

QRM

Amateur
Radio
News



May 1985

Issued by the Tasmanian Division of
the Wireless Institute of Australia

Radiatorial Comment

It would be pleasant to think of QRM as a sort of publicity organ for the WIA, and, in its way, it probably does fulfil that role. However, over the last few months, our output has tended to put us in the category of "technical bulletin" rather than a widely-read news-sheet. With the imminence of the 75th Anniversary Hamfest to be held over the weekend of June 8th and 9th, a great deal of work is going on - on the part of a rather small number of people in the WIA. Some of it you hear about on the broadcast, but not everyone is able to listen on Sunday mornings, so it's important that the written word carries its share as well. There are over 300 members of WIA in Tasmania and if each one of those members took just a small part in the build up to the Hamfest, then the occasion will be the roaring success that a 75th Anniversary deserves to be. Or are you going to be one of those who, after sitting back and doing nothing, will complain that the whole event didn't come up to scratch? We need all the publicity we can get, and every member can help in this. Get all the information you can from inside QRM and if you need more, ask Committee members, particularly VK7DY, VK7KAD, VK7ZAR or VK7JK. Then talk about the June weekend to others, not only amateurs, but friends and neighbours. Our hobby may benefit as a whole from your efforts.

John
VK7JK.

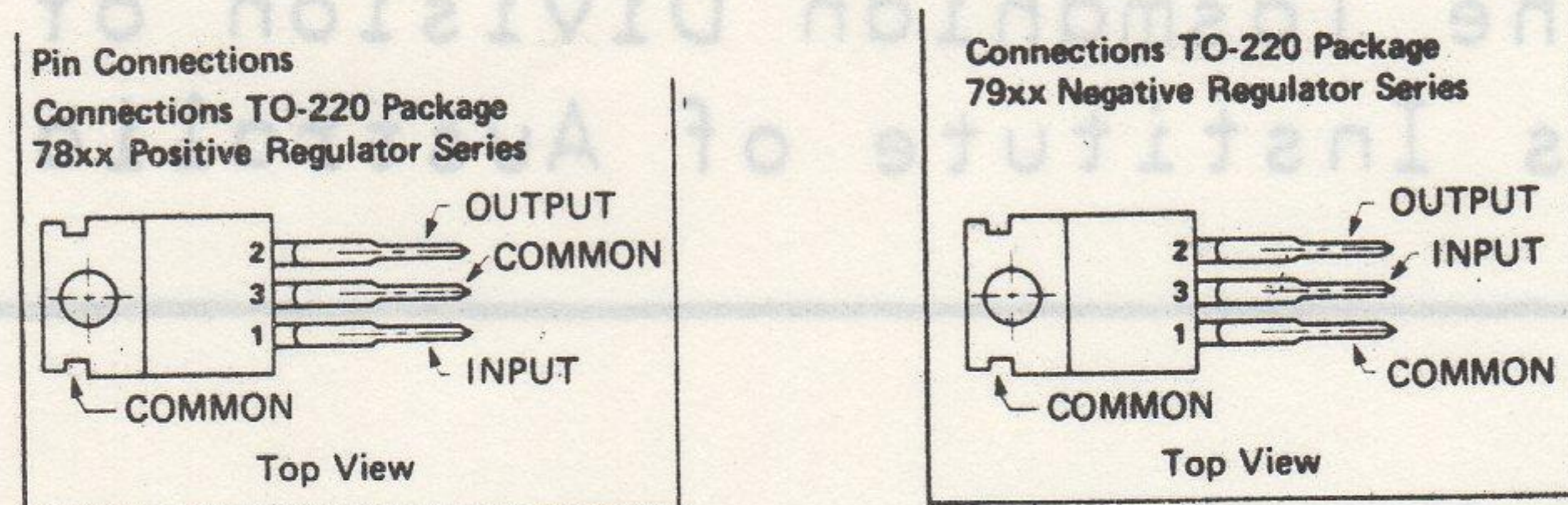
Don't miss the FREE Cocktail Party on June 8th. Ticket enclosed.

EQUIPMENT WANTED.

HF Transceiver to suit novice. Please contact VK7NYL. QTHR.

BEWARE THE UNCOMMON COMMON!

Those of us who are just moving on to projects which are related to digital I.C's, computers, etc., are possibly looking at negative supply voltages as a new requirement. Most set-ups require both positive and negative 12-volt and positive 5-volt supplies. Some also require negative 5-volts. Power supplies using I.C. voltage regulators are normally quite straightforward and present no problems - IF the data sheet you have is reliable. There is, however, a readily-available reference work (\$1, refundable on a \$10 purchase) with the following data shown:



Following this information almost certainly guarantees that sales of rectifier diodes will increase drastically. In the 79XX series, in fact nearly all negative regulators, the heat sink tag or body is common to input and must be isolated from all the positive commons. The pinouts are correct, but the tag or body should more properly be labelled "input" as in the case of some makers' literature. So, beware the uncommon common - the common on the 79XX series must be isolated.

Russ, VK7ZRP.

F O R S A L E .

(From the estate of VK7DK)

Three-element 15/10 metre beam, Hidaka VS/22 ...	\$120.00
Four-element 20 metre beam, monoband, Hi-gain 204BA	\$150.00
IC701 and PS701 transceiver and power supply ...	\$700.00
Hard-to-come-by FT101B external VFO ...	\$100.00

(All these items subject to near offers)

Apply to VK7JV. QTHR or 003.443798.

QRM's A.L.A.R.A. PAGE.

Contributed by Helene, VK7HD.

THINK A MINUTE - IT'S MURPHY'S LAW.

Any wire cut to length will be too short.

If a circuit cannot fail, it will.

A fail-safe circuit will destroy others.

Interchangeable parts won't.

A transistor protected by a fast-acting fuse will protect the fuse by blowing first.

A crystal oscillator, if it oscillates at all, will oscillate on the wrong frequency.
After an instrument has been fully assembled, extra components will be found on the bench.

Components that must not, and cannot, be assembled incorrectly, will be.

If a project requires X components, there will be X-1 components available.

In mathematics the decimal will always be misplaced and the constants will be variable.

In specifications, Murphy's Law supersedes Ohm's Law.

There are three kinds of people in the world (Extract from World Radio):

Those who make things happen.

Those who watch things happen.

Those who ask what happened.

Which group are you in?

PLEASE SHOW THIS TO THE YL's IN YOUR FAMILY.

To celebrate the 10th birthday of ALARA, the committee has organised a "fun" contest open to all YL's in VK and ZL.

The date Saturday July 6th from 06.00Z to 12.00Z on Novice Sections of 10, 15 and 80 metres. The winner will be the YL who makes the most contacts, or in the event of a tie, the YL who works the most prefixes. One contact with each YL only, and may be on CW or phone.

All YL's are invited to participate. Other details will be in the June issue of "A.R."

75th ANNIVERSARY HAMFEST INFORMATION.

Home Brew Display: Please send information on your contribution to Alan, VK7ZAR. QTHR.

What power supplies will you require?

How much space will you need?

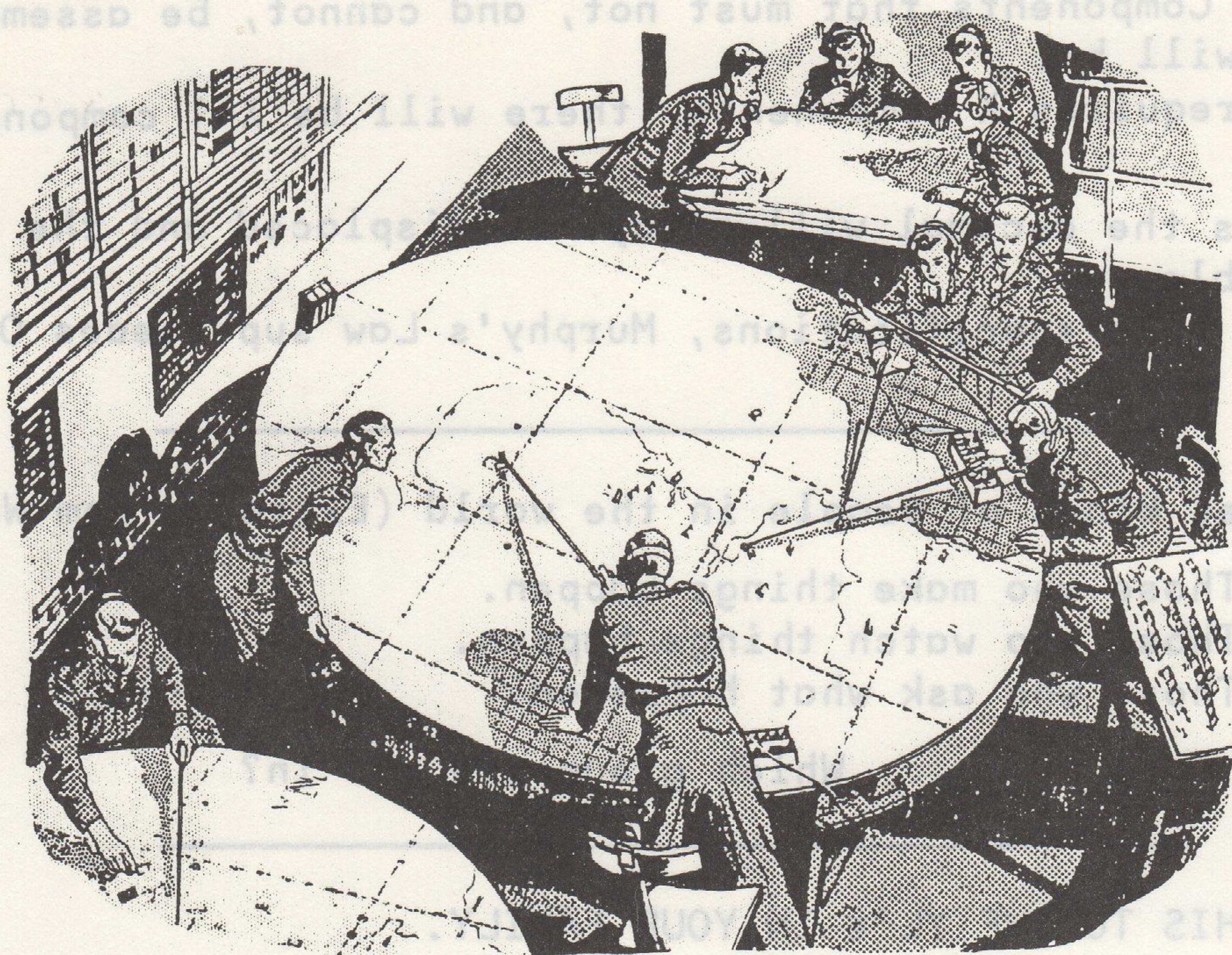
Please indicate what is the purpose of the equipment (it may not always be obvious to the uninitiated!)

Would you be prepared to talk to fellow amateurs and others about the design of the displayed equipment and the problems you may have met during the construction?

The Radio Flea- Market: Don't forget to bring in to the Hamfest Centre all your re-cyclable gear, pre-loved transceivers and in fact ALL the equipment that used to be your pride and joy BEFORE you up-rated to your present superb set-up, including those analogue meters that served you well before you went digital!

Empty your spares box, load the trailer or the boot of the car and BRING EVERYTHING TO THE GREAT RADIO FLEA-MARKET!!!

CARTOON CORNER - NOW IT CAN BE TOLD.



The Hamfest Planning Committee at work.

U.S.A. on 2m. by Harry, VK7CZ.

Last year, while I was in America, in Michigan to await the arrival of the first grandchild, although not having my full call very long, I wrote to the necessary authorities and obtained a reciprocal licence with the intention of doing some operating over there. I had no equipment but intended to buy a 2m. rig while there. I looked through the manuals here and had almost decided on an ICOM 02AT. It's rather interesting that looking at catalogues makes it easy these days to ring for prices, even overseas. To ring American suppliers takes only a few seconds if model numbers are quoted.

The baby arrived, mother and grandmother were busy. Grandfather was a little less busy and set out to buy his rig. Again, from those magazines, eventually a decision was made on where to buy. Then, how do I get there, even having a car at my disposal?

We were situated at Troy, 16 miles north of Detroit. The country side was flat and the road system in one mile squares, with the roads running north/south and east/west. The E/W roads for convenience are named 14 mile, 15 mile etc., which makes navigation pretty easy.

To go to my selected shop in a small town on the Lake some 25 miles east, I had only to go to the corner from our unit, turn right and stay on that road. It became a 2-lane, then a 4-lane (each way), but stay on it I did until I eventually pulled off at the preselected exit and lo and behold - there was Michigan Radio in what was virtually a fishing village.

The shop was run by a man and wife team. He was out servicing a fishing boat radio but his wife was far more knowledgeable than I - a real mine of information. Also in the shop on that very hot afternoon were four (to me) . elderly people, travelling up from Alabama, who were having some trouble with their CB radio! They were just wandering around U.S.A., were quite happy to talk and were worth listening to.

Anyway, I bought my rig and went home to play with it. (I have since kicked myself that I did not buy the 2m, magnetic base antenna with all fittings for \$12. A very neat unit).

There were some peculiar nets round where I lived. The one nearest to me was run by a lady called Gertie, and a very efficient lady she was, too. After some days, I even knew how her end-of-season bottling was going. She was almost the only lady "op" in that area, but she really had the net organised and ran it well. There was also a lot of morning and evening traffic between commuters because of the distances involved. All very proper, with callsigns quite correctly used. Again, very interesting listening. A lot of the evening traffic covered computers - best types, makes, suppliers, - including much adverse comment regarding one large supplier!

One comment I heard which was worth repeating: There was a TV show one evening (3 hours of it) which dealt with the shortcomings of the American education system, and the following morning one driver asked another if he had watched it. On hearing that his mate had not, and having been asked what it was about, gave the subject and summed up the programme with, "They said our kids ain't learnin' nuthin'".

I learned a lot in the U.S.A. with my little 2m handheld!

W A N T E D .

Linear amplifier to suit 70 cm handheld. Contact VK7CV. QTHR or call on Repeater 2.

Hamfest QSL Card Display: To make the QSL Card display at the Hamfest 1985 a success, I call on all WIA members to co-operate by sending me an unprocessed card for display. After the Hamfest, I have in mind to start an archive of VK7 cards first for future generations.

It would be appreciated if anyone would be willing to lend me foreign QSL cards to augment the Hamfest display.

Please contact: G. Visser, 10 Maranoa Road, Kingston, 7150
VK7DQ.

The copies of this newsletter will be distributed to WIA members at Branch meetings and to other interested subscribers by post at purely nominal cost. Anyone who would wish to take up this offer, please contact the Editor on 002.293402.



The Radio Amateur Satellite Organisation of the Wireless Institute of Australia

National Co-ordinator, Graham Ratcliff VK5AGR

All communications to:

'AMSAT-Australia'

G.P.O. Box 1234

Adelaide 5001

Phone: (08) 297 5104

NEWSLETTER #1a.

This is the first official 'AMSAT-Australia NEWSLETTER'. Last month I sent out a limited number of copies of a sample NEWSLETTER to gauge the response to such a monthly publication. In general the response was favourable with quite a few useful suggestions being put forward. Therefore I have decided to produce the NEWSLETTER on a trial basis for one year commencing with this issue.

My aims in producing a NEWSLETTER are twofold. Firstly, as a source of the most up-to-date information available at the time of printing (i.e. 1-2 days prior to you receiving your copy) and secondly, as a means of collecting a modest amount of revenue that can be spent specifically on the purchase of satellite hardware needed by any group of our choosing who are at the time currently building an Amateur satellite.

Therefore, if you would like to receive a monthly copy of the 'AMSAT-Australia NEWSLETTER' could you please send a donation of \$15 made payable to the W.I.A. to AMSAT-Australia C/- Box 1234 G.P.O. Adelaide S.A. 5001. The more subscribers the better will be the NEWSLETTER and Australia's contribution to the Amateur Satellite program, so please let as many as possible know about the availability of the NEWSLETTER.

To make the NEWSLETTER a success I need input from YOU the subscriber, otherwise, the content will be limited to only that information which I obtain from Telemail, UO9 & AO10 bulletins, AMSAT-UK's Oscar News, AMSAT's Satellite Journal (ASJ) and Amateur Satellite Report (ASR). The type of input in which I would be particularly interested is the 'Hints & Kinks' that you have discovered over the years that would be of benefit to others, in particular the newcomer to Amateur Satellite activities. For example Charlie Rufus's (VK4UQ) method of matching a helical antenna feedpoint, computer programs for automated satellite tracking or decoding telemetry, homebrew RS232 interfaces for the VZ200 and ZX81 computers, Mode L upconverters, however small the idea or information DON'T keep it to yourself. Another method of helping others is to have the answers to your questions published in this NEWSLETTER so that all can benefit, so please if you have any nagging question do not hesitate to write seeking an answer which I will attempt to find and subsequently publish. For example - what is the significance of the First Derivative of Mean Motion in the Keplerian Elements ????

Till next month or on 3.685Mhz Sunday nights at 1000UTC

Cheers 73's Graham VK5AGR

	UoSAT-1	Uosat-2	RS-5	RS-7	RS-8
Period (min)	94.3568852	98.5569240	119.555309	119.196171	119.765139
P-Drift	1.065e-6	9.722e-7	2.4e-7	2.4e-7	2.4e-7
Long Inc(deg)	23.5369874	24.6386647	30.015732	29.925890	30.068747
L-Drift	2.129e-6	4.861e-6	0	0	0

Discussion on AMSAT Oscar-10's Orientation

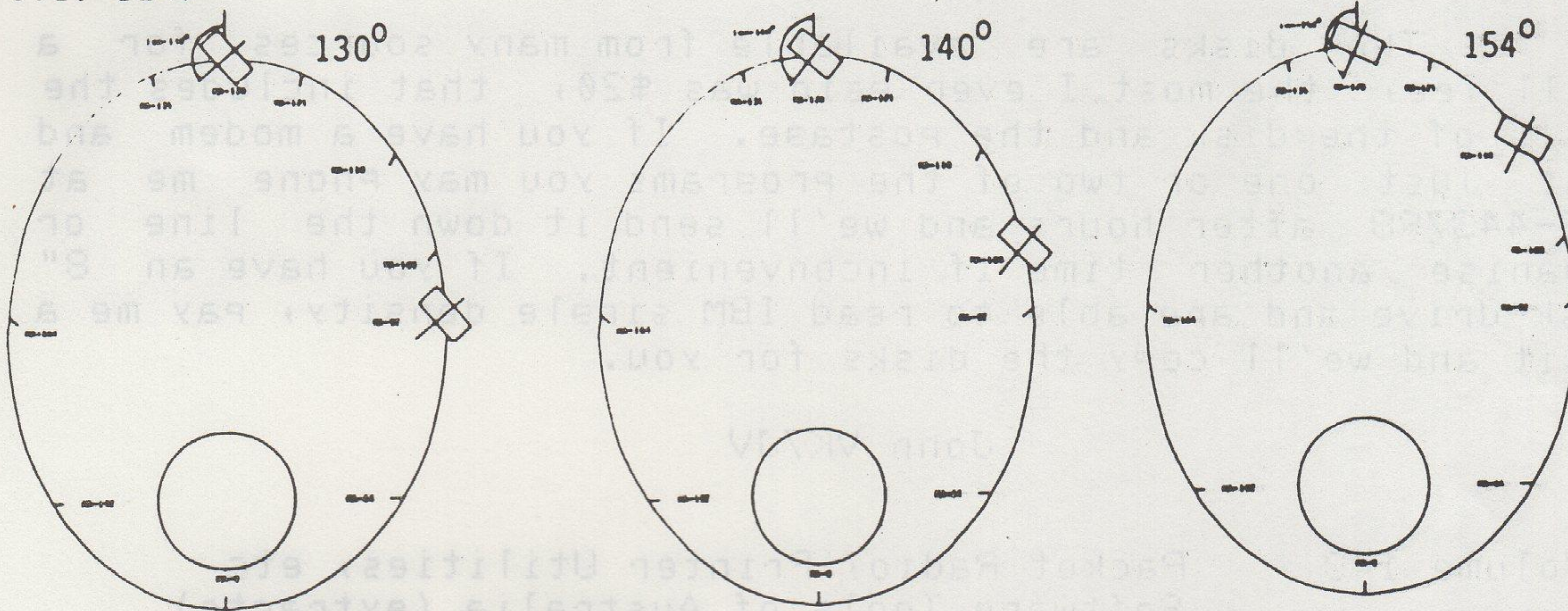
PSK Bulletin AMSAT Day #2621 at 0200 UTC Orbit #1322 MA 187

N de VE1SAT/VE6: 1322/75: New plan due to SS's hiccup at 26 deg.

1. leave s/c where its at until approx April 15 (end of eclipse)
 2. April 15 (+/-) move s/c to 170/0 (new time for mode L also)
 3. May 1 (+/-) move s/c to 180/0
 4. June 7 (+/-) move s/c to 190/0
 5. July 1 (+/-) move s/c to 230 (modeB,L times will change also)
- so really nothing changes after 15 Apr from the other schedule

73 Randy

After hearing the above N block mentioned on the AMSAT net on Sunday the 17th of March, John VK3ZEM must have swung instantly into action to produce the printout shown on the opposite page which will help those like me picture why Oscar-10 is being re-orientated on the dates given in the PSK bulletin. In short, the command stations are trying to maintain Oscar-10's solar illumination around the 90 to 95% mark and never less than 80%. The three diagrams below are an attempt by me to demonstrate what the various 'Lon' angles referred to above actually mean in terms of the orientation of the spacecraft at apogee and therefore at what mean anomaly value (MA) the spacecraft antennas are pointing directly at the earth's centre. The mathematical relationship I use is $\text{Lon}/360 \times 256$ M.A. units. Therefore when Oscar-10 is reorientated to Lon 230 on July 1 the antennas will be pointing at the earth's centre at MA value $230/360 \times 256$ i.e. 164.



For those interested in how John produced the printouts on the opposite page, he wrote two programs for the Commodore 64 based on information published by James Miller G3RUH in 'Oscar News' the AMSAT-UK Journal. If you would like a listing of the program just send me an SASE or write to John direct for a copy of the program if you have a Commodore 64.

James Miller G3RUH has also written his own version of Tom Clark's 'Orbit' program. His version prints out another very interesting parameter which he calls the 'Squint Angle'. The 'Squint Angle' is defined as the angle between the spin axis (the axis parallel to axis of the antennas) of the spacecraft and the observer. If the 'Squint Angle' is greater than 30 degrees, then in Jim's opinion there is little point in trying to work Oscar-10 as you are outside the effective capture area of the spacecraft's high gain antennas. Hopefully within a week or so an up-to-date version of this program should be available from AMSAT-Australia so if you are interested send me an SASE.

SO YOU WANT TO CONTACT THE EDITOR?

His name is John Rogers. His callsign is VK7JK. His telephone number is 002.293402. His address is:

1, Darville Court,
Blackman's Bay,
Hobart, 7152.

And when you lose your copy of QRM, remember he's QTHR. When he is at home, the 2m rig is normally running and listening to Repeater 2.

COMPUTER INFORMATION.

Here are the directories of the only User Group volumes containing Ham Radio programs that I have found. Both SIG/M and CP/M are user groups for the CP/M operating system thus machine language programs are only usable on the 8080 and Z80 micro processors, and will need to be modified if you are not using CP/M.

The Basic programs will very likely have to be modified to suit your particular dialect of Basic but should not prove too difficult.

The disks are available from many sources for a small fee, the most I ever paid was \$20, that includes the cost of the disk and the postage. If you have a modem and want just one or two of the programs you may phone me at 003-443798 after hours and we'll send it down the line or organise another time if inconvenient. If you have an 8" disk-drive and are able to read IBM single density, pay me a visit and we'll copy the disks for you.

John VK7JV

SIG/M Volume 143 Packet Radio, Printer Utilities, etc
Software Tools of Australia (extracts)

-CATALOG.143 contents of SIG/M Volume 143

released October 7, 1983

USD .COM unsqueeze program

CRC .COM checksum program

SIG/M .LIB disk donation form

index	name	size	crc	description
143.01	ATTEN .BAS	3K	74 9F	Electronic attenuator design utility
143.02	DEPREC .BAS	3K	EC 45	Depreciation schedult
143.03	GENINDEX.OBJ	20K	09 A0	Generates index for WordStar text file
143.04	GENINDEX.PAS	12K	F0 96	/
143.05	INDEX .PAS	1K	12 D6	/
143.06	INDEX101.DOC	5K	67 05	WordStar indexing utility
143.07	INDEX101.OBJ	11K	41 14	/
143.08	LPR .C	9K	F0 EB	Print program for MX80, wildcard names
143.09	LPR .OBJ	14K	B6 16	& clock
143.10	DGPTR .POS	7K	FE 08	Packet Radio Software for CP/M Systems
143.11	PACKET .AGM	25K	98 C9	/
143.12	PACKET .DOC	6K	05 2A	/
143.13	PACKET .RPT	12K	3A 64	/
143.14	PACKET-0.DOC	3K	A2 CC	/
143.15	PACKET2 .TXT	14K	0D 18	/
143.16	PACKETCF.TOT	15K	8A 6D	/
143.17	PRINTER .INF	2K	91 28	Control codes for EPSON MX80 printer
143.18	RDRPUN .MAC	1K	13 85	FORTTRAN routine to access CP/M RDR and PUN
143.19	RESXIOS .AGM	13K	F1 9E	Example of MP/M 2 Resident XIOS
143.20	SETMX .AGM	4K	98 BA	Epson MX80 printer setup utility
143.21	SETMX .DOC	2K	D3 3B	/
143.22	SETOK .ASM	6K	7E C4	Okidata printer setup utility
143.23	SETOK .DOC	2K	01 10	/
143.24	VIDEO .INF	3K	34 D9	Video terminal codes
143.25	VIDEONEW.INF	13K	D1 C6	/

More information next month.

**ICOM**

PRICE LIST
AMATEUR PRODUCTS

1st October 1984

MODEL	DESCRIPTION	R.R.P. \$
<u>ACCESSORIES</u> (Cont'd)		
DC 1	DC Operation Pack for IC 2A/IC 4E	22.50
DC HD	DC Power Cord for 551D/701/720A	15.00
DC PWR.	DC Power Cord for Specific Radio	12.50
CC1	PS20/PS15 Adaptor Cable	15.00
EX 106	FM Option for IC 551/IC 551D	153.00
EX 107	VOX Option, IC551 (incl. w/551D)	67.00
EX 108	PBT Option IC 551 (incl. w/551D)	134.00
EX 144	CF1 Adapter for PS 15 Power Supply	7.50
EX 195	Marker Unit for Frequency Calibration for IC 730	33.00
EX 199	Remote Frequency Selector for 22U	40.00
EX 202	LDA-2 Unit for Auto Band Switching IC730	19.00
EX 203	CW Audio Filter 150Hz/6dB IC 730	20.00
EX 205	TRV Unit for Transceiver Switching IC730	19.00
EX 241	Marker Unit for IC 740/IC 745	22.00
EX 242	FM Unit for IC 740/IC745	45.00
EX 243	Electronic Keyer Unit for IC 740/IC 745	59.00
EX 248	FM Unit for IC 505	51.00
EX 257	FM Unit for R70/71A	51.00
EX 309	Interface Unit for Micro-Computer IC 751/271A/471A/R71A	73.00
EX 310	Voice Synthesizer for Frequency Readout IC 751/R71A	68.00
FA 1/2	Flexible Antenna for IC 2A/IC 4E	12.00
FL 30	SSB Passband Tune Crystal Filter for IC730	56.00
FL 32	CW Filter for IC 720A/R71A	56.50
FL 33	AM Filter for 751A	53.00
FL 34	AM Filter for IC 720A	53.00
FL 44/A	455KHz SSB Crystal Filter for 730/740 745A/R70/R71	99.50
FL 45	CW/N Crystal Filter for 740/745A	65.50
FL 52A	455KHz 500Hz CW/N Crystal Filter for 740/745A	110.00
FL 53A	455KHz 250Hz CW/N Crystal Filter for 740/745A	110.00
FL 54	CW/N Filter 135Hz-6dB for 730/740/R70/745	65.50

PRICES ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

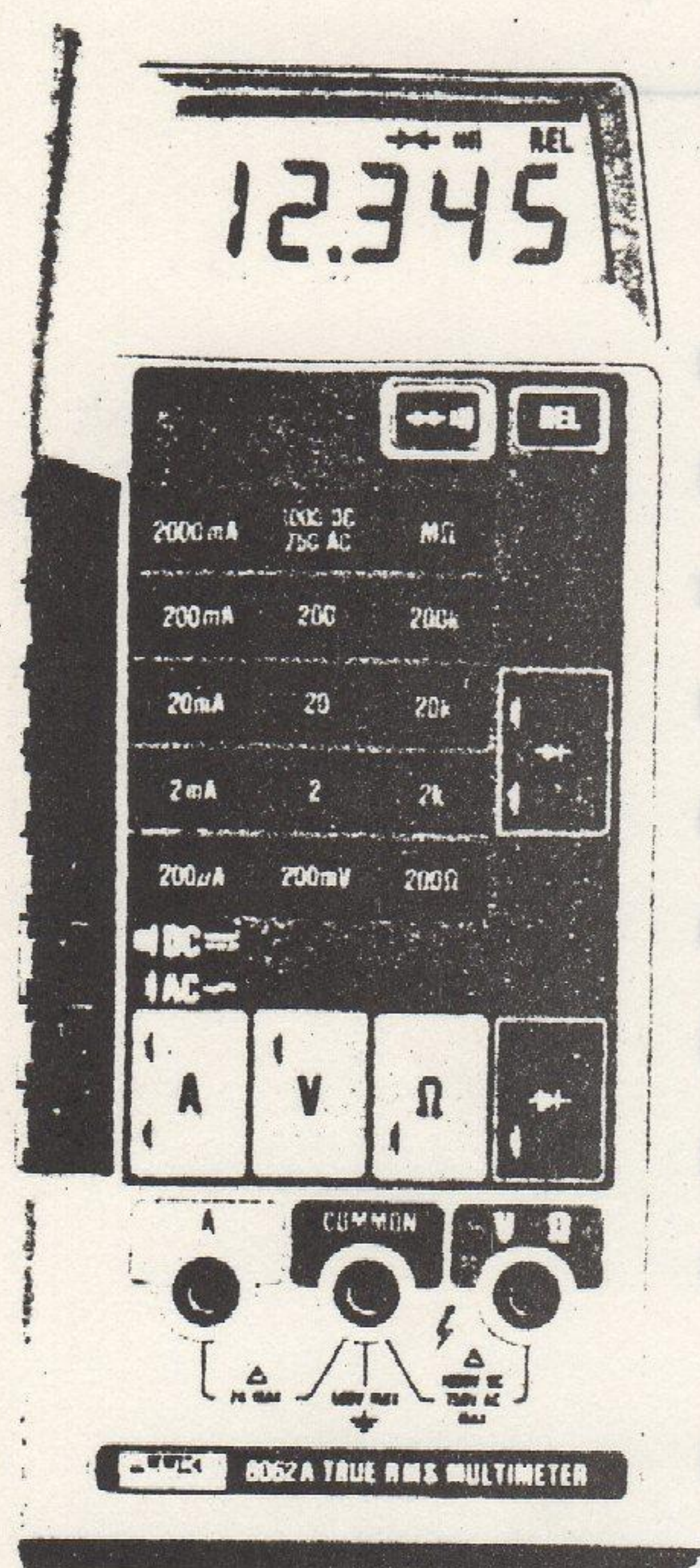
OBTAINABLE FROM:

Hobby Electronics,
477 Nelson Road, Mount Nelson,
Hobart, Tasmania.

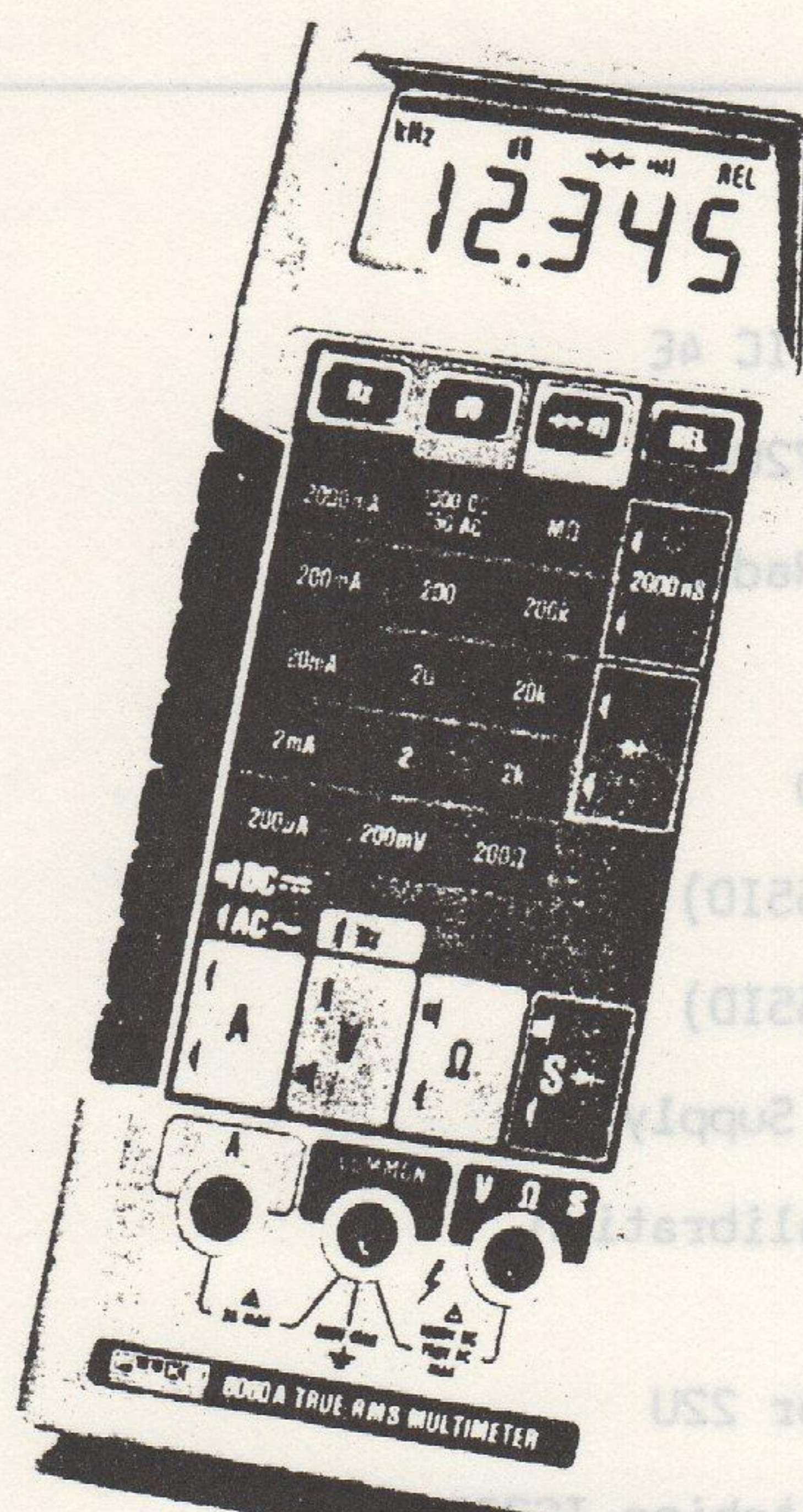
Ph: (002) 23 6751.



4 $\frac{1}{2}$ -DIGIT HANDHELD DMMs



8062A



8060A

The 8060A and 8062A 4 $\frac{1}{2}$ -digit true-rms DMMs

These two 4 $\frac{1}{2}$ -digit handheld DMM's offer far more measurement capabilities than found in most bench/portable DMM's. They are Fluke's first *microcomputer-based* handheld DMM's and consequently offer unique and valuable features never before found in a small low-cost DMM. The 8060A even measures *frequency* — from 12 Hz to more than 200 kHz — autoranging over four decades from 200 Hz to 200 kHz.

The microcomputer lets you automatically do such things as subtract lead resistance when measuring ohms, convert voltage to dB or dBm, average each set of updated measurements to reduce noise, take the

reciprocal of period measurements to indicate frequency, and display only the difference between a stored reference value and a measured value. Three self-test diagnostic routines are built in. One test occurs each time the power switch is turned on.

The 8060A and 8062A are exceptionally well-suited to the needs of engineers, technicians, and hobbyists skilled in audio, video, telecommunication, or computer technology. They are designed using the same rugged case and safety engineered jacks, test leads, and double-fused current inputs found on other Fluke handheld DMM's. And the same extensive overload protection is built in for the other functions and ranges.

8062A

- Stable 4 $\frac{1}{2}$ -digit (20,000 count) resolution
- 0.05% basic dc accuracy
- True-rms ac voltages to 30 kHz
- Fast audible and/or visual continuity tests
- Relative reference (offset)
- Low-power ohms on all resistance ranges
- Constant-current diode test mode
- Measures resistances to 300 M Ω
- Self diagnostics
- 1-year warranty and calibration cycle

Because the 8062A has several unique modes, several special annunciator symbols may appear in the LCD readout. For example REL will appear when the relative reference button has been pushed — a helpful reminder to any operator. The 300 M Ω top resistance range in the 8062A is fifteen times higher than the usual 20 M Ω . To keep the front panel simple, there is only one manually-selectable position above 200 k Ω . When that position is used, the appropriate 2 M Ω , 20 M Ω , or 300 M Ω range is automatically selected.

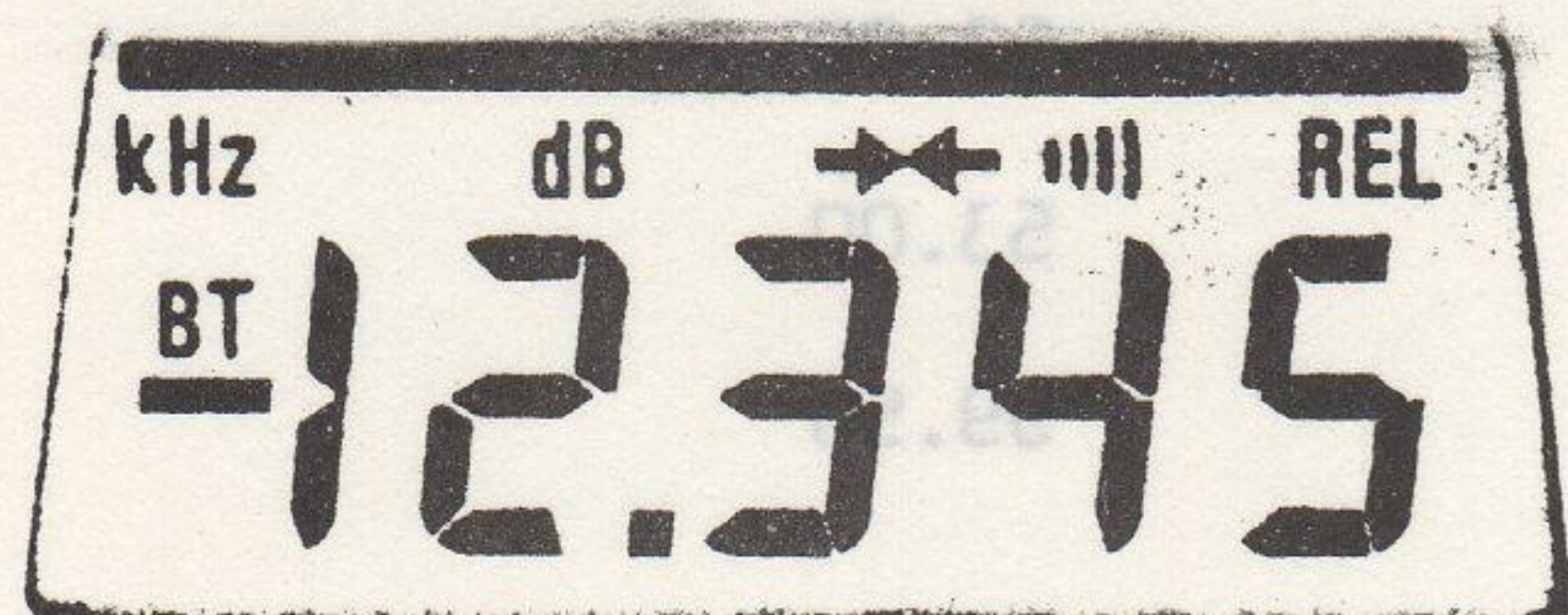
There are five ac and dc voltage ranges on the 8062A from 200 mV to 1000V for dc, to 750V for ac. Resolution is 10 μ V on the 200 mV range. True-rms ac accuracy is specified to 30 kHz. Basic ac accuracy is 0.5%.

There are four ac and dc current ranges on the 8062A from 20 mA to 2A. Resolution is 10 nA on the 20 mA range.

8060A

- All the features of the 8062A, plus
- *Frequency*... 12 Hz to 200 kHz
- True-rms ac voltages to 100 kHz
- 0.04% basic dc accuracy
- 0.2% basic ac accuracy
- dBm or relative dB measurements
- Conductance measurements

It is easy to accurately measure the dB gain or loss of amplifiers, filters, attenuators, etc. with a DMM that has dB readout. To combine that feature in a handheld DMM that also measures *frequency* provides a nearly ideal test instrument for many applications. LCD annunciators appear in the display when the dB or Hz pushbuttons are used to select one of those modes.



With the 8060A, frequency, decibels, continuity, or relative reference mode is selected with one of four pushbuttons. The choice is indicated in the display.



AVAILABLE FROM GEORGE HARVEY ELECTRIC PTY. LTD.
76, York St., 162-4, Argyle St.
Launceston, 7250 Hobart, 7000.
003.316533 002.342233