



R A D I O

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

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Launceston
Tas. 7250

Price 40¢

MEETINGS

April 14 Northern Branch, Clubrooms - 34 Bourke St. 8 p.m.
April 11 NorthWest Branch, Lakins Hall, Ulverstone 8 p.m.

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CONTESTS - APRIL

1-2 Polish "SP" CW Contest
1-3 ARCI QRP QSO Party
11-12 DX to W/VE YL CW Party
15-16 Commonmarket Contest
22-24 ZERO District QSO Party
29-30 Dutch "PACC" Contest

1-2 Tennessee QSO Party
8-9 Swiss "H22" Contest
15-16 Polish "SP" Phone Contest
22-23 Bermuda Contest
25-26 DX to W/VE YL Phone

Reflections on QRM

QRM has been produced on a regular basis for the past seven years - a very splendid effort! Most of the thanks can go to John VK7JV without whose efforts it might have fallen by the wayside. It was felt however, that the effort required to produce this magazine should be shared by more than one person - to this end a production committee has been formed. John, on behalf of all the members of the North and Northwest branches may we thank you for your hard work over the years.

The objectives of QRM are again worth looking at. These are to foster Amateur Radio by keeping Amateurs in the North in touch with one another - and to provide a medium for discussing technical and administrative matters.

From time to time complaints are heard (grapevine style) about some aspects of QRM. e.g. "We don't need QRM because we know everything that goes on" or "Not enough technical articles" - either that or "its too technical". Unless constructive feedback is received its difficult to know what members really want. If articles are received from the same members all the time the field of interest must be limited.

We want this magazine to be interesting and informative - to achieve this we need your articles. At our end we can introduce items on different facets of amateur radio - as we have in this issue, but mainly we need your assistance. QRM can only be as interesting as the members will allow it to be.

NEW CALLS TO WATCH FOR!

VK7TW : TONY WOODS - lives Mowbray - works Launceston Airport - active CW/SSB 20 metres.

VK7AC : GRAHAM COKER - Lives Wynyard - works Wynyard - Watch for Graham from his 45' boat in the Tamar.

NORTHERN BRANCH NOTES BY MAURICE - VK7JU

The following members were selected at the Annual Branch meeting to be office bearers for the year 1978.

President:	Joe Gelston	VK7JG
Vice President & Stores Officer:	Ian Clements	VK7IC
Assistant Stores Officer:	Mike Wilson	VK7ZWW
Treasurer:	Tony Pclow	VK7TP
Secretary:	Maurice Burleigh	VK7JU
QSL Manager:	Col Wright	VK7LZ
Lecture Officer:	Wally Morphet	VK7ZWX
Librarian:	Brian Yeoman	VK7ZBY
QRM Editor:	John McCulloch	VK7CCC
Club Room Manager:	Bill Tanner	VK7TE
Refreshment Officer	Roger Wooley	

Please note that if you have not collected surplus Mt. Barrow equipment and that you are entitled some contact Peter Frith VK7PF and arrange for collection.

It was agreed by members at the last meeting that the sum of \$50.00 be donated from branch funds to the Glenara Boys Home. The money is needed to assist in rebuilding part of the home which was destroyed as a result of a disastrous fire in March.

The Minihamfest was held on the 12th March at Launceston Airport. Once again the Northwest branch won the cricket match - but only by a slim margin! In between the various segments of the Air Pageant which was watched "free of charge" everyone ate and drank their fill. Linsey VK7ZLD and family won the DF Hunt.

Regards,

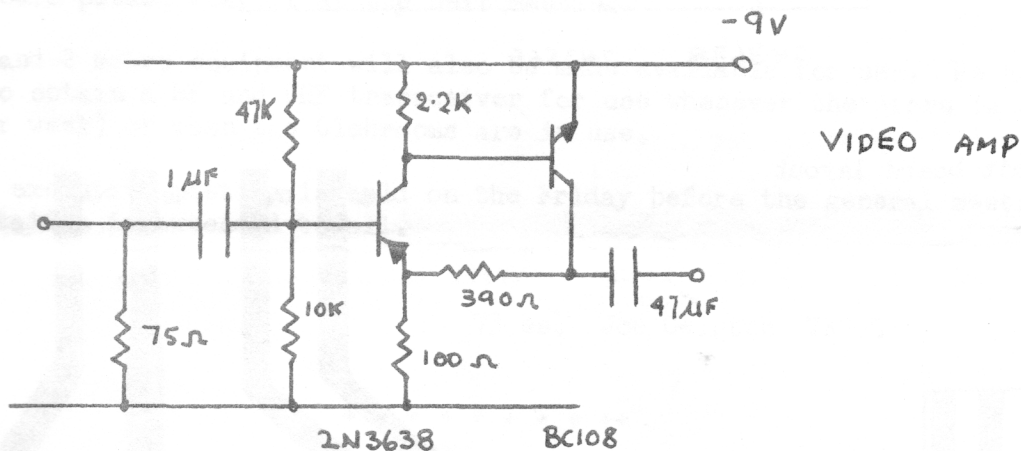
Maurice VK7JU.

TV SPECIALS

- Bob, VK7ZRF

Video Amplifier

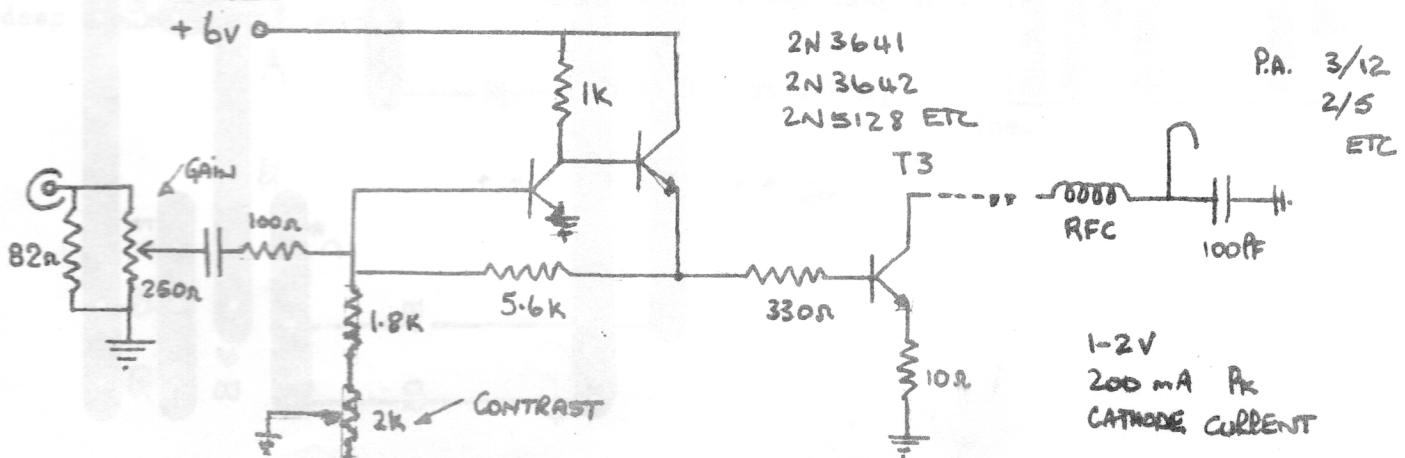
- for feeding cameras or low video into T.V. set as monitor
(valve type) - Gain 5 times.



And yet another!

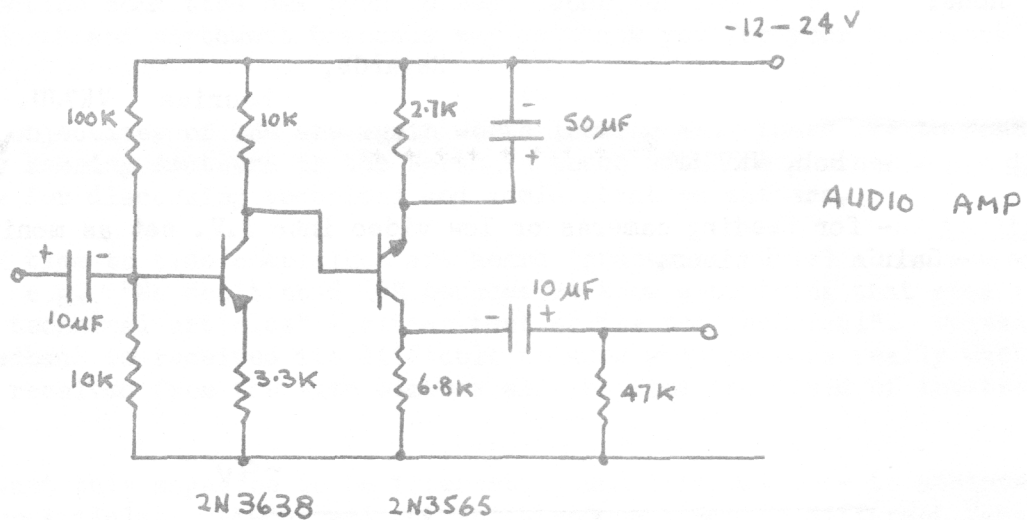
VIDEO HIGH LEVEL MODULATOR

for valve type transmitters - Short leads important for cathode by-pass and T3.
Place unit in small shielding box.

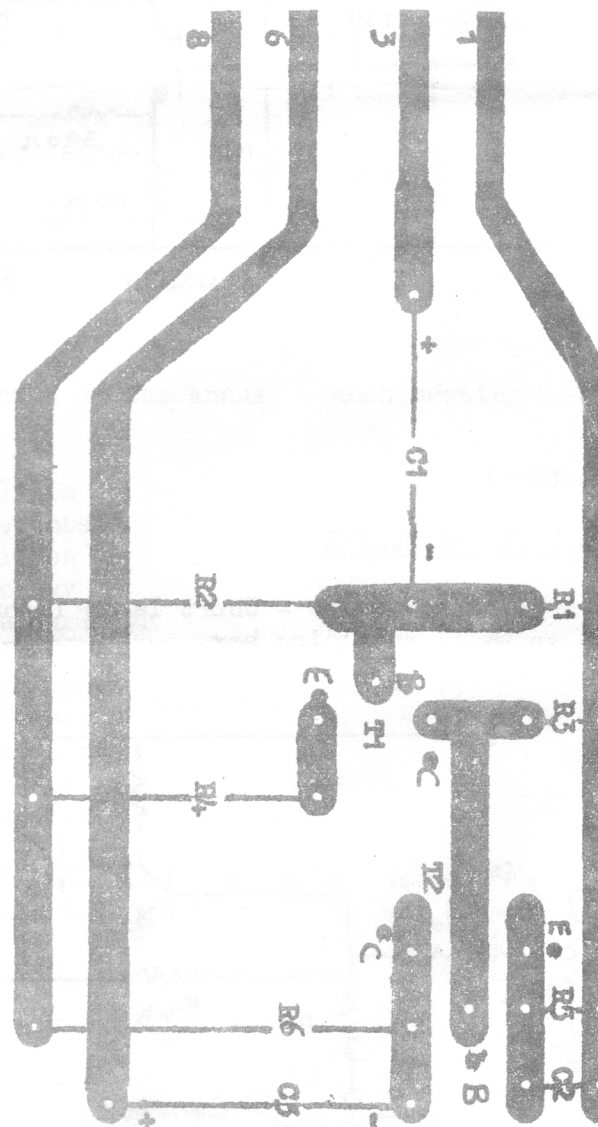
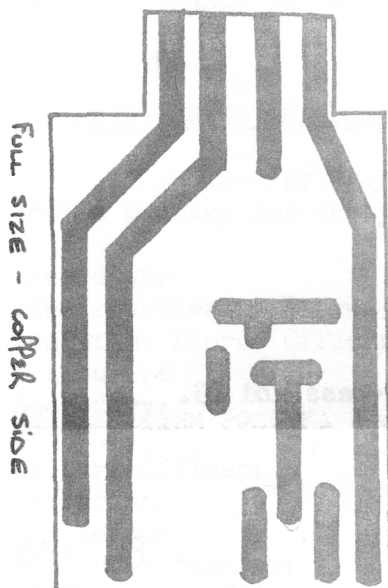
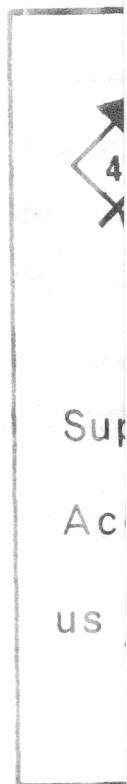


GENERAL PURPOSE AMPLIFIER

Good gain 300 times - Maximum output 20 volts. Response 50Hz to 50KHz - Use supply 12 to 24 volts. Cheap - cost from club components approximately. #



Even a circuit board layout



NOVICE NOTES

10 metres - Openings all day consistently from 0700 EST to late evening. Stations contacted using only 20 watts output and 5/8 Hy-Gain G.P. antenna.

All countries USA - USSR, Korea, Phillipines, Canal Zone, Costa Rica, GB, Italy, Zaire, Jordan, Egypt, Canada, Helsinki, Stockholm, All prefixes in Japan - All VK areas plus numerous others. Most 10 meter VK activity is by Novices. Sunspot activity is certainly on the up and up.

VK7NAB.

FROM YOUR NORTHERN BRANCH PRESIDENT

I would like to take this opportunity to thank you for voting me to this position. Even at this early stage it is not an easy task. To make life easier if you have any suggestions on the way you would like the Branch run please let me know. To help improve relations between members who do not know each other name tags will be issued to each person. Several years ago we had some made, if you still have yours please wear it at the next meeting.

HF and 2 metre equipment will also be made available for use. We hope in the future to obtain a HF and VHF transceiver for use whenever the store is open (2 nights per week) or when the Clubrooms are in use.

The executive meeting is held on the Friday before the general meeting and an open invitation is extended to all.

73 es. Joe Gelston VK7JG

VHF NOTES

- VK7JG

I have not been active on 2 metres SSB although Danial VK7DA worked 15 VK3's, on 2 metres SSB and 3 on 432 MHz. Kevin VK7ZAH has also been working away and missing out on the DX.

No 6 metre DX contacts have taken place although on the 29th February CHØ TV was present and I believe that JA's were worked from VK2.

OSCAR 8 was launched on 5.2.1978, being first heard on Mode J 432.095 MHz. The power out appears to be down on this mode. Mode A has been used with very good signals, although the satellite still appears to be tumbling as there is very slow and deep QSB on the signals.

73 till next month,

Joe.

THE TELEVISION SYSTEM - PART 1 - MALCOLM VK7ZMM

To understand how a television system works it is necessary to understand a little about the workings.

The system used in this country consists of 625 lines of information which forms on frame or single picture as in a movie film. One frame is transmitted every 40 milliseconds and corresponds to a frequency of 25 Hertz. Now if only one scan from top to bottom of the picture were transmitted in this time flicker would occur whilst viewing the picture. To get around this problem without increasing the rate at which information is transmitted i.e. the number of fields per second, the picture or frame is divided into two parts. The first consists of all the odd numbered lines in the frame, the second part all the even numbered lines. These two parts of a frame are called FIELDS and are transmitted one after the other. By using this method the rate at which the picture or the phosphorons of the receiver is updated is doubled without increasing the rate at which the information is transmitted. This process is called INTERLACING. It is used in all current television systems. The advantages are a greater resolution without increasing the amount of spectrum used by the signal.

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NORTHWEST BRANCH NOTES - JIM VK7NOW

20 members were present at the recent branch meeting. Visitors included Peter Wolfenden VK3ZPA/NIB; Peter is also Executive Vice President of W.I.A.

New Office Bearers were selected as follows:-

President:	Brian Lord	VK7ZBL
Vice President:	Max Ives	VK7MX
	Terry Tones	VK7TT
Secretary:	Kirby Cunningham	VK7ZKC
Treasurer:	Ivan Line	VK7ZOA/NOA
Publicity:	Jim Davis	VK7NOW
Entertainment:	Shane and Stephen	
QSL Officer:	Harold Hancock	VK7MZ
Broadcast Officer:	Terry Tones	VK7TT
Auditor:	Max Ives	VK7MX
Council Rep:	Brian Lord	VK7ZBL
Beacon and Repeater Co-Ordinator:	Tony	VK7AX

After the meeting supper was served followed by very interesting films on Solar Energy and Radio Communication by Bob, VK7BY. Peter, VK3ZPA/NIB also showed a film on ATC.

NOTE: At the next meeting an auction sale of junk will be held.

73 till next month

Jim VK7NOW

WANTED AND FOR SALEFOR SALE

SSB/CW TRANSMITTER (KW VESPA) 80 40 20 METRES
90 WATTS INPUT HAS FACILITIES FOR 160/15/10 METRES
BUT NEEDS ALIGNING.....
POWER SUPPLY HAS FACILITIES TO REDUCE OUTPUT TO
29 WATTS.

FR-50 AMATEUR BAND RECEIVER 80 - 10 METRES

BOTH IN GOOD CONDITION.....\$250 (O.N.O.)

VK7TW (003-263724)

FOR SALE

1 - FT75B AND FP75
POWER SUPPLY AND SPEAKER

IMMACULATE AS NEW COMPLETE WITH ALL 10m, 15m, 80m
CRYSTALS AND 1 - 40m AND 120m CRYSTAL

\$400.00

ALSO 1 - BELCOM LINEAR 10 METER MOBILE RIG. VXO.
10 KC SHIFT 24 CHANNEL, 10 WATT PEP OUTPUT

\$240.00 AS NEW.

ALSO DAIWA RF550 RF SPEECH PROCESSOR

\$115.00

APPLY: VK7NAB
3 DENMAN ROAD, TREVALLYN. PH: 444172

DX NOTES - COL VK7LZ

Last November I advised 7JV that I would not be writing these notes in 1978, John talked me into carrying on until the end of our financial year, now our worthy President has convinced me that I should keep up the good (?) work until a successor is found - Any offers? - Unfortunately I had not kept notes in the interim.

3.5 ^m/hz Andre (VK7AE) is still getting the odd dx station on SSB and has built his score up to 22 countries on this band.

7 ^m/hz No reports have come to hand and I haven't done any listening here.

14 ^m/hz Still on the "up and up". Reports of Europeans coming through from 1600Z to 2200Z have been received. Southern africans can appear around 0600Z, sometimes short path and at other times over the long route so check both ways. West and north Africa has also been QSO'ed between 0700 and 0800Z long path whilst South America came through between 0700 and 1000Z - The pick of the stations logged here were EAGET, ELIL, FB8XS Kerguelen Is., FB8YF, Antarctica, JW9UV, JY5HH, LX1LT, PY0FN Fernando de Noronha, TR8LE, VP8PP, VP8PT, ZE4US, ZS2NP/S8, ZS5KI and 3V8BZ all on SSB.

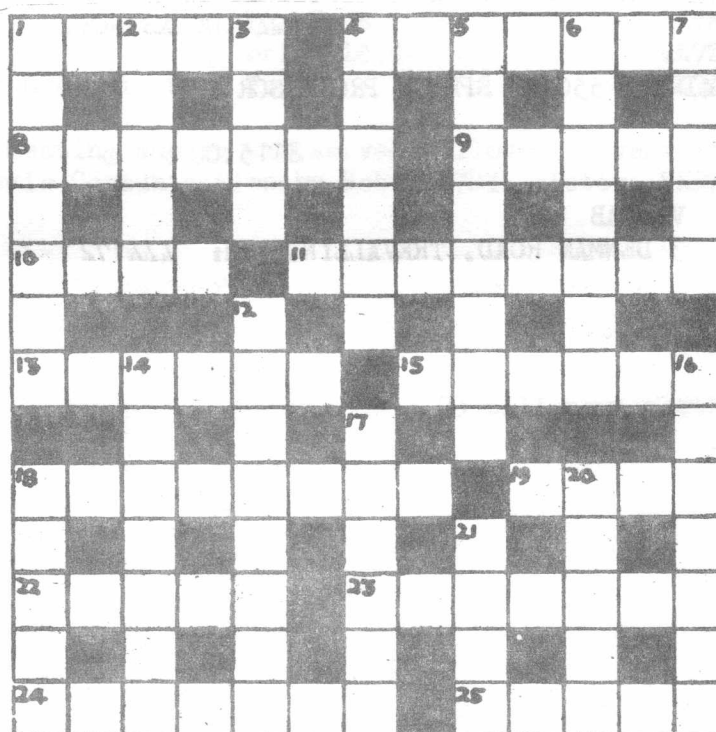
21 ^m/hz Central, South American and South Africans have been logged between 0300Z and 0600Z and Europeans have been copied from 0730Z onwards but it doesn't happen every day.

28 ^m/hz Other DXers tell me that there is some good DX appearing at times but I cannot confirm.

The only DX pedition I've received news about is P29JS' visit to the Cocos Island (VK9) possibly from the 31st May for 14 days.

+ + + + +

R.S.A.R.S. Royal Signals Amateur Radio Society Crossword by ZLIAXM



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CLUES ACROSS

1. A Greek monk said to be mainly responsible for the Russian alphabet. Usually to be found at the centre of RSARS activity on 3720 KHz. (5)
4. A chain of radio stations. (7)
8. Continuous. The kind of performance needed to win the 559 trophy. (7)
9. Watchful. The home of VE8RCS. (5)
10. A sandy or coral ridge protruding from the sea. (4)
11. The Oaks and the St Leger are just two of them. (8)
13. The eleventh letter of the Greek alphabet. The symbol of wave length. (6)
15. One of a "bunch of fives". (6)
18. Visitors to one's country. Hopefully, paying guests. (8)
19. Worn by some hi-fi enthusiasts and telegraph operators. (4)
22. At one time most equipment was home this. (5)
23. Sources. (7)
24. Clients otherwise. (7)
25. The VHF boys have these skeletons in their antenna systems. (5)

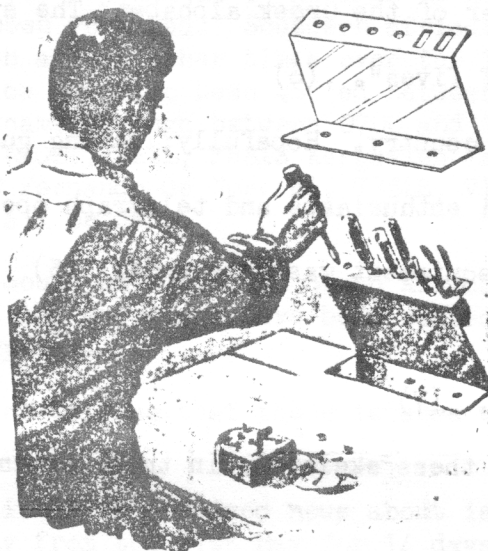
CLUES DOWN

1. 1 across usually exercises this over 4 across. (7)
2. The limits of a series of possible variations. Where the cowboy usually feels at home. (5)
3. Popularly, "a bit pushed". (4)
4. A horrifying weapon of modern war used in Viet Nam. (6)
5. To attract the attention of 1 across on 4 across it is necessary to do this first. (8)
6. A temperature inversion may produce this for the VHF boys. (7)
7. Given a breeze can make a useful skyhook for that /P antenna. (5)
12. Where the weary YU might dip his feet. (8)
14. Lately VS5MC. (7)
16. Opposes. A non-conductor does this to the passage of a current. (7)
17. To wander, but not frequency-wise. (6)
18. May contain toothpaste or be a source of power. (5)
20. Simply a friend to a ham in Madrid. (5)
21. A propensity without which 18 down wouldn't last long in most cases. (4)

HINTS AND KINKS

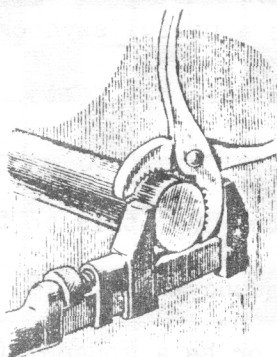
Metal Holder for Hand Tools:

This tool holder can be fastened to the top of the workbench where it will keep small hand tools in an easy-to-reach position. It is formed of fairly heavy sheet metal bent to a Z shape as shown in the detail. The holes to fit the tools are made to accommodate the ones you have and naturally must be varied to suit individual requirements

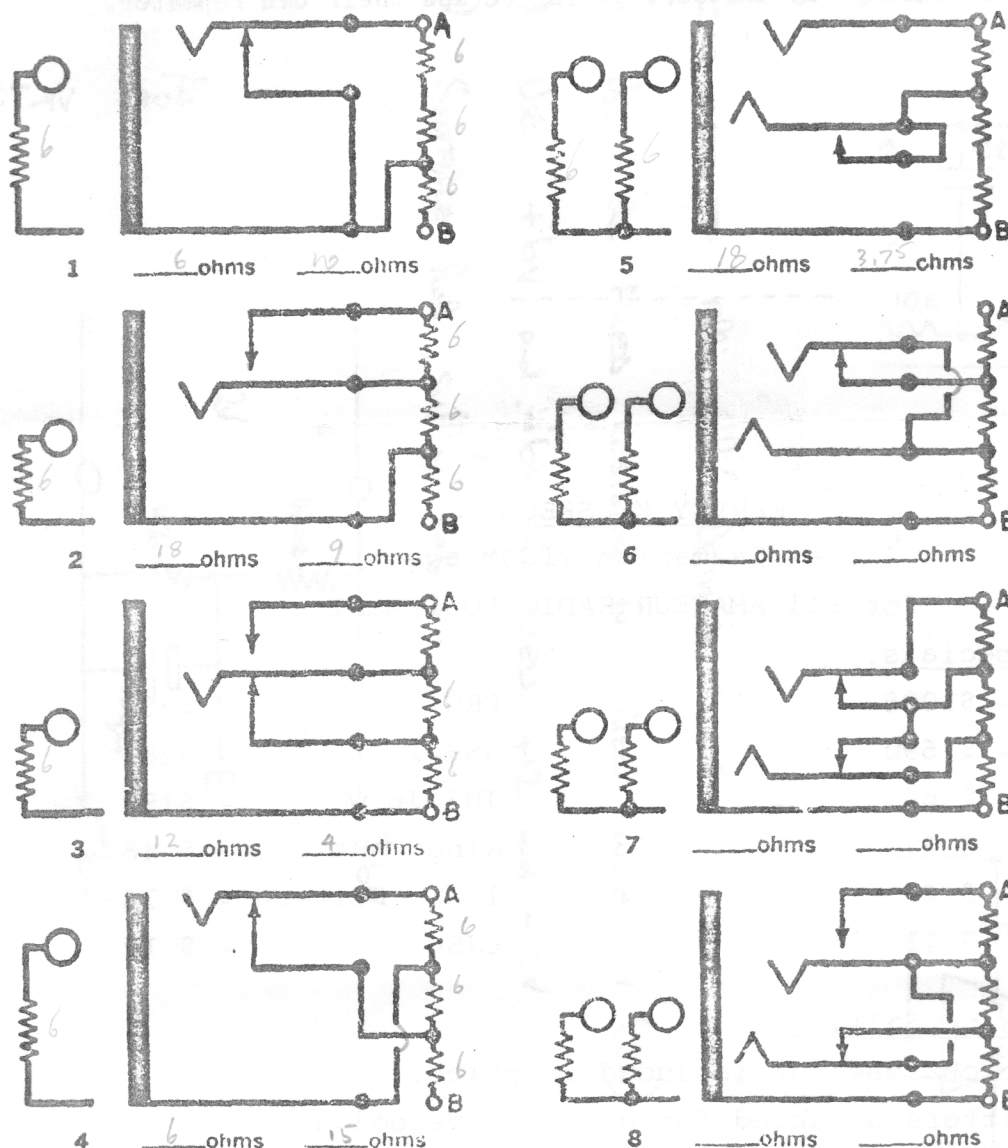


Improvised Pipe Wrench:

When no pipe wrench is at hand a substitute may easily be improvised from a adjustable wrench and a pair of slip-joint pliers. Place one jaw of the pliers between the jaws of the wrench as shown, then tighten the wrench against the pipe in the usual way. after which the pipe can be turned in one direction. By reversing the arrangement of the two tools the pipe can be turned in the opposite direction. It can also be used to hold pipe for cutting.



For the "OHMS LAW" expert - Courtesy Westlakes Radio Club.



Plug and Jack Quiz

Plugs and jacks are used not only to connect various units of electronic equipment together, but also to perform a variety of switching operations at the same time. To test your ability to analyze plug and jack connections, sharpen your pencil and try working the circuit problems (1-8) shown below. Determine the total equivalent resistance between points A and B in each circuit BEFORE and AFTER the plug is inserted in the jack. All of the resistors are 6-ohm units.

MORE VHF NOTES -

Activity for the month has been very high. This being due to the Athol Johnson contest. In all, thirty two amateurs were active, and of these, 12 sent in logs. Eight being from the Southern Branch, two each from North and Northwest. Congratulations go to Andrew Dixon with a score of 161 points, followed by VK7MC, Mike Hennessey with 138, then Dave Cooper, VK7ZDC with 124. I would like to thank all those who participated and if you have any suggestions for next year please pass them onto me C/- P.O. Box 1311 Launceston. During the contest North South contacts between Kevin VK7ZAH and myself VK7JG with John Grace, VK7ZJG and Peter, VK7PS were made on both 52 and 144 Mhz.

2 Metre inversions have occurred during the month and the VK3 repeaters have once again been available to mobile operators in Launceston. At one stage Danial VK7DA was overriding VK3 amateurs trying to use their own repeater.

Joe VK7JG

HARVEY K. SKEGG

(local Tasmanian VICOM agent)

for all AMATEUR RADIO EQUIPMENT

Opening Specials.

TS 920S	- \$1085	FRG 7	- \$330
TS 520S	- \$ 690	SSR-1	- \$265
FT 101E	- \$ 845	TH3-Jr	- \$195
IC 22S	- \$ 270	Ringo ARX-2	- \$ 48
IC 502	- \$ 210	1 KW, Filter	- \$ 33
IC 202	- \$ 210	6JS6	- \$ 12

Conditions of Sale.

- 1) freight charges not included in price.
- 2) transmitters disabled for non licence holders.
- 3) be early, we only have a limited stock.
- 4) orders may be placed by phone. (002)- 436337
- 5) a deposit will be required.

HARVEY K. SKEGG, 280 East Derwent Hgw, Geilston Bay.

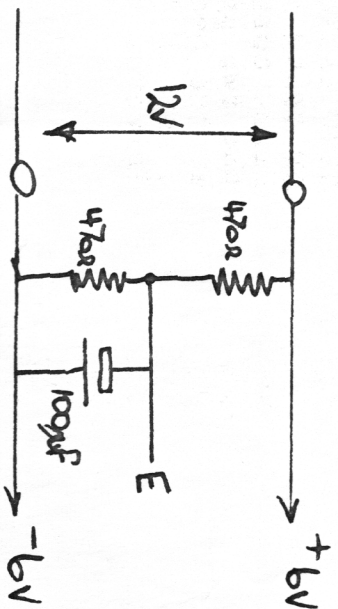
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CHANGES TO APPLICABLE DEMOD.

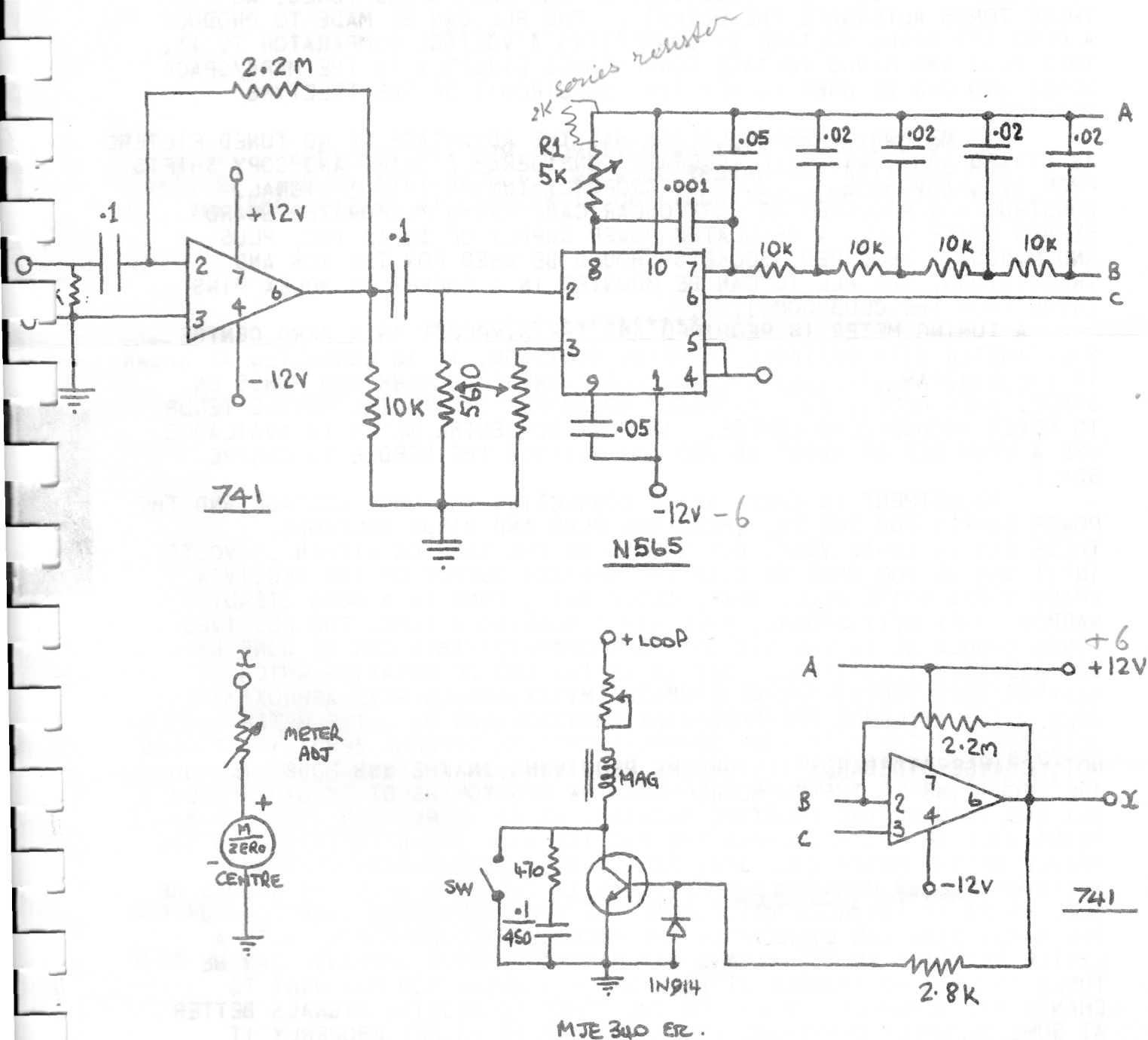
- (1) Use $2k$ Fixed Resistor in series with R_1 (5k)
- (2) Use $+6V$ and $-6V$ in lieu of $+12V$ and $-12V$
- (3) Suitable Pull supply below.



RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY RTTY

AVAILABLE THROUGH THE NORTHERN BRANCH ARE HANDBOOKS DEALING WITH CREED, TELETYPE AND KLEINSCHMIDT MACHINES. ALSO RTTY AND BARTG BACK ISSUE MAGAZINES. IN RETURN FOR THE USE OF THE BOOKS ALL WE ASK IS THAT YOU GET YOUR MACHINE ON THE AIR, EITHER ON HF OR VHF. PERHAPS WE CAN ARRANGE ONE NIGHT PER WEEK ON THE REPEATER AND INCREASE THE SCOPE OF OUR ACTIVITIES.

INCLUDED HERE IS A VERY SIMPLE CIRCUIT OF A PLL DEMOD. WHILST THESE HAVE PROBLEMS WITH NOISE ON HF, THEY ARE MORE THAN ADEQUATE ON VHF. A FOLLOWING ISSUE WILL DESCRIBE A SIMPLE AFSK DEVICE.



THIS CIRCUIT IS EASY TO ASSEMBLE AND ADJUST AND DOES A GOOD JOB. IT WILL COPY BOTH WIDE AND NARROW SHIFT. THE CIRCUIT USES A 741 AS A LIMITER, AN N565 PHASE LOCK LOOP IC, ANOTHER 741 AS VOLTAGE COMPARATOR OR "SLICER" AND AN MJE340 KEYING TRANSISTOR.

THE TERMINAL UNIT (TU) HAS NO FILTERS BECUASE IT WORKS ON THE FM PRINCIPAL. THE THEORY OF OPERATION OF THE PHASE LOCK LOOP WILL BE EXPLAINED FULLY LATER, BUT A GENERAL UNDERSTANDING NOW WILL BE HELPFUL. SIMPLY STATED, THE INCOMING SIGNAL LOCKS ON A VOLTAGE CONTROLLED OSCILLATOR IN THE IC. THE FREQUENCY OF THE OSCILLATOR IS PLACED BETWEEN THE FREQUENCIES OF THE MARK/SPACE TONES. AS THESE TONES ALTERNATE THE OUTPUT OF THE PLL CAN BE MADE TO PRODUCE A PLUS AND MINUS VOLTAGE BY CONNECTING A VOLTAGE COMPARATOR TO IT. THIS PLUS AND MINUS VOLTAGE CORRESPONDS DIRECTLY TO THE MARK/SPACE TONES AND CAN BE USED TO KEY THE LOOPCIRCUIT OF THE TELETYPE MACHINE.

THIS METHOD OF DEMODULATION HAS THE ADVANTAGE OF NO TUNED FILTER AS STATED ABOVE AND WILL TOLERATE CONSIDERABLE DRIFT AND COPY SHIFTS FROM 170 HZ TO 800 HZ. JUST BY PROPERLY TUNING IN THE SIGNAL. CONSTRUCTION REQUIRES NO PARTICULAR CARE AND A PERFORATED BOARD SERVES QUITE WELL. A REGULATED POWER SUPPLY OF 10-12 VDC, PLUS AND MINUS IS REQUIRED. SOCKETS SHOULD BE USED FOR THE ICs AND TRANSISTORS. THE PLL IC CAN BE MOUNTED IN A SOCKET OR MOLEX PINS (AVBL FROM THE CLUBROOMS).

A TUNING METER IS REQUIRED AND THE SIMPLEST IS A ZERO CENTRE MILLIAMETER WITH SUITABLE DROPPING RESISTOR. IT IS CONNECTED AS SHOWN IN THE DIAGRAM. IT INDICATES A PLUS CURRENT ON MARK AND MUNUS ON SPACE. WHEN RECEIVING A PROPERLY TUNED FSK SIGNAL THE NEEDLE TENDS TO HOVER AROUND ZERO CENTRE. IF NO ZERO CENTRE METER IS AVAILABLE USE A VTVM SET AT ABOUT 25 VDC AND ADVANCE THE NEEDLE TO CENTRE SCALE.

ADJUSTMENT IS EASY: AFTER CONNECTING THE LOOP VOLTAGE AND THE POWER SUPPLY FOR THE TU, CHECK THE PLUS AND MINUS VOLTAGES. THESE CAN BE 10-12 VOLTS BUT SHOULD BE THE SAME OR WITHIN .5 VOLTS INPUT CAN BE 500 OHMS OR EVEN THE SPEAKER OUTPUT OF THE RECEIVER WHICH WORKS QUITE WELL. NEXT, CLOSE SW1, TUNE IN A GOOD STEADY NARROW SHIFT RTTY SIGNAL, PREFERABLY RUNNING A TAPE. THE RECEIVED TONES SHOULD BE IN THE VICINITY OF 1000 HZ. THIS CAN BE DONE BY EAR AND IS NOT CRITICAL. SET R1 AT THE END OF ROTATION WHICH IS MAXIMUM RESISTANCE. THE SERO CENTRE METER SHOULD READ APPROXIMATELY ZERO OR A LITTLE ON THE PLUS SIDE. NOW ADVANCE R1. THE METER SHOULD MOVE MORE TO THE PLUS SIDE AND FLICKER BACK TOWARDS ZERO. IF IT DOES NOT, CHANGE SIDEBANDS IF YOU ARE RECEIVING IN THE SSB MODE. IF YOU ARE RECEIVING IN THE CW MODE, MOVE THE BFO TO THE OTHER SIDE. OPEN SW1 AND TURN ON THE TELETYPE MACHINE. AS R1 IS FURTHER ADVANCED A POINT WILL BE REACHED WHERE THE MACHINE WILL BEGIN TO PRINT AND THE NEEDLE OF THE METER WILL STAY PRETTY NEAR ZERO DURING COPY AND MAXIMUM PLUS ON MARK/HOLD TONE. THIS IS THE SPOT WHERE R1 SHOULD BE SET. AS R1 IS ADVANCED WTILL MORE THE NEEDLE WILL GO BACK TOWARD THE MINUS SIDE AND EVENTUALLY THE MACHINE WILL RUN OPEN. WITH A LITTLE PRACTICE IN TUNING AND WATCHING THE METER A SIGNAL CAN BE TUNED IN WITH NO TROUBLE AT ALL. AFTER A WHILE YOU MAY WANT TO CHANGE R1, SLIGHTLY ONE WAY OR THE OTHER TO RECEIVE SIGNALS BETTER AT SOME SLIGHTLY DIFFERENT TONE. BUT ONE IT IS SET PROPERLY IT NEED NEVER BE CHANGED.

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PLL DEMOD CONTINUED.

WITH AUDIO INPUT OFF THE VCO CAN BE HEARD BY CONNECTING HEAD-
PHONES TO PINS 4-5 AND GROUND.

IT IS POSSIBLE TO RECEIVE BOTH WIDE AND NARROW SHIFT WITH ONE
SETTING OF R1 BUT IF IT IS SET TO RECEIVE NARROW SHIFT, THE WIDE
SHIFT IS SOMETIMES HARD TO TUNE WITH THE SAME SETTING. HOWEVER,
SINCE NARROW SHIFT IS GENERALLY USED NOW, ONE SETTING FOR IT SHOULD
SUFFICE. IF YOU EXPECT TO RECEIVE BOTH SHIFTS REGULARLY IT WOULD
BE WELL TO INSTALL A SECOND POT WITH A SWITCH TO SELECT EITHER WIDE
OR NARROW SHIFT.

73 TILL NEXT MONTH, MAC, VK7CCC

+++++

WANTED+++++ ARTICLES FOR QRM. NOMATTER WHETHER TECHNICAL OR
OTHERWISE, AND ON ANY SUBJECT. WE WILL REDRAW ANY ARTICLES FOR
YOU, AND BOB, VK7ZRF WILL CHECK IT OUT TECHNICALWISE IF YOU WISH.

+++++

DEADLINE FOR QRM ARTICLES IS 20TH OF APRIL... REPEAT 20TH APRIL.

+++++

OSCAR EIGHT ORBITS WILL APPEAR IN THE NEXT ISSUE OF QRM, COURTESY
PETER, VK7PF.. ALSO WE ARE STARTING A PERSONALITY PAGE, IF YOU
CAN SUPPLY A SMALL PHOTOGRAPH AND A FEW DETAILS ETC. WHERE YOU WORK,
HOW MANY KIDS, XYL'S NAME, HOW LONG IN RADIO, MAIN INTERESTS ETC.
THE IDEA IS THAT OTHER MEMBERS WILL BE ABLE TO MATCH NAMES AND CALL-
SIGNS TO FACES... THANKS

NORTHERN and NORTH WEST members (subscribers) please note
that subs are due \$ 2.50.

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CAR RADIO AND STEREO

SEE US FOR A BETTER DEAL, WE SERVICE ALL WE SELL.

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