
THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY

PO BOX 1838 WOLLONGONG NSW 2500

VOLUME 84, NUMBER 4

MAY 1984

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 Monday May 14th 1984 in the Congregational Hall, Coombe Street, Wollongong, at 7.30 p.m. Guest speaker for the evening will be Ian Eddy, VK2IE, of ANARTS, who will be giving a talk on AMTOR (Amateur Teleprinting over Radio). At this meeting the raffle will be for 1981/82 call books.

SUBSCRIPTIONS: Another reminder that Subscriptions for 1984/85 are now overdue. Full membership is \$10.00, students and pensioners \$5.00. Only two months' grace then you will not be getting any more issues of 'The Propagator'. See Treasurers Geoff VK2ZHU or Andrew at the meeting or send your subscription to the Secretary, P.O. Box 1838, Wollongong 2500.

LAST MONTH'S MEETING: The April meeting of the I.A.R.S. was held in the Congregational Hall on April 9th and in spite of miserable wet weather there was a good turn-out of 50-60 members and a couple of visitors. President Dave VK2DFL opened the meeting and read out the notices, including a letter from a professor at the Capricornia Institute of Advanced Education offering a shortwave receiver for sale.

Items of VK2ALU Lyle's gear were on display, and a Galaxy transceiver belonging to Mike VK2BLR was for sale, as was a Toyota car radio from Paul VK2DZJ. Dave showed us a fan from Charlie VK2BOZ - free to good home - and an offer of 20¢ for it was accepted! A few magazines (less covers) donated by Roger were available to anyone interested.

Dave VK2YKQ announced the opening of transmission by Illawarra Community Broadcasters of their F.M. service on 106.5 MHz from a studio in Wollongong's P.D.S. Building, the transmitter being on Broker's Nose. The test transmission will be for a week Friday to Monday, the next test planned for July.

Lyle VK2ALU then told us of the success of the E-M-E project with Ian VK2EXN last week, contacts being made via the moon with many overseas stations on 1296 MHz.

First prize in the raffle, a 25-piece socket set, was won by Lyle VK2ALU, second prize of a set of nutdrivers going to Ken VK2DOI.

Gil McPherson VK2ZGE then gave the meeting a talk about the VHF transceiver kit to be marketed by Dick Smith Electronics shortly, following the success of the UHF kit (see 'The Propagator' for October 1983). It is hoped that the VHF kit will be available in June at a price of \$199 with all options. Judging by the questions afterwards this should prove to be a popular project.

REPEATER REPORT

IT IS PLEASING TO SEE THAT THE BATTERY AT MT. MURRAY HAS BEEN IN A STATE OF BEING FULLY CHARGED FOR SEVERAL DAYS AT A TIME DURING THE MONTH. THE BATTERY VOLTAGE HAS NOT FALLEN BELOW 12.5 AT ANY TIME DURING THE LAST MONTH. THIS IS A GOOD INDICATION THAT OUR WIND GENERATOR IS DOING THE JOB THAT IT IS INTENDED TO. THERE HAS BEEN A FAIR AMOUNT OF WIND LATELY, AND THE AMOUNT OF TRAFFIC THROUGH THE REPEATER HAS BEEN ABOUT AVERAGE.

A SMALL 'BUG' HAS BEEN IRONED OUT OF THE TELEMETRY DECODER, AND WE ARE NOW GETTING THE W.I.A. SUNDAY BROADCASTS RELIABLY RELAYED. THE ADDITIONAL RECEIVING ANTENNA HAS BEEN FITTED TO THE LINK RECEIVER, SO NOW WHEN THE W.I.A. BROADCAST IS IN PROGRESS THE REPEATER'S MAIN RECEIVER IS STILL ON LINE MAKING IT POSSIBLE FOR A NORMAL CONTACT TO TAKE PLACE THROUGH THE REPEATER WHILE THE BROADCAST IS ON... (HOPEFULLY THIS FACILITY WILL BE MADE USE OF FOR EMERGENCY TRAFFIC ONLY).

THE NEW CONTROL SYSTEM HAS COME TO THE ATTENTION OF PERSONS IN AUTHORITY AFTER ON-AIR DISCUSSIONS ABOUT THE SYSTEM. IF YOU ARE DISCUSSING IT ON AIR, THEN PLEASE MAKE SURE THAT YOU HAVE GOT THE FACTS RIGHT, AND TELL THE WHOLE STORY AND NOT LEAVE ENOUGH OUT SO A LISTENER MAY GET THE IMPRESSION THAT WE ARE DOING SOMETHING THAT IS NOT ALLOWED IN THE REGULATIONS. THIS SORT OF THING TAKES UP VALUABLE TIME OF REPEATER COMMITTEE MEMBERS BY HAVING TO CLARIFY THE SITUATION BY WRITING LETTERS AND MAKING PHONE CALLS. THE RELEVANT FACTS ARE IN LAST MONTHS 'PROPAGATOR'. THE REPEATER LICENCES AND LIST OF SPECIAL CONDITIONS ATTACHED THEREON ARE HELD BY MYSELF IN THE REPEATER FILE AND THIS INFORMATION IS AVAILABLE TO ANYONE WHO WISHES TO VIEW IT. PERHAPS THE CHOICE OF THE WORD 'TELEMETRY' IS NOT A GOOD ONE... 'REPEATER CONTROL SYSTEM' IS BETTER.

HILL 60 REPEATER 8225 HAS BEEN IN SERVICE NOW FOR ONE YEAR AND 10 MONTHS AND HAS NEVER FAILED. BECAUSE OF ITS RELIABILITY, IT HAS BEEN NEGLECTED TO THE POINT THAT WHEN AN INSPECTION WAS MADE RECENTLY, SEVERE RUSTING WAS FOUND ON THE ANTENNA MAST SUPPORTS. THESE SUPPORTS ARE THE ONLY ITEMS IN THE ANTENNA SYSTEM THAT ARE NOT MADE FROM ALUMINIUM OR STAINLESS STEEL... THEY ARE PAINTED STEEL. MOVES ARE UNDER WAY TO HAVE NEW ONES MADE UP AND GALVANIZED.

GRAEME VK2CAG

CLUB TEE SHIRTS

THERE ARE STILL SOME I.A.R.S. TEE SHIRTS FOR SALE.
 SIZES AVAILABLE ARE: 14, 18, 20, 22.
 THESE ARE IN ADDITION TO THOSE BEING HELD FOR PEOPLE WHO ORDERED.
 TEE SHIRTS WILL BE FOR SALE AT THE NEXT MEETING.
 PRICE: \$8:50 EACH

ALSO DON'T DESPAIR IF YOU LIVE OUTSIDE THE AREA, AS THE CLUB NOW OFFER'S A MAIL ORDER SERVICE FOR 'T' SHIRTS.
 JUST SEND IN YOUR SIZE AND AN EXTRA \$2.00. TO COVER POSTAGE AND WE WILL SEND YOU YOUR I.A.R.S 'T' SHIRT.....

Telecom's Radio Paging Service (Telefinder).

The Radio Paging Service alerts users, by means of a beep or tone, to the necessity of contacting their base or home to receive urgent messages or instructions. It is thus useful to doctors, sales representatives or anybody else who may need to be contacted when away from the office. Visual or vibratory indicators are also sometimes used.

The service was introduced in Sydney and Melbourne in 1973 and was extended to Wollongong and Newcastle in 1979. Paging receivers are bought or hired from the manufacturers and no licence is needed, but rental on the telephone number and line is payable to Telecom.

Each pager has its own telephone number consisting of seven digits. When this is dialled, the first three digits cause the local telephone exchange to route the call to one of the Computerized Switching Terminals at Haymarket Exchange in Sydney, the final four digits identifying the particular pager required. Each switching terminal therefore has a capacity of 10,000 pagers and sequentially transmit to line while the other terminals store incoming calls.

At Haymarket the last five digits are converted to voice frequency tones, one for each digit, in the range 495 Hz to 2100 Hz, and sent on to Waverley R.T. Terminal. Here the tones are recognised (by means of the tone for the first digit) as being, for example, for a Wollongong subscriber, and a signal is sent via a 6.1 GHz sub-baseband link to Wollongong Exchange instructing it to turn on the paging transmitter. At the same time this signal is relayed via a U.H.F. transceiver to the paging transmitter at Knight's Hill, near Robertson. Each paging transmitter when correctly powered causes a 'Verify' return signal to be sent back to the Waverley Radio Terminal and thus to the computer terminal at Haymarket Exchange. The paging transmitter then commences to transmit a 'Preamble' tone pulse of 2.1 kHz for 690 milliseconds.

In the receiver, which is battery operated, a pulsing circuit continually switches it on for 52 mS and off for 460 mS, thereby conserving battery life. The preamble tone will thus be received, and this causes the receiver to remain 'on'. After the preamble tone the 5-tone paging 'message' is transmitted, plus a sixth tone if the receiver has a dual number capability. If the received tones indicate that that particular pager is being called, the pager begins to 'beep', otherwise the receiver returns to its battery-saving condition. The sixth tone causes a different 'beeping' mode to indicate which number is calling.

Paging transmitter frequency is 148.0125 MHz and as more than one transmitter is powered simultaneously, precision oven-controlled high stability oscillators are required so that there is no phase difference in the signal which could result in mutual cancellation. There is also an 80 Hz difference between the Wollongong and Knight's Hill transmitters to provide transmission time delay equalisation. Each transmitter is 80 watts V.H.F. and is powered only when a 'turn-on' pulse is received. The transmitter feeds an omnidirectional antenna consisting of four vertically mounted folded dipoles having a guaranteed coverage of 40 km. radius. The microwave (U.H.F.) control transceivers are frequency modulated and operate on frequencies of 414.325 MHz (receive) and 404.875 MHz (return signal transmit) at the transmitter sites. Deviation is 3.5 kHz peak and the transceivers use Yagi antennas on the R.T. towers.

de Ken, VK2DOI.

Loran Joly WB0KTH
432 Central Ave.
Mora MN 55051

Learn A New Language!

- - try CW

The familiar term CW rings a bell in every ham's head. Every ham has, at one time or another, learned the Morse code in order to pass a test for his license. But have they actually learned the code, or have they just memorized it?

CW is similar to a foreign language in many ways. For one, it takes countless hours of work to speak fluently in any foreign tongue. Perseverance and motivation are required. Reading and listening will also help in the mastering of a language.

In other words, the "secret" in learning a language is *diligent practice*. There is no other way to escape the practice that is required. I do not want to discourage you from taking up CW as a serious facet of your hamming time. In fact, I am attempting just the opposite. You will make greater

gains when you realize the work, time, and energy required.

There are a variety of tapes and records available for the elementary and intermediate CW operator's benefit. These methods work well, and are a good approach to the CW barrier.

Most ham operators send and receive Morse code between the speeds of five and thirty words per minute. At these speeds, the individual letters of each word are deciphered and registered on paper or in our minds. This method is quite acceptable, provided you wish to converse with people at these speeds.

There is, however, a hidden barrier that crops up when you reach approximately thirty words per minute. At and above this speed, you must begin to develop a vocabulary of words. Just as you learned to

recognize a letter by its total "phrase," you will have to learn to recognize words by their total "phrases," not by piecing together letters. As the CW is being sent, you should hear words, not individual letters.

How does one acquire this skill? You can practice by tuning in various CW practice stations that operate on a regularly scheduled basis. Schedules of these stations are available from the ARRL. It also helps to have someone send you the more frequently used words and prefixes.

Out of necessity, a person receiving high speed CW will need to learn the art of "copying behind." To practice, just write everything a few words behind what is being sent. By doing this, fewer problems will occur with spelling and capital letters; there will be an overall improvement in the transcription from the mind to the

paper.

No matter how fast you may be able to decipher CW in your head, you must be able to transfer it down onto paper if you wish to prove that you have a high proficiency in the translation of CW. There are various organizations which issue certificates for skills in CW proficiency. The Connecticut Wireless Association gives an award to those able to receive and *put onto paper* a 60 words per minute code proficiency transmission. To transfer code at speeds of over 30 words per minute onto paper, a typewriter is needed. Wear headphones as you are typing, so the typewriter will not drown out the CW!

Sending

Most hams cannot send good quality CW above 20 words per minute with a straight key. Therefore, a high percentage of the hams operating CW today use an electronic keyer. Many features are available on a keyer, such as dot and dash insertion, iambic operation, and automatic character spacing. If you desire the most highly advanced and versatile keyer available, then the Accu-Keyer with memory should fill the bill. The 1976 *ARRL Handbook* gives details on how to build this gem. Designed and built by WB4VVF, it has every feature in a keyer a ham could ever want!

If you enjoy typing, you may wish to build or buy a CW typewriter. As you type, CW appears (electrical form!) at the output of this machine. This is an easy method of sending very accurate CW.

As you begin to increase your CW proficiency, you will begin to enjoy this fascinating facet of ham radio more and more. I would be especially interested in hearing from anyone who is able to receive CW at a speed in excess of 60 words per minute. This *is* possible; it just takes practice, practice, practice. ■

FROM 73 MAGAZINE.

HAND HELD POWER SUPPLY

Fred VK2YSB

Hand holds usually require between 10.5 and 11.5 volts input maximum. Applying 12 volts could damage the set and the Ni-cads, not to mention it could be disasterous to rely on simply fuse protection from a car battery, as the several amps of current in the fraction of a second before the fuse blows, may still destroy your valuable set.

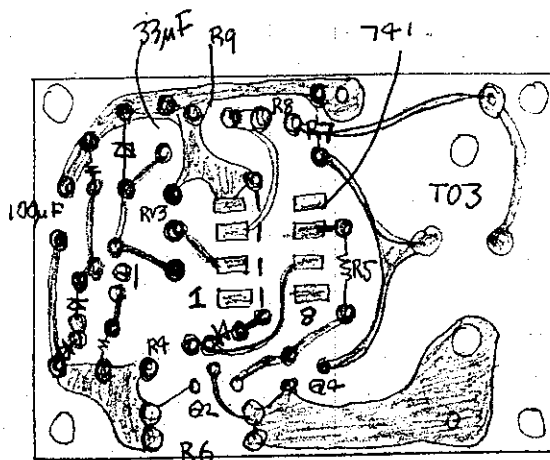
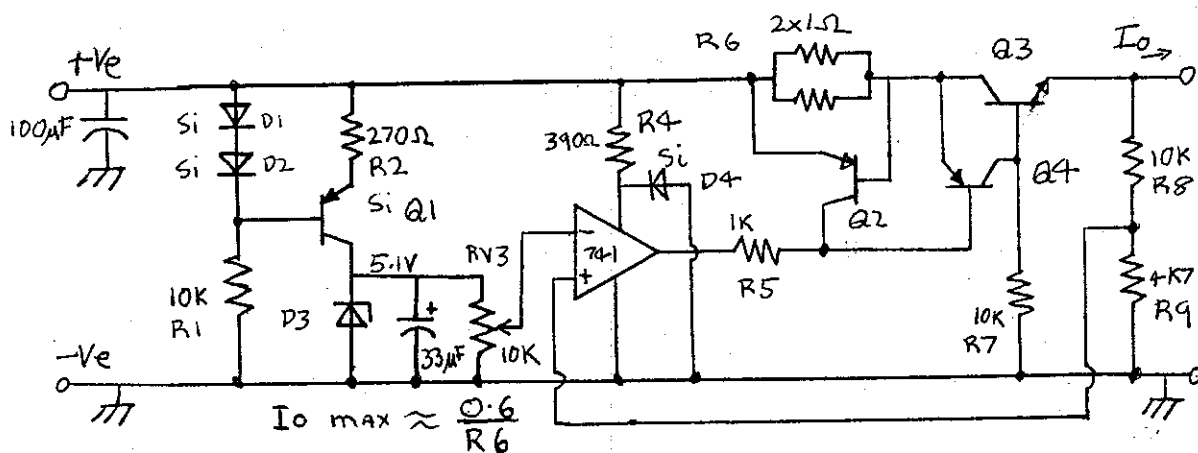
This is where the power supply comes in. The output is adjusted by RV3 to give 11V. and it will stay there with current protection.

The circuit is also protected against reversal of input voltage by R4 & D4. If the +Ve Rail becomes -Ve, D4 will conduct, limiting the IC voltage to 0.7V, and so is unable to drive Q3..

Q1 forms a constant current source for the zener diode Ref. thus reducing the effects of Temperature and Voltage variations on the 5.1V Reference... The output voltage can be regulated to within 0.6 Volts of the input voltage...

Q3 and R6 form the current protection. When current approaches limiting value, voltage drop across R6 becomes about 0.6V. which is the BE. turn on voltage for the silicon transistor. When it conducts it removes drive current from the base of Q4, thus maintaining the current to the limiting value, despite a short circuit on the output. Q3 should have a heat sink and is a 2N3055.. Q1-Q4 are virtually any general purpose silicon trans.

Construction: Mine is on a small PC board, with resistors etc, mounted vertically to miniturise as much as possible. The T03, Q3, is on the PC board with an Aluminium heat sink..



← can only give a rough idea how to layout the copper side of PC board

a 5/8 wavelength Mobile Antenna

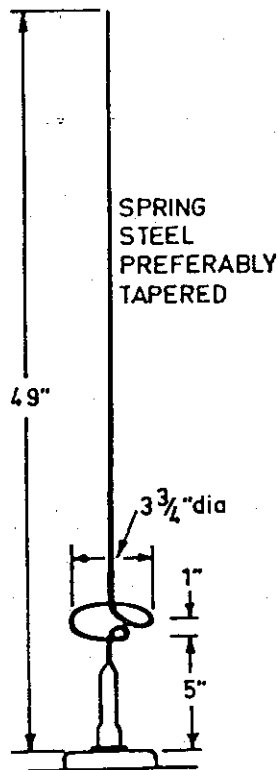
Here is an article showing a practical example of the 5/8 wave mobile aerial using a single turn bottom loaded coil suitable for 2 and 6 metre mobile net frequencies.

The original 5/8 wavelength mobile whip for the two metre FM net became popular around 1966 following an article in Amateur Radio, (1) which used a small base loaded multi-turn coil wound on a fibre glass rod or tubing which supported the vertical radiator in the form of a wire or braid, in turn covered over and protected by PVC tape or shrinkable plastic tubing.

The author studied mobile aerial design including research into overseas designs (2) extensively from 1954. During 1968 the idea of using a 5/8 wavelength mobile aerial with a subtle difference came to mind. The difference was in the base loading coil, which as in the original design tunes the aerial to .75 wavelength resonance.

It was felt this coil could act as a mechanical spring, should the aerial get knocked by a tree branch, service station roofs, etc. Stan VK3ZPL (3) experimented and developed such a prototype, superior to the simple 1/4-wave whip and equal in performance to the original 5/8 idea. This new arrangement was found also to have a very good match on 6 metres with near

W. GEORGE FRANCIS, VK3ASV
31 Donald Street,
Morwell, 3840.



STANDARD VHF MOBILE
AERIAL BASE AND
FERRULE

Reproduced From AR.

April 1974..

unity gain, acting as a base loaded 1/4 wavelength whip on that band.

Since the many Eastern Victorian and Melbourne amateurs have used this aerial with considerable success.

It is now commercially produced for U.S. amateurs. (4) For further technical information and polar diagrams refer to the recent article in Amateur Radio. (5)

The 5/8 whip can also be used with a ground plane on top of a tower and forms an excellent low angle base station aerial. (6).

REFERENCES —

1. "5/8 Wavelength Vertical for Two" AR July 1964.
2. "Vehicular Advanced design gain Antenna", Cat. 251-509 Communication Product Co. U.S.A. 1959.
3. "5/8 Wavelength Whip for 164 & 174MHz", type RT, Associated Aerials Ltd., Kent, U.K., 1967.
3. now VK3BAE, G4BHM.
4. "8 and 2 metres antenna" Cat. No. 251-509.2.5db gain 2m., unity gain on 8 Phelps Dodge Communications Co. Advert. Page 12 CQ, June, 1970.
5. AR September, 1970 "5/8 Wavelength Verticals" by WA0HGV also CQ Magazine, May, 1970.
6. As used by VK3AJK, VK3BBB, VK3ADB & VK3ZUN

TOROIDAL BALUNS

Practical information about making ferrite-cored toroidal baluns. The details should apply to almost any antenna that can be fed with a balun. Experiments at this QTH were all with quads but of many shapes and sizes.

It is essential when winding a toroidal balun to know the impedance you are trying to match and I would recommend that you beg, borrow, buy (or build) an antenna impedance bridge.

A quad driven element that is over 1/2 a wavelength from the ground will vary in impedance from about 55 ohms with a .1 λ

spacing to the reflector to about 115 ohms with a .2 λ spacing. The director makes negligible difference. The main problem is that proximity to trees, rooftops, etc., as well as other closed loop elements in multi-band quads, all vary the impedance.

It is best, I have found, to have a minimum of 10 turns on the primary winding and most ratios can be made close enough without exceeding 15 turns on the primary. For ease of adjustment the two secondary windings should be wound on first—they must have the same number of turns and I always make them one continuous winding with a large loop halfway that can be snipped later. This keeps the windings intact and also saves the sharp ends from

piercing your hands when winding the primary over the top.

To calculate your turns proceed as follows —

If your impedance is, say, 98 ohms and you want to feed the antenna with 50 ohm coax the ratio of these impedances is 1.96 to 1. As with any close-coupled transformer the turns ratio is the square root of the impedance ratio, thus in this case 1.4 to 1. Then as it is essential to use about 10 turns on the primary the secondary turns would be 14. This means that we would wind 10 turns on the primary and 14 on the secondary in the form of two 7 turn windings.

CONT- NEXT PAGE. →

K. Curle VK2OB
24 Beach Drive, Woonona 2517

From PAGE 6.

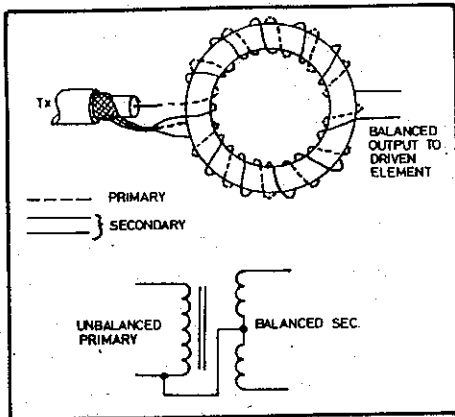
If you have to guess your Impedance it is best to leave a couple of extra turns on the primary and check your SWR as you remove them half a turn at a time. If you are working off a ladder or the roof it is wise not to try for a 1:1 SWR as it will change when the antenna is at full height.

There are probably many good ferrites available. The one I use is the Mullard FX1588, which is excellent at HF. It does seem to be "running out of steam" at the

top end of 10 metres, but results are still good on this band. Wire is not very critical, 14 SWG is what I have used and found that it wraps around the toroid without springing off and slipping. If you use wire from an old transformer heater winding the enamel may not provide adequate insulation, and I would suggest that you layer plastic tape over the secondary before winding the primary.

Once you are happy with the matching, the balun can be coated with silicone rubber or in my case (I have a beach frontage) encapsulated in epoxy resin.

I have run 350 to 400 watts PEP through these baluns without melting candle grease poured on them as temporary moisture shields. I don't know what power they will take, but they will handle any legal amateur power.



SOME EXAMPLES (Turns are practical figures)

Coax	Impedance	Impedance Ratio	Turns Ratio	Turns Primary	Half Secondary
50	50	1:1	1:1	10	5 each
50	75	1:1.5	1:1.2	10	6 each
50	84	1:1.68	1:1.3	14	9 each
50	100	1:2	1:1.414	14	10 each
75	200	1:2.67	1:1.63	11	8 each
50	200	1:4	1:2	10	10 each

LEFT: FIGURE 1.

FROM AR. SEPT 1974

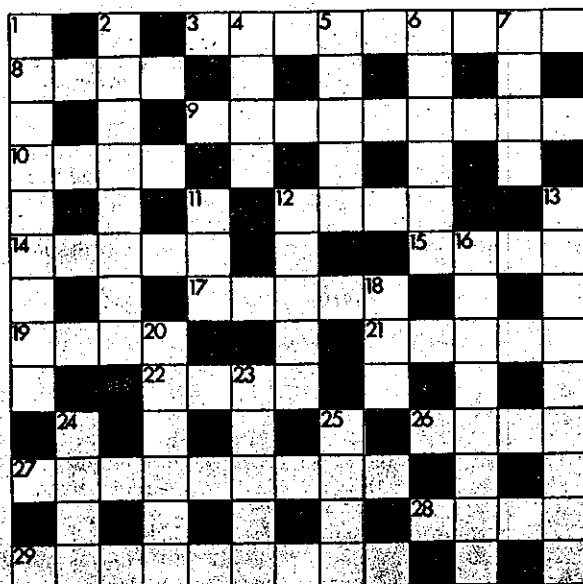
NUMBERLET

The letters A to J represent the numbers 1 to 9, but not necessarily in that order. None is duplicated. To give you a start, two of the figures are already filled in. With the help of the across and down totals in the NUMBERLET square, you can now work out which letters represent other figures. Which letter is missing?

A	B	C	D	E	F	G	H	J
	8							3

D	E	G	A	25
	F	C	J	19
F	B	D	H	20
A	C	E	B	25
26	20	24	19	

PW TECHNICROSS PUZZLE No. 6



ACROSS

- 3 Study it on a sound scientific basis (9)
- 8 Broadcast a reversed time-signal! (4)
- 9 Coming back about dial control? (9)
- 10 Smallest adjustment to A.I. transformers (4)
- 12 High fidelity reproduction expert (4)
- 14 Tannoy George fitted with outside shield (5)
- 15 Storage system peculiar to farming (4)
- 17 TV took the steam out of it! (5)
- 19 Wire stereo to hold the balance (4)
- 21 Accommodating area in echo television? (5)
- 22 Therefore Latin connection for scanner governors (4)
- 26 Highest one likes highest-ri? (4)
- 27 Mum warning to the thing to vary voltages? (5, 4)
- 28 Burdensome part of circuit-making? (4)
- 29 They're beating all the old records! (9)

DOWN

- 1 Defenders of electrical apparatus (9)
- 2 Makes a row over amplification? (8)
- 4 He knows all sorts of hams (4)
- 5 How to make a rough power switch (5)
- 6 Twisters in wavelength control (6)
- 7 Tapering component in Ekco networks? (4)
- 11 Through with cat sound reproduction! (3)
- 12 Such bad equipment unheard of! (5)
- 13 And such perfect reception! (5, 4)
- 16 A speak-easy in the office! (8)
- 18 An example of 27 Across (3)
- 20 Game now played with TV sets? (6)
- 23 A pig of a sound to record! (5)
- 24 Had a tape full of information (4)
- 25 Telegram by radio less unused (4)

FOR AMUSEMENT ONLY
ANSWERS NEXT MONTH

R. P. Haviland W4MB
 2100 S. Nova Rd., Box 45
 Daytona Beach FL 32019

Instant PS Regulation

-- a quickie

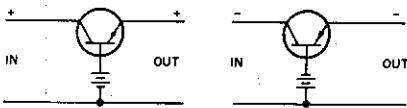


Fig. 1. Basic regulator.

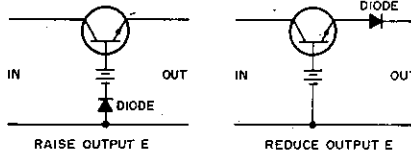


Fig. 2. Voltage adjustment.

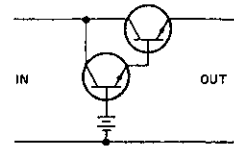


Fig. 3. Improved regulation.

Need an additional regulated supply in a hurry, perhaps to finish up some project which requires a special voltage, or perhaps the regular supply is just overloaded? If you have a source of dc voltage higher than the voltage you need, you can make the regulator by adding only two components, a transistor and a battery. The circuit is shown in Fig. 1 for both positive and negative output supplies. As you see, the battery supplies base current to the pass transistor, which acts as a variable dropping resistor. The battery drain is equal to the current supplied divided by the transistor gain. The output voltage is equal to the battery voltage minus the base-emitter drop.

If closer control of the output voltage is needed, it can be obtained by adding series diodes as shown in Fig. 2. Also, if better regulation is needed, it can be obtained by using a pair of transistors in the Darlington connection, as shown in Fig. 3. This connection is also worthwhile if the supply is to be operated for any length of time, since the battery drain becomes very small.

Suitable sources for the unregulated voltage are a battery charger, a car battery, or an old filament or bell transformer with a series rectifier. In many cases, the charger or transformer-rectifier does not even need a shunt capacitor to reduce ripple. ■

CQ MAGAZINE.

+++++

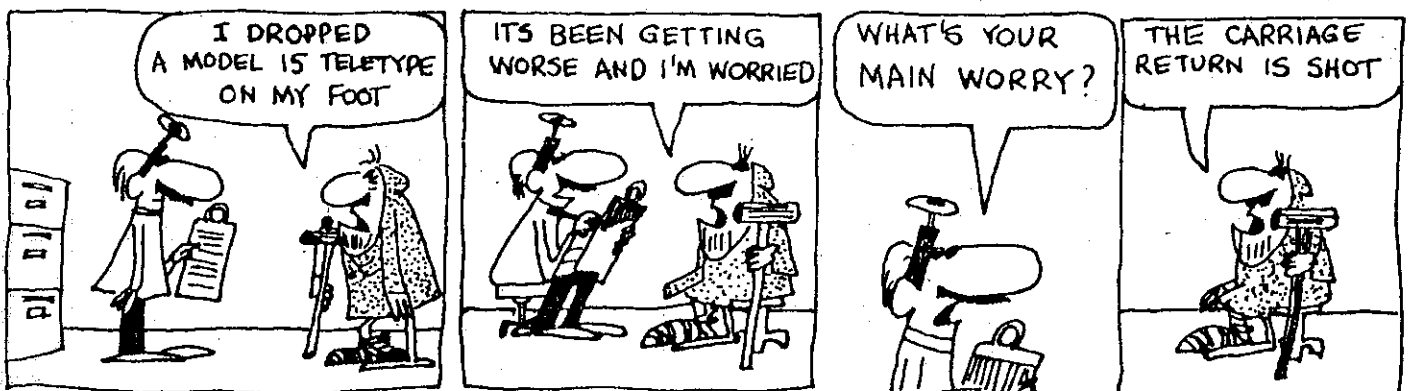
ROSTER LIST FOR 80MTR. NET

1st Week of the month	KEVIN	VK2EBI.
2nd " " " "	MORRY	VK2EMV.
3rd " " " "	JIM	VK2EJM.
4th " " " "	PAUL	VK2KPS.

Frequency is 3.562 MHz +- QRM. 8.00 Pm Sundays.
 All welcome to join in.

DE. Morry VK2EMV.

+++++



UHF - KILOMETRE - KONTEST

Points Standing For This Month

REG VK2EMI... 5	PROGRESIVE... 14
IAN VK2EXN... 4	" " 11
GRAEME VK2CAG... 2	" " 6
ROY VK2KO.... 1	" " 3
MORRY VK2EMV. 3	" " 3
LYLE VK2ALU.../	" " 3

Keep up the entries chaps and lets catch Reg 73. Dave VK2EZY...

Joseph E. Reed WB9JXU
Route 1 Box 24
Mountain WI 54149

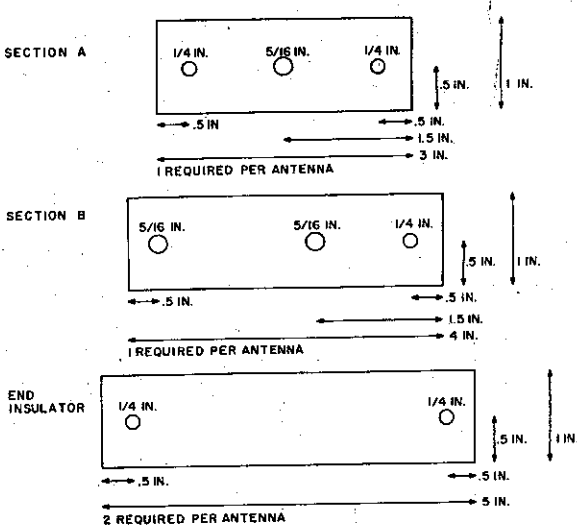


Fig. 1.

Recently, while I was building antennas, my supply of insulators ran out. As Murphy's Law would have it, none could be found in town. The result was that I could order replacement insulators, overpay, and be delayed several weeks, or I could figure out another alternative. Since I was

anxious to get on 20 meter CW as quickly as possible, I decided to build some myself. This resulted in a method for using plexiglas to fabricate insulators quickly and cheaply.

Thanks go to Larry K8ZSQ, who donated a strip of plexiglas 10' x 1" x 1/4". The plexiglas was cut and

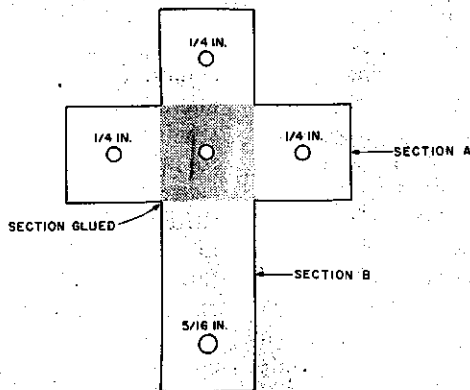


Fig. 2. Completed center insulator.

Quick

Antenna Insulators

-- when DX won't wait

drilled according to the dimensions given in Fig. 1. Sections A and B were joined using epoxy cement. After the epoxy had been allowed to cure, the dipole elements were added and soldered. The RG-58/U was added and joined to the elements beyond the point where the elements joined the center insulator in an effort to reduce strain on this connection and, hopefully, to prevent it from breaking.

Finally, the entire center insulator was weatherproofed

with bathtub caulk and taped well.

To date, three such dipole antennas have been built on the HF bands and perform well. ■

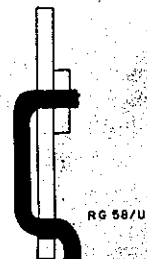


Fig. 3. Side view showing RG-58/U inserted in the insulator.

FROM '73 MAGAZINE

COMMERCIAL JOTTINGS

from "Smoke Signals"

Not so very long ago, a type of relay came into service which appeared to have everything going for it: good sized contacts, gold plated, compact physical size etc. etc. which endeared it to people trying to save space on P.C.Bs. However, as is usual, time has disclosed a fundamental weakness in this device; for the pole assembly is riveted through a plastic base and the mechanical joint gradually fails. The symptoms for a while are typical of faulty relay contacts - but it ain't their fault, because the pole assembly tilts slightly and doesn't allow sufficient armature movement to boot the contacts where it matters. So, if you have mysterious problems along these lines, have a long hard look at the mechanical structure of the relay, that may answer a part of your questions.

Whilst on the subject of relays, there is a recurring problem we strike with the familiar "dustproof" cradle relay - because these are not as proof against extraneous matter as their floggers would have you believe. Dust, paradoxically, isn't such a problem: but small slivers of steel or other ferrous matter are, because of a fondness for leaping into the gap between pole piece and armature. Because of the residual magnetism in pole piece and armature, the little devils stand on end - ready to act as props to prevent the armature from jumping into action when told to do so. Result: relay no go. The cure is simple - remove the relay, take the cover off, give a hearty blow (minus spit!), inspect and reassemble if cleared. Couldn't be simpler - and much cheaper than new relays.

In every case of a relay armature jammed as described, we have been able to trace the problem back to careless use of a drill near or on the equipment. Moral: little care save much problem!

CENTRAL COAST AMATEUR RADIO CLUB.

HAVE A THINK

from "Smoke Signals"

It is widely believed that horizontal antennas are better at rejecting local noise than vertical ones. This may be true in some circumstances but probably our most troublesome noise is that radiating from overhead high voltage power lines. Since O.H. power lines are horizontal - does it not make sense that a vertical antenna with opposite polarisation to the power lines would give better rejection of this noise?

de VK2BVO, CENTRAL COAST AMATEUR RADIO CLUB.

COMPLAINTS DEPARTMENT

Where are all the 'SUPER' Articles for inclusion in the magazine? Thanks to Ken VK2DOI and Fred VK2YSB For their contributions.... I said that I would keep on complaining untill i get quite a few 'BITS & PIECES' for inclusion.. SO.. HOW ABOUT IT .. If you have built something or even an article from another magazine, let me have it and we will put it in the Propagator..If from another mag; please say from which one so that we can acknowledge same..

73. EDITOR.

Moonbounce Report - May 1984.

The coax. cable between the transmitter PA and dish feed horn was replaced by a length of low-loss coax. to provide approx. 130 watts output at the feed port.

A special power supply unit was constructed for the GAT66 receive preamplifier, which was then installed at the feed horn in place of the W6PO preamp. After experimenting with various preamp. and postamp. combinations, a relatively low noise bipolar postamplifier was used to follow the GASFET preamp. with about 1.5dB of coax. between them for stability.

A number of EME tests were arranged with VK2AMW by stations in USA and Europe for 8/4/84. Strong wind on the day caused uncontrollable dish movement of approx. 4 degrees during the first portion of the sked. period and resulted with no contacts with the US. stations, although K2UYH and ZL3AAD were heard briefly. Later in the day the wind dropped and our own echoes were heard at up to 8dB. above noise. OE5JFL was then heard calling VK2AMW and a contact followed at a good 0/0 signal strength. He was then requested to try SSB and was copied at 4X4, thus becoming the first SSB signal heard via the Moon at VK2AMW. OE9XXI was then worked, 0/0 copy, as was LX1DB and DJ8QL, who was also requested to try SSB and was copied 3X3. The day concluded with an unexpected contact with VK5MC, who was not as strong a signal as the European stations, but copied us quite well to provide an M/0 level contact. This was the first 1296MHz EME contact between two stations in Australia and completed the fully EME WAC for VK2AMW, partly completed on 432MHz and partly on 1296MHz.

Although the results of the EME tests on 8/4/84 indicated that the new preamp/postamp. system was a marked improvement on the original arrangement, it had not been optimised for signal to noise performance. Unfortunately the result of carrying out a standard optimisation procedure, using the Noise Comparator unit, was a marked deterioration in receiving system performance as indicated by further scheduled EME tests on 15/4/84, when no echoes were heard for most of the period and no signals were heard from the scheduled stations. They later advised that VK2AMW was being received by them 'loud and clear', so further adjustments will now have to be carried out, using an extremely low level 1296MHz signal source. It will be placed at the centre of the dish surface to simulate an EME signal at approx. 1dB. above noise level.

Lyle VK2ALU.
(EME Coordinator)

LATE NEWS. LATE NEWS.

On Sunday 5th May, a very successful 'SSTV' contact was made between, Mike VK2DFK, Ian VK2EXN and Dave VK2DFL, on 147.500MHZ at 0100Z. As far as we know it is the first contact between stations on the Illawarra Coast in this mode.

The Equipment in use was an 'APPLE 11 +' and two 'APPLE' Compatible Units. These Computers generate their own Characters from software and are limited to Block letters format, ie, Callsigns, etc.

It is also believed that Jim VK2DLJ is also ready to go on SSTV and it is pleasing to see quite a few up on the 'RTTY' Mode with the APPLE Copy Computers also.

DE. VK2DFL, Dave.....

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 and 7275 VHF Repeaters; 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 MHZ 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, Dave Myers VK2DFL at 78 Highlands Pde. Bulli 2516. Telephone 84.9404. Copy deadline 3rd Tuesday each month.

Membership: The Secretary, I.A.R.S. P.O. Box 1838, Wollongong 2500. Full membership is \$10.00 per annum; students and pensioner concessional members \$5.00 per annum.

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 VK2OB, 24 Beach Drive, Woonona.

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

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

- Andrew McEwan, 7 Nioka Avenue, Keiraville.

General Committee: Mike Keech VK2DFK, Ian Callcott VK2EXN, Ray Ball VK2XCC, Morry Van De Vorstenbosch VK2EMV, Jim Mead VK2EJM, Gerard Mueller, Roy Parton VK2KO, Jim Hayes VK2JIM.

Repeater Chairman: Graeme Dowse VK2CAG.

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

EME Co-ordinator: Lyle Patison VK2ALU.

Broadcast Officer: Dave Colless VK2EZY

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

Propagator Editor & Staff: Dave Myers, Editor VK2DFL, Ken Frost VK2DOI, Cartoonist Brian Wade VK2AXI.

Store: Ray Ball VK2PHD/XCC

Publicity Officer: Nora Fisher, 17 Elizabeth Street, Mangerton, 2500.

Awards Manager: Jim Hayes VK2JIM

Life members: Graeme Dowse VK2CAG, Keith Curle VK2OB