THE PROPAGATOR

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY
P.O BOX 1838 WOLLONGON N.S.W. 2500

VOLUME 85, NUMBER : 4 MAY : 1985
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MEETINGS ARE HELD ON THE SECOND TUESDAY OF EACH MONTH (EXCEPT JANUARY) AT 7:30 PM AT THE STATE EMERGENCY SERVICES BUILDING, MONTAGUE STREET, NORTH WOLLONGONG.
VISITORS ARE WELCOME TO ATTEND MEETINGS.

THE MAY MEETING: The next meeting of the Illawarra Amateur Radio Society will be held on Tuesday, 14th May at the SES headquarters in Montague Street. The meeting will feature a talk by Gill McPherson, technical consultant to Dick Smith Electronics on new developments with kits fron D.S.E. following the successes of the 70 cm "Explorer" kits and the subsequent 2m kits.

For sale will be some more ex VK2ZAG radio equipment. (See inside for complete list.)

LAST MONTHS MEETING: Last months meeting featured a very entertaining and informative discussion by John Robinson VK2XY, on Packet Radio. The discussion involved a live demonstration with several stations in the Sydney area, via Mt. Murray repeater.

The demonstration was set up using a computer terminal, display unit and the dedicated Packet Radio terminal unit.

Thanks to John, Mike VK2DFK, who organized the demonstration, Morry VK2EMV who raced home to get his own computer as a backup, and to the stations who sat patiently on the side while the discussion was conducted, and congratulations on a very successful demonstration.

A mini-auction of some of VK2ZAG's radio equipment was conducted by Dennis VK2DMR in his own inimitable style. Thanks to Dennis,and to Lyle VK2ALU, for organization and transportation of the many items.

REPEATER REPORT GRAEME VK2CAG

The repeater committee this year consists of:

GRAEME VK2CAG
DAVE VK2EZY
MORRY VK2EMV
IAN VK2EXN
MIKE VK2DFK
BILL VK2KWJ
PETER VK2VCK
ROB VK2JRC

This is the largest number we have ever had in the repeater committee, so welcome to the new ones who volunteered for the position. The more people involved, the less work is involved for each individual.

Due to heavy work committments I have not yet had the time to get together with the others as is usual at least once a year, to discuss plans for the next 12 months.

The only unfinished project left over from last year is the duplexer for Sublime point 7275. The cavity resonators have been made up and the final assembly and tuning has to be done.

I would like to see a start made on the microprocessor controlled RTTY mailbox unit for Sublime point. This requires the services of someone who has considerable expertise in the design and building of digital gear. There has been much discussion on the subject to date, but no-one has yet picked up a soldering iron and put any of the theory into practice! This is a good opportunity for someone who has the ability to build something that ALL RTTY operators can use, and that will benefit others as well as himself. Having built the repeater myself, I know the pleasure it gives to see others using it as well as myself ... The ultimate expression of home brewing, I think.

I would like to become involved, but, alas, I don't have the time this year, so if there are no offers of help (by help I mean real help, not suggestions as to how it should be done), then there will be no RTTY mailbox on 7275. That would be a shame, as I spent many hours in building this repeater (which, incidentally, won an award from the W.I.A. in the home brew contest), and incorporating in the design the facility for regenerating RTTY and interfacing future options ... namely, the mailbox unit.

As far as reliability goes, not a single fault has occurred in any of the 4 repeaters in the last 6 months. However, Mt. Muray has come in for quite a bit of criticism in the last month or so from people using it. Comments heard on air such as "It is unreliable", "It was not designed properly", "Why do they mess around with solar and wind power, why can't they plug it into a power point like the others!". Comments such as these do not go over too well with those who have spent countless hours of their time in providing the service in the first place. The people who have made these remarks are showing their ignorance for the reasons as to why we have done things as we have.

It may be of significance to point out that all of these remarks have come from people who are not members of our club, and who have not contributed in any way to our repeaters, financially or otherwise.

The plain fact is, there is not enough energy to run the repeater from the sun, using only one solar panel, to cater for the needs of Wollongong, half of Sydney, and a good proportion of amateurs within 100 kilometres radius of Mt. Murray!

Sorry, fellers, but some rationing must take place, and that has been in the form of 20 second time-out during the day and complete repeater shut-down at night.

I feel that we are doing the best we can under the circumstances. To those who are not happy with Mt. Murray, I suggest that they (A) Join the I.A.R.S. , or (B) Make a useful donation to the repeater fund, or (C) Offer to change the batteries every couple of weeks, or (D) Save energy by keeping their comments to themselves or (E) making some attempt to find out why, by asking, the restrictions have been placed on the repeater.

There is an answer to the problem, but it is an expensive one. More solar panels, like about three more, at around $300 a piece! With a membership of less than 200, and $10 per head membership fee, given that repeaters are only one of many activities of the club, and that we have 4 repeaters to spread our funds over, licence fees and general maintenance costs taken into account, where is the money coming from, Eh? !!!!! And in fairness to those members who do not use the repeaters, why should we spend the lion's share of the available funds on them?

Another solution is to de-grade the repeater's performance to that of before it was upgraded so that it can be accessed by fewer amateurs. But to take such a backwards step is highly undesirable, especially to those who have put in so much time and effort in bringing the repeater's performance up to what it is today.

The third and only remaining alternative is to comply with our request in last month's "Propagator" and to be patient, wait for the wind to come, meanwhile treat the repeater with respect and publicize to the unaware, of the reasons for the time-out restrictions and phantom 'power failures' at night. Incidentally, the main reason for switching the repeater off at night is that several out of town groups have been heard using it in the early hours of the morning engaging in long conversations. These people seem to be using this repeater in preference to the Sydney one, and seem to be oblivious of the fact that we have an energy problem.

Constructive criticism and useful suggestions are welcomed by the repeater committee, and any ideas you may have are best put in writing so as not to be lost. Recently received such suggestions are being considered, and are appreciated.

CONTINUED PAGE 4

.....WANTED.....WANTED.....WANTED.....WANTED.....WANTED.....

Operating manuals and/or circuits for Yaesu FT 200 for loan or purchase....

Contact Dave VK2NGS

Ph. 61 4411

As promised last month, here are some more facts relating to Mt. Murray.

IDENT	TONE PITCH	FREQUENCY	COMMENTS
#1	LOW	300 Hz. (Buzz)	Voltage below 11.5 Repeater would normally be switched off.
#2	MED -LOW	600 Hz.	Voltage between 11.5 & 12 20 second time-out applies.
#3	MED (NORMAL)	750 Hz.	Voltage between 12 & 12.7
#4	MED - HIGH	1050 Hz.	Voltage between 12.7 & 13.3
#5	HIGH	1900 Hz.	Voltage over 13.3 Battery full and still charging.

All of the other I.A.R.S. repeaters ident at 670 Hz., so by comparison, if Mt. Murray is higher in tone than any of our other repeaters, then the battery voltage is greater than 12, and it is OK to use the repeater for other than emergency traffic.
If it is lower than the other repeaters, then it is safe to assume that it is restricted to 20 seconds time-out, and that messages should be kept brief and to the point.

SOLAR POWER

On a sunny autumn day the solar panel generates 16 AH.
In the same 24 hour period the receiver, control unit and losses consume approx. 3 AH.
THat leaves 13 AH to run the transmitter for one day.
Since the tx draws 5 A, the daily tx time is 13/5 which equals 2.6h
Observation shows that the repeater daily usage is at least twice that figure.
To charge up the battery from flat takes 200AH.
It follows therefore thatTO CHARGE UP THE BATTERY THE AMOUNT OF ENERGY NEEDED WOULD TAKE 200/14 DAYS, THAT IS, JUST OVER 14 DAYS.
SO THE REPEATER WOULD HAVE TO BE SWITCHED OFF FOR 14 SUNNY DAYS

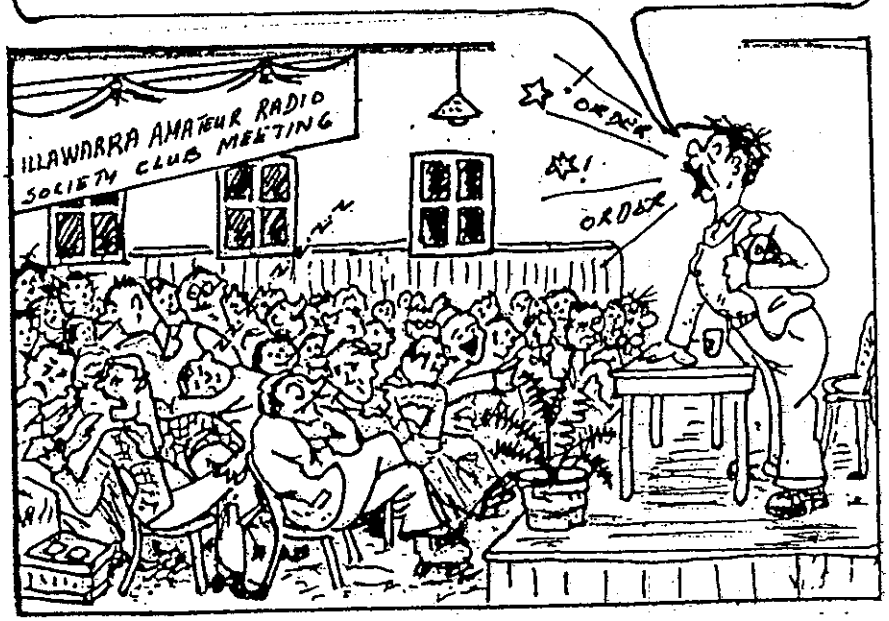
As I see it, we need either,
(1) More solar panels,
(2) Some wind
(3) Patience and understanding from users.
(4) A power point on the mountain top
(5) A TEAM OF STRONG FELLOWS WITH 4 wheel drive vehicles to cart batteries on a regular basis, and to use their own power to charge the spare bank.

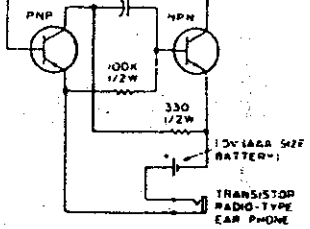
PErsonally, I prefer number (3) on the list, but its your repeater, not mine. I do the best I can to keep it going, and sometimes thats not good enough, it seems.

Graeme VK2CAG

NEEDED URGENT EDITOR FOR PROPAGATOR

ALSO BROAD-CAST OFFICER





The simplest transistor checker yet! Choose a general purpose PNP/NPN and construct in a plastic box or small container. Color code the transistor and its socket. To check a suspect device: no tone, ng; low tone or chirp, so-so; steady tone, OK. A great circuit for matching transistors. Thanks to Bill Wentzel W3GWA.

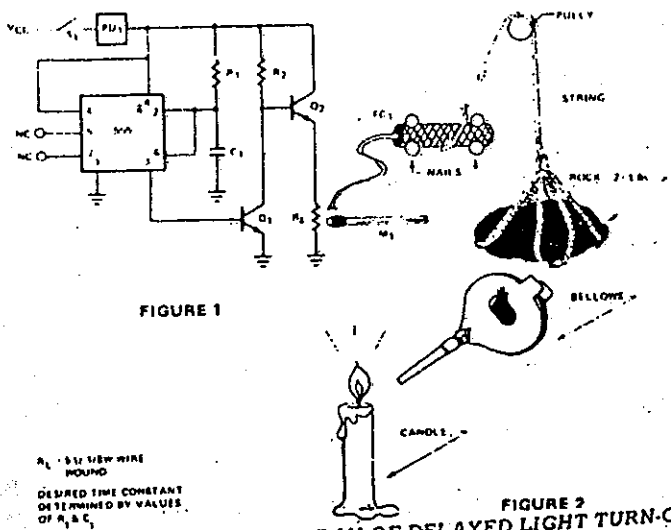
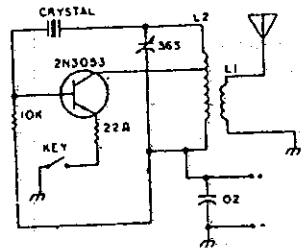


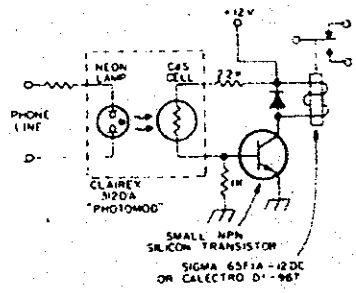
FIGURE 1

FIGURE 2

SCHEMATIC DIAGRAM OF DELAYED LIGHT TURN-OFF



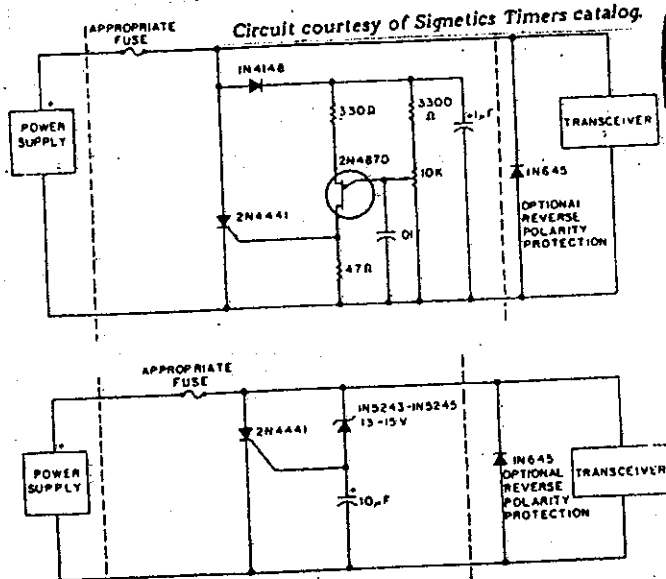
Another QRP transmitter, this time using a 2N3053 and fundamental crystals. Runs about 2 Watts output. Thanks to WB6OMV.



SOLID STATE TELEPHONE RING RELAY

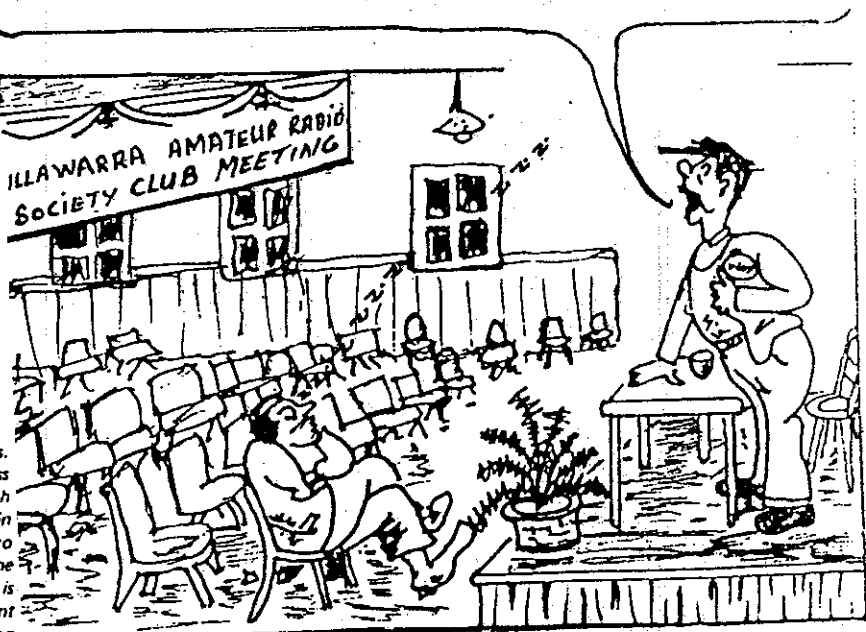
Ring signal from telephone company lights neon lamp, which causes drop in resistance in CdS cell, turning on transistor, which closes the relay. Circuit has two nice advantages – since there is no direct connection from telephone line to power supply circuit, you don't have to worry about inducing hum into the line. Also, neon lamp acts like an open circuit when not lit (below about 65V), and above that voltage has a resistance quite high (in series with 220K) – all this means is that the phone company has to stand on its head before they can detect this on your line. Instead of Clairex lamp/photocell module, you can use NE-2 neon bulb taped against a cheap CdS cell. Thanks to Peter Stark K20AW, for this circuit.

Circuit courtesy of Signetics Timers catalog.



A way to avoid grief when using 12 V power supplies with mobile transceivers. Most p.s. circuits leave room for a short circuit failure of the series pass transistor, which will do a job on your rig! Here are two crowbar circuits which will deliver protection by clamping the power line and blowing the fuse within microseconds of the beginning of an overvoltage condition. The idea here is to incorporate the crowbar directly into your transceiver, thus protecting the radio wherever you go with it. The chief difference between the two circuits is that the less complex of the two leaves you at the mercy of component tolerances for the exact trigger level, while the other includes a unijunction trigger to permit precise setting of the operating point. Thanks to W1DGD.

GOODNESS: I DID NOT THINK I WOULD GET THAT TYPE OF RESPOND



Something to say

WOULD YOU OUR READERS LIKE TO SUBMIT SOME ARTICALS SUCH AS IN THIS PROPAGATOR FOR FURTHER MAGAZINES, AS ITEMS ARE HARD TO COME BY, FROM ONE'S QTH. SO PUT YOURSELF OUT FOR ONE HOUR AND LOOK FOR INFO FOR FUTURE PROPAGATOR'S.

VK2 DFK.

COMPONENT LEAD SHAPER

From:-

BREAK-IN

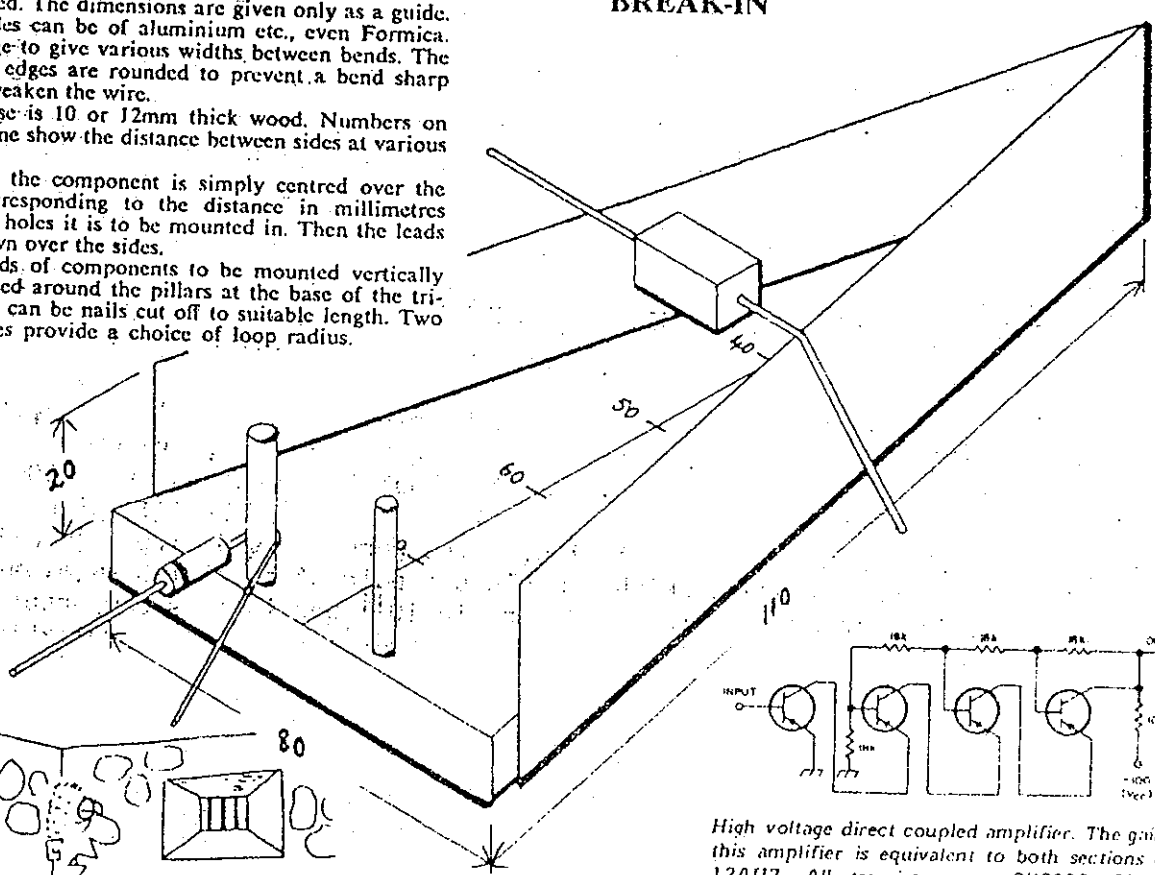
This simple jig helps shape component leads for insertion in printed circuit boards to produce a professional looking job. It is the simplest and most useful of methods tried. The dimensions are given only as a guide.

The sides can be of aluminium etc., even Formica. They diverge to give various widths between bends. The outside top edges are rounded to prevent a bend sharp enough to weaken the wire.

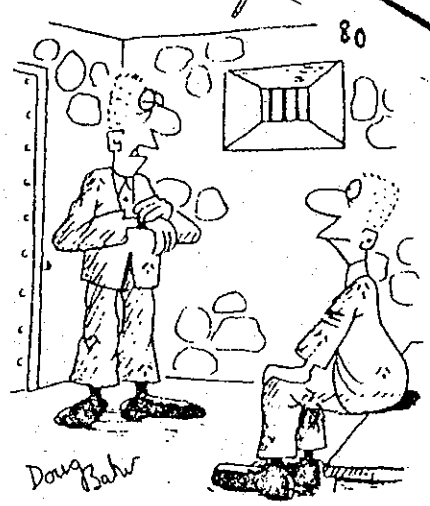
The base is 10 or 12mm thick wood. Numbers on the centre line show the distance between sides at various points.

To use, the component is simply centred over the number corresponding to the distance in millimetres between the holes it is to be mounted in. Then the leads are bent down over the sides.

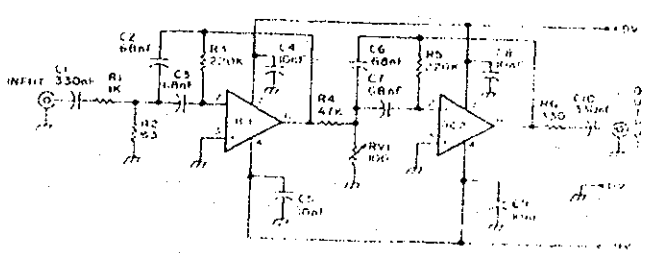
The leads of components to be mounted vertically can be formed around the pillars at the base of the triangle. These can be nails cut off to suitable length. Two different sizes provide a choice of loop radius.



High voltage direct coupled amplifier. The gain of this amplifier is equivalent to both sections of a 12AU7. All transistors are SK3006, GE-9 or HEP-51.



"I can't understand why this digital electronic watch gives the hours, minutes, seconds and day of week, but not the year."



An active CW filter that can use a variety of ICs, including the 741, 748, and 301A series. The last stage is fixed tuned. The second can be set the same as stability allows to provide double humped bandpass. Reminded from Radio &

FROM LYREBIRD.

COMPACT QUAD-LOOP FOR 14 and 21 MHz.

Over 10 years ago W6WAW described in "73" a single quad type loop antenna for 14 and 21 MHz which he had built and put up in less than two hours (see ART). Although it gave only a modest gain over a dipole, it had proved capable of good dx performance and could be made rotatable more readily than a dipole element. However, the W6WAW, like a full-size quad, requires a bamboo framework capable of supporting the 18ft square loop.

In CQ (March 1978) Harry K. Bourne, ZL101 (and presumably former G2AH), shows how the "linear loading" technique that has been advocated for compact quad antennas by G3IMX, G6XN and G3YDX (see for example "Practical design for a capacity had loaded 14MHz mini-quad" Radio Communication October 1976, pp 755-6) can be equally useful in the single element form. This allows the side length for 14MHz readily to be reduced to under 14ft while also providing a support for a full-size 21 MHz loop: see Fig.3 page 5.

The feedpoint impedance for a full-size single loop is roughly 120 ohm and, although a 70 ohm feeder would possibly prove satisfactory, ZL101 uses 70 ohm ¼ wave transmission line transformers to provide a good match to 50 ohm coaxial cable, the joints being made in a weather-proof junction box.

He states that the antenna will also work on 28 MHz but for low-angle radiation he recommends the use of a third (full-size) loop if one wants to make regular use of this band.

The 14 MHz loop can be trimmed by adjusting the capacity-loading wires. This can be done with the antenna about 10ft high, provided a small allowance is made for an increase in resonant frequency when the antenna is raised to full height.

.....CQ & Radio Communication.

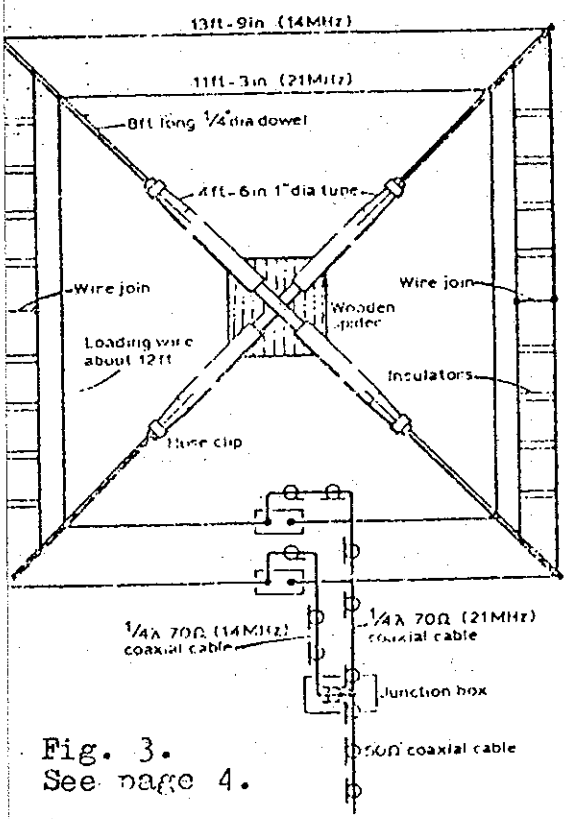
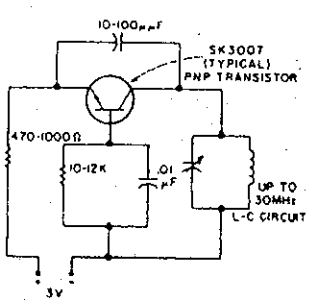
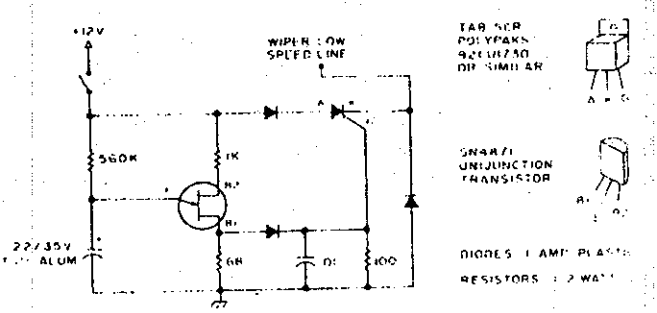


Fig. 3.
See page 4.

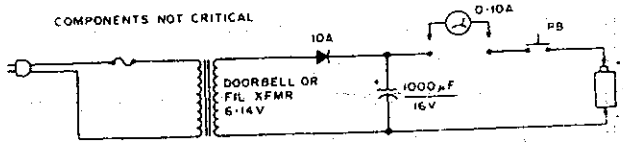
ZL101's compact 14/21MHz quad-loop antenna using linear loading of the 14MHz loop



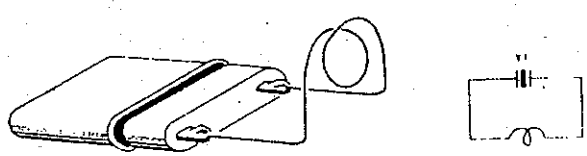
An rf oscillator useful up to 30 MHz. An SK 3007 PNP transistor is recommended. Thanks to WA5RON.



A good way to set your windshield wipers on an interval circuit. Only two connections to the car's wiper control, plus ground, are required. Variable control can be accomplished by substituting a 500k pot in series with a 100k fixed resistor in place of the 560k. Thanks to VE3OE.



The nicad zapper used to restore dead or bum nicads. To operate, connect nicad to output and press button for 3 seconds. Thanks to K6JQD.



The simplest circuit yet for checking crystals. Attach a one turn coil to a crystal socket and plug in the crystal. A grid dip meter coupled to this turn will dip at the resonant frequency. Thanks to W5QFH.

......"73 Magazine" (various).

MOONBOUNCE REPORT LYLE VK2ALU

Moonbounce Report - May 1985.

On 30th March we had 1296MHz contacts on EME with DKØUKW and OE9XXI. We also copied approx. 40% of OE9XXI's SSB signals. The moon was visible during these tests, which assisted in proving that the computer readout of hour angle pointing of the dish was accurate over this portion of dish movement.

Scheduled tests were carried out on 27th and 28th April under very poor weather conditions. Heavy cloud cover and rain continued throughout the test periods, which meant that dish pointing relied completely on computer readout.

On the 27th we had our first contact with SP5CIC/SM and with HB9BM, who was calling CQ. Nothing was heard of scheduled stations G4CCH on the 27th or W7GBI and JR4BRS on the 28th, but on the 28th we worked LX1DB and OE9XXI who were calling CQ, both with very good signal strength.

Now that the EME equipment at VK2AMW is working adequately it is hoped to carry out some experiments with a different and rather novel type of feed system during the next 12 months.

Satellite Notes.

Over the next month or two, communication through Oscar 10 will be available mainly, but not exclusively, during the night and morning hours. Therefor, to make the the satellite pass information more useful to those just getting interested in satellite work, I have converted satellite times from UTC to EAST. It should then be easier to decide quickly whether a particular pass is of interest or not.

As is usual, I have shown only those passes which occur on weekends and public holidays and have deleted those which are fully completed between 2200hrs EAST and 0600hrs EAST.

The information shown is derived from my ZX81 computer program, using Keplerian Elements for Epoch 24 Feb 1985 193128.

	May	AOS			LOS
Day	Date	Time(EAST)	Day	Date	Time(EAST)
Sat	11	0132	Sat	11	1215
Sun	12	0048	Sun	12	1131
Fri	17	1949	Fri	17	2025
Sat	18	0031	Sat	18	0652
Sat	18	1855	Sat	18	1941
Sun	19	1757	Sun	19	1857
Sat	25	0405	Sat	25	1436
Sun	26	0317	Sun	26	1352

	May	AOS		Jun	LOS
Fri	31	2244	Sat	1	0926
Sat	1Jun	2200	Sun	2	0840
Sun	2	2116	Mon	3	0754
Sat	8	0747	Sat	8	1100
Sat	8	1518	Sat	8	1654
Sun	9	0642	Sun	9	1133
Sun	9	1408	Sun	9	1612

Lyle VK2ALU.

Radio club to develop new station for coast

The Summerland Amateur Radio Club has passed plans to proceed with the development of another VHF repeater station in the St Helena area, to give coastal areas better reception.

The club already operates a VHF repeater station at Parrot's Nest and a UHF repeater at Mt Nardi.

The club is negotiating for new premises in Ross Street, Lismore.

"The new premises will give better local coverage and improve its practical, educational and emergency operating capabilities," the secretary, Mr F Boundy, said.

The club, which has 44 members, covers from the Clarence River to the Tweed River, and has members in Cairns and Sydney.

The annual meeting elected a new committee.

The new president of the club is Mr D Rausch, VK2DOC, of Coorabel, and Mr Boundy is VK2KFB, of Ballina.

From the "Northern Star" Tuesday, April 9 1985.

For Sale.

Some of the equipment, ex VK2ZAG, advertised last month, is still for sale although most of it was snapped by club members and visitors (thanks particularly Dennis for your auctioneering efforts which netted the club a good commission). There is also a few more items not included previously. Most will be brought along to the next club meeting.

Items

Philips Type SC9 5/470 UHF FM Transmitter Receiver Unit- with Instruction book - modified for use on the Amateur 70cm band. Single channel but could be used as a Repeater, UHF link etc. (as used for our Club Repeaters on 70cm)

Racal Modulation/Deviation Meter - Freq. range 4.8 to 600MHz (tunable)

Mega-Sweep - Sweep Generator - with Instruction book - Freq Range 50MHz to 500MHz (which can be increased to 1000MHz).

Transmitter 100 watts output on 70cm band, with inbuilt power supply (240VAC) - uses solid state osc/multiplier to 4CX250 doubler/tripler to 4CX250 output. This is commercially built equipment. (too heavy to bring to meeting)

Two 2 meter coaxial filters (low loss)

Coax. cable with and without plugs - includes RG213, RG8 and RG58

Very low loss coax. cable - one length fitted with type N plugs and two lengths without plugs (too heavy and large to bring to club meeting)

4 foot diameter solid aluminium dish, with removable dipole and reflector feed which is resonant on approx. 3900MHz. (too large to bring to meeting)

A number of microammeters and milliammeters etc.

Various small items such as UHF type feedthrough and coaxial tuning capacitors resistors, fixed capacitors, BNC connectors transformers etc. etc.

Sterilizer cabinet fitted with UV tubes (use for making printed circuits!!)

Lyle VK2ALU.

COMPACT 80 METRE ANTENNA

This antenna should appeal to amateurs with limited space, as it can be accommodated easily across the average building block. Construction is very simple and as the antenna is so light it can be suspended from any structure that will stand a few ounces of strain. If the vertical section can be hoisted 30 feet in the air then the horizontal section would be only 35 feet long - compare this to a dipole or a G5RV.
Dimensions given should give an acceptable match to 50 ohm coax in the novice section of the band without using a matching system. However, the antenna can be used on 40 and 20 metres using an antenna tuner with reasonable results, particularly on 40 metres.

CONSTRUCTION

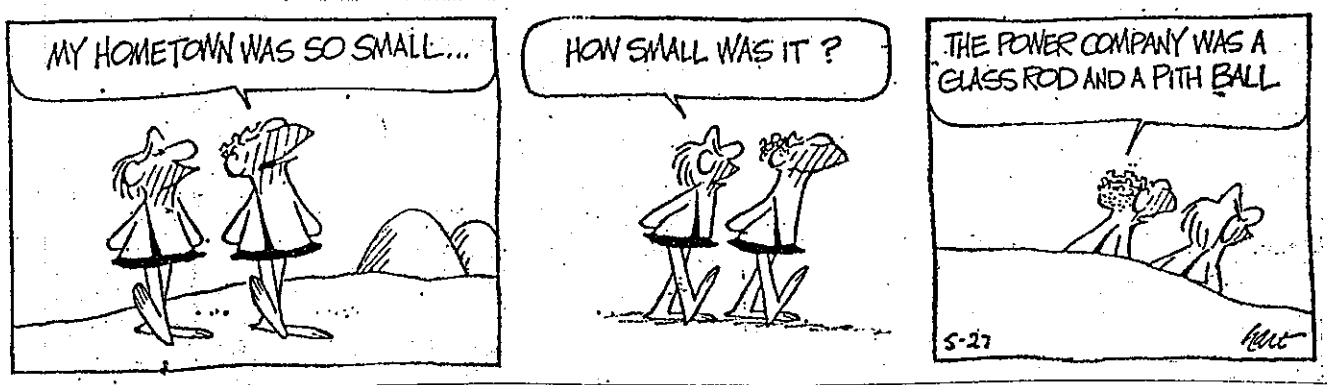
Section A is constructed from standard 300 ohm TV ribbon - I found that the slotted type was best as point "1" can be easily adjusted without the use of a clamp which caused problems with my first model. Section B, I used 22 gauge copper wire terminated with a small egg insulator. Section C is a ground wire system constructed of any copper wire that may be available. I found that one ground wire running around the bottom rail of my fence worked well as long as the earth stake was efficient. The ground wire is best kept just above ground, but does not need to be straight, i.e. it could be run around under the house etc.
My antenna is suspended between two halyards each running through small blocks one at the top of the radio mast and the other on the TV mast. This allows the whole antenna to be taken down in two minutes for servicing.
The total cost of this antenna should run to about:-

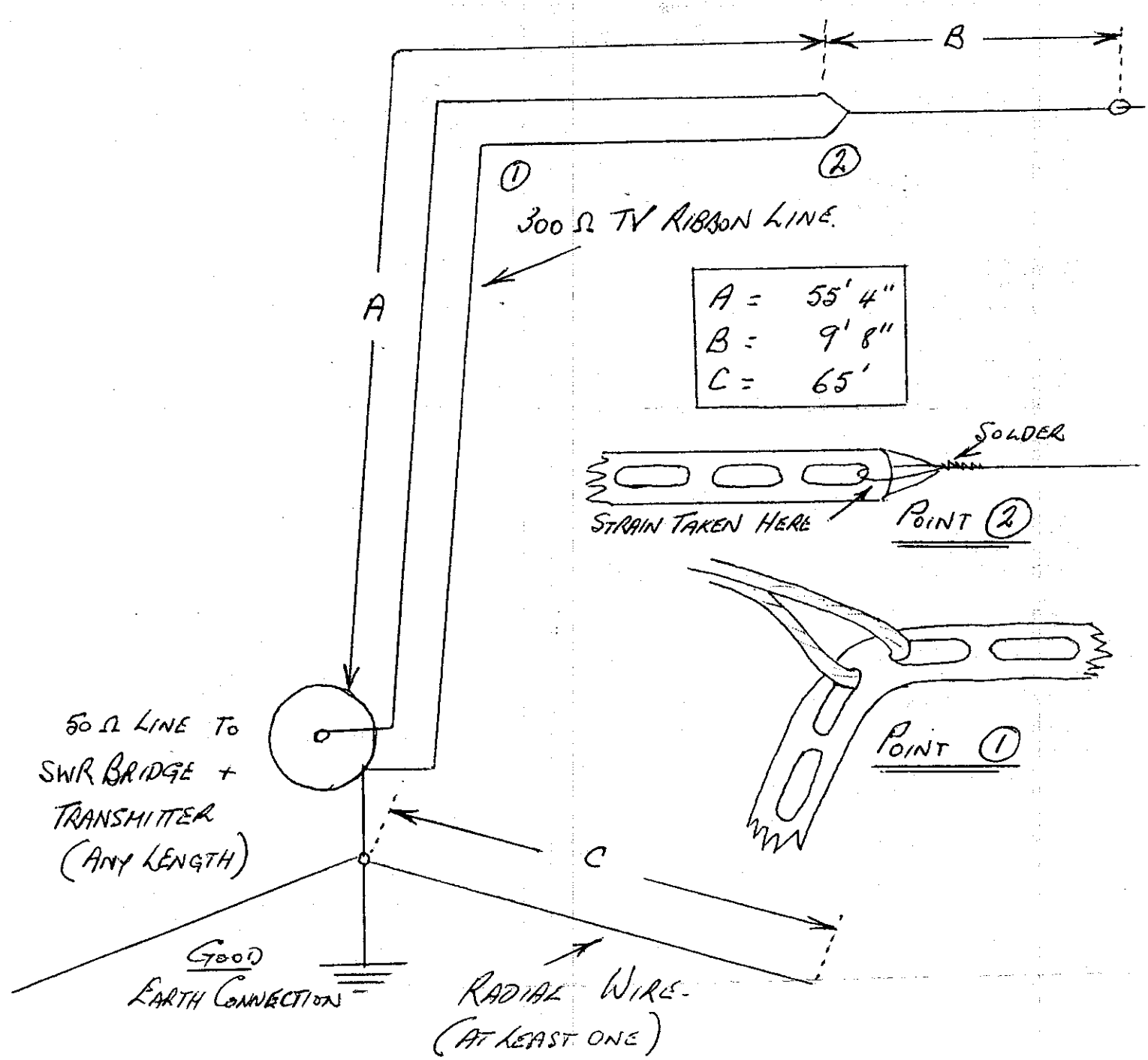
300 ohm ribbon	$4.50
10 ft 20 gauge wire	Junk box.
65 ft radial wire	Old transformer winding
Egg insulator	Used plastic biro pen

In short - the amateurs delight - "EL CHEAPO".

BILL VK2DYU.

Cont. Next Page.





...NEW REPEATER.....NEW REPEATER.....NEW REPEATER.....NEW RE

Manly and Districts Radio Club are sponsoring a new 70 cm repeater which is under test at the moment. The repeater is operating on 438.1750 MHz (channel 7 on the Dick Smith Explorer kits) with a power out of 5 watts, and is located at Terry Hills.
The Manly club would appreciate any reports on the repeater during evaluation tests.

THE ILLAWARRA AMATEUR RADIO SOCIETY

P.O. BOX 1838, WOLLONGONG 2500.

Meetings: Second Tuesday of every month except January at 7:30 p.m. in the SES Headquarters, Montague Street, North Wollongong.

Repeaters: VK2RAW-6850 VHF Mt Murray
VK2RUW-8225 UHF Hill 60 Pt Kembla
VK2RIL-8725 UHF Sublime Point
VK2RIL-7275 VHF Sublime Point

Broadcasts: On Sunday evening prior to Club Meeting-:7:00 pm-RTTY 7:15 pm-Voice: Transmitted on 7275 VHF and by relay on 3.652 MHz. Callbacks after voice broadcast.

W.I.A. Relay: On 6850 at 11:00 am and 7:30 each Sunday.

Club Nets: 3.562 MHz SSB on Sunday at 8:00 pm and slow morse net on 28.440 MHz on Tuesday at 8:00 pm.

Newsletter: "The Propogator", published monthly to reach financial members in the week prior to the meeting. All articles, ads etc to the editor by 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 Illawarra Amateur Radio Society 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. Contact with the club station VK2AMW is sufficient in itself for the award. Band details-time, date, day, 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- Kieth Curle VK2OB, 24 Beach Dve., Woonona.
Vice President- Bill Chadburn VK2DYU, 45 Beltana Ave,Dapto.
Secretary- Jim Hayes VK2EJH, 1 Kathleen Cres,Woonona.
Treasurer- Andrew McEwan VK2XGC, 7 Nioka Ave. Keiraville.
Auditor- Geoff Cuthbert VK2ZHU, 1 Nioka Ave., Keiraville.

General Committee: Ian Callcott VK2EXN, Wojciech Tomczyk VK2OE, Martin Hutchins VK2VMH, Jim Mead VK2EJM, Gerhard Meuller VK2XGA, Dave Routledge VK2NGS, Paul Suters VK2KPS.

Repeater Chairman: Graeme Douse VK2CAG

Repeater Committee: Bill Jut VK2KWJ, Rob McKnight VK2JRC,Morry Van De Vorstenbosch VK2EMV, Peter Woods VK2VCK, Ian Callcott VK2EXV, Mike Keech VK2DFK.

EME Co-ordinator: Lyle Patison VK2ALU

Store: Ray Ball VK2XCC

Publicity Officer: Dave Myers VK2DFL

Broadcast Officer: Paul Suters VK2KPS

Propogator Editors: Jim Hayes VK2EJH,Paul Suters VK2KPS, Gerhard Meuller VK2XGA.

Life Members: Graeme Douse VK2CAG, Kieth Curle VK2OB, Lyle Patison VK2ALU.