

QRM

Bulletin issued by the Northern
Branches of the Wireless Institute
of Australia, Tasmanian Division

October 1976
Vol.6 No.7

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Launceston
Tas. 7250

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MEETINGS

Oct. 8th Northern Branch, S.E.S. rooms, Charles St. 8 p.m.
Oct. 12th North West Branch, Lakins Hall, Ulverstone. 8 p.m.

Y.R.C.S. MEETINGS

Oct. 9th & 23rd Kings Meadows High School, 10 a.m.

A.O.C.P. Classes

Oct. 4th Kings Meadows High School
11th block B, room 35
18th CW 7.30 p.m.
25th Radio theory 8 p.m.
Nov. 8th

Contests

Oct. 9/10 VK/ZL Oceania CW
Oct. 16/17 Jamboree on the air
Oct. 16/17 RSGB 7MHz CW
Oct. 30/31 CQ WW DX Phone
Nov. 6/7 RSGB 7MHz Phone

Nov. 13/14 VK7 HAMFEST AT EVANDALE

THE NEW FREQUENCY OF THE SUNDAY NEWS BROADCAST IS 3570KHz

October 22nd Deadline for the next issue of QRM

Northern Branch notes by Joe VK7JG.

Before mentioning last meeting I must congratulate the organisers of the progressive dinner. Everyone I spoke to at the dinner agreed that it was one of the better functions held by the Northern Branch. Our visitor from the North West coast namely Ian VK7ZIE and XYL was overheard refusing a drink late in the evening saying "no thanks I'm driving I'm driving etc."

Now to the meeting held at S.E.S. rooms Sept. 10th. It was well attended with 34 persons present. After the preliminaries were dealt with we had the election of two officers following the resignation of our Hon. Sec. Norm VK7NR and the need for an equipment store officer to help Daniel VK7ZDA with his work with the equipment store. Graeme VK7ZGG was elected to the position of equipment officer and myself Joe VK7ZGJ as Hon. Sec.

Turnover was down a little on last month, Peter VK7PD reported sales of \$946.00 and purchases of \$1685.00, it was requested that persons owing money to the store clean their slate as soon as possible.

The most heartening news of the evening was that John VK7JV withdrew his resignation as QRM Editor "thanks John", so how about doing your bit for our publication and write an article to help fill the pages of QRM.

I could write a page full about the discussion that took place concerning the Bourke St. premises, at this stage the executive is to obtain lease details from the Launceston City Council and present them to the meeting as soon as they are available.

The meeting closed at 21.20 and was followed by a most interesting lecture on the history of the VK7RAA repeater and repeater requirements by Peter VK7PF. Peter thanked Bob VK7ZRF, Col VK7KW and DCA for their help in making the repeater visitors say "the best in Australia".

By the time you read this there will be two new Full call signs on the air in the North, Byron VK7BD (ex VK7ZBD) and myself Joe VK7JG (ex VK7ZGJ) we both passed the last CW exam.

The lecture this month is by Professor R.H.Thorpe chairman of the Australian Consumer Association. So come along and make his time worthwhile.

Next month is equipment display night, so once again dont leave it to the usual few, last time only two exhibitors were present, so bring your new toy along, it need not necessarily be home brew, and make the evening worthwhile.

till next month Joe VK7JG

FOR SALE. from Joe VK7JG, 40 Lavender Gr. Phone 443882
Marconi HF signal generator 85KHz - 25MHz \$25.00
Playmaster quad amplifier must sell, kit cost \$145.00 will
take \$130.00, 15 Watts per channel, built in attractive
wooden cabinet, R.F.I. proofed.

Notes from the North West Branch by Lindsay Johnson.

The monthly meeting was held at Lakins Hall Ulverstone on Tuesday 14th September. The meeting commenced at 8.15 p.m., with 9 full members, 8 associates and one visitor present.

Ian VK7ZIE the President and Max VK7MX the Secretary Treasurer in their chairs. Apologies were received from, Ken VK7KH, Brian VK7ZBL, Kirby VK7KC, Bob VK7ZJS and Charlie VK7CF. A visitor, Jim Lewis was welcomed by the president who thanked him for attending and expressed the hope that he would come again. The minutes of the last meeting were read by the secretary and were duly passed. The inward correspondence dealt mainly with requests from several scout masters asking for assistance from North West Branch members in the forthcoming Jamboree On The Air. Several members agreed they would be happy to help out and would advise the scout leaders of their decision.

The meeting was advised that Tony VK7AX would be doing a rebroadcast of the Sunday morning broadcast on a frequency of 27.125MHz. The treasurer reported on a stable bank balance. Graeme VK7ZAQ the technical officer who is logging up endless hours of work on the new repeater reported that, the commercial gear used for the repeater is still giving troubles thus holding up the progress of getting it on air. He also would like the donation of several 30 inch lengths of hard drawn 4 or 5 inch copper tubing, this would be very much appreciated, he is also looking for assistance from members for the construction of new aerials.

A long discussion was held about the forming of the Mersey Vally Radio Club. Associate Jim Davies who is known State wide for owning a very fine collection of vintage radios, has offered the use of his amateur gear and there is plenty of that too. Several members are anxious to get this club on air, provided that a fully licenced member is in attendance when members are on air. Max VK7MX is donating much of his time holding fortnightly classes over Latrobe way, so who knows, some of his pupils may be on air members of this proposed club in the near future.

The meeting closed at 9.50 p.m. and was followed by supper with Burnie and Penguin members being hosts, this was followed by the raffling of a big box of something and that's exactly what it turned out to be, much to the surprise of the winner when he opened it later.

After next months meeting Jim Davies will give a talk on? well I will leave that to Jim, we are all looking forward to seeing or hearing what he has for us.

Following the usual after meeting talks the evening closed off at 10.15 p.m.

73 Lindsay

Bill VK7TE requests that more amateurs visit Mark Addison in Cosgrove Park, Mark has only had two amateur visit him, no he didn't complain but Bill VK7TE does and he is right! I cant say anything I live across the road from Mark and don't know what he looks like. He is trying to learn for the AOCF but obviously cant attend classes as the only bodypart that moves is his head.

HF and DX notes by Col VK7LZ.

This month very little listening has been done due to being away from home part of the time but from reports received it appears that conditions have been very similar to the previous two months, however considering the low sunspot count we are extremely lucky to be hearing as much as we are as the old timers well know.

Bill VK7AK has a theory that if one can hear VK6's on 3.5MHz during our evenings it is advisable to listen on the short path for Europeans on 14MHz and 21MHz, this proved to be true on the 18th September when Frank VK7BC worked several including Scandinavian countries short path on both 14 and 21MHz. Franks log reads like an extract of 4 or 5 years ago with the following goodies,

14MHz - 0600 to 1400Z, ZS6APO, A4XGQ, A4XFA, A4XGH, VU2ACD, 9M6KT, also OH, SM, G, PA, F and I.

21MHz - CR9AJ, VS6HI, also 4X4, JA's and several European countries (all of the above were on SSB)

Europeans occasionally come through afternoons local time long path on 14MHz, whilst W's, VE's and the odd Pacific stations are regulars.

On 7MHz G's appear on SSB most days, also the odd ON, CT, DL, F and XE whilst on CW YU, DM, DL, SM, ON, GW, HB9 and LX have been heard as well as W, VE and Pacific stations, ZB2CD was 339 on CW at 10.30Z one evening.

No reports are to hand regarding 3.5MHz but 1.8MHz is showing signs of life again, several W's are now coming through around 1000Z but signals are not good and only one QSO has been made. VR1AA has again put in an appearance and VE3EK has been listed on these evenings. KL7HAQ and JA7NI have both been QSO'ed but only with 449 signals.

With the DX season hopefully approaching, several of the DX gang are working on their antenna systems. Col VK7KW now has his 20 metre beam on top of his tower again, Frank VK7BC has a new tower ready to raise and Den VK7DK sports a brand new 204BA also a 15 & 10 metre beam all assembled but with no tower as yet - any offers ?

And to end on a note of optimism, in an interesting and enlightening treatise into the mechanism of the sunspot cycle in the July issue of "Radio Communications" G8KG comes up with some extremely interesting observations well worth studying, he predicts that in spite of the story of gloom most writers are forecasting that Cycle 21 will be at least equal to the one just ending and may reach a peak in the region of 150.

FOR SALE. from Alex VK7CS

VHF communications 1973 \$5.00

Galaxy 5, Mrk 3, SSB transceiver \$300.00

40 foot wind up tower in 2 sections. \$50.00 o.n.o.

The transceiver and VHF communications are at the QTH of VK7JV

VHF notes by Kevin VK7ZAH.

Band conditions during the previous month has not been very favorable for working DX. I personally have not heard any DX on the 6 metre band. On the lower portion of the 2 metre band I had only a couple of contacts probably because I have been working away from Launceston for the last two weeks. Noted that the 2 metre band was open on the 17th and 18th but nothing was heard on the low end of the band however I did manage to work VK4UX portable in VK3 on the Ch2 repeater, quite surprised to hear the callsign on 2 metres.

The dedicated 6 metre operator in Launceston Joe ex VK7ZGJ now has the full call VK7JG, which takes a bit of getting used to, Joe has already been using the key on six but to no avail.

I have recently erected a Ringo Ranger antenna up about 55 feet with very good results, being heard at Ulverstone by VK7TT unfortunately Terry was not strong enough to be heard in Launceston with his 10 Watt (I was running 60 Watts). Terry intends making his aerial arrangement a bit more efficient so in the future it may be possible to work him direct at any time. Also since erecting the Ringo I have been able to trigger the Hobart repeater but my signals are too weak for a contact. I think the repeater mute has been recently wound on a little harder to eliminate noise opening the receiver, I have come to this conclusion as now it does not open on noise and I can no longer trigger the device.

Whilst on the subject of the North West Branch and in particular VK7EM, Winston has under construction a 2 metre transverter for SSB, his converter is completed and he was able to read my SSB signal at Penguin. So with a bit more power from Winston there is a good chance that he will be able to work into Launceston. Winston also told me he is able to receive a good picture on UHF TV channel 56 at his parents QTH at Ocean Vista Burnie.

73 de Kevin Henricks VK7ZAH

Dont forget that we still have two amateur satellites circling the Earth, giving us at least three passes every evening and six when Oscar 6 is switched on. Oscar 6 had its 4th birthday during the week, which is a magnificent record for an amateur satellite with an expected life of 12 months. This was made possible by switching the unit off 4 days a week to help preserve the batteries, it has certainly paid off.

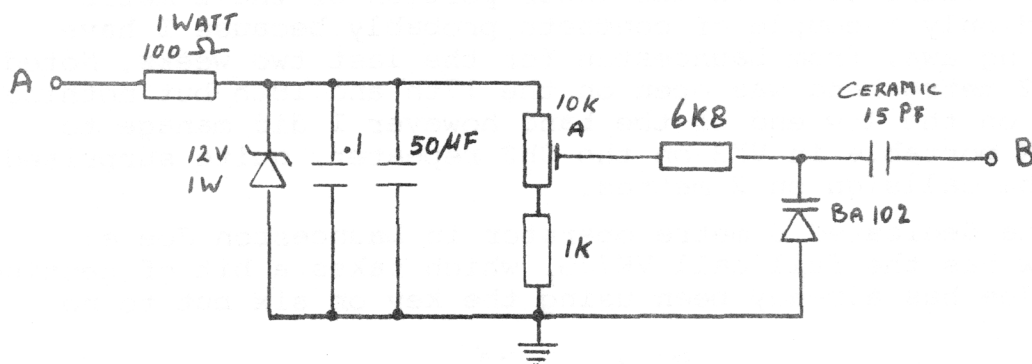
Oscar 7 is coming up to its second birthday and is still functioning very well although very few VK7's take advantage of its facilities. On an overhead pass the 2 metre downlink is S9 on a $\frac{1}{4}$ wave whip. So why not take advantage of these satellites when other modes of propagation are not favourable for working DX

73 de Joe VK7JG

EQUIPMENT STORE

As from the issue of the new telephone directory, Graeme VK7ZGG's phone number will change to

44 66 36

FINE TUNING FOR YOUR FRG7. by Bill VK7AK

Solder the zener and 50uf to the earth lug adjacent to the filter choke located underneath the chassis, solder a 100 Ohm 1 Watt resistor direct from the grey wire to the zener cathode, the whole lot is then self supporting.

Immediately above the audio gain control on the front panel at a height squared off with the MHz knob, drill carefully through the front panel with a 1/16 inch drill, repeat with a 3/16" and then a 3/8", file out carefully to take a 10K linear pot.

The BA102 and the ceramic capacitor and the 6K8 1/2 Watt resistor can be mounted on or near the tuning gang. Point B on circuit connects directly to the stator (the rear section). Run a wire from the wiper of the 10K pot to the 6K8 resistor. It will be necessary to set the pot to centre and readjust C on the printed circuit board to correct frequency AT THE LOW FREQUENCY END OF THE MHz DIAL. Having now got the fine tuning working you will probably now notice the lack of selectivity becomes more obvious. You will now be able to tune signals on reverse sideband to that normally used. On 80 metres tune in signal on LSB, switch to USB and with the fine tune you can resolve the signal again without difficulty, provided of course that the signal is about 5/4 or better in the first place. Anyway it is still a good receiver for the money.

We Boobed

In the parts list of the 144MHz linear amplifier in the September issue a couple of errors crept in.

R1 should be 3.3 Ohm 1/4 or 1/2 Watt

R2 should be 22 Ohm 1/4 or 1/2 Watt

D1, D2, D3 - EM402 etc.

X1, X2, X3, X4, X5- Ferrite bead 5mm x 3.5mm, 4B1 ferrite.

AUDIO FILTER; (SSB reception) by Trevor Briggs. VK7TB

The circuit shown consists of three stages of low pass and two stages (one at each end of the low pass section) of high pass filters. The high pass results in the low frequency slope on the curve and the low pass results in the high frequency slope.

The inductance and capacitance values listed can be plus or minus 10% with no real serious bandpass distortion. One reasonably important requirement is that the filter be terminated into a 600 Ohm impedance. This is satisfied by the low noise isolation amplifiers and diode switching.

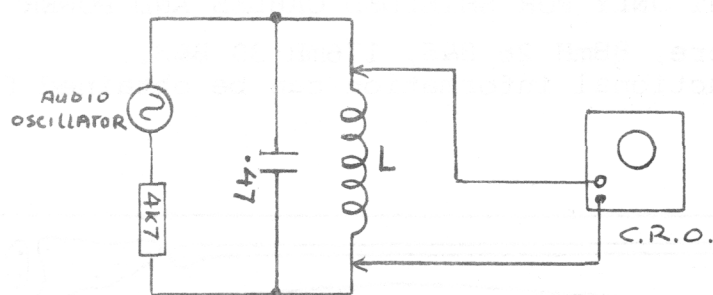
The bandpass curve drawn is typical of what can be achieved using rather low Q inductors. Some surplus potcores have a higher Q and will produce even steeper results than shown. (John VK7JV has a few sets available)

The purpose of the isolation amplifiers is to enable unity gain to exist with the filter switched out. Adjustment of R6 is to enable a gain value of the filter loss.

The transistors should be of a low noise type and arranged into a configuration so that they will handle a reasonable amount of signal.

The pot cores available should be rewound to about 100 - 130 turns for 88mH inductance. The exact inductance is found by the circuit shown.

Equipment required is, 1) a calibrated audio oscillator
2) a C.R.O.



By parallel resonating the inductance, the value of inductance can be easily found.

$$L = \frac{1}{2^2 \pi^2 F^2 C}$$

$$F^2 = \frac{1}{2^2 \pi^2 L C}$$

e.g.

$$L \text{ 88mH} = \frac{1}{4 \times 10 \times 780 \times 780 \times 0.47 \times 10^{-6}}$$

From the parallel resonant equation it can be seen that 88mH with a 0.47 capacitor placed across it has a resonant frequency of 780Hz. The 4.7K resistor in series with the audio generator is to stop the low impedance of the audio generator from loading down the tuned circuit.

AT PARALLEL RESONANCE THE IMPEDANCE OF THE TUNED CIRCUIT IS MAXIMUM.

The value of inductance is adjusted by removing or replacing turns untill the correct resonant frequency is obtained. (maximum deflection on the C.R.O.) If a C.R.O. is not available then a sensitive A.C. μ A meter may be placed in series with the tuned circuit, resonance can then be noted by minimum deflection. (high impedance, low current at resonance) My experiments realized a change of 1Hz was clearly detected on the meter.

The number of turns for the 176mH inductors is around about 190, this varies tremendously depending upon the permeability of the ferrite material in the pot cores. I think you will agree that the slope factor is excellent for audio filters.

You need not interfere with any circuits in your commercial gear, just cut the leads at the volume control and insert. The circuits listed should handle a wide impedance variation without any effect on the filter shape or the commercial gear circuits.

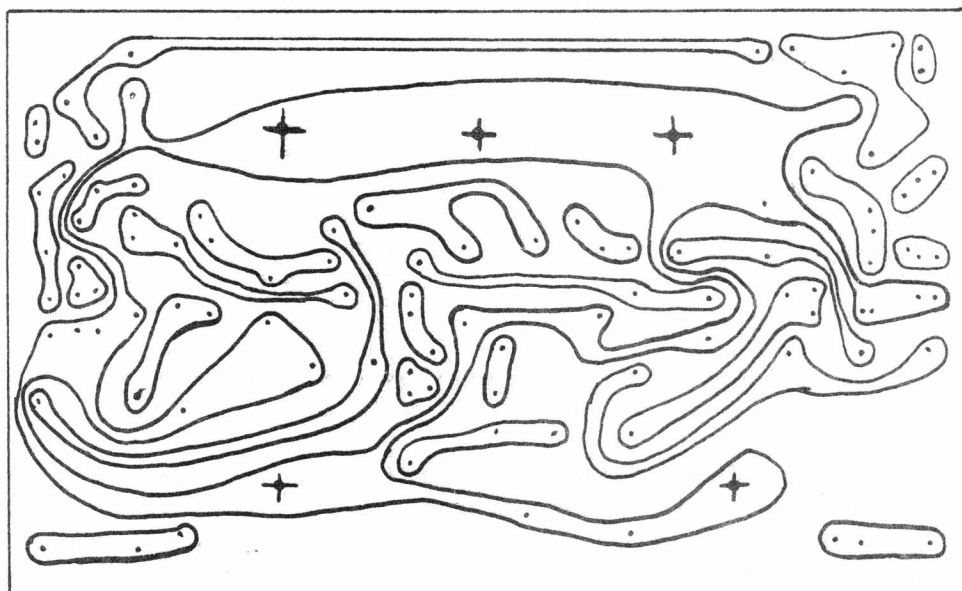
Your filter (of course) should be installed at a practical point of the lowest possible audio level.

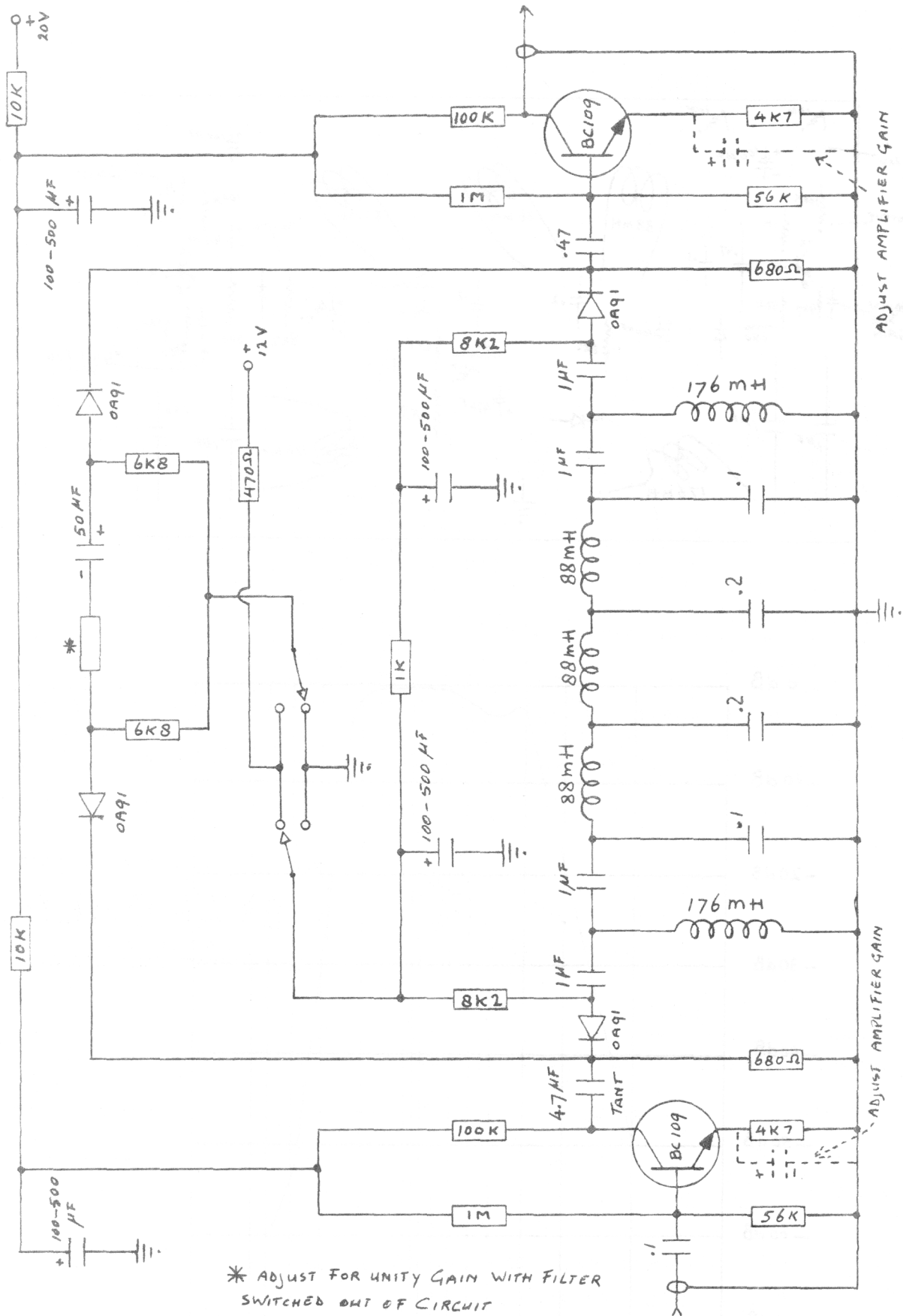
NOTE Particular care must be taken with earth loop returns. Any form of feedback from input to output of the filter will of course degrade the filter shape. A low impedance power supply is a must. The board layout given, complete with the complex diode switching, proved succesful without any degradation resulting.

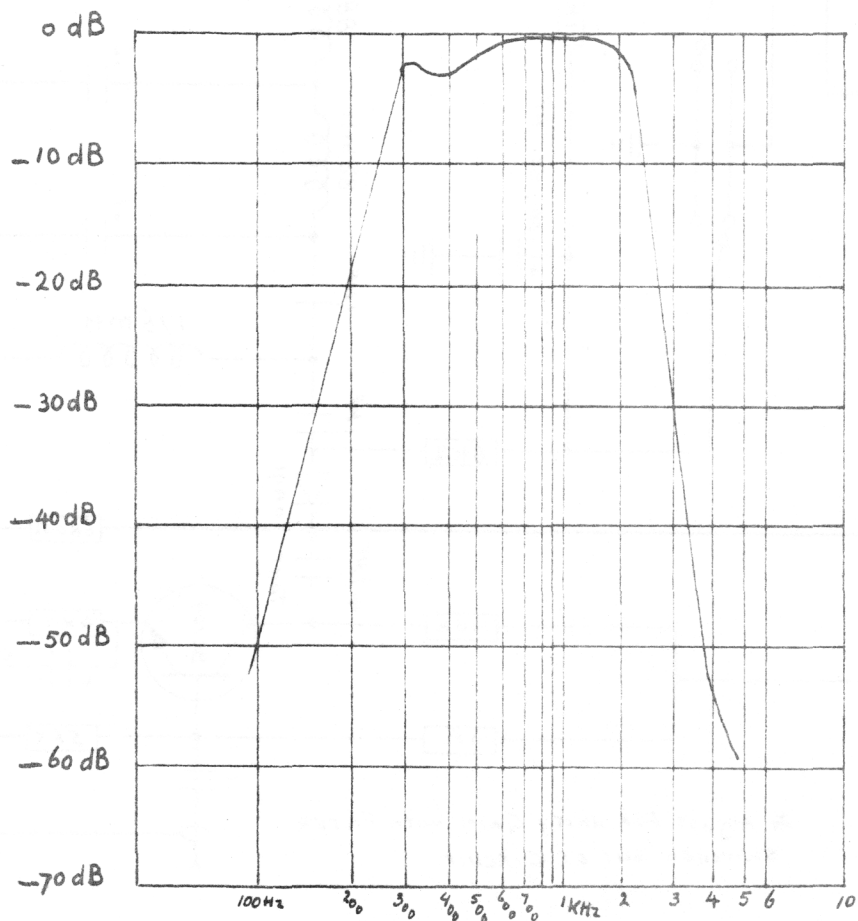
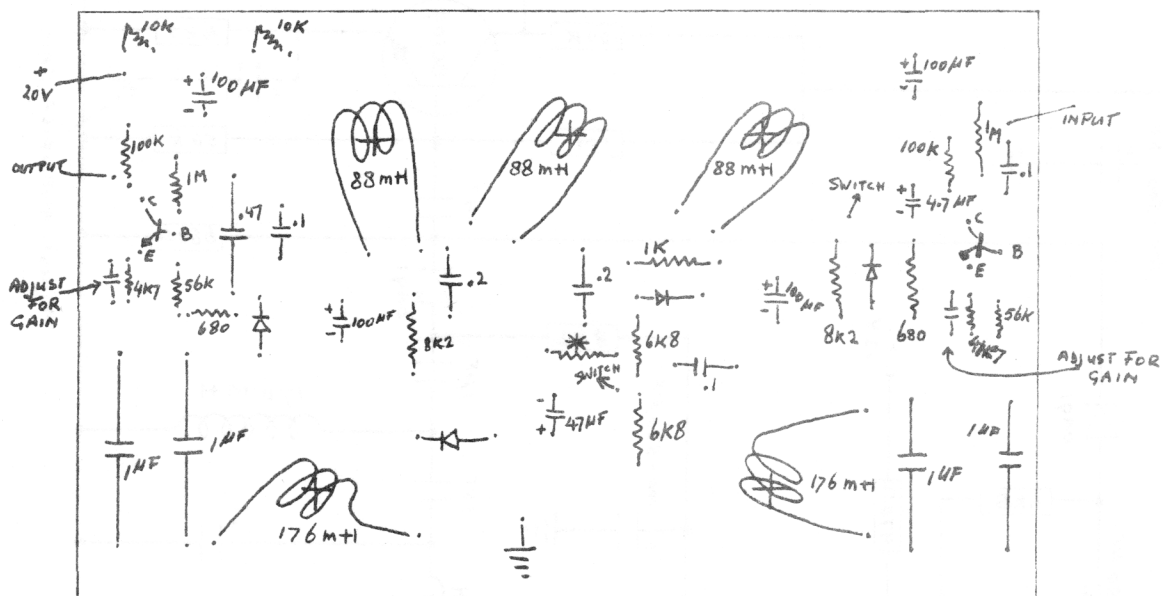
MAKE ONE EARTH POINT ONLY FOR SHIELDED CABLES AND POWER LEADS.

Wire gauges used were, 88mH 26 B&S, 176mH 30 B&S.

Any further constructional information can be obtained from Trevor VK7TB.

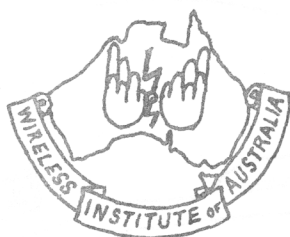






VK7

HAMFEST 1976



EVANDALE NOVEMBER 13 & 14

The Wireless Institute of Australia, Tasmanian Division wishes you and your family to attend the Tasmanian Hamfest to be held on 13th and 14th of November, 1976.

The programme for Saturday will consist of registrations, displays of home constructed and commercial equipment, carphone checks, etc. Also something for the ladies and children. A Buffet Dinner and Cabaret will be held at the Hamfest site on the Saturday evening. On Sunday transmitter hunts, yes/no hunts, equipment displays, guessing competitions, Barbecue Lunch, etc.

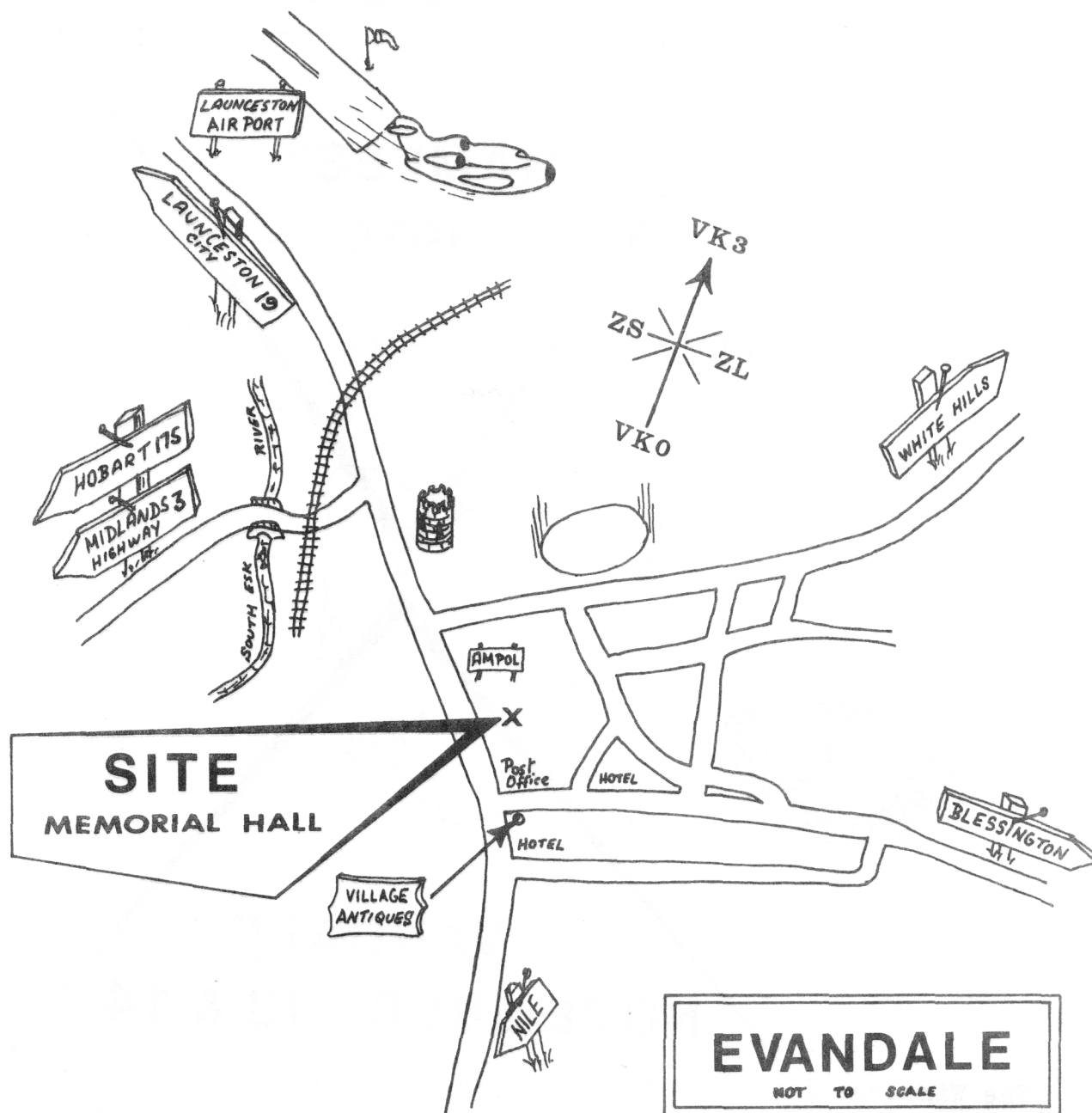
The success of the Hamfest depends on a large number of people participating, so we hope to see you at Evandale on the 13th and 14th of November, 1976.

Further information can be obtained from :-

B.Yeoman, Bus.918288 Home 918218, or L.Dowl, Bus.321273 Home 444690

GUIDE TO HAMFEST

Oct. 1976

REGISTRATION FORM

Name _____

Phone Home _____

Address _____

Bus. _____

Callsign _____

Registration Fee

Single \$5-00 _____

Family/Double \$8-00 _____

SUNDAY ONLY per adult \$2-00 _____

Please find enclosed cheque for _____

I will require Hotel/Motel/Guest House accomodation for _____ persons. Deposit of \$5-00 is enclosed.

Please Return Form to P.O.Box 1010, Launceston, TAS, 7250

VHF CONVERTER KITS

28 MHz/ET1707B	\$11
52 MHz/ET1707B	\$11
144 MHz/ET1707A	\$14

• 28/52 MHz (ETI 707B)

This is a tried and proven design and was featured in the January issue of ELECTRONICS TODAY INTERNATIONAL. Noise figure of 1.0 m, 6 m is a little meaningless but this converter produces a noise figure of around 2 dB. Gain is 20 dB or greater, bandwidth is 3 MHz, on only 2 MHz on 10m, spurious responses - 50 dB or better. Choice of IF frequencies to suit yourself. Please specify 28 MHz or 45 MHz operation. Crystal not supplied. Fibreglass p.c. board. Value at \$11 or just the p.c. board ... \$3.10

• 144 MHz (ETI 707A)

Naturally another simple converter. An original 6UP design, this was also featured in the January 1976 issue of **ELECTRONICS TODAY INTERNATIONAL**. This converter was designed for low noise (3 dB or better) and low crosstalk performance. Gain is adjustable, with a maximum of about 20 dB. Bandwidth is also adjustable, with a lower limit of 100 Hz and a rolloff rate of 20 dB per decade down 50 dB or better. Choice of IF frequencies to suit yourself. No neutralization. Crystal not supplied. Fibreglass p.c. board. What more could you want for **\$14 or p.c. board only . . . \$3.50**

✚ @ 432 MHz (6UP-004)

A famous design by VK5QZ – now a standard of sorts! Improved board. This is probably the simplest way to begin on the UHF bands. A simple and straightforward design that produces good performance – noise figure approx. 4 dB, JFET front end, gain of 10-15 dB. IF at 28 MHz or 52 MHz although some constructors have used 146 MHz successfully for FM net operation. Bandwidth approx. 4 MHz. Fibreglass p.c. board. Crystal not supplied. Complete with straightforward instructions. Head for the frontiers for **\$14 or p.c. board only ... \$3.35**

+ e MARKER (6UP-006)

provides harmonics to 1296 MHz from a 1 MHz crystal or to 15.9 MHz from a 100 kHz crystal. Can accept crystals to 15 MHz. Uses 5 transistors. Crystal not supplied. Find the band edge for \$7 or p.c. board only... \$2.55

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\$2.50

in fact, if you have ever wondered where to get something, or perhaps where else, then this book is for you. It does not cater only for those who build lots of gear - even if you only read about amateur radio, you need this book. It also tells you where to get the things you like to read!

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