

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

PO Box 1010
Launceston
Tas. 7250

March 1974
Vol. 3 No 11

Registered at GPO Hobart
for transmission by post
as a periodical. Category B.

Price 20c

It has been suggested that as QRM is a news bulletin it should not be cluttered up with anyone's private opinion, including that of the editor.

So this month I am not going to say anymore but I would like to hear from you whether you agree with this private opinion.

73 John

Here is a list of offices that will have to be filled at this months Northern Branch Annual General meeting. Also listed are the names of the people presently holding that position.

President - Peter Frith VK7PF

Vice President - Joe Gelston VK7ZGJ
Lindsay Dowl VK7ZLD

Secretary - Norm Richardson VK7NR

Treasurer - Kevin Henricks VK7ZAH

Editor - John van Staveren VK7JV

Equipment store manager - Kevin Henricks VK7ZAH

QSL Officer - Col Wright VK7LZ

Auditor - Carl Waldon

Lecture and Publicity Officer - Reg Emmett VK7KK

MEETINGS

March 5th North West Branch, Lakins Hall, Ulverstone.
Lecture by Graham VK7ZAA on solid state.

March 8th Northern Branch, AEB rooms, High st.
Lecture by Ken VK7LX, introduction of colour TV

March 10th Port Sorell mini Hamfest, start 1100 AM

March 23rd WIA Tas. Div. AGM and Dinner. Note new venue
Beltana Hotel, Main rd, Lindisfarne

March 9 + 10th YACS classes, room 38 Kings Meadows High school

April 5th Northern Branch, AEB rooms, High st.
One week earlier than usual, due to Good Friday.

Northern notes by Reg VK7KK.

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It always brings a crowd! This time around 40 persons joined our February meeting for the auction and helped raise \$85.85 for the clubroom account.

Our auctioneer 7JV was entertaining and really in his element as always when he's selling or raising money!

Equipment donated ranged from complete mobiles, wall clocks and magnets to nylon rods. A mantle radio sold for \$3.00 and a number of rubber mats were apportioned out for 50¢ each.

Noticed Richard Tanner at a recent YRCS class proudly displaying micro switches, relays and so forth captured in a 20¢ box of "junk". Thanks all, for the material you donated and the way you spent your money.

Two most important happenings at our March meeting.

A talk by Ken Briggs VK7LX, Chief engineer of TNT9 on the introduction of colour television is a must. This is a different area of the subject than that discussed by Ken at the IRE lecture, so is bound to be of interest to many.

The second event is our election of officers for the next year. It's your task to ensure the best people occupy positions on the executive. Look around and see if there are others who deserve a chance in a position or who may give present workers a well earned rest.

Remember the Annual dinner in Devonport last year? Think of the members attending from the North and North West, remember how one looks around and adds up those attending from the South? Now it's their turn. DON'T LET US DOWN. Let's have a mighty turn up in Hobart on March 23rd.

Money will not be received on the night of the dinner and final acceptances are required 2 weeks before the date. See you there.

73 Reg.

YRCS classes started on 23rd February. About 20 youngsters attended and will be working in two groups.

The advanced class is under the direction of Wally VK7ZWX and is studying for the intermediate certificate.

Others are in a group lead by Reg VK7KK and are aiming for either junior or elementary certificates.

Further helpers are always welcome particularly between say 11 and 12 o'clock to assist in the trouble shooting department, or help supervise on air operations.

Surprising how much electronics one learns in trying to ensure a crystal set detects or an electronic organ oscillates.

At least three members sat for AOCP exams in February.

We hope that Malcolm Weldon, Peter Guenther and James Powell Davis had some success. If they do, five licencees at the Launceston Matriculation College will rival that of the PMG departments.

If the xtals arrive this week the repeater will have changed frequency by the time you read this.

This means that without a new receive xtal on 147.000 Mhz you will not hear the repeater but as the transmit frequency remains the same you will trigger it.

It is hoped that the change be made on 2nd March. Make a point of listening to the broadcast on Sundays for further information if the change isn't made on the above date.

North West notes by Max VK7MX

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First of all I must congratulate John 7JV on his forthright statement last month concerning membership. I have rarely seen so much meat in a small parcel and it left little to say. I could add that if you don't feel like joining in WIA activities, at least give your financial support. Help to swell the membership as the greater our representation the more notice is taken of us. Don't make a mistake, frequencies are limited and if you like using them do something towards preserving them. Give it serious thought and join the gang again, after all it's only the cost of a night out.

I wonder who the funny man was who hid my rig at the meeting, I saw the funny side after I sorted the speaker out, sort that out. QSL cards again. Our Branch receives QSL cards from the divisional officer monthly and they can be picked up from Harold VK7MZ on payment of a small postage fee, so please collect them as accommodation is limited. If you prefer you can send some cash to Charles 7CH who will then post them to you direct.

Our meeting was a jolly affair with Reg 7KA and John 7JV in attendance. John's mini-computer was ably demonstrated to the multitude and I suppose it won't be long before he pulls it to pieces to see what makes it tick.

The report of last council meeting was read by the secretary and it is interesting to hear what goes on.

It was decided to hold the annual field day on 10th March at Port Sorell, a combined North - North West affair.

So get the picnic baskets out mum and prepare the harmonics for a day out. (don't forget the aeroguard.) Anything from evening dress to bikinis are acceptable, it is most informal. More information on the broadcast later.

It was pointed out during the meeting, that with new postal regulations it is important to make sure that your mailing address is correct. This applies particularly to A.R. so if you change your QTH be sure you advise the necessary person immediately.

Summing up the final item dealt with at the meeting sufficient it is to say that the 3 FM units are now privately owned and will be on the air soon.

Tony 7AX has been in the news, got himself involved in an international wedding and was heard on 2 metres complaining of a car full of confetti, in other words the best man copped the lot.

We look forward to seeing all our N.W. members at our meeting on 5th March.

FOR SALE

Pye Ranger low band FM, not converted.	\$10.00
AWA low band carphone, not converted	\$ 8.00
1674, with xtals for ch.A, B, 4.	\$35.00
Power supply and modulator 700V per side 500ma	\$30.00
VK3-2 Metre converter with xtal	\$14.00
Miscellaneous, transformers, relays, high wattage resistors, wire wound pots and about a dozen meters various types and ranges. See Ross and haggle about the price.	

Ross Broomhall, 27 Suncrest pl. Ravenswood. Phone 391515

AO6 Orbit data by Peter VK7PF

Times are for the closest South - North passes for each day the satellite is on. Other passes can be heard 1hr 55min. earlier and later with 29 degrees less or greater.

For those without a calculator add 1hr 42min. to give the centre of a pass. The satellite should be heard for 20 minutes centred on these times.

Date	Orbit	Time Z	°W	Date	Orbit	Time Z	°W
March				May			
2	6295	0920	188	18	7260	1050	210
4	6320	0915	187	20	7285	1045	209
7	6358	1005	199	23	7322	0940	193
9	6383	1000	198	25	7347	0934	191
11	6408	0955	196	27	7372	0929	190
14	6446	1044	209	30	7410	1019	202
16	6471	1039	208	June			
18	6496	1034	206	1	7435	1014	201
21	6533	0929	190	3	7460	1009	200
23	6558	0924	188	6	7498	1059	212
25	6583	0919	187	8	7523	1053	211
28	6621	1009	200	10	7548	1048	210
30	6646	1003	199	13	7585	0943	193
April				15	7610	0938	192
1	6671	0958	197	17	7635	0933	191
4	6709	1048	210	20	7673	1023	203
6	6734	1043	208	22	7698	1017	202
8	6759	1038	207	24	7723	1012	201
11	6796	0933	191	27	7761	1102	213
13	6821	0927	190	29	7786	1057	212
15	6846	0922	188	July			
18	6884	1012	201	1	7811	1052	211
20	6909	1007	199	4	7848	0947	194
22	6934	1002	198	6	7873	0941	193
25	6972	1056	211	8	7898	0936	192
27	6997	1046	209	11	7936	1026	204
29	7002	1041	208	13	7961	1021	203
May				15	7986	1016	202
2	7059	0936	192	18	8024	1106	214
4	7084	0931	190	20	8049	1101	213
6	7109	0926	189	22	8074	1156	212
9	7147	1016	202	25	8111	1021	203
11	7172	1010	200	27	8135	1016	202
13	7197	1005	199	29	8161	1011	201
16	7235	1055	211				

Uses for an electronic calculator by VK7PF

The following examples are for one particular calculator chip, but no doubt owners of other type calculators can adapt the techniques to for use with their machine.

Large power of a number. Divide the power into two or more factors eg, to find 3^{15} first calculate 3^5 then make this the constant and find the cube.

3(=)(K)(X)(X)(X)(X)(C)(K)(X)(X) = 14348907

Reciprocals. By making a number a constant and using (+) twice we can produce its reciprocal. The first(+) divides the number by its self to give 1, the second(+) will divide 1 by the number to give the answer.

4(=)(K)(+)(+) = .25 further use of (+) will give the reciprocal of the square, cube etc.

This method is useful if the number is the result of previous calculations.

Square root. This that a guess be made of the result and applied in this equation

$$a_2 = \frac{1}{2} \left(\frac{N}{a_1} + a_1 \right) \quad \text{when } a_1 \text{ is first guess}$$

a₂ is result of equation
and next trial number.
a₃ next and so on
N is number.

Find square root of 5 the first guess being 2.2

enter 2.2 (=)(K)5(+) (+)(C)(+)2(=) 2.2363636 which is put in as a constant (K)5(+) (+)(C)(+)2(=) 2.2360679

(K)5(+) (+)(C)(+)2(=) 2.2360679 no change so is answer

Sum of products. This usually requires the use of a memory or the writing down of individual results for later addition. This method requires entering some numbers twice but does give a result without the use of pen & paper.

(pXP) + (q X Q) + (r XR) is calculated as

p(X)P(+)q(+)Q(X)q(+)r(+)R(X)r(=)

example, 5 items at \$3.55 plus 4 items at \$2.41 plus 9 items at \$5.90

5(X)3.55(+)4(+)2.4(X)4(+)9(+)5.9(X)9(=) \$80.49

Another use is parallel resistances.

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

R=1(+)R1(X)R2(+)1(+)R2(X)R3(+)1(+)R3(=)(K)(+)(+)

Compound interest \$1000 at 7% for 5 years

1.07(=)(K)(X)(X)(X)(X) gives 1.07⁵

(C)(X)1000 gives \$1402.5517

Mortgage and loan repayments The annual repayment P is related to the sum borrowed Y the annual rate of interest a and the period of years over which sum is borrowed n.

$$P = \frac{a X Y}{\frac{1-(1+a)^n}{(1+a)^n}}$$

Suppose Y= \$8000

a= 9.5%

n= 25 years

1.095(=)(K)(X)(X)(X)(X) gives 1.095⁵

(C)(K)(X)(X)(X)(X) gives 1.095²⁵ or (1+a)ⁿ

(C)(K)1(-)(+)(C)(K)(-)(-) evaluates the denominator

(C)(K)0.095(+) (C)(X)8000(=) 847.67520

The monthly rate is this divided by twelve.

Decimal to binary conversion Enter 2(=)(K) followed by the number whose binary representation is required, repeatedly press (+), if the fractional part of result is greater than previous write down 1, if less write down 0. Stop when no whole numbers left.

2(=)(K)653(+)326.5(1),(+)163.25(0),81.625(1)40.8125(1)20.40625(0)
10.203125(0)5.1015625(0)2.553125(1)1.2765625(0)0.6378125(1)

so result is 1011000101

This generates the binary bits from the least significant to the most significant.

Nth Roots. This is an extension of the square root solution.

$$a2 = \frac{1}{r} \left(\frac{N}{a1} r - 1 + a1(r-1) \right)$$

a1= first approx.
N= number
r=root
a2= second approx.

$\sqrt[5]{20}$ is calculated as follows

$$a2 = \frac{1}{5} \left(\frac{20}{2.2.2.2} + 2+2+2+2 \right)$$

to give the final result of 1.8205641 after four tries.

FOR SALE

Heathkit 303 Amateur band receiver, solid state	\$250.00
Heathkit 401 SSB transmitter 175W PEP	\$200.00
1 only Wattmeter SWR bridge dual range 200W, 2kW	\$ 20.00
High Gain Vertical antenna 18AVQ, 80 to 10 Metres	\$ 40.00
Ray Els VK7US, 20 Jillian st. Launceston. Phone 442513	

Branch Fees and Q.R.M. subscriptions.

North and North West Branch members please note that Branch fees are now due.

Remember, your Branch provides many facilities including QRM and it does this through your subscription.

Yearly subscription \$1.00, all grades.

Non WIA members may subscribe to QRM at \$2.00 per year and students \$1.00 per year.

Tear off or copy and sent to,
North West members

Northern members and QRM subscribers

WIA Tas. North West Branch
PO Box 12 East Devonport
Tas. 7310

WIA Tas. Northern Branch
PO Box 1010 Launceston
Tas. 7250

Name Call

Address

.....

If not a member of the W.I.A. are you interested in joining?

YES/NO

DX notes by Den VK7DK

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- The last month has been quite productive in the way of DX. Europe has still been coming in from late evening to early morning, and the following calls have been heard, PAØ, EI, SP, GW, HA, OH, DL, OZ, YU, GD, ON and G being among the many that have been copied here in Launceston.
- S.E.A. (South East Asia) Net operates on 14.320 Mhz at 1200 Z and will bear watching each night. This is usually conducted by 4S7PB (Paddy), HS4AGN (Pete), or VQ9R (Carl).
- Many rare calls may often be heard on this net, such as 5Z4, 5U7, 9K2, XU1, A51, XV5, 9M2, 9M8, VQ9, XW8, EP2, ET3, A4, A6, A7 and 8Q6 to name some that may wet the appetite. Father Moran, 9N1MM Nepal's only Ham representative used to be a regular on SEA net but has not been heard since his trip to W land. Listening to the net will soon accustom you to its operation, so how about joining in when VK7 is called, and maybe work a few new countries.
- Palmyra Islands, KP6 was activated by WA7IXE/KP6 from 14th to 19th February, this gave a new country to many as this is the first operation from this group of islands for many years. John, the op. is on board the 45 ft yacht "Wandering Star" and I believe their next stop is the island of Truk.
- The QSL information is via KS6DY, PO Box 1618, Pago Pago. Trinidad, PYØ was to have been activated on February 12th. I would be pleased to hear if anyone worked him in VK7, sure was not heard at this QTH.
- The VP's are always news here, and a VP2SAZ was about on 14.195 Mhz at 2300 Z early in February, no QSO with VK7 that I know of. China will be activated by a W1GEY who has been given special permission to demonstrate amateur radio to the people of Peking University on April 19 - 21, 1974.
- As BY has not been activated for so many years, I can imagine the QRM problem as many thousands hams around the world call this one station. As a demonstration of ham radio, it may fall somewhat short of anticipation.

73, Den

VHF notes by Joe VK7ZGJ

Finding news is very difficult this time of the year. Activity is very low with the most consistent stations operating being, Kevin 7ZAH and Danny 7ZDA both having obtained their Yeasu FT620's and can be contacted almost anytime on 52.050Mhz. Ron VK3AKC can be worked most of the time on 144Mhz providing conditions are reasonable across the Strait. Other VK3's worked on 144Mhz this month include VK3ZQC and 3ATN. February 3rd provided good conditions to Geelong, Kevin worked Ron twice on 1296, 432 and 144Mhz. Although activity is low construction of equipment is taking place, Bob 7ZRF has, after much frustration, completed his solid state carphone, "sounds nice Bob"! Kevin 7ZAH has completed a 6/40 afterburner for his FT620 and I am in the process of completing a 432Mhz transverter. If you want something to listen to in the late evening around 1200Z, try sitting your receiver on a beacon frequency for an hour or so, you will eventually hear it, I have found VK5VF on 53Mhz the most consistent. You can hear it for several seconds at a time, this is Meteor scatter.

73 till next month Joe

Carl Palmer VK2ZGX

With the ever-increasing number of SSB stations evident on the VHF bands, many stations may be seriously looking to sideband to "get amongst it". Certainly, on six metres at least, SSB is the predominant mode. Unfortunately, homebrew SSB is beyond the resources of many, either in time or experience. Commercial equipment is either expensive, or not a consideration, for others. Double-sideband is effective, easy to build quickly and 'gets you on sideband'. Most SSB receivers can resolve DSB perfectly well as an SSB signal, being able to reject the opposite sideband. Even receivers having relatively wide IFs can be used to resolve DSB. It requires careful tuning, and the operator has to put up with a certain amount of phase distortion; the signal however is perfectly copiable. Another point - the unit described is cheap.

Any AM transmitter could be easily modified to run DSB, or, if like the author, you wish to build a separate final and modulator, the following circuits and design layouts should be of interest.

The Modulator

The modulator is a straight-forward audio amplifier with about 10W audio power output. The design presented need not be used, but remember that the output transformer needs to be the same configuration. Looking at figure 1, note that a ferrite bead is slipped over the input lead. This is to prevent RF feedback and is quite necessary. A slug from a coil is quite suitable. A low pass filter on the mic. input and a top cut circuit on the output stage help to reduce the transmitted bandwidth. A 'speech weighting filter' employing bass roll-off and rapid high frequency cut off would be ideal (see VHF Communications, international edition, nov. 69 and may 69). This is currently being experimented with. Construction follows standard audio practice. See fig.5.

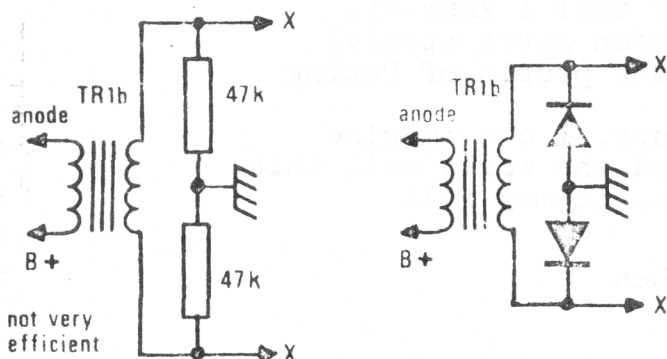


Fig.2. ALTERNATIVES FOR TR1a

The arrangement of TR1 is important as the final is a balanced modulator. The screens must be driven in push-pull. If a centre-tapped transformer is not available, either arrangement as shown in fig.2. at the left can be used. The left hand circuit, with the resistors, is inefficient and less output voltage results. The right hand arrangement is preferable. The diodes can be any power rectifier having a reverse voltage rating of 400 volts or more. Current rating is not important as peak screen current is low.

TR1a is a driver transformer with a primary impedance of about 8k and secondary, 20k centre-tapped. TR1₂ can also be a power transformer with 240V primary and either a 560/0/560 or 385/0/385 secondary. TR1b can be any suitable transformer with similar pri.-sec. ratios.

The Finals

Both finals take the form of a high level balanced modulator. The grids are fed in parallel and the anodes connected in push-pull. The screens are fed with audio in push-pull. The carrier is balanced out in the anode circuit and no RF appears at the output until screen voltage appears. As this is audio, DSB is the result. Note that no neutralisation is necessary. Much simpler than AM! The output tuning capacitors can be trimmers. The anode tuning capacitors are split stator units from the AWA MR3 etc FM carphones but any suitable unit of about 15pf maximum capacitance would do, providing the voltage ratings are adequate.

RESULTS; 6 Metres

6146 valves

150 Watts PEP input

700volts on anodes

4 ma grid current from 3/12 driver

Carrier: about -50db

Total width approx. 10Khz

2 Metres

2E26 valves

50 Watts PEP input

500 volts on anodes

4 ma grid drive from 3/12

Carrier: about -45db

The HF supply on 6m can be from 450 to 750 volts, while on 2m the HF can be from 300 to 500 volts. Lower powers are achieved with the other valves mentioned.

The circuit of each amplifier is shown in figures 3 & 4 respectively for 6m and

2m. Note the different grid circuits. No bias supplies. Much simpler than AM! Grid current is measured across the 1k resistor in both cases.

Tune up is best accomplished by feeding a low level tone into the mic. input. Better still, two tones, about an octave apart but not harmonically related. Say, at 850Hz and 1.4kHz or 400Hz and 900Hz. Now tune for maximum smoke.

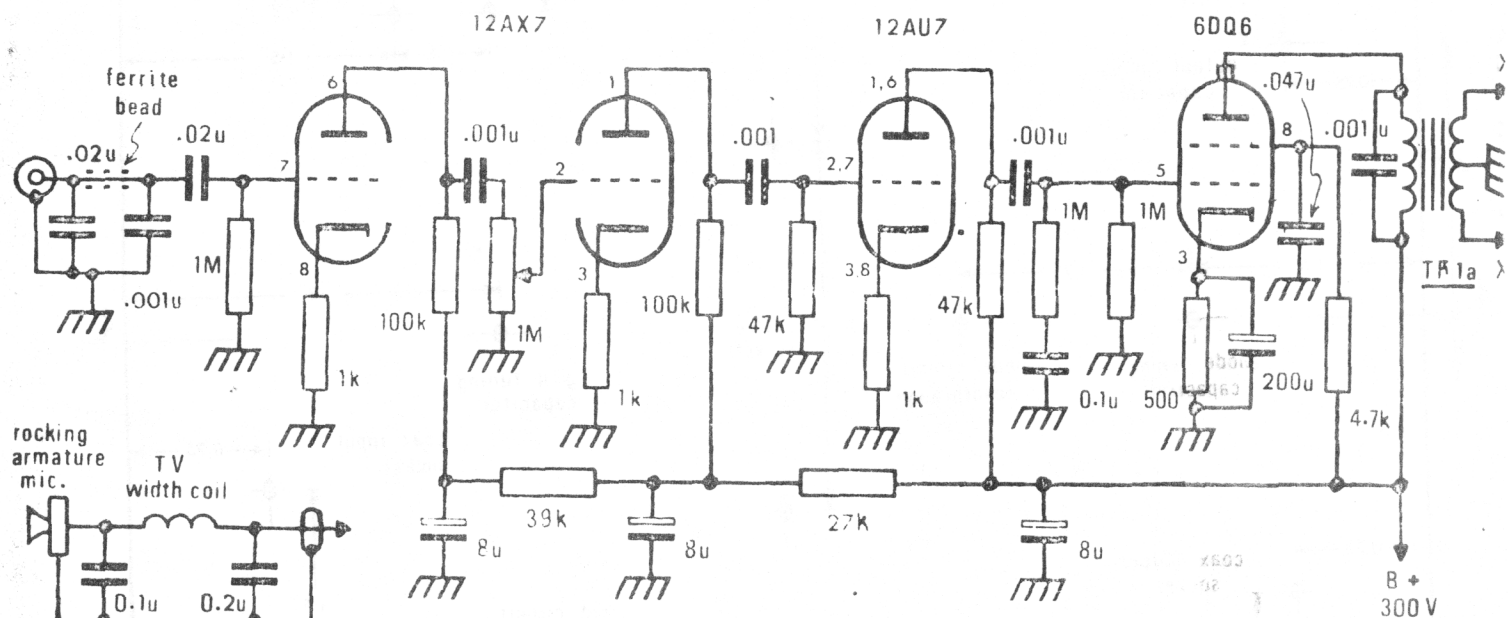


Fig. 1. MODULATOR

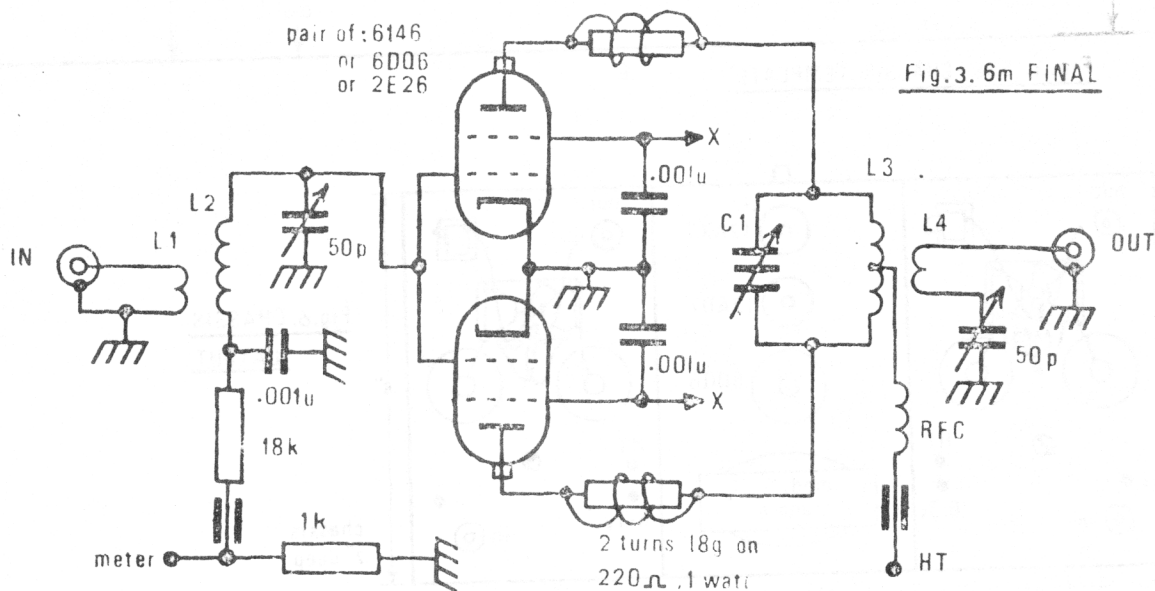


Fig. 3. 6m FINAL

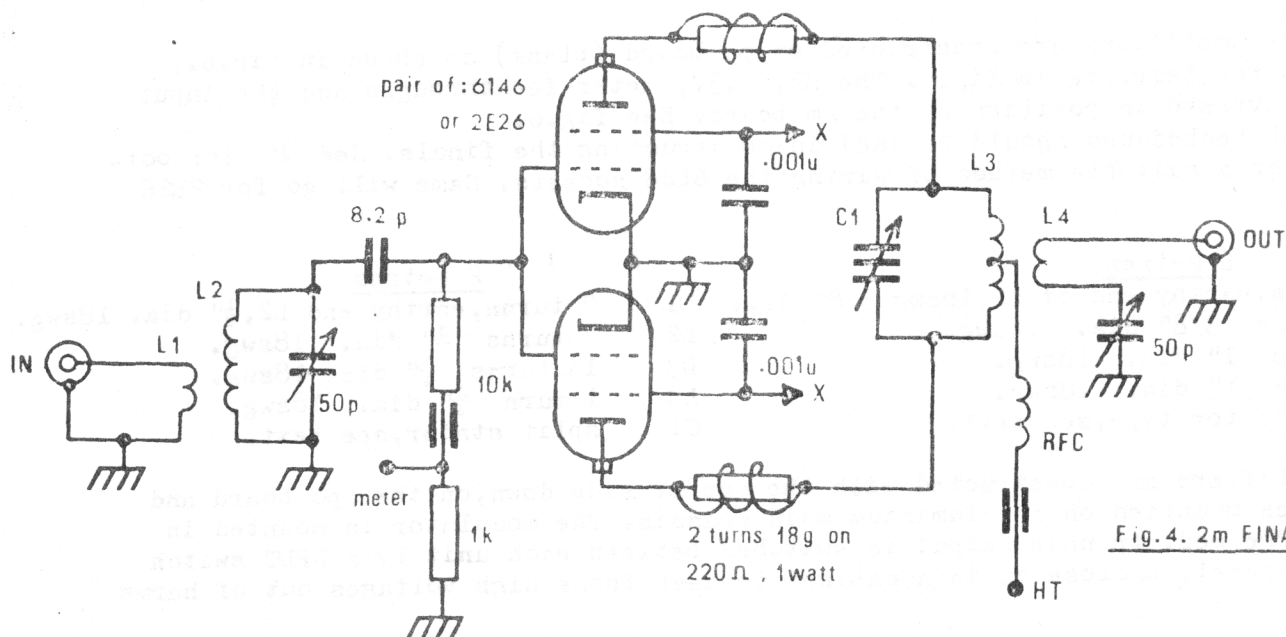


Fig. 4. 2m FINAL

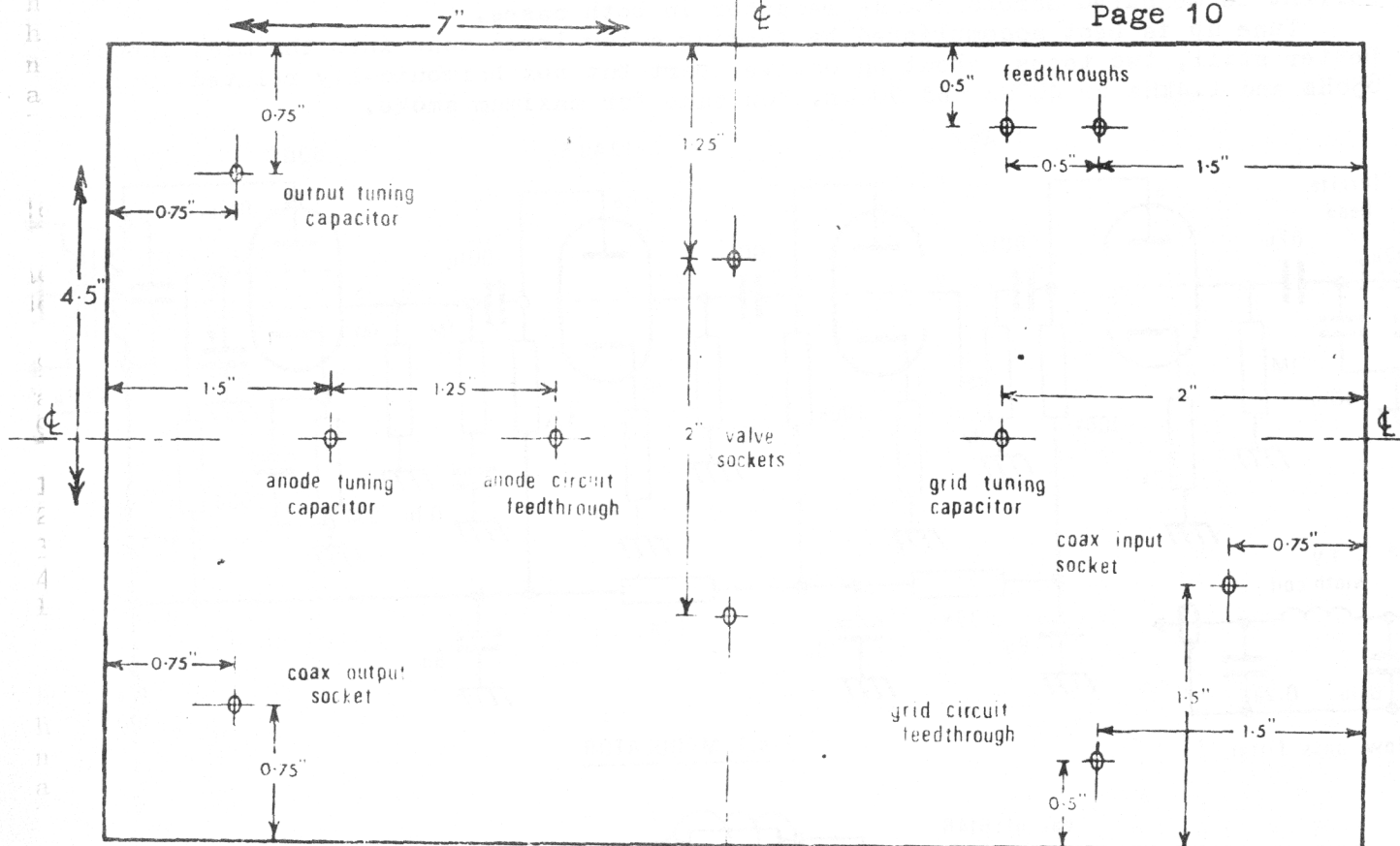
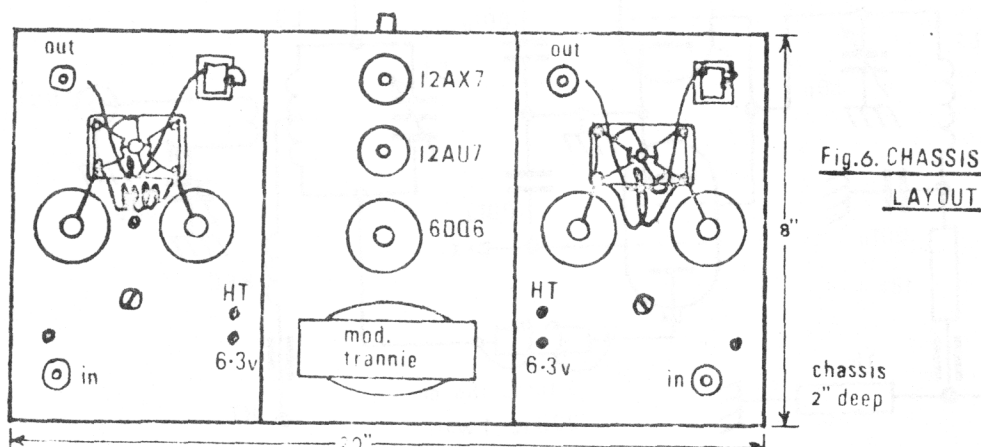


Fig. 5. SUB-CHASSIS TEMPLATE

Fig. 6. CHASSIS
LAYOUT

Construction

The amplifiers are constructed on pc board (blank) as shown in fig. 6., according to the template in fig. 5. The HT, 6.3V, meter feedthroughs and the input socket are reversed in position on the 2m board. See fig. 6.

Good VHF techniques should be used in constructing the finals. See 6UP for oct. 1973 p.20. for a suitable method of wiring the 6146 sockets. Same will go for 2E26 valves, etc.

COIL DATA

6 Metres

- L1 2 turns, earthy end of L2, 18swg 3/8" dia.
- L2 5 1/2 turns 3/8" dia. 18swg.
- L3 8 turns 1" dia. 18swg.
- L4 4 turns 1" dia. 18swg.
- C1 split stator type, see text.

2 Metres

- L1 2 turns, earthy end L2, 1/2" dia. 18swg.
- L2 3 turns 1/2" dia. 18swg.
- L3 1 1/2 turns 3/4" dia. 18swg.
- L4 1 turn 3/4" dia. 18swg.
- C1 split stator, see text.

The amplifiers are constructed, with the copper side down, on the pc board and the assemblies mounted on an aluminium main chassis. The modulator is mounted in the middle. The mod. trian output is switched between each unit by a DPDT switch on the front panel. Enclose it in a cabinet to keep those high voltages out of harms way. CQ DX !

Distances from Hobart to

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<u>VK1</u>	<u>Miles</u>	<u>km</u>	<u>VK4</u>	<u>Miles</u>	<u>km</u>
Canberra	535	861	Rockhampton	1364	2195
Mt.Ginini	516	830	Toowoomba	1090	1754
			Townsville	1639	2638
<u>VK2</u>			<u>VK5</u>		
Albury	472	760	Adelaide	722	1162
Armidale	889	1431	Bordertown	572	921
Bathurst	665	1070	Ceduna	1053	1695
Deniliquin	524	843	Millecent	518	834
Lismore	1031	1659	Mt.Gambier	490	789
Newcastle	732	1178	Murray Bridge	686	1104
Orange	671	1080	Port Pirie	840	1352
Pt.Macquarie	839	1350	Renmark	700	1127
Sydney	656	1056	Sterling	714	1149
Tamworth	839	1350			
Wollongong	617	993	<u>VK6</u>		
<u>VK3</u>			Albany	1665	2679
Ballarat	411	661	Carnarvon	2273	3658
Bendigo	453	729	Geraldton	2058	3312
Frankston	349	562	Norseman	1572	2530
Geelong	363	584	Perth	1873	3014
Melbourne	372	599			
Mildura	663	1067	<u>VK7</u>		
Mortlake	407	655	Burnie	146	235
Morwell	326	525	Devonport	132	212
Mt.Cowley	351	565	Launceston	103	166
Mt.Waverley	366	589			
Tahara	463	745	<u>VK8</u>		
Traralgon	328	528	Alice Springs	1534	2469
Wangaratta	455	732	Darwin	2332	3753
<u>VK4</u>			<u>ZL</u>		
Biloela	1296	2086	Auckland	1508	2427
Brisbane	1126	1812	Christchurch	1274	2050
Bundaberg	1282	2063	Dunedin	1161	1868
Hughenden	1537	2473	Wellington	1409	2268
Ipswich	1098	1762			
Mackay	1507	2425			
Nambour	1169	1881			

Distances from Burnie to

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<u>VK1</u>	<u>Miles</u>	<u>km</u>	<u>VK4</u>	<u>Miles</u>	<u>km</u>
Canberra	434	698	Rockhampton	1252	2015
Mt.Ginini	412	663	Toowoomba	992	1596
			Townsville	1511	2432
<u>VK2</u>			<u>VK5</u>		
Albury	348	560	Adelaide	581	935
Armidale	795	1279	Bordertown	429	690
Bathurst	563	906	Ceduna	916	1474
Deniliquin	384	618	Millecent	381	613
Lismore	944	1519	Mt.Gambier	352	566
Newcastle	648	1043	Murray Bridge	544	875
Orange	564	908	Port Pirie	697	1122
Pt.Macquarie	755	1215	Renmark	554	892
Sydney	571	919	Sterling	572	921
Tamworth	742	1194			
Wollongong	533	858	<u>VK6</u>		
<u>VK3</u>			Albany	1577	2538
Ballarat	265	426	Carnarvon	2159	3474
Bendigo	309	497	Geraldton	1953	3141
Frankston	206	332	Norseman	1465	2358
Geelong	217	349	Perth	1777	2860
Melbourne	229	369	<u>VK7</u>		
Mildura	517	832	Devonport	20	32
Mortlake	262	422	Hobart	146	235
Morwell	196	315	Launceston	67	108
Mt.Cowley	205	330	<u>VK8</u>		
Mt.Waverley	223	359	Alice Springs	1388	2234
Tahara	321	517	Darwin	2186	3518
Traralgon	200	322			
Wangaratta	325	523	<u>ZL</u>		
<u>VK4</u>			Auckland	1571	2528
Biloela	1185	1907	Christchurch	1373	2210
Brisbane	1033	1662	Dunedin	1273	2049
Bundaberg	1181	1901	Wellington	1496	2408
Hughenden	1402	2256			
Ipswich	1004	1616			
Mackay	1389	2235			
Nambour	1075	1730			

Helical antenna for 70 cm

by Col VK7KW

As an ERP of 300 watts is required to operate through the 432Mhz repeater of AO7, it was decided to reprint this Helical antenna from QRM of July 1971.

As one of the two repeaters in AO7 uses the 70cm band, the problem arises as to what type of antenna to use for space communication.

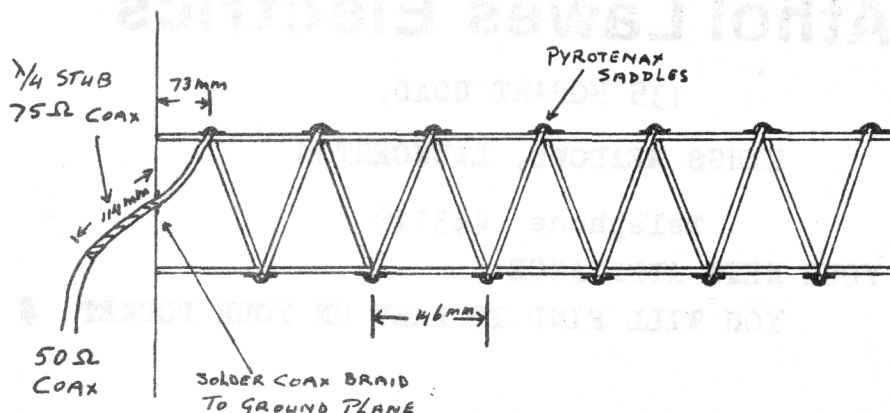
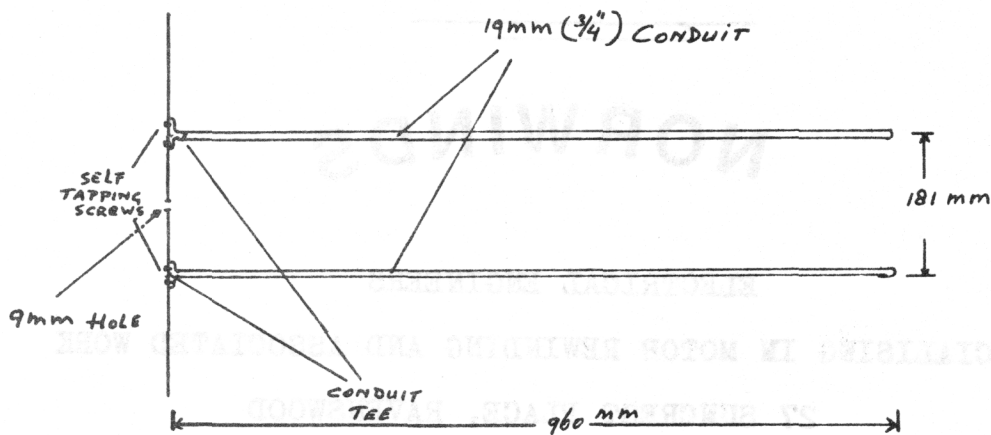
With the following considerations it was decided to construct a 6 turn Helix.

- Could be easily duplicated by other amateurs.
- Built from locally available components.
- No complicated matching devices.
- High gain, 12-13 db with good beam width.
- Circular polarization.

The materials used to construct, consisted of 6mm Pyrotenax cable for the Helix, 22gauge sheet metal for the groundplane (galvanized iron), 3/4 inch PVC conduit and 2 tee fittings for the helix support, 6mm Pyrotenax saddles and cadmium plated self tapping screws. The following dimensions were calculated for 432Mhz. Ground plane 513mm diameter, helix 181mm diameter, spacing between turns 146mm, matching stub length 114mm.

The Pyrotenax cable can first be wound on a 1 gallon paint tin, then transferred to the supports. The cable is held in place by the saddles and self tapping screws.

If a match to 75 ohm cable is required a 114mm length of 75 ohm cable 3/8 inch diameter is required, first remove the centre conductor and replace with a piece of 20 swg (0.036) copper wire.



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