# PROPAGATOR

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Illawarra Amateur Radio Society Inc.

The monthly newsletter of the Illawarra Amateur Radio Society Inc.
Realstered by Australia Post publication number: - NBH - 1491.

Meetings are held on the second Tuesday each month (except January) at 7.30 pm in the State Emergency Services building in Montague St, Nth Wollongong.

Visitors are most welcome.

Volume #91 . Number 6

June 1991

#### EDITORIAL

When you get to the penultimate page of this issue, you will notice that it is in fact a form. A candidate nomination form for the offices of the club in the new financial year.

I wrote not so long ago that the AGM was approaching at ever increasing velocity, and that it was time to consider taking on a position within the club. If you have never held a position before, then as Uncle Sam says, we want you. New faces and fresh ideas are always welcome. If you are elected, you will not be on your own, as there are always willing helpers from the past and present.

The nomination form should be filled out and forwarded to Ken or Pat or any other member of the committee before the AGM, but I would imagine that late nominees will be excepted on the night.

Don't forget that the next meeting is homebrew night, so bring all that good stuff along.

#### COMMING EVENTS

June

This is home brew night. Bring along all those little nicks and nacks that make your hobby that little bit more interesting.

July

The AGM. Yes this is "D day" for the psent offices of the club. You could have yourname on the back of the Propagator too.

August

This will probably be decided at the first committee meeting, but I am quite sure that Peter KHE is just busting to give his talk on being a Broadcast orifice (Hmmm).

#### WANTED

Wanted:- An ATU with built in power and vswr meters. Must be able to handle 300 Watts of HF RF. Contact Steve on 833073

\*\*\*\* Page 1 \*\*\*\*

CONTRACT THE THESE TUESDAY, 21 MAY, 1991 AT SES HO, MONTAGUE STREET, NORTH WOLLONGONG. START 19:30. PRESENT: VK2'S KWG (CHAIR), KCV, KEY, TKE, XOX, JBS, MT, KLH, XLA.

APOLOGIES: VK2'S XSV. KHE.

THE MINUTES OF THE PREVIOUS MEETING OF 16 APRIL WERE READ AND RECEIVED.

CORRESPONDENCE IN:

OXLEY REGION ARC - INFO RE OXLEY FIELD DAYS ON JUNE 8 & 9, 1991.

DRAGNET - ST GEORGE ARS.

BARG NEWS BALLARAT ARG.

AUST POST - INVOICE FOR PAYMENT OF P.O. BOX.

G MATTESICH, VK2BNG SUBSCRIPTION ENQUIRY.

SMOKE SIGNALS - CENTRAL COAST ARC. AUST POST - APPLICATION FOR RENEWAL

OF REGISTRATION OF "PROPAGATOR" SCENIC RESERVE-BULLI PASS INFORMATION RE LEVY CHARGES.

MRS ISAACS - REGARDING RADIO

WOLLONGONG CITY COUNCIL - COMMUNITY INFORMATION DIRECTORY.

GOULBURN ARC - SEEKING APPROVAL TO LINK UHF REPEATERS.

SENERAL BUSINESS: REGIONAL CONFERENCE OF CLUBS - 2 CLUBS HAVE REPLIED INDICATING 12 MEMBERS WILL ATTEND. MEETING SET

FOR SAT 15 JUNE 1991 AND ROOM HAS

9EEN ARRANGED WITH SES. BRIAN,

VKZKLH, HAS AGREED TO CHAIR THE MEETING WITH PAT, VKZKCV, TO TAKE

MINUTES. ALL CLUB MEMBERS ARE REQUESTED TO THINK HARD ABOUT OUR HOBBY AND SUBMIT PROPOSALS RE THE DIRECTION AND FUTURE OF AMATEUR RADIO. THE FUTURE IS IN YOUR HANDS, CATERING - WILL BE ARRANGED BY SIMON, VKZXQX, WHEN NUMBERS

ATTENDING ARE KNOWN.

REPEATER REPORT : VK2RAW - A BATTERY PROBLEM SILENT. THE PROBLEM WAS FOUND TO BE A DEAD CELL. THE BATTERIES

THE PROBLEM. DOTC - HAS ACCEPTED ROB'S, VK2MT, RATIONALISING OF OUR LICENSES AND THIS SAVED US APPROX \$68. EVERY LITTLE BIT HELPS!! VK2RUW - ROB, VK2MT, IS PLANNING THE LOGISTICS OF LINKING UHF REPEATERS VK2RGN (GOULBURN) VK2RUW - SEE ROB'S REPORT FOR DETAILS. MEMBERS AND READERS ARE ALSO REMINDED THAT THE UHF BANDS ARE RIPE FOR PICKING BY COMMERCIAL INTERESTS SO, ONCE AGAIN, USE IT OR LOSE IT. SOME RUMOURS SUGGEST IT MAY ALREADY BE TOO LATE FOR SOME PORTIONS OF OUR BANDS.

MENT WEIGHT LOV CHHERTING HIND

NOW ONLY HAVE TWO SETS OF

BATTERIES FOR THE REPEATER. THE

COMMITTEE GAVE A VOTE OF THANKS TO KEN, VK2TKE, FOR THE TIME AND

EFFORT SPENT IN TRACING AND FIXING

CLUB STATION: 1. ACTION ON THE ANTENNA WILL BE HELD OVER UNTIL WE CAN MAKE SOME SPACE IN THE SHACK. THERE WILL BE A GIGANTIC CLEAR OUT OF ACCUMULATED EQUIPMENT GOING CHEAP OR EVEN FREE WITH HINTS AND IDEAS OF WHAT CAN BE SALVAGED FROM ITEMS

CALLS ARE AVAILABLE, A POLL WILL BE TAKEN OF MEMBERS AT THE NEXT MEETING TO SEE IF WE SHOULD TRY AND OBTAIN THE CALL VK2IAR FOR THE CLUB STATION (IF IT IS STILL AVAILABLE).

AND IDEAS FOR CONSTRUCTION PROJECTS

2. CLUB CALL - NOW THAT "I" SERIES

**NEXT MEETING:** TUESDAY, 11 JUNE, 1991 - HOME BREW NIGHT - BRING ALONG ANYTHING THAT HAS BEEN MADE, MODIFIED, CHANGED, RESURRECTED, ETC. EXAMPLES ARE -POWER SUPPLIES, TEST EQUIPMENT, ANTENNAS (NOT 80M QUADS), TRANSCEIVERS, COMPUTER EQUIPMENT OR

MEETING CLOSED 22.15

ETC.

#### ZAPHOD'S HINT No 3.550

PROGRAMS. NO PRIZES BUT LOTS OF

ADMIRING AND ENVIOUS GLANCES.

If you can't remember something, at least remember how to find it out.

\*\*\*\* Page 2 \*\*\*\*

## For People Who Want Quality and Support a Realistic Price!

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PRINCESS HWAY DAPTO

### Winter Maintenance for Amateur Radio Equipment

- 1. Oil all RF stages to reduce noise levels. 2. Rotate tubes and check air pres-
- Adjust heaters to 100 degrees. 4. Plug all grid leaks and check
- padding on padders. 5. Check RH group of all bleeders.
- 6. Check water levels in tank circuits and reservoir capacitors. 7. Check sharpness of trimmers and
- resharpen if necessary. 8. Replace all screens in filters dropped by screen droppers. 9. Check weights of all plate
- loads. 10. Empty ion traps and clean excess flux from all magnets.

11. Sweep all IFT'S and empty IFT

- 12. Check and if necessary instal
- new beaters in mixers. 13. Clip new lambswool on all
- 14. Check licences of drivers and renew if necessary. 15. Check linears with ruler.
- Fit new hoppers on all feeders.

- 17. Look down all flat transmission lines for reflections. 18. Check tasteof Pi output with - product detector and mop up any splatter.
- 19. Check that rate of Pl output matches feed lines. 20. Grind seats of all standing waves. 21. Discard all out of date comple-
- mentary output stages. 22. Keep more than one ion in the fire at all times.
- 23. Replace all spent 'T', 'Q', 'Z', gamma matches. 24. Check high and low beams for
- distance. 25. Dust and replace all images at a standard frequency.
- 26. Count quads. 27. Make sure that all guys are tight and all plate circuits are loadand all plate circuits are load-
- ed (suggest a bus bar for this). Beware end effect. 28. Tighten lids on biscuit conta
  - iners. 29. Oil all crystal locks.
- 30. Dredge all net channels.

\*\*\*\* Page 3 \*\*\*\*

\*\*\*\*\*\*\*\*\*

buffers.

## WOLLONGONG

#### ALUMINIUM

CENTRE

Available ex stock, we have a large range of

#### Aluminium

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\* Round Hollows

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All at competitive wholesale prices

Ideal for building your own antennas 
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PH 18-5188 FA + 299 - 382

#### A NOTE TO VK2PG

If the callsign above looks

familiar, then you are someone we would like to see. A month or so ago, VK2PG (sorry but we didn't get his name) gave us an article for the magazine. This included a beaut drawing of the circuit that goes with the article.

Unfortunately, the article and irawing have gone astray in our piles of information. We still nave all the words on computer, but we have no copy of the irawing. Can you please bring one along to the club meeting, or get it to us somehow? Then we can try to put it in again. Thanks!

\*\*\*\*\*\*

#### DOTC QUESTION

Editor's note: Due to a mix-up last month, in which a few pages disappeared between printing and layout, the DOTC question was not included. (Did anyone miss it?) Here, then, is last month's article:

Last time we ran a question, Keith VK20B asked us the following: What sort of signals does a linear repeater station accept?

The answer was (C) SSB, FM and CW .signals. A linear repeater copies exactly what it hears, and so is independent of mode.

VK2RAW, however, is an FM only repeater (or variants of FM), because it demodulates the incoming signal and then modulates it again to retransmit. This means that it needs to know how to demodulate, and to do this you need to know the mode. And you can't use CW because of the tail.

This month, Keith VK20B asks you this one:
Which of the following L-type

Which of the following L-type filters is the best band-stop filter:

- (a) Series resonant LC circuit in series with the load and parallel resonant LC circuit in
- (b) Parallel resonant LC circuit in series with the load and series resonant circuit in shunt.
- (c) Series resonant LC circuits in series and in parallel with the load.
- (d) Parallel resonant LC circuits in series and parallel with the load.

#### \*\*\*\*\*\*\*

#### REMINDER

Don't forget the upcoming Annual General Meeting in July. Start training now for a position on next year's committee. Then you can show everyone how the Society should be run (or how to run a broadcast, right Peter VK2KHE????).

\*\*\*\*\*\*

#### RADIO EQUIPMENT

Coming up for sale at a meeting in the near future will be some radio equipment from the deceased: estate of Geoff Isaacs. This equipment will be catalogued and fairly by the committee. ridiculous offers **ad 11** be entertained. Geoff was a member of our club and went thru the tech course with Keith VK20B. Some equipment available will be;-Azden 2m FM t'ceiver Kenwood TS520 Electrophone UHF CR Uniden AX144 CB **JEL Tribander** MARC Communication Receiver power supplies morse keys various helical antennas Some home brew equipment will be auctioned at a meeting in the near future. Some stuff includes:-

" " ATU's
partialy constructed

#### HOME BREW NIGHT

home brew 6DO

general shack stuff.

Next meeting is the Home Brew night. Everyone wants to see what everyone else has been up too. Anything that you have made, modded, added too, changed, remade, do other things, what ever, bring it along and tell us about it. Have you got something that doesn't work quite right or are having a problem with a bit of it?

Bring it along and I am sure that

someone will be able to help you.

## Calling All Amateurs

It's time to visit your local Market at BULL1 if you need :-

METERS
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RADIO PARTS
IT BITS AND PIECES
LECTRONIC THINGAMMYS

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#### QUOTE\_OF THE MONTH

I hope we haven't run this before I don't think so

"The human brain commences working at the moment of birth, and never stops, until you transmit on 146.250MHz."

For those who hadn't remembered, you have to transmit offset to a repeater.

"This type of failure is difficult to accurately predict in advance." - a certain electrical engineer who shall remain nameless to protect his guilt.

\*\*\*\* Page 5 \*\*\*\*

and

#### REPEATER REPORT

Compiled 26/5/91 VK2RAW- The large bank of batteries on Mt.Murray appeared to start failing around the 13th of May. The pitch of the ident dropped to its lowest whenever the sun went down. By the end of the week the voltage opt so bad that both RAW voice & RAH rxer system were shut down each evening till the next morning. If the battery voltage was allowed to drop too low the equipment could become unreliable and the remote control of the site systems could be lost. The decision to shut down a repeater is not taken lightly, but the chance of losing control of the 1.5 of more concern. due to Unfortunately. commitments, no one could get up to the site the following weekend to attend to the problem. The WIA broadcast Sunday morning brought the battery voltage right down. Fortunately it was a sunny day so the system was probably running on the power from the solar panels. The evening broadcast would have been disastrous, so the decision was made to relay the broadcast on 7275 instead. This appeared to work w=11. Late Monday arvo 20/5/91, Ken TKE was able to make a trip to

Mt.Murray after finishing work. So in the dark, cold and very foggy conditions, he carted the 6 replacement cells up the hill & brought the failed set down. Later checking found that one cell had totally collapsed and another was on the way out. A BIG THANKYOU to Ken for his trip to the site. Remember he did the exchange in almost toal darkness and himself. VK2RIL- Just recently some pager tbleeps@hand blops have been coming thru 72%5. The interference appears to happen more often in evenings. A site inspection will be necessary to see if something has

official letter of request from the Goulburn Amateur Radio Society to link our VK2RUW with their VK2RGN on 438.325. A letter of confirmation has been sent to them following the approval of our clubs members at the April meeting. The control board to interface RUW with

We

VK2RUW-

been changed or installed. Let's

have

received

hope this can be rectified soon.

difficult by our desire not to take RUW off the air to hook up the system on the bench. This means allowances have to be made in the design to allow for variations between the theory on the circuit diagram and what will be found when actually hooking up the wires at the site.

Much communication has already taken place between myself and my

built. Many design

the link T'ceiver is presently

considerations had to be taken into

account. These were made more

beino

counterpart in Goulburn, so that when we finally go to turn the equipment on at each end, they will hopefully communicate with each other. By the time you read this, work will be well under way:

At first the repeaters will be continually linked. This will be a "test period" to check if the system works and to guage the response from the users both here and in Goulburn. In the future, a DTMF decoder will be installed to

remotely open and close the link.

This will be further complimented

with a tail beep, to indicate when

the link-thru is open. If you don't

have DTMF on your rig, a simple

inexpensive encoder can be built

with a handfull of components. If

calls

Goulburn

thermostat control.

link-thru is closed and

it

will

automatically be opened, so the need for you to have DTMF is not all that important. RUW's Favourable reports on coverage from both inside and outside our area are still being received. All very pleasing. By the way, the light globe in the cubicle seems to be doing the trick keeping RUW's squelch warm. The has been behaving itself for quite a while now.....touch wood (lend us your head for a sec Ray. ED). Lyle ALU has donated 3 small 100w/240v cubicle heaters which will pressed into service soon with VK2RAH- The 10m repeater is still working well. The need for still

improving the receiver is apparent. Further to this, a second receiver

site elsewhere to Mt.Murray and Knights Hill is being looked at. This will give the repeater a form of diversity reception and would greatly improve the ears of the system. If anyone has any ideas on converting 70MHz low band VHF radios to 29MHz PLEASE contact me. We are fighting an uphill battle to further improve our converted CB receiver.

Soon the callsign VK2RAH will cease to exist. DOTC have accepted our proposal to combine repeater licences to save our club money on licences. The 10m repeater will be contained

under the callsion of VK2RUW. A quick run down of our repeater systems:-

\* VK2RAW - Mt.Murray

\* VK2RUW - Knights Hill

147.575 MHz Dioi (frequency soon to be changed and

146.850 MHz -Voice

also to be linked to the 70cm Rose back-bone). 29.520 MHZ Rxer (linked to Knights Hill on 70cm).

\* VK2RIL - Sublime Point 147.275 MHz -Voice/RTTY

438.225 MHz -Voice (soon to be linked to Goulburn via VK2RGN) 29.620 MHz -Txer Voice

(Receives Mt.Murray on 70cm).

Till next time: - Rob - VK2MT

#### AVAILABLE CALLSIGN

The club's call sion as you should all know is VK2AMW. No one at the last committe meeting was able to

way whether it had any special significance or whether it was just the call sion that was given to us

when we applied for a club station. If there is, please let it be known at the next club meeting. The reason for this is that the "I" series of call sions has been released and as this is being written, the call sign of VK2 IAR

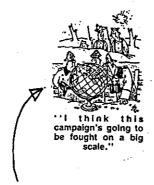
is available i.e. VK2 Illawarra Amateur Radio. If anyone can see or tell us why we should not change the club call to VK2IAR, it will be voted on at the next meeting and if passed and the call is still available it will be done.



#### 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 <sub>i</sub>	All before	GP	Ground plane	SEZ	Savs
ABT	About	GUD	Good	SIG	Signature; signal
ADR	Address	HI	The telegraphic laugh; high	SINE	Operator's personal initials
AGN	Again	HR	Here; hear		or nickname
<b>LNY</b>	Antenna	HV	Have	SKED	Schedule
BCI	Broadcast interference	HW	How	SRI	Sorry
BCL	Broadcast listener	LID	A poor operator	SVC	Service: prefix to service
BK	Break; break me; break in	MA, MILS	Milliamperes	777	message
BN	All between; been	MSG	Message; prefix to radiogram	TFC	Traffic
B4	Before	N	No	TMW	Tomorrow
С	Yes	ND	Nothing doing	TNX-TKS	Thanks
CFM	Confirm: 1 confirm	NIL	Nothing; I have	TT	That
CK	Check		nothing for you	TU	Thank you
CL	I am closing my station; call	NM	No more	TVI	Television interference
CLD-CLG	Called; calling	NR	Number	TVL	Television listener
CUD	Could	NW	Now: I resume transmission	TX	Transmitter
CUL	See you later	OB	Old boy	TXT	Text
CUM	Come	OM ·	Old man	UR-URS	Your; you're; yours
CM	Continuous wave	OP-OPR	Operator	VFO	Variable-frequency oscillator
DLD-DLVD	Delivered .	OSC	Oscillator	VY	Very
DX	Distance, foreign countries	OT	Old timer; old top	WA	Word after
ECO	Electron-coupled oscillator	PBL	Preamble	WB	Word before
ES	And, & .	PSE	Please	WD-WDS	Word; words
FB	Fine business; excellent	PWR	Power	WKD-WKG	Worked: working
GA	Go ahead	PX	Press	WL	Well; will
	(or resume sending)	R	Received as transmitted; are	wuo	Would
CB	Good-bye	RAC	Rectified alternating current	WX	Weather
GBA	Give better address	RCD	Received	XMTR	Transmitter
GE	Good evening	REF	Refer to; referring to;	XTAL	Crystal
GG	Going		reference	YF (XYL)	Wife
		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



THE IA.R.S.ON A FIELD TRIP



"Head office has given me the difficult task of making one of you redundant."

#### ROSE

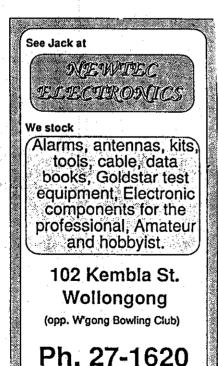
John XGJ informs us that the TNC for the Rose system has returned to John's QTH with a few new black things with silver legs in it. It will be reinstalled as soon as John can get himself up the hill to put it their.

#### X'TALS

Have you had trouble getting x'tals, or getting them for the right price?

BEACON X'TALS in South Aus has a fair deal going. About a week turn around and \$14.40 inc tax + \$3.00 p.p. The gentlemans name is Noel.

Beacon X'tals can be found at 24 Stanley st leabrook S.A. 5068 ph 08 3323031 Fax 083328591



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#### Another Way Of Communicating.

Some members may not be aware that there currently exists in the Other means of Illawarra communicating over the Phone other They are called talking. Bulletin Boards. There are several operating in the area two of which are operated by members of our club. The I.B.B.S. Operated by John Simon VK2XGJ will be celebrating its 7th year of operation next month. established Board in the area. John is well known on the Packet Scene as one of Leading exponents of Packet radio and he has currently a Packet BBS set up at his home. Our reporter tells us that currently working on setting up a multi port Packet BBS which when completed will allow Packet to be used with " Flying Mailboxes" as they pass overhead. The other Board in the area is The Outer Limits BBS operated by Bill VK2JBS and has only been on line for a couple of weeks. All you need to connect to these systems is a computer and a phone Modem. So if you want to try another mode of communicating give a try. The boards can be contacted on the following numbers. IBB8--- 618230

The Outer Limits----265270. Were sure both John and Bill would be pleased to welcome you to their systems.



THE HONEY MOON WON'T BE A PROBLEM. WE AIRE COME SOME WHERE WHERE THERE ARE NO REPEATERS

#### WAVEGUIDES

Those of you who were at Lyle's Microwave demonstration night last year will remember waveguides -hollow copper tubing that waves travel down. A bit of technical stuff on waveguides follows for those who might be interested.

Waveguides are another method of transferring AC power (such as radio waves) from one place to another.

How does it work? A waveguide is a hollow copper tube (usually rectangular section, but they don't have to be). Currents are made to flow in the walls of the guide, which set up alternating electric and magnetic fields in the airspace inside the guide. These alternating fields take the form of waves and allow waves to propagate down the air inside the guide. The waves don't travel down the copper walls.

Are they any good? Well, at 1GHz, RG-213 coax has around 9dB of loss per 100 foot length. Use 7/8 inch Heliax and this goes down to 2.2dB per 100 feet. Use a waveguide and the loss is only 1db per 100 feet. Remember that dB is a logarithmic scale and this is indeed an achievement.

OK, so why are we wasting our time at VK2RAW with that Heliax stuff? Why not use some waveguide - it must work even better at 2m?

Unfortunately, a waveguide's size must be arranged for the frequency. To operate at 144 to 148 HHz, a rectangular guide would be about 1.2 by 0.6 metres. And it must be made of conductive material (like copper). Somehow I doubt that the tower would hold it up. Oh, well, back to the Heliax.

But at frequencies above 1GHz, the stuff is quite useable, and is better suited to transmission than coaxial cable (unless you buy the VERY expensive stuff).



#### CLUB STOREROOM

As you may or may not have noticed the club storeroom has great loads of stuff in it which will make it extremely difficult to set up a club station within its confines. To solve this problem the committee decided to have a clearance sale at the home brew night, which is next meeting.Basically no offer will be refufsed, so if you need a printer form your computer real cheap, are a couple of going there deckwriters. If they are not sold whole they will be wrecked and components sold they have excellent Caps for power supplies them.there is other stuff in there with many usefull bits in them.

If you don't snap them up, they are going to the dump. 60T IT!!!

The	Illawarra	Amateur	Radio	Society	Inc

### MOMINATION FORM

nateur Radio S	Society In	ıc Nomina	te The Fo	llowing Peop	le For The	
ant Committe						
				Nena	ination	
					cepted.	
RESIDENT:		· 		!		_
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VICE PRES:						•
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SECRETARY:						
REASURER:						
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Amateur Soci						

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OST BOX
                         -ALL MAIL CAN BE SENT TO "THE ILLAWARRA AMATEUR
                          RADIO SOCIETY" AT PO BOX 1838, WOLLONGONG, 2500.
EPEATERS
                         -VK2RAH - 29.520 VOICE HF Mt MURRAY RX
                        29.620 KNIGHTS HI
-VK2RAW - 146.850 VOICE VHF Mt HURRAY
-VK2RIL - 147.275 VOICE/RTTY VHF SUBLIME Pt
-VK2RAW - 147.575 PACKET VHF Mt HURRAY
-VK2RUW - 438.225 VOICE UHF KNIGHTS HII
-VK2RIL - 438.725 VOICE/RTTY UHF SUBLIME Pt
                                                                 KNIGHTS HILL
                                                               UHF KNIGHTS HILL
           (OFF AIR)
ROADCAST
                         -IS ON SUNDAY EVENING AT 6.45pm, IN RTTY MODE,
                         TRANSMITTED ON 147.275 AND RELAYED ON 3.618 MHz +/-
                         QRM. CALL BACKS TAKEN IMMEDIATELY AFTER. VOICE
                         BROADCAST HELD AFTER WIA RELAY ON 146.850 MHz
                         (VK2RAW) AND 3.618MHz +/- QRM.
IA RELAY
                         -ON 146.850 MHz AT 10.45am AND 7.15pm EACH SUNDAY.
EWS LETTER
                         -PUBLISHED EACH MONTH TO REACH ALL FINANCIAL MEMBERS
                         IN THE WEEK PRECEDING THE CLUB MEETINGS. ARTICLES
                         AND LETTERS ARE VERY WELCOME.
EMBERSHIP
                        -$15.00 P.A. CONCESSIONS $12.00 P.A.
AWRENCE
                  -VK STATIONS REQUIRE 10 CONTACTS WITH IARS MEMBERS.
ARGRAVE
                       OVERSEAS STATIONS REQUIRE 5 CONTACTS. ONE CONTACT
                       WITH THE CLUB STATION VKZAMW IS SUITABLE. DETAILS
₩ARD
```

OF CONTACTS ARE TO BE SENT TO THE CLUB SECRETARY. TORE -THE CLUB STORE IS OPEN AT EACH MEETING. \*\*\*\*\*\*\*\* COMMITTEE \*\*\*\*\*\*\* -VK2KWG - KEN GRIMM

```
RESIDENT
ICE PRESIDENT
                   -VK2KEY - PAT JORDAN
ECRETARY
                  -VK2KCV - PAT KENNEDY
                 -VK2XSV - VIC HEE
SSIST SEC
                   -VK2TKE - KEN GOODHEW
REASURER
```

SSIST TREAS -VK2KHE - PETER TOMLIN DHHITTEE -VK2HT - ROB McKNIGHT - VK2XSV - VIC HEE -VK2FPN - PETER READ - VK2XGJ - JOHN SIMON -VK2KLH - BRIAN CLARKE - VK2KHE - PETER TOMLIN -VK2HT - ROB McKNIGHT -VK2KHE - PETER TOMLIN - VK2XLA - GRAEME EAST -VK2TKE - KEN GOODHEW - VK2XGJ - JOHN SIMON - VK2KLD - LES DAVID - TOM JEPSON

EPEATER PRES EPEATER COMM -VK2TPH - PHIL HOWCHIN -VK2JBS - BILL STONE -VK2GID - GRAHAM DENNEY

3L CARDS OUT SL CARDS IN -VKZCHT - GRANAN DENGEL
-VKZCHT - ROB McKNIGHT
-VKZCHT - PETER TOHLIN (That will bring trouble
-VKZAXI - BRIAN WADE
-ZAPHOD (VKZXQX, VKZJBS, VKZGID)
-VKZDSH - DALE HUGHES -VKZXCC - RAY BALL JBLICITY -ROADCAST ARTOONIST ROPAGATOR ED RINTERS

-VK2XCC - RAY BALL -VK2DYU - BILL CHADBURN

DCIAL DIRECTOR ANTEEN **FORÉ** 

-VK2XSV - VIC HEE -VK2XSV - VIC HEE )WER CO-ORD OTC LIASON -VK2OB - KEITH CURLE -VK2ALU - LYLE PATISON -VK2OB - KEITH CURLE IFE MEMBERS -VK2CAG - GRAEHE DOWSE