

# THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

PO BOX 1838 WOLLONGONG NSW 2500

VOLUME 83, NUMBER 9

OCTOBER 1983

Registered by Australia Post Publication No. NBH1491

---

MEETINGS ARE HELD ON THE SECOND MONDAY OF EACH MONTH (EXCEPT JANUARY) AT 7.30 P.M. IN THE CONGREGATIONAL HALL, CORNER OF COOMBE AND MARKET STREETS, WOLLONGONG. VISITORS ARE WELCOME TO ATTEND MEETINGS.

---

NOTICE OF MEETING: The next meeting of the Illawarra Amateur Radio Society will be held on October 10th 1983 in the Congregational Hall, Coombe Street, Wollongong. Come along and see if you've won the VZ-200 Computer or a chance of a fortune in Instant Lottery tickets!

SILENT KEY: With deep regret we announce the death on 14th September 1983 of C. Hedley (Chas.), VK2MT, in Figtree Hospital.

LAST MONTH'S MEETING: Attendance was a bit down from the usual but still a good roll-up of members and four visitors.

Opening the meeting, Dave VK2DFL said that in future, Murray VK2MY would be attending to distribution of the Propagator and hopefully no more delays would be experienced. Dave told the meeting that information from the W.I.A. was that keeping of logbooks was no longer a requirement except for Club stations during contests and for emergency traffic.

There would be an auction of VK2MT's gear, which was on display in the hall, at the next meeting.

October 23rd has been declared World Amateur Day by the International Telecommunications Union. Contacts with the I.T.U. Headquarters Station 4U1ITU would receive a special QSL Card/Diploma.

Paul VK2ZQT told us about the JOTA (Jamboree On The Air) weekend 14-15 October. There would be four stations and he was arranging the Bass Point one with the Scouts, with a barbecue on the Sunday evening.

Lyle VK2ALU told us that the OSCAR Satellite was in an orbit whose apogee was 38,000 km from Earth, so the comments about reduced life (see last month's front page), may not now apply. We were then treated to a film, expertly shot by Mike VK2DFK, showing the successful E-M-E tests and contacts with Z25JJ last Saturday. Congratulations to Lyle and his hard-working band of helpers. This was their last opportunity to contact Z25JJ in Zimbabwe as he was about to take his dish down, and we hope that he will soon be operational again from his new location in South Africa.

The raffle of a pair of headphones was won by Kevin VK2EBI. Gilbert McPherson VK2ZGE, consultant to D.S.E., then gave the meeting a brief talk on the 70'cm rig being marketed in kit form by Dick Smith Electronics, and which is described in September Electronics Australia. Kits will be available at \$169 each if purchased in lots of 5 by radio clubs, and it is hoped to have some on sale in the Club Store.

Moonbounce Report - October 1983.

The members of the IARS who attended last month's meeting saw a videotape presentation, most ably produced by Mike VK2DFK, of the recent major event in the life of the Moonbounce Project - that of the reception of our first echoes from the Moon on 1296MHz, on Saturday 10th September 1983 which was followed within 3 hours by the completion of our first 1296MHz EME contact, with Peter Carey Z25JJ in Zimbabwe.

Approximately 8 of our members participated in the Saturdays activities which commenced mid morning and continued until after 7pm.

The rather hectic day was punctuated by rain showers up to early afternoon but the moon became visible for most of the sked period with Z25JJ, (0700 - 0830Z) Morry VK2EMV earned himself the title of Moonwatcher First Class for his efforts in locating it's thin crescent through small breaks in the clouds at about the time that we were trying for our first echoes.

Although the dish pointing facilities allowed it to be positioned quite accurately to within a degree or so, the final refinement of position, in the order of a Moon diameter or two, needed Morry's eagle eye via the sighting telescope, after a swift climb up on to the dish structure. This accuracy of pointing is required because of the under 2 degree beamwidth of the antenna.

Ian VK2EXN provided his usual valuable assistance in setting up gear and acting as second operator for much of the test period. I doubt if we would have made our somewhat rushed sked date without his contributions, particularly those over the 2 weeks prior to this test. His wife Lola and my wife Dot certainly saw more of us after Sat. 10th!! Thanks ladies, for your forbearance.

Dave 2YKQ chipped in on Sept. 10th, as did Roy 2K0, Paul 2PFU and our 'official videographer' Mike 2DFK while Jim 2DLJ dropped in to see the results of his earlier handiwork on the feed horn. It was a pity that Barry 2ZAG and George 2MMP were not present for the big event in view of their past efforts.

An HF/VHF liason link was set up between Mt. Kembla and Harare, Zimbabwe for the duration of the test by Graeme VK2CAG in case of need. Fortunately we were able to conclude our EME contact without having to call on its assistance, though at one stage we had just found that our transmissions were 15kHz low in frequency when similar information came from Z25JJ via Graeme. We were also able to find out that VK2AMW's EME signal was 6dB above noise at Z25JJ rather than that it was '0' copy as had been received direct via the Moon.

Had it not been for Peter Z25JJ offering to put back the dismantling of his dish by one week prior to his move of QTH to South Africa, then we would not have finally made this contact with the only 1296MHz EME station on the African continent. Peter's advice and encouragement, in addition to that of other EME operators such as Chris VE5MC and Graham ZL3AAD and the 'hard to get' bits supplied by Peter, Chris and Des VE5Z0 all helped to make the final 1296MHz EME capability of VK2AMW an earlier reality.

Almost all the equipment was removed immediately after the test on Sept. 10th. in order for me to complete various items and to make some of them weatherproof. It is anticipated that we will be 'back on the air' by mid November. Receiving preamplifiers will also have to be optimised and, Ian 2EXN has undertaken to make the dish tracking more accurate.

A replacement transmitter frequency source is being developed from a low power 144MHz transmitter kindly provided by Rod VK2BQJ at the time that I obtained a length of large diameter foam dielectric coax. cable from him for the replacement of the present run of cable from the transmitter power amplifier to the feed horn. This lower loss coax. should provide approx. 100 watts at the feed horn from our 120 watt output power amplifier.

My thanks to all who have assisted in the Project so far in helping to achieve a major goal in its progress.

Lyle VK2ALU.

LAST STRAW

Some 25 years ago, an amateur who had saved up for months to buy a new Minimitter high power AM HF rig proudly staggered home with it. His fingers were shaking as he rapidly put on mains plug, connected a microphone, an aerial lead, turned on and joined his regular 80m net just in time to catch most of his friends.

Everybody thought his modulation was superb, and his transmission was so much stronger than it had been from his previous LOW rig! But after ten minutes or so, while he was transmitting, he was heard to shout "Oh God, it's caught fire...QRT"

One of his friends immediately telephoned him and heard a rather sheepish amateur say "Well actually, I forgot to remove the straw packing around the PA valve..."

- Ham Radio Today, August 1983.

ALL AT SEA

A specially striking triumph of British naval planning came in 1917, at the height of the Great War, when the British Admiralty decided to construct a flotilla of K-boats - giant 325-foot-long steam-powered submarines.

K2 caught fire on its first dive.

K3 sank to the bottom with the Prince of Wales on board and had to be salvaged.

K3 was then rammed by K6 on manoeuvres and sank.

K4 ran aground.

K5 sank with loss of all hands.

K7 rammed K17 and had to be scrapped.

K14 sprung a leak while still in dock.

Later, at sea, K14 rammed K22 and sank.

K17, during the same sea trials, rammed first an escorting cruiser and then K7. K17 then went out of control and sank.

K22 was rammed by another escorting cruiser.

In 1918 the K-boat project was abandoned.

- from "I could have kicked myself" compiled by David Frost and Michael Deakin.

MOONSTRUCK

This foolish idea of shooting at the moon is an example of the absurd length to which vicious specialization will carry scientists working in thought-tight compartments. Let us critically examine the proposal. For a projectile entirely to escape the gravitation of the earth, it needs a velocity of 7 miles a second. The thermal energy of a gramme at this speed is 15,180 calories... The energy of our most violent explosive - nitro-glycerine - is less than 1,500 calories per gramme. Consequently, even had the explosive nothing to carry, it has only one-tenth of the energy necessary to escape the earth... Hence the proposition appears to be basically impossible...

- Professor A.W. Bickerton, 1926, in "Facts and Falacies".

...40-year-old Mr. Searl, father of six, says his group could produce a full-sized saucer which could reach the moon in two seconds. All they need is £12,000,000 and a bit of official encouragement...

- Sunday Mirror, 1970.

Brian VK2AXI

MEMORIZING THE MORSE CODE.

The following system may be of assistance to those who wish to learn the Morse Code but have difficulty remembering the letters, or who confuse similar code combinations. I have not seen this method published before although it may well have been, there being 'nothing new under the sun'. The memory aids in Paragraph 5 were told me by a colleague many years ago in England. I hope others will also find them useful.

1) It is certainly well known that the combinations of dots and dashes which represent each letter should not be learned as dots and dashes, but rather as dits and dahs, thus more nearly resembling the code as it is heard. Also, only a final dot is voiced as a full dit, others being abbreviated to di'. Thus, . - (A), is learned as di' dah, and . . . (S) is di' di' dit.

2) It should not be hard to remember the sequence E I S H, these letters represented by one, two, three and four dits respectively. Similarly, T M O can be remembered for one, two, and three dahs. There is no letter with four dahs.

3) The combination . . . - (di' di' di' dah) for V may well be already known from war movies where V for Victory was tapped out, and I believe it still commences the BBC Overseas broadcasts on short wave in the form of the opening notes of Beethoven's Fifth Symphony, Opus 67. The reverse, - . . . (B) can also be noted. Other pairs of this type are: . - (A) and - . (N); - . . (D) and . . - (U); - - . (G) and . - - (W).

4) Inverses can also be used as an aid to memory although the student may find these less useful. Examples are: - . - (K) and . - . (R); . - - . (P) and - . . - (X); . - . . (L) and - . - - (Y); and . - - - (J) and . . . - (V); this last one also involving a reverse.

5) The easiest way I know to remember some of the previously mentioned and the remaining letter codes is to use a word or phrase commencing with the letter to be remembered, the intonation recalling the morse symbol for that letter. For example, "County Council" will at once recall "dah di' dah dit" for the letter "C", and "Kiss me Kate" gives "dah di' dah" for "K". "Ground Ivy" (- - .) for "G" and "Walloon Race" (. - -) for "W" should help prevent confusion of these two letters.

Here are some more, and you can find other words yourself for letters that you find you have particular difficulty with.

F	di' di' dah dit	Farinaceous	(. . - .)
J	di' dah dah dah	Jib Boom Main Sail	(. - - -)
L	di' dah di' dit	Leviathan	(. - . .)
P	di' dah dah dit	Patrol Music	(. - - .)
Q	dah dah di' dah	Queen Mary Lee	(- - . -)
Y	dah di' dah dah	Yokohama	(- . - -)
Z	dah dah di' dit	Zulu River	(- - . .)

6) Once . - - is learned as W (double U), . . - can be remembered as U, and then its reverse - . . (D). From . . - for U, another dit gives . . . - for V. Similarly, another dit on "dah di' dah" (K) gives the related letter C (- . - .), also remembered by "County Council". Again, if - . - . (C) is remembered, - . - - can be remembered for Y, also recalled by the word "Yokohama".

The foregoing may seem complicated, but the intention is to build up a network of relationships so that any letter code can be quickly obtained by one means or another, until these aids to memory are no longer required.

Ken VK2DOI.

## THE DICK SMITH 'EXPLORER' 70 CENTIMETRE TRANSCEIVER KIT

I RECENTLY PURCHASED AND BUILT UP THIS KIT IN ITS BASIC FORM, THAT IS, WITHOUT THE REPEATER OFFSET OPTION, AS THIS OPTION HAS NOT YET BEEN RELEASED FOR SALE.

HERE ARE MY OBSERVATIONS AND COMMENTS ON THE KIT AND CORRECTIONS TO SOME ERRORS THAT WERE FOUND IN THE INSTRUCTION BOOK. HOPEFULLY THIS INFORMATION WILL HELP THOSE BUILDING IT.

MY FINISHED TRANSCEIVER PUTS UP A VERY GOOD PERFORMANCE. ALL THE SPECIFICATIONS ARE WELL WITHIN THOSE STATED IN THE FRONT OF THE INSTRUCTION BOOK. IN FACT, THE RECEIVER SENSITIVITY IS BETTER THAN 0.3 MICROVOLTS FOR 12DB SINAD, WHICH PUTS IT AMONGST THE BEST COMMERCIALY MADE SETS AND CERTAINLY BETTER THAN THE PHILIPS FM320 SERIES. THE TRANSMITTER GIVES AN OUTPUT OF 6 WATTS AT 12 VOLTS SUPPLY, AND 7.5 WATTS AT 13.8 VOLTS SUPPLY. THIS IS BETTER THAN THE NOMINAL 5 WATTS STATED IN THE SPECIFICATIONS. HOWEVER, THE INSTRUCTIONS STATE THAT THE TRANSMITTER IS SUBJECT TO A 2 MINUTE TIME LIMIT WITH A 50% DUTY CYCLE. I FOUND THAT THE OUTPUT AND DRIVER AND TX TRIPLER TRANSISTORS BECAME VERY HOT AFTER THE 2 MINUTES AND I WAS NOT GAME TO RUN THE TRANSMITTER FOR LONGER THAN THIS FOR FEAR OF BLOWING IT UP.

IF YOU ARE AS LONG WINDED AS I AM ON THE AIR SOMETIMES, I RECOMMEND THAT YOU AT LEAST FIT A SMALL FLAG TYPE HEATSINK TO Q24 AND Q25 AND PUT LARGER ONES ON Q26 AND Q27. THE PHOTOGRAPH ON THE COVER OF SEPTEMBER 'ELECTRONICS AUSTRALIA' SHOWS A DIFFERENT HEATSINKING ARRANGEMENT TO THAT USED IN THE ACTUAL KIT. I STILL DON'T THINK IT IS ADEQUATE AND I MADE UP COPPER HEATSINKS FOR THE DRIVER AND PA STAGES THAT EXTENDED TO THE BACK PANEL. I MADE UP AN EXTERNAL FINNED HEATSINK OUT OF THIN COPPER SHEET AND FIXED IT TO THE OUTSIDE OF THE BACK PANEL WITH 3 QUARTER INCH BRASS BOLTS SO THAT THE BOLTS GO THROUGH THE ENDS OF THE INTERNAL HEATSINK ALSO. IN THIS WAY THE HEAT GENERATED BY THE TRANSISTORS IS CONDUCTED TO THE OUTSIDE OF THE CASE WHERE IT CAN GET AWAY. MY SET HAS BEEN RUNNING FOR 15 MINUTES INTO A DUMMY LOAD WITHOUT ANY PART GETTING TOO HOT TO TOUCH.

I STARTED CONSTRUCTION FROM THE STEP-BY-STEP INSTRUCTIONS STARTING AT PAGE 20. I DID NOT TAKE THE TROUBLE TO FIRST CHECK THE MASTER COMPONENTS LIST ON PAGES 8 TO 12 AS I THOUGHT THAT I WOULD SOON FIND OUT IF THERE WAS ANYTHING MISSING AS I PROGRESSED. ALAS... I DID THE WRONG THING. THE MASTER LIST CONTAINS ALL THE COMPONENTS USED IN THE COMPLETE SET WHICH INCLUDES THE 'UPDATE KIT' WITH THE REPEATER OFFSET PARTS. THESE PARTS ARE APPROPRIATELY MARKED ON THE MASTER LIST BUT NOT SO ON THE STEP-BY-STEP INSTRUCTIONS. AS A RESULT I HAD FITTED PARTS THAT WOULD HAVE BEEN CONTAINED IN THE UPDATE KIT (WHICH I DON'T YET HAVE) AND FOUND THAT I WAS SHORT OF BITS AT THE END. SOME VITAL PARTS HAD BEEN PUT INTO HOLES THAT SHOULD HAVE BEEN LEFT BLANK.

I SUGGEST THAT YOU FIRST GO THROUGH THE MASTER LIST AND NOTE ALL THE COMPONENTS MARKED 'REPEATER'. THEN GO TO THE INSTRUCTION LISTS STARTING ON PAGE 20 AND MARK ALL THE REPEATER COMPONENTS SO YOU WILL NOT FIT THESE.

THEN I SUGGEST THAT YOU GO THROUGH THE BOOK AND MAKE THE FOLLOWING CORRECTIONS BEFORE YOU START OTHERWISE YOU WILL BE IN FOR A VERY FRUSTRATING TIME.

PAGE 13 L18 WINDING IS AS SHOWN IN THE BOTTOM LEFT HAND CORNER, NOT AS SHOWN IN THE RIGHT HAND CENTRE PAGE.  
IT APPEARS THAT 19 B AND S REFERRED TO IN THE LEFT HAND COLUMN IS THE SAME AS THE 20 B AND S IN THE RIGHT COLUMN.

- PAGE 18 C105 IS UNDER THE BOARD.  
THE LARGE AREA TO BE SCRAPED NEEDS TO BE EXTENDED UPWARDS  
AT THE TOP RIGHT HAND CORNER OF THE SQUARE TO INCLUDE THE  
AREA BETWEEN THE TWO PCB ISLANDS. THIS IS FOR SOLDERING  
THE EMITTER LEAD OF THE OUTPUT TRANSISTOR.
- PAGE 19 'INS LK' MEANS INSULATED LINK  
OTHER LINKS ARE BARE 23 B AND S TINNED COPPER WIRE.  
THE LONGEST INSULATED LINK TERMINATES AT HOLES MARKED 'PLL',  
SOME OF THE PCB HOLES NEED TO BE ENLARGED TO ACCOMMODATE  
THE TERMINAL PINS.
- PAGE 20 R100, R99, AND R101..... USE THE SMALL ONE EIGHTH WATT  
RESISTORS AND LAY THEM DOWN ON THE BOARD.  
R115 COLOUR CODING WRONG  
R111 (SAME AS L27) ... WINDING INSTRUCTIONS ARE ON PAGE  
13, USING THE THINNEST WIRE SUPPLIED. JUMBLE  
WINDING IS OK.
- PAGE 24 R90 IS 100 OHMS AND IS INCORRECTLY MARKED ON THE BOARD  
AS R96.  
R120 HAS NO NUMBER MARKED ON THE BOARD.

# CAPACITORS

WATCH THE TYPE AS WELL AS THE VALUE OF CAPACITOR (CERAMIC, GREENCAP).

SOME OF THE GREENCAPS ARE TOO WIDE FOR THE HOLE SPACING ON THE BOARD.  
THE LEADS CAN BE BENT INWARDS AND DOWNWARDS TO GET THE PROPER SPACING

- PAGE 31 C110 HAS NO MARKING ON THE BOARD.  
C163 IS 5.6 PF AS PER MASTER LIST AND CIRCUIT.  
C108 IS 3.3 PF AS PER CIRCUIT (MASTER LIST IS WRONG)
- PAGE 35 C150 POSITIVE LEAD GOES TOWARDS FRONT OF BOARD.  
C69 SHOULD BE CERAMIC.
- PAGE 36 VR86 SHOULD READ 10K.  
C105 IS UNDER THE BOARD.  
C140, C143 ARE NOT MARKED ON THE BOARD.
- PAGE 39 1N914 IS EQUIVALENT TO 1N4148.  
POLARITY IS NOT MARKED ON THE BOARD FOR SOME DIODES. FIT  
THEM AS PER DIAGRAM ON PAGE 38.  
SOME OF THE DIODES HAVE TO STAND UP AS THERE IS NOT ENOUGH  
ROOM FOR THEM TO LIE FLAT.
- PAGE 41 MPF131 IS EQUIVALENT TO MFE131 AND IS FITTED WITH THE  
LOCATING LUG POINTING TOWARDS THE LEFT OF THE DIAGRAM.
- PAGE 43 MOST IMPORTANT+++++++ L16 MUST BE 10 MICROHENRY.....  
I WAS SUPPLIED WITH 10 MILLIHENRY AND NO WAY WILL THE  
SET WORK WITH THIS VALUE.  
L18 USE WINDING INSTRUCTIONS ON BOTTOM LEFT HAND SIDE  
OF PAGE 13.
- PAGE 45 L10 IS THE ONLY ONE WITH NO MARKINGS ON THE SIDE OF THE CAN.  
IC1 IS OFFSET TO THE RIGHT LEAVING THE 2 UNUSED HOLES TO  
THE LEFT (WITH THE FRONT OF THE BOARD FACING YOU)

THE 1.2K RESISTOR LEFT OVER GOES IN SERIES WITH THE LED.  
THE 470 UF ELECTROLYTIC LEFT OVER IS C45 AND IT GOES NEAR THE FRONT.

THE ERRORS SEEM TO BE CONFINED TO THE BOOK. THE CIRCUIT DIAGRAM ON  
THE SEPARATE SHEET APPEARS TO BE CORRECT.  
IF IN DOUBT REFER TO THE CIRCUIT DIAGRAM.

AFTER SWITCHING ON

I MEASURED 8 VOLTS INSTEAD OF 10 FOR THE REGULATED SUPPLY AND THIS WAS FOUND TO BE BECAUSE OF THE WIDE TOLERANCES OF THE ZENER DIODES SUPPLIED (OBVIOUSLY POORER QUALITY THAN THOSE USED IN THE PROTOTYPE). I GOT CLOSE TO THE 10 VOLTS BY ALTERING THE VALUE OF R4 FROM 10K TO 8.2K.

AFTER THE ABOVE CORRECTIONS HAD BEEN TAKEN INTO ACCOUNT THE ALIGNMENT CAME UP OK AS PER THE BOOK. I USED PROFESSIONAL TEST EQUIPMENT BUT I CAN SEE NOTHING WRONG WITH THE ALTERNATIVE METHODS DESCRIBED.

FINALLY TOP MARKS TO THE DESIGNER OF THIS BRILLIANT TRANSCEIVER. IT WORKS EXCEPTIONALLY WELL AND I AM IMPRESSED WITH ITS PERFORMANCE ESPECIALLY CONSIDERING ITS RELATIVE SIMPLICITY. THE CIRCUIT IS THAT OF A BASIC UNIT AND THERE IS ENOUGH SPACE IN THE CASE FOR EXTRA CHANNELS, DIGITAL DISPLAY, SCANNING, ETC., TO BE ADDED LATER ON IF NEEDED.

THE ONLY UNFORTUNATE THING IS THAT SOME OF THE COMPONENTS THAT ARE SUPPLIED WITH THE KIT ARE, IN MY OPINION, NOT AS HIGH IN QUALITY AS THOSE USED IN THE DESIGN PROTOTYPE AND THAT THERE ARE FAR TOO MANY ERRORS IN THE INSTRUCTION MANUAL FOR EVEN AN EXPERIENCED TECHNICIAN TO BUILD THE SET WITHOUT HASSLES.

GOOD LUCK TO ALL WHO BUILD THIS KIT AND HOPE TO HEAR SOME MORE SIGNALS ON 70 CM. AS A RESULT OF YOUR SUCCESSES.

GRAEME VK2CAG.

MARCH OF SCIENCE:

A Melbourne lawyer, Lindsay Ford, has come up with a computer program which will turn any home computer into a psychiatrist. It is called Psycho-tec, and it gives the computer a 118-word vocabulary and 200 basic replies to questions from a person seeking counselling. He showed the program off yesterday, and here is how one conversation went with a person posing as a patient.

Computer: Tell me about your problems.

Patient: Please tell me why my sex life is such a mess.

Computer: Why is it significant to you?

Patient: I need to know so I can tell my husband.

Computer: What feelings do you get when you talk about this?

Patient: You pig.

Computer: Can you relate to anything else?

Patient: No.

Computer: Can you give me some more details?

Patient: Go ask a real computer.

Computer: I'm afraid you would be better to leave discussion about machines until you speak to another human.

The inventor, Mr Ford, says the computer responds to verbal cues and gives responses similar to those of a Freudian psychiatrist. He said the only danger was in believing that the computer understood what you were saying to it.

SYDNEY MORNING HERALD

\*\*\*\*\*





REPEATER REPORT

THE RTTY REGENERATOR FOR 7275 SUBLIME POINT IS FINISHED AND READY TO BE FITTED TO THE REPEATER.

7275 WILL BE OFF THE AIR FOR APPROXIMATELY ONE WEEK FROM 8TH OR 9TH OF OCTOBER FOR THIS TO BE DONE.

NOTICE THAT BOTH SUBLIME POINT REPEATERS ARE REGISTERED IN THE LATEST CALLBOOK AS DUAL MODE VOICE/RTTY REPEATERS, THE ONLY ONES IN THE COUNTRY.

ALL REPEATERS HAVE BEEN WORKING FAULT-FREE FOR THE LAST 3 MONTHS. I CANNOT REMEMBER A PERIOD AS LONG AS 3 MONTHS IN THE LAST 6 YEARS WHEN THERE HAS NOT BEEN A VISIT TO THE REPEATER SITE FOR REPAIRS. THIS WAS WHEN WE HAD ONLY ONE REPEATER. NOW WITH 4 TO LOOK AFTER IT IS A PLEASANT SURPRISE TO SEE THE OVERALL RELIABILITY IMPROVING. A FACT WORTH NOTING IS THAT THIS IS THE FIRST YEAR THAT MT. MURRAY HAS NOT BEEN PUT OFF THE AIR BY LIGHTNING, POSSIBLY BECAUSE OF THE EXCELLENT EARTHING AND PROTECTION GIVEN BY THE STEEL CUBICLE AND AERIAL MAST.

THE WIND SEEMS TO BE OUR BIGGEST ENEMY NOW. SOME PREVENTATIVE MAINTENANCE WORK WAS CARRIED OUT TO AVOID EVENTUAL FAILURE. THE AERIAL SYSTEM AT MT. MURRAY HAS HAD PROBLEMS AGAIN. THERE SEEMS TO BE A HIGH FREQUENCY VIBRATION SET UP IN THE DIPOLE ELEMENTS DUE TO THE WIND. AFTER A WHILE THE CO-AX COMES ADRIFT AND CAUSES CRACKLING NOISES WHEN IT IS WINDY AT MT. MURRAY. THIS FAULT HAS BEEN FIXED A COUPLE OF TIMES BEFORE SO WE HAVE NOW TAKEN DOWN THE ANTENNA AND REPLACED IT WITH 'OLD FAITHFUL', THE EXTENDED RINGO THAT HAS SEEN MANY YEARS OF SERVICE AT THE OLD SITE. IAN, VK2EXN, MORRY VK2EMV AND MYSELF WERE ON SITE EARLY ON SATURDAY MORNING 17TH OF SEPTEMBER. AS WELL AS REPLACE THE TX AERIAL WE DID ROUTINE MAINTENANCE LIKE TIGHTEN THE GUY WIRES, OVERHAULED ONE OF THE CAVITY RESONATORS THAT HAD BECOME A BIT TOUCHY TO TUNE, AND TOOK MEASUREMENTS FOR BRACKETS TO BE MADE UP AT A LATER DATE FOR FITTING OF THE WIND GENERATOR. THE FAULTY AERIAL IS ON THE GROUND AT THE SITE WHILE WE HAVE A THINK ABOUT WHAT TO DO TO PREVENT A RECURRENCE OF THE PROBLEM. A COMPLETE RE-BUILD MAY BE NECESSARY. MEANWHILE THE REPEATER IS WORKING NORMALLY AND THE SLIGHT LOSS OF GAIN DOES NOT APPEAR TO BE SIGNIFICANT.

GRAEME VK2CAG

FOR SALE

PYE FM739E 50 watt Hybrid base Station low Band.\$25  
 STC CTR-50/132A 50 watt Hybrid Base Station low Band.\$25  
 2 off AWA BST-50B 50 watt Hybrid Base Station low Band.\$25 each  
 3 off AWA Cadet Carphone MR-15A valve mobiles low Band.\$15 each  
 All Units are complete and ex Commercial service.

Please contact: Eric WOOLLEY Services P/L

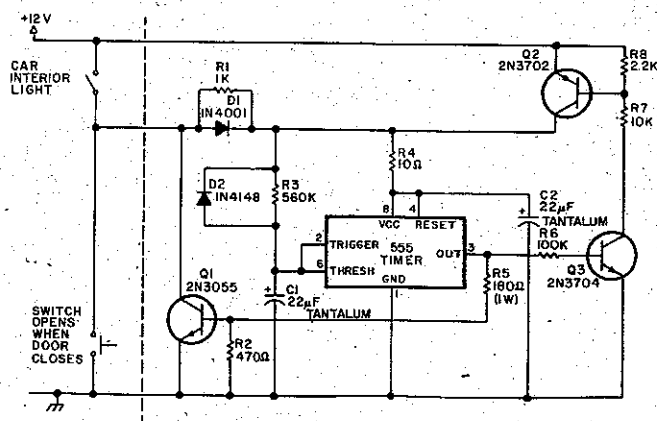
4 HOCKEY St.

Nowra 2541

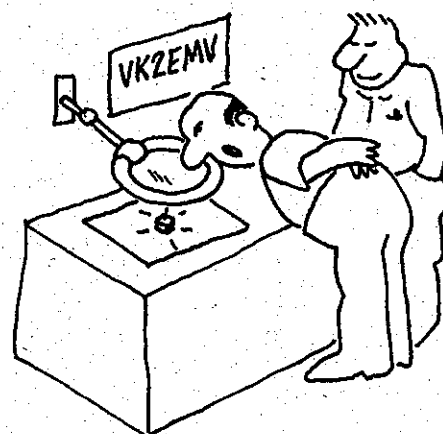
Phone (044) 21-2773 during buseness hours.

**HALLEY'S COMET.** Four years from now - in March 1986 - Australians again should be in the privileged position of viewing Halley's Comet as it swings past the sun and heads back into the distant reaches of space. Halley's Comet is named after famous English astronomer Edmund Halley, who observed it at its return in 1682. Armed with this information, Halley made the revolutionary prediction that the comet would again return in 1758. The comet again was observed in 1835 and 1910. Improved translations of ancient Chinese records have enabled astronomical historians to trace it back at least to 83 BC. But what, after all, is Halley's Comet? It is a ball of ice and dust - a cosmic "dirty snowball" which, (upon reaching the neighbourhood of the sun) suffers a certain amount of evaporation of the ices on its surface. The gases released swell into a huge cloud many times larger than the earth, which glows due to the excitation of solar radiation - something like a cosmic neon sign. Pressure from the "solar wind" (a stream of charged sub-atomic particles boiling off the sun into interplanetary space) ionises some of this gas and blows it back into the tail - a stream of very tenuous gas millions of kilometres long which always points away from the sun, irrespective of the direction of the comet. Only the biggest telescopes will be able to see the comet until mid-1985, when well-equipped amateur astronomers may have their first glimpse. By November 1985 it should be visible in 7x50 binoculars and in early January of the following year may be just visible by eye if one knows exactly where to look. A short tail should be visible by binoculars about this time. On January 13th, 1986, it will be close to Jupiter and the crescent moon in the western sky.

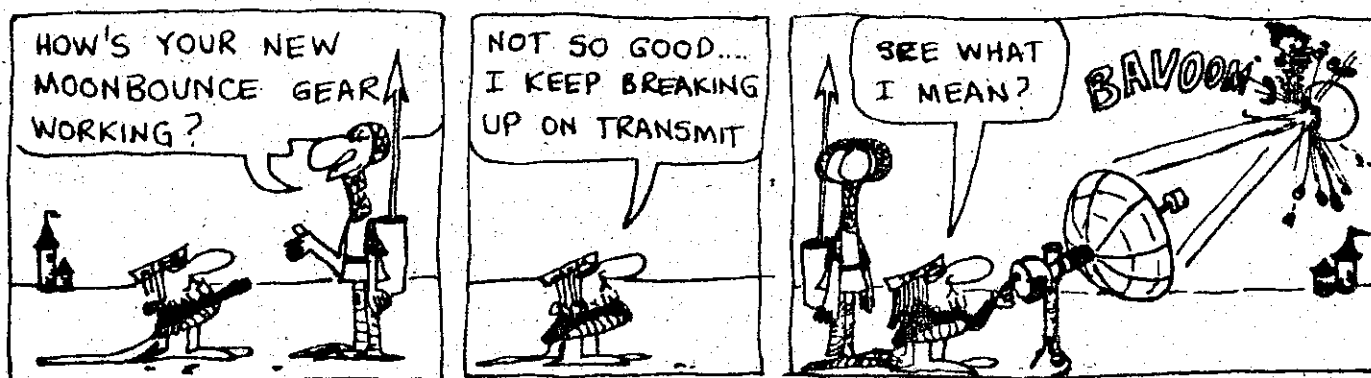
"Scientific Australian" from "The Lyrebird"



This time delay circuit is easily adaptable to turning off an alarm system and resetting it after a preset period. The values shown will keep the load activated for about 10 seconds, but can be adjusted for values up to many hours. Reprinted from LIMARC Log.



"Gee, Morry, your new HF receiver is fantastic - but you'll have to build a smaller shack to keep it in!"



- BASIC CONCEPTS OF SCIENCE.-  
-----

1) MURPHEY'S LAW:-  
-----

IF ANYTHING CAN GO WRONG IT WILL.

2) PATRIK'S THEOREM:-  
-----

IF THE EXPERIMENT WORKS YOU MUST BE USING THE WRONG EQUIPMENT.

3) SKINNERS CONSTANT:-  
-----

THAT QUANTITY WHICH WHEN MULTIPLIED, DIVIDED INTO, ADDED TO OR SUBTRACTED FROM YOUR RESULT GIVES THE RESULT YOU SHOULD HAVE OBTAINED.

4) HORNER'S FIVE THUMB POSTULATE:-  
-----

EXPERIENCE VARIES IN DIRECT PROPORTION TO THE QUANTITY OF EQUIPMENT DESTROYED.

5) FLAGLE'S LAW OF THE PERVERSITY OF INANIMATE OBJECTS:-  
-----

ANY INANIMATE OBJECT, REGARDLESS OF ITS COMPOSITION OR CONFIGURATION MAY BE EXPECTED TO PERFORM AT ANY TIME IN A TOTALLY UNEXPECTED MANNER FOR REASONS THAT ARE EITHER TOTALLY OBSCURE OR COMPLETELY MYSTERIOUS.

6) ALLEN'S AXIOM:-  
-----

WHEN ALL ELSE FAILS READ THE INSTRUCTIONS.

7) THE SPARE PARTS PRINCIPLE:-  
-----

THE ACCESSABILITY DURING RECOVERY OF SMALL PARTS WHICH FALL FROM THE WORK BENCH, VARIES DIRECTLY WITH THE SIZE OF THE PART, AND INDIRECTLY WITH ITS IMPORTANCE TO THE JOB AT HAND.

8) THE COMPENSATION COLLEROY:-  
-----

THE EXPERIMENT MAY BE CONSIDERED A SUCCESS IF NO MORE THAN 50% OF THE OBSERVED MEASUREMENTS MUST BE DISCARDED TO OBTAIN A CORRESPONDENCE WITH THEORY.

9) GUMPERSONS LAW:-  
-----

THE PROBABILITY OF AN EVENT OCCURRING IS INVERSELY PROPORTIONAL TO ITS DESIRABILITY.

10) THE ORDERING PRINCIPLE:-  
-----

THOSE SUPPLIES NECESSARY FOR YESTERDAYS EXPERIMENT MUST BE ORDERED NO LATER THAN TOMORROW NOON.

11) THE FUTILITY FACTOR:-  
-----

NO EXPERIMENT IS EVER A COMPLETE FAILURE..... IT CAN ALWAYS SERVE AS A BAD EXAMPLE.

Peter Laughton  
VK2XAN

MORE CORRECTION ON D.S.E. 70CM R10 NEXT MONTH.

**THE ILLAWARRA AMATEUR RADIO SOCIETY - P. O. BOX 1838 WOLLONGONG 2500**

**Meetings:** Second Monday of every month except January at 7.30 p.m. in the Congregational Church Hall, Coombe Street, Wollongong. Committee Meeting - 3rd Monday of each month.

**Repeaters:** VK2RAW - 6850 VHF Mount Murray. VK2RIL - 7275 VHF Sublime Point.

VK2RUW - 8225 UHF Hill 60 Port Kembla. VK2RIL - 8725 UHF Sublime Point.

**Broadcasts:** On Sunday night prior to Club Meeting - 7.00 p.m. RTTY on 6850 VHF Repeater; 7.15 p.m., Voice on 6850 VHF, 7275 VHF and by relay on 3.562 Mhz. Call backs after the WIA relay at 7.30 p.m.

**W.I.A. Relay:** On 6850 VHF at 11.00 a.m. and 7.30 p.m. weekly on Sunday.

**Club Nets:** 3562 Khz SSB on Sunday at 8.00 p.m. and slow morse net on 28.440 Mhz on Tuesday at 8.00 p.m.

**Newsletter:** "The Propagator", published monthly to reach financial members in week prior to meeting. All articles, ads etc. to the editor, Leo Kleeborn, VK2YJK at 33 Lombard Avenue, Fairy Meadow 2519. Telephone 84.9751. Copy deadline 3rd Tuesday each month.

**Membership:** The Secretary, I.A.R.S. P. O. Box 1838, Wollongong 2500. Full membership is \$7.00 per annum; students and pensioner concessional members \$4.00 per annum.

**QSL's:** For financial members who are also financial members of the W.I.A. ONLY.

Inwards: Mike Keech VK2DFK, QTHR; Outwards: Ian Callcott VK2EXN QTHR.

**Awards:** The award of the I.A.R.S. is "The Lawrence Hargrave" award. VK stations require 10 contacts with I.A.R.S. members; overseas stations require 5 contacts with I.A.R.S. members or contact with the Club station VK2AMW is sufficient in itself for the award. Band details - time, day, date, frequency, station worked + \$2.00 or 4 I.R.C.'s to Award Manager, I.A.R.S., P. O. Box 1838, Wollongong 2500. No QSL cards required.

**Store:** The Club store operates at each Club meeting.

**Committee:** President - Dave Myers VK2DFL, 78 Highlands Pde., Bulli.

Vice President - Keith Curle VK2DB, 24 Beach Drive, Woonona.

Secretary - Murray McConnell VK2MY, 62 Ramah Avenue, Mt. Pleasant.

Treasurers - Geoff Cuthbert VK2ZHU, 2 Nioka Avenue, Keiraville.

Richard Fox VK2ERF, P. O. Box 1120, Wollongong.

**General Committee:** Mike Keech VK2DFK, Ian Callcott VK2EXN, Ray Ball VK2XCC Morry Van-De-Vorstenbosch VK2EMV, Jim Mead VK2EJM, Jock Taylor VK2JT, Roy Parton VK2KO.

**Repeater Chairman:** Graeme Dowse VK2CAG.

**Repeater Committee:** Mike Keech VK2DFK, Morry Van-De-Vorstenbosch VK2EMV, Ian Callcott VK2EXN, Dave Colless VK2EZY.

**Broadcast Officers:** Denis McKay VK2DMR, Paul Gardiner VK2ZQT.

**QSL's:** Mike Keech VK2DFK and Ian Callcott VK2EXN.

**Propagator Editor & Staff:** Leo Kleeborn, Editor VK2YJK, Ken Frost VK2DOI, Cartoonist Brian Wade VK2AXI.

**Storepersons:** Kitty and Kel Smith VK2PSK, VK2PSI.

**Life members:** Graeme Dowse VK2CAG Keith Curle VK2DB