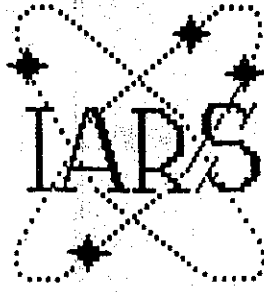




# THE PROPAGATOR



## ILLAWARRA AMATEUR RADIO SOCIETY

MONTHLY NEWSLETTER OF THE ILLAWARRA AMATEUR RADIO SOCIETY .  
VOLUME - 86 , NUMBER : 6. JULY 1986.  
REGISTERED BY AUSTRALIA POST PUBLICATION NUMBER : NBH - 1491.

MEETINGS ARE HELD ON THE SECOND TUESDAY OF EACH MONTH ,  
(EXCEPT JANUARY) AT 7.30.PM. AT THE STATE EMERGENCY SERVICES ,  
BUILDING , IN MONTAGUE STREET , NORTH WOLLONGONG .

VISITORS ARE MOST WELCOME TO ATTEND THE MEETING'S .

# 25TH. ANNIVERSARY COMING SOON

The Illawarra Amateur Radio Society will be celebrating 25 years of operation in the Illawarra area in March next year (1987).

At the committee meeting held on tuesday 17th June 1986 , it was decided to try and arrange a special occasion for this important ANNIVERSARY.

## ON A YAESU BUILT FOR TWO

An ex Wollongong amateur who now resides in Sydney , was visiting Wollongong recentley. While here and only just recentley getting a new callsign (unknown), decided to try out a 2 metre hand held Yaseu tranceiver.

Imagine his elation when on switching on and whilst on simplex made a contact with another amateur up in Lismore.

Conditions must have been favourable for such a great distance on SIMPLEX.

To make this a gala occassion , the society would like to hear from members, past members, past members families or anyone who has knowledge of (no matter how small ) the amateur radio clubs existence in the Wollongong area. During the period 1962 -- 1970.

We would appreciate any information , memories, documents and (dare we hope) photographs to help us to compile an up to date documentry for this celebration.

We need these items as soon as possible as it will take quiet a while to compile & complete this project in readiness for this occassion.

All items submitted will be handled with the utmost care and be returned to their owners in their original condition .

Acknowledgement will be given to the persons concerned if they so desire.

If you can help in this matter it would be appreciated if you could contact me (DAVE VK2PZY) on 84-9872 or (MORRY VK2EMV) on 83-1219.

THANK YOU.

## COMMITTEE REPORT

At the monthly committee meeting held on the 17th June 1986 commencing at 7.30.pm, there were 12 committee members present, plus some apologies.

Some of the points that were discussed were:-

### TREASURERS REPORT

The treasurer has shown the committee present , good reasons why the club should change its bankers from Westpac to I.B.M, financial wise the club will benefit.

Continued next page.

# COMMITTEE REPORT CONTINUED.

## REPEATER PROBLEMS

This was discussed at some length, but no immediate cure to the problem could be found as it is a matter of power and finance. Graeme VK2CAG has developed a switching system that might alleviate the problem for a while, but the crux of the matter is the cost of SOLAR-PANELS etc, which at the present time is not within the capabilities of the clubs financial status.

## CORRESPONDANCE

A letter was received from one of our members relating to the repeater problem, we hope that if he reads this column it might explain to him in some small detail to the problem. In any case a letter will be posted to him personally outlining the problem in more detail.

Other items were discussed but the above matters were given a great deal of discussion and the meeting closed at around 10.30 pm.

# ON THE NET

## 1st JUNE

VK2EMV Morry (co ordinator)  
VK2JNC/4 Neil, VK2BBG/4 Jim  
Currumbin Valley. QLD. VK2EXN  
Ian Callcott. VK2KAJ Tony,  
VK200 Ray,

## 8th. JUNE.

VK2KAJ Tony (co ordinator)  
VK20U/3 Jim, VK2IU Ralph,  
VK2PYX Fred, VK4BKC John  
Labrador QLD, VK2MT Rob,  
VK2JAM Peter, VK2DDP Derek,  
VK2PHD/4 Ray QLD, VK2JNC/4  
Neil QLD, VK2EXN Ian.

## 15th JUNE

VK2PZY Dave (co ordinator)  
VK4BKC John Labrador (QLD),  
VK2PYX Fred, VK2JNC/4 Neil,  
VK2MT Rob, VK2EMV Morry,  
VK2EXN Ian, VK2BAZ Basil,  
VK2DFL Dave -Arcadia Vale,  
VK2DUP Graham Sanctuary  
point (HARGRAVE AWARD),  
VK2JAM Peter, VK2IU Ralph,  
VK200 Ray.

## 22nd JUNE

VK2ENX-Tony (co-ordinator),  
VK2JAM-Peter, VK2DUP-Graeme,  
VK2EMV-Morry, VK2DFK-Mike,  
VK2EXN-Ian, VK2JNC/4-Neil,  
VK2PHD/4-Ray, VK2PYX-Fred,  
VK2PZY-Dave, VK4NHF-Mike QTH-  
WITTA-QLD, VK2PEJ-Ralph,  
VK200-Ray. The club would like  
to say a big thank you for  
all stations for coming up on  
the 80 metre net and for the  
stations working for the  
Lawrence Hargrave Award GOOD  
luck with it.

## C. W. NET.

And it was a great to  
see the nice roll up again  
on the C.W.net. on  
28.440.Mhz. which is run on  
every thursday evening at  
8.00 pm.

STATIONS were:-

5-6-86

VK2MT-Rob, VK2PZY-Dave,  
VK2EMV-Morry, VK2JAM-Peter,  
and a new call VK2IU--Ralph.

12-6-86

VK2JAM-Peter, VK2IU-Ralph, and  
VK2PZY-Dave.

**NOTICE**  
TO-ALL  
MEMBERS

**DO YOU  
HAVE!!**

SOMETHING YOU WANT TO  
SELL OR BUY (not the xyD)  
OR IS THERE SOME ITEM YOU  
WANT TO BUY !!!  
THEN WHY NOT PUT IT IN PRINT  
BY ADVERTISING IT IN OUR  
PROPAGATOR. COST--\$1.  
FOR MEMBERS PER ISSUE...  
POST--L.A.R.S. P.O.Box.1838.  
Wollongong. code 2500. OR  
YOU pass it IN, at the CLUB  
MEETING, or PH:34.9872.A.H.

26-6-86.

There was a rare one calling  
CQ after the caller made  
sure the freq was clear QRL  
QRL but had no reply.,  
so better luck next time  
Ian, and for the stations  
working C.W. and ending with  
KN. KN. were wondering why  
no breakers LOOK UP THE  
CODE GENTS, KN means the  
addressed station only  
transmit, so make sure to  
complete with a K only,  
which means any station to  
transmit.

## THOUGHT FOR THE MONTH

CONFUCIOUS SAY "put brain  
into gear before releasing  
lips".

**F.R.L.I.  
WINNERS**

Week No:8. R.McKnight  
Week No:9. N.Roosacki  
Week No:10. T.Stone.  
Week No:11. F.Brown.

## COAST-WIDE COMMUNICATIONS

LOT.B. LAWRENCE -  
HARGRAVE, DRV. THIRROUL

WE STOCK: CB RADIOS  
CB AERIALS - COAX CABLE  
MARINE RADIOS  
TV - AERIALS, ETC ETC.  
SALES AND SERVICE

OPPOSITE THE  
SHELL - GARAGE  
PHONE : 67 2134.

VK2KWN (WAYNE)

# THE NOVICE AMATEUR RADIO OPERATOR

The Novice licence grade has been a part of the Australian radio scene for some years now. As well as producing many excellent operators it has introduced a new generation of youngsters to the field of amateur radio. It has also rekindled the flames of interest in many old-timers from the war era, and generally created a large increase in the number of licensed amateurs and members of the Wireless Institute of Australia.

The Novice licence is a stepping stone to the full amateur operator's certificate of proficiency, and important aids to operating can be gleaned from associating on and off the air with amateurs, both young and old. One of the most important attributes of any amateur is the ability to "listen". Not only does this apply to noting a clear fre-

quency when bands are crowded, but also when you are in contact with another amateur. What he or she has to say to you is just as important as your speech in reply, and operators must remember that amateur radio is communicating and exchanging ideas and not speech-making. Pay attention to comments made when operating.

A further point to remember when operating is the frequency you are on. In Australia Novice stations may operate on the following frequencies: (80 metres), 3.525-3.625 MHz; (15 metres), 21.125-21.200 MHz; (10 metres), 28.100-28.500 MHz.

It is very easy to assume you are within band limits when in fact you are not. It is wise to check your frequency calibrator, if within band limits and after asking if the frequency is in use, you may then commence operating.

With the upsurge in licensing, particularly Novice, overseas amateurs operate more frequently in

Novice sections of the abovementioned bands. Each individual station then becomes an ambassador for our country when talking to overseas amateurs, and stations must operate in a manner which will be looked upon with respect and admiration by our amateur friends in other countries. By setting the example, many amateurs listening will appreciate your technique and perhaps copy it.

There are many helpful hints to be learnt as a Novice, and always be prepared to lend a helping hand to those interested in amateur radio who are not yet amateurs. You have achieved the first step as a Novice to becoming a full call licensed operator, so help those who are striving to attain the level you have reached, your help will be appreciated. Perhaps interference will be a little worse in the future, but your step in aiding the interested is a building block for a friendly atmosphere and a stronger amateur fraternity.

# THE WORLD OF VHF

Very High Frequency (VHF) radio has been used for almost 100 years. The first deliberately produced radio signals were made in 1884 by Heinrich Hertz in the region of the present two metre band. Way back in 1932 Marconi communicated on 500 MHz from his boat to a shore station 270 km distant. What happens on the VHF bands today?

Surely the most popular activity involves channelized FM voice operation. A large portion of the intra-city and short haul country contacts are now made on VHF. Perhaps 90 per cent of the mobile operation in this country is now made through 2m repeaters. Why? There is no other mode that offers mobile to mobile contacts over ranges of 150 km or more with noise free signals consistently, day and night, regardless of the ionosphere. The equipment can be inexpensive and the small aerial is easily installed. The popularity of this mode ensures a contact almost any time.

Interested in TV? UHF is the place for you. Hundreds of amateurs are transmitting TV signals in the 70 cm band, some in full PAL colour. Melbourne and Adelaide have special TV repeaters that provide full metropolitan coverage and can be received on a domestic TV receiver equipped with a UHF tuner and an external UHF beam aerial.

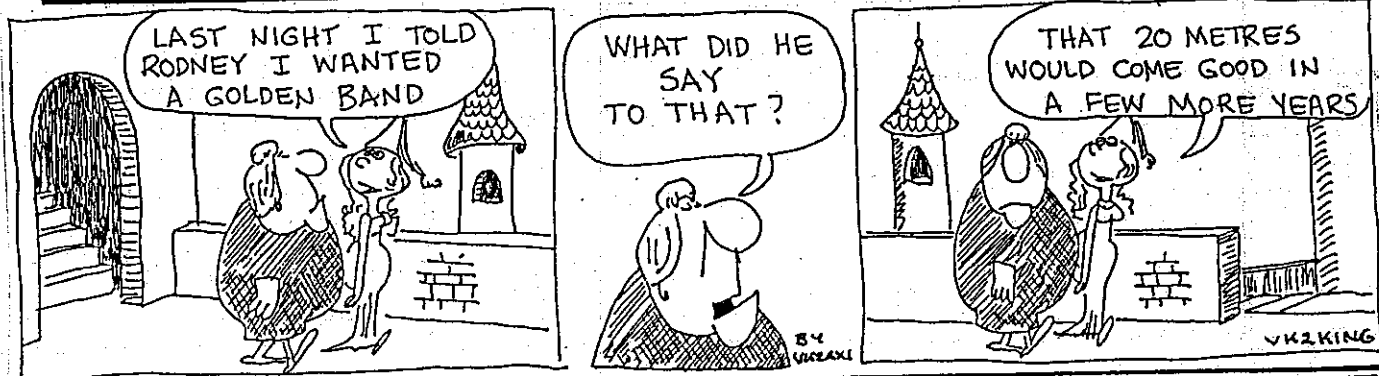
Is DX your interest? A modest VHF station can operate out to 150 km without repeaters on frequencies up to 450 MHz. Contacts up to 500 km are common when weather conditions are favourable and 2,000 km is occasionally possible. Now that the sunspot activity is high distances of 8,000 km are easily worked on 52 MHz and some stations are working 5,000 km on 144 MHz. The Oscar satellites allow ranges of 3,000 km and this will soon be increased to 8,000 km plus.

The VHF bands are the home of the experimenters and operators of exotic modes. Antennae experiments for example are more readily carried out on VHF than HF.

Yes, VHF equipment construction and installation is more critical than for HF, but then doesn't everything that is worthwhile require a little effort. Try VHF, you'll like it!

-----FOR-----

**COURTESY TO  
AMATEURS AND  
VALUE  
IN  
OUR AREA  
NOT USUALLY  
SEEN ELSEWHERE  
WE RECOMMEND!!!!  
CAUTIONS  
11. MOLLOY STREET. BULLI.  
PHONE: 042-84-6838  
TO ALL OUR CLUB  
MEMBERS.**





Well here we are again. Another month has flown past and we are half way through 1986. Not to much to say this month, it seems everyone has been behaving themselves.

### GOOD ON

Those members who have shown fruits of their labour by upgrading their call signs. CONGRATULATIONS to all those concerned.

### GOOD ON

Neil VK2JNC portable 4 and Ray VK2PHD portable 4 for coming in on the Sunday night I.A.R.S. net.

To Neil, have a pleasant & safe journey when you start heading back home. To Ray, we all wish you and your family a safe and pleasant holiday in your journey around OZ and we are all keeping our "LUG HOLES" open to keep track of your "EXPLOITS". Hope you have a nice time in Alice Springs.

### GOOD ON

Graeme VK2CAG. Graeme has put a lot of his time, ingenuity and know how recently in endeavouring to get the repeaters back to normal. This is NOT as easy as it may appear to a lot of Club-members, as Graeme is working on a SHOESTRING BUDGET. Keep up the good work Graeme and also NOT forgetting the rest of the repeater crew who donate a lot of their time for the benefit of REPEATER-USERS. Thanks Boys you do a FANTASTIC - JOB.....

## NEWTEK- ELECTRONICS

WE STOCK:  
ALARMS - ANTENNAS  
BOOKS - BOXES  
COMPONENTS-COMPUTERS  
HARDWARE - KITS - TOOLS  
WIRE AND A LARGE RANGE  
OF SEMICONDUCTORS FOR  
THE PROFESSIONAL AND  
HOBBYIST : 116 CORRIMAL  
STREET . WOLLONGONG.  
(JUST FROM HARP-HOTEL)  
PHONE : 27 1620.

### BAD ON

To Club "KNOCKERS", and I am happy to say the Club doesn't have to many of these. But to these few, I would like to make this REMARK:- If YOU think YOU can do a job better than it is being VOLUNTARY done at present, then why not come forward and offer YOUR FREE services to the Club. And, after spending a lot of YOUR time and effort in doing what YOU can, to the best of YOUR ability, and someone starts "KNOCKING YOUR efforts YOU THEN MIGHT APPRECIATE what OTHER-PEOPLE have been trying to DO for YOU.

With that note I will say 73's for this month, and hope to hear you on the band. ED.

## FOR SALE

Commercial  
(311) I.C.  
APPLY  
TO  
I . A . R . S .

# OUTCOME OF MEETING

At the monthly meeting of the I.A.R.S. There were 33 members present.

Although the meeting of general business was fairly short and to the point, (needle point almost) items that were discussed were of interest too those present.

VK2XAN - Peter gave a short but interesting talk about JOTA and that this event, to be held at Bass - Point will be taking place again this year.

He elaborated on the fun that can be had at this event for the organizers as well as the participants, and said that anyone wishing to come to this event would be made welcome.

After the talk, there was an auction of various coils of coax cable, in which one of our members almost made a HOLMES A' COURT takeover bid of the coax world.

Further discussion was made about starting another fund raising list (F.R.L.2.) this list could not be finalised owing to insufficient names to fill the list, so if you are interested and couldn't make the last meeting, try to get to the next one and give your name in to DAVE VK2PZY or JIM VK2EJH, if you (or your family or friends) are interested to get the new list going.

The meeting finished with tea & biscuits in the canteen.

## FOR • SALE

TS. 530s. Kenwood  
transceiver with handbook  
spare set of finals -and  
original mike.

All in excellent condition

**PRICE \$800.**

For further information  
please contact FRED  
UK2PYX Phone 56-1060.

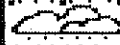

## FOR • SALE

- 1. - Power supply,  
18. Amp continuous
- 1. - 1 To 1 balun,
- 1. - T.U.L Filter,
- 1. - Coax switch,

Any reasonable offer  
accepted on any or all of  
the above : PH. 67-3836.

MARTIN < UK2BMH > .

## FOR • SALE

 WIND   
**GENERATOR IN  
Good condition**

For futher information ,  
Price etc .

Please contact the  
ILLAWARRA AMATEUR RADIO  
SOCIETY.....

## WANTED TO BUY

WANTED URGENTLEY!

**1. MEDIUM DUTY  
ROTATOR**

COMPLETE WITH REMOTE  
CONTROL POSITION  
READOUT.

PLEASE CONTACT: LYLE  
UK2ALU ON 042-29-6984

# BRING XYL ALONG

At the next illawarra  
Amateur Radio Societies  
monthly meeting we have a  
very interesting:-

## GUEST-SPEAKER

Dr. IAN BOWMAKER VK2ASN  
who is the medical  
superintendent of the Port  
Kembla steel works , will be  
talking and showing VIDEO  
tapes on the subject of  
**ELECTRIC-SHOCKS** in the  
shack.

Dr. Bowmaker will be  
demonstrating what to do in  
the case of either yourself  
or anyone visiting your  
shack coming in cotact with  
high voltage.

As it is the HAM  
himself who is more prone to  
get the "JOLT", Dr. Bowmaker  
has asked Club members to  
try and encourage their  
wives to attend this  
meeting. As in most cases  
the fast treatment and know  
how, given by them to their  
husbands etc, could very  
well save a life.

## NEW CALLS

Congratulations Ralph VK2IU  
on the upgrade good to see  
other upgrade were VK2ENX  
YES VK2ENX-TONY Mowbray,  
congratulations Tony , also  
heard that Fred VK2PYX has  
past his full theory  
congrat, to you Fred . Also  
to VK2NNJ - John  
congratulations to you JOHN.  
And all candidates in the  
Illawarra district, who sat  
for the recent exams.

Dr. Bowmaker will also  
be talking on the subject of  
getting cancer from using  
oil in transformers dummy  
loads etc.

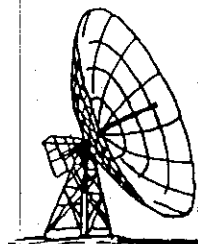
This should be a very  
interesting evening and well  
worth braving the cold  
nights air. As even the  
smallest piece of knowledge  
about the above subjects  
that you or your wife absorb  
on the night could save a  
life , and it could be  
**YOURS.**

## Details of April 1 changeover to Metric Time

Readers will no doubt be aware that  
from midnight on 1st April, 1974 the  
Australian commonwealth will  
convert to Metric Time. To assist  
readers in adapting to the change-  
over, we publish below details of  
the new units.

From midnight on April 1st, there will be  
10 seconds to the minute, 10 minutes to the  
hour, 10 hours to the day, and so on. Units  
smaller than one second will be unchanged,  
as they already conform to the metric  
system: milliseconds, microseconds, etc.  
The new units for larger intervals of time  
are as shown in the following table:

IMPERIAL	METRIC
Second	Milliday
Minute	Centiday
Hour	Deciday (or Millimonth)
Day	Day
Week	Decaday
Month	Hectaday
Year	Kiloday
Millenium	Megaday
The fortnight has been withdrawn.	



# Satellite Notes. (as at 23/6/86.)

Oscar 10 continues to be unavailable for general use, though some of the special Ground Command stations have been heard carrying out short tests on Mode B, at which times other users are requested not to come on, until further notice.

I was not able to copy the Amsat-Australia Net last evening in order to get the latest information on the situation with Oscar 10, but an unconfirmed report received from an overseas station indicated that this satellite may not be back to normal until September. In the meanwhile the German group who developed the the on board computer system are said to be determining the extent of damage to its memory, caused by impact by highly charged particles from the lower Van Allen belt, then attempting to develop an operating program which will allow it to perform its normal functions, while at the same time bypassing the damaged memory sections.

With Oscar 10 out of action, satellite users still have available the 'low earth orbit' satellites which provide much shorter operating periods on each of their passes, but we are no worse off than we were prior to the advent of Oscar 10. It may also provide some operators with an incentive to look into some of the interesting experiments provided by Oscar's 9 and 11.

Lyle VK2AIU.

## C.W. ABBREVIATIONS

When using the Morse Code, abbreviations are useful to speed communications. Always use abbreviations sparingly when contacting an operator of unknown experience and ability. Below is a list of standard CW abbreviations.

AA	All after	GND	Ground	SED	Said
AB	All before	GP	Ground plane	SEZ	Says
ABT	About	GUD	Good	SIG	Signature; signal
ADR	Address	HI	The telegraphic laugh; high	SINE	Operator's personal initials or nickname
AGN	Again	HR	Here; hear	SKED	Schedule
ANT	Antenna	HV	Have	SRI	Sorry
BCI	Broadcast interference	HW	How	SVC	Service; prefix to service message
BCL	Broadcast listener	LID	A poor operator	TFC	Traffic
BK	Break; break me; break in	MA, MILS	Milliamperes	TMW	Tomorrow
BN	All between; been	MSG	Message; prefix to radiogram	TNX-TKS	Thanks
B4	Before	N	No	TT	That
C	Yes	ND	Nothing doing	TTU	Thank you
CFM	Confirm; I confirm	NIL	Nothing; I have nothing for you	TVI	Television interference
CK	Check	NM	No more	TVL	Television listener
CL	I am closing my station; call	NR	Number	TX	Transmitter
CLD-CLG	Called; calling	NW	Now; I resume transmission	TXT	Text
CUD	Could	OB	Old boy	UR-URS	Your; you're; yours
CUL	See you later	OM	Old man	VFO	Variable-frequency oscillator
CUM	Come	OP-OPR	Operator	VY	Very
CW	Continuous wave	OSC	Oscillator	WA	Word after
DLD-DLVD	Delivered	OT	Old timer; old top	WB	Word before
DX	Distance, foreign countries	PBL	Preamble	WD-WDS	Word; words
ECO	Electron-coupled oscillator	PSE	Please	WKD-WKG	Worked; working
ES	And, &	PWR	Power	WL	Well; will
FB	Fine business; excellent	PX	Press	WUD	Would
GA	Go ahead (or resume sending)	R	Received as transmitted; are	WX	Weather
GB	Good-bye	RAC	Rectified alternating current	XMTR	Transmitter
GBA	Give better address	RCD	Received	XTAL	Crystal
GE	Good evening	REF	Refer to; referring to; reference	YF (XYL)	Wife
GG	Going	RIG	Station equipment	YL	Young lady
GM	Good morning	RPT	Repeat; I repeat	73	Best regards
GN	Good night	RX, RCVR	Receiver	88	Love and kisses

# SIMPLE ANTENNA TRAPS

The 100-odd foot trap dipole tuning five bands can be an attractive proposition, especially when the traps are simple (and cheap) to home-brew.

Most manuals show such traps to consist of an inductance wound over a transmitting-type fixed capacitor. To resonate, the turns of the inductance are wiggled and jiggled to adjust to the correct value. This adds up to a frustrating way to obtain an unsatisfactory result which proves mechanically unstable. But, with a little ingenuity, a superior product can be constructed easily.

The texts show that an inductance of 10.75uH with parallel capacitance of 47pF is an ideal combination. One or the other must be capable of adjustment to enable the trap to be resonated at the desired frequency in the 40-metre band, say 7075 kHz.

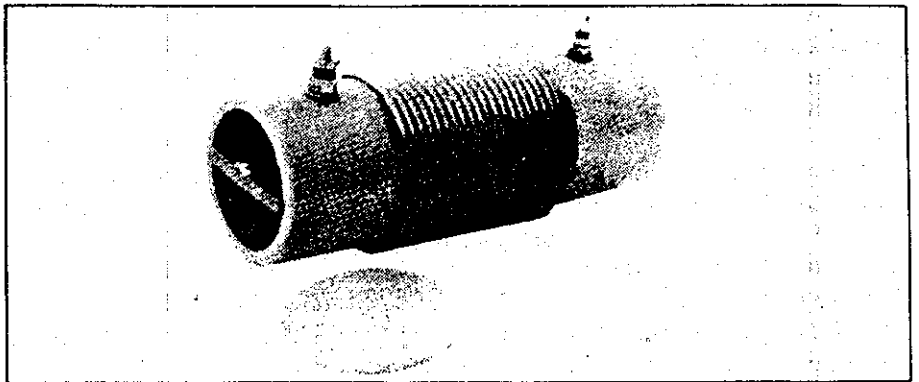
The inductance presents no problem, though to avoid losses it should be of high efficiency and low ohmic resistance, which means a conductor of not less than 16-gauge. Anything inferior to this is tantamount to a choke, an inappropriate insertion in any radiating system.

The wire in this case came from a discarded power cord, which yielded two 6-foot lengths of stout insulated wire, which would wind exactly 10 turns-per-inch. The conductors consisted of 26 strands of fine wire, equivalent in diameter to 16-gauge.

For the coil former an off-cut of plastic tubing was obtained. It was marked 40mm (1-9/16") outside diameter and measured 32mm (1 1/4") inside diameter.

20 turns close-wound to a total length of 2 inches gave an inductance measured at 10.8uH. As the coil former also becomes the supporting insulator, it was cut to 4 1/4" in length, to allow adequate tensile strength.

Now a capacitor is needed and has to be a small but good quality close-toler-



ance high-voltage item, nominally of 47pF, but capable of fine adjustment to permit precise setting of the desired frequency. Naturally, these will not be found at your friendly electronics store.

Happily, capacitors with these specifications prove easy to make. First consider the formula for capacitance of two plates separated by a dielectric with a constant "k".

$$pF = .224 \times \frac{\text{area} \times k}{\text{spacing}}$$

For suitable material, 1/16" copper-clad fibre-glass circuit board was considered: a peek into the text-books showed the dielectric constant of fibre-glass to be 5. Two pieces back-to-back? A quick calculation showed that a 1/8" thick capacitor so formed, and measuring 4 1/4" x 1 1/4", the exact internal measurement of the coil former, theoretically was 47.6pF (Aha! beat you this time, Murphy!).

Two small sheets cemented together and cut to size fitted snugly inside the former. A check on the capacitance bridge showed its value to be just on 47pF.

Loosely coupling a g.d.o. to the traps and taking a readout on the station receiver found both traps to be within a whisker of each other, but resonating at 7055 kHz, a trifle below that desired. A few strokes of a file at the ends of each capacitor quickly had both traps precisely on 7075 kHz. It would have been equally feasible to drill the copper sur-

face (only one would be necessary) with a fine bit.

This method of adjustment is very precise: about one-twelfth of an inch in length of the capacitor represents 1 pF, so correction of the frequency to within a few cycles is easy. In all other respects the home-brew capacitor is ideal, being waterproof (and fireproof): neither is it subject to thermal change, due to the minimal thickness of the plates. The rupture voltage of fibre-glass is 500 volts/mil, giving the capacitor a breakdown rating of 60 kV.

The addition of fine threads and nuts for mounting (plated brass of course) completes the traps. Plastic discs cemented to the ends improve the appearance, and more importantly, prevent the noise of wind whistling through. Other finishing, such as coating with a sealant or plastic tape, is left to individual whim, but does not seem necessary.

Incidentally, for the coil former, pass over the soft grey PVC material in favour of the red-coloured compound. This latter is of higher density with better electrical qualities and greater mechanical strength. The permittivity of common PVC varies with frequency and losses tend to be high at 28 MHz, but in any event the carbon content of the grey compound renders it unsuitable.

Pruning of the antenna for optimum performance after installation will be needed as usual, but full details are available in the hand-books.

By Mervyn Eunson VK4SO  
GPO Box 1513  
Brisbane 4001

# EME REPORT BY LYLE VK2ALU

Moonbounce Report - July 1986.

At the time of last month's Report it was hoped that reoptimisation of the 1296MHz feed horn was mostly complete but it took a further 27 manhours till all was finished and the horn was reinstalled in its mounting on the dish.

The whole exercise was very much a step by step learning process, during which continuous cross checks were needed to verify the accuracy of the test equipment and procedures used at 1296MHz. Some approaches were tried and discarded, then better ones evolved, with the assistance of information received earlier from G3WDG, VE7BBG and ZL2AAD. The pair of 1296MHz helix test antennas, mounted on a common reflector and placed on a long wooden boom out in front of the feed horn, proved to be invaluable for obtaining optimum circularity of polarisation. A bolometer type wattmeter, which gave accurate readings down to 25 microwatts, in conjunction with a  $7\frac{1}{2}$  - 15 watt FSD wattmeter, specially designed for use on 1296MHz by Microwave Developments (Des Clift VK5Z0) allowed reflected and forward power to be measured at each of the feed ports. The feed probes were progressively shortened by cutting, then filing until an SWR of 1.13 to 1 was achieved for each feed port at the same time as a 'circularity ratio' of 17.7dB for the transmit port and 20dB for the receive port and with an isolation of 21dB between the two ports. The sweep generator was then used for final cross checks. It indicated a bandwidth of almost 2 MHz, centered on 1296MHz, at which the SWR was 1.15 to 1, thus giving good correlation with the forward and reflected power meter readings.

The EME transmitter exciter provided an accurate signal source for the above tests and in the process it's power output was optimised to give 11 watts (after its 5 stage interdigital output filter).

The receiving system was then assembled and ground noise to sky noise measurements indicated a figure of 5.5dB, which is some  $\frac{3}{4}$ dB better than that measured just before reoptimisation of the feed horn. This translates into a reduction of 'overall receiving system' noise figure from 1.5dB to 1.15dB, which may be further improved by more changes to the 'preamp/postamp/converter' setup, not earlier feasible because of the out-of-adjustment of the feed port, due to lack of suitable instrumentation.

Tony VK2KAJ assisted on 7/6 to replace the feed horn in its dish mounting and then carry out forward/reflected power checks at the input to the feed horn transmit port (after us first getting the transmitter system working again). Forward power was measured by the Bird Wattmeter as 127 watts while the reverse power was measured by the Microwave Developments Wattmeter as 1.75watts. This gives an SWR of 1.25 to 1. The difference between this figure and that of 1.13 to 1 which was measured with the feed horn pointed towards 'cold sky' may be due to power reflected back into the feed horn when mounted on the dish as the mouth of the horn is only 12 feet away and looking directly at the centre of the surface of the dish.

With the assistance of Ian VK2EXN on 14/6, checks were made on output and SWR at the transmitter power amplifier. Output was 165 watts when maximised and SWR was 1.38 to 1, -it is thought that this SWR is greater than that at the feed port on the horn because of the brand of type N connectors used between the PA output and input to the low loss coax. (measurements made with the laboratory type sweep generator on type N connectors at 1296MHz show that some, even when new, are nowhere near 'Mil. Spec.' This applies to type N 50ohm terminations also.

Sun noise was then measured on 'receive' as 16dB above cold sky, which is some  $2\frac{1}{4}$ dB above that measured last August, before the EME gear was removed.

Lyle VK2ALU.



# INSURANCE CLAIMS HUMOUR

UNFORTUNATE CAR OWNERS INVOLVED IN ACCIDENTS OFTEN HAVE TROUBLE DESCRIBING THEIR ACCIDENT IN THE SMALL SPACE PROVIDED ON INSURANCE CLAIM FORMS.

These were actual claim forms:

I collided with a stationary truck coming the other way.

A truck backed through my windshield, into my wife's face.

A pedestrian hit me and went under my car.

The car was all over the road, I had to swerve a number of times before I hit him.

I pulled away from the side of the road, glanced at my mother-in-law and headed over the embankment.

In an attempt to kill a fly, I drove into a telegraph pole.

I had been driving for forty years, when I fell asleep at the wheel and had this accident.

I was on my way to the doctor's with rear end trouble when my universal joint gave way, causing me to have an accident.

To avoid hitting the bumper of the parked car in front, I struck a pedestrian.

An invisible car came out of nowhere, struck my car and vanished.

I told the police I was not injured, but on removing my hat, I found that I had fractured my skull.

I was sure the old fellow would never

make it to the other side of the road when I struck him.

I saw the slow moving, sad-faced, old man as he bounced off the hood of my car.

I was thrown from my car as it lost the road, I was found in the ditch by some cows.

The telephone pole was approaching, I was

attempting to swerve out of the way when it struck the front of my car.

The pedestrian had no idea which way to run, so I ran over him.

## SO THE STORY GOES.

Once upon a time a roughneck married a very refined girl. He knew his uncouth ways would always annoy her so he decided that he would reform. He would watch himself closely and do his darndest to make her happy.

He was a great lover of peas — nothing tickled his palate as much as a steaming platter of Blue Boiler peas. Unfortunately when he ate them the results were always terrific.

Feeling that anything of this nature would be very distasteful to his wife he went a whole year without tasting a solitary pea.

His pea-starved nature rebelled and his resolutions were in vain

and finally he broke down and decided that he just had to have another plateful. He went to the local pie cart and finally after four plates full he left for home.

Since he lived a way out of town he felt he could get rid of any unpleasant reactions before he reached home. Although he managed to some extent he was still volatile when he reached the house.

His beloved genteel wife met him at the door, threw her arms around his neck and cried, "Oh, John, I have the most wonderful surprise for you for your dinner tonight. It's in the dining room now, but I want it to be a complete surprise to you so let me blindfold you before you go in."

He submitted to the blindfold and she led him into the dining room and sat him at his usual place, at the head of the table.

Just then the phone rang. After making John promise not to release the blindfold until she returned, his wife ran to answer the phone.

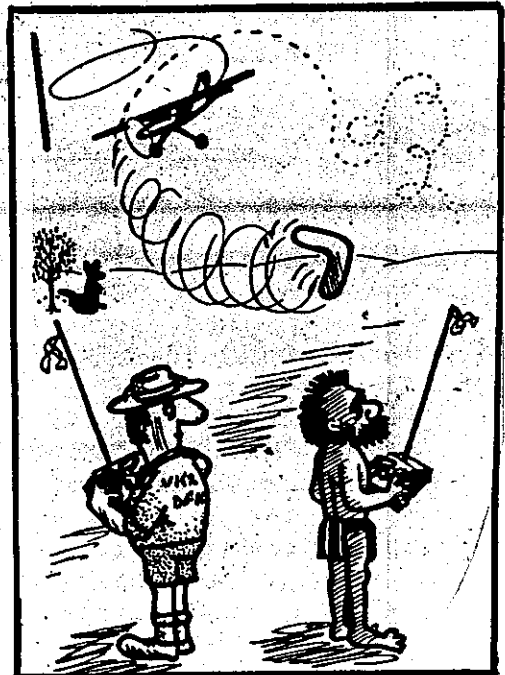
This was the opportunity that John had been suffering for. He ripped out one of the few that he had been unable to extricate on the way home. It was not only loud, but it was heavy and so, after fumbling about, he found his napkin which he quickly swished through the air.

The air seemed to clear. With his wife still at the phone he took advantage of the opportunity to clear himself completely. This was also accompanied by more napkin waving.

The conversation on the phone lasted another few minutes, during which time John was successful in completely relieving himself and in leaving no tell-tale trace in the room.

His wife came prancing back into the room and by this time John was sitting completely at peace with the world.

"Now for the blindfold and the surprise," announced the good wife. She slipped the cover from his eyes... and there it was... twelve dinner guests seated around the dinner table in stunned silence.



### FOR SALE

For anxious new members or new novice license holders, and would like to get on the H.F. band. Here is a cheap way to get on the air. I have for sale a converted Pearse-Simpson for ten meters, also with manual. For more information contact UK2EMU Morry or UK2PZY Dave.

PRICE : \$ 80.

## VK2AMW/P CALL-BACKS

Call/back from the I.A.R.S. MONTHLY BROADCAST on 2 metre were:-

VK2ZM , VK2EXN ,VK2KCV & VK2CAG .

On 80 metre were:-

VK2AXI ,VK2QU , VK2IU , VK2JAM , VK2PZY.

I would like to thank you all for coming up on the call-backs , and hope to hear from you again next month on the usual freq:- 147.275 and on 3.562.0 + or- from your broadcast officer VK2KAJ ---TONY TNX ,TNX.

# REPEATER REPORT GRAEME VK2CAG

## REPEATER REPORT

Mt. Murray channel 6850 is being set to 20 second time-out during weekdays in the daytime, as it has been found in the past that this is the time when it gets used for long rag-chew type type of QSOs, leaving insufficient energy available for people who go to work in the daytime and only have the opportunity to use it in the evenings and at weekends. The short time-out has been the subject of much discussion on air and at committee level, and the committee feels that for the time being the present policy is necessary. We have tried to tell people of the energy problem and of the co-operation needed by all users to conserve the available energy, but it didn't work. There is a minority who insist on using the repeater for long periods for seemingly unnecessary chatter, and worse still, when the parties are within simplex range of each other.

We make no apologies, but feel sorry for the majority of those who have done the right thing and are now being penalised because of an inconsiderate few.

Our club is getting back on its feet again financially, and as soon as finances permit we will be looking at purchasing another solar panel. Also we are looking for a buyer for the wind generator to help finance a fully solar powered system.

Meanwhile, we are progressing well with the high/low power switching system to take the place of the timer restrictions. There was little response from my appeal in the last few Propagators for help with a latching co-axial relay, so yours truly has started to make one. With the amount of time involved in such a project and little offer of assistance it is taking more time than we originally hoped.

Sublime Point 7275 & 8725.

Morry and Mike spent some time on site on 24/6/86 doing some much needed maintenance on the batteries and battery container. Thanks Mike and Morry.

Our plans for a packet repeater at Mt. Murray have been shelved indefinitely. Fortunately, the Southern Highlands group and the TAPR packet group have come together with a plan to establish a packet repeater at High Range. They have power on site, and it should be accessible from all parts of the Illawarra area and give a better go into Canberra than Mt. Murray would. Any problems they have in setting up such a repeater would have to be small compared with the ones we would face by establishing one at Mt. Murray. We wish them all the best with the project and give it our full support.

# 111•311

## VOLTAGE COMPARATOR

### FAIRCHILD LINEAR INTEGRATED CIRCUITS

**GENERAL DESCRIPTION** – The 111 and 311 are monolithic, low input current Voltage Comparators, each constructed using the Fairchild Planar\* epitaxial process. The 111 series operates from the single 5 V supply used for integrated circuit logic to the standard  $\pm 15$  V operational amplifier supplies. The 111 series is intended for a wide range of applications including driving lamps or relays and switching voltages up to 50 V at currents as high as 50 mA. The output stage is compatible with RTL, DTL, TTL and MOS logic. The input stage current can be raised to increase input slew rate.

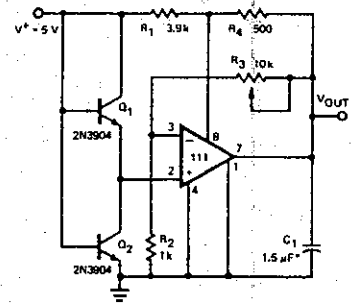
- LOW INPUT BIAS CURRENT . . . 60 nA
- LOW INPUT OFFSET CURRENT . . . 4 nA
- DIFFERENTIAL INPUT VOLTAGE . . .  $\pm 30$  V
- POWER SUPPLY VOLTAGE SINGLE 5.0 V SUPPLY TO  $\pm 15$  V
- OFFSET VOLTAGE NULL CAPABILITY
- STROBE CAPABILITY

#### ABSOLUTE MAXIMUM RATINGS

Voltage Between  $V_+$  and  $V_-$  Terminals  
Output to  $V_-$  (111)  
(311)  
Ground to  $V_-$   
Differential Input Voltage  
Input Voltage (Note 1)  
Internal Power Dissipation (Note 2)  
Output Short Circuit Duration  
Storage Temperature Range  
Operating Temperature Range  
Military (111)  
Commercial (311)

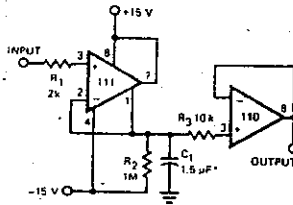
36 V  
50 V  
40 V  
30 V  
 $\pm 30$  V  
 $\pm 15$  V  
500 mW  
10 seconds  
 $-65^\circ\text{C}$  to  $+150^\circ\text{C}$   
 $-55^\circ\text{C}$  to  $+125^\circ\text{C}$   
 $0^\circ\text{C}$  to  $+70^\circ\text{C}$

#### ADJUSTABLE LOW VOLTAGE REFERENCE SUPPLY



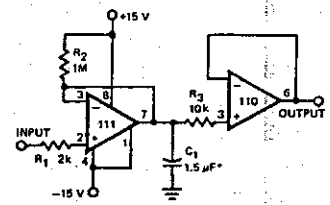
\*Solid tantalum

#### POSITIVE PEAK DETECTOR



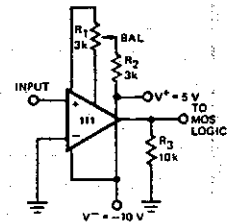
\*Solid tantalum

#### NEGATIVE PEAK DETECTOR

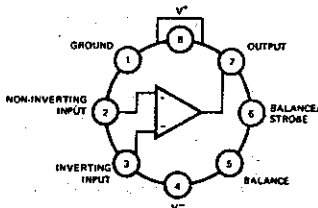


\*Solid tantalum

#### ZERO CROSSING DETECTOR DRIVING MOS LOGIC



#### CONNECTION DIAGRAM 8-LEAD METAL CAN (TOP VIEW) PACKAGE OUTLINE 5B

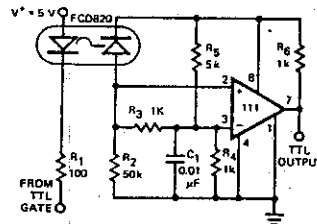


TYPE	PART NO.
111	LM111H
311	LM311H

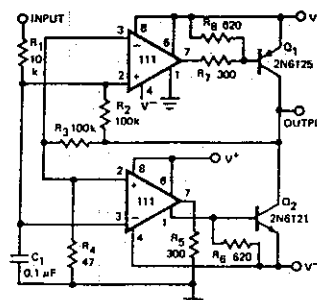
#### TRUTH TABLE

$V_{IN}$	STROBE	OUTPUT
+	H	H
+	L	L
-	H	L
-	L	L

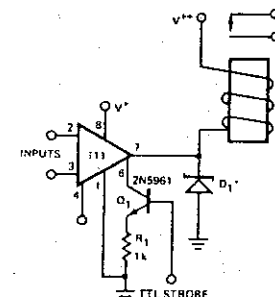
#### DIGITAL TRANSMISSION ISOLATOR



#### SWITCHING POWER AMPLIFIER

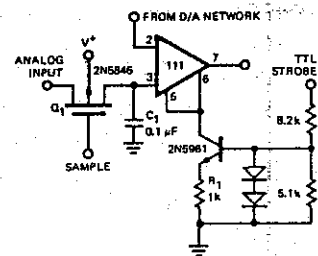


#### RELAY DRIVER WITH STROBE



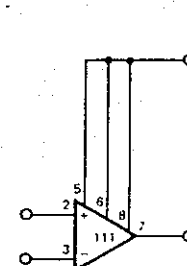
\* Absorbs inductive kickback of relay and protects IC from severe voltage transients on  $V_{++}$  line.

#### STROBING OF BOTH INPUT AND OUTPUT STAGES



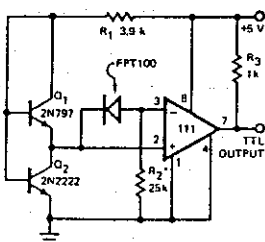
\* Typical input current is 50 pA with inputs strobed off.

#### INCREASING INPUT STAGE CURRENT\*



\* Increases typical common mode slew rate from 7.0 V/ $\mu$ s to 18 V/ $\mu$ s

#### PRECISION PHOTODIODE COMPARATOR



\*  $R_2$  sets the comparison level.

At comparison, the photodiode has less than 5 mV across it, decreasing leakages by an order of magnitude.



# THE ILLAWARRA AMATEUR RADIO SOCIETY

P.O. BOX 1838. WOLLONGONG. 2500. N.S.W.



**MEETINGS:** Are held every 2nd Tuesday of the Month except January, at 7.30 pm. in the S.E.S. Headquarters, Montague street, North Wollongong.

**REPEATERS:**  
VK2RAW - 146.850. - (VOICE) VHF Mt Murry.  
VK2RIL - 147.275. - (VOICE & R.T.T.Y) VHF Sublime Point.  
VK2RUW - 438.225. - (VOICE) UHF Hill 60 Port Kembla.  
VK2RIL - 438.725. - (VOICE & R.T.T.Y) UHF Sublime Point.

**BROADCAST:** On Sunday evening prior to the club meeting, at 7.00 pm., R.T.T.Y. Mode, and at 7.15 pm. on voice. Transmitted on 147.275 VHF, and relay on 3.562 Mhz. Callbacks will be taken after the voice broadcast.

**W.I.A. RELAY:** On 146.850. at 11.00 am. and at 7.30 pm. each Sunday.

**CLUB - NETS:** On 3.562 Mhz. SSB on Sunday at 8.00 pm. and a slow morse net on 28.440 Mhz. on Thursday evenings at 8.00 pm.

**NEWSLETTER:** "THE PROPAGATOR", published monthly to reach FINANCIAL-MEMBERS in the week preceeding the club meeting. All articles, adds etc, to the editor must be in, or try, by the 3rd Tuesday each month.

**MEMBERSHIP:** The Secretary, I.A.R.S., P.O.Box.1838. Wollongong. 2500. Full membership is \$10 per annum; students & pensioners concessional members \$5 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. A contact with VK2AMW is sufficient for the award. Band-details, date, frequency, station worked and \$2 or 4 I.R.C.'s. to THE AWARD-MANAGER, I.A.R.S., P.O.Box. 1838. WOLLONGONG. 2500. No QSL-CARD is required.

**STORE:** The club store operates at each club meeting. by COMMITTEE-MEMBERS.

## COMMITTEE:

PRESIDENT VK2OB - KEITH CURLE. 24. Beach Drv, Woonona.  
VICE-PRESIDENT VK2DYU- BILL CHADBURN. 45. Beltana Ave, Dapto.  
SECRETARY VK2EJH- JIM HAYES. 1 Kathleen Cres, Woonona.  
TREASURER VK2VAV-YKQ-DAVE HENDERSON. 8. Gladstone st. Bellambi.  
AUDITOR VK2ZHU- GEOFF CUTHBERT. 1 Nioka Ave, Kieraville.

**GENERAL-COMMITTEE:** VK2EXN- IAN CALLCOTT. VK2ENX- TONY MOWBRAY. VK2MT- ROB McKNIGHT.  
VK2ALK- LES KIRCHMAJER. VK2DWR- DAVE ROUTLEDGE. VK2JAM- PETER WOODS.  
VK2DE- WOJCIECH TOMCZYK. VK2BMH- MARTIN HUTCHINGS.

**REPEATER - CHAIRMAN:** VK2CAG - GRAEME DOWSE.

**REPEATER - COMMITTEE:** VK2EXN - IAN CALLCOTT. VK2EMV - MORRY. v. d. VORSTENBOSCH.

VK2DFK- MIKE KEECH. VK2MT- ROB McKNIGHT. VK2JAM- PETER WOODS. VK2EZY- DAVE COLLESS.

**QSL-CARD'S OUT :** VK2EXN - IAN CALLCOTT.

**QSL-CARD'S IN :** VK2DWR - DAVE ROUTLEDGE.

**E.M.E. CO-ORDINATOR:** VK2ALU - LYLE PATISON.

**PUBLICITY - OFFICER:** VK2VAV/YKQ - DAVE HENDERSON

**BROADCAST - OFFICER:** VK2ENX - TONY MOWBRAY.

**CARTOONIST :** VK2AXI - BRIAN WADE.

**PROPAGATOR-EDITORS :** VK2PZY - DAVE CAPON. VK2EMV- MORRY. v. d. VORSTENBOSCH.

**PRINTERS :** VK2DFK - MIKE KEECH. AND POSTED BY VK2EJH- JIM HAYES.

**LIFE - MEMBERS :** VK2CAG- GRAEME DOWSE. VK2OB- KEITH CURLE. VK2ALU- LYLE PATISON

## SUNDAY - EVENING - CLUB-NET - ROSTER:

FIRST SUNDAY OF THE MONTH : VK2MT - ROB McKNIGHT.

2 nd SUNDAY OF THE MONTH : VK2ENX- TONY MOWBRAY.

3 rd SUNDAY OF THE MONTH : VK2PZY- DAVE CAPON.

4 th SUNDAY OF THE MONTH : VK2DWR- DAVE ROUTLEDGE.

5 th SUNDAY OF THE MONTH : VK2EBI- KEVIN MURPHY.