Y.M. - I.E. 3.5 to 145 MHz prof quality	\$ 28
DRAKE TV - 3300 TV 1 lowpass filter	\$ 34

CRYSTAL FILTER, 9MHz, similar to

FT-200 ones. With carrier crystals.	\$ 35
APOLLO 3 position co-ax switches	\$ 15

MORSE KEYS

EK-127 Electronic Keyer	\$ 99
EK-150S Single Paddle Electronic Keyer	\$ 136
EK-150D Double Paddle Electronic Keyer	\$ 136
MK-1024 Programmable Keyer, 1024 bit memory	\$ 233

HI-MOUND

HK-710 De luxe heavy duty morse key. Heavy base. A really beautifully constructed and finished unit. Fitted with a dust cover, standard knob and knob plate. Ball bearing shaft.	\$ 45
HK-808 Similar HK-710 but with full miniature ball race bearings and more precise adjustments	\$ 75
HK-707 Similar to above but with dust cover and standard knob. On standard base	\$ 19
MK-701 Side Swiper key to actuate an Electronic keyer	\$ 45
BK-100 (BUG) Semi-automatic bug key, fully adjustable	\$ 49

VALVES 572 B \$55, 6KD6 \$12.50, 6JS6 \$10.50
 6JM6 \$9.50, S2001 (6146B) \$13.50, 12GB7 \$8.50
 7360 \$14.50, 6GK6 \$6.

Go RTTY with DOVETRON'S MPC - series multipath Diversity Terminal Units. The Rolls Royce of all terminal units. We are appointed distributors.

HAL ST5000 - Economy terminal unit. 170-450-850 shifts. We have locally built units for lower prices, SOON AVAILABLE. SSTV with Robot 400 - Vidio Display Units
 KEY BOARDS - Write for PRICE DETAILS.

COMMITTEE FOR 1978-79

At the Annual General Meeting of the I.A.R.S. held on 10/3/78 the following Members of Committee were elected.

PRESIDENT. Jim Potts, VK2BBG, 14 John St., Woonona. 2517.

VICE PRESIDENT. Richard Wilson, VK2ZVX, 1 Sheppard St.,
West Wollongong. 2500.

SECRETARY. Brian Boseley, VK2BCI, Figtree Hotel, Figtree. 2525.

TREASURER. Geoff Cuthbert, VK2ZHU, 2 Nioka Ave., Keiraville.

COMMITTEE. Gerry Rosam, VK2APG, 2/38 Hilltop Ave., Mangerton.

Jim Giblin, VK2BOU, PO BOX 53, Oak Flats.

Richard Fox, VK2ZFO, 57 Barton St., Oak Flats.

Brian Wade, VK2AXI, 72 Murray Rd., Corrimal.

John Doherty, VK2NHA, 7 Risley Rd., Figtree.

70 Cm REPEATER NEWS.

Paul Gardiner is currently conducting tests with the IARS repeater for use in the 70 Cm band.

He is operating Simplex on the repeater OUT frequency of 434.7 MHz and is looking for contacts in order to check on coverage of the Illawarra area and also the operation of the repeater unit. Reception reports would also be of value. Initial operation is to be from Warilla for testing purposes.

Below is the current frequencies for Simplex and Repeater use.

SIMPLEX CHANNELS.	433.50	Primary.
	433.55	Secondary.

REPEATER CHANNELS.

<u>Site</u>	<u>Repeater IN</u>	<u>Repeater OUT</u>
DURAL	433.00	434.60
GOSFORD	433.05	434.65
WOLLONGONG	433.10	434.70
NEWCASTLE	433.15	434.75
WAVERLEY	433.20	434.80

TECHNICAL COLLEGE COURSE 1978.

The course is now well under way with a very promising number of 84 students enrolled. There are 24 undertaking the Full Call course, and 60 studying the Novice Call course.

On the teaching side, the job is in the hands of Brian Wade, VK2AXI, Jim Potts, VK2BBG, and Keith Curle, VK2OB.

Go to it ! A number like that is certainly going to put the local examination facilities of the Department of P & T to the test at the end of this year.

WICEN NOTES.

Unfortunately, little to report. The proposed exercise for 19th March 1978 was well and truly washed out.

Jim, VK2BBG, has received the initial supply of VRA car stickers, VRA shoulder patches, WICEN shoulder patches, and VRA hard hats. As the number of items is very limited, it may well be that as you read this they will probably all have been allocated. However, don't be put out as more are expected.

If you wish to be involved in WICEN activities, contact Jim Potts, VK2BBG. He's President now as well!

Nudge those Nutty Nicads

Ray Roche
VKIZJR
19 Gungurra Cres.,
Rivett.
652747 (BH)
885624 (Home)

During the recent WICEN tennis exercise I decided to make use of my Kenwood TR2200 2fm portable to supplement the mobile. However, to my dismay, the nickel cadmium (or nicad) batteries faded after only about 15 minutes transmission time. So I was forced to forgo my seat in the shade and use the mobile set again.

After the exercise I examined the set and battery pack carefully but could find no fault. Then a faint bell rang in the rusty memory and I scrambled for my library. Finally I found the answer in an article in "73" magazine - and the cause of the problem is nicad "memory". If a nicad cell is used repetitively for less than its total capacity it starts to remember that and act as if it only had that capacity. In my case, for the last six months or so, I have used the set primarily as a monitor receiver, often from a mains power supply and then only at weekends. Only once has the transmitter been used from the battery pack - while away overnight in Sydney. Thus the nicad pack started to behave as though it only had the capacity to run the receiver for a few hours and could not handle the extra load of the transmitter.

So what to do? Nicad batteries are expensive and replacement with a new set of ten thus undesirable. Fortunately the "73" article provided the solution - recondition the cells. The so-called memory is caused by inactivity of some of the chemicals normally used to form the potential. The memory can be erased by forcing the chemicals back into action by discharging each cell completely then then recharging and repeating several times. To avoid overheating the cells a maximum discharge current of 0.5C is specified where C equals the milli-ampere rating of the cell. The TR2200 uses 450 mAh penlite cells and the safe discharge current is therefore 225 mA. It is important not to attempt to discharge the pack of cells as a unit because of the danger of reverse charging one or two of the cells. I found that a Tandy PR4 globe (2.5V @ 250mA) across each of a four bay penlite holder gave a discharge current of about 210mA. The reference states two cycles of discharge and recharge should be sufficient to destroy the memory.

While working with the battery pack and prompted by the reference, the charge rate from the built-in charger was checked. The "73" article states a safe charge rate of 0.1C or 45mA in this case. The measured charge rate was 55mA but after changing a resistor in the charging circuit it was reduced to a safe 43mA.

Also mentioned in the reference article is a safe continuous trickle charge of 0.01C to 0.03C or 4.5 to 13.5 mA in this case. But how to reduce the charge current to within this range? Because of the tightly packed construction of this set, it is impossible to add extra circuitry or switching inside the set. So any addition had to be external - but how? Then inspiration hit. Why not reduce the supply voltage to the charger with an external dropping resistor. A further search of the junk box produced an in-line mains switch and, after juggling resistors, an arrangement as shown was evolved. A total resistance of 110K gives a charge current of 9mA with the switch open and 43 mA with it closed. The resistor was squeezed inside the switch case and the job finished off with dymotape labels for high and low charge rate positions.

In retrospect, the failure of the battery pack during the WICEN exercise was fortunate in that I learnt a lot about the care and use of Nicads and made some worthwhile improvements to the TR2200. Are your Nicads slacking?????????

Reference: "Making Nicads Work", Peter Stark, K2AOW.
"73" Magazine, December 1974.

The above article has been reproduced from the February 1978 issue of FORWARD BIAS the monthly newsletter of the ACT Division of the WIA.

With the widespread use of NiCads these days in all sorts of equipment, from grass clippers to Hand-Held's, the suggestions are certainly worth looking into.

Oscar Satellite Report

Oscar 8 is up and operating. Oscar 7 was kept on reduced power for a period after Oscar 8 went up to allow its batteries to become fully recharged. Oscar 7's operating Modes were modified during the testing phases of Oscar 8 to ensure that no interference was caused to that satellite's communication system.

I have not had any contacts via Oscar 7 over the last month due to my time being fully occupied in preparing equipment for the recent 10,000MHz microwave tests.

Microwave Tests

Microwave communication tests were carried out over the Easter period on the Amateur 10,000MHz and 3300MHz bands between groups located at widely separated locations up and down the NSW coast. VK's 2BYY and ZPC were at Seal Rocks, 2BQC and ZEH were at Green Cape, down near the Vic. border, 2AHC was variously at North Head (Sydney) on 24/3, Jervis Bay on 25/3 and 26/3 and at Collaroy Plateau (Sydney) on 27/3, with 10GHz and 3.3GHz gear being both used by 2AHC and at Seal Rocks. 10GHz gear only was used at Green Cape.

10GHz built by VK2ALU was operated by 2JJ at his home QTH at Stanwell Tops (south of Sydney) as 2ALU was assisting 2AHC at Jervis Bay.

Communication links were established on 2 metres between Jervis Bay and Stanwell Tops while the links between all three groups on 26/3 were on 2 metre SSB from Jervis Bay to John VK2BTQ then on 40 metres from him to the other locations. Frank 2HQ, stood by as needed for 2BTQ.

The Navy gave valuable assistance to the Jervis Bay group, mainly through John VK2JU who also helped with equipment for 12 volt power, camping facilities etc. Peter Laughton helped with 12V generator etc., and Ian Millhouse assisted, also at Jervis Bay.

A 10GHz contact was made on 25/3 between VK2AHC at Jervis Bay and VK2JJ at Stanwell Tops (R5-S5), a distance of 94 kilometres. VK2AHC and the Seal Rocks/^{GROUP}Heard each other on 3.3GHz on 27/3 when 2AHC was at Collaroy Plateau but a contact was not made. Thus while no new records were made much valuable experience was gained and, speaking for myself and I think for the others involved in the field locations, a most enjoyable couple of days resulted.

Lyle VK2ALU.

COMPONENTS FOR SALE

Disc Capacitors.	.001, .0047, .01, .022.	...	6 cents.
	.047	...	8 cents.
		.1	...
			10 cents.

Electrolytic condensers, 25V, double ended.					
4.7 uF	...	6c.	100 uF	...	12c.
220 uF	...	15c.	470 uF	...	20c.

Trimmer Condensers.	
Ceramic trimmer, mica insulation.	30c.
Wire wrap type trimmers.	10c.
Ceramic bolt-down trimmers.	10c.

Tantalum Capacitors.					
.47 mF	...	17c.	.1 mF	...	17c.
4.7 mF	...	18c.	10 mF	...	25c.
22 mF	...	45c.	47 mF	...	65c.

PCB mounting trimmers, 3-13 pF. . . . 10 cents ea.

SEMICONDUCTORS.		NEOSID. Formers, cans, etc.	
BC 109	20c.	Formers.	8c.
MPF 131	85c.	Balun formers, small.	12c.
5486 FETS	65c.	large.	15c.
1N4148	10c.	Cans. single.	10c.
0A91	12c.	double.	12c.

Coil Former, complete with can. ... 10 cents each.

ANTENNA BASE, 'Belling Lee' mobile type. ... \$4.00 ea.

METERS

5 Meter 400uA 1 $\frac{1}{8}$ " x 5/8"	\$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
2" sq. 100mA centre zero meters.	\$6.00

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

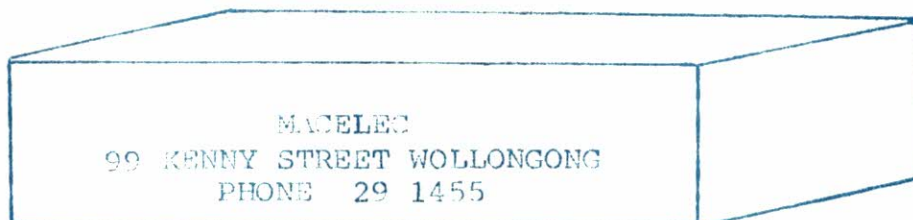
Bronze alloy wire, single strand, 1.2mm diameter. See sample at meeting.
Lengths cut to order 5c/metre

Pair meter leads with alligator clips — Reduced to —	30c
Vernier dials 35 mm. 4 turns knob for $\frac{1}{2}$ turn dial	\$1.50
DPTT 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

WESTLAKES NOVICE MANUALS. New stock. \$3.50

The R.A.R.O. 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 nights and keep stocked up with those often needed components.



TS 820S H.F. Transceiver 10-160M With Digital Display	\$1100.00
TS 520S H.F. Transceiver 10-160M	\$ 699.00
TR 7500 - All New 2M FM Mobile	\$ 350.00
DG5 Digital Display / Frequency Counter for TS 520S	\$ 170.00
DK5 Adaptor Kit-Touse Digital Display with TS520 ...	\$ T.B.A.
TS 600 All mode 6 metre Transceiver	\$ 734.00
TS 700 All mode 2 metre Transceiver	\$ 675.00
SP 520 Extension Speaker to suit TS520-820	\$ 36.00
TR2200A 2 metre FM Portable	\$ 192.00
TR7200 2 metre FM Mobile	\$ 249.00
TR3200 70CM FM Portable	\$ 291.00
TR7400A 2 metre FM Digital 25W Mobile	\$ 434.00
R300 Communication Receiver	\$ 260.00
MC 50 Desk Microphone	\$ 49.00
MC 10 Hand Microphone	\$ 13.00
MC 2 Ham Clock	\$ 32.00
MA 25 2 Metre Hi-Gain Mobile Antenna	\$ 17.25
MB Mobile Base only	\$ 3.62
M25T 2 metre Hi-Gain (Top Only)	\$ 13.75
Hansen FS5 SWR - Power Meter	\$ 36.00
Hansen SWR - 6 Field Strength - SWR Meter	\$ 26.00
B & K 1827 6 Digit Auto Ranging Frequency Counter .. 100 HZ - 30 MHZ.	\$ 228.85

New Products Available Soon --

Kenwood Antenna Tuning Unit With Inbuilt S.W.R.

Hansen R.M.S and Peak Reading Power Meters 20 Watt and 200 Watt
P.E.P Full Scale.

We also stock a range of Audio Generators - Signal Generators
Digital Multimeters - Power Supplies ECT.

With the Recent Revaluation of the Japanese Yen, Prices are
Expected to Rise Soon.



*Prices subject to change without Notice.

THE PROPAGATOR

Newsletter of the Illawarra
Amateur Radio Society

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CATEGORY B.

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