



The PROPAGATOR



Illawarra Amateur Radio Society Inc.

The monthly newsletter of the Illawarra Amateur Radio Society Inc.
Registered 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 92, NUMBER 2

FEBRUARY 1992

EDITORIAL RAMBLINGS

Greetings and welcome to 1992 from the Committee and friends at the Illawarra Amateur Radio Society (Incorporated)! Our hardworking Committee has by the time you read this already had its first meeting of the new year and is planning more new and inventive things to do. This includes a program until August (after the AGM!!!), and also some activities beyond that as well.

Inside, you will find the results of an issue which we've had nine weeks to write, but in the usual style has been thrown together in the last couple of days.

One of our Repeater Chairmen is having a birthday on February meeting night, so be sure to come along and wish him the best. Also come along and meet some new faces - Keith VK2OB was busy last year with lots of new Amateurs joining the Society.

PROGRAMME

The Committee came up with the following as a tentative program for the year up to the AGM and beyond:

FEBRUARY: Ian O'Toole VK2ZIO of the Castle Hill Military Radio Collection will be speaking. See inside. Also Gosford.

MARCH: Do-it-yourself antenna instruction night. Everyone is welcome (encouraged) to give a couple of minutes talk about any antenna projects they have.

APRIL: Someone from the WIA to talk on spread spectrum communication.

MAY: Society auction night, only if enough people have stuff to sell. Otherwise wait until November.

JUNE: Another practical night.

JULY: AGM & elections

AUGUST: Col Christiansen again.

**** Page 1 ****

VALE MORRY VAN-DE-VORSTENBOSCH VK2EMV

It is with sadness and regret that we have to announce the passing of our long time club member and friend Morry.

Morry passed away on the 24th December 1991 after a long illness. The funeral service was held at Parsons funeral parlor, he was then laid to rest at the Wollongong cemetery at Kembla Grange.

A number of members represented the club at the service and funeral. A floral tribute was also sent as a mark of respect.

Morry received his Amateur licence in 1978 having graduated from the ranks of the CB fraternity. Morry also joined the club in the same year. During his time with the club, Morry held many positions which he fulfilled with great enthusiasm and ability. Morry was a member of the repeater and general committees, was editor of the Propagator for many years as well as running the various weekly club broadcasts and callbacks.

Morry played a large part in the original installation of the Mt Murray and Sublime Point repeaters, his skills as a painter and decorator being invaluable.

Morry will sadly missed by his many friends both in and out of the club.

The club members wish to extend our deepest sympathy to Morrys wife, Brenda and the rest of Morrys family.

"Though your key is silent, your spirit lingers,

Aur revoir mate"

VALE COLLEEN HARTLEY BELOVED WIFE OF BARRY HARTLEY VK2FE

It is with deepest regret that we have to announce that Colleen, wife of Barry passed away in early January. Our deepest sympathy goes to Barry and family.

ooo000ooo

Minutes of IARS General Meeting -
7th December 1991 at SES HQ,
Montague Street, North Wollongong.
Start 19:45.

(Editor's note...there was no
Secretary, so these minutes are
fairly sketchy.)

Visitors: VK2 BCC, JRH, WRP, USA.
VK3YT, J. Cooper.

Apologies: VK2 CDP, HQ, JBS, JTB,
XLJ, XTE.

Business:

Keith VK2OB has finished giving
exams and radio courses through the
TAFE college. Fees are now \$600 per
head and there are no part time
teachers anymore. Several new calls
and two upgrades at the last exams.

Other business not minuted
(perhaps).

Col Christiansen VK2BCC gave a
highly interesting and entertaining
talk on the Antarctic, complete
with an excellent slide show.

Meeting closed sometime or other.

FEBRUARY MEETING

For February's meeting we have
Ian O'Toole VK2ZIO, the curator of
the Castle Hill Military Radio
Collection, to talk about his
collection (including a videotape)
and military gear in general.

Ian invites anyone with old gear
that they want to donate to please
do so - he will be willing to
accept it for the Collection. Also,
if you want information or circuit
diagrams for something old, please
ask as Ian may have what you are
looking for.

EDITOR'S NOTE No 144

Remember that a little hint like
this can fill up a page nicely!

CONFERENCE OF CLUBS

Brian VK2KLH reported to the
Committee that the long awaited
meeting between the Regional
Conference convenors (such as
himself) and the NSW WIA Council
has happened.

Mostly the WIA Council agreed
with the views and propositions of
the Regions, which may go some way
towards getting the WIA to listen
to people's needs. Various points
were passed and defeated, in
several different areas of the
hobby. See the Secretary if you
would like to see what went on.

The next Regional - Council
meeting will be held on 2nd and 3rd
May 1992. Planning should start now
for the next Regional Conference of
Clubs, which would need to be held
in March or April at the latest.

This is the closest thing you
have to a chance to have a say in
the running of the WIA. Consider
the present directions of the WIA
and see if you can think of any
improvements or changes to the
policies. That is what these
meetings are all about.

AN INTERESTING TAFE COURSE

Vic VK2KVH (used to be VK2XSV)
advised us that the TAFE runs a
course in Workshop Electronics
Technique, which would be
interesting and useful to radio
amateurs. Cost would be about \$140
for the year, to further your
knowledge of building, testing and
repair of electronic devices. See
your local TAFE college for further
details (but get in quick -
enrolments are being done now).

LOUSY INCONSIDERATE DUMMIES

Thanks to John VK2XGJ and his Packet bulletin board for this little extract. I was listening to Rob VK2MT at the committee meeting in January, and this couple seemed appropriate.

"Lid 07: This is the senile ham who never, ever allows even one microsecond between transmissions on the repeater. This chap is usually in contact with another 07, complete with an outrageous signal which can't be broken. These old boys can keep a repeater tied up, saying nothing whatever of interest, for hours on end."

Rob was telling us about some battery problems at VK2RAW before Christmas (remember all that rainy weather?) which were seriously aggravated by people using it for hours regardless of the low ident pitch.

"Lid 08: This is the repeater mavin who sets his repeater so it times out in 30 seconds, thus assuring that his repeater will never be used for anything of any significant interest. This also makes certain that the repeater will continually frustrate virtually every user, driving the more loosely-coupled ham minds to thoughts of retribution."

This is what Rob didn't want to be seen as. Every month I will bring a couple of these out as they seem relevant. This could be the new look Leather Tongue award (which has been pretty dormant lately).

Also from the same article: the origin of "CW". Some radio bureaucrat dropped the letters from his press for "MC", the abbreviation for Morse Code. He picked them up upside down and refused to admit his mistake, so today we are left with "CW".

ANTENNA RAMBLINGS

Last month's little article about antennas has sparked a bit of interest, it seems. A few people came up to me at the meeting and asked about the loop antenna at VK2GID. So I will give some more details about the HF antenna.

The idea for the loop came from something I had seen many years ago. The ARRL antenna book notes the existence of the "Loop Skywire" as it calls the antenna. It also notes that it is a little used but quite effective.

The loop I have is a 42.5 metre long piece of 2 mm enamelled copper wire, hung off three poles each about 6 to 8 m high, to form a large almost horizontal triangle. The feed is 52 ohm coax through a 4:1 balun. ARRL recommends no balun, but I chose to run one for reasons of balancing.

It turns out that 42.5m is one wavelength at 7.060 MHz, roughly the middle of the 40m band. It is also two wavelengths at 14.120 MHz, three at 21.180 MHz, and four at 28.240 MHz. So all these bands can be used. Using an ATU, 18 MHz and 24.9 MHz can also be used. 10 MHz does not work well.

Performance-wise, the antenna works into Europe, Asia, North America and the Pacific. I can't work Africa because I am too close to the Illawarra Escarpment to work well in the western direction. The best run seems to be 15 or 20 metres via the long path to Europe, but this is more due to my location and operating habits, than directional characteristics of the antenna. The antenna is slightly directive towards the low corner.

A similar antenna can be built from an 85 metre length. The result would be an antenna that works on the above bands, as well as 3.5 MHz (one wavelength) and 10 MHz (three wavelengths). However, you would need a BIG yard.

GOSFORD FIELD DAY

Ken VK2TKE is organising a bus trip up again this year, date is XXth February. Cost for the trip up and back in the bus, as well as entry into the event itself will be \$15 per person. This MUST be paid up front to Ken by the February meeting if you want to go.

If you want to go up on your own, it will cost \$8 just to get in. So the bus is definitely good value if you want to go. But remember - you must pay Ken up front.

CSIRO VISIT

In the questionnaire, members suggested that visits to places would be desirable. In this vein, the Committee is organising a visit to the CSIRO radio physics centre at North Ryde. This would be a very interesting place to check out, as these fellas tend to have a lot of very much razor's edge technology stuff.

The Centre is only open during the week, so it has been suggested that perhaps the Steelworks picnic day in October might be a suitable chance to get up there, as many members would have time off then.

Travel would probably be either private or by bus and train, which could lend to a party atmosphere in itself. Tell us what you think at the next meeting.

1991 CHRISTMAS PARTY

This was a highly enjoyable affair, which went very well and was enjoyed by all. Attendance was fair with about twenty people taking part in the festivities.

Ray VK2XCC reports that a very fine day led to a fun day for all those present with NO packets in sight.

PACKET NEWS

Much has been happening over the last couple of months on the packet scene. A new NetRom network digi has been installed by Phil VK2XDM at Robertson, providing excellent coverage for the Illawarra area.

There are two parts to Phil's installation: VK2XDM-1 on 147.575 Mhz which is a NetRom digi not unlike VK2RAW, and VK2XDM-2 on 144.800 MHz at 4800 baud (higher speed than the usual network). These rigs are connected together, so you can connect on 7575 and come out on the high speed network which runs into Sydney and beyond.

Phil has also got a link into Canberra, which will be able to connect to the Packet Satellite base there in future. This will get you around the world. Somewhere in the network is a HF node, which can also produce some surprises (XE Mexico was spotted in December one night). Also is a connection to VK3.

John VK2XGJ says that future news could include a link to the 9600 baud network into Sydney and beyond. Other news includes installation of ROSE at Knight's Hill - looks like that hasn't quite made it yet. See Rob's repeater report for more info.

Latest news is that with all of the Packet expansion, Rob VK2MT is very excited. And he is computer illiterate! Ray could be next.

LOST

Actually lent out to someone. Brian VK2KLH lent the following two books to someone a while back, hasn't got them back, and can't remember who borrowed them. Let him know if you have his books: Manuals for the ARC-5 and C-45.

REPEATER REPORT

(Editor's note: This report is very long, because a lot has happened. Please bear with me, I think it is interesting so I am printing the lot. Also Rob VK2MT wrote it all for me.)

Quite a bit has happened since the December report. Our esteemed Editor has given me no restriction on the size of this report, so here goes...

VK2RAW/VHF: As mentioned in previous reports, 146.850 had been suffering from a desense problem, plus a funny "squiggly" noise on weaker received signals for some months. Well, after a lot of head scratching, visits to Mt Murray and some very valuable assistance from Steve VK2XNH with some VERY expensive test gear, we have fixed both problems.

On 1/12/91, Ken VK2TKE, Bill VK2EU, Steve and I met at Mt Murray. Steve had brought an excellent signal generator and spectrum analyser. The whole repeater was tested. The RX and TX were fine, but the diplexer was out of tune a bit. We gained around 30dB extra isolation between TX and RX ports. This unfortunately didn't fix the desense.

We also investigated the funny oscillating noise the repeater's receiver was picking up. Ken had found out that our site neighbours (the SRA) were apparently running digital telemetry from the site. The noise on the repeater sounded digital in nature. Although we spent over 4 hours on site and had gone through all of the systems, we appeared no closer to solving the problem, although we did have some ideas for the next visit.

This was done on 22/12/91. TO cut a long story short, we discovered that the Packet digipeater's TNC (a Tiny 2), was putting out some type of spurious signal that was getting into the DC

power lines of the cubicle. By soldering a small 0.1uF ceramic capacitor across the DC lines going into the TNC's case, the funny noise and desense were both fixed. We couldn't believe that that was all it took to fix these two annoying problems.

A LOT of time had been spent trying to rectify both problems, contrary to some comments that were passed over the air. The bottom line though is that 146.850 is now, in our opinion, working the best that it has for ages. Due to Steve's work on the diplexer, the receiver sensitivity is excellent. On the same day, we fixed the interference that the WIA broadcast receiver was getting when the digi was transmitting. All in all, we really chalked one up on old Murphy!

Everything went well until around the first week of January. The large influx of tourists into the area (especially from Sydney), increased the amount of traffic on 146.850 considerably. At the same time, we had lots of cloudy and rainy days. As the site is solar powered, the battery voltage started to go downhill. QSO's lasting hours between Sydney tourists down here back to their friends in Sydney didn't help.

Even when the ident tone dropped to the lowest tone, they still continued. It wasn't ignorance of the ident tone levels meant, either. Oh no, some of them were fully aware of what they meant, but from their on-air attitude, the low battery level wasn't their problem. This situation went on for days.

Eventually, I could hold my silence no longer and broke into one of these extremely long winded QSO's to advise them of the situation. At first, this met with total indifference, then some rather uncomplimentary remarks regarding our Club's quality of repeaters, in particular the power problem at Mt Murray. I will not

VK2DSH SHACK CLEARANCE:

Your chance to acquire some rare and unusual items of
Manuals for some of the following equipment are available
gear is in good condition. Contact Dale VK2DSH on 042 2
if you are interested in any of the following:

Phillips 3" audio oscilloscope	\$30
Phillips 20Hz - 20KHz oscillator	\$20
Heath 3" oscilloscope	\$20
Heath oscillator sine/square 20Hz-1MHz	\$20
Heath VTVM	\$10

Please turn over

being repaired, a lot of work has to go into it before replacing the extended ringo currently in service. Both the radio and TNC are to be changed in the near future (give John VK2XGJ his gear back), but the service should remain the same.

VK2RUW/PKT: This is a new one. After considerable work from Ken, Phil VK2TPH, John VK2XGJ and Michael VK2XCE, the Packet ROSE node that used to be at VK2RAW is about to hit the air again. Mt Murray was unable to support the ROSE digi because of its high current consumption (over 2A on standby!)

The system is to be installed at Knight's Hill. A dual band 2m/70cm Diamond X-200 antenna has been bought. The money for the antenna has been VERY KINDLY donated by Vic VK2KVH (ex VK2XSV). A BIG thank you to Vic. This antenna will be mounted at the 100 foot level and fed by LDF 4-50 Heliax. In the cubicle there will be a high quality diplexer to split the signals for the 2m and 70cm radios. The VHF range is expected to be very good. Also, because the UHF ROSE link will be coming from the same antenna, it is expected that linking to other ROSE nodes should be quite extensive.

I guess we will see, as this installation is due to happen on Australia Day weekend. The two packet systems should co-exist happily (VK2RAW on NetRom, VK2RUW on ROSE). The "test" frequency for VK2RUW will be 147.575 Mhz, then shifting to the frequency set aside for us on 144.775 Mhz.

VK2RIL/VHF: The repeater itself has been working well. Unfortunately a large signal caused considerable interference to the repeater from around Christmas to the second week of January.

VK2RAW/PKT: As reported, everything at Mt Murray is working well together. The NetRom digi is also OK. The large colinear is still

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As reported on the WIA broadcast of 19/1/92, the interfering signal was traced to a site in the Blue Mountains to a pager that had a signal wandering up and down the VHF band, causing considerable interference to the Sydney repeaters and commercial VHF services, as well as our 147.275 and to a lesser extent 146.850. A group of Sydney amateurs DF'ed the transmitter. The repeater is now once again working well.

VK2RIL/UHF: The control board etc are currently being built and fitted to the repeater to get it back on the air. New crystals had to be purchased for technical reasons. It won't be long before this repeater is available for use again. Its site is currently a problem, still being investigated. Hopefully this will be sorted out soon.

VK2RUW/UHF: The main news about this repeater is that it is now linked to VK2RGN at Goulburn (Mt Gray) on 438.325 MHz. You don't need any form of tone encoding to access the system, it is open all of the time. Both our Club and the Goulburn Club decided not to have any form of restriction to the service.

To indicate which repeater is receiving the signal being transmitted on VK2RUW, there is a beep at the end of signals received on 433.225 (Knight's Hill) and no beep on signals received on 433.325 (Mt Gray).

Users from both this end and the Goulburn end have expressed how enjoyable and handy the link between the areas is. A lot of new friends have been made at both ends and some large round table QSO's have taken place, with stations from North and West Sydney, Wollongong, Shoalhaven, Mittagong, Goulburn, Yass and Crookwell. We've even had a couple of home base VK1's calling in via Goulburn. The word is spreading and different stations appear each weekend.

If it sounds like I am promoting 70cm, well I guess I am. There are lots of good reasons to be on 70cm, one of the best is that there is no pager problems, even when driving past the transmitters. I hope that one day, DOTC allows Novices access to at least the FM repeater segment of 2m.

Unfortunately, all has not been well for VK2RUW/UHF. Around 11/12/91, the cubicle started leaking in the heavy showers. The water got onto the IF board and the electrolytic action between dissimilar metals, combined with voltages on the board caused considerable corrosion to component leads. The repeater failed and locked on transmit (the worst kind...Ed) late that afternoon.

In the heavy rain and fog, Ken drove up and brought the repeater down. (Loud applause for Ken here - the weather up there can be a real danger...Ed.) Ken spent four days replacing the components and repairing board damage. The repeater was returned to service on the 15th. The cubicle has since been leak proofed. The Silastic originally on the cubicle was OK when it was bought, one can only assume that the UV from the sun broke it down.

On 5/1/92, a storm passed through the area and struck power lines at or near Knight's Hill. This was about 2 hours after Ken and I had spent hours (0730 to 1600) at VK2RAW and VK2RUW. 438.225 went off the air, but so did POWER-FM and some damage to WIN-TV as well. A WIN-TV tech had to go to the site anyway, so I phoned the site and he investigated our problem.

He found that the circuit breaker in the building had tripped and our 5A slo-blo fuse in the cubicle had disintegrated. I wonder what sort of voltage had been across the lines. No damage had been done to our equipment, as Ken and I had put a fair bit of surge

protection across the incoming mains to the cubicle. The cubicle had again developed a leak, so the Tech brought the repeater back to work for us. Once dried out, it worked fine. As I said above, this leak has now been well and truly fixed.

While speaking of lightning, a bolt of the stuff hit the WIN-TV cubicle at Mt Gray on New Year's Eve. The force blew a hole the size of a fist in the 4 inch thick concrete wall. It found the best path to ground via a telephone and UHF radio. (Anyone want to buy a combination moulded radio/telephone, no warranty given?) The Goulburn club's repeater cubicle was about 25 feet away. The VHF repeater was unaffected, but the UHF one (to which we were linked) sustained a fair bit of damage. The pre-amp was blown up, the power supply damaged and an IC on the control board blown.

VK2RUW/HF: Still going well and actually much better since the TNC at Mt Murray has been "cleaned up". The interference was also getting into the 10m receiver via the DC lines, making it deaf. Now quite sensitive. I have noticed that after lengthy transmissions (WIA broadcast), the RF power output appears to decrease. Needs a tune, no problem.

Anyway, I had better wind this report up before I time out. (That was long ago, Rob, keep talking...Ed) There was actually a lot more to tell, but I've already gone too long.

Before signing, however, a mention must be made in tribute to Morry VK2EMV, who as you have no doubt heard, passed away on Christmas Eve. Morry did considerable work on the Club's repeaters until he was forced to take it easy due to poor health.

Even after he was unable to visit the sites, he would monitor the repeaters from his shack and was always on the side for assistance or just to say hello. For years he would be there every Sunday morning and evening to send commands to Mt Murray to turn on the WIA broadcast. On behalf of the Repeater Committee, Morry will be sadly missed, but never forgotten.

Till next time,
Rob VK2MT.

FOR SALE

A matched pair of Yaesu handhelds, FT-23R (2m) and FT-73R (70cm). Both in as new condition. Each rig comes with its own carry case, FNB-10 battery back, plugpack charger, original box and packaging. The 73R still has over 12 months of Dick Smith Electronics warranty. These rigs are as recommended by the Club's Repeater Committee.

Prices: FT23-R \$275
FT73-R \$295
The pair \$550

Ring and haggle if you like. All you have to do is catch him. Call Rob VK2MT, (042) 847889.

FOR SALE

As usual, Phil VK2TPH has something for sale this month. Phil has recently scored himself a new computer, which leaves his much loved Commodore C64 system up for regretful sale.

Phil offers a C64 complete with disk drive, dot matrix printer and colour monitor, as well as heaps of software. Asking price is \$700 for lot, ring Phil on (042) 813668 for details, or catch him on air.

Constant Current from a Voltage Regulator

Ever needed a constant-current supply? Recently, I needed a constant-current source to test some incandescent lamps as radio-frequency broadband noise generators. Rather than design an elaborate circuit, I decided to try using a simple technique by which a constant-voltage regulator can supply a constant current.

If a fixed resistor is placed across the output of a three-terminal voltage regulator, the current drawn from the supply is in-

dependent of the supply voltage. Hence, if the regulator circuit with fixed load is placed in series with any device, the current through the device will be constant and equal to the regulator output voltage divided by the fixed load resistance. The circuit configuration is shown in Fig. 1.

The output current is set by $R1$. For a 5-volt regulator, the output current is: $I = 5/R1$.

The maximum output current cannot exceed the regulator's output rating.

Hence, with a standard 7805 or LM309K, $R1$ should not be smaller than 5 Ohms. The power dissipated by $R1$ is $25/R1$. The wattage rating of the resistor should be at least twice this value. The voltage drop across the regulator is the supply voltage minus the load voltage and must not be permitted to fall below 7 volts. The supply voltage must therefore be greater than 7 volts plus the load voltage or: $V_s > 7 + R1 I_{reg}$.

If the difference between the supply and load volt-

ages drops to less than 7 volts, the current will no longer be constant but will decrease. This can be seen in Fig. 2, where the output current as a function of supply voltage for different load resistances is plotted.

One caution: Do not let the supply voltage exceed the input voltage rating of the regulator chip, which is usually 35 volts. Since I first tried this technique, the circuit also has been used to stabilize the current to a CW laser diode system where I work. ■

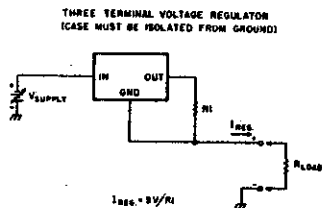


Fig. 1.

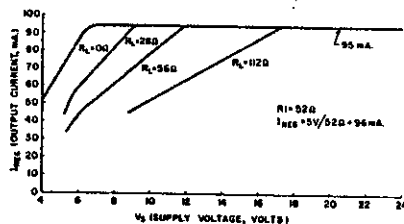


Fig. 2

DOTC QUESTION

OK, last month we asked you about resonant circuits: At resonance a series circuit consisting of an inductor and a capacitor appears to be???

The answer was (C) - Resistive. All tuned circuits are only resistive at resonance, which is to say that the reactance of the capacitor and that of the inductor cancel out by adding to zero.

This time we return to a question that I missed earlier on, about transistor circuits: Which transistor circuit is best suited to supply a low impedance load?

- (A) Emitter follower
- (B) Grounded base
- (C) Common emitter
- (D) Common base.

144-MHz Stop-Band TVI Filters†

Got TVI from your vhf transmitter? A high-pass filter won't help. Use a stop-band filter to notch out the beast!

The use of band-reject filters at the TV receiver is an attractive solution in the case of interference from 70-, 144- and 432-MHz transmissions, where TV reception may be on frequencies higher or lower than that of the amateur transmitter.

Even a simple series-tuned resonant circuit across the TV feed line can help and may sometimes attenuate strong local signals by 30 to 45 dB. A rather more elegant stop-band design for reducing strong signals is the "bridged-T" filter, which when correctly adjusted can provide a tunable, sharp, symmetrical null, even within the frequency band used for TV reception. Band-

rejection filters of high Q can also be made using single or double stubs fashioned from coaxial cable.

Jan Martin Noedling, LA8AK, points out, however, that the technique of using stop-band filters to cure TVI caused by 144-MHz transmissions still receives relatively little coverage in most of the handbooks. Recently he encountered a problem of severe TVI when working "aurora" with 100 watts of output power on cw. For such transmissions his beam antenna needed to be directed virtually straight at a house some 33 feet (10 meters) distant, where his signals blanketed the TV receiver and blocked reception.

The Norwegian radio and TV interference investigation team found his equipment to be reasonably good; an article in the Dutch *Electron* (no. 11, 1978) encouraged him to

try the use of stop-band filters tuned to 144 MHz and installed in the neighbor's TV feed line. See Fig. 1. The filter is capable of providing 50 to 60 dB of attenuation over all or part of the 144-MHz band. The parallel resonant circuit (L2-C2) is tuned to the center of the required rejection band by squeezing, pulling or bending turns. The series-resonant circuits (L1-C1 and L3-C3) are trimmed for maximum attenuation at the upper and lower frequency limits. The filter was aligned using a test circuit incorporating a 3-dB pad (see Fig. 2), tuning the resonant circuits to the frequencies shown in Table 1. A stable generator should be used for alignment. The pad is needed to prevent "short-circuiting" the signal generator output, as this can cause false indications. This simple arrangement cured LA8AK's TVI problems completely.

†Adapted from an item of the same title in the column by Pat Hawley, G3YA, "Technical Topics," *Radio Communication* (RSGB), March 1979, p. 232.

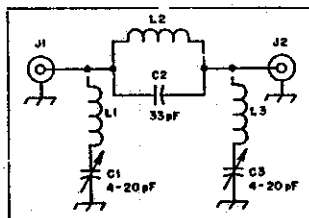


Fig. 1 — The 144-MHz stop-band filter. L1 and L3 are 10 turns of no. 16 AWG wire with a 3/16-inch inside diameter. L2 is two turns of no. 16 AWG wire with a 5/16-inch inside diameter. See text regarding length adjustment of inductors. C1 and C3 are trimmer capacitors. J1 and J2 are BNC jacks, soldered to the pc-board foil.



Circuit-board etching pattern for the 144-MHz stop-band filter. Black represents copper. The pattern is shown at actual size from the foil side of the circuit board.

Table 1

Resonant Circuit Frequencies

These are frequencies to which the resonant circuits of the filter should be tuned, for maximum attenuation in different segments of the 2-meter band.

Circuit	144 to 144.5 MHz	144 to 146 MHz	146 to 148 MHz
L1-C1	144 MHz	144 MHz	146 MHz
L2-C2	144.25 MHz	145 MHz	147 MHz
L3-C3	144.5 MHz	146 MHz	148 MHz

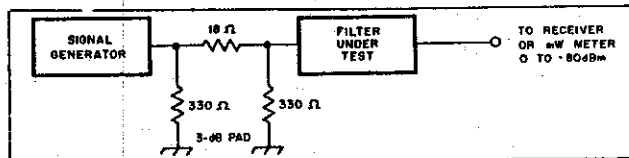


Fig. 2 — The recommended filter test circuit. See text.

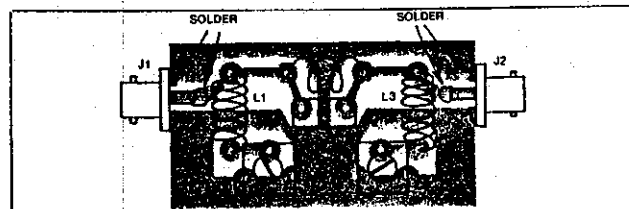


Fig. 3 — Parts-placement guide for the filter. The shaded area represents an X-ray view of the copper pattern. The two BNC connectors are each soldered to the board in three places as shown.

POST BOX - All mail can be sent to "THE ILLAWARRA AMATEUR RADIO SOCIETY" at PO Box 1838, Wollongong, 2500.

REPEATERS - VK2RUW - 29.820 Voice Mt Murray/Knights Hill
- VK2RAW - 146.850 Voice Mt Murray
- VK2RIL - 147.275 Voice/RTTY Sublime Pt
- VK2RAW - 147.575 Packet Mt Murray
- VK2RUW - 438.225 Voice Knights Hill
(Off air) - VK2RIL - 438.725 Voice/RTTY Sublime Pt

BROADCASTS - The Wireless Institute of Australia, N.S.W Division broadcast is relayed to 29.820 MHz and 146.850 MHz at 10.45am and 7.15pm each Sunday. Callbacks after the broadcast. RTTY broadcast in the week before the Club meeting, Sunday evening, 6:45pm on 147.275 MHz, relayed onto 3.618 MHz +/- QRM and 29.820 MHz, with callbacks immediately after.

NEWS LETTER - The "PROPAGATOR" is published each month to reach all financial members in the week preceding the Club meeting. Articles and letters are always welcome. Commercial advertising \$40 per quarter page per year, member's classifieds free for one issue. See Graham VK2GID for details.

MEMBERSHIP - \$15.00 P.A, concessions \$12.00 P.A, expiring immediately after the Annual General Meeting in July.

STORE - The Club store is open at each meeting, and sells all sorts of hard to get knick-knacks that you might need.

LAWRENCE HARGRAVE AWARD - VK stations require 10 contacts with IARS members. Overseas stations require 5 contacts. One contact with the Club station VK2AMW is suitable. Details of contacts are to be sent to the Club secretary.

***** COMMITTEE *****

PRESIDENT	-VK2KLH - Brian Clarke	
VICE PRESIDENT	-VK2GID - Graham Denney (042) 286732	
SECRETARY	-VK2KCV - Pat Kennedy (042) 673199	
ASSIST SEC	-VK2GPJ - Pat Jordan	
TREASURER	-VK2TKE - Ken Goodhew	
ASSIST TREAS	-VK2SRB - Robert Bonella	
COMMITTEE	-VK2DSH - Dale Hughes	-VK2GPJ - Pat Jordan
	-VK2XCC - Ray Ball	
ASSOCIATES	-VK2KWG - Ken Grimm	-VK2MT - Rob McKnight
	-VK2XGJ - John Simons (042) 614628	
	-VK2XLA - Graeme East	-VK2KVH - Vic Hee
	-VK2URB - Robert Bonella	- Ron Hanks
REPEATER PRES	-VK2MT - Rob McKnight	
REPEATER COMM	-VK2TKE - Ken Goodhew and others	
QSL CARDS	-VK2JBS - Bill Stone	-VK2GID - Graham Denney
PUBLICITY	-VK2KWG - Ken Grimm	
BROADCAST	-VK2TKE - Ken Goodhew and others	
EDITORS/PRINTERS	-VK2DSH, VK2GID, VK2XCC	
SOCIAL DIRECTOR	-VK2XCC - Ray Ball	
CANTEEN	- Ron Hanks	
STORE & TOWER	-VK2KVH - Vic Hee	
DOTC LIASON	-VK2OB - Keith Curle	
LIFE MEMBERS	-VK2ALU - Lyle Patison	-VK2CAG - Graeme Dowse
	-VK2OB - Keith Curle	