

THE WIRELESS INSTITUTE — OF AUSTRALIA —

TASMANIAN DIVISION

BOX 851J, G.P.O., HOBART

JULY 1963

MONTHLY BULLETIN

PRICE 6d

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Registered at G.P.O., Hobart, for transmission by post as a periodical.

GENERAL MEETING.

The next monthly meeting of the Division will be held in the Club Room, 147 Liverpool Street, Hobart, on WEDNESDAY, 3rd July at 2000 hours.

By courtesy of the National Aeronautics and Space Administration we will show several colour films, including "Sigma 7 - Walter Schirra's Orbital Flight", "Aerial - First International Satellite" and "Tiros - Experimental Weather Satellite"

At the conclusion of the film showing there will be an auction of miscellaneous gear on behalf of a member who has generously donated half the proceeds to the I.T.U. Fund. In addition there are a few odd disposals items to be disposed of.

In all it should be quite an interesting evening so make a point of coming along.

NORTHERN ZONE.

The next meeting will be held on FRIDAY, 12th July at 102 Charles St. Launceston at 2000 hours. On this occasion there will be a display of gear built by members. If you have any gear that you have built take it along and let the others have an opportunity of seeing what you have been doing. Many ideas can be picked up by an inspection of the other chaps work.

NORTH WESTERN ZONE.

The next meeting of this Zone will be held in Lakin's Hall, Ulverstone, on TUESDAY, 2nd. July at 2000 hours. This will be a social evening and members are each asked to bring along a few colour slides and also any gear they would like auctioned.

COUNCIL MEETING.

The next Council Meeting will be held in the Club Room on MONDAY, 15th. July at 1930 hours.

V. H. F. SECTION.

The next meeting of the V. H. F. Section will be held in the Club Room on WEDNESDAY, 17th July at 2000 hours.

I. T. U. FUND.

I refer you to last month's editorial and the President's Appeal for your support in helping us to reach our quota of £200 by Easter 1965.

The fund has got off to quite a good start with donations from VK7AL, VK7DR, VK7KC, VK7ZZ, VK7JO, VK7CH and Associate Members D. Allen and M. Hooper to whom we extend our thanks. With the proceeds of a special effort at the last meeting which raised £3- 6s/- the total now in hand is £14-6s/-

These funds are being kept in a special account quite apart from Club Funds and the balance on hand will be forwarded to Federal Executive periodically.

We still have a long way to go. It is of the utmost importance that we have a delegate at the next I.T.U. Conference, and, if we want to keep our bands it is up to every one of us to assist in raising the necessary finance to make sure we are represented.

SO SEND ALONG YOUR DONATION NOW.

RECEIPTS.

Receipts are on hand for : 793 VK7SJ, 794 H. Hutchinson, 796 H. Harjono 797 R. de Balfour, 798 VK7DR, 799 VK7GF, 800 VK7YY, 814 R. Shorthouse, 816 H. Hutchinson, 817 G. Cannock, 818 D. Allen, 819 VK7BT, 820 VK7MF, 821 VK7BP, 823 VK7JB, 828 VK7DA, 829 R. Belbin, 830 VK7AK, 831 VK7RL, 835 VK7LR, 836 VK7FM, 837 C. Russell-Green, 96 VK7ZAZ, 97 VK7FM, 3. D. Allen.

WANTED.

Athol Manning VK7LR, 6 Franklin St., Devonport wants "Amateur Radio" for March and April 1958.

R. S. G. B. HANDBOOKS.

Once again we have sold all the last shipment of this very popular handbook, but have sent off another order. We have already sold about half a dozen, so if you want one send your 35s/- to the Secretary immediately (plus 3/- postage if applicable) and we will reserve one for you. Delivery is expected about the end of July.

NEW MEMBERS.

This month we welcome as new members Messrs. W. J. Henry VK7ZAP, H. D. Spence VK7DS, B. W. Proudlock VK7BP, and R. F. Jordan VK7IL and as associate members Messrs. G. J. Wilson, B. M. Muir, D. R. Brundle and P. W. Chalk.

HISTORICAL CALL SIGNS.

Federal Executive are desirous of obtaining any information regarding the holders of the following call signs which appeared in a booklet published in 1914:

XZA A. G. Dixon,	Wynyard.	XZH W. P. Hallam,	Hobart.
XZB E. Kirby,	Hobart.	XZJ V. Batchler	"
XZC M. Harvey,	"	XZO W. O. Duffy	"
XZD F. W. Medhurst	"	XZP R. S. Dawson	"
XZE R. James	"	XZQ H. D. Mansfield,	Burnie.

Any information or any other matter of historical interest to the Institute - war service is of particular interest - would be welcomed by the Federal Historical Officer, Mr. G. Glover VK3AG, Box 2147T G.P.O., Melbourne.

Of course we all know that XZD, the late "Pop" Medhurst VK7AH was for many years President and Patron of this Division.

REMEMBRANCE DAY CONTEST.

A reminder that the R.D. Contest is on again next month. Best overhaul your gear now and get all ready for the fray. It is expected that the rules will appear in this month's "Amateur Radio"

JAMBOREE OF THE AIR.

This year's Jamboree of the Air will be held from 0001 hours 19th October to 2359 hours 20th October next. More of this later.

SUBSCRIPTIONS.

There are still a number outstanding and although those unfinancial on 5th June have been removed from the "Amateur Radio" circulation list, we will continue to send them a Bulletin for a month or two in the hopes that they will see the light and pay up. We cannot afford to lose members, likewise we cannot afford to keep sending "A..R." to unfinancial bods.

DISPOSALS.

All those who ordered gear from last month's list may collect same at the next meeting or by contacting VK7GH. Parcels for Northern Zone and N.W. Zone will be delivered care of VK7CA (Launceston) and VK7JP (Burnie) as soon as possible.

The overall response to our disposals offers has been disappointing and consequently it is not intended to make any further purchases until gear on hand is disposed of and/or more interest is shown.

BULLETIN.

Zone Secretaries and any others who have anything for inclusion in the Bulletin are reminded that notes must be in the hands of the Secretary or VK7CH by the third Monday in the month.

TECHNICAL.

The Tri-Vee Antenna by Associate Greg Johnston

Soon after Bud Pounsett's article "The Inverted Vee Antenna" appeared in October "A.R." for 1962, impressed by both the money and space saving aspects of the antenna described, work was commenced erecting a carbon copy.

After much trial and error the arrangement described below was settled upon as the best compromise of time and effort for better than average performance. Not being in a position to obtain comparative signal reports "on the air" faith was, of necessity, placed on comparative strength of signals received. The yardstick antenna was a "G5RV" co-linear with the 80 metre element of the Tri-Vee and some 5 feet higher at each end. Despite the fact that the G5RV was fed via an antenna tuner into the receiver the Tri-Vee (untuned) performed about two S units better on 80, 40 and 20 metres - the G5RV has now been discarded.

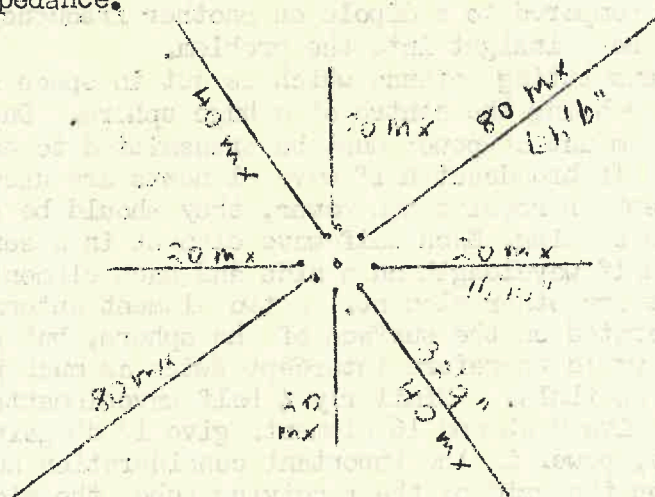
On gazing at the structure, the following points should impress :

- (a) Only one pole is required. (b) The antenna elements serve as guys.
- (c) The whole issue fits into quite a small space (d) It sports (i) 4 wavelengths on 20 (ii) 2 wavelengths on 40 and (iii) 1 wavelength on 80. (e) Omni-directional coverage is obtained and (f) No switching is necessary.

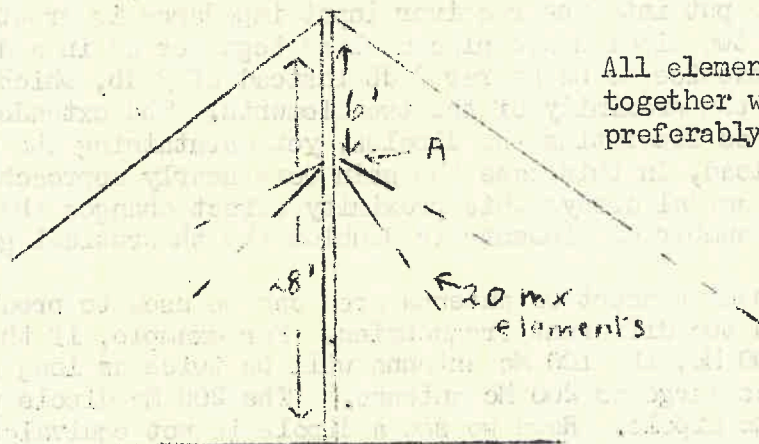
The measurements given below will produce an antenna resonant at the following approximate frequencies : 3.6 mc/s, 7.1 mc/s, 14.2 mc/s.

The antenna is fed at the apex of the lower or 20 metre elements with a line of 50 ohms impedance.

PLAN VIEW
(Not to scale)



SIDE VIEW



All elements connected together with 50 ohm coax. preferably and fed at "A" with same.

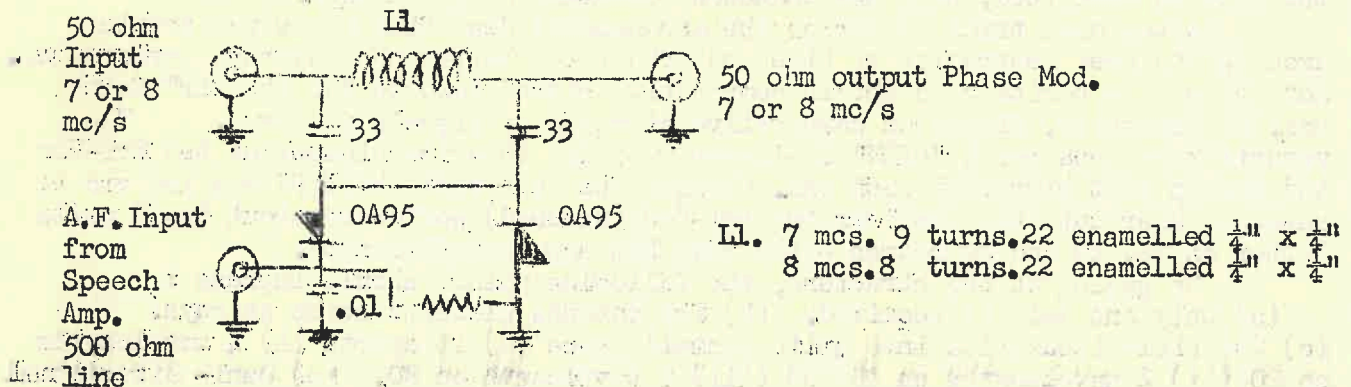
A Bridged - T Phase Modulator by D. Thorne VK7ZAI

This phase modulator circuit is much more compact than the tube type, and may be used in the 7 and 8 megacycle region. A few volts of audio from a 500 ohm output speech amp. will vary the resistance of the two type 0A95 diodes and produce a phase shift through the network. The phase shift in the 7 to 8 megs. region may be increased to a wider frequency swing by frequency multipliers, such as would be used in any VHF transmitter. In the construction of this unit two requirements must be met; first, enough drive level must be available to drive the next stage through the network loss, and second, the link circuit should look like 50 ohms in and out within reasonable limits.

(Circuit on next page)

TECHNICAL.

A Bridged - T Phase Modulator (Continued)



The Dipole.

One of the first questions that often arises is how effective a dipole is on one frequency as compared to a dipole on another frequency. Free space considerations give some insight into the problem.

Picture a transmitting antenna which is out in space and radiating equally in all directions, as being the centre of a huge sphere. Due to the uniform radiation, the same amount of power must be transmitted to each unit of surface area of the sphere. If broadcast half wave elements are used on the surface of the sphere to intercept or receive the power, they should be spaced side by side with half wavelength spacing. Each half wave element in a sense, therefore, covers an area one half wavelength on a side and each element intercepts the same amount of power as every other element. A two element antenna with the two elements widely separated on the surface of the sphere, but properly phased and matched to the load would therefore intercept twice as much power as a dipole and provide a gain of 3 decibels. Similarly 4 half wave elements so used give 6 db gain and 8 elements give 9 db and 16 elements give 12 db gain over a dipole.

Incidentally, power is the important consideration here because even though we want microvolts on the grid of the receiving tube, the microvolts are greatest when the power put into the receiver input impedance is greatest.

When two dipoles are placed close together as in a double Zepp the gain is found in practice to be nearer 2 db instead of 3 db, which fact can be attributed to the proximity of the two elements. The extended double Zepp can be thought of as separating the dipoles, yet maintaining the proper phasing and matching the load, in this case the gain more nearly approaches the theoretical 3 db. In all actual arrays this proximity effect changes the 3 db figure so that each time the number of elements is doubled the theoretical gains are changed somewhat.

The same concept of antenna area can be used to predict the effectiveness of antennas on two different frequencies. For example, if the two frequencies are 100 and 200 Mc, the 100 Mc antenna will be twice as long and correspond to an area 4 times as large as 200 Mc antenna. The 200 Mc dipole will be 6 db poorer than the 100 Mc dipole. Here we see a dipole is not equivalent to a dipole on a different. A 4 element 200 Mc antenna having the same area as a 100 Mc dipole will be needed for equivalent received power over short distances. It is of interest to note that if a 4 element 6 db gain ~~gain~~ beam is used at the 200 Mc transmitter and also at the receiver, the 200 Mc system will then be 6 db better than the 100 Mc system using dipoles at each end for short distance work.

DISPOSALS.

Items listed last month are st still available with the exception of Nos. C5, C7 and C8.

The following additional items are also available to financial members on the usual conditions. Applications on attached form to reach Disposals Committee together with remittance, by July 15th.

<u>Item No.</u>	<u>Description</u>	<u>Price</u>
D1	Fixed condensers - lots of 10 mixed mica and ceramic (at least 7 different values) together with 5 electrolytic (at least 4 different values-)	All new 10s/-
	Values on hand include 25, 150, .003 ceramic, .005, 100, 200 mica etc. and 100 mfd.150v, 500 mfd 65v, 50 mfd 200v, 4 mfd 350v etc. As they come - we cannot supply special values.	
D2	4700 ohm 5 watt resistors. New	1/- each or 4 for 3s/-
D3	Concentric trimmers, enclosed type. New	1/- each or 4 for 3s/-
D4	Knobs 1 3/4" Gold insert. New //	1s/-
D5	Wafer switches, 3 miscellaneous, including one 3 bank long shaft	New 7s/6d
D6	Minature 6 volt grammo motors	5s/-
D7	1.5 mfd 4000 volt oil filled condensers	4s/-
D8	Electrolytic condensers, 24 plus 24 mfd 300 v. New	3s/-

S P E C I A L

- D9 One only. Cossor 3" Oscilloscope Unit. 29 minature tubes. 3" CRO tube. Horizontal - 5 time speeds, 15m/s - 1.5 m/s - 100 u/s - 50 u/s - 15 u/s Calibrated horixontal shift control for frequency measurement. Vertical - 3 Attenuator positions, 15 m/v - 150 m/v - 1.5 volts RMS plus other attenuator levels. Trigger Selector Switch. External Y amp, P.P., L stSG, Trigger Level control, Focus, Brightness control. Power supply 115 volts 1200 cps. The C.R.O. is complete, requiring only a power supply modification to operate. Also includes a pulse generator unit on a separate chassis. Overall size 8 x 10 x 14 deep. BRAND NEW.

Best offer gets this. There is a reserve of £17. Send your offer to the Disposals Committee by July 15th. in a separate envelope marked "D9" - these will then be opened at the next Council Meeting and the successful tenderer advised - don't send money for this item.

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3/5
6/-
7/6

