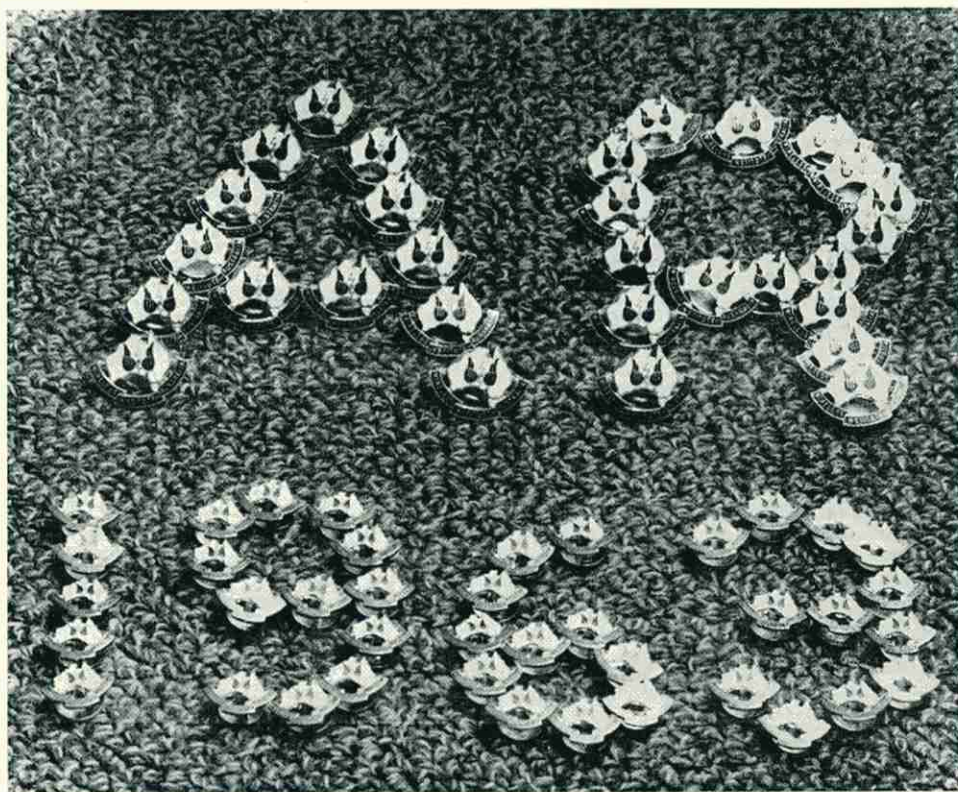


A M A T E U R R A D I O

JANUARY 1963



Vol. 31, No. 1

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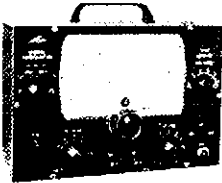
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OUR COVER

A group of W.I.A. lapel badges has been used to form our cover motif. Any member of the W.I.A. may wear a lapel badge; it is not necessary that the applicant possesses a transmitting licence.

FEDERAL COMMENT

★

CONVENTION ITEMS

By a vote of the Federal Council of the Institute, it has been again agreed to hold a Convention at Easter 1963 in Sydney. It is ten years since the last Convention in this city and a bumper Convention is expected. Every member will be well aware that Conventions cost money and will want to be assured that the expenditure is justified. In addition to the cost, a terrific amount of work must go into the administrative preparations for such a meeting of Council.

Most members would assume that the expenditure of some £400 on a Convention could only be truly justified by the number of items received from Divisions for discussion. This, of course, is largely the case, but perhaps the most important aspect of a Convention is the meeting of the Divisional representatives themselves and their awareness of every other representative's problems which are best given by discussion informally.

Nevertheless, the meat of the Convention are the items submitted by the Divisions and the formation of future policy of the Institute by the delegates. Divisions, and particularly members of the Divisions, must now prepare their briefs for their delegates and forward agenda items to the Executive for action. Not much time remains, so give this matter your urgent attention.

CONTESTS

Since the last war when licences were restored to Amateurs in Australia, the Federal Council has endeavoured to cater for those interested in operation in Contests by organising a number of these events. These have all retained their original popularity, as evidenced by the fact that they still exist and are enthusiastically supported. However, in a number of ways it has been necessary to modernise them from time to time. The Ross Hull, National Field Day, and Remembrance Day events have all been continually under review by the Contest Committee, and more recently, the N.Z.A.R.T. with whom the W.I.A. conduct the VK-ZL Contest on a biannual basis, have seen fit to alter the rules to stimulate continued interest. The advent of a limited licence has to some extent required altered rules to provide for the holder participating in the Contests.

Federal Council have always erred on the side of too few Contests rather than too many, believing this policy to be in the best interests of the Institute. Of recent times, certain representations have been received for an entirely Australian Contest on all-band lines, somewhat similar to the pre-war Fisk Contest, which was most popular in its day. This proposed Contest, if of this type, would be on h.f. bands only and would therefore have to exclude the limited licensees.

The views of members would be welcomed on such a proposal to inaugurate a new Contest of this nature or similar. This could be your contribution, through your Division, to providing an interesting item on the agenda for the Convention.

FEDERAL EXECUTIVE, W.I.A.

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CLAMP TUBE MODULATION— AND HOW IT WORKS

C. P. SINGLETON,* VK4UX

MOBILE transmitters always seem to take more power from the battery than desirable, and unless a charger is taken along, the worry of keeping the battery charged can become a problem. In order to conserve battery power, various systems of modulation are tried, and some sort of ratio obtained between power drawn from the battery to supply a modulator and final, and the power developed in the aerial. Some of these ratios can be quite staggering.

TYPES OF MODULATION

For example, consider Heising modulation, an inefficient and out-dated method, which is still used. Assume a power amplifier, having 300 volts on the plate at 50 mA., which represents a power input to the p.a. of 15 watts. To modulate this, we will require 7.5 watts of audio. Using a class A modulator, having an efficiency (we will be generous) of 30%, means that the power input to the modulator will be $100 \div 30 \times (15 \div 2)$, or 25 watts.

Remember that a valve operating class A has no grid current at any part of its cycle, so the plate current drain will be constant at all times. Only its efficiency will vary. So now (neglecting, for the sake of clarity, the necessary dropping resistor between modulator and p.a., and also to save lots of figures, we will assume the efficiency of the p.a. to be 100%) we will require 25 watts plus 15 watts, a total of 40 watts, from the power supply to deliver a modulated input to the p.a. of 22.5 watts. This will give us an efficiency rating of power used, to power delivered, of $22.5 \div 40 \times 100\%$, or 55% for a typical Heising modulation system.

Now consider a class B modulator with the same final. Once more we have 15 watts input to the p.a., and we will require 7.5 watts of audio to modulate it. Now the efficiency of class B is a lot better than Heising, but as we are mainly concerned with power used when the p.a. is 100% modulated, we will consider the modulator drain when it is delivering 7.5 watts. From a typical valve table this is 16 watts. So our figures now are, drain from power supply, 15 plus 16 watts, or 31 watts, for a modulated power input to the p.a. of 15 watts plus 7.5 watts, or 22.5 watts. This gives us an efficiency of $22.5 \div 31 \times 100$, or 72.5%.

Of course, to keep the record straight, the modulation transformer and choke used in above examples, are regarded as having no insertion or other losses.

The next type we will consider is Reference Shift. This is an excellent modulator, but I am afraid that a great number of Amateurs who use it, labour under the false impression that its efficiency is astronomical. In actual fact, there is less than 10% difference,

and this occurs when the p.a. is not modulated. In this case Reference Shift is approx. 6% better than class B.

Don't think for one moment that I am decrying Reference Shift, which I have been using since 1952 in various transmitters. If I were building a plate modulated rig and did not have a modulation transformer, I would use Reference Shift. As for Grid, Suppressor, or straight Screen Grid Modulation, none of these would even compare with Single Choke Heising, because we would have to take the plate efficiency of the p.a. into consideration and quite a lot of design care is needed, not to mention adjustment for best results.

CLAMP TUBE MODULATION

Some months back I became the owner of a Type A Mk. III. transmitter, and as there is practically no room to fit a modulation choke, or for that matter, no more than a couple of small valves, I had to think of some system of modulation that did not require much room. As I did not want to exceed the ratings of its power supply, this was quite a problem. So out came my accumulation of years of "A.R.'s." to see what could be used. Clamp tube modulation seemed to be very popular but not enough information was given as to how it worked.

I like to fully understand anything I am associated with, for example, I have been married for 20 years, and my wife thoroughly understands me, and I am still finding new facets regarding her. Wonderful people, women. But this article is on modulators regrettably, so much as I would like to talk about these wonderful creatures, we must push on to more uninteresting things.

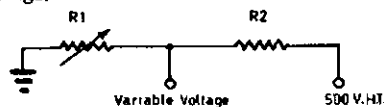


Fig. 1.

Clamp tube modulation at first sight seemed to be comparable with the efficiency of grid modulation, but such is not the case. To digress from modulators for a moment, let us examine the action of a clamp tube. It is generally a triode. Now if sufficient negative bias is applied, the plate current will drop to a very low value, and if the bias were made positive the plate current would rise to a comparatively high value. This variation depends on the type of valve used and what amount of reference bias voltage (if required) is developed across the cathode resistor, if fitted. Now bearing in mind this important fact, it is obvious that the tube can, in effect, be used as a variable resistor to vary the voltage in a resistive network. This is shown in Fig. 1.

Now if this network was altered to a clamp tube set-up, we would replace R1 with a clamp tube as in Fig. 2.

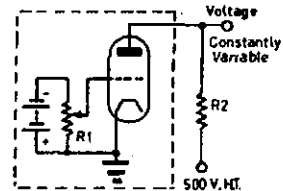


Fig. 2.

By varying the potentiometer across the bias battery, the conductance of the tube can be varied at will and the resultant voltage at the plate of the tube would also vary. Now this is the "intestinal fortitude" of clamp tube modulation. So now we can actually get to designing this modulator, and for the moment, it will take the form as shown in Fig. 3.

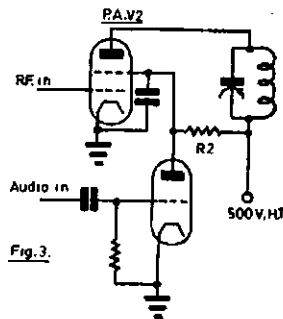


Fig. 3.

Now if audio is fed into the grid of V1, it will be rectified and appear as bias. This bias, when negative, will decrease the conductance of the tube and increase its resistance and, in turn, raise the voltage at the screen of V2. Now if you are doubtful of this occurring, put a diode in series with the grid of V1 and this will prove to you that only a varying voltage will appear on the grid. In short, if a syllabic voltage (speech) is applied to the grid of V1, the voltage on the screen of V2 will vary at a syllabic rate. Remember this, as there are a few traps.

Remembering that if sufficient bias is applied to the grid of V1, it will cease to conduct and allow the normal voltage (dropped through R2) to appear at the grid of V2; and if no bias voltage was applied, the tube V1 would conduct and reduce the voltage on the screen of V2.

We now have a system whereby we can vary the voltage on the screen of V2 at a syllabic rate. This system can be likened somewhat to single choke Heising, and calls for the screen voltage of V2 to swing between zero and twice its applied voltage.

* 4 Sydney Street, Ayr, North Queensland.

Now in order to obtain the correct set-up, two things have to be considered. Firstly, the applied voltage on the screen of V2, with no modulation (V1 conducting), must be half that which would obtain if V1 were not in circuit. This is obtained by applying a reference voltage on the cathode of V1. In my case, it was not necessary. The second thing to consider is that in order to swing the screen voltage between zero and twice its normal applied voltage, we must insert a dropping resistor (R3), suitably bypassed for audio, between the screen of V2 and the junction of V1 and R2. This resistor and condenser serves exactly the same purpose as when it is used for single choke Heising modulation. The circuit now becomes as shown in Fig. 4.

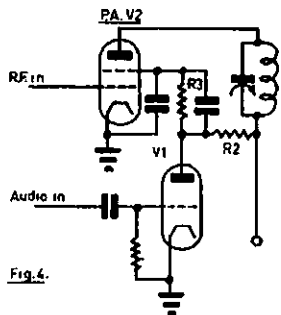


Fig. 4.

Now let us see what happens when we apply sufficient audio to the grid of V1 to obtain 100% modulation. Let us assume that without the clamp tube in circuit, the screen voltage is 300 volts and when it is in circuit, and no audio fed to it, the screen voltage drops to 150 volts. Now when the grid of V1 receives a positive peak voltage it will conduct more and so drop the screen of V2 to zero. Now on the negative peak, V1 is biased to give a very low value of plate current and we will have 300 volts on the screen of V2. So now we have met the requirements of plate modulation, as applied to a screen grid, which this actually is.

As the screen voltage on V2 varies, so it will affect the plate current of V2 and give us controlled carrier, which is another important factor in economical operating. With the average tube, such as an 807 or 6L6, the plate current will rise from approx. 35 mA. to around 80 mA.

The efficiency of this system, when compared to others already mentioned, is 100%. Sounds incredible, but please read on before you utter that well known Aussie saying, that's related to tennis. The reason is that when it is fully modulated, there is no power, or very little, consumed by the modulator tube V1. So that for 15 watts input to the p.a., we draw 15 watts plus modulator drain (practically nil), which gives us 15 watts output. Hard to believe, isn't it? I could not believe it either, but I have verified this fact.

Now you have noticed that I have referred to syllabic voltage. In order to obtain this, the time constant of the coupling condenser and grid leak of V1 must be fast. At least 1/100 second. I did have it 1/100 second, but checking it with a v.t.v.m., noticed a slight momentary increase of V2 plate cur-

rent after the modulating tone was removed. Increasing the time constant eliminated this.

One important thing that is more often than not neglected with plate modulation is that of correct time constant of the screen grid by-pass condenser of the p.a. If it is incorrect, that is, too slow, it can give the impression that the matching between modulator and p.a. is incorrect, and if it is a new modulation transformer, one feels inclined to return it to the makers. Dealing with this subject would take another page and as the screen by-pass hasn't got the same job to do, all you have to remember is not to use a too large capacity that will affect the frequency response. So that's less maths. for you when designing clamp tube modulation.

Now for adjusting this system. Unless you are thoroughly familiar with the use of a c.r.o., you will drive yourself up the wall adjusting the modulation percentage. But it is very easy with a v.t.v.m.

ADJUSTMENT

Firstly, adjust the reference bias, if any, of V1 to drop the screen of V2 to half its normal value. Having done that, you then connect the v.t.v.m. to the V2 screen and read the positive voltage. Apply some tone until the screen voltage is 300 volts positive, or twice its unmodulated voltage. Then read the negative peaks, and you should read zero volts, or slightly negative. That's all there is to it.

To sum it all up, this is a most efficient modulator, capable of very good quality and, what is very important, it cannot be overmodulated, because it is impossible to swing the voltage of the screen to more than twice its applied voltage because, brother, you can't get more than 300 volts!

If you check the pattern of this modulator on a c.r.o., don't expect to get a trap pattern, because you won't. The voltage on the plate of V2 remains constant, but its current varies with variations of screen voltage. In actual practice, the plate current does not quite reach the value obtained with the clamp tube removed, as there will be some current through the clamp tube, even at 100% modulation. But for ease of explanation, I have taken a few liberties, so as to illustrate the operation of this system, without a lot of maths.

One important thing, is that the screen voltage of V2 must be obtained from the same h.t. as that which supplies the plate of V2, because the resistor R2 is, in effect, the load of V1.

Now for the required grid drive to V2. For normal plate modulation, this

is generally 2 to 4 times cut off, depending on how much a purist you are. But for c.w. ratings, it can be less. The reason being, say you have 500 volts at 100 mA. input. This is 50 watts for c.w. Now if you modulate this with plate modulation, then the plate voltage of the final will swing between zero and 1,000 volts, and the current will swing between zero and 200 mA. So peak power input to this p.a. at 100% modulation is 200 watts, or four times that of its unmodulated value. So you will require extra drive to look after the extra 150 watts. But with clamp tube operation, we only require the drive requirements that will obtain if the tube were being operated as a c.w. final.

I have stated that the efficiency of this system is 100%. But remember, I am comparing it with other systems, taking this system of modulation as 100%. Table 1 gives actual efficiency figures, taking a known value of power to the aerial. Power used being the p.a. power, plus the mod. power. The efficiency of the p.a. as far as r.f. is concerned will be taken as 60% in all cases.

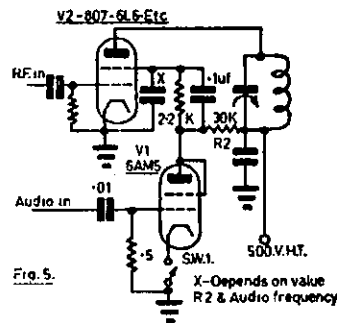


Fig. 5.

So you can see that clamp tube modulation is 21% more efficient than reference shift for the same modulated power to the aerial. This percentage figure is based on the power used, to power out figures of 67% and 51% respectively. Comparing it with Heising modulation on the same basis, the increase in efficiency is 50%.

When tuning up the p.a., the clamp tube is open circuited by means of SW1. The clamp tube, if left in circuit, will mask your p.a. tuning. So switch off the clamp tube, load up the p.a. to aerial as usual, switch on V1, when the plate current of V2 will drop to around half its normal value. Adjust the drive to give around 1.5 mA. grid current of V2, and you are in business.

The finished circuit is as shown in Fig. 5. For the pre-amp. I used a 6U8, but lots of other tubes can be used. ●

Type of Modulation	Pwr. to p.a. and Mod. at 100%	Ditto at Zero Mod. %	Carrier Power at 100%	Ditto at Zero	Mod.	Net Mod.	Average
Heising	66w.	66w.	24w.	16w.	40%	27%	33.5%
Class B	48w.	40w.	24w.	16w.	50%	40%	45%
Reference Shift	48w.	30w.	24w.	16w.	50%	53%	51.5%
Clamp Tube	40w.	16w.	24w.	12w.	60%	75%	67.5%

Table 1.



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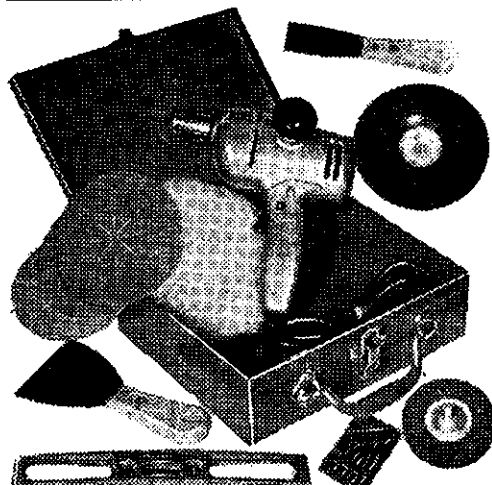
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8WR	8"	" " "	" "	" " "	7 "	2 " 12 "	91/3 " " "
12WR	12"	" " "	" "	" " "	10 "	4 " 4 "	97/9 " " "



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A CRYSTAL-CONTROLLED 1296 Mc. CONVERTER*

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H. M. MEYER, JR., W6GGV

BECAUSE of the growing interest in 1296 Mc., the author wanted to build a converter for this frequency, but it had to be something without a complex string of multipliers and specially-machined cavities, that could be built and put into operation with a minimum of time and trouble. The result, shown in the photographs, is not too much more of a project than a converter for any of the v.h.f. bands, yet its performance on 1296 Mc. is about all that can be achieved without going to parametric amplifiers.

The injection chain has only two 6J6s and a multiplier diode, using a 57.6 Mc. crystal to give injection on 1152 Mc. The output frequency is 144 Mc., chosen to avoid the need for building a low-noise i.f. amplifier stage as part of the converter. Most v.h.f. men already have good converters on 144 Mc., so the needed low-noise amplification at the intermediate frequency is taken care of easily in this way.

The front end is a simple crystal mixer designed as an integral part of a trough-line assembly. The complete front end is seen from the bottom in the second photograph, with the mixer input line at the top of the picture. The diode multiplier is in the bottom trough. Diode multipliers generate harmonics at all multiples of the driving frequency, so another trough is used to reject frequencies other than the desired 1152 Mc. This middle trough acts like a filter, and as a coupling circuit to the mixer. Aperture coupling is used into this filter, and between it and the mixer.

The mixer crystal is visible in the photograph, centered in the aperture between the mixer and filter troughs. The aperture coupling system does not load the Q of the mixer trough as much as a tapped mixer type, and improved rejection of both unwanted crystal harmonics and out-of-band signals results.

The i.f. tuned circuit, L9 and C7 in Fig. 5, is built into a separate compartment of the mixer assembly, at the right side of the photograph, to provide maximum shielding of the 144 Mc. circuits. Unless good shielding is used at this frequency, a few strong locals on 2 metres can cause a lot of trouble. Details of the mixer assembly metalwork are given in Fig. 1.

OSCILLATOR AND MULTIPLIER CIRCUITS

As may be seen from its circuit diagram, Fig. 2, the vacuum-tube portion of the multiplier chain is very simple. The first stage is an overtone oscillator on 57.6 Mc. The second half of the first 6J6 doubles to 115.2 Mc. This is link-coupled to the grids of a second 6J6, which is a push-push doubler to 230.4 Mc. The 230 Mc. energy is coax-

● The last few years have seen increasing activity on Amateur frequencies above 1000 Mc. Much of this has come about because of the growing realization that equipment for u.h.f. work need not necessarily be extremely expensive or difficult to build. Here is an example, a high performance 1296 Mc. Converter that is well within the capabilities of the average experienced builder of Ham gear.

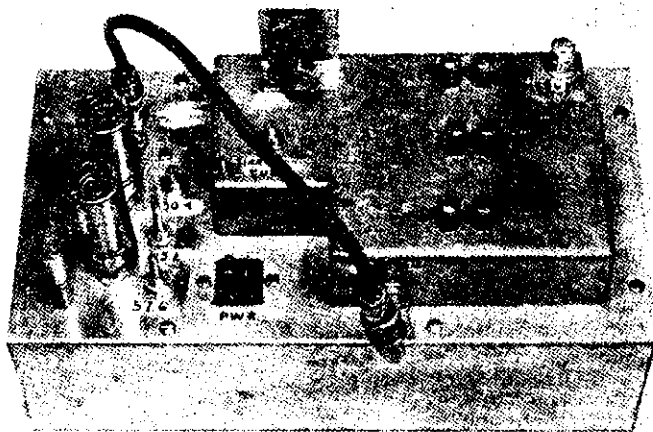
coupled to the multiplier trough, where the diode multiplier output is picked off at the fifth harmonic, 1152 Mc. A fair amount of drive is required to make the diode quintuple effectively, and the 6J6 push-pull doubler provided the most output of any tube tried. Substitutions at this point are not recommended, though almost any dual tube will serve satisfactorily in place of the first 6J6.

theon CK710 worked equally well, yielding 300 to 500 microamp., which is more than enough. This permitted detuning the LC network to decrease the crystal current to the value that gave optimum noise figure for the diode used.

These plug-in converter strips are available for the asking, or at the worst at very low prices, at most t.v. service shops in areas where there is or has been u.h.f. television. Several of the diodes have since been used in other work with good results. The author only wishes that he had stumbled on them sooner; they are well worth the going price. Other diodes are undoubtedly suitable, one widely-used type being the Radio Receptor DR-303, also available at moderate cost.

FRONT-END METAL WORK

The front-end assembly is constructed of sheet brass or copper, 0.025 to 0.050 inch in thickness. Brass was used here as it is easy to work and makes a solid assembly. The photograph shows the original model, which was made



★
The 1296 Mc. crystal controlled converter is built on the cover plate of a chassis. The oscillator and multiplier stages at the left are coax-coupled to the crystal diode multiplier, which is built into the penthouse atop the cover plate. The six screws with nylon nuts are for tuning the three half-wave tank circuits. The i.f. output frequency, 144 Mc., is taken off through a B.N.C. fitting not visible in this picture.
★

The diode multiplier is the heart of the converter. The secret lies in the impedance-matching LC network, and in the choice of the diode. Credit for the network and aperture mixing techniques, both essential for successful operation of the converter, rightfully belongs to Bill Troetschel, K8UQH, ex-W7LVO. Several diodes, including the 1N72 and 1N82, were tried, the best producing a maximum of 120 microamperes of mixer crystal current. Diodes were then salvaged from plug-in u.h.f. converter strips for the widely used Standard Coil T.V. tuner. Of these, the C.B.S. 1N133 and the Ray-

with the mixer signal-input cavity slightly shorter than the others. Later work proved this shortening to be unnecessary, so the drawing shows all troughs of equal length.

In making the trough, the sheet metal should be first cut to the dimensions and shape shown in Figs. 1 and 3. Drill all holes and tap where required. Before bending, cut along the line indicated in Fig. 3, then bend as shown. This is easy if you have access to a sheet-metal shop for a nominal fee. In doing the bending yourself, start with the lower lip of the right-hand portion of the assembly first. When the bending

* Reprinted from "QST," September 1962.

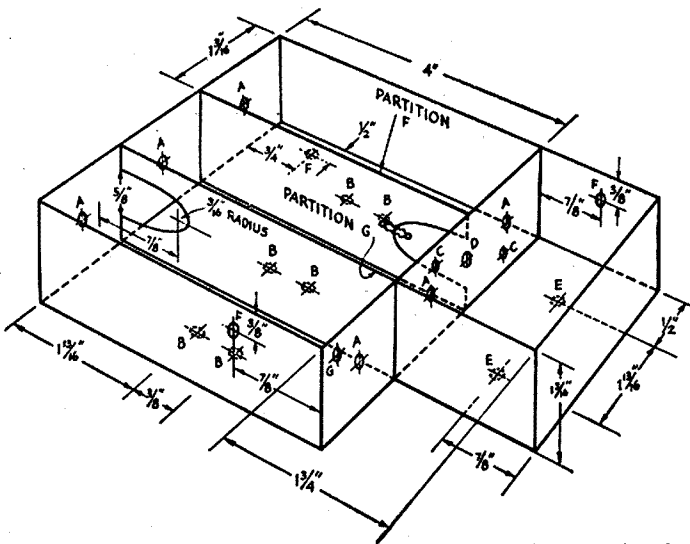
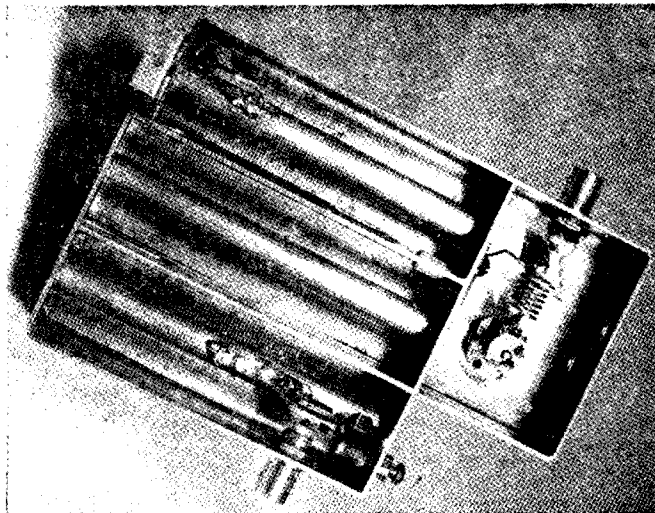


Fig. 1.—Details of the mixer-multiplier trough assembly, as viewed from the bottom. The author recommends 0.025 to 0.050 inch sheet brass, but with minor modifications in design thin materials such as flashing copper could be used. Holes are as follows: A— $\frac{3}{8}$ inch drill, on centre line of each trough. B—No. 29 drill, tapped for 8-32 screw. C—No. 35 drill, tapped for 6-32 screw; to line up with No. 27 holes in capacitor parts. D— $\frac{5}{16}$ inch drill, on centre line of partition E of Fig. 3. E— $\frac{1}{4}$ inch drill. F— $\frac{3}{8}$ inch drill, B.N.C. fitting clearance. G—Trimmer hole, to suit type of trimmer used; location not critical. The notches at the ends of partitions F and G are coupling apertures.



Bottom view of the r.f. end of the 1296 Mc. converter. The multiplier circuit is the bottom trough. Here a diode delivers 1152 Mc. energy when driven at 230.4 Mc. by the oscillator-multiplier stages. The top trough is the 1296 Mc. mixer. Separating the two is an 1152 Mc. filter and coupling circuit. The mixer crystal may be seen in the aperture between the filter and mixer sections. The small compartment at the right houses the 144 Mc. output circuit.

is completed, soldering of the joints at A, B, C and D (Fig. 3) with intermediate or hard solder is recommended. Anything from 30/70 to Easy-Flo will do. Partition E is then soldered in place with the same type of solder. Partitions F and G may be soldered with 60/40 soft solder. The harder variety may be used for all work, but it is not recommended unless you are patient, and skilled with the torch.

When the partitions have been soldered in place, insert the coarse-tuning screws, after first having run an 8-32 nylon nut up to the head of each screw. Now solder a large 8-32 brass nut to the end of each screw. Do this quickly and with a minimum of heat, and do not disturb the nylon nuts until the screws have cooled completely. Now insert the fine-tuning screws, each with nylon nuts, as before, but do not solder the brass nuts to these screw ends.

Now insert the $\frac{3}{8}$ " hollow brass lines in place (in six holes marked A, Fig. 1) and soft-solder. File the inside surface of the i.f. compartment, partition E, completely smooth, so that no sharp projection will puncture the insulation that is part of the u.h.f. bypass capacitor. Next, a contact pin removed from an octal socket is soldered to partition F, at the deepest point of the aperture, to make contact with the tip of the mixer diode. Solder a 2" length of No. 18 wire to the brass plate (see Fig. 4) for making connection to the i.f. output coil later. The combination crystal-retaining plate and u.h.f. bypass capacitor is shown in Fig. 4. This may be assembled with nylon screws as shown, but if these are not available, insulating shoulder washers and brass screws will do equally well.

Next, referring to Fig. 5, the feed-through capacitor, C6, L bracket and closed-circuit jack for monitoring crystal mixer current are mounted as shown in the top-view photograph. The three

B.N.C. connectors are then mounted, along with the 7-turn i.f. coil and tuning capacitor, L9 and C7. The appropriate-sized hole is then carefully drilled in partition E at the end of the multiplier compartment to accommodate the small trimmer capacitor, C4. In the unit pictured, the trimmer capacitor was padded with a small fixed capacitor to bring the tuning range of the trimmer to the proper point. The trimmer pictured is a 0.5-3 pF. unit salvaged from an old t.v. tuner. Use of the next larger size would eliminate need for padding. The small 4-turn coil, L8, is soldered to the B.N.C. connector to the trimmer, and the multiplier diode is soldered to the line approximately $\frac{1}{4}$ " from the inside wall of partition E. The optimum point will have to be determined later on, but this is a good place to start.

Connect the mixer output to the i.f. coil, using the 2" No. 18 lead previously

soldered on the capacitor plate, $\frac{1}{4}$ turns from the cold end of the i.f. coil. This connection will be adjusted later for maximum output. The i.f. output coupling loop, L10, is installed with loose coupling to the cold end of the i.f. coil.

The 1296 Mc. antenna coupling loop is made of No. 18 bare wire and soldered to the B.N.C. connector. Then it is run parallel to the $\frac{3}{8}$ " line and grounded to the trough wall. Several methods of input coupling were tried: the loop as described above, a direct tap on the line, and probe coupling. All worked equally well and all are relatively easy to adjust. The probe method is worthy of further mention since, of the three, it appeared to be the least critical to adjust. A $\frac{3}{16}$ " x 1" piece of brass was soldered edgewise to the centre pin of the B.N.C. connector and adjusted by moving it either closer to or farther from the line.

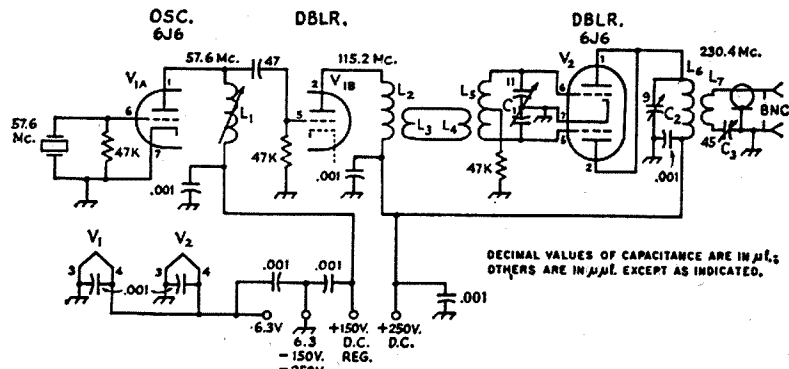


Fig. 2.—Schematic diagram of the oscillator and multiplier section of the 1296 Mc. converter.
 C1—11 pF. butterfly variable.
 C2—9 pF. miniature variable.
 C3—7.45 pF. ceramic trimmer.
 L1—10 turns No. 24 enamel on $\frac{3}{8}$ inch iron-slug former.
 L2—6 turns No. 20 enamel like L1.
 L3—2 turns No. 24 enamel around cold end L2.
 L4—Like L3, but at centre of L5, L3, L4 and link of one piece of wire.
 L5—8 turns No. 18, 3/8 inch diam., 5/8 inch long, c.t.
 L6—1 turn No. 18, 3/8 inch diam.
 L7—1 turn insulated hook-up wire coupled to L6.
 DECIMAL VALUES OF CAPACITANCE ARE IN $\mu\mu\text{F}$; OTHERS ARE IN μF , EXCEPT AS INDICATED.

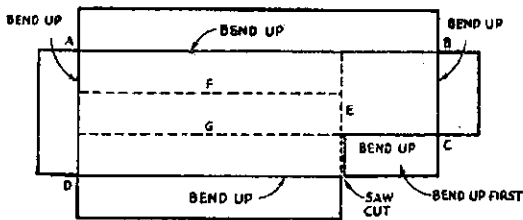


Fig. 3.—Bending instructions for the mixer housing. Dimensions are available from Fig. 1. Partitions E, F and G, indicated by dashed lines, are soldered in place after the bending operation is completed. Note that the lower lip of the i.f. output portion at the right should be bent up first.

MULTIPLIER CHAIN

The converter was constructed on the bottom plate of a 5" x 9½" x 2½" chassis. No special mounting directions are given here since the techniques are quite straightforward. The bottom view photograph shows the principal layout details. Subsequent models were constructed using a larger chassis. The 1296 Mc. trough assembly was mounted underneath the chassis, instead of on top as shown, to provide a little more shielding. In an effort to achieve greater stability, a longer multiplier chain was tried, to eliminate the third-overtone crystal. However, the unit constructed as shown is readily amenable to the application of more sophisticated techniques if they appear desirable later. If no external multiplier chain is contemplated, mounting the

mixer crystal (a 1N25 is preferable, but almost any of the 1N21, 1N23 series will do nicely), and plug a 0-100 microammeter into the mixer current jack. Couple the multiplier chain to the crystal multiplier with coax and B.N.C. fittings. With power applied to the multiplier chain, a slight deflection should be noted on the meter. If no deflection is noted, check to make sure that the 1296 Mc. bypass capacitor, C5, is not grounded. Caution: Remove the mixer crystal before measuring with an ohmmeter. If there is still no deflection, use a grid dip oscillator tuned to 23 Mc. and lightly couple into the crystal-multiplier trough. Adjust C2 and C3 for maximum dip. A slight indication should now be seen on the microammeter. Adjust the coarse tuning on both the multiplier and filter troughs for maximum meter indication. Change the meter to a 0-1 mA. type and adjust the fine-tuning and trimmer capacitors for peak crystal-mixer current. Adjust the diode multiplier tap

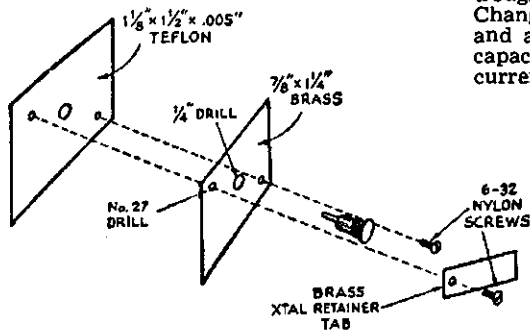


Fig. 4.—Details of the mixer crystal mounting and u.h.f. by-pass capacitor. These mount on the left edge of the i.f. output section, as seen in the bottom view. Locations of the mounting holes are not critical, so long as these and the mating holes in the mixer assembly line up. The centre of hole D should line up with the centre line of partition F.

crystal underneath the chassis will help to insulate it from external temperature variations.

ADJUSTMENT AND OPERATION

The power supply should deliver 250 volts d.c., 6.3 volts a.c. at 2.5 amp. and 150 volts regulated. An additional power plug may be added to run power to the 144 Mc. converter if desired. Design of the power supply unit is left to the needs of the constructor.

When the trough assembly and multiplier chain have been constructed, apply power to the multiplier and tune up. With the voltage specified, the output at 230.4 Mc. should be capable of lighting a No. 47 pilot lamp to approximately half brilliance. If the output is much less than this, the preceding stages should be checked carefully, and adjusted until the output equals or exceeds the amount required.

The multiplier trough may be preset by turning the coarse-tuning screw until it bottoms on the trough line, then backing off approximately one turn. Set the fine-tuning capacitor to a depth of approximately ¼" in the trough. Set the coarse and fine-tuning adjustments in the filter-mixer trough in the same manner.

The trimmer in the diode multiplier circuit should be set to approximately three-quarter capacity. Insert the

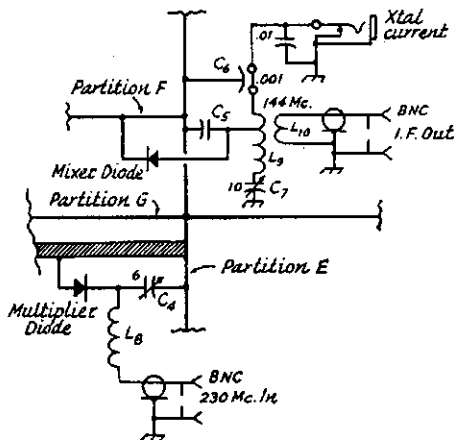
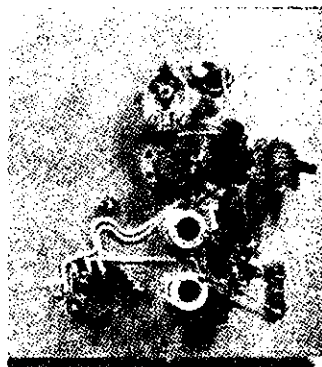


Fig. 5.—Schematic diagram of the diode multiplier and i.f. output circuits of the 1296 Mc. converter. Decimal values of capacitance are in μF ., others in pF.

- C4—6 pF. plunger-type trimmer.
- C5—U.h.f. bypass; see text and Fig. 4.
- C6—Feed-through capacitor, 0.0005 μF . or larger.
- C7—10 pF. miniature variable.
- L3—4 turns No. 28 enamel, closewound, 1/16 inch diameter.
- L9—7 turns No. 18, ¼ inch diameter, 7/16 inch long. Tap at ¼ turns.
- L10—2 turns No. 24 insulated hook-up wire inserted between turns of L9. Twist leads to coax fitting.

on the trough line for maximum mixer current, being careful not to apply too much heat to the leads of the diode when soldering. A pair of long-nosed pliers will conduct most of the heat away if used to hold the diode pigtail during the soldering operation. When all adjustments have been completed, a reading somewhere between 200 and 500 μA . should be readily attainable, depending on the type of multiplier and mixer crystal used.

The injection frequency is 1152 Mc., the fifth harmonic of the multiplier chain. The trough will not tune to the fourth harmonic of the driver, but it will tune to the sixth, 1382.4 Mc. If the maximum amount of mixer current you can obtain is of the order of 60 to 100 μA ., you may have tuned the multiplier and filter trough to the sixth harmonic. For this reason it is best to begin tuning adjustments from the maximum-capacity side.



Interior view of the oscillator and multiplier circuits of the converter. The two slug-tuned coils at the lower right are the oscillator and first-doubler plate circuits, L1 and L2. Above is the push-push doubler, with its 115.2 Mc. grid circuitry at the ridge edge and the 230.4 Mc. plate and output-coupling circuits at the left and above the tube socket.

If you have access to a stable 1296 Mc. signal generator, the rest is easy. A local 1296 Mc. Amateur signal will serve nicely, or you may have to build a 1296 Mc. beacon. This is not too difficult. Use a 54 Mc. third-overtone crystal in a transistor oscillator circuit and feed the output to a diode multiplier trough similar to the one described here. The entire unit can be built in a small box about 2" x 3" x 4", including the battery power supply.

Pretune the i.f. coil to 144 Mc. with a grid dip oscillator. Connect the i.f. output to a good 144 Mc. converter and the input signal to the converter. Tune the signal trough and i.f. tuning capacitor for maximum signal. Adjust the tap on the i.f. coil for best match. This point will be ½ to 2 turns from the cold end of the coil, depending on the type of mixer crystal used. Carefully position the output pickup link to the point of maximum signal while retuning the i.f. coil each time an adjustment is made.

Next, adjust the input loop or probe for best noise figure, using whatever diode noise generator you may have. You will generally find this point lies

(Continued on Page 8)

† Frye, "Adjustment Procedures for V.h.f. Converters," "QST," October 1958.

A HEAVY DUTY PORTABLE/MOBILE POWER SUPPLY

R. HAZLETT,* VK4ZRH

ONE problem with a mobile transmitter in a modern car is how to provide h.t. for prolonged periods without flattening the battery. In addition, to complicate the problem, the power source must be low in cost and dependable in operation.

A possible solution is to utilise disposal motor generators in conjunction with a low powered petrol engine. The latter can be obtained at reasonable cost by adapting the motor from an old lawn mower.

Care should be given to the selection of a suitable motor generator. The main consideration is to choose a unit capable of generating the required voltage at a medium speed of rotation. It is for this reason that a "522" type unit is not recommended because for 300v. out, 6,000 r.p.m. are required. I selected an aircraft type rated at 24/28v. input at 24a. and 1,050v. out at 400 mA. This output being obtained at 3,000 r.p.m.

Having carefully selected your generator, test it on a battery to ensure that all windings are in good condition. In addition, see that the brushes and commutator are clean. The commutator may be cleaned by the application of very fine glass paper, emery paper should not be used.

Carefully dismantle the motor generator and ascertain which end will have to be connected to the petrol motor for correct rotation. Remove the bearings, and fan if necessary, then electric weld (not oxy.) a piece of mild steel to the armature shaft. A length of 1½" should be suitable. Take care to keep sparks and heat away from all windings. This may be done by wrapping the unit in an old bag, and welding only a small tack at a time.

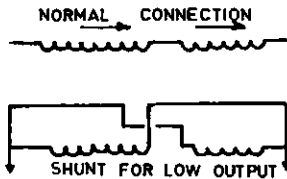


Fig. 1.

The new shaft should then be machined, a job that a local engineering shop would do for a small fee.

The unit should then be re-assembled after the bearings have been re-packed in fresh grease.

If a lower voltage is required the two shunt fields should be connected in parallel, as shown in Fig. 1. Take care not to reverse the polarity! It is essential that the polarity be correct, otherwise the unit may not excite when operated as a generator. By connecting the shunt field across a suitable battery, the direction of rotation can be found. This should be marked on the unit and indicated by an arrow.

★ The writer provides a possible solution to the problem of providing a heavy duty low cost portable/mobile power supply.

The selection of the petrol motor will depend upon the amount of use required, initial cost and physical size, etc.

Mine is a ½ h.p., four-cycle Briggs & Stratton, as used on a 12v., 300w. lighting plant. A two-stroke unit from an old lawn mower is acceptable, but a four-stroke type is more reliable. A suitable silencer will greatly reduce the noise.

Take precautions against contacting the h.t. output from the generator, or fumes from the engine. Never test in an enclosed space. Carbon monoxide will kill without warning.

The generator is coupled to the petrol engine by means of a 2" piece of rubber hose, not plastic. The two ends are clamped by clips, sold by garages as muffler clamps. The generator is connected as shown in Fig. 2. The (carbon pile) regulator will assist to hold the voltage output steady on a wide range of engine speeds. It is virtually noise free and is available from disposal sources.

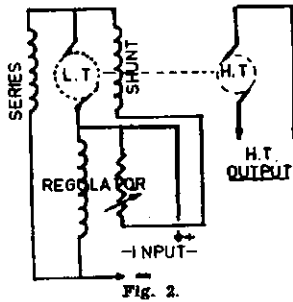


Fig. 2.

Connect the field lead to the armature brush, and the unit is ready for test.

If, on testing, the generator will not excite, connect a 12v. battery across the LV terminals ("input"—Fig. 2). If the motor slows down then the generator is working and charging the battery. Upon disconnecting the battery the generator should continue to be self excited. If this does not happen, then reverse the polarity of the battery and try again. If this also fails, check the brushgear to ensure that it is bedding down correctly upon the commutator. Spare brushes can be obtained from disposal sources or electrical merchants.

By the addition of a solenoid starter, electric fuel pump and/or coil ignition, the unit can be made self starting. This is achieved by connecting a 12v. bat-

tery across the LV terminals. Such a means is suitable for petrol units up to 1 h.p. rating. The series winding must be used.

Voltage regulation is assisted by the addition of the carbon pile regulator and, if possible, by the use of a petrol unit equipped with a governor. A VR tube(s) connected across the h.t. output will provide a suitably regulated source for connection to the transmitter v.t.o.

Filtering is required on both the l.t. and h.t. leads. All connections should be short, heavy duty shielded leads. The leads between the brush holders should be kept short.

Using the units specified, the performance is as follows:—

	L.T.	H.T.
1,000 r.p.m.	6v.	250v.
1,500 r.p.m.	12v.	500v.
2,250 r.p.m.	18v.	750v.
3,000 r.p.m.	24v.	1,000v.

If a heavy load is required from the LV output, it should be connected directly across the brush holders. The series field is in reverse polarity for generating, which is only acceptable for small loads.

It will be realised that this unit when built can be used as a battery charger and/or a lighting plant.

My unit will fit comfortably under the bonnet above the steering box in a Holden car. Possibly a similar position could be used in other makes of cars.

This generator has been used with a "522" transmitter for the Scouts' Walk-about through the Lockyer Valley. It has also been pressed into service for hidden transmitter hunts.

Incidentally, by placing a 60 watt, 250v. electric light globe in series with the h.t., 300v. output and illumination is supplied. Be seeing you!

★

A CRYSTAL CONTROLLED 1296 Mc. CONVERTER

(Continued from Page 7)

in the direction of greater coupling from the position of maximum signal strength. When the input circuit has been adjusted for optimum noise figure, vary the crystal mixer current from 50 μA. to the maximum available. Make comparative noise-figure measurements for every 20 μA. increase in mixer current. You will probably find the best noise figure occurs between 150-200 μA. with very little change for values between 200 and 500. You are now in business with a 1296 Mc. converter.

It is appropriate to mention a word of thanks to K6UQH, K6ONM and W6VSV for the help and time they have given in getting this project under way.

* 372 Cavendish Rd., Coorparoo, Qld.

PRACTICAL PI-NETWORK DESIGN DATA*

E. H. MARRINER, W6BLZ

• The problem of designing a pi-network output circuit for a transmitter is a thorny one for many Amateurs. The author has removed the need for all but the simplest calculations and has boiled the entire process down to a series of graphs.

MANY modern transmitters use a pi-network tank because it can conveniently match most low impedance lines. Most frequently it feeds a 52 ohm line.

Experimenters, building transmitters using various output tubes, find it difficult to calculate the values of the pi-network components. To make the task simpler, a series of graphs have been constructed so that the components can be determined in inductance and capacitance values directly, rather than reactance values given in most reference texts.

A set of curves is provided for each Amateur band and are calculated for the lowest frequency used in that band. The curves are based on a 52 ohm output which is most commonly used. Two sets of curves are provided for each band, one for the inductance value and one for the capacitance values. The graphs are constructed for three values of Q: 10, 15 and 20.

A high Q tank circuit provides excellent harmonic attenuation but reduced efficiency, while a low Q tank circuit gives little harmonic attenuation but higher efficiency. A value of Q should be chosen that provides a compromise and a suitable value would be 15. This would be best since it would help eliminate harmonics and still provide a reasonable tank efficiency.

HOW TO USE THE GRAPHS

Before using the curves it is necessary to determine the plate load resistance of the output tube feeding the network. If, for example, a 6AG7 is used with 300 volts applied and a plate current of 30 mA, results, the following formula would enable determination of the plate load resistance:—

$$R_1 = \frac{E_p}{I_p} \times 500 \text{ or}$$

$$R_1 = \frac{300}{30} \times 500 = 5,000 \text{ ohms}$$

where:

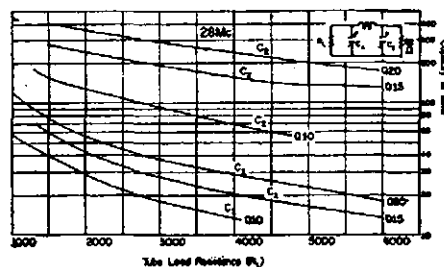
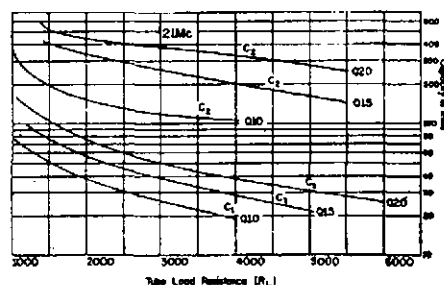
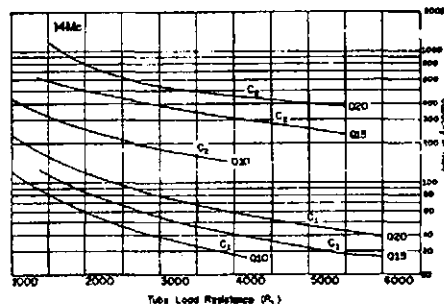
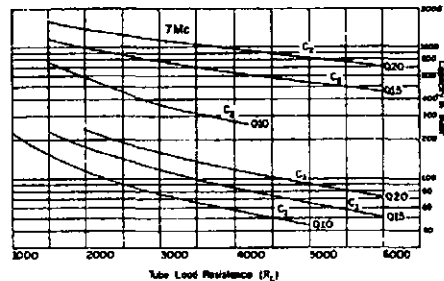
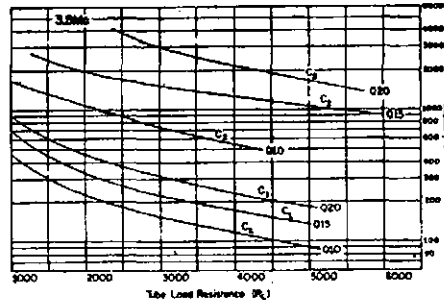
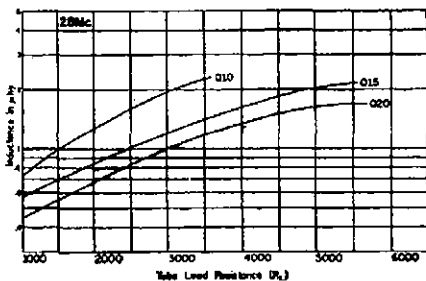
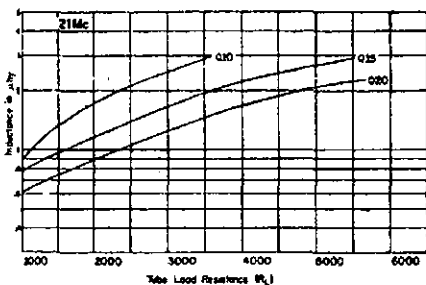
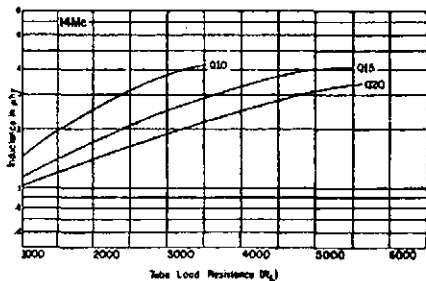
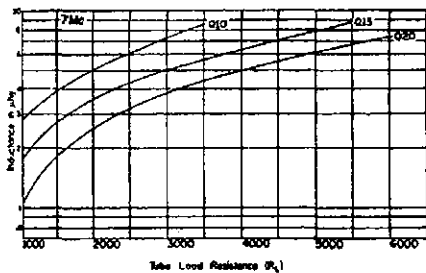
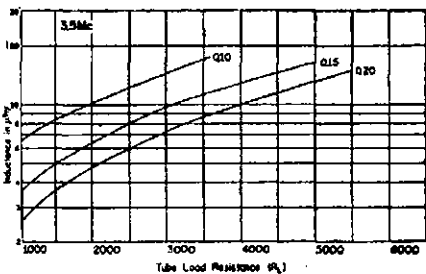
- R₁ = Plate load resistance.
- E_p = Plate voltage under load.
- I_p = Plate current under load.

If two tubes are paralleled in the output, the value would be divided by two.

Having decided upon the band, the Q and with the plate load resistance known, we are ready to consult the

(Continued on Page 11)

* Reprinted from "CQ," August 1962.



The required inductance value for a pi-network on bands 80 through 10 may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load the values may be increased approx. 3%.

The required capacitance values C₁ and C₂ for a pi-network may be determined from this set of curves. The curves are based on an output impedance of 52 ohms. For a 72 ohm load, the values may be increased approx. 3%.

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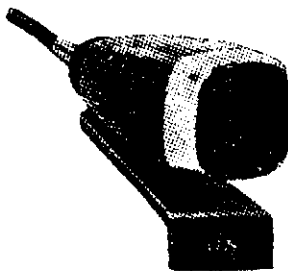
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SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

LESS DISTORTION IN G.G.

Have you seen or heard of "73" magazine, edited by Wayne Green, one-time editor of "CQ"? Here is a very good Amateur magazine filled to the brim with constructional information in all fields of our hobby. There are quite a lot of articles on various aspects of sideband and one of these appeared in the September 1962 issue.

Apparently in commercial applications, the popular, amongst Amateurs, grounded grid amplifier does not have low enough distortion figures to warrant its use. This is of importance when independent sideband transmissions are used. I.s.b. is that form of transmission where both upper and lower sidebands are used simultaneously for two separate purposes. Distortion products from the opposite sideband need to be in excess of 60 db. down to be tolerable.

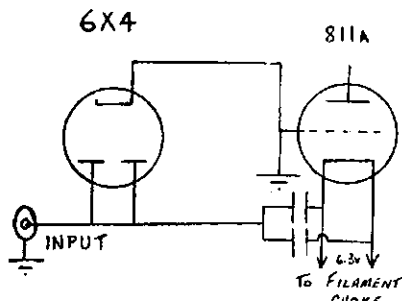


Fig. 1.—Linear Input Loading.

However, a grounded grid linear amplifier presents only a half wave load to the driver, resulting in distortion in this stage which is then amplified by the g.g. stage. Buddy Alvernaz, W6DMN, came up with the answer which is just about as simple as you will ever get. Several types of rectifier tubes can be used to load the driver on the positive half cycle and the 6X4 has the approximate internal resistance to meet the matching requirements. Extra drive is not required. All you need to effect this modification is a 6X4 tube, a 7-pin socket and a few inches of wire. The diagram shows the diode load applied to an 811A grounded grid stage. Already VK3AC and VK2AQJ have installed 6X4 tubes in their finals.

OPERATING PRACTICES

Let us have a look at the current situation on the bands at the moment. Firstly, are we remembering to identify every five minutes? The answer to this one is generally, "Yes". To comply with the regulations, this must be a one hundred per cent "Yes". Even though most of us remember the five minute interval, we very often break the rule on how we identify. Your own call sign is not sufficient, you must also include the other station or stations with whom you are in communication. In between each five minutes, it is not necessary to use call signs

when handing over to the next in line unless you wish to do this to avoid confusion. You may then just use his and your own call. Remember when announcing a string of call signs in a net, that you must include the VK prefix for each call sign.

How often do you hear a net in which each station occupies a different frequency? This adds up to a lot of frustration and waste of time in obtaining repeats. It also destroys the excellent facility of vox to make interjections. The simplest and best approach is to nominate one station as frequency control station and keep your v.f.o. aligned to his frequency. Check this alignment at least every five minutes or more frequently if you suspect that your v.f.o. has any tendency to wander.

Do not break into a net as soon as you hear one in progress, wait until the identification time comes around and slip your own call in at an appropriate moment. While you are exchanging such things as names, locations and signal reports, ask who the frequency control station is. Do not break in if a discussion is in progress of which you have no knowledge or interest. Nothing can ruin an interesting net quite so quickly.

If you are talking across town on any of the bands, try reducing the level into the final amplifier, instead of using all that power that is possibly causing interference to someone else quite a long way away. Here is where a single sideband transmitter has an advantage in that the output can be easily controlled. You should vary the gain of an r.f. amplifier to achieve this, not the audio gain control. By turning the audio back you are sacrificing carrier suppression below peak output.

MONITORING S.S.B.

Was that your signal that was spread across about 30 kc. of the band last week-end? By using effective monitoring of the signal this should never happen. The best monitor is an oscilloscope and it does not have to be an elaborate one. However, an r.f. output meter or field strength meter can be used to indicate the correct level. With the meter method, the procedure is to insert carrier until no increase in output occurs with a further increase in carrier level. Note this level on the meter and then with speech input, adjust the level until the speech peaks reach half of that level. This will be the correct adjustment for the average voice.

The only sure way of monitoring s.s.b. is to watch the envelope pattern on an oscilloscope. The procedure to adopt here is to watch the pattern on the screen and increase the level until the peaks are no longer sharp but are flat across the tops. You will soon see what is the correct picture. Once you have made this adjustment, switch on the automatic level control and your worries are over. All sidebanders who have any respect for their fellows and themselves have a.l.c. working for them.

VK2AC MAKES "QST"

I am sure that all Australian Amateurs and in particular, the sideband gang, join me in extending heartiest congratulations to Leo McMahon, VK2AC, for having his article, "A Phasing/Filter S.s.b. Generator" accepted and published in the October "QST". This is indeed an achievement because I believe the Technical Editor of "QST" is very particular to maintain the high standard of technical articles found in the magazine.

Most of us are familiar with this phasing/filter way of generating a signal, having heard Harry VK2AJZ reaping the benefit of Leo's handiwork. It was Harry's "Sideband Package" transmitter on which Leo operated to produce the prototype of this dual method of sideband generation.

Briefly, the idea is to first produce an s.s.b. signal using the phasing method on about 440 kc. This has several advantages, one in particular being that the r.f. phase-shift network is not at all critical and easily adjusted. This signal is then passed through a single crystal lattice filter where a further improvement in unwanted sideband and carrier suppression takes place. The rest of the exciter follows the general design of the sideband package. A 6BU8 tube has been used as a balanced mixer following the crystal filter.

For those of you who may be interested in further details, your attention is drawn to this excellent article by Leo, "Phasing/Filter S.s.b. Generator," on page 38 of the October 1962 "QST."

The Publications Committee wishes every reader the very best for the coming New Year, and trusts that it will bring to each and all, the things that they would want for themselves.

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AUSTRALIAN DX CENTURY CLUB AWARD

OBJECTS

- 1.1 This Award was created in order to stimulate interest in working DX in Australia and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "DX Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 A certificate of the Award will be issued to the applicants who show proof of having contacted one hundred countries, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

- 2.1 Verifications are required from one hundred different countries as shown in the Official Countries List.
- 2.2 The Official Countries List will be published annually in "Amateur Radio" and will be amended from time to time as required. Should a country be deleted from the Countries List at any time, members and intending members will be credited with such country if the date of contact was before such deletion.
- 2.3 The commencing date for the Award is 1st January 1946. All contacts made on or after this date may be included.

OPERATION

- 3.1 Contacts must be made in the H.F. Band (Band 7) which extends from 3 to 30 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 7.

- 3.2 All contacts must be two-way contacts on the same band. Cross band contacts will not be allowed.
- 3.3 Contacts may be made using any authorised type of emission for the band concerned.
- 3.4 Credit may only be claimed for contacts with stations using regularly-assigned Government call signs for the country concerned.
- 3.5 Contacts made with ship or aircraft stations will not be allowed, but land-mobile stations may be claimed provided their specific location at the time of contact is clearly shown on the verification.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.

- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.
- 4.4 A check list must accompany every application setting out the details for each claimed station in accordance with the details required in Rule 4.3.

APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the D.K.C.C. wishing to have their verified country totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.
- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN V.H.F. CENTURY CLUB AWARD

OBJECTS

- 1.1 This Award has been created in order to stimulate interest in the V.H.F. bands in Australia, and to give successful applicants some tangible recognition of their achievements.
- 1.2 This Award, to be known as the "V.H.F. Century Club" Award, will be issued to any Australian Amateur who satisfies the following conditions.
- 1.3 Certificates of the Award will be issued to the applicants who show proof of having made one hundred contacts on the V.H.F. bands, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

- 2.1 Contacts must be made in the V.H.F. Band (Band 8) which extends from 30 to 300 Mc., but such contacts must only be made in the authorised Amateur Bands in Band 8.
- 2.2 In the case of the authorised bands between 30 and 100 Mc., verifications are required from one hundred different stations at least seventy of which must be Australian. The Amateur Bands 50 to 54 Mc. and 56 to 60 Mc. will be counted as one band for the purposes of the Award.
- 2.3 In the case of the authorised Amateur Band between 100 to 200 Mc. and any authorised band between 200 to 300 Mc., verifications from one hundred different stations for each band is required.
- 2.4 It is possible under these rules for one applicant to receive three certificates, one for each of the authorised Amateur Bands nominated in Rules 2.2 and 2.3.
- 2.5 The commencing date for the Award is 1st June, 1948. All contacts made on or after this date may be included.

OPERATION

- 3.1 All contacts must be two-way contacts on the same band, and cross band contacts will not be allowed.
- 3.2 Contacts may be made using any authorised type of emission for the band concerned.
- 3.3 Fixed stations may contact portable/mobile stations and vice versa, but portable/mobile station applicants must make their contacts from within the same call area.
- 3.4 Applicants, when operating either portable/mobile or fixed, may contact the same station licensee, but may not include both contacts for the same type of endorsement.
- 3.5 Applicants may only count one contact for a station worked as a limited licensee with a Z call sign who is subsequently contacted as a full A.O.C.P. holder.
- 3.6 All stations must be contacted from the same call area by the applicant, although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign providing the applicant is still in the same call area.
- 3.7 All contacts must be made when operating in accordance with the Regulations laid down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verifications in the form of QSL cards or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted, and altered or forged verifications will be grounds for disqualification of the applicant.
- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.

- 4.4 A check list must accompany every application setting out the following details:—

- 4.4.1 Applicant's name and call sign, and whether a member of the W.I.A. or not.
- 4.4.2 Band for which application is made, and whether special endorsement is involved.
- 4.4.3 Where applicable, the date of change of call sign and previous call sign.
- 4.4.4 Details of each contact as required by Rule 4.3.
- 4.4.5 The applicant's location at the time of each contact if portable/mobile operation is involved.
- 4.4.6 Any relevant details of any contact about which some doubt might exist.

APPLICATIONS

- 5.1 Applications for membership shall be addressed to the Awards Officer, Box 2611W, G.P.O., Melbourne, Vic., accompanied by the verifications and the check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 5.2 A nominal charge of 2/6, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 5.3 Successful applicants will be listed periodically in "Amateur Radio". Members of the V.H.F.C.C. wishing to have their verified totals, over and above the one hundred necessary for membership, listed will notify these totals to the Awards Officer.
- 5.4 In all cases of dispute, the decision of the Awards Officer and two members of the Federal Executive of the W.I.A. in the interpretation and application of these Rules shall be final and binding.
- 5.5 Notwithstanding anything to the contrary in these Rules, the Federal Council of the W.I.A. reserves the right to amend them when necessary.

AUSTRALIAN D.X.C.C. COUNTRIES LIST

	Phone	C.W.		Phone	C.W.
AC3	Sikkim		FG7	Guadeloupe	
AC4	Tibet		FH8	Comoro Is.	
AC5	Bhutan		F18 (prior 20/7/55)	Fr. Indo China	
AP	West Pakistan		FK8	New Caledonia	
AP2	Pakistan		FL8	Fr. Somaliland	
BV (C3)	Formosa		FM7	Martinique	
BY (C)	China		FN (prior 1/11/54)	French India	
C9	Manchuria		FO8	Clipperton I.	
CE	Chile		FO8	Fr. Oceania	
CE9, KC4, LU-Z, VK0, VP8, ZL5	etc., Antarctica		FP8	St. Pierre & Miq. Is.	
CE0A	Easter I.		*FQ8	Fr. Equatorial Africa	
CE0Z	J. Fernandez Arch.		TL8 (fr. 13/8/60)	Cen. Afric. R.	
CM, CO	Cuba		TN8 (from 15/8/60)	Congo Rep.	
CN2 (prior 1/7/60)	Tangier		TR8 (from 17/8/60)	Gabon Rep.	
CN2, 8, 9	Morocco		TT8 (from 11/8/60)	Chad Rep.	
CP	Bolivia		FR7	Reunion I.	
CR4	Cape Verde Is.		FS7	Saint Martin	
CR5	Portuguese Guinea		FU8, YJ1	New Hebrides	
CR5	Principe, Sao Thome		FW8	Wallis & Futuna Is.	
CR6	Angola		FY7	Fr. Guiana & Inini	
CR7	Mozambique		G	England	
CR8 (prior 1/1/62)	Goa		GC	Channel Is.	
CR8	Port. Timor		GD	Isle of Man	
CR9	Macao		GI	Northern Ireland	
CT1	Portugal		GM	Scotland	
CT2	Azores		GW	Wales	
CT3	Madeira Is.		HA	Hungary	
CX	Uruguay		HB	Switzerland	
DJ, DL, DM	Germany		HC	Ecuador	
DU	Philippine Is.		HC8	Galapagos Is.	
EA	Spain		HE	Liechtenstein	
EA6	Balearic Is.		HH	Haiti	
EA8	Canary Is.		HI	Dominican Rep.	
EA9	Ifni		HK	Colombia	
EA9	Rio de Oro		HK0	Arch. of San Andres and Providencia	
EA9	Spanish Morocco		HK0	Bajo Nuevo	
EA0	Spanish Guinea		HK0	Malpelo Is.	
EI	Rep. of Ireland		HL	Korea	
EL	Liberia		HP	Panama	
EP, EQ	Iran		HR	Honduras	
ET2	Eritrea		HS	Thailand	
ET3	Ethiopia		HV	Vatican	
F	France		HZ	Saudi Arabia	
FA	Algeria		I1, IT1	Italy	
FB8	A'dam & St. Paul Is.		I1 (prior 1/4/57)	Trieste	
FB8	Kerguelen Is.		I5 (prior 1/7/60)	It. Somaliland	
FB8	Tromelin I.		IS1	Sardinia	
FC	Corsica		JA, KA	Japan	
*FF8	French West Africa		JT1	Mongolia	
TU2 (fr. 7/8/60)	Ivory Coast R.		JY	Jordan	
TY2 (fr. 1/8/60)	Dahomey Rep.		JZ0	West New Guinea	
TZ2 (from 20/6/60)	Mali Rep.		K, W	U.S.A.	
XT2 (from 5/8/60)	Voltaic Rep.				
5U7 (from 3/8/60)	Niger Rep.				
5T5 (from 20/6/60)	Mauritania				
6W8 (fr. 20/6/60)	Senegal Rep.				

* Fr. West Africa and Fr. Equatorial Africa: Only contacts dated prior to when the particular area obtained separate listing (as shown) will count.

	Phone	C.W.		Phone	C.W.
KA0, KG6I	Bonin & Volcano Is.		SP	Poland	
KB6	Baker, Howland and Am. Phoenix I. (inc. Canton I.)		ST2	Sudan	
KC4	Navassa I.		SU	Egypt	
KC6	Eastern Caroline Is.		SV	Crete	
KC6	Western Caroline Is.		SV	Dodecanese	
KG4	Guantanamo Bay		SV	Greece	
KG6	Guam		TA	Turkey	
KG6	Marcus I.		TF	Iceland	
KG6 (Rota, Tinian, Saipan, etc.)	Mariana Is.		TG	Guatemala	
	Hawaiian Is.		TI	Costa Rica	
KH6	Kure I.		TI9	Cocos I.	
KJ6	Johnston I.		TJ (FE8)	Cameroon Rep.	
KL7	Alaska		TL, TN, TR, TT (see after FQ8)		
KM6	Midway Is.		TS (3V8)	Tunisia	
KP4	Puerto Rico		TU, TY, TZ (see after FF8)		
KP6	Palmyra Group, Jarvis I.		UA1-6, UN1	Eur. R.S.F.S.R.	
KR6	Ryukyu Is.		UA1	Franz Josef Land	
KS4B	Serrana Bank and Roncador Cay		UA2	Kaliningrad Region	
KS4	Swan Is.		UA9, 0	Asiatic R.S.F.S.R.	
KS6	American Samoa		UA0 (prior 1/9/60)	Wrangel I.	
KV4	Virgin Is.		UB5	Ukraine	
KW6	Wake I.		UC2	White Russian S.S.R.	
KX6	Marshall Is.		UD6	Azerbaijan	
KZ5	Canal Zone		UF6	Georgia	
LA	Bouvet I.		UG6	Armenia	
LA	Jan Mayen		UH8	Turkoman	
LA	Norway		UJ8	Uzbek	
LA	Svalbard		JJ8	Tadzhik	
LU	Argentina		UL7	Kazakh	
LX	Luxembourg		UM8	Kirghiz	
LZ	Bulgaria		UNI (prior 1/7/60)	Kar-Fin.Rep.	
MP4	Bahrein		UO5	Moldavia	
MP4	Qatar		UP2	Lithuania	
MP4	Trucial Oman		UQ2	Latvia	
OA	Peru		UR2	Estonia	
OD5	Lebanon		VE, VO	Canada	
OE	Austria		VK	Australia	
OH	Finland		VK2	Lord Howe Is.	
OH0	Aland Is.		VK4	Willis Is.	
OK	Czechoslovakia		VK9	Christmas I.	
ON4	Belgium		VK9	Cocos Is.	
OX, KG1	Greenland		VK9	Nauru I.	
OY	Faeroes		VK9	Norfolk I.	
OZ	Denmark		VK9	Papua Terr.	
PA0, P11	Netherlands		VK9	Terr. of New Guinea	
PJ	Neth. West Indies		VK0	Heard I.	
PJ2M	Sint Maarten		VK0	Macquarie I.	
PK1, 2, 3	Java		VO (prior 1/4/49)	Newf./Lab.	
PK4	Sumatra		VP1	British Honduras	
PK5	Borneo		†VP2 (prior 1/6/58)	Leeward Is.	
PK6	Celebes & Molucca Is.		VP2	Anguilla	
PX	Andorra		VP2	Antigua, Barbuda	
PY	Brazil		VP2	Br. Virgin Is.	
PY0	Fernando de Noronha		VP2	Montserrat	
PY0	Trindade & Martin Vaz Is.		VP2	St. Kitts, Nevis	
PZ1	Netherlands Guiana		†VP2 (prior 1/6/58)	Windw'd Is.	
SL, SM	Sweden		VP2	Dominica	
			VP2	Grenada & Deps.	
			VP2	St. Lucia	

† One contact with each group formerly known as "Leeward Is." and "Windward Is." dated prior to 1/6/58 may be credited, in which case no further credit as a separate listing, as from 1/6/58, will be given those particular islands.

	Phone	C.W.
VP2	St. Vincent & Deps.	
VP3	British Guiana	
VP4	Trinidad & Tobago	
VP5	Cayman Is.	
VP5	Jamaica	
VP5	Turks & Caicos Is.	
VP6	Barbados	
VP7	Bahama Is.	
VP8	Falkland Is.	
VP8, LU-Z	South Georgia	
VP8, LU-Z	South Orkney Is.	
VP8, LU-Z	South Sandwich Is.	
VP8, LU-Z, CE9	Sth. Shet. Is.	
VP9	Bermuda Is.	
VQ1	Zanzibar	
VQ2	Northern Rhodesia	
VQ4	Kenya	
VQ5	Uganda	
VQ6 (prior 1/7/60)	Br. Somali'd	
VQ8	Cargados Carajos Shs.	
VQ8	Chagos Is.	
VQ8	Mauritius	
VQ8	Rodriguez I.	
VQ9	Aldabra Is.	
VQ9	Seychelles	
VR1 (includ. Canton Is.)	British Phoenix Is.	
VR1	Gilbert & Ellice Is. and Ocean I.	
VR2	Fiji Is.	
VR3	Fanning & Christmas Is.	
VR4	Solomon Is.	
VR5	Tonga Is.	
VR6	Pitcairn I.	
VS1 (from 1/4/46)	Singapore	
VS4	Sarawak	
VS5	Brunei	
VS6	Hong Kong	
VS9	Aden & Socotra	
VS9	Kamaran Is.	
VS9	Maldivo Is.	
VS9	Sultanate of Oman	
VU2	India	
VU	Laccadive Is.	
VU	Andaman & Nicobar Is.	
XE, XF	Mexico	
XE4	Revilla Gigedo	
XT2 (see after FF8)		
XW8	Laos	
XZ2	Burma	
YA	Afghanistan	
YI	Irak	
YK	Syria	
YN, YN0	Nicaragua	
YO	Roumania	
YS	Salvador	
YU	Yugoslavia	
YV	Venezuela	
YV0	Aves I.	
ZA	Albania	
ZE1	Malta	

	Phone	C.W.
ZB2	Gibraltar	
ZC5	Br. North Borneo	
ZC6	Palestine	
ZD1	Sierra Leone	
ZD3	Gambia	
ZD4 (prior 5/3/57)	Gold Coast, Togoland	
ZD6	Nyasaland	
ZD7	St. Helena	
ZD8	Ascension Is.	
ZD9	Tristan da Cunha and Gough I.	
ZE	Southern Rhodesia	
ZK1	Cook Is.	
ZK1	Manihiki Is.	
ZK2	Niue	
ZL	Chatham Is.	
ZL	New Zealand	
ZL1	Kermadec Is.	
ZL4	Auckland and Campbell Is.	
ZM6	Samoa	
ZM7	Tokelaus	
ZP	Paraguay	
ZS1, 2, 4, 5, 6	Rep. of S. Africa	
ZS2	Prince Ed. and Marion I.	
ZS3	South-West Africa	
ZS7	Swaziland	
ZS8	Basutoland	
ZS9	Bechuanaland	
3A	Monaco	
3W8, XV5	Vietnam	
4S7	Ceylon	
4W1	Yemen	
4X4 (from 14/5/48)	Israel	
5A	Libya	
5B4 (BC4)	Cyprus	
5H3	Tanganyika	
5N2	Nigeria	
5R8	(Madagascar) Malagasy	
5T5 (see after FF8)		
5U7 (see after FF8)		
5V (FD)	Togo Rep.	
6O1, 6O2 (from 1/7/60)	Somalia Rep.	
6W8 (see after FF8)		
7G1 (from 1/10/58)	Rp. of Guinea	
9A (MI)	San Alarino	
9G1 (from 5/3/57)	Ghana	
9K2	Kuwait	
9K3	Kuwait-Saudi Arabia Neutral Zone	
9M2	Malaya	
9N1	Nepal	
9Q5 (previously OQ5-0)	Rep. of The Congo	
9S4 (prior 1/4/57)	Saar	
9U5 (from 1/7/60 to 30/6/62)	Ruanda-Urundi	
—	Cambodia	
9U5 (from 1/7/62)	Rwanda Rep.	
9U5 (from 1/7/62)	Burundi	

NATIONAL FIELD DAY CONTEST, 1963

Saturday, 9th February, and Sunday, 10th February

Dates: Saturday, 9th, and Sunday, 10th February, 1963.

Duration: Saturday, 1800 to 2300 hrs., Sunday, 1000 to 1600 hrs.

Objects: The operators of Portable and Mobile Stations within all VK Call Areas will endeavour to contact other Portable/Mobile and Fixed Stations in Australian and Oversea Call Areas.

RULES

1. There shall be five sections in the Contest:—

- Portable/Mobile Transmitting, Phone.
- Portable/Mobile Transmitting, C.w.
- Portable/Mobile Transmitting, Multiple Operators, Open only.
- Fixed Transmitting Stations working Portable/Mobile Stations, Open only.
- Reception of Portable/Mobile Stations.

2. All Australian Amateurs may take part. Mobile or Portable Stations shall be limited to an input of 25 watts to the final stage. This power shall be derived from a self-contained and fully portable source. A Portable/Mobile Station shall not be located within one mile radius from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

Portable/Mobile Stations may be moved from place to place during the Contest.

No apparatus shall be set up on the site earlier than 24 hours prior to the Contest.

All Amateur bands may be used, but no cross-band operating is permitted.

3. Amateurs may enter for either (a) or (b), or both, in the Portable/Mobile sections.

4. One contact per station for phone and one for c.w. per band is permitted.

5. Entrants must operate within the terms of their licences and in particular observe the regulations with regard to portable operation.

6. Serial numbers consisting of RS or RST report plus three figures commencing with 001 and increasing by one for each successive contact shall be exchanged.

7. Scoring:—

- (a) **Portable/Mobile Stations:**
For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points
For contacts with Portable/Mobile Stations within entrant's Call Area 10 points
For contacts with Fixed Stations outside the entrant's Call Area 5 points
For contacts with Fixed Stations within the entrant's Call Area 2 points

- (b) **Fixed Stations:**
For contacts with Portable/Mobile Stations outside entrant's Call Area 15 points
For contacts with Portable/Mobile Stations within entrant's Call Area 10 points

8. The following shall constitute Call Areas: VK1 and VK2 combined, VK3, VK4, VK5 and VK8 combined, VK6, VK7, VK9 and VK0.

9. All logs shall be set out under the following headings: Date/Time (E.A. S.T.), Band, Emission, Call Sign, RST/No. Sent, RST/No. Received, Points Claimed. Contacts must be listed in numerical order.

In addition, there shall be a front sheet showing the following information:—

Name Address
Call Sign Section
Call Sign of other operator(s) (if any)
Location of Portable/Mobile Station
From hours to hours
From hours to hours

A brief description of equipment used, bands used and points claimed, followed by the declaration:

"I hereby certify that I have operated in accordance with the rules and spirit of the Contest."

Signed Date

10. The right is reserved to disqualify any entrant who, during the Contest, has not observed the Regulations and the Rules of this Contest or who has consistently departed from the accepted code of operating ethics.

11. The decision of the Federal Contest Committee of the Wireless Institute of Australia is final and no disputes will be entered into.

12. Certificates will be awarded to the highest scorer in each Call Area. Additional Certificates may be issued at the discretion of the F.C.C.

13. Return of Logs:—

All entries must be postmarked not later than the 9th March, 1963, and addressed to the—

Federal Contest Committee, W.I.A.,
Box 638J, G.P.O.,
Brisbane, Queensland.

RECEIVING SECTION

14. This section is open to all Short Wave Listeners in VK Call Areas. The Rules shall be the same as for the Transmitting Stations. Logs shall take the same form as for Transmitting Stations, but will omit the serial number received.

Logs must show the Call Sign of the Station heard, the serial number sent by it, and the Call Sign of the Station being worked.

Only one lot of points can be claimed for any one contact between two stations, for example: VK2AA/P calling VK3XX/P and exchanging numbers. Points can be claimed only for VK-2AA/P working VK3XX/P. 2 No points can be claimed for VK3XX/P working VK2AA/P during this particular contact.

Scoring will be on the same basis as for Transmitting Stations. It will not be sufficient to log a station calling CQ. A station may be logged once only for phone and once for c.w. in each band.

Awards.—Certificates will be awarded for the highest scorer in each Call Area.

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Trade Review

"TELECOMPONENTS" VIBRATOR MODULE TYPE 7007

This is a reliable solid state switching unit, being a direct plug-in replacement for a conventional non-synchronous reed type vibrator in mobile communications equipment.

This model was developed primarily for use in A.W.A. Mobile Power Supplies types H59652 and 2H30322. Tele-components advise that units suitable for other makes of equipment are under development. The receiver vibrator in the A.W.A. unit operates continuously on both transmit and receive positions and thus the failure rate is high. The 7007 replaces this vibrator.

Operation is by two OC35 switching transistors mounted on aluminium heat sinks which form the side plates of the unit. A feed-back transformer is mounted between the plates. Overall dimensions including plug pins are approximately those of the original vibrator.

Typical collector current peaks under supply voltage conditions of 10 to 15 volts are approx. 5 amps. for switch-on conditions and approx. 4 amps. for

normal running. Under the worst conditions of transient switching and at maximum applied voltage, the peak collector current does not exceed the rating of the OC35s. Both collector current and frequency remain stable over a wide variation of ambient temperature. Frequency falls within the range 95-120 c.p.s.

Dimensions: overall height 4-9/16", base (not symmetrical) 1-7/16 x 1-11/16" x 1".

Price, all States: £5/8/0 plus 12½% sales tax, if conditionally exempt, from Telecomponents Pty. Ltd., 752 Pittwater Road, Brookvale, N.S.W.

WILLIS INDUCTANCES				
B. & W. 3002	1" dia.	8 t.p.i.	5/3	
" 3003	1" "	16 "	5/3	
" 3006	1" "	8 "	6/3	
" 3007	1" "	16 "	6/3	
" 3010	1" "	8 "	7/4	
" 3011	1" "	16 "	7/4	
" 3014	1" "	8 "	8/5	
" 3015	1" "	16 "	8/5	
" 3018	1 1/4" "	8 "	10/6	
" 3019	1 1/4" "	16 "	10/6	
" 3097	2" "	10 "	13/9	

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£5/5/- PRIZE FOR SELECTED PHOTOGRAPH

Come on shutterbugs! Here's a chance to win five guineas.

The Federal Executive of the W.I.A. requires a topical picture to form the background for the production of the **John Moyle Memorial National Field Day Contest Certificate**.

The selected picture is to be typical of field day operating in the wide open spaces depicting distance and height.

The picture can include equipment and antennae, but not close-ups showing trade names and personalities.

Entries can be any reasonable size on glossy paper. **Do not send negatives but keep the negative in good condition for forwarding if your picture is selected.**

The negative of the winning selection must be available immediately upon request and must be suitable for enlargement up to full plate. Several negatives may be called for before final selection. **Closing date: 1st April, 1963.**

The W.I.A. reserves the right of retaining all pictures forwarded and the final selection of negatives.

To enter, post only a picture, enclosing your name and address to:—

Federal Secretary,
W.I.A. Federal Executive,
Box 2611W, G.P.O.,
Melbourne, C.1, Vic.



MULLARD STEREO "TEN-TEN"

This 10 watt per channel stereophonic amplifier is a successor to Mullard's popular "Five-Ten" monaural amplifier and, as the demand for circuitry and constructional details has been so great since its publication in "Outlook," Mullard decided to reprint in leaflet form. This leaflet is available free from Mullard-Australia Pty. Ltd., Box 2118, G.P.O., Sydney, or their Interstate branches, upon receipt of a stamped, addressed, foolscap envelope.

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FT-241 Crystals in MATCHED PAIRS ±5 CYCLES are available in following frequencies:

444.444 Kc.	451.852 Kc.	459.259 Kc.	464.815 Kc.	Price per MATCHED PAIR £3/12/6 Includes sales tax and one dual crystal socket.
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448.148 Kc.	457.407 Kc.	462.963 Kc.	468.519 Kc.	
450.000 Kc.			470.370 Kc.	

455.000 Kc. Crystals, £2/0/0 each, includes sales tax and crystal socket.

HC6/U 100 Kc. Marker Crystals, £4/16/0 each, includes sales tax and crystal socket.

FX-1 Type Crystals, 0.001% accuracy: 1,000 Kc., £5/15/6; 3,500 Kc., £4/6/6

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Meet the Other Amateur and His Station

HAROLD L. HOBLER,* VK4DO

Club in July 1926; Queensland winner of the 1926 Trans-Pacific Tests, and the Jewell Miles-Per-Watt Contest; in 1937 awarded First Prize by "Short Wave and Television" of U.S.A. for best Amateur Station; worked all U.S.A. States in one year, from August 1946 to 1947; is holder of D.X.C.C., W.A.C., W.A.P., W.A.S., W.A.Z., H.A.R.C.E.N. and other awards, and apart from holding Worked All Zones Certificate for c.w. has qualified for W.A.Z. on phone. Active in R.D., VK-ZL, A.R.R.L. and other yearly contests, his station has gained several places in these over the years, and, incidentally, he holds a First Class P.M.G. ticket.

Forty years is a long time in Amateur Radio, but time has not dimmed the interest of this old timer.

ing the low power, the following results have been obtained. In June 1926 two-way contacts with U.S.A. using 140 volts on a 201A receiving tube; in the same month heard in ZL (200 miles) using 90 volts high tension and loop modulation. October 1936 W.A.C. in 50 minutes with 48 watts; February 1948 record W.A.C. on phone in 28 minutes with an input of 60 watts.

VK4DO was second in Australia in 1924 "Wireless Weekly" Tests; made a foundation member of the Rag Chewers

THERE are few Amateurs in this country who have not worked or heard VK4DO, the Rockhampton (Qld.) station of Harold L. Hobler, for during an active Amateur career of forty years, over 21,000 QSOs with 245 countries have been entered in his logs.

Harold first built crystal and valve receivers in 1921 and early in 1923 transmitted 240 metre telephony, the band licensed in those days. Electrolytic rectifiers (aluminium and lead in a borax solution) were the vogue in those days, with a self excited coupled Hartley oscillator of one tube in the transmitter, and absorption loop modulation.

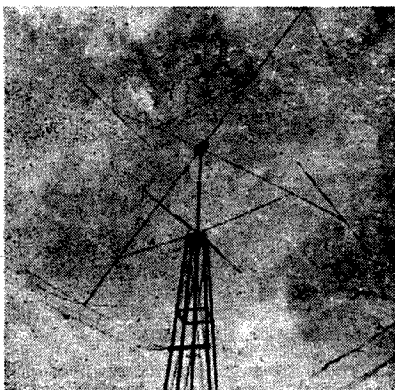
From electrolytic rectifiers, progress was made in securing a better d.c. note by the use of Amrad "S" tubes imported from America, and the use of a 500 volt d.c. generator.

In those days everything bar the valves were home made; variable condensers, fixed condensers, coils, rheostats, knobs and dials. Even blocking condensers that withstood 550 volts a.c. came to light from tin foil and paper, rolled up and pressed between card-board.

Many receivers were made up, including a one-tube regenerative that repeatedly received broadcasting from America on 317 metres in daylight, a three-tube and five-tube all wave, a two-valve lo-loss with a $\frac{1}{4}$ " glass panel (THE rx in those days), and several others.



Harold L. Hobler and his Station, VK4DO.



VK4DO's Cubical Quad.

Today the station is as shown in the photograph, the equipment being as follows (left to right): a Kingsley K/CR/11 Rx with speaker above; all band transmitter with single 807 final; bottom right, Hallicrafters Rx, with A.W.A. Rx and speaker above. Automatic key and hand key are on the table. The signal squirter equipment is a cubical quad for 14 Mc., another quad for 21 Mc., and a 10 foot high centre fed V for 7 Mc.

Hal has never been a high power man. Over the years never more than 60 watts have been used and now only half that power is used. Notwithstand-

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Frequency Range: 400 Kc. to 250 Mc. in eight overlapping ranges. **Coils:** Precision factory wound on polystyrene formers; coils are specially treated to prevent the windings from moving if accidentally knocked, etc. **Meter Movement:** 500 microamperes. **Frequency Indication** is by means of a rotating drum (housed inside the case) with 340° rotation; scale length is 3 $\frac{3}{4}$ " long. **Circuit** uses Colpitts type oscillator with improved grid current stability over the tuning range. **Tuning:** Tuning condenser is equipped with a 1:7 ratio planetary drive. **Power Supply:** Self contained transformer operated selenium rectifier. **Dimensions:** 2 $\frac{1}{4}$ " high, 2 $\frac{1}{2}$ " wide, 6 $\frac{1}{2}$ " long.

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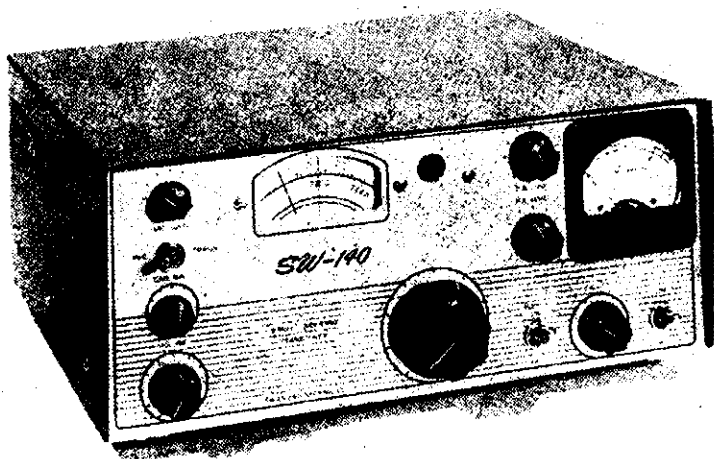
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Model	Freq. Range	Sideband
SW-175	3.5 to 3.7 Mc.	Lower
SW-140	7.0 „ 7.15 Mc.	Lower
SW-120	14.2 „ 14.35 Mc.	Upper
SW-115	21.25 „ 21.45 Mc.	Upper

- ★ Rugged, high quality construction with simplified circuitry provides an unusually high degree of reliability.
- ★ 150 watts p.e.p. input to 6DQ5 power amplifier.
- ★ High frequency crystal lattice filter; 3 Kc. nominal bandwidth, used for both transmit and receive.
- ★ Unwanted sideband down approximately 40 db. Carrier suppression approximately 50 db.
- ★ Transmits automatically on receiving frequency.
- ★ Exceptional mechanical, electrical and thermal stability. Frequency is practically unaffected by voltage or temperature variations, or by vibration when driving over rough roads.
- ★ Receiver sensitivity less than 1 microvolt at 50 ohm input.
- ★ Smooth audio response from 300 to 3,000 cycles provides excellent voice quality for both transmitting and receiving.
- ★ Control system designed for greatest ease of mobile operation. Front panel controls include: Main Tuning, Volume, Carrier Balance, Microphone Gain, Exciter Tune, P.A. Tune, P.A. Load, T-R Switch, Supply On-Off Switch, and Tune Switch.

- ★ Main Tuning control is firm and smooth, with 16:1 tuning ratio. Calibrated in 2 Kc. increments.
- ★ Transceiver produces approximately 25 watts carrier output on a.m. by simply adjusting the Carrier Balance control. Receives a.m. signals very satisfactorily.
- ★ Three-Circuit microphone jack provides for push-to-talk operation.
- ★ **Power Supply requirements:**
275v. d.c., nominal, at 90 mA., receive and transmit.
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80v. d.c., negative bias, at 6 mA., receive and transmit.
12.6v. a.c. or d.c. at 3.45 amperes, for filaments.
- ★ Price includes mobile mounting bracket and power connecting plug. Does not include power supply and microphone.

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AUSTRALIAN V.H.F. RECORDS

D. H. RANKIN,* VK3QV

It is appropriate that a short article on Australian v.h.f. records should appear. For this reason, and also because of the number of long distance contacts made over the past 12 months, particularly in the 144 Mc. allocation, some explanation of why records are kept and how to submit a claim for recognition of a contact is in order.

It has become evident to those relatively few v.h.f. operators who have spent some years consistently working on the bands that the majority of active call signs heard change from year to year, and that the achievements of the past become forgotten. Thus, there must be some authoritative source to which the newcomer can refer to ascertain the longest distance worked, or if a certain country or state has been worked on a particular band.

Obviously, then, some responsible body must collect, and keep, a file of such information which of course must be derived from reliable sources. Therefore, some years ago, the Federal Executive of the W.I.A. commenced a collection of contacts made on the bands 50 Mc. and above. The data so collected was, and still is, based on claims made by the actual participants. Appended are those claims currently on file. For the last couple of years, it has been the duty of the author to deal with received claims—collecting the information, having distances checked, and forwarding amendments to "Amateur Radio" and to the various Federal Councillors.

Since QSL cards are not always available, or in cases where cards are to hand, but the claimants are reticent about parting with a valuable QSL, then a signed declaration by one of the participants has been deemed acceptable proof of the validity of the claim. The information that must be sent with such a declaration should include the following:—

1. The call sign of the station worked.
2. The band on which the contact was made.
3. The date of the contact.
4. The location of both stations at the time the contact was made. Unless the latitude and longitude are accurately known, the name of the suburb or place should be given with the distance and direction from some well known place nearby, e.g. 10 miles east of the G.P.O., or the location should be given with reference to some prominent geographical feature.

Particular care should be taken when short distances are involved, i.e. for contacts on the u.h.f. bands. All distances are computed from the latitude and longitude figures for each station using Napier's Half Tangent formula or the Spherical Cosine formula.¹ If accurate figures are not given, they are taken from a gazetteer used by the Australian Survey Corps.

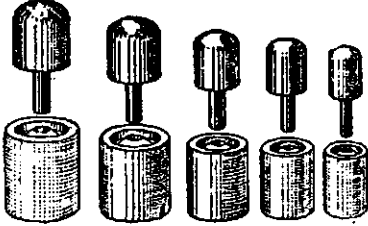
From the list below, and comparing it with a similar list that appears in "QST" periodically, it can be seen that particularly for 144 Mc., the Australasian records are of world standing. Bettering these distances is no easy task and to help keep interest alive, the best contacts associated with each State for each band as well as other unusual and meritorious contacts have been published in recent issues of "Amateur Radio".²

It is realised that these records are not completely up to date, but if the reliability of the list is to be preserved then nothing much can be done to improve this state of affairs until those who have better claims put them forward. Thus, if you are in this position, for the sake of other v.h.f. operators, if not for your own, submit your claim and let everyone know of your effort. Letters may be sent to the author at the address shown.

BIBLIOGRAPHY

1. "Reference Data for Radio Engineers." An I.T. and T. publication, 4th edition.
2. "Amateur Radio," Vol. 30, No. 7, July 1962, p.22.

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LIST OF DISTANCE CLAIMS

The following is a list of distance claims held on file by Federal Executive of the W.I.A.:—

50 Mc.—	Date	Miles
VK3ALZ-XE1FU	1/5/59	8418
VK8BE-JA8BP	30/10/58	8490
VK2ABR-JA8BP	25/2/59	5397
VK2HE-JA8BP	28/3/59	5395
VK5KL-WTACS/KH8	28/8/47	5381
VK2RU-JA1ANO	1/4/56	4809
VK4NG-JA1AHS	22/1/58	4140
VK8HK-VR2CG	3/1/55	3935
VK8WG-VR2CG	3/1/55	3818
VK8BE-9M2DQ	19/4/58	2853
VK9DB-ZL3GS	28/12/53	2809
VK3JM-VR2CB	30/12/53	2396
VK7BQ/7LZ-VK9DB	—	2205

144 Mc.—	Date	Miles
VK2ASZ/2-ZL3AQ	31/12/61	1342
VK5GL-VK8BO	30/12/51	1322
VK5QR-VK8BO	9/2/52	1319
VK2AR-ZL3AR	15/12/51	1307
VK4HD-VK5ZK/5	27/12/61	1040
VK3ZE-VA24HD	27/12/61	954
VK3ZCS-VK4HD	27/12/61	887
VK4HD-VK5BC	27/12/61	825
VK3AF-VK4HD	27/12/61	807
VK5BC-VK7LZ	26/4/59	609
VK2ZAL-VK5BC	18/1/58	600
VK5BC-VK7FP	28/4/59	571
VK3ZCW-VK7LZ	—	511
VK3GM/3-VK7LZ/7PF	9/3/52	311

* Now VK2RX.

288 Mc.—	Date	Miles
VK3ALZ-VK7LZ	10/1/60	282
VK5AW-VK3ZCG	23/1/61	261
VK5RO/5-VK3MT/5	15/4/52	108
VK3GM/3-VK3AAP/3ZBK/3	29/1/56	79
VK3AFJ/3-VK3AAF/3	21/3/54	63

576 Mc.—	Date	Miles
VK3AKE-VK3ANW	11/12/49	80.1

2300 Mc.—	Date	Miles
VK3XA-VK3ANW	18/2/50	9.0

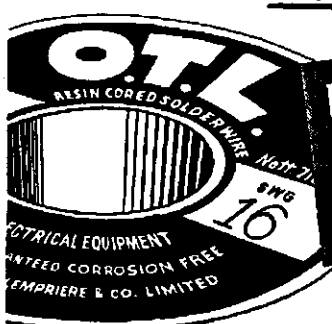
N.Z.A.R.T. MEMORIAL CONTEST

Australian Results

This Contest (80 metres only) is to commemorate the Silent Keys of World War II. The following are the results of the Australian entries. Certificates have been forwarded to those marked with an asterisk.

	No. of QSOs				Pts.
	ZL1	ZL2	ZL3	ZL4	
*VK2QL	20	17	4	6	376
VK2RA	19	16	2	4	328
VK2VN	14	9	1	5	298
*VK3AKN	19	11	3	2	305
*VK4SS	16	15	8	3	283
VK4HZ	8	4	3	2	217
VK4CK	4	2	—	1	98
*VK5ZC	7	7	—	2	197
VK5LD	7	4	—	1	153
*VK7SM	19	19	7	8	424
VK7RY	3	4	1	2	140
*L2033	17	15	9	8	433

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Sideband transmissions are at long last becoming more popular on the v.h.f. bands. The 50 Mc. band has had a respectable number of s.s.b. stations operating for some time now. But, until recently, s.s.b. on the 144 Mc. band has been a rarity and, to the best of my knowledge, the 288 Mc. s.s.b. transmitter of Lance 3AHL is the only one on the higher frequencies.

We all know of the advantages of sideband transmissions over a.m. (do we?). At the moment, of course, the frequency saving characteristics of s.s.b. are not of any great importance on v.h.f. Double sideband transmissions do not boast this advantage in any case.

However, the big attraction of sideband is the worthwhile increase in talk-power. For some strange reason this seems to be a tremendous increase over a.m. transmissions of equivalent power on v.h.f.

When you consider the DX that has been worked with modified 522 tx's, etc., running about 10 watts r.f. output, it does not take much thought to realise the capabilities of sideband, particularly when you realise the ease with which sideband power can be amplified to over 100 watts p.e.p.

D.s.b. tx's are extremely easy to construct and get operating. In fact, normally easier than an a.m. tx and attendant modulator.

However, d.s.b. has the distinct disadvantage that it is much more difficult to tune and resolve at the receiving end than other modes, and probably because of this reason, just has not "caught on" in VK land.

S.s.b. overcomes this problem to a large degree, but most people have been deterred by lack of information on v.h.f. s.s.b. rigs and also the apparent complexity of the equipment.

For those of you who want something simple, Don Stoner's v.h.f. section in "CQ" magazine for Sept. and Oct. 1962 describes a simple s.s.b. exciter that works extremely well. Also, "CQ" for Nov. 1962 promises to have some more information on this subject.

I hope that Bud VK2AQJ, s.s.b. sub-editor, does not mind me "pinching" some of his thunder, and I hope that if Pansy sneaks a look at the v.h.f. notes he does not get too upset at the thought of someone else advocating the use of "Donald Duck" transmissions.

I must apologise for the non-appearance of v.h.f. notes in the Dec. issue, but unfortunately I spent several days in bed at the crucial time (the absolutely last day for submitting notes for publication) with influenza, and in all the self-pity completely forgot about the notes until too late. Melbourne's four-seasons-in-one-day weather permitting, I hope this will not happen again.

The only notes to reach me in time for publication in this issue are those from Roy 9AM, so I have presented the notes intended for Dec. issue in an edited form.

Does anybody read the v.h.f. notes? In 12 months of subscribing I have received not one single comment or criticism (except to be abused for non-appearance of Dec. notes).

Have you any suggestions for improving the appearance of the v.h.f. page? If so, let me know about your thoughts.

Several months ago I suggested that we introduce a v.h.f. hints and kinks section. Like most of my suggestions, this one met with loud loads of silence. How about it? If you approve send some ideas along to me.

The Ross Hull Contest should be in full swing as you read this. (Has anyone read this far?). Do not forget to submit your log and give the new Contest Committee something to keep them quiet.

You will probably read elsewhere in this magazine of the untimely passing of Tom VK3JW. Tom was a very keen v.h.f. Amateur and was regularly heard and worked in Melbourne on 144 Mc. I am sure that all v.h.f. Amateurs will join with me in offering deepest sympathy to Tom's family.

Trev. ZLZHF is a very keen 144 Mc. enthusiast and will be looking for contacts with VK on this band during the summer months. A few more details plus Trev's address, appeared on page 4 of Dec. "A.R."

Finally, a happy and prosperous New Year to you all and may the DX be better than ever. Start the New Year off the right way by enthusiastically participating in the Ross Hull Contest. 73, VK3ARZ.

NEW SOUTH WALES

First may I extend all the best for '63 to all v.h.f. operators everywhere from the VK2 Group. Things have been fairly quiet at this end of the State. Six mx has come to light with a few good openings, bringing DX rewards to the regulars. On 2 mx, many new stations keep appearing, both new call signs and an increasing number of h.f. operators—trying to escape some of the problems of 40 and 20 mx.

The regular field events have been held and the Nov. night fox hunt produced some 18 cars containing between 50 and 60 people. The fox for the evening were 2APQ and 2SW, who were still hiding on the headland above the Lugarno ferry when Dick 2ZCF appeared in record time. Graham 2ZXY was close behind, just beating Bob 20A. After that it was a matter of bringing the rest in from many sides of Sydney. By the way, would anybody be willing to swap a couple of navigators for some automatic d.f. equipment?

It would be a good idea in 1963 for all Groups to get together on the dates for field days. In VK2 the second Sunday of each month is generally used for day events, while the night fox hunt is on the fourth Wednesday night at 8 p.m.

There will no V.h.f. Group meeting held in January, many of our members being away on holidays. The night fox hunt will be on the 23rd with Grant (better known as Joe) 2Z00 hiding the rig plus half a dozen batteries—must be a long trip to the south if the starting point at the Gladesville Reserve overlooking Parramatta River holds any clues. Next month Basil 2ZLE will be back from leave and pushing the pen for notes for this page. 73 de Tim.

VICTORIA

60 Mc.: The only activity reported on this band during Oct. were openings to VK4 on 28th, 29th and 30th. Several VK4s took part in the 6 mx scramble on that evening (Sun. 28th), the result being a draw between Neil 3ZJN and John 3ZLQ. In all, 14 stations participated in the scramble, making it the most successful for some time.

144 Mc.: The northern direction from Melbourne has produced quite a lot of good contacts of late. Rex 3VL at Numurkah has worked Alan 3ZNB at Anderson and Peter 3ZLT in Melb. Rex looks for Melb. stations at 8.30 each evening and is usually to be heard working 3ZLT. Peter also has had contacts with Sid 3CI at Nagambie, Peter 3AFF at Shepparton, SACK at Mooroolbath and has heard 3ZOG at Yarrawonga and 2ZCI at Leeton. Ray 3ATN at Birchip was consistent in Melb. early in Oct., but is believed to be having antenna troubles. Ray has lent Greg 3AWT at Waaia a small 2 mx tx but Greg is making hay at the moment.

As well as 2ZCI at Leeton, there is 2ZCB, also at Leeton, and 2ZEC at Griffith and all of them are believed to have worked as far south as Sid 3CI at Nagambie. Here is a list of approx. freq. of these stations: 3VL 144.14, Sid 3CI 144.17, 3AFF 144.17, SACK 144.18, 2ZCI 144.31, 3ATN 144.43, 3AWT 144.24, 2ZCB 144.17, and 2ZEC 144.02.

It may be useful to list the monthly v.h.f. activities. They are as follows: 2nd Sunday of each month 2 mx scramble, 4th Sunday 6 mx scramble, 2nd Wednesday 2 mx fox hunt, and the 3rd Wednesday V.h.f. Group meeting. Both scrambles commence at 1945K, the fox hunt at 2000K in College Cres. at the rear of the University, and the V.h.f. Group meeting at 2000K at the rooms at 478 Victoria Pde., East Melb. Please note the change of address of the Publicity Officer, 3ZLT finally settled down at 4 Waratah St., Thomastown. If you have any news to be publicised in VK3 drop him a line or give him a shout on 2 mx, Friday evenings between 1900 and 2000 hrs. 73, 3ZLTL.

QUEENSLAND

The month ending 31/10/62 provided some good DX openings in VK4. On 8/10/62 VK3 stations were audible at good strength, with a number of s.s.b. stations being worked. From 13/10/62 till 17/10/62 the path to Japan was open from Brisbane with stations audible for two to three hours daily.

The best opening was on the 16th with JA9IK the strongest station, peaking at 59 plus with QSB to S6. The lack of JA stations operating was limiting factor of the openings. JAI-2-3-4-5-9 were the calls worked.

VK4NG in Rockhampton has been working Japan quite often recently, one novel mobile station worked by him was a JA running 6w. to a 2E26 final with the station mounted on a motor-bike. There have been more JA DX openings in North Queensland, with the openings in Brisbane getting fewer. In the last few days of Oct. short openings to VK3-3-5 have taken place with strong signals for the duration of the opening.

So far no DX has been heard on 144 Mc. and the VK4 gang are looking for more DX contacts during the coming season.

A new station on the 50 Mc. band is Frank 4ZAS, who is using a converted 522 tx with a home-built rx and a cubical quad aerial. New stations are doubtful about coming on to 50 Mc. until operation with t.v. receivers only 2 Mc. away has been tried. 73, 4ZAW.

SOUTH AUSTRALIA

50 Mc.: The exceptional conditions on this band over the past few months have attracted a large number of newcomers. These include: John 5ZJG, Peter 5ZEE, Bevan 5ZCS, Ian 5ZIC, Dave 5DS and Harry 5KW. Another newcomer is Bob 5ZRM who is the brother of Colin 5ZDB. Peter 5ZEE (mentioned earlier) is the brother of George 5ZEEY.

Jack 5ZJS is building a v.f.o. for 50 Mc. and Bob 5ZDX is building a phasing type s.s.b. generator. Newcomer Harry 5KW is located next door to Bob 5ZJT, so by the time you read this, Bob should be well and truly up the wall, as Harry is running 70w. Colin 5ZDB has a very interesting mobile on 8. This unit can run either a.m. or d.s.b., the latter giving approx. better S/N ratios.

DX activity on this band has been excellent. During October VK3-4-6 were worked, the first two on several occasions. 2ZVL was worked on s.s.b. On Oct. 28 at 1400 C.S.T. a few JAs were heard. Bob 5ZDX called several stations but unhappily no contacts were made.

One of the more interesting signals heard from VK6 was an m.c.w. beacon signing 6MM. There has been considerable speculation regarding this beacon, but no one seems to have definite information.

The only Amateur Station at Woomera 5WC has built gear for 50 Mc. and is on every evening from 1815 to 1930 hrs. C.S.T. on 50.2 Mc. looking for contacts. No details of gear.

144 Mc.: Activity on this band should now pick up considerably as Mick 5ZDR is back in Adelaide after several months in the bush. Also new country stations have come up on 144. These include 5WV at Crystal Brook (30w. 144.15 Mc.) and 5EN at Port Pirie. Both of these chaps have been working into Adelaide with good signals (both 130 miles away). New stations on 144 Mc. in Adelaide include 5ZEEY.

General News: Many limited licensees are sitting for their c.w. exam. The last exam. saw 5ZBL, 5ZJG, 5ZCC, 5ZCD, 5ZDN, 5ZMK and 5ZMK's XYL Roy. Most seem optimistic of results. Keith 5ZKL and Trevor 5ZTX are newcomers on 288 Mc. 5ZAD's new v.f.o. for 8 mc. is working nicely. Garry 5ZK is building s.s.b. for the low bands. Keith 5ZMK and Brian 5ZER have acquired towers. There are at least three active v.f. stations in Mt. Gambler now: 5ZER, 5ZGS and 5ZLS. Dale 5ZER has his 2 mx antenna on a 115 ft. tower, so keep an ear open for these boys. 73, 5ZCR.

TASMANIA

The first Convention to be held in this State took place at Campbell Town on 24th Nov. and a good number of v.h.f. exponents attended to contest the many events.

144 Mc.: A 2 mx link was provided between h.f. stations participating in the Jamboree on the Air. Information regarding h.f. contacts being relayed back to VK7WI for publicity purposes. Nets of this type will be a pleasure to work in when the official frequency crystals finally arrive.

Two new stations have fired up on this band recently. They are Rick 7ZAT and John 7ZOC. I have not heard Rick yet but I understand he has a pair of 7193s and a t.v. turret

(Continued on Page 24)

DX

VP4, OA4, BV, ZM7, 7G1, FP, AC5, MP4, ZC6, TY2

Sub Editor: ALAN SHAWSMITH, VK4SS, (Phone 4-6528-7 a.m.-4 p.m.)

35 Whynot St., West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

One of the arts of working DX is to listen at the optimum times on the correct band. The night bands, viz. 160, 80, and 40 metres, are best to the East between 0930-1130z. 14 Mc. has openings to the East from as early as 0200z, and from 1000z the circuits West open up. 15 metres is usually open to W and JA during the day. Shortly after noon, there sometimes occurs a short opening to South America and Africa.

Too often one hears directional CQs from VKs with little hope of results.

NOTES AND NEWS

FB8AX has been heard on 14040 kc. at 1400z. (Have no other info.)

Several 9M2s are workable on 7 Mc. around 1800z.

457NE and 60IND also work 7 Mc. around 1900-2000z.

If you still want VS4RS, try 7004 kc. around 1000z, if no sign of him on 14 Mc.

VR4CU is active on a.m. at least. Try 0800z around 14150.

A few VK8s are active on 80 and 20 mx. They are VK8UT, VK8HA, VK8UX, etc., 0800-1200z.

XZ2KN is on 14060 Kc. about 1100z.

By courtesy of Bev Cavender, W4CKB, of the Florida DX Report, we report the following: K9IDZ plans to go to Rota as KG6RD soon. Marion Island: ZS2MI continues to show on Sundays around 2000z., 14018 kc.

Shankar, VU2AX, ex-FN8AD/AC4AX, arrived for a tour of duty in Sikkim on Oct. 8. W4QCW is corresponding with him, and if things work out satisfactorily, the Yasme Foundation is prepared to send him a HT37 rig and SX101 rx. W4QCW will be the QSL manager. Present Sino-Indian border war may force a delay on this.

Frank, W2AYN, ex-EP2AT, awaits arrival of KWM2 rig, after which he will be very active as HL5X in Seoul, Korea. QSL to Frank Borsody, U.S.O.M., T.C./P.S., A.P.O. 301, San Francisco, California.

The Marcus Island DX-pedition is off. FB8ZZ should be operated by ex-TT8AG this month.

Spitsbergen (Svalbard): LA9RG/P and LA-1IH/P are active on 14 Mc. s.s.b. now.

These following items to hand by courtesy of Bob Murphy, K6CQM, of The DXer:

Ecuador: HC0NE is currently active from a mountain operating site, on week-ends. Wkd. on 14 Mc. c.w., he is also reported to be active on 21 Mc. c.w. QSLs go to Box 2951, Quito, Ecuador.

Heard Is.: Steve VK0VK expects to be operational from Heard Is. for approx. one month as of mid-January 1963. Steve, a member of the Australian National Antarctic Research Expedition, will depart from Melbourne roughly 1st Jan. '63 on an Australian-leased Danish polar vessel. The vessel will call at Heard Is. where Steve will be a member of a shore party who will conduct a short programme on the island. While on the island, Steve will be as active as possible. Primary activity will be on 20 and 40 mx. c.w. and a.m., with a possibility of s.s.b. Primary c.w. freq. will be multiples of 3503, i.e. 7006, 14012, etc., with calls taken 3 kc. up or down. Primary a.m., if used, will be on 14120. QSLs for the Heard Is. operation only will be via K5ADQ. After the Heard stunt, Steve will continue to Wilkes Base, where he will winter over, and where we can expect a repeat of his fine operation when he wintered over at Wilkes last year.

Sudan: ST2AR has now returned to Khartoum after U.K. leave, taking with him a partly completed imp. exciter. Crystals will be for 14113, 14250, 14300 and 14323 kc. Eric hopes to be on the air in the near future and will welcome hearing from anybody who has built the imp. and has discovered any worthwhile modification.

Kamaron Is.: VS9AAA will give firm dates for his Kamaron Is. trip when his KWMI is returned from the U.K. after overhaul.

Ethiopia: ET3RS was a recent guest at the N.C.D.X.C. meeting. He is ex-HB9RS and works for the U.N. in Addis Ababa, Ethiopia. He will be back in ET3 land shortly. He operates 20 and 15 s.s.b. exclusively, mostly between 14100-150. He also said that he is the only active licensee in ET3 now. QTH: M. C. de Henseler, P.O. Box 3005, Addis Ababa, Ethiopia.

Danny Well, of the Yasme Foundation, is still peeling them from ZM6AW every afternoon on 14060, 14135 and 7010 kc. Next stop may be ZM7, but nothing is finalised yet.

Gus W4BPD is keeping busy down on Gough Is. with the ZD9AM; however, he may be QRT in a day or so.

VK5XX COMMENTS ON HIS L.H. TEP

Now follows some comments from Arch VK5XX on his visit to Lord Howe Island:

After visiting Norfolk Island in 1961 it was decided to visit Lord Howe Island during late Oct. and early Nov. (1962). The trusty Type 3 Mk. II transceiver was in action once again in the South Pacific. During the last week of Oct. radio conditions on all bands were very erratic and short skip prevailed. Later, conditions improved, with the exception to eastwards, all other compass points were contacted. During the whole 2½ weeks, signals to the American continents were weak in both directions. Despite beaming sigs at W land, for some unknown reason, it was hard to QSO. It was remarkable to be sought after by hundreds of W stations and be told of solid signal reports from Lord Howe and W from VK stations, and yet not being able to penetrate the seemingly iron curtain. Only 30 W stations were QSOed and the sleep hours lost in W land could not be estimated. Only one VE and one LU were weakly heard but not QSOed. 85 VK QSOs were had. European, Russian and some 25 countries nearer were contacted. Spain was the best European contact. The most outstanding and consistent VK signal came from VKJJE. One outstanding feature was that notwithstanding the poor band conditions, c.w. signals could always be heard on the bands in the complete absence of any type of phone signals.

Some odd spots! He answered a DX CQ from a VK who politely sidestepped with "Looking for a new country!" Later on, discovering a Lord Howe station on the air, he seemingly wore out two sets of key points calling VK-5XXK/P, who had the pleasure in contacting him before closing down! Arch adds, "I was given 'sec.' while a VK7 lined his antenna up on my home VK5 QTH."

The holiday was most enjoyable. The view from the flying boat over Sydney and harbour on a Saturday night could only be described as magnificent. Despite conditions, Norfolk Is. is much preferable for Amateur Radio, but Arch considers the Lord Howe terrain may offer a reason. Perhaps the coral and solid hills at Lord Howe may have acted as a screen in one direction. Arch adds a P.S.: "The only sour point was the local who pestered me for a reason for the non reception of 21 Mc. sigs from VK5PS on the 7 Mc. band. Words failed me!"

ACTIVITIES

Chas L2211 heard these: 14 Mc. a.m., 1800-2000 E.A.S.T.: VS4RS, HK3AFV, HK3RQ, HP-1JC, HC2RT, LU8GF, LU4NB, KR6AW, KG-8ALK, JA1YM, PY1ANX, JA6GW, JA1BWA, VS6EW, VS6FA, JA8BI, JA2ANX, HK7AJP, HC2JT, IISM. 15 Mc., 1500-1700, a.m.: JA-1AWV, JA2BSM, JA3EBJ, JA3CKB.

Graham VK2AGH sends in the following. 7 Mc. c.w.: G2FMV, G3JAG, G2GM, YV5ANT, W7DZL, ZE. 14 Mc. c.w.: ZK1BY, UC2AA, G3AVZ, ZK1AB, UD6DU, CR8AC, VS1FU, HP-1IE, LUB8AJ, HB9VW, 5N2JQ, DL7CS, ZD-9AM, AP5AH, VS8ARK, ZM6AW, UA9FF. 21 Mc. c.w.: JA5ADR, VS1FJ, F2MA, ZS1OU, DL3AR. 14 Mc. phone: G13HC, PY1BLT. QSLs red.: CR8AC, CE0AD, AP5CP, VQ8AA, W0MLY, T78, T78, TL8, 9N1MM, VP3MC.

Al VK4SS logged these. 3.5 Mc. c.w.: VK-5XXK/P (Lord Howe), YU2OB, JA6AK, ZK-1AH, VR5AA. 7 Mc. c.w.: DL6CV, DJ1ZN, YU1NE, YO2CY, YO5TJ, ZK1BY, HM4AQ, HA5KFP, HA3KGC, YU1JRS, YU1HFC, SM-5CCE, SM7BUE, ZD6JJ, 5B4IF, 5B4BP, ZB1CR, UA3XS, UB5ZJ, UA1NZ, UA0WL, UA0FF, UA-9UB, ST2AR, D35FZ, DJ3JA, DL1KS, DJ7IK, DM3KBM, DJ2RE, GW3AX, G3SDA, G3RDC, G5DQ, G3JAG, G3F3X, G3FUN, ITIAGA, 9M2FZ, 9M2RI, 60IND, VS1LD, VS1FZ, VS1LJ, XE1OK, ZC5FF, DUGTY, VS4RS, KYGOK/KS6, 4X4WF, 4X4OH, OEGKZ, OERIZ, DE1UA, 4S-7NE, VQ2W, OK1AFC, OKIUR, OKIAFH, UF6UA, OK1FV, SP8CK, UA9PP, YU4AAH, YU2AAT, UA3FG, G3ALP, G3OPP, DL1DV, UO5PK, SP9KJ, SP2RS, DL1KS, VK5XXK/P

(Lord Howe), VQ4IV, HL9KH, G2BC, G3BO, DL7DR, G3PZK, G3JEO, 14 Mc. c.w.: ZC5FF, VR3O, JT1KAA, KS6AN, CR8AC, KR6RE, EA-8DO, KC6BK, 9U5ZZ, VP6LJ, WQ2AB, 3A2BP, AP5AH, AP5JA, VR3L, ZZZKN, VP7NT, VQ-4ET, 60IND, HK7BE, ZM6AW, LU6FA, OA-4CG, DU1RTI. 21 Mc. c.w.: HP1IE, KP4AZ.

Ken VK3TL worked on 20 mx c.w.: AP5AH, AP5SS, CP3CN, CRTIZ (1340z), DJ2, DJ7, DL6, DL9, EA1GZ, F2, F7, G2, G3, G4, G5, G6, G8, GC2CNC, G13NPU, HA7KPF, HB9VF, HZ1AB (1250z), K5VQS/KS6, KX6, KZ5MQ, KVAI/MM, LA3DB, OA4, OK1, OK2, OZ9FH, SM-7CAB, UA3, UA4, UA6, UA9, UB5, UC2KAR, UD6, UG6KAA, UI8FB, UP2AG, UP2OK, UQ-2KDD, UQ2CC, UT5, UW9, VE2L/2 (0825z), VP7NQ (1330z), VQ4ET (1355z), VQ4IV (1715z), VS1AU, VS4RS, YO4KAK, YU3YU, YU3EC, ZK1BY, ZM6AW, 60IND (1255z), 9M2, 20 mx phone: BV1USF, CESXA, CN8FU (0955z), K0DXH/CN8, DJ1, DJ2, DJ3, DL1, DL4, DL6, DL9, EP2AC, F7, G3, G8, HC1DC, KR8, KS6AN, KV4, LZ2KBA (1545z), MP4BBW (1255z), OH1, PA0WQ, PA0FX, SP9FR, UA1KBW, UB5, VQ-4RF (1245z), VR2, VR3O, VR5AA, VU2, XE1, YV3, ZK1BY, ZM6AW, 5R8CM (1310z). 40 mx c.w.: DJ2AA, KN7, WH6EVH, WN6, WN0, VR2EH, VS1LJ, 4X4DH.

ADDRESSES

9U5AS—Rwanda. QSL via ON4HX.
5X5IG—Uganda. QSL via W2CTN.
ET3RC—QSL KIKOH.
VP3RS—Box 547, Atkinson Field, Brit. Guiana, or via op. WCAA.
VU2JA—Joe, Bangalore. QSL via W4YWYX.
H8CLU—QSL via K4BMS.
VQ2AB—QSL via W6BAF.
PJ5MC—QSL via W3ZQ.
XT2Z—QSL via K1ATWF.
KP6AX—QSL via K1AZA.
FP8EI—Via QAZPV.
VR5AR—Via W8EXE.
ZD6BJ—Ivan. QSL Z6J. QSLs for this prefix go via the ZE Bureau.
VP2KP/A—Box 161, St. Kitts (Anguilla DX-
pedition).
ET3JK—P.O. Box 654, Addis Ababa, or via K3HQJ.
VP1NT—Box 5276, Carginia, Nassau.
ZM6AW—Via W8EWS.
HL9KH—Via W8VZP.
EABDQ—Box 215, Tenerife.
CR8AR—For those wanting this call, his new call is now CT1L.

With the present low in Sunspot Cycle, conditions for 1963 can only be somewhat worse than the year past. However, good DX will be wkld. with 7 Mc. probably the best overall band. Here's wishing you all new prefixes, new friends, and Health and Prosperity in 1963—and, please let us have some new contributors to this column.
See you in the New Year, 73, Al VK4SS.

It is with pleasure that the Publications Committee announce that they have decided to grant four awards for technical articles published in the 1962 editions of "A.R."

- The following articles have received the awards (listed in the order shown in the annual Index):
"Matters Mobile," August "A.R." by K. Woodward, VK2ZAU.
"Simplified High Performance 2 Metre Converter," November "A.R.," by W. M. Rice, VK3ABP.
"A V.h.f. Sideband Rig," October "A.R.," by I. Berwick, VK3ALZ.
"A 100W. Bandswitched Phasing S.s.b. Transmitter," October "A.R." by A. S. Mather, VK2JZ.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.S.B. POWER MEASUREMENTS

Editor "A.R." Dear Sir,

I support the remarks of VK3CS in his article on s.s.b. power measurement. To anyone who has had any experience with s.s.b., peak power measurement by the oscilloscope method is the only logical approach to the measurement of power in the s.b. final amplifier.

The snag of course is the time and the complexity of equipment involved in making a measurement, although as VK3CS pointed out, every a.s.b. station has, or should have, a c.r.o. and audio sig-gen at hand. Yes even the users of commercial gear.

From the point of view of simplicity, the F.C.C. method* has a lot to recommend it, but is hardly a precise method.

From where I stand, the policy I would prefer the Department to adopt is this:

- (1) Use B.P.O. standard for the power limit, i.e. p.e.p. shall not exceed 600 watts.
- (2) Ensure that Amateurs cannot blatantly exceed this limit by the use of large final tubes and big power supplies.

In other words, if the final has a plate dissipation of 100 watts and/or the final supply is conservative to 150 watts average power you are OK.

But if the final dissipation rating is 500 watts and the supply conservative to a k.w., it is n.b.g. regardless of whether a.l.c. is used or not. The reasoning behind this line of reasoning is a little obscure but perfectly logical.

In the first place it does away with the necessity of continuously monitoring peak power visually.

Everyone knows that if the final and its associated supply is conservative to half a k.w., it is easy to exceed the legal limit by speaking a little louder or just turning up the gain. On the other hand, if the supply and final is conservative only to the legal limit, driving such a device harder invariably results in non-linearity—in other words, splatter—about which one is usually told in short order. Hence there is no future in trying to exceed the legal limit with such a device.

By enforcing power measurement checks only when it is suspicious of ratings of the final and associated components, the Department would save both itself and the Amateur a lot of trouble.

—I. F. Berwick, VK3ALZ.

YOUTH RADIO CLUBS

Editor "A.R." Dear Sir,

In reply to the Federal Comment on Youth Radio Clubs in November "A.R." and a letter by Eric Trebilcock in an earlier issue this year, I would like to put forward a plea for greater assistance in the conduct of Youth Radio Clubs.

During the past three years I have been conducting a School Radio Club with an average attendance of thirty members and although I have appealed through your columns and received some equipment, much of it has not been of a great deal of use. Most of the radio sets were almost beyond repair or so badly out of alignment (and as I haven't an oscillator) that I had to spend many valuable hours getting something working in them.

Most of our members are under 15 years and are not able to do a great deal for themselves. Two have this year become junior associate members of the W.I.A.

Your notes only mention High School Clubs, but in Victoria we have many Technical Schools, such as ours, where it should not be hard to start a Radio Club.

For years now I have been constantly in touch with Rex Black, VK2YA, and have been using some of the ideas in N.S.W. course of instruction. The cost of parts, particularly tuning condensers and earphones, prohibits many boys making even a crystal set; some 18 of our club have, three ventured into transistor sets and a few have dual wave sets fitted with a special bandspread tuner I have helped them add to the set. The special short wave set, described by me in the Feb. '62 issue of "A.R." is very helpful and gives some satisfaction and a taste of better s.w. listening.

Re the lack of interest in the VK/LZ DX Contest by the VK3 S.w.l. section. One of the main reasons again is lack of finance to

* See A.R.R.L. S.B. Handbook.

TASMANIAN HAMFEST

The largest gathering ever of VK7 Amateurs, their families and friends took place at Campbelltown over the week-end of 24th and 25th November, 1962, on land generously made available to our Institute by Mr. J. B. Muirhead. The setting was on the banks of the Macquarie River, some 200 yards or so from the main road on private property, in a nicely wooded and grassed area.

The organising committee, led by Ted 7EJ and associate Don Forthouse, did an excellent job in providing an alternator, public address system, a suitably large fire with boiling water virtually continuously available, and a programme of events plus two containers of fluid, just in case the local water supply might be impure, or such local water supply should not be to the taste of those in attendance. Full justice was done to both containers.

In the vicinity of 200 persons attended this function. The programme was as follows: A cricket match between the Southern Zone and The Rest on Saturday afternoon, followed by a scramble, with a barbecue that evening. On Sunday, there was a tx hunt both on 3.5 and 144 Mc. bands, followed by an auction of surplus gear in the afternoon.

I noticed that the following licensees were in attendance at some time or another:

From the Northern Zone: 7BQ, 7DK, 7LZ, 7PF, 7CA, 7JF, and 7ZBB. From the North-Western Zone: 7KH, 7SF and 7XL. From the Southern Zone: 7CT, 7JB, 7YL, 7AL, 7CH, 7KA, 7EJ, 7EB, 7AB, 7ZAY, 7ZAV, 7ZAO, 7ZQA, 7ZEE, 7ZAI, 7ZDM, 7ZAK, 7ZZ, 7ZOO, 7KS, 7ZAX, 7JO, 7KC, and 7LJ. My humble apologies to any licensee I may have inadvertently missed out from this list.

Among associate members, I noticed Anne Landers, Don Porthouse, Geoff Ludwix, and Gil Rignaud.

Our Divisional Publicity Officer, Ted 7EB really excelled his best efforts to date. He organised items on the radio, both before and after the Hamfest; items in the Hobart and Devonport press before the function, and items in the Hobart, Launceston and Devonport press after the function. In addition, Channel 2 filmed quite a deal of our activities, and a very respectable allocation appeared on News Reel the following night. It is possible that this film may be used in a later Week-end Magazine. Congratulations Ted on a wonderful job of publicity.

I have not discovered who won the cricket match. All I have discovered is that "we won," but that comes from both teams. Den 7DK won the scramble, working about ten stations. It is rumoured that his only competitor, 7JO, went to sleep on the river bank but this must surely be only an excuse.

It was very wonderful indeed to see our Patron, 7BQ, Len was present on the Sunday and many were the eyeball QSOs he participated in.

The barbecue was a great success on the Saturday night. The 5-gallon container consumed at this barbecue evaporated in about two hours, it is reported. The arrival of Barney 7ZAK wearing a most becoming fez at about 2330 hours was greeted by a tremendous cheer. I am told, fit to waken Campbelltown, six miles away. It is alleged that Ted 7EB attempted to wake the prostrate multitude at 0530 hours by the capricious use of the public

buy or the ability to make a really good set. Many of the twelve members listed in the DX ladder, and I do not know them all, own professionally built sets, whereas the majority of our members do not and therefore cannot compete with the above twelve. This disheartens so many beginners who may have a junk set and do all they can to get some results. Quite a number of these lads find it difficult to make parts for the converters described in "A.R." and if kits of coils, chokes, or any special parts could be produced in quantities by some of the more experienced members, it would help.

Last year I offered an A.R.R.L. Handbook for the member who produced some suitable s.w. unit, adaptor or set that could be easily made by beginners but so far nothing has been produced. The offer still stands for 1963.

If our members had better sets we could expect greater participation in competitions. I may be a "purist", as mentioned on page 14, Nov. "A.R.", and after dabbling in radio now for forty years I feel that the old spirit of the true Radio Ham has been lost and unless we can do something along the lines I have mentioned, we cannot expect to hold the interest of the younger generation.

—Harry Major, WIA-L3102.

address system. Despite his best efforts, many of the prostrate slept on.

Barney 7ZAK was responsible for hiding the tx's for the tx hunt. In his inimitable style, the rigs were located on the far side of the river. Terry 7CT, not to be denied, uncovered the 3.5 Mc. rig in about 25 minutes. Several of the v.h.f. boys were immediately across the river from the spot, but there was no way over the water without a long trek through Campbelltown. The flying start for the hunt was filmed for television and it was an awe-some sight, too, with about 25 vehicles jockeying for positions.

The auction in the afternoon brought forth some spirited bidding for the varied selection of disposals gear. It was pleasing to observe that the 40 or so vehicles at the Hamfest nearly all sported some form of Amateur gear, whether it be a mobile tx, Amateur band rx, direction finding gear, or merely a converter, truly a most encouraging sign of activity.

Yes, this Hamfest was a great success, and truly a definite sign of progress within the VK7 Division.



VHF NOTES

(Continued from Page 22)

and rhombic antenna. I was pleased to provide John with his first contact. He is using the ex-Basil (ZBE) 522 tx and is receiving with a 6 element beam and t.v. turret. Danny 7ZDM has made a reappearance on the band using the ex-Basil "Walka-Phone" single tube transceiver. Ian 7ZZ has had the loan of Barney 7ZAK's 522 pending completion of his own gear, and he is active most nights around 1030. Things are definitely looking up on this band and it should be really hectic for the Athol Johnson Memorial Contest.

Schedules with the north have been resumed after a month's break and with the summer weather upon us it is hoped to establish contact soon.

50 Mc.: The only thing to report for this band is that David 7ZAY has completed a tx and converter and is hoping for great things for the coming DX season. 73, 7ZEE/T.

PAPUA

November produced one excellent opening to VK on 50 Mc. On the 26th the band opened at 0800 and numerous contacts with VK2-3-4-5 and 6 were made by 8ZBV and 9AU. The opening faded out at 1300 but the band opened again for half an hour at 2000 when VK3 was worked and VK4 heard. Another opening occurred on 23rd when VK2-4 were worked between 1745 and 2100. No other contacts were made during the month although VK6s were heard for a few minutes around 1800 on 20th, and at the same time on 24th a few VK4s and VK5s were heard for about 15 minutes.

VK9AS is now operating around 50.24 Mc. and although not heard yet in Port Moresby, was called by some VK6s on 26th and reported hearing both 8ZBV and 9AU at his QTH (Wewak, T.N.G.) on the same day. Regular skeds since have not resulted in a QSO.

8ZBV will be active on 8 mx from Rabaul, T.N.G., from mid-Dec. to early Jan. As 9CK is currently inactive with power supply troubles, it appears at the moment that your scribe may be the only VK9 Papua station active on 8 mx during the holiday season. Oh those pile-ups! Please note that 9AU gives preference to replies not made on his calling frequency.

144 Mc.: Tests are being carried out daily on 2 mx with 4KT at Townsville, so far without results. If no QSO has been made by the time these notes appear, it is likely these skeds will be discontinued until the return of the S.E. trade wind season in late February or early March.

On the one-eyed monster DX front, pictures were received from TNQ7 on 12 of the first 20 days of Nov. with excellent pictures being received for the whole transmission time (1730-2216) on the 14th, the measured signal strength here being 5 µV. off a dipole. These readings are accurate, being carried out by the local R.I. Nothing has been seen since and it appears that a nocturnal duct path exists during the season of the S.E. trade winds between Port Moresby and Townsville. Channel 2 was received on seven occasions during the month, mostly ABQ2, but on two occasions QRM was received from other Channel 2 stations, one suspected as being ABS2. The N.Z. t.v. low channel was heard also on 23rd.

Well that seems to be all the news for this month, so 73, 9AU.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Oak VRSAR of Tonga Tapu whose home call is W9EXE, states that cards are presently at the printers. He estimates it will take two to three months to get them out.

Cards have been distributed for all venues in Africa from which Dick McKercher, W0MLY, operated during his recent DX-pedition to that continent.

Some cards have also been received from F2CB/FC—the first from Corsica ever sighted at this Bureau. However, those to hand are only a fraction of the total owing to many VKs. Seems to be no system in issue of cards as some VKs get two for the same QSO, others got two for separate contacts, while the majority of us got none at all! However it may be only a start.

Hal Sears, KH8LQ, stated he was visiting Australia for a few weeks covering Nov.-Dec. 1962. Anyone see him?

The QSL Bureau for Czechoslovakia sent two large despatches to this Bureau early in December. Total cards was 500. Unfortunately the entire despatch was intended for Austria! Carelessness such as this involves other Bureaux in needless heavy postage and it delays cards.

Information is to hand on the W.A.N.R. award issued by the N.R. Amateur Radio Society. Entitlement by VKs needs contacts with 10 different VQ2 stations in five different towns! Unlikely to interest any but VK5 and VK6, but full details may be had on request.

Information on the W.A.D.M. Contest 1962, held mid October, was received too late for publication in "A.R." prior to the respective events. Overseas Contest Committees should use air mail for info. on their contests or realise that matter by surface mail should be issued some months in advance of the event.

Cards through the Bureau have kept up surprisingly in view of the comparatively poor conditions obtaining through 1962. The yearly total will not be far behind that of other years.

Al Scarlett, W2CC, is looking forward to his proposed visit to VK with XYL, Ethel, during April 1963. His unfinalised itinerary envisages stopovers in all States excepting VK6 and 7. John W6YY also expects to visit Australia again this year.

Copies of "CQ" for most months of 1962 are available for free from this Bureau. First in gets them but postage is required. Write first and if you are the lucky player, I will advise the amount of postage (if any) needed.

Here's good luck, good DX and 100 per cent. QSL returns for 1963.

—Ray Jones, VK3RJ, Manager.

Don't forget the N.S.W. Division's Convention over the Anniversary Week-end. 73, 2VL.

HUNTER BRANCH

The Nov. meeting of the Branch was held on Friday 9th, there being eleven members, nine associates, and four visitors present. President Stuart 2AVF was absent on business, no doubt selling steel, and Lionel 2CS was also unable to be there. Bill 2KT was on his Japanese holiday and this meant that the meeting was without a chairman. But not for long. Some of our executive officers took out their box of straws and gave me the short one. Because of all this, the business session of the meeting was quite short and then we all settled down to listen to the lecturer of the evening, Keith 2BK. He had brought with him one of those "built like a battleship" rx's complete with converters fastened to the lid and it was on the general theme of rx's that he based his remarks. Two other most interesting pieces of gear were on display, an s.b. transceiver and a 144 s.s.b. rig. These caused a great deal of discussion and the session of questions following Keith's talk was most valuable and showed the sharp division of thought between s.s.b. and a.m. At the conclusion there was another of those free-for-all auction sales which have become part of the Hunter Branch scene.

Around the Branch this month it seems that everyone is preparing for the festive season, so no doubt there will be plenty of activity as you read this. No sensational developments have been noted, despite the fact that several rash promises about getting gear on the air were made months back. The lads from the coaly city are still busily engaged in selling t.v. and get very little time for on the air activity but Peter 2AVY is reputed to have a quite interesting duck talking device almost complete. Ian still has a good blanket coverage of all t.v. stations from his QTH and he tells me that his landlady is complaining about the neighbours hurling missiles at the house. He has a cure though; switch it off.

During the month I was fortunate to be invited to the Radio Founders' Day Dinner of the I.R.E. to stand in for Stuart who could not attend. It was at this function that I heard a most interesting fact. Marconi was, believe it or not, an Irishman. I have this on very good authority and, although too long to tell here, I'll pass on the details to any who wish at a later date. Or you could see Prof. Auchmuty from the University College who imparted this information to those at the Dinner.

Congratulations are in order for Bill 2ZK who has been awarded a Ph.D. for some original research on sieve trays. Although he's Dr. Bill now I expect we'll still call him by the same name as always and this may be a lot easier from now on, too, because he has a brand new rx and has become an Amateur again after the long studies.

John 2DZ, of whom we hear little these days, is still quite active as time permits and has been getting some quite reliable results on 15 mx. Activity on the lakeside is much as usual with Jim 2AHT still among the DX and Bill 2ZL still the most reliable signal on the band, that is 40. I am told he has a Marconi aerial, but I believe this is open to discussion.

Our associate friend, Bruce, must be thinking of buying a car because he has been seen with a well-turned loading coil for a mobile whip. Perhaps he is going sheep mobile during time off at Scene. Four new associates have joined from the lakeside and a greeting goes out to Allan, Allen, Ray and Ross. The club station at Booragul is back on the air again after an enforced stop for examinations, but, of course, with the other lucky chalk pushers, will be off the air for another month after you read this and, just think, they've had almost three weeks already. Bill 2ZWM says he wouldn't swap his job with anyone, during

the holidays. Mobile gear is being contemplated by another of our members but I am not permitted to reveal his name just now. I suppose he is getting ready for the Convention at Dural, and, from present indications there will be a good roll-up of Branch members at this function.

I suppose by this you have all made the usual resolutions. Well here's another to add to the list. I resolve not to attend the Branch meeting in January—you've guessed it, there isn't one. Next meeting is on the second Friday in February which is the 6th, and the meeting place is the University College, Tighes Hill. Make another resolve to attend this and as many other meetings as you can.

The President and the boys extend to all members the very best of wishes for a happy and successful 1963. Sincere thanks to all our lecturers for 1962 and to all others who have helped to make the Branch meetings and activities a success. Here's the hope that we all can do even better in the year to come. 73 for '63, 2AKX.

VICTORIA

18th ANNUAL STATE CONVENTION

The State Convention of the Victorian Division was held in Ballarat on the week-end of the 3rd and 4th Nov, 1962, and hosted by the South Western Zone. The Convention went to a good start when local and visiting Hams assembled at Craig's Royal Hotel for the Convention meeting which finally started just after 4 p.m. Some lively discussion resulted and it looked as if some of the boys were willing to spend the next 48 hours thumping the table. However, parched throats and waiting XYLS won through at approx. 8 p.m.

At 7 p.m. in the Prince's Room, Craig's Royal Hotel, about 70 Hams, XYLS and guests gathered together to do justice to a seven-course Buffet Dinner. The buffet style dinner proved to be very successful as it was possible for everyone to circulate freely around the room. In fact, I am sure everyone was able to meet everyone else and from what I saw the XYLS, in particular, enjoyed the evening more than at any other Convention that I have ever been to. The guest of honour, Mr. Murray Byrne, M.L.C., was circulated freely among the groups and was undoubtedly impressed with the jovial air of Ham fellowship, which prevailed around the table. Later in the evening, The Honourable J. Dudley Erwin, M.H.R.—no stranger to the Ham fraternity—dropped in and consented to present the trophies for the gear display and lucky door competition.

The evening was diverted for a while by a short lecture on "Radio Astronomy," given by Brian 3ZBS, who gave a brief outline on the general principles of the science, mentioning hydrogen line research and the mysterious 15 metre emissions from the planet Jupiter.

Sunday dawned warm and slightly overcast. It had rained each of the seven previous week-ends, so we were a little worried that the alternative undercover site for the Con-

NEW SOUTH WALES

The November meeting of the N.S.W. Division was held at Wireless Institute Centre on Friday 23rd and a well attended meeting heard an excellent lecture by Harold 2AAH on a Transistorised S.s.b. Exciter. After a technical discussion, Harold produced a complete s.s.b. exciter built on a matrise board 6 x 6 inches.

Mobile operation on 7 Mc. is on the increase around the Sydney area and while most of the boys are contented with local QSOs on the move and in occasional VK3 and 4, Alec 2FM has worked VR2 and ZL on the way home from work. Active VK2s heard on 7 Mc. around Sydney are 2FM, 2SW, 2FE, 2AAH, 2FU, 2VL, 2CK, 2SG, 2AZX, 2ABO, 2AWZ, 2SD, 2KO, 2ALR and 2ANR.

VK2 Divisional Morse Practice Sessions are held nightly 7.30 to 8.15 p.m. E.A.S.T. on 3550 kc. under the call sign of 2AWI. The session pattern is as follows, 10 minutes at 5 w.p.m., then 5 minutes each at 6, 7, 8, 10, 11, 12 and 14 w.p.m. There is also available a c.w. tape service, i.e. a tape will be prepared at any speed required, up to two hours duration, and forwarded to those interested free of charge. The only cost being the return postage on the tape.

This service should assist those nearing exam speed and who want, say, one hour at 14 w.p.m. or one hour at 16 w.p.m., etc. For information contact the Education Officer, Harold 2AAH.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3JW—C. T. Biggs.

VK3TX—W. S. (Bill) Tregear

W.I.A., N.S.W. DIVISION

ANNUAL CONVENTION ANNIVERSARY WEEK-END

THE ANNUAL DINNER will be held at 14 Atcheson St., Crows Nest, on Sat. at 8 p.m. Sub. 25/-.

THE FIELD DAY will be held at Dural on Sunday. Sub. 10/-.

Come along and make this Convention a success. A good programme of events has been arranged.

Subscriptions and Bookings to Bill Shakespeare, VK2AGF.

vention may have to be used. However, when the time came to assemble at BTV8 Studios, the sky was still pleasant enough and a large gathering had arrived. Between 60 and 70 were conducted over the Studios by the Chief Engineer, Mr. Ken Hardy. BTV6, by the way, has the best scenic view of Ballarat, and the building and equipment are very modern and well laid out. The conducted tour was of such interest and social success that it was long past the scheduled time when we all progressed on to the "shack on the hill".

The QTH of VK3AMH/VK3HW, sometimes mistaken for Radio Australia, is situated on top of the hill just above the t.v. studios and the three white towers, against the skyline, are one of the land marks of Ballarat. The faces of envy as the OMs investigated the mysteries of the shack and antennae were only surpassed by the determined faces of their KYLs. Looks as if a few Ham shacks are in for a broom one way or another.

The 80 mx hunt was to have started from the "hill", however it wasn't, as the hidden tx wasn't heard until too late and instead of the hunters turning up a search party arrived, just in time, to call us back for lunch at the "White Swan."

The White Swan Reserve is on the bank of the Reservoir of the same name and was an ideal situation for the final Convention location, with virgin bush flanking the opposite side and hills all around; it proved an attractive and sheltered spot. Soon the cooking pots were sizzling and the picnic lunches spread out. We have no idea of the exact number present, but there was a lot of Ham about and not all of it with mustard!

The all-band scramble started off after lunch and, while the blankets were being waved over the smoking fires, the 2 and 80 mx hidden tx's went bush, both to the same location, and although only two miles from the reserve, the first 80 mx hunter, 3LN, took 18 minutes and was heard and at times viewed bulldozing through the scrub for some five or more minutes before arriving at the spot. No 2 mx hunter found the tx although 3ZAA was seen in the distance.

Meanwhile, back at the ranch—I mean "Swan"—the harmonics were busy with 8 lbs. of boiled sweets and sundry snow balls, not to mention 2½ gallons of ice cream—mine were ill, hope yours were of sturdier stock.

The hunters returned, the mobiles were judged, and afternoon tea polished off in that order, then after the various trophies were awarded, the final entertainment of the day was presented. This took the form of an auction. Len 3LN held the hammer, and in his capable and witty manner, received the bids on the various items. Actually the auction proceeds were enough to cover the expenses of the afternoon. Future Convention organisers may like to take note.

It would not be fair to finish this report without mentioning the support given me by John 3HW, Ron 3ZER, Reg 4ZFD, John 3ZFW, Bob 3ZFT, Don 3PO and Hamish 3ZMV—thanks chaps.

Special thanks also to the KYLs and YLs, to whom fell the usual chores associated with this sort of thing. Also, to Divisional Council, Manufacturers and Distributors, and of course those who attended our acknowledgment of your support for what in my humble opinion was a most successful week-end. 73, 4ZBS.

NORTH EASTERN ZONE

3ACD now has a complete s.s.b. outfit; although he is not as yet accustomed to operating it, he feels very happy. His first contact was with an SVI, closely followed by a couple of Gs. VKs 3APF, 3ACK, 3ZES, 3CI, 3AWT and 3VL still have their regular cosy daily 2 mx nets at 1230 hrs. 3AWT does not appear to get out at all well, I believe. Where are the Yarrowonga club boys? 3CI recently erected a 60 ft. ex-t.v. tower and is about to antennaise it. 3HZ has recently taken a few looks at his cobwebby gear and is half decided to renew electros and come on 80 mx. 3ZJH solidly bashing away at Morse practice; he's stuck at 8 w.p.m. now.

Heard tell our zone was recently awarded the Kinnear Trophy. Another momentous decision of October state reburbar session was to award the next State Convention to Shepparton. Local boys have been set yammering and we held a meeting to appoint volunteers to organise the usual aspects.

SAUL has numerously been heard praising the wisdom of the decision; the only thing I can say is "wish you were here, Arthur." With a deep bow and wishing all an 807'ey Xmas with a good operating '63, 73, 3ASY.

QUEENSLAND

DIVISIONAL DOINGS

A full roll up of members attended the Divisional Council's Nov. meeting. An important decision was the formation of a junior member section of the Division, a move which followed a letter from a junior. Members agreed to accept student members as part of the associate membership with a maximum age of 17 years and a subscription rate of 10/- a year, exclusive of "A.R." No nominations were received for the 1963 Advisory Committee, and as the P.M.G. Department said the present members were acceptable, it was decided they should continue in office. The Council decided to recommend the following applications for membership to the next general meeting. For member: T. E. Pembleton, 4ZL. For associates: N. D. Stallman and A. E. Watkins.

A total of 32 members attended the Nov. general meeting on 23rd. Chairman, Pat 4KB, had some disappointing news regarding disposals. He had made a survey and found most sources appeared to have dried up. The meeting was also told a reply had been received from Federal Hdqs. on Division constitution questions, and it had been passed to the constitution committee. Members would be advised about any proposed changes. A

request was made for suggestions for a venue of next year's Divisional Convention.

The meeting heard a very interesting taped lecture by Joe 2JR on Balun Transformers. It was well illustrated and the information was of a practical nature suitable for any Amateur shack. The Division has recommended it to country branches and clubs. On Nov. 30, 14 members accepted an invitation by the engineer in charge of the Brisbane City Council's standardising laboratory, Mr. Bruce Gow, to visit the laboratory. This followed a lecture on modern measuring methods, given to the October general meeting. An interesting night finished with tea and sandwiches.

"BASKET PICNIC" at CASH'S CROSSING

On Sunday, 2nd December, 24 members met at Cash's Crossing on the northern outskirts of Brisbane for a "Basket Picnic" which, of course, had Ham Radio for the goodies. The purpose was to examine and discuss power supplies from a W.I.C.E.N. viewpoint. While the KYLs, harmonics and friends sipped tea, the OM's were around portable motors. Vic 4ZBT showed converter genemotors attached to a motor mower engine, and Mick 4ZAA had a similar unit in the process of construction. A third member had a unit to fit under the bonnet of a Holden and it was demonstrated to show how it gave no noise on a 2 mx tx. The afternoon was unusually interesting for all.

IPSWICH CLUB

The final meeting for the year of the Ipswich and District Radio Club was well attended with 35 present, and apologies being received from others. In another activity, 12 members visited the Tennyson Power House for an interesting afternoon. Bill Jehn reminds short wave listeners and associates who wish to be registered as listeners should contact him at P.O. Box 61, Ipswich, for a number.

Stan 4ST and his mate, Charlie, at Redcliffe, are reported to have formed a Jamboree Radio Club. They are appealing to members for power supply components to help their young charges get a start on construction. Talking about power supplies, you should get started immediately on your gear for the coming National Field Day on 9th and 10th Feb., if you haven't got it started already. This is an individual event but the Division is keen to see a good overall VK4 turnout.

Those wanting to practice their slow Morse should keep an ear out for Steve 4BB and Jeff 4XP who are putting out f.b. signals in south-east Queensland. They are on 3504 kc. at 7 a.m. and 7 p.m. on Sundays and Wednesdays. They would appreciate reports of signals as well as suggestions on the type of transmission. In case you have not noticed, there has been a change in the Outward QSL cards arrangement, and in future all cards should be sent to the Division box, Box 638J.

PERSONAL NOTES

Everyone has been glad to hear the call of Bill 4WX back on the air recently. Bill has been in ill-health for some time but all hope he's right for some more long contacts now. Georg 4GG mentioned he had ventured to the big smoke to see Bill—the first time for about 30 years. Bill 4WS, at wonderful Southport, is sporting a new car. Another man of leisure on the coast is Del 4RJ, at Burleigh Heads, who is now putting a first class signal into Brisbane at least on a new dipole. Apparently it clears the tops of the banana trees by only a couple of feet.

Les 4EH and Sam Weller, 4CZ, have had spells in hospital recently, but both are recuperating out of the place at the time of writing. Cliff 4QJ hopes to be on 14 Mc. s.b. with a fairly low power rig inside a few months, wogs, gremlins, and birds permitting. He mentions a pupil, Don Watson, has received his licence and is waiting impatiently for his call sign.

If you've been hearing a couple of very loud c.w. signals in Brisbane recently, chances are you've been hearing Alf 4OL and Howard 4WO "just having a practice" across town. Alf has been busy with the calls he's been

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and Howard does a lot of snooping on 10 and receiving on 14 Mc. to 10 a.m. most days, 15 mx. My postman, Norm 4ZNS, is another who looks around during the middle of the day on 50 Mc. and has passed word recently of some break-throughs to VK3 and VK5. A word in passing, don't these storms pack a kick with static, but also, don't they get rid of the interference on the insulators. 73, Don.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held to a slightly below-average number of members in the usual clubrooms. The number present was around the 90, but in view of the fact that seating was available for all present, it must be recorded as slightly below average. The lecture for the night was given as being on the Cubical Quad, and the lecturer was announced in the preliminary publicity as Mr. G. Wilde (5GX). In point of fact, Gilbert organised the lecture and the facilities, but it was on tape and by means of slides, the whole business being handled by the VK2 Division, and if I might say so, they did a splendid job.

The tape was divided into three sections, theory, construction and the do's and don'ts of construction. The whole being well illustrated by means of the slides. Very little can be said of this type of lecture on paper, it has to be seen and heard in person to be really appreciated, and I can assure all those who missed the opportunity of doing so, that in its novel and entertaining approach to the subject it was really something out of the bag. Rob 5RG made the speech of returning thanks to the trio of lecturers and commented on the novelty, to the VK5 Division at least, of such an approach to lecturing, also commenting on the quietness of all present during the lecture—a sure indication of its success.

The acclamation which greeted his speech gave a sure sign of the opinions of all present and would have gladdened the hearts of the three VK2 lecturers. Gilbert 5GX, who introduced the lecture and spoke again at its end, said that in view of the splendid reception of the tape and slides, he would endeavour to procure some more at an early date. Our thanks to the VK2 Division for a job well done, and also to Gilbert for making it possible.

Before "Smoko" the chairman (John 5JC) brought up the matter of moving to more spacious clubrooms in the New Year and asked

members present to say yea or nay to Council's decision to move to the Builders' and Contractors' Hall on South Terrace, commencing first meeting in January, 1963. The decision in favour of Council was almost unanimous.

Quite a number of business items were dealt with, two from "Curl" 5ZBL, who addressed the meeting in a manner worthy of Mr. Menzies at his best, the first on bringing up-to-date the method of resuscitation at the back of the Call Sign Book (mouth-to-mouth), and the second the listing of the names of all the Past Presidents of the Division in a prominent place for all to see at meeting nights. Some discussion also took place on the proposed display by the Division at the coming Manufacturers' Exhibition, but I will take the liberty of saying here and now in view of the overwhelming display of enthusiasm by the members whenever the subject is mentioned, the Division has as much chance of putting on a display at the exhibition as I have of getting even a kind smile from the VK3 scribe, who, as he modestly states, numbers among his personal friends, the editor, the entire committee, Federal Executive, etc., etc., ad-nauseum, ad-nauseum! The meeting closed at 11 p.m., with the remaining few being loudly exhorted by the chairman to "give a hand with the chairs, chaps!"

Speaking personally, something has worried me since the meeting night, and I have not been able to get it out of my mind. The second to last slide of the lecture illustrated a chair mounted on a table straddled across the roof of a house, and on the chair was an enthusiastic unknown standing up and apparently adjusting the cubical quad. The last slide of the lecture was identical except that the enthusiastic unknown was missing. Do I fear the worst, or will he appear again in some subsequent lecture?

It is possible that some distinguished visitors were present at the meeting, but if so, I would not know because the custodian of the visitors' book (Clive SPE) was absent with leave and retained the said book in his custody. Rumor has it that the cause of his absence was that he was searching for my Worked Elizabeth Award, which so far is absent without leave. However, rumor is a fickle jade, to which very little attention can be paid.

Associate member Johnny Butler, recently returned from a sojourn at Darwin, tells me that he met George 8NE and Ted 8TF whilst there and they both wish to be remembered

to all the VK5 boys. My spies report, with evident relish, that Ralph 5TR has been heard with excellent s.s.b. signals on a number of occasions. I never thought you would do it to me, Ralph. If anybody had said to me "Who could you count on to hold the fort for a.m.?" I would have said without hesitation "My Palsy-Walsy Ralph." My cup of bitterness is brimful high unto overflowing! Speaking of s.s.b., and I do so with gritted teeth, reminds me that my tame Scotchman, Dave 5DS, recently had his teeth out, and if a Scotchman with all of his teeth out does not remind you of s.s.b., then you are not one of my mob! Dave is well and happy, and biting 100 per cent., thank you.

Luke 5LL, Dave 5DS, Glen 5ZEE, "The Admiral" 5ZAH, recently paid a visit to Brian 5ZEI at Maitland, and a good time was had by all. A visit was also paid to Bill 5ZAX at South Kilkerran, who according to my spy, has enough gear inside and outside the shack to satisfy himself and a couple of hundred other devotees to the art. Luke, incidentally, had to be forcibly led away from the 100' ft. crank-up mast and was not untied until the party was half way back to Adelaide.

Charlie 5ON, due to medical reasons, has regretfully tendered his resignation from the VK5 Council. Sorry to hear it Charles. A good worker if ever there was one. Council accepted with regret.

The Port Pirie Amateur Radio Club has been re-formed and now has the new call sign of 5PP. The inaugural meeting was held at the QTH of Bert 5EQ on 1st Oct. and among those present at this meeting and a subsequent one were: John 5ZBZ, John 5YA, Bert 5EQ, Jim 5ZMJ, Ern 5EN, Brian 5CO, Bruce 5ZEG, and Bert 5BB from Crystal Brook. Two other interested parties from Crystal Brook have expressed their willingness to join the club and it has been decided to hold monthly meetings of not too fixed a date so as to work in most favourable to the majority. It is intended to start a W.I.C.E.N. group, form a Northern Net, concentrate on schoolboy instruction, film evenings, etc., etc., and plans (tentative to say the least) are under way to take all the XYLs to dinner for a bang-up Xmas do.

Election of officers resulted in Ern 5EN becoming the Patron (volunteer, unanimously acclaimed); Bert 5EQ, President; John 5YA, Vice-President; and Bruce 5ZEG as Secretary. Members of the club may be contacted on 80 mx on Friday nights between 8 and 9 p.m. (S.A. time), so go to it fellows and help to make the club a success, and give the workers the satisfaction of knowing they are appreciated. By the way, I am in complete agreement with their choice of a Secretary. He addressed his letter to me as Mr. Parsons! All of you peasants and coarse characters who address me as Boofhead, Fatty, Knucklehead, Tubby, and other terms of affection could well take a leaf out of his book. Incidentally, Bruce 5ZEG, whilst I was considerably puffed up with that title of Mister, the handle is Warwick, although to most I am known as "Pansy." 5PanSy, get it? VK5PanSy, get it? Oh what's the use!!

Heard Tom 5AQ on the 5WI call-back the other Sunday, and my s.s.b. was working so well that I heard every word that he said as clear as clear. Of course it could have been that my a.m. was working well and I heard all he said on a.m. You can never tell with Leigh Creek. Was quite a novelty to hear the voice of Ron 5FY on 5WI, especially as it is so long since I have heard him from his own QTH. Clive 5PE, the regular operator of 5WI, was missing for some reason or other, and Ron was filling in. Good heavens! It has just struck me. Surely Clive is not still looking for my award and has never returned home! Jack 5LM heard in contact with Athol 5LQ on 7 Mc. recently and he was openly boasting as to how his daughter put him and his XYL both into the office "sweep" on the Melbourne Cup and they took off first and second. How low can anyone get?

Talking of Athol 5LQ, heard him giving a graphic description of the recent storm that passed over VK5 recently. He described in detail the antics of his front verandah post during the 84-mile-an-hour windstorm, so much so that I was waiting for the inevitable crash and bang, but he qualified it all by saying, "I was not worried very much because it has been loose for years and even jumps up and down if anyone sneezes near it!" All that drama for nothing. You should be writing for t.v., OM.

Jack 5LR is now fit and well again and toiling in good form. Had quite a spell at home, but sounds extra good now. Nice work, OM. I notice in the new Call Book, Philips Electrical Industries Apprentices have a radio club licensed with the call of 5AS. Anybody ever heard them and are they active? Some information please. Whilst I am asking questions, where is Keith 5KH? Long time no hear

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or see. I know he has been gallivanting around all the country banks over the past few months, but he must report in some times. Please, where is he?

The Adelaide University Amateur Radio Club and the Prince Alfred College Amateur Radio Club, 5US and 5PZ respectively, used to practically live on the 7 Mc. band in the afternoons and early evenings, but seem to have somewhat given it away. Surely the young and keen are not losing interest, or could it be that a couple of old dodderers would come in handy to do the chores unfortunately associated with any organisation?

The Mount Gambier gang held their monthly meeting recently to a good roll-up of members, the most pleasing part being the fact of so many of the younger members coming along. Stuart 5MS is in the process of erecting a tower to put the finish to all towers, as far as he is concerned. The tower is at the moment 60 feet up in the air and will eventually be 120 feet high. Erg 5KU has his beam down at the moment, apparently checking up on where his dots and dashes have been going to. Judging by the number of QSL cards continuing to arrive for him they have been getting out very well and certainly going places.

Claude 5CH has not been to a meeting for quite a while, so must be assumed to be busy. Leo 5CJ, who is usually reported in this column as being among the missing, all hope of returning to the air abandoned, has been heard on 144 Mc. which certainly looks promising. He has been away in the line of duty for a while, somewhere in the territory of the Wild Man from Norfolk Island, and in this case he has my sympathy. Away from home and near Arch 5XK would certainly be a double punishment. Ron 5UH has had to vacate his shack, but has hopes of moving to a new QTH soon, and also hopes to be in an S2 noise area. Well, no crime in hoping. Dale 5ZER is making good progress with his 100 ft. mast, despite the destructive criticism from all and sundry. Les 5ZLS has been working a few stations on 6 and 2 mx, but as I am sometimes alluded to as a d.c. man, I wouldn't know anything about that.

Garry 5ZGR has been buying up more transformers, so it looks like more power in the offering. What most interests us is how much more power? Trev and Col Hutcheson, along with John Lehmann, are rather anxiously awaiting results from the last L.A.O.C.P.—not real hopeful, but have their fingers crossed. Here's hoping fellows!

Col 5CJ has a new antenna on 2 mx and is well pleased with the results. He is building a new tx for that band and manages to mix the d.c. with the a.c. by keeping the lunch-time skeds on 7 Mc. He is coming down to the City of Churches for a week or so and will try and renew acquaintance with quite a number of the boys. Try and make it a meeting night, Col.

Well, here we are, the end of another year, more resolutions to make and break, and more insults to receive and hand out. Anyway, the Council and members of the VK5 Division take this opportunity of wishing all Divisions a Happy New Year and all that you want for yourself, and of course as scribe for the

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Division I can have the privilege of echoing their sentiments, in fact so genial do I feel that I will extend the same wishes to all of the s.s.b. gang, although I must admit that it is straining my geniality to the breaking point!! To the VK3 scribe (who numbers among his host of friends, etc., etc.) I extend the same greetings, somewhat reservedly, and to the VK4 scribes (who apparently spend most of their leisure time dashing to and from the General Post Office, for what reason I would not have the faintest idea), I can only say, all the best for the coming year, especially in the banana line. Last, but not least, all the best to the Publications Committee and to my palsy-walsy the Editor, may his red pencil turn round and bite him, I can only say, Happy New Year, and will the finances stand another night on to my salary???? 88, 73, de 5PS—PanSy to you. (We graciously add another night to your salary, even though you deserve a cross.—Ed.)

TASMANIA

Geoff 7ZAS has not been feeling the best just recently, and he has had a sojourn in the Royal Hobart Hospital. We wish you a speedy and complete recovery, Geoff, and hope to see you along at the coming meeting, fully restored to health. Alex 7AX has just about got his s.s.b. rig working as he would wish, so VK7 adds yet another exponent to duck talk.

Charlie 7KS had two weeks on the mainland at the end of November on holidays, and took with him a mobile tx on 80 mx. Snowy 7CH lost a daughter and gained a son-in-law about the middle of Nov., and the function apparently passed off very agreeably. By the time this goes to print, Tom 7AL should be back on the air after an absence of about five years. Welcome to the ranks of the active, Tom. David 7ZAY has converted a 522 set to work

on 6 mx and has also got a Command v.f.o. working well on 2 mx. Nev. 7ZEE has also been playing around with 2 mx mobile gear, as has Danny 7ZDM.

The phenomenon of temperature inversion was in evidence about the end of November and it will be interesting to analyse results of v.h.f. activity during that time. Here is a project for you v.h.f. boys.

We have had the following visitors to VK7 during Nov.: 2VA, Luke 5LL and Harold 3PW. Welcome to each of you. We hope your examples will be followed by many more of the Amateur fraternity.

Alan 7MY has moved into his very nice new home on the waterfront at Cremorne after having sold his farm thereabouts. He still has to build a shack for 7MY, but that project has a reasonably high priority. The Division extends best wishes for success to the half dozen or more members sitting for their licences in January. We hope to hear you all on the air shortly. 73, 7ZZ.

NORTH-WESTERN ZONE

Here we are at the end of 1962. The Hamfest is over and Christmas just about over. The Hamfest was a great success, the North-West being represented by 7SF, 7KH and 7KL. You mobile boys keep your gear well oiled as there may be a Northern Hamfest in Feb. Ever tried 2 mx mobile? Maybe we could show those boys how to find a "fox".

The bands have been fairly potting through, but a little 30 mx DX has been getting through, mostly on s.s.b. I hear reports that 7MS tomatoes are doing well, so David will no doubt be "dragging 'em in" with a new rx in the near future.

As we make our New Year resolution in '63, you will no doubt remember such things as "I will use the bands," "I will resist television," and "I will attend meetings as often as possible," and associates. "I will study for my A.O.C.P." 73, 7ZBH.

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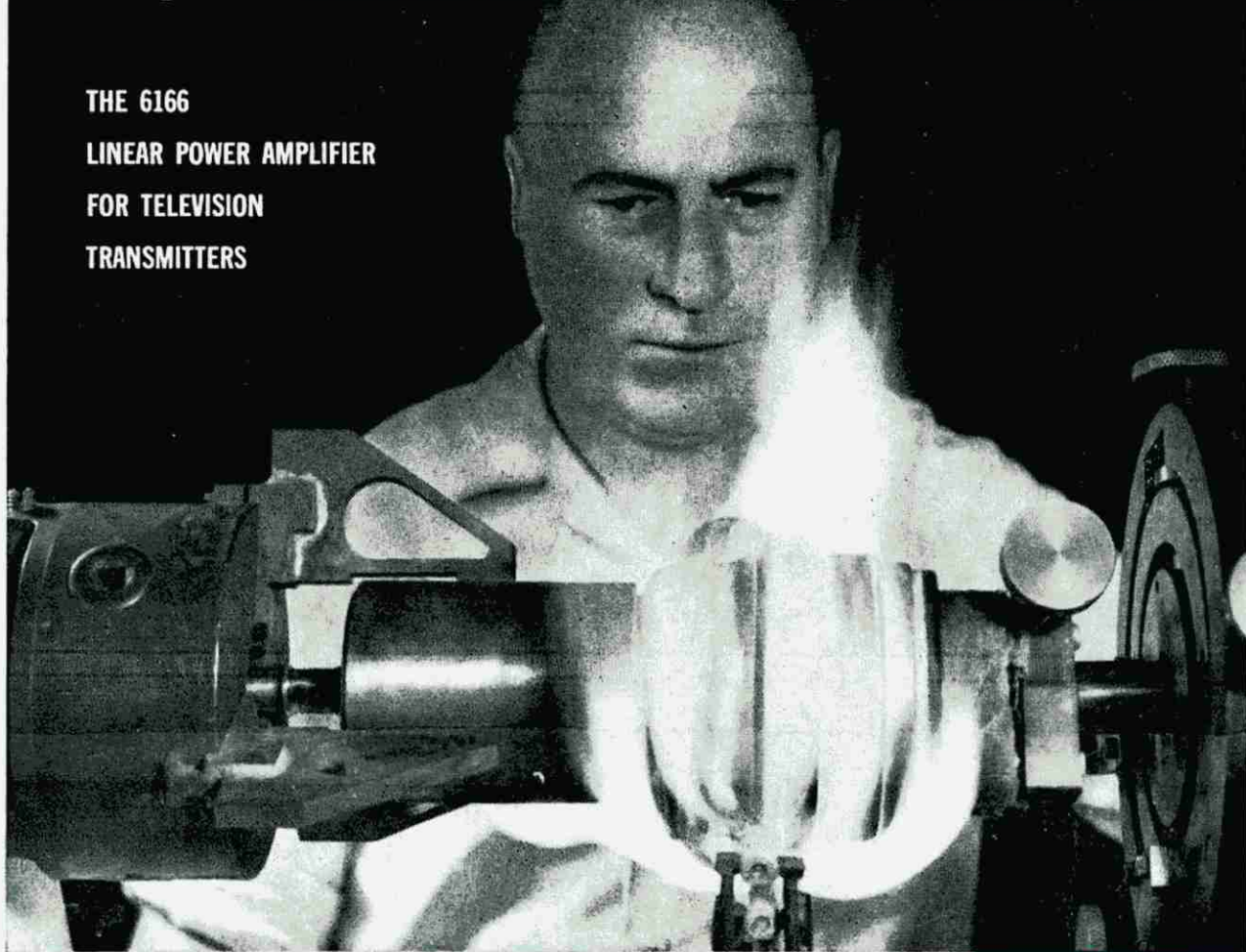
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FEBRUARY 1963

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Vol. 31, No. 2

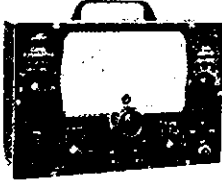
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FEDERAL COMMENT

★

OLD MAN N.F.D.

Every month in the year has some special significance to the Contest-minded Amateur. October is VK-ZL month, March is A.R.R.L. DX month, December-January is Ross Hull time, and February has now become Field Day month.

Yes, the month of February is here again and to an increasing number of enthusiasts, this means dusting off the mobile or portable rig, repairing the camping equipment and migrating to that favourite hill for a day or so to participate in the National Field Day Contest.

Despite the great interest and enthusiasm shown in England and U.S.A. for Field Day events, the Contest here has never enjoyed the same popularity. Yet today, more than ever before, this Contest needs that support. With the advent of the transistor, transmitters and power supplies and even receivers make it an easier proposition than it was, say 10 years ago.

If the Amateur is to increase his stature in the eyes of the public as has been so often propounded, he must be ready and able to operate under real emergency conditions. Here is a means of achieving some practice in this type of operation and at the same time getting away from the stuffy shack.

To misquote the words of a popular song: "Tote that gear, lift that mast, you get a little fun and you land a place (we hope) in the N.F.D." So good luck in this year's Contest, the last to be held under its present title. Let's make it a bumper wind-up to the N.F.D.

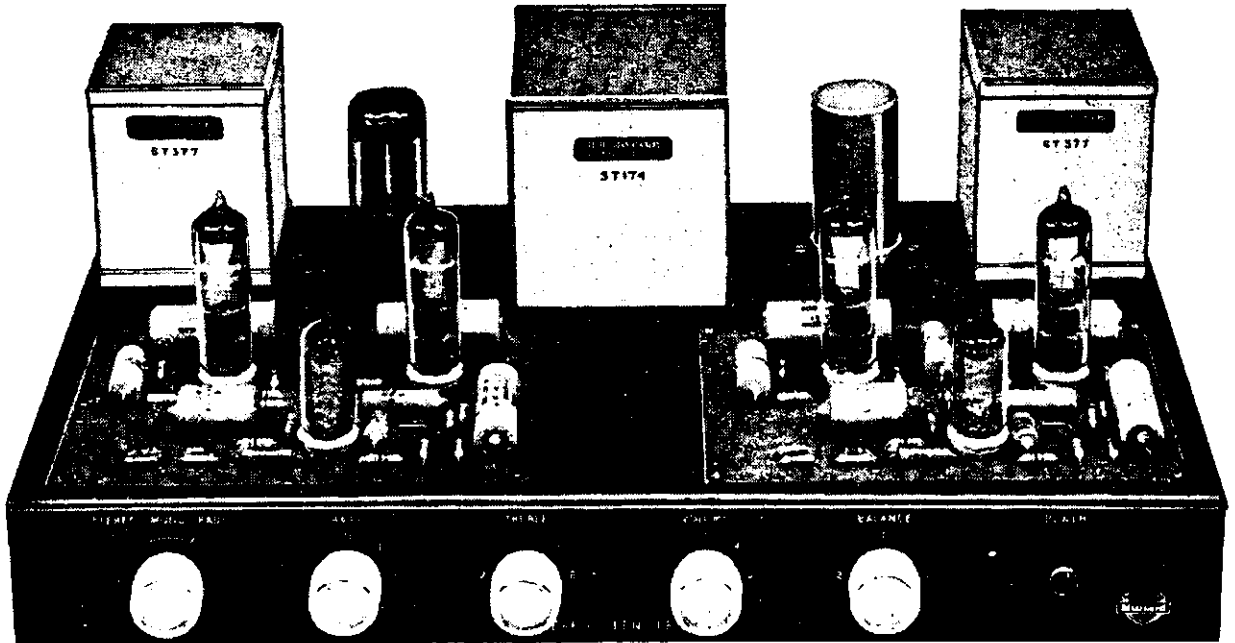
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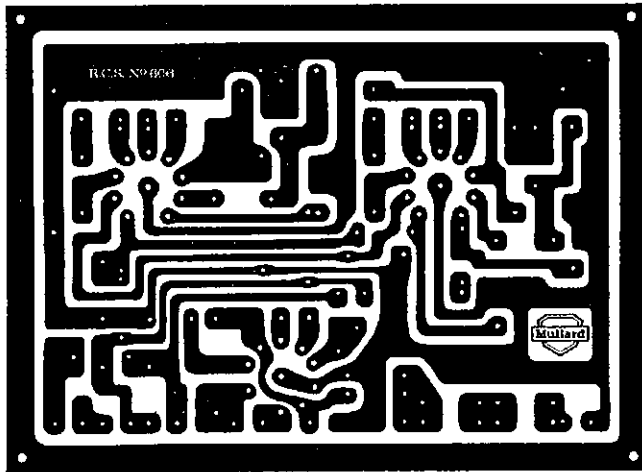
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Surplus-Crystal High-Frequency Filters*

BENJAMIN H. VESTER, W3TLN

AFTER all the recent "QST" articles on uses for high-frequency crystal filters, I've really been coveting one for a mobile s.s.b. transceiver I'm planning. The commercial price tags on filters being what they are, I decided it would have to be built from surplus crystals, or not at all. Having, during the earlier days of s.s.b., suffered with a low-frequency crystal filter (typical report was, "Gee, your voice sounds funny"), I decided to do a little reading before dragging out the soldering iron this time.

An article by Kosowsky† boils a lot of "long-hair" literature on crystal-lattice theory into a fairly simple and understandable form. One of the most interesting points to me was the fact that the crystal filter designer considers the narrow-band high-frequency crystal filter for s.s.b. to be the "easy" design—the problem getting much more exotic for the wide-band high-frequency filter. Since my buddy, W3HEC, was already tackling the tough problem of making a good low-frequency filter with the FT241 crystals, I took the easy way out and tried my hand with the high-frequency unit.

SOME BACKGROUND

If you're planning to try your hand at it, it will help if you grab a few fundamental concepts on crystal lattice filters first. The properties of the crystal itself are pretty well known, the approximate equivalent circuit being shown in Fig. 1 and the change of reactance or impedance being shown in Fig. 2. The crystal has two resonances very close together, L and C being in series resonance at f_z , and L, C and C_0 being parallel resonant at f_p . These resonances have been given names by the network theory boys, the series resonance being called a "zero" of impedance (for obvious reasons) and the parallel resonance being called a "pole" of impedance. The symbols used for these are shown in Fig. 2.

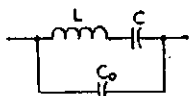


Fig. 1.—The equivalent circuit of a crystal. L and C are the electrical equivalents of mechanical constants of the crystal, while C_0 is the shunting capacitance of the electrodes and holder.

These poles and zeroes are mighty convenient little symbols for handling networks, the most convenient part being the fact that if you have a circuit with several poles and zeroes, you can often manipulate the circuit values so as to get some of the zeroes each to cancel out a pole. Hence, a circuit with a multitude of resonances (or poles and zeroes) can be arranged to have

● Using the methods and circuits outlined here, the problem of making a usable high-frequency (i.e. in the 4 to 7 Mc. range) crystal filter doesn't sound too tough, even with limited test equipment. If you've been interested in some of the newer transmitting and receiving techniques using filters in this range, here's a way to give them a whirl without a large investment.

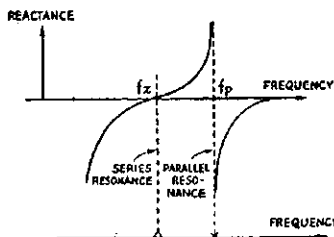


Fig. 2.—Reactance characteristics of a crystal. The series-resonant frequency, f_z , is that of L and C (Fig. 1) in series; the parallel-resonant frequency, f_p , is the resonant frequency of the parallel circuit formed by L and C in one branch and C_0 in the other.

its response equivalent to only a few resonances.

The universal crystal filter is a lattice circuit. The lattice is usually developed in full "four-arm" form (i.e. as a bridge circuit) and then the equivalence of the half-lattice is proved. The reader is referred to Kosowsky's article and its bibliography for the full treatment on this. We will settle for a few statements on crystal lattice filters which have been adequately proven by others.

Consider the simple one-section half lattice shown in Fig. 3. The first important point to consider is that the only way in which the lattice can give a high insertion loss between input and output is for the impedances of A and B to be about equal, so that the voltage at their common connection (point O) is equal to the voltage at the coil centre tap. Our crystals will meet the requirement pretty well if they have the same holder capacitance, so the primary problem is to build the coil so that the

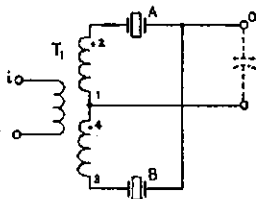


Fig. 3.—The half-lattice crystal filter. Crystals A and B should be chosen so that the parallel-resonant frequency of one is the same as the series-resonant frequency of the other. Very tight coupling between the two halves of the secondary of T_1 is required for optimum results.

voltage from Terminals 1 to 2 is exactly the same as the voltage from 3 and 4. The method for realising this will be discussed a little later.

Crystals A and B are chosen to be different in frequency for the half lattice. Thus it is obvious that if we are at a zero (series resonant) frequency of, say, crystal A, the impedance balance of A and B is spoiled and there is a voltage showing up between point O and the centre of the coil. This will also occur at the pole (parallel resonant) frequency of crystal A. The same can be said for crystal B, only the unbalance is in the opposite direction. This leads us directly into the statement that the pass band of the crystal filter will be as wide as the spacing of all the poles and zeroes. This says nothing about the ripple or variation in transmission in the pass band, however, and if A and B are far apart the ripple or dip may be tremendous. Here's where the network theory boys' trick of pairing off poles and zeroes comes in handy. A little study with Fig. 2 of the way in which the impedance change around a zero differs from that around a pole will give an idea how the lattice crystals can be arranged to give a flat pass band. Fig. 4 shows the desired arrangement. The series-resonant frequency of crystal B is arranged to coincide with the parallel resonant frequency of crystal A. This will theoretically give a perfectly flat pass band from the zero of crystal A to the pole of crystal B.

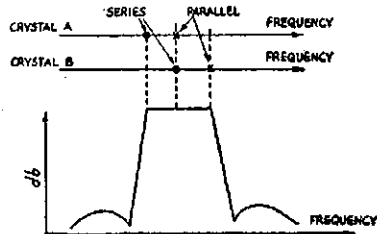


Fig. 4.—The theoretical attenuation-v.-frequency curve of a half-lattice filter shows a flat pass band between the lower series-resonant frequency and higher parallel-resonant frequency of the pair of crystals.

Our problem is now resolved down to determining the pole-zero spacing for the available crystals. The surplus FT243 crystals in the 5 Mc. range (this choice of frequency was obviously based on the excellent results being obtained with the popular HT32 transmitter) have a measured spacing of about 2.2 Kc. between their series and parallel-resonant frequencies. Thus, two of them spaced 2.2 Kc. apart in frequency are theoretically capable of giving a 4.4 Kc. bandwidth. Practically, it is very difficult to get quite this much bandwidth.

If we examine the effects that the external coupling circuitry has on the pole-zero spacing, it can be shown that both an increase and a decrease in the

* Reprinted from "QST," January, 1959.

† Kosowsky, "High Frequency Crystal Filter Design Techniques and Applications," Proceedings of the I.R.E., Feb., 1958.

spacing can be accomplished, by shunting inductance or capacitance, respectively, across the crystal. The most familiar example of this to most of us is in pulling a crystal oscillator's frequency by shunting a capacitor across the crystal. This technique, you will remember, only works where the crystal is being used in its parallel-resonant mode.

Referring back to Fig. 1, it is easily seen that a parallel capacitor makes C_0 larger and lowers the parallel-resonant frequency (pole). It will not affect the series-resonant frequency (zero), so the effect of the parallel capacitor is to move the pole closer to the zero. Similarly, it can be shown that an inductance shunted around the crystal will push the pole away from

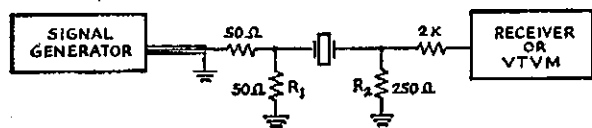


Fig. 5.—Set-up for measuring the series and parallel-resonant frequencies (or pole-zero spacing) of a crystal.

the zero; unfortunately, however, this also introduces a second parallel-resonant frequency. Even the network theory boys begin to sweat a little when they begin to manipulate this many poles and zeroes in a lattice circuit, so we Hams had better avoid the complications, and shy away from trying to add tuned inductors on the input and output of the filter. If we are forced to use an inductor, we will make its inductance large enough to avoid its resonating with C_0 anywhere near the desired pass band.

PRELIMINARY MEASUREMENTS

Now that we have some ideas as to how crystal filters work, we will get more specific and look at the procedure by which one may be evolved. To measure the spacing between the series and parallel-resonant frequencies, we must be careful to avoid having the test circuit put shunt capacitance across the crystal and give erroneous results. The circuit in Fig. 5 was used by the writer.

To eliminate the extra shunt capacitance that a socket would add, the crystal holders were soldered directly into the circuit. The signal generator can be most any kind, so long as it has a slow tuning rate—I used one of the Command transmitters. The measurement detector can be a scope, a v.i.v.m. (with r.f. probe), or the station receiver. The low resistance R_2 across it should swamp out any small amount of input capacitance it might have. If a receiver is used, a 1K or 2K resistor should probably be put in series with its input to isolate the crystal from the receiver front-end tuned circuits. The series and parallel-resonant frequencies are, of course, at the peak and null of the signal across R_2 . Any decent communications receiver will measure the

frequency difference; best accuracy is obtained by measuring the harmonics of the generator with the receiver in the sharp crystal-filter position.‡

Initial measurements of the two 5645 Kc. crystals I had showed a pole-to-zero spacing of 2.2 Kc. on one and 2.4 Kc. on the other. Their series-resonant frequencies were about 560 cycles apart. I decided to try these out first to get a bearing on the problem.

As indicated earlier, the push-pull coil must have very tight coupling between its two secondaries and should be chosen with a high enough inductance to avoid resonance with the crystal shunt capacitance near the pass band. I used a 3" ferrite toroid (origin and properties unknown) with the secondaries wound bifilar. The bifilar winding

is illustrated in Fig. 6. The enclosed LS series coils made by C.T.C. probably would work just as well. (It would probably be very difficult to get tight enough coupling with air-wound coils, however.) I arbitrarily made each half of the secondary coil with an inductance of 50 microhenrys; this required 25 bifilar turns, or 50 turns total. The exact inductance is not at all crucial—the important thing is the tight coupling.

EXPERIMENTAL RESULTS

A filter was constructed with the circuit shown in Fig. 3. It was fed from a low impedance and its output was fed into a 6AK5 mixer grid, the mixer grid effectively shunting some capacitance across the crystals. This mixer was used to beat the filter out-

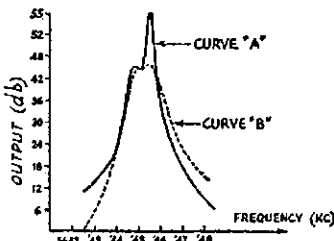


Fig. 7.—Measured attenuation curves of a half-lattice filter using two nominal 5645 Kc. crystals having series-resonant frequencies separated by 560 cycles. A—without resistance termination; B—with 10,000 ohm terminating resistor. In taking the data for these curves and those shown in Figs. 8, 9, and 11, the attenuation was based on the manufacturer's calibration of the receiver used in the tests.

‡ I.e., after adjusting the generator to the series-resonant frequency, let the generator alone and shift the receiver to some higher range where a generator harmonic can be heard and its frequency measured. Then shift back to the fundamental frequency, adjust the generator to the parallel-resonant frequency, shift the receiver again and then measure the generator harmonic adjacent to the first one. The frequency separation between the crystals is of course equal to the frequency difference between the harmonics divided by the order of the harmonic. This method usually will give improved accuracy only if the receiver calibration can be read to the same accuracy—e.g., 1 kc. per dial division—on the harmonic range as on the fundamental.—Editor.

put signal into a range which was covered by my receiver (a 75A-3) so the receiver could be used for both db. and frequency measurements. The initial response was as shown by curve "A" in Fig. 7. A 10K resistor was then added to terminate the filter and the response squared up (as shown by curve "B") to give a passable 1 Kc. high-frequency filter.

This was sufficiently encouraging, so I dug out the ammonium bifluoride etching bath from its hiding place and moved the upper-frequency crystal to a frequency 1,500 cycles above the lower frequency (W2IHW's technique for etching crystals is really simple).

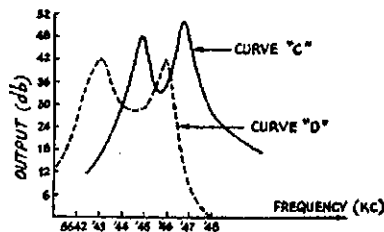


Fig. 8.—Attenuation curves of half-lattice filter with crystals of the same nominal frequency as in Fig. 7, but with 1.5 Kc. separation. C—with 0.5 megohm terminating resistor; D—shunt coil added across the output to resonate with capacitance present at that point.

The initial results with this were anything but encouraging. Curve "C" in Fig. 8 illustrates the results. It was obvious that the capacitance across the lattice output had shoved the poles too close to the zeroes, or else the 0.5 meg. terminating resistor was improper. I tried tuning the capacitance out with a slug-tuned coil and got all kinds of interesting results (curve "D" in Fig. 8 is typical), none of them usable. When I terminated the filter with lower values of resistance, however, the results improved markedly. With just the right resistor, 1.5K in this case, the pass band was flat over a reasonable width. Curve "E" in Fig. 9 shows the final results. The bandwidth is just barely great enough for phone use.

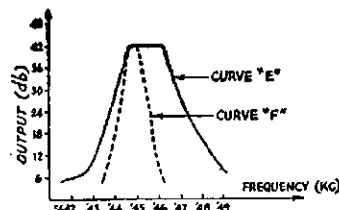


Fig. 9.—E—half-lattice filter using same crystals as in Fig. 8, with 1,500 ohm terminating resistor. F—using two nominal 5645 Kc. crystals separated 300 cycles, with 3,900 ohm terminating resistor.

Since I had one other 5645 Kc. crystal which was 300 cycles from one of the original crystals, I substituted it in and got curve "F" in Fig. 9. This time a 3.9 K terminating resistor gave the flattest pass band.

If greater rejection off the skirts is required, there are several ways in which these sections can be cascaded. Crystals of the same frequency can be paralleled on the half-lattice arms, or an isolating tube can be placed between

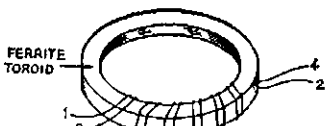


Fig. 6.—Bifilar winding on a toroidal core.

‡ Newland, "A Safe Method for Etching Crystals," "QST," January 1958.

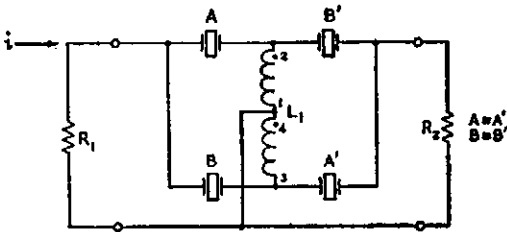


Fig. 10.—Half-lattice filters cascaded in a back-to-back arrangement. The theoretical curve of such a filter has increased skirt selectivity and fewer spurious responses, as compared with a simple half lattice, but the same pass band as the simple circuit.

two sections. A simpler technique is to connect them back to back as shown in Fig. 10. This method of connection will minimise spurious off-frequency response since the probability of getting the spurious responses of crystals A and B to line up with those of crystals A1 and B1 is pretty small. The coil, L1, is again wound bifilar and R1 and R2 are chosen experimentally for the best pass band. The crystals should be matched as closely as you can read their frequency—this is pretty easy with the etching technique.

Fig. 11 shows the response I got from four 7300 Kc. crystals, connected like Fig. 10 (crystals A and A1 were 1.5 Kc. higher than B and B1). The same bifilar coil was used. Incidentally, I got a peep inside one of the 9 Mc. commercial s.s.b. filters recently and they used this circuit. Their filter used an LS-9 coil (C.T.C. Corp.) for L1.

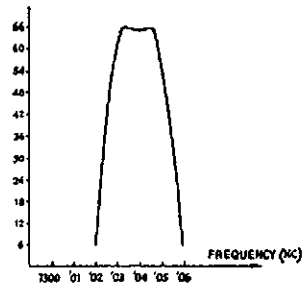


Fig. 11.—Attenuation curve of filter using four nominal 7300 Kc. crystals, pairs separated 1.5 Kc. in the circuit of Fig. 10.

I measured the spacing between series and parallel resonance of a few of the other surplus crystals that were lying around and got the following results:—

Crystal Freq.	Type	Pole-Zero Spacing
8725 Kc.	FT243	2.7 Kc.
7250 Kc.	FT243	2.3 Kc.
7380 Kc.	Plated-surplus	5 Kc.
7010 Kc.	Plated-surplus	6 Kc.
8900 Kc.	Plated-harmonic cut	20 Kc.

Obviously, the plated crystals will give wider-band filters.

If you're interested in an asymmetrical filter which has a gradual fall-off on one side, then the circuit shown in Fig. 12 can be used. Here both the crystals are on exactly the same frequency. The coils are again bifilar and C is tuned to give the desired pass band. The potential bandwidth here is only half that obtained with the half-lattice. It should work nicely with the plated crystals, however.

I hope this will encourage some of you fellows to try your hand at build-

ing filters. I only have a handful of crystals and have only spent a couple of weeks playing with them, so I have not had an opportunity to try all the circuits.

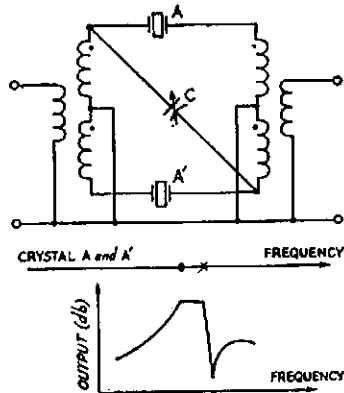


Fig. 12.—An asymmetrical filter and theoretical attenuation curve.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.



Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff provided that the article is illustrated.



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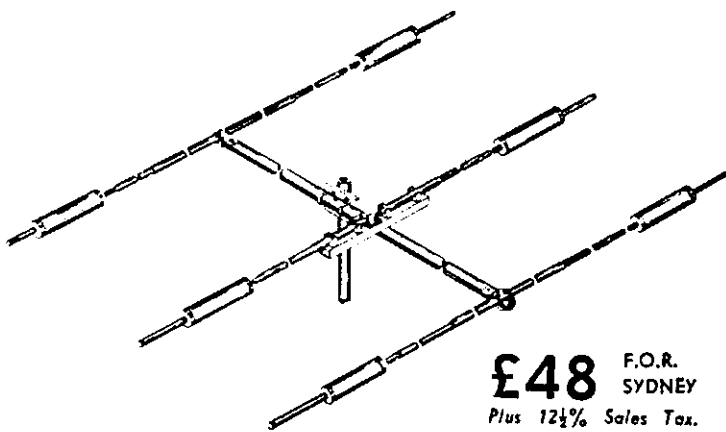
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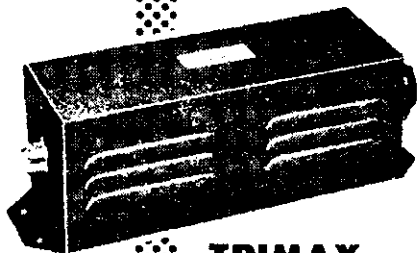
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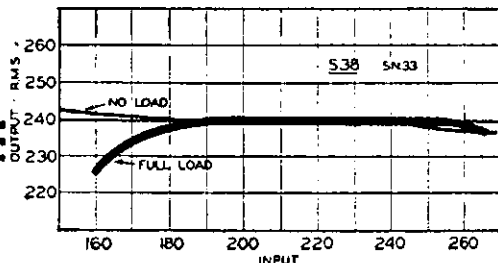
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A Combination S.W.R. Bridge and Amplifier Linearity Indicator*

H. C. SHERROD, W5ZG

An s.w.r. indicator/relative power output indicator is a useful device which is popular because of its simplicity and economy. The usual unit consists of an r.f. sampling device connected in the transmission line and a high resistance d.c. voltmeter. The sampled voltages are rectified to reveal the forward and reflected powers in the line. From this information we can determine the standing wave ratio in the usual manner and the relative power output is indicated by the forward reading.

THE LINEARITY MEASUREMENT

It is important to realize that the forward rectified voltage varies directly with the forward r.f. power in the line. With this thought in mind, consider a linear r.f. amplifier.

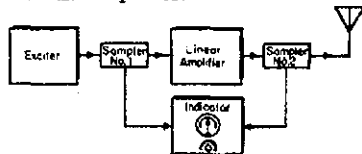


Fig. 1.—Block diagram of the linearity metering setup. Two identical r.f. sampling devices are used with their outputs fed into a comparison circuit. The adjusting potentiometer is calibrated in db. and indicates the gain of the linear.

Within the limits of linearity, the ratio of output power to input power is constant. If identical r.f. sampling devices are inserted in the input and output coaxial lines of such an amplifier, as shown in Fig. 1, the ratio of the forward rectified voltages from the two sampling units will be constant within the limits of linearity of the amplifier.

By using a zero-centre scale voltmeter and a comparison circuit with a

● The author presents a unique but simple device for use with a linear r.f. amplifier that indicates relative input and output power, input and output s.w.r., and amplifier linearity deviation.

potentiometer for equalising the ratio of the forward rectified voltages from the sampling devices, a visual indication of the linearity deviation can be obtained. The indication is derived from true dynamic conditions. Since the adjustment of the equalising potentiometer is a function of the power gain of the amplifier, this potentiometer can be calibrated in terms of db. gain or other acceptable units.

Data for the calibration of the potentiometer in db. is given in Table 1 and the derivation of Table 1 is explained at the end of this article. This potentiometer can be calibrated with a reliable ohmmeter.

Gain, db.	X, Ohms	Y, Ohms
0	10,000	0
2	8,854	1,146
4	7,738	2,262
6	6,677	3,323
8	5,695	4,305
10	4,805	5,195
12	4,015	5,985
14	3,326	6,674
16	2,736	7,264
18	2,236	7,764
20	1,818	8,182

Table 1.—Calibration data for the Linearity Balance potentiometer. Areas X and Y of the potentiometer are identified in Fig. 2.

As explained, two r.f. sampling devices and a zero-centre meter are required to indicate linearity deviation. By incorporating a switch, an additional potentiometer and a few resistors, the meter and sampling devices can be connected to indicate the functions listed below:—

- Amplifier Input—Relative Forward Power.
- Amplifier Input—Reflected Power—S.W.R.
- Linearity Deviation.
- Amplifier Output—Reflected Power—S.W.R.
- Amplifier Output—Relative Forward Power.

CONSTRUCTION

The circuit of the complete unit is shown in Fig. 2. The operation of the two s.w.r. bridges is conventional and is described in the handbooks. The instrument housing should be large enough to contain the two potentiometers, the five-section switch and the four 10K, 1 watt, resistors. The four phono jack type connectors are located on the rear of the cabinet. Wiring is not particularly critical.

Construction data for the line samplers is shown in Fig. 3. The units are made from 1" aluminium angle stock. The main conductor, 3/16" o.d. copper tubing, is connected to the two hot lugs of the coax connectors (in this case type C) and if the measurements are followed exactly, they will be 3-7/8", centre to centre.

The 1/4" thick polystyrene blocks support the two 12 gauge copper wire sampling lines.

Fig. 4 shows a suggested panel arrangement of the unit and a tabulation of meter readings against the standing wave ratio. A photograph of the unit is not shown since it is an integral part of the author's 1kw. linear amplifier and would show very little if any detail.

OPERATION

Application of this unit is explained for each function.

Input S.W.R.—Throw the selector switch to the **input forward** position. Apply carrier excitation to the amplifier and adjust the s.w.r. sensitivity control for full scale deflection of the meter. Throw selector switch to **input reflected** position and adjust grid circuit tuning of the r.f. amplifier for minimum meter reading.

Output S.W.R.—Throw the selector switch to **output forward** position and, with carrier, adjust s.w.r. sensitivity control for full scale deflection of meter. Throw selector switch to **output reflected** position and read standing wave ratio of amplifier load.

* Reprinted from "CQ," October, 1982.

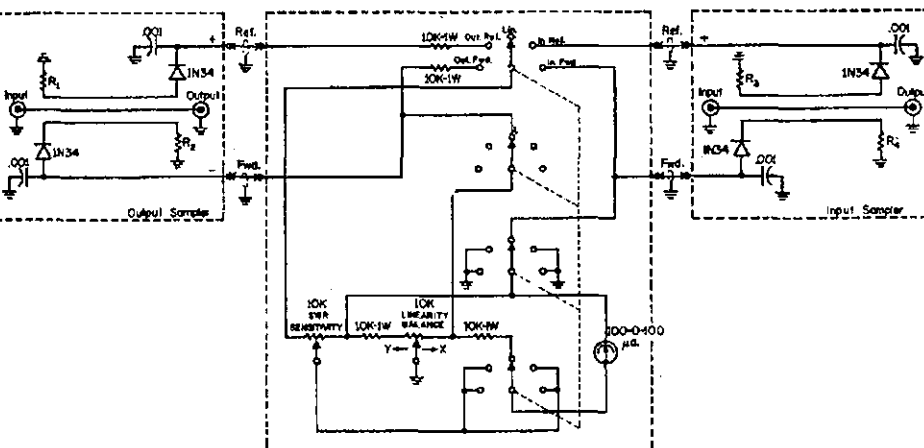


Fig. 2.—Circuit of the S.W.R. Bridge/Linearity Indicator. The value of resistors R1 to R4 is determined by the coaxial cable impedance. For 52 ohms 175 ohms 1 watt carbon resistors are used. For 72 ohm coax, the value should be approximately 240 ohms.

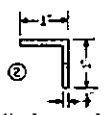
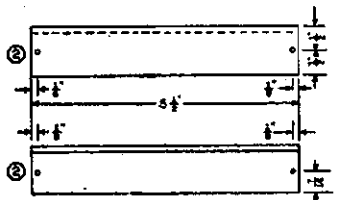
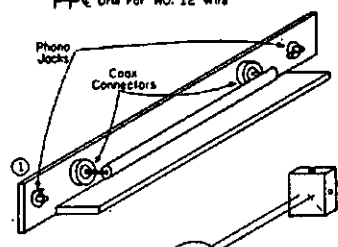
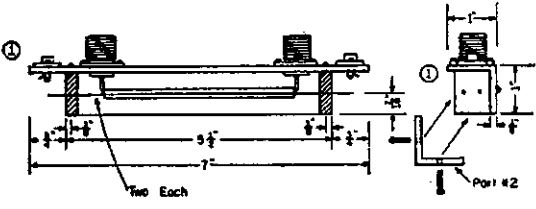
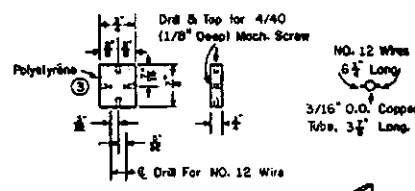
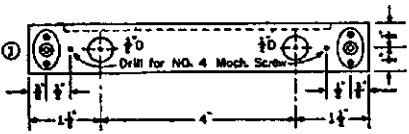


Fig. 3.—Construction data for the two identical sampler units to be inserted before and after the linear amplifier. The stock is 1/2 x 1 inch aluminum angle.

Linearity.—With full carrier inserted, and the amplifier operating under full load, throw selector switch to **linearity** position and adjust the linearity balance potentiometer for zero meter reading. Remove full carrier excitation and place amplifier in normal operating condition. If the amplifier is linear, the indicating meter will not deviate from zero during amplifier operation. When the linearity balance potentiometer is adjusted as described, the potentiometer setting indicates the db. gain of the amplifier.

As indicated previously, in linear operation there should be no shift in the meter indication at all. In the absence of linear operation the deviation shown by the meter would vary with the amount of excitation. The shift could be caused by improper grid bias, parasitics, improper plate and/or screen voltage, improper amplifier loading or by any combination of these conditions. The operator should be concerned about any meter deflection of more than five microamperes and

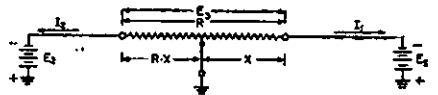
should in reality only settle for operation with no meter shift at all.

As a zero centre scale meter was required to indicate deviation from linearity, the diode rectifiers in the two r.f. samplings devices were connected to provide d.c. voltages of opposite polarity. With this arrangement, forward power is indicated by a deflection of the meter in one direction. Reflected power is indicated by a deflection of the meter in the opposite direction.

ADDENDUM

While it is not necessary for the construction of the unit, some readers may desire an understanding of the computations involved in determining the resistance points necessary to calibrate the linearity balance potentiometer in terms of db. of amplifier gain. The explanation is divided into two parts; first a purely theoretical analysis and secondly, the practical application.

Theoretical Analysis



- R = Total potentiometer resistance in ohms.
- X = Resistance of portion of pot. to right of arm, in ohms.
- R-X = Resistance of portion of pot. to left of arm, in ohms.
- E1 = Voltage across portion of pot. to right of arm.
- E2 = Voltage across portion of pot. to left of arm.
- E3 = Total voltage across pot.
- I1 = Current through X portion of pot.
- I2 = Current through R-X portion of pot.

From the above then:
 $E_3 = I_1 X$
 $E_3 = I_2 (R - X)$
 $E_3 = E_1 - E_2$ (Note polarity)
 when $E_1 = E_2$, $I_1 X = I_2 (R - X)$
 and $\frac{I_1}{I_2} = \frac{R - X}{X}$

The ratio of voltages E1 and E2 can be expressed:

$$db. = 20 \text{ Log } \left(\frac{E_1}{E_2} \right)$$

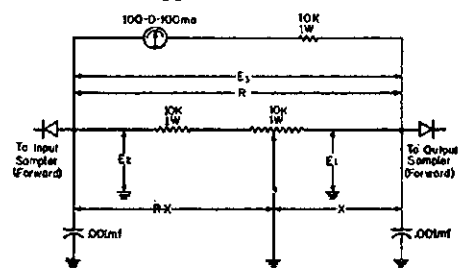
Similarly, the ratio of currents I1 and I2 can be expressed:

$$db. = 20 \text{ Log } \left(\frac{I_1}{I_2} \right)$$

Substituting: $db. = 20 \text{ Log } \left(\frac{R - X}{X} \right)$

Note that when db. = 0, R - X = X. Also, when the pot. is adjusted so that E2 = 0, the pot. setting [(R - X) ÷ X] can be calibrated in db.

Practical Application



From the theoretical analysis it may be seen that, when E1 = E2, E2 = 0 and

$$db. = 20 \text{ Log } \left(\frac{R - X}{X} \right)$$

the following chart (Table 2) may be derived as was given in abbreviated form in Table 1.

Gain db.	R - X Ohms	X Ohms	R - X / X	Log (R - X / X)
0	10,000	10,000	1.0000	0.0000
2	11,146	8,854	1.2588	0.1000
4	12,262	7,738	1.5848	0.2000
6	13,323	6,877	1.9952	0.3000
8	14,305	5,895	2.5117	0.4000
10	15,195	4,805	3.1621	0.5000
12	15,985	4,015	3.9809	0.6000
14	16,674	3,326	5.0122	0.7000
16	17,264	2,736	6.3100	0.8000
18	17,764	2,236	7.9433	0.9000
20	18,182	1,818	10.0000	1.0000

Table 2.

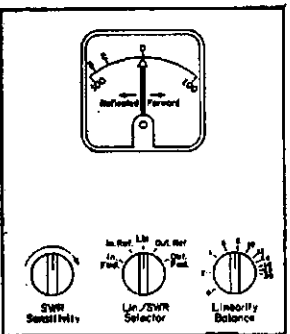


Fig. 4.—Suggested panel arrangement. The s.w.r. calibration marks shown correspond as follows: An s.w.r. of 1:1 equals 0 μA., 2:1 equals 63.5 μA., 3:1 equals 86.6 μA. on the meter scale.

W.I.A. 50 Mc. W.A.S.			
Call	Cer. Add. No. Cntr.	Call	Cer. Add. No. Cntr.
VK4HD	27 8	VK5BQ	23 3
VK4AZ	28 7	VK7LZ	24 3
VK4ZBE	29 6	VK3ZF	25 3
VK2WJ	13 4	VK9AU	32 3
VK3ZFM	22 4	VK3ZGZ	28 2
VK3IM	30 4	VK5ZZ/T	31 2
VK4PU	35 4	VK7ZAO	33 2
VK4HR	4 3	VK5ZMK	38 2
VK3PG	5 3	VK7ZAQ	34 1
VK2ABC	8 3	VK5ZBR	37 1
VK2VW	9 3	VK5AX	36 -
VK5GG	19 3		

HIGH FREQUENCY CRYSTAL FILTERS

ARIE BLES, VK2AVA

CRYSTAL filters on frequencies between 5 and 9 Mc. are now being used in many commercial Amateur transmitters and transceivers. The McCoy crystal filter on 9 Mc. can be bought as a separate unit and provides an excellent basis for a simple s.s.b. rig, but the \$32.50 U.S.A. price may be a lot higher before it is in your shack.

Some Amateurs have tried filters with FT243 surplus crystals with limited success, regardless of the claims made in articles in "QST," of January 1959, May 1960, and October 1960. The filter bandpass curves published in these articles are difficult to duplicate, at least I have never had success myself.

The advantages of a high frequency filter are obvious. One can save at least one stage or sometimes two stages of frequency conversion. Consequently there are less oscillators producing unwanted spurious frequencies and less risk of frequency conversion and mixing distortion and unwanted by-products. In particular for the v.h.f. bands, a s.s.b. transmitter starting with a 450 Kc. sideband generator will become quite involved.

My earlier experiments were made with a limited supply of 5,000 Kc. crystals. A lot of work is required to not only check their zero and anti-resonance frequencies, but some have to be changed in frequency to obtain matched pairs and invariably one will overshoot the desired frequency and loose crystals. Recently I have had the luck to play with several hundreds of crystals of the same frequencies and that offered a much better chance to arrive at something.

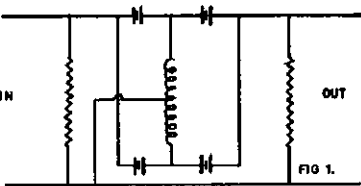


Fig. 1.

As explained in the "QST" articles referred to, the recommended circuit is not a standard half-lattice set-up but a hybrid circuit, using four crystals, two pairs of two crystals closely matched in frequency and between 1,500 and 2,000 cycles in frequency apart. This is being done to make the second higher frequency pair of crystals fall on the so-called pole-frequency of the first lower frequency pair of crystals.

All crystals, when used as filters, will demonstrate two distinct resonance points, one, the lower frequency one, where the r.f. resistance of the crystal is lowest, its zero resonance point, and a second frequency, higher than the zero resonance point, where the resistance is largest, its parallel or pole frequency point. If the zero frequen-

cies of the second pair match the pole frequencies of the first pair, it is supposed to provide a flat bandpass curve.

The centre tapped tuned circuit (as in Fig. 1) between the four crystals has always given me trouble. Some sources say tight coupling is a necessity, so use a bi-filar wound coil. Others say, no, tune the circuit to resonance and use a standard good quality coil and that will do the trick. Others again say a high quality toroid coil core is a necessity, a.s.o. But all have had trouble to flatten the peaks and valleys in the bandpass. They use rather low resistors at both ends of the filter to swamp the circuit and are obviously trying to smooth out the bandpass curve.

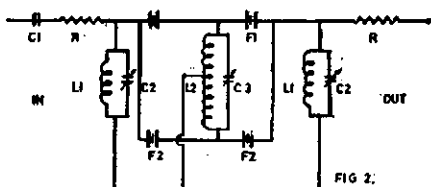


Fig. 2.

- C1—0.002 μ F.
- C2—50 pF.
- C3—3-30 pF. Philips trimmer, about half capacity.
- L1—Iron slug tuned coil, approx. resonating on 5.5 Mc.
- L2—17 turns bi-filar wound litz wire on Command Set iron core (34 turns).
- F2—F1 plus 1,500 to 2,000 cycles.
- R—2,000 ohms.

I have never been able to lay my hands on a genuine toroid coil core,† so at last tried my luck with a powdered iron core out of the final tank coil of a Command transmitter. It is about $\frac{3}{4}$ " in diameter and $\frac{1}{2}$ " long, and the small hole in the centre can be enlarged with an ordinary drill. Seventeen turns of bi-filar wound litz wire and a Philips pot trimmer gave better results than anything I had tried before, but still that blasted trouble to smoothen the humps in the bandpass curve.

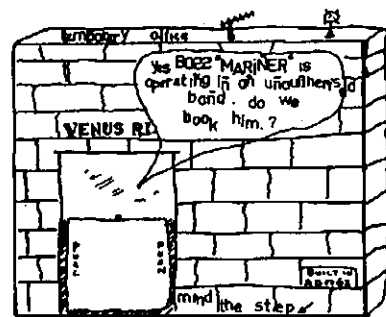
Well, to cut a long story short, instead of swamping the filter with resistors I have loaded it with tuned circuits and inserted series resistance in the input and output of the filter. In this manner I could immediately improve the bandpass curve, get an almost perfect flat bandpass with nice steep sides, obtain a good shape factor, and flatten out slight irregularities in the curve with small adjustments of the three tuned circuits in the filter. The procedure is to tune for maximum response on the frequency half way between those of the crystals and next make slight adjustments, one way or the other, of the tuned circuits, no more.

Do not ask me why this arrangement works in preference over and better than what others have used. The main thing is it works well without much trouble of alignment. The series

resistances involve some loss of signal but probably much less than parallel resistance swamping; the impedance of this circuit is of course much higher. I shall not apply for a patent on the circuit—yet.

Considering the work involved to select suitable crystals and the fairly large number required to obtain useable pairs that will match, I am going to offer help again to those who want it, like in the case of the 60 odd sets of 400 Kc. crystals that have found their destination.

I have been allowed access to large numbers of crystals, FT243 surplus types, procured by the N.S.W. section of the W.I.A., and am already checking, matching and testing them in this circuit of mine. A set of four crystals, matched in frequency and response, plus two carrier oscillator crystals, selected and etched to fall on the 20 db. down points of the bandpass curve of the particular set of four crystals, on 5436 Kc., or after exhausting the supply of those crystals, elsewhere between 5 and 6 Mc., will be available to genuinely interested Amateurs on direct application to me for three guineas, post paid.



NAT. FIELD DAY 1963

The National Field Day Contest will be held on Saturday, 9th February, and Sunday, 10th February. The rules appeared on page 17 of the last issue.

ADDITIONAL RULE 6A

Entrants to Section C for Multiple Operator Stations can set up separate transmitters to work on different bands at the same time. All such units of a Multiple Operator Station must be located within an area that can be encompassed by a circle not greater than half a mile diameter.

For each transmitter of a Multiple Operator Station a separate log shall be kept with serial numbers starting from 001 and increasing by one for each successive contact. All logs of a Multiple Operator Station shall be submitted by the Operator under whose Call Sign the transmitters are working. No two transmitters of a Multiple Operator Station are permitted to operate on the same band at any time.

† A recommended type is the Mullard FX1269. —Editor.



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 ing a button.

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 50 µF. 2/5
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MORE ABOUT FT241 SURPLUS CRYSTALS

ARIE BLES, VK2AVA

MILLIONS of these crystals must have been made during the last war as they are still plentiful—unfortunately not in this country. They were made for the SCR508 f.m. transceivers that operated from tanks on frequencies between 20.0 and 38.9 Mc. at 0.1 Mc. intervals. The crystals are marked with these frequencies but their basic frequencies are actually between 370 and 540 Kc. In the tank sets where they were used, the modulation was applied to the crystal oscillator and the resultant phase modulated signal was multiplied 54 or 72 times, depending upon the use of the crystal and the series in which it belongs.

There are two groups of crystals (see Tables next page):—

- (a) Those in **black holders**, marked 20.0 to 27.9 Mc. with channel numbers 0 to 79; crystal frequencies 370.370 to 516.667 Kc. (never exact) in steps of 1,851 cycles apart.
- (b) Those in **brown holders**, marked 27.0 to 38.9 Mc. with channel numbers 270 to 389; crystal frequencies 375.000 to 540.277 Kc. (may be as much as 250 to 300 cycles off) in steps of 1,389 cycles apart.

Because these crystals had to be used in tanks, they are ruggedly built, but still they may be defective now. The crystals are only about $\frac{3}{8}$ " to $\frac{1}{2}$ " square, as thin as a normal 7 Mc. crystal, they vibrate transversally, and their size determines their frequency.

They were originally silver or gold plated, small thin wires soldered in the centre of the crystal-electrodes faces, and these small $\frac{1}{8}$ " wires soldered on to springy sort of suspension wires that are attached to pins spaced $\frac{1}{4}$ " apart.

* 33 Plateau Road, Springwood, N.S.W.

● The author's recent contribution to Bud Pounsett's s.s.b. column has raised the interest in those very useful FT241A crystals and here is a set of details regarding them.

I cannot express it in g's acceleration, but know from experience that a good crystal will easily survive a drop on to a concrete floor from a height of four feet (not recommended as a test!).

On the average these crystals are good and vigorous oscillators, but there are bad ones amongst them—discounting the ones where the little wires on the crystal-electrodes faces have come loose (this is mainly due to corrosion of the electrodes and consequent loss of crystal activity). Remedies, however, both for loose contact wires and corroded electrodes are possible.

When one of the little wires has come loose, do not throw away your crystal. If you check the small dot of solder on the crystal electrode, using a magnifying glass or loupe, you will frequently see a little hole in it where the wire has been in before it came loose. Carefully bring the wire back in position, bend one of the spring-wires a little to create some pressure to the crystal and hold the contact wire in place and your crystal very likely will be OK again.

Loss of activity due to corroded electrodes is very common with crystals that were improperly stored, as many must have been. The remedy is to re-silverplate the crystal. There apparently is always enough material left to conduct for plating and you can obtain a crystal that will be active on a lower frequency like a new crystal. For the

plating, one could also use a copper-sulphate solution, but it is inferior to silverplating with a silvernitrate solution. Many formulae exist for silverplating, none work as well as a special cyanate professional plating solution that is rather poisonous and must be handled with care.

The frequencies of the crystals can be shifted up and down with extreme care sometimes, but it is possible. To lower the frequency up to over 2,000 cycles, one can weight the electrodes either by silverplating or, for a limited shift, by simply rubbing some carbon on to them with a soft pencil! For that operation, hold the crystal steady between two fingers and watch where the pencil tip goes. If you touch the contact wires too often, they may come loose. Silverplating should be done with not more than 1 mA. plating current. A $1\frac{1}{2}$ volt cell and a 1,000 ohm resistor in series are safe. The crystal should be on the negative side of the battery.

To raise the frequency of the crystal is more difficult. Never try to take off some of the material of the electrodes by reversing the plating procedure. There is never much thickness in the electrodes and you risk that all of a sudden you have a nice clean transparent crystal left! The only way to raise the frequency is by edge-grinding the crystal. Some sources have recommended to unsolder the contact wires and then to hold the crystal in your fingers while edge-grinding. Personally, I prefer to use a pair of small tweezers to hold the sides of the crystal with the bottom part of the crystal-holder still attached and lying flat on the table and gently move a thin grinding stone along one edge of the crystal. I have managed to raise the frequency that way 20 and more Kc.,

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446.296 Kc.	453.704 Kc.	461.111 Kc.	466.607 Kc.	
448.148 Kc.	457.407 Kc.	462.963 Kc.	468.519 Kc.	
450.000 Kc.			470.370 Kc.	

455.000 Kc. Crystals, £2/0/0 each, includes sales tax and crystal socket.

HC6/U 100 Kc. Marker Crystals, £4/16/0 each, includes sales tax and crystal socket.

FX-1 Type Crystals, 0.001% accuracy: 1,000 Kc., £5/15/6; 3,500 Kc., £4/6/6

FA-5 Type Crystals, 0.01% accuracy: 1,500 Kc., £4/17/6; 7,000 Kc., £5/8/0
14,000 Kc., £6/8/3; 21,000 Kc., £5/8/0

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but it takes time and patience and one wrong movement and the crystal may be cracked or the contact wires damaged.

For many filter applications the crystals should either be paired in frequency or raised or lowered for oscillator use. For those that smoke too much to have steady hands and fingers, or anyway feel reluctant to touch their crystals, I offer my help to adjust and match the crystals they may have. I could also at the same time set up a sort of crystal exchange bank. A dozen possessors of odd channels of crystals together may have enough to form useable pairs with little adjustments. But not to expect and swap odd frequency ones for the elusive 455 Kc. rocks. Also, after quickly distributing sets of four paired crystals to what I hope some 50 future s.s.b. operators, my stock of crystals is long exhausted and I am going to get a fresh supply somehow from overseas again at reasonable prices. When available it will be announced in "A.R."

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Chan. nel No.	Fund. Fre- quency	Marked Fre- quency	Chan. nel No.	Fund. Fre- quency	Marked Fre- quency	Chan. nel No.	Fund. Fre- quency	Marked Fre- quency	Chan. nel No.	Fund. Fre- quency	Marked Fre- quency	Chan. nel No.	Fund. Fre- quency	Marked Fre- quency
0	370.370	20.0	16	400.000	21.6	32	429.630	23.2	48	459.259	24.8	64	488.889	26.4
1	372.222	20.1	17	401.852	21.7	33	431.481	23.3	49	461.111	24.9	65	490.741	26.5
2	374.074	20.2	18	403.704	21.8	34	433.333	23.4	50	462.963	25.0	66	492.593	26.6
3	375.926	20.3	19	405.556	21.9	35	435.185	23.5	51	464.815	25.1	67	494.444	26.7
4	377.778	20.4	20	407.407	22.0	36	437.037	23.6	52	466.667	25.2	68	496.296	26.8
5	379.630	20.5	21	409.259	22.1	37	438.889	23.7	53	468.519	25.3	69	498.148	26.9
6	381.481	20.6	22	411.111	22.2	38	440.741	23.8	54	470.370	25.4	70	500.000	27.0
7	383.333	20.7	23	412.963	22.3	39	442.593	23.9	55	472.222	25.5	71	501.852	27.1
8	385.185	20.8	24	414.815	22.4	40	444.444	24.0	56	474.074	25.6	72	503.704	27.2
9	387.037	20.9	25	416.667	22.5	41	446.296	24.1	57	475.926	25.7	73	505.556	27.3
10	388.889	21.0	26	418.519	22.6	42	448.148	24.2	58	477.778	25.8	74	507.407	27.4
11	390.741	21.1	27	420.370	22.7	43	450.000	24.3	59	479.630	25.9	75	509.259	27.5
12	392.593	21.2	28	422.222	22.8	44	451.852	24.4	60	481.481	26.0	76	511.111	27.6
13	394.444	21.3	29	424.074	22.9	45	453.704	24.5	61	483.333	26.1	77	512.963	27.7
14	396.296	21.4	30	425.926	23.0	46	455.556	24.6	62	485.185	26.2	78	514.815	27.8
15	398.148	21.5	31	427.778	23.1	47	457.407	24.7	63	487.037	26.3	79	516.667	27.9
270	375.000	27.0	294	408.333	29.4	318	441.666	31.8	342	475.000	34.2	366	508.333	36.6
271	376.388	27.1	295	409.722	29.5	319	443.055	31.9	343	476.388	34.3	367	509.722	36.7
272	377.777	27.2	296	411.111	29.6	320	444.444	32.0	344	477.777	34.4	368	511.111	36.8
273	379.166	27.3	297	412.500	29.7	321	445.833	32.1	345	479.166	34.5	369	512.500	36.9
274	380.555	27.4	298	413.888	29.8	322	447.222	32.2	346	480.555	34.6	370	513.888	37.0
275	381.944	27.5	299	415.277	29.9	323	448.611	32.3	347	481.944	34.7	371	515.277	37.1
276	383.333	27.6	300	416.666	30.0	324	450.000	32.4	348	483.333	34.8	372	516.666	37.2
277	384.722	27.7	301	418.055	30.1	325	451.388	32.5	349	484.722	34.9	373	518.055	37.3
278	386.111	27.8	302	419.444	30.2	326	452.777	32.6	350	486.111	35.0	374	519.444	37.4
279	387.500	27.9	303	420.833	30.3	327	454.166	32.7	351	487.500	35.1	375	520.833	37.5
280	388.888	28.0	304	422.222	30.4	328	455.555	32.8	352	488.888	35.2	376	522.222	37.6
281	390.277	28.1	305	423.611	30.5	329	456.944	32.9	353	490.277	35.3	377	523.611	37.7
282	391.666	28.2	306	425.000	30.6	330	458.333	33.0	354	491.666	35.4	378	525.000	37.8
283	393.055	28.3	307	426.388	30.7	331	459.722	33.1	355	493.055	35.5	379	526.388	37.9
284	394.444	28.4	308	427.777	30.8	332	461.111	33.2	356	494.444	35.6	380	527.777	38.0
285	395.833	28.5	309	429.166	30.9	333	462.500	33.3	357	495.833	35.7	381	529.166	38.1
286	397.222	28.6	310	430.555	31.0	334	463.888	33.4	358	497.222	35.8	382	530.555	38.2
287	398.611	28.7	311	431.944	31.1	335	465.277	33.5	359	498.611	35.9	383	531.944	38.3
288	400.000	28.8	312	433.333	31.2	336	466.666	33.6	360	500.000	36.0	384	533.333	38.4
289	401.388	28.9	313	434.722	31.3	337	468.055	33.7	361	501.388	36.1	385	534.722	38.5
290	402.777	29.0	314	436.111	31.4	338	469.444	33.8	362	502.777	36.2	386	536.111	38.6
291	404.166	29.1	315	437.500	31.5	339	470.833	33.9	363	504.166	36.3	387	537.500	38.7
292	405.555	29.2	316	438.888	31.6	340	472.222	34.0	364	505.555	36.4	388	538.888	38.8
293	406.944	29.3	317	440.277	31.7	341	473.611	34.1	365	506.944	36.5	389	540.277	38.9

SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

How do you like the new presentation of this department? The general opinion on the air seems to be very much in favour. The success of Sideband Topics depends on YOU.

Do you have anything that is of interest to your fellow sidebanders? If so, please send it along to me and also note my new address. The information that I require is items about single sideband or an allied subject of a technical nature. What about, it OM, will you do your bit?

288 Mc. S.S.B.

Lance Harding (VK3AHL), of Melbourne, no longer has the distinction of being the world's only 288 Mc. s.s.b. operator. On December 8, Lance was joined by Jack VK3ZLC. On that

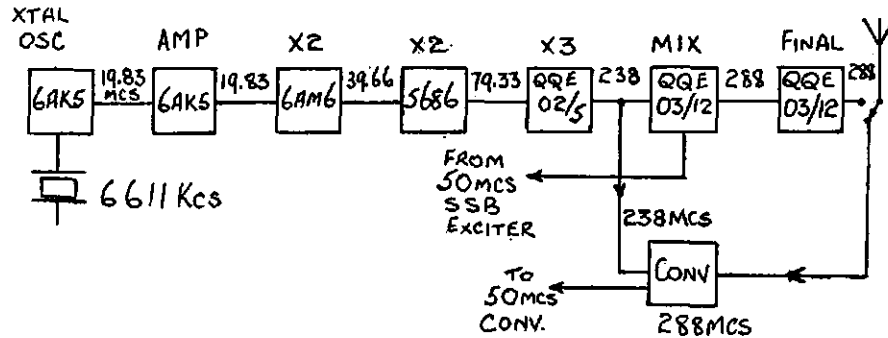


Fig. 1.—VK3ZLC 288 Mc. equipment.

Sunday, Lance and Jack made, we believe, the first two-way s.s.b. contact on the 288 Mc. band. These two pioneers have been working together on this project and naturally some of their equipment is identical. Their converters are the same as that outlined in "A.R."

The antennae used are 13 element long yagi beams. There is some difference in the transmitters. Both use 50 Mc. s.s.b. injection, but the VK3ZLC transmitter mixes in a QOE03/12 balanced mixer driving a QOE03/12 linear amplifier to about two to three watts peak output. Congratulations to two worthy gentlemen who are certainly doing their share in upholding one of the best of Amateur traditions.

KWM-1 AND 40

There are a few KWM-1 transceivers in use around Australia and no doubt there will be a few more as time goes by, even though they are no longer in production. The one disadvantage of this very fine equipment is that 40 and 80 metres is not covered, only operation on 20, 15 and 10 being possible.

Recently (August 1962) "CQ" published an article on a converter, or to use the modern term, a transverter, to permit operation on 7 Mc. This takes the form of a receiver front end and an s.s.b. transmitter rear end. It does not require any modification to the M-1. To get to the point in mentioning this "CQ" article, John VK2BM found that an error or two has crept into the

original circuit, and to warn you of the traps, here they are.

The 6CL6 driver tube does not have any bias on it. This is easily remedied by placing a 100 ohm resistor bypassed by a 0.01 μ F. disc ceramic capacitor between pin 1 and ground. The circuit diagram has pins 4 and 5 as heater connections for the 6146 and these should be pins 2 and 7. The tuned circuit between the transmitter mixer, a 12A7 and the 6CL6, is a pi network and was replaced by a normal parallel tuned circuit with capacitive coupling. This was found to be easier to adjust.

The crystal in the original was for operation between 7.2 and 7.3 Mc., this being the American 40 metre phone band. For use in Australia the crystal frequency required is 5,700 Kc., which is readily available from disposal

sources, having been used in at least two different equipments, a walkie-talkie and a glide path receiver.

For those of you who wish to consult the original article, it is called "Adapter for the KWM-1 to 40 Metres" by Tal Lawrence, 25GVZ and can be found in "CQ" magazine, August 1962, page 32.

RELAY ACCELERATION

You may have the same problem that I had some months ago. I required my vox relay to operate a coaxial antenna relay having auxiliary contacts. The auxiliary contacts are used to control the transmitter and receiver so that antenna change-over and transmitter switch-on are sequenced by the relay. The problem was to shorten the time interval between the first sound into the microphone and the antenna relay operating. The vox relay, a 5,000 ohm squelch relay, from an SCR522 receiver, operates very quickly, but the 6 volt d.c. antenna relay was rather sluggish.

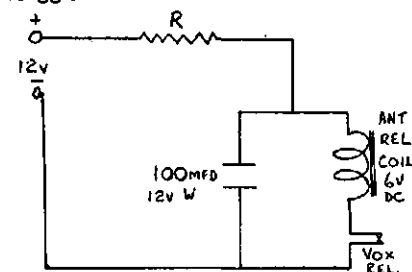


Fig. 2.—Faster Relay Operation.

The circuit in Fig. 2 was used to speed up the operation. With the vox relay open, there is no current flowing in the resistor R and the relay coil, so the voltage at the 100 μ F. capacitor is 12 volts. Closing the vox relay contacts discharges the capacitor through the antenna relay coil, pulling the relay in very rapidly. The resistor R now drops the voltage to the correct hold-in voltage for the antenna relay. The value of R can be determined by the application of ohm's law. Do not forget to also take the power dissipated in the resistor into account.

I do not know how fast in milliseconds this system is, but it is rapid enough to cause no noticeable clipping of the first syllable.

OPERATING PROCEDURE

Just two comments this month, one on breaking-in and another about that "ah". Last month I mentioned a suggested form of joining a net. When you do break-in by giving your call sign at an appropriate moment, do so in much the same way as knocking on a door, then wait until you are invited in. When you are invited in, acknowledge all the members in the room—I should say, net—do not just address your remarks to one station and ignore the rest; this is ill-mannered.

Also when a station is calling CQ, try using break-in procedure as soon as you have his call sign. This saves lots of time and breath but does not seem to be in use today so much as it has in the past. You will be surprised how effective this can be used on a DX station. You may be able to beat all the rest who are lined up on the frequency waiting for him to finish his CQ.

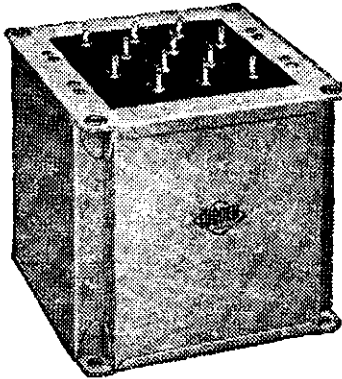
How often have you run across the operator who cannot stand to have his vox drop out? This is the one who uses "ahs" and "ers" for commas, full stops and even several of either between paragraphs. How he ever manages to take a breath is beyond me. It is rather difficult to tell him of this exasperating habit—he will not mind if you tell him his signal is broad or distorted if it is, but this "ah, ah, ah" habit! Extreme tact would be required. However there is a way, although not available to everyone. If you have tape relay facilities, you might ask him if he would like to hear his own transmission. One usually listens rather critically to one's own voice, so he is sure to notice. Another method available to every one of us is to listen carefully to the way we speak ourselves. Next time you are having a contact, examine your own speech for these most unnecessary sounds.

CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

* 7 Thorpe Ave., Queanbeyan, 49, N.S.W.

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List No.	Audio Watts	RF Imp. Watts	Max. Sec. Current	Overall Size			Weight lb. oz.	Price incl. sales tax
				L.	W.	H.		
UM0	10	20	60 mA.	2 7/8"	x 2 3/4"	x 4"		£5/16/0
UM1	30	60	120 mA.	3 3/4"	x 3 1/2"	x 3 3/8"	5 8	£7/9/9
UM2	60	120	200 mA.	5 1/2"	x 4 1/2"	x 5 1/2"	11 8	£10/13/3
UM3	120	240	250 mA.	5 1/2"	x 5 1/2"	x 5 1/2"	14 8	£12/2/6
UM4	250	500	400 mA.	10 1/2"	x 6 3/4"	x 8 3/4"	41 0	on application

Connections for Woden UM1, UM2, UM3, UM4 Modulation Transformers

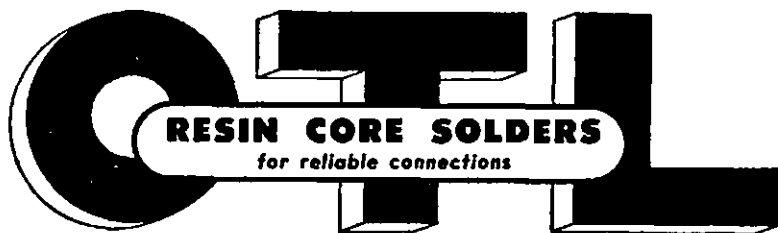
PRIMARY CONNECTIONS FOR MODULATOR TUBES		SECONDARY CONNECTIONS AND IMPEDANCES FOR R.F. LOAD													
		John 9 & 10 conn. to 7 & 11	John 8 & 10 conn. to 8 & 12	John 9 & 10 conn. to 8 & 11	John 8 & 9 conn. to 7 & 12	John 7 & 9 conn. to 10 & 12	John 8 & 9 conn. to 10 & 11	John 3 & 4 conn. to 1 & 5	John 3 & 4 conn. to 2 & 6	John 3 & 4 conn. to 1 & 6	John 3 & 4 conn. to 2 & 5	John 4 & 5 conn. to 1 & 6	John 7 & 11 conn. to 8 & 12	John 1 & 5 conn. to 2 & 6	
0.5m.	2 3-4	8000	6550	4500	3670	2150	1070	—	—	—	—	—	—	300	—
1000	1 2-5	15700	11400	7900	6453	3920	1950	—	—	—	—	—	—	350	—
2000	2 3-5	18000	9400	6500	5300	3240	1630	—	—	—	—	—	—	300	—
3000	1 2-5	23300	17000	11800	10000	6000	2850	—	—	—	—	—	—	320	—
3500	2 3-4	18400	12000	8200	7000	4100	2050	—	—	—	—	—	—	280	—
3800	1 2-5	20900	21500	18000	15800	7800	3740	—	—	—	—	—	—	360	—
4000	3 3-4	17400	12500	8650	7500	4300	2180	—	—	—	—	—	—	400	—
4000	8 9-10 11	—	—	—	—	—	—	8400	8400	2850	1850	1580	—	250	—
4800	2 3-4	21800	15700	10800	9150	5400	2700	—	—	—	—	—	—	500	—
5000	8 9-10 11	—	—	—	—	—	—	7000	4300	2500	2800	1730	—	300	—
6000	1 2-4	8000	6350	4300	3430	2140	1070	—	—	—	—	—	—	300	—
6000	8 9-10 11	—	—	—	—	—	—	8300	8180	4280	2750	2180	—	370	—
6000	1 2-4	—	—	—	—	—	—	—	—	—	—	—	—	310	—
7000	8 9-10 11	—	—	—	—	—	—	9100	8430	4540	3000	2400	—	405	—
7000	1 2-4	10000	7900	6060	4250	2800	1320	—	—	—	—	—	—	330	—
7000	8 9-10 11	—	—	—	—	—	—	9700	8000	6000	3200	2400	—	430	—
8000	1 2-4	13000	9400	5800	4900	3000	1440	—	—	—	—	—	—	370	—
8000	8 9-10 11	—	—	—	—	—	—	11000	8900	6680	3700	2780	—	500	—
8000	1 2-4	13000	9400	5800	4900	3300	1520	—	—	—	—	—	—	300	—
8000	8 9-10 11	—	—	—	—	—	—	12400	7750	5300	4150	3100	—	550	—
9000	7 8-10 12	—	—	—	—	—	—	6200	3900	3300	2050	1550	—	275	—
10000	1 3-4	14400	10500	7300	6100	3600	1800	—	—	—	—	—	—	330	—
10000	8 9-10 11	—	—	—	—	—	—	14600	8600	7100	4500	3450	—	600	—
10000	7 8-10 12	—	—	—	—	—	—	8900	4300	3600	2300	1740	—	310	—
12000	1 2-4	17400	12500	8700	7250	4220	2140	—	—	—	—	—	—	400	—
12000	8 9-10 12	—	—	—	—	—	—	8300	8180	4250	2750	2070	—	370	—
14000	7 8-10 12	—	—	—	—	—	—	9700	8000	4600	3300	2440	—	450	—
16000	7 8-10 12	—	—	—	—	—	—	11000	8800	5400	3700	2780	—	500	—
18000	7 8-10 12	—	—	—	—	—	—	12800	7750	6300	4150	3140	—	550	—

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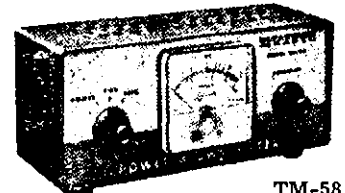
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In the early days of Amateur Radio, when you worked a station, you automatically sent him a QSL card, quite sure that he would be doing the same. In recent times this practice has diminished (except for the DX seekers on 20 metres, etc.) and in fact there would seem to be little point in exchanging cards with stations contacted in VK on most of the lower frequency bands.

However, there is a point to exchanging QSL cards on the v.h.f. bands—certificates. Certificates such as those issued for the Australian V.h.f. Century Club, the 50 Mc. W.A.S., and for VK3 Amateurs the V.h.f. 100 Certificate.

A large number of v.h.f. operators exchange cards in an effort to qualify for these awards and quite a few send their cards direct via the mails in an effort to expedite a return. (Actually the W.I.A. QSL service is a much cheaper method.)

Naturally enough, not everybody is interested in qualifying for these awards and most of these people do not QSL. This is all right if they indicate to the other station at the time of the contact that they do not wish to exchange cards. But very few of them do this. Whether from guilt, mischievousness, or just plain ignorance, who knows? If only these people would inform their contacts that they do not QSL they would save a lot of fuss and bother and I doubt whether anyone would hold it against them. Are you one of this group? If so, how about doing the right thing in the future? Better still, if the other station is chasing an award, why not let him have a card?

The Ross Hull Contest this season has enjoyed excellent band conditions on both 6 and 2 metres. Many times during the Contest 6 mx was open to States and ZL, and on three consecutive days late in Dec., 2 mx opened up between VK4 and VK5/VK3. George 3ZCG tells me that during these days, Dec. 30-31, VKs 4ZWB, 4ZAX, 4ZAZ and 4ZBD worked VKs 3ZCW, 5ZDR, 5ZMK, 5ZK/5, 5BC, 5ZBL, 5ZBX, 5RO, 3ZER/5, 3ZJQ, 5EF, 5WN, 5ZDX, 5WL, 3ZGE/3, 3ZER/3. No doubt there were many more contacts, but this list serves to give some idea of conditions.

Adding a slightly sour note to the terrific breakthrough, I have received several complaints that a few contacts were not made fairly. In other words the intelligence was imparted via 6 mx when the 2 mx signals were only beat notes. I certainly hope that the Amateurs who make contacts like this play the game as far as claiming points in the Ross Hull Contest. 73, VK3ARZ.

NEW SOUTH WALES

50 Mc.: Generally this band was not up to last summer's standard, although all States except VK6 have been worked. Reception of a JA and FK3 was reported on Dec. 30 although this may have been a pirate. There was a good opening to VK6 on 1/1/63 when over 15 W.A. stations were heard.

144 Mc.: A fairly quiet month although there was good activity during the long distance field day on 30th Dec. with the following field stations active: 2RX at Milton, 2ZJH Berowra, 2ZKC Mt. Tomah, 2ANF Mt. Wilson, 2ASZ Mt. McAlister, 2ZBL Duffy's Forest, 2ZVW Smith's Round Hill, 2ZRG Newnes, 2MZ Harbord, 2ZJM and 2ZOO North of Yass, 2ZPJ The Summit (near Oberon), 2ZCF Mt. Gibraltar, 2ZBJ Mt. Bulli, 2ZJC Newnes, 2ZQX Mt. Gibraltar, 2ZAU Kuluura, 2ZIM Mt. Gibraltar, 2AWZ Tambumbi, 2OA Mt. Corrackudrel.

The Dec. Fox Hunt, as usual, finished with the President's supper and was held at John ZAV's place as the President's home QTH has a vertically polarised lawn. The tx was hidden in a rubbish pile in the centre of the road with a mattress being used as the antenna. The palcings were as follows: Dave 2AWZ, 1st; Paul 2ZPJ, 2nd; Jim 2ZCW, 3rd, 73, 2ZLB.

VICTORIA

Melbourne: Unfortunately, Peter 3ZLT has had to resign from his position as Publicity Officer and I will be attempting to fill in for a while. The Dec. 2 mx fox hunt was held on Wed. 12th and the turnout was the largest for some time. Bill 3ARZ was the fox and conducted seven hunts during the evening. Competition was keen and finally Tom 3AOG was declared the overall winner, hotly pursued by Ian 3AIU who was ably assisted by his

YL Lorna. The Feb. fox hunt will be held on Wed. 13th commencing at 8 p.m. from College Crescent at the rear of the University. Judging by the renewed interest in fox hunting there should be a bumper attendance, so how about coming along and joining in the fun?

The V.h.f. Group meeting was held at 478 Victoria Pde., East Melb., to a standing-room-only attendance. A large amount of business was conducted with, for a change, everybody voting on the various items. After business, everyone adjourned downstairs for supper and a ragchew. And what a ragchew! The diehards did not disperse until after midnight. The Feb. meeting will be held at the same place—the W.I.A. rooms—on Wed. 20th commencing at 8 p.m. sharp. The topic to be discussed will be v.f.o.'s suitable for v.h.f. operation.

The Dec. 2 mx scramble was won by Alan 3ZCJ portable on Mt. Dandenong, and he was control for Jan. scramble on Sun. 13. Fewer stations than usual participated—only 22 all told—and the winner of the city section was Rod 3ZIW with 21 pts., with Ian 3ALZ and Bill 3ARZ tying for second place with 18 pts. each. Winner of the country section was Alan 3ZNB at Anderson with 20 pts. The Feb. scramble will be conducted on Sunday 10th commencing at 7.45 p.m. Rod 3ZIW will be control and will appear five minutes before the start to explain the rules.

The 6 mx scramble will be held on Sunday, 24th Feb., commencing at the same time.

The Dec. V.h.f. Group field day was a successful event and the last field day for the season will be held on Sunday, 10th Feb. to coincide with the N.F.D. Hours of operation will be from 1000 to 1800 hrs. to tie in with the N.F.D. This will be a competitive event and the scoring table will be identical to the Ross Hull table as published in Dec. "A.R.", except that portable stations will use a multiplier of two.

Conditions have been good for the Ross Hull Contest and two high scorers in this State should be George 3ZJQ and Ken 3ZNJ. Do not forget that logs have to be submitted by 13th Feb. 73, 3ARZ.

Eastern Zone: 50 Mc.—Since winter peak the first VK4 was worked on 8/10; the first VK2 on 18/11, and the first VK5 on 24/11, also VK6s on 16/12 and ZLs on 20/11 and 6/12. Es opened here in Gippsland a month earlier than usual, which is what exactly happened on the West Coast of U.S.A. earlier this year. My v.h.f. correspondent told me it also opened there with excellent multiphot QSOs during the first week in May instead of the usual first week in June.

In Gippsland, Peter 3ZDF worked a VK9 and a VK7. Stan 3ZAB in Traralgon has had many excellent VK2, 4 and 5 QSOs. Alan 3ZNB, down at Anderson, first 6 mx season for him, also has had some nice QSOs including ZLs. Myself (3ZCG) also been very active on 6, watching the short skip for possible 2 mx QSOs. David 3DY also has been listening to 6 with great interest, however he has no tx but this is about the only band he is unable to transmit on, hi!

Stations active on 144 Mc. in the Zone this season include Ross 3NS (ex 3ZAQ), Ken 3OI (ex 3ZNK), Alan 3ZNB, George 3ZCG, Stan 3ZAB, Graham 3QZ (changing QTH in Traralgon—a much better v.h.f. site), David 3DY (who has moved to a better site in Maffra), and Peter 3ZDF. Sometimes Cliff 3AIT is heard operating. John 3ZFO hopes to get back on shortly, also Bill 3AMH (on s.s.b.). On 28/12 Alan 3ZNB near Wonthaggi worked for the first time tropo into Hobart on 144 Mc. He worked 7ZAQ, 7ZAO and 7ZAI. 73, 3ZCG.

QUEENSLAND

6 metre DX started slowly during Dec. with short opening to VK2, 3, 5, and 7. The following week the band again opened to the south with the usual States workable. For most VK4 stations it provided their first VK1 with IEP being audible here at S8-9.

The Ross Hull Contest brought forth many old and new call signs and DX was good for the opening days with VK2, 3, 4, 7 being wkfd.

From about 19/12/62 conditions were bad until the 29th with 9AU about the only strong signal heard, although northern VK4s made some contacts although signals were weak. The 30th and 31st provided the best 6 mx DX and also the first 2 mx DX for the season, 4ZAX worked 19 stations during the two days

and 4ZWB in Dalby worked 13. The most important point to emerge from the openings was that elaborate equipment is not necessary as signals were very strong, S9 plus, during each opening, but the band must be monitored continuously as the openings were very short. Stations worked in Brisbane were VKs 5ZDR, 5ZK, 3ZCW, 3ZER/P and 3ZJQ. Other stations were most likely worked but a complete list is not available.

New Zealand stations have been worked during the month but signals were only S5-7.

SOUTH AUSTRALIA

50 Mc.: This band has been in excellent form over the month of Dec. All States including VK9 (but excluding VK8) have been worked. At the time of writing scores in the Ross Hull Contest are very high and it will be interesting to see who is the State winner. A number of very short skip openings have been reported, but these are not usually exploited to the fullest, as short skip on 6 usually results in a head-long rush to 2 mx. There were several openings to ZL, with the 50.75 t.v. sound being a useful band indicator.

144 Mc.: This band has been really cracking over Dec. In addition to at least three ionospheric openings (mainly to VK4) we have had some excellent temperature inversions. Max 3ZCW and Hughie 5BC have been working into Adelaide at good signal strength as the result of these inversions.

Ionospheric openings on 144 Mc. occurred on Dec. 30, 31 and Jan. 1. DX was most prolific on the first two days. As at least six openings of this nature have occurred in the past 12 years (most of them in the last two years) it certainly appears as if this frequency has been underestimated. In fact, it seems to be merely a case of waiting for sufficiently short skip on 50 Mc. (about 200-300 miles).

Reports of t.v. DX were manifold during late Dec. and some of the reports, especially concerning high-band t.v., were quite remarkable.

General News: After months of waiting the P.M.G. Dept. has finally given permission to proceed with the beacon project. Unhappily, the beacon will not be on the air for the 1962-63 season, but should be going at speed next season. Frequency 50.5 Mc. keyed c.w., power 30w. to QQE03/20, turnstile antenna. It will be located at ADST on Mount Lofty.

On Dec. 29 the Annual V.h.f. Group Social was conducted at Doug 5KK's place. The attendance was very good with 40 to 50 souls being on hand, including 2ZLP/5. Doug had the evening very well organised and the thanks of the Group are extended to him. When you read this, Doug will probably be up in Darwin for about three months.

It is understood that Eugene 5AV may be moving to VK2 in the near future. Barry 5BQ is understood to have successfully cleaned up the garage door when the brakes in his iron horse let go. Mait 5AO has a t.v. signal on 288 Mc. and has been received at 5ZGF. Although Mait owns a vidicon, he is believed to have used a flying spot scanner on the first transmissions. As George 5ZEY has had a t.v. signal of high quality on 288 Mc. for some time, it will be very interesting to see when a two-way contact takes place.

Ron 3ZER and 3ABP were 2 mx mobile in Adelaide over Xmas. 3ABP/M runs a half 636 doubler to 144 and is loud and clear (uses a 3 el. beam also). Ron 3ZER/5 worked some of the Interstate 2 mx DX. Newcomers on 50 Mc. include Colin 5ZCZ, Al 5ZC and Steve 5ZSB, all having a ball with the recent conditions. 73, 5ZCR.

WESTERN AUSTRALIA

The W.A. Group held its traditional Xmas fox hunt, Xmas party and barb-q on 15th Dec. Mac GMM was the fox and used the old adage, if you want to hide anything, put it where everyone can see it. He parked his T model in an open street with the tx under the bonnet and a 300 ohm line went to a dipole strung in a tree alongside the ute. Lance 6LR was the first to wake up and was pronounced the winner.

Cocos Is. Beacon: The completed beacon should be operating by the time this goes into print. The units have been shipped to Cocos and VK9LA will be operating it.

(Continued on Page 16)

VHF NOTES

(Continued from Page 15)

50 Mc.: A number of breakthroughs have been observed in VK6. All States with the exception of VK8 have been worked consistently this season. Brian 6VV at Geraldton has been conducting regular skeys with Bob 6BE over the nth/sth. path and has also worked this path on 144 Mc.

Kevin 6ZCB and his XYL Pam went on a DX-pedition to Esperance on the south coast and worked numerous stations in the east.

A number of the Group went to Rottneet Is., 12 miles off the coast, for a week over Xmas. They had both 50 and 144 Mc. gear and among those with call signs were 6DI, 6ZBT, 6ZCP, 6ZDW and, I think, 6ZDX. They worked local stations on both bands and also quite a bit of DX. David 6DI received c.w. sigs from Don 6HK by light beam. Don was using a 50w. spotlight modulated by the power switch. If nothing else, it proves Wembley and Rottneet are line of sight for v.h.f. transmissions.

144 Mc.: There are reports of more activity on this band. Viv 6ZCM has a 522 operating and has been using it for quite a bit of cross band operating. Neil 6ZDK has been testing a new tx he has almost completed, using a Geloos front-end and an 832 final. It has a built-in modulator. The filaments have been wired to operate off either 8 or 12 volts, so it should be a very versatile unit when completed and operating.

200 Mc.: After conducting test transmissions for some time, the t.v. fraternity had a live night recently. The broadcast, which lasted over two hours, included demonstrations of camera work, building a converter for Amateur t.v. reception, a 144 Mc. link enabled questions on the demonstration to be answered. Jack 6BU had a number of the V.h.f. Group interested in Amateur t.v. at his QTH to view the demonstration.

I would like to pass on the W.A. V.h.f. Group's best wishes for '63 to all our counterparts in other States. 73, 6ZDM.

PAPUA

6 mx produced some good DX openings during Dec. VK4s were worked on 2nd, and on 16th VK2, 3, and 4 were worked. 24th, VK4s worked and TZAI heard. VK4s again on 27th. A few weak VK4s and 3s heard on 29th. A rather weak opening occurred on 30th when numerous VK2, 3, 4, and 7 were heard, however only 4ZAZ was worked. A few very weak signals heard on 31st, whilst New Year's Day produced excellent DX, signals being heard and worked for over 12 hours. Call areas worked were VK2, 3, 4, 5, and 7. TE scatter signals on 49.9 Mc. were heard on the 17th.

As 9ZBV has been in Rabaul, no local 2 mx working took place during the month and tests with VK4 produced no results.

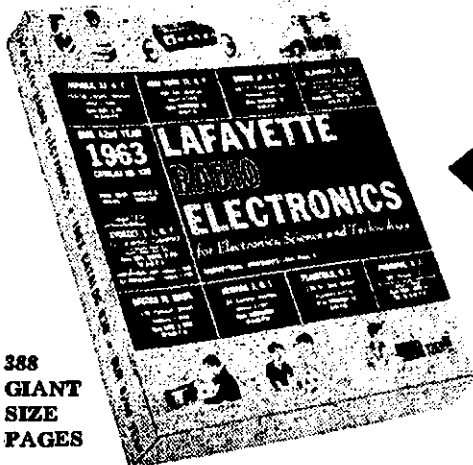
T.v. reception was quite good with signals being seen from TNQ7, ABQ2, ABN2, ABV2, ABS2, and ABT2. 73, 8AU.

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DX NOTES

(Continued from Page 17)

3JV, YO7DO, and many others. (Your previous letter missed Dec. early deadline, sorry, Al.)

Ivor VK3XB comes to light with a long list of really good ones, wk'd. in the last few weeks. 7 Mc. c.w., G3IMV, KH6DKD, CE1BD, HL9KH, YV3AS, G3JAG, YOKKN, G5DQ, UT-5AA, OESTL, OH9NV, DU7SV, VR3L, HK0ZU, PJ2AE, YS10, 4X4HQ, HB9MO, 5B4IP, KP-4AO, DJ1ZN, I1ZL, DL1QT, YU2YG, UA9PP, DJ2VKC (XYL), G5BZ, SM3AKW, OK2QX, CR8AC, G3MOJ, SP8HOV, etc. 14 Mc. c.w., HK3KG, KC4USX, DJ7CZ, 11WC, SL5CX, P2PO, 4S7NE, UL7KDT, UI8FB, VP2MV, VP-6RG, VR2MV, 5A1TW, ZESJJ, YV5AE, KG-4AM, etc.

Ivor's XYL, VK3KS, wk'd. on 7 Mc. c.w., VS1FZ, DV2VKC (YL op.), VE1ZZ, DJ7CZ, and others. 14 Mc. c.w., UL7KDT, UD6KAK, UB-5CG, G3AAE, KG4AM, UQ2FF, VP2MV, 8A1TW, SM3AAE, PA0LOU, LZ1CF, DUIOB, DL7GS. (Nice teamwork, let's have more notes please.)

Darrell L5041 heard some choice ones these past few weeks. They are 14 Mc. s.s.b. and between 0800-1100 GMT: VS1AU, VS6BE, VS-6CL, KC4USG, KR6RN, KR6CF, KG6AA, Y, G8KS, G3JAF, F7AA, SM5RN, AP5DC, OZ3Y, VR2DS, YN1GM, KC4USX, KR6OH, PY2CHM, DL1SM, BY2CWB, HB9ET, HL9KH, etc. 14 Mc. a.m., LU7HJ, BV1USA, AC3AX. (S.s.b. reports always needed, so vny myn tks.)

Bev Davey, VK4BJ, R.A.A.F., Townsville, reports conditions on 20 mhz as good around midnight and late afternoons. He wk'd. on 14 Mc., BV1USB, CE4AD, DJ1FW, DU7SV, G5WP, G13VJ, SM6JU, UL7KBK, KR6BD, OH2BZ, VQ2WR, OH3UO, VR2EH, VU2VK, ZS2RM, ZS5CI, ZS5JY, 9M2GJ, HM5BF, K2QCG/KG6, etc., and heard a large number of really good ones. (Tks. Bev., it's always good to hear what's happening in the tropics.)

Due to space limitation, it has been necessary to précis some of the above reports. Sorry chaps.)

W.P.X.

Most overseas mags. feature a W.P.X. Honor Roll. Such a list creates interest and competition. So how's about submitting your W.P.X. score. It is tallied by adding the number of countries wk'd. to the number of areas contacted within those countries. Let's have a better response than last year's request. When sending in your notes or DX news, please include your W.P.X. score as well. Remember it is an Honor Roll and all claims must have QSL verification. Please indicate your section, i.e., c.w., a.m., s.s.b., or mixed.

SUMMARY

Radio Storm. During such a disturbance signals passing near or through the auroral zones fade out, sometimes entirely if the storm is severe. During this time it is best to concentrate on east-west paths in the daylight

hours and on north-south circuits during the morning and evening periods. Usually some band or circuit is workable.

Some of the VKs who helped this page along last year were 2QL, 2AMB, 2QU, 2AXK, 2RA, 2AQJ, 3QV, 3ARK, 3AHO, 3HG, 3TL, 3AZD, 3ZHR, 3AKN, 3ZMS, 4DO, 4XJ, 4BL, 5RX, 5RK, 5ZC, 5JE, 5MY, 5NO, 5NQ, 6SM, 9RO, BERS195, L2022, L2211, L3065, L4001, L6021, L5041 and Rod de Balfour. Let's hear from you all again, and others too, during '63.

P.S.—To facilitate matters, please mark envelope "Radio News".

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK6RU	2	279	VK3WL	14	211
VK5AB	45	275	VK3ATN	26	204
VK6MK	43	266	VK4HR	12	192
VK3AHO	51	259	VK4RW	23	184
VK4FJ	21	236	VK3GB	50	183
VK6KW	4	211	VK5WO	59	178

Amendment:		New Member:			
VK3BM	54	129	VK2JZ	61	180

C.W.

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK3KB	10	305	VK3RP	56	229
VK3CX	28	288	VK3FH	15	226
VK2QL	5	279	VK3BZ	6	222
VK4FJ	29	270	VK2AGH	71	220
VK3NC	19	281	VK4HR	8	218
VK6RU	18	238	VK3XU	48	213

Amendments:		New Member:			
VK3RJ	42	195	VK2APK	76	174
VK3ARX	66	190	VK3AX	68	136
VK5NQ	73	182			

OPEN

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK2ACX	6	390	VK3AHO	76	262
VK6RU	8	289	VK3HG	3	257
VK4FJ	32	276	VK4HR	7	233
VK6MK	74	269	VK3BZ	4	231
VK3NC	77	265	VK3JA	43	229
VK2AGH	83	265	VK3WL	45	225

Amendments:		New Member:			
VK6KW	13	221	VK2AXK	89	102
VK5NQ	81	200			
VK2APK	82	180			

V.H.F. TWO-WAY RADIO FOR PRIVATE AIRCRAFT

Ferris Bros. Pty. Ltd. have announced the signing of a contract with Rex Aviation Pty. Ltd. to manufacture v.h.f. two-way radio equipment for installation in private aircraft, in particular the Cessna range which is distributed in Australia by Rex Aviation.

Developed by Rex Aviation engineers, the set has been approved by D.C.A. Ferris are confident that their experience in the manufacture of mobile-type electronic equipment will ensure that the product will meet all requirements.

The Rex Air Major consists of a transceiver and power supply unit, each separately mounted.

The transceiver comprises a 10-channel crystal controlled tx-rx operating in the 118-130 Mc. band. R.f. output power on full modulation of the transmitter is 4 watts.

The power supply is designed to operate and change over from either 14 or 28 volts d.c. without modification. Current drain at 14 volts is 3.3 amps. on receive and 4.5 amps. on transmit. A pair of switching transistors and silicon rectifiers provide efficient d.c. conversion. The audio output stage, which acts as a modulator during transmit, employs a pair of power transistors in push pull. It is incorporated in the power supply to keep the dimensions of the transceiver to a minimum and to limit the temperature.

Further details may be had by contacting Miss Hocking of Ferris Bros. Pty. Ltd.

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Frequency Range: 400 Kc. to 250 Mc. in eight overlapping ranges. **Coils:** Precision factory wound on polystyrene formers; coils are specially treated to prevent the windings from moving if accidentally knocked, etc. **Meter Movement:** 500 microamperes. **Frequency Indication** is by means of a rotating drum (housed inside the case) with 340° rotation; scale length is 3½" long. **Circuit** uses Colpitts type oscillator with improved grid current stability over the tuning range. **Tuning:** Tuning condenser is equipped with a 1:7 ratio planetary drive. **Power Supply:** Self contained transformer operated selenium rectifier. **Dimensions:** 2½" high, 2½" wide, 6½" long.

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OH0, KL7, ZD8, ON4, LZ, FF8, VP8, XW8, 5H3, WO

Sub Editor: J. M. (Mac) HILLIARD, WIA-L3074

57 Gardenia Street, Blackburn, Victoria

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Hi there fellow S.w.l.'s, it has fallen my lot to present these notes to you. I would like to thank our retiring President and Sub-Editor Bob Young for the excellent job that he has done.

The starting off point for many of the Hams of today begins in the S.w.l. ranks, but why do so many of the Hams disregard the average S.w.l.? I admit that many of the Amateurs give much assistance to the newcomer. However there remains a large number who scorn at the S.w.l.

The practice of sending bad reports no doubt could be a contributing factor in conveying a poor impression of the S.w.l. in the minds of many Amateurs. But surely this is no reason to condemn the S.w.l. in general.

Recently a local well known Amateur here in Melbourne, who operates on s.s.b., was heard in one of the most glaring cases of ill manners that your scribe has ever heard on the Ham bands. The said Amateur was in contact with a W station, who was, by the way, S9, when another Melbourne station broke in. This in itself was bad enough. But then the chap that had been working the W promptly started yarning with the local and just left the W out in the cold without making any further reference to him. Surely this is one of the poorest cases of bad manners ever heard on the bands.

Remember chaps, this page depends on you and I am looking forward to hearing from all of you. All Interstate correspondents will be answered and also locally where required.

VICTORIA

At our Xmas wind-up, we held a special meeting with the prime purpose of electing a new President, another Vice-President and a new Sub-Editor. The election resulted in Maurie Cox being elected to the chair with

Bob Young as Vice-President, and yours truly as Sub-Editor. Bob was forced to resign from the chair and also as Sub-Editor due to lack of time.

Much discussion took place as to how we can increase the membership of the Group. It was felt that if members had more to do in the Group that more interest would be forthcoming. Many of the younger members cannot afford to buy expensive receivers and it is to these younger members that we must encourage. At the conclusion of the meeting we all had a few cold and soft 807s.

The big event of the year will soon be coming off and of course that will be our Convention at Ballarat, which takes place over the first week-end in March.

Our President, Maurie, has been flat out in the Ross Hull Contest. However, he will not have things his own way as Ian Thomas and Bob Young have not been idle during the Contest. David L3125 has just erected a long wire which is 120 feet long and it is pulling in the signals in fine style. His hearing aid is a dual wave receiver. Very pleased to hear from you David and will be looking forward to receiving further news from you.

QUEENSLAND

Only news to hand from VK4 this month comes from our good friend Afton Westcott up at Atherton. Afton has been on the sick list for several months. We are all sorry to learn of your troubles Afton, and wish you a speedy recovery and hope you will soon be back amongst the DX. How about some of you other VK4 boys dropping us a few notes of your activities now and again?

NEW SOUTH WALES

Our old Buddy Chas. Aberneathy is going well in the Ross Hull Contest, and my sples

tell me he has over 1,300 points. Best of luck to you Chas.

I would like to remind you all that I must have all correspondence for this page, no later than the last day of each month.

What has become of you fellows in VK8? Apart from Peter Drew, we would not think that VK8 existed as far as S.w.l'ing was concerned. So what about it, you chaps?

Remember this is your page and it is up to you to provide us with news of your activities. But unless you do this, we can hardly be expected to provide news out of the air.

Well that is all for this month, so 73, Mac Hilliard.

DX LADDER

	Countries		Zns.	S.s.b.		W Stat.
	Conf.	Hrd.		Conf.	Hrd.	
E. Trebilcock	277	282	40	—	—	50
D. Grantley	111	250	38	16	93	34
A. Wescott	84	159	31	9	107	11
M. Hilliard	70	214	33	12	122	11
M. Cox	61	220	29	27	135	16
C. Aberneathy	44	85	27	—	—	14
N. Harrison	38	92	27	—	—	29
P. Drew	33	180	19	7	93	11
I. Thomas	29	134	18	8	88	11
P. Fields	26	133	—	—	—	—
D. Jenkins	10	144	7	—	—	—
H. Burger	6	185	5	1	19	—

NAT. FIELD DAY CONTEST

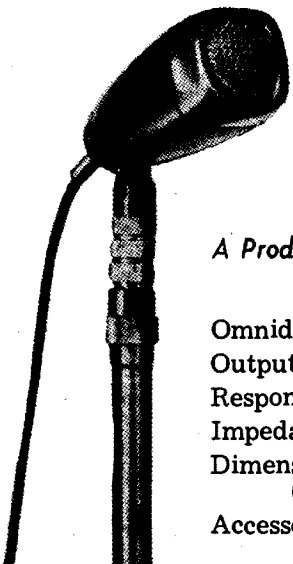
9th and 10th February, 1963



UNIVERSAL SOUND

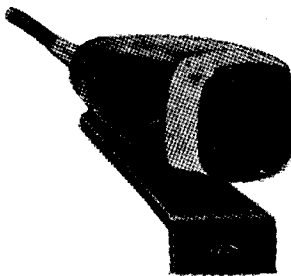
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Model 603 is a Dynamic Microphone ideal for music, speech and particularly magnetic recording. Can be used on stand or on a small table base.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL AWARDS

During the past year W.A.V.K.C.A. awards Nos. 196 to 230 have been issued to the following:—

W6DQH	G2BOZ	VE3BQP	JASAA
W2NUT	G3DQC	UA0GF	JA7AD
GM6MD	G6VQ	UA3AW	W1HGT
UC2AA	DL1YA	KP4WD	VS1FZ
GZFFO	ZL1ARY	W0VBQ	ZL3VI
XE1CV	ZL3OB	KH8DKA	UA8VB
G2GM	W1EIO	V86EC	VU2AJ
F9MS	AP3CF	W6MDK	W3RZL
K5UYF	W1UOP	JAIJAU	

Australian D.X.C.C. Countries List in "A.R." January 1963: Amend "Pakistan" to read "East Pakistan" on fifth line.

A. Kissack, VK3KB, Manager.

NEW SOUTH WALES

The Xmas meeting of the N.S.W. Division was held at the Wireless Institute Centre on Friday, 14th Dec., and the attendance was so good it was a battle to find enough seating accommodation.

Essential business was disposed of as soon as possible and the meeting handed over to Alf 2BW who operated the projector and put on a two-hour show of films, the feature film being the "Space Age"—a documentary film of the recent orbital space flight of Major John Glenn. Portion of the film showed pictures taken from the capsule in orbit.

The President (Max 2MP) moved a vote of thanks to Alf for his capable handling of the projector, but more especially for the fact that Alf has donated the whole 18 mm. projector and sound equipment to the Institute.

After the films Max wished everyone a Merry Xmas and closed the meeting for refreshments served from the kitchen under the supervision of Gerry 2AGS.

Another Xmas Party was held by the Griffiths Radio Club on Sat., 8th Dec., at the residence of the President (Freda 2SU). Visitors were present from Hillston, Tabbitta, Leeton and Narrandera. Blind fold tx hunts, dancing to bagpipes and a barbecue were held on the lawn and there was a buffet table well stocked. Musical items were supplied by Mrs. Savage (XYL of 2ACS), Doug and Paula (harmonics of Freda 2SU). Approx. 80 Hams and friends attended the function.

The last Council meeting for 1962 was held on 20th Dec. and the Council appointed Pierce 2APQ as organiser of the forthcoming Federal Convention to be held at the Wireless Institute Centre over the Easter holidays. Pierce has a big job in organising such things as the Federal Dinner, accommodation for delegates, transport to get the delegates to and from the meetings, meals, reporting facilities, etc., and he would be pleased to hear from anyone who can assist him, ring Pierce at UY 8125.

The Education Officer, Harold 2AAH, had a spare night over the holidays so he knocked up another tape entitled "A Survey of V.h.f. Aerials," by 2AAH. This tape runs for 65 minutes and is illustrated with 32 slides. For particulars, contact Harold.

It has been the custom from time immemorial to set aside the February meeting for the v.h.f. boys, so we are looking forward to a good lecture by the V.h.f. and T.v. Group. 73, 2VL.

HUNTER BRANCH

The Christmas meeting of the Branch was held on 14th Dec. and, after the shortest business session on record, the 22 members, associates and visitors present settled down to an interesting evening of colour slides presented by Bill 2XT. These featured his recent trip to the Far East and were liberally sprinkled with pictures of particular Amateur interest. At the conclusion of the show two very interesting items, a transistor t.v. and transistor radiophones were displayed, and used. Both created quite a deal of discussion centring mainly on presents for the festive season. The night concluded with the usual ragchew and wishes to all.

During the holiday season activities have been much as usual, but the v.h.f. boys have been taking particular care to get the 50 Mc. gear in trim for the excellent openings which have been appearing on that band. It is even re-

ported that Mac 2ZMO wishes to have a telegram sent if anyone wants to contact him on 144 as he is so busy on 6! Others on the 50 Mc. bandwagon are Ian 2ZIF, Des 2ZDN, and Stuart 2AYF, to mention but a few. Still in the v.h.f. spectrum, it is interesting to note that there has been an upsurge of 144 preparedness in the coaly city. Peter 2AIY has a brand new high power rig almost ready to go and when I say high power, I mean just that. He burned out a 0-5 amp. r.f. meter in the dummy load while testing the gear! As for the other in the 2PZ vicinity, things are moving, but slowly. Chris is waiting for his aerial pole to grow a little taller so that he will get the wire a half wave high. Ian 2AJF has ironed out the t.v. troubles and now has a modulator working. It is a very efficient 90 watt zero bias giving an output at the present of 4½ watts—flat out.

Two more members have been notified of their success in the limited examination. They are Bill Sinclair and Len Daley. Bill tells me he is ready to go on the air as soon as the licence arrives. Len is building but how close to being on the air is not known.

Out by the lakeside is one very proud Amateur, Jim 2AHT has been notified of his winning of the "CQ" world wide DX Contest. This means another attractive certificate to grace the shack wall. In addition, he has all the cards ready for D.X.C.C. which is really fast work considering the short time Jim has been active during the present spell of operation. Another consistent signal is the plea from Bill 2ZL, for someone to lend him a mobile crane. Bill is having some trouble getting labour to install the new piers for the railway and is thinking of borrowing a few sky hooks and some rope.

Neil 2ZCU hopes to be out of hospital and back on the job again soon and it is hoped that by the time you read this he will be home again. Another member on the sick list is Ern 2FP. All the best for a speedy recovery and return to the old firm where, by the way, things are going very well since Lionel 2CS returned. It is said the water supplies are now in very good hands.

Rodney 2CN has a new 10 over 10 long tom for 2 and is putting out a good signal, as is Ron 2AS, now a regular 2 mx man. Another seldom heard signal on 2 is Roy 2AAI, while Kev 2ZKW is having some trouble with hum. Be feds this has something to do with the anchorage point for the beam. Varley 2SF is now on one band at a time, which is more than I can say for the signal from this QTH, so progress is being made. Les 2RJ apparently has had a great deal of success with mobile operation in VK3, so ask him about it at the next meeting.

Gordon 2ZSG is busy with audio troubles, but still manages to get a signal out, but I haven't heard Tony 2ZCT of late and a report says he has changed employment. Bill 2XT has little time at this end of the year and is still busy dispensing as is Bob 2AQR although it's quiet at home now since number 3 son left for Narrabri. Norm 2ZNF still is trying to get some signals out of the AMR300 and, here's something—John 2XQ is re-building the rig so you can see that 1963 has begun well all round.

We'd all like to see you at the next meeting which will be held at the Newcastle University College on Friday, 8th Feb., so why not come along. The lecture room is very large and we'll keep a chair for you, 73, 2AKX.

VICTORIA

Possibly one should start by apologising for lack of notes the last two months. Luckily for me, some kind person supplied notes on the State Convention, and as I was not at the Nov. Council meeting that leaves me in the clear for the Dec. issue. The Dec. Council meeting was too late for Jan. notes, and at this late stage I'm rather hazy about what took place. The notes I made have been mislaid, but do recall that Council spent much time discussing the proposed additional facilities at the rooms. Firstly, the library section is to be re-housed, in fact the new bookcases should be installed and in use by now. The test bench project appears to have come to a stop, due to the resignation of the moving force

behind it. This matter will probably be fixed early in the new year. The Moon Bounce project is a dark secret (at least to me). Can anybody produce any info.

Council will next meet at the end of Jan., but as I will not be there, perhaps our Publicity Officer will send some notes to "A.R." What about it Harold?

The Institute suffered a sad blow in the death of Bill 3TX early in December. Bill held a licence since way back about 1912. For the last five or six years he had been closely associated with the Publications Committee as circulation manager. 3RN, 3AFJ, 3OM and 3AOM were among those who attended the funeral.

Now that these notes are being typed, I don't feel so kindly towards the printer. As they can now be read, Parsons will have to have his space reduced in my favour. After all, I am a friend of the whole committee, etc., etc., ad nauseum. To show him there are no hard feelings, I'll publicly thank him for his Xmas Greetings and at the same time wish him all the best for 1963. I'll even go further and tell him there are strong indications that his old "Arch Enemy" will be heading for the City of Pubs during February, and when last seen was checking his array of lethal weapons.

The friendly net (144.86 Mc.) is growing with the release of further earphones, and is now spreading into the country areas. They now form a solid core to W.I.C.E.N. Fortunately their services have not been required for any major emergency this summer, but there is still a couple of hot months to go. Plans are in hand for similar nets on other frequencies. The net was ready for action one night in mid Dec., when a boy was missing in the Dandenongs. Several members were in the area assisting and the boy was found before full scale operations were needed.

Heard by the grapevine that communications by the people patrolling the Nullabor during the Empire Games were not all that could be desired. Has anybody any first hand info? Could make an interesting article for the mag.

Saw 3ALK recently and sorry to say, he has been far from well. Maybe too much effort into the metalwork for 3WL 3AHN another who has been on the sick list, but has since been heard operating mobile marine in contact with the heir to the family fortune, 3AAA, who was operating mobile. Talking of sick lists, what is wrong with the Ballarat air.

CENTRAL COAST FIELD DAY

will be held on

17th FEBRUARY, 1963

at the

GOSFORD RACECOURSE

Be on a winner—be at the best field day in VK2.

Reg Brook, VK2AL, Hon. Sec.

N.S.W. DIVISION, W.I.A. NTH. COAST & TABLELANDS ZONE CONVENTION

will be held at

URUNGA

during Easter Week-End

12th to 15th APRIL, 1963

144 Mc. tx hunt, 40 mx tx hunt, all band scramble, general entertainment. Accommodation of all types available on application to Mr. J. Walters, C/O. Ocean View Hotel, Urunga.

3ADW, 3ATP and 3AFJ all attended sick parade. Will the Shepparton boys please note that no wogs, viruses or similar are wanted at their Convention. 3ATK has forsaken his Merry Oldsmobile (1935 vintage) in favour of something more modern. Having spent the last year building mobile equipment for 6v., he now has to modify it for 12v. 3CX has acquired a Drake rx and apart from c.w. can now copy duck talk (how's that one Parsons?). 3AAF busy looking for a v.h.f. portable location to beat all known locations and believes he has found it. We should here more of the in the near future. Distance records are the object in mind.

The National Field Day this year looks like being interesting in VK3 this year. The three main groups are normally the VK3 Council, the Magazine Committee, and the Moorabbin Club. This year 3WI looks like being in trouble as three members of Council are Moorabbin boys, the President will be overseas, and one member will be with the mag. boys. The Secretary may not get a leave pass (unless he started training the young lady from the beginning). The mag. boys are better organised this year with the sole intention of showing Moorabbin the way. This year they will need more than 3APC, they will need the whole bottle! What about F.E. entering a group? Let us have the opportunity of working 3WIA. The ball's in your corner, Bill and Max.

Most of us, at some time or other, have been approached to "Just have a look at my television and tell me what's wrong with it." Well, I've just had this experience with a novel variation. Being by nature a shy but helpful type (PanSy won't think so.—Ed.), reluctantly toddled off to have a look at the monster. Now if ever you've climbed out of the works of one of those things to find a female form draped in a rather skimpy bikini standing by watching, you'll know what I mean. Possibly somebody years older than myself (like 5FS) could handle the situation, but not me! I couldn't have even changed a tube. Can anybody tell me if this study of a heavenly body while delving into a t.v. rx makes me a radio astronomer? Ouch.

MIDLAND ZONE

Zone members regret the sudden passing to the ranks of Silent Keys of our esteemed colleague and friend, Tom Briggs (3JW) on 1/12/62. We extend our sincere sympathy to Mrs. J. A. Briggs and family on their sad loss. Anyone in need of some first class equipment would be well advised to investigate the gear available at the QTH of the late VK3JW. Apart from the acquisition of some good gear, you will also be assisting Mrs. 3JW.

On 16/12/62 the Midland Zone conducted their quarterly general meeting at the Bendigo Technical College, which was attended by VKs 3SV, 3APJ, 3ND, 3FO, 3KO, 3ZIK, 3ZLI, 3FY, 3ZNE, 3AGU. 3JV also called in for a short period but due to prior commitments was unable to stay for the meeting. Apologies were received from 3ACN and Noel Meagher. Special thanks go to Ralph Burrell for arranging the meeting hall and it was disappointing not to have had a larger gathering. There were, however, discussions on matters of importance in relation to W.I.C.E.N. activities and lack of suitable equipment, which is now being attended to.

I have no apologies to offer for the non-appearance of the Zone notes in the Jan. issue of "A.R." as they were in the post on 6/12/62. What happened Ed.? (As notified in Nov. "A.R." the Jan. notes closed on 1st Dec.—Ed.)

Activities on Zone hook-ups are reasonably favourable and on the increase. There have been some DX break-throughs on 6 mx of which our President (Don Carr) has taken advantage of when he had the opportunity, as well as operating on the 2 mx band. I am afraid I am not very well informed on the activities of Zone members generally, but due to the holiday period this is to be expected. My own activities have been confined to operating on 20 mx DX and some local 40 mx QSOs. 3AQU is also active on 20 mx DX, operating from Kyneton with a Q4 54 signal in Castlemaine. Please note, your copy of the minutes of our last meeting held at Bendigo will be forwarded together with your next meeting notice in order to reduce postal costs. Our funds just won't stand two despatches. 73, 3ND.

EASTERN ZONE

Ken (ex 3ZNE) and Ross (ex 3ZAQ) now have their full call signs. 3OI (Moe) and 3NS (Warrigull), both stations operating initially on 40 mx. 3AMS at Foster and Martin 3AMV at Warragul hope to come on in the next few weeks. Jack 3AJK is still winning more countries on 14 Mc. phone; he now has over 20 countries marked up. The v.h.f. boys have been working their fair share of DX.

The Eastern Zone members are quite keen in setting up an emergency network throughout the Zone. The v.h.f. boys are buying f.m. carphones, two are already installed. Stations willing to operate on 3550 kc. please contact David 3DY.

Our XMAS party at Alf's went off extra, again. Best wishes and DX to all Zone members for 1963. 73, 3ZCG.

WESTERN ZONE

Among those representing the Western Zone at the State Convention in Ballarat were Keith 3ATS and Wilson 3AFU. Wilson didn't come away empty handed as he collected the prize for "most miles travelled." Keith 3ATS, just out on the Horsham side of Murtoa, should soon be sporting one of the best 40-80 mx antennae in the Zone. He is at present preparing to erect a second 60 ft. steel tower. With a half wave on 80 slung between these, the QRN won't stand a chance. Merv. 3AFO has now completed a low power emergency transceiver operating from a 12v. battery, a permanent addition to the shack "just in case". He is also looking around for some husky Hams to help place his new 40 ft. windmill tower in the vertical plane. When this is done the top will be adorned with a cubical quad on 20 mx.

3AZ, Hugh McLachlan, better known as Mac, is now residing in Horsham. A s.s.b. man, Mac is preparing to operate on 40, 30 and 20 mx. Vic 3AEQ, a regular on the weekly Zone hook-up, is now approaching the busy time of the year, so may be absent on most Wed. nights until things settle down. Neville 3AAQ, formerly of Shepparton, is now living in Ararat. Welcome to the Western Zone Nev., see you 8 p.m. Wed. on 3650 kc. Chas 3IB is at present having difficulty working DX on the h.f. bands due to heavy QRN of the man-made type. Seems as summer approaches the noise gets progressively worse. The source of trouble is the h.v. S.E.C. power mains. Perhaps a decent shower of rain will cure things Chas. Bill 3AKW is about to have the S.E.C. mains connected. Hope Chas' troubles don't frighten you, Bill.

This is the first rotation of Zone notes correspondents on a roster system as decided at our last Convention, so in fairness to the next in line, let's see a zone-wide roll up at all future hook-ups. 73, 3AFO.

— . . . —

QUEENSLAND

Well the wheel has spun around again and picked me up for the second time. I thought we had struck gold when Don Marshall took over our "A.R." sub editorship and news service, and so we had but Don is busy building a bowler for his bride to be and won't be with us for a while. Thanks for your help Don and all the best to you and your YL. Who is going to do the job now? I'm not a 4PR that can take several jobs at once. Get off your — some of you chaps and have a go. What about a country member for a change?

Talking about country members. At time of writing Claude 4UX came down through the rain to spend a week or two in Brisbane. Frank 4FN was about though I didn't contact him and Basil gave me a ring one night but I didn't meet our Mt. Isa mobiler 4JC; next time I hope. Always pleased to have country members make themselves known even though it might only be over the phone. That's not bad is it. I guess most of our country correspondents are on holidays as little in the news line has been received here. See that some comes by the end of the month fellows.

What action have you taken on the State Council nomination form in "QTC"? If the person nominated can forward or have forwarded a few words about himself it will help country members, in particular, in voting, e.g. number of years a licensed W.I.A. member, offices previously held in the W.I.A., if any, occupation, age, etc., but it is up to the person concerned to supply this information.

Please read the requirements for nomination as several quite unacceptable forms were received last year.

Has anyone given thought to what should be done if sufficient nominations to form a Council are not received? Should the Federal body take over? Give a few more thoughts to the formation of Council and do something about it.

By now you should have Pat's (4KB) notes on the constitution and realise it is quite a problem, taking up real time, to find a good solution.

Glad to see Jan. "A.R." with a couple of articles of VK4 origin printed. Should be more of it. (Always pleased to receive articles. —Ed.)

I wonder if we will have passed our membership of 400 by the time this goes to press? Don't say it can't be done—a lot of people thought it a great joke that we thought of winning the R.D. Contest, but we ran pretty close. Oh for those 12 or 14 logs—how valuable they would have been. Where's my handkerchief!

Have you forwarded your Jamboree-of-the-Air report? Better late than never. A very nice card and letter of thanks to hand from Kallangur Group.

Ron Reed, ex 2DR, ex 4DU, now 9DR, is now radio officer at Christmas Island in the Indian Ocean. Don, who will be coming back to Amateur Radio after 23 years, was once Secretary of the VK2 Division when Bill Moore, Jim Corbin, Morrie Myers, Peter Adams and others were on the committee at that time. Don has a 200 ft. tower and a 150w. tx ready to go.

In the meantime have you any radio courses, text books, old copies of "CQ," "QST," "A.R." etc. for a radio club technical library that Don is assembling in conjunction with a radio club he is forming on the island? Contact Box 638J, G.P.O., Brisbane, and we will give forwarding instructions.

On 30th Nov. one of our most interesting visits was made to the Brisbane City Council Standardising Laboratory at Mayne Junction where most of the commercial measuring instruments used in Qld. are calibrated. Most of the equipment measured volts or amps to too many decimal places for the average Amateur, but the various demonstrations, including c.r.o.'s, etc., were all very worth while. Thanks to Mr. Gow, engineer-in-charge, and to the B.C.C. for the excellent supper provided.

Well I've been stricken with the B.C.C.-S.E.A. merger and laryngitis apart from personal problems, but I would like to be portable for the National Field Day. I'll be trying. Will you be in it? Let us see a few more VK4 names this year.

Sam 4CZ is getting about again and by now I hope is back to normal health. Sam is now with the S.E.A. Bill Jehn, our s.w.l. registrar, had such a good time in Adelaide he didn't even have time to look up 5PS.

Thanks for giving Alf 4OL a call when he is running the 4WI session on Sunday morning. Rick 4VR usually carries on after the news on 20 mx band and would welcome a call. What about it northerners? If you can't stay home for the main hook-up on 40 mx, just slip in your call sign when you can, as we just like to know you are about. You can always get Alf around 7146 before 0900 hrs. and pass on any items of interest—he will appreciate same.

By the way, in the first call please try and limit yourself to your call sign and keep reports and business to the second or third call. It's sure more will participate in the first call in if there is no delay. 73, 4PJ.

TOWNSVILLE AND DISTRICT

As these notes will be the first for the New Year may I take the opportunity of wishing each and everyone a Happy New Year and the pious hope that you all have better luck in landing that rare DX. At the present moment am listening to the boys on the Kookaburra Session and from all accounts the band on 7 Mc. is not too good as they are experiencing difficulty in hearing each other. While on this subject, the old cry that has happened to the boys on 14 Mc. on Sunday morning at the close of the W.I.A. hook-up. At times 4VR and 4ZM are heard and seems I cannot always break them.

No advice from my spy on the Lower Burdekin as to what is happening down there and as a result find it hard to pad the notes. Locally not much doing on the air but recently happened to hear John 4DD, and other than Charlie on 7 Mc. it is pretty dull listening for them. Of course my many QSOs with Bert 4LB don't rate a mention as we can almost hear each other if the windows are open. Basil 4ZW, from Cairns, just called in with the family en route to the southern States for nine weeks sightseeing and reports that the Z boys in Cairns are making hay while summer is here on 50 Mc., working south and playing around the town on 144 Mc., while Bill 4ZBE has worked into VK6 again and has quite a number of QSOs with the boys down south. 73, 4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for Dec. was held in the clubrooms to a capacity gathering of members, together with an increased number of the female sex. The night took the form of a Xmas Get-together and was the usual great success, judging by the reactions of all present, and must have pleased all those behind-the-scenes



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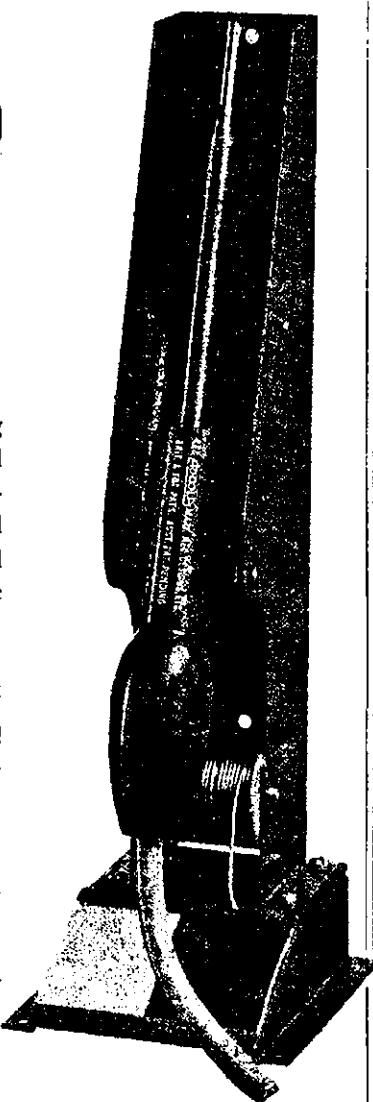
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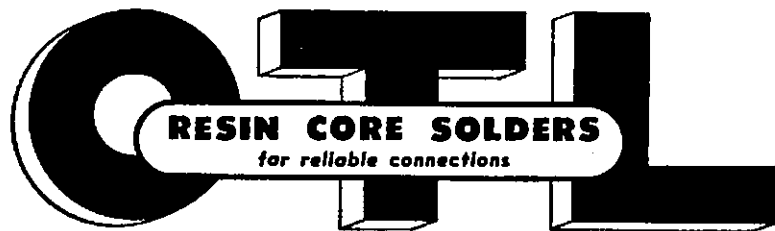
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responsible for the arrangements. Last year was the first time that any XYLS or YLS attended and this time their numbers had increased considerably, and as I said last year in the notes, it is becoming increasingly apparent that this annual gathering is fast approaching the point when it will have to be considered a social event and not just a get-together of the boys. Quite possibly there will be a few of the die-hards who will not agree with this, but in our democratic set-up the majority must prevail, even if the skies fall during the change-over from the old to the new.

Our President (John 5JC), unfortunately, could not attend owing to being in hospital for the purpose of having a few more db's added to his hearing, and Phil 5NN, the Vice-President, did the honours for the evening, to good purpose too, if I might be permitted to say so, and declared the meeting open sharp on time. Business being suspended for the night, the entertainment commenced and three excellent films were screened, and judging by the applause at their conclusion, were much appreciated by all present. QSL cards were then distributed by George 5BX, and at the same time the tables were set up, loaded with goodies prepared with loving care by Marlene and Christine, the XYLS of Brian 5CA and Geoff 5ZCQ. May their shadows never grow less.

Well, that's it gentlemen, once again the "Xmas Do" has come and gone, and once again the same old helpers did their annual chores. The thanks of the Division are theirs, and if they don't get their dues on earth, then let's hope they get them in Heaven, or anywhere else they might be directed to! Oh, and before I forget, to those ill-mannered and coarse types who suggested the 5PS household would be living high for the next few weeks or so, that pile of goodies that I carried out to my car at the end of the festivities was delivered, as is our custom each year, to the St. Mary's Home for Orphan Children, the Matron of which sends her grateful thanks to the members.

To all of the gang who hopped in after the eats were cleared away and washed, wiped, swept and dusted, Council extends their grateful thanks, the same goes for anybody who assisted in any way. Nice work fellows. Oh, by the way, the attendance was around the 150 mark—not a bad roll-up for an organisation that has been described in some quarters locally as "dying on its feet".

Incidentally, this meeting was the last to be held in these club rooms and for the future the meetings will be held in the Builders' and Contractors' spacious rooms on South Terrace, on the fourth Tuesday night in the month, instead of the first Tuesday in the month as of yore. This change of date will probably cause some temporary confusion among the members who have formed the habit over the last 40 years or so, but the VK5 Amateurs are right on the ball with such alterations and it goes without saying that within the next four or five years or so, only a couple of them will still be turning up on the first Tuesday night as usual, and will still comment "Why doesn't someone tell me these things"!!!!

I have received that long-awaited photo of the recent gathering of the clan at Crystal Brook and will forward it with these notes. I would suggest to the Publication Committee that they put on their dark glasses to examine it, because a bigger or more dangerous looking lot of desperadoes gathered in one spot at one time would be hard to find. I never slept for three nights after merely stealing a glance.

The Port Pirie Amateur Radio Club held a meeting at the home of the Secretary (Bruce 5ZBC) recently and a good attendance of members was reported, including also a new member and two interested visitors. Inspector Bruer, of the local constabulary came along and gave a very interesting talk on Civil Defence, and later nobly withstood the bombardment of questions from those present. A very enjoyable and interesting time was had by all. Plans are going ahead for the school-boy instruction. Bert 5EQ is showing the lead in this by organising a film show to be held in the high school with Jim 5ZMJ as the projectionist. Carting coals to Newcastle for Jim. Designs for the QSL card for the Club are being called for and many suggestions, some rude, some coarse, are being received. It is expected to find something which will appeal to all tastes (probably that train going up and down the main street again!). Thanks for the news, Bruce.

A real old-timer in Roy 5AC was heard recently portable from Wellington. He was with the Customs for more years than I would like to own up to, and when he retired he joined up with a well known brewery in our fair city and quite openly admitted to me in a contact one day on 7 Mc. that he was never

happier. Nice to hear you Roy, what about coming to a meeting one night?

Tom 5TL still spends his Saturday afternoons at the local rifle range and if all is to be believed, has not lost any of his cunning in hitting the target. He and I were once fellow members of the Postal Institute rifle club, as was Inky 5WF. Incidentally, there is not a word of truth in the oft-repeated statement that I once scored a bulls-eye at 500 yards by throwing the rifle at the target!

Tom 5QL at the moment of writing is enjoying a well-earned holiday and expects to be operating portable a.m. Slumming I expect he would call it. So far I have not heard him on his portable a.m., but should I do so I will be hard put to keep the sneer out of my voice. A.m., how low can one get!

Heard Joe 5JO on 7 Mc. the other Sunday morning. His XYL Nellie was doing a good stick on the mike and was attracting all the stations on the air, like flies to a honey pot. They both seemed excited about their coming Xmas tour around the country side, complete with portable set-up and all mod. cons.

side he admitted to listening to the Best Broadcasting Station in VK on his way down and to cap it all, he called in to see me at the station. What more can I ask?

Comps 5EF was also at the Xmas "Do" and together with several other s.s.b. devotees, excelled himself with the soap and water at the washup after all the white ants had gone home. He is still being bothered with the knee trouble, and has almost reached the stage of having the bullet, no cartridge, removed.

Well, one certain paragraph each month in these notes has now been taken away from me. Yes, with pride and due modesty, I can now announce that my Worked Elizabeth Award arrived over Christmas, some nine months late, but nevertheless welcome. Despite all the insinuations, the coarse suggestions that I was a "Ring-in," the threat to put the application before the F.B.I., and last but not least, the cruel inference that some of the stations I named had never heard of me, I now have the award framed on the door of what is known among my cohorts as the "Single Sideband Room"! (Tis said in VK3



Some of the Amateurs present at a gathering at Crystal Brook recently. Left to right: Back row: VKs 5ZMK, 2nd operator at 5RJ, 5ZBZ, 5LD, 5ZBI, 5CO, and 5WO. Front row: VKs ex-5VM, 5NW, 5RJ, 5BB, 5AP, 5EQ, 5ZJM and 5EN. Also attended: VKs 5FM, 5ZEE, 5YA, 5DS, 5ZAH, and 5LL.

Jeff ex-ZL2SK, from Napier, N.Z., recently passed through Adelaide returning from the Empire Games. Having now toured VK land by car, he was en route to Sydney to embark on a tour of Europe and the U.K., etc. Many of you who are reading this will remember his XYL Feta (ZL2ABJ), unfortunately now a silent key, drowned in heavy surf in attempting to rescue her brother-in-law. It is of interest to know that the Napier Chess Club, of which she was President, and the Badio Club in that district, have erected a clubhouse in the centre of that city as a combined memorial. The new clubrooms house the local emergency network control station, now operating under Peta's old call sign—ZL2ABJ.

The Woomera Radio Club, 5WC, has at last moved into its new clubrooms and with the advent of "Beaut" new gear, should become very active again. Membership and interest is steadily increasing, although the old stalwart Bernie seems to have given away radio in favour of playing the organ. In fact, an electronic version is being planned. Trevor, the Club President, was quite thrilled to find that the first tx he ever built even worked DX. Ian 5QX is vainly trying to talk him into building a modulator to keep it company.

Eric 2AVS has not been on the air much since he found himself an XYL, but his little tx still does sterling work, especially with the DX. Ask Ian, he will guarantee it. Keith 5EJ puts in an occasional appearance at the 5WC clubrooms and John 5EV still cannot get rid of the job of Secretary and is kept very busy in that respect. He still finds time, however, to cover himself in grease and perspiration delving into the mysteries of internal combustion engines.

Ian 5QX was down in their fair city for his annual holidays and managed to make the Xmas "Do," although he was leaving for Woomera next morning at 4 a.m. or some such outrageous time. To get to my right

that the award was created specially for PanSy because his signal cannot get much further than Elizabeth.—Ed.)

Luke 5LL, back from his trip around VK7, but was only back a few days when he went down with a stomach upset and had a bad week or so of it. Quite taken up with VK7 with its points of interest, but cannot help but feel that a lot more publicity could be given to a number of very interesting places and buildings throughout VK7, which take some finding without such publicity. Strangely enough, my spies reported that he and Harold 3PW were at the North-Western Zone Ham-fest, but as no mention is made of this fact by the scribe for that area, I can only assume that my spies were leading me up the garden path.

Everybody at the moment is trying to get on the bandwagon of the Youth Clubs, and I feel that we in VK5 are apt to forget that the Brompton and Bowden Mission Boys' Radio Club (GBA) has been in existence since July 1955. Started originally by Howard 5XA and Joe 5JA at the request of the Rev. L. F. Ashman, the fort is still being nobly held by Joe, who is the teacher and leader of the boys whose ages range from 9 to 14 years. Howard unfortunately had to give the job away but did yeoman service for some years. The club is the only member society of the World Association of Methodist Radio Amateurs and Clubs whose founder and secretary is Arthur W. Shepherd G3NGF. Nice work, Joe.

Carl 5SS and Frank 5MZ, the terrible twins, noticed at the Xmas meeting, and both seemed in the pink. Their parting shot to me as they left was that they QSO at different times these days, just to trick me. Fat chance!

Luke 5LL tells me that he renewed acquaintance with Des 7DK (ex5DK) whilst in the Apple Isle and found him well and contented. Des wished to be remembered to all of his one-time VK5 friends.

Heard Rex 5KY and Reg 5RR having an old-time QSO on 7 Mc. during New Year's Day afternoon. By an old fashioned QSO I mean a QSO in which both sides are as natural to listen to as if they are in the same room, and with an entire absence of unnecessary technicalities. They were on for some time and discussed a variety of subjects from New Year resolutions to proposed shack renovations and painting. Very easy on the ears, fellows, it wouldn't get either of you a Nobel Prize for scientific discussion, but it sure was Amateur Radio at its best.

One of my female spies, a seductive bit of the, doings, informs me that Jim 5JK is dispersing himself in a new car. So far I have not caught up with him, but something whizzed past our QTH last night with a loud foot-tee-toot, and if that was not our debonaire clarinet player himself, then I need glasses.

By the way, my little paragraph regarding Jim 5JK being a clarinet player of note, foxed out the fact that Rex 5KY used to be a member of the combination, playing the saxophone and doubling at times on the squeeze-box. I might have my instruments mixed up a little, but at least two of our members have been hiding their light under a bushel.

Received a very unexpected telephone call from the Dept. of Civil Aviation this week, and was quite surprised to hear a charming young lady ask me from the other end of the line, "Did I represent the radio magazine 'Amateur Radio' in Adelaide?" Fearing possible libel actions, unpaid debts, or possibly recriminations from the Victorian Dustomen's Union re the matter of unwanted chassits, I somewhat cannily said, "Well, I have some slight dealings with them. What can I do for you?" Well, to make a short story longer, and thus upset the new year of Ye Ed., it appears that D.C.A. have heard of some conversation regarding the conversion of AR's contained in some back issues of "A.R." and although they had contacted all booksellers, newsagents, libraries, etc., etc., for back copies, they had no luck. Well, to make a short story even longer, ho-ho, I was able to lend them all of the back copies they required, to the mutual satisfaction of all concerned. So there you are, we are famous. Joking aside, the Publications Committee might consider it worthwhile to send a copy of the mag. to each Divisional Public Library, all other technical publications do. Just think of it, my monthly mutilation of the English language, as one is written might yet grace the shelves of all Australian Public Libraries! Fame at last!! Having made a 1963 resolution not to write too much copy for the magazine, ho-hum, and a couple of hum-ho's, I must now stop. However, many thanks for all the cards and letters, coarse and refined, received from everybody, and I can only say with traditional modesty—I get as much fun out of writing the notes, as apparently the readers do. My cup of happiness is brim-full at the moment, because nobody in VK3 could find any Fanny Xmas Cards to send in retaliation. Between you and I, fellows, my stocks are getting very low over here. Can anybody help? 73, de 5PS—PanSy to you.

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WESTERN AUSTRALIA

Following my predictions recently in regard to what became known as "Games Fever," I can only say "I told you so!" The moment of crisis occurred at about 4 p.m. on Dec. 1 and the patient was declared out of danger. In fact by the time Sunday morning came there was practically no signs of the fever left, and the 50,000 people, who had been so violently affected the day before, found they had nothing to do except be a little sad that the whole thing was now over and they must now commence the long trek home to various parts of the world, not to mention various parts of Australia.

The biggest thing that I am sorry about is the fact that my t.v. set was on from 9 a.m. Sat., 1st Dec., till 11.30 p.m. that night. This apparently was too much for it and at the time of writing still hasn't been fixed. Anybody know a good t.v. technician in this area? Alternatively, anybody want to buy the 16 pieces I have spread over the lounge room floor! What's that? No! You can't have that piece there. That's the neighbour's daughter. She only came in to watch the Games!

Presumably, my spies are still doing a recovery bit from the Games, for I have had no reports for some time now. At least I presume that is what has happened.

Lance 5LR is having trouble with a pirate. The information has been passed to the right quarters, but all Hams are warned, so if you contact a bloke giving the call 5LR and you know it isn't Lance, see if you can pin-point the signal.

Heard an interesting tape recording recently. Bill 6ZBJ, a new Ham, had taped some of the 6 mx break-throughs recently. VK3, 4, 5 on the ether and even 9AU. Fine biz, chaps. Keep the good work going.

Still on 6, believe that Brian 6VV at Geraldton has been in contact with Bob 6BE every a.m. lately, although sometimes has been down to c.w. copy, contact has still been maintained. Brian 6VV has also been cross-banding with Don 6HK, from 3 to 6 mx. What about a note about the activities either or both Brian and Don? Fine biz, all round.

Another Brian 6ZDE has been doing some heavy iron work on a choke recently. The core is about 1/2 a cubic foot and Brian hopes to convert this to a transformer which, by the use of silicon rectifiers, will give 1/2 an amp at 3, 6, 9 or 13 hundred volts. What! All that meat and no potatoes? How about an article on the job, Brian, when you have finished. Brian's cohort, Bob 6ZDF says he hasn't been doing anything, but I suspect he's just scared of his XYL (who isn't!).

Dennis 6AW says he hasn't got an antenna for the b.c. band, 160, 80, 40, 20, 15 or 10, but he is going to have a beauty on 6 and an even better one on 2 mx with a 12 element, 6 over 6 waving about on his extended tower. So watch out for the big signal.

Great excitement at the QTH of Alyn 6ZDM recently. Alyn's XYL presented him with a lady junior operator. Alyn was so pleased, you'd have thought he'd done the whole job himself. All the best to both XYL and babe, Alyn, and try and keep your chest in, other people can produce daughters too, you know.

By the way, there is a job coming up in the new year for somebody. You may have heard of the efforts made in the other States to organise the young people who are showing an interest in Ham Radio. Well, the same sort of thing is badly needed in this State. So give it some thought if you are interested in preserving the craft, if nothing else. Hop in with your offer to help the youth of our State.

Talking about new jobs, reminds me, Council is hoping to improve the Bulletin presentation in 1963. So you literary types are required for the magazine committee.

As it is 1963 by the time you read this, may I extend the compliments of the season to you from all members of Council and all other members of the Division. 73, 6LS.

TASMANIA

The holiday season has produced a very good crop of mobile and fixed portable stations. Noted Ted 7EB at Burnie, Snowy 7CH and Ken 7KA on the yacht "Moorinna" around the southern coast, Lee 7KC with his recently installed car equipment, motoring soberly around Hobart, Den 7DK ("the voice of Decay") mobileing nimbly around the Island, Bill 7TY from his country residence, "Checkers," Port Davey; myself, unrigged, paid a call on VK2.

We are sorry that our friend, Jim 7JO, has seen fit to uproot his antenna and re-plant it at Launceston, and we confidently expect to hear Launceston on the air much more than hitherto.

Den 7DK and his XYL Verna (the "Den Keeper") have bought a house in Launceston. We believe they moved on 25th Jan. This should ensure that the Launceston air is now well frequented.

We in Hobart were delighted to see again Brian 7ZBE back from passing his training course in VK3, in preparation for a year of cold feet and icicles on his nose when he is deported to Davis Base in Antarctica, where he will be operating under the call sign VK-0BE. (Any similarity to civil dignities bestowed on Royal occasions is purely coincidental, Brian assures us.)

Charlie 7KS and Max 7MX were both mobileing on the mainland during Dec., playing fox hunts on a large scale, to judge from the way they chased each other about.

Andy 3UJ was a visitor to our shores over Christmas and his 15w. was heard pumping out a good signal. 73, 7ZZ.

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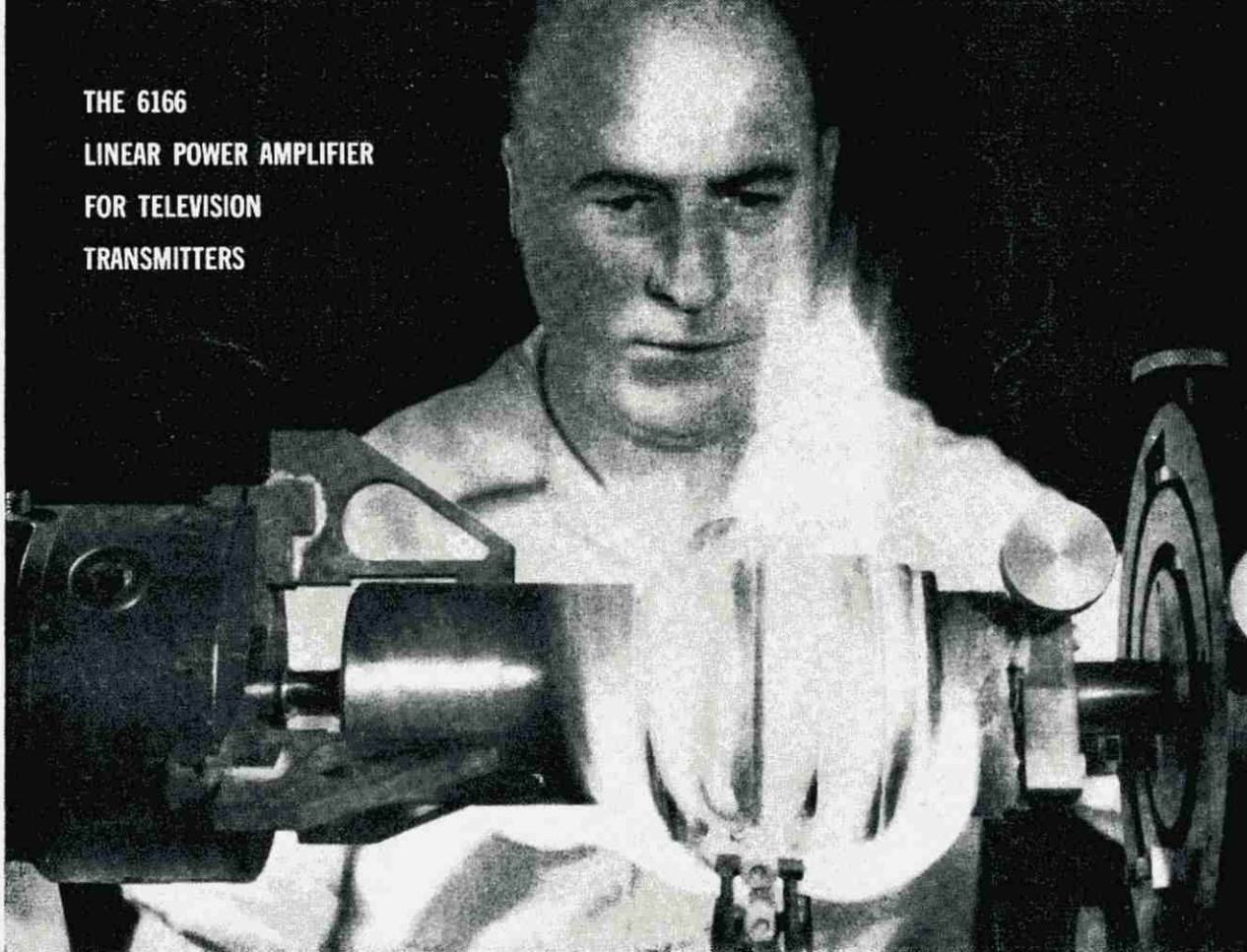
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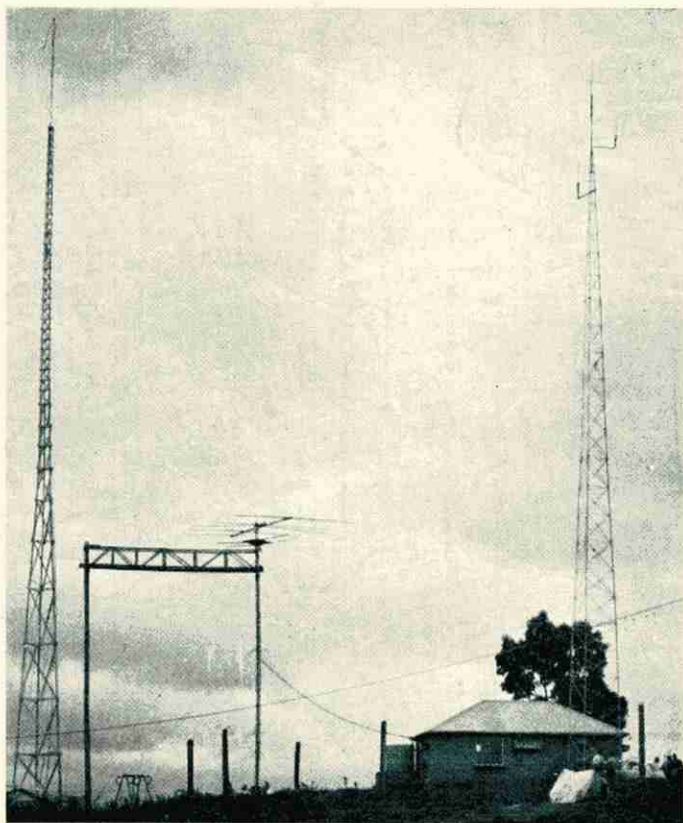
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A M A T E U R R A D I O

MARCH 1963



Vol. 31, No. 3

2/-

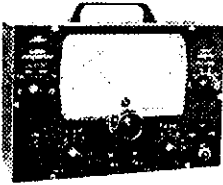
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Complete with leads.

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OUR COVER

Looming high on a hill at Ballarat
(Victoria) there are a series of aerial
towers, between which are Sterba
curtains, which imply the location of
a commercial broadcaster; such is
not the case. This most impressive
array is the joint property of VK-
3HW and VK3AMH.

In a later cover photo will be
shown the equally impressive sta-
tion set-up, which would rank with
any Amateur station, irrespective of
location.

FEDERAL COMMENT



PROGRESS OF YOUTH

For many generations as the world has progressed man as the more experienced being has taken an interest in youth, trying—and with great success—to provide for him the opportunities which man himself missed through circumstances either beyond his control or which he did not grasp when opportunity presented itself.

This success is evidenced by the younger age of men holding respon-
sible positions in government, in industry, in the municipalities of large
cities, in provincial towns, in commerce, in schools and universities, in
science laboratories—in fact in every walk of life where man employs
himself in the age-long toil for existence. Such success has not just
"happened" but is the direct result of man's interest in youth, in passing
on to the younger generation the knowledge and experience he himself
has gained over a longer span of life.

As the world entered the technological era youth was first presented
with known facts then left with unsolved problems. Gradually youth met
the challenge of his forbears and took an interest in matters previously
left to the older man. Educational standards rose until today youth has
opportunities unthought of a mere few decades ago.

With the dawn of the space age greater and greater call is made upon
youth to tackle the technical problems involved in a venture so gigantic
that it is sometimes beyond the comprehension of older people. Radio,
which itself was a miracle five decades ago, is being supplanted by tech-
nological progress undreamed about when radio was in its infancy. And
yet, despite the wonder of it all, the basic concepts of radio are the
fundamentals of this great new adventure.

For youth today the study of radio and its principles is the first step
to wonders yet unknown. It is the first step to be encouraged by man in
his efforts to give to youth what he himself might have missed or only
partly entered into. Never before has such a challenge been extended to
youth as this challenge to explore the never-ending world of electronics.

In pursuit of this thinking the Wireless Institute of Australia is pro-
moting the growth of a Youth Radio Club Scheme throughout Australian
Schools. Already some thirty such clubs are in existence, bringing to youth
at a bright young age the opportunity to take that first step towards the
challenge of exploring the technical world ahead, and in so doing assist
them in science, mathematics and other subjects so important in the
technological advancement of their country.

By every means we have at our command we should support and
encourage such a scheme for the advancement of youth into the field in
which we ourselves are so interested, a field in which our sons will be the
scientists of tomorrow.

Elsewhere in this issue of your magazine is a call for those used or
unwanted pieces of radio equipment—capacitors, sockets, valves, resistors
—which will be wanted by the youths who take an interest in the Youth
Radio Clubs. From these boys will come the Amateurs, who, like hundreds
of those before them, will fill the technical posts in this young country of
Australia which is surely taking up its important role in the technological
advancement of the world.

The Institute asks you to DO your part, not just THINK about it!
Follow the instructions elsewhere in this magazine and send that unwanted
equipment to your Division so that youth can gain the early knowledge
so essential in this rapidly evolving world of electronics.

FEDERAL EXECUTIVE, W.I.A.

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Build a Multi-Band Bandspread Receiver*

USING COMMAND 3-6 Mc. SET AS BASIS

LUTHER UYS, ZS6E

AFTER 10 years of mobile work I have found that the transmitting side of it presented no difficulty whatsoever, but the receiving end has always been a "pain in the neck".

Having tried about ten different types—with converters (both commercial and home-built), I found that they all fell far short of the "shack" standard. There was no bandspread, no selectivity and no noise limiters; in short, no reception if the signal was less than "9 plus".

This inspired, or rather, forced me to build something to meet my requirements.

The Command receiver is well known for its fantastic reception; but falls short on these points:—

- (1) Single band receiver.
- (2) No bandspread.
- (3) Broad i.f.s. (Not BC453).

The following is a step-by-step procedure to overcome these and other shortcomings.

STEP-BY-STEP PROCEDURE

1. Remove: bottom and top covers; all valves; all i.f. cans; r.f./mixer/osc. unit at bottom.

2. Rewire filaments to suit and replace with 6 volt valves if required, but leave 12SR7 detector valve until later.

3. Cut away wires at back and leave only h.t., filament, and pick up r.f. gain wire, i.e. pin No. 3 on back plug, pin No. 1 on front plug and insert 10K pot. on front for r.f. gain control.

4. Pick up b.f.o. shut-off wire, i.e. pin No. 4 at back or pin No. 5 front plug, and insert switch to ground.

5. Cut away existing output transformer, i.e. T1 and replace with universal output transformer. Refer to main and sub-schematics.

This brings the main or normal modifications to an end (which most of you must have done already if your receiver is working).

The following steps are radical changes and must be followed to their logical conclusion, there will be no turning back.

6. Identify r.f./mixer/osc. sections thus: rx upright, then the antenna terminal will be at the left. From left to right you will find r.f./mixer/osc. at the bottom, each one being under its section of the main tuning condenser C4A, B and C.

Also, the r.f. coil has a red dot and will henceforth be referred to as L1; the mixer coil has a yellow dot and will be referred to as L2 and L3; and the oscillator coil has a blue dot and will be referred to as L4 and L5.

7. Make a good note of step 6, because you will be constantly referring back to it when studying these coils more closely.

● This article details, in an easy step-by-step manner, how a satisfactory mobile receiver can be made from the Command receiver having efficient bandspread, good selectivity, and effective noise limitation. Each step is carefully detailed for the constructor wishing to duplicate the author's work.

8. Remove the rx cover at the top of the unit. This will expose the r.f. (C4A), mixer (C4B), and oscillator (C4C) tuning condenser, i.e. your main tuning condenser. Observe the points of connection of the plug-in unit and count the pins clockwise.

9(a). Resolder: (a) r.f./C4A stator wire from pin 4 on to pin 5. (b) Mixer stator wire of C4B from pin 4 on to pin 5. See that the 100 pF. condenser remains in position. (c) Oscillator stator wire of C4C from pin 4 on to pin 6.

9(b). Remove: (i) The padder and trimmers (the unit as a whole) from the oscillator condenser C4C and replace with a good quality 0.01 μ F. condenser to ground. (ii) All trimmers on top of C4A and C4B, i.e. two on each section. (iii) The existing antenna lug.

When these steps have been completed, close up the top section and turn the receiver upside down.

Now, counting the pins anti-clockwise.

10. Remove the green wire from pin 6 of the oscillator plug to the cathode of the mixer and insert a 5K resistor from pin 1 of this plug to the cathode of the mixer.

11. Remove all the 5K resistors from the oscillator coils—both the existing one and any new ones you may have scrounged—because step 10 will have taken care of this circuit.

This completes the wiring modification to the receiver side of the r.f./mixer/osc. unit. All other modifications to these sections will now be done on the plug-in units.

At this stage we will get the i.f.s. in order that you can test as soon as you get the r.f./mixer/osc. plug-in unit going.

I.F. MODIFICATION

If the receiver you have is one with a sharp i.f.—Bob's your uncle, and nothing is required to be done. The i.f.s. should be no sharper than 455 kc.; 700 kc. will also do.

12. Obtain three 455 kc. modern high-gain i.f. cans, e.g. the types that are used on a.c./d.c. sets 119-0-12, using 1655-1 in the 1st i.f., 1655-1 in the 2nd i.f., and 1655-7 in the 3rd i.f. (I used these and my modifications are based on them.)

13. Open the Command i.f. cans and cut the four pillars away with a hacksaw, strip the wires away from the pins and thus leave the plug-in unit free.

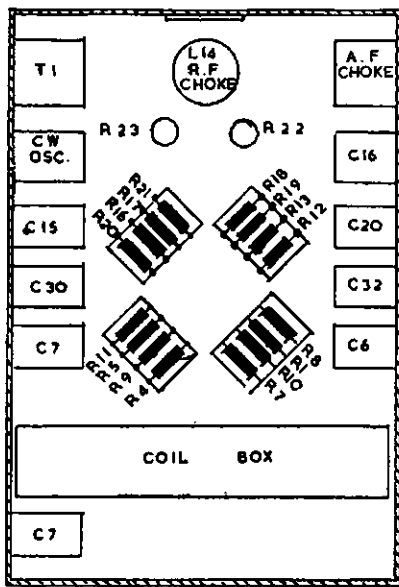
14. Enlarge the centre hole of the plug-in unit with a 3/16" drill, this will enable you to adjust the bottom slug of the i.f. can through the hole.

15. Now it is advisable to remove and replace all the existing 0.05 μ F. metal canned condensers that obstruct the bottoms of the i.f.s. with 0.05 μ F. paper condensers, making sure that you mount them in such a position that you can get at the bottom slug of the i.f. with a tuning stick.

16. Drill a 3/16" hole into the base-plate of the i.f. can by first plugging in the i.f. and then drilling through, as described in step 14.

17. Mount the new i.f. cans inside the stripped Command i.f. cans, making sure that:—

- (a) Plate pin 4 of the new i.f. is connected to pin 1 of the plug-in unit.
- (b) H.t. pin 3 of the new i.f. is connected to pin 2 of the plug-in unit.
- (c) Grid pin 1 of the new i.f. is connected to pin 5 of the plug-in unit.
- (d) A.v.c. pin 2 of the new i.f. is connected to pin 6 of the plug-in unit.



Underneath the Chassis.

View of receiver, inverted, and with front panel towards you. There are several other resistors and condensers not shown in the above diagram, but they are easily identifiable by inspection.

* Reprinted from "Radio ZS," September, 1962.

(N.B. Count the pins on the plug-in unit clockwise, looking from the inside of the can.)

Identify:—

- 1st i.f.—L6, L7 (red).
- 2nd i.f.—L8, L9 (yellow).
- 3rd i.f.—L10, L11 (blue).

18. Replace the i.f.'s and screw them down. Just remember that if too much gain is experienced (recognised by self-oscillation when you are peaking the i.f.'s), this can be cured by damping the primary of the third i.f., i.e. by soldering a resistor of anything from 50K to 100K across pins 1 and 2. This completes the modifications to the i.f.'s.

THE COIL-PACK

19. Constructing the r.f./mixer/osc. plug-in units. (Henceforth referred to as the coil-pack.)

With the plug-in coil-pack in position, mark off the centre and sides of the coil-pack on the sides of the receiver.

20. Remove the plug-in unit, place the bottom cover in position and transfer the markings on to the cover. You will have three markings on each side of the cover, check these with a set square and scribe lines across the cover. Cut the cover through the centre line and bend both sides inward at right angles on the two remaining lines. Now, if you have these covers in position, the coil-pack will be able to slide into position without you having to remove the bottom cover.

COIL DATA

Use 7/16" x 1" slug-tuned formers with the ribs cut away to leave a perfectly round coil former.

Band	L1
80	35 turns Litz, 3/16" wide.
40	25 turns close wound, 28 s.w.g.
20	15 " " " " 24 " "
15	12 " " " " 20 " "
10	9 " " " " 20 " "

Band	Antenna Link
80	8 turns at cold end L1, 38 s.w.g.
40	6 " " " " " 38 " "
20	6 " " " " " 38 " "
15	6 " " " " " 38 " "
10	6 " " " " " 38 " "

L3

Same as L1.

L2

Same as Antenna Link.

Band	L5
80	30 turns Litz, 3/16" wide.
40	23 turns close wound, 28 s.w.g.
20	15 " " " " 24 " "
15	12 " " " " 20 " "
10	8 " " " " 20 " "

L4

80 6 turns, 38 s.w.g.

40 5 " " 38 " "

20 4 " " 38 " "

15 3 " " 38 " "

Note.—The 10 metre coils do not have slugs.

General Instructions.—See main script for mounting instructions. These must be read in conjunction with the coil modification data.

- C1—11 pF.
- C2—15 pF.
- C3—100 pF.
- C4 (A, B, C)—Gand (147 pF).
- C5—3 pF.
- C6—3 pF.
- C7—0.05/0.05/0.05 pF.
- C8—A, B, C—0.05 pF.
- C9—0.05/0.05/0.05 pF.
- C10—180 pF.
- C11—3 pF.
- C12—180 pF.
- C13—17 pF.
- C14—180 pF.
- C15—A, B, C—0.05 pF.
- C16—0.05/0.05/0.05 pF.
- C17—180 pF.

- C18—40 pF.
- C19—465 pF.
- C20 (A, B, C)—Gand 0.05/0.05/0.15 pF.
- C21—17 pF.
- C22—180 pF.
- C23—180 pF.
- C24—200 pF.
- C25—0.001 pF.
- C26—180 pF.
- C27—180 pF.

- C28—34 pF.
- C29—0.005 pF.
- C30 (A, B, C)—Gand 0.05/0.05/0.15 pF.
- C31—0.001 pF.
- C32—5 pF.
- C33—180 pF.
- C34—200 pF.
- C35—17 pF.
- C36—180 pF.
- C37—17 pF.

- C38—17 pF.
- C39—34 pF.
- C40—0.005 pF.
- C41—180 pF.
- C42—180 pF.
- C43—180 pF.
- C44—200 pF.
- C45—0.001 pF.
- C46—180 pF.
- C47—180 pF.

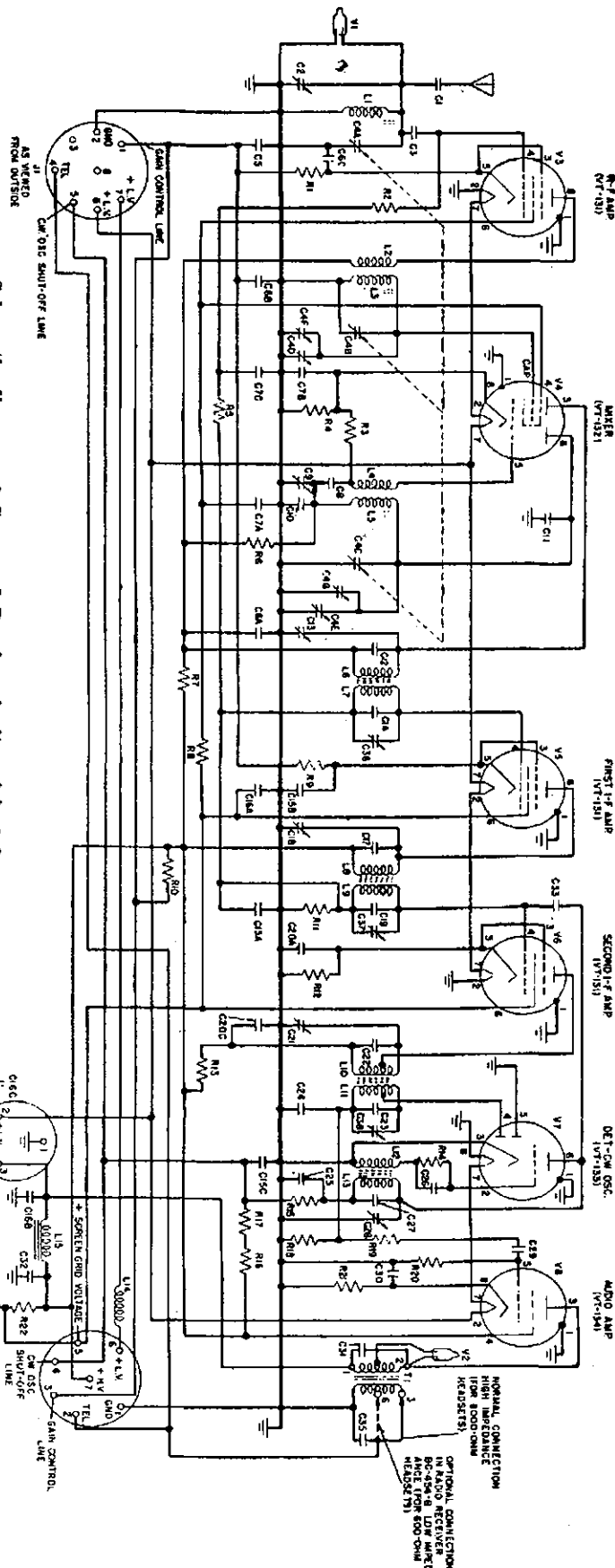
- R1—820 ohms
- R2—2 megohms
- R3—51,000 ohms
- R4—680 ohms
- R5—150,000 ohms
- R6—200,000 ohms
- R7—200 ohms
- R8—200 ohms
- R9—200 ohms
- R10—300,000 ohms
- R11—100,000 ohms

- R12—510 ohms
- R13—200 ohms
- R14—100,000 ohms
- R15—5100 ohms
- R16—51,000 ohms
- R17—51,000 ohms
- R18—200,000 ohms
- R19—200,000 ohms
- R20—2 megohms

- R21—1,500 ohms
- R22—7,000 ohms
- R23—7,000 ohms
- L1—Antenna Input
- L2—AF Amp.
- L3—AF Amp.
- L4—AF Amp.
- L5—AF Amp.
- L6—AF Amp.
- L7—AF Amp.
- L8—AF Amp.
- L9—AF Amp.
- L10, L11—AF Amp.

- L12, L13—CW Osc.
- L4—RF Choke, 112
- L5—Microhenrys
- L6—Choke, 9
- L7, L8—12SK7
- L9—12SK7
- L10—12SK7
- L11—12SK7
- L12—12SK7
- L13—12SK7
- L14—12SK7
- L15—12SK7
- L16—12SK7
- L17—12SK7
- L18—12SK7
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- L40—12SK7
- L41—12SK7
- L42—12SK7
- L43—12SK7
- L44—12SK7
- L45—12SK7
- L46—12SK7
- L47—12SK7
- L48—12SK7
- L49—12SK7
- L50—12SK7

Schematic diagram of Command Receiver in its original form.



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21. As these coil-packs were not designed for continual plugging in and out, you must construct four little guides from aluminium, bent $1\frac{1}{2}'' \times 1\frac{1}{2}''$. These are bolted to the sides of the receiver chassis to ensure proper positioning of the coil-pack.

22. The side-flaps which were originally used for bolting the coil-pack down must be modified in the following manner:—

- (a) Remove the bolt-heads on both sides.
- (b) Bend the points inwards, making sure that the sides have a spring effect to ensure a proper earth contact for the coil-pack, as good earthing is essential.

23. Check Step 11.

24. Decide on how many bands you wish to work, which will depend on how many coil-pack units you are able to scrounge. The modification of this unit was based on five bands.

25. Study coil-pack modification schematics closely, and set to work as follows:—

26. Mount the trimmers as shown in the pictorial of the new coil, making sure you are able to get a trimming-tool through the can for trimming and lining-up the receiver at a later stage.

27. Mount coil-formers L1 to L5 between pins 6 and 1. In other words,

the coil-former is positioned slightly to one side, leaving you space for the trimmers.

28. Get the oscillator oscillating 455 kc. higher than the r.f. signal and line the receiver up in the normal way, until perfect tracking is obtained. Repeat for each band. (Refer to line-up data.)

A.V.C. A.N.L. AND EXTRA AUDIO

29. Refer to the relevant schematic. Remove C16A, B and C and replace with 0.25 μ F. paper condensers. (The 0.25 μ F. condenser C16A going to the middle of the wire-wound resistors is essential, as it is the common by-pass to all screens.) This step will take care of this. The C16B and C are not essential.

30. Mount a 6H6 valve in the space vacated by these condensers, making sure that pin 4 is the nearest to the side of the chassis. This will ensure that the plate, pin 5, will be facing pin 6 of the third i.f., in order that a 220K resistor can couple directly from pin 6 of the i.f. to the plate of the 6H6.

31. Remove the 12SR7 and replace with a 6SN7, balancing the filaments of the 6SN7 and 6H6 if 12 volt filament supply is used, making sure that the 6H6 has an extra resistor across its

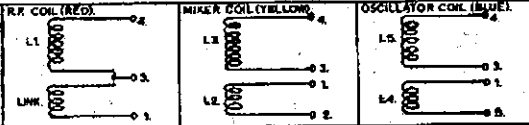
filament to balance it against the heavier drain of the 6SN7. If you are using 6 volt valves exclusively, balance the 6SN7 with a 6V8 (the 6V6 valve draws 0.45 amp. and the 6SN7 0.6 amp., balance with extra 400 ohm resistor across 6V6) and the 6H6 with a resistor to ground.

Follow the schematic, which is self-explanatory. For those who may have difficulty in following it, we will continue with the step-by-step instructions.

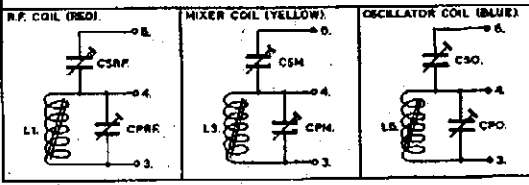
Condensers in Series and Parallel Total Values			
Band	Series Cond. in R.F.	Parallel Cond. in R.F.	
80 Mx	65 pF.	30 pF.	
40 Mx	30 pF.	30 pF.	
20 Mx	50 pF.	30 pF.	
15 Mx	30 pF.	30 pF.	
10 Mx	50 pF.	30 pF.	
Band	Series Cond. in Mixer	Parallel Cond. in Mixer	
80 Mx	65 pF.	30 pF.	
40 Mx	30 pF.	30 pF.	
20 Mx	50 pF.	30 pF.	
15 Mx	30 pF.	30 pF.	
10 Mx	50 pF.	30 pF.	
Band	Series Cond. in Osc.	Parallel Cond. in Osc.	
80 Mx	65 pF.	30 pF.	
40 Mx	30 pF.	30 pF.	
20 Mx	30 pF.	30 pF.	
15 Mx	30 pF.	30 pF.	
10 Mx	50 pF.	30 pF.	

Note.—Use 3-30 pF. Philips bee-hive trimmers fixed values as required, e.g. 80 mx.

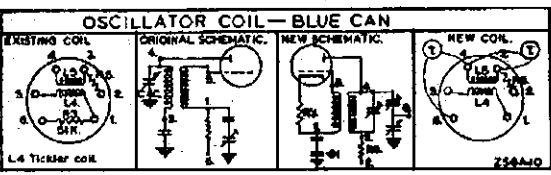
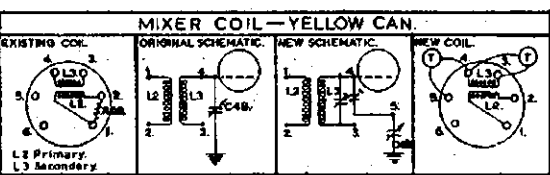
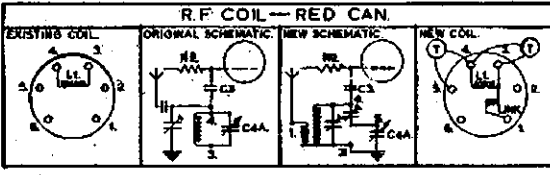
PICTORIALS OF COILS.



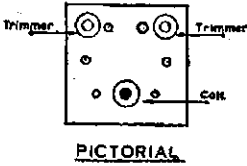
SCHEMATICS SHOWING SERIES & PARALLEL CONDS. IN POSITION.



COIL MODIFICATION.



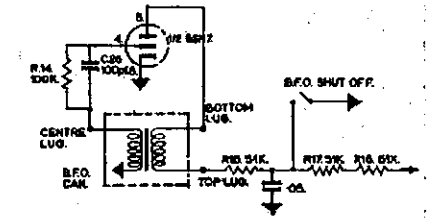
NOTE:— ALL COUNTING IS DONE ANTI-CLOCKWISE LOOKING FROM INSIDE THE COIL CAN. (i.e. LOOKING AT THE PINS.)



32. Remove R19 from the tag strip.

33. Remove the wire connecting pin 6 of the i.f. to R18 (510K) and replace with a longer lead from pin 6 of the i.f. to the far side of R18, i.e. facing the middle i.f.

34. Insert a 0.01 μ F. condenser on the tag strip where R19 used to be and earth the other side.



B.F.O. STAGE.

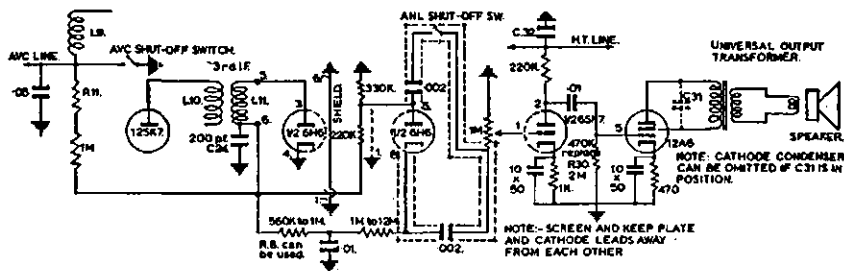
35. From R18 (on the side facing the middle i.f.), insert a 1 megohm resistor and solder it to R11, which you have lifted from ground (R11 is the 100K resistor on the tag-strip nearest to the first i.f. base, but actually comes from the second i.f.).

36. To shut off the a.v.c., insert a switch from the junction of R11 and the 0.05 μ F. condenser (see C15A) to ground.

37. From pin 5 of the third i.f. run a lead to pin 3 of the 6H6 and earth pin 4 of the 6H6.

38. Run a copper shield between the pins of the 6H6, i.e. from pin 1 to pin 6 and earth both pins.

AVC — ANL and EXTRA AUDIO STAGE.



7. Couple an output meter to the cathode of the last i.f. valve or the loudspeaker terminals. (An audio note must be on the input signal.)

8. Set the series trimmers on the Command receiver r.f. and mixer stages at the midway position.

9. Tune the r.f. and mixer stages with the parallel trimmers for maximum output.

10. Set the v.f.o. at 7300 kc. and peak the series trimmers. Repeat steps 9 and 10 until the output remains at its maximum across the entire band.

11. Peak the i.f.s. at top and bottom and if self oscillation is experienced when peaking these i.f.s., damp the primary of the last i.f. with a 50K to 100K resistor as described in step 18. ●

39. Remember to keep the plate and cathode leads of the a.n.l. away from each other, and if an a.n.l. shut-off switch is inserted, run separate screened leads as shown on the schematic. The return lead can be coupled directly to the volume control potentiometer.

40. From pin 6 of the third i.f. connect a 220K resistor to pin 5 of the 6H6, and connect a 330K resistor from pin 5 of the 6H6 to ground.

41. Connect a 1 megohm resistor from the junction of the 0.01 µF. condenser and R18 (or 560K resistor) and pin 8 of the 6H6, making sure that this resistor is on the cathode side of the shield on the 6H6.

42. Make up a screened lead with a 0.002 µF. condenser inside the shield and connect it to the volume control on the front panel and run it back to pin 1 of the 6SN7.

STEP-BY-STEP LINING UP

As the receiver is now a bandspread model for Amateur bands only, the usual signal generator is not accurate enough. Use the following equipment:

- A frequency standard, e.g. BC221.
- The shack receiver must be equipped with a b.f.o. (if it is possible two receivers will make matters much easier and quicker, the one set high and the other low).
- Station v.f.o.
- Output meter.

1. Set the first receiver with the BC221 455 kc. above the low end of the band, e.g. 7455 kc. and the other receiver 455 kc. higher than the top end of the band, e.g. 7755 kc.

LINE-UP OSCILLATOR

Band	80		40		20		15		10	
	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.
Local Oscillator	3,455	4,455	7,455	7,755	14,455	14,755	21,455	22,455	28,455	30,455
Dial Position	3,000	4,000	7,000	7,300	14,000	14,300	21,000	22,000	28,000	30,000
Peak Osc. Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.

LINE-UP R.F. AND MIXER

Peak R.F. Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.
Peak Mixer Trimmer	P.	S.	P.	S.	P.	S.	P.	S.	P.	S.
R.F. Signal and Dial	3,000	4,000	7,000	7,300	14,000	14,300	21,000	22,000	28,000	30,000

Note: L. (Low) is maximum capacity, i.e. fully clockwise.

H. (High) is minimum capacity, i.e. fully anti-clockwise.

P.—Parallel trimmer condenser. S.—Series trimmer condenser.

When the above has been completed, calibrate the dial in kilocycles.

43. Insert a 220K resistor from pin 2 of the 6SN7 to C32 (h.t. line).

44. Connect a 1K resistor and a 10 µF. condenser between the cathode of the 6SN7 (pin 3) and ground.

45. Couple a 0.01 µF. condenser from pin 2 of the 6SN7 to pin 5 of the 12A6 and remove the grid resistor R20 (2 meg.) and replace it with a 470K resistor.

46. Replace R21 with a 470 ohm resistor in the cathode of the 12A6.

47. Mount a universal output transformer behind the b.f.o. can and couple it up.

48. Rewind or pad the b.f.o. coil up until it grid dips to 455 kc.

2. Turn C4 (the main tuning condenser) to maximum, i.e. clockwise. This will be the 7 Mc. position and mark this position on the dial.

3. Zero beat the local oscillator of the Command receiver against receiver No. 1 by adjusting the parallel trimmer.

4. Turn C4 to minimum, i.e. anti-clockwise. Mark this position on the dial as 7300 kc.

5. Zero beat on receiver No. 2. Repeat steps 3 and 5 until perfect tracking is obtained and then leave the local oscillator severely alone.

6. Set the v.f.o. with the BC221 on 7 Mc.

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THE BIG WHEEL ON TWO*

Improved Omnidirection Coverage on 144 Mc. with Horizontal Polarisation

ROBERT H. MELLE, WIJD

and

CARL T. MILNER, WIFVY

FOR the two-metre buff, here is a new omnidirectional cloverleaf antenna with horizontal polarisation. Large size results in improved bandwidth and coverage over the popular halo, and gives superior anti-flutter properties in mobile operation. Singly or stacked, the Big Wheel is also a boon for local work from the home station.

Anyone who has been involved in local two-metre net operation knows that there are many times when the directivity of a beam antenna is a handicap, and some of its gain could be profitably sacrificed for good omnidirectional coverage. For the mobileer, an omnidirectional radiation pattern is a must. For him, there is only the choice of sticking with the vertical whip or, if he wishes to avoid cross polarisation with the rest of the fraternity, graduating to the halo or turnstile. In any event, there is a good case for the horizontally polarised omnidirectional antenna on two metres. The question is only what type best serves the purpose.

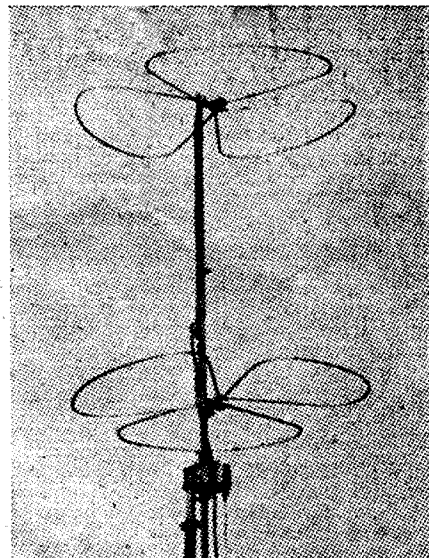
Halos and turnstiles are surely steps in the right direction. The halo, particularly, has one marked disadvantage.

It satisfies the polarisation requirement and has a fairly good pattern, but it suffers from small "capture area." This means less bandwidth and gain, and worse mobile flutter characteristics than are possible with antennae of larger size. The turnstile is somewhat better, but it is still a small antenna.

To study possible advantages of large size, we started experimenting with the old three-half-waves-in-phase type. This is a simple arrangement of three horizontal dipoles in a circle, fed in phase at the centre, as shown in Fig. 1A. Illustrations of this antenna are found in the literature but design details are lacking. This turns out to be a problem since, due to mutual coupling, both impedance and resonant frequency depend on the geometry. Thus the usual dipole formulae do not apply. Results of early tests of crude models of this antenna showed great promise, particularly for mobile use, despite poor matching.

The design shown here evolved not so much from trying to improve the matching properties, but simply to try something new. Instead of using the centre-connected transmission line, we decided to support the elements by feeders at each end instead of at the centre, as shown in B in Fig. 1. This proved to be a fortunate choice, as it resulted in simpler construction, better mechanical stability, and more easily adjustable electrical properties. Now, each element is a full-wave loop, and it can be bent to try out various shapes and diameters. The idea is the same as before, however. The half-wave portions of the loop at the rim serve as radiators, while the radial portions at each end serve as quarter-wave feeders. Don't try to figure out where one ends and the other begins!

In designing this antenna, the first step was to settle on the shape of the elements. Various configurations were tried ranging from the most compact arrangement, a wheel consisting of three pie-shaped elements with an over-all diameter of about three feet, to a huge cloverleaf with oval-shaped elements and an over-all diameter of almost five feet. As a result of these experiments, we found that compactness makes matching and current equalisation troublesome. Curiously, the radiation pattern is only slightly affected by the shape. For each of the elements there always remains a slight "front-to-back" ratio, roughly 3 db. Variations in the



pattern of this amount are barely noticeable in ordinary use. This observed pattern is shown in Fig. 2.

The next step was to trim the elements to length and adjust the stub for best s.w.r. at the desired frequency. Since all elements are fed in parallel at the low-impedance point, the input impedance would normally be quite low. Each has a radiation resistance of about 30 ohms in this configuration, which would give only 10 ohms for the parallel combination. To match to a 50-ohm line, the conventional stub-tuner scheme was used. Element lengths are chosen so that the impedance is capacitive and the circuit is then tuned to resonance with an inductive stub to give an input impedance of 50 ohms at the centre frequency.

The design described here has an over-all diameter of four feet. It is no more critical or difficult to build than a three-element beam. Elements are made of $\frac{3}{8}$ " o.d. corrosion-resistant aluminium tube. The lengths are bent cold to the shape shown in Fig. 3. For

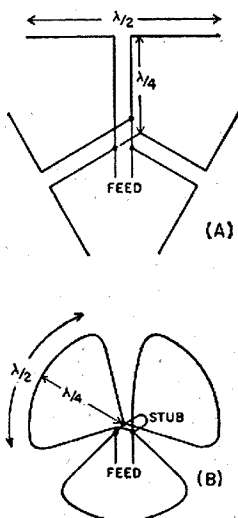


Fig. 1.—Development of the Big Wheel started with three half waves in phase, as shown at A. Despite poor matching initially, this configuration showed promise and evolved into the cloverleaf style at B. Each element of the cloverleaf is one wavelength long. Feed impedance is brought to 50 ohms through the use of a tuning stub.

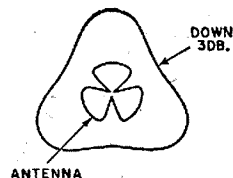
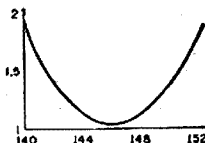


Fig. 2.—Performance of the cloverleaf array. Frequency response can be controlled over a wide range, depending on the shape of the elements and over-all size. The configuration described is usable over the entire band if centred near 146 Mc. There is a slight dip in the radiation pattern in back of each notch in the cloverleaf, but this is hardly noticeable in ordinary operation. In mobile work it is insignificant.

* Reprinted from "QST," Sept., 1961.

good performance over the band, 80" lengths are used. The bracket and remaining hardware are prepared according to Fig. 3, and the elements mounted. Wood dowels are used to plug the element ends to provide strength and seal against moisture. The tuning stub is then cut to 5" over-all length, bent to shape and mounted as shown. Finally, the transmission line is prepared and connected. Keep the leads short or

the s.w.r. will suffer. After assembly the structure is checked for conformity to dimensions and is ready to go.

As shown in Fig. 2, the s.w.r. should be 1.2 or better over the band. The pattern should be uniform to within ± 2 db.

STACKING THE BIG WHEEL

Two of these antennae can be stacked for the home station with an increased array gain of about 4 db. To improve the radiation pattern, the stacked antennae can be staggered by 60 degrees.

Stacking increases the directivity only in the vertical plane, while horizontal polarisation and the omnidirectional pattern of the single antenna are preserved. This type of array is widely used in f.m., t.v. and beacon applications, where such properties are required. With the broad bandwidth and uncritical behaviour of the Big Wheel, it is not difficult to realise considerable stacking gain by adding more bays before reaching the point of diminishing returns. In fact, results can be achieved in all directions which compare favorably with a small beam in its best direction.

for coaxial line a full wavelength is about 53", due to the propagation factor of the line. The length of the coax is important, as both matching and phasing depend on it. The spacing is nominal, however, and it can be adjusted to make the phasing sections fit properly.

The arrangement for a two-bay antenna is shown in Fig. 4. A full wavelength of RG-11/U 75-ohm coax is used for the phasing section. It is driven by 50-ohm RG-8/U transmission line at a point $\frac{1}{4}$ wavelength up from the bottom, to achieve proper impedance transformation. The two ends of the coax are out of phase, so one of the bays must be turned upside down to put the antenna currents in phase.

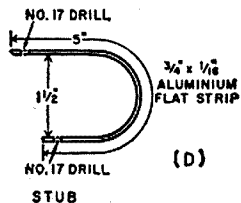
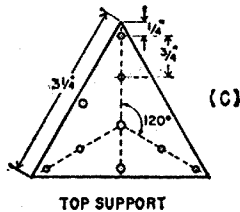
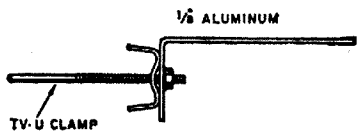
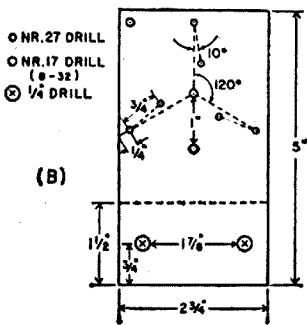
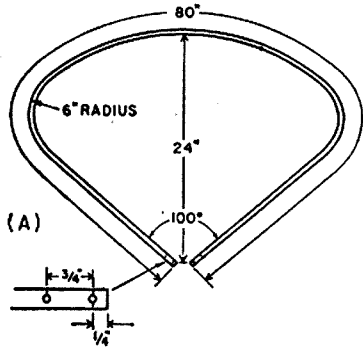
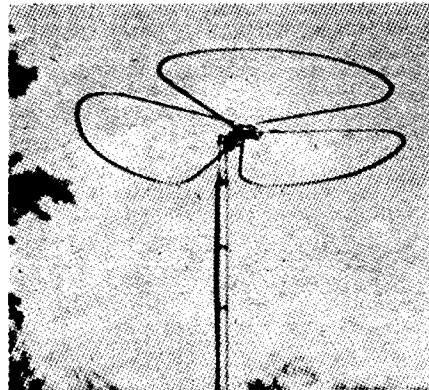


Fig. 3.—Structural details of the Big Wheel 2-metre array. One element is shown at A. A wood dowel 2 inches long is driven into each element to add strength. The grounded lower support is shown at B. It is bent down at a right angle to permit mounting to a vertical pipe with a t.v.-type U clamp. The triangular top support is shown at C, and the tuning stub at D. The array is fed with 50-ohm coax, the inner conductor of which is connected to the upper support. Brass screws (1/8 inch 8-32) are used to assemble the parts.



The 2-metre Big Wheel for mobile or fixed-station use.

Gain of a stacked array depends on both the number of bays and the spacing between them. In these experiments the optimum spacing of $\frac{3}{4}$ wavelength was used. Two-bay arrays were tested, showing a gain over a dipole roughly equivalent to a two element Yagi, but in all directions. It appears that 4, 6 or even 8 bays might be used,† but the point of diminishing returns is rapidly reached, as the number of bays must be doubled for substantial gain and the length of mast required becomes a problem.

With a bay spacing of $\frac{3}{4}$ wavelength it is convenient to use full-wavelength phasing lines of coax. At 146 Mc. $\frac{3}{4}$ wavelength is approximately 50", while

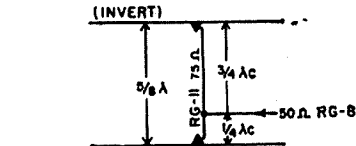


Fig. 4.—Stacking method for two Big Wheel antennae. Because of the propagation factor of coaxial line, an electrical full wavelength of coax is approximately $\frac{3}{4}$ wavelength long. This is the optimum stacking dimension for dipoles. By using a 75-ohm phasing line the system may be fed at the point indicated with a 50-ohm transmission line. Note that one bay must be inverted to keep antenna currents in phase.

When the original 5" stubs were used, it was found that the point of minimum s.w.r. had shifted from 146 to 148 Mc., due to coupling between the bays. This was corrected by increasing the stub length from 5" to 6" total length. The resulting s.w.r. curve is almost identical to that of a single antenna. With the bays staggered 60 degrees on the mast the pattern variations are negligible. Gain is approximately 4 db. over a dipole.

For both mobile and fixed station, the Big Wheel has performed beyond our fondest hopes. Mobile results are particularly astonishing, as the troublesome rapid flutter is remarkably reduced. Our best testimonial was the occasion when one operator said he could not believe that such a strong, steady signal was coming from a moving car at such a great distance. At home it's a pleasure to be able to hear everyone in the Shoreline Net without continually fussing with a rotator.



SAD STORY OF C.H.C./H.T.H.

Overheard recently one W telling another that he earned his H.T.H. Award in 1 hour 20 minutes flat during a C.H.C.'s get-together in the States. I have no doubt that Cliff Evans, K6BX, had high ideas and aims for this brainchild of his, but with the advent of so many Stateside C.H.C.'ers, the award from the point of view of "standard of attainment" is at an all-time low.

For those who like to belong to "socials," it is no doubt a "worthy", but from a DXer's point of view it has little merit.

It is good to seek awards, but only the right ones. There are those who are obtained only by Amateur Radio's highest endeavour, and there are those who can be had for working a couple of stations and sending along 10-15 I.R.C.

There are those who provide some social status also. So let each Ham judge for himself.

Award hunting has now reached the stage where countless awards are available and it is pointless to continue stacking them into the bottom drawer.

73, Al, VK4SS, C.H.C./H.T.H.

† Extensive tests of the Big Wheel have been made by the Editor "QST", both at the home station and in the field. The single-bay cloverleaf array has given performance superior to any other single omnidirectional antenna yet tried, and the two-bay system is all that the authors claim. In portable work, particularly, it has been found that a two-bay Big Wheel brings in signals with a strength comparable to that achieved with small Yagis, yet it delivers this performance in all directions and over a wider frequency range than is obtainable with parasitic arrays. Tests are currently underway with a four-bay system and results will be reported at a later date. —WIHDQ.

Performance Tests on the Big Wheel 2-Metre Array*

Stacking Information and Results with Omnidirectional Antennae

IN the previous article W1JJD and W1FVY described a novel omnidirectional array for 144 Mc. mobile or fixed-station work. These fellows are now engaged in ice research in the Far North (at time of writing this), and there was not sufficient time for them to complete tests on stacked versions of the antenna before their scheduled departure, so the writer gladly took up where they left off. As is usual when one tries to get to meaningful numbers in connection with Amateur antennae (and by Amateur methods) this turned out to be no mean task.

On-the-air results are all that really count in evaluating the worth of antenna ideas for Amateurs. Precise measurement of pattern and gain are all but impossible, but if an antenna "has what it takes," protracted use of it under many differing conditions will show its superiority clearly. The "many" in the above sentence bears emphasis. Routine comparisons of various antennae can show widely different results. In fact, if they don't there is probably something wrong with the tester's methods. Reflections from ground, trees, buildings, hills, cars and the like add to or subtract from the direct signal to such an extent that "gain" figures taken by working stations and comparing signal reports show large variations from one station to the next. These are part of everyday v.h.f. communications, so the thing to do is to work many stations at various distances and directions with a given comparison set-up. Then, if you want to know for sure, you set up again in a different location and work another bunch. This is time-consuming, but interesting if one keeps a detailed log of the results.

The writer spent many hours at this sort of thing with the Mellen-Milner Big Wheel. Tests at the W1HDQ home location proved inconclusive, because of a side-hill test area, and trees, guy wires and towers in the way of anything that could be worked on readily. So, after the matching problems were worked out to our satisfaction, we took the collection of antennae and masts out to some of our favourite wide-open hilltops. The single-bay cloverleaf was mounted on a 15-foot mast. Two-bay and four-bay stacked arrays were tested on a 24-foot support. All were checked against the turnstile regularly used for mobile work. This put the turnstile in a seemingly unfavourable light, as it was used in its permanent position some 20" above and to the rear of the W1HDQ station wagon. The turnstile had established itself as an effective mobile antenna, however, so it was useful as a standard reference for checking results with the larger and higher arrays.

RESULTS

All told, around 100 different stations were worked or logged, and their signal strengths tabulated in terms of decibels above the readings obtained with the mobile turnstile. Care was taken to see that these stations were in various directions, at all possible distances, and well distributed throughout the active portion of the band. As expected, indications from these tests varied widely, but we feel that enough of them were made so that they are valid indications of what can be expected from various versions of the Big Wheel. It should be stressed that the margin credited to the single-bay Big Wheel over the turnstile is largely the result of the former having been mounted at considerably greater height. These tests were not intended to show the relative merits of the turnstile and Big Wheel; the turnstile was used merely to provide a reference against which all other set-ups could be compared.

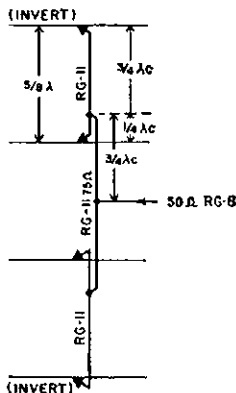


Fig. 5.—Feed system for a four-bay version of the Big Wheel 2-metre array. The two centre bays are the same side up, while the two outer bays are inverted. Bays are approximately $\frac{1}{2}$ wavelength apart physically, which permits the use of full-wave phasing sections between them. The feed points of each pair are then fed through two $\frac{3}{4}$ -wave phasing sections, and a 50-ohm line at the midpoint sees an almost perfect match. The tuning stubs on the two inner bays (see previous article) are 7 inches long, while those on the outer bays are 8 inches.

The tabulation below includes only received signal strengths at W1HDQ/1. Many reports were taken from stations worked, but individual S metre readings varied so widely that no numerically-useful data could be obtained from them.

Average gain, 1-bay cloverleaf over turnstile	5.7 db.
Average gain, 2-bay over 1-bay	6.2 db.
Average gain, 4-bay over 1-bay	8.1 db.

The "gain" obtained with the 2-bay Big Wheel appears out of line, but more readings were taken with various versions of this array than any other,

and we can assure the reader that the 2-bay version really does perform. Time and again, signals which could be heard only as faint whistles with a beat oscillator with a single-bay antenna jumped up to solid voice readability on the 2-bay version. These were not included in the tabulation, as the strength of the non-readable signals could not be established readily—but they do show that a stacked Big Wheel does what everyone wants an antenna to do: it brings in signals that cannot be heard with simpler antennae. It should be emphasised, however, that these are not antenna-range measurements, and should not be interpreted as such.

The stacked versions proved to be nothing short of spectacular on signals coming from extreme distances. On one occasion a signal from a New York area station was totally inaudible on the single-bay and the turnstile, yet it was a readable S3 on the 2-bay array. This was over an indirect hilly path of some 75 miles, and the test was made around 1 p.m. on a hot summer day, when tropospheric bending was at a minimum. Tests made at night often showed the 2-metre band loaded with weak signals, fading into and up out of the noise, when either the 2-bay or 4-bay stacks were switched to the receiver. Tuning the band with the turnstile and single-bay antennae under the same conditions would show only the strong signals of locals and near-locals. Many contacts were made at distances up to 100 miles or so from locations where long experience in the past has shown that some form of beam is a must for raising stations at anything like this distance.

We worked hard at trying to make the stacking of two pairs of antennae pay off as much gain as did the stacking of two single bays, but this would not quite "come off." The indicated gain from the latter is more than would be expected on the basis of stacking theory, but it was there, over and over again, in unmistakable fashion. This is probably due to the nature of v.h.f. propagation, wherein lowering and narrowing of the vertical pattern pays off in surprising fashion on some paths. You get this when you begin stacking. More stacking pays off, but not so spectacularly as the first step.

But a gain of 8 db. with an omnidirectional antenna is not to be sneezed at. You'd have to put up a pretty fair Yagi to equal this and remember the 4-bay Big Wheel gives the gain in all directions. This is not an unalloyed blessing, however. The stack of Big Wheels is fine for net activity and local rag-chewing, but its omnidirectional pattern and high gain can multiply QRM problems many fold. The 2-metre band becomes a mass of heterodynes when some tropospheric bending is present. Another feature on the debit side: interference from commercial signals in the v.h.f. range multiplies with an omnidirectional array of such beautifully broad frequency characteristics. We were forced to abandon work with the Big Wheels in one favourite location where there are two f.m. stations, a u.h.f. t.v. station, and various police and forestry-service re-

(Continued on Page 12)

* Reprinted from "QST," Oct., 1961.

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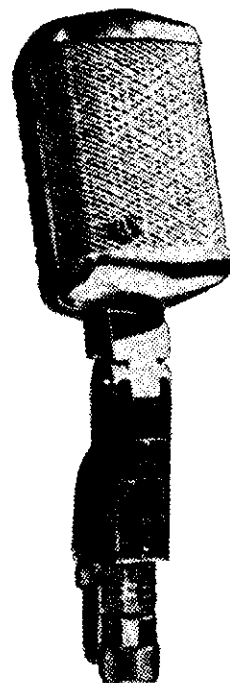
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V.H.F. AERIAL MATERIALS*

D. A. S. DRYBROUGH, B.Sc. (BRS22550)

MOST Amateurs interested in v.h.f. or u.h.f. operation would like to experiment with aerials, knowing that they play a very important part in the overall performance of a station. However the availability of cheap and effective commercially-made beams may well have discouraged some from taking up this aspect of station design, especially where a fair amount of "plumbing" appears to be involved. Not everyone thrives on the bending, shaping and fixing of aluminium tubing, such as is called for in most v.h.f. or u.h.f. aerial designs, and it is the purpose of this article to point out that such skills are not really necessary because other, more easily handled, and cheaper materials can be used for most aerial experimental work at these frequencies.

The idea of using other materials occurred to the writer during a visit to the Lichfield I.T.A. station some years ago when the engineer-guide showed the party a spare element for the aerial then in use. It was galvanised! If such a finish was considered suitable for a high power v.h.f. t.v. aerial, then it would surely be worth investigating for Amateur use. A check was therefore made into the relative merits of various materials for use as v.h.f. aerial elements with interesting—and cheering—results.

The radiating efficiency of an aerial can be defined as the ratio of the power radiated by it to the power supplied to it and is sometimes quoted as a percentage. The difference between the radiated power (P_r) and the input power (P_{in}) is the power lost in the aerial itself (P_1). The aerial can therefore be given the equivalent circuit shown in Fig. 1 (b) because power in such a circuit can be lost only in a resistive element and both power-dissipating mechanisms in the aerial can be replaced by resistors, R_r and R_1 , such that together they dissipate the same total power as the actual aerial does. R_r , proportional to the power radiated by the aerial, is then the "effective radiation resistance" of the aerial while R_1 , proportional to the power lost in the aerial elements, is the "effective loss resistance". When considering the relative efficiencies of various materials as aerial elements, Amateurs are vitally interested in the behaviour of the "effective loss resistance" (R_1), as defined above, of an aerial system when the materials of which it is made are changed.

Starting from the fact that most aerials are made up of arrangements of lengths of metal of more or less uniform cross-sectional area the "d.c." resistance of such a length, say L , with area A , can be calculated by applying the formula:

$$R_{dc} = (L \div A) \times \text{resistivity,}$$

where resistivity is the resistance per unit length and unit area for the

material involved, usually given in ohms per centimetre cube. Taking L as a half-wavelength at 145 Mc. and A as the area of $\frac{1}{8}$ " diameter rod, typical values of R_{dc} are as follows:

Metal	Resistivity (ohms per cm. tube)	Resistance
Copper	1.72×10^{-6}	0.0023 ohm
Aluminium	2.83×10^{-6}	0.0037 ohm
Zinc	5.90×10^{-6}	0.0077 ohm
Brass	7.50×10^{-6}	0.0098 ohm

All these are negligible with respect to the radiation resistance (R_r) of a half-wave dipole which is about 65 ohms for the chosen element diameter, but this is not the whole story. As the frequency of the current flowing in the material is increased from "zero frequency," or d.c., an effect, called the "skin effect," modifies the current distribution in the cross-section of the conductor, tending to concentrate it more and more in its outer skin as the frequency rises—hence its name. This reduces the working area of the conductor and so increases its effective

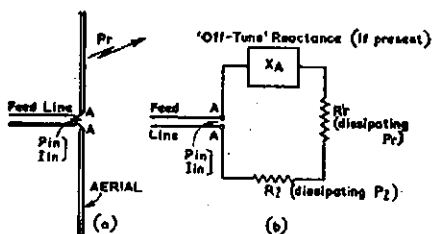


Fig. 1. Dipole aerial and equivalent circuit.

resistance. At v.h.f. the skin carrying most of the current becomes very thin indeed, less than half a "thou" (0.0005 inch), and is proportional to the square root of the conductor resistivity. Thus the skin is thicker for the metals with the higher resistivities, making their "r.f." resistance less relative to their "d.c." resistance than for the better conductors like copper and their use at v.h.f. less futile than might be assumed from their resistivities. The "r.f." resistance ($R_{r,f}$) for a current which is constant along the length of the half-wave element is found to be approximately as follows:

Metal	Skin Depth	$R_{r,f}$ - R.F. Resistance	Ratio of $R_{r,f}$ to R_{dc}
Copper	0.00022"	0.34 ohm	148
Alumin.	0.00028"	0.41 ohm	111
Zinc	0.00040"	0.60 ohm	78
Brass	0.00045"	0.68 ohm	69

These "r.f." resistances cannot yet be used to calculate the efficiency of a dipole aerial because such an aerial does not carry a current which is uniform along its length. The current distribution for a half-wave dipole is normally taken to be half a sine wave, having its maximum at the centre of the aerial, and so equal to I_{in} in Fig. 1. The average current and also the effective loss must therefore be less than

for the constant current case considered above and integration of the power loss over the whole aerial results in the value $0.5 I_{in}^2 R_{r,f}$ or $I_{in}^2 \times 0.5 R_{r,f}$. Since the input current to the aerial is I_{in} it follows that the true effective loss resistance, R_1 , for a half-wave dipole is $0.5 R_{r,f}$. This value, and the corresponding radiation efficiency and aerial loss in db., is shown for the selected metals in the following table:

Metal	R_1	Radiation to Efficiency	Loss due to Aerial Elements
Copper	0.17 ohm	99.75%	0.011 db.
Alumin.	0.20 ohm	99.7%	0.013 db.
Zinc	0.30 ohm	99.5%	0.022 db.
Brass	0.34 ohm	99.4%	0.026 db.

It should be noted that these results are for $\frac{1}{8}$ " diameter elements, not the more usual $\frac{1}{4}$ " diameter tubes. Such larger tubes would result in still lower "r.f." resistances although the "d.c." resistance of very thin-walled tubes could be greater than those quoted above for $\frac{1}{8}$ " diameter rods.

Simple formulae for those who wish to calculate skin depth and $R_{r,f}$ for themselves are as follows:

For solid rods,

$$R_{r,f} = R_{dc} \times \frac{\text{diameter in inches}}{4 \times \text{skin depth in inches}}$$

For thin-wall tubes,

$$R_{r,f} = R_{dc} \times \frac{\text{wall thickness in inches}}{\text{skin depth in inches}}$$

$$\text{Skin depth, at v.h.f., in inches} = \frac{2 \sqrt{a \div \mu F}}$$

where a is resistivity in ohms per cm. cube.

μ is permeability, taken as 1 for non-ferrous materials,

and F is frequency in cycles per second.

Having theoretically established that quite thin elements of a variety of metals could be used for v.h.f. and u.h.f. aerials, the next step was the choice of a suitably cheap, easily available and readily worked material with which to experiment.

Zinc wire is a rare commodity, of course, but a standard line in agricultural ironmongers is galvanised fencing wire in various gauges. This is iron wire with a very heavy zinc coating, entirely adequate to act as a zinc conductor at v.h.f. and u.h.f.; it costs only about 1/6 per pound. The length to the pound for 10 s.w.g. wire, which has a diameter a little over $\frac{1}{8}$ ", is more than 22 ft., making the cost just over $\frac{1}{2}$ d. a foot. The wire can readily be shaped and soldered and is self-supporting for lengths of at least quarter-wave at 145 Mc. It can be fixed to wooden supports by means of staples and this construction is adequate for loft arrays. For Yagis a boom is required and $\frac{1}{8}$ " or $\frac{1}{4}$ " galvanised tubing can be used. This can then be drilled transversely at the appropriate element spacings for the

* Reprinted from R.S.G.B. "Bulletin," June, 1962.

$\frac{1}{4}$ " diameter elements which can be fixed in position by soldering, using a normal, medium-sized, electric iron. Construction results in a light, yet strong, aerial suitable for fixed or mobile application.

This cheap material has been used by the writer for a wide range of aerials with good results. The most spectacular perhaps, was a 10-turn, bi-directional helical aerial. This was supported from a 10 ft. 6 in. long wooden beam. Each turn was 26" diameter, spaced 14" from the next turn, and the aerial was split in the centre for connection to the feed line through a balun. The total conductor length used was about 69 ft.—think of coiling that amount of $\frac{1}{4}$ " diameter aluminium tubing into a smooth helix! On this aerial, IISVS was heard in the summer of 1959 on sporadic E—a fluke of course, but useful for proving that the aerial did work!

Slot aerials are especially easy to make and mount and another bi-directional array consisting of two such slots, stacked one above the other on a wooden pole some 20 ft. high, was used with good results for an extended period. Folded dipoles are also convenient and a pair in a broadside or "flat top" array was used for a spell in the loft. Yagis of various sizes have also been tried. The outside aerial at the moment is a four-element, wide-spaced unit, supported by a bamboo pole about 7 ft. long which is cleated to a wall so that the Yagi is about 12 ft. above ground. Even in the writer's rather

poor QTH this aerial has performed well and has weathered many high winds in the two years it has been erected. Since January 1961, 40 countries and eight countries have been heard using it, indicating that its performance has not yet been affected by corrosion.

A word of caution is necessary about the substitution of the smaller diameter elements for other sizes in published designs. The length of $\frac{1}{4}$ " diameter rod required for a half-wave dipole is about 0.956 wavelength (exact half wavelength) instead of about 0.94 wavelength (exact half wavelength) for $\frac{3}{8}$ " diameter elements, an increase in length of about 1.7 per cent. This correction can be applied to parasitic elements of the same order of length in Yagi arrays but element spacings need not be altered.

The thinner elements exhibit a narrower bandwidth and this may become significant, even for the relatively narrow Amateur bands, in the case of close-spaced Yagis or other aerials which have a very low impedance feed point.

Very little attention has been paid to the 430 Mc. band and higher bands,

mainly because the writer has not yet operated in any band higher than 144 Mc., but, theoretically at least, the fencing wire should be even better at the higher frequencies. This arises because, with increasing frequency, the "r.f." resistance of a given length of material rises only in proportion to the square root of frequency, whereas the length required for a half-wave dipole decreases inversely as the frequency.

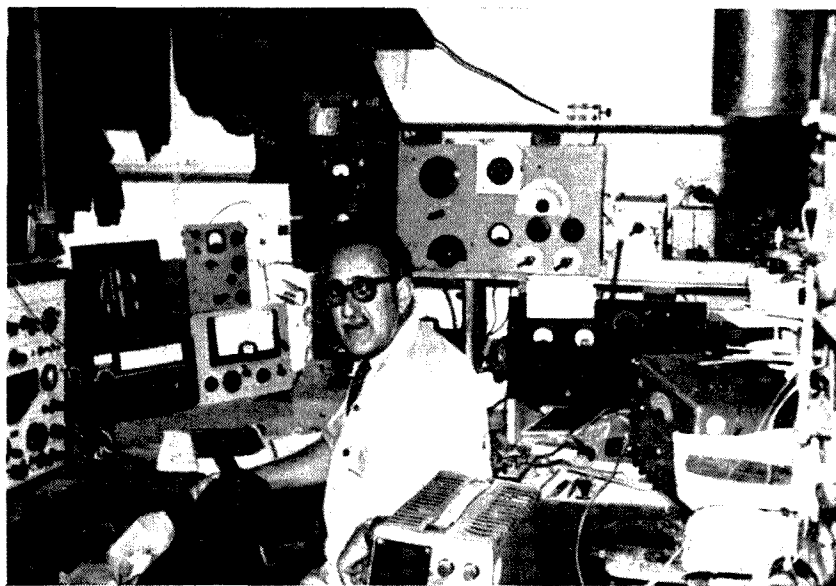
The "r.f." resistance of a dipole therefore decreases in inverse proportion to the square root of frequency, and is therefore only about $1/\sqrt{3}$ or 0.58 of the 145 Mc. figure at 430 Mc.

The radiating efficiencies of such dipoles, constructed of the zinc-coated metal, should be indistinguishable from those of aerials using larger aluminium or copper elements and the diameter of $\frac{1}{4}$ " should be mechanically adequate for all normal element lengths and perhaps even for mounting booms. It is hoped to try such an array shortly when a new 430 Mc. converter has been constructed. ●

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"Radio Engineers' Handbook," F. E. Terman.

VK2AHM—R. J. WHYTE



R. J. (Jeff) Whyte, VK2AHM, is seen in his shack with the equipment used during the 1962 Remembrance Day Contest.

From the left we have, firstly, a Racal RA-17-L receiver, surmounted by a barely discernable Collins TCS transmitter. These were used on 160 metres. Second in line is a Drake 2B receiver; followed by the 32 volt operated receiver, comprising a Gelson front-end (much modified) feeding into a BC453—again with changes to suit 32 volts. Just visible above his shoulder is the dial of the main, remotely controlled v.f.o. (Older Hams will remember VK2AHM's "Steco" v.f.o., using EF50 tubes. This tunes the latest model.) Next to his head is the main transmitter, with an 813 switching from 10 to

80 metres. To the right again is the modulator for same. A pair of 811s, zero bias. Below is the 32 volt operated transmitter, a pair of 807s used for both a.m. and d.s.b.

Above VK2AHM's head is the terminal panel for the eight vee beams and the rhombic that are in general use. Above again, an antenna tuning device and a pair of speakers.

Only a portion of the control panel is visible on the bench. Once switches are thrown there, the requisite receiver and/or transmitter comes under the control of a single, foot-operated switch.

All the a.c. operated gear is powered by a diesel-driven alternator.

VK2AHM concludes, "The Racal and Collins affairs, I regret to say, are not mine."

PERFORMANCE TESTS

(Continued from Page 9)

lays. These non-Amateur stations give little, if any, trouble in this fine mountain spot when a Yagi antenna is used.

The Big Wheel should prove a blessing in many types of 2-metre work, however. If you can take the jibes of pedestrians and passing motorists, a single Big Wheel should give you the best 2-metre mobile signal in your area. If you live in a spot where you can put up only one antenna, and rotators are out, a stacked Big Wheel will make the 2-metre band a lot more interesting for you than it ever was before.

Reports following the appearance of the Big Wheel in "QST" indicate some confusion about the construction of the antenna. Referring to Fig. 3 (previous article), each element (A) runs from the grounded plate (B) to the triangular plate (C).

These two plates are mounted one above the other, at a spacing determined principally by available insulators. Ceramic standoffs 1" to 1 $\frac{1}{2}$ " long are suitable. The Johnson Steatite cone, part 135-501, 1" long, with 8-32 threads, is good. The designers also used a bakelite block 1" long, with molded-in brass inserts, though we do not have a part name or number for this.

The tuning stub (D) is shown bent around a $\frac{3}{8}$ " radius, but this is not critical. Note that the stub length is 5" for a single bay. For a stacked 2-bay system the stubs should be 6" long. In a 4-bay array the top and bottom stubs are 6" and the inner pair 7". For a single bay mounted above a metal car top for mobile work, a 6" stub may be needed. —E.P.T.

MODERN RECEIVER FOR THE AMATEUR BANDS*

Further Circuit Points, Construction and Setting Up

PART TWO

J. D. HEYS, G3BDQ

BEFORE proceeding further, attention is drawn to the following amendments to Part One of this article: In the table of values on page 10 (Oct. '62 "A.R.") R7 (1,000 ohms) and R30 (250K, 1w.) should have been included. Also, on page 13, fourth paragraph, the tuning range of the variable frequency oscillator ought, of course, to have been given as 1955-2465 Kc., and not as stated.

As already explained in Part One, provision has been made for both carrier and product detection. When SW3a is in the s.s.b./c.w. position (see Fig. 2, pages 10 and 11, Oct. issue), h.t. is applied to the 7360 valve (V8). The secondary of the final i.f. transformer IFT4 is also connected to one of the beam-deflecting electrodes (pin 8—see Fig. 2, V8) of the product detector via SW3b. Use is made once again of the cathode tap oscillator circuit and the 7360 valve provides its own b.f.o. injection. L11 was made from a midget LW aerial coil of the type sold for crystal sets, and a few turns were removed to make it tune to 460 kc. when using the capacitors indicated (C65 and C66).

An OA79 semi-conductor diode, D1, is connected from the control grid of V8 to earth and this prevents the grid approaching earth potential. (Without this diode there would be considerable distortion.) Audio output from pin 6 of V8 is taken to the audio gain control R40 through a simple r.f. filter comprising R42, C54 and C55.

With SW3 in the a.m. position V7b operates as an infinite impedance detector, which is really a kind of cathode follower. The blocking capacitor C38 is necessary owing to the possibility of h.t. being applied to the grid of V7b should SW3 not be of the break-before-make type. Audio output from the cathode of V7b also runs through the r.f. filter network.

The grid and anode of V7a are strapped and connected to the secondary of IFT4 through a blocking capacitor C37. A fixed bias derived from h.t. is applied to the cathode of V7a to prevent operation of the a.v.c. circuit when receiving weak signals. The time constant of the a.v.c. system is arranged for a slow decay which enables satisfactory reception of s.s.b. and c.w. signals and renders S meter readings of these fluctuating signals an easy matter.

THE OUTPUT STAGE

The usual precaution of running leads to and from the a.f. gain potentiometer R40 in shielded and earthed wires is

observed to prevent instability and hum. The triode section of V9 is a normal voltage amplifier which is R.C. coupled to the pentode control grid. By using a 500-ohm potentiometer R35 in parallel with R36, it is possible to take off a positive reference voltage for the S meter circuit. This voltage should be equal to the no-signal cathode voltage of V6, which is about 2 volts. Under these conditions the S meter will read zero, although in practice it is better to set R35 to give a meter reading of S2 for more realistic reporting. Signals strong enough to overcome the fixed a.v.c. bias on V7a will cause a reduction in the voltage on V6 cathode and bring up the S

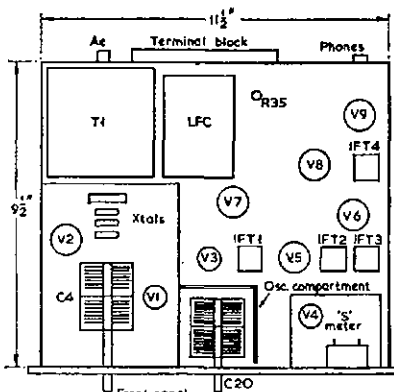


Fig. 3.—Layout above chassis and arrangement of the main items in the G3BDQ receiver—compare with one of the photographs. This drawing is not to scale and is intended for suggestion only.

meter. R41 across the meter enables the operator to set things so that the strongest signal likely to be encountered cannot pin the needle against its stop.

In the circuit diagram (Fig. 2) the headphones and speaker are arranged to operate together. Should phones-only reception be required a shorting switch can be wired across the output transformer secondary. R34 limits the anode current of V9 and whilst hardly affecting the power output, greatly reduces the heat dissipation of the valve.

POWER SUPPLY

A C-core mains transformer acquired cheaply on the surplus market provides power for the receiver; this type of fully screened transformer seems to be much more reliable than the normal drop-through variety and the writer has never had one break down. The 5-volt rectifier filament winding is not used because the silicon diodes D2 and D3 provide h.t. rectification and this all helps to lighten the load on the prim-

• The first part of this interesting practical article appeared in our October 1962 issue, and it will be necessary to refer back to it to follow the discussion here, which concludes the treatment. —Editor.

ary of T1. After several hours' operation the transformer remains cold to the touch. C67 and C68 are high voltage disc ceramic capacitors and help to reduce any mains borne interference. Two one-amp. fuses are used on the input side and a 200 mA. pea bulb serves to fuse the d.c. output. This also affords some protection to the silicon diodes should an accidental short circuit occur.

Two 6.3 volt heater windings are used, one for each half of the total current load. By having a choke input smoothing circuit the output voltage is 200v. which is adequate for the valve types used in the receiver, and regulation is improved. SW3d and SW3e are wired to give "Off" and "Standby" switch positions, centre tap switching being employed.

CONSTRUCTION

The receiver is built around a vented cabinet measuring 13" x 9" x 10" deep. This item, together with a matching 2" deep aluminium chassis and a special 1/2" aluminium panel, completes the cabinet. This type of cabinet is perforated for approximately two-thirds of the total top and side areas. If ordering a similar cabinet it would be as well to ask for a 1 1/2" slot to be cut out at the rear to allow easy access to the terminal block and aerial socket.

Side brackets were fitted to strengthen the chassis assembly and to minimise panel movement. Fig. 3 shows the location of the main components above the chassis, and it will be seen that despite the bulk of the mains transformer and smoothing choke there is no crowding—and see rear view photograph. This can be partly explained by having worked in three dimensions, the front-end and Q multiplier units being "above deck". A large section of the chassis beneath the front end unit was cut away to allow easy access to the cores of the pre-selector coils.

The underside view of the receiver reveals a U-shaped aluminium screen behind which are housed the detector circuits and SW3. It is important that the b.f.o. wiring be kept within this screen to prevent b.f.o. voltages leaking back ahead of the product detector. Should this happen it will give rise to a considerable S meter reading when the b.f.o. is running.

Normal practices should be observed when wiring the receiver. Short direct leads, and the positioning of resistors and capacitors parallel to the chassis sides all help to prevent a rat's-nest appearance. Since the receiver was built some small 0.1 μF. ceramic capacitors have become available, and these could conveniently replace the somewhat larger paper types used.

A word perhaps should be said regarding the finish and appearance of the front panel. Many Amateurs produce

* Reprinted from "The Short Wave Magazine," July, 1962.

efficient and reliable equipment which is unfortunately spoiled by an untidy panel layout. The first consideration is the main tuning dial. Space was at a premium when designing this receiver so thoughts of horizontally scaled slide rule dials were dismissed and a Muirhead instrument vernier dial and slow motion assembly was used. This item is available on the surplus market at a small fraction of the cost of more showy yet often less effective dials. With the Muirhead, logging positions to one part in 1,000 can be noted, and the action is silky and positive with no trace of backlash.

The remaining controls are arranged along horizontal lines and help to give (what is hoped is) the professional touch to a piece of home-built equipment. Chrome-plated bolt heads and lettering transfers add finish to the general appearance.

INITIAL TESTING

Assuming that the front end unit has been built along the lines suggested, and tested, it can be fixed into place on the main chassis. The second mixer and i.f. stages can now be tested, and for this purpose an old BC453 or "Q-Fiver" may be pressed into service. With only V1, V2 and V3 in position the BC453 is loosely coupled to V3 anode and tuned to 460 kc. Signals should be heard, and the top band tuning range is best suited for this operation, there being a number of identifiable stations on at all times. If all is well, V5 can be inserted and the BC453 coupled in turn to its anode. Most i.f. transformers sold these days are pre-tuned to 460 kc. or 465 kc. and very little adjustment of their cores should be needed. If any instability is noticed this must be righted before proceeding further.

V6 is tested similarly, and you must remember to keep backing off the gain of the BC453 as you work along the i.f. strip! It may be that the top-coupled windings of IFT2 and IFT3 cannot be pulled on to frequency with core adjustments. This is because i.f. transformers are designed to work into normal valve inter-electrode capacities, and should this be the case some extra capacity will be required across the i.f. transformer windings in question.

V7a, V7b and V9 should work satisfactorily if they are wired correctly and no special test procedures are needed. The b.f.o. circuit must be tuned so that at mid-setting of C65 (pitch control) it oscillates exactly at the i.f. of 460 kc. Once more the "Q-Fiver" can be used to achieve this.

It should now be possible to use the receiver on an aerial and there only remains the correct setting up of the S meter circuit and the testing of the Q multiplier. The latter must be tuned to the centre of the i.f. passband by adjustment of its coil core and by the pre-set capacitor C47. V4 should just go into oscillation at one end of the track of R33. If it fails to oscillate the values of R30 and R31 may be changed to increase the anode voltage of the 6CW4 valve.

A point not to be overlooked is that the receiver is designed to work with a low impedance aerial input. This may entail the use of an a.t.u. should the station aerial be a long wire or the proverbial "piece of wet string". The receiver will certainly work with a bit of wire tucked into its input socket, but first class results cannot be expected when used in this way.

CONCLUSION

A muting system has not been incorporated in the design as shown here,

for most Amateurs have their own individual send/receive systems and can adapt the circuit to suit their particular station switching arrangements.

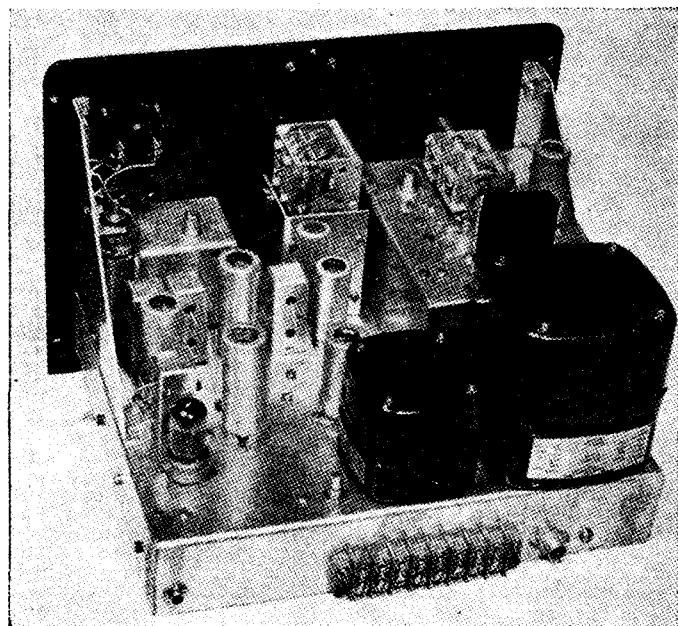
Although many receivers have noise-limiting devices or circuits, the writer has never found it necessary to use them at his QTH except when operating on ten metres or the v.h.f. bands. If the constructor has a particularly noisy location there are many effective and tried circuits which could easily be incorporated in the design.

Whether the whole receiver is constructed or whether instead only certain sections or ideas are borrowed from this article, the writer feels sure that the results obtained will be well worth the effort. Only the usual hand tools were used for the constructional work and a small square-topped wooden stool served as a workbench. This was because of the normal state of the real workbench, it being cluttered with numerous pieces of gear finished, unfinished or abandoned!

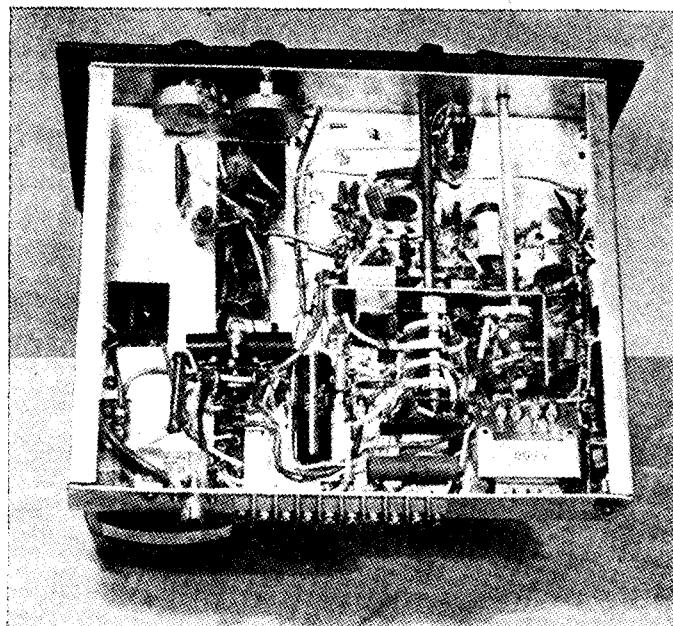
The completed receiver has now taken over the function of main station receiver; the trusty AR88 has been relegated to stand-by and other secondary uses.

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Rear view of the 9-valve double-conversion Amateur-band receiver designed and built by G3BDQ. The C-core transformer and choke are both inexpensive surplus items. All parts used, including the latest valves incorporated in this design, are catalogue items obtainable from Amateur Radio supply houses.



Underside view of the Amateur-band receiver, showing screened compartment for the product detector and b.f.o. circuitry, using a 7360 in this position. Extension rods connect the function switch (SW3 in the main circuit) and the b.f.o. control with their knobs on the front panel. Output transformer T2 is in lower right-hand corner of the chassis, and the pea-bulb serves as an h.t. fuse.

AN EASY WAY TO SHIFT COMMUNITY CRYSTALS

FOR many years now, large quantities of crystals have been available from disposals sources at relatively cheap prices. Many of these have been pounced upon by v.h.f. enthusiasts, particularly those with frequencies between 6 and 9 Mc., and used in converters and transmitters.

With the large amount of activity by stations using crystal-locked transmitters, particularly on 144 Mc., it is quite noticeable that a large number of Amateurs possess crystals on the so-called "community" frequencies. A good example of this is the 8036.25 kc. crystals producing output on 144.6525 Mc. in the two metre band.

Several Amateurs have successfully ground, or etched, these crystals to higher frequencies. But the majority of owners either put up with QRM. or put the crystal aside in favour of another which produces output on a clearer frequency.

The obvious answer to this would seem to be to use v.f.o. or v.x.o. control and these methods have much to recommend them.

However, another method of frequency shifting can be used quite successfully. This is the adding of lead, "Brasso," "Silvo," etc., to the surface of the quartz crystal slab. Although this method lowers the frequency of operation, it has several advantages over the grinding or etching methods.

(1) If it does not work, you just scrub the crystal slab in warm water and it will revert to its original frequency, none the worse for wear (unless of course you have been clumsy enough to break it).

(2) If the new frequency becomes inhabited by stronger stations, you can easily shift frequency again to another clear (?) spot.

(3) If, when trying to put the crystal on a specific net frequency, you go too far, all you have to do is wash the crystal and start again.

About the only disadvantage is that over a period of time—something over one to two years—the crystal may drift slightly in frequency, although one of my crystals has apparently remained stable over a period of at least two years.

For relatively large excursions in frequency—up to 300 Kc. on 144 Mc. using an 8 Mc. DC11 holder crystal (slightly less with smaller crystals such as the FT243)—"Brasso" or "Silvo", etc., seems to be best.

After pulling the slab out of the holder, it is advisable to wash it thoroughly with a tooth-brush and warm water. Do not use soap because it is difficult to remove completely when drying the slab, and it may have peculiar effects in the way of frequency drift.

After drying thoroughly with a lint-free cloth, apply a coat of "Brasso", etc., to one side. Allow to dry for several minutes and then polish with a cloth.

Then place the slab back into the holder and check the frequency. If it won't oscillate, take it out again and, polish some more, adding more "Brasso" if necessary.

Too thick a coat may also retard oscillation and it may be necessary to wash the slab and start again. This will also be necessary if the crystal oscillates on two frequencies. However, nine times out of ten the crystal will work satisfactorily at the first attempt.

If you want to move it slightly lower in frequency, more polishing of the existing coat will do the trick. This seems to hold true even after a period of several months. But, if the frequency is too low, it will be necessary to wash the crystal slab clean and then apply a lighter coating of "Brasso", etc.

Most of my crystals have operated on numerous frequencies over the last 2½ years, but the current resultant frequencies on two metres are 144.440 Mc. for a crystal normally producing output on the "community" frequency of 144.6525 Mc., and 144.097 Mc. for a crystal normally on 144.1825 Mc.

If it is only required to lower the frequency of operation a few kc. on the output frequency, it seems preferable to use lead from a soft pencil, solder, etc., and apply short strokes to the centre of the crystal slab.

In my case a crystal on 7940 kc. was etched to a frequency slightly higher than that required to produce output on the desired net frequency of 144.500 Mc., and then brought down to zero beat by applying short strokes from a soft—4B—lead pencil.

These methods of shifting crystal frequencies may seem strange, but they have been used for many years in various forms, and they do leave large margins for error.

I hope that a number of v.h.f. Amateurs read this article and try the methods outlined. If so, maybe there will be fewer pile-ups on the "community" frequencies.

See you on "two" on "Brasso" control.

—Bill Roper, VK3ARZ.



Trade Review

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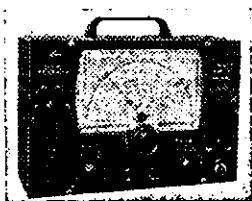
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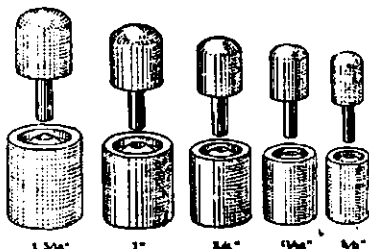
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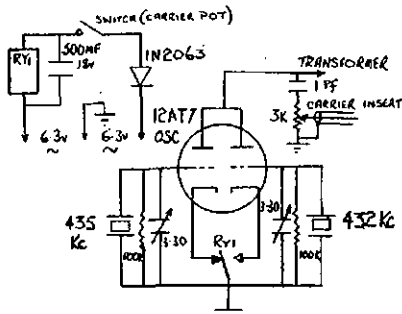
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Viceroy Mark I. Modification to Invert Sideband as required

Parts required:—

- 1 Carrier insertion pot., 3K, with push-pull switch, 1 make contact (see text).
- 1 100K $\frac{1}{2}$ w. resistor.
- 1 3/30 pF. Philips' trimmer.
- 1 S.p.d.t. relay (unit out of Command tx is suitable).
- 1 3-tag resistor strip with 1 earth.
- 1 Rectifier IN2093 or equivalent.
- 1 Condenser, 500 μ F. 18v. d.c.w.
- 2 Crystals, FT241 Chan. 33 or 34.

THEORY

The crystal filter in this unit operates normally by selecting the lower sideband of a 435 kc. crystal oscillator. If this oscillator is changed to 432 kc., the same filter will select the upper sideband and sideband inversion will result. (Note the virtual carrier frequency will be lowered 3 kc.)

This change of frequency can be easily obtained by using the spare section of the 12AU7 oscillator valve in the Mk. I. version of the transmitter, as shown in the schematic.

The method is as follows:—

- (1) Mount the relay by drilling two holes for the mounting in the rear lip of the chassis near the crystal oscillator section on the right side of the unit and as close to the deck as possible without fouling any wiring.
- (2) Remove the earth from the cathode of the existing tube and connect cathode to the normally-made contact of the relay. Earth the master spring and connect the cathode of the new tube section to the normally open spring.
- (3) Mount the crystal socket on a stand-off directly above the tube on the rear lip of the chassis. Connect one terminal to grid of new section and other terminal to earth. Also connect 100K resistor and 3-30 pF. condenser in parallel.
- (4) Join the two plate connections together.
- (5) As there are two 6.3v. filament connections to the chassis, check the phasing of these so that 12.6v. is available across the two.
- (6) Connect (using earthed screened wire) the 6.3v. that supplies the fan, to one terminal of the relay coil.

(7) Remove the 2K carrier insertion pot and replace with the new unit complete with switch. Wire the pot. the same as the one removed.

(8) Connect the second terminal of relay to one terminal of the switch (use earthed screened wire. I soldered mine to the chassis at about 3" centres round the left hand edge of the chassis. This keeps it well out of any h.f. fields.)

(9) Mount the resistor strip on the front of the chassis under the mounting screw at the right of the compartment.

(10) Connect the second terminal of the switch to an insulated terminal and then fit the rectifier between this terminal and the other 6.3v. fl. feed-through condenser.

(11) Run a second screened wire (soldered to the chassis) from the first terminal of the relay to the second insulated terminal of the terminal strip.

(12) Connect the 500 μ F. condenser across the two terminals of this strip (check polarity).

(13) Fit the new oscillator crystal, and new filter crystal in parallel with the 435 kc. crystal in the filter.

(14) Connect power and check the normal sideband, pull the carrier insertion pot. to invert the sideband. (Some FT241 crystals will not oscillate and I have changed the oscillator valve to a 12AT7.)

I had difficulty getting a 3K pot. with switch, so I obtained a 3K Ducon 500K with switch and a 3K Ducon tab. pot. and then changed elements. takes about five minutes.

Checks made on the air using a channel 33 crystal, gave good reports on quality and sideband suppression although the frequency is theoretically slightly low. Similarly a channel 34 is slightly high, but either should work fairly well.

S.S.B. CONTEST

The week-end of March 30/31 has been set aside for the popular annual "CQ" World-Wide S.S.B. Contest. At the time of writing, no details are available of this event. However, I should have the information very soon. If you are interested in participating in this shindig, you have just four weeks left in which to get your station operating at top efficiency. The special "CQ" log forms and a copy of the rules will be available on receipt of a stamped addressed envelope. Please take note that I have a new address which appears on this page. To save you time and the bother of writing a letter, just mark your envelope "CQ SSB" and make sure that the return envelope is at least 9 x 4 inches in size.

CONFUSED?

Are you intending to use the PA0FM balanced modulator in your new exciter? At least one amateur, Dick VK-2AOC, of Byron Bay, is using this circuit and reports that it worked very well first try. If that extra line from the left of the ground point in the circuit on page 19 of Sept. 1962 "A.R." has you wondering, don't worry about it—it was a slip of the pen. The 47K

grid resistor goes to the moving arm of the potentiometer in the cathode circuit and not to ground.

20 METRES AGAIN

Remember some months ago when the 20 metre sideband sub sections were subjects of hot debate? Should all the DX move to the low end of the phone band? Should W/K stations leave a few kc. at the high end for rare DX and DX-peditions? The situation in this part of the world seems to have settled down to the old pattern that we knew before the extension of the U.S. phone allocation. Most s.s.b. activity seems to be taking place from 14,260 to 14,350 kc. with occasional contacts being made in the 14,100-14,140 kc. segment. If stations in North America were evident during the usual operating times, the situation might be quite different.

Recently at Portland, Oregon, during the combined A.R.R.L. National Convention and the Eighth Annual Pacific Northwest DX Convention, the subject of 20 metre s.s.b. occupancy was discussed and it was approved by a large majority that "all 14 Mc. W/K s.s.b. stations operate from 14.2Mc. up." The reasons given are of great interest.

"The number of a.m. stations from 14.2 to 14.25 Mc. has been greatly decreasing in number, and there is a large void from 14.2 to 14.25 Mc. This decrease in a.m. with the rapidly growing number of s.s.b. stations makes this eventually inevitable and practical at this time. These recommendations should be initiated immediately and a rapid and decisive move of s.s.b. stations to the low end of 20 metres should be started as soon as possible. It was also recommended and this is of interest to you and me, that "DX phone stations operate below 14,200 kc. and listen from 14,200 kc. up" and that "an educational programme should be started immediately to advise all DXers and DX stations of this suggestion."

(Continued on Page 18)

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SIDEBAND TOPICS

(Continued from Page 17)

The foregoing was reported by Irv. and Dorothy Strauber in the s.s.b. department of "CQ" magazine. They go on to say that with the large number of Amateurs in the United States leaving a.m. and going to sideband, and with so many newcomers starting phone with s.s.b., it is becoming apparent that with the division of the 20 metre band at present, the lower end is becoming increasingly more deserted, while at the higher end, the opposite situation obtains.

Here in this country. I feel that we would do well to follow these suggestions. The presence of s.b. stations from 14.2 Mc. down is not going to make much impact on the a.m. stations' capabilities to work DX, principally because the a.m. DX is almost non-existent with present conditions, which you must keep in mind, are still deteriorating. Also the a.m. and s.s.b. compatibility has been proven on the 40 metre band.

A concerted effort by those of us who use 20 metres for DX contacts would quickly establish the old methods used before the coming of sideband. For those of you who have no experience of this, the 20 metre band was segmented as follows:—

- 14.0-14.1 Mc. C.w.
- 14.1-14.2 Mc. DX (i.e. non-W) Phone.
- 14.2-14.3 Mc. W Phone.
- 14.3-14.4 Mc. C.w.-DX Phone.

The present suggestion is for a return to this plan with W/K phone extending from 14.2 to 14.35 kc. In the past, this plan worked extremely well and would now have an added advantage in bringing a.m. and s.s.b. together. When was the last time you contacted an a.m. station on 20 mx? Your thoughts on this matter would be appreciated.

HOW MANY?

Do you know that Comps VK5EF keeps a sideband register. This register is a record of those of us in this country who are using the modern method of phone transmission. As at the end of January, 1963, the number of s.s.b. stations by States makes interesting study. We cannot vouch for the accuracy of these figures (they are always increasing), but they are as correct as Comps can ascertain:

VK1 4	VK6 15
VK2 113	VK7 5
VK3 97	VK8 2
VK4 32	VK9 5
VK5 36	

N.S.W. is still holding a healthy lead. Are you sure that your call is in the Sideband Register? If not, send your card with brief details of your equipment on it to Mr. E. C. Daws (VK5EF), East Terrace, Gawler, S.A.

BOOK REVIEW

The A.R.R.L. has published the third edition of their popular "Single Sideband for the Radio Amateur". I am sure that this edition will be just as sought after and as useful as the last two have been. The manual is still a digest of articles that have appeared

in "QST" and while retaining quite a few earlier items on basic theory, many new articles have been included.

The chapter headings are the same as the previous editions but the material is very much up-to-date. The 7360 tube is given full treatment, modifications to old faithfuls like the Sideband Package and W2EWL phasing generator follow the original articles. Several new linears appear and the v.h.f. gang are not overlooked.

If you regularly receive "QST," you will not find anything new, but it

certainly is convenient to have all this excellent information between two covers.

If you are a newcomer to s.s.b. or thinking about joining the ranks of a large number of satisfied customers, you should not be without this new addition to the Amateur library, the latest and most modern sideband manual yet published.

My copy came direct from A.R.R.L., West Hartford, Conn., where the price is \$2.00 (U.S.). It should be available in Australia by this time at about 30/- per copy.

TWO NEW AWARDS

The Kroonstad DX Club has among its members the foremost DXers in that area including ZS4MG, ZS4IO, ZS4U, ZS4LK and ZC4CO. In order to recognise outstanding achievements and all round operating ability in the DX fields in both phone and c.w., the Club has instituted two awards.

6 X 6 AWARD

To qualify for this award applicants must have proof of QSO with six different countries on each of the six continents. Of these six countries, three must have been worked on phone and three on c.w. (18 different countries on c.w. and 18 different countries on phone.)

Stickers are available for 12 x 12 and 18 x 18 under the same conditions as above, i.e. half to be worked on c.w. and half on phone.

The 6 x 6, 12 x 12, and 18 x 18 are recognised by the Certificate Hunters' Club as three separate awards.

6 IN 6 AWARD

This award is for working the six continents within a period of six hours and is available

on a c.w. only or phone only basis. Each award is given for one band only—no mixed band working is allowed. Therefore the following different awards can be claimed: 28 Mc. phone, 21 Mc. phone, 14 Mc. phone, 7 Mc. phone; 28 Mc. c.w., 21 Mc. c.w., 14 Mc. c.w., 7 Mc. c.w.

No contacts made during any contest will be allowed and the application must be endorsed to that effect by the applicant.

For both the 6 x 6 and 6 in 6 awards, it is not necessary to send any QSLs if the application is countersigned by two other Amateurs, or Radio Club official, that the QSLs have been seen by them. However, the Kroonstad DX Club reserves the right to request any QSLs.

Both these awards are also available to Short Wave Listeners under the same conditions.

The cost of each award is five I.R.C. by surface mail or 10 I.R.C. (1 dollar in case of U.S.A.) for air mail.

For both awards apply to the Secretary, Kroonstad DX Club, P.O. Box 378, Kroonstad, South Africa.

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Very few v.h.f. Amateurs, whose transmitters are crystal locked, have facilities available to conveniently allow them to check their frequency in relation to other signals in the band. All v.f.o. controlled transmitters have (or should have) this facility which is known as the "net" or "spot" position.

All that is required is that the oscillator be made operative, either by a third position of the T/R switch or by a separate control, so that a signal can be heard in the rx and the operator is able to "spot" his frequency against adjacent stations. This should be done every time you answer a CQ or give one.

If there is a station already operating on the frequency, the correct thing to do is to stay off the air or switch to another crystal, once again checking its position in the band. If another station is using the frequency you normally use, leave him be. He was there first. Do not try and blast your way through over the top of him. This is a shocking practice and happens far too frequently.

There are large expanses of vacant frequencies in all our v.h.f. bands so there should be no reason for heterodynes caused by adjacent channel interference.

Unfortunately the only notes that had arrived prior to writing this were those from Roy 9AU and Al 5ZCR. Would all scribes please note that their notes should be posted to me no later than the first day of the month preceding publication. 73, 3ARZ.

VICTORIA

50 Mc.—This band was reasonably good during Jan. On Jan. 14 it opened to VK2, 4 and 5, ZL, and a VK6 mobile. Jan. 19 open to northern VK2 and southern VK4. On Jan. 20 there were patchy conditions all day with the band in and out to northern VK2 and southern VK4. At approx. 1500 hrs. E.A.S.T., 4ZJS at Longreach was worked and at 2000 hrs. a VK6 at Kalgoorlie. Again on Jan. 22 at about 1300 hrs. E.A.S.T. it was open to northern VK2 and southern VK4, as it was on 26th and 27th also.

New stations on 50 Mc. include Graham 3ZAA at Essendon, David 3ZOP at Moorabbin, Gordon 3ANM at Rockbank, and Dennis 3ZLY at Flemington. Ken 4ZGX, who has been portable at Hampton, but should have his VK3 call by now, will be located at Beaumaris. Bill 3ATW hopes to be on 6 mx soon from Hampton. Vic 3ZNN at Pascoe Vale has appeared on the band and is using 20w, to an 815, a two element beam and a four tube converter. Bert 3ZGD has made a return to this band with mobile equipment which includes a v.f.o. controlled tx.

The Jan. 6 mx scramble was held on Sunday, 27th Jan., at 7.45 p.m. Fifteen stations participated and the winner was Ken 3ZNNJ. The March scramble will take place on Sunday, 24th at 7.45 p.m.

144 Mc.—Several new calls were heard on 2 mx during Jan., but the only one we have any information about is Peter 3ZPC, at Ormond. He is using a R. & H. converter, a turnstile antenna, and is running 20w, to a 522 tx. Ian 3ZMH at Queenscliff, Eric 3ANQ at Warrnambool, Gordon 3AGV at Colac have been active on the band and Melbourne stations should keep an eye open for them as well as Ron 3ZER at Ballarat and Col 3FO at Maldon. Two other very active country stations are Maurice 3ZOL and Alan 3ZNB at Anderson. Ron 3OM should be back on the band shortly and Fred 3ZNT should soon have his mobile gear operating.

The Feb. 2 mx scramble was held on Sunday, 10th, at 7.45 p.m. Ron 3ZIW was control station and 21 stations participated—none of them country stations. Winner was Bill 3ARZ with 16 contacts and 3ZOH and 3ZNV were equal second with 14 contacts. The March contest will be held on Sunday 10th at 7.45 p.m. The Jan. 2 mx fox hunt was run on Wed. 30th with Tom 3AOG piloting the fox car. Winner was Bill 3ARZ. The March fox hunt will take place on Wed. 13th commencing at 8 p.m. from College Cres., at the rear of the Melbourne University.

The Jan. v.h.f. Group meeting, held at the W.I.A. rooms on Wed. 16th, saw 45 members in attendance. A large amount of business was discussed and then Bill 3ABP gave a

very informative lecture on how antennae, particularly yagis, worked. Supper was then served and the meeting closed sometime after 11 p.m. The March meeting will be held on Wed. 20th at 8 p.m.

I wonder how many VK3 Amateurs realise that there is an attractive certificate available to those who can produce 100 QSL cards confirming QSOs with 100 different stations on frequencies above 100 Mc. Claimants should apply to the V.h.f. Group. 73, 3ARZ.

SOUTH AUSTRALIA

50 Mc.—As these notes are read the VK5 beacon station should be operational, its frequency is 50.5 Mc. (for further data see "A.R." for Jan.). The beacon has been undergoing extensive tests at the QTH of "Le Patron" 5LA, and as we write it is only a case of obtaining the correct crystal and installing the rig at Mt. Lofty.

The thanks of the Group are extended to Bob 5ZDX (keying mechanism), Rick 5ZDQ (antenna), Bob 5ZFG (r.f. deck), Alf 5LA (power supply and keying electronics), and Brian 5TN. The Group's thanks should also be extended to several large organisations who contributed parts (albeit unwittingly). Premium quality components are used throughout and the tx keying is entirely electronic (although programmed mechanically).

New chaps on 50 Mc. include Bert 5ZDU at Rose Park, running 60w, to a 6/40. DX for Jan. was very good during the first portion of the month, but fell off thereafter.

144 Mc.—Biggest news on this band is 2ZGC at Broken Hill (270 miles). This chap is on 144.25 Mc. and although no equipment details are on hand, he must be quite well set up as he has so far worked three Adelaide stations (5AW, 5RO and 5ZDR). Now daily skeds are held between Adelaide and Broken Hill, between 7 and 8 a.m. C.S.T. and these skeds are successful a high percentage of the time. Other chaps are welcome to listen and call during these sked times as it is understood that the contacts into Adelaide are the only ones 2ZGC has had. Of course the Broken Hill station will have his antenna on Adelaide for these skeds, and this will not favour VK2 or VK3, but the Mt. Gambier gang may find it well worth while keeping an eye out.

A brief ionospheric opening occurred on 144 Mc. during 12th Jan., 1963. 4ZAX and 4ZAZ heard VK5s and vice versa, but no QSOs resulted.

Snowy 5NW at Crystal Brook has put up a 10 element yagi on 2 mx (144.17 Mc.) and hopes for even better signals into Adelaide (180 miles). Also at Crystal Brook, and believed to be much better located than 5NW, is 5BG. This operator has not been heard yet, but his 2 mx gear is going and it will be interesting to compare his signals with 5NW's. 5BG's freq. is not known yet.

David 5AW has a 40 element array going on 2 mx (4 x 10 element Yagis) and a new 6CW4 converter. David is now well and truly organised after a period of inactivity following his move from Fenola. Another Elizabeth Amateur, 5DY, has been heard on 144 Mc. Brian 5ZBR now has 2 x 10 element Yagis on 144.

General News.—Les 5ZLS, accompanied by Colin and Trevor, are Mt. Gambier chaps who have been staying in Adelaide for a couple of weeks in Jan. They have gear on 6, 2 and 1 mx and are having numerous contacts, both portable and mobile. Activity in Mt. Gambier is at a high level according to these chaps and contacts on 144 Mc. as far as Melbourne have been reported.

Bob 5ZDX is getting mobile gear going on 6 mx. What happened to the s.s.b., Bob? Hughie 5BC has been very active recently and has been working Adelaide stations on 2 mx, including chaps in the difficult Eastern suburbs (5BQ and 5ZCR). Brian 5ZBI, of Maitland, is moving soon to Clare. Curl 5ZBL is now 5CL and 5ZDN is now 5JQ.

Joe 5ZCP at Whyalla has built himself a 50 ft. tower and hopes to work into Adelaide on 6 and 2 mx. Doug 5KK is now well and truly resident in Darwin; he has been worked by one well-loved local on 21 Mc. and informs the gang that he is operational on all bands 80 to 6 mx. (Call 8KK now, of course.) Doug's antennae were limited at the time of

writing, but he hopes for improvement here. Mick 5ZDR looks like taking out the Ross Hull for VK5. Your conductor has built a transistorised v.f.o. for 50 Mc. (2 x OC171). Now let the mains voltage do what it likes! 73, 5ZCR.

PAPUA

50 Mc.—With the exception of 1st Jan., on which VKs 2, 3, 4, 5, and 7 were worked, no signals were received in Port Moresby during the month. This was partly due to the fact that I was absent from the home QTH for 10 days early in the month. 9ZEV/P (Rabaul) who has since returned to Moresby, reported openings to VK on two occasions, although no stations were worked, and TE scatter 49 Mc. signals on one afternoon for several hours at S9 plus. Paul advises that he has interested two stations at Rabaul in 6 mx operation and that their signals may be heard in the near future. No further information on this at present. Also it is hoped that another VK9 Papua station, approx. 100 miles from Moresby, may be operative within six months when equipment becomes available. No further news from Jim 9AS at Wewak, T.N.G., who should be back from his leave before these notes appear in print.

144 Mc.—No activity during the month. 9AU listened during Dec. when the VK4/VK5 openings occurred and also carried out a test with 4ZAX without result.

T.V.—Channel 2 viewed on 16 days, signals being from ABQ2 and ABS2, also ABT2 and ABV2 on 1st Jan. 73, 9AU.



Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

ROSS HULL CONTEST

Editor "A.R.," Dear Sir,

From an S.w.'s. or my own observations on the Ross Hull Contest of 1962/63 I find that there is not enough support considering the number of Z calls registered. One finds a few very keen contestants while the majority say, "I'm not in it, but will give you a number," then amble on re their rig and general doings instead of letting the other chap get more contacts and points. A good lesson in contest procedure can be learnt from VK4 contestants.

Recently I heard a VK2 full call operator suggesting to a Z call against v.f.o'ing on to the ZL frequency because the strong VK signal may cover the weaker ZL carriers, and stop a contact. On a number of occasions I have heard the same full call chap in contact with ZL on 51 Mc. going into lengthy detail of his trips to that country while many of the limited call chaps lose a chance of the only DX to be had by them. If he wants to rag chew, why not go to the frequencies of which the Z calls cannot use, or get his contact and give the other lads a fair go.

With reference to the scoring system in the Ross Hull Contest, I consider that the old system or one similar to the R.D. would be preferable to the present method. The single point is an advantage to the chaps in and around the metropolitan areas and quite a handy number of points can be had, while the operators in the outlying districts have to rely on band openings. This I think keeps quite a few out of the contest. The present system with a really good v.h.f. season, plus the mileage problem, and naturally big scores, must give the Contest Committee a lot of work, which being voluntary, could be made easier by a more simpler system.

—Chas. Abernethy, WIA-L2211.

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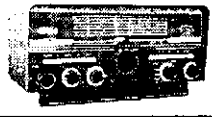
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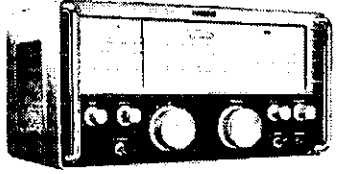
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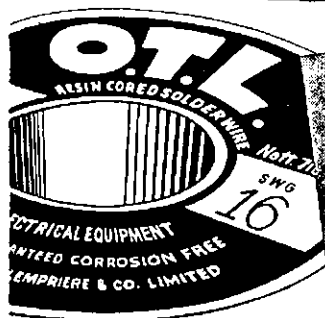
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Hi there fellow dial-twisters! This month I would like to say a word or two to the newcomer to the s.w.l. ranks.

When you first begin to send out reports to a station, do not be too hasty to get that report off without first considering whether your report contains enough detail. Make sure your report contains the following: Time (GMT should be used when reporting to an overseas station), date, signal report. The report should contain information of the QSO that you heard. Also if possible, the signal report that the transmitting station gives to the station he is working, and any other details of the transmission that you consider would be of interest.

Be courteous and friendly in your report. Give details of your equipment and of your location. A self addressed envelope is always appreciated. If you are sending to an overseas station, it is suggested that where possible to include an international reply coupon.

There are times when a station may be having trouble with his tx, if so report what you hear. If a station is only S3 to 4, well give him that report, and not an S8 to 9. Naturally he will appreciate an accurate report. We take a very serious view of false reports being sent to stations.

What has become of many of you fellows that used to send us news of your activities? No doubt some of you now have call signs, but there are many that have not. But even if you are on the air, don't let this prevent you from writing to us now and again.

It has just occurred to me that if there are enough of you who listen on the v.h.f. bands, how would you like us to start a v.h.f. ladder as well as our usual DX ladder? Anyway, fellows, let's have your ideas on the subject.

VICTORIA

Maurie, our President, Ron Young and Ian Thomas have been flat out in the Ross Hull Contest. Ron recently put up a cubical quad for 50 Mc. and is very pleased with it, while Maurie threw up a folded dipole 38 ft. high and has really been pulling in the DX on it.

The DX ladder has really been given a shake by that old DX hound, Maurie. He has been getting something like four new countries verified each month. An interesting one heard the other day at your scribe's QTH was ZS6VX who was mobile in ZS1 land. But generally conditions have been very poor on the DX bands. Several interesting Russian stations are being heard on the short path of an evening. Those of you who do not listen to s.s.b., and only to a.m., are certainly missing out on much DX, plus the fact that the QRM position is far less than with a.m.

At our monthly meeting it was decided to start an organised monitoring of the bands. The first run will cover 7 Mc. The idea being to listen on the band every Sunday for a month between 7 and 7.30 p.m. Then we will compare notes at the next meeting. It certainly is a good idea of yours Tom, and we hope to have further activities along these lines providing we have good support from our members. So go to it chaps and see what you can hear. We were pleased to welcome two new members at the meeting. They were Michael and Robert. Pleased to have you with us boys and hope to see you at our future meetings.

Craig Cook has taken over the position as publicity officer, so would you kindly send any news you have for the weekly broadcast directly to him. Any news at all will be very much appreciated I can assure you, so go to it and let Craig know what you have been hearing.

It has been decided to hold our Convention now in April. Due to a number of reasons, the main one being that as the State Convention is being held in March, we felt that it would be better to have ours a bit later.

I feel that if I have not received any information on your scores after a period of three months, I think it is only fair your name be withdrawn from the ladder until I hear from you again.

INTERSTATE ROUNDUP

Chas Abernathy has recorded a good score in the Ross Hull Contest, however he tells me he has been encouraging a friend of his who is a newcomer to the s.w.l. ranks, and he (the newcomer) amassed a much higher score in

the Contest. Nice going there young fellow and with a score like that you fully deserve to win the Ross Hull. It is very good of you Chas to give your time to encourage the newcomers to the s.w.l. ranks. Chas has the distinction of possibly being the first s.w.l. in VK to have confirmed all ZL districts on 50 Mc. Nice work, Chas, and congratulations. Recently Chas received his certificate for the 1961 R.D. Contest.

Eric L3042 has recently returned from a holiday in VK6 and reports that he and his XYL had a very good time. Recently Eric received the B.E.R.U. award for being the outstanding s.w.l. for 1962. Congratulations on such a wonderful effort. Eric received 562 QSLs last year from 108 countries. Many thanks for your very interesting letter, Eric.

Noel Harrison, L3101, despite his recent illness, comes up with a nice list of DX heard. Noel assisted 3WC to erect his Thunderbird TH4 recently. At present Noel is flat out learning c.w. So watch Eric for some competition from Noel in the future. Noel's rx is working very well on s.s.b. and some good DX has been heard. Noel reports that EA4GZ was his only QSL for the month. While your scribe only receives ZL1ABZ from the Kermadec Islands. Noel is one of the few people that has managed to obtain a QSL from W1BCR—this card is some 35 years old and is rather an antique.

Our good friend Peter Drew, L6021, has been busy battling with the DX on most of the bands over the past month. Peter listens at night on both 7 and 3.5 Mc., however he is finding the QRM rather a problem and as a result he has been QSYing to 3.5 and listening to the Ws. How do you manage to put up with the static at this time of the year, Peter? He has been kept busy with letters from a number of American s.w.l.s. and Hams. Very pleased to hear from you Peter and keep up the good work. Now come on you other Sandgraspers, how about giving Peter some support?

So until next month, 73, Mac Hilliard.

DX LADDER

	Countries	Zns.	S.s.b.	W
	Conf.	Hrd.	Conf.	Hrd.
E. Trebilcock	277	283	40	— 50
D. Grantley	112	252	38	16 97 34
A. Wescott	84	159	31	9 107 11
M. Hilliard	71	215	33	13 129 11
M. Cox	63	220	29	30 136 16
C. Abernathy	44	85	27	— 14
F. Drew	43	183	21	15 111 9
N. Harrison	40	102	27	2 14 29
I. Thomas	29	134	18	8 88 11
P. Fields	26	133	—	— —
D. Jenkins	10	144	7	— —
H. Burger	6	185	5	1 19 —

YOUTH RADIO CLUBS

Y.R.C. fortunes in VK2 go on to greater and greater strength, especially now that the High Schools have resumed activity. Note the facts—more than 40 clubs, 60 elementary certificates, 6 junior certificates, 2 A.O.C.P. (and four more probables), but this is in VK2! I am making enquiries in other Divisions to check my information—you may have to pardon my vitriol.

Hints to Club Leaders: Fathers don't take kindly to laying out £10 or so for a boy to start a hobby—boys commonly give away other hobbies in a few weeks. Try to get all the old but serviceable parts you can store. Radio service shops will help by giving you old sets normally thrown on a rubbish-heap, provided you guarantee not to do them out of any business. You can assume any place handling electronic equipment has something to throw away. Finally, issue it free to genuine experimenters but write it in a book and call it back if it is not properly used.

News jottings: The first VK6 registration of a Y.R.C. is the First Kalamunda Boy Scout Group—probably a transmitting type club with assistance from local Amateurs. Let us know about it—and stir up some others.

Auburn (N.S.W.) Senior Scout Group hopes to start a Y.R.C. to supplement Scout training, with assistance from Jim VK2AMQ.

We're proud of the scholastic success of our members—Commonwealth Scholarships to George Barnes, of Caringbah, and Vince O'Donnell, of Wahroonga (N.S.W.), son of Tom VK2OD. There must be more, so let us know about them.

VK5EQ says Port Pirie Amateurs are forming a radio club and propose starting a Y.R.C. in the high school. Is there any help at Divisional level?

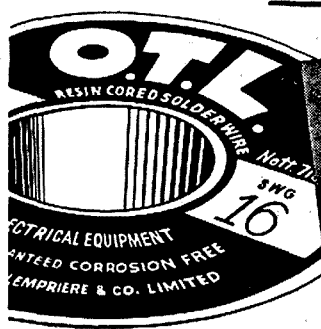
Barrie VK4LN is starting a Y.R.C. in a Gympie (Qld.) Boy Scout group.

Frank VK2IZ, who established the Y.R.C. at Bass Hill (N.S.W.) High School, is now in Armidale and proposes to repeat the pleasant experience in a Boy Scout Group.

Don Reed (ex VK2DR), now Government Radio Officer on Christmas Island, Indian Ocean, proposes to start a Y.R.C. for Chinese and Malayan lads and correspondence with Y.R.C. members in VK would be a great help. Don's new call sign is VK9DR.

73, de Ken VK1KIM.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Jack Kear, ET3JK (home call W3MCB) gives the following details of the set-up at Addis Ababa. He will be there for 18 months and is using a quad 52 ft. high. The QTH is 8,000 ft. above sea level. His QTH for direct QSL is P.O. Box 654, and if a direct reply is desired an I.R.C. must be enclosed. They QSL 100%, but via Bureau unless an I.R.C. is supplied. An alternate route is via K3HQJ.

Recent changes in the A.R.R.L. Bureau set-up are: W/K9, Ray Birren, W9MSG, P.O. Box 510, Elmhurst, Ill.; VE3, R. H. Buckley, VE-3UW, 20 Almont Rd., Downsview, Ontario.

Geo Barrett, 5B4IP, advises that the Cyprus QSL Bureau is located at P.O. Box 216, Famagusta, Cyprus.

The Tiger A.R.C. advises of the following new Awards: W.A.T. for two-way communication with four of its members after 13th Aug., 1962. Certified list with 12 I.R.C. is required. Present members are AP5CP, JA, AH, SS, WA, AP. Confirmed contacts with nine Pakistani stations (since 13th Aug., 1962) located in West Pakistan and four members of T.A.R.C. in East Pakistan. Cert. list and 12 I.R.C. for this one. All mail to Mohd, AP5CP, Dacca Signals, Dacca 6, East Pakistan.

The following is the dope on the Yasme foundation which is a non-profit corporation. The Yasme foundation is in support of the Yasme DX-pedition now under way. A five dollar contribution, sent to KV4AA or W8EWS will bring you the Yasme Newsletter each month for one year, keeping you abreast of all Yasme moves and plans, plus other DX news. Members contacting the expedition have their QSLs answered by regular expedition QSLs, by airmail, while non-contributors receive their own QSL back, rubber stamped to confirm contact.

Cards handled at the Federal Bureau during January totalled 6,536, which is the highest monthly total since May 1950!

Bill Erich, W6AL, is currently signing VR2EK at Deuba, Fiji, where he has a beach home. He is returning to U.S.A. in March, but coming back to VR2 in October.

GD5Q advises he is QRV on 3.5 Mc. band from 1900 to 2000z daily for DX contacts.

The Philippine Amateur Radio Association (formerly Philippine Association for Radio Advancement) advise the new business and QSL Bureau address is 1546 Requesens, Sta. Cruz, Manila, Philippines. The new QSL Manager is Eliodoro ("Dick") Claro, DU1CE.

The "Pioneer Gem," currently in Australian waters, offers a quick way towards M/M certificate entitlement. On board are three active Hams—George WN2AAV, Ed. K2OZU and Calvin K3BKU. They may be found on c.w. around 21,100 kc. plus, with tidy signals.

The final itinerary of Al Scarlet, W2CC, for his forthcoming visit to VK during April-May is as follows: Sydney Apr. 7-9; Albany, 10; Callawadda (VK3HL), Apr. 11/16; Adelaide (VK5BO), Apr. 17/22; Melbourne (VK3RJ, VK-3XB), Apr. 23/May 1. A short stop-over in KH6 is envisaged.

Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The Australia Day week-end was a very busy time for the N.S.W. Division, being the Annual Field Day and Convention. We started the ball rolling with the general meeting on Friday night where an attendance of approx. 85 heard Ron 2ALR lecture on "Modern Trends in Commercial Equipment." Ron had some very nice commercial sideband rx's on display but his lecture, illustrated by slides, was most interesting because he gave the reasons, technical and otherwise, why the commercial firms incorporate ideas and circuits in their design and discussed the advantages and disadvantages of mechanical filters and crystal filters for sideband operation. The sideband boys learned a lot while the "ancient modulation" boys realised that they had a lot to learn.

On Saturday night the Annual Dinner was held at Wireless Institute Centre where approx. 60 Hams and XYLs were welcomed by the President (Max 2MP) and Council. The evening started off with cocktails and savories, while everyone met everyone else and had a good ragchew, then at 8 p.m. Max took the chair and declared the dinner "on".

Speeches, not being popular at any dinner, were kept short, but a special welcome was extended to Len Still, W0BMX, and his wife, who, owing to the mishap with the Canberra, found himself stranded in Sydney just in time to attend the W.I.A. function. Len, in reply, spoke well of the excellent welcome that has been extended to him by Hams during his world tour, especially ZLs, and his only regret was that he could only spend three days here.

The Newcastle boys were represented by Bill 2XT and Ern 2FP, and the Gosford section by Alex 2AAK, while Tim 2ZTM led a group from the V.H.F. and T.v. section.

Noticed among the locals was the Ham family, Ted 2FE, XYL Heather 2HD, and daughter Margarita whose one ambition is to get a call of her own. I have heard Ted working a lot of 7 Mc. mobile, looks like he can't get a go at the home rig.

The annual field day was held at the Dural transmitting station with an attendance of 200 adults and many more children. The weather was excellent, if a bit hot, which was a strain on Ken 2XS who was chief dispenser of liquids. The first event of the day was the 7 Mc. scramble and honours went to Harold 2AAH, with Bill 2XT second and Alec 2FM third. The v.h.f. scramble was taken away by Dick 2ZCF with 2ZPV second and Eddie 1VP, from Canberra, third. The 7 Mc. fox hunt went to Harold 2AAH and Dave 2AWZ second. Dave also won the 144 Mc. fox hunt, while 2ZVW was second and 2ZPJ came third.

The blind fold tx hunt proved very popular with the XYLs and harmonics, and the results were: Ladies, Mrs. 2ACK; Gents, 2ALV; Girls, Ricky 2AQX; Boys, John Grouse. The mobile efficiency test was conducted to encourage mobile operators to improve the efficiency of operating and points are allotted for efficient radiation, ease of operation on the move, neatness and road safety. Most points are allotted to road safety, i.e. the operator who can carry out a QSO on the move, keeping both hands on the wheel and his eyes on the road. The winners of this event were Harold 2AAH, 7 Mc.; and Keith 2ZVL, 144 Mc. Second place for 7 Mc. went to Col 2ACK, while Eddie 1VP took second prize for 144 Mc.

The V.h.f. and T.v. Group put on a good display of home-made v.h.f. equipment and another section was devoted to the latest commercial Ham equipment.

The Council wishes to thank all those who supported the Convention, especially the following trade houses, Ducon Condenser Ltd., Mullard Aust. Ltd., Lawrence & Hanson Ltd., Amalgamated Wireless Valve Co., E.M.I. Ltd., W.F.S. Electronic Supplies, and Town Talk Ties Ltd. 73, 2VL.

HUNTER BRANCH

Once again this month the v.h.f. boys are in the news with some remarkable breakthroughs on 50 Mc. Those participating in the increased activity caused by sporadic "E" and tropospheric tunnelling were Stuart 2AYF, Des 2ZDN, Bill 2XT, Ian 2ZIF and Mac 2ZMO. Stuart and Ian were successful in working all States and ZL on 50 Mc. Mac had so many QSOs with VK4 stations that he personally went to that part of the world to hand out the QSL cards. Those contemplating activity on the now very popular 50 Mc. band are John 2ZJG, Kev 2ZKW and Fred 2ZAP.

Conditions on 144 Mc. have also been good and Muriel 2AIA has been heard at good strength in Newcastle. Those old gentlemen of 40 mx, Bill and Bob, should take heart at this and get cracking on 2 mx as well. Ron 2ASJ would like to be an old gentleman on 40 as well but his box of tricks has developed some malady and he is active only on 144 as I write. Harold 2AHA and Jim 2ZC are still very active on 144 and the indications are that they are getting consistent signal reports from all over the Branch area. Rodney 2CN has been busy hiding his light under a bushel and though very busy on 86.25, he still manages to get contacts on 2 and 40 and as well to pass the T.S.O.C.P., which is really a commendable effort. If you would like to know what T.S.O.C.P. means, then see Rodney, but I can assure you there's no morse test involved.

Out Westy way, the workmen hired by Bob 2AQR are just putting the finishing touches to the second mast and any time now Bob will be able to sling up a decent aerial a few wavelengths high. I am told though, that

the cage round the ladder is only made for a 50-inch waist, so perhaps he'll have to get me to take up the antenna.

Bill 2XT and Ernie 2FP, with Ernie's XYL, are at present on a jaunt all about the place with the mobile gear. First port of call is to be the radio telescope at Parkes and then via VK5 and VK3 to VK1 and then home. Out in the Charlestown mulga it is interesting to note that since the acquisition of the AMR-300 nothing has been heard of Norm 2ZNF. I fear that he suffers from the same trouble as me; so much on the bench that there's no room to work. Ron 2AAI, about whom we hear occasionally, is shortly to be active on 14 Mc. s.s.b., where he will be a competitor for Jim 2AHT, the loud voice from the south land. Just now Jim is keeping a bed warm in the hospital, but it is expected that by the time these notes appear he will be back on the air.

The latest activity out in the smog zone of Mayfield is an AR7 mod. by Varley 2SF. This is, of course, after he has groped his way out to the shack through the mobile talcum powder so generously supplied by the steel and smoke works. Bill Sinclair, who still waits for the Z call, has stolen a leaf from J beams book and erected a 6 over 6 skeleton slot for 2. Gordon 2ZSG has completed the seven-year project which was a four channel audio mixer—that's nearly half a channel a year. Dave 2BZ now works for himself, so we'll probably never hear him outside holidays and up in the coaly city Peter 2AIY has just completed his holiday, with 80w. on 144. The biggest Indian, Chris 2PZ, must really have been serious about the Mercedes Benz, because it has arrived—a companion for the Telefunken rx. Sherwood's modulator troubles have all disappeared in a puff of smoke—so to speak. You just ask him. On the associate front, Ross Beckley has a new rx which must be a good one because he hears me S8 and Belmont Bob has a strange grey box. I am told anyone able to identify it may carry it away. The Marming mob still play loud music at all hours, and one, who is not even a member, borrows Dennis' "A.R." just to read these notes!

And that's the round-up for another month. What about visiting the old firm next meeting? We'll all be there at the University College, Tighes Hill, on Friday, 8th March, at 8 p.m. They are saying there's going to be an election, so why not come and heckle with the rest? And don't forget our broadcast, Monday nights, 3596 at 7 o'clock—you'll hear all the latest gossip. See you both places, 73, 2AKX.

THE BLUE MOUNTAINS SECTION

The monthly meetings have been well attended and the lectures have been by Les 2ZBJ and Arle Bless on transistors and sideband equipment.

The Divisional Dinner, held at Atchison St., was represented by 2ART, 2ZNS and 2ADA. The evening was most enjoyable and Don 2ART received second prize in a tic-tac-dough competition. The following day the Annual Convention was held at Dural and four members from the club, namely, 2QA, 2ZNS, 2ZFB and 2ADA, operated the blind fold tx hunt for the Division.

Bill 2TS is getting spliced on 23rd of this month, so our best wishes are extended to

N.S.W. DIVISION, W.I.A. NTH. COAST & TABLELANDS

ZONE CONVENTION

will be held at

URUNGA

during Easter Week-End

12th to 15th APRIL, 1963

144 Mc. tx hunt, 40 mx tx hunt, all band scramble, general entertainment.

Accommodation of all types available on application to Mr. J. Walters, C/o Ocean View Hotel, Urunga.

Bill and his YL. Bill has been heard operating from his new QTH at Orange at good strength. Don 2ART is preparing for his yearly hibernation to the house for the winter and should be back on 2 mx very soon. Jack 2NC is on every night on 2 mx after fixing up his aerial change-over relay and listens via his converter through a newly acquired rx with all the mod. cons, etc.

A tape night was held at yours truly's and six members heard two tapes plus slides, namely Quad and V.h.f. Antennae, and it was midnight before the last QSO ended. Keith 2ABK answered one of Noel's (2ZNS) many CQs in the early stages of his operating and was at the time his furthest report from the west. Also Noel and Norm 2QA have been working 2 mx duplex with no problems. Jack 2ADF has been getting mixed up with Noel on 2 mx duplex also.

Wal 2MS and Ken 2AVN are still busy with the bush fire show, but it looks like the real danger period is over. Yours truly has made a mod. to the 7 Mc. mobile so that we now have r.f. with audio instead of audio and some r.f. Al 2ZFB is back on 2 mx with new gear and is coming through loud and clear. A new heap which I have not reported was obtained by Bob 2ASZ and is of the self tapper variety, so we should hear a lot more of Bob mobilizing the countryside.

The Feb. lecture was by yours truly and dealt with electronic business equipment including slides. 73, 2ADA.

VICTORIA WESTERN ZONE

Activity in the Zone has not been very great, but should improve with the passing of harvest, holidays, and hot weather. Bill 3AKW has an alternator in action and his gear is now running from a.c. supply. Wilson 3AFU has his mobile rig going nicely and his signals have been heard from various parts of the State. Vic 3AEQ has some equipment ready to make himself heard on the 55 Mc. band. Bert 3EF has been in strife with both rx and tx. He now has both tamed and is operating on 80 and 20 mx. His first call on 20 mx resulted in a QSO with EF2AC. Nice work! Keith 3AKP has been busy with t.v., but one of these days will blow the cobwebs out of his gear and come on the hook-up. Allan 3HL has been working fairly regularly on 20 mx s.s.b. and "bags" a few rare ones. Al Scarlett, W2CC will be in VK in April and will be staying with Allan at Callawadda for a week. W2CC and VK3HL have been in contact since 1934 and still maintain weekly skeds on 40 mx c.w. Al hopes to meet as many of the gang as possible during his stay in this country. Bill 3AKW has been enjoying a visit from his brother, Tom 2FK. Tom is an "old timer" and operated as 3TK around 1930. 73, 3HL.

NORTH EASTERN ZONE

During January 3ACK tried his hand at making baluns for 2 mx. It may be recalled that a few months ago John assembled an electronic organ kit; nowadays he spends a little time learning how to use the unit.

After months of waiting, 3APF finally obtained a vidicon tube and was thus able to finish off a closed circuit t.v. project. The circuit works as per specifications and has now been "junked". Understand 3AWT still plodding along on 2 mx exciter. Yarrowonga Club not heard too well here, nor very often for that matter. 3CI has erected an antenna on his ex-t.v. 60 ft. tower. Late in Dec. 3AYD had to pull down the triband quad to carry out repairs. Lesson learned here is not to use single strand wire as strainers or elements. 3AAQ currently portable near Ballarat, occasionally nets into the Zone hook-up on Friday nights on 80 mx.

3ACD has constructed a "Monlmatch" and early in Feb. was learning how to adjust it. 3ASF and cohort, 3ZHO, are contemplating trying out modulated light transmissions, however gear has still to be assembled and this is the killer. 3ZJH ceased morse practice prior to Xmas and finds it difficult to start again. 3ASY flung out one of the two 807s of final and intends to be satisfied with single

807. Took a portable 6w. to Scout Corroboree at Hobart in Dec., however the location was unsuitable for propagation; only made four contacts.

Shepparton chaps have been busy on plans for the State Convention, to be held there on March 16 and 17. For heavens sake chaps please give us a fair go and get your applications in early to the appropriate quarter. 73, 3ASY.

MIDLAND ZONE

The festive season is over and by all appearances so is all activity within the Zone, almost. This month I have not heard much from the Zone generally, hence there is little to report as to members' activities.

Ian 3AQU is active on 20 mx, working some DX, but like myself finding the band very patchy. There has been some short skip operating and short-long skip periods intermittently to Europe on the short path in the evenings. 10 and 15 mx are a dead loss at the moment. 40 mx is patchy and noisy and the stations working this band stay in their groups and I find it impossible to attract their attention with my 7w. input.

By the time these notes are in print we will have had our quarterly meeting, which will have been held at Maldon. Our host for the evening will be 3ZLJ, Ian Gorsuch. That's about all I have this month, so fellows please help keep these notes alive with news of your doings. 73, 3ND.

VICTORIAN DIVISION, W.I.A.

STATE CONVENTION

16th & 17th March, '63

at Shepparton

Premier Town of Victoria

★

Highlights: Buffet Dinner, Visits to Radio and T.V. Stations, Competitions, Tx Hunt, Commercial gear.

Accommodation: 3 motels. 5 hotels and 2 caravan parks.

★

Bookings: Dinner and Accommodation, £2/12/6 per person; Dinner only, £1/12/6 per person.

★

All bookings must be in by 2/3/63 to Box 205, Shepparton, Vic.

QUEENSLAND

Who was the character that said, "If you put your neck out long enough, and often enough, it will get lopped off"? Well, it's happened to me. I have been elected, or con-ned or something, into being the Sub-Editor for the Sunshine State. Well, it was sunshine when I left for Brisbane. I'm not sure whether it's an honour or not, but I expect to get quite a lot of fun out of writing these notes and keeping you posted on the doings of the W.I.A. and of various Hams. And if I can't get any news, I'll invent some, so keep me posted, as I have a very vivid imagination, and I would hate PanSy to get the wrong idea about us strapping, well built, Queenslanders. All this of course, pre-supposes that someone pinches the Editor's red pencil. (Like h—, Ed.) Now just a second whilst I put on my eyeshade and make like a Sub-Ed.

The Jan. general meeting was held at the State Service Union Rooms on Friday 25th and was particularly well attended by over 60 members, 52 signed the attendance book. The other eight were probably spies from Southern and South Western States, checking on how a well conducted meeting can be had. Pat 4KB was in the chair and business centred around the article in "QTC" on the Divisional Constitution. If any member is not clear on the article, please write to Box 638J, Brisbane, and he will be put right.

The important business of the evening was Don 4GP's talk on "Television," and how Don warmed to his subject. He really put all his interest into it and drew his audience with him for two hours.

Have you any notices of motion for the Annual General Meeting in April? If so, get them down to Box 638J as soon as possible.

The Ipswich and District Radio Club had a good attendance of 35 members at its Jan. meeting, which was held at the 2nd Ipswich Scouts Hall. A.O.C.P. classes have been started with a qualified teacher in charge, and Ron 4RG is looking after the morse angle. Merv 4ZGM has been elected as assistant sub-editor to help me with these notes and I am very pleased indeed to have him, because Merv, old boy, I'm going to lay the blame at your feet for any notes that ye Ed. may disagree with.

My young son asked me to check his homework the other night and one of the words he had to break down was Auditorium. He reckoned that it came from two roots, Audio I hear, and Taurus the bull. "No, son," I said, "that sort of definition went out a long time ago, although I do believe it is still used in South Australia."

Al 4LT has returned from three weeks at the seaside, and then worked some rare Middle East DX that had accumulated on his aerial in his absence. His only complaint, re his holidays, was that shoes weren't made for human beings. Man, a good fisherman isn't human, he only looks that way. What did you want shoes for? Bare feet are just the shot for luring unsuspecting sandworms to the surface, unless of course, you are ticklish. Some people can be lucky. Bill 4ZBD, who is the "Printer's Devil" for "QTC," hung up his stocking for Santa Claus and you won't believe it, but he got a new rx. I'm led to believe that Bill never did like the blonde

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member of the Andrew Sisters, and he is pleased to tell all and sundry that he can tune her but some set!

Bob Campbell and Ray Rumble, previously of the Southport Radio Club, have offered to organise the 1963 Convention, to be held at Alexandria Headlands on the 29th, 30th and 31st March. It is right on the beach, no cooking, no washing up, and plenty of room. Bring the whole family and have a good time. It's a wonderful opportunity to meet your fellow Hams and also get your XYL interested. The cost of the Convention will probably be less this year. And talking about costs, don't forget your subs are due very shortly, and it saves the blokes concerned with the bookwork quite a lot of work if they are paid promptly, not to mention that your "A.R." continuity will not be broken.

A very good job of public relations was performed on 26th and 27th Jan. by 4ZEL, 4ZAK and 4ZEK, who provided communications between check points for the Mt. Bruce Scout Group who were on a hike, passing through Mogill Ferry and College Crossing. Don't forget fellows when you co-operate with the Scouts at any time, let Scout H.Q. know (Scout Shop, Broadway, Brisbane). It could be printed in their magazine "The Scouter" with benefit to them and to us. (Being a Scout Master, I must get in a plug some where.)

The traffic police in Brisbane don't take a very kind view of horse and buggy transport, so I had to unharness Cyril (my horse) and ride him solo in order to get around. Bit of a bother trying to work mobile though. My wife complained all the way down from Ayr to Brisbane about my mobile. I can't see why. It worked well, all she had to do was sit in the rear of the buggy and work the pedal wireless. It's a good wireless too, all that I have replaced is the pedals. My XYL says that unless I get a better rig for next holidays, I'll be replacing the YF. Never heard of a valve with those letters!

I visited Alf 4OL, who is doing a mighty job running 4WI. It seems to be an easy job when you are listening to his dulcet tones from your shack, but he is doing it under difficulties. As to his work, he cannot, at any time, attend a W.I.A. meeting, so has to depend on others for news, etc. And the noise at his location—words fall me. How about keeping him posted with some news via letter, instead of doing it over the air, unless of course it is last minute news.

Noel Lynch, with other Scouters, took some of the V.h.f. Group to Nerang on 3rd Feb. to look over the Easter Venture route, for which the V.h.f. Group, with a 40 mx link, will be doing the communications.

Bob 4RW is on the walkabout again. This time he is heading for Tasmania. Won't be back until Easter. How do these blokes get all these holidays? Basil 4ZW is home again after nine weeks' holiday. See what I mean? Heard about Stan 4SA and his fishing trips? He went out fishing and caught only catfish. Most good fishermen take a knobkerrie along to deal with these menaces, but Stan belts them to death with his wooden leg. How do you put up with him, Jess? I believe Alf 4OL and Stan 4SA declared a truce whilst I was in Brisbane. It seems as if they cannot agree as to who can talk intelligently for the greatest length of time. Or for that matter, just talk.

Jim 4HZ is still in trouble with the modern bogey t.v.i., but he has hopes of getting it licked in the near future. Jim's XYL, Nell, has been in hospital seriously ill and is now back home. We all hope you feel much better Nell and recover your usual cheery outlook.

Hal 4DO is going overseas on holidays. (Again, see.) How do they do it? He is leaving on 5th April and judging by his itinerary whilst eavesdropping on him, it's going to be some holiday.

Some of the members of the Burdekin Radio Club have taken up flying and are doing quite well at it. Associate member Harold Cisloski is flying solo and is only waiting for his 40 hours to come up. Dale 4ZDG is another who is doing quite well. Ross 4RO is chasing t.v.i., or was, but as he is going on holidays (that word again) during Easter, he is building v.h.f. gear to take with him. Ever listen to Bob 4NG and Bill 4WD of a Sunday morning? You can pick up some good gen on the behaviour of 6 mx from listening to them.

Took Cyril for a gentle trot one night in Brisbane, and ended up at Salisbury; going along Dulcie St. Cyril suddenly shied and I realised that the object he had shied at was Tel-Star. Dismounted for a closer look, and discovered it wasn't Tel-Star. It was Ron's (4ZK) Morris utility, bristling with aerials. Fair dinkum, I've never seen so much gear packed in such a small area. On the front bumper is a 12 ft. whip for 40 mx and on top of the cab is another for 6 and 2 mx. In the cab is a Compass rx, converters for 40, 6 and 2 mx, tx's for each of these bands, and under the bonnet is the power supplies. And with all this gear he can still fit three people in the cab. Then to cap it all, he showed me the latest thing in crash helmets. Built-in transceiver and aerial, the whole works. Too complicated, I'll stick to my pedal wireless! I could really go to town on this gear, but I'm afraid yeh Ed will limit my verbosity, the only excuse I have to offer is that over 25 years ago I was scribe for VK4, so "give us a go will yer!"

Another cheery bloke I met was Les 4EH who is not a well man by any means. Thoroughly enjoyed my visit with you Les. His XYL makes a good cuppa, too.

Remember "Doc" Hadley, you old timers? Well "Doc" has staged a comeback. His old call sign was 4AH and its present holder has a mighty predecessor to live up to. "Doc's" present call sign is 4HY. 73, Uncle Xray.

TOWNSVILLE AND DISTRICT

Basil 4ZW called in on his return from his overland trip south and as usual visited quite a number of places on the Murray River district and oozes from the fruit he consumed direct from the trees. Ted 4EJ at long last has built a new shack and the boys in VK2 are dying to see proof as per a coloured photo and not re-touched; boasts that all the old junk has been given the go-by and at present is making in-built cupboards to keep the place clean and tidy! Bert 4LB is highly satisfied with his new quad and guarantees to out-signal my beam. Alan 4BE made a welcome call the other night on the band and quite a long-time no hear him. Bob 4MF is still chasing better gear to end gear and at present using American rx; hopes to go on a long tour mobile in the near future.

John 4DD is still on the band and heard in QSO with the States. Claude 4UX and family have returned from a holiday trip to the big smoke. Ere these notes appear I will be calling on the Editor to make a personal complaint why I never received a further zero to my salary, same as that favoured scribe? No names, please. This time I will have left on 4th Feb. for a trip as far south as Hobart and hope the weather treats me kindly as at present the floods are everywhere.

Pleased to know that Eddie 4OW has returned from Darwin to Brisbane and can be relied upon to come on the air each Sunday when shift work allows.

Why oh why cannot those chaps who come on the air "testing, testing," please give their call signs (besides breaking the regulations). They will get a report on their testing if only they would check their freq. as I often call QRZ, the testing station and will be pleased to give them a very candid report. So what about it chaps, if you want to test, there are many others ooming the band like myself who would be only too pleased to assist. That is the basis of the Amateur Spirit.

Will prevail on Claude to write the notes while I am away on leave, so cheerio, 4RW.

SOUTH AUSTRALIA

The monthly general meeting for Jan. of the VK5 Division was held in the new club-rooms to a very representative gathering of members and visitors, and the guest speaker was Mr. C. Pearson (5PE), who discussed "Transistors and their applications." Very little can be said of the technical side of this lecture because practically the whole subject lent itself to the blackboard, and as the VK5 Council is still persisting in its attitude of refusing me permission to post the blackboard away to the magazine, it goes without saying that my comment must be limited to the personal reactions of the members present. Clive mixed his theory with a little humour, a good deal of dexterity on the blackboard and quite a deal of practical advice. All in all, Clive should be more than satisfied with the reaction to his lecture and his audience definitely richer in transistor theory and application. Members took their opportunity at question time to quiz the lecturer and Clive came through with flying colours, further demonstrating his knowledge and competence in the subject. Tony 5II was responsible for the vote of thanks to the lecturer, and the applause which greeted the vote of thanks was sufficient indication of the splendid job performed by Clive. Incidentally, Tony made a suggestion that perhaps Clive would consent in the near future to give a lecture on the basic theory of transistors, and whilst Clive did not comment, the members' reaction to this suggestion should do the trick.

Very little business of note came up for discussion, although the suggestion that VK5 should run a contest to help publicise the coming Adelaide Festival of Arts (approx. one year hence) caused quite a deal of discussion and the matter was put forward for a month to check on the general membership reaction to the idea. The meeting closed at 11 p.m. (compulsory now in the new clubrooms) and members departed for their couches of virtue, or otherwise, well pleased with the night's entertainment, and more than pleased with the appointments and general facilities of the new clubrooms. Come along some time and see for yourselves.

Among the visitors to the monthly meeting was two VK3s, Keith 3IV from Ballarat and

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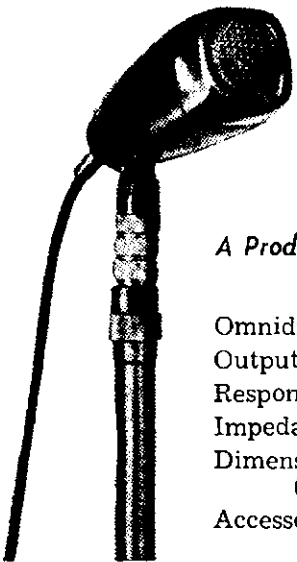
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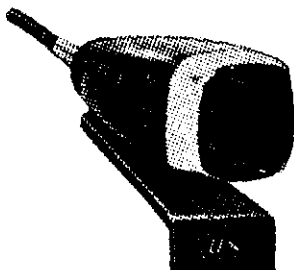


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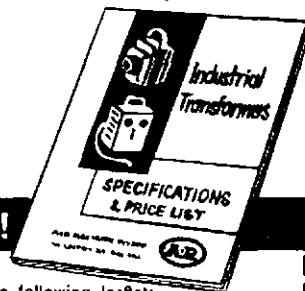


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Col 3XV from Oakleigh. I had quite a chat with these two gentlemen and despite the fact of being VK3s, they turned out to be extra good scouts! Col is a brother of Maurie Anderson (ex 5MA) of Cheltenham, but probably better known from his association with Alf Traeger and the Flying Doctor Service. Maurie has passed on of course but was always an ambassador for VK5, and a good representative to boot.

Rob 5RG is back in the R.I.'s department after a sojourn at W.R.E. Rob has certainly been around in his time and without any doubt has accumulated a goodly store of knowledge in all matters radio. Always willing and eager to help in any way, he would make a good council member and someone should be giving him his arm in that direction.

Athol 5LQ noticed at the meeting with quite a discoloration below his right eye, which led me to ask him if the verandah post had eventually fallen down. He did not seem to be very anxious to answer my kind enquiry, but finally broke down and admitted that the discoloration was due to a r.f. burn! Could he possibly have been having a lend of me??

Noticed our estimable chairman, John 5JC, anxiously glancing across the room several times during the lecture and at times wearing a frown upon his aristocratic looking brow. With his added db. level to his hearing, he apparently could catch the mumble-mumble from one of those present, who apparently knew more about transistors than did the lecturer and was not interested enough to shut up. Nice work, John, the old ears must have been right on the job. Next time I answer you back I'll have to whisper.

Talking of mumbling during the lecture, I noticed two of those present having a good old yap to each other using the deaf and dumb sign language. It's a long time since I used that method myself, and am somewhat rusty now, but if I understood correctly, then I feel that I have missed something in my sojourn on this earth!!

John 5JO has been scouting hither and thither around the VK5 countryside over the Xmas break and if all can be believed, has been working stations galore on his portable set-up. The list of stations he has contacted looks like the "Who's Who" of Amateur Radio, and the information he has gleaned on his trip would qualify him for a job on my espionage staff any day he wants one. The salary?—Oh a couple of those thoughts that Ye Ed. throws around with gay abandon each end of the year!

Eric 5VM and family have been over in VK1 on one of their periodical visits, and of course have been seen in the company of Jim 5FO and his family. This friendship was formed many years ago on the air by the two families (four hour QSOs, etc.) and has not lapsed through the years. Eric's XYL Loris can claim the distinction of being an ex VK5, she is the sister of Len (ex 5VM) from Crystal Brook way, who incidentally, if my spy can be trusted, is on the way back to the air. Good news, Len, the more the merrier.

Received the usual seasonal letter from Arch 5XK, that refugee from Norfolk and Lord Howe Islands. He tells me that the notoriety handed out to him since those DX-peditions has been enormous and in the same breath tells me that it has not changed him from the quiet unassuming ambassador for c.w. that he has always been! Quiet and unassuming? It is a wonder his typewriter didn't collapse in a helpless mess as he wrote that. Nevertheless, I will grant him the title of ambassador for c.w., he has done more for c.w. in VK5 than any three s.b. converts put together, and seriously, who would want to put three s.b. converts together? Don't answer that.

Ken 5IM reported as passing through Lucindale over the Xmas period, as was Howard 5XA, but neither have as yet reported seeing any Norfolk Island natives with bones through their noses, although they did report a Lord Howe Island native with a nose through his bone!

Rumour has it that John 5JW has been heard on 7 Mc. with some strong c.w. signals. If this is true, we welcome him back with open arms after such a long absence.

Vic 5JH also heard from Nhill at times over Xmas, although at the time heard he was camped in his car in pouring rain, his spirit unbent and unbroken.

Bob 5BG still recovering from the effects of the before-mentioned wind which nearly uprooted VK5 recently. He lost all of his aerials, beams, etc., but it will take more than this to keep a good man down. What say Bob?

Unless my ears have let me down badly, that was the voice of Harford Scott that I heard under the call sign of 5JO in the vicinity of Currency Creek. Have not seen you since Joe's wedding, Harford. Keeping

well? Dave 5DS, my favourite Scotchman, still in the pink, even though he throws New Year parties that start at midnight and carry on until the wee small hours of the morning. Such frivolity.

Reports are still filtering through of breaking and entering of shacks, and once again opportunity is taken to warn all those of the gang with outside shacks to keep them under lock and key, or better still, fix up some alarm system and possibly catch this persistent offender. He is pretty shrewd, he knows his mark and only takes what he wants, so be warned fellows.

Talking of alarms, I heard a beauty the other day from the shack of Jack 5LN. He was in QSO with Lionel 5LB and every now and then there would be a bang come over the air that would have done justice to a royal salute. I stuck around long enough to find out the answer, and it appears that in Jack's shack is a big tin with a couple of loose funnels on top of it, and every now and then it contracts or expands and everything in the shack, including Jack, jumps up in the air about six feet or so. It scares Jack and he is half a wake up to it, so what would it do to a would-be-burglar?

By the way, I see that Jack has been wrongly labelled in these notes for the past two or three months with the call sign of 5LM. I thought he acted cool toward me at a couple of meetings and decided to find out why. Now I am sure that I could not have made the mistake, I am equally sure that the Editor will not accept the blame, nor will the dispenser of unwanted chassis be likely to accept the blame, so once again I will have to be the martyr. It puzzles me. I may not be always right, but I am never wrong! (Two Whites don't make a Wong.—Ed.)

The 5WI session on 40 mx has been letting us down a trifle lately. Reception conditions have not been the best on this band and last Sunday, to make matters worse, there was no 80 mx re-broadcast available. One good thing, all of this no reception at times on the bands makes everybody appreciate the voluntary efforts of those responsible and these fellows certainly deserve some appreciation. I have been tempted to forget to write these notes for one month, just to see what appreciation I would get. Only the thought of the cheers and other expressions of joy and happiness from all concerned deters me.

Geoff 5ZCQ is now the VK5 Federal Councillor and will represent us at the coming Convention in Sydney. He replaces Phil 5NN who represented us in Perth last year, and of course will be the new Divisional President as this is being read. I hope.

This month will also see a new Council being voted for and my spies are hinting at some surprise nominations. This is all to the good, as without a live Council, the Division won't get very far and new, enthusiastic and keen members are always wanted.

Just when I was getting all enthusiastic and handing out bouquets to VK6 on the quality and quantity of their Divisional notes, what happens? Apparently overcome by modesty and shyness at all the praise being handed out, the scribe took off on the padre's bike. Come out, come out, wherever you are, I did not mean it, personally I think the notes were a bit on the nose. How's that? Feel any better?

Radio funny. Joe 5JO made up a portable rig for the Brompton Boys' Club and took it with him on his aforementioned trip round VK5. It outperformed his home rig to such an extent that the Boys' Club could be unlucky! How low can one get?

Jack 5LR is now a gentleman of leisure, with nothing to do and all day to do it in. He resigned from the P.M.G. at the start of this year and tells me that he intends to enjoy life and relax in the sun. He has not had the best of health for some time now, and I can't say I blame him for giving the game away. To be truthful, I am quite jealous. Good luck to you OM.

Heard Geoff or Jeff 2AHM in contact with Ken 5HM the other evening and believe it or not, Ken was taking credit for the rain that had been falling all round VK5 including apparently Wentworth. It appears that on the Xmas card he had received from the 2AHM family were written the words "Please send us some rain for Xmas," and because about 260 points had fallen for them, Ken was sitting back and endeavouring to take all the credit.

Managed to get on to the tail end of a QSO between Frank 5MZ and Carl 5SS and gathered that Carl was off somewhere or other chasing sheep for a few days. Couldn't manage to get any more details, but sincerely hope that Carl will remember to wear a hat all the time, just to make sure that the drovers know who are the sheep!

Cec. 5BZ heard on 7 Mc. for a short period the other night, very short in fact, and whether he succeeded in getting into the QSO from the side, I will never know. Rumour has it that he is preparing to flee the country on an extended European tour. Want someone to carry your bags, Sir?

I suggested to our worthy President (John 5JC) that it would be a good idea if the Divisional frequency meter, at present in my custody, should be held by the operator of 5WI (Clive). Frequency checks, if required, have always been given by 5WI in the past and if they agree to this idea, then Clive will be happy to oblige, I hope. Pass the buck, Pansy, they call me!

Never hear anything of Brian 5FQ these days. There was a time when he was never off the air, but of course that was when he was a single young man and had plenty of time. No offence meant, Alison! The nearest I have got to hearing him on the air was last Sunday, when out of the transmission of Reg 5RR came a CQ on a motor car horn, and Reg commented, "That was Brian 5FQ, he always toots a CQ on the horn as he goes past."

Les 5NJ going great guns portable from Port Elliott over the Xmas and New Year break, and puts out a remarkable signal with the low power at his disposal.

I notice with a sense of misgiving, the increasing tendency on the part of some contributors to this magazine to belittle the art of s.b., ahem, and feel that apparently they are working on the assumption that something new must automatically be inferior to the existing art of telephony. In an endeavour to stamp out this state of wrongful thinking about s.b., I would like to point out that I am at the moment idly thumbing through a technical book published around 1930, and on page 59 I read with some surprise, I quote, "In March 28th, 1926, commercial two-way radio telephone conversation was carried on between the U.S. and England, and the type of transmitter used was termed a single side-band eliminated-carrier transmitter." Well? What about that? Something new eh? Anything that old must be good. Look at me. No more disparaging remarks about duck talk please. Ooops! Incidentally, I never read the v.h.f. notes, so I could not possibly be upset about anybody advocating s.b., Gercha.

When I was a member of Council we used to sip tea and biscuits at the end of the Council meeting and then all decorously depart for home. Just what they sip these days I would not know, but my spy, who is planted right in the middle of Council, tells me that the Elizabeth representative on the Council, Tubby 5NO, left the lights on his car burning merrily away at the last meeting, and then had to be pushed down the road by the entire Council, and as far as is known arrived home safely. The chairman (John 5JC) went one better, he managed to get completely lost and arrived home in the early hours of the morning, crept in the back door and retired for his beauty sleep. Next morning the family rose early to go to town for some shoe buying, only to find the lights on the car burning dimly and the battery flat. We will draw a veil over the domestic scene which followed, but this I can say with freedom, the chairman of the VK5 Division was ruled out of order early in the piece and that lump on the top of his head is where the acting chairman bonked him one when he rose on a point of order! It never even marked the gavel.

It would appear that my lone fight for the payment of our licence renewal at any post office is at last paying dividends. Leith 5LG informed me at the meeting, with an unmistakable sneer in his voice, that his wife had paid his licence fee that day at the Edwardstown Post Office, and the joker never said, "Boo." Well, we will see, I must trot up and pay mine next week. Place your order now for next month's magazine and read either about the victory or the defeat.

Received thousands and thousands, well, hundreds and hundreds, well, tens and tens, oh have it your own way, several letters over Xmas referring to my humble efforts in this mag. My natural modesty prevents me from saying more, but thanks a lot, I enjoy doing it too, it feeds my ego! I even received a telegram from Max 2ARZ saying, "Merry Xmas. Paid local office again." How cruel can they be? 73 de 5PS. PanSy to you.

TASMANIA

The v.h.f. bands have really hit the headlines in January. It all began when David 7ZAI and Reg 7ZAO worked a VK3 on 2 mx. A little later, Len 7BQ was worked in Hobart, to be followed by 14 VK3 contacts made from

Hobart by Winston 2ZWH, formerly 7ZAP, who will again be resident in Hobart I believe. This all goes to show that populating these bands can provide some most unexpected results. It is also good to learn that 7ZEC, from Evandale, is able to get through to Hobart nightly on 2 mx.

John 7JF has erected a G5RV antenna and is now trying it out on all bands, after one or two teething troubles. The v.h.f. gang have now received their crystals to land them on 144.1 Mc. and the chin-wagging which now goes on all on the same frequency must be heard to be believed.

Remember the Annual Dinner and General Meeting of the Institute. The date to keep available is Saturday, 23rd March. Bring your XYL, girl friend or mother along, and make it the usual wonderful event.

Remember, also, the elections for the new Council. If you are a full member, be sure to vote so that the Council of your choice directs our Division's affairs.

At our Feb. meeting, John 7ZOO delivered a very interesting lecture on pulse modulation, which convinced those present that such a form of modulation on v.h.f. had many points to recommend it, despite the width of the signal. It was very good to see one of our newer members delivering the lecture so ably.

Amongst the new members elected at this meeting was Cros. 7CW, or should I say, re-elected. We welcome you back to the fold and hope to see you along often, as well as on the air, too. Michael 7ZAV has installed his mobile 2 mx gear in his recently acquired car and is having lots of fun running his battery down at regularly short intervals. Geoff 7ZAS is back at work and feeling and looking a lot better after his recent illness.

Our next Federal Convention will soon be upon us and our Feb. meeting passed several items to be included in the Agenda. It was first class to have two items brought forward from the Northern Zone, and we hope for further examples from the other Zones of interest and activity such as this.

Conditions on the lower frequencies have been variable during Jan. I personally worked a dozen or so Ws during the month on 3.5 Mc., as well as VEs and JAs, but on other occasions the same band was virtually dead with considerable QRN present. 73, 7ZZ.

NORTH WESTERN ZONE

Terribly sorry for missing the last edition, but an honest mistake was made regarding the publication date.

The first meeting of the year was held on Tuesday 5th, and a good attendance was present. Many old faces, such as 7TT were there and we were pleased to welcome visitors, Basil Barnes, Ernest Greenhalf and Max Boskell. Much business was discussed, including suggested items for the Federal Council agenda, and a future tx hunt, a possible date being 10th March. The controversial letter seems to have been laid to rest at long last. No ill feeling has resulted and much has been achieved by it.

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The meeting was followed by a fine color slide show by courtesy of 7SF and 7MX. Max, having recently returned from VK2 and VK3, favored us with many colorful mainland shots.

Rumour has it that 7MS will soon be replacing his queer quad with something special. Unfortunately no more data is available. David seemed in uncommon good humour Tuesday night, although he did seem to be suffering from that now-common ailment, the square-eye disease. I see 7MX has recently acquired a phased-array antenna—and not on 2 mx! Some v.h.f. is coming through from VK3 and beyond, and 7AI seems to be doing fine DX with his "duck-talker" Athol, although officially cleared by the R.I., has been unjustly accused of t.v.i. The T.v.i. Committee have the matter in hand and will no doubt clear the matter up. Sid 7SF has a nice black box of auto-tune tricks. No doubt we will soon hear this competition-winner on the air. Keep at the studios Basil, Frank and Bruce. The next exam., I think, is in April. 73, 7ZBH.

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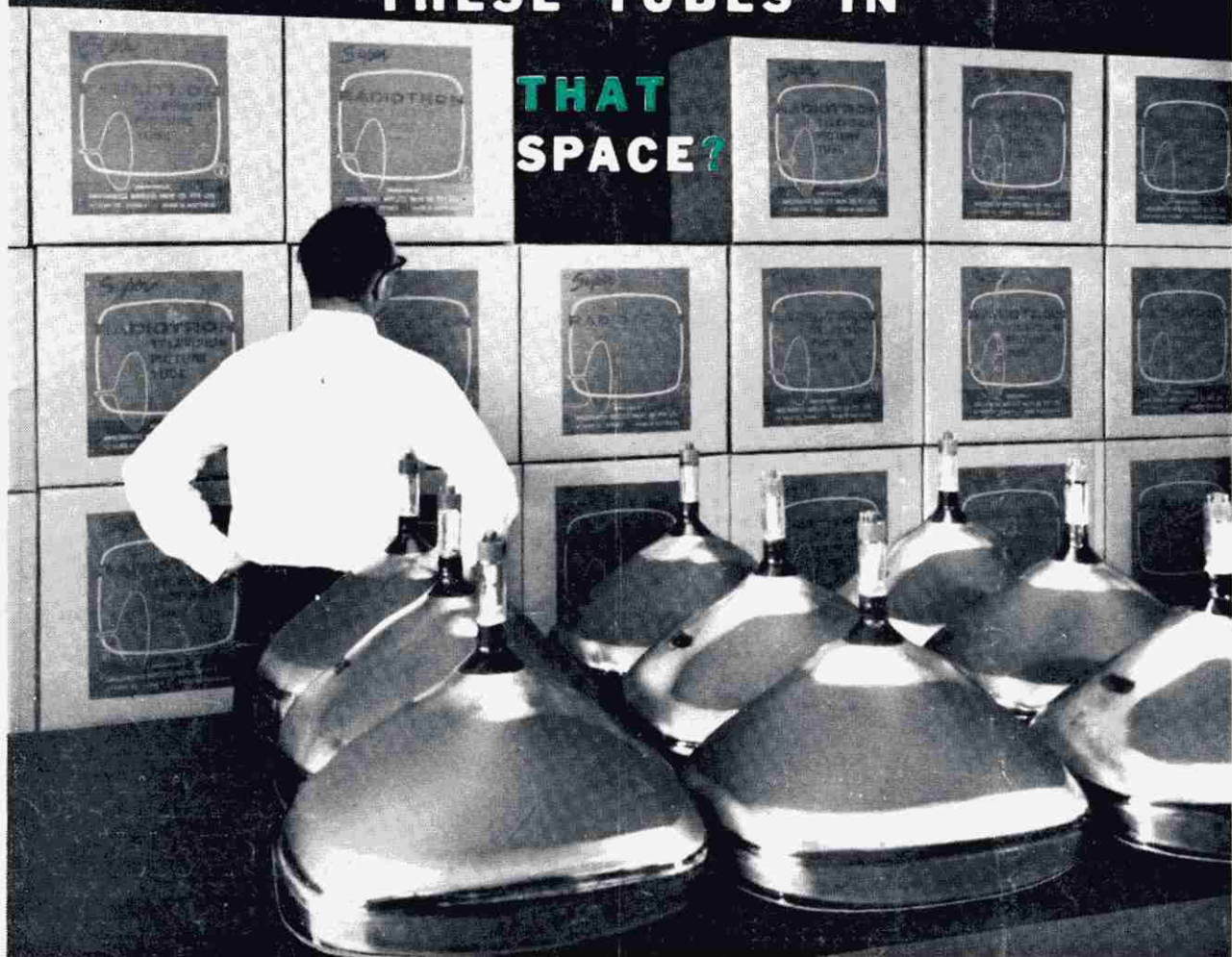


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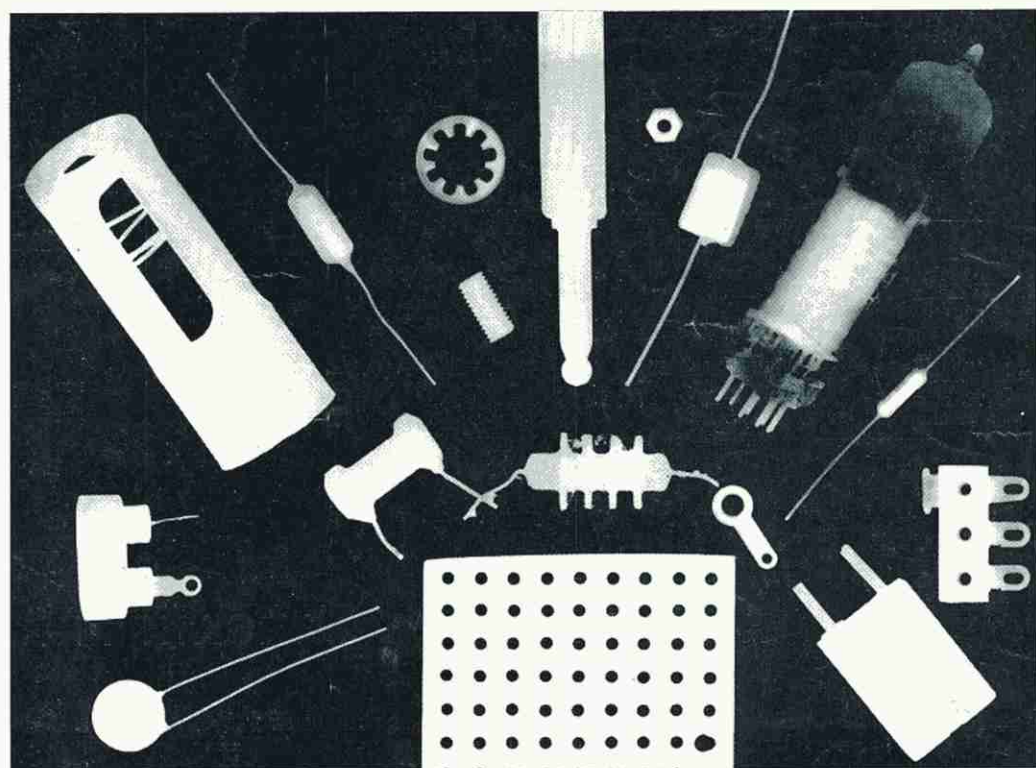
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A M A T E U R R A D I O

APRIL 1963



Vol. 31, No. 4



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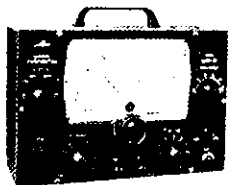
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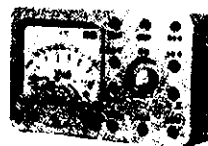
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"AMATEUR RADIO"

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★

OUR COVER

This month the photographer has arranged a variety of common radio components to form our cover design. As a matter of interest, how many can you identify? All are correct scale size. The following were used: disc ceramic condenser, xtal socket, ventilated valve shield, polyester condenser, lock washer, iron dust coil core, phone plug, metal thread nut, mica condenser, QJE03/12 valve, 1/2 watt resistor, tag strip, FT241 xtal, "Zephyr" board, solder lug, r.f. choke and a wire wound resistor.

FEDERAL COMMENT

★

WHY NOT A NOVICE LICENCE IN AUSTRALIA?

A recent examination of the major Amateur licensing countries in the world indicated that large increases were taking place at an average annual growth rate of approximately 10%. Further inspection revealed that to a large extent this growth was the result of these countries' interest in their youth. Most large Amateur countries like the U.S.A., U.S.S.R., Brazil, Argentina and Japan have made provision for a restricted licence, in relation to power, frequencies, technical knowledge and code speed. These licences are akin to our own proposals for a Novice licence.

It is self-evident that if early training in the electronic field is a requirement to keep abreast with trends overseas, the Australian Government must see the wisdom of the proposals for a Novice licence in our own country. Our many attempts during the past few years to present a plan acceptable to the licensing authorities has met with little success, despite the support of the Armed Services. The repeated submission of the Institute's proposals which are considered to be realistic and in the best interests of the country, have been met with specious reasons why the proposals are not acceptable.

The main basis for rejection seems to have been on the safety aspects involved and the fear that the licensing authorities will be held responsible in the case of electrocution or the like. Yet why should a 10-watt transmitter be any more lethal than a receiver or an audio amplifier? Anyone who has teenage children today well knows that interest in a hobby is the best way of enabling youth to take a pride in something and "find" themselves in a constructive and not destructive field. It is no more difficult or dangerous for the youth of today, with no prior knowledge, to build himself a receiver or audio amplifier than it was in our youth to build a crystal set. Surely, then, this cannot be the real reason given by the authorities for their repeated refusals for a Novice licence.

If administration is a difficulty, this will come in any growing community and must be catered for appropriately. When a boy grows into a man we do not keep him in short pants—he must be given a man-size suit. There may well be other reasons also, but none of the counter arguments given so far appear to be valid enough to deny youth its chance in the rapidly expanding electronic field.

Whatever the official reasons have been in the past, it is high time that the Government and the authorities review the case of the Novice licence in the light of overseas trends, the benefit for youth on the sociological plane and the long-term acquisition, at no cost to themselves, of a pool of highly qualified and competent men in the technological sphere.

FEDERAL EXECUTIVE, W.I.A.

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Phasing-Filter S.S.B. Generator*

Dual System for Better Sideband Suppression

DR. LEO H. McMAHON,† VK2AC

SINCE the introduction of Amateur s.s.b. in its present-day form, late in 1947, the two systems of sideband generation—filter and phasing—have been subjected to much experimentation and practical testing. As to a preference between the two methods, the trend toward the filter system, in one form or another, by manufacturers of Amateur equipment may be taken as a guide. This also follows a long-established practice in commercial communications systems. For the home constructor, however, both systems present problems. In the case of the filter system, the main ones are cost, positioning of the basic frequency in respect to the filter response, and sideband switching. With the phasing system, they are in the adjustment of the phasing controls (particularly in r.f. phasing), limitation of the suppression obtainable in practice, and wide frequency response unless special steps are taken to minimise it.

It was considered that if the two systems were combined, each in a simple form, the end result would be an improvement, even if each system was not adjusted to a highly accurate degree. The chance to put this into practice came with the availability of a "Sideband Package"² built in its originally described form, but in which the sideband generator was not considered satisfactory. This generator was simply replaced by a new one consisting of a low-frequency phasing-type generator, followed by a single half-lattice filter. The end results from this generator have been excellent as to both carrier and sideband suppression.

AUDIO PHASING CIRCUIT

The phasing system used (see Fig. 1) is essentially the one described by W2EWL,³ but scaled down to approximately 440 Kc. This frequency was chosen chiefly because suitable crystals were on hand. The exact frequency can be a matter of choice. The audio output at T301 in the original "Package" circuit was found to be sufficient with a little to spare.

There is one minor modification in the input resistor of the B. & W. audio phase-shift network used in the W2EWL circuit. The division of audio voltage input to the network must be in the ratio of 7:2. This ratio is determined by the position of the moving arm of the 500 ohm input potentiometer. However, it is possible to get this ratio in respect to either end of the potentiometer. This may cause confusion which can be avoided by using a fixed 500 ohm resistor as part of the network,

● By combining the features of the phasing and filter types of carrier and sideband suppression, VK2AC finds that more complete suppression is obtainable in practice with less critical adjustment of either section.

so that the higher voltage is always applied to Pins 1 and 5 of the p.s.n. as required. Increasing the total input resistance to 1,000 ohms has little effect in practice. If a potentiometer of less resistance is available, this can be used with a smaller fixed resistance to maintain the total of 500 ohms, if desired.

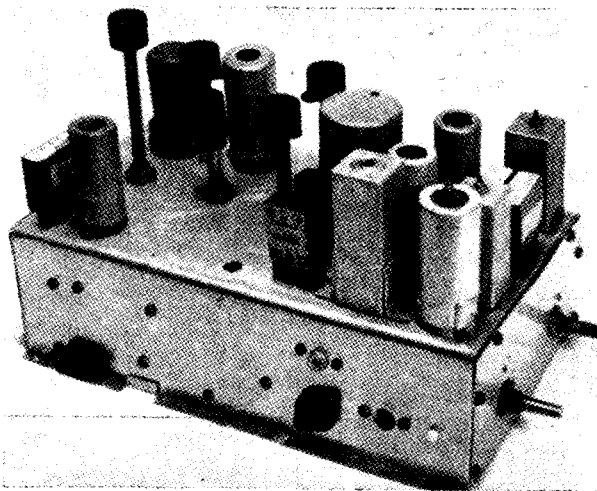
The coupling transformers used between the audio phase-shift stage and the balanced modulators are simply a pair of high to low impedance audio transformers. In the original W2EWL unit, it was suggested that 20,000 to 200 ohms be used. Anything of this general nature is satisfactory provided that the two transformers are similar.

made up of several higher-resistance values in parallel. The resultant capacitance and resistance are juggled until the r.f. voltages measured across the two arms are equal. Once this condition has been attained, no further adjustment of r. phasing should be required—a point that should appeal to all who have tried to adjust the two-coil system.

L3 should be a coil of i.f. type that will resonate at 440 Kc. with a capacitance of 100 pF. So far as the coupling coil L4 is concerned, it is necessary that it be only large enough to produce about 2 volts of r.f., peak to peak, across the output terminals. There is no point in making the coil larger than this.

BALANCED MODULATOR

The balanced modulator is a 440 Kc. version of W2EWL's, using semi-conductors instead of the vacuum diodes. To maintain the same LC ratio in the output circuit requires an increase in capacitance of about 20 times that used at 9 Mc., or a value of 0.02 μ F. for



VK2AC's sideband generator is constructed to fit in the space occupied by the original generator in the W6TEU exciter. To the left are V1 and V1, the audio ratio and balance controls, the plug-in p.s.n., and the 12AT7. Near the centre are R1 and R2, the s.b. selector crystals (disregard the frequency marking on the foremost holder), and a round shield can containing L1, L2. In the adjacent line are L3, L4, the 12AU7, and the 6AG5. C2 (hidden) is mounted between the two tubes. At the right-hand end of the chassis are the 6BU8, T2, the filter crystals, and T1.

R.F. PHASING

The r.f. oscillator that generates the basic 440 Kc. signal (also shown in Fig. 1) is patterned after the low frequency circuit used in the "Package". The phasing arrangement is a very simple RC network suggested by ZL-1AAX.⁴ It is coupled to the output tank of the cathode follower. A value of 100 ohms was used for the resistance arm, and the capacitance required for a reactance of this same value is approximately 3,600 pF. Several capacitors of smaller values in parallel are used to make up a total of approximately the required value. Likewise, R3 is

each of the two capacitors, the resultant of the two in series making a capacitance of 0.01 μ F. across the coil. (As a convenient way of arriving at the size of coil needed to resonate at 440 Kc. a coil was wound that would resonate at 4,400 Kc. with 1/100 of the capacitance, or 100 pF.) A crude attempt was made to match the 0.02 μ F. capacitors by connecting them across an audio oscillator and measuring the voltage drop across individual capacitors until a pair with essentially the same drop was found.

Wire wound controls were used at R1 and R2 because they were found to be more reliable and positive in their action than carbon units.

* Reprinted from "QST," October, 1962.

† 22 Pitt St., Randwick, N.S.W.

² Bigler, "A Sideband Package," "QST," June, 1958.

³ Vitale, "Cheap and Easy S.S.B.," "QST," March, 1956.

⁴ Earnshaw, "An Improved Phase Shift System," "CQ," November, 1959.

CRYSTAL FILTER

The output of the balanced modulator feeds a conventional Class A amplifier stage (see Fig. 2) which is followed by a single half-lattice filter. It is possible to overdrive the 6AG5, so the input coupling should be adjusted to avoid this.

The use of a single half-lattice filter in this combination gives all the results required. Surplus crystals were used and, since it is a difficult job for most Amateurs to alter the frequency, a different approach was used in selecting the basic frequency in respect to the filter curve. A study of the surplus-crystal frequencies available, shown in

between the two filter-network crystals was sufficient. This represents the difference between Channels 320 and 319. Then, depending on the type of microphone in use and the general pitch of the operator's voice, the carrier frequency chosen was 463 or 1389 cycles below the lower-frequency filter crystal. The carrier crystal frequency in Fig. 1 is shown as 441.666 Kc.

This procedure is so simple, and gives such good results, that it is advisable to purchase a few odd crystals with which to experiment. The aid of other Amateurs should be enlisted and their opinions sought and studied to decide which carrier frequency is the most

tried in the experimental model but were not found necessary. C3 was made by twisting together two pieces of insulated wire.

SIDEBAND SELECTION

Sideband selection is accomplished by shifting the frequency of the oscillator feeding the balanced mixer. The system of selection used in the original "Package" was ingenious, but it may give rise to a possible source of trouble. In the frequency-multiplying stages any generation of a fifth harmonic might be applied to later stages and appear as carrier. It is not possible to balance out this fifth harmonic and so the practical carrier suppression may not be satisfactory. Some fifth harmonic energy is always generated in the multiplying stages and can feed into the output stage by devious routes.⁶ With the cheapness and availability of crystals ground to a desired frequency, the method shown in Fig. 2 is an easy way to avoid this possible difficulty. The two crystal frequencies should be spaced twice the carrier frequency. Crystals ground to specified frequencies may be obtained reasonably from several firms advertising in "A.R."

CONSTRUCTION

Physically, the unit was constructed to replace the original generator in the "Package". However, a 5" x 9 1/2" x 3" chassis was used to allow mounting of some of the components underneath. The first things mounted were the carrier-insertion potentiometer and the sideband switch to fit in exactly the places occupied by these controls in the original unit. From then on, parts were mounted with an attempt to keep r.f. sections as well spaced and isolated as possible to avoid unintentional coupling. The audio transformers were mounted underneath on opposite sides of the chassis. The diodes were mounted between the balancing potentiometers and the 0.02 μ F. capacitors, as well spaced as possible and at right angles.

The balanced modulator coil, L1, was mounted above the chassis and covered with a shield, while the Class A input coil, L6, was mounted underneath.

ADJUSTMENT

In the adjustment of any s.s.b. transmitter, the use of a v.t.v.m. with an r.f. probe is almost mandatory. The first step in the adjustment is to see that the two crystal oscillators are operating properly. In the low-frequency oscillator, the input to the arm of each balance potentiometer is about 2 volts peak to peak. This is not a very large value, but it is quite sufficient for the purpose.

The next step is to peak all of the tuned circuits. To do this, the crystals are removed from the filter, and one of them put in the oscillator. A spare FT-243 crystal, or a capacitor of about 10 pF., is inserted in one of the filter sockets to provide a small amount of capacitive coupling across the filter.

Set the phasing capacitor, C2 to minimum, and unbalance the modulator

⁶ This was not definitely confirmed by the author, nor has this difficulty been reported by anyone who has built the "Package." Adequate shielding of the multiplier stages is important, of course.—Editor "QST."

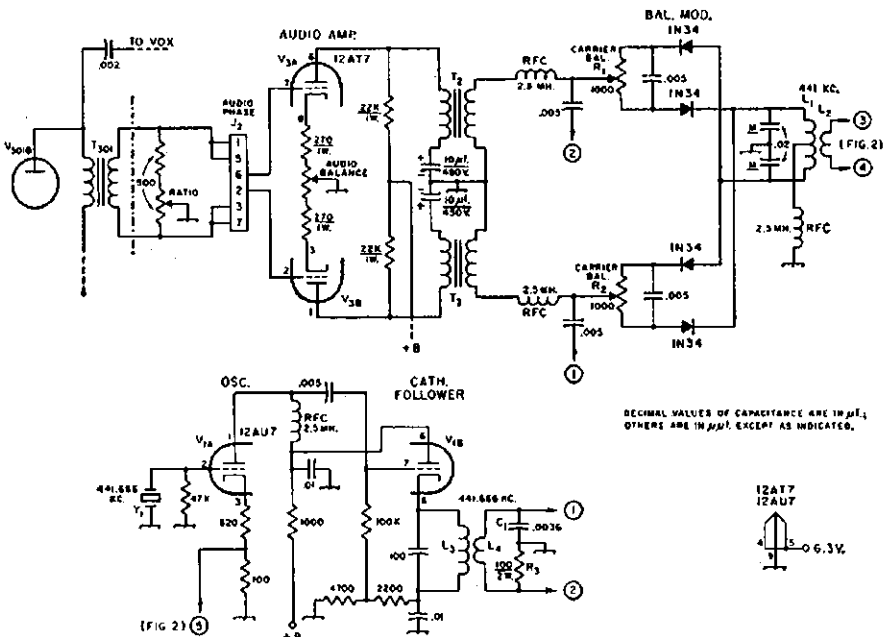


Fig. 1—Audio and r.f. phasing circuits. Audio output from T301 in the "S.S.B. Package" now goes to the W2EWL phase-shift circuit (portion between broken lines in which original component designations are used) instead of to the balanced modulator. R.f. input to the W2EWL balanced modulator is now at 440 Kc. instead of 9 Mc. Semiconductors replace vacuum diodes in W2EWL's balanced modulator. The oscillator circuit is a modification of one used in the "Package". Resistances are in ohms, and fixed resistors are 1/2 watt unless indicated otherwise. M indicates mica. Other fixed capacitors not listed below are disc ceramic. Values in the W2EWL portion of the circuit are the same as in the original.

C1—Mica capacitors in parallel (see text).
L1—40 turns No. 24 enamelled, 1/4 inch diam., close wound.
L2—13 turns wound over centre of L1.
L3—Approx. 1.3 mH. (see text).

L4—25 turns wound at ground end of L3.
R1, R2—Wire wound control.
R3—Nominal value (see text).
Y1—Channel 318 (surplus).

the following table,⁵ will reveal recurring frequency differences of 1389, 463, 926, 463 and 1389 cycles when two-digit and three-digit channel numbers are interspersed.

Channel No.	Fundamental Freq. (Kc.)	Difference Cycles
317	440.277	
38	440.740	463
318	441.666	926
39	442.592	926
319	443.055	463
40	444.444	1389
320	444.444	0
321	446.296	1389
41	445.833	463
322	447.224	926
42	448.148	926
323	448.611	463

By experimenting it was found that a frequency separation of 1389 cycles

satisfactory from an audio point of view in each particular case. This may not seem to be a very scientific approach to the problem, but it represents by far the most satisfactory method from the practical angle.

A variable phasing capacitor (C2) is necessary for adjusting the filter to optimum. To provide a range of adjustment, a small fixed capacitance in the vicinity of 2 to 5 pF. is placed across the lower-frequency crystal, and a small variable capacitor of about 3 to 12 pF. or so across the other.

The transformers used in the filter are of the ordinary type, padded to approximately 440 Kc. and provided with a capacitive centre tap.

BALANCED MIXER

The balanced mixer stage (Fig. 2) uses a 6BU8, which has worked very well and gives a conversion gain of about five. Balancing controls were

⁵ Mason, "Surplus Crystals," "CQ," January, 1957.

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by running one of the balancing potentiometers to one end. With the output stage of the exciter feeding a dummy load, and with some sort of output indicator, such as a v.t.v.m., connected across the load (or a receiver tuned to some output frequency of the transmitter, as described in the s.s.b. chapter of the A.R.R.L. Handbook), all tuned circuits are peaked.

Next, adjust the injection from the crystal oscillator to give maximum gain in the conversion stage. With S1 set to the low frequency crystal, set C5 near maximum capacitance and adjust L7 for maximum injection. Then adjust C3 for optimum injection. Now turn S1 to the high frequency crystal and adjust C4 for the same injection. If the same injection cannot be obtained, it may be necessary to repeat the process with C5 set to a lower or higher value. Optimum injection is a matter of only a few volts. Since this oscillator feeds into a high impedance load, it is easy to overdrive the mixer. As a matter of fact, care must be used constantly to avoid overdriving at any point in the system. Overdriving is a most common fault in many s.s.b. transmitters. It is always better to underdrive than overdrive, so always set the levels a little on the conservative side.

The next step is to see that the circuitry associated with the filter is functioning properly. To do this, remove the FT-243 crystal (or capacitor), and leave the two filter sockets empty. Now vary the phasing capacitor to see if the signal fed through to the output passes through a minimum. It is necessary to find this minimum so that in the final adjustment the capacitor can be set correctly for the most symmetrical response. The null point represents the point at which the circuit is neutralised. This point will be very close to the final correct position. Whatever signal that passes through after the null has been obtained is fed around the filter through stray paths. With the combination of phasing and filtering, a small amount of stray signal is of no importance.

The balanced modulator should now be checked for carrier feed-around. This subject is seldom given sufficient consideration. To make this check, replace the 10 pF. capacitor in one of the filter sockets and then disconnect the two r.f. leads from the balancing potentiometers of the modulator. Put the 441.666 Kc. crystal in the oscillator and then listen on a receiver to one of the transmitter output frequencies. Any signal heard is a result of leak-around and must be minimised.

although they were many inches apart. Shielding of both tubes is necessary. Time spent in getting rid of this leak-around will give you a much better signal.

Now the r.f. leads to the balancing controls can be replaced and the carrier balance controls adjusted for maximum suppression. The greater part of the carrier suppression takes place in the balanced modulator with a little additional help from the filter. (The main contribution of the filter is in elimin-

★
Bottom view of the filter/phasing side-band generator. The audio output transformers are mounted at right angles to the left. L5-L6 is mounted against the lower side of the chassis. The balanced modulator diodes are at the centre. Shafts extending to the right are R5 (above) and R1 (below).
★



Shielded wiring should be used in all power circuits. Remember that a capacitance that makes a good bypass at 9 Mc. may not be sufficient at 440 Kc. The voltage picked up at the cathode of the 441.666 Kc. oscillator should be the minimum required to give full carrier reinsertion, since it was found that there was quite a large amount of leak-around directly from the oscillator to the 6BU8 stage. The voltage required at injection grids of the 6BU8 is only on the order of 300 millivolts, peak to peak.

It was found necessary to shield the balanced modulator output coil. After all other steps had been taken to minimise the leak-around, it was found that there was still slight leakage between the oscillator and mixer tubes,

ating the unwanted sideband.) Even without the filter, the residual carrier should be well down in the hum or noise. The stability of carrier suppression of this high degree is quite good, but not absolute.

The next step is to set the sideband suppression controls. This is done first for the phasing system, with crystals removed from the filter and the 10 pF. capacitor substituted as described earlier. By far the easiest and fastest way to set the ratio and audio balance controls is to feed in a single tone of about 1,000 cycles and adjust for minimum response on the unwanted sideband, using a receiver of sufficient selectivity; otherwise, you will have to make use of an oscilloscope pattern. When the audio phasing controls have been set, replace the filter crystals and set the filter phasing capacitor, C2, for maximum sideband suppression. It is in this step that you will need some sensitive detecting device, since the degree of sideband suppression will test the capabilities of any receiver. It gets to a point where it is hard to decide which to believe—the receiver or the generator.

An important point to watch in these adjustments for sideband suppression is to be sure that the same sideband is suppressed in both the phasing system and in the filter. If it becomes evident that opposite sidebands are being suppressed in the two sections, this can be corrected by reversing one set of audio output leads, or the r.f. input leads to the balanced modulator. The setting of the filter phasing capacitor for maximum suppression should come very close to the previous setting made for balance in the crystal filter. Once the suppression controls have been set, the tuned circuits can be repeated. In all of these adjustments, it is very essential to be sure that no stage is overloaded, since this may lead to false indications.

(Continued on Page 19)

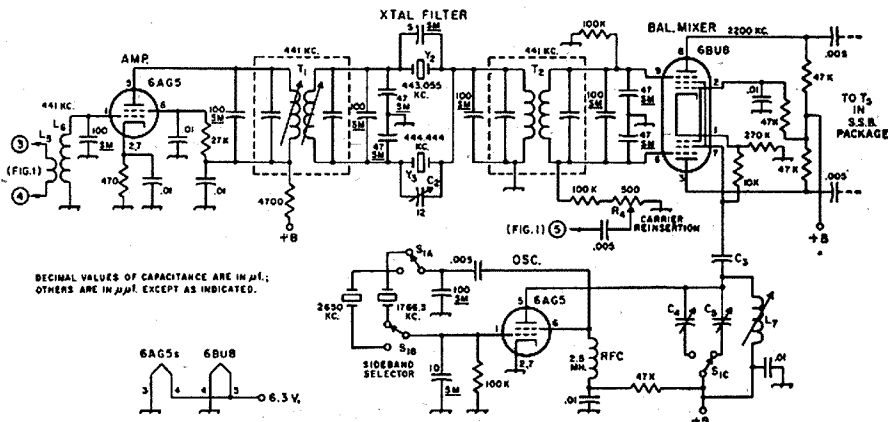


Fig. 2.—Crystal sideband filter, balanced-mixer and sideband-selector circuits. This section fits between the balanced modulator of Fig. 1 and the 2,250 Kc. mixer of the "Sideband Package" circuit. The sideband selector replaces the original system in the "Package". Resistances are in ohms, and fixed resistors are 1/2 watt unless indicated otherwise. SM indicates silver-mica capacitor. Other fixed capacitors not listed below are disc ceramic.

C2—3.5-12 pF. trimmer.
C3—"Gimmick" (see text).
C4—85-340 pF. trimmer.
C5—100-500 pF. trimmer.
L5—5 turns over ground end of L6.
L6—Same as L3 (Fig. 1).

L7—20 μH. iron-slug coil.
R4—Wire wound control.
S1—Three-pole, two-position rotary switch.
T1, T2—455 Kc. i.f. transformers.
Y2—Channel 319 (surplus).
Y3—Channel 320 (surplus).

Multiband Mobile Antenna Loading Coil*

E. ZIEMENDORF, W2IGI, and J. LAMPUS, W2KJV

TO most mobile Hams the antenna system presents certain limitations and problems. Multiband operation multiplies the difficulties in nearly direct proportion to the number of bands used. Some of the problems have been overcome over the years by experimentation and "home-brewing," and it is the purpose of this article to describe the results of a recent effort to improve on multiband mobile antennae. Specifically, the article describes the details of construction of a tunable mobile loading coil for the bands from 75 to 10 metres.

The construction of the coil will present no problem to the Ham having access to a small machine shop. Because each Ham may have other sizes and dimensions of material available than those shown in the cutaway view, Fig. 1, drawings and dimensions of the individual pieces will not be shown.

The body of the loading coil is a paper-laminated phenolic tube (Spaulding Fiber) 1½" o.d. by ¾" i.d. by 10"

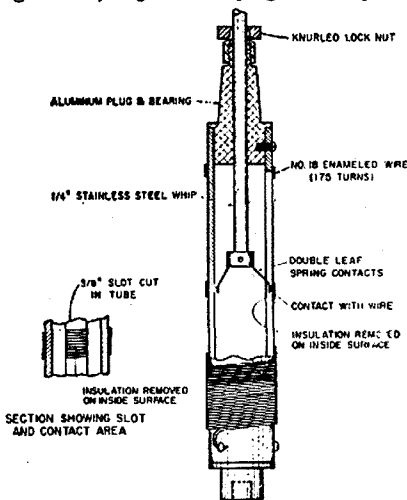


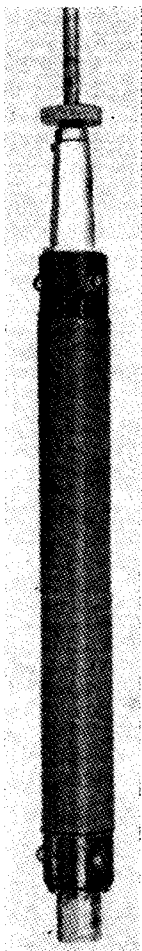
Fig. 1.—Cutaway drawing showing the constructional features of the loading coil. The dimensions can be varied to suit materials available.

long. A longitudinal slot ¾" wide by 8" long is cut in the tube. The ends of the slot are equidistant from the ends of the tube. Contact between the slider and the inside of the wire is made through this slot to provide tuning adjustment.

The slider contacts were made from heavy-duty spring contacts obtained from a defunct Centralab JV-9002 switch. Two of these are soldered 180 degrees apart to a collar which is then fastened to the main whip with set screws. One spring contact rides on the inside of the fibre tube and provides electrical and mechanical stability. The other contact rides on the inside surface of the wires, which have been cleaned of insulation.

Because of the danger of shorting turns, a chemical cleaner could not be

used to remove the insulation from the inside of the wire. Several slow and unsuccessful methods were tried before it was found that coarse sandpaper placed on a flat, narrow piece of material with a long handle could be used to abrade the inside surface of the wire. This method quickly removed the insulation along the length of the slot. It is essential that good contact be made between the wire and the sliding contact, to prevent noise and detuning.



External view of the coil, whip bearing and locking system.

Additional support for the whip, to help prevent the contact on the wire from moving, is provided by a fairly long bearing at the top of the coil. The aluminium plug and bearing is about 2½" long. The hole to pass the whip rod is a snug fit to help hold the contact secure. A Millen No. 10062 shaft lock holds the whip firmly in position after tuning to the desired frequency. The loading coil is secured to the base section by another aluminium plug tapped for ¾-24 thread. Both of these end pieces are fastened to the inside of the fibre tube by three 8-32 machine screws

spaced 120 degrees apart. The ends of the wire are fastened under one of the screws at each end of the coil. The electrical circuit of the antenna is shown in Fig. 2.

CONSTRUCTION AND ASSEMBLY SUMMARY

The coil is wound with 175 turns of No. 18 enamelled wire. The winding just covers the slot. The inductance with the slider all the way to the top (approximately 2.8 Mc.) is 120 microhenrys, with a Q of 150. About 80 μH. is used at 4 Mc. Before the coil is wound, the form is sprayed with Krylon to reduce the effects of moisture. Several coats are later sprayed on the completed coil to help hold the wire in place and for atmospheric protection.

The inside of the coil wires must be well cleaned. This will prevent detuning during transmissions and eliminate "intermittents" during reception. A good snug fit in the bearing plug will aid in maintaining good contact between the slider and wire.

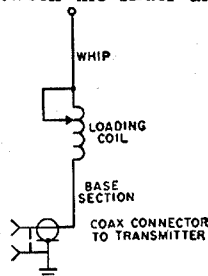


Fig. 2.—Electrical circuit of the whip antenna with loading coil.

The whip is marked for the various bands and frequencies, which are then permanently stamped in the proper places. It was found that the 75 metre phone band could be covered with two settings, by tolerating a slight power loss at each side of a centre frequency. The other bands were calibrated at only one setting. This permitted optimum adjustment for any frequency within a given band. When operating on the 75 metre band the slider is set near the top, while on 10 metres the slider is at or near the bottom of the coil.

The antenna loading coil system shown in the photograph has been used for about six months under all conditions with good results. No detuning or noise has been experienced. Power as high as 60 watts into an Elmac AF-67 has been used without any difficulty.

This antenna tuning system has solved most of the problems encountered with tapped coils, outside sliding contacts, cumbersome LC tuners and others. It is small, neat, stable and, after calibration, easy to adjust to resonance on any band.

No measurements of any sort other than those mentioned above have been made on the coil. Successful QSOs are being made and it is felt that this provides a good indication of its operating characteristics.

* Reprinted from "QST," April, 1962.

High Altitude Nuclear Explosion at Johnson Island and Associated Effects on H.F. Signals at Hobart, Tasmania

LEN EDWARDS,* VK7LE

WITH the news some months ago that the U.S.A. intended to explode a number of nuclear devices at various altitudes above Johnson Island in the Pacific Ocean for the purpose of observing effects on radio communications, it was considered probable that some disturbance to long distance h.f. communications would be observed in Hobart on signals whose path passed close to the area.

After considering the problems involved it was decided to make an attempt to observe any such effects and in order to get maximum information from the observations, the following basic requirements would be necessary:

- (1) As many frequencies as possible should be observed.
- (2) The transmission path should pass through or close to the explosion area.
- (3) The observed stations should transmit for the full 24 hours each day.
- (4) A time standard should be available for accurate timing of any observed effects.
- (5) Received carrier strength and modulation should be observed.

The equipment available for the observations was three receivers, one twin-pen recorder, and two magnetic tape recorders, thus limiting the number of observed frequencies to two, and after a search for suitably located stations, it was found that the WWVH transmitters run by the American National Bureau of Standards and located at the Hawaiian Islands admirably fulfilled all requirements.

WWVH transmits continuously on frequencies of 2.5 Mc., 5.0 Mc., 10 Mc., 15 Mc. and 20 Mc. The modulation consists of standard frequency tones and one-second standard timing pulses which are controlled within very fine limits and therefore eminently suitable for timing any observed effects.

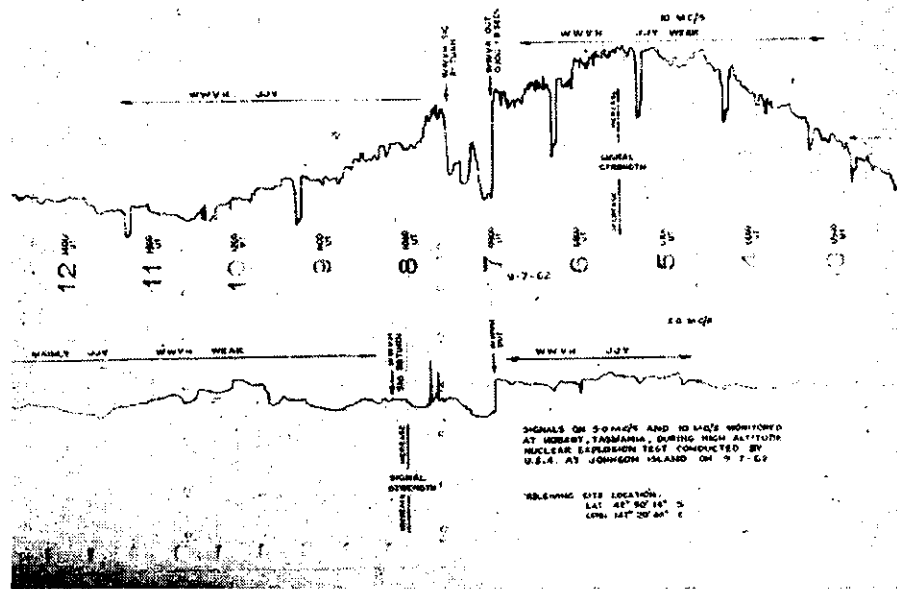
The signals at Hobart from these stations were checked on the various transmission frequencies and it was found that 10 Mc. and 5.0 Mc. were the only frequencies consistently received, the 10 Mc. signal being received with good strength between 2 p.m. and 5 a.m., a total of fifteen hours each day, and the 5.0 Mc. signal was received for approx. twelve hours each day from 4 p.m. to 4 a.m. These frequencies are shared on an international basis by frequency standard stations in other parts of the world, and at certain times other stations were received along with WWVH, however as all have carrier frequencies controlled to international standards no heterodynes are evident.

The stations received constantly were JJY in Tokyo, WWV in Washington, BPV in Peking and HBN in Switzer-

land. Most of the time the signal from WWVH was predominant and readily identified on the chart by the carrier break of several minutes at 15 minutes past each hour.

This carrier break provided a ready time check on chart speed and also a check on the relative strength of other stations on the frequency during the off-air period. The audio output of each receiver, consisting of standard time signals, was fed to tape recorders which were switched on five minutes before the expected time of the explosion.

The rocket launching which finally resulted in the successful explosion was scheduled for 0900 hours U.T. on 9/7/62 (UT being essentially the same as GMT). Rocket lift off occurred at approx. 15 minutes before detonation of the device and the flight apparently continued normally until "zero" at 0900 hours. The start of the count-down zero time pulse coincided with the 0900 time pulse from WWVH, and although the count-down pulse appeared to be cut short and disappeared with a burst of static, the signal from WWVH



Pen recordings showing effects of high altitude nuclear explosion at Johnson Island on 10 Mc. and 5 Mc. signals received at Hobart from station WWVH in Hawaii. The sharp cut-off for both frequencies at the time of the explosion is clearly shown at 0900 U.T. (7 p.m. E.S.T.)
—Photograph by courtesy of VK7LJ.

Continuous charts of the signal strength on 5.0 Mc. and 10 Mc. were made for approx. six weeks before a successful launching occurred at Johnson Island, and during this time a daily pattern of signal strength was established for comparison with signals received during and after the event.

The third receiver was used to monitor the count-down which was broadcast on several frequencies by American stations in the area. These status broadcasts, operating under the code name "April Weather", gave details of the count-down on s.s.b. on frequencies of 4631 Kc., 9253 Kc., 12020 Kc., 15515 Kc. and 17473 Kc. It was found that 12020 Kc. and 15515 Kc. gave best signals at Hobart. It was noted that the count-down time signals appeared to be synchronised with the time signals radiated by WWVH.

on 10 Mc. continued until the 9th second pulse and then also cut out completely with a sharp click. Due to misoperation of the tape recorder the exact cut-off time of the 5.0 Mc. signal was not observed but the pen recorders on each frequency were observed to drop at the same time. Tape recorders showed that the signals from WWVH disappeared completely on both frequencies.

On 10 Mc. the signal returned weakly approx. 12 minutes later and then faded out again, gradual return to normal took place 32 minutes after the explosion, but faded again approx. 16 minutes later. It appears from the chart that WWVH signals were only present at 1115 UT and 1315 UT with little other evidence of signal for the rest of the night. The signal on 5.0 Mc. returned

(Continued on Page 19)

* 10 Musgrove Road, Lindisfarne, Tasmania

Further Modifications to the No. 122 Transceiver

I have read many reports of the lack of modulation, etc., in the ex-Service No. 122 Transceivers. The modifications I put forward are not mine, being group contributed.

When I first received my No. 122 set, I found the modulation to be both poor and noisy. After much searching through the modulator circuit, I found capacitor C4C to be at fault. This was replaced and the modulation and quality of same was considerably improved. I could now overmodulate the carrier. Another friend had similar trouble (low modulation and distortion) and by the replacement of this capacitor the set performance was much improved. C4C is in the plate circuit of V3A, a 1H6G, and is a by-pass to earth of 200 pF.

Another modification is to vary the size of the feedback capacitor C17A in the modulator circuit. The higher the value of this capacitor the less modulator gain, and vice-versa. In my set, with the feedback circuit cut out, the gain was too high, resulting in reports of microphonic modulator valves.

To get loudspeaker operation, solder a 0.01 μ F. 600v. paper capacitor, or similar, from the second lug from the chassis end on the side nearest the front panel of the driver transformer T4A. The other lead is then taken to the line jack, the lead is soldered to this jack after cutting the other lead off the line jack. A high impedance

speaker transformer is connected with a suitable speaker to the line jack. The output is quite satisfactory, even for mobile work.

I found the sidetone a bit too high in level, so I "borrowed" relay RL4 contacts 26 and 27 to switch in a 22K half-watt resistor on transmit. This cut the sidetone sufficiently so that no feedback was evident.

The next one is for those who are not thrilled with pulling the unit to pieces to change crystals. I obtained an ordinary two-pole four-position Oak switch and fitted it in place of the original oscillator control. I had to completely strip the switches and rebuild them, as a switch of sufficient shaft length is not normally available. I fitted the extra crystal socket on the front panel just above and to the side of the switch shaft. A word of warning here! Make sure there is very little capacity coupling between the two wires or your crystals may not oscillate.

Fitting a co-axial aerial socket is a must and this can be fitted near the meter.

There are many modifications that can be done to these sets, many of which have been published in earlier editions of "Amateur Radio". (These include "Wireless Sets No. 22 and 122," July 1959; "Hint to 122 Transceiver Owners," April 1960; and "Modifications to No. 122 Set," January 1962."—Editor)

These sets are not the easiest to work on, but with care everything can be got at, and the resulting performance after modification makes it worthwhile.

—Rodney D. Champness, VK5ZCD.

Fools' Modulation

NOT everyone agrees with this explanation of f.m. as some people think it is a fine mode to use.

F.m. is now being used on 2 metres by Melbourne Amateurs and interest is certainly increasing.

Equipment being used is mainly of commercial origin, but don't despair, changed P.M.G. regulations will remove from commercial service a lot of gear ideal for Amateur use. However, a v.f.o. and reactance tube works nicely and the evergreen 522 is a natural for f.m. net use.

The f.m. network frequency in Victoria is 145.854 Mc. Crystal multiplication to achieve approx. 10 kc. deviation is .36. Audio limiting and a.g.c. are also used to maintain high average modulation levels. Receivers should contain two limiter stages as adequate limiting will provide best results. Remember there are less components in a limiter stage than an i.f. amplifier and an f.m. detector is not really complex.

F.m. is easily copied using slope detection with a conventional a.m. receiver, but don't condemn f.m. Under these conditions f.m. is only 25% as effective as an a.m. transmitter of the same power.

A good f.m. receiver should limit with a 1 microvolt signal giving a Readability 5 signal. With f.m., all signals are Readability 5 (unless there's little deviation) and signal strengths are weak or strong. Gone are the days of lament when you get S7 in return for your statement of S9+ incoming.

Vertical polarisation is recommended which follows commercial practice of a quarter wave vertical whip antenna.

Mobile operation is most popular as interference (ignition, etc.) does not appear. This is most welcome. Most mobiles run 20 watts input to the 2E26 final and to the writer's present knowledge about 40 of these units are in Amateurs' possession. About 20 larger units (p.p. 2E26s) are known to be in Amateur hands and in the process of conversion, some running inputs as high as 120w.

This f.m. net (145.854 Mc.) will, I feel, expand rapidly and provide an excellent basis for W.I.C.E.N. or emergency use.

Is a.m. better than f.m., or is h.f. better than v.h.f.? No matter what your answer is, all modes and all bands should be used.

Care should be taken to ensure that all 2 metre f.m. stations operate on the correct frequency.

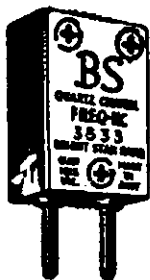
If any information or assistance be required, please contact the writer, A. J. Stewart, VK3ZFS, 11 Woodstock Ed., Mt. Waverley, Vic. or J. Spicer, VK-3ZEL, 413 Stephenson's Rd., Mt. Waverley, Vic.

Conversion of the 522 for f.m. use is planned and details will be published as soon as possible.

—VK3ZFS.

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AN EFFECTIVE NOISE SILENCER* USING A SEPARATE NOISE RECEIVER

G. T. SASSOON, G3JZK

IN the design of many of today's communications receivers, a much neglected feature is the noise limiter. This is possibly due to the fact that commercial users can pick their QTH, and therefore are not likely to be troubled by ignition noise to the same extent as Amateurs—a fact of which the designers of many specialised Amateur-band receivers do not seem to be aware. Furthermore, the increase in road traffic makes the ignition noise problem still more acute, particularly, of course, to the mobile worker.

The deficiencies of the conventional diode clipper-limiter type noise suppression circuit are well known. At best, they are barely effective on weak phone signals, and almost totally ineffective on s.s.b. Various solutions have been proposed: the Lamb noise silencer (first described in "QST" for Feb. 1936) is a lot more effective, although still suffering from certain inherent disadvantages; and, more recently, the Collins Radio Co. have marketed a silencer similar in principle to that described here. However, neither circuit seems to have achieved much popularity on this side of the Atlantic, so the present article may be of some assistance to fellow-sufferers from ignition QRM.

PRINCIPLE OF OPERATION

Consider the block diagram of Fig. 1. A noise pulse radiated by a car's ignition system is picked up by the noise and main aeriads simultaneously. It is amplified and detected by the noise receiver, which operates at about 40 Mc., and the rectified impulse is then used to trigger a monostable flip-flop circuit. This produces a long, negative-going pulse, which is applied to the balanced gate in the main receiver i.f. chain, so as to switch the receiver off for a period. In the meantime, the noise pulse has also been coming through the main receiver front-end. However, the bandwidth of the latter is comparatively narrow—a few kilocycles, as compared with over a megacycle for the noise receiving section. Therefore the noise impulse will take some time to build up to full amplitude at point D—much longer than it takes at point C. This is illustrated in Fig. 2. Thus, it is evident that the silencing impulse will have cut off the gated stage some time before the pulse arrives via the main receiver at point D, and so the net noise output from the gated stage at E will be very little. What we have done in effect, is to switch the receiver off for the duration of the noise pulse.

This system works very well, but there are a number of critical points about the design which must be taken into consideration. First, every precaution must be taken to maintain the highest possible bandwidth in the noise

● This interesting article describes the practical application of noise quenching to an Amateur-band receiver, and is based on the sophisticated Collins design for QRN suppression, known as the Noise Blanker. An essential factor in the success of the unit described here is the R.C.A. 7360, a valve of an unusual type with special characteristics. Our contributor has been obtaining very satisfactory results with this noise suppressor for some two years, and has used it successfully on v.h.f. as well as on the h.f. bands. It is an important development in contemporary Amateur-band receiver design.—Editor, "The Short Wave Magazine."

receiver; this has necessitated the use of two pentodes for the flip-flop, where otherwise a double triode might have sufficed. Also, the first half-cycle of a noise pulse could be either positive-going or negative-going at the detector input; for this reason, it is necessary to use a full-wave detector.

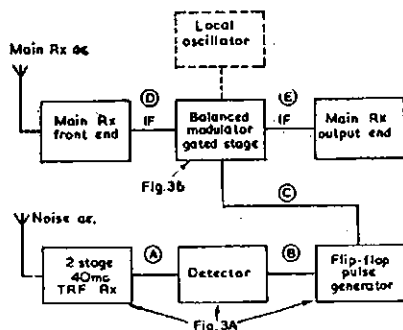


Fig. 1.—Block diagram of silencer and associated receiver. The circuit arrangement is explained and discussed in the text. The local oscillator is included if the gated stage is also serving as a frequency-changer.

Secondly, if the bandwidth in the noise receiver is made high enough, then the silencing pulse itself will contain components at the i.f. Therefore, if a single-ended gated stage were used, the silencing pulses would appear in the output, defeating the entire purpose of the unit. If a low-pass filter (cutting off signals at the i.f.) were placed (say) at point C in Fig. 1, the bandwidth would be too small and the silencing pulses would arrive too late. For this reason, a balanced gate is essential; it must be set up so that no component of the silencing impulse can appear in the output. In practice, the balanced gate proved to be the most difficult part of the design and, in fact, a satisfactory solution was not achieved until the R.C.A. 7360 became available.

The primary objection to this silencer, as regards fitting it to existing receivers, is that it is necessary to break into the i.f. chain. There is no real solution to this problem and, even if there were, it would be most difficult to prevent the stray coupling which would enable the noise pulses to bypass the gated stage. Ideally, the unit should be built in conjunction with an outboard i.f. strip. The balanced gate may also be used as a frequency-changer, simply by feeding in a local oscillator signal in parallel with the silencing pulses, and taking output at the desired frequency. It is hoped in due course to use the existing unit in this way to change from 450 kc. to an 85 kc. i.f. This can be done by feeding in a crystal-controlled signal at 535 kc. and installing an 85 kc. transformer on the output side.

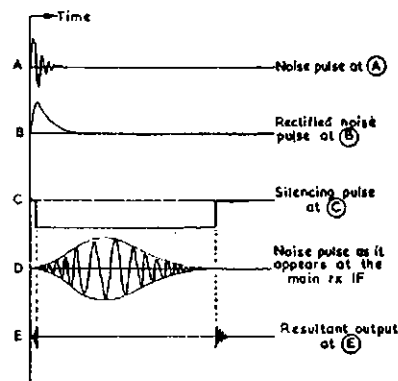


Fig. 2.—Waveforms of a noise pulse as it appears at various points in the block diagram, Fig. 1.

In operation, the unit is most effective on s.s.b. signals, and when listening on those (rare) spots on the h.f. bands where there are no signals. On c.w. the holes are occasionally noticeable, particularly when they occur in the middle of a dash; however, only at the highest speeds could this cause a dash to sound like two dots. On strong a.m. signals, however, the holes are distinctly audible, particularly when it is necessary to increase the hole length to cope with the noisier vehicles. Nevertheless, the amplitude of pulses present in the output cannot exceed that of 100% modulation of the incoming carrier, so that the performance of the unit at its worst is equivalent to that of an ordinary diode clipper at its best. On weaker a.m. signals, the holes are much less noticeable, and under no conditions do they make copying difficult.

CIRCUITRY

The noise receiver front-end (Fig. 3a) uses two 6AK5s, with conventional circuitry. Only two stages are necessary to give the required gain; owing to the broad-band nature of noise, the

*"The Short Wave Magazine," August, 1962.

noise output is proportional to bandwidth as well as to gain. This receiver has a bandwidth of about 2 megacycles (about 200 times that of a normal receiver), so only about 1/200 of the gain is required. The noise aerial can be any odd length of wire, although a vertical dipole placed strategically low down and near the road gives best results. (A 40 Mc. dipole is about 10 feet long, to save you working it out!) It is advisable to break the aerial connection to the unit when transmitting, to avoid damaging the r.f. stages with excessive grid current.

The anode of V2 is inductively coupled to the full-wave detector D1, D2; gain is deliberately sacrificed here by using a step-down at L3, to improve bandwidth. A negative-going pulse is delivered to the grid of V3, which is normally conducting. As a result, the anode of V3 delivers a positive impulse to V4 grid, V4 being normally cut off. If this impulse is sufficiently large to make V4 conduct, a negative impulse appears at its screen, which is fed back via the detector circuit and C18 to V3 grid, and the state of affairs reverses itself; V4 conducting, and V3 being cut off.

After a time, determined by VR1 and its associated 100K resistor R8 and 200 pF. condenser C16, the circuit reverts to normal. This produces a negative-going pulse at the anode of V4, the length of which is controlled by VR1. At the same time, a positive pulse appears at V3 anode, which is used to light a neon lamp, NE1. (This helps to fill up the panel, and gives an indication of when the unit is working.)

The negative impulse from V4 anode is fed to the control grid of the 7360 (Fig. 3b), which also has a diode (D3) fitted to protect it from positive-going surges, as recommended by the makers. The i.f. input is fed to the deflector electrodes of the 7360, balanced circuitry being used, since it gives a slight improvement in performance. (If, for any reason, this was inconvenient, it could probably be dispensed with.)

Cross-neutralisation is employed between deflector electrodes and anodes, using Philips' trimmers, VC1 and VC2, mounted on stiff wires over the valveholder. This is not strictly necessary to prevent instability, but is included to counter signal feed-through when the valve is cut off. Similarly, it is necessary to take every possible precaution to keep input and output isolated from each other. The input and output i.f. transformer, IFT1 and IFT2 (Fig. 3b), should be placed some distance from the valve, and the anode and deflector connections made with twisted pairs of wires. Using this ex-

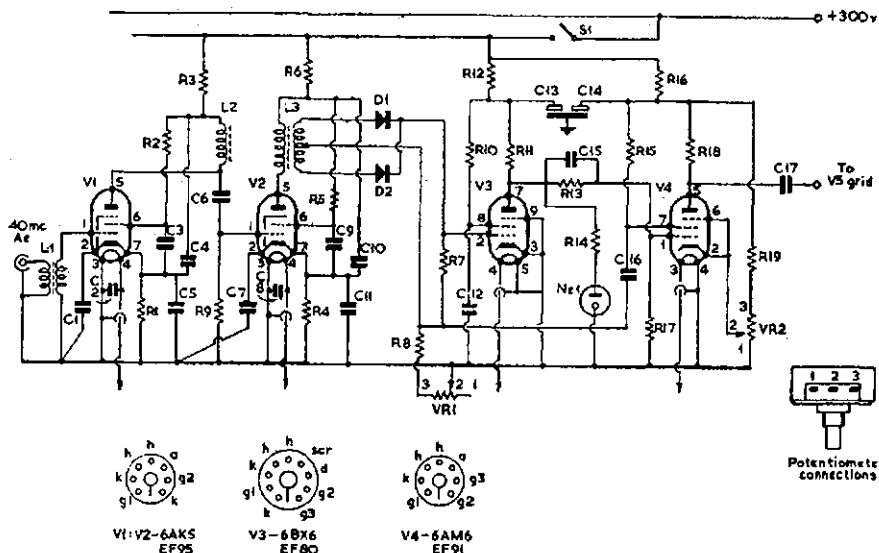


Fig. 3a.—Circuit diagram of 40 Mc. noise receiver and pulse shaper, the output of which drives the gating unit—see Fig. 3b. In the arrangement shown here V1, V2 constitute the broad-band v.h.f. receiver, in which D1, D2 form a full-wave detector. As explained in the text, the action of the circuit is to produce a negative-going pulse at the anode of V4, the length of which is controlled by VR1. The neon NE1 is merely an indicator, and will absorb the positive pulses. The general inter-connection into the main receiver is shown in the block diagram of the system, at Fig. 1.

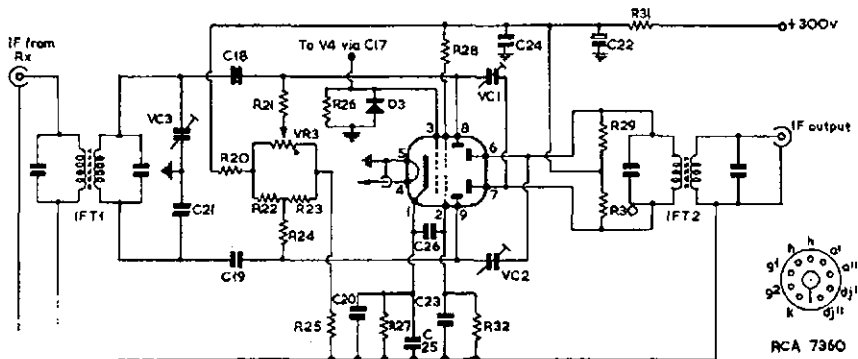


Fig. 3b.—The balanced gate unit, incorporating the 7360, which is driven by V4 in Fig. 3a. VC1, VC2 are neutralising trimmers, and the adjustment and setting-up procedures are discussed in detail in the text. When the silencer is working properly, there should be an absolute blanking of peaky-noise signals, such as car ignition. G3JZK has used the circuit for the last two years with great success, in a very noisy main-road location.

Table of Values for Figs. 3a and 3b.

C1, C2,	R13 — 560,000 ohms.
C3, C4,	R14 — 100,000 ohms; value depends on the
C5, C6,	neon.
C7, C8,	R16 — 10,000 ohms, 1w.
C9,	R17 — 330,000 ohms.
C10,	R19, R20 — 100,000 ohms, 1w.
C11 — 0.005 μ F. disc ceramic.	R22, R23 — 4,700 ohms, 1/2w.
C12 — 1 μ F., paper.	R25 — 12,000 ohms, 1/2w.
C13, C14 — 32/32 μ F., 450v. electrolytic.	R26 — 1 megohm.
C15 — 100 pF., ceramic.	R27 — 180 ohms, 10%.
C16 — 200 pF., mica.	R32 — 15,000 ohms.
C17, C20,	VR1 — 5 megohm log.
C23 — 0.1 μ F., paper.	VR2 — 25,000 ohms, wire wound.
C18, C19 — 0.001 μ F., ceramic.	VR3 — 5,000 ohms, wire wound, pre-set.
C21 — 15 pF., silver mica.	S1 — S.p.s.t. toggle.
C22 — 32 μ F., 450v. electrolytic.	NE1 — Panel-mounting neon indicator.
C24, C25,	D1, D2,
C26 — 0.005 μ F., disc ceramic.	D3 — Xtal diodes, any general-purpose
VC1, VC2 — 2-8 pF., Philips' trimmers.	type.
VC3 — 3-30 pF., Philips' trimmer.	V1, V2 — 6AK5, or EF95.
R1, R4 — 150 ohms, 10%.	V3 — 6BX6, or EF80.
R2, R5,	V4 — 6AM6, or EF91.
R28, R29,	V5 — R.C.A. 7380 (see text).
R30 — 22,000 ohms, 1/2w.	
R3, R6 — 12,000 ohms, 1w.	
R7 — 27,000 ohms, 1/2w.	
R8, R21,	
R24 — 100,000 ohms, 1/2w.	
R9 — 82,000 ohms.	
R10, R15,	
R18 — 33,000 ohms, 1/2w.	
R11 — 33,000 ohms, 1w.	
R12, R31 — 4,700 ohms, 1w.	

Notes: VR1, VR2 are panel controls, VR1 for "silencing-pulse length," and VR2 for "threshold." VR3 is the balancing control, see text. S1 is a panel control, for "silencer in-out." The neon NE1 should have its internal resistor removed; the value of R14, nominally 100K, will vary according to the characteristics of NE1.

pedient, it was found possible to do without full screening.

The i.f. transformer connections shown on the input and output sides are only suitable if the unit is to be connected by short lengths of coax. Otherwise, matching arrangements must be made, preferably including a cathode follower on the output side.

Chassis layout should be logical, with plenty of space left between stages. This is frequently as effective as sub-chassis screening for preventing instability. All power connections should be made with screened wire, and all r.f. stage heaters decoupled at the pins. Apart from the messy agglomeration of components round the 7360 base, the unit should present few problems constructionally.

ALIGNMENT

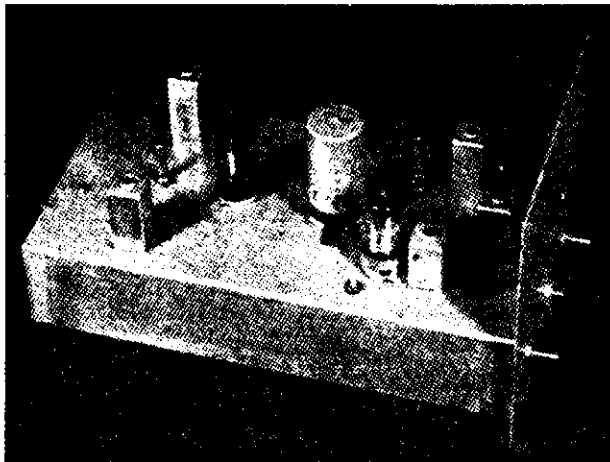
After assembling and checking all wires, insert the 7360, connect up the i.f. leads, and switch on. If all is well, signals should be audible. Tune in a strong station and peak up the i.f. transformers with VC3 (Fig. 3b) at the middle of its travel. Then connect

oscillate provided that the layout is sensible, all decoupling condensers are present, and the coils are in cans or otherwise isolated.

When the noise receiver is functioning correctly, plug in V3 and V4. The neon, fully lit hitherto, should go out. If VR2 is advanced (clockwise), the neon will light brightly to the accompaniment of a high-pitched squealing from the loudspeaker. Bring VR2 back to a point well below that where the oscillation ceases. The unit should now work after a fashion, but it is still necessary to adjust the balancing controls at the 7360. For this purpose, a test signal is necessary. This is most conveniently provided by an unsuppressed vehicle parked as close as possible to the noise pick-up aerial and ticking over. (However, caution should be exercised in using this method if the vehicle is on the road, since it is an offence to leave it unattended with the engine running. So unless the XYL can be persuaded to go and sit in it, something else must be found; possibly an electric buzzer or bell left running would suffice.)

acteristics and suggested applications. They are somewhat expensive, 55/- (Sterling) each about two years ago, but worth it in that they permit considerable circuit simplifications. They consist in principle of an electron gun, a pair of deflecting electrodes much like those in a c.r.t., and a pair of anodes. The gun projects a sheet beam of electrons between the deflectors, on to the anodes. When the deflectors are at the same potential, each anode receives an approximately equal share of the current. Any difference in deflector potential causes the relative anode currents to change, whereas if both deflectors are changed in potential by the same amount, the anode currents are virtually unaffected. At the same time, the total anode current can be modulated by the control grid. This valve lends itself to numerous applications. For example, it could be used as an audio phase splitter, with earthed control grid, audio input to one deflector, and outputs from the anodes.

However, its principal application is for balanced modulator use in s.s.b. equipment; for this purpose it is of considerable value, since it makes it possible to build a balanced modulator with two single-ended inputs.



The noise silencer unit as designed and constructed by G3JZK and fully described in the article. Once adjusted, and incorporated into the main receiver, its operation is automatic. It will give almost complete noise suppression and within certain limits the higher the stray noise level, the more effective the action of the limiter. It is based on an advanced and very sophisticated design used commercially by the Collins Radio Company.

a 22½-volt deaf-aid battery between 7360 grid (negative terminal) and earth (positive terminal). This should cause an appreciable falling off in signal strength. Adjust VC1 and VC2 (the neutralising trimmers) for minimum signal. Disconnect the battery. The stage should now function again, amplifying strongly; it should give at least 70 db. reduction in signal when the battery is connected.

Next, the noise receiver should be aligned. Plug in the 6AK5s, and connect headphones across the 27K resistor R7 at V3 grid. Noise should be heard, increasing when the aerial is connected. Peak-up the cores of L1, L2 and L3. The exact frequency chosen for this is not critical; the most important consideration is that there should be no non-noise signals in the passband. (At Cambridge, a frequency just 1f. of t.v. Channel 1 Sound is quite satisfactory.) With good h.r. phones, ignition noise should be uncomfortably loud when the stages are correctly aligned. If no output is obtained, check for oscillation by connecting a voltmeter in place of the phones. However, the unit should not

Thus provided with a steady noise signal by one of these methods, the neon should flash regularly, and there should be a clicking from the receiver. To adjust the balance, back off the r.f. gain on the main receiver, and turn up the i.f. unit gain as much as possible. There will probably be a considerable amount of noise. Adjust VC3 and VR3 for minimum output; try touching up the neutralising trimmers if the null is not very sharp. Then return to normal listening conditions, peak up the i.f.s., and repeat the battery test to make sure. The unit should then be fully functional, producing virtually no noise when there is no input signal, and blocking any signals completely when cut off by the battery.

When finally it is working, the only indication you should ever receive of passing traffic will be a frantically flashing neon.

ABOUT THE 7360

As a postscript, a few words about this valve might be in order, although the makers' agents—R.C.A. (Great Britain) Ltd., of Sunbury-on-Thames—will provide full information on char-

ERRATUM

The author of "A 100 Watt P.E.P. Band-Switched Phasing S.S.B. Transmitter" (October 1962) has drawn attention to an error in the circuit on page 4. The 50 pF. coupling condenser in the output pi-coupler should be 500 pF.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK6RU	2	281	VK3WL	14	211
VK5AB	45	275	VK3ATN	26	204
VK6MK	43	270	VK4HR	12	182
VK3AHO	51	263	VK4RW	23	184
VK4FJ	21	244	VK3GB	50	183
VK6KW	4	211	VK2JZ	61	180

C.W.

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK3KB	10	307	VK3RP	56	229
VK3CX	26	291	VK3FH	15	228
VK2QL	5	279	VK3BZ	6	226
VK4FJ	29	274	VK2AGH	71	220
VK3NC	19	266	VK4HR	6	218
VK6RU	16	240	VK5RX	23	216

Amendments:		New Member:			
VK3XB	75	205	VK5JE	77	100
VK3ARX	66	203			
VK4SD	52	193			

OPEN

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK2ACX	6	300	VK3AHO	76	266
VK6RU	6	290	VK2AGH	83	265
VK4FJ	32	263	VK4HR	7	233
VK6MK	74	273	VK3BZ	4	231
VK3NC	77	269	VK3JA	43	229
VK3HG	3	267	VK3WL	45	225

Amendment:		
VK3TL	65	150

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HETERODYNE FREQUENCY METER WITH CRYSTAL CALIBRATOR*

Design, Construction and Performance

E. PAWSON, VQ5IB'G8AP

MOST Amateurs at times feel the need of a reliable frequency meter and it is, in any case, obligatory to have a means of ensuring that the transmitter frequency stays within the Amateur bands. Although many modern receivers incorporate a crystal calibrator, there are considerable advantages in having a compact separate instrument, which includes both a crystal standard and a stable, calibrated wide-range heterodyne oscillator. Good quality frequency meters can be purchased—the BC221 is well known—but, even secondhand, they are not cheap. In any case, it is the writer's view that building such a piece of apparatus (and getting it working satisfactorily) is not only very interesting, but also very instructive.

Having purchased a Brookes 100 kc. standard bar, in vacuum mounting on a B7G base, and having obtained a 1,000 kc. crystal from a No. 48 Set, the author decided to build both these

into a crystal oscillator, and to put a v.f.o. (as a heterodyne oscillator) into the same box. While there is nothing new in this idea, nor in the circuits used, the detailed arrangement, and the results obtained, may be of interest to other Amateurs.

FREQUENCY RANGE OF THE OSCILLATOR

Range switching was not considered acceptable, so attention was concentrated on a Clapp oscillator, of which the harmonics would be used on the higher frequency bands. This leaves one with the choice of covering most of the bands with rather poor band-spread, or providing mainly for the 7, 14 and 21 Mc. bands. The latter alternative was chosen, as good bandspread was considered essential; in addition, those three bands were of most interest at this station.

The heart of the instrument was to be the Eddystone 898 dial, the full traverse of which gives 500 scale divisions. It was finally decided to make

● This is a practical approach to a subject of interest to many an Amateur Radio operator—the provision of an independent, accurately calibrated and reliable frequency measuring unit. All such instruments—on our h.f. bands, at least—work on the principle of a variable frequency oscillator used as an external heterodyne wavemeter. The problem is to build and calibrate such an oscillator to the required degree of accuracy and stability. This article explains how it can be done on the Amateur work bench.

the calibrated range 3500-3600 kc. and to set the instrument so that this coincided with scale readings of 50 to 450 on the dial. Although the HO would, for convenience, be running on 3.5 Mc., its main function would be on the 2nd, 4th, 6th (and, to a lesser extent, 8th) harmonics. The following ranges would thus be spread over 400 scale divisions:

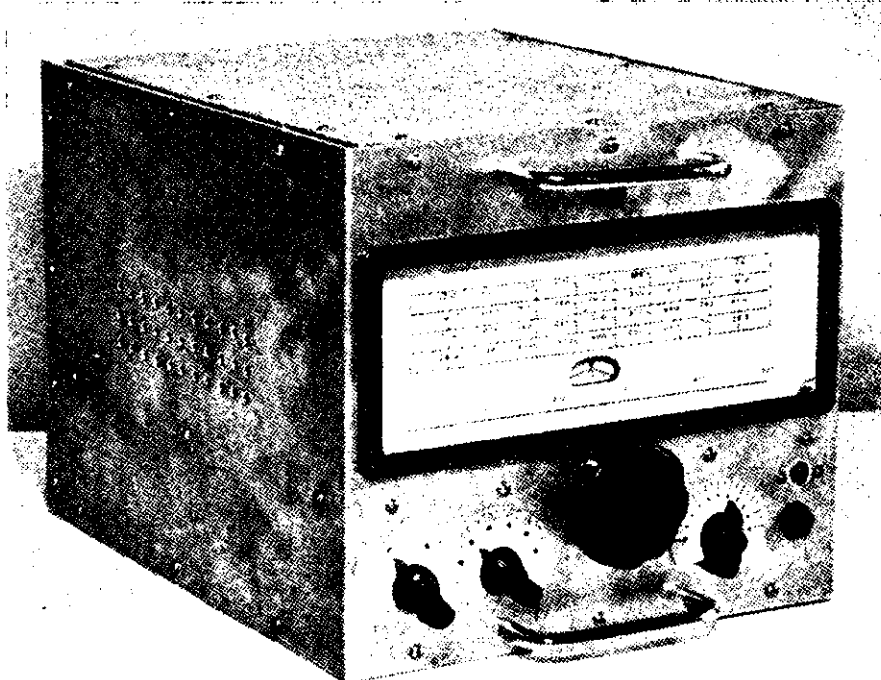
7,000 — 7,200 kc.
14,000 — 14,400 kc.
21,000 — 21,600 kc.
28,000 — 28,800 kc.

If it is desired to cover the 1.8, 3.5 and 28 Mc. bands adequately, the only real answer seems to be to capacity switching.

CIRCUIT

One EF91 (6AM6), V2 in Fig. 1, is used in a conventional Clapp circuit, and a second EF91, VI, as a Colpitts crystal oscillator. A switch (S1) has been incorporated, so that either the 100 kc. or 1,000 kc. crystal may be switched in, together with their respective bridge condensers. In addition, a diode D has been put into the output circuit to improve harmonic content.

It will be noted that the capacity in the v.f.o. (h.o.) tuned circuit has altogether five components. C8 is the main tuning condenser of 13.5 pF. maximum capacity, while C9 in series with it reduces its capacity swing, and permits exact control of the degree of bandspread. C10 provides most of the padding capacity, and C11 allows a small fraction (about 3 pF.) of the latter to be controlled from the panel, for zero-setting the oscillator. Finally, C12 is the negative-temperature coefficient (n.t.c.) component, which materially improves the frequency stability. The inductance L1 is not adjustable.



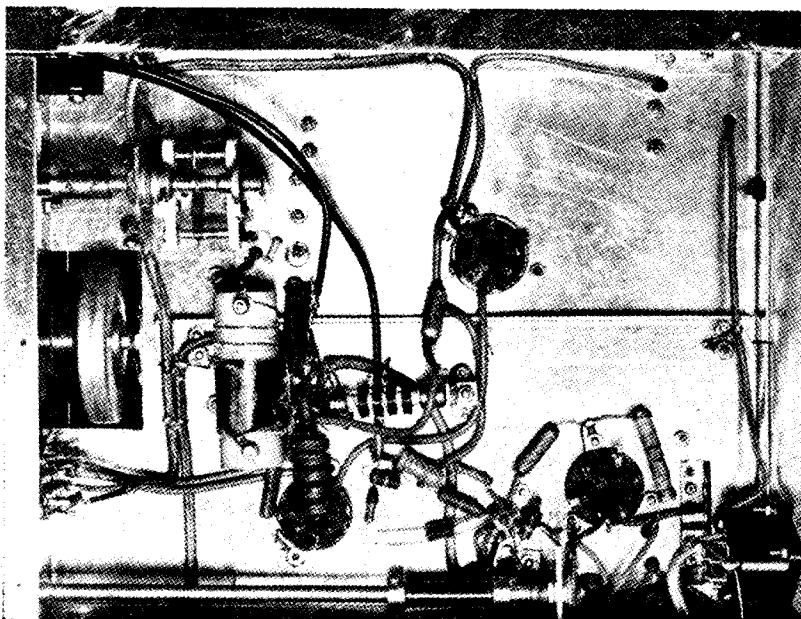
The Heterodyne Frequency Meter as described in the article. It is capable of giving a high order of frequency measurement on the h.f. bands, provided the crystal calibrator can be accurately checked against WWVH. The crystal selector and function switches are on the left of the tuning control. The dial and tuning mechanism are of the latest Eddystone design, giving a wide sweep on the scale. Two crystal oscillator frequencies, of 100 and 1,000 Kc., are used and can be brought out separately; the zero-setting knob for bringing the instrument on to calibration is on the right.

At VQ51B, a 320/6.3 volt power supply is on tap from an outlet on a small receiver, so one 90 volt and one 150 volt regulator tube, V3 and V4 in series, were built into the unit. The crystal oscillator and v.f.o. thus draw regulated supplies at 240 and 150 volts respectively. The total h.t. drain is about 16-18 mA. The function switch S2 controls h.t. as follows: position 1, off; position 2, crystal on; position 3, v.f.o. on; position 4, both on.

CONSTRUCTION

The unit was built into a box 9½" wide x 8½" high, and 11½" from front-to-back, constructed from 16 gauge aluminium—see photograph. The width chosen was about the minimum which would take the Eddystone dial. Doubtless each constructor will build the box in his own way, but it was found convenient here to bend one piece to form the front panel and two sides. The chassis (with only a narrow flange), back, top and bottom covers were then made from four separate pieces, fixed where necessary by means of angle strips. This made a good solid job, and the generous dimensions assist heat dissipation and enhance stability. To improve this further, a series of 3/16" ventilating holes were drilled: 208 in the top cover, and 33 in each side above the chassis. A pleasing burnished appearance was achieved by giving the pieces a hard scouring with a power-driven wire brush before assembly.

Components and wiring are straightforward. The main dial is of best quality, and the tuning condenser C8 (13.5 pF.) is also a good quality Eddy-stone. The other expensive component



Under-chassis view of the Frequency Meter, showing general layout. The switch S2 (see circuit) is beside the dial-circuit flywheel, and the zero-setting condenser is above the coil. The power connections are carried in screened leads.

is, of course, the 100 kc. standard bar, but a first-grade crystal is essential. Apart from these, most of the items were home made or secondhand, in many cases obtained from surplus equipment. Except for C12, Philips concentric air trimmers were used for all padding and trimming functions, as a large number were at hand from stripped 88 Sets.

The crystal oscillator trimmers C2 and C4 (two Philips condensers each) are soldered through small silvered strips, which are then mounted on a perspex bridge over a slot in the chassis. C2 and C4 are thus isolated from each other and from chassis.

The zero-setting capacitor C11 needs to be only 2 or 3 pF. maximum capacity, so a little surgery was performed on an old 50 pF. variable. All except one pair of plates were filed off; these were bent a little farther apart, and the capacity was finally brought to a suitable value by soldering on, in series, a sub-miniature 4.7 pF. tubular ceramic.

The coil is wound with 26 gauge enamelled wire on a 1" diameter ceramic former, such as those found in 21 Sets. Some of these have wide-spaced spiral grooving: the tendency of the wire to slip into the groove was overcome by first covering the former with thin (0.01") polythene. Some experimenting was needed in the number of turns, but the size finally arrived at was 45 turns close wound, plus 3 turns spaced out over ¾". The purpose of the 3 wide-spaced turns was to bring the wire to the end of the former, as this is made with the fixing holes at the extreme ends. After completing adjustments, the turns were anchored with polystyrene cement. The finished coil was mounted under the chassis on two short pillars, consisting of 4 BA bolts with nuts and locking washers.

The power supplies at 320 and 6.3 volts were brought into the back, through a recessed (safety) six-way socket, obtained complete with plug from a 38 Set. (These ex-Army units are extremely useful as a source of bits and pieces!) The output from the two oscillators is brought through low value fixed condensers to suitable connectors on the front panel, such as coaxial sockets or jacks.

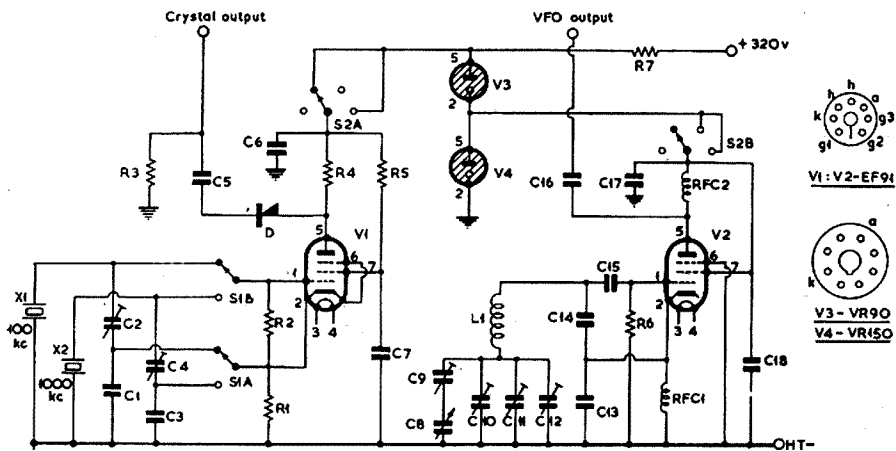
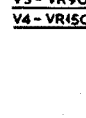
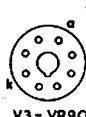
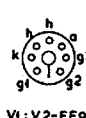


Fig. 1.—Circuit of the instrument described in the article. The circuitry associated with V2 forms the stabilised variable frequency oscillator, the coverage of which can be calibrated to a high degree of accuracy—see text. V1 is a c.c.o. with switched 100/1,000 Kc. crystals for marking and checking the variable oscillator; it can also be used as a separate 100/1,000 Kc. marker, giving band-edge and calibration beats into the receiver.

- C1, C13
- C14 — 0.001 μ F., silver mica.
- C2, C4
- C10 — 60 pF. trimmer (two Philips concentric trimmers in parallel).
- C3 — 220 pF. tubular ceramic.
- C5 — 6.8 pF. tubular ceramic.
- C6, C7
- C17 — 0.01 μ F. bypass type.
- C8 — 13.5 pF. variable (Eddystone 580).
- C9 — 3/30 pF. Philips concentric trimmer.
- C11 — 2 or 3 pF. variable (see text).
- C12 — 7/45 pF. trimmer, negative coefficient (N500).
- C15 — 100 pF. silver mica.
- C16 — 15 pF. silver mica.
- R1 — 10,000 ohms, ½ watt.
- R2, R3 — 0.5 megohm, ½ watt.

- R4 — 22,000 ohms, ½ watt.
- R5 — 100,000 ohms, ½ watt.
- R6 — 68,000 ohms, ½ watt.
- R7 — 5,000 ohms, 5 watts.
- S1 — Two-pole, two-way wafer type.
- S2 — Two-pole, four-way wafer type.
- RFC1 — 1.5 mH. r.f. choke.
- RFC2 — 2.5 mH. r.f. choke.
- L1 — 45 turns 26 gauge enam., close wound, plus 3 turns winding length ¾ inch. Wound on 1 inch diam. ceramic former (see text).
- X1 — 100 Kc. standard crystal.
- X2 — 1,000 Kc. crystal.
- D — General-purpose diode, OA81.
- V1, V2 — EF91 (6AM6).
- V3 — VR80.
- V4 — VR150.



SETTING UP

When using the crystal oscillator, e.g. when zero-setting the h.o. or calibrating, it has been found convenient to connect the crystal output socket to the receiver aerial socket. On the other hand, when using the oscillator as a frequency meter, it is often unnecessary to make any connection to its socket. It beats satisfactorily with incoming signals, or with the exciter unit of the transmitter.

After warming up the instrument for about half-an-hour, the station receiver was tuned to the 15 Mc. transmission of WWVH. With the crystal oscillator running at 100 Kc., trimmer C2 was adjusted to pull the frequency into zero-beat with WWVH during one of the unmodulated periods of transmission. The 1,000 Kc. crystal was then switched in and a similar procedure followed, using the trimmer C4. The two trimmers were then fixed with sealing compound.

The heterodyne oscillator was next adjusted for frequency and bandspread. With the help of the crystal oscillator, the receiver was first tuned to 7,000 Kc. The n.t.c. condenser C12 was set

zero-beat on 7,200 Kc. at a dial reading of 450. C9 was then fixed with sealing compound.

TEMPERATURE COMPENSATION AND FINAL TRIMMING

The setting of the n.t.c. condenser C12 has to be done before the main trimmer C10 is finally set and sealed, because it forms part of the total padding capacity. The procedure adopted with the original model was as follows:

The n.t.c. trimmer having already been left at about quarter-capacity, the main dial was set at exactly 50, the functional switch at "both" and the power supply switched on. As soon as oscillation started (about 15 seconds), the zero-setter was used to bring the h.o. to zero-beat on 7,000 Kc., the time recorded and the instrument left running. At intervals, the main dial was altered to restore zero-beat, and the time and exact dial reading (estimated to 0.1 division) recorded. Suitable times were every five minutes during the first half hour, every 10 minutes in the second half hour, and thereafter every 15 minutes up to a total time of about 2½ hours.

When the drift test is satisfactory, the ceramic trimmer is left, the main dial set at 50, and the zero-setting control put at 60% of full scale. The main trimmer C10 is adjusted to give a zero-beat on 7,000 Kc. and may then be fixed with sealing compound.

CALIBRATION

The v.f.o. is conveniently calibrated by running the receiver on the 28 Mc. band, and picking up each 100 Kc. harmonic of the crystal from 28,000 to 28,800 Kc. The heterodyne oscillator is first zero-beat on 28,000 Kc. with the tuning dial at exactly 50; at each of the subsequent 100 Kc. points, the zero-beat dial reading is accurately recorded. In addition, by tuning the receiver to the 21 Mc. band, four further calibration points may be picked up, corresponding to fundamental frequencies of 3516.6, 3533.3, 3566.6 and 3583.3 Kc. From the 13 points so obtained, a graph of frequency against dial reading is constructed. In order to do this, it is strongly recommended that a "flexible curve" be obtained to assist in the drawing. If this is used, and adequate care and patience exercised,

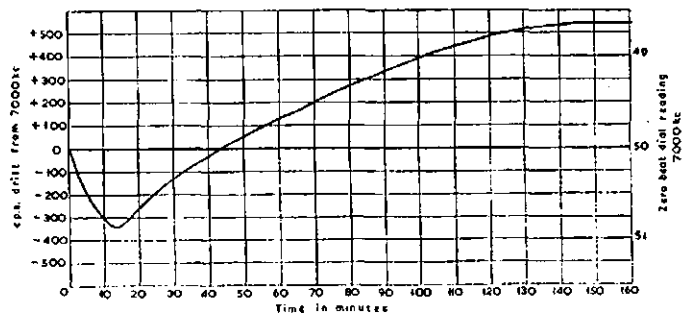


Fig. 2.—The drift characteristic curve of the crystal-checked heterodyne frequency meter, in conditions as described in the text. As explained in the article, the shape of this curve can be varied according to the adjustment of the negative coefficient condenser. When a long warm-up run is possible, it is sufficient to check the scale against the crystal standard as readings are taken.

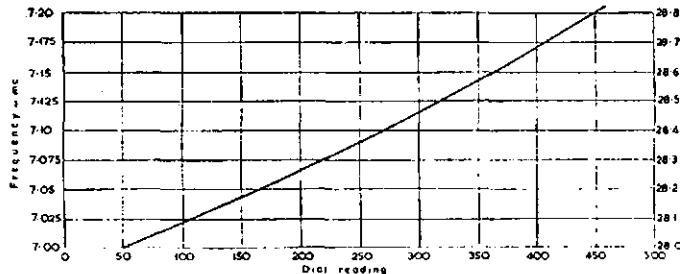


Fig. 3.—The final calibration curve of the crystal-checked heterodyne frequency meter, as described in the article and shown in the photographs. From this basic curve, obtained from a specimen instrument constructed on the principles given in the text, graphs can be produced covering the higher frequency bands. Accuracy is limited only by the extent to which the crystal checker can itself be adjusted to zero-beat with some external frequency standard, such as WWVH.

to about one-quarter capacity and left there during this series of adjustments. The series condenser C9 was set nearly at maximum, the main tuning dial at exactly 50, and the zero-setting control C11 at about 60% of full scale. The h.o. was then switched on and the padding condenser C10 adjusted to bring the frequency to that of the receiver. Then, with the h.o. and crystal oscillator both on, the zero-setting control was used to zero-beat the oscillator with the 7,000 Kc. crystal harmonic. (Note that it is necessary to bring the h.o. close to 7,000 Kc. before putting the crystal oscillator on, as otherwise zero-beats can be obtained with the oscillator tuned to the wrong 100 Kc. harmonic, even though the receiver is on 7,000 Kc.)

The main tuning dial was then set at exactly 450, and the receiver used to determine whether the oscillator frequency was above or below the 7,200 Kc. crystal harmonic. In accordance with the result, the series condenser C9 was slightly reduced or increased respectively. This whole process was repeated until the heterodyne oscillator was accurately zero-beat on 7,000 Kc. at a dial reading of 50, and accurately

The character of the drift can best be seen from a graph of the results, and one such example is reproduced here (Fig. 2). If the zero-beat reading goes appreciably above 51, or if it continues to rise after about the first 25 minutes, more n.t.c. capacity is probably required. On the other hand, if the zero-beat reading does not rise initially in the manner shown, or if the subsequent fall brings the reading much below 48½, there is probably too much correction. The n.t.c. trimmer would then be adjusted in the appropriate direction and a new test carried out.

Readers not wishing to perform these experiments may obtain a simpler check. The instrument is switched on as before, the dial set at exactly 50, and the h.o. zero-beat on 7,000 Kc. It is then simply left running for two hours. At the end of this time, the dial is reset for zero-beat, and the reading noted. If this is above 50, the instrument requires more n.t.c. capacity; if it is less than 48½, the n.t.c. capacity needs reducing. After making the necessary adjustments to C12, a new check is carried out. The instrument should, of course, be allowed to cool right down between tests.

a perfectly smooth and highly accurate curve can be drawn—see Fig. 3. For this purpose, the flexible curve is far better than sets of "french curves".

DISCUSSION OF RESULTS

The 100 Kc. crystal was easily set to zero-beat with WWVH, and required about the expected amount of trimmer capacity (50 pF.). The 1,000 Kc. crystal obtained from the 48 Set, however, proved to be slightly inaccurate. After adjusting the trimmer as low as possible, it was still running 1.3 Kc. low on the 15,000 Kc. harmonic. The rotors were therefore removed altogether from the trimmers and this slight error accepted since, in any case, its main function is to provide 1,000 Kc. identification points.

Some initial trouble was experienced in getting the heterodyne oscillator to go off satisfactorily, and the cause was eventually traced to wrong constants in the tuned circuit. The dimensions of the coil had been worked out "according to the book," but L/C ratio actually present proved to be too high. After the coil had been pruned to the size given here, all was well.

(Continued on Page 18)

A CLOSE-UP ON A W V

The predominant brand line picture tubes sold in Australia are Super Radiotron. These tubes begin their life at the A W V factory at Rydalmere . . . N.S.W. Here, the following stages of production are closely supervised by a team of highly qualified engineers and technicians.

PICTURE TUBE MANUFACTURE

Screen Preparation

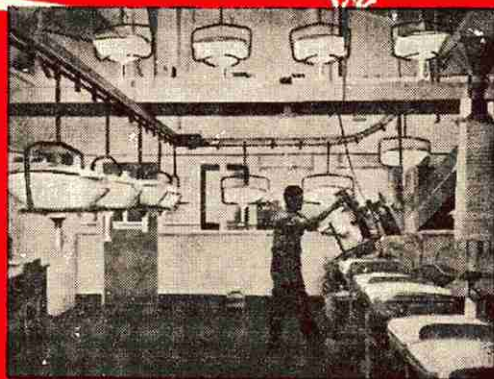
Picture quality depends primarily on the excellence of the phosphor screen. In this air conditioned room the screen is deposited with the aid of super pure* water and chemical and the bulb is then prepared to receive its internal coating of aluminium.
*deionized

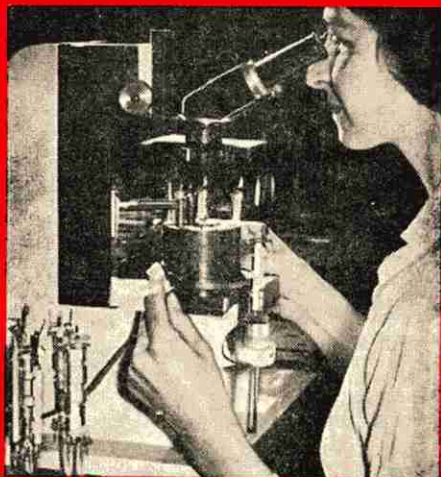
Graphiting or Internal Conductive Coating

A general view of the conveyor system. On the right an operator prepares to internally coat certain areas of the bulb with special graphite mixtures. Thus ensuring good connections between the uitor button, the internal aluminium coating and the electron gun.



AMALGAMATED WIRE



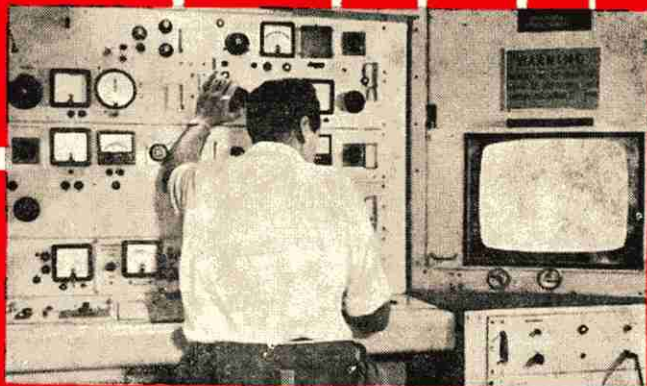
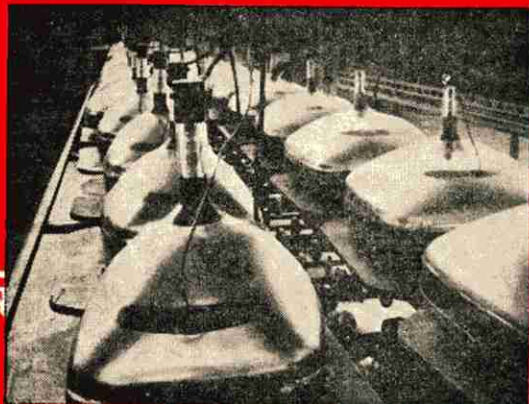


Alignment of Electron Gun

To produce an undistorted beam of electrons it is essential for the grids making up the gun to be concentric. Here an operator checks each gun for this requirement which ensures sharpest focus.

Ageing

After prolonged heating in a near perfect vacuum the tube is closed off, bused and the electron gun run in or "aged" to give maximum performance and life when installed in a TV set.



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All tubes from the production line are subjected to many operative tests at much higher voltages than they are ever likely to meet in the receiver operation. This margin of safety is built into all Super Radiotron tubes during manufacture.

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Adjustment of the bandspread to exactly 400 scale divisions was quite straightforward and, when the setting was correct, the series capacity was estimated to be about 27 or 28 pF.

Calibration was also very satisfactory. The final calibration graph is reproduced here and does not suffer from cramping at any part of the scale; in fact, it is quite a pleasing approach to a linear relationship. For convenience in use, it is useful to enter on to the station calibration chart the 7, 14, 21 and 28 Mc. frequency scales. One minor, though interesting, feature is the slight reversal to a sigmoid shape which occurs near the top of the curve. At first, this was thought to be experimental error, but calibrations under other conditions gave the same indication. It was finally confirmed by an extra frequency observation at a dial reading of 500 (shown in the dotted portion of the graph). Calculations by the author have confirmed that this is not an effect caused by the presence of series and parallel capacitors, in association with the tuning condenser. The latter is nominally a straight-line-capacity type, but it is suggested that, as it nears its minimum, the approach of the unmeshed end of the moving vanes to the stator will slightly diminish the rate of decrease of capacity. This effect would be confined to settings near the minimum and would cause the peculiarity referred to. Over the calibrated range, there is no detri-

mental effect on the linearity of the curve.

The aspect which the author found most interesting was the effect of temperature on stability, and altogether 14 drift experiments were run. It is not necessary to give details of all these, but the main findings are summarised below.

The accompanying graph, Fig. 2, shows the drift characteristic in the final arrangement. The zero-beat dial reading, also the drift from the original 7,000 Kc. (dial maintained at 50), are shown plotted against time. During the first 40 minutes or so, the drift peaked to about -300 cycles and returned to zero. After that, it continued in a positive direction, reaching +500 cycles at about 130 minutes, when it flattened off and the frequency remained more or less constant.

When no n.t.c. capacity was used, the drift went continually more negative, and after only 30 minutes had reached -2.5 Kc. On the other hand, when larger amounts of n.t.c. capacity than that corresponding to the graph were introduced, the initial "valley" diminished or disappeared. The subsequent rise was then greater, reaching values of more than +1.5 Kc. The conditions illustrated by the graph therefore represent the best compromise, if one wishes to be able to use the meter soon after switching on. The graph shows that, for this degree of correction, if the meter is zero-beat

as soon as it starts to oscillate, and is also reset once to zero-beat after running about 80 minutes, it can be used the whole time after switching on, and will never be more than about 250 cycles in error (on 7,000 Kc.). That maximum error could be further reduced, of course, if one elected to carry out any extra zero-setting adjustments.

The above is the author's preferred approach but, if one wished, slightly less n.t.c. correction could be used, so that the eventual rise in frequency would be less. The initial "valley" would then be greater, and the instrument would only be usable after that stage had been passed. In the author's final arrangement, the n.t.c. trimmer had been adjusted to an estimated value of about 13 pF. (using type N500 trimmer).

To conclude the work, observations of temperature were made at two places inside the box: one close to the crystals, and one near the tuning condenser and ceramic trimmer. The temperature before use (and the room temperature) was 24°C. (75°F.). In five hours continuous running, the temperature only rose to 33°C. near the crystals, and 32°C. near the tuning condenser. No problems other than ordinary drift correction are posed by this nine-degree rise, and the 100 Kc. crystal would not change by more than 100 cycles at 7,000 Kc. (1½ cycles at the fundamental).

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MODIFICATION TO HIGH FREQUENCY FILTER

February "A.R." contained quite an amount of information on crystal filters and filter crystals. Arie Bles has sent along some further contributions to help you along the way to s.s.b.

Arie refers to the high frequency crystal filter appearing in "Amateur Radio," Feb. 1963, page 9, Fig. 2. It has been found that the shape factor of the hybrid crystal filter can be improved considerably by the simple addition of a small trimmer across the input crystal F2 (see diagram, Fig. 1). The effect is a steepening of the high frequency side of the passband curve. Too much capacity will make that slope near vertical, but a new lobe higher in frequency will appear outside the normal passband. The proper setting therefore for this trimmer is only a few pF., say 5 to 10 pF. maximum, just enough to get the proper symmetrical passband without introducing a new filter lobe.

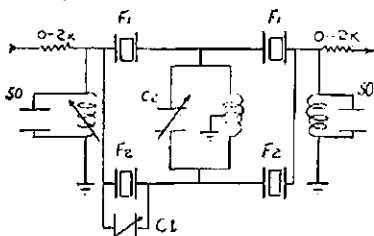


Fig. 1.—Crystal Filter.

To tune the filter, tune for maximum output on $\frac{1}{2}(F_1 + F_2)$, set C1 at minimum required capacitance for symmetry in the band pass. Adjust C2 for flat top of the band pass.

USING THE 5 Mc. FILTER

The transmitter block diagram (Fig. 2) and frequency table should be self-explanatory. A simple but very effective

* 7 Thorpe Ave., Queanbeyan, 4S, N.S.W.

transmitter can be planned with a high frequency crystal filter. The use of overtone crystal oscillator frequencies higher than the operating bands will prevent a lot of trouble with spurious responses, birdies, unwanted mixing products, etc. With the frequencies as indicated, all three bands will tune the same way and only one v.f.o. range is required.

Those interested who have difficulties in procuring the required overtone

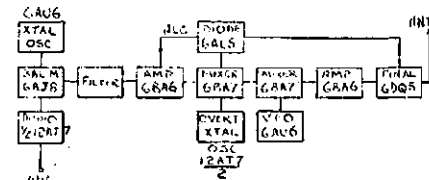


Fig. 2.—Block Schematic of S.S.B. Transmitter.

Overtone Osc. Freq.	S.s.b. Signal	Intermed. S.s.b. Freq.	V.f.o. Range	Output Range
13850	+5500 U.S.B.	19350 U.S.B.	5350-5000	14000-14350 U.S.B.
17850	-5500 U.S.B.	12350 L.S.B.	5350-5200	7000-7150 L.S.B.
14350	-5500 U.S.B.	8850 L.S.B.	5350-5150	3500-3700 L.S.B.

Automatic sideband selection on each band, output frequencies tune the same way as v.f.o.

High Altitude Nuclear Explosion at Johnson Is.

(Continued from Page 7)

weakly approx. 70 minutes after the event and remained very weak throughout the rest of the night.

It is therefore apparent that high altitude nuclear explosions do have an effect on long-distance h.f. circuits. This particular explosion occurred at an altitude of "hundreds of kilometres," probably in the ionosphere upper layers, and assuming the explosion took place on the count-down "zero," i.e. exactly at 0900, the signals from WWVH remained unaffected until nine seconds later. The fact that the signal path between Hawaii and Hobart passes several hundred miles south east of Johnson Island may help to account for this.

In the meantime, the next explosion is awaited with much interest so that further observations can be made. ●

Phasing-Filter S.b. Generator

(Continued from Page 5)

In many phasing-type transmitters, even when the carrier-suppression controls are set to the optimum points, there is still a lot of residual signal.

crystals can write me direct, as for the crystals required for the filter and carrier oscillator.

MECHANICAL FILTERS

Here is some interesting news in this field. We all know of the Collins product and that at least two Japanese firms are producing mechanical filters. One Japanese manufacturer even makes a filter especially for Amateur use at a very reasonable price, especially if you can buy it in Japan.

During a recent conversation with a UA1 in Leningrad, I was told, to my surprise, that the mechanical filter in the UA1's transmitter was a product of the U.S.S.R. No more details were forthcoming but a little more may be learned at a later date.

Next month, I hope to bring you some interesting applications of Collins filters in transistorised equipment.

This is caused by the generation of low-frequency sidebands by the ripple frequencies of the high-voltage supply. Even when the last audio tube is removed, where parallel feed is used there still remains a circuit through which these low frequencies can circulate and so introduce sidebands at the ripple frequency in the output. Since the phasing system cannot suppress these low-frequency sidebands, it is essential to use maximum filtering in the power supply. A good double-section filter has been found necessary.

It is felt that the combination of phasing and filtering gives such good results with a minimum of pitfalls that it is well worth consideration by any home constructor. It is capable of results equal to those of any commercial unit, and the exciter will test the selectivity of any receiver. Best of all, the results are easy to duplicate as attested to by the fact that several successful conversions have been made.

Acknowledgments are due to KH6BCX who suggested the dual system so long ago that he will probably have forgotten about it; to VK2AJZ who constructed the "Package" on which all of the original experimental work was done; to VK2AST who complicated the subject by introducing mathematics; and to all others who can see any evidence of their work in this unit. ●

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P.A.C.C. CONTEST, 1963

V.E.R.O.N. (Vereniging Voor Experimenteel Radio Onderzoek in Nederland) invite Amateurs all over the world to take part in their seventh P.A.C.C. Contest. The main purpose of their annual contest is to help Amateurs obtain the well known P.A.C.C. Award, for which QSLs or other written confirmation are needed of 100 different PA/PI stations.

Applicants for the P.A.C.C. Award will NOT have to submit PA/PI QSLs for QSOs made in the P.A.C.C. Contests, provided that their P.A.C.C. contest logs are in the possession of V.E.R.O.N.'s contest manager. If your PA/PI QSLs plus your P.A.C.C. Contest QSOs complete the 100 different worked PA/PI stations, you may send in your application, with QSLs, contest log details and three I.R.C.'s to the V.E.R.O.N. Traffic Bureau, P.O. Box 9, Amsterdam. The contest logs of the applicants will then be cross checked against the contest logs of the PA/PI participants.

There now are also stickers available for 200 and 300 different PA/PI stations worked. (P.A.C.C.-200 and P.A.C.C.-300)

RULES

1. Contest Periods: C.w.: April 27, 1963, from 1200 G.M.T. till April 28, 1963, 1800 G.M.T. Phone: May 4, 1963, from 1200 G.M.T. till May 5, 1963, 1800 G.M.T.

2. Frequencies: All bands between 1.8 and 30 Mc. may be used. Cross band contacts are not valid. (Attention: PA stations on topband are only licensed to operate between 1825 and 1835 Kc.)

3. Procedure: Stations outside of the Netherlands will call "CQ PA", whereas PA/PI stations will call "CQ P.A.C.C.". Stations will exchange a six (five on phone) digit control number consisting of RST (RS) and the serial number of the QSO, starting with 001. PA/PI stations give after this control number two letters, indicating their province. The provinces are as follows:

GR, Groningen; GD, Gelderland; ZH, Zuid-Holland; FR, Friesland; UT, Utrecht; ZL, Zeeland; DR, Drente; NH, Noord-Holland; NB, Noord-Brabant; OV, Overijssel; LB, Limburg.

4. Points: Each QSO, confirmed by "R" or "OK", counts 3 points, 2 points are earned upon receiving the control number correctly and 1 point upon receiving the "R" on the transmitted control number. Unconfirmed QSOs may be completed by working the same station a second time. Each station may be worked only once per band.

5. Multiplier: For stations outside of the Netherlands, the provinces give one point per band for the multiplier, thus the maximum obtainable multiplier is 55.

6. Final Score: The final score is the sum of all QSO points from all bands, multiplied by the sum of all worked provinces/countries on all bands.

7. Entries: Multiband operation for stations outside of the Netherlands only.

8. Certificates will be awarded to the highest scoring stations in each country/district for c.w. and phone.

9. Contest Reports: The logs have to be filled-in as follows: (1) Date and time (G.M.T.), (2) Stations worked, (3) Province worked, (4) Multiplier column for each band (fill in multiplier only if it is a new province), (5) Transmitted control number, (6) Received control number, (7) points.

Logs must be postmarked no later than 15th June, 1963, and have to be sent to Mr. P. v. d. Berg, PA0VB, Contest Manager V.E.R.O.N., Keizerstraat 54, Gouda, The Netherlands.

Each log has to be accompanied by a signed statement that the participant has observed the contest rules as well as the regulations for Amateur Radio in his/her country. In cases of dispute, the decision of the V.E.R.O.N. Contest Committee is final.



Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

AWARDS FOR S.W.L.'s.

Editor "A.R.," Dear Sir,

During 1961 I wrote to the VK Awards Manager seeking information re v.h.f. awards for S.w.l.'s and in reply, I quote, "I have to advise there is no certificate issued for S.w.l. reception by the Federal Executive."

At the same time I wrote to ZL land with the same request, and as I had the ingredients for a V.h.f. Award in that country, thought they may have one for S.w.l.'s. The reply was in the negative, but more hopeful than VK. I quote, "The matter of Awards for S.w.l.'s is receiving my attention and I hope to make an announcement by the end of the year."

Early in 1962 I again contacted the ZL Awards Manager and was told that the matter would be cleaned up by June or July of that year, and then it would be a pleasure to attend to my certificate requirements." I have just received a letter saying that my application for the 50 Mc. award will be accepted.

I feel sure that something in the way of an award similar to the "Elizabethan" or an S.w.l. equivalent of the W.A.V.K. could be arranged so as to create an interest for listeners.

New Zealand has made it possible, so why not give a thought for S.w.l. Awards in Australia?

—Chas. Abernathy, WIA-L2211.

DID IT WORK?

Mr. L. D. Rickaby, VK4VR, recently soldered together 65 empty beer cans in an attempt to produce a novel form of aerial. The cans were kept straight by placing them in a long wooden trough whilst solder, about a pound of it, was poured in the tops and bottoms.

The finished job was then mounted on insulators and is now adorning Mr. Rickaby's garden at Cooper's Plains, Brisbane.

The Beer Can Aerial is light enough to be held in one hand yet strong enough to stay up without guy wires. The aerial is equivalent to a piece of wire 33 ft. long.

Colin Grells (A3034), who told us about this aerial, has not yet been able to discover whether it has produced the DX results on 7 and 14 Mc. expected of it.

—Reprinted from the R.S.G.B. "Bulletin," December, 1962.

Going to Auckland in June?

The New Zealand Association of Radio Transmitters is holding its National Conference in Auckland this year during week-end, 1st to 3rd June.

If any member of the W.I.A. anticipates being in Auckland during this period they can make further enquiries from the Conference Secretary (Mark H. Churton, ZL1TB) as soon as possible at P.O. Box 9152, Auckland, N.Z. The registration fee is £N.Z./10/0 for the week-end's activities.

VK3 RECEIVER FUND

The Victorian Division of the Wireless Institute of Australia wish to thank the following donors who helped to contribute towards the cost of the Collins receiver for use by VK3WI:—

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R. Tandy, VK3KX; J. Tilbrook, WIA-L3114; E. Trebilcock, WIA-L3042; the late W. Tregear, VK3TX; J. Tutton, VK3ZC.

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FOR BEGINNERS:

HEARING THE GOOD ONES

ALAN SHAWSMITH,* VK4SS

WITH present patchy conditions on all frequencies, it is necessary to have all-band operation so that one can be listening on the best band at the right time. During the next two or three years, 80, 40 and 20 metres will be the best DX bands. Few if any can erect beams on 7 or 3.5 Mc., so it means we have to extract the most from single or phased wires.

THE ANTENNA

To do this, we must firstly take a look at our allotment and consider its aspects. It is generally believed that the more wire out in space, results in greater r.f. pick-up efficiency. (This definitely proved to be the case in my particular location. Increasing the antenna length from 136 feet to 264 feet brought the weak signals, both on 3.5 and 7 Mc., right out of the hash.)

There is only one way to erect 264 feet in the average allotment, that is to have some of the long wire vertical and some horizontal. This is an advantage; if the antenna is to be used for transmitting as well, then the vertical section provides optimum angle of radiation.

The immediate question to ask about this is, does not such a length pick up QRN, etc. (Here again I can only answer for my particular location.) The answer is, no, when the wire is centred and resonated by an antenna tuning unit. This latter is a must, if one is to extract the most from a long wire. However, there is no place for dogma here, as each must find the antenna that best suits his needs and location. Generally speaking, then, it is best to get as much wire up, in clear space, as your allotment allows. In this way, too, directional effects are minimised.

One comparison can be made, for instance. For transmitting, a 7 Mc. ground plane antenna would be just as good as 260 feet long wire, well up, but this latter will hear the weak ones when there is only QRN on the g.p.

FIRST R.F. STAGE

So much for the antenna. The next important link in hearing the weak ones is the first r.f. stage of the receiver. It is here that the proportion of noise to signal is established. Each type of r.f. tube must be treated individually on its merits to see that it is doing its best. Many run this stage with 300/120v. plate and screen, and bias a little low, in order to get out the most.

PROPAGATION

Before we go on to the optimum listening times, it is well to get the propagation picture clear for the various bands. Old Man Sol is sleepy at the moment. Sunspot activity is low, so a rough forecast for the bands during 1963 would be like this:

28 Mc.: A wash-out, generally speaking. During the pre-winter months

● Last year the author (Sub-Editor of the DX page) received more than one letter complaining that very little of the choicest DX could be heard. Why is it that some can pick up the best prefixes each month while others cannot? The latter usually blame their location, antenna or receiver, but this in fact is really only about half the reason, as many with only mediocre sky-hooks and receivers make out fairly well.

there may be openings to the tropic areas, mostly Pacific, brought about by E layer influence. However, during the winter, this, and to a lesser degree 21 Mc., will be devoid of DX signals.

21 Mc.: This band has prospects during the daylight hours. Pre-winter, there should be openings to the north and east, any time after dawn, but little after dark.

14 Mc.: This band has always been the DX man's "cup of tea". It is a 24 hour band, often, and long haul DX can be had at various hours. However, during winter the band becomes almost dormant at night and reverses itself during mid-summer, when it is best around midnight and worst at midday.

1.8, 3.5 and 7 Mc.: These are night bands. Once the sun is up, the DX disappears, both summer and winter. While the smooth sunspot number is so low, these bands are expected to improve, as far as DX is concerned. So for the next few years, if 14 Mc. falls off in activity, 7 Mc. might prove to be the best band for DX.

OPTIMUM LISTENING TIMES

Half the best DX is missed by listening at the wrong times. Conditions cause band openings to vary, so no definite time pattern can be given, but the following may help.

21 Mc.: The pre-winter sequence of signals on this band in the past has been something like this. From dawn onwards the band intermittently opens to the East and Central America areas are prominent. Sometimes also the N/S circuit is operable and J and UA are loud and clear.

Shortly after midday this band has a habit of opening briefly to South Africa and South America, say around 0300-0430z.

During the afternoon Ws are often audible and when conditions are suitable (M.U.F. OK) around dusk signals from anywhere can appear. Europeans sneak through around 0800z.

14 Mc.: In the past this band has been so good at various times during the day and night, there are signals from all continents coming in at the one time. However, dawn usually brings an opening to the North West with Europe at good strength and sometimes L.P. to North, Central and South

America. Signals from this last named often travel 18,000 miles up and over via Europe and in darkness most of the way. This is from 1930 to 2200z.

Barring the winter months, 20 mx is usually poor during late morning and early afternoon. But often around 0330z and a little later (just as 21 Mc. does) the band opens to Central and South America. These signals are followed by a L.P. opening to Europe (via the South Pole). This circuit is much affected by solar storms, but nevertheless is fairly consistent when taken over a time period of one year (from 0430z to after dark E.A.S.T.).

The N/S circuit on 14 Mc. is often open day and night, but is usually much better during sunless hours. The N/S path lets signals through from J, and UA, but as the night progresses the path swings further to the West until Europe is audible on the short path. The band usually then reaches its peak some time after midnight (around 1500z), when various good prefixes can be heard from all continents except South America. (This latter is often good around 1030z.) The band suffers from a pre-dawn lull around 1800z when it is almost dead or the signals on it are hard to work.

3.5 and 7 Mc. are bands with very similar patterns to each other. 40 mx is the first to open to the East when Ws crowd in from 0730z approximately. 80 mx opens in the same direction a little later (0930z). After this, the N/S circuit opens up and J, UA, etc. show up, and are heard on and off through most of the night on 7 Mc. mainly. From 1600z, on both bands, the Europeans begin to show up, although they are hard to work on 80 mx. They are easier on both bands around 1930z. Sometimes the 7 Mc. band opens to Africa from 1700z on to dawn and also a L.P. circuit to North America appears around 2000z quite frequently.

For those who want some "snatch" times to hear DX, I suggest they "case" the bands just after dawn or just before dark. 80 mx through to 15 mx are prone to suddenly becoming good at these hours. Also, the time of 1030z (give or take an hour) is excellent. Signals appear from the Americas from VO2 in the north to VP8 in the south. That is almost from Pole to Pole.

All times given are GMT.

APPROACH TO LISTENING

An attitude of impatience or haste is a sure way to miss DX—and unless one tunes very slowly, it is easy to pass over a weak signal that momentarily had dropped into the hash. It is better to listen for a while on a segment of the band rather than swing the dial over the lot. On 7 Mc. particularly, many good c.w. prefixes hug the first few kilocycles of the band.

DX is not the S9 business it used to be. Conditions are such that the average signal is much weaker and has to be dug out, so tune slowly. ●

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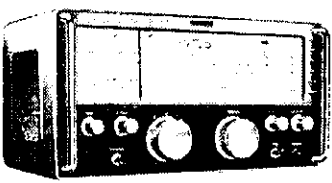
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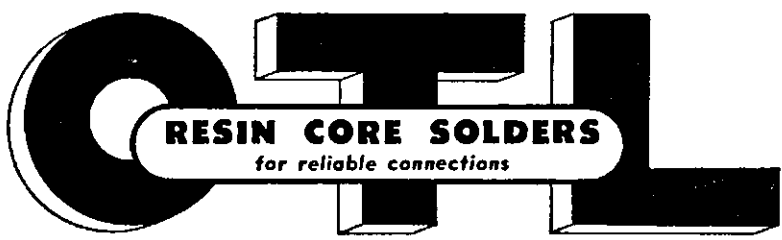
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DX

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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)
35 Whynot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

This month's mail bag is a full one. The editorship of the N.C. DX'er has changed hands and the same is about to happen with the Florida DX'er. This change over meant that last month's overseas DX notes were somewhat depleted. But now the machines are now grinding out the latest, with editors fresh in their new jobs. So here goes—

NOTES AND NEWS

Marcus Island: KH6PD/KG6 is now active from Marcus Island. Time is 1945z on 14295 kc. s.s.b. To be active nine months. QSLs go via W2VCZ.

W4QVJ says look for VS9AD/4WI around 7040 kc. from 0330 to 0800z Fridays.

VS9AAA will soon have his KW-1 back and is planning to send it along to Yemen and Oman with the VS9 boys who regularly go there on assignment. VS9ADZ and VS9AAA said to have been operating from 4W1-NEDXA. Kermadec: ZL1ABZ was worked by a number of F.D.X.C. members during the phone week-end of the A.R.R.L. DX Contest. He is heard in Florida with strong signals from 0200-0500, 14292 s.s.b.

Cocos Keeling: VK9LA is on at last with s.s.b. Frequency around 14100-14115, 1200-1400z. ZS6IM is a pilot on a South African to Australia run, with a stop-over at Cocos. He is occasionally active on s.s.b. as VK9ZS.

Afghanistan: YA1AW is still active on 14286, 1300-1500. Do not QSL direct. He will QSL 100 per cent. on return to U.S.A.

Jersey Island: The recent A.R.R.L. ruling re the splitting of the Channel Islands for D.X.C.C. purposes has sparked interest in the GC scene. Eric G2JFMV has been active on 20 mx c.w. from Jersey. G8KS is going to Jersey to operate as G8CKs on April 13 to 15. S.s.b. to be on 14110 kc., listening 14260 kc. and up. Also 21435 kc. C.w. operating frequency will be 14010, listening 14020 up, and 21020 listening 21040 and up. QSLs go via G8KS with I.R.C./S.A.E.

Ascension Island: Chuck W5SWX and John W7AAV are still quite workable as ZD8DW. They are usually on around 1930z on 14337 kc. At 2200 GMT they QSL to 14134 kc. for DX contacts and then QRT at 2230z.

Christmas Island: Don VK9DR is now radio officer on Christmas Island. He has a 200 ft. tower, a 150 watt tx and is ready to go.

Mongolia: Leo UA3CR is due to be on s.s.b. for a year from J71, starting around 1st March.

Another disappointment: Florida DX Club's DX-pedition to San Felix Is. CE0XA will have to be postponed. No future date has been set. The big hold up is the rental of a boat from Chile to San Felix (550 miles to the West) and back.

Maldive: VS9MB can usually be found on 1402 kc. s.s.b. every day at 1730 GMT.

Ymir: There is a possibility that DL1VR/EAG will show on 14290 kc. s.s.b.

Trinidad: PY4AS and company have postponed their trip until June or July.

Announcement is made of the deletion to the A.R.R.L. Countries' List of Eritrea. Contacts made with Eritrea Nov. 14, 1962, and after will be creditable as Ethiopia. Announcement is made of the addition to the A.R.R.L. Countries List of Bouvet Island. D.X.C. credit may be obtained after May 1, 1963. (All the above notes by courtesy of Bev Cavender, W4CKB, of Florida DX'er.)

KC6BO is active from the Western Carolines (yes, Western). QTH is Koror Is. It is a club station and the antennae sits atop of a 200 ft. mast. The sig usually is S9 plus on 14280 s.s.b. and 14100. Send cards to Page Engineers' Radio Club, Koror.

OK3EA provides the information that 4W1AA is most likely a pirate. The latter is supposed to be ex-OK1PX, but there never was such a call according to the records. (We can only wait and see.)

ZS10U is going to Marion Island if he can get leave. The call will be ZS2MI during April. (No other information.)

Barthelemy Island—5B7A. This expedition is tentative. Plans are incomplete. There are transport difficulties (as always). Freqs. 14100, 14125 s.s.b. If it gets started and you manage a QSO, then QSL P.O. Box 3786, San Juan, Puerto Rico.

TL8AC has had his holiday in France and is supposed to be active again. Has anyone worked him? Modes and bands: a.m./c.w. and 14 and 21 Mc.

ZK1AFF is very active but getting a QSL is hard. He asks that you send your card to Box 77, Tirana. Send it in a plainly addressed envelope, being careful not to mention the word radio or amateur on it. (Sounds so cloak and dagger and fettered.)

VK1AK is still active and has a good sig even though it's T8. 14050 at 1400z.

The above kindly supplied by the California DX'er. New editor is WA6TGY—Joe Reiser, San Jose, California.

5R8CM had planned to be active from the Comoros Is. by now.

AF5DC is on 14330 kc. s.s.b. at 1000z.

LA8FI/P and LA9RG/P are both working from Spitzbergen. 14252 s.s.b. and 14330 s.s.b. around 1200 to 1300z.

FG7XT is very active around 0800z on 14300 and works 3795 kc. approx. 2230z.

The following work 80 mx s.s.b.: FG7XT, VP8BN, SV0WT, KV4CI, KP4CK, HPIJM, 3V8CA, UC2AA, MP4BBW, etc.

PA0 stations are only allowed to operate 160 mx by special permit.

The above was gratefully received from the Traffic News supplied by ON4MC. The language of the paper is French, so my English translations are bound to contain some mistakes. Their propagation prediction is interesting inasmuch that the chart shows tres bonne conditions from Europe to VK on 21 Mc. around 0800z to 1300z. (This will alter as winter approaches.)

AMONGST THE LOCALS

Bram VK5AB reports that his planned trip to VK4WE, Willis Island, and other exotic places may not eventuate. He is awaiting equipment from overseas. He has made all the arrangements he can from this end, but is now awaiting for those in the States to fulfil their obligations. Only those courageous enough to make these trips know of the detailed planning and the many obstacles that appear to mar or hinder a successful venture. We all wish Bram makes it eventually.

Arie Bles, VK2AVA says conditions are not as bad as the wallers make it out. He says working Europe on the long path on 80 mx around 6 p.m. is a piece of cake. Besides Europeans QSOed on 80, he also landed these: VR30, VE7ZM, VE3HF, KZ5LC, and lots of Ws. In a period of less than four minutes he QSOed G6PO on 80, 40, 20 on 24/2/63. He uses a full size g.p. for 3.5 Mc.

Ivor VK3XB has made the 400 mark in WPX. It's unofficial but it makes him second VK. (Nice going, OM.)

Ted VK5JE, our 7 Mc. specialist, has sent his cards away for D.X.C.C. for this band. This is quite an achievement for a QRPer. (Now try and make it on 80 mx OM.)

Hal VK4DO has sent in his last notes for some months. He is off on a round-the-world cruise, taking in the Far East. Hal is a real popular and helpful contributor to this column for many years. I know everyone wishes him a safe and happy journey.

Rick VK3ARX has a lament. Please, he says, will VK8DR come up on c.w. as many are QRX for him on this mode.

A letter just in from the United Kingdom, by Steve G2BWN, DX Editor, gives the following valuable information. From the U.S.S.R. "Radio" the result of the U.S.S.R. DX Contest show VK5NO with 4470 pts., VK2APK 1554 pts., VK2RA 598 pts. The highest score outside the U.S.S.R. was W9WNV with 28,574 pts. For stations waiting for a QSL from VP8GQ, the QSL manager (G3PAG) has not received any logs since October 26, 1962. When conditions improve, logs will be taken over the air. GD6UW will be the call of the Cambridge University Wireless Society during March 21 to April 2, during a trip to the Isle of Man. All bands on which conditions are suitable will be used from 160 to 10 mx. QSL via the R.S.G.B. The "EX G Net" is now 15.00 on 14,345 kc. and 19.00 on the same frequency for stations where conditions are suitable. The Canadian Section net is now at 14.00 on 14,125 kc.

Ivor VK3XB draws attention to an error on my part re tallying WPX score. He says "CQ" Jan. 1957 states: "There is no question of 'countries' in this award. WPX is simply a tally of valid prefixes. (Thanks, OM.) For complete rules see "CQ" Jan. '62, page 50.

Please read carefully before submitting score as certain prefixes are not valid—FF8, FQ8, etc.

ACTIVITIES

Ken VK3TL has re-erected his quad and is pleased with its directivity. He worked on 14 Mc. a.m. HA9OZ, W9WNV/KG6R (Rota), KG6SX in Saipan, 3A2CL (1530), TF2WHP (1225z), SP2LV and many others. On 14 Mc. c.w., DU0DM, FO8AA, HS3PD, W9WNV/K, ON5AX and lots of Europeans.

Darrell L5041 sends in a very comprehensive list which I have precited to the following. Heard 14 Mc. s.s.b.: KR6BF, LU8AV, KC4USE, G2MWB, KG6IJ (Volcano Is.), JS1LW, KH6PD (Marcus Is.), PZ1AX, VK8NE, PZ2WB, VU-2NR, ZM6AW, UJ3AG, UM8TZ, VK9ZS (Cocos Is.), VK9AT, GJ3YT, GD3GMH, ZS8S, KC-4USH, KC6BO, KP4CK, VS9MB, AP2AP, OA-4NC, YV5AS, CR9AH, ZL1ABZ (Kermadec), and more.

Hal VK4DO worked these on 14 Mc. c.w.: CR9AH, G3NEO, HS3PD, LU2EN, VS4LL, VS9MB, DU1AN, ZK1AA, VS1LD, OH9NV, KR6ML, UW0JK, etc., etc.

Ivor VK3XB worked the following on 7 Mc. c.w.: DL5EL, HB9FU, OH9BQ, YO7DL, UC-2BW, 4X4KK, HA8NI, UD6GW, ZB1CR, VQ2JN, 5X5IU, G5DQ, FB8ZZ, FW8DW and other Europeans.

VK3KS worked CR9AI, EA2CL, OZ3LF, and FW8DW—all on 14 Mc. c.w.

Eric BERS195 heard quite a long list of good ones, here are a few. 3.5 Mc. c.w.: VE-1ZZ, W6BYB, W9WNV/KG6R, and other Ws all around 1230z. 7 Mc. c.w.: AP5JA, CR8AC, DU0DM, HL9TH, HM4AQ, SV0WC, FW8DW, W9WNV/KG6R, and other Europeans. 14 Mc. c.w.: VK1YL, ZK1AR, VE2YU, VK9KK, VK-0VK, VRI5F, 4X4RX, 5B4BP, 5R8CJ, 9K2AD, AP2AR, BV1US, FR7ZC/J (1300z), DU0DM (1400z), FB8YY, HZ1AB, VE8DX, PJ3AO, KW-6AM, VS9AAA (1500z), 9M2UF (1100z), and others.

Ted VK5JE as usual landed some nice ones. 7 Mc. c.w.: 5X5IU, UC2BW, VQ4IV, VS1LP, I1ZL, FW8DW. 3.5 Mc. c.w.: JA5AJ, VE1ZZ, VS1LP, KH6AFS, VR5AA, VE4RO, VE6NY and a long list of Ws.

Pete Drew, L6021, says conditions in W.A. are variable with some good patches. Here are some of his loggings: 15 mx a.m.: CR7GJ, EP2AI, MP4IAM, VQ1IZ, VS1LQ, ZS1MW, 457BR, 5A5TV, 5R8BX. 15 mx c.w.: 4S1LE, VS1LP, UA0LL, KR6DD. 20 mx a.m.: DU1EH, VR4CB, VS4RS, ZF1JR, 9M2CF, VS1GZ. 20 mx c.w.: DL7AA, VQ8AL, ZL1AFL, 5B4WS, 40 mx c.w.: DJ8IJ, DL4IP, DM2AL, G3HDA, G5BJ, G5WP, HA3KGC, I1EX, K6GNA, OK-1BG, HB9DF, VE6NX, VE7AHG, VS1LP, Y06EX, Y09HC, ZK1AR, 3A2CL, 5B4KC, etc.

Bev, VK4BL lists on 14 Mc. c.w.: CR9AI, CR9AH, DU7SV, RW8DW, K86AX, HL8TF, OZ8U, SP5AM, UA6LI, VS9MB, VU2MD, 457LB, 9M2UF, VS5CV, VS9AAA, VQ8BI, UW-01F, UM8KAA, ULTKCR, AP2AR, and many other Europeans, J and W. He also heard good prefixes from all continents.

Please fellows, in future when sending your activities report, list only the better prefixes. Do not misunderstand me, I need every report I can get, but space is a premium, so shorten the lists of Ws, Jcs, and more common European calls unless they are needed for a specific reason.

ADDRESSES

5X5IU—Box 355, Kampala, Uganda, Africa.
ET3HG—U.S. Embassy, Box 1014, Addis Ababa.
9M2AP—M. A. Loka, Telecoms. Dept., Kuala Lumpur, Malaysia.
VR5AA—Herb Chapman, Box 36, Nukualofa, Tonga.
VF2EM—V. Elliot, 11 Votua Rd., Suva.
TR2WHF—Langanes, Iceland. QSL to Air Force Unit, Box 6, F.P.O. 568, N.Y., N.Y.
KG6SX—QSL to KH6FBJ.
W9WNV/KG6R—QSL to W9VZP.
3A2CL—QSL via IIRIF.
OA4PH—P.O. Box 5260, Lima, Peru.
CR9AH—Via W7ZAS.
KC4USE—Via K1MOA.
KH6PD, Marcus Is.—Via W2VCZ.

NEW AWARD

As there is quite a bit of activity on 80 mx and the band should be useable for DX for (Continued on Page 25)

Greetings fellow short wave listeners. With the advent of the winter months approaching us the daylight conditions should improve, at least we hope so. With this in mind, now is the time to get that rx or antenna in working order. We complain of poor conditions at times, but how often have you tuned across the band and found perhaps one very strong DX signal on almost a dead band. Which goes to show that the band is at least active in some part of the world. How often have you listened during a Contest and heard the band full of signals? 28 Mc. for instance may not be as dead as most people think. On one occasion your scribe tuned across the 28 Mc. band and heard a South American station at S9 calling CQ, but nothing else was to be heard on the band. I know we are going through a poor period in regard to propagation conditions, but just because you can't hear much, don't always blame the ionosphere.

NEW SOUTH WALES

Don L2022 recently paid a flying visit to Melbourne. At present he is doing a spot of shift work on the local telephone exchange in Albury. Hope you get that QSL from Danny before long Don.

Chas. L2211 has again been hard at it. Just recently he received for the second time in two years, the Elizabethan Award for 50 Mc. Nice work, Chas. In the Ross Hull Contest, Chas. managed a very good score. However a young friend of his has reported a bigger score that may take out the section. Chas. has at last repaired the dial cord in his Eddystone 640 and at the moment is busy shielding his 50 Mc. converter.

Chas. reports that at last the ZL boys have now made available a new award to s.w.l's. This award is for confirmation of all ZL call areas on 50 Mc. Actually this award is the same as much pen work by Chas. The award was at the time of going to press, made available to Chas., but other claimants will have to wait until the award has been officially sanctioned, but this is only a formality. Congrats to Chas on being number one claimant, and fine work on your behalf.

Now that the ZL boys have made this award available to S.w.l's., we would very much like the W.I.A. to make the VK award available to S.w.l's. There are no doubt some VK S.w.l's. who have heard all States on 50 Mc. (Any claimants?—Ed.)

Recently Chas received his certificate for the 1962 R.D. Contest. Nice going old son.

VICTORIA

You will all be interested to learn that the VK3 Council have made available the AR7 that was formerly used for VK3WI. We would like to thank Council for making it available to the Group. There still remains some work to be done on it, but this will be undertaken by the construction group, under the guidance of Ian Woodman. When the rx is repaired we intend to use it mainly for giving the newcomer an introduction to Amateur Radio. We will also give some of our younger members some idea on how to prepare a report for sending to a station.

The construction nights are still proving popular under the expert guidance of Ian—our Secretary. So if any of you newcomers are interested in the construction side of things, how about coming along to our evenings which are held on the second Friday of each month at 478 Victoria Parade, East Melbourne.

Attention all short wave listeners! The 1963 Short Wave Convention will be on very shortly after you read these notes. The date is the week-end of 6th and 7th April. The venue is Ballarat. On the Sunday we will be going through the local t.v. studios. Also over the week-end we will be visiting a v.h.f. Ham shack as well as a h.f. shack. All in all a great week-end is assured, so here is your chance to meet your fellow S.w.l. that you have heard about. An open invitation is extended to all S.w.l's. and to any of the Hams who might be interested. See you at Ballarat. Newcomer to the S.w.l. ranks is Greg. Earl. Greg. has not been issued with an L number as yet, however he recently obtained an HE30 rx and is very pleased with the results that he has obtained with it. His DX log is very good for a newcomer. Greg is using crossed dipoles with a switching system, and is very

pleased with the results he has obtained with it so far. When you have become more used to the HE30, Greg., we hope that you will soon have your name on the DX ladder with us. Hope you can get along to some of our meetings Greg., and make yourself known to the boys.

Craig L3093, who is our publicity officer, has been doing an excellent job giving S.w.l. notes over VK3WI each week. But it is up to us all to provide him with some information of our activities, so bear this in mind and drop Craig a line. His address is 10 Foch St., Ormond, phone number is LW 1773. Any news that you can forward will be very much appreciated.

Several years ago, we here in VK3 used to run monthly contests, but due to lack of support we were forced to abandon them. We would like very much to re-introduce some activity along these lines. However it would be a complete waste of time to start them again unless more interest is shown by members. So let us have your ideas on the subject. Remember the S.w.l. Group can only function successfully by each and everyone of us showing a keen interest toward the Group. If you have any grouches, don't just be content to sit back and have nothing to say. We want to hear from you, the member, so don't be frightened to get up and have your say.

At present we have a monitoring watch on the 7 Mc. band. And if this proves popular it will be most encouraging.

QUEENSLAND

We are pleased to hear that our good friend Afton is at last on the improve after sickness and business troubles. Afton reports that conditions up in Northern VK4 have been very poor now for some time. The only QSLs that he has received for many months have taken his total up to 86 confirmed. He is bemoaning the fact that despite the fact that he always includes an I.R.C. and a S.A.E., he is getting very few returns. Yes we all are in the same boat at times. He has an I.b. rx but would like to change it for a rx in the Rolls Royce class, one of these days. Best of luck to you old son, and hope that your dreams come

true. Thanks for the good wishes which are heartily reciprocated from this QTH. Very pleased indeed to hear from you again Afton, and give my regards to all the boys.

SOUTH AUSTRALIA

Darrell L5041 has just joined our DX ladder. Very pleased to have you with us Darrell. During the Xmas holidays Darrell was in VK3 and reports hearing all VK call districts except VK8 on 7 Mc. using his transistor portable and a three-foot whip. He also managed to find time to get a few points in the N.F.D. Contest recently, and it is very nice to see a new name on the DX ladder. How about some of you other VK5 boys sending in some news of your activities?

WESTERN AUSTRALIA

Peter L6021 comes forth with another very interesting letter telling of his activities. Peter is using a Pye 8-tube rx as his hearing aid. Also included in the line-up is a Philips 6-tube rx. On 7 Mc. he is using a folded dipole, and on 14 Mc. uses one leg of the dipole. Judging from your reports Peter you are hearing plenty of the DX. So far (until 24th Feb.) he has 12 cards for the month. Thanks for your very nice letter and look forward to hearing from you again next month.

Afton L2136/VK4 has these: VP4, KP4 and ZET.

73, Mac Hilliard.

DX LADDER

	Countries		Zns.	S.s.b.		W
	Conf.	Hrd.		Conf.	Hrd.		Stat.
E. Trebilcock	277	285	40	—	—	50
D. Grantley	112	252	38	16	97	34
A. Westcott	86	159	31	9	107	11
M. Hilliard	71	217	33	16	134	11
M. Cox	64	222	29	31	142	18
P. Drew	49	194	24	17	111	9
C. Abernethy	47	95	28	—	—	14
N. Harrison	44	94	27	2	7	29
I. Thomas	29	134	18	18	8	22
F. Fields	26	133	—	—	—	—
D. Coggin	8	86	6	2	55	12
H. Burger	6	185	5	1	19	—

YOUTH RADIO CLUBS

Good news from VK7 this month! Ian 7ZZ, Secretary of the VK7 Division, reports definite progress in Youth Radio Clubs in that State. Ted 7EB has been appointed co-ordinator for that Division and is busy seeking co-operation and help in all directions, especially headmasters and teachers. Anybody who wants to keep their frequencies should help you, Ted.

Reg 7ZAO is a teacher at New Norfolk High and has begun the formation of a club there. Merv. 7CL is a teacher at Hobart Tech. High and is giving the idea some thought—some definite help from other locals would bring it about. The headmaster of Hutchins Grammar School has approved the formation of a club, and ex-TSC, a teacher at the Friends' School (Hobart) is investigating the possibility there. The 13th Hobart Scout Group is well on the way and has a call sign. Father Burns, of Burnie Marist College, has a club under way. This college caters for boarders and such a club is sure to be a desirable addition to the spare-time activities of the boys. Father Burns is contemplating the A.O.C.P., but would certainly appreciate some help from Burnie Amateurs.

Congratulations to all in VK7 who are directly helping. I hope all other VK7s will do the right thing and pull out those boxes of parts which have been sitting around for years. I can assure you that it is most important to make the early stages easy. Once the boys "feel the magic" and Dad and Mum find it's not going to cost a fortune, the rest is easier.

A number of lads from St. Leo's College, Wairoonga, attended the Gosford Radio Club's Field Day on Feb. 17. Amongst them was Harvey Smith who has sat for the A.O.C.P. and expects. Also at the Field Day was Ian Forrest (VK2AJF) the first A.O.C.P. from the Youth Radio Clubs, a product of Keith Howard's excellent work at Booragul High. Keith

reports that seven ex-members of his club have moved into electrical and electronics vocations.

At VKILS (Lyneham High) my own activity has been severely curtailed in the last year for health reasons, but the club stalwarts George 1GB, Roger Davis (hoping to get the A.O.C.P. in the next few months), Ian Raine, Bill Tweedie, and Carl Brinkley (son of Tony 1SG) do more than I do—a very healthy state of affairs. Roger has been working hard to plate modulate an AT5 and make it behave itself. George is now in his final year of High School and has sensibly cut down Amateur Radio time to concentrate on study. His goal is a maximum pass and Commonwealth Scholarship leading to B.Sc. As an incentive, I gave him colour illustrations of the latest Collins gear—these are pinned up over his study desk! During the holidays, George constructed a s.s.b. (phasing) tx. By the time you read this, it should be on the air—but at VKILS! He is donating it to the club station until Nov. so that he won't be tempted to leave his study. What will-power! Anyway, we hope we're the first Youth Radio Station with s.s.b. entirely constructed by one of the boys.

News is hard to get from VKs 3, 4, 5 and 6. Could it be there is none? Surely they can find a co-ordinator—despite the fact that this is all spare-time work. Two very prominent VK3s told me in January that all the Y.R.C. information was neatly "pigeon-holed" and had made no Divisional headway, although a few brave souls had formed clubs.

And here's a challenge for VK5PanSy—instead of talking of "band-wagons" and quoting the isolated enthusiast (whom we salute for bravery), why not find a Y.R.C. co-ordinator for the Division. We haven't heard of one yet.

Provocative 73, de Ken VK1KM.

VICTORIA

50 Mc.: Ken 3ZLL is now active on this band. Ken is running 12 watts to a 6146 on approx. 50.75 Mc. and is using a QQE03/12 as a modulator. Sid 3ZDB at Croydon will soon be re-appearing on the band, but this time will be using s.s.b. Glen 3ZBJ is active again on a month's leave from VK4. When he returns to the Sunshine State he will be located near the VK8 border and possibly will operate from that rare spot a number of times until the first week in December.

Activity, which was very low on 6 mx at the beginning of Feb. is steadily increasing. The Feb. 6 mx scramble was held on Sunday 24th. Unfortunately the control station did not put in an appearance, but the contest finally started with David 3QV acting as control. Only 12 stations competed, including two from the Geelong area. 3QV, 3ASG, 3ZAA and 3ZGM tied for first place in the city section with 8 points each, while 3ZMH won the country section with 9 points. The April scramble will be held on Sunday 28th commencing at 7.45 p.m. Join in.

144 Mc.: Bill 3ZLO has a new rig operating using a QQE06/40 in the final. At first Bill had modulation troubles, but these have now been overcome. Rex 3VL, who normally provides a DX signal from Numurkah, has been holidaying in Melbourne and rag chewing most nights with the local gang. Bob 3ZRD has his Geloso exciter driving an 832A with 25w. input and has replaced his "big wheel" antenna with an 8 element yagi.

The March 2 mx scramble was held on Sunday 10th and over 25 stations participated. Rod 3ZIW drew in the city section with George 3ZJQ, both with 26 points, while Bill 3ZLO was next with 22 points. Winner of the country section was Ian 3ZMH with 23 points, followed by Graham 3ZIX/P with 19 points.

Peter 3ZPC received a letter from Vern LZ3AQ confirming that it was his signals that were heard at R5 S9 in Melbourne on 17th January, 1963.

The frequency of 144.5 Mc. was chosen some time ago to serve as the V.h.f. Group calling and net frequency, but very few Amateurs seem to be using it. A small net sometimes gathers on a Monday evening at 8 p.m., but that is about all. There are numerous advantages for all stations active on 2 mx to be able to transmit on the one frequency. Originally the idea was to leave your rx on 144.5 Mc. while you were working around the shack so that when someone called CQ they would do so on the net frequency and you would hear him without having to continually tune the band. Once contact was established the stations could then change frequency if they so desired. However, there is no reason why the contact should not stay on 144.5 Mc. with other stations joining in to form a net. Naturally by being able to transmit on the net frequency you could break in at any time. Those of you who do not possess a v.f.o. should try and get a crystal on the net frequency.

The annual general elections will have taken place by the time you read these notes and a new publicity officer will have been chosen. Thank you to those one or two people who provided me with news during my brief fill-in period in the job. I hope to goodness the new officer receives much more assistance. Remember, the notes can only be as good as you care to make them. 73, 3ARZ.

SOUTH AUSTRALIA

50 Mc.: The 6 mx band has been showing the slight decrease in activity that we expect just after the sporadic E peak. DX was worked on 4th of Feb. and again on the 10th and 11th (VK4s on all three occasions).

Mobile has shown an increase recently, with 5ZDZ and 5LA having mobiles going (and both of these chaps are capable of working cross-band duplex mobile, a very interesting exercise). Other new mobiles include Bart 5GZ and Curl 5CL (formerly 5ZBL). Mobiles are being constructed by Bob 5ZDX and your conductor. These chaps will use 832As and 815s respectively.

New chaps on 6 mx include Mark 5ZEK (50.4 Mc.) and Bob 5RF (a pair of 834s, wow!). Bob is at Murray Bridge (about 50 miles East of Adelaide) and puts a good signal into the city. Wally 5ZEH (50.11) is another newcomer.

Old timers on 6 mx from new locations are manifold, and include Doug 8KK (also on the I.f. bands), Barry 8ZDI. (These two are in Darwin.) Also Brian 5ZBI, now at Clare (30 miles North), Brian looks on 6 mx every evening at 1830 (C.S.T.) with the beam towards Adelaide. Clare is only 50 miles away, but the path is very difficult. Joe 5ZCP, now at Whyalla, has been working back into Adelaide nicely (140 miles).

The 50 Mc. beacon has been running almost continuously over the past six weeks and ground wave reports are coming in from Mt. Gambier (220 miles), Western Victoria (180 miles), Crystal Brook (100 miles) and Yorke Peninsula (50 miles).

144 Mc.: Quite a high level of activity here. Several new country stations have helped the activity including 5ZEG and 5ZMJ of Port Pirie (and both members of the newly formed Port Pirie Amateur Radio Club) and Geoff 2ZCG of Broken Hill. All these chaps have worked into Adelaide with excellent signals.

Rick 5EB is a new local on 144 Mc. He is located at Glen Osmond and uses an 832A. The chaps down at Mt. Gambier inform me that Launceston tv (TNT9) is often copied (three nights in one week recently). This smacks of ducting and the chaps are keen to try 288 and possibly 144 Mc. to the Apple Isle, but no skeds have been organised at the date of writing. These same Mt. Gambier fellows say that our new beacon is heard down there a high percentage of the time (220 miles).

Eric 5ZDQ is building gear for 2 mx. Two metre stalwarts, 5NW (Crystal Brook) and 5BC (Renmark), have been making use of their 6 mx facilities recently to permit many long distance (120 miles) duplex contacts between 6 and 2 mx.

General News: Biggest news here is the annual general meeting of the V.h.f. Group held on 4th March. New officers elected are—President, Doug 8KK; Vice-President, Gary 5ZK; Secretary, Bob 5ZDX; Councillors, Al 5ZCR and Brian 5ZBR. Discussed at the meeting were, firstly, a hidden tx hunt (first in VKs) to be held on 27th April, and secondly a v.h.f. picnic on 31st March.

Recent visitors to our fair State were Ken 3ZKK and Peter 3ZGM. These chaps had mobile gear on 6 and were worked at speed. Gary 5ZGR and Dale 5ZER are Mt. Gambier chaps who have been holidaying in Adelaide. Dale is well and truly involved in woman trouble, but Gary is more or less active, and, in fact, attended the V.h.f. Group meeting on 4th March.

Our newly elected President, Doug 8KK, returns to VK5 in April. For their services over the past year the Group thanks ex-President Gary 5ZK and ex-Secretary Barry 5BQ. 73, Al 5ZCR.

WESTERN AUSTRALIA

Because of personal commitments, the notes for last month had to be shelved. I will attempt to cover them this month.

The January meeting was well attended and as reported, it was the first meeting for two months to discuss and act on items of business. John 6JO gave the lecture on xtal filters, clearing up a lot of doubts and giving most of us an insight into their operation and uses. A report was received on the very interesting fox hunt conducted by 6RY, using a different scoring method to determine the winner.

To start you took a mileage reading and filled in a form which was completed and handed in after you found the tx. You counted the number of valves and transistors in the converter/receiver and snoop loop and subtracted these from 100. You subtracted 1 point for any mile or part thereof over the specified shortest route. You added points for the number of people in the car, the number of people who saw the tx and the number of objects you found at the site. As to the latter, there was a tx and three antennae which could be switched and had quite a few of the hands going in circles as the signal appeared to come from different directions just as you seemed to have it pin-pointed.

The February meeting was well attended, although the D.C.A. trainees, who are still in the backbone of the Group, are part in

the field training. Two new members were welcomed to the Group, Jim 6RU and Harry 6BZ are well known to most members. The Feb. fox hunt was run by Bob 6BE and as usual was quite interesting. Lance and Gill won the event and will run the next hunt on 16th March.

The Group station 6VF operated in the National Field Day on 80, 40, 20, 15, 10, 6, 2 and ½ metres. It is a pity that there was no 1 mx gear available as it would have been a clean sweep from 3.5 to 576 Mc. Kevin 6ZCB again supplied his caravan and gear. Jim 6RU, Jack 6BU, Rod 6ZDS and Charles 6LK supplied other gear. David 6DI, Ken 6ZBT and the others of the Field Day Committee did a good job and all in all a good time was experienced by those who participated.

50 Mc. has been very quiet here for the last two months. Quite a few of the stalwarts are D.C.A. trainees and have been to country centres for in-the-field training. The W.I.A. news was relayed on 6 mx for the first time in years and favorable comments were received after the broadcast. Vic 6VK has taken over from Wally 6WG as broadcast officer, following Wally retiring from this position, and he has arranged for Bob 6BE to relay the news on 6 mx. Best of luck to Vic and he can be sure of the backing of the Group in his new post.

144 Mc.: Except for cross band work, this band is almost dead here, very few contacts have been heard for some time.

576 Mc.: Rod 6ZDS and Charles 6LK have succeeded in working a distance of 37 miles from North Dandelup to South Perth. Both rigs were xtal locked and are reported to be working extremely well. This would be very close to a new 576 Mc. record and I believe it will be claimed as one. 73, Alyn 6ZDM.

PAPUA

50 Mc.: VK4s were worked on 2nd, 4th and 10th Feb. Also heard on these days were VKs 1, 3 and 5. Weak ZLs were heard on the 4th and the ZL tv. sound carrier was also audible during all three openings. No other DX openings were observed during the month. With the decline of the Es season, fewer Channel 2 openings were observed, however ABQ2 was received on 10 occasions, ABS2 and ABN2 each on one occasion.

GAS has returned from leave and is active again from Wewak, New Guinea. 9ZBV has now gone south on leave and will be having eyeball QSOs with many Brisbane operators during the next month or so.

No activity on other bands during the month. 73, Roy 9AU.



DX NOTES

(Continued from Page 23)

the next few years, the following award might interest VKs. Sponsor is SL3ZO, and its title is 80 x 80 Award. It comes in three classes: (i) 80 different countries on 80 mx. (ii) 80 different prefixes. (iii) 80 QSLs from stations outside one's own continent. Apply to Sven Elfving SL3ZO, Solgardsgat 15, Ornskoldsvik, Sweden. Those needing Russian Call Books can write Sven at the above address.

APPRECIATION

Let me thank again all those who have the Ham Spirit within themselves and take the trouble to send in what information they have. Those who appear in the activity section usually help out considerably with the QTH situation. Thanks, chaps.

My appreciation also to the overseas editors K6CQV, WA6TGY, G2BVN, SL3ZO, OH2YV, W2DEC, ON4MC and others who remember this column each month. 73, Al, VK4SS.

W.I.A. LOG BOOKS

5/6 plus postage



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

27th FEDERAL CONVENTION

The Wireless Institute of Australia's 27th Federal Convention will be held during 12th to 15th April, 1963, at Sydney.

The Convention will be held at the Wireless Institute Centre, 14 Atchison Street, Crows Nest, Headquarters of the VK2 Division of the W.I.A. The Convention will commence at 2 p.m. on 12th April and continue until 15th April.

On 13th April the Convention Dinner will be at the Wentworth Hotel, Lang Street, Sydney, at 7.30 p.m.

Opening of Convention will be broadcast over VK2WI on 7050 Kc. at 2 p.m. on 12/4/63, also a portion of the VK2WI Broadcast on 14/4/63 will be from the Convention.

All members of the W.I.A. will be welcomed.

Pierce Healy, VK2APQ,
Federal Councillor, N.S.W. Division.

MATTERS OF INTEREST FROM W.I.A.

F.E. MEETINGS

Copies of some R.S.G.B. publications will become available at reasonable prices in the near future. Details from your Divisional Secretary.

All outstanding awards and certificates have been cleared up, following the appointment of a Federal Contest Co-ordinator within F.E. This has solved the difficulties involved with changes of locale of the F.C.C., often causing records of outstanding awards to become mislaid, or forgotten.

The Federal President will be attending the Civil Defence course at Mt. Macedon next year.

The subject of s.s.b. power ratings has been under study and this, and other matters, will be the subject of discussions with the P.M.G. in the near future.

The Federal Convention, which is to be held in Sydney at Easter, will cover some twenty-two agenda items.

New W.I.A. membership certificates are expected to be available by the time of publication. These are a very fine document of professional quality.

The Federal Station, VK3WIA, is near completion, and should soon be on the air regularly.

In order to ensure that no gaps exist in Federal Councillor's files, they are to be supplied with an index of all items discussed at Federal Conventions since 1947. This will help to avoid the same matters being decided over and over again over the years, as a study of past Conventions will show has happened.

Publication of the "Geneva Story" has been deferred until such time as the necessary stencils can be cut by F.E. members. The reason for this is that commercially produced copies would cost in excess of £10 each in the small quantity required, and it is not felt that this expense would be justified, in view of the limited appeal that this publication has.

RECIPROCAL AWARD JUDGING WITH R.S.G.B.

The steady increase of postal costs, and the danger of valuable cards being lost, has long discouraged Amateurs from applying for overseas awards.

Now the R.S.G.B. has decided that its awards will be available on submission of certified check lists via certain I.A.R.U. Societies (of which the W.I.A. is one) which have concluded reciprocal agreements with it. Such an agreement has been concluded with the W.I.A.

All R.S.G.B. certificates, with the exception of the Empire DX Certificate, and Four Metres and Down awards, but including B.E.R.T.A. (50 commonwealth countries), W.B.E. (1 commonwealth country in each of the five con-

tinents), and for s.w.l.s. the H.B.E. award (heard 50 commonwealth countries) and the D.X.L.C.A. (heard 100 countries) are available and the procedure to apply is to send to the Federal Awards Manager, C/o. Box 2611W, G.P.O., Melbourne, the following:

- (a) The necessary QSL cards.
- (b) A check list, showing details of cards submitted.
- (c) A declaration and application for award as follows:

I enclose cards herewith in my application for the R.S.G.B. (name of the award)..... I enclose International Money Order for 8/9 (Australian) for each certificate applied for.

I certify I have not exceeded my licensed power in effecting the contacts on which this claim is based.

Signed..... Call Sign.....
Address.....

A space must be left for the endorsement of the Federal Awards Manager.

- (d) Sufficient return postage for the cards.

On receipt of the preceding, the Federal Awards Manager will verify the application and forward it to the R.S.G.B., who will forward the certificate direct to the applicant.

— . . . —

NEW SOUTH WALES

HUNTER BRANCH

The Feb. meeting of the Branch was held as usual in the University College, but in a different location in the building. For those who know what it is like within the confines of this edifice, the semicircular building, so called, is easy navigation. But for those unaccustomed it is like climbing a convex hill, you can always see the top but you never get there. Anyway some of us got there, thirty-six in all, to see and hear some films kindly supplied by Mullah. These were expertly screened by our T.S.O.C.P. man, Rodney 2CN, ably assisted by Kev 2ZKW. Always keen to keep us abreast of modern developments in electronics, Stuart 2AYF handed out some information concerning series gate modulation and there was, on the board, a circuit of an overtone oscillator for v.h.f.

Some discussion ensued concerning the merits or otherwise of an r.f. choke, but it was kindly pointed out by Gordon 2ZSG that OT's know nothing about v.h.f. and should stick to the d.c. bands. A rather academic discussion concerning the detonation of explosive charges by Amateur Radio transmitters was resolved by Frank 2APO who is an army man and well versed in the science of loud and soft bangs. However it was decided that it would be a good scheme to get some official advice on the responsibility of the Amateur in such matters and by this time advice has no doubt been received.

Your scribe has been responsible for the broadcasts during the past few weeks and Max, our associate friend from out Toronto way has been helping out in reading the news. The problem is whether we are to call him assistant producer or technical co-ordinator. I think the best term would be "the lad". Bill 2XT, who is equipped with much exotic gear now owns a lovely shiny new SX115 all the way from the U.S.A. He has proved that (a) WWV does not drift (b) the new rx does not drift, or (c) they both drift at the same rate and in the same direction at the same time, etc., etc. Still he finds it difficult to copy me. Perhaps it IS my signal.

Up by the banks of the old Hunter at Matt-land Kev 2ZKW is currently working on the "Mighty Midget" reputed to be some mysterious form of tuned converter for v.h.f. Some have suggested that he has also joined A.J.A. and future efforts in this direction will decide the issue. Mac 2ZMO now is affectionately known by his mates as "Eddy". This has nothing to do with losses in his transformer. It refers rather to a gain in the rx department. Bob 2AQR has a weak signal out by the lake at the present and this is because he is using all his energy to wind the movie camera for the filming of the F.F.B.R. (Fabulous Phenyle Bay Railway) run by his partner in 40 mx crime, Bill 2ZL.

John 2ZJG is still delving among the mysteries of the one-eyed monsters and surely must be a specialist by now. And while on the subject of specialities, Des 2ZDN is surely a contender for the title of master of v.h.f. since the construction of his mobile 2 mx tx. If you would like to share in his enthusiasm come along to the April meeting and hear Des describe the rig. The battle of the S meters is still progressing satisfactorily in all areas of the Branch. Ian 2ZIF is still not quite sure whether a decrease from 25 to 1/8 watt really causes an increase of two S points and Bill 2ZK was heard giving a signal report the other night in this way: "You are strength 6 old man. Actually my meter reads 9 plus 10 db, but that's still 56 as far as I'm concerned." Bill also has a new vertical aerial. It really is something—a piece of wire tied in the tree at the back of the shack.

As for Les 2RJ, it is he who owns that potent 1/8 watt and he is currently doing modifications to increase something—probably Ian's S meter reading. I am sorry to report that Nell 2ZCU is still in Hornsby Hospital and would appreciate any visitors. VK2 Colossal Signals, as he dubs himself, is almost ready to set off for the land of dart boards and brown ale and is leaving aboard a fine English ship at the end of April. So by sunny July in G land he should be on top band with some of the chums. Stan 2AYL is back from that Gold Coast holiday and is very active on 2 mx, but he has found that the old 522 goes better than the most recent one. Still no sounds have been heard from Norm 2ZNF and if it were winter we might be excused for thinking that he had gone into hibernation. But it's all to do with that AMR300 we're told. Les 2AOR is not quite sure where Norm lives, but if you look over about two fences Les you'll see Norm. One of the boys in the mail room started shouting to Les the other day. When he asked what it was all about, the other chap said, "You haven't got your hearing aid on mate." What really happened was that he'd been listening to the test on the transistor portable with ear-plugs.

Bill 2ZWM has two converters going now, one on 2 mx and one on 40 mx. The one he has on 40 will be the subject of a lecture to be given at the April meeting. It really works well into a transistor portable. Since Tony 2ZCT became a tuner of Yiddish pianos nothing has been heard of him on 2 or any other metres.

Some of our younger members are trying out for the youth radio scheme certificates and the other day two were scheduled to turn up at this QTH for the junior exam. One however failed to report. Yes, it was Bill 2ZL who had been held up when one of the pylons on the F.B.R. collapsed. Shame on you. You'll not get your certificate. Stuart 2AYF has gone all commercial you know. I saw, resplendent on his shelf, the other night a s.w.r. meter and a transistor power supply transformer. Well, I ask you. Still he will be on 2 and 40 mobile when the vacation begins and with home-brew gear. You might also know that he and I featured in the Newcastle Morning Herald the other day. Facts are that there was a Civil Defence conference and some person locked the front door of the building. Some, it said, had climbed over the back fence. Yes they were—us.

N.S.W. DIVISION, W.I.A. NTH. COAST & TABLELANDS ZONE CONVENTION

will be held at

URUNGA

during Easter Week-End

12th to 15th APRIL, 1963

144 Mc. tx hunt, 40 mx tx hunt, all band scramble, general entertainment.

Accommodation of all types available on application to Mr. J. Walters, C/o. Ocean View Hotel, Urunga.

SILENT KEY

It is with deep regret that we record the passing of:—

VK3WA—John H. Worner.

Gordon 2ZSG, who has been doing a good job on the broadcast relay of late, tells me that there is definitely no truth in the rumour that he may be heard on more than one spot on 144. It's just that some people have vivid imaginations. Ron 2ASJ has been very active on 20, 40 and 2 mx so what things will be like when the winter comes—well it looks promising. Ern 2FP has returned from holiday, but will be going again in August, back to the Snowy to see the snow this time. Apparently the doc. has given Jim 2AHT some strict instructions about going on the air so he'll have to postpone the winning of more certificates till he's quite well again. Harry 2AFA has not been the brightest either of late, but if a cheery smile means anything, he should be back on deck and 100 per cent. again soon.

Up Cessnock way things are very quiet and I suspect some plot is afoot to blanket the Branch with large signals. Sherwood has gone to Melbourne for holidays, so watch out you VK3 boys and Chris still has the tape measure in his hand most of the day getting ready for the mobile in the new car. Peter 2AIY is very busy with vertical and horizontal and brightness and that, so there's his excuse. Among the associates, Bruce has built a pre-selector and an oscilloscope—and they work! Also the radio link at Scone demands quite a lot of his attention. Belmont Bob and Ross are busy over old exam. papers and this surely is a good sign. Allen Legge now is a transistor radio specialist—since the a.c. range on the meter went west. The Marmong mob are all pretty busy building and re-building and a brand new windom aerial has appeared. I hope that improves the signal.

You will have heard on the broadcast that our April meeting has been put forward one week because of Easter. It will be held on April 5 at the University College and will be a "Do It Yourself Night" with speakers aforementioned and some others. So come along and see all the new office-bearers. But try to be there at 8, for that's when we begin. See you. 73, 2AKX.

VICTORIA

Normally I would open these notes by reporting on Council meetings. However I was unable to attend the meeting at the end of January or early in February and nobody has told me what took place. The March meeting will take place on 12th March, which is after copy date. Even my influence with the Committee won't stretch that far (or will it?).

So let us go straight to the March general meeting. For the benefit of VK5 let me hasten to assure you we were packed. Yes, packed into the first two rows of the auditorium. Nothing could be more disheartening to a speaker than this sort of attendance. After making three counts, the maximum I could make it was 24 persons—seven of whom were members of Council. Those who stayed away in large numbers missed one of the best nights we have had in years. Harold 3AFQ brought in his receiver and gave a first class talk on his decision to produce such a unique piece of equipment, and how he went about building it. Some of his ideas show a marked divergence from common practice, but Harold had sound reasons for using them, and they work! When the pressure of work eases, Harold will produce an article, with photographs, for the magazine.

The second half of the evening was devoted to general business. The main item discussed was the matter of the rules for the Field Day. Many spoke on this subject and it now appears certain this matter will become an agenda item for the next Federal Convention. I had hoped to produce several pages of personal notes this month as I recently spent six weeks doing nothing, which at least gave some time for listening round during the day, but about all that was heard locally was the young gentleman (?) in the South Caulfield area operating on 7.011 Mc. who provides re-broadcasts, complete with commercials, from the broadcasting stations. It is believed one of his class-mates is on 4.9, but he has not been heard at this location. All that can be said for this pest is that he at least gets out. He is heard well in VK5. On the subject of VK5, I worked a few during my enforced holiday, but not a sign of 5PS. Am now more convinced than ever that he has no equipment, as I purposely made statements to force him to come on and defend himself.

Now is the time to consider who will be on Council for the next twelve months. I, for one, will not be re-nominating, and two, possibly three others, also have been forced to call "quits", as they just cannot spare the time. Now is the time for those who have

been dissatisfied with the old Council to get into the act. All nominations will be gratefully received, and faithfully recorded on the ballot papers. I'll bet two bob to a dud 807 there will be no need for a ballot.

Last month saw the departure of our President (David 3ADW) to the northern hemisphere of this world. Thanks to the generosity of Ken 3ACS in making his home available, about forty of us were able to attend a farewell function in David's honour. Those present were members of F.E., VK3 Council, Magazine Committee, Broadcast and Disposals Committees. What happened to all the empties Ken?

It is with regret that we record the tragic death of John Worner, VK3WA, and his wife in a motor accident near Young in New South Wales on 14th January. John only joined us last year, and was looking forward to many happy years with us. His death cut short a promising career in physics and electronics. To his family and friends we extend our deepest sympathy.

Have not heard anything of Jacques Sapir for a long time until yesterday, when I happened to be watching the telecast of the first race for sports cars at Sandown Park. Who won it? None other than Jacques 3ZEE. I for one have no desire to drive that fast! Like 5PS, I'm too old to drive over 25 m.p.h.

At the last count somewhere near 50 were expected to be at Shepparton for the State Convention during March. No doubt this will be reported fully in next month's magazine, most likely by the N.E. Zone. And now it is time for notes from the zones.

SOUTH-WESTERN ZONE

Main Zone news this month concerns the Convention to be held at Warrnambool on 27th and 28th April. This is going to be the best and brightest Convention ever held in this part of the world, so roll along folks! Zone members en route to the meeting (at 1500 hours 27th April) and any other mobiles already on the way for the dinner at 1845 hours will be taking part in a mobile scramble on 80, 40, 8 and 2 mx between 1400-1430 hrs. 10 points for working VK3ASZ, 5 for mobiles and 1 for fixed stations. So would the rest of you all over VK watch out and give the boys some contacts!

Sunday's programme will commence at 1000 hours, venue being Jubilee Park on the Hopkins River. Bring the XYL and harmonics and make a picnic day of it. Lunch will be available if you have none. There will be plenty of fun for all the family, and there's plenty of fish in the river, anyway.

Congratulations to Ray 3LK, formerly 3ZAE, on the removal of the "Z barrier". Good work Ray! Call me on 80 mx c.w. sometime, you might even get an answer!

Fair Southwest Zone activity in the N.F.D. Contest, but many calls with mobile or portable gear were absent. Activity included the Zone station 3ASZ operating fixed, SWB/P in the Gramplains 3WK/F and 3XN/M jumping around like a blowfly. Don had trouble getting c.w. contacts at 3ASZ and in the finish had the other ops sending c.w. with the pressel switch!

Cheerio folks, see you all, young and old, at Warrnambool on 27th and 28th April. 73 de 3XN.

MIDLAND ZONE

During the month of February I had a visit from 3DG and the matter of rotary beam construction was investigated, so in the near future enormous signals on 15 and 20 mx should be emanating from Lancefield.

On 15th Feb. the quarterly meeting of the Midland Zone was held at Maldon and those in attendance were 3ZIK, 3AFJ, 3AQU, 3FO, 3AHA, 3ZNE, 3ND and 3ZLJ. The meeting got away to a late start as our President (Don 3ZIK) was trying to persuade a couple of wild ducks to accompany him, but without success, so the barbecue was off, hi! However the meeting got under way at 9 p.m. and all matters of interest were discussed, including the refusal by the P.M.G. Dept. to allow the relay of Z call transmissions for Zone hook-up purposes on the 40 and 80 mx bands.

The venue of our Annual Meeting, to take place on Sunday, 12th May, was discussed and it was decided to have a combined meeting and picnic at Cairn Curran Reservoir with a tour of inspection of the Cairn Curran generating station in the afternoon. More details of this gathering will be in next month's issue of "A.R." Weather permitting, an enjoyable time should be had by all. Members from other Zones will be welcome. So come along with your families and meet your friends, old and new. 73, 3ND.

WESTERN ZONE

Having drawn the marble, here goes for a spot of Western Zone news from this month's scribe at Murtoa. Since last Zone Convention

a roster system operates to relieve our hard-working Secretary, Bill 3AKW, upon whose shoulders has fallen the task of supplying Zone notes in the past.

As a matter of fact, Bill has been out on the grass lately, travelling hither and yon on annual holidays, visiting various shacks spread over the State, with a few halycon days at Lakes Entrance on the side. Bill is a man of many parts and the bush telegraph (or is it the rag chowers' club) says we may soon work him aeronautical mobile.

Another very active fellow in Wilson 3AFU produces spare time out of a magician's hat. Seems that he can run a farm, raise a family, as well as build up for 2, 6, 40 and 80 mx—the latest being 80 mobile with which he can work from any point except on the road just outside Merv 3AFO's. Wilson also uses sundry beams, attends State Conventions and enters contests at the drop of a hat. How's that for activity, and that's not all, as I've used up his quota of space.

The above-named Merv. has not yet erected that tall steel structure on which to mount a quad to end all quads, but has literally used tons of paint on his home at Horsham. We expect to hear that he's bagged some rare ones this winter.

Keith 3ATS has finished building a one-eyed monster right down to installing it in a cabinet so shiny you could use it to brush your hair—if you've got any. The first novelty having worn off and his square eyes returned to normal shape, Keith is ready to string a couple of dipoles from the top of two towers away up there in free space. Like Wilson, he is an inveterate State Convention "go-er-to-er" so Shepparton should see at least two Western Zone reps. to absorb things on our behalf.

Neville 3AAQ an import from Shepparton, now languishes at Ararat without gear, which is on ice at his parents' home because a hotel

SOUTH WESTERN ZONE, VICTORIAN DIVISION, W.I.A.

will hold their next

ZONE CONVENTION

at

WARRNAMBOOL

on

27th & 28th APRIL, 1963

The Annual Meeting will start at 3 p.m. on 27th, and the Dinner at 6.45 p.m.

Bookings can be made with Eric Giddings, VK3ANQ, 8 Nelson St., Warrnambool, or Don VK3AKN, Hon. Sec. S.W.Z. Deposit of £1 required for each person for accommodation.

Wireless Institute of Australia

Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 6th MAY, 1963

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.



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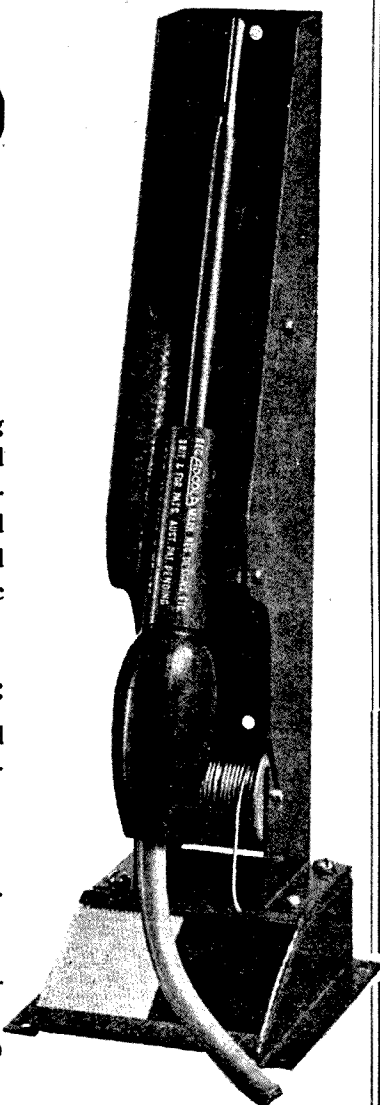
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room does not lend itself to such goings on with Ham equipment. All is not lost, however, as 80 mx mobile is in course of construction and will soon burst gloriously forth if the jalopy is strong enough to pull it.

Where are our long lost sons, Gordon 3GW and Keith 3QG, who so nobly offered to work us from the State capital where they now reside? Let us not lose heart, though, for Max 3AR is nearly ready for the hook-up with his first home-brew gear and Mac 3AZM has moved into Horsham and looks like being a regular on the weekly net.

We have missed Herb 3NN for a long time now but as son Gary has obtained a Limited licence there should be at least one, if not two, signals from Yanac shortly.

Bert 3EF still radiates steadily on at Warracknabeal, sometimes 80, sometimes 40, sometimes DX, but always with a signal to be proud of—or should it read "of which to be proud". Well, fellows, you asked for it—putting this month's compilation in dubious hands. Cheers, Vic 3AEQ.

EASTERN ZONE

The Eastern Zone will hold their annual Convention during the week-end April 20 and 21, 1963, at Warragul. Full details will be on the invitation cards which you will receive shortly. Welcome to any visitors.

A Zone meeting took place on Sunday afternoon, Feb. 17, in Bert's (3BB) back garden. The main items discussed were the coming Convention, initial arrangements for the Zone W.I.C.E.N. Gippsland Control Centre and Network.

Also keeping activity high in the Zone (and in view of the coming W.I.C.E.N. network) it has been decided to hold the Eastern Zone hook-up now at 2000 hours on Sunday evenings on 3650 kc. approx. and 144.18 Mc. What about joining in everyone? This should be a much more convenient time for everybody. See you all at the Convention. 73, 3ZCG.

QUEENSLAND

February always leaves me with a feeling that I've been "got at". The end of the month sneaks up and March is well started, by the time I wake up that I'm a few days short. My spies in Brisbane apparently suffer from the same trouble or else they are all living very pure lives. Well, nearly all.

The "Kingfisher" group, which meet regularly at 0900 each day on 40 mx, decided to get together on a "Hamboree". That will stop Mr. Webster, because he doesn't even list "Jamboree" in his famous book. Anyway, Sunday, 24th Feb., was the date selected for the first "Kingfisher Hamboree". It was held at Caves Creek in the glorious setting of the Nunimbah Valley.

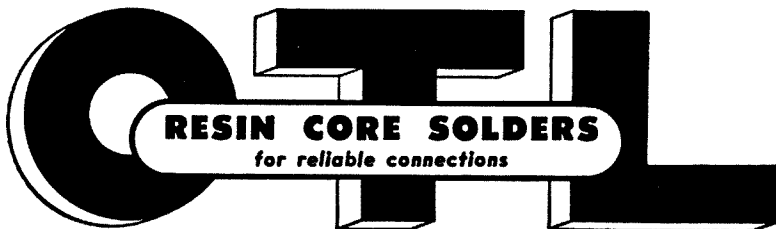
After their usual morning "sked", the group headed for the Hamboree. Alf 4OL, being a good scout, is always prepared, and used his mobile to good effect, telling various VK2s about the proposed outing. When he arrived at the spot selected, he found Jeff 4XP, George 4GG and Tom 4PD heading out of the area in search of firewood, and being QSO with 2CH at the time, the mike was passed between cars so as to enable said wood gatherers to say hullo to 2CH. What some blokes will stoop to do, to get out of chopping wood. When I was younger and used to go on picnics, I always . . . Never mind, you wouldn't believe me anyway.

During the afternoon, the "Hamboree Cake" was unveiled and George 4GG, armed with an axe, cut it. And what's more, got his photo "took" whilst doing it. I'm sure Mavis, his YF, smartly put him in the doghouse for that. Mavis, by the way, made the cake and I'm told it was very beautifully iced. I'll bet George was too, after his effort with the axe. I have no sympathy for you George. To play a trick like that on your YF. Shame on you. And to think that he gets a cuppa in bed every morning, his slippers brought to him, his licence paid, his log book kept up to date. How can you do it? Words fail me. Thanks Mavis, I would like a piece of that cake.

Jeff 4XP, Howard 4WO, Les 4EH and family, together with Bill 4ZBD and YF also attended the Hamboree. The only Kingfisher absent was Bill 4WS, who was ill. A total of 39 attended the outing and general opinion was that it was a huge success and that it will probably end up as an annual event.

The Central Qld. Branch had their monthly meeting on 15th Feb. and it was very well attended. Their Patron, the Mayor, Alderman R. Philbeam, was also in attendance. Main business of the evening was election of officers for 1963. Frank 4FN was re-elected as President, Secretary is C. Bennett, Treasurer W. Peterson and Publicity Officer is 4ZCK. Frank 4FN sounded a warning to those not using

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their licences, to the effect that if they don't use them now, they may not be allowed to use them later. An offer of a block of land for use as headquarters station, was received and gratefully accepted.

This Branch has a hook-up on 7 Mc. every Saturday afternoon and consideration is being given to extending it to cover the 6 mx band so that Z call stations can also take part in the hook-up.

An all-out drive for new members has been decided for 1963. How about the W.I.A. Youth Radio Club idea chaps? It won't get you transmitting members immediately, but it will lay a good foundation for members in the future. Also, don't forget any Senior Scout Troops you may have in your area. These lads have generally completed their Junior and some of them will probably be doing Senior, also they are old enough to be able to have a licence by the time the course is completed. I have a group here in Ayr doing the Youth Radio Club course. I couldn't get to first base with the principal of the local high school, he wasn't keen at all on forming a club, with emphasis on radio. So as the training syllabus of Senior Scouts is very different to Scouts, I had no difficulty at all in getting enough boys interested in the scheme.

Queer types, Hams. Winge like anything about the QRM, and then do all they can to get more QRM! In all seriousness though, the more Hams that we can get on the air and keep on the air, the better chance we have of keeping our frequencies occupied.

Bob 4NG has decided to have a crack at 144 megs and only wants a mod. transformer for his 522 to be in business. Gosh, Bob, don't tell me you are too proud to use a power transformer for the job. What's wrong with Clamp tube modulation or reference shift? No transformer to buy. Joe 4CL is staging a comeback and we all welcome you to the QRM Joe. He is building a beaut new rx, complete with imported turret, etc. Must be all of 25 years since I've heard you on Joe. Silley 4SC is going up in the air these days. He has been heard on 144 megs. Tom 4ZL, another old timer, is showing signs of activity and is doing things to Command gear that would horrify the makers. The last time that I heard Tom, he was using a couple of 6L6s (metal) in the p.a., and the length of his overs were governed by how long it took for the shell of the 6L6s to get red hot. True. Ask him. Sorry to hear that your YF is on the sick list Tom. Tell her that you are going to put the rig in the lounge. The results should be startling. (Must remember not to let my YF see this copy of "A.R." as my rig is in the lounge.)

Frank 4FN had a curly one recently. Had indications of downward modulation and traced it to an O/C bypass on the screen of his p.a. Hear that Lance has taken up ballet dancing for a hobby. And just to be different, he practices the light fandango on the roof, in the dark. How were your neighbours to know that you were working on your aerial. He reports only "normal rare DX" on 6 and 2 mx. I have been told often that you haven't got to be crazy to be a Ham, but that it helps! Which brings to your attention Dick 4ZCK. Dick decided to make some home-brew ginger beer. So after getting a young ginger beer plant and leading it home, he carefully fed it and put it to bed each night, and eventually the day came when he could bottle it off-spring. This was done with loving care, and said bottles were put away to mature. Early one morning there was a violent explosion from the shack and Dick raced in armed to the teeth with all types of fire putter-outers (can't spell extinguishers) and found that it wasn't his rig at all that had gone up, but that the ginger beer plant was no longer confined, and also his 522 was swimming around in the brew singing, "I belong to Glasgow" (hic). How crazy can you get? Fair dinkum now, Dick, you wouldn't be elongating my lower limb would you?

Now for North Queensland, where everything is bigger than anywhere else except possibly a certain radio mast. The mozzies are bigger, the sandflies are bigger, the snakes are bigger and we have the biggest tx in the State, although what it is attached to isn't as big as it used to be, but you can't have everything can you? Ken 4WP has at last got on the air with a converted TA12, using a type of modulation featured in a recent copy of "A.R." He asked me what it sounded like. You wouldn't be having a go at me would you, Bill? Of course not, when I met you I immediately summed you up as an ossifer and a gennelman and a public servant, and I know you wouldn't kid me would you? Or would you?

Another old timer in the person of Frank 4FC could not stand the strain of hearing Bill 4WP on the air, so he got his t.n.t. and

loop phone out of mothballs and is back on the air again. Haven't heard of any Hams going on holidays this month. Judging by the number that were away last month, we should be welcoming back some QRM any time. Bill 4SW has returned to the fold as has also Gordon 4GH. Gordon went as far afield as W.A. and didn't even take a tx with him. How did you find your way through the wilds of that wilderness that is situated between Victoria and South Australia?

The Burdekin Radio Club had its annual meeting in February and in due form sacked all the office-bearers and elected the following: President 4UX, Vice-President 4CW, Secretary 4ZFA, Treasurer 4ZEA, Instructors 4UX, 4RO, 4ZEA and 4ZDG. As the club is reasonably financial, the incoming Secretary moved that the one shilling levy each meeting night be discontinued. This was greeted with dead silence, as it is not the usual thing for an ex-treasurer to suggest knocking any filthy lucre back. After taking his pulse and examining him carefully, in case he had got on to any of 4ZCK's brew, we came to the conclusion he really meant it. The meeting closed with a record in the minutes thanking Val (4OJ's YF) and Jess (my ever lovin' YF) for feeding these hungry blokes each month.

Frank 4CW heard a rare bit of DX the other night and strained his tx chasing it. Anyway, a fuse blew with a refined click. Nothing daunted, Frank got a bit of fencing wire and wedged it in, stoked up the rig again and was greeted with a violent explosion and smoke from the tx. And he has the audacity to tell me that he took up Ham Radio to sooth his nerves! Of course Viv, Wright, associate member, who lives next door, thought it was very funny. I see quite a lot of Viv., set my clock each Sunday morning by him. He arrives at my place at 0958. Morning tea is on at 1000

... Still, I'm on the winning side, when I visit his home, Dot (his YF) dishes out delicious goodies and numerous cups of coffee. Charlie 4BQ is active on s.s.b. or s.s.s.c., take your pick, so last Monday I called in to have a look at his gear. Lurvy, really lurvy. Next thing, his YF Evelyn, dashed up to me with a concerned look on her face and a tin of some medicinal goo, that said it was brewed, sorry, bottled, in Victoria, and told me I looked distinctly ill. "Ev," I said, "that greenish tinge you see on my face is not a sign of sickness, it's just plain envy." By the way, Victorians please note. If you see a battleship, driven by a copper haired YL (well, she has copper coloured hair at the moment) that will be my daughter Marion, who is joining the Navy. Come to think of it, how will she get a battle wagon up the Yarra? As far as I know they don't fit wheels to ships. Ah well, some of my friends in VK3 will still talk to me—I hope.

Col King, our ex-Genial Radio Inspector, has been promoted and is now down in Brisbane. Congrats, Col, from the gang up here. Col. is never too busy to talk Ham Radio.

Incidentally chaps, if you have any news dealing with s.w.l. or v.h.f., do not send it to me, forward it to the sub-editor dealing with that section. It saves delay.

Have you heard the one about what the halo said to the quad? "I'd much rather be curvaceous than look like you, you square!" That's the lot for this month, so I'll shut up with this thought from 4ZCK:—

Skill and caution are essential

When you work with high potential.

Jack (who's dead) was fancy free,

Until he touched the E.H.T.

73, cheers, Uncle Xray.

P.S.—Any mistakes in this screed are due to Dad's dreadful writing.—His daughter, Marion. (Looks like Dad has to find another typist.—Editor.)

WIDE BAY AND BURNETT BRANCH

I have this day been appointed official P.O. (Publicity Officer for the late comers) and went to the Annual Meeting of the above Branch of the W.I.A. feeling at peace with the world and no hard feelings toward anybody and that's what they did to me. They'll be sorry.

I counted them all up, fellars, XYLS, YLs, harmonics and others. I counted them all on my fingers two or three times, that's right, 31 all together. The meeting place was in the Sea Scouts' hut on the beautiful and salubrious shores of Hervey Bay (shades of Mr. Fitzpatrick).

As the boys rolled up in their R.R., the usual salutations and chin wags followed, while the XYLS, YLs and harmonics sorted themselves out into their respective groups. "Chips" 4XR, who has been occupying the Presidential chair, decided to vacate same, so that he can put more time into another A.O.C.P. class that he plans to start up shortly. Everybody looked around at everybody else

and Harry 4ZHG was the "victim". Harry agreed to hold the fort for the time being (that's what he thinks) and Chips agreed to give him some moral support by being Vice-President for the Gympie end of the Branch, Gordon 4GH for Maryborough, and Les 4XJ for Bundaberg.

Barry 4LN was re-elected Secretary and likewise Jimmy 4HZ as Treasurer. Bill Tomlinson (one of our Associates) will be attending to disposals.

Seven members of the Bundaberg Club have done their best to answer satisfactorily questions asked of them by the P.M.G.'s, radio examiner. They are now awaiting results. Gordon 4GH, who has been on a visit to the West, where all the young men go, must be back again as he has been heard on the air lately. He must be younger than he thought he was. Merv. 4ZMD, who left us some time ago, to go and keep law and order at Urandangi near Innaminka, way out back of beyond, has recently had a c.s. supply connected, along with his eight parishioners. Anybody looking for a battery and converter? 73, Fred Cox.

SOUTH AUSTRALIA

The Annual General Meeting of the VK5 Division was held to a capacity audience, partly composed of those who did not realise it was going to be such a meeting and were thus trapped before they could get out, and partly composed of those who always come along to such a meeting to ask awkward questions of the departing members of the Council and thus give the incoming Council a taste of what they can expect in the year to come.

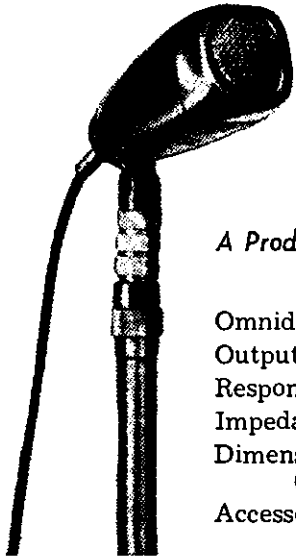
Speaking personally, after thirty odd years of such meetings and graduating from one section of the abovementioned audience to the other, I find such meetings a trifle hard on the feelings and I am beginning to think that before such meetings open there should be someone delegated to warm up the members, something along the lines of the live radio or t.v. show. It would go something like this, "Hi, folks! This is your warm-up announcer. Ted the Twirp, welcoming you to the Annual General Meeting of the VK5 Division. Now folks, when the annual report is read, let's not have any moaning or groaning. Just a few gasps of dismay! Can we try it? Let's hear some gasps of dismay. Not bad, not bad. When the Chairman praises the work of his fellow Councillors, let's try to keep the protests down and the applause up, and whilst I am on it, last year a member stood up and said that 'Spineless men were running the Division'. Let's not have that again, remember it's these spineless men who are the very backbone of our Division.

"These meetings are always exciting, you may remember one of our Council members committed suicide last year, right after the reading of the financial statement. So stick around, don't leave early, anything can happen! Let's have plenty of hoots and hisses whenever Federal Executive, the Editor and Management Committee of the magazine is mentioned, with a special rude noise for the VK3 scribe, and also don't forget to sob loudly whenever mention of VK4 is made. Folks, get your eggs and tomatoes ready for any mention of the Publicity Officer. Fire to hit, not to miss like last year; after all he is a big enough target. Don't fire until you see his bloodshot eyes. And now I see it is time to begin, so-o-o-o-o here he is, your chairman, my chairman, our chairman—Honest John from Cheltenham, the author of the best seller, 'May this Division be safe from proxy votes!' Loud and prolonged cheers and applause whilst the chairman cleans his spectacles of egg and tomato stains. Well, that would be good, but it is only pipe dreaming, what actually happened was . . .

The meeting commenced 20 minutes late, due to the fact that there were so many affluent members anxious to renew their subscriptions, which as the chairman (John 5LC) pointed out in explanation for the delay, was a very good reason to delay anything. And so say all of us. Anyway, the meeting progressed the normal way of all Annual General Meetings, and were it not for the rather controversial notice of motion on the necessity or otherwise of Trustees, the audience could have been pardoned for all dropping off to sleep. I feel that the reaction of members present to the proposed motion somewhat surprised the movers and it came as no surprise to have them withdraw the motion and agree to the appointment of Tony 5II, Brian 5CA and Ses. 5GP as a sub-committee to investigate the whole matter and report back to the membership within ninety days. A few present were under the mistaken impression that these three had been sentenced to ninety days and



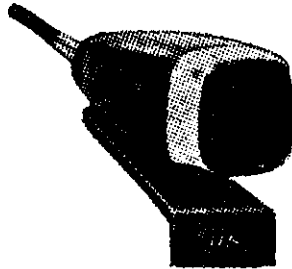
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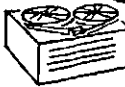
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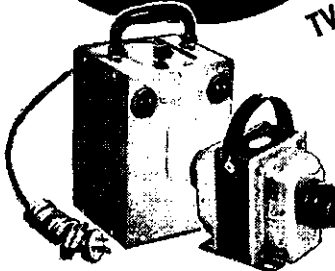
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a wave of cheering swept the room only to cease when the true case was explained.

Several matters were then discussed, such as the "Xmas Do" and whether or not it should now be a mixed night or not. The mixed night won hands down. Also a few suggestions re the disposals nights, the principal one being that only members should be permitted to buy or sell. This was unanimous. Several other minor discussions took place, but as they were minor, let them remain so. The result of the ballot was not unexpected, the two successful nominees being Leith 5LG and Rob 5RG with the rest of Council going back as a whole. This finished the Annual General Meeting and the monthly general meeting was ushered in, disposed of in the record time of 40 minutes, and produced very little of importance. All in all, a very good night, not as lively perhaps as some Annual General Meetings I could name, but at the same time one of the best attended I have seen.

Personally, I think my opening description of what should have been the meeting would have been very much better for all concerned, nevertheless a good time was had by all. I cannot close the description of the two meetings without making reference to the fact that at the exact moment the afore-mentioned controversial notice of motion re the Trustees was announced, all the dogs in the neighbourhood started howling and walling to such good effect that the meeting was thrown into temporary confusion, not in any way improved by Pansy announcing in a stage whisper that it was probably the Trustees at work!!

Leith 5LG tells me that his daughter was not very interested in radio, but his grand daughter more than makes amends by her interest in the Morse code. She is always keen to operate the key or the bug, and although only two and a half years old, will send dots or dashes at her grand-poppa's request, all day or night. I have always wondered what those dots and dashes on the bands were. Now I know.

Joe 5JT, who has been the communications officer for the Division for more years than I would own up to, is now out of a job with the Federal network discontinued. A good job well done, Joe, you will have more time for the DX now.

George 5CV well pleased at the meeting night at QSL time because it now means his total of countries confirmed is 107. Nice work George. By the way, I have been trying to catch up with you. Did you ever live at Haigh Mansions on the Esplanade at Henley Beach? If so, I used to be on the flat upstairs to you. You could not have been interested in Amateur Radio in those days!!

Talking of QSL cards brings me to the fact that Ted 5JE received his VK D.X.C.C. award this month and it was endorsed for all 7 Mc. contacts. This is something of a record I would think, anybody else D.X.C.C. on 7 Mc. only, and c.w. at that? That should fox them out, Ted!

Pete 5FM is reported as the proud owner of a Thunderbird beam and is more than satisfied with the results. In fact, putting it in the language of the average layman, signals just audible on a long wire came up to S7 on the beam. My spy further reports that several pilgrimages to the QTH of Pete are taking place by those interested, and most of the pilgrims can be seen leaving, openly licking their lips in anticipation of the results they expect to get upon an installation of their own.

The Admiral (5ZAH) has not been exactly in the pink at the moment of writing, although he can't be too bad, because he and Dave 5DS went up to the Murray for a spot of fishing recently and although not much was caught, a good time was had by all. Dave, so my spy reports, excelled himself as head cook and bottle-washer, and though I find it hard to credit, even went as far as to serve breakfast in bed to the Admiral—true as true! Dave reckons they had the wrong technique for the fish and threatens to try them out next time with "Flies". "Trout Scott" they call him, but you should have seen the one that got away!

Howard 5XA has tired of 288 Mc. and gave his gear to Frank 5MZ to try out. Frank is not very impressed with 288 Mc., contacts are few and far between, but I am glad, if Frank mucks about with this v.h.f. stuff for long, who knows, he might even go s.s.b. Stick to the d.c. bands, OM, don't leave me stuck out on a rock like a shag, Frank. Don't you desert me, keep the colours flying!

Joe 5JT, missing for many moons, heard several times on 7 Mc., wielding a wicked key and calling CQ DX. Good to hear you, Joe, keep going OM, you might even get some rare DX, such as 5PS. What am I saying?

Had a meeting with Arch 5XK recently, and although I always talk of him as the wild

man from Norfolk Island, I was quite unprepared for his reply to my greetings and salutations. It sounded like "wlyrpxvzxthsed," and when I said, "I beg your pardon," he again said "wzxczvwsxzzzbsge." Luke 5LL, who was acting as interpreter, said, "Don't worry, he has had all his teeth out today, and is kicking against the wind." Arch nodded his head vigorously and gave me a dazzling smile, exposing the new teeth in the process, the net result being that two passing motorists went white and accelerated up the street, and three children playing nearby rushed inside crying loudly "Mummy, Mummy." I was only sorry that I did not have a caramel lolly to offer him, the results might have been interesting. Never mind, Arch, your turn now!!

The well known "luncheon" session on 7 Mc. is still going great guns, but the conditions lately have made the going a little tough. Many and varied are the subjects that come up for discussion, and believe it or not, my name has been mentioned now and again, and in my favour too! Wonders will never cease.

Luke 5LL went out of his way to tell me that he was knocked back at the local post office when he tried to pay his licence renewal this week. I sympathised with him, and we both made a rude gesture in memory of Max 2ARZ. He never reads these notes so the act will pass unnoticed, I hope!

The official station 5WI must be giving members of the Council some food for thought these days. Due to the prevailing conditions on 7 Mc. in VK5 at the moment reception of the Sunday morning transmission is almost non est in the metropolitan and outlying areas. More and more members are giving the session away for this reason and its utility and usefulness is fast disappearing. Clive 5PE is doing an extra good job as the operator of the station, but all the good jobs in the world go by the boards if there are no listeners. Certainly there are re-broadcasts on practically all bands, but the primary frequency is still 7 Mc., and ironically enough the 3WI broadcasts are coming in at the moment in VK5 like a ton of bricks on that band. I had a brief listen for about a half hour this week-end to that session and must compliment both the operator and the station on the job they are doing. How low can I get? Listening to 3WI. Tut-tut-tut—and a couple of tots.

A couple of months ago I alluded in this column to the fact that one of my spies, a seductive bit of the doings, had given me some information. A good friend of mine, with evil intent, showed this paragraph to the said SB of TD and to say that she was acidy would be to understate the whole matter. The next time she met me she gave me a piece of her mind and stressed the point that if I had to quote her, to please not use such disgusting expressions, and please stick to the truth and nothing but the truth when mentioning her name. Naturally as I don't want to lose such a good spy, a seduc—Oops—I will do just that in future.

Nothing suits my grandson better, upon his very frequent arrivals at my QTH, than to press the buzzer at the back door and wait in gleeful anticipation for the door to open and a raging lion, frenzied elephant or some such wild beast to attack him on the spot. I am told that my humble efforts as a wild beast would put Laurence Olivier to shame, and my natural modesty prevents me enlarging on the matter, but one day this week my XYL decided to get into the act and show me just how much she resembled Ingrid Bergman. Well, to make a short story longer, the buzzer went, my XYL rushed up to the door making the most weird noises and sounds, prepared to devour the brave hunter waiting at the door, only to retire in red-faced confusion at the sight of a thoroughly frightened baker. She need not have worried, the baker took the back fence in his stride and has not been seen since. Well Mum, that should put me right, that's sticking to the truth like you said. Anyway, I still think you are a seductive drop of the doings!! Oh dear-oh dear, here we go again.

Lionel 5LD heard on 7 Mc. on Sunday morning in QSO with a VK2 who was raving about the quality and strength of his signal. As a matter of fact this good quality of Lionel's signal has always been present, so much so, that some twenty-five or thirty years ago I went out to his QTH to copy his modulator, a 45 direct coupled to a 50 in Heising, and it saw good service for many years with voice and music. Remember that Lionel? You drove me back to town on the back of your motor bike! I couldn't sit down for days and with my figure, what a good advertisement for the back tyre!

Received the information this week, a little late perhaps, but better late than never, that Hughie 5BC was recently the victim of an

attack by a bee or bees, number not stated. I have often heard the expression "A flea in his ear," but Hughie went one better and finished up with "Bees behind the ear." Joking aside, he was badly affected, needing medical attention, spent several days in bed, and very wobbly on his pins for about a week. Bad luck Otto. Hope all is well by now.

Tom 5TL, "The Voice" to you, was recently in conversation with the local electrician at his premises and noticed the remains of a t.v. aerial on the "dump". Now Tom, never missing an opportunity, scrounged said remains and carted them home, spreading them out on the lawn with the idea of working some sort of a miracle and perhaps ending up with a 14 Mc. beam. Hughie 5BC got into the act and decided that there were distinct possibilities of a 144 Mc. yagi, and Tom's lawn was soon bare of a t.v. aerial and any chance of a retrial. Any further information on this smooth piece of business acumen possibly may be found in some future v.h.f. notes!

The photograph of the Crystal Brook get-together published in February's magazine created a furore in VK5 circles. Comments were varied and at times picturesque, Launce 5LD ("Pop" to you) being described as distinguished looking, or was it extinguished? Anyway, it does not matter, everybody agreed that the photo was a good one. Someone suggested that Anno Domini was well in the photo, but I could not find him, what is his call sign?

The VK5 Division held a special disposals night this month, the reason being that there was more gear coming in than was going out and the Disposals Committee was running out of storage space. I was not present at the meeting, due to having to fight a losing battle with the proverbial wolf at the door, but the Divisional journal reports that "The disposals night held last Wednesday night was very well attended and I think everybody was satisfied."

In listening to the 3WI broadcast the other Sunday, I could not help but note that the s.w.l. representative appeared a little "browned off" with the lack of letters received on the doings of the s.w.l. section. Apparently all sections of the Divisions suffer from the same troubles, a few tried and true members do all the work, and the rest sit back and criticise. I have been very fortunate in this respect as my letter writers always come to light with itty-bits of information which I manage to distort in a satisfactory manner, for me anyway and nobody is game to criticise too much for fear that their name might appear in the next month's magazine to their discredit. As if I would!!

At this time of the year our subs. fall due and it used to be our practice to send out an account to all members. Postage became too high for this practice to continue and all that is done these days is to include a reminder in the Divisional journal. Now cough up fellows, and to that coarse type who suggested that now I am a Life Member I do not pay any fees, I suggest he takes another look at the receipt book. Very subtle!

One of my part-time espionage agents from Mount Gambier tells me that Karl 3ABN/P is better known as W5BGL. Karl has been in the S.E. area attached to the Seismic Survey party, which if all can be believed, is considerably disturbing the fish in that region. He was in VK7 for a while and will be in VK5 for about six weeks, before returning to the States. He possibly will be returning to VK in 1964. Nice work Karl, might see you at a Divisional meeting one day or night. Here's hoping.

By the way, Claude 5CH has been QRL in the Robe area in connection with the volts and amp. supply, and expects to be in Adelaide over Easter. He has been keeping his hand in on Amateur Radio by constructing a sooper dooper coupling unit which will already have been launched by the time this is being read.

You have all heard the saying "The poor have children and the rich have motor cars," or perhaps, "The a.m. men get s.s.b. filters," or possibly, "The phone men get Morse keys," and last but not least, "The c.w. men get modulation transformers." Well, at least the last one is correct because Harry 5MY was the successful winner of the ballot at the recent auction night of an outside in mod. trannies. Strictly a c.w. man, Harry is in somewhat of a quandary. Will he keep the flag flying and waste the tranny, or will he lower the flag and use the tranny? Sounds more like a morning serial on the radio, does it not? Harry Harried by Horrible Hopportunity to break with tradition. Will he do it? Will he succumb to temptation? Time only will tell.

For many months now I have always been assured of a couple of sure paragraphs in these notes. Last month I lost one for ever, I received my Worked Elizabeth Award. This

month I paid my Radio Amateur licence at the Norwood Post Office instead of tracking all the way up to the Receiver of Public Monies at the G.P.O. This will bring joy to Max 2ARZ, to several bods in VK4, and to several of the VK5 fraternity, who have never let the matter die since my original paragraph two or three years ago. Oh dear, oh dear, however will I fill these notes now? Don't answer that!

One of the members rushed up to me at the meeting and said in a very threatening manner, "A bloke from Eyre is going to have a shot at you," and grinned in fiendish anticipation. I puzzled just who was licensed in Eyre, but no dice. Then it struck me, there was an Ayr in North Queensland. Oh me, oh my, can it be that a VK4 is again to attempt crossing swords with me? My dismal life is brightened at the thought. "To the battlements men." "Methinks the air is rotten in Ayr." Pardon me, danger brings out the worst in me!

Well, here we are again, annual leave time. The notes next month will be written by that ace journalist, Brian 5CA. I hope, and for once your sense of propriety will not be offended, nor will you have to read my mutilation of the English language. There is no truth in the rumour that I am fleeing the State because in my description of the "Xmas Do" I was foolish enough to say of the three charming young ladies in the kitchen—"May their shadows never grow less." Woe is me! 73 de 5PS—Pansy to you.

WESTERN AUSTRALIA

Pow! Pow! Two shots rang out and Paladin lay writhing in the blood-soaked dust, heels kicking spasmodically, while Hoss Bonanza stared at him through slitted merciless eyes, over the top of the smoking, hammerless revolver. What's the time? What band are we working? What? It can't be March! It's April! Heck! Next it'll be Easter time, then the end of the financial year! Here it is half the year gone and nothing done. So get with it chaps and DO something!

Talking about doing something, had a personal contact with Pat 6FH recently, and discussion got round to the psycho tests given to aspiring members of the Armed Services. The old one was mentioned and Pat said they really did see a ship in the middle of the jungle up in the islands. It had apparently sailed up a narrow canal during the rainy season and got stuck and there the corvette was, viewed with some surprise by Pat and his mob. Well! What would you do? Yeah? I'll bet there wasn't any radio gear left on it by the time Pat had passed by.

Mention of Radio gear reminds me, our Technical Officer, Ralph 6ZAD, is working on the Divisional BC342 Rx so that it will be in tip-top shape for use by our new Broadcast Officer, Vic 6VK. Good work, Ralph, don't spare the expense, buy the rx another valve. Congrats, too, to Vic as Broadcast Officer. Vic says the W.A. news will be broadcast

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simultaneously on 80 (s.s.b.) and 40 (a.m.) and re-broadcast on 6 mx by Bob 8BE. In handing out the bouquets, we mustn't forget Wal 6AG who carried the news broadcast for so many years. This wasn't the only job Wal was doing of course, he is still membership secretary. Cheers Wal, and thanks from us all for a fine job.

A fine job calls to mind that the v.h.f. boys have been at it again. Providing a network service for car trials seems to be a regular thing nowadays, and, I would suggest, an excellent stimulus for getting Hams operating mobile. Enthusiasm evident in large lumps everywhere. That reminds me, what happened to that vibrator power supply I loaned someone for the first car trial? Mmmm!

Alyn 6ZDM tells me he wants someone to develop a new device. This is called a "clot" suppressor. Specification is that it should be entirely automatic once the rx is tuned in, be able to discriminate between clots and non-clots, have a bandwidth of 15 cycles to 15 kc. a.m., f.m., and s.s.b. with the ability to turn the far end tx off after a reasonable time as a desirable characteristic.

Our President (Ron 6KW), having recovered from his visit to JA land last year, y'know, eyes normal shape and has stopped drinking saki, turned the tx key on recently (no squeals) and got himself a VQ1 on 21 megs. Ron says he's having feeder trouble, too. Must be all the hypens getting stuck Ron, and making the wind brittle. Oddly enough, Allen 6MO couldn't even hear the VQ1. Perhaps it's that quad's not quite cubical or something, Allen.

Have a couple of sickles on the list at the moment. Associate Ross Hardwicke not enjoying the best of health at the time of writing, so we trust that all is OK again by the time you read same. Assoc. Geo. Kenny didn't make the February meeting either, because he had an argument with a car, whilst he was on a pedestrian cross-walk. Fortunately, Geo. was able to go home after observation at the hospital. Hope there are no after effects Geo. and you are about for the next meeting.

Believe our Patron (Geo. 6GH) had a trip into the Great Southern recently, went through Bunbury at a rate of knots so did not see Les 6WL or Cole 6CL (incidentally, if you see Cole, don't mention the price of the amber fluid) and raced on to Katanning to join the X Group in the congenial surroundings of the Katanning Club. Geo. certainly appears to be enjoying his retirement to the full. A fine figure of a man. A gentleman and a scholar, sir. Besides, he knows a thing or two, does Geo, judging by the excellent technical articles we get after the news broadcasts on Sundays. Keep it up, Geo., they're popular.

The only real news I have from the country this month is word of 6LF racing down from Carnarvan to Geraldton recently to be in the local fox hunt. Geel! Did you follow the signal all the way!

As regards the State generally, Tony 6TY, who labours for the D.C.A., says there are two of every conceivable piece of radio gear in various parts of the country in preparation for the Royal visit, so we hope everything works OK, Tony.

Well, there it is chaps, if you are shy about seeing your own name in print, put some of your cobbins in and I'll mention them. Cheers for now, 6LS.

TASMANIA

Our Divisional Council elections will be over by the time these notes are published, but I wish to publicly acknowledge our debt to two retiring Councillors, namely, Ken 7KA and Allan 7MY, both of whom are not seeking re-election. Ken 7KA has been our Divisional Secretary for six years, during which time he has laboured long and well for us. I am not aware of Ken having missed a Council meeting, and I am only aware of one Divisional general meeting missed by Ken in all that time. At one time, Ken was Divisional Secretary, Bulletin editor, publisher and distributor, and Sunday morning broadcast officer, all of which amounts to a great deal of work for one man. Mercifully, our next Secretary will not have to cope with all these duties.

In addition to all these activities, Ken has been an active supporter of the various Divisional activities, including participation in the Remembrance Day Contests annually, the National Field Day Contests, social functions such as those sponsored by the Club Room Fund-Raising Committee. Ken, we understand your desire to relinquish the ties of the many duties and we thank you sincerely for your many good works.

Allan 7MY has been a Councillor for two years on this occasion. Allan was responsible

for providing the technical article in our monthly Bulletin, and he has always taken a lively interest in Council and general meeting activities, as well as being on more Amateur bands than any other Amateur in VK7. Allan re-transmits the official broadcast on the 6 and 2 mx bands. He has done all this while building a new home and carrying on his livelihood as a farmer. We thank you also Allan for making yourself available to the Division when Councillors were hard to get.

David 7ZAY celebrated his 21st birthday on 6th March, while Danny 7ZDM reached the same age on 20th March, so congrats. to both of you chaps.

The VK7 participation in the National Field Day Contest was rather disappointing this year, but congrats to John 7JF for his fine effort. Other stations heard by me were ZDK, 7CH, 7LJ, 7BJ. Conditions on both 3.5 and 7 megs. during the A.R.R.L. C.w. Contest in Feb. were really excellent and many stations were worked by the few VK7 stations to take part. Conditions for the B.E.R.U. Contest, however, were not very encouraging, even though Pacific area stations at times were worked.

Our March lecture was on Tunnel Diodes, and what a truly excellent address this turned out to be. Not only was the theoretical side of the subject thoroughly discussed, but the demonstration of gear was most impressive.

Anne Landers has recently taken delivery of an AR7 rx and she hopes to have it in proper functioning order very shortly. Members, remember that subscriptions are now overdue. Please forward your dues to Box 851J, G.P.O., Hobart, now and save your new Secretary the troubles connected with removing and re-instating your name on the circulation list of this magazine.

The Youth Radio Clubs are now receiving concentrated attention from this Division. I have to thank 2YA for supplying me with all the necessary information on this topic. We now hope to proceed at speed with this project within this Division. If you can help with this project, let your Council or Zone Secretary know. We will be able to use your services.

We were delighted to meet Bob 4RW down here in Hobart during February. Bob was welcomed into many of our homes here and was also able to attend the meeting of the V.h.f. Group on 20th Feb. We hope to meet up with you on the bands, Bob.

73, Ian 7ZZ.

NORTH-WEST ZONE

The meeting in March was a social event with an enjoyable selection of movies by courtesy of Sid 7SF. Sid also gave us a working demonstration of his auto-tune tx.

The evening was marred somewhat by a communication from the Southern Zone unequivocally advising of our status. It is most distressing that more diplomacy is not employed in such circumstances.

There seems to be little activity on the bands, although Ken 7KH has been working some DX on 20. I noticed Winston has a mobile whip on his car and 7ZBH is mobile on 144.

David 7MS seems to have big things in mind and plans to surprise us with a new rig. I wonder if another "duck" is about to take to the air.

Had an interesting talk with visitor Bob 4RW recently. His zone in VK4 apparently has similar troubles, etc., to ours, so the picture seems the same all over.

The tx hunt on 17th March is now over, so no doubt the winner has been announced. 73, 7ZBH.

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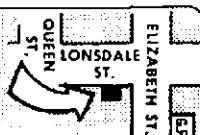
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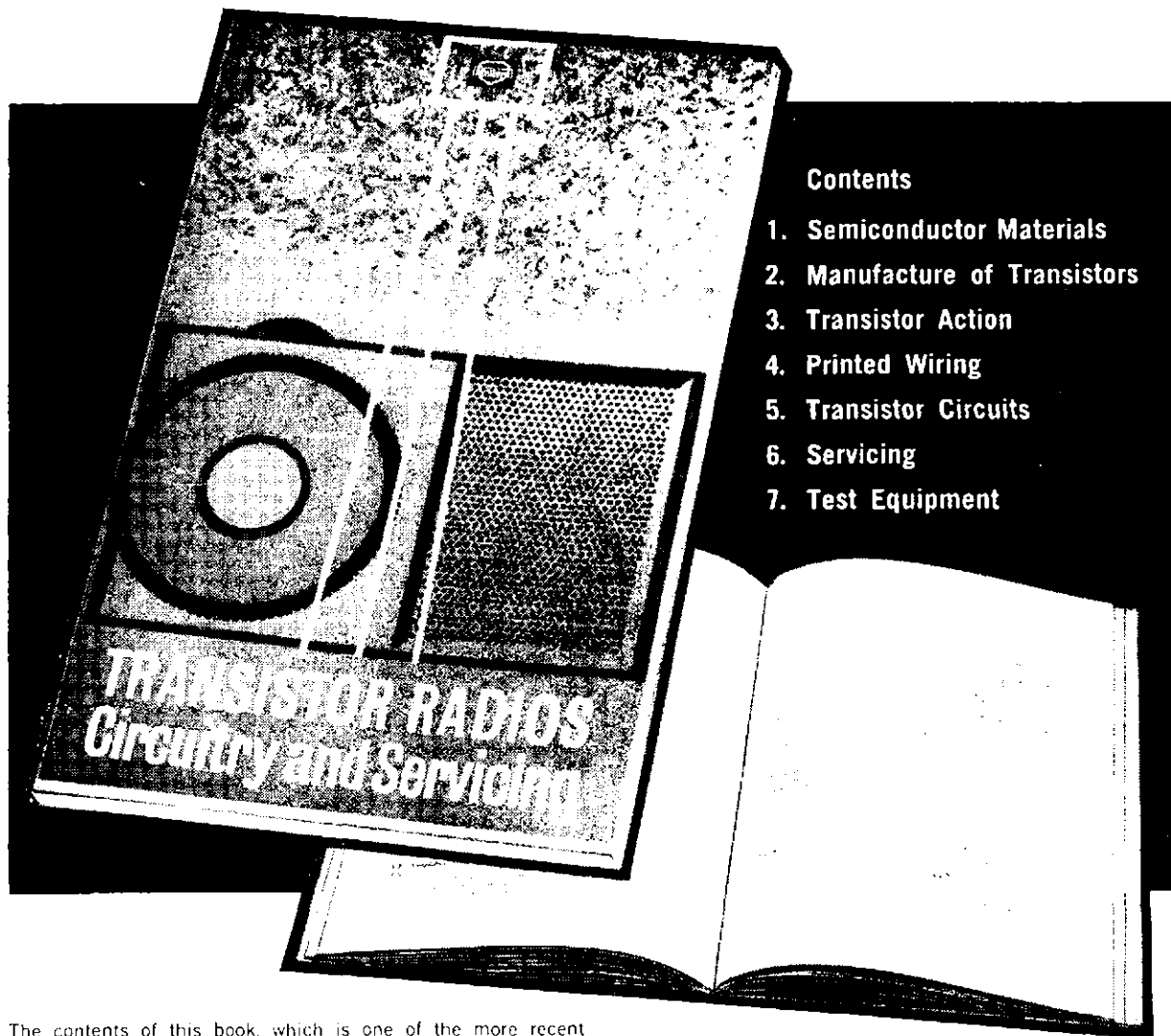


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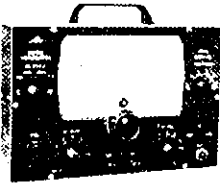
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The cover photograph shows one
corner of the Publications Committee
tent wherein the Collins 75S-3 is
being put to good use by the opera-
tor (VK3OM) in the 1963 N.F.D.
Contest. Another scene from the
other tent appears on page 16, which
shows further gear being used.

FEDERAL COMMENT

★

P. R. I. N. T.

No one will deny that many amazing advances in communication techniques have been made in recent years, but most have not touched on that important commodity—band space. Single sideband transmissions by both Amateurs and Commercial stations will undoubtedly contribute to the conservation of frequencies, but even this type of emission has only touched on the fundamental problem. What is needed is a break-through in the conveying of intelligence from one place to another.

Is this a pipe dream or not? It might have been considered so, until just recently when a completely new concept was discovered and is believed to be in use for certain applications. This system still uses the electromagnetic spectrum but not in the manner we are in the habit of expecting. In fact, this system contemplates the reception of what we might term intelligent noise! To the normal communication receiver, this system appears to be only randomly scattered noise, and for that reason we have christened it P.R.I.N.T. or Pseudo Random Intelligent Noise Transmission.

To understand this new technique one must dissociate one's thinking in terms of frequencies and start thinking in terms of time. If one can imagine being able to see at the same time a wide portion of the electro-magnetic spectrum as on a spectrum analyser, the transmission would appear to be a number of apparently randomly dispersed pulses of noise and would sound like it.

The system is not one that can really be simply described, but suffice it to say that a knowledge of information theory is essential. It does, however, use normal conventional transmitting components, and a system of modulation that can be allied to pulse code modulation. The major ingredients of the system are a "clock oscillator," a black box that produces a series of predetermined pulse codes, a fast acting electronic phase reversal switch and a means of modulating the system by injection at the oscillator. P.R.I.N.T. therefore uses an unusual type of modulation and a new concept in tuning—time instead of frequency. To receive intelligence from the transmission, the receiver "oscillator" must start at the same time as the transmission, must be in phase with it and "detect" the same pulse code system.

Due to these variables, many such systems using different codes and time starting points may be accommodated in the same spectrum space. As this system is still in its infancy, there are no "do-it-yourself" kits on the market; nevertheless, it does present a brighter picture for the future accommodation of many more stations and their operation without mutual interference. This system will offer a challenge to the serious experimenter for some years until we are able to apply p.s.i. communication on an on-off basis—did someone ask what p.s.i. communication is—well we are not telling now but reserving it for a future editorial!

FEDERAL EXECUTIVE, W.I.A.

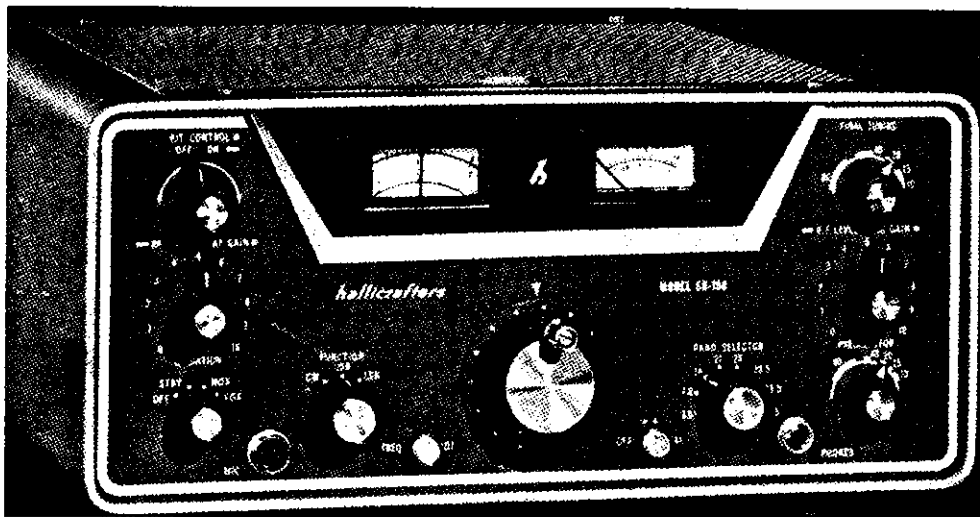
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A LINEAR AMPLIFIER FOR 50 Mc.

I. F. BERWICK,* VK3ALZ

THE availability of the QQE06/40 on the surplus market solved a problem for the writer—viz. a suitable tube for a QRO 50 Mc. linear. The QQE06/40 has rather attractive ratings in linear service, is efficient to 300 Mc., and has a reputation for linearity.

I decided to use a pair in push-parallel in order to have a conservative 150 watt linear. The results so far have been satisfactory.

It will be noted that a t.v.i. trap is fitted at the antenna terminal. An AB2 linear has a percentage of harmonic distortion which, though small, results in an appreciable amount of harmonic power being generated when the p.e.p. input is several hundred watts.

Other than this, no t.v.i. precautions need ordinarily be taken.

All information relevant to the construction is given on the schematic.

Reference to the schematic shows that link neutralisation is used. In fact this is not neutralisation but negative feedback. There is a subtle difference.

The negative feedback r.f. amplifier is used extensively commercially in linear service. In my case it was the most convenient mechanically.

The bias is given as -28 v.d.c. Actually this should be capable of some

*107 Loongara Avenue, Glenroy, Vic.

variation to suit individual requirements. Some may prefer to run the amplifier more into AB1 or more into AB2. AB2 gives more output but the drive requirements are more stringent and harmonic distortion slightly greater. The bias supply should be completely free from ripple and of low impedance if AB2 operation is contemplated.

A small amount of grid swamping is used. The main load on the driver however is a 100 ohm resistor across the transmission line between driver and amplifier.

ADJUSTMENT

Grid-dip the grid and plate tanks. Apply drive and bias and peak the grid tuning. Reduce drive to a safe level, connect a load, apply screen and plate volts, tune plate to resonance, then to i.f. side of resonance. If t.p.t.g. oscillation occurs adjust position of neutralising coils until oscillation ceases. Use no more negative feedback than is necessary to ensure stable operation.

No trace of parasitics should be encountered if the suppressors, as described in the schematic, are fitted.

LINEARITY CHECKS

One should not imagine that the linear can be put on the air without

proper linearity checks. As pointed out in my previous article, there are several types of oscilloscope display which can be used for linearity checks. It is not the purpose of the article to discuss these, which in any case are adequately covered in A.R.R.L. S.B. Handbook and other publications.

There should therefore be no great difficulty in satisfactorily completing the linearity checks provided (a) one has the necessary test equipment, and (b) the Handbook procedure is followed. As a matter of interest the writer is equipped to make on-the-air linearity checks provided a signal 20 db. above the noise can be supplied.

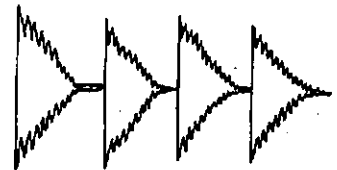
There is a vast difference in performance between a correctly adjusted linear and a maladjusted one, and this difference is reflected in the readability of the received signal.

Please Note: Calibrated screw-driver techniques are inapplicable in this application.

C.R.O. PATTERNS

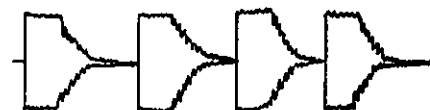
I conclude with some pretty pictures taken from the c.r.o. face, plus appropriate (I hope) comment.

Voice Waveforms—Envelope Display 30 c.p.s. Sweep Speed Vowel Sound



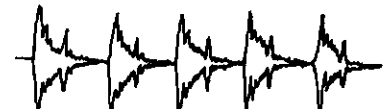
Cool Man, Cool!

Peaks sharp and clean, correct triangular pattern, freedom from harmonics of voice frequencies. Signal normally copyable down to S3.



Plenty of Sidebands here—too many in fact!

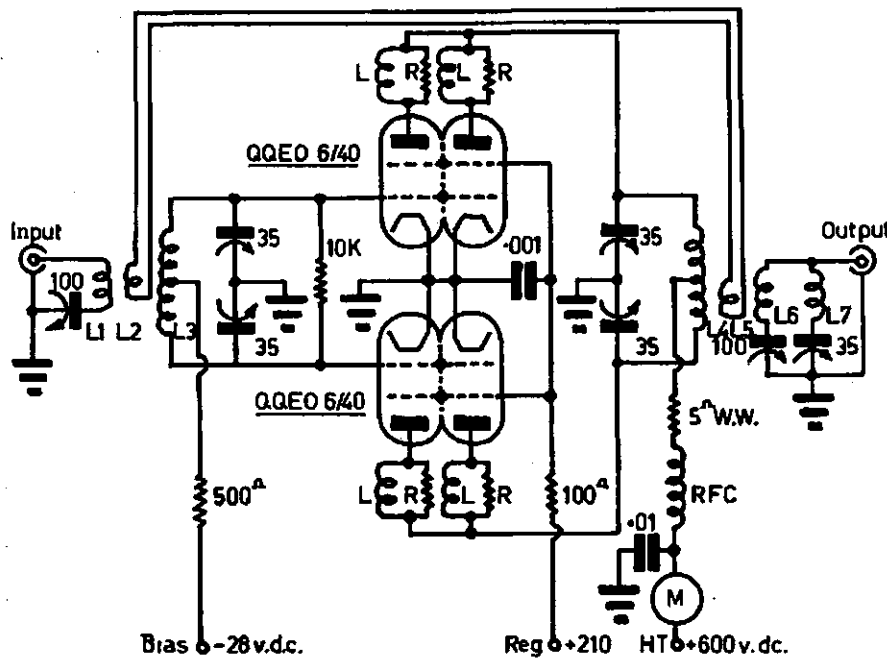
Peak flattening due to overdrive, incorrect load, insufficient bias, or combinations of same—splatter!!



Old gravel voice!

Distortion due to too much bias—spurious peaks indicating harmonics of voice frequencies.

(Continued on Page 19)



Schematic of Linear Amplifier for 50 Mc.

L-6 turns 22 B. & S. enamel wire wound on "R"—a 47 ohm resistor.
R-47 ohm ½ watt and 22 ohm ½ watt in parallel.
L1-2 turns 18 B. & S. enamel, ¾ inch diam.
L2-1 turn link coil.
L3-6 turns 10 B. & S. enamel.

L4-6 turns ¼ inch copper, 1 inch diam.
L5-1 turn link coil.
L6-2 turns 14 B. & S. enamel, ¾ inch diam.
L7-Trap coil to resonate with local t.v. station which is in harmonic relationship to 50 Mc., approx. 200 Mc.
M-500 mA. meter.

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CLAMP TUBE MODULATION

Dear Sir,

I refer to the article on "Clamp Tube Modulation" by VK4MX in the January issue. It is not that I wish to offer criticism, in fact it would be difficult to do so with the number of assumptions and provisos made, but I do think C.P. has an odd point of view about the subject and has not really hit the nail on the head. I have used a similar system of modulation for a couple of years now and probably get results similar to VK4MX; this is what it amounts to.

Take an ordinary c.w. rigged p.a. and cut the drive. If this is the only source of bias, what happens: the p.a. tube probably burns up. The simplest way to prevent this happening is to insert a clamp tube.

Then one bright Sunday morning you get fed up with the old key and want to have a rag chew. No audio power amp. or mod. tranny or anything big, so you start thinking about the clamp tube (after all, it is already switching the p.a. current from some very low value to its peak value). Just remove the grid circuit of the clamp tube (it was biased from the p.a. grid circuit, wasn't it?) and arrange for class A operation (you don't want to distort the audio do you?).

Having connected the audio in to the clamp tube grid under class A conditions, you then fiddle the clamp's plate resistor (which is also the p.a.'s screen dropper) for linear modulation. This is very easy to achieve by plotting the r.f. output against the screen voltage on the c.r.o. and a perfect trapezium is easily obtained.

Whether or not the p.a. screen voltage you finish up with has a mean value of half what it was before you started on this lark depends entirely on just what tube you've got for a p.a. (we do want linear modulation, do we not?), and you'll be surprised just how low the power input to the p.a. can become with some p.a. tubes before linear modulation is achieved.

Ahway, start hollowing into the mike and you're on the air with good modulation and efficiencies like VK4MX mentions. Unfortunately, if you are still with me, all you have got so far is screen modulation—not clamp. Now this is the good oil and also where the name is derived.

Before you got ambitious phonewise, you had a clamp tube (controlling the p.a. output) which functioned in response to the presence or absence of drive bias and did nothing more than cut your p.a. tube expenditure. Now if you wish to conserve power when you're not nagging into the mike, as is often the case with mobile operation, why not control the mean carrier amplitude with the audio in the same manner as r.f. at the p.a. grid originally controlled it during key up conditions.

In this case you simply discard whatever bias arrangement you had through listening to me and slap a 0.01 μ F. and 10 meg. in the clamp grid circuit and produce "leaky grid" bias as do a few

commercial radio manufacturers in their audio stages for simplicity and cheapness. All that happens then is this:

No speak—no bias—large clamp current—low p.a. screen volts—low output. (By the way, it's not all hay; you're wasting power in the screen resistor and clamp tube—how much depends on what the p.a. tube is.)

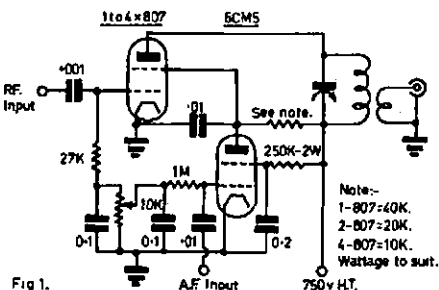


Fig. 1.

Now speak—the audio is amplified—modulates the p.a. at the same time bias is developed at the clamp grid which reduces the average clamp current and naturally allows the p.a. screen to rise (still with the audio superimposed on it) and up goes the output. Depending on your choice of tubes, it is very easy to overmodulate the p.a. Admittedly it is impossible to exceed the power you radiated under c.w. conditions, but it is a simple matter to break the carrier at modulation troughs.

In fact this is usually the case with the arrangement described because after all, since rectification takes place at the clamp grid the positive-going peaks of audio are flattened there and appear the other way up at the p.a. screen, so every time you open your mouth, especially with words like "syllabiv", a whole shower of flattened carrier troughs go off into space. Still, with a bit of care in design, nobody seems to catch on that you are using clamp tube modulation although when you tell them it always seems that they knew all the time. They'd noticed that sluttiness or their S meter was kicking upwards a bit too energetically.

Anyway, that's clamp modulation, just a form of screen modulation plus a bit of carrier lift or controlled carrier if you like. Personally I like it, after all if you're got good carrier control, the bloke at the other end will probably be able to hear what's going on underneath you as you pause to mouth a few choice but unspoken words at some poor but less skilled fellow motorist if you happen to be mobile.

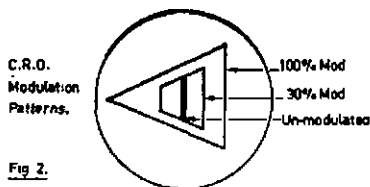


Fig. 2.

Also, if he (the other Ham—not the motorist) has the usual diode detector circuit in his receiver (where the following valve's grid resistor is twice the value of the diode load) he will appreciate your audio belting in from nil carrier level. He gets no audio below 30% of negative modulation peaks from any 100% modulated carrier of steady mean value at any time, which is why there always seems to be a lot of audio when clamp transmissions are received, but that's a long and involved theory of my own that no one has yet bought into, so I won't digress at this point.

But what about these nasty little distorted peaks? Can the circuit be modified so that the audio lifts the carrier without this type of distortion and yet remain truly clamp modulation in every sense of the word? I refer to the circuit (Fig. 1) in which I think I have found the solution.

Most of the details of operation have been discussed, so I will carry on with an explanation of the new features. You will notice that the clamp bias is derived from the p.a. grid current and that a pentode is used to clamp the p.a. screen. The clamp grid never draws current, thus the undesirable clipping of positive-going peaks is avoided.

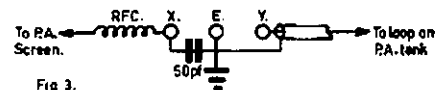


Fig. 3.

Carrier lift is brought about by the slight increase in clamp screen current when audio is applied to its grid because this results in a comparatively large drop in clamp screen voltage. (I say comparatively because it is already quite low—the 6CM5 needs very little screen voltage to get it percolating.) This in turn causes the clamp plate current to fall, the plate and, of course, the p.a. screen voltage rises and up goes the carrier output with audio superimposed.

The point of operation (or degree of lift and linearity) is adjusted by the 10K pot. and the c.r.o. trapezium will indicate excellent linearity (if the p.a. tank is fully loaded—very important) and as the amount of audio is increased the trapezium not only projects to a triangle but "blows up" or "blooms" in the process, rather like a t.v. picture tube when the IS2 is faulty, which indicates of course a carrier lift.

I usually tune my rig (4 x 807) under c.w. conditions by turning the bias knob to full bias and then readjust this clamp bias for operation, i.e. 200 mA. at 750 volts, then bias back to 50 mA. At zero modulation the aerial current is approx. 400 mA. and at full modulation just over 600 mA. into 300 ohm ribbon. Assuming an s.w.r. of 1, which is unlikely, this represents an increase of mean carrier from 48 watts to 108 watts.

(Continued on Page 7)

Field Day Power Distribution*

Simple Control Centre for Multiple Installations

THEODORE J. JONES, W3CHU

CABLES

Interconnecting cables are made of three-conductor underground-type plastic-covered electrical cable. This cable consists of two No. 10 wires for the electrical load, and one No. 14 wire used for the common ground connection. (This cable is often referred to as two-conductor No. 10 cable with ground wire.) The plastic covering of this cable is tough and durable. The two generator cables are identical and are each 10 feet long.

If feasible, a three-contact female twist-lock receptacle should be mounted on the generator base or frame and the generator output termination (whatever type it may be) wired to the twist-lock receptacle. The ground terminal of the receptacle should be connected to the generator frame. In this case the input end of the cable will be fitted with a mating twist-lock plug.

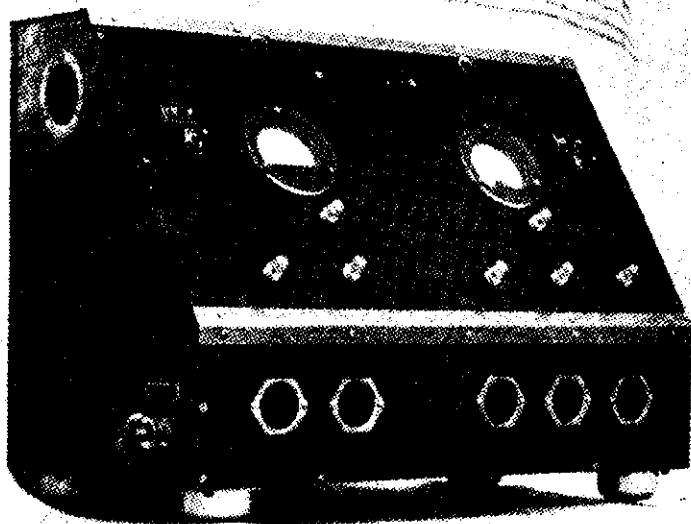
If there is some reason why this adaptor arrangement cannot be installed, the input end of the generator cable should be fitted with a connector or other device matching the generator output termination. The output end of each generator cable should be fitted with a female twist-lock plug to fit the male input connectors of the distribution unit.

The five distribution cables are also identical. Each is 100 feet long, fitted with a male twist-lock connector at the input end, and a metal multiple outlet box at the output end, as shown in Fig. 2. Four receptacle

• This well-thought-out Field Day power distribution centre not only speeds up installation, but also concentrates fusing and line-voltage monitoring at one spot, making it unnecessary to search far in case of a power failure. The principle applied here to distribute power from two generators may be extended as required.

12" deep and 16" high, and is fitted with a sloping upper panel and a vertical lower panel, both of which should be made of $\frac{1}{2}$ " Formica or other insulating material. The recessed male input connectors, J1 and J2, are mounted one on each side of the cabinet near the top. The five female output connectors are mounted in a row on the lower vertical panel, divided into groups corresponding to the two generator outputs. Meters, control switches, pilot lamps and fuses are similarly grouped above on the sloping panel. The fuse holders are of the "indicating" type which makes it easy to spot a blown fuse.

Mounting feet are provided to keep the cabinet off the ground if other means are not available, and handles on each side facilitate carrying. Flush-folding handles leave no projections when not in use.



Chester County's Field Day power-distribution panel. Power from a 1½ k.v.a. generator fed in at the connector at upper left is distributed to equipment cables plugged into the two connectors at lower left. Above, on the left-hand side of the sloping panel, are a red indicator lamp, line switch, line voltmeter, and indicating-type fuse holders. A similar arrangement with three outlets on the right-hand side, distributes the power from a 2½ k.v.a. generator. Ground connection is made at the wing-nut terminal, lower left.

As a result of previous experience in supplying power to each of several rigs during Field Day activities, the need for a safe, convenient and reliable power distribution system became apparent to the members of the Chester County (Penna.) Amateur Radio Club. The gear illustrated in the accompanying photograph and sketches, which was subsequently designed and built as a club project, well proved its worth in our last Field Day expedition.

The objectives sought in the design and layout of the unit were reduction of generator hash, a common electrical ground system for all equipment, and the elimination of power interruptions caused by cable connections working loose. In addition, the need for cables of adequate length, common polarization, monitoring of line voltages, and proper fusing for overload protection was taken into account. The consideration of these factors led to a practical and easily built piece of equipment which has proved to be a welcome asset to our club's Field Day equipment.

DISTRIBUTION CIRCUIT

Fig. 1 shows the wiring diagram of the distribution unit. Provision is made for the convenient distribution of the outputs of two portable gas-driven generators. A 2½ kilovolt-ampere (k.v.a.) generator feeds into J1 from where it is distributed through three outlets, J3, J4 and J5. Similarly, a 1½ k.v.a. unit feeds in at J2 and is distributed from two outlets, J6 and J7.

Throughout the distribution system three-contact twist-lock plugs and receptacles are used for making connections. These connectors not only provide the required mechanical security but the third contact makes it possible to maintain automatically a common ground connection.

Each generator output passes through a line filter to reduce generator commutator interference, and thence to a red lamp which provides a visual indication of whether or not generator output is being received at the unit. A d.p.d.t. switch connects the generator output to the distribution outlets which are individually fused in one side of the line, a common fuse being used in the other side of the line. Generator output voltage is monitored by a voltmeter. The common ground connection is brought out to a heavy terminal fitted with flat washers and a wing nut. In use, this terminal is connected to a metal rod driven into the ground, or other convenient ground connection.

CONSTRUCTION

The cabinet shown in the photograph is made of $\frac{3}{8}$ " plywood. It is 24" wide,

* Reprinted from "QST," April, 1962.

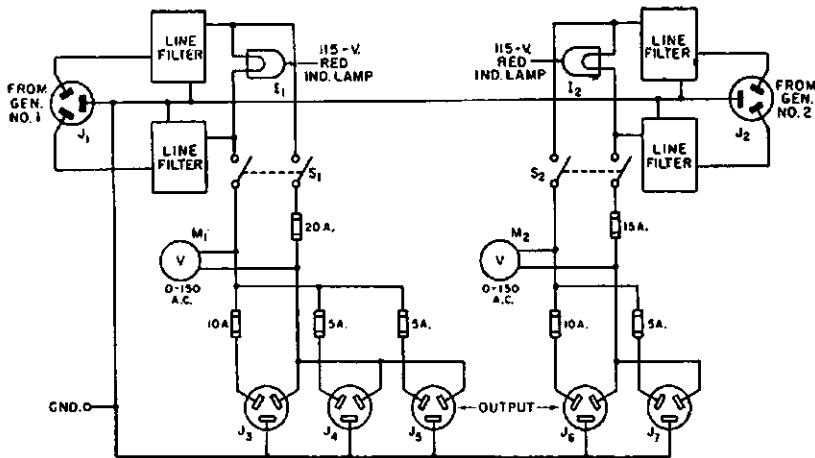
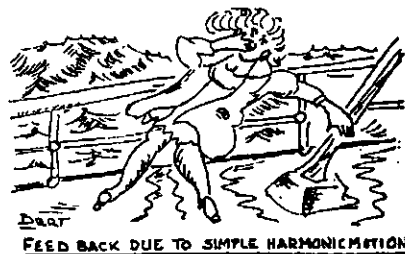


Fig. 1.—Wiring diagram of the distribution unit.



COMBINED FIGURES-LETTERS

In view of the appearance of new "figures-letters" prefixes on the Ham bands from time to time, hereunder is a complete authorised list. Many of these prefixes are already in use, but a majority have still to be implemented.

It is hoped that this list will save a lot of queries and enlighten many Amateurs what to expect in the future.

3A—Monaco	5W—Samoa
3B—	(American)
3C—	5X—Uganda
3D—Canada	6A—U.A.R.
3E—	6B—(Egypt)
3F—	6C—U.A.R. (Syria)
3G—Chile	6D—
3H—	to Mexico
to	6J—
3U—China	6K—
3V—Tunisia	to Korean
3W—Vietnam	Republic
3X—Repub. of	6N—
Guinea	6O—Italian
3Y—Norway	Somaland
3Z—Poland	6P—
4A—	to Pakistan
4B—Mexico	6S—
4C—	6T—Republic of
4D—	6U—Sudan
to	6V—Republic of
4I—Philippines	6W—Senegal
4J—	6X—Malagasy
4K—U.S.S.R.	7A—
4L—	to Indonesia
4M—Venezuela	7I—
4N—	7J—
4O—Yugoslavia	to Japan
4P—	7S—Sweden
4S—Ceylon	7Z—Saudi Arabia
4T—Peru	8A—
4U—U.N.	to Indonesia
4V—Haiti	8I—
4W—Yemen	8J—
4X—Israel	to Japan
4Y—I.C.A.O.*	8N—
4Z—Israel	8S—Sweden
5A—Libya	8T—
5B—Cyprus	to India
5C—	8Y—
to Morocco	8Z—Saudi Arabia
5G—	9A—San Marino
5H—	9B—
5I—Tanganyika	to Iran
5J—	9D—
5K—Colombia	9E—
5L—Liberia	to Ethiopia
5M—	9F—
5P—Denmark	9G—Ghana
5Q—	9K—Kuwait
5R—Malagasy	9L—Sierra Leone
5S—	9M—Malaya
5T—Mauretania	9O—
5U—Niger	to Congo Repub.
5V—Togo	9T—

—Compiled by Eric Trebilcock, W1A-L3042.

* International Civil Aviation Organisation, H.Q. in Montreal, Canada.

I1, I2—115 volt panel lamp, red.

J1, J2—Recessed male three-terminal twist-lock cable connector.

J3-J7 inc.—Flush-mounting female three-terminal twist-lock receptacle.

M1, M2—0-150 volt 60 cycle a.c. voltmeter.

S1, S2—20 amp. d.p.s.t. toggle switch.

Line filters are pi-network type rated at 115/230 volts, 25 amperes.

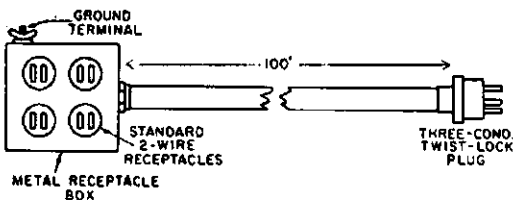
Fuse holders are indicating type.

boxes are standard items in electrical supply stores, and require only the addition of the wing nut. Any unused holes should be plugged with caulking compound to exclude rain. The receptacles are of the two-contact type to match the standard a.c. plugs of equipment and appliances. (In Australia we standardise on three-pin plugs and sockets and it is recommended that it be used to match your gear.—Editor "A.R.") The ground terminals of all equipment operating from any one distributing line should be connected together and then to the wing nut ground terminal on the outlet box. The ground wire of the cable is secured internally to the box, and the box should be grounded by a No. 10 wire from the wing nut to a metal rod driven into the earth.

The common ground system, elimination of all exposed hot terminals, weatherproof cables and adequate fusing have proved their worth in reducing electrical hazard to a minimum. The twist-lock connectors help to make the system mechanically foolproof, and identical cables avoid the confusion that often reigns at a Field Day set-up. It is not necessary to hunt for the right cable length with the right terminations, and the maximum permissible distance between control centre and equipment is known in advance.

The Chester County Radio Club is proud of this small contribution to the fun and safety of Field Day exercises, and passes this along to others who may be interested in constructing similar gear for their own activities. ●

★
Fig. 2.—Sketch showing make-up of distributing cables. Input end terminates in a three-contact twist-lock male plug. Output end terminates in a metal box fitted with a wing-nut ground terminal and the desired grouping of standard two-contact a.c. outlets for equipment. (In VK standardise on three-pin outlets.)



CLAMP TUBE MODULATION

(Continued from Page 5)

It is a very handy system for local rag chews, you can bias back to about 10 watts, throw the mike in one corner, carry on with the new project—whatever it is—and chat merrily away at low power. Don't forget the audio gain must be reduced as the carrier is wound back!

In conclusion, I would comment that no Heising type dropper and by-pass are found necessary between the clamp plate and p.a. screen using the tubes indicated; not that the carrier is completely suppressed during negative

peaks, but nearly so, particularly when compared to the peak carrier value due to the lift during modulation.

The rise and fall or "sliding action" of the clamp tube screen has an optimum time constant using the 0.2 μ F. capacitor indicated, larger values do not affect the rise time very much, but cause the carrier to fall too slowly when not speaking, i.e. 0.2 μ F. discharges through the valve (fairly low impedance) but has to charge up through 250K (do not alter).

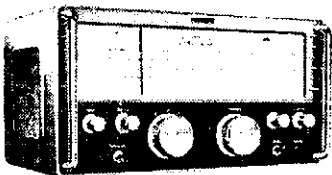
A 12AX7 microphone amp. gives ample audio gain using a crystal microphone.

—Don Law, VK2AIL.

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SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

TRANSISTORS AND MECHANICAL FILTERS

Only a couple of years ago, the Australian Amateur who was fortunate enough to possess a mechanical filter was the object of envy to his colleagues. He was either a wealthy man or single, or had a good friend in the United States. Today mechanical filters are readily available in this country from several sources.

Transistors are also here to stay. They represent one of the most dramatic recent developments in electronic history. It is only natural that mechanical filters and transistors be combined to produce the modern method of radio telephone transmission—Single Sideband.

One of the features of transistor usage is the large reduction in heat in the equipment and the resulting decrease in power consumption. Power supply commitments are minimised

widths packed into its twenty or so pages. It is available from the Collins Radio Company office in Melbourne.

Here are some interesting comments of a very practical nature which are quoted from Bulletin 1031. A study of the input and output circuit of the filter will illustrate the next paragraph.

"The small size and high performance characteristics of mechanical filters make them a natural choice when designing bandpass circuits using transistor amplifiers. The filters can be readily matched into the low-resistance circuits (1,000 ohms or less) encountered with transistors by using a series resonant termination.

"The lowest value of impedance that can be matched is determined by the extent to which the stray capacity across the filter can be minimised. This impedance will be in the order of magnitude normally encountered with grounded emitter amplifiers.

"In some applications, such as balanced modulators, it is desirable to

A NEW LINEAR

Vic Kitney, VK6VK, of Perth, has been active on s.s.b. for many years and in that time has spent long hours in experimenting with various aspects of both transmitting and receiving sideband. Vic has been "playing around with" (to use his own words) this variation of an 813 linear amplifier. The design is the same as the one we are all familiar with, except for the method of regulating the screen voltage. This has presented a problem in the past, but this novel approach works well indeed. I can vouch for the quality of the signal, having heard it on 20 mx.

The screen current swings from about 1 mA. to nearly 30 mA., so the regulator tubes are very pretty to watch under voice modulation conditions!

A word of warning here. If light loading is used to couple the output to the antenna, high screen current will be encountered and this will be

(Continued on Page 11)

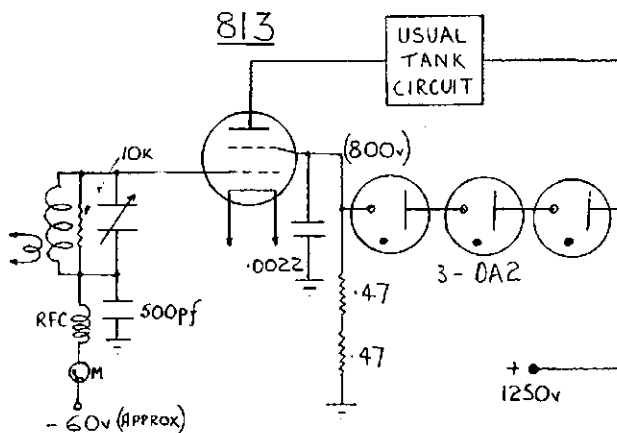
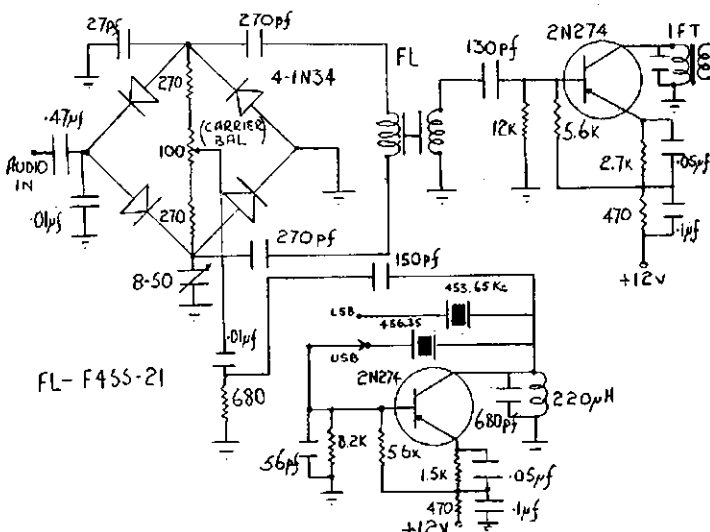


Fig. 2.—VK6VK Linear Amplifier.

Fig. 1 (left).—The modern approach to filter exciter.

with a considerable saving in weight and space. These alone are of prime importance in portable/mobile equipment.

The mechanical filter gives you, in a very small package, almost the ultimate in bandpass filters. Of course, the old saying about not getting something for nothing applies here. The mechanical filter is an expensive device but its cost can be halved by using the one filter for both transmission and reception. You have no doubt noticed the fast accelerating trend toward transceivers in commercial Amateur equipment and several Australian Amateurs have already built transceivers for themselves.

Fig. 1 shows the marriage of the Collins filter with transistors. This forms part of a circuit of a 7 Mc. transmitter in the Collins Radio Company Bulletin 1031. This publication has a great deal of information on mechanical filters of various sizes, shapes and band-

terminate the filter into a balanced load. For this reason, each set of terminals on the filter is balanced to ground, eliminating the need for isolation transformers or amplifiers in circuits of this type.

"When mechanical filters are used in bandpass circuits, there are a number of precautions that must be taken if full advantage is to be derived from its steep skirt rejection capabilities. For example, the use of short wires between the filter terminals and the termination circuitry; effective shielding between the input and output, and the use of a common ground for the filter input, shield and output. These precautions prevent the input signal from partially bypassing the filter through inductive or capacitive coupling or ground loops."

Grateful acknowledgments go to Reg Tutton, VK3SF, and to the Collins Radio Company.

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A V.F.O. Adaptor for Gelsono Signal Shifters*

BERT SHUTTLEWORTH, ZL41O

MANY Amateurs have found trouble in the oscillator section of the older (3-tube) type of Gelsono signal shifter. There appears to be numerous complaints, some of the common ones being a sudden frequency jump of about 10 to 20 Kc. for no easily discerned reason, insufficient stability for use with an s.s.b. adaptor like the SB-10, poor calibration and reset accuracy, mechanical instability in that one only needs to touch the bandswitch knob on some of the older well-used models and the frequency shifts, and breakdowns in the three-gang tuning capacitor itself.

These v.f.o. units were built to a price, of course, and large numbers have taken advantage of them. It is likely that as so many people have built really fine transmitters around a Gelsono, they are loth to break them up. It should be realised that the foregoing is not a slight on the designer of the units. In fact he did a darned good job and filled a gap where there was a big demand.

This adaptor was built to effect a cure of two of the faults mentioned, and to avoid breaking up an existing rig, as well as to try out a few ideas. Since the troubles occurred only in the oscillator section, what was wanted was a device which would simply take the place of the 6J5G tube. One pulls out the tube and plugs in the adaptor, no modifications to the Gelsono being necessary.

A few observations about the design of an oscillator concerning stability may be in order. The popular scheme is to use a tube with a high Gm very lightly coupled to a tank circuit, with the feedback loop as small as possible, like in the Clapp circuit. The tuned circuit has as high a Q as possible. With a high Q lightly loaded tuned circuit only a small circulating current flows, so that self heating and drift due to this current is minimised. If the feedback is adjusted to the point where oscillation is not over vigorous, the grid bias will be low and the tube will not have to push too hard. The ultimate in this is probably the so-called class A oscillator which uses cathode bias only and practically no grid current flows.

With the advent of Clapp oscillators appearing to lose favour to high C Colpitts and their derivatives, and higher Gm tubes being used with higher C tuned circuits, it was thought that a "back to basic principles" trial would be a good idea. After all, the major problems affecting stability, apart from obvious ones like layout and wiring, heat insulation, etc., occur not with the tube, or its feedback loop, or its loading, or its coupling, but with the tuned circuit itself. And the critical part of the tuned circuit is the capacitor, its mounting, and its dial system. It must be admitted of course that factors pertaining to the tube and its

circuitry are important, but no one of these is paramount.

Once this is accepted, it may be realised that it is just as reasonable to build an oscillator with a low C tuned circuit and low Gm tube as it is with a high C and high Gm pair. All other considerations are common to any sort of oscillator.

Things to ponder over are devices like electron coupling (which with regulated power supplies loses some of its virtue), load variations, heater-cathode thermal stability, where the low gain tube with a long cathode structure need be no worse and is often better than a high gain short structure tube, input capacity, where variations due to tube heating, etc., favour the low gain tube, direct, capacitive or inductive coupling of energy from the oscillating circuit, and so on.

Weighing up all this stuff into a combination for some particular design is prone to be a bit of a juggle, and conclusion could be still wide open at the finish.

faced with a capacity change and the consequent shift of frequency. The best insulating materials are therefore a prime necessity. High quality ceramics are outstanding in this respect.

The tuning capacitor itself is very critical as it is essentially a variable device in its function. Wide spacing is desirable, solid bearings and casing, and brass or low temperature coefficient of expansion metal plates. Tension winding of the inductor, preferably on a ceramic former, should reduce inductance changes to a low factor.

In the v.f.o. described here, the lowest gain tube of the 12AU7 series was adopted (12AU7A) in a Hartley circuit. The highest possible L to C ratio was used, due allowance being made for bandsetting capacity, tuning range, etc., in this way providing a high Q circuit. The grid of the oscillator was connected to the tuned circuit through a high stability 1 watt isolating resistor and output taken off inductively from the coil. The tuning range is from 3.5 to 3.65 Mc., but it could just as easily have

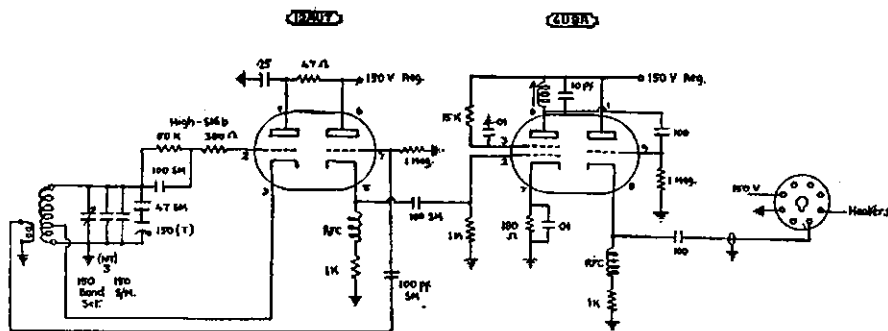


Fig. 1.—Circuit of the V.F.O. Adaptor for the Gelsono Signal Shifter.

However, the main causes of drift are thermal and mechanical. The thermal drift can cause some real trouble in elimination, and there is only one satisfactory way around it. Use high quality components not readily affected by heat and also keep temperature variations around the sensitive parts of the circuit to a minimum. Mechanical difficulties should be small if the thermal stability angle has been catered for, at least as far as individual components are concerned. Layout and wiring should not be very difficult. It is certainly not necessary to use very heavy and stiff wires for connections, but it is essential to make sure nothing is in stress, or else left even slightly floppy, and this includes the wiring. Plenty of tie points should be used. In a separate v.f.o. it is a simple matter to keep the tubes well away from and above the tuned circuit.

Thermal drift is mostly due to capacity changes and to a very much smaller extent, inductance changes. Every piece of insulation around the circuit is the dielectric of a capacitor. If this dielectric is allowed to change even infinitesimally with heat, one is

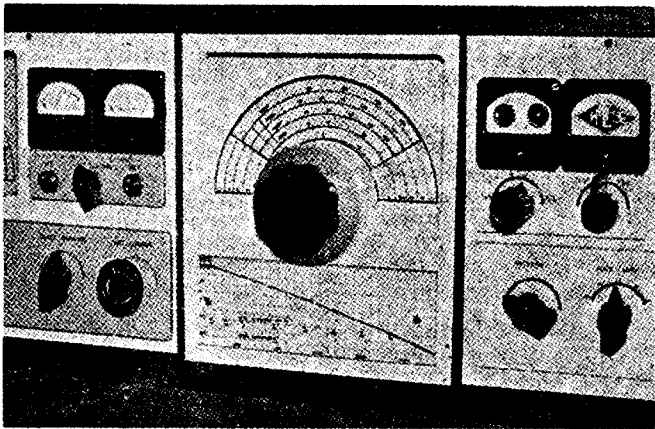
been made to cover the full 80 metre band. An ARC5 coil and capacitor was available and was used because it is probable that nothing else readily obtainable would be of better quality.

The dial system is the ZL4PJ arrangement. The capacitor is mounted so that the worm gear is to the top, and a free running 2" diameter drum with scale attached is fitted on over the main worm drive shaft, and string driven with a loaded nylon cord to a similar drum which takes the place of the old ARC5 dial disc. The drums are made of the lids of adhesive tape containers. Of course there is no reason why any other suitable dial and capacitor arrangement could not have been used.

The output from the oscillator is coupled inductively to the second half of the 12AU7A, which is arranged as a cathode follower with an input resistance of several megohms. In turn, this stage supplies signal to the pentode section of a 6U8A, either as an amplifier or a doubler. The plate circuit may be tuned to 80 metres or 40 metres, or switched between both if desired. In the v.f.o. depicted, 20 metre operation was the main goal, hence the restricted

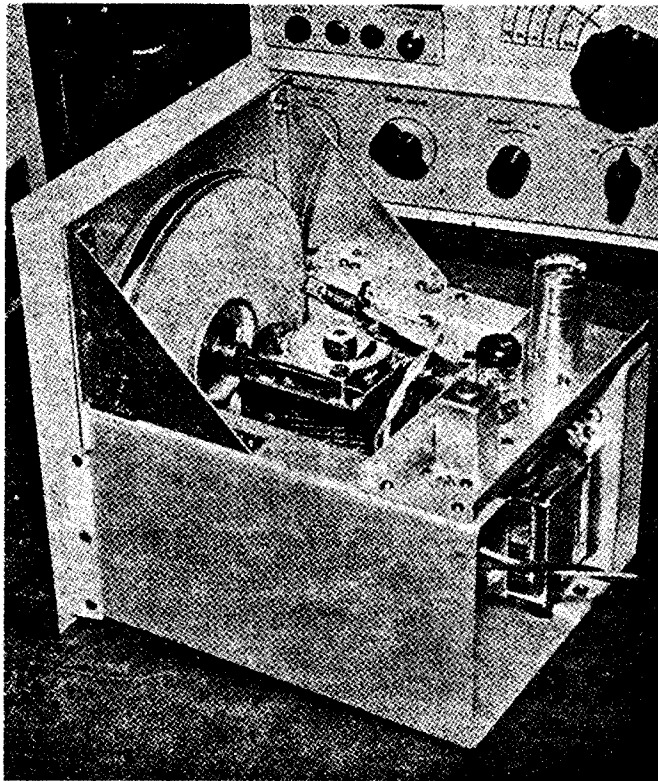
* Reprinted from "Break-In," Feb. 1963.

range and the fact that the 6U8A plate circuit was not bandswitched. The triode section of this tube is a second cathode follower, whose output impedance is approximately the same as 6J5 cathode circuit in the Geloso. When the new v.f.o. is plugged into the 6J5 socket, output from the exciter is substantially the same as when the original is used.



Above: The V.f.o. Adaptor situated between the transmitter and receiver.

Right: Back view of the unit, showing details of construction.



The oscillator coil has 20 turns, $1\frac{1}{4}$ " diameter and $1\frac{1}{4}$ " long, with the cathode tap five turns from the grounded end, and wound on an ARC5 ceramic former. The coupling coil is 10 turns wound over the grounded end and separated by a few layers of plastic tape. Anyone wishing to duplicate this exactly, and in possession of a complete coil, could use the ready made inside former and winding, connecting to pin 8 and pin 4, the latter being the grounded one.

The 80 metre plate coil for the 6U8A consists of 75 turns of 38 s.w.g. jumble wound to a length of $\frac{3}{4}$ " on a $5/16$ " diameter shielded former, and slug tuned.

The 3 pF. negative temperature coefficient capacitor in the oscillator tuned circuit was fitted at the outset, but it is probably not having much effect. The whole structure is so open that no generated warmth is confined within the cabinet.

The tuning range of the 150 pF. capacitor is restricted with a series 47 pF. silver mica. It is not linear, but the bandsread is substantial—2 Kc. per knob rotation at the 3.5 Mc. end and 4 Kc. at the 3.65 Mc. end.

It is definitely an advantage to use a ceramic socket for the 12AU7A. Re-

member that heat is readily transferred into it from the tube, and the dielectric constant will alter if mounded plastic or similar is used.

Button ceramic capacitors are satisfactory around the 6U8A but not around the oscillator. One should keep the length of co-ax between the v.f.o. and the Geloso to three feet or less, and the filament heater, earth and h.t. leads

drift is very small and takes no more than 60 seconds.

Perhaps some of the statements made in this article could be considered worthy of debate. If this be so, what about an argument or two in this journal? Discussions of such a nature can be quite stimulating. But, anyway, the proof of the pudding is in the eating. ●

may be laced onto it and wired into the plug. In doing this, make sure that the heater wire is connected to the correct pin or the filament supply will be grounded.

There is so much high impedance isolation between the oscillator and the Geloso input circuit that the latter has no load effect on the former. Nor has keying the transmitter any effect on the note. Hundreds of 20 metre contacts have been made using this v.f.o. and it has proved to be extremely stable. Many of the QSOs were with Collins owners, some of them quite lengthy rag chews, and with the receiver being used as a c.w. monitor as well as its normal service, it has been apparent that the beat note transmitted and the one received did not differ to any audible extent.

This indicates that if it is not in the same class as the Collins, it is certainly comparable and would be eminently suitable a source for supplying carrier to an SB-10 or similar unit. Warm up

SIDEBAND TOPICS

(Continued from Page 9)

detrimental to the regulator tubes. The 813 will not like it either!

It can be seen that, within the limits of the VR tubes, the screen voltage will be maintained at a constant level, in this case 800 volts. Fig. 2 shows the circuit of this amplifier.

TECHNICAL ADVICE

Do you have a problem? Why won't that piece of gear work? Arie Bles, VK2AVA, has been kind enough to volunteer his services as s.s.b. technical adviser. How Arie manages to fit in matching crystals and building filters, erecting antennae for DX work on 3.5 and 7 Mc., and chasing the said elusive DX is beyond me; but if you do have a poser, do not hesitate to write Arie; he has had considerable experience in most Amateur Radio fields.

When you write, please enclose a large stamped self-addressed envelope.

The address for the VK2AVA s.s.b. technical advisory service is: Mr. Arie Bles, 33 Plateau Road, Springwood, N.S.W.

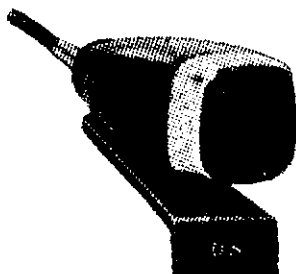


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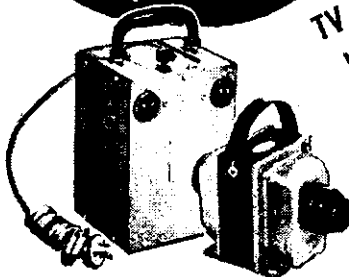
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SEMI-AUTOMATIC BEAM ROTATOR

C. J. TATUM,* VK5DY

WHEN Tubby VK5NO, or was it the wind, decided to reshape his G4ZU beam, the gear box and motor came my way. At this time no definite plans for beam rotation had been made. Some experimental work using transistors had been carried out with a somewhat different scheme to the one detailed here. This soon came to a halt when the special type of motor could not be obtained.

The original idea for this system came from the donor of the above gear. A circuit was evolved using valves and worked very well. Valves require power supplies which are bulky and heat dissipating. Transistors are ideal for these ancillary pieces of gear.

Any motor which can supply the load demand through the gear box will do. The motor used in this unit is a 50 volt transmit magstrip, and originally turned the G4ZU beam. Relay contacts should be capable of direct control for low power motors, or to switch a contactor for high power units.

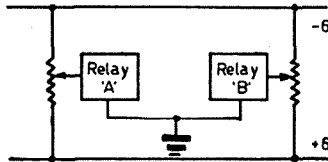


Fig. 1.

The main problem on the mechanical side is to translate the 270° potentiometer swing to one of 360° or greater. This is a ratio of 0.75 to 1, potentiometer to beam position control. Cord drum drives, as used in radio sets, can be used but may prove difficult to obtain. An easy solution is to use screw caps from jars. A bush being soldered to the centre for attaching to the 1/4" shafts of potentiometer and direction indicator control. Into a small hole drilled in the grooved edge of the drum can be soldered a peg of 18 s.w.g. wire. One turn of the cord around this will pre-

* 24 Short Road, Elizabeth, S.A. Member of the Elizabeth Amateur Radio Club.

vent slip. Cord tension is accomplished as shown in Fig. 3, the potentiometer and drum being fitted to a spring-loaded pivot arm. Both potentiometers are installed in the same manner. The beam drum is attached to the final drive shaft by clamping it between two 3/4" electrical conduit sockets. This same size conduit is also used to turn the beam.

Operation of the circuit can best be understood by reference to Fig. 1. The two potentiometers, P1 and P2, form a bridge balanced around earth. A

is then very near earth. Consequently V2 has no forward bias and is therefore in the "off" condition, relay A being unoperated. A positive voltage on P1 will neutralise the forward base current into V1. The gain will be reduced to such an extent that the collector will rise to the rail voltage. The resultant forward current into the base of V2 will switch this transistor and relay on. The opposite or negative voltage applied to V4 will have no effect, the transistor already being in the "on" state, and V3 will stay "off".

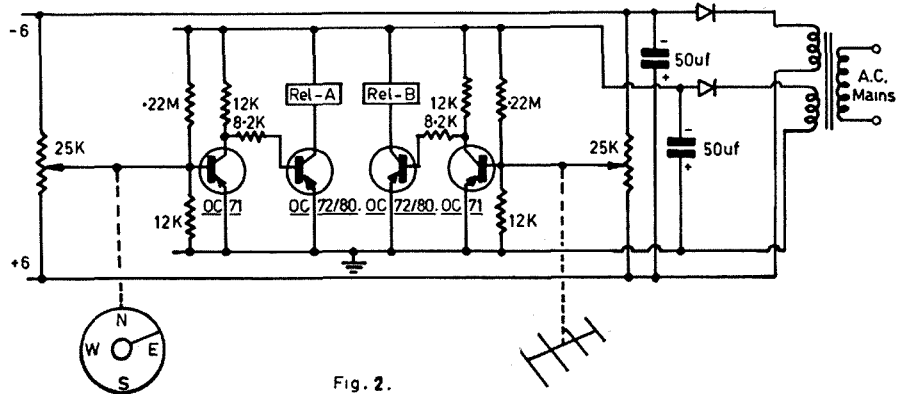


Fig. 2.

position change in either of the two arms create an unbalance, and therefore a voltage differential between the inputs to relay A and relay B. The relay which receives this voltage in the positive direction will be switched on, driving the motor and beam. This in turn rotates the beam potentiometer in a direction to "back off" the voltage differential. As the beam rotates, this voltage will become less and less until balance is restored. The motor will then switch off.

Two transistors are used to operate each relay. V1 is a directly coupled amplifier and in the balanced condition R1 provides just enough forward base current to keep this transistor in the "on" condition. The collector of V1

Gain in V1 and V4 is very high, in fact they act as switches, being in one state or the other. When one relay is operated the motor and P2 will continue to run until balance is restored, dropping out the relay. Flywheel effect will carry P2 beyond balance and switch on the other relay, causing the motor to run in the opposite direction. This may occur several times and is known as "hunting". To overcome this one amplifier must be made less sensitive. By decreasing the value of R1 the forward bias to V1 is increased. A larger differential voltage between P1 and P2 is now required to switch on V1 and V4, and overshoot by P2 can be tolerated.

(Continued on Page 15)

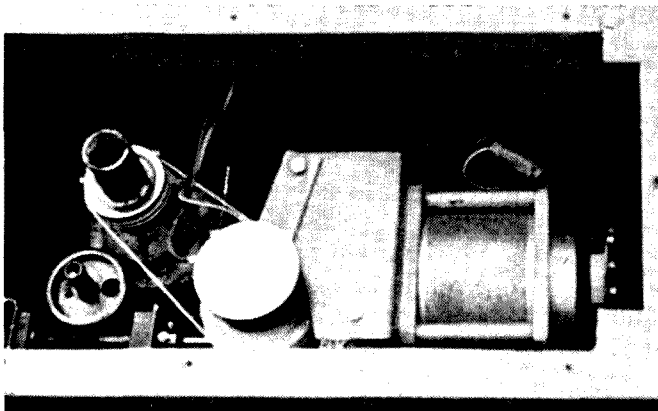


Fig. 3.—Showing the magstrip motor.

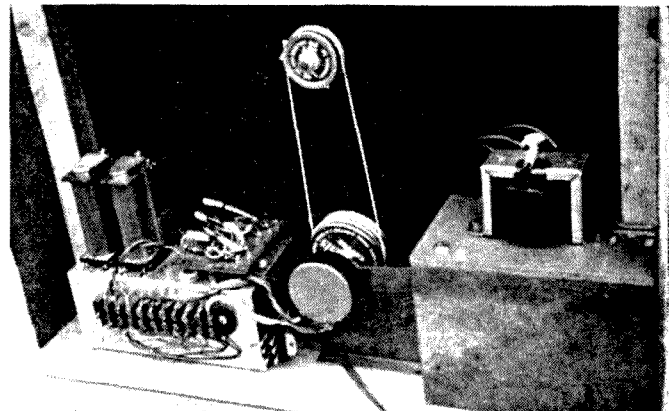
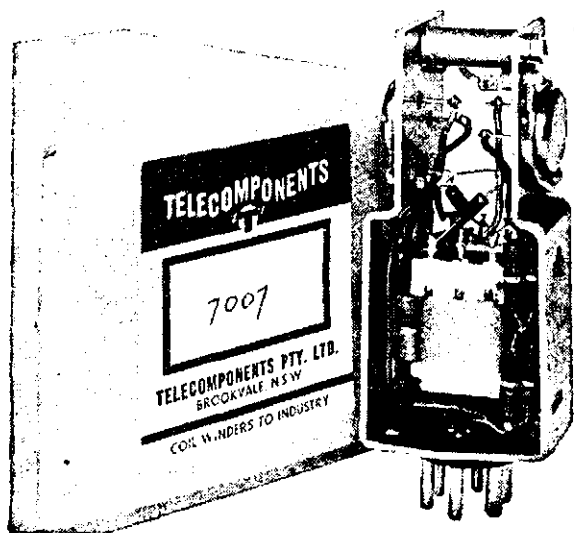


Fig. 4.

TELECOMPONENTS

REPLACEMENT VIBRATOR MODULE

(as featured in "Radio, TV & Hobbies," March, 1963)



A reliable solid state switching unit being a direct plug-in replacement for a conventional non-synchronous reed type vibrator in mobile communications equipment.

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The Telecomponents Replacement Vibrator employs two OC35 switching transistors mounted on black anodised aluminium heat sinks forming the side plates of the unit. A feed-back transformer is mounted between the plates.

Overall dimensions are approximately those of the original vibrator.

A range of vibrator modules is under development to cover vehicles with both positive and negative electrical systems and to suit a range of Transceiver units.



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Sydney: Universal Car Radios, 35-4356 and 74-2525. Annandale Wholesalers Pty. Ltd., 56-5446. Electronic Parts Pty. Ltd., 56-0425. Standard Components Pty. Ltd., 68-3254. General Accessories Pty. Ltd., 69-4701. Newcastle: Martin de Launay Pty. Limited, B 4741. Wollongong: Martin de Launay Pty. Limited, 2-6020. Melbourne: Edmunds Bros. Pty. Ltd., FB 3971. Radio Parts Pty. Ltd., FY 1251. W.A.: Tedco Pty. Ltd., 28-4921. S.A.: Woollard & Crabbe Ltd., 51-4713. Tasmania: W. & G. Genders Pty. Ltd., Launceston, Devonport, Hobart, and Burnie.

In the writer's unit R1 is 150K, but the value will differ with other transistors. Also of course the allowable differential is dictated by the damping factor of the actual beam installation. If this is optimum the beam can be

inched round by steps of five degrees or less.

The relays used are 3000 types with a coil resistance of 200 ohms. Lower values of resistance can be used, but transistor ratings must not be exceeded.

Each relay is fitted with two sets of make contacts. One pole on each is used to switch voltage to the "run" winding of the motor. The other poles supply the "start" winding with a suitably polarised voltage to start the motor in the correct direction.

The power supply is very simple. Many small germanium diodes are suitable and will supply about 30 mA. for the relays. Two electrolytic capacitors and a small transformer with two 6.3 volt windings make up the rest of the supply. Peak rectified voltage for the relay circuits is about 9 volts, dropping to 6 volts on load. The potentiometer supply is also 9 volts. The box in the right hand corner of Fig. 4 houses a 50 volt transformer to drive the magstrip motor shown in Fig. 3. By the way, this motor lends itself admirably to the job. To drive, simply apply 50v. across two of the star-connected windings. The third winding is then taken via a 50 μ F. capacitor to either side of the 50 volt supply.

Fig. 5 shows the general construction of the equipment, and size can be measured by the QSL card. In this case a great circle bearing map as supplied by the VK5 Division of the W.I.A. is used. V.h.f. operators with very directional beams will find this a rapid and accurate method of swinging same. Maps can be made to cover their own particular area, or large road maps may be satisfactory.

Many transistors today are cheaper than valves, and yet articles on Amateur equipment using them are very few. Maybe these few notes will stimulate further interest in their use. ●

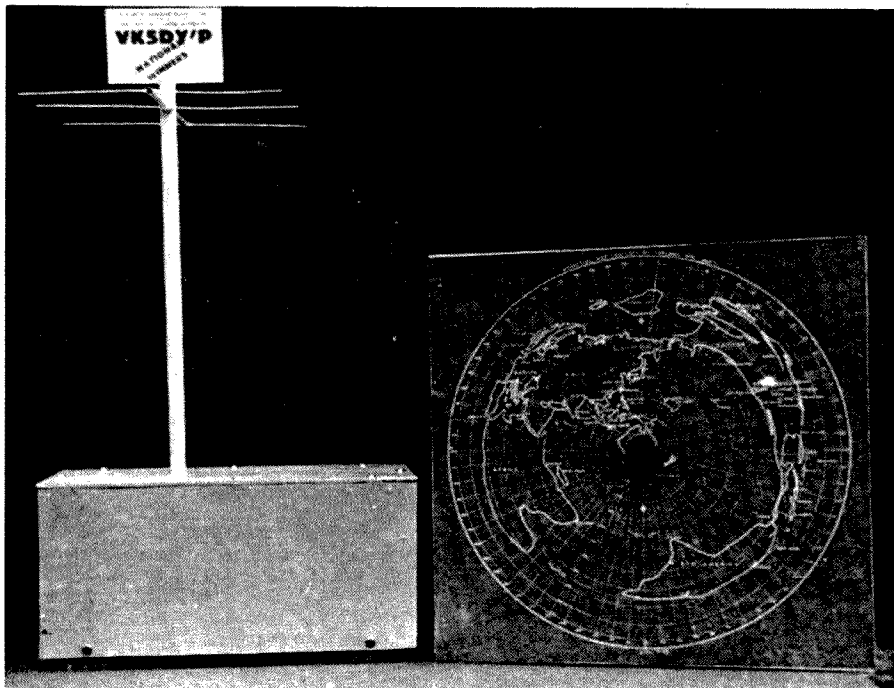
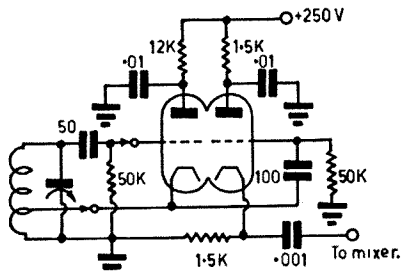


Fig. 5.—General construction of the equipment.

HINTS AND KINKS

A COMPANION FOR THE LIKE-NEW MIXER

The November 1959 issue of "Amateur Radio" contained an article under my signature concerning the "S9'er," which was a twin-triode circuit designed to plug into the first r.f. stage of any receiver using a single-ended tube, although I included a diagram for converting most of the tubes with the grid on top. I claimed no originality for the article, giving full credit to "CQ," May 1959, and some further information appeared in "CQ" for December, 1959. The results obtained, signal-to-noise level, etc., more than fulfilled the claims made.



Since then the "Like-New Mixer" has appeared, which is along the same lines. This also is an outstanding success, so much so, that many others beside myself have reconstructed the

front-end of their receivers and are more than satisfied with the results.

Wishing to change the oscillator circuit into a twin triode set-up to bring the entire front-end up-to-date, I hunted through back copies of "CQ" and discovered in the December 1957 issue just what the doctor ordered.

The circuit is self-explanatory, and I have tried it with every type of tube procurable in VK5, with no difference in practical performance. Although the original circuit shows a 6SL7, no change in circuit component values were necessary for any other tube types, such as 12AU7, 12AX7, 12AT7, 6BK7, 6BQ7 and 6SN7. Full credit for this circuit goes to Leonard E. Geisler, Chief Engineer, Japan Electronic Trading Company.

This now makes a complete front-end of twin triodes, and is well worth the change-over. Try it, you will be more than pleased.

The 0.001 μ F. coupling condenser to the mixer is OK. I was a bit doubtful and tried smaller, but the 0.001 μ F. seemed to perform the most consistently. —Warwick W. Parsons, VK5PS.

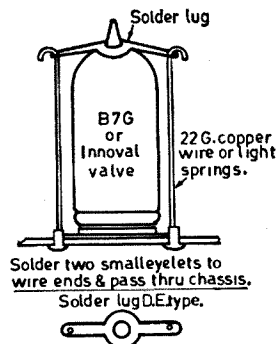
IT HAS BEEN SAID . . .

"Anyone who has had actual contact with the making of the inventions that built the radio art knows that these inventions have been the product of experiment and work based upon physical reasoning, rather than on the mathematicians' calculations and formulae. Precisely the opposite impression is obtained from many of our present-day text books and publications."
—Edwin H. Armstrong (Inventor of F.M.)

SECURING MINIATURE VALVES

Here is a cheap method of securing B7G and innoval miniature valves in place.

Use a two-leg solder lug over the glass sealing pip and secure this to the chassis with 22 or 24 gauge copper wire or very light springs.



This is an old trick utilised in servicing car radios with "loose" valves.

—B. M. Oliver, VK2NU.

KEYING GELOSO V.F.O.

A tip to the boys who like to key the oscillator of the Geloso V.f.o. Put a cathode follower stage between the oscillator and the buffer. It gets rid of the yoop! This specially applies to the Model 104.

—VK3ARX.

Modifications to "A 100 Watt P.E.P. Band-Switched Phasing S.S.B. Transmitter"

The author has recommended three modifications to the "100 Watt P.E.P. Band Switched Phasing S.S.B. Transmitter" ("A.R." Oct. 1962) which may be of interest in connection with the above transmitter.

(1) The earth connection of the vox output 6AU6 at the junction of the 2K and 25K resistors to be lifted and made through a normally closed push button or key switch (see Fig. 1).

This allows push-to-talk operation as well as the normal vox, and is an advantage.

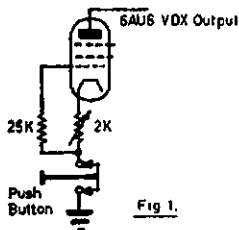


Fig. 1.

[An erratum has occurred in the above drawing. The top of the 25K resistor should go to the screen-grid, not the control grid.—Editor.]

(2) The 6CL6 mixer-driver cathode bias resistor to be reduced from 320 to 120 ohms (see Fig. 2) to allow more drive on some of the higher frequency bands.

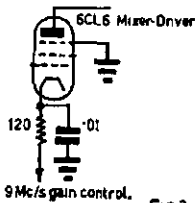


Fig. 2.

Many protective systems should suggest themselves, however the following is fairly simple and will give the necessary protection (see Fig. 3).

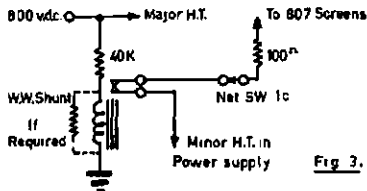


Fig. 3.

A relay, which will operate on approximately 20 mA. or the normal bleeder current, could be inserted in series with the earth end of the 40K bleeder resistor and earth, in the major

h.t. power supply. Should the relay be too sensitive it could be shunted with a suitable wire wound resistor to assure the relay would fall out when the major h.t. dropped below a reasonable figure.

The screen voltage previously taken from the minor h.t. inside the exciter will now be obtained through the normally open contacts of the relay from the minor h.t. inside the power supply unit, and taken up to the exciter by another connection. This may mean changing to a larger male and female plug and socket.

The relay will now operate when SW3 is made, its contacts will close and voltage applied to the screens of the 807s via net SW 1C. Failure or a pre-determined drop in the major h.t. will cause the relay to fall out, removing the screen supply.

Of course it may be preferred to take the screen voltage from the major h.t. and regulate it with the appropriate number of VR tubes, which would supply its own protection.

—A. S. Mather, VK2JZ.

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R." and back copies may not be available upon request. To preserve continuity of your files of "A.R." please pay your annual subscription now.



Jock VK3PZ operating at the Publications Committee tent during the 1963 National Field Day.

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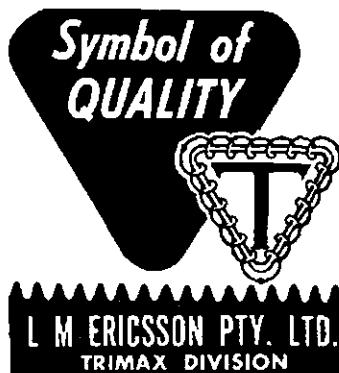
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VK-ZL-OCEANIA DX CONTEST, 1962, RESULTS

In presenting the results of the 1962 VK-ZL-Oceania DX Contest, I would first like to thank all those who submitted logs and to congratulate the winners. In the Overseas Section the various band scores have not been indicated although awards have been issued to the top scorers on individual bands as well as to the overall top scorers.

N.Z.A.R.T. decided to broaden the scope of the Contest this year to include Oceania as an area for the world to contact in addition to VK and ZL. Every effort was made to ensure plenty of activity from the available Oceania DX areas but it is regretted that numerous promises of activity from rare DX areas did not materialise. Nevertheless, there was an increase of some 12½% in the number of logs returned. Without a doubt the inclusion of Oceania was an excellent move—a fact proved by the many complimentary remarks made by overseas contestants. Lack of VK and ZL activity is still cause for concern however.

It is regretted that this Contest clashed with a Contest organised by East Germany. It must be pointed out that the VK-ZL-Oceania DX Contest was held over the same period (first two week-ends in October) as it has been for many years as the VK-ZL DX Contest.

Once again N.Z.A.R.T. is providing attractive coloured awards for Contest winners in the belief that such items are of greater value than mere "certificates". The 1963 Contest will be organised by the Wireless Institute of Australia, but N.Z.A.R.T. will again be responsible for the Contest in 1964 when we will be happy to have your company. It is our desire to make this Contest as enjoyable and as rewarding as possible. Because of this your comments as a competitor are of great interest and these are solicited. All comments will be gratefully received.

Good DX and 73,

Jock White, ZL2GX,
Contest Manager, N.Z.A.R.T.

AUSTRALIA

C.W.—	Call	80/40	20	15	10	Total
VK2APK	1320	3800	3395	155	8670	
2EO	2890	5410	—	—	8300	
2RA	530	2265	2700	525	6020	
2ZC	—	2875	—	—	2875	
VK3ARX	1445	5640	2155	—	9240	
3DQ	2645	3590	1925	135	8295	
3AXK	1880	3775	2340	—	7995	
3TL	—	6100	—	—	6100	
3RJ	785	1980	1045	—	3810	
3XB	2110	55	1420	—	3580	
3KS	Check	—	—	—	—	
VK4SN	—	1805	1930	—	3735	
4SD	—	2370	—	—	2370	
4JB	Check	—	—	—	—	
VK5CV	705	4265	2565	—	7535	
5RX	—	3690	—	—	3690	
5NO	3320	—	—	—	3320	
5WO	—	1295	550	160	2005	
5JE	1190	—	—	—	1190	
VK6RU	495	4760	6405	—	11660	
6AS	105	145	235	—	485	

VK7DK	555	3190	740	—	4485
7SM	715	2805	745	—	4265
VK8UX	—	55	55	—	110

Band Leaders—C.w.

80 Metres: VK5JE	275	points
2RA	55	"
3DQ	55	"
40 Metres: VK5NO	3320	"
2EO	2890	"
3DQ	2590	"
20 Metres: VK3TL	6100	"
3ARX	5640	"
2EO	5410	"
15 Metres: VK6RU	6405	"
2APK	3395	"
2RA	2700	"
10 Metres: VK2RA	525	"
5WO	160	"
2APK	155	"
All Bands: VK6RU	11660	"

PHONE—

Call	80/40	20	15	10	Total
VK2AHT	745	4460	265	—	7470
2APK	—	1270	1665	—	2935
2AKF	—	1545	290	—	1835
2RA	—	995	—	—	995
VK3TL	—	2150	—	—	2150
3HL	—	1800	—	—	1800
3BW	Check	—	—	—	—
VK4LT	—	2985	830	—	3815
VK5CV	475	595	2765	—	3835
5FT	—	1105	—	—	1105
VK6RU	—	2400	1145	—	3545

Band Leaders—Phone

80 Metres: Nil	—	—	—	—	—
40 Metres: VK2AHT	745	points			
5CV	475	"			
20 Metres: VK2AHT	4460	"			
4LT	2985	"			
6RU	2400	"			
15 Metres: VK5CV	2765	"			
2AHT	2265	"			
2APK	1665	"			
10 Metres: Nil	—	—	—	—	—
All Bands: VK2AHT	7470	"			

RECEIVING—

WIA-L2033	1060	points
WIA-L3065	2205	"
BERS195	8195	"
(VK4) Lane	730	"
WIA-L6003	440	"
WIA-L6021	3215	"

NEW ZEALAND

C.W.—	Call	80/40	20	15	10	Total
ZL1AH	1960	7195	6400	1210	16765	
1AJU	1510	7055	6395	1165	16125	
1AMO	3035	7380	3015	1480	14910	
ZL2AYJ	2335	5350	2745	—	10430	
2ATI	—	4760	—	—	4760	
2ADE	2795	—	—	—	2795	
2LB	Check	—	—	—	—	
2GX	Check	—	—	—	—	
ZL4OP	—	2935	—	—	2935	

Band Leaders—C.w.

80 Metres: ZL1AMO	385	points
40 Metres: ZL2ADE	2795	"
1AMO	2650	"
2AYJ	2335	"

20 Metres: ZL1AMO	7380	"
1AH	7195	"
1AJU	7055	"
15 Metres: ZL1AH	6400	"
1AJU	6395	"
1AMO	3015	"
10 Metres: ZL1AMO	1480	"
1AH	1210	"
1AJU	1165	"
All Bands: ZL1AH	16765	"

PHONE—

Call	80/40	20	15	10	Total
ZL1AIX	2015	7585	4840	700	15140
1KG	1380	7095	3805	1370	13650
1AGO	—	4810	—	—	4810
ZL2AAG	2480	—	—	—	2480
2GX	—	1980	—	—	1980
ZL3VI	—	1535	2045	—	3580

Band Leaders—Phone

80 Metres: ZL1AIX	210	points
40 Metres: ZL2AAG	2480	"
1AIX	1805	"
1KG	1380	"
20 Metres: ZL1AIX	7585	"
1KG	7095	"
1AGO	4810	"
15 Metres: ZL1AIX	4840	"
1KG	3805	"
3VI	2045	"
10 Metres: ZL1KG	1370	"
1AIX	700	"
All Bands: ZL1AIX	15140	"

RECEIVING—

DX37A	10585	points
ZL282	1905	"

OVERSEAS

C.W.—

North America	
K1RTB	1122 pts.
W1WY	92
W1CKA	68
W2IOF	810
W2WZ	245
W4AZK	1395
W4KXV	133
K4BAI	60
W4NTE	44
K5KSH	4758
W5WZQ	4100
W5KC	1900
W3BRR	1854
W5PSB	553
K5UYF	360
K5JZY	72
W6HJT	8118 pts.
K6EVR	5236
W6ISQ	798
W6SBO	711
W6PYM	196
W6TMX	132
K6TEC	32
W7PQE	4008
W7EWR	30
W7JIN	6189
K8QJH	994
W8MCC	20
K9VSH	16
KP4CC	18
XE1FJ	16

South America

HK7ZT	196 pts.
HK7YC	112
PY1ADA	190
PY4GA	144 pts.
PY4OD	87
PZ1AH	6

Europe

DJ2RE	406 pts.
DL3BK	352
DL7CS	224
DJ7IK	168
DJ6LV	168
DJ2XP	168
DL1SV	144
DL4FT	40
DJ3VC	12
DL6DF	12
DJ2IW	2
F8IH	280
F8TM	2
F2SQ	2
G4CP	847
G5WP	819
G3JAF	380
G3DY	288
G3KSH	80
G3WP	Check
GW3J1	158
HA1KSA	420 pts.
HA6NI	88
HA8CZ	2
HB9TT	156
LA5HE	210
OK2EI	312
OK1FV	256
OK2KJU	120
OK2KAU	90
OK1ADP	50
OK2BBI	24
OK1KRM	8
OK1AAA	8
OK3CDP	8
OK2ABU	4
OK3EA	Check
ON4LX	320
OZ4H	36
OZ7GH	3
OE1RZ	1144
OE3WB	80

(Continued on Page 19)



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VHS2—Horizontal Sine Wave Coil
L237—I.F. Coupling Transformer
L278—Sound I.F. Transformer
L279—Ratio Detector Transformer
L147—I.F. Coupling Transformer
L149—I.F. Coupling Transformer
L150—I.F. Video Trap Coil
L151—2nd Video I.F. Transformer
L152—1st Video I.F. Transformer
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Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

TESTS ON 1296 Mc.

Editor "A.R.," Dear Sir,
The following is a description of some tests on 1296 Mc. carried out during the week-end of 2nd to 4th March.

On 2nd March VK2ZCF and VK2ZAC made a two-way contact on 1296 Mc. over a 1-mile path, using crystal controlled equipment at both ends. Time 1400 hours.

Signals were 5 and 9 both ways and this contact was to check the compatibility of the two stations. To the best of my knowledge this is the first two-way contact of this type in Australia.

On 4th March VK2ZCF transported his equipment to Mt. Bowen (near Kurrajong Heights) and contact was established with VK2ZAC at Narwee (a Sydney suburb) over a 37-mile path. VK2ZCF's report at VK2ZAC was 5 and 8; VK2ZAC's report at VK2ZCF 5 and 9. Time 1010 hours.

Later VK2ZCF moved to Mt. Esmah and again made contact at 1330 hours over a 47-mile path. VK2ZCF's report at VK2ZAC was 4 and 5, VK2ZAC's report at VK2ZCF 5 and 9.

The reason for the poor report in one direction during the latter contact was due to lack of battery power at the portable station.

I would like to submit this latter contact as an Australian record for this band.

Description of the gear. VK2ZCF: transmitter, 8 Mc. crystal, 12BY7, 12BY7, 12BY7, 832, 2C39, 2C39-24, 72, 144, 144, 432, and 1296 Mc. Power input to last stage, 12 watts. Modulation, a.m. Receiver, crystal controlled converter using silicon diode mixer and 7 Mc. cascode i.f. amp. 6BQ7A into communication receiver. Local oscillator chain, 20 Mc. crystal 6U8, 6J6, 6J4, crystal diode frequency doubler. Antenna, 16 element phased array, coax. fed.

VK2ZAC: transmitter, 8 Mc. crystal, 5763, 5763, 5763, QQE03/12, 2C39, 2C39-24, 48, 144, 144, 432, and 1296 Mc. Power input to last stage, 12 watts. Modulation, a.m. Receiver, crystal controlled converter using silicon diode mixer and 14 Mc. series cascode i.f. amp. 6ES8 into BC342 receiver. Local oscillator chain, 11870.3 Kc. crystal 6U8, 6AK5, 6AK5, crystal diode tripler. Antenna, 32 element phased array up 32 ft, feedline 50 ohm coax.

Independent observers who witnessed these tests were VK2ZDE and VK2ZFP.

—W. R. Cox, VK2ZAC.

50 Mc. AWARD FOR S.W.L.'s.

Editor "A.R.," Dear Sir,
Re your query if any s.w.l. has received QSLs from all VK States on 50 Mc.

I have received QSLs from VK2RS, VK-3ZAT, VK4ZBM, VK5ZBR, VK6WG, VK7ZAI, VK8AV, VK9XK. If there is an award available to s.w.l. would like to have information and cost, etc. Will send QSLs and list.

I also have QSLs for 50 Mc. from ZL1, 2, 3; JA1, 2, 3, 4, 5, 6, 8, 0; VR2CG, KH6UK, K6ERG, and KA2FW.

Hoping to have something re the award soon. 73,

—Charles H. Thorpe, W1A-L4018.



A LINEAR AMPLIFIER FOR 50 Mc.

(Continued from Page 3)



R.I.'s. despair or a slight case of t.v.i.

Severe non-linearity due to instability, parasitic or t.p.t.g. oscillation on peaks. Waveform bears little relation to correct one. Amount of intelligent information conveyed negligible. Drastic action called for.

Europe (Continued)

OHITN	612 pts.	SM3EP	210 pts.
OH2FS	549	SM3TW	168
OH2EW	210	SM5CCE	1380
OH5PT	145	SM5LL	1118
OH3NS	80	SM5BEU	416
OH1WH	2	SM5BFE	30
OH1VA	2	SM5BDY	24
PA0ADP	333	SM5CEU	24
PA0LOU	210	SM5CDU	8
SP9KJ	400	SM6VY	70
SP7HX	100	SM6ARH	32
SP2HL	8	SM7CAB	156

Asia

JA1VX	4494 pts.	JA3JM	102 pts.
JA1EM	2794	JA4AOE	2176
JA1ISB	1456	JA4IO	1178
JA1ITX	938	JA4AQR	252
JA1HTK	432	JA4EE	4
JA1CZG	405	JA5AKC	30
JA1EFS	264	JA6PY	504
JA1IRS	238	JA6ACZ	351
JA1KKA	224	JA6ZV	168
JA1IBX	95	JA6HW	147
JA1A1A	56	JA6BCV	70
JA1G1S	40	JA7AD	1605
JA1BUN	40	JA7AKQ	60
JA1CUN	21	JA8BY	296
JA1CXC	18	JA8AAM	102
JA1IZ	1	JA8AAC	4
JA2ANX	2700	JA9FB	70
JA2WB	2645	JA9UJ	24
JA2LA	684	JA9NB	18
JA2CA	98	JA9EZ	826
JA3CUC	3465	JA9PX	420
JA3AVO	676	KR6LJ	891
JA3DAZ	162	4X4MJ	108
JA3DMJ	128		

Oceania

ZK1AR	3300 pts.	KH6EVT	1000 pts.
KC6BK	2124	KH6DKA	656

U.S.S.R.

UC2AR	120 pts.	UL7KBK	2 pts.
UP2NV	156	UA9FO	24
UESKD	147	UA9FV	12
UA1CE	24	UA9WS	2
UA1ND	2	UA0KCA	855
UA3UV	259	UA0GF	414
UA4PA	472	UA0KAD	132
UA4HL	36	UA0SE	120
UA4LI	240	UA0LL	92
UH8BO	2		

PHONE—

North America			
K2GXI	204 pts.	K6EVR	3244 pts.
W2WZ	30	K6ERV	2014
W4RLS	224	W4SBO	228
W6BVV	180	K6AHV	85
K5MDX	4425	W8ISQ	Check
K5KBH	2208	W7ESK	3960
K5UYF	90	K6ECE	208
W5KC	108	KP4CL	224

South America

LU1DAB	144 pts.	YV5AKP	235 pts.
YV5AQS	620	YV5AHP	217

Europe

DL9KRA	816 pts.	OH2AA	730 pts.
DJ2JU	132	OK1MP	14
DL6DF	4	OK2HAU	2
DL1SV	1	ON4LK	24
E16P	52	SM3BIZ	572
G6FO	2070	SM5LL	234
G4CP	105	SM5CZQ	140
OE1RZ	576	SM5GBB	18
OE1ME	574	SM7CAB	24

U.S.S.R.

UR2AR	42 pts.	UM8KAB	36 pts.
UP2NV	16		

Asia

JA1BWA	2261 pts.	JA4EE	2 pts.
JA1BU1	384	JA5AHH	20
JA1EHA	8	JA6PY	477
JA1GSG	8	JA7CK	105
JA1AJA	8	JA8BY	21
JA1IZ	2	JA9UU	180
JA2ANX	2232	JA0AC	180
JA3BBG	126	9M2DQ	2346
JA3BEA	84	KR6NG	1005
JA3CUK	40	KR6LJ	539
JA4AQR	168		

Oceania

FK8AC	392 pts.	KG8AJB	2616 pts.
KC6BK	1230	VR3O	4160
KH6EVT	235	ZK1AR	3278

RECEIVING—

Europe			
A2114	672 pts.	HA5-038	108 pts.
A2340	288	OK3-9280	240
A2948	284	DL9286	576
BRS24643	160	DA-A-0016	Check
HA9-007	208	OE1-1054	406
HA8-708	154	SM5-D61	12
North America			
K2-7079	70 pts.	VE3-9301	352

ARTIFICIAL LEG ANTENNA

During 10 days operation of ZD6JO (by ZE3JO/ZE3JJ) last October, ZE-3JO often used his artificial leg as an antenna for contacts, not only local but also with stations as far afield as Belgium and Germany.

Early 1963, from his home station, he QSOed a VK5 using the "artificial leg antenna."

—BERS195.

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Telegrams: "Metals," Adel.

Before commencing these Notes, I would like to thank Bill Roper for his past work and hope I can measure up to his standard. All Divisional Correspondents, please forward reports to the new address above—not later than the first of the month please! I would like to impress on each one that this page is the only information many have of v.h.f. activity and with your help I would like to give a real picture of activity in your State. Most Divisions have newsletters, but overall this page is for v.h.f. Listeners! Where are you? Why not send me your reports on band conditions—what you hear, etc. The greater the range the greater the service we can render.

In VK3 there is becoming available quantities of surplus radio-telephones—low band 70-80 Mc. a.m. and these are finding their way into Amateur hands. Most are aware of the f.m. carphone net here in VK3 on 2 mx, well a move is being made here to establish a net on 6 mx for the a.m. earphones. At the March meeting of the VK3 V.h.f. Group, a motion was passed requesting that 53.00-53.20 Mc. be reserved for fixed frequency equipment and a committee has been set up to pursue this matter. This equipment will surely become available in other States eventually and now is the time to get together and form an Australia-wide net—a common frequency mostly without co-channel interference that any mobile user can go anywhere and have a reasonable chance of a QSO. It will be almost as good as a beacon because a call in VK3 could produce a reply from VK4, etc. We hope all Divisions will consider this suggestion when it is put officially. Think it over in the meantime.

Interstate Co-operation. Unlike F.E. all the V.h.f. Groups are rather loosely held together on a nation-wide basis. Because v.h.f. is becoming more than a local band and activity is increasing each year, it is high time that the Groups in particular found some way of keeping close together in the way of exchange of ideas, information, etc. Co-ordination of field days is a point we could well commence with—how about trying if each Group were to appoint a correspondent to keep in touch with each other Group. A greater degree of co-operation could be achieved.

If you are all wondering what happened to the special v.h.f. issue of "A.R." last year, well unfortunately a great deal of the material failed to eventuate. Those who did send material, my sincere thanks. Perhaps we will try again in the future. I still say we can do it! 73, Len ZGP.

NEW SOUTH WALES

144 Mc.: The March fox hunt finished at Brighton-Le-Sands where the fox had his tides back to front and the antenna was not on the edge of the beach but some 6 feet into Botany Bay! This is a well known lovers' lane area and some of the reports on the activity are unprintable. The winner was David ZVW, 2nd Dave ZAWZ and third Paul ZPJ. Dave actually arrived on the scene earlier but decided that no one would put an antenna in Botany Bay.

Activity on the band is only light. Received a letter from Mac Z2MO with some Newcastle news. Unfortunately Mac has had t.v.i. problems. A new station is Bill Z2CV at Cessnock, running a pair of Z2E6s with about 20w. input. Regulars include Z2KW East Maitland, Z2SG Newcastle, 2EY Maitland, 2XT, Z2ZF, 2RJ, and 2AYL.

1296 Mc.: Further to Bill's (Z2AC) effort of his DX with Dick Z2CF, Bill has come up with some cunning ideas. He has mounted a reflector screen 36 x 42 inches at the top of his mast inclined at 45 degrees and the antenna is mounted at roof level firing at the screen. This has the advantage of reducing his lead in length from 60 ft. to 6 ft. and gives at least double the radiated power.

Bill has also been trying out some varactors and finds that multiplying from 160 to 500 Mc. with 15 watts drive he can obtain 12 watts out, which is not bad efficiency. Even multiplying five times to 800 Mc. we can get 7w. out. It becomes obvious that varactors are the answer to a u.h.f. man's prayer. Bill has suggested that for anyone who is thinking of coming on to 1296 Mc. that they try to come out at 1296.1 Mc. plus or minus 50 Kc. which will facilitate finding stations. 73, Z2LB.

SOUTH AUSTRALIA

50 Mc.: Considering the large number of new stations that have been mentioned in these notes over the past three months, activity is very poor. The only DX for March was an opening to VK4 and VK2 on the 12th. Signals were quite good on both occasions, however only a limited number of stations seemed to be active.

50W at Crystal Brook is now on 50 Mc. using an 815. Col 5RO reports working 3AOS occasionally on tropo (distance about 270m.). 3AOS was previously 3ZFM and is probably better known under his old call.

144 Mc.: Very good news on this band is the fact that Gary, the son of Herb 3NN, now has a Limited licence. Herb has been greatly missed on 6 and 2 mx over the past few months and we hope Gary will be able to find time to keep activity from Yanac going. 5KM in Victor Harbor (50 miles south) is on 144.2 Mc. and has been working into Adelaide as well as working Hughie 5BC at Renmark. Our friend at Victor Harbor is using a 24 element phased array and 60w. to a 6/40.

An old timer who has recently made a re-appearance on 144 Mc. is 5LE at Gaiga (150 miles east of Adelaide). 5LE is not very far from 5BC and should be a good bet for the Western Victoria chaps. Colin 5RO is one VK5 who has worked 5LE recently. Keith 5ZMK at Wasleys reports working the Mt. Gambler fellows regularly on 144 Mc. Signals worked include 5CJ and 5ZGR, this is a haul of about 250 miles. We understand that 3ASW in Western Victoria will be coming on 144 Mc. soon (freq. unknown). Shep 5DC has been on 2 mx recently with an excellent signal. Shep is believed to be using a Gonset "Communicator". Z2GC at Broken Hill is still skedding Adelaide stations with reasonable success.

General News: The annual picnic was held at Mt. Barker (1800 ft.) on 31st March. About 40 souls attended in 12 cars, 10 of the cars were fitted with mobile. Unhappily, the eating of chops took preference over working long haul ground-wave from this magnificent location, however we are assured that a good time was had by all. Barry 5BQ was airing his recently acquired vehicle, which met with the unanimous approbation of all members.

Gary 5ZK, after spending many weeks constructing a quad for the low frequency bands, erected it recently to have the whole thing come to the ground a couple of days later. This was bad luck, but Gary informs me that the damage was mainly superficial and that he hopes to have the quad back up soon.

After a lull over the past 12 months or so activity on 288 Mc. is understood to be at quite a high level. Vic 5JH on a recent portable jaunt worked 22 different stations on this band.

Pending the arrival of Doug 8KK back in Adelaide, the Sunday morning v.h.f. broadcast has been handled for the past couple of months by Brian 5ZBR. Doug is our newly elected v.h.f. group chairman and is expected home in April. Al, 5ZCR.

WESTERN AUSTRALIA

February Meeting: A good attendance was noted and Laurie 6ZAH from Darkan and Les 6CL from Carnarvon were present. Good to see you boys from the country. We hope more of you will be dropping in to see us.

Fox Hunt: The hidden tx run by Lance 6LR posed some problems, not only the tx but the signal and tone were also hidden. What happened Lance? Did you consider the boys had been getting it too easily? The result was worked out on a time mileage basis and Tony 6ZDT with Ray 8RY a close second, came in the winner. Tony 6ZDT promises to have a real poser for next month.

Full Calls: We have been advised that Cedric (ex 8ZBC) is now 6CD and Bill 6ZDC's full call is not known yet. I have been assured that we are not losing them from the v.h.f. bands.

50 Mc.: S.s.b. is in the news again. John John 6ZAG has his working and Tom 6ZCA is using d.s.b. but almost has a s.s.b. rig completed.

It has been heard on the grape vine that a 6 mx mobile force is reaching maturity in Geraldton. Brian 6VV, Bruce 6RR, Noel 6MF and Ted 6WH are in the throes of construc-

tion and before long should be making their presence felt. This activity is very heartening after the successes by Bob 6EE and Brian 6VV on the Perth-Geraldton path, so there should be more signals from the north next year.

Mike 6ZCX has unleashed his new secret weapon, 60v. to an 815 and making himself heard by all and sundry. Ken 6ZBT is reported to be hibernating this year as university is interfering with his Amateur activities. As he was one of the regular gang, he is sure to be missed. Colin 6ZCI will most probably be finding the same trouble, but we hope to hear the boys when study permits.

144 Mc.: Neil 6ZDK has just completed a very nice home station-cum-portable 144 Mc. unit, using a Gecoso v.f.o. This unit has in-built switching for 6 or 12v. heaters. After ironing out drive problems to the 82A by investing in a new 12AT7, Neil believes as I do he has quite a potential signal source. Mac 6ZDQ in anticipation of a posting back to Laverton to complete his radio training, is building up 144 Mc. Watch for him in VK3 before the year is out.

576 Mc.: Further reports on Rod 6ZDS and Charles 6LK's 37-mile effort on this band is that signals were 5/9 each way and all gear is xtal locked. They are now looking for two mountains or hills, approx. 100 miles apart. They believe they can set up a really worthwhile record. Anybody having two such hills will find the addresses in the Call Book, but should pay freight on same before shipping them to the boys.

To all owners of those pencil type mikes with the slide switch on top. One of our local boys would like to console any others who have been caught. He gave a wonderful discourse the other night approx. 25 minutes on a certain subject only to be told when he went over he had no modulation! His switch is now taped on. 73, Alyn 6ZDM.

PAPUA

50 Mc.: On 23rd March the band opened most surprisingly to Brisbane from 1700-1830 hours. Only two stations heard and contacted were 4ZAX and 6ZBV4. Dane's signal was S8-9 for most of the opening, so presumably no other Brisbane stations were operating at the time. This is the first time that an opening has been observed to VK in March. No sign of a JA opening so far, this appears to be running late as JAs have been worked in March in previous years. Scatter stations on 49.8 and 49.9 Mc. were noticed on six nights at the end of the month. 49.8 Mc. bearing N.E. was the best signal being many db. over S9 for several hours on the night of 27th. 49.9 Mc. signals bearing N.W. reached S9 on four occasions.

144 Mc.: No activity during the month. No t.v. signals were observed in March. 73, 9AU.

W.P.X.

(as at 1st April, 1963)

C.W.

VK3XB	411	VK3CX	325
VK3KB	400	VK3NQ	317
VK2QL	398	VK6WT	316
VK4SS	391	VK3RJ	313
VK25PK	346	VK3ARX	310
VK5NO	327	VK4TY	298

PHONE (A.M.)

VK6RU	421	VK6KW	303
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Urb W2DEC, DX Editor "CQ" states the following in relation to W.P.X. tallying: "When a prefix for a geographic area changes, either the old or new prefix may be claimed but not both. An example of this would be ZD2 and 5N2. Also prefixes do not concern themselves with countries so that VU2ANI and VU2MD, while being two different countries, count only as VU2 for prefix purposes. When a prefix is no longer authorised for use it may not be counted, such as FF8, FQ8, etc."

DX

VP4, OA4, BV, ZM7, 7G1, FP, AC5, MP4, ZC6, TY2

Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)

35 Whynot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

These past few weeks things seem to have been quiet. VK activity has been lagging, which is not surprising, as the bands have been patchy and not many good prefixes are being worked.

80 mx will probably remain quiet now until after winter, and the few signals that show up on 21 Mc. are weak and QSB.

NOTES AND NEWS

ZDTBW will be the call of G3PEU when in St. Helena after August 7, 1963. He is taking a complete s.s.b. station and hopes to get ZD7SE interested in sideband whilst on the island ZD7BW will be active for at least four months.

QSLs for LA9RG/P should go through LA8LF and replies are being received speedily.

LA8SE/P is now active from Jan Mayen and will be usually found on the low end of 14 Mc. QSL via the LA Bureau.

Inaudible mostly under the beehive activity around 16th March last, was VS9ADV/P. If you were lucky enough to land a QSO, send your QSL to VS9AAA. This operation was from Yemen and is authentic and will count for D.X.C.C.

Also during March last, G3ERN and G3OQT worked ZL3REB on 160 mx on long path. Peak conditions were around 8th March. Did any VKs manage to break through? I would like to know.

5R8AD, Malagasy Rep. (Madagascar) is on 21.072 Mc. on c.w. at 1700 hrs. GMT.

The South Orkney Island, represented by VP8GQ, can be worked on all bands from 20 mx to 160 mx on c.w. nearly every night. Has been reported on 20, 80 and 160 mx.

CR7Z at 1800 and 2100 GMT is operating on 21090 Kc. on c.w.

5X5IU is on 21031 Kc. c.w. at 2015 GMT. Gus W4BPD is QRT at the time of writing this and it is not possible to say where he will be six weeks hence, when this reaches you. His next anticipated stop is Tromelin Is., F.R.M.C.T.

JA1EBB/KG6 is active on Marcus Island on c.w. until the end of June, 1963. The op. is a member of the Japanese meteorological team and is on 7008, 7010 and 14040 Kc. Rota Is. is reported to be on the air as KG6R or W9WNB/KG6E on all bands on c.w. and s.s.b.

Navassa Trip Postponed. The United States has requested that no DX-pedition be sent to Navassa until further notice as apparently they do not wish to alarm Castro. Reports are that Danny Well is selling Yasme to return to U.S.A. and abandon his world trip. We would like to have seen Danny and Gus arrive at the same rare spot together and perhaps find Dick W0MLY already on the job!

AC3PT is reported to be ready to stir up some activity. Stuart F. Meyer announces the creation of the "DX-pedition of the month," in the interest of world-wide s.s.b. and c.w. DXing. This programme will commence approx. 1st May with: May 1-15, VR1N, Ocean Island; May 15-30, VK9BH, Nauru; June 1-30, VR4CB, Solomon Islands. Operation will be in the 80, 40, 20 and 15 mx bands with special events from time to time in the 160 mx band. International reply coupons or self-addressed stamped envelopes will not be required for QSL cards which will be handled through Hammarlund DX-pedition, General Post Office, P.O. Box 7388, New York 1, N.Y., U.S.A. S.w.l. listener cards will also be confirmed.

WANTED: Would Alan Vegas (ex-VR4CV) please send his present address to Eric Trebilcock (BERS195), C/o. P.O. Box 36, East Melbourne, C.2, Vic.

ACTIVITIES

Frank VK2QL was not very active this month but recorded these. 7 Mc. wkcd.: UD-6AM, 80IND, XE1OK and heard SV0WC, FB-8ZZ. 14 Mc. wkcd.: EP2RC, VQ8AI, and heard TN8AF on both paths. QSLs recd.: OX3BZ, VP2MV, VQ8AI, LH4C, etc. Frank now has a 7 Mc. D.X.C.C. score of 128.

Ken VK3TL had a good month working the long path mostly between 0700-0800 hrs. GMT. His list is: CP1BH, CR8AA, CX2CO, EI8P, GD3GMH, LA5FI, TP2WHB, TI2SS, VQ4ERR, 5A1TW and 9N1ME on s.s.b. On c.w. EI5AJ, FR7ZF, FR7ZC/J (San Juan), ON5AX, HSMJ,

ZB2L, CE3IW, IT1AI, ZK1AA, ZK2AB, JU-8AF, UR2KAN and many other Europeans.

Rick VK3ARX now has W.A.S. and a W.P.X. of 310. He has worked 55 countries in the first two months of this year without chasing 'em. His latest good ones are: W9WNV/KG6R, FR7ZC/J, TP2WHB, FB8CE (1200z Comoro Is.), GW3CW (1330z), ZS3EW (0940z) VK0NL and more. Rick ran second in the last VK-ZL in the 14 Mc. c.w. section. (Nice work OM.)

Eric BERS195 hasn't listened much of late but netted these. 3.5 Mc.: WZKQT (1145), W2PEO (1130). 7 Mc.: BY1PK (2015), HC5CN (1130), HK3RQ (0715), HM2BD (1200), 5BF (1330), KR6BQ (1350), UC2BW (1920), UD-6KAS (1955), UF6CW (1920), UI8CC (1930), UP2KNP (1915), UR2KAB (1920), VE1QN (1150), VE5CBV (1155), VK7CH/MM (0330), VQ4IV (2030), VS9AJA (2000), 9APB (1915), 4X4QA (2000). 14 Mc. phone: VK9YT (1150). 14 Mc. c.w.: DU1OR (1015), HL9KB (1115), HP1IE (1200), KV4CI (1145), UA2AC (1250), UC2WE (1315), UQ2KAE (1245), UMRKAA (1150), VQ8BT (1220), VR2HE (0345), 4SVWE (1150), VS6EC (1055), 9MB (1220), 9M2UF (1110), SM4CNI/MM (1120), ZL2BAH/MM. QSLs recd.: KR6AU, OA4FM, UC2AF, UD6BD, UL7KAD, UR2KAG, VK8KK/P, ZB1BX, VK-0VK, VK2AZX/Mobile. All above times GMT.

Leigh VK4RH QSOed on s.s.b. the following, mostly short path around 1300z: 14 Mc.: KA-2RB, KR8CM, DU1AC, KG6SE, G3NNT, G6XN, G6RH, G3DGO, G2CJN, G3NEV, G8FC, GI4RY, G8PO, UA1DK, UA2AO, ON4UN, DL2OX, DJ-1EZ, DL3LL, FK8R, F8PH, SM5RM, SV1AR, SV0WN, DL0IB, DL8DX, PA0AJP, OH2RM, OZ2ER/OH9 (Laplанд, 1007z), F9LI, G3RTB. 21 Mc.: K7RJK, W4ZGH, W6AOM.

WANTED URGENTLY

A Sub-Editor to compile the DX page of "A.R." Fuller details obtainable from Editor "A.R." or Alan Shawsmith, VK4SS.

Peter L8021 heard these. 15 mx a.m.: CR7GJ, DU1MR, DU6RG, FR7ZD, G3GYH, HK8AFB, HK3YF, HL9KH, JA, OH5NQ, UBSLV, VS1GZ, VS4RS, VU7WM, XW8AA, ZB2JA, ZEZKL, ZL-71Q, ZL2UD, ZS1FA, ZS1V, ZS5BE, ZS8ATF, ZS8CY, 457BR, 45YGE, 9M2FK, 9M2RI. 15 mx s.s.b.: HL9KH, JA1FSL, JA2AEV, VK9LA (Cocos), ZS8AJH. 15 mx c.w.: JA, UAOKFG, VK9LA (Cocos), VS1GZ. 20 mx a.m.: JA-7AMH, 20 mx s.s.b.: VS9MB, 40 mx a.m.: DU1AS, DUICE, DU1MR, DU9FB, ZL2AAW, ZL3BL. 40 mx s.s.b.: DU7GB, G3A0O, JA-2BAY, KC4USN, KL7DTB/W6, LA6CF/M, VP-3HAG, Ws, ZK1BS, ZL3JD. 40 mx c.w.: DJ2RF, DJ5GC, DJ8DO, DJ0FX, DL7AA, DM2AUG, DM4BM, FB8ZZ, G3PDL, HB9ADF, HL9KH, HM1BP, HM5BF, Js, JA6AHY/MM, KG6NAA, KH81J, LA6CF/M, L2ZKBA, OK2OP, SP5ARN, SP7HX, SP8AAH, SP9EC, SL8AY, SM3CAE/MM, UA1DQ, UA3KWB, UA4AE, UA8DT, UA-0KDA, UB5AC, UB5JJ, UO5GW, VE3VL, VS-1FZ, VS4RS, W1-0, WN4KNF, WN6CKV, WN6DNA, Y0SKAU, Y0V7F, YUIEN, ZB1BX, ZL1HY, ZL2GS, 4X4BT, 4X4RX. 80 mx c.w.: Ws, ZL1AXB, ZL1GQ. 80 mx a.m.: ZL1AXB. 80 mx s.s.b.: W1-7, LA6CF/M, ZL2AP, ZL-4LM, ZL4OD.

John VK2ZR worked these on 14 Mc. c.w.: DJ8GN, DU1OR, FWDW, G3VW, G15UR, GW3OBS, JA6CE, KA2KS, KH6BBT, KL7RZ, KR8AP, LA8SG, LU5AQ, OH3UO, ON4QV, OK1XJ, OZ5D, PA0JPC, SM5EC, SP5ALG, UA3WA, UA0KQB, UB5KBB, UC2AW, UD-6KAF, VR2EK, VS1LD.

Bev VK4BL managed these choice few. 14 Mc. wkcd.: DJ5JI, HMIAB, HSM, HSP5D, I1IF, Js, KA2RD, KG6NAA, KL7MF, KR6CJ, SM3YF/MM, SP8HR, UAS, UI8CR, UP2AG, UQ2KAE, UT5RB, UW3RY, ZL2BAH/MM. 14 Mc. c.w. hrd.: BVIUSF, DJ4XR, DL4BV, DM-2AZM, F3NB, FK8CB, G3PFB, HA7LF, HB-9VW, HL9TF, JTK1AA, KA2GF, KP4BYH, LU-6FA, LZ1SP, OEIWT, OH2ZL, OZ3FF, PA0EF, SP6WM, ST2AR, UD6KAF, UP2KC, UR2KAN, VK9LA, VS9MB, XE1AD, Y09IA, YV6AX, 457EC, 5A3CR, 5B4KG, 9M2UF.

Graham VK2AGH has been picking the eyes out of the DX with the following. 14 Mc. c.w.: JTK1AA, 60IND, PZ1AH, HK0ZU, ZS8UJ, ST2AR, G13NPP, UA2KAG, LH4C, ZS6J, OD-5AX, VQ4GT, ZL1ABZ, IT1GY, VK9LA, ZS-2MI, LA6CF/M, 5B4TC, FW8DW, FR7ZC/J, W9WNV/KG6R, VP8GQ, FB8YU, ZB8JJ, ZS-3EW, VK0NL (Heard Is.). 7 Mc. c.w.: HK0ZV, W9WNV/KG6, UA0LA, ZL1ABZ, ZE7JO, FW-8DW, VS1GZ, VR5CA, QSLs recd.: LH4C, ZD9AM, 9USZZ, HK0ZU, CR5SP. Graham has the really fine total of 294 countries worked.

Bob VK6RE worked on 21 Mc. s.s.b. and a.m.: ET3JK, FR7ZD, 5H3HZ, CR7GJ, 5R8AA, 5R8AG, VS9MB, ZB2JA, 5B4TJ, UA9VH, IIVIT, VQ-2JV, HL9KH, many ZLs and JAs.

Yours truly (VK4SS) worked, c.w. 3.5 Mc.: W9ADN, W9WNV/KG6R (Rota), KH6GL/KM6. 7 Mc. c.w.: W9WNV/KG6R, 5B4KG, 5A2TS, I1HM, BVIUSF, VS9AAA, CM2BB, ZS6FN, ZL4JF (Campbell Is.), ZS6KO, FG7XC, YV-5BX, FB8ZZ, UC2WE, ZL1ABZ (Kermadec), VE8DX. 14 Mc. c.w.: VP5GT (Grand Turk Is.), VK9RH (Norfolk), GW3AQV, VP6LJ, W9WNV/KG6R. 21 Mc. c.w.: VS1FJ, KR6DD, ZK1AR, KR6ML, W9WNV/KG6R.

ADDRESSES

FK8AZ (ex FUBAE)—Louis Chaumont, Box 104, Noumea.
OX3KW—Kai Thomsen, Frederikshab, Greenland.
PJ2ME—Via W2CTN.
VR2EO—Via W8EWS.

Following are some Russian district QSL Bureaux:—

- UI8—Tashkent, Levanevskogo 39, Radio Club; Fergana, Lenina 28, Radio Club; Samarkand, Vojkova 4, Radio Club.
- UJ8—Tadjik S.S.R., Stalinabad, Ordjonikidze 8, Radio Club; Tadjik S.S.R., Leninabad, Park Kulturi i otdiha, Radio Club.
- UH8—Turkmen S.S.R., Ashjhabad, Frunze 18, Radio Club; Turkmen S.S.R., Chardton, L. Tolstogo 28A, Radio Club.
- UM8—Kirgiz S.S.R., Frunze, ul. Frunze 114, Radio Club.
- UD6—Azerbaijan S.S.R., Baku, Shezorsa 191, Radio Club.
- UF6—Georgian S.S.R., Tbilisi, Nico-Nicoladze 7, Radio Club; Georgian S.S.R., Batumi, Rosa Luxembourg 24, Radio Club; Georgian S.S.R., Kutaisi, Pushkina 18, Radio Club.
- UG6—Armenian S.S.R., Erevan, Terjan str 73, Radio Club.
- UL7—Kazakh S.S.R., Alma-Ata, Tokmanskaja 79, Radio Club; Chimkent, Tabaeva 8, Radio Club; Ust-Kamenogorsk, kv b, Gogolja 38, Radio Club; Petrolavovsk, Ritskaja 12, Radio Club; Akmolinsk, Kirova 27, Radio Club.
- UO5—Moldavian S.S.R., Kishinev, Podolskaja 35, Radio Club.
- UNI—Karelskaja A.S.S.R., Petrozavodsk, Gercena 45, Radio Club.
- UR2—Estonian A.S.S.R., Tallin, Lai 1, Radio Club.
- UQ2—Latvian S.S.R., Vilnus, Stuska-Gucjavichusa 9, Radio Club; Kaunas, Musejnaja 5, Radio Club.

SUMMARY

Bram VK5AB: Re Willis Island. Supply boat S.S. Cape Leewin, departs for Willis Island from Cairns, 15th June. Bram may be on it. Every DXer hopes he makes it.

A get well wish to Lew Sharply, WIA-L4020, who will be hospitalised for a while. Lew always has tried to help with any DX information for this column.

My thanks as always to the regular contributors: Edrs. WA6TGY, W4CKB, G2BVN, SL3ZO, W2DEC. Free-lancers VK2QL, VK-2AGH, VK2ZR, VK3ARX, VK3TL, VK4RH, VK4BL and S.w.l.s. BERS195, L6021, L4020 and Leo Tully who tapes any choice DX bits.

73, Al, VK4SS.

W.I.A. LOG BOOKS

5/6 plus postage

Our third S.w.l. Convention will be over by the time you read this. This is one week-end of the year when we have a chance to get acquainted with our fellow members. A report of the Convention will be given in next issue of "A.R."

It is pleasing to see so many of you joining our ranks these days. For undoubtedly many of you will be the Amateurs of tomorrow. We will give you all the encouragement that we can, and do not be frightened to ask any questions you may have on your mind.

We would like to see more of you in the Contests that are run. Apart from the R.D. Contest, very little support is given to the other Contests which are run. All the Contests that are run by the W.I.A. do have a receiving section. So how about it—give it some thought.

NEW SOUTH WALES

Chas. L2211 has the distinction of being the first S.w.l. to have received the ZL H.A.D. award, which is confirmation of having QSLs from all ZL call districts on 50 Mc. Congrats., Chas., that is indeed a very fine effort.

Chas. has received the following awards: 1960 R.D., 1961 R.D., 1962 R.D., Ross Hull awards for years 60-61 and 61-62, the Elizabeth award for 62 and 63. That certainly is good record Chas., and it will certainly take some beating. Chas. has reported six orbits of Oscar II. that he heard last year.

Don L2022 reports that it has been too hot of recent months to spend much time in the shack. However Don has had the occasional listen. And despite a number of reasons, Don is hoping for a good year on the bands.

Yes Don, the Ladder seems to remain much the same. However this Cox man is going to cause some changes for one, and I can see a few more changes before long.

VICTORIA

Fifteen members were present at the March meeting. Main discussion of the evening concerned our S.w.l. Convention at Ballarat. We were very pleased to welcome three new members at the meeting. They were Peter Gibson from Dandenong, John Torrington from Pascoe Vale, and John (sorry John I have forgotten your surname). We are pleased to have you and look forward to seeing you at our meetings in the future.

Maurie, our President, was not present at this meeting and as Noel was unable to act as chairman for the evening, your scribe took the chair. Ian reported that the AR7 that the VK3 Council recently made available to us was now undergoing repairs. At the conclusion of the meeting we retired to inspect 3WI, per courtesy of Ken SACS. We finally rounded off the evening and dispersed to our respective QTHs.

In reply to the Editor re the 50 Mc. award for hearing all States, your scribe has been lucky enough to have verified all States.

Michael L3133 comes forth with a very interesting letter. At the moment he is using a 108 set having just recently constructed a power supply for it. Aerial is a half wave long wire 40 ft. high. Michael is considering constructing a six-tube superregen. set. He is lending his set to his YL who is becoming interested in Amateur Radio. Many thanks for your letter Michael, and look forward to hearing from you again.

Eric L3042 gained first place in the VK-ZL Contest with the fine score of 8195 points. Congrats. Eric on a very good effort. However he is bemoaning the fact that the Contest receives such poor support from VK S.w.l.s. Yes Eric, it is a very poor show that they are so poorly supported by our members. So how about it chaps, give some of these Contests a go.

Our congratulations go to Jeff L3075 for having received his full call which is 3AQL. We hope that even though you have your ticket Jeff, that we will still see you at some of our meetings in the future.

Your scribe has been busy brushing up on c.w. of late, but has found time to send out a few reports all the same. Must keep in front of this Cox man. And that is going to take some effort.

Greg L3138, who is one of our newcomers, has sent out 250 reports this year. That is certainly good going Greg, let's hope that you get a good response to them. Greg intends to erect a beam in the near future. Then there

will be no holding you Greg. Bob Hovey, another newcomer, and whom we welcome to the fold, sends along a very impressive photograph of his "rig". Thanks very much Bob, you certainly have a very nice set up. We hope that we will see your name on the DX Ladder before long.

Noel L3101 comes forth with another very interesting letter telling of his activities. Recently he had a visit from Peter Saunders L5035. Peter is in the Navy and is stationed at Flinders Naval Base and comes up to Sunshine at week-ends. While at Noel's place he had a good tune over the bands. If you can ever make it to one of our meetings Peter we will be very pleased to see you.

At present Noel is on the bands nearly every night until 9 p.m. When he finds 14 Mc. dead of a night he goes to either 3.5 or 7 Mc. for a while. The other day Noel received a very nice letter from Richard Mills, who is a keen S.w.l. and he lives in New York. He is very keen to correspond with S.w.l.s. in VK. Richard is 15 years of age and he is going for his novice ticket very soon. His address is 418 East 9th St., New York, N.Y., U.S.A. So I hope that some of you may care to drop him a line. I for one have written to him.

QUEENSLAND

Ross L2233/VK4 comes to the party this month with a note telling of his activities. Very pleased to hear from you Ross. He recently burned his fingers with ZLs, DLs, JAs, XZ2 and FK8. He has a small rhombic up 50 ft. and the QTH is 3,500 ft. above sea level. Ross is keen to obtain a W call book—around the years of 1954-55. Any takers. We

look forward to having you with us Ross dance more. Ross was in VK3 about six months ago.

WESTERN AUSTRALIA

Peter L6021 continues to keep VK6 on the map as regards S.w.l. activities in that State. At present Peter is having cards from a lot of DX on 7 Mc. c.w. and has received cards from the following: G1GTK, KR6NX, JA1EFE, UG6AW, ZL4JF and VS1FJ. You are certainly doing well Peter with the DX. He recently received a number of awards that he has won in a number of contests. These include two R.D. Contest awards, a N.F.D. award and a VK-ZL award. Nice work Peter old boy.

Peter continues to climb the DX Ladder and is very keen to catch up to Maurie. The way you are going, you will soon be up to him. Thank you for all the dope that you sent over. Peter may visit VK3 later in the year. We will be pleased to see you OM if you can make it. See you all next month, 73, Mac Hilliard.

DX LADDER

	Countries		Zns.	S.s.b.		W
	Conf.	Hrd.		Conf.	Hrd.		Stat.
E. Trebilcock	277	285	40	—	—	50
D. Grantley	112	257	38	20	101	35
A. Westcott	86	159	31	9	107	11
M. Hilliard	71	223	33	18	149	11
M. Cox	68	223	29	35	149	18
P. Drew	54	185	25	21	112	9
C. Abernathy	47	95	28	—	—	14
N. Harrison	42	115	28	3	16	30
D. Coggin	9	86	6	2	55	12
G. Earl	4	70	4	1	33	—

YOUTH RADIO CLUBS

Some good news from VK3 this month! 3TL is going to handle Y.R.C. matters in Victoria. With Divisional backing for him, there could be great expansion in that State. Congrats to Morwell High School on having a Y.R.C.—they want contacts for 3ANL every Thursday from 4 to 5 p.m. on 3.65 Mc.

To be constructive, I should say something about this support at Division level. I have great respect for those who put some of their valuable spare time into Division administration, so I don't suggest they take on an extra load in actually looking after a Y.R.C. Divisional backing for the Y.R.C. co-ordinator should include as many other forms of support as can be managed with the Division finance and facilities. Typing and duplicating assistance should be paid for or sought. Appeals for donations of equipment can be made through bulletins and broadcasts. A negotiator should approach the Education Department for official approval, summer schools, finance, publication of information, and so on. Wide search should be made for some who would build simple models to help Y.R.C. leaders. Suitable disposal oddments could be passed on to a Y.R.C. The authority of the Division should be used to approach branches of Rotary, Apex, Lions, J.C., etc. A Divisional letter to all manufacturers, distributors and repairers of electronic equipment could gather some of the tons of usable "rubbish" which they destroy regularly.

The April "A.R." Federal Comment on Novice licences should be carefully read by all Amateurs interested in their frequencies and supported by all Divisions. The urgently needed expansion in our numbers is only likely to come from recruiting the young ones. Specially note that this rapid growth among the young ones has only occurred in the countries which directly encouraged their youth with opportunities, through a restricted licence, to experience the excitement of operating a transmitter. The so-called "fear" in our officials over the safety of youths operating a receiver and 10w. transmitter is made to look ridiculous by the experience of other countries and, incidentally, by the competence and technical knowledge of hundreds of boys I have personally seen in the 12-16 age group. They are nearly always far safer than their parents.

An item from VK4. Father A. Yelds, Club Leader at Sacred Heart College, Toowoomba, has eight boys for the Elementary Certificate examination. This is the first batch of can-

didates from VK4 and results are awaited with interest.

Various moves are under way with regard to Boy Scouts' Association and Australia Air League. No details are available yet but note that Rover Scouts have a Project Badge which involves six months' study in some field of interest. Amateurs should contact their locals and suggest A.O.C.P., which is not only a worthy object in itself, but could lead to further development of Scout Radio Clubs with their own Amateur Stations, and opens up wide possibilities for inter-group communication, not to mention field days.

Much activity in VK2, as usual. Recent new clubs are Narwee Boys' High and Sydney Tech. High. At Narwee, the science master, Mr. W. Sites, is leader and instructor. Formation of the Tech. High Club is due to the energy of Ian Burns, who transferred from Rex Black's club at Kingsgrove High (2AVV). On Saturday, 30th March, at Narwee Boys' High Fete, Rex (2YA) operated a base station and 2RX and 2ABA worked mobile—a fine talking point for fete visitors.

Doug Williamson, a teacher at Bass Hill High, is now to handle all Elementary Certificate matters—that is a great help for you, Rex. A new Boy Scout Radio Club is on the way in Auburn with Jim 2AMQ as instructor. An AT3 tx from the estate of the late 2JP has been reserved for their station. Tony Shannon, former enthusiastic club leader at St. Leo's College, Wahroonga, is now teaching at London Academy (England), but no youth radio club yet! Many thanks to Reg 2ZMR for his donation of a Philips No. 4 and a No. 11 transceiver to the Youth Radio scheme, probably for use at Narwee and Sefton High Schools. We can use any amount of such gear, up as far as slightly used KWM2s! Two good Junior Certificates and one Elementary at Patrician Brothers' School, Liverpool. Dick Harnett, of O.T.C., is one of a group of instructors. Club station is 2KL, usually on the air on Saturday afternoons. Roger 2AIU at Inverell High School, reports good progress and a good group sitting for certificates.

That's all for now—but where is the news from the Divisions in VK4, 5 and 6? Can they really try to find an enthusiast for Y.R.C. co-ordinator and then support him? Slightly (very slightly!) sorry to be persistent, but this is important to all of us.

73, de Ken 1KM.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

The R.S.G.B. QSL Bureau will be closed between 23rd May and 10th June. They request no despatches to arrive during this period.

The Association of Amateur Radio of Morocco is sponsoring a Contest to be held during the Casablanca International Fair, which will be held between 25th April and 11th May. The Association will have an official station on the air daily from the Fair under the call sign CN8MC. This station will transmit alternately on 7 Mc. 1400/1600z and on 14 Mc. 1600/2200z.

The QSL Bureau of the International Short Wave League (I.S.W.L.) has changed its address to 7 Parkside Gardens, East Barnet, Herts, England. G3LPF continues to be QSL Manager.

G3MTB, Beeley Parish, of 2a Pasture Road, Barton on Humber, Lincs, England, complains of non receipt of QSLs from the following VK stations: VK3OZ (1958), VK3AQJ (1959, two QSOs), VK3AZY (1960, three QSOs), VK3ASA (1960) and VK7RX (1960). He has not yet received one VK card!

In the QSL year ended February 1963, this Bureau handled 47,578 cards as against 44,539 in the previous year and 43,524 in 1961. This was the heaviest year since 1950. Despite the increased handling, costs remained substantially unchanged.

—Ray Jones, VK3RJ, Manager.

HUNTER BRANCH

Contrary to expectations, the March meeting of the Branch was not the rowdy affair that had been predicted. Other than occasional shout of "Shame" and "What about a secret ballot?" things were very quiet. So quiet indeed that one office-bearer didn't even know that he'd been elected until he heard his name read out with the others at the Sunday morning broadcast! Vic 2VL, our new Divisional President, conducted the election which resulted as follows:—

Les 2RJ, President; Lionel 2CS, Vice-Pres.; Keith 2AKX, Junior Vice-Pres.; Bill 2XT, Hon. Treasurer; Gordon 2ZSG, Hon. Secretary; Keith 2AKX, Zone Correspondent; John 2ZJC, Social Sec.; Kev 2ZKW, Social Treasurer; Stan 2AYL, QSL Officer; Stuart 2AYF, V.h.f. Liaison Officer.

Stuart 2AYF gave a very full report of the year's activities in his position as retiring President and Les 2RJ gave a short speech as he took over the position. It is expected that Stuart's report will be published in full in the Bulletin.

Because of the coincidence of Easter with the meeting week-end in April, it was necessary to put forward by one week the meeting night. Since there is no reason why this should not be a regular thing, it has been unanimously decided by members present at the April meeting that as from May, 1963, monthly meetings shall be held on the First Friday of each month, excepting January, when no meeting is held. This also means that copy of the proceedings of the meeting will be available to be published in the following month's "A.R."

The April meeting also set a record for attendance, and looking through the records, I find it is over ten years since there has been such a large attendance at a monthly meeting. Forty-eight were present, including twenty-six licensed Amateurs, to hear seven lecturers describe gear that they had built. Those taking part in the "Do It Yourself" night were, Bill 2ZWM—Amateur-band converter, Bob 2EY—two metre converter, Kev 2ZKW—tunable two metre converter, Lionel 2CS—receiver for Amateur bands, Des 2ZDN—two metre transceiver for mobile, Les 2RJ—a two metre yagi, and Keith 2AKX—transistor phase shift osc.

Several duplicated sheets were distributed during the evening and the chalkboard was filled several times with diagrams and the like so that all attending went away with many new ideas.

Lucky Lionel, as he is known, is going away for a seven-month world tour at the end of the month and members want to be sure that he takes lots of colour pictures to show us on his return. Bill 2XT, on behalf of us all, presented him with a large transparency storage box in which to keep the pictures. Good luck, Lionel, but don't forget to buy lots of film.

One of our April meeting lecturers, Bob 2EY, is active on both 144 and 7 Mc. and I heard 2WL giving him a 5 and 9 report. Bob has a converter with a brass handle on it and those who were at the meeting will have seen the strange machine, but to most it still remains a mystery. Kev 2ZKW is mainly employed at the present on his Philips No. 4 rx and his now famous tuneable converter. While in the wilds of Maitland it is pleasing to note that Vic 2AKP is recovering from his recent illness and may soon be back on the air with greater vigour than ever. Bob 2AQR has returned from holidays at his country seat and boy, must that be some seat. One of the chaps at the meeting told him he was losing weight and Bob was quite put out—no wonder there was a shortage of chairs.

It was good to see Neil 2ZCU back on deck again after his recent car accident. There is a rumour that he has a 2 metre rig in one of his crutches and that could account for his care in standing them up, but anyway he's back, so let's hear you on the air soon Neil. I am very hurt to know that I have been wrongly reported as saying that Harold 2AHA and Jim 2ZC were on two metres. In fact they are on 1410 and putting in a massive signal to all locations in the Branch area. Bill 2XT probably will not be able to call in on Monday nights again when the law about the alehouses becomes law. Because, you see, he'll be working between 6.30 and 7.30 and the DX will have to wait. He has been

amongst some rare ones lately and the new rx is really worth the money Bill says. If you are one of those rich types like Stuart 2AYF then you will have installed a t.v. set as a monitor for your 50 megs contacts. Of course if it happens to be the home t.v. set and the XYL is watching a programme that's a different matter. I believe Mrs. 2AYF still feels that nasty man who wrecks all the programmes.

The Hon. Member for Stockton, Ron 2ASJ, and his partner in earbashing, Jack, are still hard at it on both 7 Mc. and 144 Mc. on Tuesday afternoons before 4 to avoid trespassing on Indian territory. Ern 2FP has been very busy with hammer and nails and the result is—you've guessed—a new shack. Doctor Bill, or 2ZK to you other people, is a real live doctor now since that ceremony held at the University recently and he has been having some trouble with modulation—whether as a cause or an effect no one is sure, but one thing is certain, he's not forgotten the sign language developed by Samuel from the U.S.A.

Each night I pass Bill 2ZL's place I see a light in the shack but I seldom hear the signals. This is because Bill is working on his "Do It Yourself Flood Rescue Kit" which has been field tested in his front garden. Following the recent wet weather things were very damp at Phenyl Bay and little work was done on the railroad. Another Bill 2ZWM is active on 2 mx but claims he cannot be heard and yet another Bill 2ZCV, the Cessnock villain, has now his call and is active beaming signals towards Newcastle. While in the Cessnock area, it is interesting to see the young lads investing in fine quality motor vehicles. I refer to that high class piece of rubbish recently purchased by Chris' lads. Still there's a reason for this—Sherwood has become such a menace in the firm's trucks that they've had to persuade him to ride instead of drive. And to think that his explanation to the officer of the law as, "That other bloke failed to give way to a vehicle on his left!" Chris himself is trying hard to explain the article seen in a 1948 copy of "A.R." which told of that gentleman shortly to become active on 7 megs. That was then and this is 1963 and I'll leave you, kind reader, to think what you will. No, he isn't.

It appears that Rodney 2CN was glad to get back home after his recent trip to the sunny southern States. It was because he was anxious to screen the 600 feet of colour film taken on the trip and to read all the radio books he had bought. One of them told him how to build a 2 mx long tom and so now he has one—10 elements long. Gordon was unable to rebroadcast the news on 2ZSG the other night when he lost grid drive. The trouble apparently stemmed from having a nought too much on the coupling capacitor (1,000 instead of 100 pF.). Gordon never realised before that nothing could be so important. Harry 2AFA is being stirred into activity by the article on the 10w. tx recently described in "R. & H." Yes, I believe we may hear him on soon. If he doesn't hurry up his grandson Stephen will beat him there.

Nobody has yet claimed Belmont Bob's grey box, so he has withdrawn it from sale. He and Ross are specialists on the colour code now—you just ask them. At last Allen Legge has been persuaded to attend a meeting and we even got the Oosterveen brothers along. Max has a new super building project in hand for a lakeside Amateur which could mean a benefit for all—the secret, no I'm not saying. No more will we hear loud morse signals from Marmong. They are all going to build transistor oscillators now that the junior member has shamed them into it. Les 2RJ is still on QRO with 200—milliwatts, and says the beam is the reason for the signal strength. "If the t.v. stations can do so, I can," says Les, and out by the lake 2AWX is still on 12 watts but if you'd like to hear the melodious tones of the two Monday night announcers then tune 3596 or 144.7 at 7 p.m. and there we'll be with the broadcast.

And please don't forget the next meeting will be on the first Friday of May—that's the 3rd, at the Newcastle University College, Tighes Hill. What about making it another record? See you there, 73, 2AKX.

NEW SOUTH WALES

The Annual General Meeting was held at Wireless Institute Centre on Friday, 22nd March, over 100 members being present. The meeting was opened by the President, Max 2MP and the minutes of the last Annual Meeting were read by Ted 2ACD.

Barry Cartwright, acting for our Auditor (Jim 2PM, who is overseas), then read and presented the Auditor's report and balance sheet for the year 1962. Chas 2CO moved a vote of thanks to Jim and his staff for the good work in preparing and presenting the Auditor's report and balance sheet. Jim 2PM was then re-elected Auditor for 1963.

During the discussion on the balance sheet, Warwick Johnston supervised the ballot for the election of Council and the following were declared elected:

John Birdsall, 2QJ; Vic Cole, 2VL; Kev Collins, 2ANY; Roy Parton, 2KO; Gerry Sabin, 2AGS; Sid Ward, 2SW; Wal Webster, 2EW.

Pierce Healy, 2APQ, Federal Councillor, then reported on the final arrangements for the coming Easter Federal Convention.

The general monthly meeting was held on Friday, 22nd March, and the lecture for the evening was "V.h.f. Radio and Its Use in Upper Atmosphere Research" by Les 2ZBJ, of the C.S.I.R.O. Station at Camden. Les gave an interesting talk on the use of radio in measuring various phenomena in the ionosphere and tracking the multitude of Sputniks that are flying around in space. An interesting part was the use of satellite transmissions, theirs and ours, to observe variations in the ionosphere, truly a good labour saving device.

The first Council meeting for 1963 was held at Wireless Institute centre on Thursday, 28th March, and 18 members turned up to see the new Council off to a good start.

The following officers were elected: President, Vic Cole, 2VL; Senior Vice-Pres., John Birdsall, 2QJ; Junior Vice-Pres., Gerry Sabin, 2AGS; Secretary, Bill Storer, 2EG; Minute Secretary, Kev Collins, 2ANY; Communications Officer, Roy Parton, 2KO; Education Officer, John Birdsall, 2QJ; A.O.P.C., Instructor, Cec. Bardwell, 2IR; QSL Officer, Frank Hine, 2QL; Publications Officer, Wal Webster, 2EW; Bulletin Editors, Gerry Sabin, 2AGS, and Warwick Johnston; Country Liaison Officer, Frank Pearson, 2ACQ; Disposables Committee, Dr. K. King, 2ABK; Vol Molesworth, 2VO; Ken Squires 2SD; Youth Training Scheme Committee: Chairman, Harold Burtfort, 2AAH, Supervisor, Rex Black, 2YA, Liaison Officer, John Birdsall, 2QJ.

On behalf of the Council I would like to thank the members of the W.I.A. for their support and hope that 1963 will be a bigger and better year for the Institute. 73, 2VL.

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VICTORIA

Council meetings were held on the 12th and 27th March. On the 12th, Council spent considerable time discussing the facilities at the rooms and decided to dispose of the existing chairs and instal modern tubular steel equipment. This equipment should be installed before this is in print. Proposals are also being considered to make structural alterations to give better kitchen facilities. Council received several comprehensive reports of illegal transmissions. The secretary was able to report that the offender on 7.011 had been found and his equipment confiscated. Federal Councillor reported that F.E. had wished to cancel the Easter Convention due to lack of agenda items but as this Division considered there was unfinished business from the last Convention, voted that the Convention be held. Several items for the Federal Convention agenda were discussed and will be the basis of motions from this Division.

Due to the pressure of studies, Alan 3AEL tendered his resignation as Federal Councillor and from Divisional Council. Michael 3ZEO has been appointed Federal Councillor and John Battrick co-opted to Council to fill the position of Secretary, and John Pritchard as Assistant Secretary. Applications from fourteen new members were received and subject to the approval of the next general meeting, will be accepted into this Division.

The Kinneary trophy was awarded to the North Eastern Zone and would normally have been presented at the State Convention. However the trophy is undergoing repairs and it will be sent on to the zone as soon as possible.

And that is a summary of four foolscap pages of notes and four hours of discussion. Nobody can accuse me of "padding" like one scribe I know.

As for the Council meeting on the 27th, I have practically no notes at all. We welcomed our two co-opted members and had them working before they had time to say "hello". No doubt the short space of time since the previous meeting restricted the amount of business to be handled. Incidentally, Council meetings will be held on the fourth Wednesday in the month from now on. Much of the evening was spent again discussing ways and means of increasing interest in the affairs of the Institute, and attendance at general meetings. Several new suggestions were brought forward and these will be considered more fully by the incoming Council. One thought was to make more use of the rooms and a proposal will be placed before members at the April general meeting. See what a bit of new blood can do.

There is a proposal before Council that the broadcasts should also be transmitted on six metres. This can be done provided our t.v.i. problem can be cleaned up. To this end, two councillors have undertaken to investigate the problem and see what steps can be taken to overcome it. Talking of cleaning up. The appearance of the rooms is the cause of some concern and it looks as though steps will have to be taken to hire somebody to come in periodically to give the premises a thorough cleaning. In the meantime it is suggested that every group using the rooms appoint one or more of their members to empty the ash trays and run a broom over the floor before they lock up for the night. Every little helps fellows, so what about it? Two or three members are already doing more than a fair share of this work during the day, and we thank them for their efforts. Only those who are at the rooms at regular intervals realise the number of odd jobs they do.

A further seven applications for membership were received and these will also be submitted to the April general meeting for approval. This total of 24 for one month is most pleasing and we can only hope that we have the opportunity of meeting them all in person.

I shall leave the reporting of the State Convention to the N.E. Zone scribe, and only report that the count was 125 present, including XYLS and harmonics. The "sick parade" on Sunday consisted only of those with self inflicted wounds, so no sympathy will be wasted on them.

April general meeting. About 30 members attended the April meeting to hear Alan 3AKZ give an interesting talk on his visit to W land. Alan illustrated his talk with some really excellent colour slides. It may be that there is Amateur Radio in the States, but Alan had very little to say about it. Once Alan had finished, the Federal Councillor read the 30 odd agenda items to be discussed at the Federal Convention. These started several lively discussions and there was some divergence of opinion as to how this Division should vote. These matters were settled by a show of hands and the majority rules, that is assuming that those present truly can represent the total VK3 membership. After all this business

had been dealt with the Council recommendation to use the rooms at 478 for the May meeting came up. After discussion, when somebody pointed out it was impossible at such a late date to change the venue of the Annual meeting, it was decided that the June meeting will be held at 478, and the May meeting will be held as usual at R.M.I.T.

The June meeting will be in the nature of an experiment. We will have a normal agenda item and arrangements will be made for a "cupper" to be available after the meeting. As there is no prohibition on smoking at 478, those who wish may smoke their heads off. A further point is that there is ample parking space available in Victoria Parade. Those who have free passes on the Victorian Railways go to North Richmond station and either take a tram or walk west along Victoria Parade.

Now to attack my old sparring partner. He has made this Division a backhanded compliment by praising our weekly broadcast, but I suspect an ulterior motive. He is only taking out an insurance policy to cover his holiday in VK3. So far as I know he has not been sighted in the Melbourne area and I for one doubt that he will get this far. After all, the poor old chap only drives at 25 m.p.h., and at that speed it would take a month of Sundays for him to do the round trip. With those few remarks, I'll leave Pansy in peace, as I feel he has his hands full defending himself from the big boys in VK4.

No personal news has been gleaned this month so we now go into the Zone notes.

NORTH EASTERN ZONE

One by one members of this Zone are turning to 2 mx. Most recent is 3ZJH with 65w. using 829. After numerous embarrassments like shorting electros, malfunctioning relays and low emission converter tubes, he finally made contact with two locals. 3ASF has, I understand, completed his modulated light tx but problems abound, like persuading cohort 3ZHO to get on with his outfit as agreed originally. 3AYD rebuilt the tx and is now using a 6DQ6 for 40w. 3AWT had a spot of bother with welded fls. and cathodes on 2 mx unit.

3VL heard working portable from Melbourne. At the time (late March) he was about due to enter hospital down there. 3KU and lady returned from a recent holiday in the Apple Isle and both sounded cheery about it. Bert heard hic-coughing in the background (in a gentlemanly way, of course). Said something about Peg giving him a cuckoo clock for Xmas. This cuckoo can't hiccough as there's no cuckoo in it.

3AUL reported to be looking for a full length mirror so he can inspect himself before departing to carry out the duties of Group Scoutmaster, Umpteenth Smoko Group. Good old Grump; cold in them thar hills for shorts, though!

Inertia has set in re the possibility of forming a youth radio club at Shepparton. Too bad somebody does not actually do something definite about it. Recently built up my fourth tx. I can confidently state that this one is get-at-able for the frequent necessary checks and changes. The current project is an aerial coupler; this, coupled with the recently completed Micky Match, should indicate the customary startling conditions on aerials and lines tuned and loaded only to plate current readings.

The State Convention was held at Shepparton on 16th and 17th March. Well attended, and most visitors thought it a success. 73, 3ASY.

WESTERN ZONE

Bill Day, from Nhill, hopes to sit for the Limited ticket in April. Best of luck in the exam. I think Bill will become a 6 mx addict, if conditions stay as they were over the V.h.f. Contest period. There are one or two other chaps about Nhill who will probably sit for the ticket within a year or so. Nhill could be a real hot bed of QRM, t.v.i. and b.c.i.

Lyle 3ASA is seriously considering coming out of retirement as far as Ham Radio is concerned. Lyle has the parts for an all-band final, 80-10 mx, and a 522 suitable for 2 mx. The last few years, between repairing one-eyed monsters and parachute jumping, Amateur Radio has taken a back seat. A better spot for it is in the form of a mobile underneath the dashboard in the front seat.

I don't know what activity in the Zone has taken place on the h.f. (or d.c.) bands as I rarely listen, but several of the chaps have had quite a good time on 6 mx over the Ross Hull Contest. Stations active were Roy 3AOS, Max 3ZCW, George 3ZEA and Rodney 5ZCD. Max, I have an idea, was fortunate enough to contact VK4 on 2 mx. I had no luck, I found out my modulator did not like working as it should. Tony 5ZAI is not active on 6 mx but has a converter and dipole. He was listening on 6 mx to 5ZCD recently when a VK4 came through at 5 and 8; at 5ZCD he

was 5 and 7, so a convert to 6 mx is likely, but how soon is rather indefinite.

By the time this is in print Tony 5ZAI will have walked down the aisle to the strains of the wedding march. Tony and his wife, Jill, were married on 9th Feb. in Mount Gambier. To you both we wish you all the best in your future life together. But remember, Tony, DX before dishes! and don't take too long to get on 8 mx.

Bob 3ARM has procured for himself a transceiver. This unit is well suited for portable and I hope mobile work. The rx tunes 160, 80 and 40 mx. Let's hope the tx can be coaxed to work on at least two of these bands. What about it Bob, get stuck into it with soldering iron and coil winding wire.

I have heard from one of my spies that Wilson and Brenda Edmonds, 3AFU and 3ZKN respectively are carrying out 2 mx mobile activities around the farm. What about putting up a beam? Roy 3AOS should be a f.b. contact at that distance. Rodney 5ZCD has pulled up stumps and moved to the big smoke, Melbourne. He will be in Melbourne for 18 months to 2 years studying all about crystal sets and so forth. Unfortunately he will be inactive in Melbourne as where he is staying Amateur Radio is taboo. He will have to get a chariot and put a mobile in it.

One last comment. These notes are being done on a roster system and when your turn comes, do not let your Zone down by not putting in any notes. 73, 5ZCD.

MIDLAND ZONE

In our notes last month was news of our Annual Meeting and Picnic to be held at Cairn Curran, and we hope to see a big roll up of other Zone members as well as from our own. This is not in any sense an organised radio function, the intention is to make it a picnic day for the family, but by all means bring along your portable equipment as there are some pretty good handy high spots to try out your h.f. and v.h.f. gear. There is now an excellent sealed road to the top of Mt. Tarngower, 1840 ft. high, with an excellent view, so bring along your cameras. On Cairn Curran Reservoir you can launch your own boat and perhaps catch your own fish—as well as operating mobile marine. For those interested an inspection of the hydro generating station has been arranged.

The meeting time will be arranged so as not to interfere with the social activities. Anyone wanting to spend the week-end in Castlemaine or Maldon and requiring accommodation can ring me (Castlemaine 452) and the matter will be attended to promptly. Anyone having the time would be well rewarded by making a trip up Mt. Alexander to the A.B.C. Channel 1 and BCV8 t.v. transmitting site.

For the rest of the news, I have heard on the grape vine that 3ACN is now in his new home erecting towers and vee beams with the blessing of his XYL. My own activities have been spasmodic, mainly due to conditions. I did however have my first ever contact with fellow zone member, 3AHA on 7 Mc. Don 3ZIK, our President, has now changed his occupation, going from radio to collens. Jim 35V is now very active due to other commitments. Col 3FO is active on 40 and 80 mx as well as 144 Mc. Don 3ZIK is looking for contacts every Thursday evening on 144 Mc. and also active on 6 mx. I have my rx operating on 80 mx and my long-promised appearance on 80 mx will eventuate shortly. 73, 3ND.

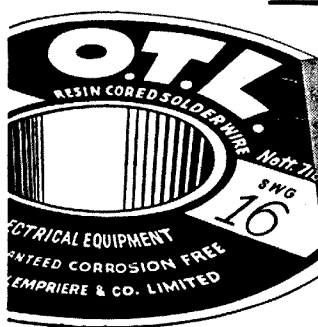
MOORABBIN AND DISTRICT RADIO CLUB

Since last these notes appeared in this magazine, progress has been made by the club. The membership now stands at 71, which includes many juniors. This is a healthy sign and reflects the enthusiasm put into the club by members to give these juniors (many of whom have not as yet their licence) what they require from the club. Unlicensed junior members at the moment stand at 14 and they nearly all attend our meetings.

Among the activities of members, the National Field Day, of course, looms very large and we are confident that our score is amongst the top, if not the top. The State Convention at Shepparton saw many members attending, amongst whom were noted our President, Ken 3ACS and his XYL, Ron 3RN, Alf 3LC, Bob 3NZ, Hal 3ZOO (with their XYLS), and John 3OR, Keith 3AKB together with country members Bruce 3BM and last but by no means least, Arthur 3AUL. Whilst on the subject of country members, we would like to enrol more. The club facilities are always open to such and to country visitors and the satisfaction of giving a contact to DX stations to enable them to qualify for our Honorary Membership Certificate is a great draw.

Tx hunts on 80 mx still rank high in our curriculum, and our social evenings are well attended. These, together with an occasional White Elephant Night supplement funds quite

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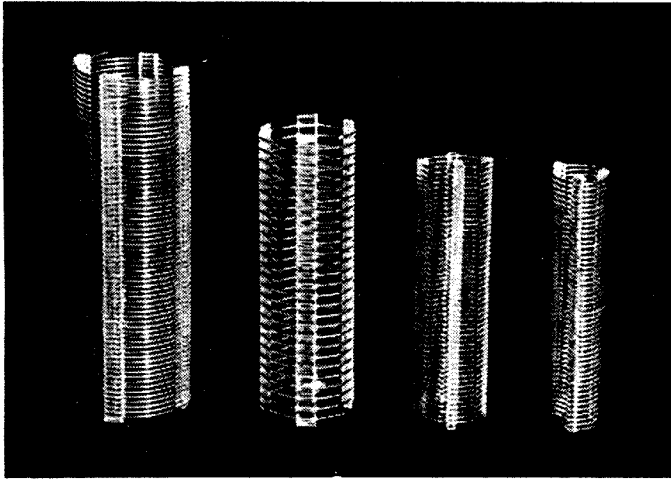


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2-16	3/8"	16	3"	No. 3007	6/3
3-08	4/8"	8	3"	No. 3010	7/4
3-16	4/8"	16	3"	No. 3011	7/4
4-08	1"	8	3"	No. 3014	8/5
4-16	1"	16	3"	No. 3015	8/5
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References: A.R.R.L. Handbook, 1961; "QST," March 1959;
"Amateur Radio," December 1959.

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considerably. The attendance at monthly meetings seems to be rising too, an average of 35 or so members at each meeting!

The attractions as scheduled in our "Program of Events" for the next month include: May 3, visit by S.W.I. Group W.I.A. and club night on the air; May 17, general meeting, lecture on United Nations; May 25, social at 3200; June 7, 80 mx tx hunt.

The club net on 3.6 Mc. every Monday night from 2000 hrs. still attracts many members as well as non-member stations. Any Amateur Station is welcome to join this net and a few have taken the opportunity of obtaining contacts through this medium for the Honorary Membership Certificate. Any VK station applying for this Certificate needs 14 member contacts.

As well as 3.6 Mc., many members are equipped with 145 Mc. f.m., and I list those who at present are active: Fixed base stations—30T, 3N2; fixed as well as mobile—3EM, 3DF, 3KE, 3CW, 3ZCB, 3ZOO; mobile only—3ARD, 3LC, 3AHZ, 3AKB, 3ACS, 3XK, 3XV, 3ZOT.

At our last general meeting a committee of four members, namely Kevin 3ARD, Alf 3LC, Wally 3AHZ and Bob 3ZRD, was chosen to act as a "publicity committee," so from now on you may note different styles of journalism, hi! 73, 3LC.

QUEENSLAND

What's wrong with all you Queenslanders. Can't get on to any scandal, no matter how carefully I tune the various bands. And as for my spies, I'll tell you what, I'll approach the VK4 Council for an increase in your wages.

I'm not even sure whether these notes will reach Melbourne in time for printing. As mentioned in last issue of "A.R.," everything is BIG up here, including rainfall. At the present time, Ayr is isolated as far as air and road are concerned. The mighty Burdekin River is in flood and the fish are all learning to swim. So I'll have to depend on the Queensland Railway to get these notes away.

The Bundaberg Radio Club have had their Annual Meeting and the following were elected to office for the ensuing 12 months: President, Les 4XJ; Vice-President, Eric Gardner; Sec./Treas., Bill Sebbens; Publicity Officer, Merv. McGraive; Asst. Publicity Officer, Lee Downing; and A.O.C.P. Instructor, Eric Gardner.

Eric has had outstanding success as an instructor and at the last exam, the following were successful with the Limited ticket: Roy Spotswood, Lee Downing, Jim Hazzard, Bill Sebbens and Arch Lewis. They should offer some opposition to Vic 4BJ who, at the moment, is the sole inhabitant of 40 mx, and Les 4XJ, who is on most bands. Frank 4UK should be on more or less regularly, as he now has a Type 3. It used to be mine, but it changed hands for some pieces of silver and as Frank is an optometrist, and as I have been having difficulty in finding the various knobs on my rx, not to mention the trouble I could have in finding the place where I get my fortnightly pittance, although somehow I think that instinct guides me there, so as I can put out my shaking hand once a fortnight, now I've lost track of what I was saying. Oh yes, Frank also gave me a pair of spin rimmed hornicles—sporn rimmed hectacles; all right, glasses.

Wireless Institute of Australia

Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 6th MAY, 1963

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.

Hear Frank 4FN and Jim 4HZ going into great details over the merits of various makes of "babies' bottles". Feeling sure that some startling news would eventuate, I carefully listened and what a blow. They were going to use 'em for waterproofing mobile aeri-als.

Ross 4RO, Frank 4ZFA and Harold (associate member) have left for Sydney. It started to rain the following day and hasn't stopped since. Last news was that they had reached Bundaberg. Don't try to sell the Harbour Bridge to them, you Sydneysiders, because you will be wasting your time, because as I have said modestly, everything up here is BIG, and that means our Burdekin Bridge. It is the longest bridge in Australia; fair dinkum.

Talking about things that are big, one of my readers took exception to my statement that our mozzies are big. So I thought that I had better clarify the position. You see, when we were working on what was left of the mast that was attached to the biggest tx in the State, the mozzies were a trifle troublesome. Not through their propensity for biting, we soon fixed that with various goos, but when one is stumbling through the dark with an armful of sundry radio bits and pieces, it is annoying when one falls over a mozzie. All right, so they weren't all that big, some of them only caused us to stub our toes. But when a mozzie has a small bag containing disinfectant, and a hypo needle with local anaesthetic, to prepare the victim for his (the mozzie's) proboscis, well, they're big.

Graham 4DG, who has for some time now, been signing 9DG, is back in Queensland and is having some difficulty in remembering how to tune his rig. It did have a bit of jumpiness about it Graham, but when its owner has just returned from the land of headhunters, etc., can you blame it?

I just received the latest "A.R." and I read that PanSy is girding his loins, to "do over" yours truly. Well PanSy old boy (the "old" is purely in an affectionate manner), I did have a shot at you a few issues ago, but I'm afraid you must have friends in high places, or else they are firm believers in "the pen is mightier than the sword" because it was deleted, censored, left out. As a matter of fact, the chap who warned you, was fully aware of what I had sent down and was highly delighted, but as I have mentioned, you must have friends . . . Still, never mind, I might be able to sneak one across ye Ed when he can't find his red pencil. I was thinking of you a few days ago PanSy, and believe me, it was a sympathetic mood I was in. I went in to the Post Office to pay my quid and I thought: "Poor old PanSy, living in that backward State, having to race around and practically plead with sundry bods to take his quid." And now I read that his troubles are all over. Fair dinkum, it makes one lose all faith in human nature.

Stan 4SA is in hospital and expects to be thrown out any time. The nurses there must not have heard of gags. George 4GG and Stan 4ST are going to Urunga for the Easter Convention. Not sure whether they will be taking mobile gear with them.

The Convention that was held at Alexandria Headlands was a huge success. Over 80 registered and some nice prizes were taken off. 4ZAX won the fox hunt. Vince 4VJ took off the mobile event, and a North Queensland (you can't keep them down) took off the prize for the longest distance covered. I don't know who it was, except that it was a Z call. Fred Cox, from Gympie, represented his club. The auction sale was ably handled by 4VB and a W.I.C.E.N. exercise was demonstrated by Vince 4VJ. George 4GG won the award for the most contacts at the Convention, with a total of 15. All in all, everybody enjoyed themselves and are looking forward to next year's Convention.

Not much activity in this area, apart from the Youth Radio Club, which got off to a good start and looks like being a huge success. Well blokes, I can't print news if I don't get it, so how about it? If you want to send it down to ye Ed yourself, do so by all means, but send me a copy so as I won't repeat it. "D" day for news is so as it will reach me by the end of the month.

Breathes there a spy, with soul so dead,
Who never to himself has said,
I'd better send news of the local Tribe,
To Uncle Xray, the Queensland Scribe.
Remember my threat when I accepted this job
If I don't get news, my best friend I'll "dob".
—Cheers, Uncle Xray.

WIDE BAY AND BURNETT BRANCH, W.I.A.

Well chaps here we are again, and as the walrus said to talk of many things, he must have been referring to PanSy, as there is not much news from this end of the band this month.

I am feeling all washed out as we have had three floods in the last three months and it is affecting some of the boys in the locality, as they are growing webbed feet and are going in for duck talk. Barry 4LN with the co-operation and help of Harry 4ZHG should be on the air any day now, imitating Donald Duck, that is as soon as he chases a few more gremlins out of the gear, and we will soon have to decipher the double Dutch that will emanate from Harry's (4ZHG) rotary clothes line.

Went down to the W.I.A. Convention, which was held at Alexandra Headlands recently. Only managed to make it for the last day. It was a very good "do", about 80 booked in. Moving around the crowd I noticed a number of the boys from the W.B. & B. Branch present. Max 4HD, the 6 mx king from Buderim; John 4PU from Woombay, Les 4ZBS from Yandina, and Associate Garry Franks and Ken Chiverton from Nambour, Bill Stubbins, Bob Spotswood and son Steve (who on account of height looks down on his Dad) from Bundaberg. Sounds like a high society report. Alf 4AO conducted the W.I.A. hook-up from the location and had a good response. Went out as pencil for Brian 4UW in the 40 mx scramble, or is it a mad scramble, when everybody calls everybody else for the first few minutes and then gradually peters out to silence.

Tom 4KB, whose identification disc states that his "interest" is "loafing", made the distribution of prizes. I remember one or two. Ken Chiverton received a "gong" for the best piece of home-constructed equipment, and a meter for the best time in the blindfold hunt, 1 min. 45 sec.; what odds am I offered. Prize for person coming furthest distance went to John 4ZJM who lives at Cairns. Freddie 4VB was the auctioneer at the sale of disposals equipment, and none of the boys were able to blink an eye lid lest they have some piece of gear knocked down to them. Altogether, as Jimmy 4HZ would say, "a good time was had by all". Some shots of the boys in action was later put over t.v. Good publicity for Ham Radio.

Chips 4XR has started his A.O.C.P. class, so they will soon have to revise the Call Sign Book and the same goes for the Bundaberg boys as Jim Hazzard, Lee Downing, Arch Lewis, Roy Spotswood, and Bill Stebbens have passed their exam, and next week three more are going to have a shot at the papers for their ticket and several doing telegraphy only to make up the full licence. Recently Bill 4SW (Maryborough) went to Kingaroy (where the peanuts come from) to see the air pageant and was especially interested in the gliders. Must be thinking of acquiring one, loading some portable gear aboard and going aloft to work himself some good DX. It is an idea. 73, Fred Cox.

SOUTH AUSTRALIA

Warwick Parsons has gone on leave, and is sadly missed—by me, if no one else! His tour this year took in Victoria as far east as Warrnambool, back along the coast road, up to the Murray Valley and then to Oakbank for Easter, as usual. I heard that Mr. Pincott had been registering a new firearm, but PanSy assures me that that was not the reason for the about-face at Warrnambool.

Bram 5AB is preparing for a DX-pedition to Willis Island. He has been granted permission to go out in the relief boat S.S. Cape Leeuwin which sails from Cairns on 15th June. Operations should start on or about 18th June. More information on this in next month's issue, providing Bram keeps us posted. He is also preparing preliminary plans for an assault on the Portuguese enclave Oucussi on Timor if the A.R.R.L. will give him country status. If it comes off he should have a whale of a time being DX, instead of working it! Incidentally, if anyone has a small portable a.c. generator suitable to take to Willis Island, Bram is quite prepared to buy it. Drop him a line. Bram asked me whether PanSy had a QSL manager for his DX-pedition to Oakbank at Easter, and whether the A.R.R.L. had granted him country status. Dunno.

Gordon 5XU is another VK5 who is going overseas. Late in May he is going Stateside—not as a teacher, but as a student. Hope that the lecturer gives him six of the best when and where necessary, to keep him in order.

On 12th May, 1913, two lads got their Amateur call signs, XV5 and XV7. Both are still active as Arthur Cotton, VK5HY, and Chas. Othen, VK5ON. Two years ago they had their first contact for 47 years, but both are now active on s.s.b. If you work 'em, you're talking to history! Charlie reports that his first tx consisted of a 1 inch spark coil, rotary gap (motor from an old fan), helix made of

3/16 inch copper tubing, and the condenser was made from old photo plates and sheet zinc. The rx tuning coil was wound on cardboard tubing, condenser made of brass tubing. The rest of the rx consisted of a galena detector and a phone which he acquired from a source which he declines to name. Maybe I'm dumb, but I can't see why they couldn't have gone out and bought some s.s.b. gear—maybe the low wages in those days had something to do with it! Frequency was approx. 110 metres, plus or minus 50 per cent., and the power—90 watts.

Roy Cook, 5AC, has also been on for 50 years. I believe he got his call sign XVN before Charlie and Arthur. He's not very active on the air at present, but his gear is ready to go at any time.

Col 5CJ, the South Eastern end of the grape vine, reports that Stuart 5MS is building a new linear amp, for his sideband rig and Erg 5KU is looking for dural to make a new beam. At present his two element job is on the ground. Leo 5GJ hasn't been heard for some time. His new tower is at a standstill. Maybe he's busy! Claude 5CH hasn't been heard by my spy for quite a while, but then Col doesn't spend all his time listening. Ron 5VH is still waiting to shift into his new house. He has plans for a miniature tx and rx which can be hidden in the corner of the lounge. Col is on 40 at lunchtime and 2 at 0630 for skeds. I wouldn't mind the lunch-time efforts, but—is there such an hour as 0630? Brrr.

Tom 5AQ, from the other end of the State, Port Augusta, which town is usually known as the Big Smoke, writes to say that the 14 Mc. re-broadcast of 5WI on Sunday mornings is rather a flop. He does it, and he should know! On call back after the session all he hears is QRN now that 8AV is 5AV again. Ron 5AP has one end of his antenna on the ground—white ants are suspected. Graham 5GE, who spends his working life on the air, spends his spare time otherwise, and Ron 5AV—having the job of settling into a new house—is inactive. Tom, having the true Ham spirit, hopes that he stays that way as Ron's new QTH is no more than 60 yards from Tom's almost completed new house. Doug Pannel, also of the Big Smoke, has gained his A.O.C.P. and is working like nobody's business to be ready to go on the air when his licence and call sign turn up. Congrats. Doug. When PanSy comes back he'll doubtless give you the usual advice—DX before dishes!

Warwick, Tom wants you to have a good holiday, because only s.s.b. stations work the DX on 7 Mc.

Nothing to do with the above, of course, but rumour (the lying jade) has it that a certain gentleman—no, he's a Ham—a certain person whose girth is roughly equivalent to his height, has been spending many easily earned sheldons on sideband bits and pieces. Certain members—no names, no packdrill—have been casting nasturtiums about the ability of the nameless one to get the gear going. In fact, one wrote to me in the following terms, "I think . . . must have bought a phasing unit too, and can't get it to go." No more at present, but when the s.s.b. gang start running for cover, watch out for a change in the tune. Don't ask me who the traitor is—I'd be ashamed to be the one to put his weight up.

While on the subject of weights, the XYLS present at the Xmas "Do" would like to take the opportunity to reciprocate 5PS' blissfully happy wishes that their shadows may never grow less, and they cheerfully hope that not only his mind will continue to broaden with the passing years . . .

Met Ralph 5TR (Texas Rattlesnakes of old). He is a convert to sideband and tells me he's worked over 1,000 DX stations in the last three months.

From various sources I've heard that Pete 5FM has been having trouble with toothpaste tube caps. Can't ever tell the difference between a cap and a cockroach (or was it a henroach?). If you want to know the full story ask Pete. If I wrote it, no one would believe me.

Tom 5TL, of Renmark, has had old age catch up on him. Not so much on himself as on his gear. The last time I spoke to Tom he was creaking at the joints, but he tells me that his gear was really suffering from arthritis—dry joints everywhere. However, one by one those joints were dampened, and he's back on the breeze with his usual solid signal.

5BC, in addition to his daily round, plus his Amateur activities, has found time to acquire and use a boat. Not quite in the 5LK category, but big enough to fish from in smooth waters. Nobody knows whether he has caught anything, but my Renmark spy tells me he has plenty of bait. Knowing Renmark, I wonder whether that will help his fishing or not. Anyway, DX before fishing—remember?

HAMADS

Minimum 5/-, for thirty words.
Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 38, East Melbourne, C.2, Vic., by 8th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

FOR SALE: BC348 double conversion to 455 Kc. Sensitive and selective, £36/10/0. Wanted, one Bug Key, will swap brand new 813 or other gear for same. VK3WW, 3 Maxwell St., Lalor, Melb., Vic.

FOR SALE: Swan 120 Transceiver, 3 months old in original etzrafoam packing, new condition, owner going overseas. Band switched 14.1 to 14.25 and 14.2 to 14.35 Mc. Can be simply modified for 40 and 80 metre bands. 25 watts radiated a.m. and 250 watts p.e.p. s.s.b. Xtal lattice filter, good stability, world wide DX coverage, mobile or base. Instruction manual. Power supply if required. Price £160 cash. A. G. Swinton, VK2AAK, P.O. Box 1, Kullnura, N.S.W.

GENUINE Bargains sent by return. Taylor 47A Valve and Circuit Tester, excellent condition, £20. A.W.A. A.C. Mantel Radio, recent model, £4. Pye A.C. or Battery Portable, £3. Philips A.C. or Battery Portable, £4. 15 H., 175 mA., Choke, £1. Trannies: 385-0-385v. 80 mA., 325-0-325v. 60 mA., 230v. primaries, 12/6 ea. 2 x 10 volt at 10 amp. secondary, 25/-, 6-12 volt 4 amp. Metal Rectifier, 25/-, 12 volt ditto, 15/-, 1TK Transistor Signal Injector, 25/-, New Tubes: 2 x 815, 2 x 83, 3 x 717A, 6AN7, etc., £3 the lot. VK6RE, 10 Craddock Road, Merredin, W.A.

SELL: Heavy duty 46 ft. tower complete with head bearing. Top 7 feet 1 1/2" x 3/16" angle, remainder 2 1/2" x 1/4" angle. Triangular base, 12 ft. 3 in. Prop. Pitch Motor and Transformer to suit. Easily shipped. £65 the lot. F. A. Eastick, Alice Springs, N.T.

SELL: Red Line 30w. Modulation Transformer, £2. Similar 400v. 150 mA. Power Transformer and Choke £5 included. E. Blackmore, 10a Holloway St., Carnegie, Vic. VK3TG, Phone 58-2679.

STILL available: 5,500 Kc. sets of six matched s.s.b. filter crystals, 3 Guineas. Same mounted and aligned, in shielded plug-in can, 6 Guineas. Also FT241A Crystals between 370 to 435 Kc. and 475 to 530 Kc., 3 Guineas per set. VK-2AVA, Arie Bles, 33 Plateau Road, Springwood, N.S.W.

WANTED: Power Transformer, 1,000v. or 1,500v. aside, approx. 250 mA. or up. VK3AVU, C. Lobb, 200 Elgar Road, Box Hill South, Vic. Phone 28-2785.

WANTED TO BUY: Geloso Model 209-R Receiver in good condition. Particulars to VK3AUS, H. T. Swanton, 16 Karma Avenue, East Malvern, Vic. Phone 211-3716.

◆ CAN YOU ASSIST "A.R."?

and David 7MS may have a new venue for the business meetings and we may hold social meetings in private homes. More of this anon.

The tx hunt held in the Ulverstone district in March was a huge success. This was due in no small way to the enthusiastic group of Northern Zone people who turned up. Three runs were made, the respective winners were 7XL, J. Gelston, and 7DK. Another day along similar lines is projected for next summer at Port Sorell.

By the time you read these notes I should be somewhere on the Pacific for two weeks' cruise, so the scribe for next month will be that terrible man, 7MX. 73, 7ZBH.

NORTHERN ZONE

The Northern Zone has commenced yet another year of activity, with a new complement of officers being elected at the Annual General Meeting held in March.

The principal officers elected were Pres., Den 7DK; Sec., Ray 7ZRJ; Treas., Peter 7PF; and we are looking forward with keen anticipation to another year of interesting activities both technical and social.

Looking back over the President's report for last year, it is pleasing to see that four of our associate members have been successful in passing their L.A.O.C.P. examinations. Ted 7ZBE and Graham Ranft, Bob Grant and Chris Barnard who are still waiting for their call signs. It looks as though the v.h.f. bands will be well populated in the northern area this year, especially with the guiding hands of those regular oldtimers to the bands, Len 7BQ, Col 7LZ, Den 7DK and Peter 7PF. Col and Peter have been doing a lot of experimental work over the last two months with a 2 mx portable tx/rx, and they are both operating mobile at the moment with very good signals. When the teething troubles are sorted out and a standard design adopted, it is hoped to start tx hunts again on both 2 and 80 mx. This brought forth quite considerable comment last meeting and one member was overheard planning a three element beam for the back of a motor cycle.

Some of the Northern Zone members attended the Field Day run by the North-West boys, and both Den 7DK and Joe Gelston were successful in the tx hunts, both taking major placings, although Den was rather hesitant to accost David 7MS in a town park; David was suitably disguised as a young lady wheeling a pram which contained the hidden gear—a very good day's outing from all accounts.

The Tasmanian Division held their Annual General Meeting and Dinner in Hobart on 23rd March, run by the Southern Zone, and a very fine job they did too! All credit must go to those who organised this annual gathering as it went off perfectly. There were over a hundred present, and revelry extended till the small hours, and Jack 7JB still managed to do his usual fine job next morning, running the 7WI broadcast!

The necessary arrangements are under way for the Northern Zone to obtain its own call sign and it is hoped shortly to be able to conduct our own regular net, both on v.h.f. and h.f. bands, so keep a sharp look out on the bands, you other zones, for 7NZ and help us stimulate even more interest in Tasmania in the workings of Amateur Radio.

Activity among the Zone members, although not spectacular, has been consistently steady and probably the most newsworthy item is that Ray 7ZRJ at long last has his rig on the air and putting out a very nice signal by all reports. Rumour has it that he has also worked through to 7ZAY in Hobart (almost!). Mark 7CA is now heard regularly on 80 mx on Sunday mornings for the 7WI broadcast and round up. Nice to hear you Max, bolstering the ranks of the Northern Zone. Ted 7EC is still pounding his c.w. on 40 and 40, and the QSLs are arriving in his way and prove his point that there's plenty to be had on these bands.

Ted 7ZBB has been on 2 mx, but by all reports spends most of his time making oscillators. He only wishes that he could mix like he could oscillate! Den 7DK is always to be heard somewhere on the bands and is going to make more noise than ever when his new 2 mx and 6 mx tx is finished. John 7JF has been quieter than usual, but promises to be more active than ever when his new rig is finished.

Just in case some of our members may have missed the broadcasts and bulletins, our new meeting place is 102 Charles St., Launceston, second Friday each month; the rooms are large, so we will be pleased to see you. 73, Johnny Fox.

WANTED Urgently: A Sub-Editor to compile the DX page for "A.R." Fuller details obtainable from Editor "A.R." or Alan Shawsmith, VK4SS.

VK5 members are reminded that it is now some years since they received a notice that the annual fee is due. If you read your journal you'll find a notice regarding annual fees. Anyway, why wait for the journal—you know that your sub. is due at the end of February. Why not pay it then?

After the election at the March meeting, the following officers of this Division were appointed by Council:

President, P. M. Williams; 1st Vice-Pres., G. M. Taylor; 2nd Vice-Pres., C. Pearson; Sec., P. O'Connor; Treas., D. Cooper; Minute Sec., C. Pearson; Operator of 5WI, C. Pearson; Programme Organiser, R. Gurr; Membership Organiser and Associates' Rep., L. Cotton; Publicity Officer, etc., W. W. Parsons; V.h.f. Rep., G. Wilde; Fed. Councillor, G. M. Taylor; Technical Advisory Committee, 5PU, 5KX, 5EU, 5ZGY, 5ZJM.

The latest news from the Brompton Boys' Radio Club (5BA) is that its new tx has been completed and as soon as the new aerial is aloft they should be in business again. 5GU, 5HY, 5RR and 5JT helped Joe 5JO with the rig. Len 5ZF is also very popular at the club as he modified a b.c. rx for them. Made a nice job of it too. Joe 5JO tells me that if any of the local gang would like to help with repairing gear, they'd be very welcome. The club meets on alternate Fridays from 7 to 9 p.m.

Fred 5FH is now at his new QTH and is putting out his usual solid signal—c.w. only. He's got more room for aerials now than he ever had.

That's all for this month. Back to normal next month with Warwick as scribe. 73, 5CA. (Peace once a year—Ye Thankful Ed.)

TASMANIA

NORTH WEST ZONE

Well fellows, winter is fast approaching and will no doubt provide us with more time indoors to catch up on the numerous projects we put off during the fine weather. Winter also means more t.v. viewing by the general populace, so it would seem good insurance to check those harmonic suppressors. Let us hope we don't have the bigoted neighbours Athol has. It's a bit rugged causing t.v.i. with the rig switched off! Both Associates, Basil and Ray are hard at it on rx, ready for when they get their tickets.

The zone meetings have been well attended of late. We now have several new members who attend consistently, and are studying for the A.O.C.P. Along with these newer chaps is a hard core of older members, all of whom pull their weight—all of which is most gratifying.

Our biggest problem at present is money. Numerous unique means of raising it (both legal and illegal) were discussed last meeting, but no final solution was agreed upon. We may have to appeal to HQ as is our constitutional right, if necessary!

Sid 7SF got two chickens from them at the annual meeting. To alleviate expenses, Ray

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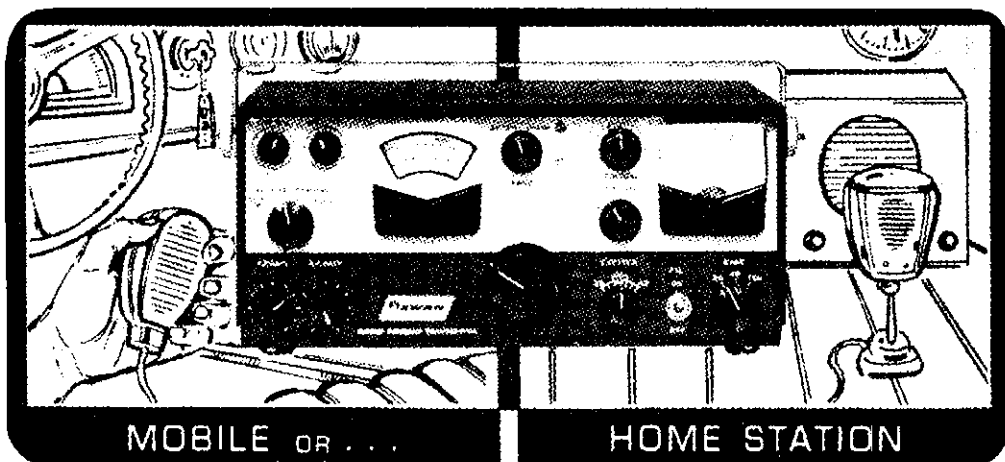
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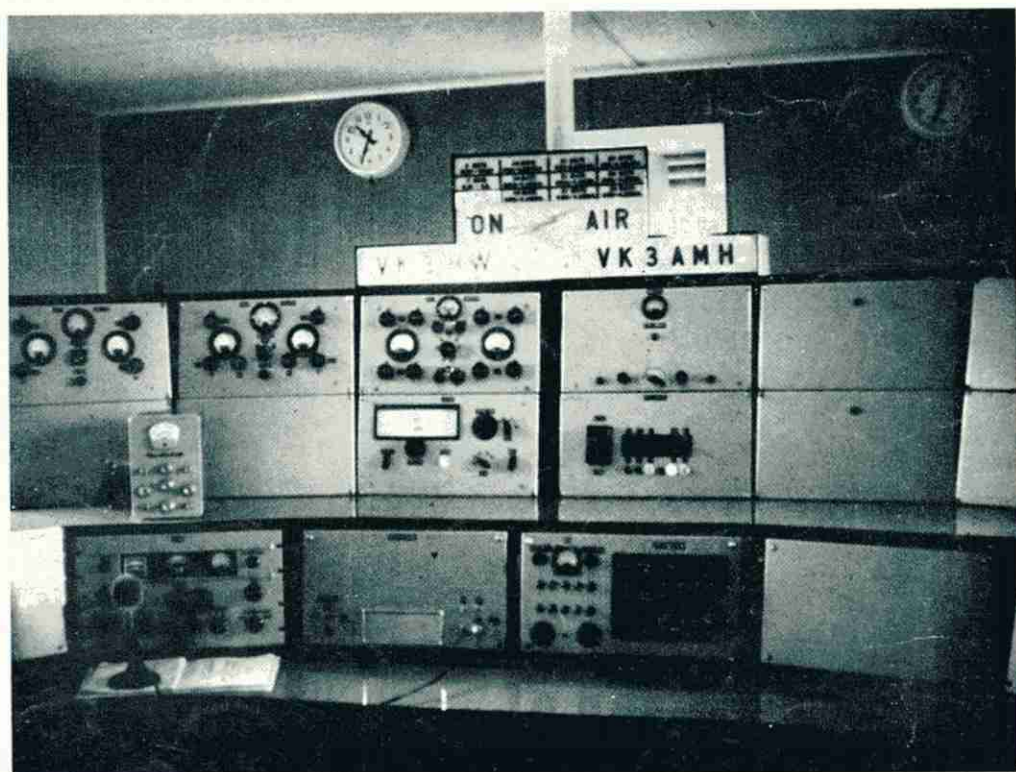
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A M A T E U R R A D I O

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Vol. 31, No. 6



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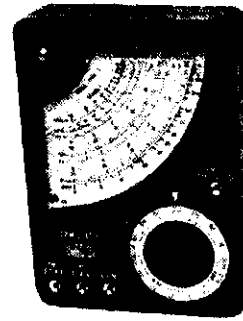
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OUR COVER

The inside of VK3HW and VK-3AMH looks like a "commercial" set-up. It is a credit to Australian Amateur Radio, and complements the previous cover photo of their aerial array.

FEDERAL COMMENT

★

A FUTURE IN ADMINISTRATION

Every Radio Amateur is deeply concerned about the future. Many vociferously clamor for preparations to be made for the battle to retain Amateur rights and privileges at the next I.T.U. Conference—extension of privileges now, or for this or for that action to be taken.

WHO IS GOING TO DO ALL THESE THINGS?

In order to carry out the wishes of its members and properly represent the Australian Amateur, the W.I.A. must have fully manned Federal and Divisional Councils backed by active sub-committees consisting of qualified personnel.

There are some who claim that the old experienced members of these bodies are getting too long in the tooth and that young blood should be injected into the organisation.

We could not agree more; however experience indicates that enthusiasm and zeal must be tempered with sagacity borne of experience.

The time was never more opportune for the formation of active working committees employing younger personnel to tackle our major problems and prepare to step into the shoes of the oldsters as they relinquish the burden.

What better way is there of achieving continuity of administration, tempered with the wisdom of experienced administrators?

Those members who are prepared to serve such an apprenticeship will enjoy the fruits of their labor in the part they play in insuring the future of both the W.I.A. and their fellow Amateurs. The administrative experience so gained will in itself be a valuable asset in everyday life.

FEDERAL EXECUTIVE, W.I.A.

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A Broad-Band, Bandswitched, Crystal-Locked Converter

A. S. MATHER,* VK2JZ

A CRYSTAL-LOCKED Converter provides a cheap and effective way of improving the performance of almost any superhetrodyne receiver.

This unit was made up to use in connection with my s.s.b. modified AR7 which has a Band C coil box, modified to allow it to tune from 3.5 to 4.0 Mc. through the complete tuning range of the dial, from approximately 500 to 0.

The 7, 14, 21 and 28 Mc. signals are hetrodyne'd so they are tuned with bandspread on the 3.5 to 4.0 Mc. range of the receiver.

Thus we now have a double conversion superhet. with a crystal-locked high frequency oscillator, better image rejection, bandswitching, bandspread and greater stability as the 2nd h.f. oscillator is tuned from 3955 to 4555 Kc. for all bands.

Numerous articles have been written on crystal-locked converters and they are all basically the same with the exception of the type and frequency of the crystal oscillator.

It is hoped that the following article may be of interest to those wishing to improve their receiver performance.

THE CRYSTAL-LOCKED OSCILLATOR

Four FT243 crystals with fundamental frequencies of 3.633 Mc., 3.500 Mc., 5.833 Mc. and 8.166 Mc. are used on their second overtone of approximately 10.8 Mc., 10.5 Mc., 17.5 Mc. and 24.5 Mc. to convert the 7 Mc., 14 Mc., 21 Mc. and 28 Mc. bands to the 3.5 Mc. to 4.0 Mc. tuning range of the receiver.

* "Wolaroi," 14 William St., Singleton, N.S.W.

The harmonics above the fundamental are called the overtones of the fundamental.

Most magazines refer to 3rd overtone operation of say a 3.5 Mc. crystal as oscillation on a frequency a few kilocycles lower than its 3rd harmonic with no output on the fundamental or 2nd harmonic, that is 3.5 Mc. or 7 Mc.

I will use this convention as far as the mode of operation is concerned, but as the 1st overtone equals the 2nd harmonic, operation of a 3.5 Mc. crystal at a frequency of approximately 10.5 Mc. is the 2nd overtone and not the 3rd overtone as generally stated.

I will not attempt to discuss the theory of overtone crystal oscillators, which has been discussed before in "A.R.,"† but the most important fact is that when the feedback is correctly adjusted and the plate circuit tuned, oscillation at the series resonate frequency will take place at the 2nd overtone, which is a few kilocycles lower in frequency than its 3rd harmonic. However, as stated, only oscillation at this and higher frequencies is obtained and none at the fundamental and 2nd harmonic. So you can see the injection frequency is always 3.5 Mc. lower than the tuned frequency with the exception of the 7 Mc. band when it was approximately 3.8 Mc. higher and the receiver tunes backwards from 3.8 Mc.

This is a slight disadvantage, but there appears to be no satisfactory way of tuning the 7 Mc. band from 3.5 Mc. higher, as with the other bands, without using a 3.5 Mc. crystal on its funda-

† "Using Overtone Crystal Oscillators," "A.R.," Aug. 1960.

mental and that puts a hefty 3.5 Mc. signal at the band edge.

Needless to say, using crystals on other frequencies and turning backwards or forwards on various receiver frequencies open other possibilities. It would be possible to use a 3.5 Mc. crystal with the oscillator coil tuned with switched condensers to oscillate on its 2nd, 4th and 6th overtone to give forward tuning at 3.5 Mc. on 14, 21 and 28 Mc., and backward tuning from the 2nd overtone at 10.5 Mc. to give 7 Mc. coverage from 3.5 to 4 Mc. on the receiver.‡

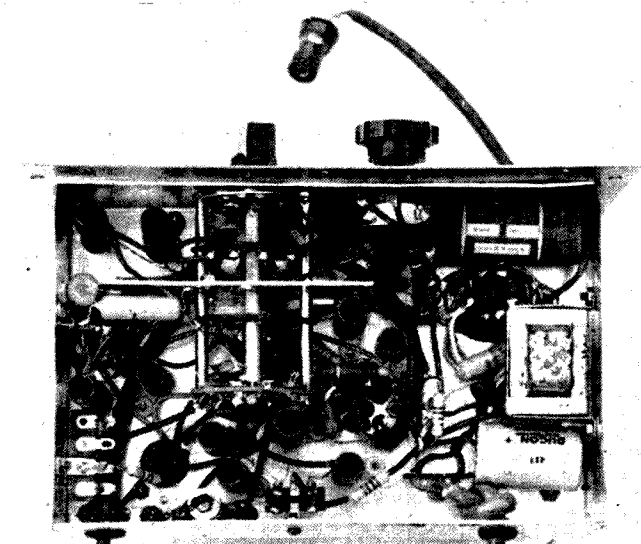
The value of the injection voltage would not be the same for each overtone as the voltage output will decrease as the overtone frequencies get higher, which could be a drawback. However, it has the advantage of saving three crystals and three inductances.

It should be obvious that unless considerable and, I think, unnecessary care is taken with the selection of the crystal frequencies, owing to the overtone operation being slightly lower than the 3rd harmonics, all band edges may not be on exactly 3.5 Mc. on the receiver.

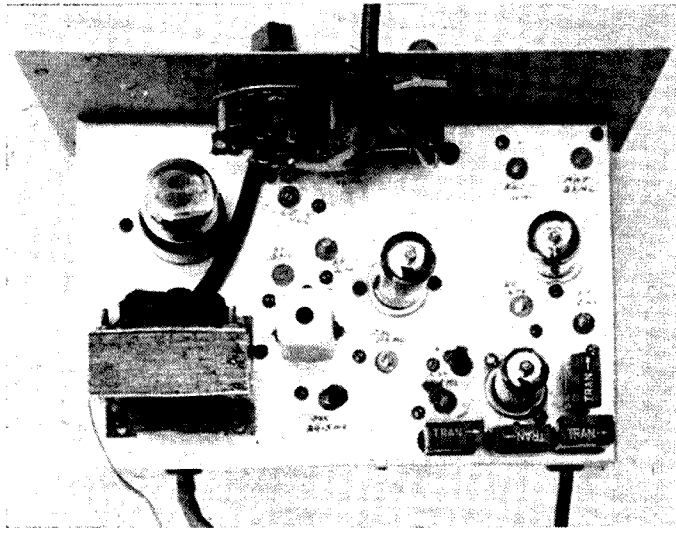
OVERTONE OPERATION

As stated before, overtone operation only of the injection crystal oscillator is most important, because if the signal you get at say 10.5 Mc. also appears at 3.5 Mc. and 7 Mc., then the possibility of spurious signals, birdies and images is greatly increased, as they can beat with the incoming signal and harmonics of the receiver h.f. oscillator and i.f. frequencies.

‡ Page 51, "QST" May 1960.



Under-chassis view of VK2JZ Converter. Around SW1 are the various coils. Those nearest front panel are L1 and L2 for (left to right) 28, 21, 14 and 7 Mc. Below these are L3 for (l. to r.) 7, 14, 21 and 28 Mc. L4 coils are located at rear of SW1 (l. to r.) 7, 14, 21 and 28 Mc. Mounted on right hand side of chassis is the h.t. choke.



Above-chassis view of VK2JZ Converter. Grouped around the 6C4 oscillator can be seen the four crystals. Other valves (left to right): 6X5 rectifier, EF85 mixer, EF85 r.f. The switch shown is SW2, to the right of which is the pilot holder. Output l.f.t. is to right of power transformer.

This will soon be evident if the crystal oscillator is operated in the incorrect mode.

It is also important that all the crystals have similar electrical characteristics so that when the right amount of feedback for overtone operation is selected by adjustment of the 50 pF. Philips trimmer, it will be the right value for the others, otherwise you may find that what is the correct value of feedback to allow the crystal to overtone when the coil is tuned through the 3rd harmonic is too much for another crystal type and the overtone mode will not take over, or conversely, it could not be enough.

I have found it very advantageous in the adjustment of the overtone oscillator to use a communications receiver; and if your own receiver is not suitable to chase the various frequencies, perhaps you can borrow one for a few hours.

Tune to the 3rd harmonic of one crystal frequency with the Philips trimmer at maximum capacity. The crystal will oscillate on its fundamental and therefore, its 3rd harmonic. The capacity is then varied until operation of the 3rd harmonic will cease and re-appear a few kilocycles lower in frequency on the 2nd overtone, when the coil slug is tuned through the 2nd overtone. Then to make absolutely sure, check back to see there is no oscillation on the fundamental or 2nd harmonic.

Once the correct value of feedback is found, for one crystal, it should be OK for the remainder and only the coil slugs will have to be adjusted. It

is a good idea to lock the slug screws in their correct position with a suitable compound. I found resin to be quite satisfactory.

A 6C4 is used as the overtone oscillator, but any suitable triode, tetrode or pentode should work in this mode.

MIXER

The 2nd overtone frequency is introduced into the grid of the mixer valve

COIL DATA

All coils are wound on 7/16" diam. slug tuned formers.

In each case, L1 is spaced 1/16" from L2.

- 28 Mc.—
 - L1— 4 turns, 32 gauge B. & S. enam.
 - L2—10 " 22 " " "
 - L3—10 " 22 " " "
 - L4—13 " 32 " " "
- 21 Mc.—
 - L1— 4 turns 32 gauge B. & S. enam.
 - L2—15 " 22 " " "
 - L3—15 " 22 " " "
 - L4—18 " 32 " " "
- 14 Mc.—
 - L1— 4 turns 32 gauge B. & S. enam.
 - L2—24 " 32 " " "
 - L3—24 " 32 " " "
 - L4—38 " 32 " " "
- 7 Mc.—
 - L1— 7 turns 32 gauge B. & S. enam.
 - L2—55 " 32 " " "
 - L3—65 " 32 " " "
 - L4—35 " 32 " " "

* With parallel 10 pF. condenser.

by a condenser of approximately 5 pF., made by twisting two short lengths of P.V.C. bell-wire together and snipping them until the desired injection voltage is obtained.

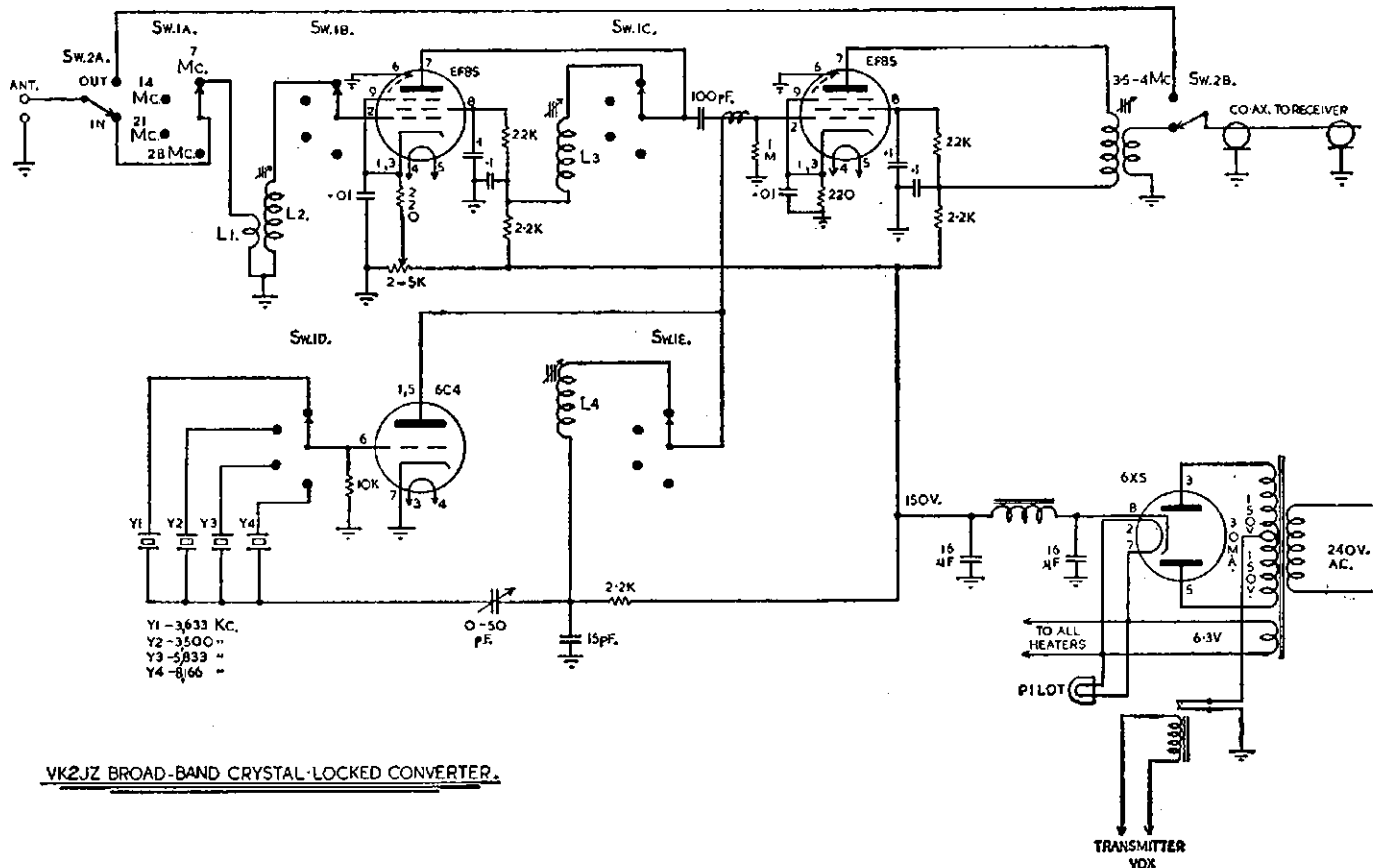
It is good practice to have as much injection voltage as possible, without having the combined injection voltage and signal voltage exceed the mixer bias, which would cause the mixer to draw grid current and generate spurious signals.

I have used a EF85 because I had two for the vision i.f. channel of my t.v. set, but a 6AH6, 6AK5, 6BY6 or any high transconductance pentode or triode would be satisfactory. Another attractive possibility is to use a 6U8G as the mixer with the triode section as the crystal oscillator. As the oscillator is crystal controlled, no problem with oscillator pulling should occur.

OUTPUT COIL

The output of the mixer has to be transformed from its plate impedance to the input impedance of the receiver and almost any slug-tuned i.f.t. can be put into service, as a 3.5 Mc. i.f.t.

Remove any parallel fixed condenser and enough turns (about three-quarters of them) so the coil will resonate at 3.5 Mc. with the internal capacity of the mixer and its own slug. Remove the other coil and wind on about ten turns of No. 26 gauge enamelled wire. Some converters feed the mixer with a 2.5 mH. R.F.C. and take the output through a 0.01 µF. condenser to the receiver. Whilst this would be high impedance, it would suit most of the older receivers.



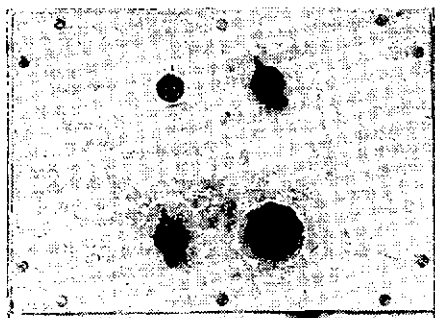
VK2JZ BROAD-BAND CRYSTAL-LOCKED CONVERTER.

R.F. STAGE

The r.f. stage is quite conventional and any high Gm tube such as the 6AH6, 6CB6 or 6BZ6 would be satisfactory. A EF85 or its equivalent, the 6BY7, is used here because its equivalent noise resistance of 1,500 ohms makes it an excellent tube for broadband operation and it is used extensively in t.v. vision i.f. channels.

A gain control is used in the cathode circuit and it is normally left in the maximum position except on very strong signals.

It should be noted that the signal-to-noise ratio delivered by the r.f. stage determines the overall signal-to-noise ratio of the receiver. Therefore, improvement in the noise figure on weak signals can be obtained by running the converter flat out and controlling the gain by r.f. control on the receiver, because as the gain of the r.f. stage of the converter is reduced, the Gm is reduced and the noise figure is increased.



Front panel of the VK2JZ Broadband, Band-switched, Crystal-Locked Converter. Controls: top right, converter in/out; lower left, band switch; lower right, r.f. gain. The pilot is seen in the top left.

BROADBANDING

You will notice that the various coils resonate only with their own inductance, tube capacities and circuit strays. Some constructors may prefer to tune the grid circuits of the r.f. and mixer stages, but even if ganged this means another control and tracking problem and the gain is more than adequate now. I have not measured the signal-to-noise ratio, but it seems to be excellent. Although the number of turns for each coil is given, these are the values I started with, as suggested by VK2BK and some pruning will most probably be necessary. It was beyond me to count the turns after I had them mounted in the converter.

A g.d.o. is almost a must for any constructor and it will be evident that you will need to use one to get the coils right in the middle of the pass-band, particularly the 3.5-4 Mc. output i.f.t.

Be sure you wind them so they obtain the best possible effects from the slug tuning.

When the unit is operated the slugs can be adjusted for the best broadband characteristic before locking.

CASE

The whole unit was made up in a standard metal case, 9" wide, 6½" high

and 5½" deep, with the two switches, gain control and pilot mounted as shown. The antenna terminals, output co-ax and h.t. transformer c.t. are all brought out the back. I used a 6X5 because I had one on hand. It would save considerable space and heat if two silicon diodes such as OA210s were used, or the required voltages could be taken from the receiver.

It is important to take the output co-ax from S.W.2 inside the case to the antenna terminals on the receiver, as no other pick-up must reach the receiver terminals other than from the converter.

UPPER SIDEBAND—XYL TYPE

I know all about being a beginner's wife, experience has taught me nearly all the do's and don'ts. A Radio Ham's wife needs to possess endurance, real stamina, courage in the face of great odds and enough cussedness to get her own way when it really matters.

My husband started off in a small way by owning and operating a set attached to the Flying Doctor base at Port Augusta. He has always been interested in radio and having whetted his appetite he got more and more enthusiastic as time went by. Two shifts later, one to Adelaide and the other to Port Pirie, he has really got into his stride. When we shifted from Adelaide to Port Pirie he was faced with the heart-rending (for him) decision that he would have to part with some of his gear (junk to the peasants). He still speaks in hushed tones as he tells fellow Hams how he wheeled out three wheel-barrows full and gave! them away.

We went through agonies while he was studying for his Limited Licence. He used to attend talks given by one of the local Hams every Tuesday night then he would bend my ear for the rest of the week until I could have quoted Ohm's law in my sleep. As if this wasn't bad enough, he then took to studying turn about at home with another fanatic (that's what they are though they emphatically deny it). During these sessions no one was allowed to breathe.

At last the great night came. My husband had the shakes and his friend's ulcer was playing up, but off they went, supporting each other. No sooner was the exam. over than home to our place and over incessant cups of coffee (if your husband shows any interest in radio, immediately ask for an increased housekeeping allowance) went through every question. The friend was feeling despondent as he hadn't anywhere near completed the paper, but my better half had and he went from the heights to the depths and back up again as he stewed over what he had written.

Well then, of course, we had to wait for the results. He used to ring me up every morning and afternoon to ask if there was any sign of his results. For six weeks we waited, and believe

Shielding is used between r.f. and mixer banks of SW1, but it may not be necessary.

CONCLUSION

No doubt constructors will have their own ideas as to components, crystal frequencies, number of crystals, placement of parts, etc. The circuit values are not critical and common sense variations from the values marked would be in order.

This is a description of a unit which overcomes most of the shortcomings of other converters I have used and an old receiver can be made capable of greatly improved performance. ●

me they were the longest six weeks of my life. Then at last the letter came that said he was the possessor of a Limited Licence.

Well, if he'd won the lottery he could not have been more pleased. He danced around the kitchen, whizzed the children, hugged me, laughed, joked, stood up, sat down, and generally carried on like he'd taken leave of his senses.

I thought things would quieten down then, but no, he had to get a receiver and transmitter on the air and build this, that and the other. It's impossible to listen to our radio inside for drilling noises and my cake tins disappear to act as cases for various converters, etc., and to cap it all he's had me out doing a balancing act on his shoulders, cutting wire so that he had enough to put up an aerial. I might add I get shaky on a chair.

Now he's learning Morse and I'm going to petition that it be admitted as grounds for divorce.

He has now taken on being the Secretary of the local Radio Club. Of course you know who does all the typing, etc., and most of the running around. He hasn't got the time!

Well I guess I'm stuck with him. I took him on for better or worse, but surely it can't get much worse than this.

If you have a husband who is just starting to take an interest in being a Radio Ham, I suggest that you steer him to other interests, before it's too late.

—XYL, VK5ZEG.

SUBSCRIPTIONS

● Please pay your Subscriptions PROMPTLY when due. Failure to do so may result in the loss of valuable Issues of "Amateur Radio." High costs of production make it necessary to limit the number of extra copies printed each month.

A SWEEP GENERATOR FOR 455 Kc. I.F. ALIGNMENT

B. L. McCUBBIN,* VK3SO, M.T.E.T.I.A.

To those familiar with t.v. alignment techniques the sweeper is an essential tool. No other method permits the rapid accurate setting up of the i.f. response curve possible with a sweeper, yet we nearly all stick to the time honoured method of aligning our receivers and steam radio sets with a signal generator and output meter.

The piece of equipment to be described can be built mainly from the junk box. Most Hams will not need to shop around for anything but the Semi Cap.

The accepted type of sweeper as used for t.v. work generates its sweep at v.h.f. and this is then heterodyned to the desired spot. The author's aim was to directly sweep a 455 Kc. oscillator, thus making the equipment as simple as possible.

Many possible methods of sweep were tried and discarded for various reasons. One, which looked very promising, was the Wobbulator available ex disposals. This device has a metallic diaphragm which, unfortunately, suffers from fatigue and does a "King's Bridge" after a few hours work.

The saturable reactor type is not sufficiently linear for really good results.

Motor driven condensers, also, are difficult to make linear and are difficult to synchronise with the c.r.o.

* 3 Kildare Street, Burwood, E.13, Vic.

• With the increasing interest in s.s.b. and the need for accurate setting up of filters and selective i.f. channels the common method of laboriously graphing response curves is too much of a time waster. This sweeper will enable you to do in minutes what previously required hours.

This leaves us a little device which came on the market a couple of years ago. It is called a Semi Cap and looks like a silicon power diode. When properly used it will vary its capacity over a range of 3 to 30 pF. and can easily be controlled with sinusoidal a.c. A sweep generator to fulfil its requirements must be linear over the full swept range, must be capable of synchronisation with a c.r.o., must have variable sweep width and controllable output.

The first requirement is met by the semi cap in that the capacity variation is linear with applied voltage.

The second requirement is simply achieved by using 50 cycle a.c. for both modulation and c.r.o. sweep.

The use of a.c. for this purpose introduces a further complication in that the i.f. under test is swept in both directions and exact superimposition of the

forward and return trace is difficult. This is simply overcome by keying the oscillator with a 50 i.p.s. negative going square pulse of half cycle duration. Control of the output is gained by using a medium cut-off r.f. pentode as an electronic attenuator.

Low impedance output is obtained by the use of a cathode follower output. If high level output is desired, it can be taken direct from the attenuator anode.

There are three controls on the panel. These consist of a phase shift for the c.r.o. X amp. drive, sweep width control and output control.

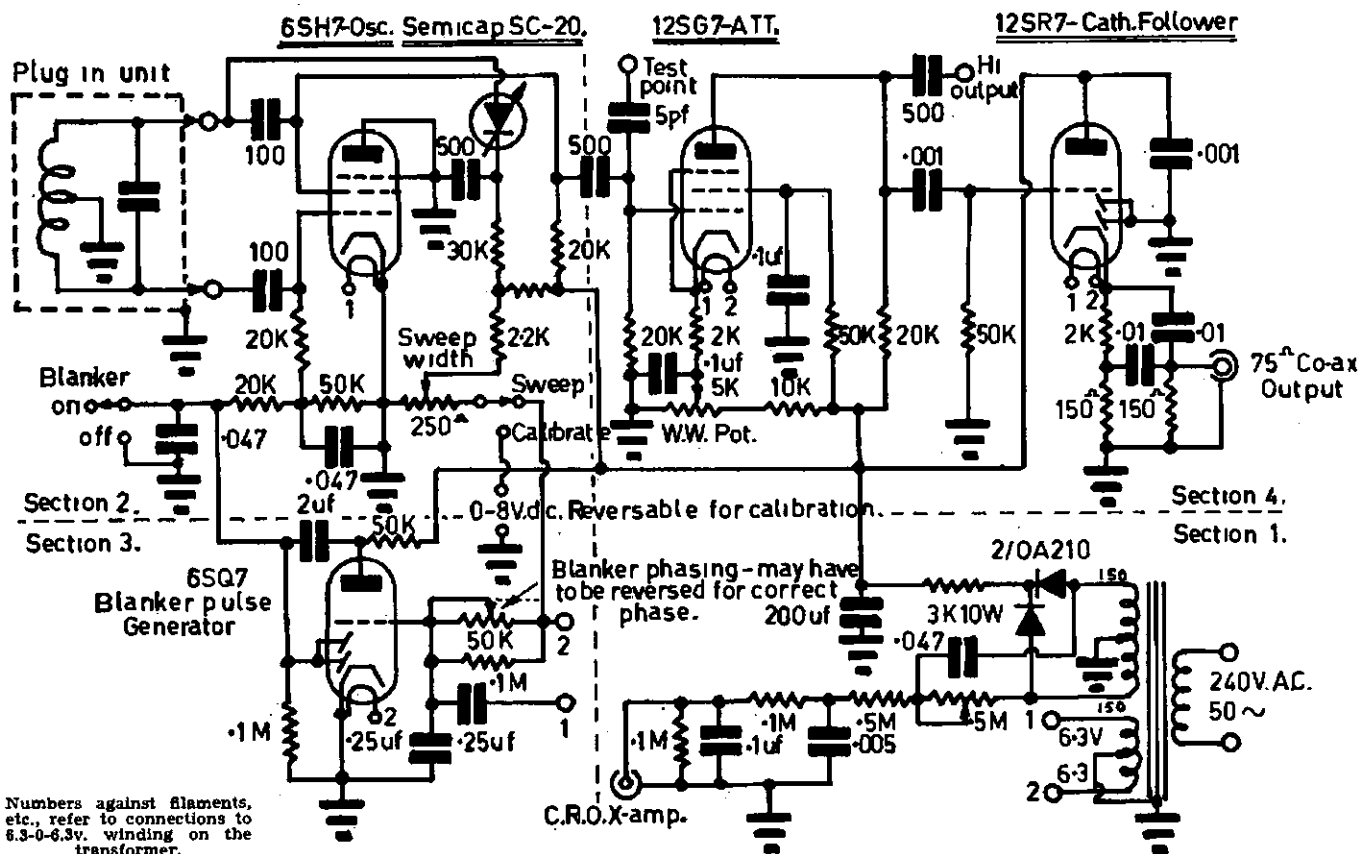
A second phase shift network will be seen in the grid circuit of the 6SQ7 blanking pulse generator. This control once set needs no further adjustment and can be mounted in any convenient position.

All valves used in the r.f. section are of the metal variety—because they were on hand and do not need screening.

THE COIL

The coil is made plug-in and has its own shield can. It consists of two bobbins from an old 455 Kc. i.f. tranny pushed close together, the junction between the two bobbins being a convenient centre tap and is earthed.

N.B.—The centre tap on the coil is not necessary for the operation of the



Numbers against filaments, etc., refer to connections to 6.3-0-6.3v. winding on the transformer.

oscillator. Its function is to complete the circuit for the semi cap bias and modulating voltage.

The coil is tuned by a 50 pF. mica condenser which brings the frequency down too low, so a brass slug is used to reduce inductance and hit the required 455 Kc.

The use of plug-in coils makes other frequencies easily available if required.

CIRCUIT

The power supply and phase shifting network for the c.r.o. X amp. drive is perfectly straight forward and should need no explanation.

The oscillator should need no explaining except for the queer hook-up of the tube. This was done to reduce anode current.

The heart of the device, the semi cap modulator, is a modified form of silicon diode and when a voltage is applied changes take place within the barrier which vary the effective capacity of the device. There are some catches, however. The applied voltage must always be in the back direction, otherwise current will flow. Therefore it becomes necessary to superimpose the a.c. modulating voltage on to a d.c. bias of such magnitude that the cathode end of the semi cap never goes negative. In this case the author used 9v. d.c. and a maximum of 6.3v. a.c. This gives a range of approx. 18.5v. which is adequate for the purpose. 9v. \pm 6.3v. r.m.s.

The method used of adding the a.c. to the bottom of the bias supply causes a small shift of centre frequency with change of range, but, since the range is usually set and left, this does not matter.

In the blanking pulse generator, a.c. is applied to the grid of the 6SQ7 and during the positive half-cycle the tube saturates, whilst during the negative half-cycle it cuts off. This produces a step change in the anode voltage which is passed on to the diode section where it is squared up. This negative going pulse is not quite half a cycle in duration and because of this, the sweep pattern has a slight curl at each end. This is of very slight consequence and can be disregarded.

The electronic attenuator and cathode follower should not require any explanation, apart from the fact that R.C. coupling is used throughout.

The reason for this is that to be of any use a sweep generator must not only produce a change of frequency which is linear with time, the output level must remain constant through the entire swept range.

Therefore tuned circuits and even r.f. chokes, anything in fact that can possess a response curve of its own, must be left out of the amplifying and

attenuating circuits. Valve anode loads are kept low to ensure linearity.

So much for the description of the circuit and the reasons why these things are so. Nothing now remains but to add a few notes for the constructor.

Choice of valves. For the oscillator and following stages, any tubes that have a remote relationship with the ones used in the original version should work except that the r.f. pentode used as attenuator should not be of the remote cut-off type. The bias required to reduce the output to zero will be excessive.

The best layout for the oscillator, attenuator, etc., section is a straight line, starting with the coil at the rear of the chassis and progressing forward through the stages, or, alternatively, the same line-up across the chassis. Any line-up which puts the output circuit near the oscillator should be avoided as this will lead inevitably to a leakage of r.f. from oscillator to output and will spoil the operation of the attenuator.

For the blanking pulse generator the choice of valves is strictly limited, the 6SQ7 or 6AV6 being the best choice here. Tubes with lower Mu are unsatisfactory unless the grid drive is raised to very high levels.

Silicon diodes were chosen for h.t. rectification because the power transformer was very small and the saving of a few watts of filament power was important. If you use a larger transformer there is no reason why a thermionic rectifier should not be used. Similarly, the 200 μ F. filter condenser was used only because it happened to be available. A normal type filter using a choke and a pair of 8 μ F. electrolytics would serve equally well.

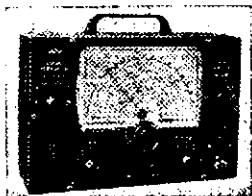
The use of the 3,000 ohm resistor as a filter element reduces the on-load h.t. voltage to 80, but this is quite sufficient for the purpose. In fact upon testing the effect of raising the volts to 200, resulted in no noticeable effect on performance. True there was more output but this only meant that the attenuator had to be backed off to get the pattern back on to the c.r.o. screen.

One further note to add here is that marking techniques, as used for t.v. alignment, are unsatisfactory at this low frequency and possibly the most satisfactory method is to calibrate the sweep by applying a reversible d.c. voltage to the sweep width pot. and calibrating the sweep range up and down, remembering to convert from r.m.s. to peak values when converting the calibration back to a.c. Remember also that a separate calibration will be required for each coil if you decide to make coils for other frequencies.

For those who use i.f. frequencies lower than 455 Kc. you will find that a single semi cap will not produce the required range of sweep, even two in parallel may not be enough. The best solution to this problem would be to add a v.f.o. and mixer and heterodyne the sweep to the desired frequency.

It is felt that the foregoing has got a bit long winded for one issue of "A.R." so will QRT now. If there is sufficient interest another article will be prepared on use of the sweeper. ●

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The Overtone-Harmonic Crystal Oscillator*

FRANK C. JONES, W6AJF

THE odd name of this crystal oscillator is an attempt to classify its unusual operation. Nearly all oscillators either work towards a harmonic output of the fundamental frequency of the crystal, or at an overtone frequency of this fundamental. This new oscillator does both; it oscillates at the third overtone of the crystal, then multiplies to the second or third harmonic of this overtone frequency. One triode tube or one transistor does the usual work of two in the design of crystal controlled v.h.f. or u.h.f. converters for receivers.

The circuit shown, Fig. 1A, is about as simple as can be designed, considering the functions involved. The circuit oscillates at the overtone frequency, 43,333 Mc. for example, in the cathode of the 6AK5. The values of L1 and C1 are not critical but should resonate at from 20 to 30 Mc. when using third overtone crystals of 35 to 48 Mc. L1 varied from 1 to 10 microhenrys in the test circuits with a small variable condenser of 5 to 30 pF. for C1. It was found that values near 1 microhenry were too small for some tubes and crystals. A 4 microhenry radio frequency choke coil seemed to work effectively with all overtone crystals in the range tested (from 20 to 48 Mc.). Th lower frequency crystals required a little increase in C1 value for maxi-

● The old fashioned "oscillator string" in v.h.f. converters may be a thing of the past thanks to this new oscillator circuit. An ordinary overtone crystal may be used to provide outputs in the 100-150 Mc. region with only one tube or transistor. An excellent 2-metre converter is described using the new circuit.

tuned to the output frequency, lightly coupled together with about $\frac{1}{2}$ pF. coupling capacity. The second tuned circuit would then be coupled to the mixer. The added selectivity at 130 Mc. would add 20 db. or more of attenuation to the undesired second and fourth harmonics, 86,666 Mc. and 173,333 Mc. A single high Q circuit at 130 Mc. will do a fair job, but two circuits make the problem easier to solve.

Many different tubes were tested in this circuit. The two types that produced the greatest output voltage at 130 Mc. were a 6AK5 triode-connected and a 6CW4 nuvistor triode. An arbitrary value of $\frac{1}{2}$ watt input was chosen, in comparing tubes. A variable B+ supply and 0 to 5 mA. plate current meter were employed. In general, the triodes with highest Gm at low values

The transistorised circuit of Fig. 1C functions in the same manner with very good third harmonic output at 130 Mc. when using third overtone 43,333 Mc. crystals. A diode r.f. voltmeter connected across the collector circuit, L2-C2 indicated output voltages of from 1 to 5 volts peak when using an 8.4 volt battery supply. This was less than half as much as obtained from a 6AK5 but the input power was considerably less than one half as much. This indicates better system efficiency for transistors, even neglecting tube heater power loss.

Several types of Philco transistors were tested in the circuit of Fig. 1C. The surplus type marked T2040, supposedly a 250 Mc. cut-off type, gave about twice as much 130 Mc. output as other types tested. No complete measurements were made as to exact input and output power. The 2N1745 transistor worked as well as the 2N1742 and 2N1744 so at the price differential, the 2N1745 had preference. A 50 Mc. cut-off type 2N1728 would produce some output at 130 Mc. but only about one-third as much as a 2N1745. Since the circuit was set up for 130 Mc. output, transistors designed for v.h.f. or u.h.f. are necessary.

In Fig. 1C, the connection between L1 (4 microhenrys) and R1 should be bypassed as shown. If no bypass is used, R1 will offer enough impedance at the fundamental frequency of the crystal (approximately 14.5 Mc. for 43,333 Mc. overtone crystals) so oscillation will take place at about 14.5 Mc. The 130 Mc. output would then be greatly reduced. A radio receiver was used to check on 14.5 Mc. and 43,333 Mc. oscillation. The latter frequency is necessary since the transistor or tube only has to multiply by three. Asking it to multiply by nine is too much!

The output circuits shown do not indicate any method of coupling to another circuit or to a mixer. The usual forms of inductive or capacitive coupling are suitable.

Overtone crystals are low-power type devices, so are suited for use in receiver converters where the r.f. power requirements are usually less than a milliwatt or two. When this circuit is used in a transmitter it should be followed by a high gain amplifier since an attempt to get a good fraction of a watt from this system will lead to crystal overheating and poor frequency stability. As long as the required output is in the low milliwatt region, excellent frequency stability can be obtained for either receiver or transmitter circuits.

PROTOTYPE TWO-METRE CONVERTER

The 144 Mc. converter shown in Fig. 2 was built and used for a few weeks. It had good gain and low noise characteristics but was difficult to adjust properly. Because of the loss in the diode mixer, gain has to be added in

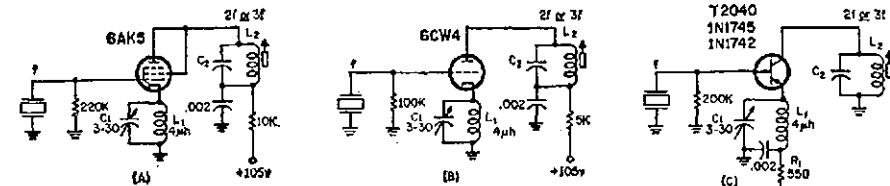


Fig. 1.—The Overtone-Harmonic Crystal Oscillator using a standard tube (A), a nuvistor (B), and a transistor (C). Third overtone crystals in the 35-48 Mc. range require L1 and C1 to resonate between 20 and 30 Mc. Output tank L2-C2 should resonate at desired 2f or 3f freq.

mum output at the second or third harmonic of 40 to 96 Mc. and 80 to 144 Mc., respectively. The values of C2 and L2 should resonate at the desired output frequency with either C2 or L2 being variable in order to take up the tube capacity and the detuning effect of C1.

In the writer's tests the main work has been done with 43,333 Mc. third harmonic crystals producing 130 Mc. output for coupling to a mixer. This provides the usual 14 to 18 Mc. i.f. output for the 144 to 148 Mc. Amateur band. Since the tube or transistor does produce harmonics, the Q of L2-C2 should be as high as practical design will allow. Otherwise undesired harmonics will reach the mixer circuit and produce spurious signal responses from strong signals well outside of the desired Amateur band.

Good design would seem to indicate the use of two medium Q circuits

of plate current functioned best in this circuit. The 6AK5 and the 6CW4 produced from two to three times as much output at 130 Mc. as could be obtained from over a dozen triodes tried. Tubes such as 6BH6 and 6AU6 functioned fairly well when operated as screen grid tubes with the screen tied to the plate coil by-pass condenser. On the other hand, 6AK5s gave more output as triodes than as screen grid tubes in the tests to date.

This circuit requires good active overtone crystals for best results. Ten fundamental frequency crystals at about 11 Mc. were available for test. About one third of these would oscillate at the third overtone and produce a small output near 130 Mc., the fourth harmonic of the overtone frequency. The cathode feedback system is not a very efficient means of making a crystal oscillate at third overtone, so regular overtone crystals are necessary and tubes such as the 6AK5 or 6CW4 are preferable.

* Reprinted from "CQ," February, 1963.

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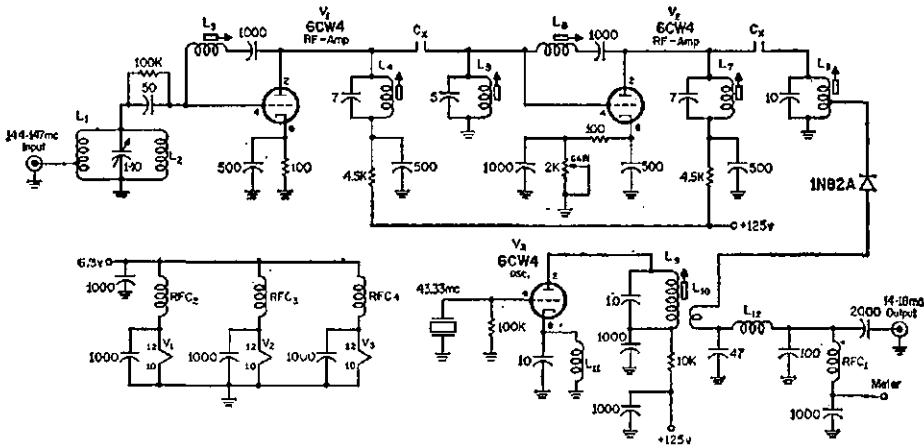


Fig. 2.—An experimental two-metre converter employing the overtone-harmonic crystal oscillator to produce 130 Mc. local oscillator output from a 43.333 Mc. overtone crystal. This circuit, although usable is not the ideal since the inductive method of neutralisation used is quite critical. A more practical circuit is shown in Fig. 3.

- Cx—"Gimmick" capacitors. See text.
- L1, L2—6 turns 18 gauge enamel, 5/16 in. diam., 1/2 in. long. Tap L1 2 turns from ground.
- L3, L6—Neutralising coils. 18 turns 20 gauge enamel, 3/16 in. diam., 3/8 in. long on ferrite slug coil form.
- L4, L5, L7, L8—4 turns 18 or 20 d.c.c., 1/4 in. diam., 1/2 in. long on ferrite slug coil form. Centre tap L8 only.

- L9—7 turns 22 gauge enamel, 1/4 in. diam., 1/4 in. long on ferrite slug coil form.
- L10—1 turn link of hook-up wire on L9.
- L11—4 μH. r.f. choke.
- L12—3 μH. r.f. choke.
- RFC1—0.5 mH. r.f. choke.
- RFC2, RFC3, RFC4—10 turns hook-up wire closewound, 1/16 in. diam.

some other part of the converter when it is to be used with moderate gain communication receivers. One r.f. stage and one i.f. stage in a converter unit would be much less regenerative than one with two r.f. stages, but would have less image rejection. From four to six tuned circuits in the 144 Mc. band are needed to reduce image signals to a low value when using the 14 to 18 Mc. i.f. tuning range in the main receiver.

The two stage converter shown here has five tuned circuits with an operating Q of 15 or less. The input circuit for the best noise figure should be operated at low Q and tuned to the low side of the band or even below the band, so its image rejection effect is nearly lost. This doesn't mean that the tuned circuit without antenna and grid loading shouldn't be high Q. Heavy wire in the coil also more effectively grounds very strong input signals directly in the i.f. range of 14 to 18 Mc. A high Q here and in the other circuits, compared to the loaded Q, means less loss of the desired weak two-metre signal.

This converter has two nuvistor r.f. stages with inductive neutralisation, a 1N28A diode mixer and a single nuvistor crystal oscillator. The inductance neutralisation system is critical in adjustment even in one r.f. stage and becomes a real chore with a two-stage system. The three slug tuned circuits in each stage have to be experimentally adjusted and the degree of coupling into and out of each stage has to be varied in order to cover several megacycles bandwidth. The neutralising coils from grid to plate are always adjusted for minimum signal feed-through from a signal generator and without plate voltage applied to the r.f. stage. The r.f. coils are peaked for maximum signal. These adjustments seem to interlock and since inductance neutralisation of this type is theoretically only perfect at one spot frequency, the problem of getting several mega-

cycles bandwidth is not easy. It took the writer several hours work to get about three megacycles bandwidth with stable operation in the unit shown here. The coupling capacitors between pairs of tuned circuits had to be adjusted also as well as antenna coupling tap and diode mixer tap. Shield partitions between r.f. stages did not seem to be of much use since the coils were spaced well apart and the bypass condensers, etc., in each stage were stacked up in the space between grid and plate circuits. The unit was built on a piece of copper-clad bakelite 2" x 6" in size.

A PRACTICAL CONVERTER

This unit was finally discarded in favour of the unit illustrated in Fig. 3. A change in s.w.r. in the antenna feeder with weather changes or pointing the two metre beam antenna into another nearby antenna or tree seemed

to upset the input r.f. stage on the first unit enough to cause r.f. oscillation. The two stages of r.f. also produced problems when a new high powered two metre transmitter came on the air nearby. The intermodulation effects were bad and the modulation rode in on carrier signals across the whole two metre band.

The converter shown in Fig. 3 has much better stability with some sacrifice in image rejection. The overall gain of the two converters was comparable and the noise figure about the same, however the adjustments in the one r.f. stage unit were easily made and the bandwidth was greater. The gain over the whole two metre band was much more uniform and changes of antenna s.w.r. had no adverse effects on regeneration, only on noise figure. The unit shown here was tried with inductive neutralisation but due to spot frequency effects, neutralisation was not effective over the whole two metre band unless the operating Q of the tuned circuits was reduced to such a low value that image rejection became poor. Capacitive bridge neutralisation of the triode r.f. stage has a nice wide bandwidth and the operating Q could be made high enough so the four tuned circuits produced over 60 db. of image rejection.

The nuvistor mixer has considerable gain as compared to quite a bit of loss in a diode mixer, so one r.f. stage produces enough overall converter gain for most communication receivers tuning the range of 14 to 18 Mc. One r.f. stage with a gain control, especially if a remote cut-off type 6DS4 nuvistor is used in place of a 6CW4 nuvistor, takes care of intermodulation problems from nearby two-metre stations. This gain control, a 2,000 ohm potentiometer, is external to the converter in order to use it if needed when other local stations come on the air.

This converter, on a 2" x 6" copper-clad bakelite strip, was mounted in an inverted 17" x 6" x 3" chassis in back of the communication receiver. Several other similar converters for other Amateur bands were mounted in this chassis along with a small regulated power supply delivering 105 volts up

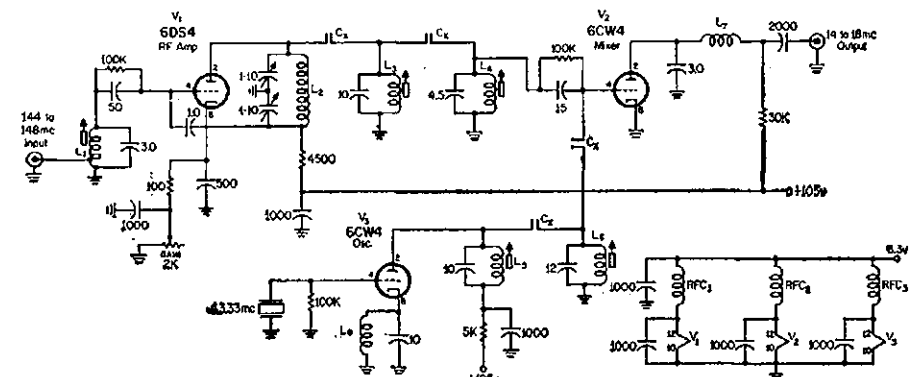


Fig. 3.—A practical 144 Mc. Nuvistor Converter using the overtone-oscillator. With this circuit, a noise figure on a par with a 417A Converter can be expected. All capacitors are in pF. and all resistors are in Ω.

- Cx—"Gimmick" capacitors. See text.
- L1—5 turns 20 d.c.c., 1/4 in. diam., 1/4 in. long on ferrite slug coil form.
- L2—6 turns 18 gauge enamel, 1/4 in. diam., 1/4 in. long, air wound.

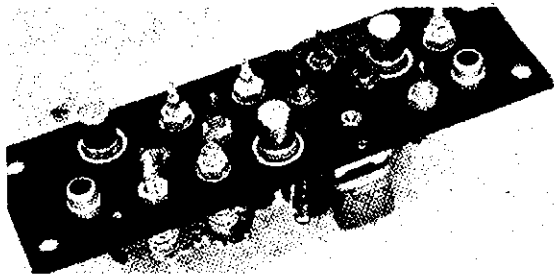
- L3, L4, L5, L6—4 turns 20 gauge d.c.c., 1/4 in. diam., 5/16 in. long on ferrite slug coil forms.
- L7—20 μH. t.v. video peaking coil.
- L8—4 μH. r.f. choke.
- RFC1, RFC2, RFC3—10 turns hook-up wire, close wound, 1/16 in. diam.

to 20 mA. of plate power and 6.3 volts a.c. up to 1 ampere for heater circuits. A two section switch changes heater supplies and i.f. outputs to the receiver. Each converter connects to its own antenna so no switching is required on the inputs.

In testing this converter of Fig. 3 a grid dip oscillator is useful in aligning the tuned circuits to the approximate frequency. The four r.f. circuits were aligned to about 145 or 146 Mc. and the two oscillator coils adjusted to 130 Mc. before connecting the unit to a power supply. The r.f. stage plate tuning condensers were adjusted for about equal capacities in this step. A test signal generator in the two-metre band is used in the remaining tests. The unit is then connected to the power supply with the r.f. gain control dis-

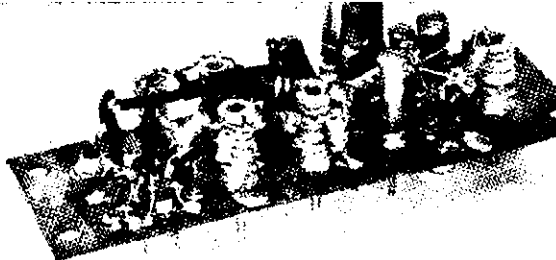
insulated wire one or two twists may be needed.

A larger capacitor of from 0.66 to 1.0 pF. is needed for coupling between the r.f. plate circuit and the next slug tuned circuit since the circuit is approximately centre-tapped by the two tuning condensers and associated shunt capacities. Neutralising is accomplished by adjustment of each plate condenser running one in and the other out by equal amounts so as to maintain correct two-metre resonance. By unbalancing these two capacitors, a fixed 10% ceramic 1 pF. capacitor can be used to neutralise the nuvistor triode grid to plate capacity of about 0.9 or 0.95 pF. If both plate condensers are adjusted simultaneously in opposite directions one can watch the receiver S meter indication for best neutralisa-



Overall view of the 2 metre converter showing parts placement. The three objects placed among the slug tuned coils and capacitors are feedthrough type capacitors used in this case as bypasses. Input is at the right.

Underchassis view of the 144 Mc. nuvistor converter using the Overtone-Harmonic Crystal Oscillator. The input is at the far right with the piston-type r.f. amplifier plate tuning capacitors (can be seen to the left of the 6DS4 socket). The 8CW4 oscillator is at the corner of the copper-laminate board chassis.



connected entirely. A strong signal input will produce a signal in the i.f. output range if the crystal oscillator is functioning.

Fortunately this type of oscillator has a fixed oscillator circuit for the 43.333 Mc. overtone crystal so if the wiring is correct it will oscillate weakly at 43.333 Mc. in the cathode and grid circuits of the nuvistor oscillator tube. The plate circuit and its loosely coupled circuit are then peaked to produce maximum signal in the receiver from the test signal generator. Two tuned circuits of moderate Q were used to make sure that only the third harmonic of 43.333 Mc. (130 Mc.) was coupled into the mixer grid circuit. Too much oscillator injection voltage will usually produce spurious responses somewhere in the 14 to 18 Mc. output range; too little reduces the converter gain and causes some loss in noise figure also. The "gimmick" coupling condensers, short pieces of insulated hook-up wire are twisted together to produce coupling capacities in the range of 0.25 to 1.5 pF. A 0.5 pF. capacitance requires a single twist with small hook-up wire but with small conductor heavily in-

tion. For any one setting on one condenser, the other is adjusted for maximum S meter reading. Then adjust in small steps until the S meter reading is at a minimum. The unit shown was adjusted in this manner. Then when the r.f. gain control lead was connected and the gain control set at zero resistance, a 40 db. increase of signal resulted—about seven points on the meter.

The input circuit and antenna tap are always adjusted for best signal-to-noise ratio or noise figure. This means tuning this circuit not for maximum gain, but for best noise figure. The circuit will be set near 144 Mc. for best noise figure over the 144 to 148 Mc. range. The two slug circuits between the r.f. stage and mixer are adjusted for best average overall gain in the converter over the whole two-metre signal range. A diode noise generator or test signal generator can be used for this purpose while tuning the main receiver over the range between 14 and 18 Mc., corresponding to r.f. signal inputs between 144 and 148 Mc. The grid leak condenser in the r.f. stage is only for tube protection when using a high powered transmitter nearby.

The mixer plate circuit is coupled to the main receiver through a fixed tuned pi circuit consisting of a small 17 to 20 microhenry peaking coil and two capacitors. The ratio of these capacitors should be 5 or 10 to 1 between the low impedance side and the plate or high impedance side. The 3 pF. capacitor plus tube output capacitance, etc., adds up to about 5 or 6 pF. A two or three foot length of RG-59U coax line from the converter to the receiver will form the larger capacitance of the pi circuit. If the lead is shorter than this, a small capacitor can be connected across the output jack to build up the capacity to around 50 pF. If larger capacities are used with a smaller peaking coil to resonate at the middle of the r.f. range, the mixer output will not have as good a bandwidth. The values used in Fig. 3 produce a fairly flat 4 Mc. bandwidth.

The converter has the same noise figure as one with two 5842/417A triodes in a cascode stage and a triode-mixer converter in comparison tests with a diode noise generator. The 5842 tubes were in reasonably good condition in a converter normally used for two metre DX work.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK6RU	2	281	VK3WL	14	211
VK5AB	45	275	VK3ATN	26	204
VK6MK	43	274	VK4HR	12	192
VK3AHO	51	268	VK4RW	23	184
VK4FJ	21	247	VK3GB	50	183
VK6KW	4	231	VK2JZ	61	180

Amendment: VK3TC 48 129
VK2AGH 55 107

New Member: VK3TL 62 100

C.W.

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3KB	10	310	VK2AGH	71	240
VK3CX	26	294	VK3RP	56	229
VK2QL	5	279	VK3FH	15	226
VK4FJ	29	277	VK3BZ	6	222
VK3NC	19	266	VK5RX	23	220
VK6RU	18	240	VK4HR	8	218

Amendment: VK3XB 75 206
VK3RJ 42 200

New Member: VK3KS 74 136
VK3ARX 66 209

OPEN

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
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VK6RU	8	290	VK3HG	3	269
VK4FJ	32	285	VK3JA	43	252
VK6MK	74	276	VK4HR	7	233
VK2AGH	83	273	VK3BZ	4	231
VK3AHO	78	271	VK3WL	45	225

Amendment: VK3TL 85 162

SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

AMPLIFIED A.L.C.

Hallicrafters are making much in the advertisements for their new equipment of amplified automatic load control. Hallicrafters are no more up-to-date than our own Lance VK3AHL, who has done so much pioneering with v.h.f. s.s.b. Lance has been using amplified a.l.c. in his 50 Mc. sideband equipment

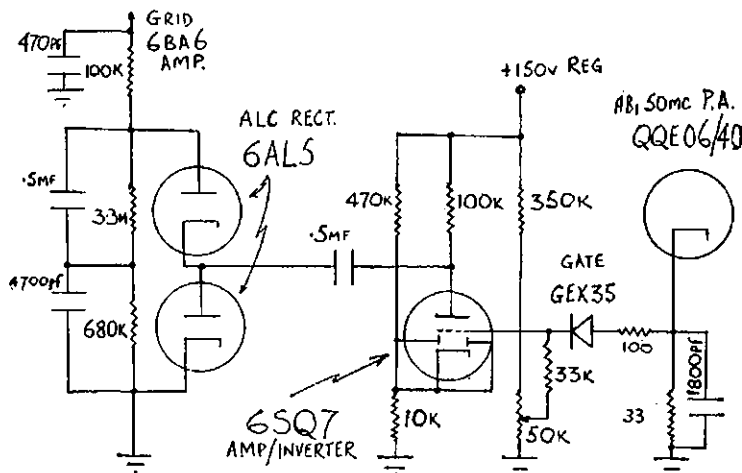


Fig. 1.—Amplified Automatic Load Control.

for some time but has now modified it as shown in Fig. 1. A diode gate has been added to the design.

This is the way in which it works. The diode is biased so that it does not conduct until the cathode voltage of the AB1 linear amplifier rises with grid drive to a point just before grid current flows. As we all know, grid current in Class AB1 operation is most undesirable, leading to severe distortion. Any excursions of cathode voltage beyond this point are passed on to the grid of the 65Q7 tube which amplifies it and inverts the wave form into a negative going one. The 65Q7 tube is biased to near cut-off in order to make maximum use of the characteristic curve (similar to class AB1) as only positive going wave forms are applied to the grid. This negative wave form is then applied to the 6ALS a.l.c. rectifier tube and the dual time constant network providing an a.l.c. voltage to the grid of a 6BA6 amplifier. In the VK3AHL transmitter, this amplifier is used to amplify the intermediate frequency s.s.b. signal at 6.34 Mc.

Different ways of setting the delay bias can be used. One method is to feed tone or carrier to the final amplifier, increasing the drive until the point of grid current is reached, then noting the final cathode voltage just below this point. Switch the final off, and with a high resistance voltmeter or v.t.v.m., set the delay control (50K potentiometer) to the same voltage as noted for the final cathode. The voltage between the diode gate cathode and ground is the delay voltage and these are the points of measurement.

Another method is to connect a high resistance voltmeter or v.t.v.m. between the 65Q7 cathode and ground. With the potentiometer wiper to the ground end increase the drive to the final as before to just below grid current. Take note of this voltage and advance the delay control until the point of increase in the voltmeter reading is reached. This is when the cathode of the delay diode

becomes positive with respect to its anode. Beyond this point, the grid voltage of the 65Q7 is free to rise and so the cathode voltage follows.

Automatic load control is a must in every sideband transmitter. There are simple ways of installing it and others are a little more complicated, but it pays you back many times. Makes your signal more readable even when you get excited calling that rare one! Do you use a.l.c.?

A BUG SQUASHER

Here is a bug squasher that was found quite by accident. George VK-7XL had put a noise limiter into his receiver and found that it did not perform very well on sideband. It did reduce the noise, but in reducing it to the same level as the signal it introduced quite an amount of distortion. George left the limiter in the receiver

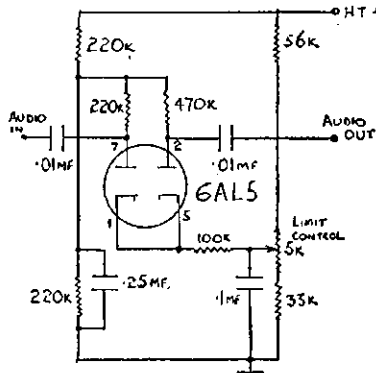


Fig. 2.—Anti-Anti-Vox Noise Limiter.

for some time and in the meanwhile got v.o.x. operating complete with anti-trip.

He then decided to remove the noise limiter and found that the v.o.x. now would not operate in a satisfactory manner. It developed a chatter.

This is explained by a sharp transient as the v.o.x. disabled the receiver passing through the receiver and operating the anti-trip circuit. This immediately causes the v.o.x. to drop out, the cycle is then repeated and the result—chattering v.o.x.! Replacing the limiter cured the trouble.

You may recognise these symptoms and if you do, you will be interested in the limiter which appears in the R.S.G.B Handbook, third edition, page 97, figure 47. On the diagram in the Handbook, the numbered designations on the 6AL5 tube are wrong, "2" and "5" being transposed. For those who have not yet obtained a copy of this valuable book, Fig. 2 shows the corrected circuit.

A LAST REMINDER

Did you participate in the "CQ" World Wide S.s.b. Contest? Have you sent your log in yet? After spending all that time getting those points, and it was hard work that week-end with such poor conditions, it would be a pity not to submit your log. The logs must be in the hands of the "CQ" Sideband Editors, 12 Elm Street, Lynbrook, New York, U.S.A., not later than June 15, 1963. Airmail it now, this is positively your last chance.

★

R.C.A. have announced experimental transistors capable of 1 kw. input. No size is announced, but it must be a very heavy duty battery! The same Company are producing transistors with an input rating of 18 watts at 50 Mc.

Diamonds may have an electronic future, as recent information relates that a special type of diamond can be used to detect changes of 0.002 degrees Centigrade. Wonder will the price decrease as production increases?

S.S.B. CRYSTALS

Set of Five Gold-Plated Matched Crystals

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Suitable for 455 Kc. I.F.'s.

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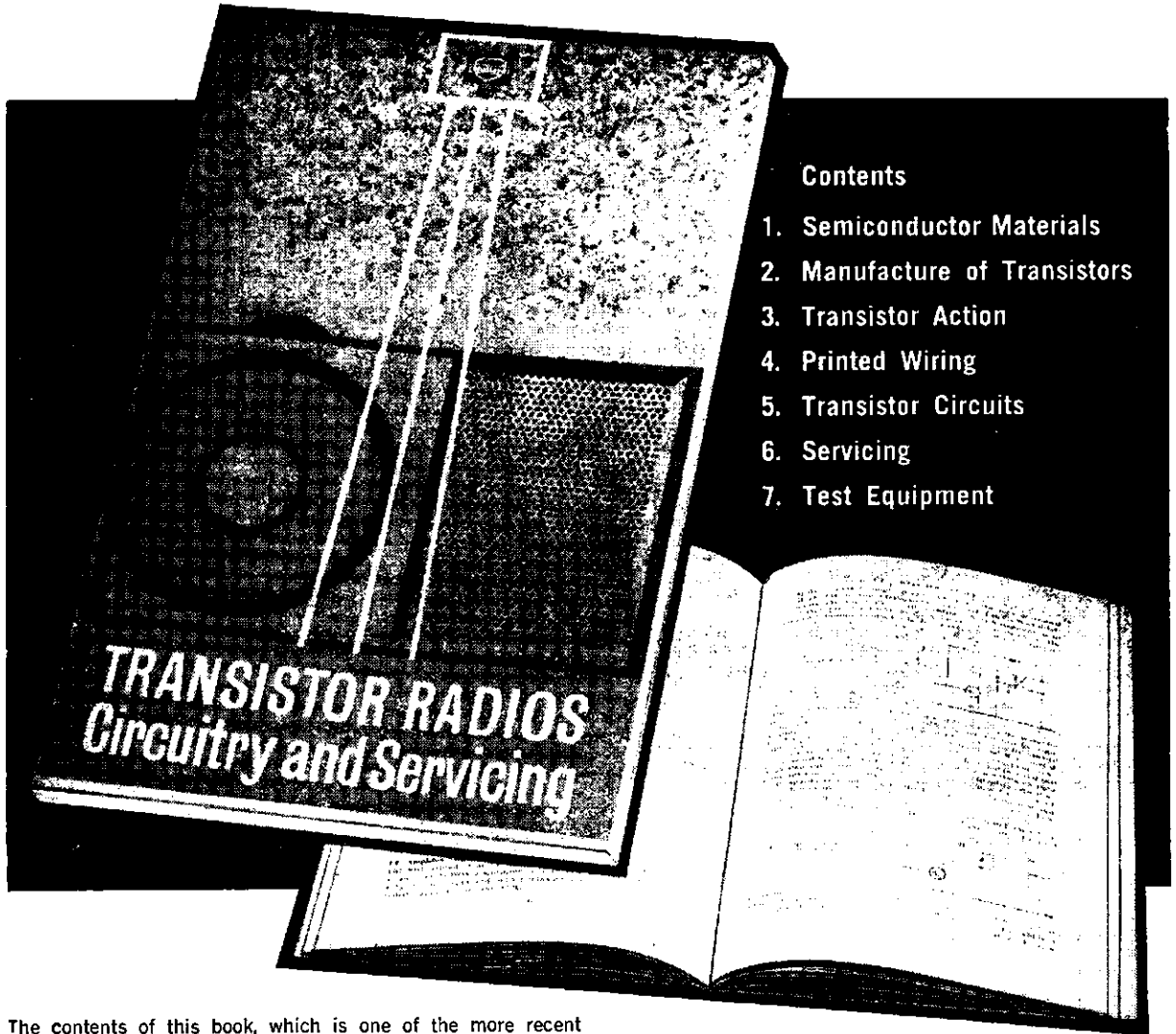
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TRANSISTOR RADIOS

Circuitry and Servicing



Contents

1. Semiconductor Materials
2. Manufacture of Transistors
3. Transistor Action
4. Printed Wiring
5. Transistor Circuits
6. Servicing
7. Test Equipment

The contents of this book, which is one of the more recent Mullard publications, includes a simple explanation of the function of the transistor, the complex processes involved in transistor production, care and methods of repairing printed wiring boards, detailed descriptions of circuits likely to be encountered in transistor radios and the test equipment required.

Practical considerations are emphasised throughout the book, which is priced at 5/3, plus 8d. postage, and is available from most booksellers and from Mullard Offices and Distributors throughout the Commonwealth.



Mullard-Australia Pty. Ltd., Box 2116, G.P.O., Sydney

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M118

ROSS HULL MEMORIAL V.H.F. CONTEST 1962-63 RESULTS

The Federal Contest Committee takes pleasure in presenting herewith the results of the 1962-63 Ross Hull Memorial V.h.f. Contest. Many comments have been received regarding the Contest rules and the scoring system and the Contest Committee hereby acknowledges those who so contributed. It is the intention of the Contest Committee to sum up all comments submitted by contestants and if warranted submit a recommendation to Federal Executive. At the same time, contestants must realise that it would be impossible to compile a set of rules that would be one hundred per cent. acceptable to everyone, and so a compromise has to be made somewhere along the line.

Honours for this year go to VK4ZAX whose mammoth score of 8,797 points was indeed a really fine individual effort. Our congratulations also to the other award winners, and in conclusion we wish to thank all those contestants who submitted logs.

—Federal Contest Committee, W.I.A.

TROPHY WINNER

VK4ZAX—D. R. Horgan 8797 pts.

AWARD WINNERS

Section A—Transmitting, Open

VK3AAU—D. D. Tanner 381 pts.
 VK4BZ—D. B. Hughes 2824 "
 VK5TN—B. G. Tideman 1867 "
 VK6VV—B. J. Clarke 3150 "
 ZL3RK—T. J. McKenzie 1500 "

Section B—Transmitting, Phone

VK1VP—E. Penikis 1098 pts.
 VK2ZCF—R. C. F. Norman 4393 "
 VK3NJ—K. H. Meallin 1277 "
 VK4ZAX—D. R. Horgan 8797 "
 VK5ZDR—M. J. McMahon 5102 "
 VK6ZAA—W. J. Howse 1624 "
 VK7ZAQ—W. J. Emmett 1955 "
 VK9AU—R. A. J. Taylor 502 "
 ZL1AKY—G. S. Reed 1010 "
 JA1CYV—H. Yamada 20 "

Section C—Receiving

WIA-L2242—D. J. Patterson 3104 pts.
 WIA-L3076—R. H. Young 1109 "
 WIA-L4028—T. A. Lane 2248 "
 VK5—Miss J. Martin 12 "

INDIVIDUAL SCORES

Section A

VK3AAU—Ripplebrook 381 pts.
 VK4BZ—Mt. Gravatt 2824 "
 4PU—Woombye 1384 "
 VK5TN—Kings Park 1867 "
 VK6VV—Geraldton 3150 "
 6WG—Albany 2114 "
 6BE—Kalamunda 1735 "
 ZL3RK—Christchurch 1500 "

Section B

VK1VP—Canberra 1098 pts.
 VK2ZCF—Croydon 4393 "
 2ZLP—Armidale 2279 "
 2ZFB—St. Marys 2009 "
 2HE—Turramurra 1126 "
 2ZFS—Goonellabah 948 "
 2ZDA—Miranda 692 "
 2ZPJ—Wahroonga 563 "
 2ASI—Inverell 412 "

2ZBP—Illabo 400 "
 2BQ—Warrawee 344 "
 2RX—Bexley North 341 "
 2ABR—Milperra 163 "
 2ZPB—Ashfield 74 "
 VK3NJ—Essendon 1277 "
 3ZGP—Fawkner 831 "
 3QV—East Malvern 804 "
 3ZNB—Anderson 677 "
 3ABP—Altona 436 "
 3ZLP—Wallington 333 "
 3FN—West Preston 129 "
 3ZNR—Boronia 122 "
 3ZGL—Keon Park 95 "
 3AIG— 85 "
 3ZIA—Check Log
 3ZGF—Check Log
 VK4ZAX—Yerrongpilly 8797 "
 4ZWB—Pirrinuan 3264 "
 4ZAZ—Rockhampton 2810 "
 4ZCH—Ipswich 1341 "
 4ZCS—Indooroopilly 1171 "
 4ZWL—Cairns 120 "
 VK5ZDR—Henley Beach 5102 "
 5ZBR—Gawler East 3486 "
 5ZHL—Gawler Rail 2427 "
 5ZEZ—Goodwood 1304 "
 5WV—Elizabeth North 834 "
 5ZCD—Mundalla 474 "
 5AX—Gawler 380 "
 5ZBC—Mile End 344 "
 5GG—Check Log
 5LZ—Check Log

5NW—Check Log
 5TM—Check Log
 5CL—No mileage shown, disqual.
 5ZSG—No mileage shown, disqual.
 VK6ZAA—Mt. Pleasant 1624 pts.
 6ZDS—South Perth 1395 "
 6MM—Nedlands 841 "
 6ZAL—Bunbury 420 "
 6ZCD—Albany 365 "
 VK7ZAQ—Lenah Valley 1955 "
 7ZAV—New Norfolk 546 "
 7ZAX—Hobart 112 "
 7ZAC—Lenah Valley 110 "
 7MY—Check Log
 VK9AU—Port Moresby 502 "
 ZL1AKY—Papakura 1010 "
 JA1CYV—Tokyo 20 "

Section C

WIA-L2242—D. J. Patterson, Sydney 3104 pts.
 WIA-L2211—R. C. Abernathy, Sydney 1479 "
 WIA-L3076—R. H. Young, Brighton 1109 "
 WIA-L3065—I. D. Thomas, North Clayton 1032 "
 WIA-L3055—M. R. Cox, West Heidelberg 601 "
 WIA-L4028—T. A. Lane, Brisbane 2248 "
 VK5—Miss J. Martin, Wild Horse Plains 12 "

Book Review

RADIO AMATEUR'S HANDBOOK (A.R.R.L.)

The fortieth edition of this long accepted standard manual of Amateur practice closely follows the layout of previous issues. The new style typeface introduced in the previous issue has been retained. If anything, the photographs are even better in this new issue.

As usual, the constructional articles are the best from "QST". New material is mainly on linear amplifiers. There is additional material on 432 Mc. equipment, which, with the release of this band to Australian Amateurs in the near future, will be of especial interest to those whose main interest is in the v.h.f. regions.

This reviewer has always found much of interest in the catalogue section, and this edition is again most interesting. One noticeable feature is the tendency towards higher prices for some equipment advertised.

The book contains twenty-five chapters and is well indexed, facilitating rapid location of any matter required, from basic theory upwards.

It is impossible to find words to describe this manual that have not been used before. We can only suggest you have a copy on your bookshelf.

Our copies from McGill's, 183 Elizabeth St., Melbourne, and Technical Book Co. Pty. Ltd., 295 Swanston St., Melbourne. Price 5/6 plus 2/6 postage.

VK9LA—COCOS ISLAND

VK9LA is operated on Cocos Island by Lionel Allen, a radio technician employed by Dept. of Civil Aviation, who now has every reason to believe he is operating one of the world's rarest DX stations. He is the only active licensed Amateur on the island (despite what appears to the contrary from time to time). (VK9RC is also on the island, but at the end of April was inactive.)

The equipment in use at VK9LA consists of an HT37 tx (acquired Dec. 1962), Drake 2A rx, TH4 tri-band beam antenna.

Operation is confined to 14 and 21 Mc.—mostly 14 c.w. and phone. VK9LA averages approx. 10 contacts per day and is active most days. Strange to say, Lionel states that he hears very few VK signals and makes the unusual plea for VK stations to listen for him (from 1200 G.M.T.) and give him a call whenever heard. (He would especially like his first QSO with VK1 which he says "would be DX for me".)

VK9LA will be on Cocos until late December 1963, after which he will return to VK6. (The Allen XYL and children are on the island with Lionel—their eldest son is at high school level in his education and studies by correspondence—not so hot says the OM!)

All contacts and s.w.l. reports on his signals are QSL'd 100 per cent. Cards for VK9LA can be sent direct to him at P.O. Box 5, Cocos (Keeling) Islands or via the VK6 (W.I.A.) Bureau.

Amateurs everywhere owe a debt of gratitude to Lionel Allen for his daily efforts to keep Cocos on the Amateur Radio map via VK9LA.

—BERS195/WIA-L3042.

W.I.A. FEDERAL PRESIDENT'S ANNUAL REPORT, 1962-63

It is my privilege to present my report on the activities of the Wireless Institute of Australia in particular, and of the Amateur Service in general, over the last twelve months.

This year has been one of re-organisation rather than any great achievement—the last Convention in Perth in Easter 1962 produced a new line of thinking—that the time is fast approaching when we must have a more realistic Federal Constitution so that the future growth of the Institute may develop along sound and progressive lines. The two drafts presented at the Convention indicated two ways of achieving our objective—there are probably others also—and your Executive has discussed ways and means of handling the problem which has led them to the conclusion that a special committee must be set up to discuss the matter legally and in greater detail. This proposal will no doubt receive your attention later in this Convention. Unfortunately, due to circumstances beyond our control, Councillors did not receive the minutes of the Perth Convention until late in the year, and consequently your Executive has not completed all action required in the time available. I trust that this will not occur in the future and every endeavour will be made to see that action by all parties is completed between Conventions.

Touching on administrative matters, the Secretary continues to deal with large volumes of correspondence in his usual efficient manner, but I cannot help but remark that Federal Councillors may ease his burden by a more careful study of the Constitution and Policy Book. Two-thirds of the time of Executive is taken up with correspondence and queries, a large proportion of which may be matters dealing with laid-down policy. If this administrative burden can be cut down it will leave Executive more time to deal with outstanding directives of the Council and other projects for the furtherance of the Institute as a whole. Your co-operation in this regard would be of great benefit to all concerned.

I am very pleased to announce that the long and constructive work of the Vice-President, Mr. Max Hull, was rewarded earlier in the year by the bestowal of Life Membership by the Victorian Division, an honour justly and well deserved for his long association with the Executive and his terms as the Federal President. His years in this office were trying ones, but handled with that tact and judgment one has come to expect from him. I also thank him for the support he has given me this year and I know perhaps more than anyone just how valuable that has been. I cannot let this opportunity pass without also expressing my thanks to Mr. George Glover, a Past President, who, although not an official member of the Executive, has continued to support the Executive and provide it with his almost infallible memory for past events and his experience also gained from long service in Institute affairs.

Membership of the Institute has continued to grow although I feel there is room for a great deal of improvement in this field. It is most important that by the time of the next I.T.U. Conference, which may be only a year or two away, the Institute should be representing the bulk of Australian licensees. At the present this is little more than 50 per cent., a figure which can be improved with concerted efforts by Divisions. A comparison of the membership figures given at the last three Conventions, compared with present figures, are of interest:

	1957		1959		1962		1963	
	M.	L.	M.	L.	M.	L.	M.	L.
VK2	785	1158	1057	1240	1243	1377	1283	1427
VK3	728	1089	748	1211	735	1342	766	1392
VK4	155	362	260	410	289	449	395	469
VK5	369	397	444	454	472	520	541	545
VK6	113	217	141	241	197	297	216	317
VK7	151	122	148	130	174	156	174	164
VK9	25	62	34	78				
Tot.	2326	3407	2667	3672	3110	4141	3355	4314

The membership figures above cover all grades of membership and not just licensed members, so that it can readily be seen that we must do something in the way of membership drives if we are to increase our membership. The means of doing this is a policy matter, but one for the Divisions to actively pursue in their own interests. It should be noted that the technician licensees have continued to follow the trend growth indicated at the last Convention and they still out-number the A.O.C.P. holders in current exam. results. We must make every effort to pursue the policy of encouraging them to take a full licence.

I expect that since the inauguration of the High School Radio Club scheme in N.S.W. this year and just starting to make strides in other Divisions, our overall membership will benefit, as well as providing a most useful service to the community at large. Every effort should be made to make this an Australia-wide scheme and those Divisions who have not yet commenced activities in this sphere should start as soon as possible. I have not yet heard any results of our appeal in "Amateur Radio" for donations to the Divisions of gear for these Clubs, but hope that every Amateur will respond, so that those actively running the Clubs will have your support in a practical way.

The Executive have had two major meetings with the P.M.G.'s. Department this year—the first to discuss and modernise the regulations for Amateur Stations and the other to discuss matters arising from the last Convention. In relation to the first meeting, the results are already evidenced in that the new addition of the Handbook is on the Booksellers' shelves. In most respects, any alterations suggested by the Executive were accepted and included, and I consider the present edition is a big improvement over the earlier one. There are still a few contentious points which are still to be tackled, but these will be progressively corrected as necessary. Regarding the second major meeting, it is too early to say whether our propositions will be accepted, but you may rest assured that every effort has been made to put our case in the strongest possible terms.

During the year we have maintained liaison with the A.R.R.L., the N.Z.A.R.T. and the R.S.G.B. We have negotiated a sale of Handbooks with the R.S.G.B. and Divisions will most likely have been asked by now for their requirements. They will be available at a cheaper rate than possible through the usual booksellers, and will enable a small profit to go into Federal funds. Through overseas visits of some of our Council we have been able to keep contact with the J.A.R.L., the M.A.R.T.S. and the R.S.G.B. I am sure our ambassadors in each case have been able to at least keep these Societies informed of some of our activities. All members of the Institute will be interested to hear that the R.S.F. of the U.S.S.R. has been accepted as a member society of the I.A.R.U. This membership may well result in a better understanding of affairs behind the Iron Curtain in Amateur doings, and be the means of lifting some of the bans that still exist.

The production of "Amateur Radio" and the "Call Book" has continued under the capable leadership of the Editor, Mr. Kel Cocking, and the standard of both has been maintained despite the continued upward spiral of costs. The "Call Book" was a little later than usual this year but this was due to a complete census by the P.M.G. of all licensees, resulting in more correct listing of all Amateurs in Australia and its Territories. There will always be some mistakes but a note to the Editor can correct any errors if the individual concerned will put pen to paper. The Publications Committee are to be congratulated for carrying on a very onerous task in such an efficient and expert manner. The Editor and some of his Committee have attended some Executive meetings during the year and this has resulted in a better understanding of each others problems. I am sure that the Victorian Councillor will have a more detailed report to make during the Convention, especially in

relation to the financial state of both publications.

The Federal station of the Institute, VK3WIA, has received some attention during the year and has been installed in such a way that official broadcasts may soon be possible. I must thank Mr. Harry Kinnear, a Past Vice-President, who generously donated a Hallicrafters receiver for Federal use. Plans are now being made for an operating schedule for VK3WIA so that Divisions and individual members may keep themselves informed on matters of Federal nature.

During the year, Mr. Tom Straughair, who has been responsible for all work connected with the production of new certificates for various purposes, was appointed as the Contest Co-ordinator. His task has been to ensure that all certificates owing and outstanding to local and overseas Amateurs from W.I.A. Contests have been issued, and I am happy to report that the task is completed. He will retain this job and I am sure there will not be any complaints in the future about competitors in Contests not receiving their certificates in a short time after publication of the results.

Apropos the subject of Contests, the N.Z. A.R.T., because of the time factor, extended this year's VK/ZL Contest to include all Oceania. This matter was discussed at the last Convention, but a decision had not been reached by Council so that the N.Z.A.R.T. did not advise us until after the rules had been published. I have not yet heard whether the change of rules was a success or not. The conduct of Contest affairs has this year been taken over by the Queensland Division for a period of three years, and I am sure they will very soon give the service their predecessors have in the past.

The issue of awards by Mr. Kissick have been dealt with in his usual prompt way and judging by the number signed this year, there has been no falling off in applicants. The QSL Officer, Mr. Ray Jones, has carried out his job with expedition and economy. His task has been made a bit easier by arranging a special QSL post office box nearer his home—this has also meant a bit more room in Box 2611W!

During the year, the Institute was invited by the P.M.G. to nominate a representative to sit on the Space Communications Committee set up to examine problems associated therewith in relation to other users of the frequency bands. Mr. Arthur Tinkler represented the W.I.A. on this Committee, and several meetings have been held to discuss the various problems. This is a preparatory committee to make recommendations on behalf of Australia at an International meeting to be held in Geneva later this year. It is probable that further meetings will be held prior to the official representative from Australia departing overseas, and it is this committee which will determine his brief. I have every confidence in Mr. Tinkler's ability to properly represent the Institute's interests which he has amply demonstrated in the past on the R.F.A.R.C.

Arising out of the last Convention, it was decided that a sub-committee consisting of a member of Executive and the VK2 and VK3 Federal Councillors should visit the Canberra Radio Society to discuss the formation of a Division. Advice was received from the Society that they did not wish to pursue this idea at the present time, so it was not

(Continued next page)

WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE Balance Sheet as at 28th February, 1963

Current Liabilities—		
Accounts payable	£33 11 1	
Convention Fund	4 19 4	
Trust Fund	205 0 8	
I.T.U. Fund	434 10 8	
	£678 1 9	
Accumulated Funds—		
Balance, 1/3/62	£870 18 1	
Less excess of Expenditure over Income for year	9 3	
	870 8 10	
	£1548 10 7	

Current Assets—		
Cash on hand	£21 0 0	
Commonwealth Savings		
Bank	1057 17 11	
Accounts receivable	4 0 0	
Stock on hand	211 15 10	
	£1294 13 9	
Fixed Assets (at cost, less depreciation)—		
Furniture and Fittings	£15 9 10	
Typewriter (No. 1)	12 8 0	
Typewriter (No. 2)	19 12 0	
Duplicator	117 9 0	
Trophies	16 18 0	
Equipment, VK3WIA	72 0 0	
	253 16 10	
	£1548 10 7	

YOUTH RADIO CLUBS

W.I.A. PRESIDENT'S REPORT

(Continued from page 14)

What a wonderful story to hand this month from Port Pirie! (N.B. It's just a geographical co-incident it happens to be in VK5.) A letter comes from Bert 5EQ, President of Port Pirie Amateur Radio Club. "Following the re-formation of our club towards the end of 1962, a public meeting was held to estimate the degree of interest in the town in the formation of a Y.R.C. The local newspaper provided publicity in advance and the headmaster of the high school gave the scheme plenty of promotion within the school. The final result was the formation of a Y.R.C. with no restriction (for age) on membership. Prior to the first meeting, on March 8, the headmasters of all the schools were approached and supplied with details of the Y.R.C. scheme. In every case we received the active support of these people. Local press also came to our help with quite an extensive coverage, and as a result we enrolled 59 members at our first meeting (later increased to 82).

"A major difficulty at this stage was the provision of suitable accommodation, since the P.P. Amateur Radio Club itself had no regular meeting place. However, an appeal to the City Council for assistance was successful and we were granted the use of the radio room at the local airport. This airport was formerly a R.A.A.F. station but now carries no radio equipment. This room has been made available to us for £1 per year. Appeals in the local papers and over one of the local radio stations brought some tables and chairs, and a supply of old radios for wrecking.

"At present, meetings are held once a fortnight, since the P.P.A.R.C. only has about a dozen members and due to business and other reasons, not all of these can devote regular time to these classes. Each session is split into sections to hold the interest of younger members. A short lecture on basic theory is followed by a Morse lesson, and then the remainder of the evening is devoted to practical projects."

In addition, Bert sends me a circular issued to parents. This has many sensible points—non-profit operation, free issue of parts but a register kept, privileges for members making progress, small membership fee, regular statement on finances, strict supervision and safety measures, parents invited to visit, etc. This is a fine story with a moral for all similar centres. Heartiest congratulations to the members of P.P.A.R.C., the City Council, the schools, and all concerned! The moral? Amongst others, please note one special one—if you can't manage a Y.R.C. yourself, form a group.

Further good news from VK4 and VK6. VK6PH has accepted the job of Y.R.C. Co-ordinator in W.A. and Stan 4SA has been appointed in Queensland. Congratulations on your fine spirit, fellows, and I hope your Division backs you up as well as appointing

you. Awkward question—if you count 1, 2, 3, 4, 6, 7, what number is missing?

Further news from VK3 is very encouraging—19 Y.R. Clubs registered! Sorry to hear that the VK3 Co-ordinator, Ken 3TL, has not been in good health, but that should cheer you up, Ken. Ken has had a very encouraging letter from the Victorian Education Department. Which State is going to be first to have Summer Schools on Y.R.C. for Science Teachers?

An SOS. Brother Colin at St. Francis' College at Leeton hopes to develop a transmitting type club at his College, which is a boarding school. Any Amateurs in the area who can help are asked to contact Brother Colin.

Further reference to Scouts. Negotiations are in hand with the N.S.W. Branch of the Boy Scouts Association to develop a scheme whereby Scouts who gain W.I.A. Certificates are to be entitled to Scout Proficiency Badges, e.g. Elementary Certificate of the Y.R.C. scheme might be a qualification for Wirelesman's Badge; Intermediate Certificate might entitle a Senior Scout to a Radio Mechanic's Badge. What about pushing this scheme in your State?

Club leaders please note. Doug Williamson, of Bas Hill High School (Sydney) is in charge of Elementary Certificate training and testing; Keith 2AKX, of Booragul High School, Boolaroo, N.S.W., looks after Junior Certificate; and Ralph 2ZRS, of Homebush High School, Sydney, is the man for Intermediate.

Another SOS to Broken Hill: Frank 2ACQ visited Broken Hill and contacted local Scout authorities. Mr. Ben Hall, of local station 2NB, has agreed to assist in formation of a Scout Radio Club. Can Amateurs and Associates in Broken Hill do the right thing with help, instruction, and administration? Is Port Pirie to tan the hide off Broken Hill?

Random jottings (mostly VK2 again, but I'm hoping for a better spread soon): First Auburn Senior Scout Radio Club should be on the air before long. Jim 2AMQ is instructor and has donated a s.w. rx. Rex 2YA has made available a tx to this, his old troop—Rex says 1927, if you inquisitive types want to know! But more help is still needed from the many Amateurs in Auburn. Mr. Makewell, of Revesby, has donated a quantity of gear including two inter-com. amplifiers which are to become Morse practice oscillators at the hands of Joe 2JR. Can anybody else help with construction (just a little). I'm snowed under, myself, and would appreciate it greatly.

Final note from VKILS at Lyneham High. The s.s.b. phasing tx of George 1GB, of our school club, has been on the air for two contacts. One was with 2 watts of good s.s.b. and the other with a problematical 20 watts. Further alignment proceeds, but George is happy.

Our monthly message again. If you can't manage a Y.R.C. alone, form a group. 73, Ken 1KM.

necessary for the sub-committee to travel to Canberra. However, I took the opportunity during a business visit to meet the members of the Society and discuss any problems with them. It was evident from the discussions which followed that it was not possible at present to form a Division. However, many other matters of interest to the Society were discussed and I was assured after the meeting that my visit was well worth while. I hope, during the next twelve months to be able to meet members of other Divisions and discuss any of their problems in person.

Mr. Dave Rankin has continued to deal with the activities in the v.h.f. bands and since the publication of his article in "Amateur Radio," has received a further influx of applications for v.h.f. records which are now being checked. Openings in the two lowest v.h.f. bands appear to have been more consistent this year and activity is on the increase. Many good contacts have been made with overseas stations and the increase in operation leads one to suppose that these bands will soon become as popular as the higher h.f. DX bands.

Regarding the financial state of the Executive, I refer you to the Balance Sheet for the current year which is attached to this report. The expenses for the operation of the QSL Bureau have doubled due to the increase in postage and the cost of re-printing the Remembrance Day Certificate has resulted in a slight deficit for the year. As there are still several other certificates to be printed in the new year, our deficit for the ensuing year is likely to be much higher unless additional income is forthcoming. I particularly wish to draw your attention to the Treasurer's report, although no doubt this will be referred to during the year, but despite the foregoing, our operations for the year still reveal a healthy state of Federal finances.

This year Executive was composed of some older members plus the advent of two new members, Mr. Alf Seedsman and Mr. Ian Macmillan, both of whom have now settled into the Executive sphere and are assisting in the work and deliberations. I trust they will continue to supplement the knowledge and experience of the older members, as well as injecting new opinions into the discussions. This year the Executive held a total of 13 meetings and the attendances were as follows: Mr. Mitchell 13, M. Hull 13, J. Lancaster 10, D. Rankin 12, A. Tinkler 3, A. Seedsman 8, I. Macmillan 8, G. Glover 13 (co-opted), T. Straughair 7 (co-opted), R. Boase 8 (co-opted).

It is only fair to say that Mr. Tinkler has been away interstate and overseas for a considerable part of the year and has been unable to attend regularly. I wish to thank all Federal Councillors of the past year, some of whom have not been re-elected, for their support and attendance to Federal matters on behalf of their Divisions. I do feel that Divisions would be wise to give urgent consideration to the appointment or re-election of Federal Councillors for a period greater than twelve months. It is very difficult for a new Councillor to pick up his duties and become acquainted with Federal affairs in a short twelve months before a new man is appointed. To all officers not mentioned by name, I express my thanks for a job well done and I hope they will all continue to serve the Institute in the future as sincerely as they have done in the past. This year has not produced anything startling in the way of privileges or concessions, but it has been a year of organisation, of re-building for the future. I trust the foundations laid this year in the various Amateur fields will lead to a constructive year ahead for those now charged with continuing the Amateur administration through the Institute. My own efforts will not be spared to promote the growth of the fine edifice we eventually hope to erect.

—W. T. S. Mitchell, Federal President.

All members of the W.I.A. are reminded that annual subscriptions are now due and should be paid promptly to their Divisional Secretary. Non financial members will not receive a copy of "A.R.," and back copies may not be available upon request. To preserve continuity of your files of "A.R.," please pay your annual subscription now.

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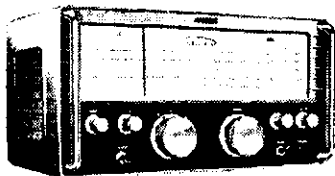
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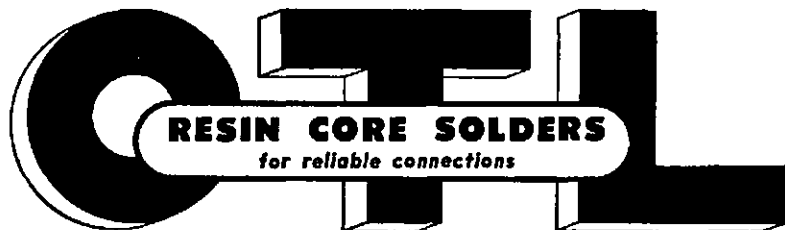
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I hope you will excuse the patchy effort in preparing these notes for the first few months, transitional difficulties will soon be overcome and we will settle down once again. Please keep the notes coming in each month and remember these notes are the only source we have of recording our own v.h.f. efforts. I would appreciate any suggestions or ideas anyone has for improving this page and I would particularly welcome letters from listeners in each State. They can provide a worthwhile contribution to our own efforts.

How many have heard the excellent tape of Ed Tilton, W2HDQ, on v.h.f.? I believe there are several copies around so you might have heard it. If anyone would like a copy drop me a line and I will let you know how you can obtain a copy.

On this subject I feel sure that a similar effort could be made on examples of v.h.f. DX here in VK. There are many tapes of DX amongst us Amateurs so I am appealing to those who have any for their assistance in this project. If you have any recordings of DX on 6, 2 or others and would be prepared to loan same or arrange for copies to be made, I would like to hear from you. Please write in the first instance and let me know what you have and I will let you know what we have in mind. Hope to hear from you soon, 73, 3ZGP.

NEW SOUTH WALES

At the annual meeting of the V.h.f. Group last month, the new committee was elected, comprising a fair sprinkling of old salts, the list running as follows: Bob 20A, Chairman; Dave 2AWZ, Secretary/Treasurer, Horrie 2HL, Vice-Chairman, followed by John 2ZAV, Paul 2ZPJ and Terry 2ZBL. Official duties were delegated on the following Monday night at the first committee meeting held at Bob's home. The meeting concluding with a sumptuous stomach stretching supper served by Bob's YF. Paul and John form the new contest committee, Horrie is country liaison officer, Dave has enough to worry about, Bob is liaison officer to Council, and yours truly is chronicler of notes and technical officer (I think that means I make the cups of tea!).

A long distance fox hunt will be held on 16th June, to be started by Bob 2ASZ, and in July, the all-v.h.f. band scramble, will be held on 13th and 14th of that month. So keep these dates clear.

A series of excellent lectures are on the way, that on 3rd May was a beauty from John 2ZAV on generating an Amateur t.v. signal. This will be followed in the months to come with a series on mobile equipment, how, why, and etc.

Six metre s.s.b. is still being knocked into shape with pretty consistent activity from Keith 2ZVL, Roger 2ZRH and Terry 2ZBL—all running filter rigs and powers up to 200 watts p.e.p. Any operators needing a hand with circuits or tune up QSOs are invited to contact any of the above. Also David 2ZVW is reported to have s.s.b. operating on 28 Mc. using a McCoy filter, all ready to heterodyne to 2 mx. Dick 2ZCF and Bill 2ZAC are running regular two-way skeds on 1296 Mc. and Dick says the big break through came by using a passive reflector on top of the mast at Bill's end and firing the signal up to it, per Long Tom from ground level, cutting out a lot of loss on coax.

The 146 Mc. net is gaining a lot of recruits and the frequency has now been fixed as 146.00 Mc., which brings it into line with VK3 on their second channel, and now that two 50w. output base stations are just about ready to go on the air, one in Sydney and one at the QTH of Lindsay 2ON, at Gosford, we should hear a lot of activity from up there. Incidentally, one of our ardent 2 mx s.s.b. men is off to the States in a couple of weeks and if there are any KVMZs going at the right price, he may bring one back. So best of luck, Alec 2AAK, and your YF. By the way, how is that 432 v.t. rig coming, Sandy? 73, 2ZBL.

SOUTH AUSTRALIA

50 Mc.: One opening only of any note in April. This was on 17th, when VK4s were worked by most of the locals. One of the more interesting facets of this opening was the news that Dave 4ZAX is considering modifying some of his tx parameters. Also of interest was the rumor that during this opening ex-3ZFM worked a JA. However, whilst the Korean f.m. station, HLKA, was heard by 5ZBR and others, no JAs were worked in Adelaide.

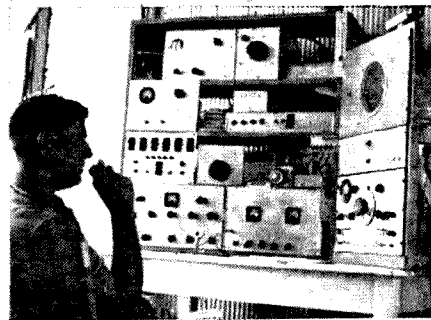
Mobile activity is high in VK5. New chums include Bart 5GZ and Bob 5ZDX, this last mentioned putting out a terrific signal. Doug 8KKV5 has also been mobile recently as has your conductor (35w. to 815).

144 Mc.: This band has been less active recently. David 5AW and Mick 5ZDR seem to be on only infrequently and information from overseas on Oscar 3 seems scant.

An s.s.b. wallah of great note, Shep 5DC, has been heard on 2 mx recently trying out a Gonset Communicator and Rod 5ZAA has his new QQE06/40 tx on 2 mx and this is working quite nicely.

General News: Doug 8KK, our V.h.f. Group President, has returned to Adelaide and will take over the weekly broadcast from Brian 5ZBR, who has been doing it for the past three months.

On 27th a fox hunt was held in Adelaide. Alf 5LA was fox and hounds included 5ZBR, 5ZGF, 5ZDZ and your conductor. The weather was all we could ask, i.e. raining cats and dogs all the evening, and three interesting hunts were had. Alf 5LA had some quite good locations picked out.



Garry Herden, VK5ZK, with his portable station at Goolwa, South Australia. Garry was very active at Xmas time on all bands, including 8 and 2 metres, and runs a power input of at least 100 watts on 6 and 2 metres. His antennae are a 4 element yaegi on 6 mx and a 5 element yaegi on 2 mx. Garry operates regularly from this QTH at various holiday periods and last Xmas made some fine contacts on 2 metres to VK4.

As we will soon lose the 288 Mc. band, there has been quite a little interest shown recently in 420 Mc. Barry 5BQ and Cor 5ZKC have a joint programme in hand, one aspect of which involves the description of a 500 Mc. g.d.o. in "A.R." This article will be awaited with interest.

Alf 5LA has a 6/40 tripler on the way, as does Col 5RO (although he may not realise it yet). Your conductor has built a 16 db. yaegi and has a 417A trough line converter well in hand. It will be fun to see how many of these chaps can contain themselves until January 1964.

Mick 5ZDR has a 2 mx mobile on the way. 5ZEX/T and 5AO/T communicate regularly on 288 Mc. with t.v. signals of high quality and (in one case) intercarrier sound. Roy 3ZOM/5 has been working the locals on 50 Mc. whilst holidaying in our fair State. 73, 3ZCR.

WESTERN AUSTRALIA

This year April has been a month of good mobile weather. Many of the Group has taken advantage of it to get out and go places. Most week-ends at least three or four mobiles were heard from near and far. With Easter, and Anzac Day, being able to be made into four-day week-ends, some of the Group have toured the QTHs of country Amateurs, strengthening, encouraging and kindling interest in v.h.f. activities. David 6DI and Ken 6ZBT went to the South West over Easter and a group led by Doug 6ZDW went north to Carnarvon and the Anzac Day week-end. Les 5LF at Carnar-

van and the Geraldton boys, who are spurred on by Brian 6VV, were the targets the mobilisers had in view.

On the subject of mobiles, the local t.v. channel 7 is well represented by its staff. Kevin 6ZCB, Phil 6ZAW and Bert 6ZBF can be heard regularly working each other and home bound Perth stations, on their way to and from duty at the tx's. Bob 6ZCY is the latest addition to this gang. Cedric 6CD (ex 6ZBC) is the only v.h.f. mobile I know of working at channel 7 studios. Mac 6MM had some of his mobile equipment at the last meeting. He has a very neat combination, tx mod. and power supply built into a unit approx. 13 x 8 x 6 inches. It only needs 12 volts, a mike and an aerial plugged into it. His 50 Mc. converter is fully transistorised and is approx. 5 x 1 x 1 inch in size. Some very nice gear, Mac, and by the close inspection these units received, I think you had better get a couple of padlocks as almost all of us would like that gear in our cars.

The April meeting was well attended and enjoyed by all. Roy 6DRY reported on the fox hunt run by Tony 6ZDT with Doug 6ZDW and Ken 6ZBT on a time basis. Barry 6ZCF and Mac 6ZBK are cooking up the schemes for next month. Lyall Davies gave an informative lecture on radiation and its detection and answered the barrage of questions fired at him by the members.

The local beacons have been shifted to a location where they will have the maximum operating time. Bill 6RX and his XYL (6YL) have permitted them to be installed at their QTH. Trial runs have indicated a good coverage by both 50 and 144 Mc. beacons. In consideration of this service to the Group by Bill and Aline, who although not attached to the Group, but in the interest of Amateur Radio as a whole, it was decided unanimously to elect them honorary members to the V.h.f. Group. A 420 Mc. beacon is being planned in readiness of our allocation for next year. It will be xtal locked and have a QQE03/20 tripler as the final.

With the advent of channel 0 in the East and the shift to 52-54 Mc. eminent, don't forget to get that gear ready for the new frequencies. With winter almost upon us now is the time to get those beams, converters, and tx's peaked up as when the DX comes again it will be too late. 73, Alyn.

PAPUA

50 Mc.: April was a disappointing month in VK9. This was the first April since 1958 in which no JAs were worked, or even heard, from Port Moresby. KH6s, which have also been either worked or heard during April over the last few years, were also absent. Only on one day, 27th, was a weak carrier heard bearing E.N.E. on 50.12 Mc., intermittently, from 2220-2245 hrs. E.A.S.T. This may have been back scatter from VK or possibly coming in on the E.N.E. beam heading. 49.8 Mc. ionospheric scatter stations from the Pacific Islands network were heard on 16 nights during the month at strength ranging up to well over S9.

The main news of the month concerns skeds maintained by 9AU and 9AS Wewak, New Guinea, at 1800 hrs. each night. 9AS (Jim) on 50.24 Mc. was heard on six occasions and contact made on two nights. Maximum signals were S4 and the propagation over the 400-mile path was by ionospheric scatter. Tests are continuing each night at the same time.

Interesting mobile tests were conducted by 9ZBV/M and 9AU with good signals being received up to approx. 20 miles over mountainous paths. 9ZBV/M runs 30w. to a half wave vertical on his VW sedan.

144 Mc.: 9ZBV and 9AU were again active on this band with 9ZBV operating mobile. Tests here have only been made over a path of about six miles, but further tests will be made at a later date. Skeds with 4KT in Townsville have resumed but nothing heard to date. No t.v. signals were received in Port Moresby during the month. 73, 9AU.

Recently one of our members was awarded the N.Z.A.R.T. award for having confirmed all ZL districts on 50 Mc. What we would now like to know, is the VK award on 50 Mc. available to members of the S.w.l. Groups on proof of having confirmations from all VK call areas? So if Federal Executive could inform us we would greatly appreciate it very much. We now have a good percentage of S.w.l.'s who listen on v.h.f. and if the awards are made available to us it will certainly stimulate us in our hobby and at the same time encourage more listeners to our v.h.f. bands.

VICTORIAN S.W.L. CONVENTION

This is an exclusive report on the 1963 Victorian S.w.l. Convention held during April at Ballarat. We were disappointed that no country members turned up at the Convention this year. The first mishap of the Convention was the notorious blue Morris which struggled to Ballarat with a petrol pump that refused to pump. What member got involved with a YL and vanished all evening? This lad was detained that late by the YL that he found the hotel locked up for the night when he arrived back early next morning. The fellows saw everything that opens and shuts in a t.v. station when they inspected BTV6 and heard some of the amusing situations that can arise in a t.v. studio.

It appeared so simple the way Ron 3ZER dragged in 144 Mc. stations from Melbourne and Mt. Gambier. There was a stunned silence of amazement when the boys saw the layout at VK3HW. It was interesting listening to 20 mx DX when the signals are received on a variety of aeriels designed for that band and other bands by pressing one button. We thank the two leading Amateurs of the city of culture—3HW and 3ZER—for their hospitality to the S.w.l.'s. during the Ballarat Convention. All writs for defamation of character should be sent to L3006, your Convention reporter.

It is very pleasing to see so many of our members have obtained their tickets recently. Most Amateurs graduate from being S.w.l.'s. This no doubt is the reason that we are always seeing new faces in the Group, with only a few of the old regulars remaining within the Group.

We would be very pleased to receive any photographs that some of you may have taken of your shack or antennae. Any snaps used in "A.R." will be returned to you. So how about it? See what you can dig up.

Maurie L3055 is really giving the DX Ladder a shake at present. So beware you fellows at the top of the ladder. Recently he received a QSL for a report that he sent off 3½ years ago. So it just goes to show that you should not give up hope too soon for that rare QSL.

On Friday, 3rd May, a number of us were at the Moorabbin and District Radio Club's get-together. We would like to thank them for inviting us for the evening.

Craig Cook, our publicity officer for the Sunday broadcasts, would like members who send in band reports to him to state the following in their reports: time band, mode. This will assist him very much indeed if you will all do this. Thank you.

Now that we have more members with v.h.f. gear available, what do you say if we form a regular v.h.f. monitoring service? Anyway, give me your ideas on the subject as soon as you can.

We were given to understand that the V.h.f. Group would be willing to construct converters for the S.w.l. Group. Does this offer still stand? We have at least one member interested in 1296 Mc. Are there any other starters for this band? Keep in mind that next year we will be getting 420 Mc.

Ian L3065 comes forth with an interesting letter of his activities. Ian has not been active of late as he has just recently taken up residence at Colac and he does not have his rx with him at present. Was very pleased to hear from you, Ian. Hope you can get your rx going at the new QTH. How do you like living in the bush these days?

Greg L3138 has been very active on the bands and has been receiving a few QSLs. At the moment he is getting ready to erect a beam. Bet you jump ahead once you get the beam working, Greg.

NEW SOUTH WALES

Don L2022 has been very busy of late, however he has managed an occasional peep at the bands. Over the Easter period Don snared some nice DX—HC8CA on Galapagos and PJ5CG from Carouel Island. Don would like to know of more details of FO8AA and KC4AAC. At the moment Don is thinking that unless he can put a beam up, he will be missing out on much of the DX. Yes, I think you have a point there Don.

Back in 1958 he used to use a t.r.f. rx and used to hear all the DX about the place. Conditions are certainly a far cry from those days Don. And it looks as though it will be several years yet before the sunspot cycle starts its upward trend again.

Chas. L2211 has been rather busy of late, however your scribe was able to contact him via the 600-ohm line when in Sydney recently. At the moment Chas is busy modifying his t.v. set. Latest QSLs that Chas has received are from LURGF, VRIB, ZENJR, YU3YU, JA1s and several 50 Mc. cards.

QUEENSLAND

Our good friend Afton L2136/VK4 comes forth with another very interesting letter. At the moment Afton is nursing a badly injured foot which was the result of a motor boat accident on the Tinaroo Dam, near Atherton. Very sorry to hear of your mishap Afton and hope that you will be up and about again before long.

Afton has been doing a lot of listening on 7 Mc. recently and has been hearing some nice DX on s.s.b. His only QSL for some time was from HP3FL. Afton is thinking of disposing of his HQ170 in the near future. Best of luck Afton and I will tell the boys about that little matter.

The recent heavy rains in North Queensland have prevented him from moving around much. Thanks for your letter Afton, and maybe I will see you within about 18 months.

SOUTH AUSTRALIA

Darrell L5041 has been very active on 14 Mc. s.s.b. recently, but is complaining about only getting 11 QSLs from 100 reports sent out this year. Well Darrell, you are not alone in that regard, we all have that trouble. He now has an AR88 rx going and he soon hopes to have converters going for 50, 144 and 288 Mc. bands. That is good news old boy, it is high time that we had a few more S.w.l.'s on the v.h.f. bands. Latest QSLs received by Darrell are from W6CLF and K6QQE.

WESTERN AUSTRALIA

Peter L6021 has as usual been keeping VK6 on the map in the s.w.l. department. Peter has been on 14 Mc. a fair bit of late, for a change. But he has been watching all the bands. He finds that the Ws are coming in very well on 7 Mc. in the morning. At the moment he has his fingers crossed as he may be getting a new rx soon. Peter writes to a number of novice stations in the States and this keeps him very busy with the pen. Thanks also Peter for the photo.

Now come on you VK8 boys, don't leave all the pen-pushing to Pete, we want to hear from you.

73, Mac Hilliard.

DX LADDER

	Countries	Zns.	S.s.b.	W	
	Conf.	Hrd.	Conf.	Hrd.	
E. Trebilcock	277	285	40	—	50
D. Grantley	113	259	38	20	104
A. Westcott	87	159	31	9	107
M. Hilliard	72	223	33	19	152
M. Cox	70	223	29	37	150
P. Drew	55	197	26	22	114
C. Abernathy	52	96	29	—	—
N. Harrison	47	95	27	2	7
I. Thomas	41	139	20	16	97
D. Coggin	10	92	7	3	60
G. Earl	6	90	5	1	63

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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)

35 Whynot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Sunspot activity is still steadily on the decline, so the bands cannot be expected to be too bright. However, DX is always workable on some band during each 24-hour period and reports to hand show that some good prefixes have been audible. The 1p. to Europe in the afternoons has been reported as good in VK2 and VK3 areas. But the s.p. is now under the winter pattern and not so good.

7 Mc. should provide some good Asian prefixes during the night hours for the next month or two. As I have not turned the receiver on at all this past month, I have no idea how 80 mx or 160 mx are behaving—but 80 mx at least may lie quiet until next spring.

NOTES AND NEWS

PX1ER is currently active on both c.w. and a.m.

Tangier, on the west coast of Africa, is represented by ZB8A on 14 Mc. c.w. and is located in Bathurst, the capital city of Gambia. Tibet: AC4TD has been worked on 14034 Kc. at 1300 G.M.T.

Rhodes: CW0WZ will end his stay on the island and is returning to Texas.

Greece: It is reported that Amateur activities in Greece have been prohibited by the Greek authorities.

WZGHK announces the creation of the DX-pedition of the month, in the interests of world-wide s.s.b. and c.w. DXing. This programme will commence with VRIN on Ocean Is. approx. 1-15th May and will continue through '63 and '64. Next should be VK9DH on Nauru, 15th-30th May, then VR4DB on the Solomon Is.

VS1BU occasionally works from ZC5BU on 7 and 14 Mc.

SUIKX works 14 Mc. s.s.b. around 1300z.

VQ4EER is reported at St. Brandon.

VR6AC uses the frequency of 14285 Kc. s.s.b. ZS3D from S.W. Africa uses a.m. 14290 Kc. around 1730z.

XW8AL can be worked on 21 Mc. a.m. around 1600z.

Other active stations are 9L1GM on 14 Mc. a.m. and c.w. (QSL via W3BYX), 5N2OSR 14 Mc. 0930z (QSL W2CTN), SM5CGK/9Q5 (QSL SM6URO), Z57M 21 Mc. c.w. (QSL W2CTN), ZD8OL 14 Mc. c.w. 0930z (QSL W9VZP), ZD8DW 14 Mc. s.s.b. 1930z (QSL W5SWX).

HC8GA is currently on 14347 Kc. s.s.b. around 0400z. QTH Galapagos.

W3ZQ/KS4 (Swan Is.) uses 7 and 14 Mc. c.w. about 0600z.

Here is a run down on Gus' frequencies used during his vagabonding. For c.w. 14035, 14065, 21035, 7002, 3502; s.s.b. 14125, 21425, 7002, 3502. Gus is at present reported on Tromelin.

OD5BM, Luke Bakeris, has migrated to our shores. He would like to meet VKs on his days off from work. For those who want to extend the good old Aussie hospitality, contact Luke at 16 Leslie St., East St. Kilda, Vic.

From Florida DX Club comes the following: Willis and Xmas Is. ZS6LM DX-pedition sponsored by Yasme is now planned for the month of May and June with two weeks' operation in each place. Look for a Yasme newsletter soon.

Marcus Is.—JAI6EB/KG6 on 7010 Kc. c.w. at 0930 G.M.T. frequently. Plans to be there until about the end of June.

Tuva, Zone 23, UA0YE, George, is sometimes active around 14280 Kc. s.s.b. from 10 to 1500 hours G.M.T.

APIRIL reported active from Karachi about April 1. (Foney?)

Rota. All W9WNV/KG6R cards will be accepted by A.R.R.L., as misunderstanding about licensing has been cleared up.

Jan Mayen. LAILG will return to U.S.A. shortly for another year.

St. Helena. Gerry G3PEU will leave the United Kingdom this summer and will open up as ZD7BW about August 6 with KWM2 and 32L1. The operation will last until mid November.

Agalega Is. Harvey VQ9HB plans to DX-pedite to this rare spot in May.

St. Felix Island. Don't give up the ship, the gang is still dickering for passage and this one may come off yet, however it is still too indefinite to predict a date.

Islas de Misteriosa. F.D.X.C. gang may hit this very rare D.X.C.C. country this summer, depending on outcome of St. Felix trip. CX4BI works 15 mx with a 15 el. beam.

3V8CA is leaving for TL8 in May, so 3V8 will join the inactive list.

Any mention in these notes of z means hours G.M.T.

ACTIVITIES

Ken VK3TL reports April as a good one for Europeans on the long path on 20 mx, but the short path was poor in the evenings. 240 Europeans were worked during the month; excluding these, the best of the others were FR7ZC/T (Tromelin), GC8KS (Guernsey), QSL via G8KS only, HC8CA (Galapagos), QSL via W2MES, M1VU (QSL via D.A.R.C.), PJ5CG, TG8EE, K7GVM/VOI, VP7LG, YJ1JB, ZB1CR (QSL via ZB1E), Z57R (Swaziland), 5A1TW, 601WF. Best QSLs for the month were from PIKHA, VR5AA, 3A2CL, CR7IZ, SV0WZ (Crete), ET3LM, VQ4IQ, FR7ZD, HS3FD, ON5AX, W9WNV/Rota, VP7LG, CX2CO, K7G7V/VOI, KH6PD/KG6 (Marcus Is.).

Eric BERS195 lists DX heard: 1.8 Mc. c.w.: VK3AKN, VK5RO, ZL3OX (1000z); 1.8 Mc. phone: VK5RO. 3.5 Mc. c.w.: VK7 to VK7 (inclusive), JA1CO, ZL2ADK, ZL2AYS (1900z). 7 Mc. c.w.: DLSFP, G6CJ (0630z), G2AGR G3AZY, G13RXV, HA8CZ, LZ2KSK, OH1VX (0645), KB8ADP, HM4AQ, IHM, JA6BJW, KG6NAA, OKIHA, OZ6PQ, SP8ZJ, SM5CCE, UA4EK, UA9HA, UTSSH, UQ2KAR, UC2LT, VE7UA, WNSCOH, XEIOK (0645), YU3BGH, YO6KAL, 4X4NPW, WA6NKW/MM. 14 Mc. c.w.: BV1USE, CR9AH (0930z) DU1FM, FB8ZZ, H8MMN, HL9TF, JTAIG (1100z), KR6MO, OA4OX, VS1CW, VRIA, XZ2KN, YVIAD, 9M2SR.2 Rarest QSLs for April were VU2US/AC5, KR6BQ, VK3AKN (1.8 Mc.), W8AK (3.5 Mc.), ZD6JQ, UO5PK, VK2CE/M, VK3WK/M, VK7CH/MM.

W6ZDF/KM6, KZ5LC, UR2KNC, U18KNW, CR6E1, TN8AF, EA1BC, 5R8CM, 3A2CM, KV4AV, UC2AR, LZ1KDZ, YU3CD, FU8AG, HL9KH, BV1US, UA9PP and more. 14 s.s.b.: CP1BK, KR6AF, EA4GZ, BV1US, DJ1BV, OA4CB. 7 c.w.: JA5PL, G13IVJ, G5MY, KZ5FM, FBWK. Don has applied for D.X.L.C.A.2 Congrats OM.

Pete WIA-L6021 heard, 15 a.m.: CR7CR, CR7GJ, DJ6QT, DU6RG, ELOJ/MM, FB8ZZ, HMI4V, JA3-4-6-7-8-9-0, ON4PK, VS1LV, XE2BM, W6JRY, XW8AL, ZE2JA, ZE6JS, ZE7JR, ZE8ZJ, ZL2ALL, ZL2UJ, ZSI, ZS6, 4X4ON, 9M2FK. 15 s.s.b.: JA1, KR6EN, KR6MD, PZ-1AZ, ZL1AIX. Ws. 15 c.w.: JA1-3-5-7, LA-6CF/M, OH1VR, OKIAEV, VS1LJ, ZL2RC, ZS5BK. 20 a.m.: DU1MR, FK8AU, FK8EB, HK2WC, IIS1B, KP4AXU, OA4OC, TG8MP, TI2JIC, VE8AAV, VK0DM (Macquarie), VR4CU, VS1GC, VS1LZ, Ws. WA6ROF/KG6, KE1WM. 20 s.s.b.: DJ4WN, LIZFT, KG6FAE, KL7COB, VETALR, VETHE, VK9LA (Cocos), Ws. WA6II/, K68, YS1LA, YS1O, ZL1ABZ (Kermadec). 20 c.w.: DL1VG, Ws. 40 a.m.: DUICE, DU1MR, DU6IV, DU9FC, JA1ALU, KOMQS, ZL3BL. 40 s.s.b.: DU1AW/9, DUVS7, G3A0O, G8PO, GW-3EHN, HMB5F, JA1-2-3, KCAUSV, KH6EVT, KR6LJ, KZ5AF, VETAOK, W2-3-4-5-6-8-9, XE-1AB, ZL1AIX, ZL2AAG. 40 c.w.: G5P01, HM-4AQ, IITTK, JA1-5-6, KG6NAA, KH6EVC, OK3AL, SP6SD, UA3LI, UAOKCA, UB5XE, VP6AT, VS1ZF, W1-2-3-4-5-6-8-9-0, ZL1ABZ (Kermadec), ZS1JA, ZS4JB. 80 s.s.b.: UB-5KKA, UT5AA, VS9ASS. 80 c.w.: ZL3OX.

Activity reports on 10, 80 and 160 metres would be appreciated. We MUST use these bands more.

ADDRESSES

KH6PD/KG6—Marcus Is., to W2VCZ. UA2AW—C/o. P.O. Box 17, Kaliningradsk, U.S.S.R. WA6HOH is no longer QSL manager for K6JBV. 4W1AA says QSL C/o. "his friends" at Box 2928, Cairo. VR3E—C/o. T.P.O. 86, Task Group 815, C/o. P.M., San Francisco. FB8ZZ—Via 5R6BC. ZD8DW—Via W5SWX. CR8AA—Via W9JFF. VS9ADV/4W1—Via VS9AAA. LA9RG/P—Via LA8LF, with S.A.E. and I.R.Cs.

The following are UB5 QSL Bureaus:—Kiev—Vladimirskaja 15, Radio Club. Khar'kov—Pishkinskaja 20, Radio Club. Dnepropetrovsk—Serova 9, Radio Club. Surny—Linnia 2, Radio Club. Poltava—Otcjabskaja 46-a, Radio Club. Zaporozje—pr. Stalina 25, Radio Club. Nivolaev—Shvenshina 20, Radio Club. Stalino—Zinjija 4, Radio Club. Lvov—Slovakovo 14, Radio Club. Odessa—Halturina 13, Radio Club. Lugansk—Jilkombinat, korp. 7, Radio Club. Vitomir—1 Maja 33, Radio Club. Vinica—Kocjubinskogo 2, Radio Club. Kirovgrad—K. Marska 70, Radio Club.

SUMMARY

If the expeditions that are at present being advertised come into being, several good prefixes will be added to the DX ladder. The past fashion of single-band mode on these adventures is fast being replaced by all-band, all-mode operation. This, too, helps to keep the game alive.

My thanks to Editors K4IF, WA6TGY, G2BVN and VKs 3TL, 2AFK, 4RH, BERS195, L5041, L2022, and L6021 for the above contributions. 73, Al, VK4SS.

WANTED URGENTLY

A Sub-Editor to compile the DX page of "A.R." Fuller details obtainable from Editor "A.R." or Alan Shawsmith, VK4SS.

Darrell L5041 heard the following rare ones: 14 Mc. s.s.b. (about 6 p.m. C.S.T.): KH6EZU, V86EQ, KG6ALF, KG6IG, KR2RB, KR6JM, KR6OH, KL7AUG, W8CCO/Portable, KL7, G3KLV, G8J3CY, F8DC, YV5BED, ZS6VX, SL6BH, EA4JZ, DU1AA, DU1MI, WA4LTX/P, KJ6, YJ1JB, VR3O, UR2KAT, AC4US, OX-3KW, HC8PA, W9BJT/MM (near Hawaii). 7 Mc. s.s.b.: GW3EHN, G3A0U, FK8AU.

Dietmar VK2APK sends a full list of stations and prefixes worked within the month of April. He has worked more than 11,700 QSOs and is holding 53 awards. His list, 15 mx c.w.: W1-0, KH6, KL7, JA, VE. 20 mx c.w.: as above, also CR7, DJ, DL, DM, EP2, F, G, H8MMN, HK3, HL9TH, HM4AQ, II, K, P4, KZ5, OE1UZ, OE4XA/P, OH, PZICJ, SP, UA, UQ2, YV5, YO6DB, XE1AP, 5A1TW, FU8AG. 20 mx s.s.b.: CR8AA, BV1US, DJ, EI, FK8, GC8KS (Jersey Is.), GI, HC8CA (Galapagos Is.), HK, HL, KB6, KG6, KH6IJ (Iwo Jima), LA, OA, OE1, OZ5, PJ2AA, PJ3AO, SM, TF2WHB, TG9, TI2M, UA, VK9 (Papua), VK0VK, VR, YJ1JB, YS-1YV, ZL1ABZ (Kermadecs), ZP5CF, 4STIW, 5A1TW. 40 mx c.w.: Ws. KH6, KL7, VE, JA, ZL4F (Campbell Is.), 80 mx c.w.: Ws. 20 mx a.m.: Ws. KM6, KZ5, TI2SS, VK0DM (Macquarie Is.). For contest participation, Dietmar earned the following awards: "CQ" c.w. 20 mx in 1957, 1958, 1960, 1961; "CQ" phone 15 mx in 1961; VK/ZL c.w. in 1962; VK/ZL phone, 1962; U.S.S.R. International, 1962; Scandinavian Activity Contest, 1961; A.A. (All Asia) 20 mx, 1961; B.E.R.U. 1962 and Silver Trophy; C.H.C. QSO Party, 1962, two awards.

Leigh VK4RH sends in his s.s.b. contribution: 7 Mc.: W4MZK, W3ECR, K6AHV. 14 Mc.: OZ-5BW, G2, G8, G3, OH2NB, F8PA, DJ, DL, UA9KOA, HB9UR, PA0CS, PA0XZZ, SM5CTI, DU1, KA2, UA0EH, HC8GA (Galapagos), W3, K5, W6, VE8RG, CR9AH, VE8, VE7, W8. 21 Mc.: KG6CFY, W6KWW, W5, W6VAD, W0NVZ, K6HRS, KOHNC/MM. 28 Mc.: KR6TAB (a.m. and s.s.b.), KR6ET, DU1JC, JA4OI.

Don L2022 has had distractions, but managed some listening to hear these, 21 a.m., HL9KH, VS1LP, JA2DN. 14 c.w.: 5N2JWB, HB9NE,

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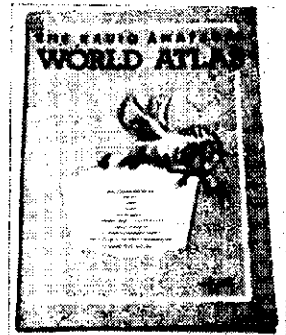
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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

F.E. MEETING

Present at meeting held on 8th May, 1963, were: 3UM, 3ZS, 3JL, 3QV, 3AG, 3NI, 3CS, 3ZV, and 3IE.

Correspondence from—

1. P.M.G., details of A.A. Committees for 1963.
2. Fed. Treas., re vote of thanks to members assisting with re-establishment of VK3WIA.
3. Rex Black, re Y.R.C., and other matters.
4. Rex Black, re copy of letter to VK2 Fed. Councillor re Y.R.C.
5. Pub. Com. re foreword for Call Book.
6. Awards Manager, N.Z.A.R.T.; comment on 1962 VK/ZL.
7. VK3DU re contact with overseas societies.
8. E. Ferguson, re R.T.T.Y. frequencies.
9. Scouts World Bureau, re 1963 Jamboree of the Air.
10. Membership return and circulation list, VK7. Bulletins: Feb. I.G.Y., Jan. I.C.D.O., Apr. VK4, Apr. VK6, May VK7.

Business arising: (2) Resolved that details and acknowledgment be published in "A.B." (5) Aspects of the production of the Call Book were discussed. (6) Resolved that samples of certificates and badges be made available to Mr. Bowie. The other matters were set aside for routine action by the Secretary.

Treasurer's Report: The report was received, but adoption deferred pending clarification of certain points, the Treasurer having had to leave before the report was presented.

Convention Report: In a brief resume, 3UM stated that three major matters emerged in the course of the Convention, and upon which progress was made. These were:

1. A sound basis for a new Federal Constitution. A total of nine basic points were discussed in detail, and were the subject of motions, it being decided that a Federal Company seemed to be the best basis to work on.
2. A sound basis for the Youth Radio Clubs scheme was achieved, and much detail discussed.
3. I.T.U. representation—a basis of financing, involving individual Divisions, and other details, a target sum of £3,500 being suggested.

General Business: The main business was the election of office-bearers for 1963-4. Results were as follows: President, Major W. S. Mitchell, VK3UM; Vice-President, Mr. G. M. Hull, VK3ZS; Treasurer, Mr. R. Boase, VK3NI; Secretary, Mr. J. Lancaster, VK3JL; Business Manager, Mr. A. Seedsman, VK3IE/T; Activities Manager, Mr. D. Rankin, VK3QV; Communications Manager, Mr. I. Macmillan, VK3CS.

Co-opted members were appointed as follows: Historian, Mr. G. Glover, VK3AG; Government Liaison, Mr. A. Tinkler, VK3ZV; Co-ordination Manager, Mr. T. Straughair, VK3ABV; Fed. Awards Manager, Mr. A. Kissick, VK3KB; Fed. QSL Manager, Mr. R. Jones, VK3RJ; Fed. Y.R.C. Co-ordinator, Mr. R. Black, VK2 Fed. Contest Committee, Queensland Division.

Other matters discussed included a modification to the W.A.V.K.A. award, effective Jan. 1964, and another matter involving a service to members.

INFORMATION OF INTEREST FROM F.E.

An informal meeting was recently held with the P.M.G. Department to discuss various matters including c.w. for Z calls, v.h.f. beacons, delays in licence issuance, Amateur Advisory Committees, t.v.i., publication of Handbook for A.R.O. as part of Call Book, suffixes for different islands, etc., under VK9-VK0, reciprocal licensing, 28 Mc. for Z calls, age limit for A.O.C.P. re-examinations for A.O.C.P. Details and results will be available when the exchanges are formalised.

HERE AND THERE

The sixth Jamboree of the Air will take place on 19th and 20th October between 0001 hours G.M.T., 19th October, to 2359 hrs. G.M.T., 20th October. More details will be published at a later date.

Members are reminded that any "Federal Gripes" can receive attention via your Federal Councillor, or if you hate F.E., write to the Secretary, C/o. Box 2611W, G.P.O., Melbourne.

Do you understand the organisation of the W.I.A.? We are going to print an article on this subject, for those who are interested.

VK3WIA is back in business, and it is hoped that regular schedules of operation will soon be established.

VOTE OF THANKS

Federal Executive wishes to thank the following for their generous assistance in the re-establishment of VK3WIA:

Doug VK3DU for a modulation transformer and much hard work; Ken 3CW for an 813; Max 2ZS, for a mast and hard work; and to Arthur Tinkler for the gift of a mast. Most particularly, F.E. wishes to thank Mr. Harry Kinnear for his most generous gift of a Hammarlund receiver, in respect of which it has been resolved to affix a suitably inscribed plate to the unit, acknowledging the gift.

AMATEUR ADVISORY COMMITTEES

The following are the details of Amateur Advisory Committees forwarded by the P.M.G. Department:—

New South Wales: W. L. Woolnough, VK2GW; L. H. Taylor, VK2CL; N. MacNaughton, VK2ZH; G. G. Hall, VK2AGH; B. H. Anderson, VK2AND; Dr. L. McMahon, VK2AC.

Victoria: R. A. C. Anderson, VK3WY; F. P. O'Dwyer, VK3OF; N. L. Storck, VK3ZO; R. J. Richardson, VK3ZP.

Queensland: K. D. M. Grice, VK4DG; C. E. Cogzell, VK4CI; P. H. Brown, VK4PJ; S. R. Baxter, VK4FJ; C. I. Patterson, VK4YP; R. A. Collins, VK4XK.

South Australia: J. C. Haseldine, VK5JC; R. G. Roper, VK5PU; W. D. Randall, VK5VR; H. K. Stacey, VK5XA; W. D. Verrall, VK5WV; E. B. Stephenson, VK5ZB.

Western Australia: R. Chamberlain, VK6RY; J. E. Rumble, VK6RU; M. J. McDonald, VK6MM; V. J. Kitzey, VK6VJ; A. Parkes, VK6MO; P. Haywood, VK6PH.

Tasmania: W. N. M. Nisbet, VK7BN; I. Nichols, VK7ZZ; P. Grieves, VK7GV; C. Spiegel, VK7KS; E. Beard, VK7EB; T. Allen, VK7AL.

FEDERAL AWARDS

W.A.V.K.A. AWARD

It has been decided that as from 1/1/64, VK1 will count as a separate call area, from which one QSL will be required. Three QSLs will still be required from VK2 as previously.

A complete reprint of the amended rules will be published at an early date.

D.X.C.C.

The following amendments are applicable to the Countries List published in "A.R.", January 1963:—

AP2—Pakistan should be AP—East Pakistan.

ET2—Eritrea. As from 15/11/62 Eritrea is deleted as a separate listing and thereafter is combined with Ethiopia.

FR7—Juan de Nova, situated in the Mozambique Channel, is a new and separate listing.

FR7—Glorioso Is., situated north of Malagasy Republic, is a new and separate listing.

GC—Channel Is. The single listing of these islands is now divided into Jersey Is. as one listing, and Guernsey Is. and Dependencies (Alderney, Brechou, Great Sark, Little Sark, Herm, Jethou and Lihou) as a separate listing. Credits already given for Channel Is. will be transferred to the appropriate new listing.

SILENT KEY

It is with deep regret that we record the passing of:—

VK2FZ (ex VK0FZ)—F. M. Stean.

VK7FJ—Ted Evans.

JZO, PK1-3, 4, 5, 6. As from 1/5/63 the five separate listings of Neth. New Guinea, Java, Sumatra, Neth. Borneo and Celebes and Molucca Is. will be deleted.

PK—Indonesia. As from 1/5/63 this new listing will embrace the entire territory of Indonesia.

VQ5—Uganda. New prefix is 5X5.

ZD1—Sierra Leone. New prefix is 9L1.

ZM6—Samoa. New prefix is 5W1.

V.H.F. AWARDS

V.h.f. awards have recently been issued as follows:—

V.H.F.C.C.:

No. 23—Jim Forse, VK3ZHF, 50 Mc.

No. 24—Len Poynter, VK3ZGF, 50 Mc.

W.A.S. 50 Mc.:

No. 39—David Rankin, VK3QV.

No. 40—Peter Milne, VK3ZGM.

No. 41—David Slidey, VK2ME.

A. Kissick, VK3KB, Awards Officer.

NEW SOUTH WALES

The general monthly meeting was held on Friday, 26th April, at Wireless Institute Centre, Crows Nest. The attendance was good and general business was kept to a minimum to enable the guest speaker, Mr. Joe Reed, VK2JR, to deliver a most interesting and possibly somewhat controversial lecture on the advantages of vertically-polarised antenna systems. To help emphasise the startling facts surrounding the angle of radiation aspect of propagation, Joe displayed a large range of very carefully prepared slides. He touched on the subject of the merits of loading various types of radiators, with emphasis on positioning of loading devices, etc. This most interesting lecture, as expected, developed into a general discussion, there being quite a number of very active mobilisers present in the audience.

Well, Easter has come and gone, and with it the much-awaited Federal Convention. This most important Federal get-together was conducted in Sydney in a very smooth and generally congenial atmosphere. Our only regret was that sufficient time was not available to show our guests more of the highlights of Sydney and surrounding areas.

Coinciding with the Federal Convention, the very popular Urunga Convention was held on the north coast. Harold 2AAH and Max 2MP represented Council at this gathering, and from their remarks they certainly enjoyed themselves, both on the official as well as the social side. As usual, a thoroughly commendable and enjoyable holiday week-end at Urunga.

With bad flooding taking place on the north coast as these notes are compiled, I may have some news next month of activities by Amateurs in these areas. Having worked 2KO/P at South West Rocks (near Kempsey) during the last few days, it appears that he is not altogether suffering from sunburn. Last news from him was that he had been completely washed out of his tent, and was operating a water-soaked 122 from emergency quarters on the reserve. 73, 25W.

HUNTER BRANCH

The May meeting of the Branch, held in the University College, was again very well attended, there being thirty-six members and visitors present. At the meeting the first use was made of the tape lecture service of the VK2 Division. Because of the absence of Les 2RJ, Keith 2AKK took the chair for the evening amid mixed cheers and other demonstrations of approval (or were they?) and at the conclusion of general business, Gordon's tape machine began to play.

The first voice heard was that of Lionel 2CS being interviewed on the A.B.C. about the history of Amateur Radio in the Newcastle area. It was very pleasant to hear the voice of the old man even though he was at that moment on the high seas and on the way to G. land. The recorded interview had previously been broadcast in "Newcastle Digest," which is a local programme originating from 2NA each Tuesday evening. Lionel certainly has done a great deal for Amateur Radio and programmes of this type maintain the good tradition.

The first lecture was "Grid Dip Oscillators," by Bob 2OA and there was much feverish scribbling in the half light to get down all the details of the various circuits described. Following on this was another tape, "Elimination of T.v.i.," by Horry 2FA, a subject dear to all our hearts in Newcastle. Both tapes were well received and this avenue of instruction will be further investigated in the future. The meeting closed very late with some frantic bartering over surplus crystals made available by the aforementioned chairman. "There's a swindle somewhere" some were heard to remark, and the fiddler in chief just looked on stroking his nose and selling more crystals.

The reason for the absence of Les from the meeting was that he was in Brisbane trying to pacify an irate Radio Inspector who claimed to have heard him on a frequency outside the band—and him the President too! The solution—too many ergs in the grid circuit and easily fixed, but how about the official gentleman in Brisbane?

Varley attended the meeting as well and was fined a large sum for being late. Afterwards the fine was waived because everyone was so pleased to see him. He was able to tell us all about his new employers who only allow him to sell valves. There is a strong rumour that Gordon 2ZSG is engaged on a secret project which looks uncommonly like a 6 over 6 skeleton slot for 2 mx. It is said it will replace his t.v. aerial when the new station comes on the air at about the same time as you read this.

I am only able to write kind words about Bill 2XT since he gives me such good signal reports on the Monday broadcast. Anyone going to Bill's shack is advised to wear sun glasses so as not to be dazzled by the exotic gear displayed there and rumour has it that a Wagner transceiver is on the way. The boys are going to give him some wire netting too—to keep the ducks out of harm's way.

Construction wise, none could be busier than Stan 2AYL. However it is the building of a driveway for the car and not some new r.f. propellant which occupies his time at the present. Still he manages to get on 2 mx at times, as does Ian 2ZIF even though very busy with the new peddlary, if that is the correct term. Ian also has volunteered to take over John 2ZJG's place as social secretary since John has had to answer night service calls made by the friendly viewers. This has curtailed John's other activities, but we hope to see him able to get to meetings once in a while.

Rodney 2CN claims that the reason for the excellent signals which emanate from his QTH is the careful construction and use of a s.w.r. bridge. It is also said that he is preparing for t.v. transmission as well. One would think he would see enough at the large white building under the hill. How true I cannot say, but Neil 2ZCU was reported to be back on the air before he had his first meal after his sojourn in hospital. He certainly looks to be making a splendid improvement and was busy enquiring about crystals the other night.

Reported to be the most potent VK signal in the U.S.A., Jim 2AHT is still busy looking for places to put his recently won certificates. In the past twelve months he has won three sections of the VK/ZL Contest and come second in the fourth section, holds the "CQ" World Wide 14 Mc. phone certificate for VK as well as being first in the A.R.R.L. 28th DX Competition for VK. Should you wish to see a really modern s.s.b. station, then a visit to Jim in Toronto is a must, if only to hear the ease with which DX is worked.

We wondered why it was that Bill 2ZL had not been heard for a few weeks. The reason was that his flood rescue kit, a do-it-yourself venture, first described in these notes, failed to work and as a result he was marooned on the Phenyl Bay island. The bow tie aerial is still above water level though and what an excellent earth mat all this water makes! The Cessnock dry cleaners are in revolt because of the alarming loss of coat-hangers. All this has been caused by Peter 2AIY who not only uses coat-hangers as antenna elements, but operates the tx in the wardrobe. He even got rid of the bugs by using naphthalene flakes! (Gercha, PanSy.)

Sherwood, our high power modulator specialist, is really sticking out his neck this time. He has forecast that he will definitely be on the air before 1st January, 1970. "Only a few more soldered joints," says Sherwood, "and she'll be ready to go". But to where he did not say. That finely engineered heap of American rubbish which he was seen driving the other day did in fact take the Cessnock boys to Canberra and back while in hot pursuit followed the municipal dustcart. Four sets of pedals are fitted.

On the associate member front there has been general disorder for the past few weeks. Allen went to live in Maitland just so that he could have a red telephone, and Les left

Marmong because he ran out of earplugs and could not stand the noise. He has gone overseas—to Stockton, in fact, and is still trying to beat the ferry across on his bike. Belmont Bob, Max and Ross are still busy doing complicated problems involving Ohm's Law and getting them right, too. Bill Brown hit the headlines in "R. & H.," and Dennis, the cigar smoking bricklayer, still whistles Morse because he cannot afford to buy a key. Well that's progress for you. Marmong will really come to the fore in October for the Annual Field Day will be held there this year instead of Blackalls. Keep your eye on these notes for all the details.

And that's the roundup for another month. Letters of complaint should be addressed to me at whatever address you like, or, as an alternative, you can see me in person at the next meeting together with all the other chaps mentioned in these notes. How about coming along? Room 15 in the classroom block is our usual meeting place and you'll find us there on the first Friday in June, that's the 7th, and the exact location is the University College, Tighes Hill. We guarantee an interesting night and a special bargain which you could take away! Do I hear agreement? 73, 2AKX.

CENTRAL COAST ZONE

On Wednesday, 8th May, the weekly radio classes conducted by the Gosford Radio Club began and with 14 enrolments it is hoped that 12 months' study will enable most of these fellows to qualify for their ticket. Bob 2IN, John 2ND and Gordon Procter are organising the course and various other members will assist. At the May monthly meeting our good friend Joe 2JR lectured to us on "Radiation from the Antenna," presenting some new information on a most important subject. Wally 2AXH was in the Antarctic in 1911 as the wireless operator of Sir Douglas Mawson's expedition. Some of the privations and achievements of this expedition were graphically shown in a documentary film "Antarctic Pioneers," recently shown on Channel 2. The films and commentary were completed by Captain Frank Hurley a couple of weeks before his recent death.

Alec 2AAK and XYL Mona are making a quick trip to Vancouver during June and July. We were able to drink their health before they departed by ship. We hope they find some interesting and useful gadgets in those far fields, rather greener than ours. Alec makes good use of his excellent 2 mx location and has regular skeds with IVP Canberra, which is nearly 200 miles. Alec uses an RT37 with a transverter to convert the sideband signals to 144 Mc. These can be read easily on a 3-6 Mc. Command rx with crystal-locked converter.

Other active 2 mx stations include 2RU, 2RF, 2ZWW, 2ZGM, 2AFJ and your scribe. Three or four stations have obtained obsolete f.m. sets and these will soon be fired up on the first VK2 emergency net frequency 148.0 Mc. With the small sealed crystals and a miniature switch it should be a simple matter to convert single channel sets to three channels.

Phil 2TX has been holidaying for some time in Brisbane and has been keeping in touch with Doug 2ASA by mobile s.s.b. transceiver on 7 Mc. At 2ON, the Drake 2A rx has been pressed into extra service and functions nicely as a transceiver when fed into the phasing exciter (generating sideband at 455 Kc.). The benefits of transceiving are very great and anyone planning an s.s.b. exciter should keep this in mind. If done carefully the construction is not complicated and the freedom from netting worries is quite an experience. It is noted here that the stability on warm-up of the Drake 2A is 3 or 4 times as good as the HT32.

Geoff 2AI has returned from a holiday at Mt. Gambier. 2AI is still oscillating around the State like a bee in a bottle, occasionally having time to work mobile on 7 Mc. sideband. 2AKL, 2AFH, 2ADZ, 2ASA, 2EH and 2AXK have been heard on 80 or 40 metres.

A visit to the Federal Convention at Crows Nest with Keith 2AKX and party was quite an experience. The dinner at the Wentworth Hotel was most enjoyable. Meeting so many interesting Hams from other States (and one's own) is an opportunity not to be missed. We do appreciate the efforts made by the various delegates who come so far and spend so many hours to co-ordinate the policies of the Amateur movement. 73, 2ON.

VICTORIA

After so strongly stressing the fact that Council meetings would, in future, be held on the fourth Wednesday of the month, who mistook the last meeting night? Yes, yours truly. Consequently, can now only report matters secondhand, and my highly paid pilots

have given little to work on. This was the last meeting of the then existing Council, and as our Vice-President had left for Japan, Michael Owen acted as Chairman. Michael reported in detail on the Federal Convention recently held in Sydney.

One matter on which Council would like comments is the proposal for exclusive c.w. segments of the bands. The segments suggested are: 1800-1810 Kc., 3.5-3.535 Mc., 7.0-7.025 Mc., 14.0-14.1 Mc., 21.0-21.15 Mc., and 28.0-28.20 Mc. If you have any thoughts on this matter, please drop a note to the Secretary.

Nine applications for membership were received and these were recommended to the May general meeting for acceptance. Details further down.

The Annual Dinner has been tentatively scheduled for 8th November, same place as last year. This will enable preliminary arrangements to be made. Full details will be available to all in due time. Married men should lodge applications for leave passes immediately, unless they intend to do the right thing and take the XYL along. (A much better idea.)

New Council for the coming year includes four new members, to replace those who are globe trotting and those who for various reasons had to resign. As only ten nominations were received, no election was necessary. The new Council consists of VKs 3OR, 3UI, 3YQ, 3ACS, 3AFJ, 3AFQ, 3ZCZ, 3ZEL, 3ZEO and 3ZJQ.

One problem which Council faced was the fact that those holding Z calls were ineligible to operate the low frequency equipment at 3WI and volunteers were required for the broadcast roster. 3ATP, 3AVV, 3AEL and 3QV indicated that they will join the roster. Gentlemen, we salute you.

The Division has been invited to supply a working exhibit of Ham Radio at the "Wonderful World of the Young" Exhibition from 20th to 26th May at the Exhibition Buildings. Although this leaves little time for preparation, it was considered that this would be a wonderful opportunity to publicise our hobby, and we would accept the invitation. So much for Council.

The Annual General Meeting was held on 1st May at R.M.I.T., about 30 members attending (at least so I'm told). In the absence of the Vice-President, Michael 3ZEO acted as chairman and presented the annual report, followed by the treasurer's report from 3YQ. The meeting was advised of the names of those now on Council and invited to make recommendations for President, etc. The recommendations were: President John 3OR, Vice-Presidents, Michael 3ZEO and Ken 3ACS; John 3UI fell for the Secretary's job.

New members admitted to the Division are: David Korton, 3AKX; Ken Drummond, 3OI; John Wilson, 3ZOQ; M. Foster, 3ZOL; and P. Carter, who is awaiting a call sign—all as full members—and R. Flanagan, D. Bradshaw, C. Elliott, N. Carroll and R. Cornley all for various grades of Associate membership. Welcome one and all to the Division and let us see you at the meetings.

The June meeting will be held at the Rooms, 478 Victoria Parade, East Melbourne, when a talk on the subject of "F.M." will be given by John 3ZEL. Smoking is permitted in the rooms, supper will be available, the library will be open, and best of all there are no parking problems. We are looking forward to a record attendance as this will give those who have not yet seen the rooms the chance to do so.

Having been on holidays am very much out of touch with what has been happening, but have gleaned on very good authority that 5PS is not on s.s.b. and was not contemplating such a drastic step, but having listened to an hour's sales talk from a visiting VK3, he may be tempted. (Repeat MAY BE!) This is subject to him learning to resolve it or somebody presenting him with a Drake 2B or similar rx. By the way, PanSy old boy, no Command rx's were available in Norwood.

Now for Zone notes, although the N.E. Zone let me down last month by not reporting their highly successful State Convention. 73, 3AFJ.

STATE CONVENTION, SHEPPARTON March, 1963

They came from near and far, the members of the Victorian Division. Assembled at the 3SR front office to receive their dog tags and accommodation details. At 4.30 p.m. most returned to hang their hats up in the 3SR auditorium for the business meeting. Nobody yelled "fire," so the meeting continued until about 8 p.m. The place was full with about 80 members, 79 of whom must have been smokers and there was no forced ventilation.

A Ballarat member, Eric Dalby, passed beyond the vale a week or so before this. Three of his closer associates prepared his gear into lots and brought them along to be actioned

off at the Convention. McFingelstein Batrick modestly confessed that he was no auctioneer, but did the job just the same. After this amusing spectacle, we all adjourned later to assemble at the Hotel Australia for a buffet style dinner. Being quite a warm evening, cool drinks of many varieties flowed freely, but personally I did miss the coffee (So did many others.—Ed.) Here is an example of an oversight occurring in carefully laid plans.

There were an estimated 80 at the Dinner. When the tables were cleared, the reps. of several commercial firms brought in their wares for the boys to drool over and drool they did! With bags under the bags, we all assembled at the GMV6 studios at 10 a.m. on the Sunday morning, where, for many, the tricks and technicalities of a t.v. studio were first revealed. At 11 a.m. a tx hunt and treasure hunt were scheduled; both were poorly patronised and did not reward our efforts of planning.

Then came the determining of the car phone f.m. unit with the highest field strength. We thought Hdq. was to supply the f.s. meter; Hdq. figured we would supply it. Hah, hah! Collins rep., Mike 3AGA, displayed characteristic Radio Amateur's resourcefulness in producing a sensitive v.t.v.m., a length of wire, and a spool of three-core. Entrants drove their cars up to the van so that their aerials were a measured 10 ft. from the v.t.v.m. pick-up. Ron 3GM won the prize, with a relative reading 20 per cent. higher than the next highest.

After the bring-your-own or buy-your-own lunch was eaten, we progressed out to the Radio Australia site for a look at the emergency studios, audio input equipment, programme control, the tx's and aerial selection desks. Afternoon tea was consumed in the shock fields of 10 and 50 kw. tx's. Votes of thanks were uttered and those not interested in more disposals junk soon departed for home. Those keen for more disposals went out to the front lawns, whereupon Abe McCohn Batrick had tastefully and temptingly arranged the items available. In the atmosphere of comradeship the reserved and extraverted were soon scrabbling through boxes of crystals. Although it was a no-holds-barred affair, I am pleased to report that without exception all who shouldered others out of the way did so in a gentlemanly manner.

Conventions come and go; claims are always made that "this was voted a success" and "the best yet held in Victoria." I personally do not believe this about the Convention here at Shepparton, however success or otherwise. It was the culmination of the work and brain products of the Shepparton and district members who did the best for the love of the hobby and in order to maintain goodwill for the North Eastern Zone. 73, 3ASY.

EASTERN ZONE

The Eastern Zone held their annual Convention on the week-end of 26th and 27th April at Warragul. Thirty-four members attended, including a visitor from Melbourne. It was a roaring success. The dinner was most enjoyable—it was claimed by some to be in the State Convention class. Bert 3BB is our new President, relieving Peter 3ZDP. Vice-President is Bill 3AMH. Zone activities for the year were discussed and a comprehensive discussion to seal our emergency communications network that we are setting up, using 80 and 2 mx f.m. We are also setting up an emergency control station in Central Gippsland (80 and 2 mx f.m.) at 3QZ's QTH and have subdivided the Zone into three sections, west, east and south—each to have a section leader. So from now on we will use emergency procedure and the use of a control station for our Zone hook-up, both on 80 and 2 mx. There was also a display of commercial gear that helped to inspire interest amongst members.

On the Sunday 15 members and their families went along to the Picnic at Picnic Point, near Doonee. Our next Convention may be held at Bairnsdale around 27th and 28th April, 1964.

Activity is on the increase in the Zone, both amongst old members and up-and-coming members. Jack 3AJK and his family had their holiday motoring to VK5 in April. David 3DY took a quick trip up to Sydney and George 3ZCG and his family holidayed down at Anglesea during the last two weeks in May.

Rex 3VL, originally from the Eastern Zone (Leonatha), who was operating portable from Chelsea, during the first week of May, was able to read some of the East-Gippsland stations on 144 Mc., working 3DY and 3ZDP. The Zone also heard Bill 3ARZ.

3ANL, Morwell High School, is still active, operated by Mr. Dale, and their membership is increasing amongst the students, including one girl. The Morwell P.F.A. group visited George's (3ZCG) shack at Morwell on 3rd May. Twelve were present and they were introduced to Amateur Radio, told of the advantages and assistance that can be given

to the community by this hobby. They were very interested, most of them spoke over the air to the other Eastern Zone station, including five girls.

Remember, Zone hook-ups are: 144 Mc.—Friday evenings at 8 p.m.; 3580 Kc.—Sunday evenings at 8 p.m. Also, a Zone Family Field Day and Barbecue (perhaps a demonstration of a 80 mx prototype transceiver for the emergency network) to be held at Primrose Park on Queen's Birthday, 18th June. 73, 3ZCG.

WESTERN ZONE

News this month will be scarce due mainly to my inactivity. I had quite a bit of news but on receiving this month's mag. found that it had been covered by Rodney 5ZCD, who with Tony 5ZAI have been regular visitors to Western Zone Conventions.

Rodney is doing commercial operators' course. He has his c.w. up to about 20 w.p.m. so will soon be throwing away his Z call sign. Tony is busy with house building and it is that, and not married life, which is keeping him off the air.

Met Chas. 3IB at Klata and learnt that he would be making another trip to the Islands. On last week's hook-up we interrupted Chas. with his packing. Radio gear was the first thing packed. The boat is leaving on 15th May, so by the time this is in print Chas. and family will be in a new QTH. Hopes to have same call sign as before.

Herb 3NN gave news from Yanac. Had misfortune to lose mast supporting the 80 mx antenna. Congrats. to Garry, who has been allotted call sign of 3ZOS. Sorry to hear Max had to spend a few weeks in hospital, but pleased to know he is home again fit and well. Lyle 3ASA has also promised me that he will come on the air soon. What about giving us a surprise one Wednesday night, Lyle?

Associate members, Roy Goodwin and Bob Gibson must be planning a trip up the Birds-ville track I think. They have been granted a portable licence on Flying Doctor network. Half your luck boys. I think you both should get your heads down and finish that studying and get your tickets. What about it?

Wilson 3AFU seems to get around quite a bit. He has been heard portable and mobile from several different locations. I called 3WI recently to report that their 40 mx signal was up and down. Think I offended some when suggested that feed line may have been touching. The trouble was found to be that 40 and 80 mx antennae were touching.

Heard of new type of antenna from a VK5. It was called a "beer-can vertical"—must find out more particulars. 73, 3ARM.

NORTH EASTERN ZONE

The Zone hook-ups of late have been patronised by about eight members, give or take a few. The main difficulty seems to be that there is very little to talk on and like most Amateurs, N.E. members are reluctant to blow their bags about their activities. There has been a little discussion on when we should have our annual zone convention. The State one clashed with our time and after it we all had had a cropful over conventions.

3AUL has, for a couple of weeks, been strangely quiet. Missed two hook-ups in succession. 3ACK has for once in his life done the right thing in that he is going to feed into the system news and doings of local v.h.f. activity. You know, I got a terrific roasting because I had failed to put notes in for April. Over the air, too. I felt dreadfully embarrassed.

3VL has been to hospital and late April was convalescing and enjoying some occupational therapy with a portable outfit. 3IG has been tinkering away at a 40 mx converter these last few weeks. 3ALF currently puffing and blowing about the mobile s.b. unit he's going to build. An ambitious project which we wish him luck for. Mrs. 3ALF presented him with another parasitic, whoops, another harmonic—a daughter—during April. 3AHO on another short trip, Mt. Kosciusko for trout fishing and also a quick spin over to Ocean Is. Understand he has a tx and rx with him.

Nothing appeared with reference to the State Convention. From last month's State notes it appears it was left to me. And I thought that the Divisional rep. would write it up. Like the field strength meter, nothing happened about it. Soon after the Ballarat State Convention we heard we'd won the Kirmear Trophy. Bully for us, but how long is it going to be under repair and when do we get our dukes on it? The previous holders must have kicked it around a bit, what? 73, 3ASY.

MOORABBIN & DISTRICT RADIO CLUB

Control stations for the 3.6 Mc. (very approx.) net on Monday nights are now rostered so watch out for different types of organised pandemonium from night to night. Why not join in and contribute some uplifting? Dis-

course—technical or otherwise. To help restore order and ensure a fast pass around in the net, the Club is anxious to obtain a supply of two minute egg timers (we aren't the hard boiled type) for issue according to listeners' votes! Preferably fitted with automatically applied, snap action, non reversible, operator de-sensitizers.

The next tx hunt is on Friday, 7th June, and starts at the clubroom around 2015 hours. The tx frequency is 3516 Kc. and is automatically keyed with the club call sign, 3APC. These are really good fun, particularly the post mortems and experience recounting when all (?) turn up at the end. Very confusing to the local gendarmierle too—memoirs may be on sale soon (worth buying), ask Peter 3APD. Visitors are all welcome, especially those with good "sense" equipment—the car with least miles run from go to woe are the winners. Learning from past experience, I am definitely taking along a small outboard boat next time to ensure getting to the finish. We ended up on the wrong side of the Yarra.

The visit to the Club recently by members of the S.W.I. Group was a good night, judging from the level of QRM. A few contacts were made on 80 mx and several commented that it sounded on the air like feeding time at the zoo. Harold 3AFQ (thinking of the last line didn't really bring you to mind, Harold) had his very nice home-brew rx on display and it really works, too, despite remarks some time ago made by a certain club member (who can be left nameless but who lives about 15½ radio miles to the north east) that he called you with no result—must be his tx after what I heard from Harold's rx. (Hope that that distance is right.) Harold has generously undertaken to build a similar rx for the Club, and it is already part constructed.

Another project for the Club, organised by Graeme 3ZMQ, is a 2 mx tx and rx. So will really be in business shortly.

Hear that Alf 3LC is putting up a 10 element bird perch, yagi type, on top of his 58 ft. mast to improve his 2 mx sigs. What with quite a good take off at your new QTH as well that should really stir up the a.v.c. volts, Alf. Other spy reports are that Ken 3ZNJ is re-building his 2 mx gear, and Graeme 3ZMQ has been absent from the band with YLI. (Something akin to TVI, only worse, they tell me.)

Well chaps, keep these forthcoming events in mind: 7th June, tx hunt; and with the YLs and XYLs come along to another of our excellent social nights on 22nd June at the home of Treasurer, Peter 3XX. 73, 3ARD.

QUEENSLAND

The Annual General Meeting got off to a good start and being a progressive State, and this Branch owning more than four chairs, everybody could sit down and be comfortable. I suppose I could gild the lily and say that the place was crowded and that there was only "standing room," but, we have more than four chairs. Now I wonder what scribe will attack me over that. To get back to the meeting, 60 members were present. During the year the membership of the Queensland W.I.A. rose by 100 members, which speaks volumes for the various methods used to get new members.

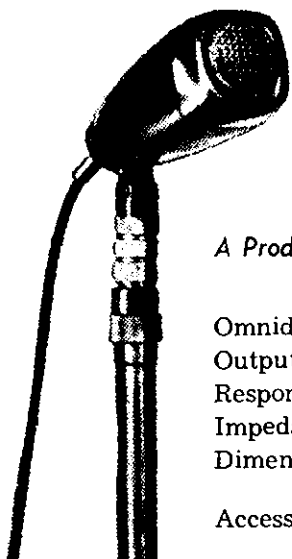
George 4GG was present. He has been absent for some years, but has always been a supporter. He says that he is "active" with the W.I.A. again, not rejoining. George was presented with the prize he won at the Convention for the greatest number of contacts during it. Eddie 4OW also roamed in, after a spell at Darwin for the past six years.

Congrats. to Allen Smith for making a very fine field strength meter, complete with power supply. I've been told on very good authority that it is a beaut. Jack 4JY is at home getting over an operation and thinking of pulling his rx to bits. I've probably missed the point there, as I have always been under the impression that it takes an operation to separate Jack and his rx. Len 4LT, Bill 4WX and Peter 4PJ are trying to raise some interest in the little-used 21, 27 and 28 Mc. bands. Same 4CZ is either staging a comeback, or else he has been operating where I can't hear him. He is using a dipole on a tower. And talking about towers, Harry 4HB has been busy scrapping the rust off his beam. Now it won't work!

Some time ago there was quite a whinge about disposal gear, to the effect that Council wasn't doing anything about it. Well chaps, a lot of work was put into this and some gear was available. But no one was interested, or very few were! These items are very reasonably priced. The valves will be made up as mentioned in "QTC," but the response has been that poor that it looks as if everyone that has put in for some will be able to



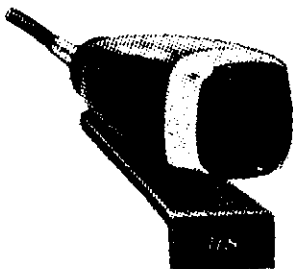
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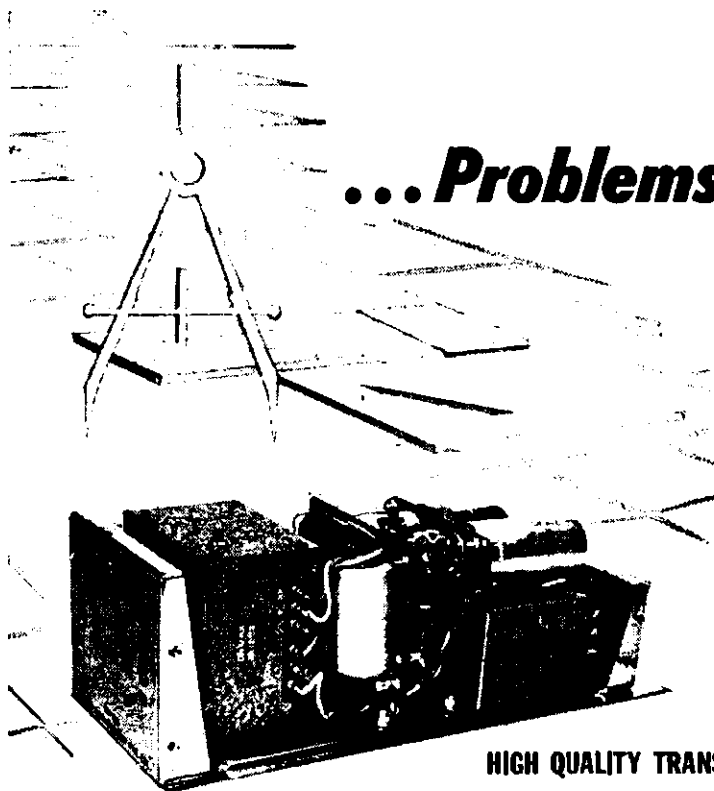
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get just what they have asked for. This is good for the chaps that want this gear, but it is very unsatisfactory for those who have to get the gear and dispose of it. So how about it? If you don't want gear, OK, but don't whinge about it when there isn't any to be got.

Al 4LT, who was ill for a week or more after the Federal Convention, gave a well received and interesting report at the Annual General Meeting and we feel we are getting closer to Federal Hdg., to the advantage of both. The Federal Executive boys really do a good job and Al says he now has a lot of respect for them.

A.O.C.P. classes started on 10th May at the Institution of Engineers' Rooms, School of Arts buildings, Ann St., Brisbane. Entrance is down the side of the building.

The recent Convention at Alexandria Headlands was held there for the purpose of encouraging Wide Bay and Burnett Club members to attend. The attendance from that club was very poor. Possibly there is a good explanation, but any Convention is important these days. Apart from the fun you can have, there is the more serious business of discussing how to hold our frequencies and the pooling of ideas along those lines.

Placed to hear Stan 4SA on the air again after being discharged from hospital. Del 4RJ, another old timer, is still in hospital at Greenslopes. The "Kingsfisher" group is still going strong with George 4GG keeping strict control on young Alf 4OL, who occasionally gets quite cheeky. Don 4DZ takes part from a sick bed. Who are you kidding? Apparently he isn't married! Bill 4WS, who has been ill for some time, is on now and then and is steadily improving in health.

The Easter Scout venture, in co-operation with numerous Hams in Brisbane, went off very well, but no details are available. Twelve operators were kept busy. The Communicators got very heavy when carried about on various stunts, and Bruce (no call sign given) couldn't find his arm after carrying one for, was it 12 miles? Carlo 4ZCV put in some good work getting the Communicators ready.

Getting back to the general meeting, the financial report shows that we are well in the black, but just paying our way. I am led to believe that the Division has never been in such a sound condition.

Where is Peter Rabbit, 4PR, these days. About time you got that tx finished Jim. Things happen fast in VKA. But as it's the top State, that's understandable. Just got another letter from one of my cloak and dagger men, Sam 4CZ, who has pulled his dipole down and now has a TH Thunderbird up on the tower. Al 4SS, because of pressure of work, is relinquishing the DX page of "A.R." but will continue to supply DX news to 4WI when he can find the time.

The Central Queensland Branch is doing quite well these days. They are starting an A.O.C.P. class with 23 starters. Their President (Frank 4FN) is climbing the wall, sorry Frank, climbing masts. He is that pleased at a certain mast in North Queensland breaking in half, that he regularly races up his mast and glories in his position of having a higher mast. Never mind, this certain broken mast will be higher and bigger and better in the not-so-distant future.

Joe 4OJ is busy building a rig and should be on shortly if the enthusiasm holds out. The Kookaburra session each morning at 0700 is now divided between 80 and 40 mx. Quite a lot of activity on 80 mx. Was listening to Steve doing a good job pounding out Morse to learners last Wednesday night. It was excellent Morse and as it was sent at 5 p.m. I didn't have very much trouble in following it. Steve 4BB sends copperplate c.w. John 4RZ takes the cake for the mostest in beams. He has a 40 mx dipole, 62 ft. 9 in. of it, on a 90 ft. tower. He's called it the "drooping moustache" beam. Bill 4WF had a very lucky escape from death a few days ago. Bill was on his way south to enjoy some leave and going down a rather steep road, his car got out of control and the next thing was tearing down a steep gorge after leaving the road. Bill just crouched on the floor and hoped for the best. Over £300 damage was done, not to mention the complete loss of his mobile gear. Apart from a bruise, Bill was unhurt.

Pardon me running around these notes like a beheaded fowl, but it's the way I collect notes, write them on bits of paper, and then hope I can get them in order later, but still it will keep you on the ball trying to follow me. Some more news on the Central Qld. Branch. They now have 43 students to start. What are you blokes trying to do, I get into enough trouble with the Editor chopping my notes down without any assistance from anyone else trying to make them disconnected. They have a building fund, and to make a short story longer, what with donations, etc., they will be given £560 if they find £150. Hope I've got it right Frank.

Well that's the lot for now, so cheerio and see you next month, ditto to you PanSy, thanks for reading my notes also. —Uncle Xray.

TOWNSVILLE AND DISTRICT

Sorry chaps for the notes not appearing since Feb. "A.R." but as 4 Uncle Xray was promoted to the writing of the Qld. notes, he was unable to do these for me as of yore. Since my last notes appeared I have partaken of the hospitality of the Apple Isle boys. I must say that while in Hobart I was treated as a V.I.P. and my thanks go to all down there in organising the trips around the various shags. Also, the scenic places as far south as Fort Arthur, the old convict settlement. Unfortunately I missed the snow on top of Mt. Wellington by two days, but was treated to some tall tales of how deep the snow can really get on top. Even had time to go along to the v.h.f. meeting and meet the ones I never seem to hear on 50 Mc.

While in Burnie met my namesake, VK7ZAA. Would have liked to have worked him for QSL card for pride of place but he is interested in only 144 Mc. so no chance at this distance. While in Sydney had the pleasure at long last in meeting Bill 2AQQ, who is often seen wielding the white cane, and he would like to use it on the commercials in our bands. Naturally met the old gang including 2SG. While in Cairns at the end of the long travel met Claude and Alice 4ZY and enjoyed the usual cuppa, before going around to Zoe and Basil 4ZW for another. Managed to break the journey and visit old timer, Charlie 2ADC, at Casino. He still burns the midnight oil in speaking to Africa and U.S.A.

Locally, Bert 4LB has gone to Magnetic Is. for a month's leave, so I'll have no QRM for awhile. Ted 4EJ has a mighty rx in the making, estimated time over a year to complete, in between times from the goggle or idiot box. Alan 4BE making an adaptor for f.m. so he can listen only to the t.v. sound. Nothing doing here on the v.h.f. bands, while 21 and 28 Mc. are practically out as the m.u.f. seems to have mislaid these bands—even the commercials are not heard above 24 Mc. with their power, so what chance have we got in working 28 Mc.

Hope to hear Frank 4FC soon as I saw a parcel of parts being sent along, so he must be getting the urge once again. Sorry boys I cannot work you on 7 Mc. due to the extra heavy QRM from local private enterprise on week days. Heard Owen 4OV working the boy from the mulga, 4FE, whose time in the bush is fast drawing to a close and he retires to city life. 73, 4RW.

WIDE BAY AND BURNETT BRANCH, W.I.A.

Helped to keep one of the seats warm at the Wide Bay and Burnett Branch meeting on 28th April, at which 16 boys from Bundaberg, Maryborough and Gympie answered the roll call. Main item of business at the meeting was to work out a satisfactory scheme to maintain the enthusiasm of the boys in the Branch because of the long distances that have to be travelled by some to attend the meeting as it is nearly 200 miles from the southern to the northern borders of the Branch, and it is a bit of a strain on the boys to have to attend a meeting every month under such circumstances. It was decided that Maryborough and Gympie centres each form a club of their own (Bundaberg already has their own), attend to the business of their clubs at the monthly meeting in their own home town, and all three clubs meet once every three months at a central meeting place to discuss the affairs of the Branch and have a special feature such as a technical film, lecture, or a transmitter hunt, etc. This arrangement made everybody go home happy with the day's work.

Gordon 4GH and Bill 4SW plan to start a class at Maryborough shortly. During the luncheon break in the meeting, a free-flying radio-controlled model plane was seen cleaving the sky nearby, so the boys took themselves over to have a closer look. The operator explained that he knew a little about radio, mainly what he had read in magazines, etc., where upon Gordon 4GH outlined to him the advantages of doing a course, so he will be

one of Gordon's pupils in his A.O.C.P. class. See what I mean. If you go looking for them you will find them.

Chips 4XR has another class going in Gympie, most of them live out of town, some come from 30 miles away each week. Bill Tomlinson, who was in the last class and is now hopefully awaiting results, came 40 miles each week. These boys are like a certain brand of mustard around these parts.

Have heard that a large store was seen flying around Elliot Heads lately looking for a place to land, and before Rusty 4JM could get out the shot gun it landed and presented Jocelyn 4JJ with a 10 lb. 7 oz. harmonic. It will wear the pants when he grows up, not that that conveys much, as both types wear them these days, but you know what I mean. Congrats, to Rusty and Jocelyn for a good job well done. 73, Fred Cox.

SOUTH AUSTRALIA

The monthly meeting was held on 23rd April to a rather small gathering. Some business was transacted and a report of the Convention was given by the President, Phil 5NN, as the Federal Councillor was sick Willie.

Al 5MP then gave the lecture for the evening on the design of modern rx's. He brought along his own rx for demonstration purposes and also to show that he practices what he preaches. When he finished his lecture, the questions flew thick and fast. I've been to lots of Institute lectures in my time, but I've never heard so many questions. Eventually everyone was satisfied, and after a pause more business was transacted before the President declared the meeting closed.

Some of those present took the hint, quite a lot didn't and they stayed and talked—and talked. Finally, the caretaker of the building turned up with his apprentice—an alsatian, that appeared to be roughly the size of a Shetland pony. I had a chat with the caretaker while the pooch wandered around the meeting room introducing himself to the members. Another record bit the dust that night—the time it takes to empty a large room! I reckon we should make him an honorary member and appoint him official bouncer. He'd be worth his weight in ham sandwiches! Notwithstanding the above, he's friendly and a very nice dog—that's in case he can read!

From this point, Warwick takes over. He was still away on the meeting night and black-mailed me into coming out of retirement. Hope you had a good holiday, Warwick, and welcome back. 5CA. (Just a minute while I sharpen my red pencil.—Editor.)

I thanguyou—I thanguyou—I thanguyou. May I take the opportunity of expressing the thanks of the Division to Brian 5CA for so splendidly filling in during my annual leave. Not only did he compile the notes for the "Mag," but he also took over the weekly notes in the daily paper for six weeks, and if I may be permitted to say so, performed the unwanted task with distinction. Once again many thanks Brian. Take a bow.

Speaking for myself, I feel that someone should have taken him aside and instructed him in the duties of a relieving scribe. If they had done so, it is possible that my pride would not have been so badly dented. Not only did he outdo me in the daily paper, but he somehow or other managed to get past the sub-editor's desk about twice as much as I have ever been able to do, and the quality of the notes left mine for dead. I have not seen the magazine notes as yet, but am quite prepared for about six pages of news, aided and planned by the Editor himself. I understand that the general membership stood in line to wait their turn to give him news and notes. Yet when I remonstrated with them on their lack of notes this month for me, they sneeringly said, "It was a good chance to cut you back to size and shrink that big head of yours." Now, of course, flattery normally has no effect on me, and flows off my back like a duck, but I assure those flatterers that my fountain pen has been filled with acid and during the year they should receive their just rewards. I hope!

Joe 5JO called in to see me the other night to tell me that Joe 5JT was in hospital down Brighton way, having fallen from his tower with unsatisfactory results to his framework. At 71 years of age, I suppose he should have thought twice of climbing around on his tower, but after all, I realise that Radio Amateurs never grow old. Hope you are doing fine Joe. Was I right about your age?

Received a letter from Frank 8AE, and among other things he tells me that some 18 months ago I wrote up in the magazine that one of the Alice Springs Youth Centre Amateur Radio Club, to wit, Graham Jenkins, had passed his Amateur ticket and would probably be going on to bigger things. Graham is now at the

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Adelaide University having a shot at his Bsc.B.E., and also won the A. H. Peake Bursary and the Commonwealth Bursary. As he had only just turned 15 years when he passed his Amateur exam., he was not permitted by the regulations to go on the air, so he put aside his ideas of Amateur Radio and concentrated on his studies and came out of his Leaving Honours with five subjects, five credits. Nice work, Graham, hope to hear from you via 5UA some day. Nice work Frank to you also, not often a protege turns out trumps like that. Thanks for the letter.

Whilst on my holidays at Oakbank, I was summoned to the local Post Office and handed my usual mystery letter addressed to me in far from flattering terms. This mystery letter has arrived for me without fail over the last ten years and is probably the main reason why the local inhabitants of Oakbank lock their doors each time I pass and peer in a decidedly scared fashion through the window curtains. I have never been able to pin down the sender. However one of the local gypsies allowed me to cross her palm with a ten pound note (by the way, where is that ten pound note?) and she said that she could plainly see Norfolk Island natives with bones through their noses and Lord Howe islanders with Morse keys shoved up their jumpers. This seems to ring a bell somehow, but as it was going to cost me a further ten pounds for any more visions, I cried quits. If I ever find out who this Arch villain really is, there will be quite a Hewitt and Cry after his skin. Very subtle, is it not?

Heard from Bart 5GZ with respect to the University Amateur Radio Club, which by the way has been somewhat inactive for a while because of studies, etc., plus the fact that the new engineering building is in the course of erection, which meant the aerial coming down for the moment. The 5UA rig is in the process of having some of its modifications undone as somebody tried to improve the v.f.o. to the extent of confusing the issue. How tactful can I be? But all now is well, and by dint of much hard work and the selling of disposal gear, they have been able to raise enough money for a new rx. Everybody is more than satisfied with its performance, especially as the aerial is only a piece of wet string at the moment. Have heard them on this week on c.w. on the 7 Mc. band and the signal was louder than ever to me.

Over the past two or three years or so the question of renewing my Amateur licence at the local post office instead of at the Receiver of Public Monies has reared its ugly head and also provided me with both targets and ammunition galore. Early this year, to my dismay and sadness, the Department apparently wearied of the position and allowed me to renew the licence at my local P.O. and thus lowered the curtain on a certain paragraph each month in the magazine. Imagine my surprise and gratification to receive, just before my holidays, a letter from the Department under the heading of "Final Expiry Notice" informing me that no trace of payment of my licence could be found and if I was still in possession of radio communication equipment and did not pay up, it was proposed to cancel my licence. Now what about it you mob, I follow your advice and look like having my licence rubbed out. What do I do now Max 2ARZ? Anyway, I live to fight another day. It should be good for another three or more paragraphs. You beaut! Pay your licence at the local P.O.—Sez you!

Jack 5LR still enjoying his voluntary retirement, although he admits that his XYL manages to find plenty of work for him around the house. He has not been very active for some time now, but is tinkering with the idea of building up a small rig for 40 and 80 mx and renewing acquaintance with some of the country boys with whom he spent many pleasant hours in QSO back in the "good old days".

The annual fees for the Divisional membership are coming in very well for the new year, but in case anyone has forgotten, now is the time to cough up the spondulike and become financial. Always remember that you are only a voice in the wilderness by yourself, but as a united Division your voice can be heard in the right places at the right time. I know, I know, you don't think that, but try and get anywhere with officialdom on your own. You are not in the race. Look at me. They even threaten to cancel my licence. You Beaut!—got it in again.

All the big things happen in VK5 when I am on leave and this year was no exception. Al Scarlett and his wife paid a rush visit to our fair city, arriving by air on Wednesday afternoon, 17th April, and returned to VK3 on Monday, 22nd ultimo, and the same to you. A good roll-up of his friends and XYLs, his friends' XYLs of course, were at the airport to meet him on his arrival, included in whom were Bo 5BO and XYL, Johnny De Cure 5KO,

Harry Cooper, Mr. Peake (2nd op. to Harry 5HG), Bobby Bruce and his 2nd op. Pete Slattery, the mother and father of Bob, and several locals unknown to my spy. One of the unidentified locals was Jack 5JS, together with his XYL, and I only found that out by keeping my ear to what the wild waves have been saying, but I am glad I did because I shudder as to what would have happened to me if I had slipped up on that one! Bo Williams took Al and his wife for a trip in the northern areas on the Thursday, with Bobby Bruce doing likewise southwards on the Friday, with Saturday being spent in meditation (if that is what visiting Amateurs do on Saturdays!). Sunday saw an "open house" at the QTH of "BO", at which the aforementioned gang were joined by Ted 5JE, and I take it for granted that the conversation oscillated between the merits of 7 Mc. from Ted and 3.5 Mc. from Johnny! At the airport on Monday, Mr. Peake and Bobby Bruce were among those waving goodbye, and Al for once in his life was speechless at the hospitality shown him.

Latest news from the Port Pirie Amateur Radio Club tells of their good fortune in acquiring their own club rooms at the Port

Pirie Aerodrome through the helping hand of the Council. Plans are in hand to organise working bees, etc., to paint the rooms and generally make it into respectable premises. The XYLs of 5EQ and 5ZES are starting to haunt the auction sales to pick up tables, chairs, cupboards, etc., and a good time is being had by all. Two meetings have been held in the new rooms, and most of the business has dealt with the formation of a Youth Radio Club the first meeting of which was held recently to the tune of 61 enrolments, much to everybody's surprise, only about 20 or so being expected. Now my spy, and a female one at that, stresses the point that in such a venture the biggest problem is of course finance, and suggests that any of the city slickers who may be passing through Port Pirie at any time might like to drop off all those spare bits and pieces that have been cluttering up their shacks, possibly for years. A phone call to Pirie 335 will bring someone at top speed to take delivery, and of course, anybody who may happen to be in Port Pirie is especially welcome to drop in to either the senior club meeting on the last Wednesday night in the month, or to the youth club meetings which are held alternate Friday



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nights. Well now, how is that? This club is certainly going places, and I hope that Ken IKM has not completely given me away and snatches a glance at this paragraph, because whilst it is hardly my answer to his challenge, it at least shows just what can be done by a combined effort. Many thanks Pamela for the news. May I call you Pam?

Stuart SMS can boast of a first class operator in the family and I don't mean maybe. His daughter Val is with the Navy up at Darwin and if all can be believed, wields a wicked fist. By a series of strange coincidences, Stuart has been able to say hello to Val on the odd occasion that she has happened to be in the shack of one or other of the boys in Darwin.

Claude 5CH has at last found time to erect an aerial, having for many years operated on a piece of wire, and is tickled pink with the reports coming back. I have not as yet heard the signal, but it will have to be good to beat the one from the piece of wire, although Col 5CJ, who lives two blocks away, has an S meter which can speak volumes!

Ron 5VH, being in temporary accommodation, cannot find the space to set up his gear. However, when the new house is completed, the plans of many months will be put into execution.

Leo 5GJ is staging a come-back and his tower has left the prone position on the grass and is now above the trestops. Nothing as yet on top, but at least it is in the right position for further activity. Erg 5KU is among those missing at the moment and my spy has nothing to report on him. Possibly a search in the c.w. section of the bands might disclose his whereabouts, but until then silence reigns supreme.

Dale 5ZER, Gary 5ZGR and Les 5ZLS are all fairly active on the v.h.f. bands, and above all are solid supporters of the S.E. monthly meetings, and with Col and Trev. Hutchesson, together with John Lehmann, help to keep the attendance number up. The last mentioned three are anxiously awaiting the results of the last L.A.O.C.P. examination and should know by the time these notes are being read. John has had plenty of training in this "anxiously waiting" business, he recently became the proud father of a bonny bouncing baby boy. Naturally my internationally known warning of "DX before dishes" now becomes "Nuvistors before nappies"! Pardon me for stealing your thunder, Col.

Col 5CJ is still keeping his lunchtime sked on 7 Mc, and is in the process of building a new 150w. tx in an endeavour to compete with the other members of the network. Is this known as "keeping up with the Jones"? Careful, Col.

My espionage agent from Mt. Gambier gently draws my attention to the fact that down that way they have no v.h.f. sections—all are Radio-Amateurs, regardless of the type of ticket held!! OK, OK, I will don my new suit of sackcloth and ashes, but I must admit the truth of that statement, even if nobody else will.

Usually manage to contact a couple of the gang at Mt. Gambier from Oakbank when on my holidays, but this year heard plenty of signals from the areas just over the border, but no dice from the Mount. Incidentally, I was the proud recipient of an illuminated invitation to the annual convention of the South Western Zone of the Victorian Division of the W.I.A. Unfortunately for me, and probably fortunate for them, my leave ran out before the date of the convention and I could not accept their kind invitation. However, when informed of the sad news, the Secretary (Don 3AKN) suggested that as I was passing through Vic's. "Ideal City" (his words, not

mine), it was hoped that I would meet up with some of the boys. Again unfortunately, etc., etc., circumstances did not permit of any stops on the road. However give it time Don, I might bob up at one of the meetings, who can tell? In disguise of course, there is a price on my head in VK3!

Talking of Interstate, I felt that I detected a note of reproach in the challenge issued to me by Ken IKM in the April issue of the magazine, because I used the words "getting on the bandwagon". If this be the case, I hasten to assure him that no offence was meant. I have nothing but admiration for the scheme, and the efforts of all concerned. I used the words in the modern idiom, to wit, something new and therefore something of interest to all. Regarding the challenge, I am a glutton for challenges, but under the VK5 system of running the Division, the Council and President make all the decisions as to who organises what and which, therefore I am not able to accept the said challenge without their permission, and everybody knows of my respectful obedience to that august body! Incidentally, in my remarks regarding the Brompton Boys' Club, the organiser was given in the magazine as Joe 5JA. It should have read Joe 5JO and did he let me know! You can say that again.

My holidays were split up into three sections, and after the second section I returned home to be greeted with the news that a VK4 had called several times to see me and was coming back. Grabbing everything within reach, I beat a hasty retreat out of the city for a week or so, only to find again on my return that the same VK4 had called and would be returning. Now I ask you, how would you feel, especially after all I have said in these notes re VK4s? Anyway, I decided to stick it out and face the music, and I am glad I did. He turned out to be an S.w.I. named Ben Hall, an extra good bloke, more than keen on Amateur Radio and a good ambassador for VK4 to boof. Nice to meet you Ben.

No sooner did I recover from this shock to the nervous system, than believe it or not, I get a telephone call late at night challenging me to a duel at dawn next morning from an unknown voice who eventually turned out to be Ken 3AFJ, who had just arrived for a visit to VK5. I should have been prepared for it, because the VK3 scribe, in feindish glee had alluded to it a couple of months before, and the name Pincott had been haunting me ever since. However, burying the hatchet (not where it should have been buried), I invited him and the family to lunch, and rushing out and getting some get-well cards to post to VK3 after the lunch, I sat back and waited for my fate to overtake me. Well it wasn't too bad, he brought along his army with him, and armed with gifts for my XYL, my grandson, and believe it or not, for me, and proceeded to charm the entire household with me gritting my teeth. Before you could say boo, my XYL was rushing around digging some of my highly prized plants from the garden and cramming them in Ken's wife's (Joan) pocket, or wherever XYLs keep prized plants. My grandson was whispering in my ear at odd moments that Ken's daughter Judith and her girl friend, Margaret, better known in social circles as "The Duchess" and "Princess Margaret," were two "lubberly girls," and finally, in my upset mental state I had sunk to the level of letting Ken blow down my ear on the subject of s.s.b., even sinking so low as to ask him for a diagram on the confounded subject. Well, I can't go any lower down the scale after that, so I might just as well say that we thoroughly enjoyed their visit and rate them as good scouts. We hope

they enjoyed themselves and will come again some day, but please, not for a while, let me regain my self-respect. As a final lump of salt to rub in my wounds, Ken delivered a present to me from the gang in VK3 officialdom, which he said they felt would help me to brush up my technical knowledge and get back on the air. What was it? Well it was a thick book, green in colour, smelling a bit mouldy, all about wireless, with interesting advertisements about ship travel, and er, and er, oh what do I care, it was the 1913 edition of "The Year Book of Wireless Telegraphy and Telephony." Oh dear, oh dear, what a month! 73 de VK5PS—Pansy to you.

WESTERN AUSTRALIA

Well, another Council election has come and gone, together with an Annual General Meeting. As you know, it is required by the Constitution that nomination forms be circulated among members prior to the meeting, and it was most gratifying to me, personally, to know that every member of the Western Australian Division regarded my sample of duplicating work of such a high standard that they were loath to tear the sheet off and return it, with somebody's name on it who would be prepared to accept their responsibilities in the running of the Division and stand for election to Council. As I say, it boosts my ego no end (an ego is a thing like an egg with an aught on it), but unfortunately it doesn't get new blood into the Council.

Talking about new blood, I believe we have a visitor from ZS land, Jo'burg locality, who is spending his long service leave in VK and surrounding islands, at the moment using the call sign of VK6ZS and operating a KQWI with adaptor on s.s.b. and c.w., so watch out for that one and give Peter a call.

S.s.b. reminds me that Ted 6JG has been on 80 mx with the Suck Stack Blow and has much improved quality since the visit from Vic 6VK. Keep at it Ted, it's funny stuff, but everybody's getting it now.

Wall 6AG is still not satisfied about this business of sending out a signal with no carrier and only half the number of sidebands that the best-dressed a.m. signals wears. However, he has settled for leaving a hole in the middle and calling it double sideband. Almost sounds like two times eight by seven plus six, doesn't it? I think a very potent drop anyway, Wall.

All the numbers leads me on to Allan 6AR, who can frequency by pressing a key. Yes! I know this often happens when you press the key, but Allan has dozens of them. In fact it takes both hands and both feet and at least one knee to work all these, and Allen even wiggles his eyebrows for effect. All right, well I'll tell ya! It is a Hammond organ and you can actually hear all these frequencies! What's that? No! No, Allen will not be bringing it along to the meetings!

Incidentally, Ron 6KW had a very busy time in Sydney for the Easter Convention, and spoke very highly of the arrangements made for their comfort. Congrats to VK2! Believe Ron was never very sure when the sessions began and closed, due to the talks that went on in the hotel bedrooms at all sorts of odd hours. Over 30 agenda items were dealt with as well as general business and policy matters, so F.E. have enough to keep them going for another 12 months.

Another of our flying Hams is Dennis 6AW who recently returned to duty after six months in the East. Understand that Dennis saw some color t.v. over there, and by the time you read this, I believe we will have had a lecture from him about it.

Our Patron, George 6GH, is still regaling us with technical tidbits on Sunday morning and George certainly covers a range of subjects, and judging by the comments has an interested and wide audience. All the best, George, and keep it up.

Here's one for the books. Reading the mail one night and heard Jack 6BU say his XYL is doing some study for the ticket and I understand she's not the only one. Lance 6LR also has an XYL who is doing some study. Good luck to you both and no doubt Aline 6YL will be pleased to hear from you when you turn the rig on with your own call sign!

Down Katanning way, we find that Robbie 6XR has just completed a re-building programme in the home and now looks to the more serious and important things in life, such as t.v.i., s.s.b. and putting a signal on the air again. Added to Robbie's list of jobs is repairs to the quad, a freak hailstorm last month exceeded Robbie's calculations, causing fracture of some of the copper wires. Once more up the tower, Bob.

Frank 6XF faces the opening of the golf season this month, but after too many high scores and too many lost balls, we are betting he will be back on the air very smartly.

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Herb 6XO, a regular on 80 mx these nights, is putting the finishing touches of solder to his new s.s.b. rig. Herb's quad and tower collapsed in a storm last month, but is back in working order after using several packets of band-aids to lash the tower together. Herb states "She's up forever now, string just won't hold a tower up."

Clarrie 6XG has been using up 80 mx lately and has now packed his case and drifted eastwards, to attend the I.R.E. Radio and Electronic Engineering Convention in Melbourne for a week, then some tripping around Victoria and South Australia for a few weeks. 73, 6LS.

TASMANIA

I record with deep regret the death on 9th April, 1963, of Ted Evans, VK7FJ, after a long and painful illness. We extend to Mrs. Evans and family our sincerest sympathy in her and their loss. Ted, at various times, had acted as President, Secretary, Treasurer and Councillor of our Division, and had also been an active Amateur as well as a keen professional radio technician. His assistance in such Divisional activities as the R.D. Contest and the Jamboree of the Air will be sorely missed.

Crosby 7CW has erected a more suitable antenna, particularly for the 80 mx band. Crosby is also in the course of constructing an s.s.b. rig. Snowy 7CH and Ken 7KA spent Easter afloat on the yacht Moorina, as well as the first week-end in May, rounding off another year of sailing mixed with operating mobile marine. Snowy was delighted when he worked a PZ station (I have never heard one) during Easter.

Ted 7EJ has returned to VK7 after the Federal Convention in Sydney loud in the praises of the VK2 hospitality, and enthusiastic about the Youth Radio Club scheme. We hope his enthusiasm will inspire a considerable response in the rest of us here in VK7.

April must have been a peak month for mobile operation, but May will be very little behind. Col 7LZ, Peter 7PF, Graham 3ZIF, Michael 7ZAV, John 7JF, Lee 7KC, Len 3LN, David 7ZAI and Ric 7ZAT were all heard operating mobile, as well as Snowy 7CH and Ken 7KA mobile marine. These activities can only do good and the band activities have reflected a considerable improvement as a result.

Congratulations to Sam 7SM on receiving the certificate authenticating his W.A.S. Several new call signs have been heard, particularly in the Northern Zone. Bob 7ZRF and Graham 7ZBR are both active on 144 Mc., and these young lads are looking both VK3-wise and south. Amongst older Amateurs, Den 7DK is very active on 2 mx and has several modes of transmission ready for working 21 Mc. DX. Phil 7ZAX has his new 6 mx gear and new shack fully operative. I also hear that Jack 7JB will very soon be driving an 813 to 150w., but in the meantime he has replaced the 807 in his present rig with a 8DQ6A with most gratifying results. Charlie 7KS has the rx

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The lecture at the May Divisional meeting was on Traffic Signalling, in the electronic sense, delivered by Mr. Russell, traffic engineer for the Transport Commission. The result of our lecturer's planning can be seen around Hobart, and bears testimony to forethought and capacity directed to a very fluid subject. 73, 7ZZ.

NORTHERN ZONE

The monthly meeting of the Zone was held a little later this month because of Easter, and it was a very successful meeting. There was plenty of lively discussion during general business and the feature for the evening was a tape lecture by Harold 2AAH, entitled "Fox Hunt". Our congratulations are extended to Harold for his very fine lecture and commendable style. It was thoroughly enjoyed by all those who attended, from the youngest to the oldest, and is sure to add impetus and more satisfaction to our next fox hunt.

The activity this month seems to have been centred mainly on v.h.f. bands. Two new call signs have appeared, Bob 7ZRF and Graham 7ZBR, and this makes nine active stations working 2 metres in the Northern Zone. The local boys have been given a chance to try their gear over longer distances the last few weeks because David 7ZAI and Rick 7ZAT have both been very active on Flinders Island and many contacts have been enjoyed between Flinders Is. and Launceston, and to Poatina. Some of the stations are only running low power of about 3 watts and the signal reports received have been surprisingly good.

Our congrats. to Den 7DK for his fine effort in the VK-ZL DX Contest, taking first place for VK7 in the c.w. section. Den has been casting his eye out for suitable relays. He may come up with that electronic key soon.

Very pleased to hear Bob 7ZRF on 2 mx and going well, and I hear, too, that Graham 7ZBR is working out well. These young lads should do well and when joined by their confederate, Joe Jelston, there will be no stopping them.

Sorry to hear that Ray 7ZRJ has been on the sick list—finished off his long service leave in bed—but later reports say that he is now back at work, so it takes a lot to keep you down Ray!

Ted 7ZBB was very pleased to make contact with the Flinders Island boys 7ZAI and 7ZAT. It was the first long haul contact—130 miles on 4 watts. Ted also has been working hard at his c.w. and sat for the exam. a few weeks back, and soon should have his full call.

The 20 mx band has been opening well here lately during the afternoon and Ted 7EC has been heard at full cry on the key, raking in his share, also Den 7DK has been picking a few more new countries. He now has more than enough for his D.X.C.C. This is the second time Den has worked his D.X.C.C., having done it on his VK5 call.

John 7JF has his tower finished and erected, a 33 ft. triangular steel type, and he hopes it will stand the 100 m.p.h. plus winds OK. It should soon be sporting a quad on top. This may be more of a problem in the wind than the tower anyway here's hoping. His new tx has been on the air, but is presenting more problems than thought possible, mainly with parasitic oscillations in the final. Really vicious they are, and he has also learnt a lot about neutralising pi coupled finals, too!

Very pleased to meet two visitors to our last meeting—Keith Jones, who has his Limited licence, and is studying for his full licence before obtaining his call sign, and Frank Richards, who is keen to obtain his A.O.C.P. Pleased to have you along chaps and we wish you every success. 73, Johnny Fox.

NORTH-WEST ZONE

As our usual scribe has seen fit to go globe trotting I will do my best to find some news. Don't be fooled by the tx originating from Athol. If at some time it announces itself as 7MS it will only be that it is not yet acclimatised to Burnie. We are all anxiously awaiting for David to come up on what he describes as his secret weapon. If he radiates it via that quad it will be diagonally polarised. George is really sold on s.s.b. Would like a bit more distance between us though; a fine sig. George. Ken 7KH appears to be having some success portable. Also notice that Sam is still receiving the usual flood of DX cards.

Had a visit from 7JF the other day. Do mend that portable-mobile John so that I can locate you. Was thrilled to have a QSO with Keith 7RX from the rig of ZLIAMN Auckland the other night.

Some drastic changes are coming to this Zone due to lack of support. Social meetings will be held at private homes soon. Therefore we will be able to accommodate a limited number only. Bad luck chaps, but you asked for it. Remember that what you get out of

any organisation is commensurate to what you put into it. Perhaps we could blame t.v.—the scourge of Hamdom.

We are hopeful that some aspiring (possibly perspiring) Hams will face the next Exam. The best of luck chaps and if you need any help, it will be forthcoming.

Have just returned from the May social meeting. Quite a good roll-up. Nice to see TDR and TTT again. If this keeps up we may be able to revise our ideas. Some interesting lectures were delivered and I am sure that we all learned a lot from them. Noticed George and Ken in deep discussion on some aspect of sideband. They are going to convert us all if we don't put up some sales resistance. 73, 7MX.

HAMADS

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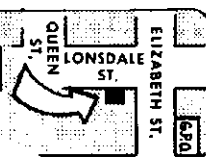
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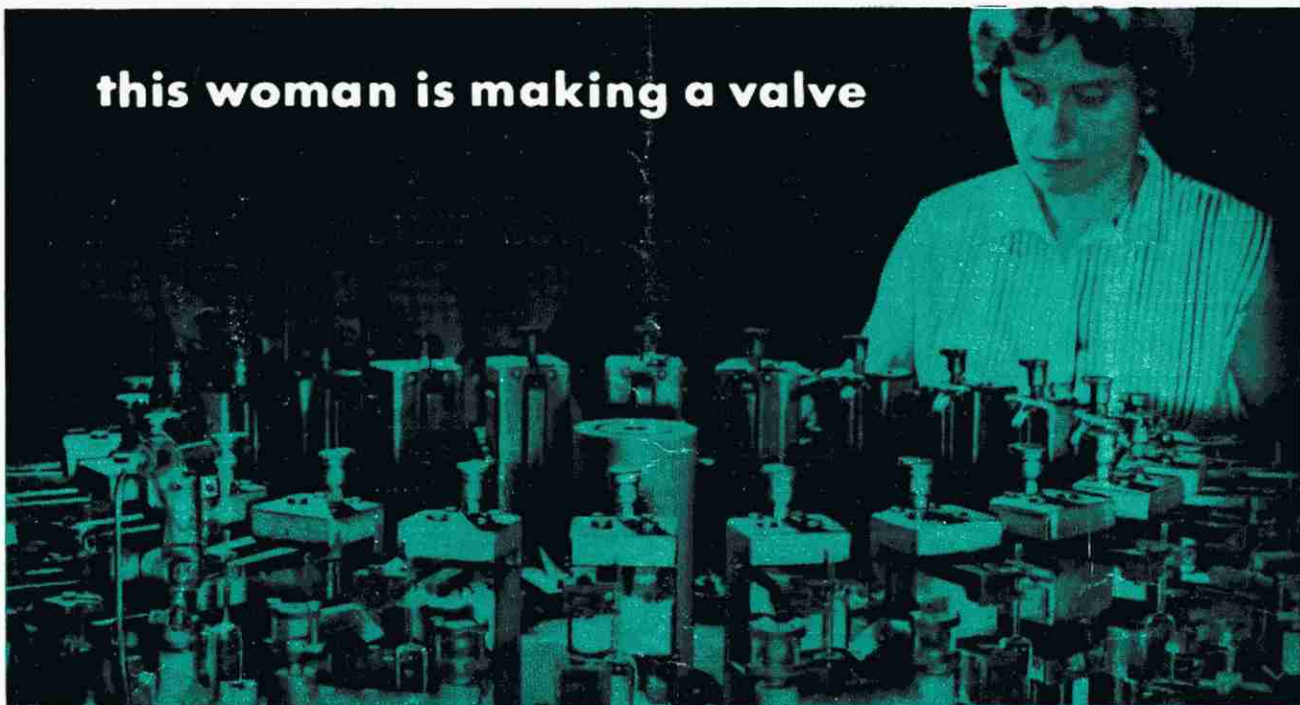


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this man is installing it in an automotive ignition scope

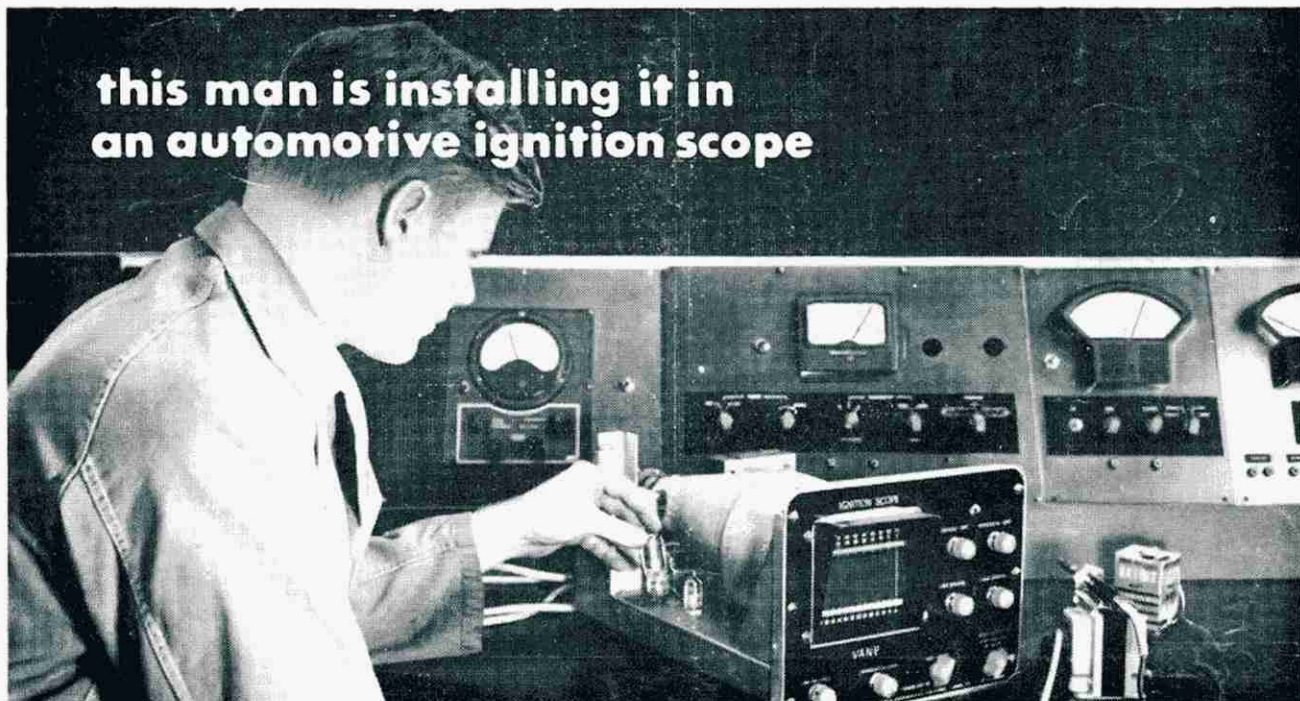


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A M A T E U R R A D I O

JULY 1963



Vol. 31, No. 7

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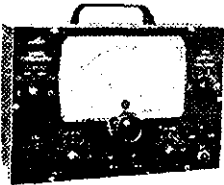
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OUR COVER

Turn to page 10 for a Profile of
VK3ZEB, Ray Bedson.

FEDERAL COMMENT

★

HISTORY AND TRADITION

Every great Institution has records of past events. Events which have served as milestones in its history. By the same token every organisation worth its salt accumulates over the years many traditions of which it is justly proud.

The Wireless Institute of Australia is such an organisation, a fact which has helped the Radio Amateurs of this country to attain the prestige and privilege of being members of the world wide Amateur Radio Service—an integral part of the international communications system.

We, the individual members of such a worth while organisation, are charged with the duty of ensuring that:—

No gaps are left in the historical records of the past and present.
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Future members can look back and admire the work and service of the present day Amateur, as we do those members who have passed this way before us.

With this purpose in mind, your Federal Executive will publish extracts of our historical records in this, your magazine, in the hope that interested persons who can fill any gaps which appear to exist in our records will communicate same to us for inclusion therein.

To those persons who have already, or will in the future, contribute to this worthy object we say—Thank You!

FEDERAL EXECUTIVE, W.I.A.

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D.S.B. AND S.S.B. AT V.H.F.

K. WOODWARD,* VK2ZAU

IT is not the intention of this article to debate the merits of sideband transmission over straight a.m. as these are now well established facts. Instead, it is wished to relate the experiments of the author and collaborators in getting their "feet wet" on sideband.

Fig. 1 illustrates the first double sideband transmitter built and tested. Whilst good results were obtained with this circuit the carrier suppression left a lot to be desired, and at 50 Mc. it would seem that improving the suppression might be difficult with the

1200 volts applied to the plates a peak power output of 200 watts is obtainable from the two valves. As the average screen volts are very low, the plate dissipation will not be exceeded, even at double plate voltage. Needless to say, your power supply should be capable of handling the large excursions in loading.

Having proved that double sideband was feasible on 50 Mc., and reasonably simple to receive, the next step was to build up a rig capable of running high power. This was achieved as shown in Fig. 2 by the use of 6DQ6A

mobile was not equipped with a b.f.o. The signal was not decipherable as a.m., however a lead from the aerial of a dual-wave transistor set was laid next to the tuneable i.f. mixer and tuned 455 Kc. from the frequency of the tuneable i.f. Thus the local oscillator of the transistor set beat against the signal and gave perfect reception. I hasten to add that the mobile is now complete with b.f.o.

The same audio is used for both Fig. 1 and Fig. 2, the link coupling in Fig. 2 being used as a possible t.v.i. precaution. When used at VK2ZVL's QTH on low power and at VK2ZQX's QTH on high power, no trace of t.v.i. was discernible on any Sydney channel. It will be necessary to try the balance network on either 6DQ6A grid to see which will give the best balance, sometimes a balance trimmer may not be required.

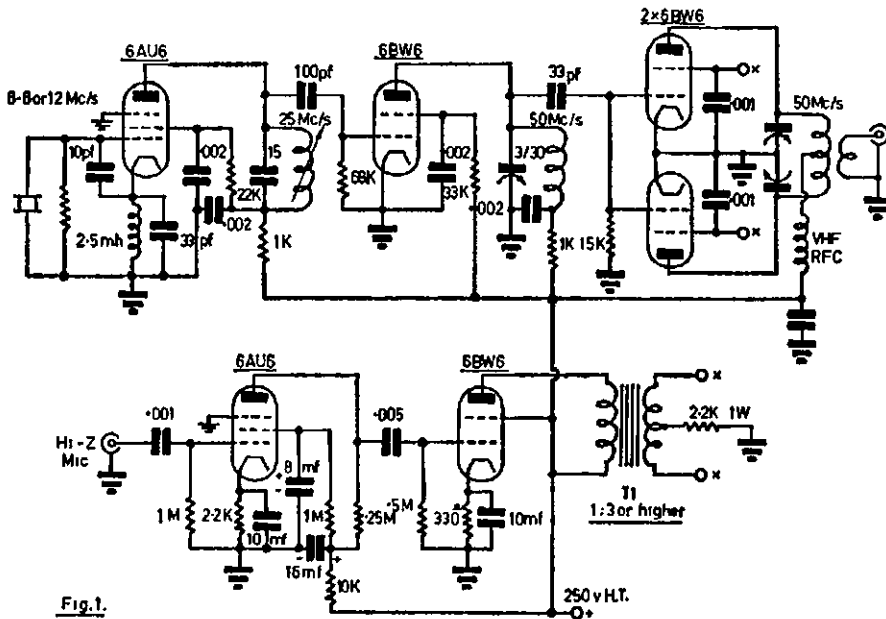


Fig. 1.

circuit configuration. However, jumping ahead a little, the final could be built to conform with that of Fig. 3, using the 6BW6s, and thus obtain a very efficient low power double sideband transmitter.

The circuit is quite straight-forward in the oscillator, multiplier and audio stages, the diverging point being in the final amplifier. The carrier is fed to the 6BW6 valves in parallel, and as the plates are connected in push-pull configuration the carrier is balanced out. The modulating voltage is applied to the screen-grids and according to the instantaneous polarity of this voltage, determines the plate current of either valve, and in this process produces the two sidebands with suppressed carrier. A wide selection of pentodes or tetrodes could be substituted in this circuit. To calculate the peak power output which can be obtained, take the normal class C telephony output power for one valve, as quoted in the valve data book, then multiply it by four.

Take the case where the class C telephony output for a single valve was 50 watts at 600 volts, then with

valves in the balanced modulator. Speech peaks will run the rig slightly past 100 watts input with 600 volts on the plates. At the first stage of testing, this equipment was run with 300 volts on the plates, not very well regulated, and was copied at a distance of 30 miles under novel circumstances.

The transmitting site was VK2ZVL at Lakemba, the receiving site the author's mobile equipped with 50 Mc. whip. At the time, VK2ZVL was using a two element vertical beam and my

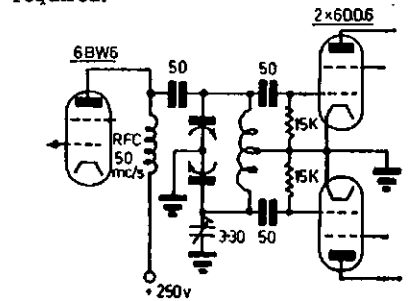


Fig. 3.

While not tried on this rig, Fig. 3 gives a modification which could make tuning of the balanced modulator easier. The capacitive loading of the driver plate circuit makes the choice of the lower grid circuit for the balance capacitor mandatory. For tuning up the final and balancing out the residual carrier, a rectifier and moving-coil meter combination, as shown in Fig. 4, is virtually a must.

Whilst the double sideband transmitters have been featured for simplicity, they have another advantage over s.s.b. in that speech clipping can be used. When speech clipping is used on a d.s.b. signal the readability under adverse conditions is such that a solid contact can be maintained when other-

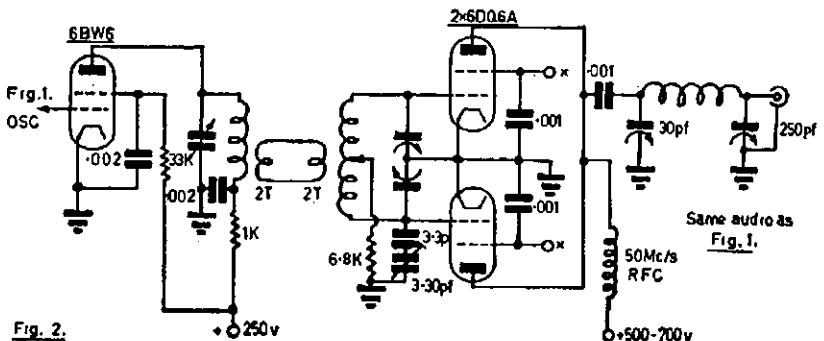


Fig. 2.

* Flat 28, 48 Morehead Street, Redfern, N.S.W.

wise without clipping the signal would not be readable.

When designing d.s.b. transmitters you can help the other fellow on the reception end by suppressing the low frequency components of the speech. This can be brought about by using small coupling capacitors, such as 0.001 μ F. between stages. When present research is completed it is hoped to publish details of a mobile transmitter including speech shaping and clipping and also dealing with the problems of sideband reception.

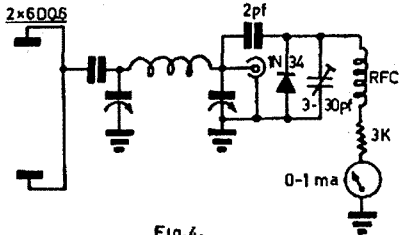


Fig. 4.

If not already known, four Amateurs in New South Wales have formed the V.H.F.-D.X. Club to further the progress in long-distance working on v.h.f. bands and to aid this purpose issue a certificate to anyone fulfilling certain performances. The members of the club have tried to pioneer the use of sideband on 50 Mc. in N.S.W. and the circuit in Fig. 5 gives details of the club project being built up by the members.

The idea was to build up an exciter that was compact, simple and capable of driving a linear amplifier to a reasonable power level. Whilst not claimed to be the ultimate in s.s.b. exciters, the first one finished by VK-2ZVL has given quite a good account of itself, both barefoot and driving a linear. Incidentally, this rig is thought to be the first s.s.b. rig on 50 Mc. in N.S.W.; any other claims? Also, to the author's knowledge, the first 50 Mc. d.s.b. in N.S.W. came from the author's shack.

Referring to Fig. 5, V1 combines two functions, carrier oscillator and modulator. The carrier frequency and modulation are applied to the balanced

modulator which uses a pair of OA202 silicon diodes. The d.s.b. signal from the balanced modulator is fed to a crystal filter which disposes of the unwanted sideband (lower). V3 combines the function of mixer and class A amplifier at 50 Mc., while V2 is the oscillator multiplier chain to obtain the necessary frequency to convert the s.s.b. generated signal to 50 Mc. The final valve in the exciter can be run in class A or AB1 at 50 Mc. and develops enough drive to run a high power linear. Thus a total of four valves will transmit barefoot a 50 Mc. s.s.b. signal or develop enough power to drive your favourite linear amplifier.

It will be necessary for the prospective constructor to either have access to frequency measuring equipment or to purchase the crystals already ground to frequency. The club purchased 30 odd crystals which were frequency checked and the necessary grinding undertaken. Do not be frightened to grind your own crystals as with the small frequency change to be made, it is very unlikely that you will damage the crystal. Normally it would be necessary to measure the anti-resonant frequency of the crystals, but this seemed difficult at this frequency with the equipment available so we settled for measuring the frequency of each crystal in the same test oscillator with a Bendix frequency meter.

We started with all crystals on the same frequency, Y1 and Y2 being selected at the same frequency. Y3 was then ground for the required separation frequency which should lie between 1.7 Kc. and 2.5 Kc. You can see therefore that this is not so very critical. Y4 is not strictly necessary, but if used its anti-resonant frequency should be at the oscillator (carrier) frequency or a few cycles lower. After the rig is working you could try several crystals if available with the same marked frequency and leave the best resulting crystal in circuit. The function of Y4 is to give increased carrier or unwanted sideband suppression.

The crystals were ground for the originals using a marble slab borrowed from the kitchen and some hand clean-

ing preparation which allowed me to sneak up on the 1.7 Kc. spacing with quite good accuracy. Whilst the crystals used were approximately 5.7 Mc., they could be any frequency close to this as long as the coils will resonate to the chosen frequency.

Details of T1 and T2 are given, but check with your g.d.o. (allowing for the shielding can) to ensure that the coils will tune to the frequency. In particular be careful when making the bi-flar winding on T1 as if this is made incorrectly nothing will make the balanced modulator work. The original models use all shielded coils. While possibly not entirely necessary, the carrier (when the exciter is driving a ZL linear) is not detectable from VK-2ZVL's transmitter at the author's QTH, so that extra care will pay in results achieved.

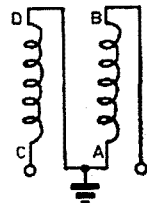


Fig. 5. Bifilar winding.

The winding of a bifilar coil is illustrated in Fig. 6. Take two lengths of insulated wire and calling the two starting ends A and C, wind them alongside each other to the required number of turns, the finishing ends being B and D respectively. Now join end D to start A, this junction being earthed; the two remaining wires go to each respective diode in Fig. 5.

ALIGNMENT

This is where care should be thoroughly exercised as a filter rig initially well aligned and stabilised will give long-term enjoyment with no fussy re-adjustment. You will require preferably, (1) a stable well-shielded general coverage receiver capable of s.s.b. reception plus a 50 Mc. converter,

(Continued on Page 7)

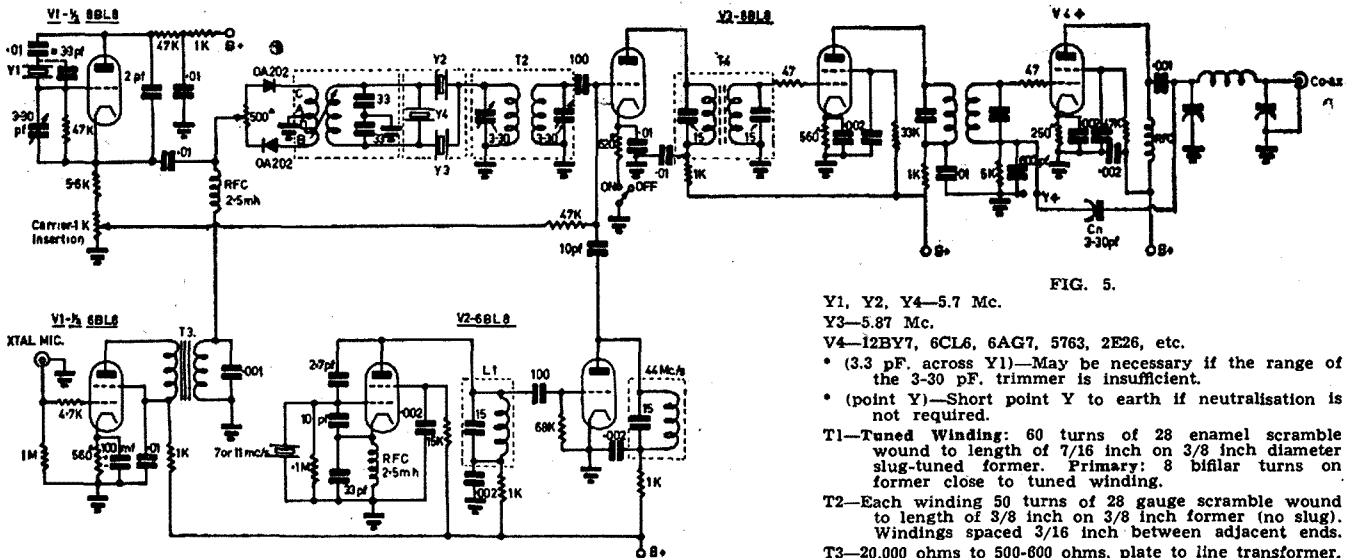


FIG. 5.

- Y1, Y2, Y4—5.7 Mc.
- Y3—5.87 Mc.
- V4—12BY7, 6CL6, 6AG7, 5763, 2E26, etc.
- (3.3 pF. across Y1)—May be necessary if the range of the 3-30 pF. trimmer is insufficient.
- (point Y)—Short point Y to earth if neutralisation is not required.
- T1—Tuned Winding: 60 turns of 28 enamel scramble wound to length of 7/16 inch on 3/8 inch diameter slug-tuned former. Primary: 8 bifilar turns on former close to tuned winding.
- T2—Each winding 50 turns of 28 gauge scramble wound to length of 3/8 inch on 3/8 inch former (no slug). Windings spaced 3/16 inch between adjacent ends.
- T3—20,000 ohms to 500-600 ohms, plate to line transformer.

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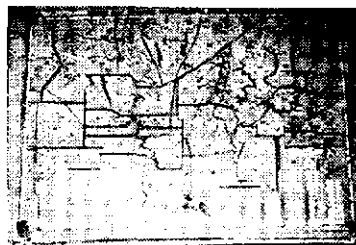
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The Neon Oscillator

T. W. BARNES,* VK2ABI

THE neon oscillator is one of a class known as relaxation oscillators; this oscillator employs a condenser whose rate of charge is determined by a resistor connected in series with it and the supply.

The condenser is periodically discharged by a neon glow tube which "relaxes," that is, abruptly reduces its resistance when the voltage across the condenser reaches a value capable of initiating a massive ionisation of the gas in the tube.

The cycle of charge and discharge is continuously repeated so long as power is supplied to the circuit. Provided that the discharge time remains a small part of the total time of the cycle, the frequency can be said to depend on the resistance and capacitance involved, the voltage of the supply, and on characteristics of the glow tube, or only on the first two when the others are fixed. The wave generated is saw-tooth in form.

Fig. 1 shows the typical circuit of such an oscillator; C is the condenser referred to and R the resistor determining the rate of charge of C. The resistor R1 may be present to limit the current through "N" (the neon tube) to a safe value. R1, if present, has a value which is small compared with that of R.

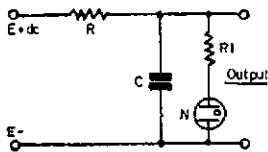


Fig. 1.

The voltage at which a glow tube initiates discharge of the condenser is commonly about 120, and discharge commonly ceases at about 70 volts; the difference is approximately 50 volts.

When a d.c. potential, E_{dc} , is applied across CR in Fig. 1, a voltage E_R appears across R due to the flow of current into the condenser C and at the same time a voltage E_C appears across C due to the charge stored in it. The voltage E_{CR} equals E_R plus E_C ; E_C opposes the flow of fresh charge into the condenser and a graph of E_R and E_C against time has the form shown in Fig. 2.

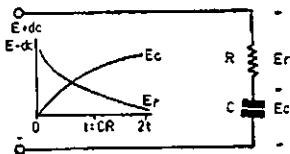


Fig. 2.

Voltage E_R is determined by the expression

$$E_R = E_{dc} e^{-t/CR} \text{ and } E_C \text{ by}$$

$E_C = E_{dc} (1 - e^{-t/CR})$ in which "t" is the time in seconds, "C" is the capacity in farads, "R" is the resistance in ohms and "e" is a number, 2.718.

From these equations, when $t = CR$ seconds,

$$E_R = 0.368 E_{dc} \text{ and } E_C = 0.632 E_{dc}$$

Another way of expressing E_R and E_C is to say that:—

$$t = 2.301 CR \log (E_{dc} \div E_R)$$

$$\text{or } t = 2.301 CR \log [E_{dc} \div (E_{dc} - E_C)]$$

These equations are only satisfied if the condenser C is initially completely discharged.

If a switch was provided across C and this was immediately closed at instant CR seconds so as to short circuit the condenser, the output voltage E_C would go through one cycle shown in Fig. 3; if this cycle was immediately and continually repeated a saw-tooth output waveform, approximately triangular in shape, would result.

Its period would be $t = CR$; its frequency (f) would be $1 \div CR$.

Automatic switching may be provided by the inclusion of a glow-tube, but the frequency will be modified.

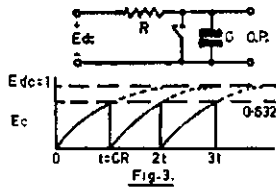


Fig. 3.

Gas discharge tubes contain two electrodes, cathode and anode; the cathode may be cold or hot (thermionic) and the tube contain neon, mercury vapour, hydrogen, or some other gas.

These, together with the physical design of the electrodes, permit a variety of characteristics; for example, the voltage difference between ignition and extinction of discharge may be as low as 10 volts in some tubes.

The gas within the tube is at low pressure. As a result the mean free path of particles is great enough to allow an acceleration significant enough to cause massive ionisation when the potential reaches a critical value.

When this occurs the tube behaves very much like a short circuit.

The critical voltage, called the "ignition voltage" (E_i) in a cold cathode glow tube is, say, 120 volts.

The sudden fall in the internal resistance of the tube has quite a rapid onset and the voltage across the tube will usually rapidly fall to some lower value, called the holding value.

It is interesting to note that although the current through the tube may rise to a relatively high value, the internal resistance undergoes such a reduction that for quite a range of current values the tube voltage drop remains approximately constant. There is a plateau in the curve relating current to voltage.

This is due to the emitting area of the cathode increasing approximately linearly with current in this phase. Continued increase in tube current will eventually cause an increase in tube voltage drop, the whole cathode area

now being active, culminating in arcing which might destroy the tube.

This is the reason for the inclusion of the resistor R1 already mentioned. This resistor is commonly wired into the tube cap in the bayonet type base. A 0.22 megohm resistor can be seen within the red fluorescent plastic case of the warning light incorporated into some of the three-pin flat power outlets.

A fall in voltage below a critical value known as the extinction voltage (E_e), about 70 volts, allows a fairly rapid but not instantaneous exhaustion of ions within the tube and the tube internal resistance rises to a high value; effectively an open circuit.

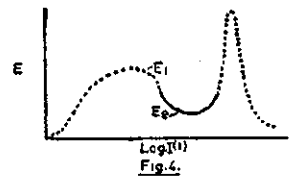


Fig. 4.

The extinction voltage is of the same order as that of the plateau shown in solid line in Fig. 4.

When such a tube is connected in parallel with the condenser of CR, it will act as a switch, closing at the ignition voltage and opening at the extinction voltage, giving a wave shown in Fig. 5, as E_C varies with time.

It is apparent that in this new situation, for the same CR, the frequency is greater than before, since the time taken for the voltage to rise from E_e to E_i is, in practice, smaller.

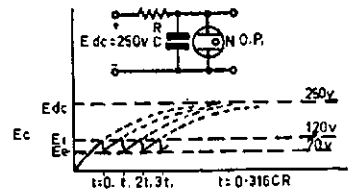


Fig. 5.

At low frequencies the discharge from E_i to E_e can be considered instantaneous, but in fact it is not so and as the frequency rises (the product CR decreases), the discharge will occur over an increasing fraction of the total period of the cycle, particularly because the extinction is not instantaneous.

Ultimately then, as CR diminishes, discharge will become continuous. It is stated that the shortest time of de-ionisation may be as little as 10 microseconds but is commonly about 150 and in some cases may well be 300 microseconds.

Thus the upper limit of frequency of oscillation is generally less than 10,000 cycles per second,¹ and where a tube glows, but does not oscillate, the design frequency may be too high.

It seems that the upper frequency for the bayonet capped pilot light may well be as low as 1,000 cycles; but a fluorescent starter still oscillates strongly at 3,600 cycles.

* "Kanangra," Cabbage-tree Lane, Fairy Meadow, N.S.W.

The new relationship between time and CR after the first ignition of the tube is:—

$$t = 2.301 CR \log \left(\frac{E_{DC} - E_2}{E_{DC} - E_1} \right)$$

for one excursion from E_2 to E_1 .

When E_{DC} is 250 volts, E_1 120, and E_2 70 volts, the expression above reduces to,

$$t = 0.316 CR \text{ for one excursion from } E_2 \text{ to } E_1.$$

If the discharge time be ignored, as is reasonable at low frequencies,

$$f = 3.16 \div CR = 1 \div 0.316 CR.$$

At useful frequencies, the wave is more nearly triangular as E_1 — E_2 becomes small compared with E_{DC} .

These oscillators may be synchronised or locked to a cyclic voltage E_1 if a sufficient "pulse" of that voltage be injected into the oscillatory circuit.

Locking occurs when the free running frequency of the "neon" oscillator is somewhat less than that of E_1 .

The effect is represented in Fig. 6 where the injected pulse causes the glow tube to ignite just before its "normal" instant. Locking on extinction would ordinarily be more chance-like.

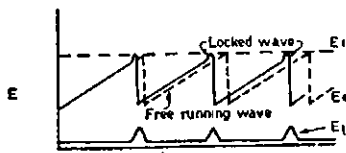


Fig. 6.

Such a device was used in the time base of a simple oscilloscope whose circuit appeared in the A.R.R.L. Handbook of 1946.³

An adaptation of this circuit to local practice is shown in Fig. 7.

A particularly simple Morse practice oscillator may be made by using this oscillator. Provided it is operated without grid current and with a supply with good regulation, or in Class A, it should have no key chirp.

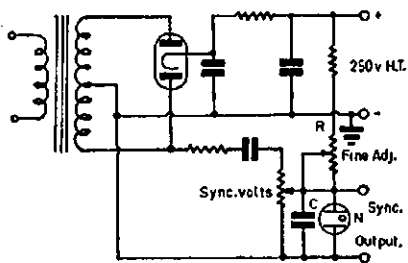


Fig. 7.

Some experiment may be necessary to avoid key click and in addition some trouble may arise if the key appears "leaky"; the timing circuit can be a high impedance circuit and see the open key as "just another resistor". Fig. 8 shows how, with an available drive of about 50 volts, full rated audio output of an EL3NG can be realised; it also shows how easily a domestic receiver can be made over for Morse practice. When the key was inserted at point X or Y in Fig. 8, it appeared leaky and click was bad (open key voltage 250v.); it works very well where shown

and without the need of "key shaping" which very readily creates an annoying back wave.

The device makes a very good "side tone" oscillator for monitoring keying in an electronic transmit/receive switch, see Fig. 9.³ The oscillator is keyed by the blocking of the plate current of the 6C4.

In setting out to make a "neon" oscillator it is necessary to ensure that the applied voltage is considerably greater than the ignition voltage.

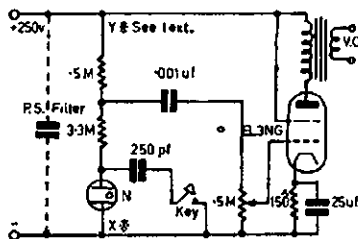


Fig. 8.

Attempts often fail because the constructor forgets the limiting resistor of the "pilot light" type tube. This resistor (perhaps 220,000 ohms) should either be removed or made part of the timing circuit.

A very effective and cheap glow tube is the fluorescent starter selling at about 2/6. Included with this (in parallel) is a condenser whose capacity, 0.006 μ F., is sufficient to permit it to be used directly by addition of the appropriate series resistor.

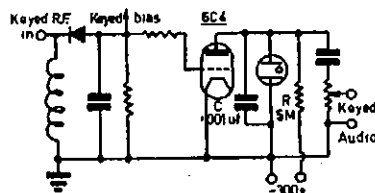


Fig. 9.

The electrodes of the starter tube form a small bi-metallic switch which closes during ordinary operation. In the application we are considering there is no likelihood of this; the tube works indefinitely, giving a beautiful reedlike tone.

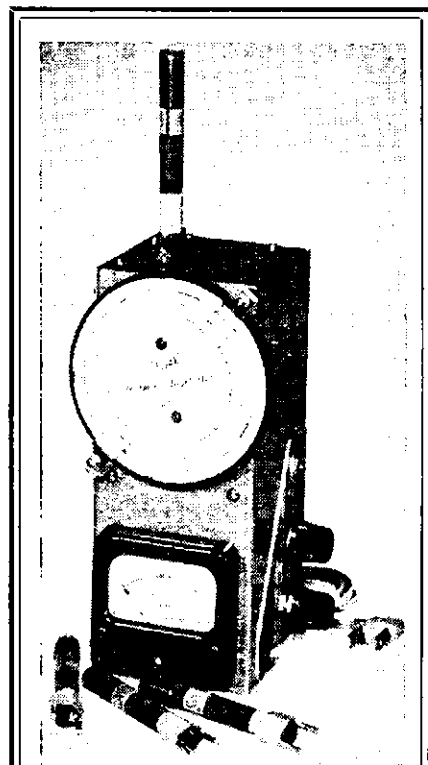
Summarising we may say that in a given case the product CR is the main determinant of frequency. For the case chosen, the frequency approximates to $3.16 \div CR$. If high audio output is desired, it is better to use a tube with a large difference between E_1 and E_2 .

Everything else being correct, if the tube glows but does not oscillate, the design frequency is probably too high and CR should be increased; if the tube does not glow, the applied voltage is probably too low.

When tubes intended for other purposes are to be used, they may include some element which will prevent or modify operation.

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4. "Pulse Techniques, Moskowitz & Racker; Prentice Hall, 1951.



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D.S.B. AND S.S.B. AT V.H.F.

(Continued from Page 3)

(2) a signal generator with an auxiliary output of 400 c.p.s., (3) a sensitive wavemeter.

With no h.t. applied to V2 or V4, ascertain that V1 oscillates and is crystal locked. With balance control to one side, talk into the microphone and you should be able to copy yourself at the carrier frequency on the general coverage receiver set up for a.m. Now join up V2 and ascertain that the oscillator-multiplier chain is working satisfactorily.

With the 50 Mc. converter in operation connect a small capacitor to the grid of V4 and feed through a shielded lead to the input of the converter. Tune the receiver to the expected transmitter frequency with the balance control still to one side and the carrier insertion control at zero. Peak T1, T2, T4 and T5, reducing the receiver r.f. gain as required. L1 and L2 may be finally aligned for maximum output.

Still with no h.t. on V4, transfer the coupling capacitor to the transmitter output connector, re-peak T4 and the pi network for maximum output. If neutralisation is used, adjust Cn and a sharp null should occur. Re-peak T4 and pi network and check Cn again, repeat if necessary. The final should now be neutralised. The balance control can now be set and should null the carrier at approximately the centre of its range.

If you are able to cut the level down far enough you should now be able to listen to s.s.b. on your receiver and check the performance. A sensitive wavemeter should be used to check the final to ascertain that no spurious frequencies or 45 Mc. from the multiplier stage is present. If in doubt, feed a 50 Mc. signal from the signal generator through V3, V4, T4 and T5 and re-peak T4 and T5. CI can now be adjusted for best voice quality on the air consistent with unwanted side-band suppression.

In conclusion, I must point out that you should not regard s.s.b. as a cure-all for t.v.i. All normal precautions should be taken and as a s.s.b. signal will saturate a close t.v. set more so than an equivalent a.m. signal, keep on good terms with your neighbours. However, one bright point is that you will probably have no beating patterns on t.v. sets such as often occurs with a.m. signals. Come in, the water's fine! ●

Standardisation of Frequencies for F.M. Mobile Operation

Since the availability of mobile f.m. equipment, ex commercial services, there are upwards of 40 mobile and base units in operation in Victoria.

It is expected that this equipment will become available in other States in the near future, some having been released in South Australia recently.

Suggestions have been made that common frequencies throughout all States be established on the 50 and 144 Mc. bands to provide Amateurs with this equipment the mobile facilities which have become both appreciated and commonplace in Victoria and the U.S.A.

The frequencies may or may not be ideal, but since there are so many units in use, the cost of a change for all existing crystals would be prohibitive. (Forty odd units, with two per unit at approx. £6 per set.)

144 Mc. BAND

The frequency in present use in Victoria on the 144 Mc. band is 145.854 Mc., and further channels about to be used with approximate channel separation of 146 Kc. are as follows:—

Channel 1:
145.854 Mc.—Mobile to mobile, and mobile to base contacts.

Channel 2:
146.000 Mc.—Secondary channel for the same use as above.

Channel 3:
146.146 Mc.—Base to base contacts and link frequency.

50 Mc. BAND

The 50 Mc. f.m. equipment is only just established and suggested operating frequencies are as follows:—

Channel 1:
52.525 Mc.—Primary calling frequency (same as for 144 Mc. use).

Channel 2:
52.645 Mc. (same as for Channel 1 uses).

Channel 3:
52.765 Mc.—For base to base contacts and link frequency.

Since it is desirable that accurate crystals be obtained for this service, and in view of early difficulties with various crystals available, the Victorian

Disposals Committee would, if required, arrange the supply of these crystals for W.I.A. members.

It is emphasised that the standardisation of the above frequencies throughout Australia would provide Amateurs with mobile f.m. equipment with a service comparable with that now in operation in the United States of America, where there are f.m. nets with large numbers of Amateurs operating, complete with inter-city links on the v.h.f. channels.



ERRATA IN V.H.F. CONTEST RESULTS

The Federal Contest Committee regret that two errors appeared in the Ross Hull Memorial V.h.f. Contest 1962-63 Results that appeared in the last issue.

In Award Winners, Section B Transmitter Phone, VK3NJ should read VK3ZNJ, K. W. Jewell.

In the Individual Scores, Section B, again VK3NJ should read VK3ZNJ, of Beaumaris. Also VK3FN should read VK3FW, of Canterbury.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK6RU	2	281	VK3WL	14	211
VK5AB	45	275	VK3ATN	26	204
VK6MK	43	278	VK4HR	12	192
VK3AHO	51	269	VK4RW	23	184
VK4FJ	21	247	VK3GB	50	183
VK6KW	4	211	VK2JZ	61	180

C.W.

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK3KB	10	310	VK6RU	18	240
VK3CX	26	294	VK3RP	56	229
VK2QL	5	279	VK3FH	15	226
VK4FJ	20	277	VK3BZ	6	222
VK3NC	19	266	VK5RX	23	220
VK2AGH	71	241	VK4HR	8	218

Amendments:

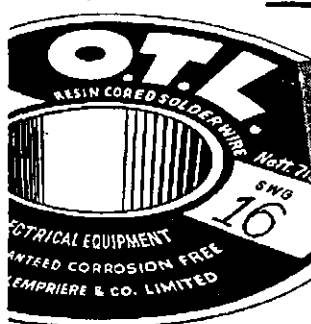
VK3AXK	30	165	VK3JF	70	164
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OPEN

Call No.	Cer. No.	C't-ries	Call No.	Cer. No.	C't-ries
VK2ACX	6	300	VK3NC	77	269
VK6RU	8	290	VK3HG	3	269
VK4FJ	32	285	VK3JA	43	252
VK6MK	74	280	VK4HR	7	233
VK2AGH	83	274	VK3BZ	4	231
VK3AHO	76	272	VK3WL	45	225

New Member:
VK5GG 90 101

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REMEMBRANCE DAY CONTEST, 1963

A handsome perpetual trophy is awarded annually for competition between States, inscribed with the names of those who made the supreme sacrifice, and so perpetuating their memory throughout Amateur Radio in Australia.

The name of the winning Division each year is also inscribed on the trophy. In addition, the winning Division will receive a suitably inscribed framed photograph of the trophy.

Objects

Amateurs in each Call Area (this includes those in Australian Mandated Territories and Australian Antarctica) will endeavour to contact Amateurs in all other Call Areas (VK1 and VK2 are to be considered to be in the one Call Area; likewise VK5 and VK8).

Date of Contest

Saturday, 17th August, and Sunday, 18th August, 1963.

Duration

From 1800 hours E.A.S.T., 17th August, to 1759 hours E.A.S.T., 18th August, 1963. A period of 15 minutes' silence will be observed by all stations on 17th August, immediately prior to the beginning of the Contest, when an appropriate broadcast will be made and relayed from Divisional Stations.

RULES

1. There shall be four sections to the Contest:—

- (a) Transmitting Phone.
- (b) Transmitting C.w.
- (c) Transmitting Open.
- (e) Receiving Open.

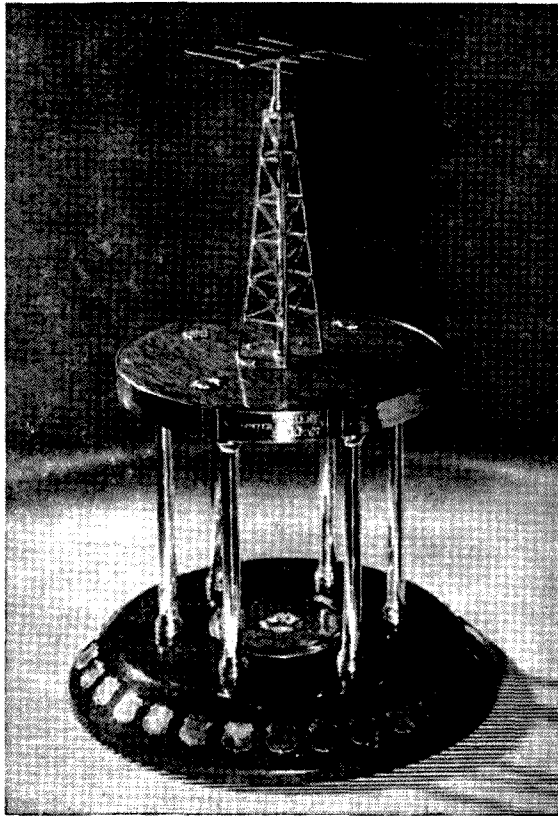
2. All Australian Amateurs may enter the Contest whether their Stations are fixed, portable or mobile, but only members of the W.I.A. are eligible for the awards.

3. All Amateur frequency bands may be used, but no cross-band operations are permitted.

4. Amateurs may operate on both phone and c.w. during the Contest (e.g. phone to phone, c.w. to c.w., or phone to c.w. and vice versa), but may submit an entry for one only of the above Sections listed in Rule 1.

An Open log will be one in which points are claimed for both phone and c.w. transmissions.

● The Federal Contest Committee of the Wireless Institute of Australia wishes all Australian Amateurs and Short Wave Listeners to participate in the Annual Contest which is held to perpetuate the memory of those Australian Amateurs who gave their lives for their country during World War II. It is held on the week-end nearest to 15th August, the date on which hostilities ceased in the South West Pacific Area.



Remembrance Day Contest Trophy

A contestant transmitting on phone, but receiving on c.w. must enter for the phone section (and vice versa). Refer to Rule 11 concerning entry in logs.

5. Only one contact per station per band is allowed and arranged schedules for contacts on other bands is not permitted.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.

Contestants operating Club Stations other than their own shall be referred to, for the purpose of these Rules, as "substitute operators". Their operating procedure shall be as follows:

Phone contacts: Substitute operators will call "CQ Remembrance Day" followed by the call sign of the station they are operating and the word "log" followed by their own call sign.

C.w. contacts: Substitute operators will call "CQ RD de" followed by the group call sign comprising the call sign of the station they are operating, an oblique stroke, and their own call sign.

Contestants receiving signals from a substitute operator will qualify for points by recording the call sign of the substitute operator only.

7. Entrants must operate within the terms of their licences.

8. Cyphers.—Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures starting from 001 for the first contact and which will increase in value by one for each successive contact. If any contestant reaches 999, he will start again with 001.

9. Entries must be set out as shown in the example, using only one side of the paper, and wherever possible standard W.I.A. Log Sheets should be used. Entries must be postmarked not later than 16th September, 1963, and addressed to the Federal Contest Committee, W.I.A., Box 638J, Brisbane, Qld.

Your log could help your Division to win the Remembrance Day Contest Trophy.

SCORING TABLE

		To								
		VK0	VK1-2	VK3	VK4	VK5-8	VK6	VK7	VK9	
From	VK0 ..	—	6	6	6	6	6	6	6	6
	VK1-2 ..	6	—	1	2	3	5	4	6	6
	VK3 ..	6	1	—	3	2	5	4	6	6
	VK4 ..	6	1	2	—	3	6	5	4	6
	VK5-8 ..	6	2	1	3	—	5	4	6	6
	VK6 ..	6	1	2	4	3	—	5	6	6
	VK7 ..	6	2	1	4	3	5	—	6	6
	VK9 ..	6	1	2	3	4	5	6	—	6

Note.—Read table from left to right for points for the various call areas.

EXAMPLE OF TRANSMITTING LOG

Date/Time E.A.S.T.	Band	Emission	Call Sign	RST Nr. Sent	RST Nr. Rcvd.	V.h.f. Bonus	Points Claim.	—
Aug. '63								
17 1803	7 Mc.	A3	VX5XU	59001	—		2	—
17 2349	"	"	VK6RU	56005	—		5	—
18 1200	50 "	"	VK2OP	43026	—		25	1

Note.—Standard W.I.A. Log Sheets may be used to follow above form.

EXAMPLE OF RECEIVING LOG (VICTORIAN S.W.L.)

Date/Time E.A.S.T.	Band	Emission	Call Sign Heard	RST Nr. Sent	RST Nr. Rcvd.	Station Called	V.h.f. Bonus	Points Claim.	—
Aug. '63									
17 1803	7 Mc.	A3	VX5XU	59001	—	VK3XU	—	2	—
17 2349	"	"	VK6RU	56005	—	VK4YZ	—	5	—
18 1200	50 "	"	VK2OP	43026	—	VK9PA	25	1	—

Note.—Standard W.I.A. Log Sheets may be used to follow the above form.

10. Scoring will be based on the table shown.

In addition a bonus of 25 points may be claimed for the first contact in each call area on 50 Mc. or above.

11. All logs shall be set out as in the example shown and in addition, will carry a front sheet showing the following information:

Name..... Section.....
 Address..... Call Sign.....
 Claimed Score.....

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.

Signed.....
 Date.....

All contacts made during the Contest must be shown in the log submitted (see Rule 4).

Entrants in the Open Section must show phone and c.w. contacts in numerical sequence.

12. The right to disqualify any entrant who, during the Contest, has not observed the regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No disputes will be entered into.

14. Certificates will be awarded to the winners of the phone, c.w., open

and receiving sections in each call area (Northern Territory will count as a separate call area). There will be no outright winner for Australia. Further Certificates may be awarded at the discretion of the Federal Contest Committee.

The State to which the Perpetual Trophy will be awarded shall be determined in the following way.

To the average of the top six logs shall be added a bonus arrived at by adding to this average the ratio of logs entered to the State Licensees multiplied by the total points from all entries.

Example:

$$\text{Average of the top six logs} + \left(\frac{\text{Logs Entered}}{\text{State Licensees}} \times \text{Total of Points from all Entrants} \right)$$

Acceptable logs shall show at least five valid contacts.

The Trophy shall be forwarded to the winning State in its container and will be held by that State for a period of twelve months.

Note.—The F.C.C. emphasises the need for strict observance of Rule 9 in the Transmitting Section and Rule 3 in the Receiving Section.

RECEIVING SECTION

1. The Receiving Section is open to all Short Wave Listeners in Australia, but no transmitting station may enter.

2. Contest times and loggings of stations on each band are as for transmitting.

3. All logs shall be set out as shown in the example. Logs must show first the call sign of the station calling (not the station being called), the serial number sent by it and then the call sign of the station being worked. The scoring table to be used is the same as that used for transmitting and points must be claimed on the basis of the State in which the receiving station is located. A sample is given to clarify the position.

It is not sufficient to log a station calling CQ, nor is it permissible to log a station in the same call area as the receiving station.

For purposes of the Contest, VK1 and VK2 are considered to be the same call area, likewise VK5 and VK8.

4. A station heard may be logged once on phone and once on c.w. for each band.

5. Club receiving stations may enter for the Receiving Section of the Contest, but will not be eligible for the single operator award. However, if sufficient entries are received a special award may be given to the top receiving club station. All operators must sign the Declaration.

6. Awards. — Certificates will be awarded to the highest scorer in each call area. Further Certificates may be awarded at the discretion of the Federal Contest Committee.



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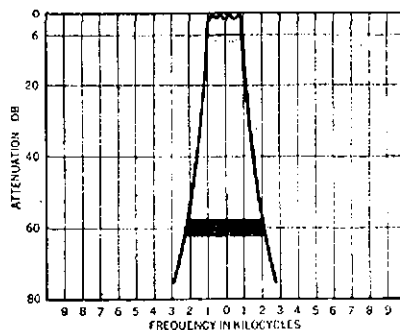
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PROFILE OF VK3ZEB

"I used to complain that I had no shoes until I met a man who had no feet."

RAY Bedson, a 25-year-old Ham, earns a happy living at a Preston (Vic.) electrical repair shop fixing radios and repairing television sets, tape recorders and record players.

He laughs and jokes with his work-mates . . . but he never sees them. He has been blind since a fall at school when he was 12.

Ray's "constant companion" when he is doing electrical repairs is a £50 test meter with a braille-scale.

When he wants diagrams of electrical circuits he draws them on aluminium foil. Soon he is "finger-familiar" with their every detail.

"I can do most jobs in radio repairs," Ray said, deftly pinching a wire bare of insulation. "Sometimes when a lot of leads are closely grouped, others might sort them out for me.

"But you get to know most of the sets. Anyway, we have all the makers' books here and if I'm not familiar with something, I take the book home and my parents read me the passage . . . or someone here will read the section."

Ray said he began taking radio as more than a hobby about 1957. Three

years ago he got the job in Mr. Maurie Grimwood's repair shop, in Plenty Road, Preston.

He found other firms wary of employing him because of the risk of electrocution. "But if you take normal care and safety precautions, there's not much chance of an accident," he smiled.

"A lot of the boys here have helped me," Ray added. "My knowledge of television has improved 100 per cent.

"I keep up-to-date with tape recordings and braille technical magazines from America."

As Amateur Radio operator VK3ZEB, Ray can be heard on two and six metres most nights.

It took almost three hours of oral examination before Ray was granted the Limited licence, but now he talks to people from Rockhampton to New Zealand and South Australia. (He will always welcome a call.—Ed.)

"You've got to prove yourself in this game," Ray said. "It will be a while before I start much television repair work. I've already had a few shocks from the set at home."

Boss Maurie Grimwood admires Ray's grasp of electrical theory. "Try him with anything—you'll never toss him. It's easy to see he's an expert. You only have to talk to him."

(Ray can be seen operating a test meter with a braille-scale on the front cover of this issue.—Ed.)

FORTHCOMING CONTESTS THE NINTH EUROPEAN (W.A.E.) DX CONTEST, 1963

The Deutscher Amateur Radio Club (D.A.R.C.), the sponsor of the W.A.E. Certificate, invites Amateurs throughout the world to participate in the 9th W.A.E. DX Contest, 1963. This well known and commonly popular Contest was, till now, held in January of each year. Due to the reduced sunspot activity, the DX conditions have been so poor during the last winter, that the 9th European (W.A.E.) DX Contest was again tentatively put off to August. It is hoped that this date offers more frequent and better possibilities of contacts, especially on the high frequency bands.

The object of this Contest—as in the preceding years—is to establish as many contacts as possible between Radio Amateurs residing in Europe and Amateurs located throughout the remainder of the world.

Contest Periods: C.w.—0000 G.M.T., Saturday, 10th August, to 2400 G.M.T., Sunday, 11th August. Phone—0000 G.M.T., Saturday, 17th August, to 2400 G.M.T., Sunday, 18th August.

The following Amateur bands are to be utilised: 3.5, 7, 14, 21, and 28 Mc. Cross band operation is not permitted.

Send logs to Dr. H. G. Todt, DL7EN, Chlodwigstr. 5, 1 Berlin 42, Germany, not later than 30th September, 1963.

4th ALL ASIAN DX CONTEST, 1963

The J.A.R.L. will hold the 4th All Asian DX Contest this year, and it is hoped that Amateurs will again enter this Contest.

The purpose of this Contest is to increase the activity of Radio Amateurs in Asia and to establish as many contacts as possible during the Contest periods between Asian stations and non-Asian.

Contest Periods: 1000 G.M.T., 24th August, 1963, to 1600 G.M.T., 25th August, 1963.

The following Amateur bands may be used: 3.5, 7, 14, 21 and 28 Mc. C.w. only.

All logs must be postmarked not later than 30th September, 1963. Send to J.A.R.L., Attn. Contest Committee, P.O. Box 377, Tokyo Central, Japan.

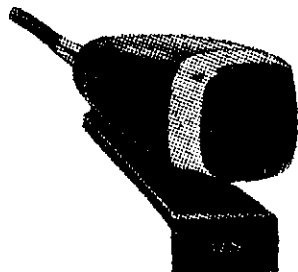


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SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

TUBE INSURANCE

Have you some hard earned cash invested in one or more expensive tubes? You have—read on. You probably would have trouble finding someone to insure it against damage or failure. Why look when you yourself are available?

This protection can only be applied to linears using fixed bias, such as the 6146, 4X150, etc. You can see how it works after a quick examination of the schematic of Fig. 1. The normally open relay only closes the contacts S1 when sufficient bias is applied to the grid. For this reason it is very necessary to connect the r.f. choke right at the grid pin. The relay needs to be reasonably sensitive, the squelch relay from an SCR522 transceiver is the one I use.

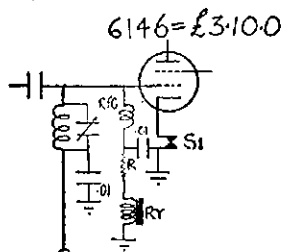


Fig. 1.—Tube Insurance.

This relay has a resistance of 5,000 ohms and requires only a milliamp. or so to operate. The value of the resistor R depends on the operating current of the relay and the minimum bias that is safe for the tube. The operating current can easily be determined by experiment. The resistor value in kilohms is found by dividing the minimum voltage by the operating current in milliamps.

Have you ever seen a 6146 tube after it has lost its bias and still has 750 volts on the plate and 250 volts on the screen? A most depressing sight indeed. Let us hope you never see it; underwrite your own insurance today.

* 7 Thorpe Ave., Queanbeyan, 4S, N.S.W.

MORE PROTECTION

Back in "A.R." Sept. 1959, you will find a very similar circuit to Fig. 2. Old timer sidebanders may have overlooked it and newcomers may not have seen it, so here it is again with an important modification.

SI is a spring-loaded switch, S2 and S3 are normally open contacts on relay RY, while S4 is a set of normally closed contacts on RY.

After the heaters on V1 and V2 have had sufficient time to heat up (my supply uses 866As), the switch SI is pressed. High tension immediately appears at the point marked. The filter capacitor C, which is usually rather high, charges, but at a slow rate determined by the 1,000 ohm resistor in series to ground. At the same time the 100 μ F. capacitor is charging until it reaches the operating voltage of the relay RY which operates, closing S2 locking up the transformer primary, closing S3 and shorting the 1,000 ohm resistor and opening S4, removing the 100 μ F. capacitor from across the relay coil. The 1 meg resistor then discharges the capacitor. It all happens faster than you can read this and amounts to about half a second.

In the event of an overload on the h.t. line and the voltage falling below a certain figure, the relay RY will drop

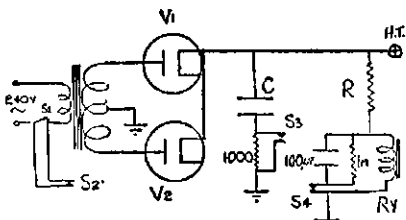


Fig. 2.—H.T. Control Modified.

out, removing the mains from the transformer primary.

The modification to the original is the addition of S4 and the 1 megohm resistor. This modification ensures that the relay drops out faster under overload conditions.

The value of R and RY will depend on the h.t. voltage and the operating current of the relay. When you make your calculations, remember to also take the power dissipated in the resistor B into consideration, and choose a resistor to handle it. If your relay has an extra set of normally-open contacts, use them to switch on a red pilot light to remind you that your h.t. supply is a killer at heart—BE CAREFUL.

ERRATUM

In the Index to "A.R." Technical Articles—1956-60, page 15, Dec. 1960, "Crystals Substitute Mechanical Filter" is entered in the Transmitting Section, but more correctly should appear under Receivers, as it refers to its use for c.w.



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National Field Day—1963 Version

R. A. CATMUR,* VK5FY

ONCE more the joys of a Field Day came upon us in South Australia, and the Elizabeth Amateur Radio Club again girded up its loins, cracked the whip over the slaves, unlocked the Treasury (also the Treasurer) and betook itself unto Black Top Hill, some 15 miles North of Adelaide.

The various characters who turned up in various states of dress and undress were:

VKs 5PE (our worthy President), 5NO (Slim), 5NQ, 5DY, 5FY, 5WV (Hon. Treasurer, complete with money bags), 5AW, 5QL, 5DK, 5EU (21 Mc. Harry), 5TM, 5AX (Pump-handle Les), 5DE, 5UE, 5DS [the Scot(ch)man from

generators had to be pressed into service.

The set-up was similar to last year in most respects, the 40 metre station using a dipole with its centre up some 36 feet on a three-section mast. Apart from its power supply, it was self-contained in a van together with the 1 metre station using a 13 element yagi.

The next station, some 500 feet away, was used on 80 and 20 metres (80 at night, 20 during the day) and had twin dipoles whose centres were supported by a 50-foot crank-up tower attached to the van containing the station. Above the dipoles was a 3 element 6 metre beam for the v.h.f. rig at this site.

The third station consisted of two vans, one containing the 160 metre and 15 metre rig and the other the 2 metre station and a general purpose standby rig for all frequencies. The gear on 2 metres had a 13 element yagi atop a 50-foot telescopic pole made by 5ZMK. In addition, the h.f. antennae shared by both vans were dipoles for 20 and 15 metres, a long wire, and a rotatable vee beam. The method of rotation was somewhat unique, and consisted of two slaves galloping over a thistle infested paddock on the word of command!

The 40 metre rig was operated by the author, ably assisted by Roger Miles. Brian VK5ZBR operated the 1 metre rig in the same van—can you imagine the racket in the van with 40 metre phone going its hardest and the 1 metre rig quietly pushing out a couple of watts of rush-box hiss!

The 80/20 metre station was under the control of Cyril VK5DY and Jeff VK5NQ, assisted by Tony Strong and Ron George. Colin VK5ZHJ operated the 6 metre equipment.

The remaining stations were John VK5QL doing the honours on 160 and 15 metres, Keith VK5ZMK on 2 metres, whilst the old DX hound, Tubby VK5NO, was the keeper of the general purpose standby rig.

In general, the stations got away to a fine start, the 40 metre rig was operating by midday, and the others at various times later. By mid afternoon all the rigs and antennae were operational and a good thing too, because George VK5CV duly arrived with his car boot full of cold, canned amber liquid, into which we all tucked with great gusto. This wonderful gesture by George now seems to be a habit since he did the same honours last year. We all thank you George, you time it so well too! As a matter of fact, it has been rumoured that the Managing Director of 5NO Enterprises was seen quaffing one before she left the site!

During these most enjoyable proceedings our worthy President, Mr. Clive M. Pearson (Council Member, W.I.A., South Aust. Division; operator of 5WI and other sundry occupations) drew himself up to a great height and commanded silence with a phone signal to outdo all phone signals. When utter

hush had made itself manifest, Clive proceeded to inform us that the commencement of the Field Day was nigh, that we should all be more gentlemanly than usual, not run more than 500 watts etc., etc., and be especially careful not to smoke within 12 feet of stubble or we would be liable to a fine of £50. At this, Tubby in particular was visibly shaken, his editorial eyes glazed over, and he trembled like a 5PS in a high wind—cos his pipe emitting a plasma like flame, was about four inches from some stubble—quite an area too if you count the double chins! However, when the Tub realised it was the ground stubble Clive was referring to, he rapidly became his old self again.

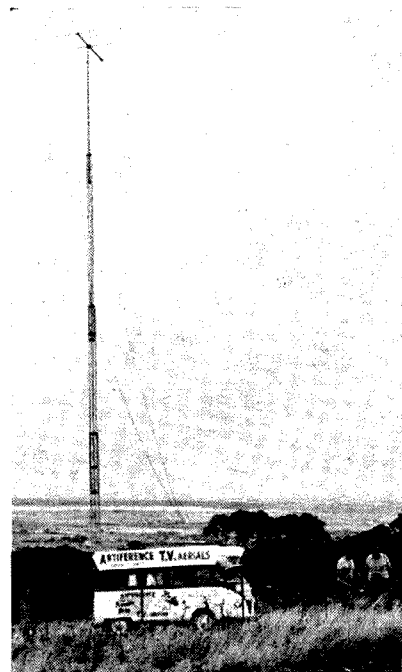


John VK5QL (160 and 15 metre station). John's junior op. Stephen is checking to see Dad doesn't splutter!

Adelaide], 5RG, 5CV, 5ZBR, 5ZMK, 5ZHJ, 5ZMT, and 5ZAH (The Admiral). Others included Tony Strong, Roger Miles, Peter Field, Tony Saville and George Downing. Ron George, of Antiference Ltd., was with us again this year complete with van and crank-up tower.

Amongst the visitors were VKs 5EF, 5DQ, 5ZK, 5GZ, 5MX, 5LD (Pop), 5OJ, 5ZBC, 5ZJG, 5BQ, and 5WN. Probably some others, too, who just didn't get identified. Our apologies to you!

By the time yours truly arrived at 9 a.m. Tubby and his willing band of slaves had the cables in situ, and we were able to settle in promptly, with very little bother or fuss—yet! Due to circumstances over which our finest scroungers had very little control, the large donk of previous years was not available (it was undergoing a face lift). As a result, a number of smaller



The 80 and 20 metre h.f. station, plus 6 metre rig.

To finish off what is now known as the Pearson Pep Talk, Clive presented Jeff VK5NQ with a magnificent gold cup donated by W3AOH to the winner of the "CQ" World Wide DX Contest in 1961. The cup had been suitably engraved and the genuine Fort Knox stuff could still be seen, that's how thick it was. At this juncture a certain Mum was heard to say "What a lovely vase it will make." "Such degradation when it was obviously made to hold 'Red Ned'," replied Dad. All nonsense apart, it was a very generous donation by Tony Susan, W3AOH, and Jeff is proud of it, not to mention the South Australian Amateur fraternity in particular—congratulations, Jeff.

After the clapping and general back-slapping had ceased, we returned to

* 142 Woodford Road, Elizabeth North, S.A.

our respective stations to commence the National Field Day Contest. That was where some of the trouble started, one end of the 40 metre dipole had come adrift, and had broken the inner conductor of the co-ax at the top of the pole. Down it came and after some rapid repairs the whole caboodle was hoisted up again at about five minutes before the Contest was due to start.

At the duly appointed time of 1800 (in "A.R.," which we assumed was 1800 E.S.T.), we were all cluttering up the ether—the 40 metre rig, however, was emitting lots of pickles anywhere but up the spout. Smoke signals, carrier pigeons and a small boy were hastily sent to the standby station which promptly came on the air to relieve the situation. Following some snooping around, we discovered the input voltage to the van was 200, and the transmitter control circuits were failing to respond. After giving the donk a couple of slaps across the brushes, and tickling it up a bit, the volts came good, the rig came good—so off we went again.

A couple of hours and 35,000 flying ants later, we in the same van smelled a smell, a familiar smell of boiling enamel, and how many of us haven't at some time or other? Brian, Roger and yours truly, looking like the proverbial bloodhounds, followed our sniffers right up to the modulator which by this time was old enough to smoke! "Woe is me, fiddle-dee-dee, and the damnation of Faust," I thought—I don't use the nearly flamin' thing all year and this is what happens! At this moment an angel in disguise materialised in the form of one Rob Gurr, VK-5RG, who helped the situation immensely by taking over the c.w. reins and let us investigate whilst he knocked a few more points up.

Nothing really wrong however, the generator had become over enthusiastic and was happily sending us more than our required voltage—275 in fact, and an electrolytic had gone west, using the choke as a load. A pair of cutters soon fixed that, and after a check to see if everything was in Field Day order, the modulator was ready for business again. So were we, and soon

we were following the old routine, c.w. -phone, then back to c.w. again as conditions dictated. Rob did a fine job and I believe he thoroughly enjoyed himself—thanks OM.

Being at the 40 metre station most of the time, unfortunately kept me from snooping around the other shacks in search of little interesting tit-bits. Still, Jeff and Cyril helped once by sitting on the tx switch and allowing us to overhear unwittingly a short conversation about the band conditions in general. Why didn't you keep it on longer chaps, it might have got really interesting!!

Bill VK5WV was the general factotum and assisted by Tony Strong as demanded, kept the donks filled and also toted round cool drinks, being helped in this by Alan, my junior operator. On the first day, however, a cameraman from one of the local t.v. stations gave old Bill's car a gentle nudge. Now Bill's car didn't take too kindly to this, and to coin a phrase, promptly dropped its bumper. Bill was really worried about this because, as he said, "If I fix that up with a bit of wire as well, the car will look like a telephone exchange!" However, all's well that ends well, and soon Bill and his car were clattering up and down the road dispensing cool drinks to the operators and donks alike.

Sunday morning saw the boys all arriving bright and early, and after checking everything, were ready for the word go at 0930, despite the odd showers of rain that appeared. The day's activities saw everything running sweetly, and even Dave VK5DS was persuaded to apply his c.w. fist into service at the 160/15 metre station.

In general, from what was heard on 40, there were a lot more mobile and portable stations participating this year. Our good friends at VK5WC were heard on many occasions and were knocking up a tidy score. The v.h.f. bands, however, were disappointing after last year.

I must refer to your cryptic comment, Ed., in the S.A. Notes for Feb. We have doubts that the 5PS type signal can reach Elizabeth, 'cos we didn't hear him in the Field Day! We have

been hoping Warwick would pay us a visit one Field Day because there would be a wealth of material for him (even money he arrives next year at 5CV time!). How about It Warwick, or are you scared of the black fellas out this way?

This article would not be complete without acknowledgments of our sincere appreciation to all the many Amateurs, and non-Amateurs, who helped in one way or another, to Ron George and Antiference Ltd., for their loan of a van and tower; to Ernsmith Ltd., of Adelaide, for the loan of a similar van and tower; to the Elizabeth North E.F.S., for the loan of knapsack sprays; and, of course, to the property owner and manager, who allowed us once again to use their land.

In conclusion a number of Amateurs were asking why the Contest does not run for 24 hours, since many of the organised groups have to leave their equipment for some eleven hours, free-wheeling as it were, until the next morning.

It was also noted that here and there is an impression that contacts made on the first day can be worked again on the second. (Same band, same mode.) Our interpretation of Rule 4 is that having worked a given station on one band in both modes, that station cannot be worked again during the Contest on that band. Perhaps a slight modification to Rule 4 might clarify this point.

P.S.—I'm glad the Field Day comes but once a year!



OFFICIAL VKO CALLS, 1963/4

- VK0AP—A. Paterson, Mawson, Ant.
- VK0BE—B. Eyre, Davis, Ant.
- VK0DC—D. Creighton, Mawson, Ant.
- VK0DM—D. Myles, Macquarie Island.
- VK0GS—G. A. Smith, Mawson, Ant.
- VK0MC—J. McKenzie, Wilkes, Ant.
- VK0NL—N. T. Lied, Heard Island.
- VK0VK—S. Grimsley, Wilkes, Ant.

QSL cards for the above may be sent via the W.I.A.

Thanks to VK3IJ, Doug Twigg, of A.N.A.R.E., for above information.

—BERS195, WIA-L3042.

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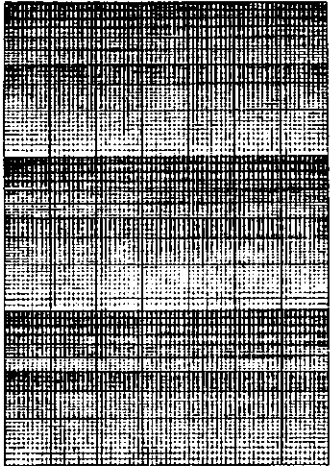
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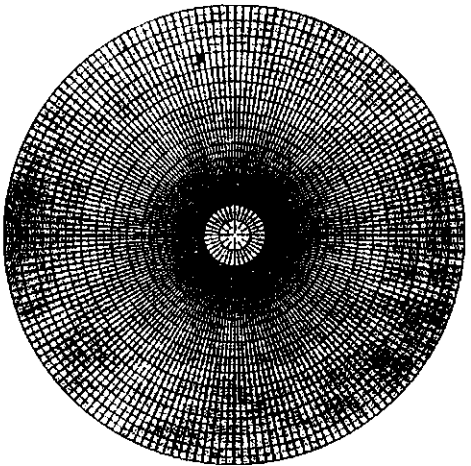
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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)

35 Whynot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Conditions usually fall away somewhat from now until Spring, and VK DX activity is consequently down. The bands, however, have been fairly active, but with very few really rare prefixes coming through. At this QTH, 20 mx falls right away as the night progresses, but generally has signals on it during the day; anything 1.p. is weak and not like old times.

40 mx has signals on it all night, but mostly only UA, J and very little worth chasing. It is not until August that the s.p. to Europe really opens on this band.

80 mx has been a disappointment this late Autumn. DX seems few and far between and after midnight only the Commercials are heard.

NOTES AND NEWS

R.S.G.B. Editor, G2BVN, sends news of the following DX-peditions:

PX10X will be the call of DL20X and a small group who will be operating from a QTH, having an altitude of 7,500 ft. in the Pyrenees. The period of operation will be from 25th June to 8th July, and the licence has been obtained. The equipment will consist of a K.W. Viceroy operating on bands from 3.5 to 21 Mc. It is hoped that the location will overcome some of the disadvantages suffered by previous trips to Andorra, when signals to some parts of the world were screened by the mountain ranges.

G2HFD will be operating from Alderney during the period 11th to 30th August, mainly on 14 Mc., but possibly also on 1.8 and 3.5 Mc. Operating hours will be usually around midday and during the evening, as this is a combined holiday DX-pedition with the former taking first place. Howard asks that QSLs should be sent to his home QTH at 20 Lock Chase, Blackheath, London, S.E.3.

A group comprising G3OUF, G3PCL, G3PCR, G3PSH, G3ROP and two SWLs intend to visit Sark, Alderney and Jersey during the period 8th to 21st August, and the call sign to be used will be GB2GC. There will be a.m. operation on 1.8 and 14 Mc., with c.w. to be used on the remaining bands. QSLs should go to G3OUF at 80 Argyle Rd., Ealing, London, W.13. The complete operating schedule will be given in a later issue.

Christmas Island: Don Reid, VK9DR, sends in information regarding the formation of the Christmas Island Amateur Radio Club. I quote him: "Our club tx under the call sign VK9DR for the present will be installed shortly. Shortage of gear has been the problem. Aerials are up and lead-ins waiting forlornly. Our club librarian has built a t.r.f. rx/phase shift osc. combination for club use and we will be monitoring the 20 and 40 mx bands prior to installation of tx. When we get going we will be looking for DX on Saturdays on 20 and 40, between the hours of 0400 and 0700 G.M.T., under the call VK9DR. Our club will have the loan of Hammarlund s.s.b. tx and rx for two months commencing August. Get the boys ready for DX contacts. QSL officer, Ron Ashley, will see that QSL is 100 per cent. through the Bureaux."

A few who are on 14 Mc. s.s.b. as of now are: PX7AAC, GD6UW, 4S7IN around 1100z, 9Q5RCS at 1830z, VK8AT at 1100z, KC8BK at 1000 and 1200z, and VP5BP at 2000z.

Following a request by the A.R.R.L., the F.C.C. has extended the facilities allowed to U.S. stations for operation on the Top Band. Expanded frequency space is available in every State and operation is now permitted in the Gulf States, Alaska and possessions. Some areas will have power restrictions and sideband transmissions are prohibited.

ST7AR still has intentions of appearing on s.s.b. and in the meantime has commenced operation on c.w. on 3.5 Mc., using a G5RV multi-band aerial and a power of 100w. His first QSO was with OK1GT and the second with G5DQ.

Another trip in the making is one by VE-7ZM, who hopes to activate ZK2 later this year. CR8AA, located in Dili, Portuguese Timor, requests all QSLs to go to the home QTH of W9JFF.

The A.R.R.L. announce the addition to the Countries List of Juan de Nova. This listing will encompass the islands of Juan de Nova, Bassas da India and Europa. These three islands are French territory under the administration of the overseas department of Reunion.

D.X.C.C. credit claims for contacts with Juan de Nova may be made starting 1st June, 1963. Such confirmation must be for contacts made 25th June, 1960, or later.

It is reported that the new prefix allocated by the I.T.U. for Algeria is 7X2.

Despite the large number of conflicting rumours, the latest news on the eligibility of contacts from Chagos under the call VQ9A/8C is that QSLs are being accepted for D.X.C.C. credit. Nothing has come from A.R.R.L. which alters this situation.

Rota is a Trust Territory and not a U.S. possession, and therefore the normal U.S. sub-bands do not apply. This possibly accounts for the crop of rumours regarding W9WNV/KG6, but HL9KH confirms that the activity was perfectly in order.

The Ontario DX Association currently sponsors three awards for DXers. (1) The Canadian (Trans-Canada) Award; (2) The St. Lawrence Seaway Award; (3) The Provincial Capitals of Canada Award. The first two awards have been greatly improved in quality although the requirements for earning them remain the same. Present holders of the old certificates may, if they wish, re-apply for the new certificates which will be issued free of charge. It is only necessary to state the number, name and call sign appearing on the old certificate. The third award was formerly sponsored by VE3HB (now a silent key), but all three may now be claimed from Wm. A. Wrage, VE3BPQ, Awards Manager, Ontario DX Assn., 127 Castledown Rd., Toronto 12, Ontario, Canada.

Look out for Canton Is. which can be heard daily from 0300-0600 G.M.T. on 14175 Kc. s.s.b. One call sign is KB8EPE.

Corsica: There are at present eight licensed Amateurs registered on this island, some being F9VD, F9EC and F9IB.

Indonesia: All PK and JZ0 calls are deleted from A.R.R.L. for D.X.C.C., as from when Indonesia took over Netherland New Guinea, and as from that date all future PK stations will count as Indonesians. The JZ0 has also been incorporated into the Republic of Indonesia.

The DX-pedition operated by Bill Hempel, VK3AHO, known as the DX-pedition of the month, now moves to Nauru Island as VK9BH, after being in operation from Ocean Island, and giving a new country to many DXers. From Nauru, Bill will proceed to other romantic and rare Pacific points, operating on all the popular bands in s.s.b. and c.w. On 20 mx, watch for him on 14125 Kc., listening around 14345 Kc. On c.w., he's on 14025 Kc., listening 15 Kc. up or down. His 40 mx frequencies are 7025 for c.w., and 7080 for a.m.

ADDRESSES

CE8CG—J. R. Nock, Casilla 783, Punta Arenas, Chile.

DL2AI—Sgt. E. Bright, 25 Field Sqdn., Royal Engineers, AlanBrooke Barracks, Paderborn, B.F.P.O. 16.

EL2FN—Via W4MZW.

EL3A—Via W3NNC.

EL4A and EL4YL—Via W2GHK.

FG7XP—D. Julien-Esnard, 13 rue Lamartine, Pointe-a-Pitre, Guadeloupe.

FG7XT—Via K5AWK.

FR7ZI—J. J. Terrasson, B.P. 253, St. Denis, Reunion.

FU8AG—Via VK2QJ (home call).

H83A—Via W2MES, 65-33 78 St., Middle Village 79, N.Y., U.S.A.

H8AKU—P.O. Box 1213, Santo Domingo, Dominican Republic.

Ex-HI8DGC—D. Crowe, 1454 Windemere Cres., Sarnia, Ontario, Canada.

HK4PX—P.O. Box 1503, Medellin, Colombia.

W6ZDF/KM6—J. H. Ross, Navy 3080, Box 23, F.P.O., San Francisco, California.

OX3JV—Via SM7ACE, G. Stenvall, Koppenhamns, 47A, Malmo V, Sweden.

TC3ZA—Via W2JXH.

TU2AJ—O. Kone, R-T Ivoriennne, B.P. 22-61, Abidjan, Ivory Coast.

VR3E—C/o. A.P.O. 86, Task Grp. 815, C/o Postmaster, San Francisco, Calif.

VR8TC—Via W4TAJ.

VS1LJ—M. McIntosh, C.C.S., R.A.F., Changi, Singapore 17.

YJ1JB—Via VK2QJ (home call).

ZD3A—Box 285, Bathurst, Gambia.

ZD8HK—Via W2ELW.

6O2HH—Via W2CTN.

6W8CU—P. Goriot, Nosoco, B.P. 791, Dakar, Senegal Rep.

7X2VX—Via W4UWC.

9A11R—Via K7BVC.

9G1EO—Via VE4OX.

9G1GN—Via VE4IM.

9N1DD—Lt. Col. W. Gresham, U.S. Embassy, Kathmandu, Nepal.

9N1ME—Expedition Hdq., 514 Latimer Rd., Santa Monica, Calif., U.S.A.

9B4JW—J. T. Worrall, C.A.F.O. Branch, Hdq. N.E.A.F., B.F.P.O. 53.

9Q5CA—Via VE3BCL (home call).

HM1BI—Choi Lim Kang, 35-58 Sam Chang Dong, Chongno, Seoul, Korea.

5X5IU—Box 355, Kampala, Uganda.

ACTIVITIES

Eric BERS195 is first to hand this month with the following heard, 7 Mc. c.w.: BY1PK, GI-3PSQ, HM1BI (1845z), JA8OI/MM, UH8DB, UO5AM, UN1BN, VQ4ET (1940), VS1LX (1930z), Z89JZ (1945z), 4X4NFW, 5R8CE/FH8 (1930z), VK4OJ/MM, WA6NVP/MM. 14 Mc. c.w.: BV-1ISB, BY1PK (2030z), HC8CA, HL9KF, KP-4AYL, KR6DD, VE8WN, VRIA (0730z). Rarest QSLs received were from F7WBD, KG6NAA, W9WNV/KG6R, UC2KAG, ULTNE, UF2CP, UQ2DQ, VK9LA, VK0DA, VS1LJ, ZL30X (1.8 Mc.).

George L4011 breaks into the ranks with these heard on 14 Mc. a.m.: W8SDY, K6HQ1, WNGT, WA6SCC, W5EFC, W2VIR, VE7DC, VE8MF, K7CMP, TC9US, VE4JT, W7THX, ZL1AA, W6QS, W6BMG, W6FNO, W7TCN, W8DXY, VE8GI, VE8TK, W7TQN, XE1AS, YS1IM, YS1BV.

Peter Drew, WIA-L6021 heard on 15 mx a.m.: CR7CR, CR7GJ, DJ2YL, G3KFT, JAI-3-4-6-7, OH5SM, OX3XP, W86HM, W6JRY, K6ERV, K6TQA, Z2ZJA, ZS1FA, ZS2OM, ZS5TA, ZS-5M, ZS6AXI, ZS6OS, 9M2GJ; s.s.b.: V56EQ, ZL3WE. 20 mx a.m.: G2FU, IISM, KR8NC, VK0DM, ZSIDM; s.s.b.: W6-7, ZL1-2-3, 5R8CE; c.w.: OE8E, VQ4DS 40 mx a.m.: DUIMR, DU1RS, W3PHL, ZL2AKF, ZL3VT; s.s.b.: G3A00, G9-9EH, JAZEAY, KC4USN, VR1N, W1-2-4-5-6-8-9-0, W4VCA/KH6, ZL2AAG, ZL-2GX; c.w.: DL1NB, FB8ZZ, JAI, KH6EQ, KH6EDW, KH6EH, W8EUX, UA4KWE, UA-6KPB, UR2GU, VETAHT/7, W2-3-4-5-6-7-8-9, Y08AU, ZL2-4, 4X4NFW. 80 mx a.m.: 1A1FB, 1A1QU, 1A1XE; s.s.b.: VR1N, ZLs 1A1X, 1A1Q, 2AAG, 2BBE, 2QJ, 2QZ, 4MD; c.w.: ZL2MR, ZL3IP.

SUMMARY

The following VKs have been adopted as full members of the YL International S.s.b.'ers. They are: VKs 2ADC, 2APK, 2PV, 3AHO, 3CX, 3RJ, 4J, 4SD, 4SS, 4TY, 5RX, 5ND, 5NQ, 5NO, 6RU, 7SM. The girls are determined to make themselves heard on the DX scene and are issuing a very f.b. certificate for 10 W/K and 5 DX members worked.

Meet the opposite sex on 14.333 Kc. at 1800z on Tues., Wed. and Thurs. All are welcome, and their motto is world-wide friendship. For any info, write to V. Mayree Tallman, K4ICA, 428 S.W. 28th Road, Miami 38, Florida.

Once again many thanks to all those who have provided the "meat" for this column. As always, so many are supported by so few, and without your efforts, this column would not be possible.

This probably is my last page as DX Sub-Editor. Business is demanding and you know about the Amateur's Code. If my efforts have helped "A.R." in any way, then I'm more than repaid, because the work has brought me many friends in VK and overseas and taught me much about Amateur Radio. 73, Al, VK4SS.

WANTED URGENTLY

A Sub-Editor to compile the DX page of "A.R." Fuller details obtainable from Editor "A.R." or Alan Shawsmith, VK4SS.

The month of July is here and the first effect of the recent frequency changes to alter our v.h.f. allocations take place. That is, we lose the 288 Mc. band. However, in Jan. 1964 we "take delivery" of our new band, 420-450 Mc., and in all probability 50-52 Mc. will be lost during the coming year.

By all accounts 70 Cm. will be a popular band, if we can believe all stories floating around there will be plenty of equipment ready to go on 1st Jan. Who will have the first QSOs?

Here in VK3 an investigation is being made into the possibilities of a band-planning scheme for 2 mx and 70 Cm. Briefly it could be similar to the U.K. 2 mx band plan which is a geographical and frequency scheme. Separation of counties who use a particular segment of the band. There are nine zones utilising their band 144-146 Mc. Zone 1 144.0-144.1, Zone 1 144.1-144.25, etc. This is reflected up on to 70 Cm with Zone 1 using 432-432.1, Zone 2 432.1-432.25, etc. The advantages of this system are many. For it is possible to look for a particular area, by pointing your beam in that direction and tuning the particular segment. Of course there are disadvantages to any point of view, but they have been minimised and the whole scheme appears to work very satisfactorily. Whether we need to go that far is being investigated. The writer being a member of the committee appointed would appreciate views and opinions on the possibility of a band plan in VK3. Particularly from country Amateurs. A time limit has been fixed. It must be decided one way or another before Dec. 31, 1963. Your opinions please. (The whole scheme would be a "Gentleman's Agreement.")

V.H.F. DX Club of N.S.W. You will read further on details of an award by this Club for V.h.f. Amateurs interested in DX. I first read of this in "Break-In" (the N.Z.A.R.T. Bulletin). I hope that the venture will be a success and trust others will emulate this effort and encourage v.h.f. DX.

Speaking of v.h.f. DX, use these pages to publicise your efforts. We would be very pleased to give publicity to any special efforts, schedules, etc., to push v.h.f. signals further. Why not drop me a line with all the relevant details? We could start a new section on v.h.f. DX.

What could be the mid winter 6 mx openings took place over the week-end of June 1-2, with good signals between VK3-VK2, VK4 between 1100-1400 on both days, or is the main one to come? Time will tell.

I would appreciate it if you could let me have your news by the 1st of the month as it greatly facilitates putting all the pieces together. Would those Divisions running beacons on the various bands please supply me with up-to-date details of frequency, power, times of operation, etc. An accurate map reference would be invaluable for beam directions. 73, 3ZGP.

NEW SOUTH WALES

It looks as though Paul ZPJ, having got thoroughly fed up with lack of activity on two, has decided to do something about it. Hence, much activity over the last few weeks with four stacks of nine yags, 100w. tx, and plentiful power supplies, and was last heard of travelling north by west towards Mt. Ebor, inland from Coff's Harbor, and about 250 air miles from Sydney. Graeme 2ZXY was believed to be his accomplice on the trip which was scheduled for May 31, June 1 and 2.

David 2ZVW now runs 2½ watts of sideband to a 5763 on two metres, and it's a damned good start. Roger 2ZRH was almost "aroud the bend" with envy after getting back from a trip to VK5 recently. Roger says thanks for the great reception he received from all you fellas. Reminds me, he is also on two, sideband of course.

The message handling contest on 19th May went off quite nicely, with around 40 operators going hammer and tongs. No results yet, but they should be out in a couple of weeks.

Ralph 2ZRG has made a welcome re-appearance on the bands after a couple of months' absence, and runs a very sweet sounding f.m. rig on two now with around 100w. input.

29th May saw the running of the monthly fox hunt with Lance 2ZKP as the artful fox. Only about six cars started, probably due to the cold snap, but non-attenders missed a

very good hunt. Dave 2AWZ found the fox about an hour after the start, followed by David 2ZVW some twenty minutes later. Supper consisted of tea, hot dogs and cold feet, and among the cheerful faces present were Joe 2ZOO, Tim 2ZTM, John 2ZAV, Bob 2OA, Dick 2ZCF, Phil 2ZPI.

By the time this is in print, the long distance fox hunt, which is the day event for June 16, will be over, but don't forget the all-band v.h.f. scramble on the nights of July 13 and 14, starting at 7.30 p.m., no cross band allowed, with a point per contact. Just the thing for these cold winter nights with your feet up on those nice warm 866s, glass in one hand and mike in the other.

Right after the v.h.f. broadcast on 25th May we decided a short scramble might unearth a little life, since we had had only three contacts in as many hours prior to it, and it must have had the right effect as up shot

Roy 3ZOM and David 3ZOP, who will soon be running 60w. to an 815, with a 4-tube converter to a 5K16.

The mobile net has got under way on 53.033 Mc. and early stations on frequency were Len 3ZGP, Bert 3ZGD, Ian 3ALZ and others are now on or on the way.

Two mx activity has been at a high level with country activity increasing. Active country stations are 3VL, 3ZER, 3ZDP, 3AGV, 3DY and new stations in Melb. are 3APK, 3ZGS.

Ron 3ZRK is now running 60w. to a QQE-06/40 and George 3ZJQ has 100w. of s.s.b. to a 12 over 12 up 50 feet. Lindsay 3AWY has his 522 back on 2 mx and will be in business soon. Alan 3ZCJ recently moved to Swan Hill and has been worked by Gordon 3AGV. Bill 3ZEB hopes to raise his e.r.p. with a 5 over 5 array.

The first v.h.f. get-together was held on 5th May with 50 Amateurs present as well as YLs, XYLs, harmonics, etc. There were several events held and Bob 3ZIU won the most events. I would like to thank Jack 3ZJK and Ted 3ZKP for their help.

There has been an upsurge of micro wave activity in VK3 and the most active are 3ZNK, 3ZGM, 3ZMQ, 3ZKC, 3ZAF, 3ABY. The best effort so far has been a 15 mile QSO on 3300 Mc. at 5 by 9 plus both ways. It looks like we are going after some records in VK3. 73, 3ZNJ.

QUEENSLAND

The monthly meeting was held on Friday, 17th May. Victor 4ZBT elected yours truly for the job of writing these notes and also to give a lecture on V.h.f. Antennae at the next meeting.

On the 50 Mc. band activity is average, with some people going "power crazy". Malcolm 4ZEL had his high powered 4/125 working well, until the driver went wild and generated t.v.l., but he is gradually bringing it under control. David 4ZEK is working constantly on his 4X150 tx to feed into his new six element beam. Ron 4ZK is finding his QQE06/40 needs neutralisation. 4ZBH has been playing with his s.s.b. rig of late and puts out a fine signal in this direction. On 26th, 4PU, from Woombie, was working mobile in Brisbane. 4ZGN is back on the band after a noticeable absence.

144 Mc.: 4ZLG, 4ZAS, 4ZCH, 4ZAV and others are building for this band. Victor 4ZBT is busily engaged in "Oscar" work. He has a chart recorder in operation and is building a linear amplifier and a panoramic rx. He also has a beam tilter which is raised by compressed air, and the beam can rotate at the rate of 180 degrees in one second.

288 Mc.: I have had a couple of cross-band contacts (6 to 1 mx) with 4ZEL and did attempt to make contact with Mick 4ZAA, but did not meet with any success. Ralph 4ZCH and Henry 4HC also attempted to contact Mick from Ipswich, but did not break the barrier either. The equipment used was super regens., and mod-osc. on all attempts.

General news centres around Graham 4ZGN. It appears he was required by his employer to do some wiring in the mental home at Goodna, and along with some of the other electricians, he managed to get locked in. I believe it took a considerable time to convince some medical students they were not inmates.

On this humorous note I conclude. 73, 4ZDF.

SOUTH AUSTRALIA

60 Mc.: No DX was reported for the month of May on this band. Brian 5ZBI at Clare has been working into Adelaide occasionally, this is only a haul of some 80 miles, but the terrain is quite rugged. Folk interested in passing the c.w. are informed that Dave 5DS is running slow Morse practice on 50.4 Mc. every evening from 1800 to 1830 C.S.T. 5ZLV, of Willalooka was mobile recently in Adelaide on 6 mx.

144 Mc.: This band has been quite active. Country stations at Mt. Gambier, Victor Harbor and Port Pirle ensure quite a high level of activity. One newcomer is John 5ZJB, his freq. is about 144.6 and he is using a helix. John has used this antenna for tracking satellites on 108 Mc. and is trying it out on 144 Mc. Barry 5BQ has a mobile converter for 144 Mc. on the way.

(Continued on Page 16)



Isaac Isaacson, VE7AQ and his equipment. On 8th April, 1959, VK2ADE contacted VE7AQ on 50 Mc. This was approx. 7,320 miles.

3ZSJ. Unfortunately it was not DX as he was operating portable from the QTH of Steve 2ZSK, but very fine to have a visitor from VK3 land, even if he did complain about our glorious Sydney weather—which, incidentally, was lousy.

That takes care of our monologue for another month, but a whisper in the ear of all you VK2 lads first. I would very much appreciate any information you can dish out for the notes, by mail or via 2 and 6 mx, particularly from country areas, and also from you Mac 2ZMO, if you get a chance. 73, 2ZBL.

P.S.—The YF of John 2ZCD has presented him with a bouncing first harmonic, YL; congratulations Fay and John.

VICTORIA

First of all I must apologise for the lack of notes from VK3. This was due to the change in the committee of the V.h.f. Group and the election of new office-bearers. We hope from now on to present the notes every month.

Six metre activity in VK3 has been on the increase lately with the help of new stations and DX. On 1st and 2nd June, there was an opening to VK4 and VK4s ZAA, ZNS, ZAZ, ZJS, ZCH, ZEK, ZWB, BZ, and NG were worked. Visitors to VK3 were George 5ZGY and Mark 5ZEK. George was mobile with 10w. to a 5763 with a transistorised modulator, and Mark had a transistorised walkie talkie on 6 mx. Jock 3CS has been worked on 6 mx again using s.s.b. and Alan 3ZNG will be on s.s.b. soon. Other newer stations on 6 are

288-296 Mc. BAND

Amateurs are reminded that the 288-296 Mc. band was withdrawn from use on 30th June, 1963.

VHF NOTES

(Continued from Page 15)

432 Mc.: Interest in this band is sufficient to warrant it a little sub-heading all of its own. John 5ZDZ has gear going, as we write he is finalising adjustments. Alf 5LA has a tripler working and giving about 8w. output. Your conductor's 417A trough line converter is working (just, N/F about 10 db.) and he finds 5LA's 2 mx harmonic (see previous sentence) 5 x 9 plus. Some improvement is anticipated when adjustments are optimised.

Several other chaps have modulated oscillators going. Although some fellows have mixed feelings about the use of modulated oscillators, they do incite very high levels of activity and the band is 30 Mc. wide, after all is said and done.

General News: Several VK2 chaps were in VK5 during May, including 2ZCF, 2ZPI and 2ZGC. Dick ZCF had mobile gear on 6 and 2 mx, and worked several local chaps.

On the 28th the V.H.F. group met with Doug 5KJG in the chair and about 18 boys attended. Amongst resolutions made at the meeting were: (a) That the beacon committee should proceed with a beacon on 144 Mc., and should tentatively consider a beacon for 432 Mc.; (b) that meetings of the Group be held on the second Monday of every alternate month (next one, July 8); (c) that a fox hunt be held on 29th June, using 8, 2 and 1 mx.

The Group was pleased to receive applications for membership from several Mt. Gambier fellows, including 5ZLS and 5ZGR. John 5ZJG has passed the c.w. Bill 5ZAX has obtained a call sign for his portable location at Matland. Bill's new call is 5ZAV.

A six mx scramble was held on 26th May, winner was Garry 5ZK/P with 5ZBR runner-up. Congrats to Dane 4ZAX and Mick 5ZDR on the Ross Hull results. Dane's score was magnificent, however it will be interesting to see how he fares next year (see 50 Mc. notes last month). 73, 5ZCR.

WESTERN AUSTRALIA

May Meeting: 28 members and visitors attended. Reports were given on our new beacon location and signal reports were studied. It appears that good general coverage is being achieved. Lionel 9LA is experiencing difficulty with the 50 Mc. beacon caused by humidity. He has appealed for a blower motor and one will be sent up. Although nothing was heard last season, we hope the beacon will be an indication of conditions for DX next summer.

To stimulate activity, the Group will run an v.h.f. field day on 13th July, 100 hrs. to 1600 hrs. W.A.S.T. Points will be awarded by mileage, 1 point per mile per contact. There will be two sections, home station and portable. It has been decided that only one call sign may be used by each portable group. We hope to have a near record turn out in the field and plans are well under way.

50 Mc.: It appears we now have a band of listeners. I do not believe everyone is rebuilding or studying for examinations. We all know that it is not the most pleasant weather we have been enjoying, but should all activity stop! At the moment it is often possible to be in the shack two or three nights without having a contact. It may help things if we co-ordinated our calling time, say five minutes on the hour and half hour, by this method it could ensure that people calling CQ do not do so in vain. (Perhaps a 6 mx net freq. would help.—Sub-Ed.)

144 Mc.: There is still some cross band activity; straight 144 Mc. contacts are rare. Possibly if channel 0 comes here we will have to populate this band more fully or trouble may be experienced by some with adjacent channel interference. The major 144 event here is the fox hunt held monthly. Doug 6ZDW and Ken 6ZPT enlisted the aid of John 6ZDN and Pat 6FH to run the last hunt. Two tx's on the same freq. were used in an effort to confuse the hounds. A 50 Mc. link between the two cars enabled them to switch from one tx to the other when the searchers got too close. After the ensuing chaos and confusion died down, supper was taken at Doug's QTH.

432 Mc.: Plans for the beacon are going ahead and the best methods for construction are being gleaned from overseas publications. Rod 6ZDS, Charles 6LK and Wally 6ZAA are making their experience on 576 Mc. available to the local boys and are a wealth of information.

576 Mc.: Rod 6ZDS and Charles 6LK arrange parties to go to Cape Naturalist and Mt. Solas, to attempt to push the 576 Mc. record over 100 miles. Unfortunately the Mt. Solas road was blocked by two trees so the attempt was made at Eagle Hill, approx. 25 miles further and 400 ft. lower. Contact was established on

50 Mc. and 144 Mc. and although 576 was a wash out a good day was had by all. The parties were Graham 6ZDB, Charles 6LK and Doug 6ZD at the Naturalist light house, and Rod 6ZDS, Dennis 6AW, Brian 6ZDF and Trev. 6ZDZ at Eagle Hill. The boys claim they will try again when Mt. Solas is accessible.

Charles 6LK gave a lecture on U.h.f. Receiving Techniques, which was both informative and thought provoking. 73, 6ZDM.

PAPUA

50 Mc.: Activity is at an all time low ebb in Port Moresby as conditions have never been worse. Your scribe managed to scrape up eight QSOs with 9ZBV during the month, but unfortunately has very little else to report.

Skeets with Jim 9AS at Wewak, T.N.G., continued, Jim being heard on 5th, 6th, 7th, 8th and 9th at 1900 hrs., but signals were too weak to make contact. An Asiatic f.m. station was heard at S7 on 8/5/63 from 2220-2240 E.A.S.T. on 49.28 Mc. Troposcatter stations on 49.8 and 49.9 Mc. were heard on 17 days during the month. 9AS reports these signals are heard most days in Wewak and are audible throughout the day and night.

144 Mc.: No activity took place on this band during May.

482 Mc.: Plans are well under way for t.v. signals to be put on the air when the band is opened for use by 9AT/T in Port Moresby. Eddie is having considerable difficulty in talking the XYL into parting with sufficient of the green folding matter to make the plan eventuate, however all looks well for early experiments there. 9ZBV is talking about a mod. osc. unit for the band and 9AU has talked one of the local radio technicians into building the troughs for a trough line nuvistor converter, recently described in R.C.A. "Ham Tips." Only difficulty will be providing output at two different frequencies to receive Eddie on the t.v. rx and Paul on the regular BC342 rx. Looks like all will have an enjoyable few months in getting started on this band.

Your scribe has recently become the proud possessor of a pair of QQE06/40s and hopes to have a 150w. linear final in operation on 50 Mc. well before the next VK DX season, even though three months leave in VK2 will come along in the interim. 9CK is still inactive although he recently built a 2 x 6CW4 cascode preamp. for 50 Mc. All we now need is a DX break-through and Murray will probably have the incentive to get the tx back on the air. There is some possibility of a 2300 Mc. experiment taking place between 9ZBV and 9AU with borrowed commercial gear in the next few months. All depends on how good Paul is at talking to obtain the equipment which will need little modification to put it on the band. 73, 9AU.

NEWS FROM ZL: VIA BILL ZL2CD

A letter from Edgar ZL3WZ tells of activity on the West Coast. Edgar says that the 6 mx DX season was extremely good for them and all stations worked their share of DX. ZLs 3MF, 3PB, 3RZ, 3WZ, 3LA and 3SN were active. The first opening was on 19th Nov., working VK2ZVL on s.s.b. and other VK2s and on 3rd Dec. there was another lengthy opening. Followed on 8, 11, 16, 17, 20, 21, 22, 26 and 30. The latter being the best with band open 0900-2100 N.Z. time. All VK areas were worked except VK8 and VK0. ZL3RZ and ZL3WZ worked 150 different VK stations. Most consistent VK signals were VK2ZVL and VK2ZNL.

V.H.F. DX CLUB OF N.S.W.

Representing VKs 2ZAU, 2ZBX, 2ZFB, 2ZJN and 2ZVL, have an award for v.h.f. DXers. To further long distance working a certificate is being issued to Amateurs who fulfill the following:—

- (1) Work all members of the club within a period of twelve months between the first and last contact.
- (2) All contacts must be made over a distance exceeding 200 miles.
- (3) A total of 18 points must be accumulated—awarded as follows: 3 points for working each member at his home QTH on any v.h.f. band at a distance exceeding 200 miles; 6 points for working them mobile on any v.h.f. band at a distance exceeding 200 miles.
- (4) Application to be made to Club Sec., VK-2ZAU with full details from stations log for quick confirmation, return postage should be enclosed.
- (5) Only contacts made after 30th June, 1962, are eligible.

These items are reprinted from "Break-In" for April 1963 and forwarded to me by Bill ZL2CD. We hope to give more ZL news from time to time.

VK3ZBJ/4

Glenn reports from the B.M.R. Seismic Party, C/o. Boulla, Qld., that he is active on 6 mx, but so far has not had any QSOs. Glenn says, "I am running 15w. input, and have a 7 el. up 30 ft. I have made a lot of field strength measurements with the mobile rx and all is working OK. I have heard VK3 signals many times, the best opening to date was on 5th May, between 1100-1230 hrs. with signals R5 and peaking S8. But I couldn't raise anyone; often hear carriers but no modulation on many.

"Have just shifted camp. We are about 60 miles west of Bedourie, getting nearer the VK3 border; how much closer I don't know. I hear 3WI's 40 mx broadcast each Sunday and spend the time from 1100-2200 calling and listening with the beam on VK3. Power is no problem as I have h.d. batteries plus a motor generator to charge them. I'm convinced the tx is operating OK but I've still to make a contact. So keep an ear out for me on 50.010 Mc. approx. My noise level is non-existent and I hear weak sigs where others are opposite. I am here until early Dec., so look forward to working into VK3 soon. 73, Glenn."

LOW DRIFT CRYSTALS

FOR
AMATEUR
BANDS

ACCURACY 0.02% OF
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3.5 and 7 Mc.
Unmounted, £2/10/0
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Fundamental Crystals,
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THESE PRICES DO NOT
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MAXWELL HOWDEN
15 CLAREMONT CRES.,
CANTERBURY, E7,
VICTORIA

Well another R.D. Contest will soon be on us again, so now is the time to get that rx in good order or perhaps your aerial. This Contest is by far the most popular one of the W.I.A. Contests. While we are very pleased to see you support this event, it would be most pleasing to see some of the other Contests better supported by the S.w.l.'s in VK land. Keep this in mind, then decide to have a go at one of the other events.

Now I would like to say a few words about QSLing. Without mentioning names, I think some of our s.w.l.'s may have got the wrong idea from a few words that I wrote in a recent issue of "A.R." Now by sending return postage with a report will, of course, not guarantee results, but at least you will have a much greater chance of receiving a reply. I'll admit that some people keep the postage for themselves. This is certainly a low trick to say the least. However, I must decry the practice of sending a terse note reminding the Ham that he owes you a QSL. A friendly note may help. But remember that the Ham is under no obligation to answer your report, even if you do enclose return postage. Don't get the idea I am supporting the Ham who refuses to answer s.w.l. reports. Far from it. But I am trying to be fair to both parties. And I am just trying to make you see it in a sensible light.

S.W.L. GROUPS

New South Wales: The latest news from Sydney is that the Group was holding the annual elections in April. The N.S.W. Group meets at Wireless Institute Centre, 14 Atchison St., Crows Nest, at 8 p.m. on the third Friday of each month. The Group would be pleased to have visitors at their meetings in the hope of talking them into becoming members of the Division. Any further information can be obtained by writing to the Secretary, S.w.l. Group at the above address. The Groups would like to see more of their members attending the meetings each month.

Victoria: The Victorian Group has its general meetings on the last Friday of each month at 8 p.m. at 478 Victoria Pde., East Melbourne. Visitors are welcome at all the Group's functions which include technical visits, radio construction nights and general meetings. For further information contact the S.w.l. Secretary, 24 Fewster Rd., Hampton, S.7, Vic. The Group would like to see more of the members attending the meetings each month.

Other States: We have not received any information from the Secretaries of the Groups in other States so far, after requesting them to supply information for publicity use. If you are interested in joining the W.I.A. and thus being entitled to an s.w.l. number, we suggest you write to the following address for more information about activity in your State:

Queensland: Registrar, Qld. S.w.l. Group, C/o W. Jehn, P.O. Box 61, Ipswich, Qld.
South Australia: Secretary S.w.l. Group, Box 1234K, G.P.O., Adelaide, South Aus.
Western Australia: Secretary S.w.l. Group, Box 1002, G.P.O., Perth, West. Aus.
Tasmania: Secretary S.w.l. Group, Box 851J, G.P.O., Hobart, Tas.

MAIL BAG

Victoria: Maurie recently became the proud father of a daughter. Maurie is not finding much time for DXing these days, however the rx still gets a warm up now and again.

If we have enough members who can listen on the v.h.f. bands, we may be able to organise a contest in conjunction with the v.h.f. field days that are held during the warmer months of the year. Give it some thought chaps.

Congrats to Ron Young for his fine effort in the Ross Hull Contest. Noel L3101 has not been active for a while due to personal reasons. As I was unable to get to the last meeting of the Group I am unable to report anything from there this month. Albert, who is one of our younger members, is at present very busy studying for his ticket. Good luck Albert.

Greg L3138 has at long last erected his 14 Mc. rotary dipole and is very pleased with the results from it. Your scribe was very pleased to log 5R8CE/FH8 a few weeks ago on 14 Mc. s.s.b., but can anyone help with his QSL manager. Craig Cook is doing a good

job with the s.w.l. notes over 3WI each week. However he is finding the old trouble, very few members help him out by providing news, so how about it chaps, drop Craig a line or else ring him at LW 1773. His address is 10 Foch St., Ormond, S.E.9.

Michael L3133 sends along an interesting letter telling of his activities. At the moment he is doing a lot of snooping around 7 Mc. at 3 a.m., yes that's right—3 a.m.—and is being rewarded for his efforts. Some time ago Michael gave a rx to his YL and at the present time Denise is picking up the DX better than he.

The next visit of the Group will be to the O.T.C. tx station at Fiskville, via Ballan, on Friday, 5th July. Further details will be announced at the next meeting of the Group.

New South Wales: Chas L2211 sends along an interesting letter telling of his activities. He has been rather busy of late repairing radios and t.v. and as a result he has not had so much time to devote to s.w.l'ing. However some interesting QSLs have come to hand: 1IAHL, SP7HF, HC1CC, CT5TI, DZ2ST. Nice going, Chas old boy.

Don L2022 has been fairly busy but has found a little time to check the bands. Can anyone help Don as regards info on FO8AA and KC4AAC? Over the Easter period Don had a real feast with the DX, best catch was HC8CA who was on an expedition to the Gallapagos Islands.

Queensland: Afton L2136/VK4 is still recovering from his recent mishap on the Tinaroo Dam. However, he has had his rewards also because recently he received a batch of QSLs

from the VK4 QSL Bureau, which had been there for two years. Well it just goes to show that we should not despair too soon if that QSL fails to come along. Afton is hoping to visit VK3 in October for a quick visit. Fine, and we are looking forward to your visit and you will meet some of the boys.

Western Australia: Peter L6021 has been hard at it as usual. He is hearing plenty of DX, mainly on 7 Mc. c.w. Peter listens to the Novice W stations and has made a lot of friends with our American friends. Peter has been an s.w.l. for about four years and in that time he has done very well indeed. He has logged a grand total of 5,230 stations (up till 25th May). That is a good effort Peter, and you sure must have spent some hours at your rx. Peter is thinking that he may get a new rx in several months time.

73, Mac Hilliard.

DX LADDER

	Countries		Zns.		S.s.b.		W
	Conf.	Hrd.	Conf.	Hrd.	Conf.	Hrd.	
E. Trebilcock	277	285	40	—	—	—	50
D. Grantley	113	289	38	20	104	104	36
A. Westcott	93	159	31	9	107	11	11
M. Hilliard	75	224	33	23	153	11	11
M. Cox	72	223	29	39	150	18	18
P. Drew	57	197	26	25	114	12	12
N. Harrison	44	119	29	4	20	32	32
I. Thomas	41	139	20	16	97	14	14
D. Coggin	10	92	7	3	60	14	14
G. Earl	9	100	7	1	72	—	—

YOUTH RADIO CLUBS

Last month's message—this month's message—and every month's message! If you can't spare an hour a week for a Y.R.C., form a group. Another message is in the cryptic numbers 123467. Perhaps the missing 5 has the ultimate secret weapon to get our frequencies back (or even preserve the skimpy lot we have) at the next I.T.U. Conference.

Fine news from Ken VK3TL this month. He sends me some well-designed Application Forms which help him with the information of most use. Negotiations are now in progress in VK3 to have the Boy Scouts' Association recognise their Proficiency Certificates. Ken expects to issue the first Newsletter in the next few weeks and promises me a copy. A display giving publicity to Y.R.C. was set up in the recent "Wonderful World of the Young" at the Exhibition Building.

Keith 2AKX has three good passes in Junior Certificates at Booragah High; Raymond Elkin, William Brown and Susan Brown. Congrats to the three.

Here at Lyneham High we also have three Junior Certificates: Jim Watson, Bill Tweedie and Roger Davis—who deserve congratulations. They are all straining at the leash for Intermediate Certificate. Roger hopes to finish his A.O.C.P. in July and join George 1GB later—he's not 16 until October.

Have you Club Leaders developed your full capacity for acquiring material? Translated into the vernacular, "How's your scrounging?" Here are a few hints. When you approach radio dealers (large and small), make sure they see that you will not do them out of any business, but actually create more customers for them. But primarily give them the straight truth, i.e. that you are running your club for the benefit of the kids (joining the W.I.A. later is not guaranteed) and treat all the businessmen you speak to as gentlemen with hearts—and I mean it. Business firms which refuse to help you should not be in any way threatened (with publicity, or otherwise) as they will create their own bad-will in the long run. You should not be afraid to ask if necessary for a straight donation of usable parts (I never handle money myself but any proper organisation with proper accounts could certainly do so) because you are donating your own time.

However, I think you will get more response in asking firms for (a) material still useable

but with little sales value, (b) any help which does not actually cost them anything. An example of this last mysterious commodity has happened in a couple of cases with me. From one source I acquired two damaged instruments which I took to the Australian agents. The agents saw my point and agreed to make a reasonable repair provided they could wait until they had a serviceman temporarily without an urgent job. In one case, this probably cost the agent nothing but the trouble of arranging the matter (for which I am still grateful), but in the other case the agent went to a lot of trouble and did an extra-special job beyond what was asked. Try your luck!

In regard to the donation of old but useable parts, there are literally tons of good components discarded every day in every big city. Try any place using wire for the remnants they always leave on their reels—and have you seen the bundles of good hook-up wire taken out of a telephone circuit for one fault? Any large radio and t.v. repair place will have scores of old chassis to throw away every now and then—mostly with very good gangs, i.f.s., power transformers, resistors and (some) condensers. If you hear of a fire, pay the remains a visit—when the foreman or insurance man is there! Old t.v. sets are now being thrown away, some are too old and cranky to repair any more. An inactive Amateur in your district might get generous.

Such organisations as Rotary, Lions, Apex, J.C., etc., are wonderful if they adopt you as a project. A door-knock campaign in one block will always bring unexpected riches. Your local radio or t.v. station will usually give you a free advertisement or even a broadcast interview. Have a go! And send me your tallest story in the field of scrounging.

My apologies to PanSy for over-estimating his powers. No hard feelings—I'm just a little needle trying to find the right position. Always glad to see you if you come this far, PS, and we'll have a refresher. Perhaps you could tell me then whether Port Pirie is the capital of South Australia!

Next month I launch a competition for the best design of a portable Y.R.C. exhibition and/or transceiver to go to exhibitions, fetes, etc. Watch for it, you avid readers—but reluctant writers. (Haven't heard recently from VK4 and VK6). 73, Ken 1KM.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

F.E. MEETING

Present at meeting held on 5th June, 1963: VKs 3UM, 3ZS, 3JL, 3QV, 3AG, 3NI, 3CS, 3ABV and 3IE, at whose residence the meeting was held.

3JL drew the meeting's attention to passages in "Hansard," April 1963. These are reprinted herewith. Discussion took place re the VK/ZL Contest and ZL's virtual bull-dozing of our acceptance of "Oceania" as part of contest area. Decided to seek opinions of members regarding this matter before taking further action.

The new Membership Certificates are to hand and will be distributed to Divisions as fast as Fed. Pres. can sign them!

The Secretary states that the editing of the Fed. Convention minutes is almost complete and copies should be available to Divisions in a short time.

For those intending to gripe to F.E. (whose address is: The Secretary, F.E., C/o. Box 2611W, G.P.O., Melbourne), meetings are held on the last Wednesday of the month (usually).

We have heard rumours of savage band-slashing in the h.f. region. As far as we know there is absolutely no substance to it, and we have our ears pretty close to the ground! But using the bands won't hurt!

EXTRACT FROM "HANSARD," APRIL 1963

Broadcasting

Mr. O'Brien asked the Postmaster General, upon notice—

With the foreseeable growth in the use of the radio spectrum in the next decade, has the Government considered the possible use of the Australian Broadcasting Control Board as the impartial body empowered to control absolutely the allocation of frequencies to the various services instead of having to periodically set up a frequency allocation committee?

Mr. Davidson.—The answer to the honorable member's question is as follows:—

The control of frequency allocations has been considered by the Government on previous occasions. It is considered that the interests of Australian users of the radio spectrum are best served by the present arrangements in which frequency assignments are made through the Post Office and under which the Australian Broadcasting Control Board determines the individual frequencies to be used for broadcasting and television services in accordance with the frequency bands available for those particular services under the Australian Table of Frequencies. The committee system provides a desirable avenue for obtaining advice and for the rationalisation of frequently diverging interests of the various users, when consideration of special problems arises.

Australian Broadcasting Control Board

Mr. O'Brien asked the Postmaster General, upon notice—

In view of the growth of radio, television, communications and all other radio frequency services, could the organisation of the Australian Broadcasting Control Board be improved by being less diversified and by being organised in a manner similar to the Federal Communications Commission in the United States of America?

Mr. Davidson.—The answer to the honorable member's question is as follows:—

The control of frequency allocations is considered to be much more complicated and diversified in the United States of America than in Australia. The Federal Communications Commission in the United States of America has many functions; as they affect frequency allocation matters, that Commission has only limited control and jurisdiction because it does not have authority over all radio communication services.

1963 EASTER CONVENTION

The 27th Federal Convention of the W.I.A. was held in Sydney over Easter and was attended by delegates from all States as well as members of the Federal Executive. Those attending were the Federal President, Bill 3UM; Federal Vice-President, Max 3ZS; the Federal Secretary, Jay 3JL; Federal V.h.f. Manager, Dave 3QV; Pierce 2APQ, N.S.W. delegate; Vic 2VL, N.S.W. President and Ob-

server; Jim 2YC, Observer; Michael 3ZEO, Victorian delegate; Al 4LT, Qld. delegate; Geoff 5ZCQ, S.A. delegate; Ron 6KW, W.A. delegate; and Ted 7EJ, Tas. delegate. During the various sessions quite a few of the local Amateurs from VK2 sat in to listen to the proceedings.

The opening of the Convention by the Federal President was broadcast over VK2WI via a 2 mx link from Aitchison Street, Crow's Nest, the N.S.W. Institute Centre, where the Convention was held. These surroundings proved to be most comfortable and the proximity of the tea urn eased the tension during the sessions. Although the agenda was not as full as in previous years, the nature and importance of several of the items made up for the numerical shortage.

Possibly the most important items were those dealing with the Federal Constitution of the W.I.A., the policy which was established for Youth Radio Clubs and the preliminary deliberations on the various factors of W.I.A. representation at the next I.T.U. Conference. It now appears that certain essential clauses delineating the formation of a Federal Company will be agreed on which a new Constitution will be based. It was considered that it may well be possible to establish agreement to this document by Easter 1964. Several aspects of Youth Radio Clubs were thoroughly discussed and providing the appropriate authorities give their agreement to the plans, the future of these clubs appears to be very bright. The Divisional delegates agreed to the various aspects of the representation at the next I.T.U. including the means of raising the necessary finance and the briefing of the delegate.

Many other matters were discussed and decisions made which will form the basis of the Federal Executive's work over the next year. In addition to the new work, the Executive has some unfinished business from the last twelve months which will also be completed.

All in all, it was a most delightful and beneficial Convention and the thanks of all the visitors will be handed down to posterity in their recorded words of appreciation for the hospitality of the VK2 boys and their wives, in the official minutes.

It was finally agreed that next year's Convention would be held in Adelaide, so maybe Geoff will be able to substantiate his claims for the city of Churches. We will all come over (if Pansy makes room!) (He'll have to make room soon, with all these Federal notes.—Ed.)

YOUR OPINION PLEASE ON THE VK/ZL CONTEST

Traditionally the VK/ZL Contest is VK and ZL working the world, with certificates to the highest scorers in any country. N.Z.A.R.T. want to make Oceania part of the VK/ZL group (and did so last year). Do you agree with this move, or not; and have you any other suggestions regarding this Contest? Write to the Secretary F.E., Box 2611W, G.P.O., Melbourne, Vic.

FEDERAL QSL BUREAU

SM5AIO, QSL Manager for S.S.A. writes: "The S.S.A. QSL Bureau receives many incorrect QSL cards from foreign stations because they have heard wrong or written wrong. In Sweden there are call signs SM1-7 and after the figure two or three letters. The letters are: AA-ZZ, AAA-AZZ, BAA-BZZ, CAA-CZZ, DAA-DZH. Only 67 per cent of the Hams are members of S.S.A. and they get their cards via the Bureau, all the other QSLs will be returned."

Results of the 1962 Millennium S.P. Contest show: Australia, c.w.: VK2APK 2,461 pts., VK5NO 2,204 pts., VK2RA 234 pts., VK3XB 160 pts.; Phone: VK2APK 374 pts.

SILENT KEY

It is with deep regret that we record the passing of:—

VK7GA—G. D. Aschman.

Information on the 9th European DX Contest, 1963, and the 4th All Asian DX Contest, 1963, is published elsewhere in "A.R." Full copies of the rules may be obtained from the Federal QSL Bureau.

Results of the 3rd All Asian DX Contest, 1962, are: Continental winners—Multi Band: 4X-4N 64,688 pts., U75AA 6,666 pts., WA6IVM 1,232 pts., PY4ABH 28 pts., 5A1TW 1,248 pts., VK2GW 2,240 pts. Single Band: 28 Mc., JA1HGY 1 pt.; 21 Mc., JA6PY 312 pts.; 14 Mc., 4X4FU 17,325 pts.; 7 Mc., JA1AEA 4,509 pts.; 3.5 Mc., 4X4DI 774 pts.

Detailed Australian scores are:—			
Band Pts.		Band Pts.	
VK2GW	M 2240	VK2APK	14 902
VK2RA	M 120	VK4SD	14 244
VK3AXK	M 76	VK5RX	14 204
VK3XB	M 16	VK3ARK	14 20
VK4SS	M 7 102	VK2AYK	21 7
VK3KS	7 1		

Despite the continued poor conditions prevailing on most bands, QSL traffic through the Federal Bureau is showing only a 10 per cent. drop.

Flo Majerus, W7QYA, and Al Scarlett, W2CC, both express thanks to all who contributed to making their recent separate visits to VK so interesting and momentous.

Due to confusion arising from the printed call signs and also from the Morse equivalents, between VK5NO and VK5NJ, Jeff decided to seek an alteration to his call sign. He had almost settled for VK5VT before he realised that the Morse equivalent remained unaltered. He then switched to VK5ZP.

Interesting visitors to Melbourne during May were Tubby Vale, VK5NO, this time in a nautical capacity, and Alec Mather, VK2JZ. Alec contributed a fine article in the June issue of "A.R." It seems only yesterday that yours truly gave Alec his first QSO, but he assures me it was 34 years ago! The passage of time is frightening.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The monthly general meeting was held on 24th May, in the usual location of Wireless Institute Centre, Crows Nest. A good attendance was attained despite the fact that the meeting night coincided with Empire Night festivities. Those present were treated to a most informative lecture by that old stalwart Bob Winch, VK2OA. His subject was "Principles of A.G.C." This lecture proved to be a very absorbing one and as usual it was well into the morning of 25th before the last stragglers wended their way homeward. It is Bob's intention in a subsequent lecture to be presented to continue his subject well into the s.s.b. a.g.c. requirements field.

Council met on Thursday, 30th May. At this meeting the President had the regrettable duty to read a letter of resignation from Councillor John Birdsall, 2QJ. John's business activities will be necessitating his absence from Sydney a great deal in the near future and he felt that such an arrangement would not do justice to the position he held in Council. John occupied the posts of Vice-President for the Division and Education Officer. Council, with regret, accepted this resignation and will co-opt one of a number of volunteers to fill the vacancy in Council.

Harold 2AAH has been appointed Education Officer, a post that this keen member knows particularly well.

It is very gratifying to hear further from Rex 2YA, to the effect that a very active Youth Radio Club is being formed at the Hurstville Technical College. It appears that this great youth training scheme is starting to snowball with new and projected clubs and stations becoming realities in a great many areas. Congratulations Rex and your helpers; keep up the good work.

Whilst on the subject of Youth Clubs, we do earnestly remind readers of the need of the organisers of the scheme for various radio publications, together with any usable radio or kindred gear that may at present be redundant in your own shack. Remember, equipment and magazines which may be of no value to yourself could well be the means of starting a group of beginners on the road to an active future in the Amateur service. 73, 2SW.

HUNTER BRANCH

As the notes must go to press before the meeting, no report is included this month. A report of both June and July meetings will be included in the August issue.

Bob 2EY is having plenty of success with the 144 rig, but during the day he has plenty of difficulty in resonating the gear on 144. As night falls, all is well but in the daytime, well, you ask Bob. It seems that the locals at Raymond Terrace thought that cracker night had come early when they saw the smoke and flames from the shack of 2ZMO, but not to despair dear reader it was only the power supply and all is well again now as the signal will prove.

You've no idea the hornets' nest that was stirred up following the remarks about the Cessnock coathanger scandal. The gentleman concerned claims that nothing of the kind ever happened and Sherwood, the intrepid reporter who gathered the information, was in such a paroxysm of laughter when he read the report that he drove Chris' van right off the road and almost wrecked it. So that makes his score two and he still has three years to go!

And vengeance—when my letter box exploded the other night all the remains to be found were an 807 socket with a note saying, "1970, eh!" In deference to those kind coalfields men, let me please say that Cessnock is kept on the v.h.f. map by 2AIY, 2KS and 2ZCV, not to mention the fine signal from the old man himself, now that he's a regular contributor to the Monday night broadcast. Again with due respect that's Chris 2FZ. And as for Sherwood, you just wait till next cracker night. (He still isn't on.)

Bob 2AQR has almost finished the new installation and is calling tenders for the supply of aerial wire to go between the two masts. Stuart 2AYF is back from holiday and is finding time from his new position to get on the air on v.h.f. One day he'll be on the d.c. bands as well and if this doesn't happen soon he'll be beaten by Stan 2AYL who is reported to be modifying an ATS. If he has the same success as ZL Bill he should have another big signal. When that large hole appeared in Kev's backyard all the neighbours asked if he were preparing for a swimming pool? (All the P.M.G. technicians are having them these days.) And then he says when asked, "It's for the new mast." And those at the ZKW house were just waiting for summer.

There's a dark horse up on the hill at Merewether. He quietly gathers together his shakels and brings home a brand new, or good as new, rig—country of origin—I land. So if you hear Frank 2APO on the air give him a shout. John 2ZJG is not able to come to meetings these days because of the job, but he's making up for it by getting the new shack under way. Bill 2ZWM is now putting out a very respectable signal on 2, especially strong at the ZCT residence when Tony can spare time from the adding machines. Someone handed him a charged electrolytic the other day—what a nasty trick; I must try that.

Bill 2XT is having a great deal of success with JAs on 14 megs and is reported to be putting in a mighty signal in rising sun land. He may also be preparing for another oriental jaunt this year. His good pal, Ern 2FF, is content to stay home though and is waiting for 28 megs to come good again. Norm 2ZNF whose voice has not been heard for many a moon is at last having some success and may even be on with the local net. As for Gordon 2ZSG, the rumour about the new antenna was only a tale and there is no skeleton in the cupboard although he has plenty of old biscuits. And who hasn't? I only asked about biscuits at Martin's Laundry the other day and I had to put money in the swear box. Ever been knee deep in re-conditioned tuners? Harry, who promised to be on as soon as ABHN hit the air, has really gone one better and now we may never drag him away. Yes there is a one-eyed monster at the AFA house and the modulator is on the blink, so my prediction about Stephen may be true.

As far as the associate members are concerned, one would think that we had been conducting a recruiting drive. There is at least one and maybe three new associates from the lakeside. First on the list is Otto, ex-DL3ZG, who has applied for a VK call and the others are Pat Maloney and Wes Brown, whom we hope will soon help us with the QRM. Allen Legge, who has that red phone, remember, will be a regular attendee at meetings in the future, thanks to Kev 2ZKW. Max, my associate operator, Belmont Bob and Rex are still delving in the mysteries of Class C and into the circle has come Pat as well, while Mrs. Bob keeps us all well refreshed with cups of tea. Ta Mrs. Bob.

Round Marmong way they still cannot hear the 2AWX signals on Mondays, so all the gang arrive in the shack to listen in—even Dennis with his water bottle and cigar. Of

course all this will change when the new shack goes up—when! A notice will say, "No naked lights beyond this point."

Seriously though, do you listen to the Monday night broadcast? You'll find us there at 0900 G.M.T. on about 3596 with a relay on 144.45 and they say the signal is strong—except in Marmong. Even Dave 2DE and Tas 2GV are able to hear us in the furthest outposts of the State so listen in, we've two announcers. And even though it's cold and bleak, you are invited to our next meeting. This will be held in the usual place, room 15, class room block of the University College, at 8 p.m. on Friday, 5th July. And oh, I almost forgot—you won't forget to fill in your tax return will you. 73, 2AKX.

VICTORIA

COUNCIL MEETING

The June meeting was the first meeting of the new Council for '63/64 and was therefore mainly with the routine appointments to the many jobs associated with the running of the Division. These are far too long to enumerate here. With the exception of the broadcast engineers' roster, all positions were filled. We still need two or three engineers who must have full licences, so if you can assist please contact the Secretary.

Correspondence was received from the Editor of "A.R." asking for details of the Division for inclusion in the next edition of the "Call Book". This is to be attended to by the Secretary. Bob Boase wrote advising that he had been discussing the possibility of a trip to the Flying Doctor Base at Broken Hill with one of the airlines. To cut a long story short, if we can find 24 starters we can charter a plane at a cost of £18/10/0 per head. Anybody interested should contact Bob.

The Treasurer reported that as at 10th May, 647 members had paid their subs., and that unfinancial members would not receive the magazine after June.

There was discussion on the possibility of issuing a monthly News Letter to all members. Opinion on this matter was far from unanimous, but it was eventually agreed that the work and effort involved could be better used in other directions.

It is proposed that a representative be sent to the next I.T.U. Convention at Geneva. F.E. has estimated the cost at £3,400, of which this Division has to find £800 during the next two years. A circular letter is to be sent to all Victorian Amateurs asking for a donation of £1 either in one hit or two yearly payments of 10/-. In your own interests this appeal is strongly recommended. A separate bank account is to be opened for this fund to keep it divorced from the other monies of the Division.

The need for a Publicity Officer was discussed. This matter arose from the lack of publicity on the Division's participation in the recent emergency exercise. The difficulty of finding anybody with access to the news outlets such as radio and papers is our problem. The President undertook to make the necessary enquiries with the view to finding such a person. In the meantime, if you know of such a person, let Council know and we will take it from there.

The instrument library is short of a number of items which should have been returned long ago. Whilst Council is loathe to take drastic steps to remedy this position, something will have to be done. An early suggestion is that a rather stiff deposit will have to be lodged before any equipment is removed from the premises, the full deposit only being refunded if the equipment is returned within a stipulated time. Those who are playing the game have nothing to lose, those who are not will be helping to buy new equipment. Fair enough?

The Gadsden Trophy has not been awarded for several years. This trophy is awarded for outstanding administrative work for the Division. Council was unanimous in its decision to award the trophy to Michael Owen in recognition of his efforts over the last two years, especially his work in retaining the use of the rooms at 478.

The Division still continues to grow and Council received 13 applications for membership. These will be recommended to the next general meeting. What a pity we do not meet these people in person. I forget when we last met a new member at a meeting.

The President reported on the lack of disposals during the last year. He explained that we had been offered quite a lot of equipment which had to be refused due to the lack of facilities to handle it. We urgently need storage space at ground level at a reasonable rental. They should be accessible at weekends and convenient to the city. From personal experience, I know this is a tall order,

but if every member keeps eyes and ears open something will turn up. That covers Council, so now to the other matters.

HOBBIES EXHIBITION

At very short notice, Kevin 3ARD organised a display at the Hobbies Exhibition. Under the circumstances, it was a darned good effort, but from the Amateur Radio point of view, left a lot to be desired. There was very little "home-brew" equipment on display, which gave many of the visitors to our stand the impression that everything had to be "store bought" at considerable cost. Some of the home made gear submitted for display was, to say the least, not up to standard and was carefully hidden from the public gaze. Now I do not in the least wish to offend those who did submit equipment, but if we are to create a good impression with the public, anything we do or show should be a workmanlike job. There is more to this hobby of ours than studying a few books and passing an examination.

The bright side of the exhibition was the number of enquiries we received regarding our activities, not only from the youngsters, but in all age groups. The two enquiries I liked, I struck on the Saturday afternoon. The first was from a lass in her early twenties who obviously came from W land and who wanted to know where she could buy the equipment so she could talk to the folks back home. Appears she had ideas of a ready made phone service. She lost interest when she was told of the licensing position.

The real gem was the gentleman of European extraction who wanted to sign his son up on the spot. Investigation to find out the class of membership desired led to him pointing out his son. He must have been all of four summers! This I felt was the one occasion when youth should be discouraged and suggested that the lad was a little young to join us, but if the father was interested we would be pleased to have him with us, and no doubt in time the boy would follow in father's footsteps. Father, however, was not that interested.

Undoubtedly others who manned the stand had similar experiences, but I have not heard of them. As a suggestion, I would like to see all those who helped in this venture get together for a post mortem with the idea of ironing out the faults and making a real good show next time. After all, there is another one in view, and the time to plan is now, and a sub-committee is really needed.

JUNE MEETING

The June meeting was held in the rooms at 478 on Wednesday, 5th June. The meeting place was changed as an experiment. After making two counts, I made the attendance 45, a very decided improvement, but whether this was due to the change of venue or the interest in f.m. I do not know. Late comers had trouble finding seats, which could be a good or bad thing, depending on how you look at it.

Anyway, everybody's attention was very much on the lecturers, John 3ZEL and George 3ZJQ. John covered the theoretical aspects and George topped it off with some very good "do it yourself" circuitry. Peter 3BZ taped the lecture for the use of interested parties, but how he has covered the liberal use of the blackboard I don't know.

The magazine reps. did not fail to notice the large wall of typewritten notes that John had on hand, so after the lecture, both he and George were trapped in a convenient corner and persuaded to knock up an article for publication. As of now they are warned that they will be hammered until such time as said article arrives in the Editor's post bag.

A vote was taken to ascertain the feelings of members about continuing to hold meetings in the rooms. Although there are several minor disadvantages, the feeling was that we should use the rooms. (3IE will now ask the railways to divert the underground project to take in Victoria Parade, with a station at 478.) Sorry Alf, but I just had to have a shot at you. Although the meeting closed officially at 10 p.m., many "eyeball" QSOs were under way during the tea and bicky session and went on till much later. All in all, the meeting was voted a big success. Next month's speaker is not as yet known, but we hope to again have a full house.

My many activities prevent me spending time on the air or even listening, so if anybody hears any interesting personal items, suitable for publication, they would be doing me a favour by letting me know of them. Perhaps I should explain that I originally undertook the reporting of Council matters, but things just grew from there, until now VK3 takes up almost as much space as 5PS fills. I'm speaking of magazine space and not geographical or physical, so sit down PanSy. Which reminds me, did he mean all those nice things

last month, or is he looking for a friend on the Publications Committee? After all my efforts not to reveal my identity, the cat has been let out of the bag, so expect Mr. 5PS will not lose any opportunity of sniping at me in future. Shades of snakes, frogs and "lubberly girls".

Well I see the N.E. Zone reported the State Convention for me, so now let's see what they have for this month. Take it away fellows, 73, 3AFJ.

SOUTH WESTERN ZONE CONVENTION

The W.I.A. South Western Zone Convention, held on 27th and 28th April, 1963, started officially on the Saturday afternoon with the annual meeting, held to install new office-bearers for the next twelve months. All visitors were welcomed. Col Ferguson, from Mt. Gambler, took the chair, whilst new office-bearers were installed.

There was a good attendance of members from all parts of the Zone and the following officers were installed: President, Bob 3IC; Vice-President, Bill 3WK; Sec./Treas., Don 3AKN; Publicity Officer, W. J. Wines; Zone Station Officer, Don 3AKN; General Committee: Harry 3KI, Bill 3XE, 3ZKL, Jim 3ABT, Brian 3KN, Gordon 3AGV, Bill 3WK.

The Mayor of Warrnambool, Cr. P. O'Sullivan, who officially opened the Convention at the official dinner held at the Lady Bay Hotel, said it was gratifying to see such an excellent gathering of men interested in such a worthy hobby. Cr. O'Sullivan spoke of the good work done by the Amateurs in times of fire and flood. He concluded by wishing the Convention every success. After the official dinner, 3DX showed several films, after which supper was served, bringing the evening to a close.

On Sunday all Convention activities and entertainments were held at Jubilee Park, near Warrnambool, where many items of interest were discussed. Before this took place Ron 3ZER and XYL and family, who came down from Ballarat for the day, were welcomed, also 3ZER and fellow Amateurs and their families.

Best mobile was won by Bill 3WK. During the afternoon a scramble was held to ascertain the number of stations each Amateur could work on mobile equipment in twelve minutes. This was won by Bill 3XE and Brian 3KN, with a total of eight stations each. The fox hunt on s.s.b. was won by Dale 5ZER. He received an s.s.b. tx, which was a duck in a box—very nicely donated by 3WK, and built like tx. The ladies served a very nice picnic lunch, which was enjoyed by all present. Members take this opportunity to thank them for all the work they did.

After lunch the progressive tx hunt was held. This was won by Bob 3IC and Dick 3ABK. Good work boys. The prize was the Geelong Amateur Radio Club trophy. An auction sale of surplus gear was held with Peter 3FX as auctioneer. We think he should take it on for a living. He did an excellent job, nearly all the equipment was sold. Many thanks to Ray 3ZQ, who made a donation to the Zone from money received from the sale of his surplus gear in the above auction.

Ted 3PS organised a "number of beans in the jar" competition. Helen, 3XN's XYL, won with her total of 455 which was the nearest to the correct total of 451.

We would like to take this opportunity to welcome Ray 3LK to the Zone. 73, Bill Wines.

WESTERN ZONE

Nothing sensational from the Western Zone this month. Merv, 3AFO did his best to enliven these notes by starting a fire on a tag strip. We understand that he had to replace an 866 in the power supply after the arc over. An expensive way of keeping the shack warm! Herb 3NN and son, Garry 3ZOS, have been on 1 mx mobile, running 1w, to a 8J6—best effort so far two miles. Fity the band will be lost so soon. 432 Mc. then, Herb? Vic 3AEQ has returned to the bands after a break for shack renovation. Vic had a little trouble getting the rig on the air, but finally made it for the zone hook-up on 5th June.

Trev 3ATR has been keeping the Zone on the v.h.f. bands with 3ATN—continuing activity on 2 mx. Brenda 3ZKN and John (or Wilson—same bloke fortunately.—3ZKN) 3AFU are still using the f.m. equipment. No DX as yet. 3AFU now has an AT5 on 160 mx and has had one contact with Don 3AKN. The technically incompetent 3AFU claims that an AT5 is an easy way to get on to 160 quickly. If 3AFU can do it, then anyone can.

The advent of Channel 3 will probably have some effect on Amateur activity. Signal reports on 3 vary quite a bit. 3AFU is getting a good signal with only occasional slight fading, other stations which are not in the shadow of the Grampians report quite a lot of variation in signal strength and picture quality. 3AFU is using R.T.V. & H. (more or less)

antennae on Channels 3 and 6. They are hand-built from first quality fencing wire!

People we haven't heard for a while: 3AOS, 3ATS, and 3AZM. Why haven't we heard them? Probably because we aren't on very often ourselves. It is rumoured that 3ASA and 3AJJ may be heard soon. We are also hoping that there will be a couple of new calls soon. Back to the goggle box, 73, 3AFU and 3ZKN.

MIDLAND ZONE

Notes for this month start on a sour note, why? Well we held our Annual Meeting at Maldon on Sunday, 12/5/63 as a proposed picnic day and what happened. The large attendance of eight; VKs 3ZIK, 3DG, 3AHA, 3APJ, 3ADE, 3FO, Graham Young, Dennis Houey, with apologies from 3ND, 3ZIJ, 3SV. Unfortunately I myself was unable to attend as my duty commitments tied me to Castlemaine. However I would like to hear the reasons for the non attendance of other Zone members. The quickest way to kill any organisation is to ignore it, and members of the Midland Zone are doing just this, why?

On the credit side, we still have activity on the air by members who generally attend the meetings and as 7 Mc. has been open, I have made some good contacts with VK3s. 3ZIK is still plugging away on 2 and 6 mx. 20 mx has had some good openings and I have heard 3MO hounding the DX with success. Person-

ally I have had little time to go on the air except Sunday afternoons. Jim 3SV is inactive, being snowed under with other responsibilities. As for the rest of the Zone, no news. 73, 3ND.

NORTH EASTERN ZONE

3VL was due home late in May, following treatment at a Melbourne eye centre. Not many on the zone hook-ups and the 80 mx band has been terrible. Some more indecisive discussion re the next zone convention. 3AYD allowed wife to clean up shack some time ago, resulting in misplacement of valuable records, i.e. index of stations worked. 3FW mobile on 40 and 2 mx, the latter on f.m. 3ADZ contemplates constructing f.m. car set himself. We had a gathering of chaps at Shepparton re Y.R.C. All set to go except we need more info about numbers of adult instructors and how many youths per instructor. We've written away for this gen.

Heard 3CI pulled down his tower and then put it up again. Something about changing from horizontal stacked yagis to vertical stacked, or vice versa. Did reduce directivity we understand. 3CI, 3APF, 3VL, 3ACK, 3ZJH have regular daily skeds on 2 mx at 1230. 3AFF still chasing the elusive ultimate in t.v. video strips. 3ZJH suffers from a bit of audio feedback. Have not had a feel of the Kinnear Trophy as yet. With the vast amount of rain

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recorded in this area everybody feels miserable and very little has been done in the way of experimentation. 73, 3ASY.

MOORABBIN & DISTRICT RADIO CLUB

The Club has been very busily engaged over the past month with a wide variety of activities. On 17th May we held our regular meeting which was followed by an excellent talk by Colin Scott on the work of the United Nations in Israel and Pakistan. Colin was with the United Nations staff on both occasions as a military observer.

Congrats are in order to our Vice-President, Kevin 3ARD, and his helpers, of whom over half were club members) for the fine work in setting up and manning the station 3WI at the recent Hobbies Exhibition. As a result of this effort, many contacts were made (with public participation) and new members were obtained for the Club and Institute.

The general meeting for June was followed by a screening of films by our film librarian, Laurie 3CN.

Our Social Evening for last month was held at the home of Peter 3XK on 22nd June. All who attended had a most enjoyable evening. These socials are always looked forward to by members and in particular their XYLS and YLs. The latter take this opportunity to discuss among themselves the peculiarities and jargon emanating from their respective OMs whilst operating their stations or are doing some "plumbing".

You are reminded of the club net on Monday evenings at 8 o'clock on 3600 Kc. approx. All are invited to participate.

Club members were active participants in the recent W.I.C.E.N. exercise at Batman (Vic.) and about half of the radio-controlled cars were provided and manned by members.

Our spies report that Hal 3ZOO and Ted 3ZOT are busily engaged erecting masts and Hal's is alleged to be a free standing, 80 footer. Peter 3ZPL is back on the bands after months swotting and is busy making contacts. Bob 3ZO has completed a new power supply and is providing 40w. input to an 832. He is very happy that his t.v.i. problems are over. Lindsay 3ZNS is sadly missed; he is suffering from YLs, so we are told.

Keep in mind club meetings on the first and third Friday of each month. Details of other social events and general club information can be obtained from the Secretary, Harold 3AFQ. 73, 3AHZ.

QUEENSLAND

Joselynn 4JJ and Rusty 4JM have added a third harmonic to their family in the shape of a 10 lb. 7 oz. baby boy. Whilst waiting for the happy event, Rusty didn't follow the old tradition of smoking fags, no sir. He stoked up the 3BZ tx in order to relieve the mental strain whilst waiting for No. 3 to arrive and worked two ZLs.

In the April issue of "A.R." I mentioned that Frank 4UK was the owner of a Type 3. Well, he was almost on the air. He decided to give it a test before a pre-arranged sked and it blew up. Looks like Frank blew a transformer. Frank, I feel almost certain that I have a similar trannie in the junkbox that will fit, and if so will send it to you.

Another one for Ripley. Merv 4MZ has at last sent out some signals, not without the assistance of Eric. Apparently the only thing personal about this rig is the call sign. Incidentally, he has had his call sign for two years. Les 4KX is working DX with no trouble. Using s.s.b. of course. Heard some startling news a few days ago. Believe that Vic 4BJ is seriously thinking of going s.s.b. and is considering selling some of his gear.

Joe 4OJ went on a fishing trip out to our famous reef and between he and his mate landed 500—I spell, five hundred pounds of fish. Joe's XYL Val happened to be in the shack, pure co-incidence of course, during one of my skeds with Joe and as Joe was using c.w., I had to write it down for her as Joe was sending. Joe was abbreviating like crazy, and being an ex-commercial op., he sure can abbreviate and I had to write the whole, complete over, so as Val could catch on to what he was saying. Thank goodness for the excellent Morse sent by Steve 4BB each Wednesday and Sunday night. It enabled me to keep up with the difference between dits and dahs.

Ross 4RO has a very able second operator. This bloke even saves Ross from paying the power bill. As a matter of fact, he is also quite modest as Ross doesn't even know who he is, or where he is. But he is getting some nice DX for Ross. The latest being a card from Monaco. Heard on the grapevine that 4HG was on Willis Island, so as extra countries are rather rare these days, I carefully listened at the sked times for him. Narry a

thing. VK2s were hearing him, but 4HG must have forgotten his rx or something, as up to the time of writing, no contacts were made. Bob 4RW, who writes the North Qld. notes, is in hospital, being treated for a hernia. Can't hear Bob, have to use the 600 ohm line to talk to him.

Received a letter from Afton Westcott of Atherton, and amongst the news in it was that he had got his foot caught up with his out-board motor. Very virile bloke is this Afton. Most chaps would spell his name as A for Able, F for Fox, T for Tare, etc., but not Afton himself. Able Father Twins or Nothing is how he spells it.

Dick 4ZCK, my spy in Rockhampton, is a bit off colour. He went along to the doctor and told him all about it, but ended up by saying that there is nothing wrong with his appetite. I have never met Dick, but I am told that the doctor said he would have to lose some weight. In other words, the doctor wanted some co-operation from Dick to get rid of Dick's corporation. Your boss told me that one Dick, so wait until he hallops up that little mast of his and then cut it down.

But in all seriousness, Dick is doing a good job for Ham Radio in Rocky. His publicity drive really paid off. At their last meeting 45 members attended and 24 new members parted up with the necessary. Also the Rocky Club is forming a free library to save members money.

The other night my son Peter had to write an essay on the national flowers of the various States of the Commonwealth and asked if I could help him. Certainly son. Now let me see. Yes, the orchid is the flower of Qld. and so on, until I came to South Australia, and then I made a Boo Boo. Yep, you've guessed it. I told him that the flower of South Australia was the PanSy. I suppose I'll be relegated to the doughouse by the seat of learning in Ayr, but honestly, I couldn't let a chance like that go by, now could I? Thinking of this later, I could feel an attack of poetry coming on, so here goes—

I have often thought with wonder,
Of the things that makes this world,
Such as birds and bees, and sweetly smelling flowers;
And it sorta makes me speechless,
And a lump comes in me throat,
When I realise these wondrous things are ours.
To fight for life, and struggle on,
To beautify our lives,
You must admit is really quite a feat;
And what's my choice of all these blooms?
I really cannot tell,
Cos an Orchid's really beautiful,
But a PanSy's very sweet.

Now just a sec. whilst I get out of my disguise as Kippard Rudling, and get back to some more notes.

Bill 4ZBD, who is the publisher of "QTC," has been off work with a bit of trouble in one eye. Evan 4EF has at last been thrown out of hospital and has been on the air. Syd 4SL, with the assistance of Gil Bertram and other members of the Ipswich Radio Club, organised the W.I.A. exhibit at the Ipswich Show, and I believe it was even better than last year. Activities like this are valuable to the cause and life of Ham Radio.

The 10 mx hook-up of a Wednesday night still continues, with 4VJ, 4LT, 4CZ, 4AQ, 4JN, 4WX, 4UB and 4PJ taking part. Leigh 4RH heard the Brisbane boys one night and efforts will be made to QSO later.

Col 4CI is heard fairly often with his homebrew s.s.b., which is performing very well. Al 4LT has had aerial trouble, but will be on again of a Wednesday night looking for country members and their queries.

At the present time, 4WI is trying to reach all members and the 80 mx transmission is quite successful. Alf 4OL will be doing the 80 and 40 mx transmission on Sunday morning, while Rick 4VR will be re-broadcasting the news on 20 mx and beaming for the north.

On 25th May a working bee consisting of 4PJ, 4RB, 4OF, Ray (and his utility truck), Noel, John and the Oakleigh Scouts and Rovers erected a 42 ft. pipe mast stayed at the top by an 80 mx dipole and a 40-20 mx dipole forming an umbrella or inverted vee. Only thing they forgot was a possible use of the mast as a vertical radiator. The GO9s and SCR522s are installed at Alf's (4OL) QTH, but a lot of work remains to get them going satisfactorily. The new rx is to hand and has had some use.

Harry 4HB is staging a comeback, so that is another operator for the R.D. Contest. Don't forget the R.D. Contest, chaps, we almost got it last year. A little more effort and we should have it in the bag. Don't say you haven't the time. Make a dozen contacts and send in the log. If all logs were sent in last year, Qld. would have had the trophy. I feel sure that the R.D. Contest this year will be really tough.

Conditions are not getting any better and I think that the phone men, of which I am one, will have a hard time making up any sort of a high score. So it may be of some help to put in a key, and take part in the open section. For the first time in 15 years, I have fitted a key to my rig, so if you hear 4UX on c.w. well it won't be a pirate, unless he sends right handed, I'm left handed, hi!

The Institute is fortunate in having Carlo 4ZCH to assist with secretarial work and we expect to hear a lot from him in the future.

As this issue of "A.R." comes to you, there will be a drive for new members who are not members of the W.I.A. So how about it. If you know of any Ham not in the W.I.A., get on to him. There is no excuse for not being a member. Without a voice, and the W.I.A. is the ONLY voice we have, we would not have Ham Radio. A few quid a year is a paltry amount to pay in order to enjoy this wonderful hobby.

The Christmas Island Radio Club is in action at last, and any books of a technical nature that you may have gathering dust will be very appreciated by them. Send them to Box 638J, Brisbane, or care of the Club, British Phosphate Commission, Collins St., Melbourne.

Well chaps that's the lot for this month, and it is with reluctance that I say it will be my last contribution as Sub-Editor. Use of red pencil by Ye Ed is too severe. I have written the Secretary, Peter 4PJ, informing him that these notes will be my last. It was a lot of fun and I'm truly sorry I can't carry on. Cheers, Uncle Xray.

WIDE BAY AND BURNETT BRANCH

I don't know about money being scare—or do I—but I do know that news is conspicuous by its absence this month. Perhaps it is a good omen as everybody is happy and contented and everything is flowing along serenely, no gremlins worrying anybody and all the ergs and volts doing their stuff and keeping in their respective back yards.

There is no doubt about Fanny 5PS and Claude 4UX. They seem to have an inexhaustible source of news. I can't get anybody around this corner of the woods to fall off his tower and dent in his chassis to make a bit of tasty news, or to run his car down the mountainside to provide a thrill—no sir, they are downright unco-operative.

I do hear that Claude 4UX had been trying to contact the space man to make reservations for the next flight, as he wants to see where the wild waves go to after they leave his shack.

Heard on the grapevine that Merv 4ZMD is saving up his pennies to buy himself a Drake 2B rx. If my guess is right, he might have to raid the harmonic's piggy bank, or if he does not hurry up it will be Royals, or Cents, which will give him a right royal time.

The boys at Gypme got together and formed a club within the Branch, as mentioned last month and have as a project a youth radio club. Anybody having a Super Pro, HalliCrafter or National that they have no further use for could donate it to the cause.

Jimmy 4HZ is making progress with the construction of his new rig and when it is completed it will put his t.v.i. troubles in the same place as where he wears his shirt tail and the seat of his pants—behind him.

If any of you fellows would like a mention in these notes just let me know what's cooking at your place and I'll see what we can do for you. 73, Fred Cox.

TOWNSVILLE AND DISTRICT

Bob 4RW is now in hospital and is progressing well; must be those young nurses?

The bands have been very quiet up here, except one night, then it was a record—four s.s.b. stations were on from Townsville. VKs 4KT, 4LK and 4WP were having a discussion on the higher frequencies on how a record could be broken by moonbounce or possibly a satellite? The boys on Willis Island are on most afternoons on the 20 and 40 mx band, but the skip does not favour us here as signals are very weak.

Arthur 4BE has not been heard on the bands for some time, must be building another super sideband rig? John 4DD has been heard on the bands, going into lengthy details over that new flop over tower, must have a look. Ted 4EJ is cockeyed from using the slide rule, making sure of that grid impedance. It will be a receiver to end all receivers, hi Ted?

It has been noted that the bands are very crowded over the week-ends. Lots of Ws can be worked. Arle 3AVA has been heard working some very nice DX. Pity couldn't be heard here though.

Charlie 4BQ's yard looks more like an antenna farm every day. Have you got room for any more? If you look for that Motel here, and you asked any of the locals, the answer is, "Just past that bloke with all the aerials on the right." 73, 4RW.

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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division—the Division that never sleeps—was held in the clubrooms to a capacity audience, and to silence my critics who suggest that I at times draw the long bow with respect to this capacity audience, I give figures for the night as an attendance of 120 members and visitors. The meeting took the form of a film evening, the films being provided by the courtesy of the P.M.G.'s Department, and I say without hesitation that the standard of the films shown was the highest as yet, and we have had a number of film evenings to judge by. John 5JC proposed the vote of thanks to the Department and the operator for the night, and in a few well chosen words expressed the feelings of the audience, who apparently were right behind him, judging by the applause which followed his remarks.

QSL cards were distributed by George 5RX, who, incidentally, had an extra large bundle to pass on, and after a little natter the business of the meeting began. Very little controversial matters were discussed, although Ses 5GP, in submitting the report on the Trustees, held the floor in no uncertain manner and did a notable job. Several domestic matters came up for discussion, which, in view of the fact that they were purely for domestic consumption, will be left out of these notes, just in case any of the "Wise Men of the East" should read them. A very unlikely happening according to my Interstate critics! The meeting came to an end at the compulsory hour of 11 p.m., although it was only by acting in a somewhat coarse manner and switching off the lights that I succeeded in emptying the room long after that.

Bob 5PU was congratulated at the meeting by the President, Phil 5NN, on his elevation to Dr. Roper, and never missing a chance to get some free advice on my numerous aches and pains, I contrived to sit next but one to him during the screening of the films, but soon discovered that as usual I had backed the wrong horse because his remedy for my pain in the tummy would have undoubtedly been worse than the pain! I discovered later that his degree was Doctor of Philosophy. Trust me! Understand that our worthy President, Phil 5NN, was conscripted to provide a public address system at a recent gathering of Girl Guides at National Park. One of the Commissioners was a lady of ample build with a voice to match, and she was satisfied to blow her whistle into the microphone and then summon the various companies with hand signals from the other side of the oval. Phil suggested to our reporter that she was mike shy, but judging by the way he looked at me when I rose at the meeting to have my monthly say, I am not so sure!

Comps 5EF, that keeper of the roll of all VK sidebanders, and may I be pardoned for such heresy, reports that the score is now 330 capable of quacking at the drop of a hat. Long time no hear Comps, where were you during my sojourn at Oakbank?

Two or three months ago my usual correspondent for the Port Pirie Amateur Radio Club, Bruce 5ZEG, went down with a very annoying allergy, and with true Radio Amateur cunning, talked his XYL Pamela into writing his monthly letter to me. To all intents and purposes the allergy has departed, but believe it or not, the monthly letters continue to be signed Pamela, XYL of Bruce. I do not intend to comment further on such infamy, except to say that I am filled with admiration at such a display of cunning, and only hope that it will last, because it is many a day since charming and beautiful young women put pen to paper on my behalf, and off the record, I have caught myself casting a few glances in the mirror as I pass, and with my well known modesty I can only say that I am somewhat pleased with what I see. Ahem!

At the last general meeting of the above-mentioned club it was noticeable that the membership is definitely on the increase, and one of the associate members is none other than Eileen, the XYL of Bert 5EQ. Her motive is as yet a secret, but it is believed that she is working along the lines that "if you can't lick 'em, join 'em!" However, as my correspondent points out, "who ever heard of 'licking' a Radio Amateur? You push them down in one place and they bob up in another!" Pamela, how could you say such a thing?

The Youth Club is in full swing with the lowest attendance so far being around the 40 mark, and most of the lads are very interested, and one of the older lads, who is studying for his Leaving Certificate this year, sat for the Limited exam in April. Nice work, and hope you made the grade, QM.

A working bee to get the club's tx in working order is to be held in the near future and negotiations are in hand to purchase a rx for use by the club for its W.I.C.E.N. net. Considerable interest has been shown in the above

by the Red Cross with a view to setting up communications between outlying accidents attended to by the St. John Ambulance and the Hospital. After the club has its gear in order, the Mayor, local M.H.A., Civil Defence Co-Ordinator, and heads of the St. John, Red Cross, etc., will be invited to view what is available and to offer suggestions. Well, there you are, not bad for a country Amateur Radio club, is it? Once again many thanks for the news Pamela, glad to know that the train still goes up and down the main street, and also that a certain large establishment still pours fumes into the atmosphere. Anyway, if you can still joke about it, the old sense of humour must still be around. I salute you.

Have been making several enquiries lately concerning the whereabouts of my old sparring partner on the Council, Jack 5JD, and was surprised and pleased to read in the morning paper today that he had narrowly escaped drowning in the Murray, around Goolwa way. Jack was certainly lucky, whilst he was being rescued, his companion in the small bondwood dinghy, which sank in mid stream, was drowned. Would have preferred to have heard about you in happier circumstances, Jack.

Frank 8AE is almost ready to leave Alice Springs and should be seen around the metropolis any day now. His final letter to me contained a distinctly bitter ending. He told me the next time I heard him on the air it would be with a quack! Another good man bites the dust, soon I will have to talk to myself. Wait a minute though, Pincott nearly had me in when he was over, I must double the guards!

Norm Colman is about to change his QTH from Rose Park to Payneham, so my spies tell me. Don't see much of him these days, but at least he continues his journey toward the East. Still out every night, Norm?

5PS GOES SIDEBAND

Our VK5 scribe has finally made it! Even if he had to acquire the equipment. Test transmissions have been heard recently. Carrier suppression is excellent, but it is difficult to resolve. At first it was thought to be "Dad Dad," but careful listening now makes it sound more like "Quack Quack". Technical details are sketchy, but we understand the designer has resorted to two unusual features. He has achieved a physical layout which strongly resembles the owner and has applied the unusual colour scheme of black on top and a delicate shade of green for the rest.

Our VK5 technical correspondent tells us that those who have seen the equipment feel sure the modulation is affected by a low frequency oscillation in the final when the equipment is mobile. 5PS, however, insists the trouble can be overcome by inserting the equipment in an oven for about three hours; and we expect to know the results of this experiment next month.

We understand a large number of these rigs have landed in VK5, but so far 5PS has the only one in captivity.

—Khaki Campbell.

Did you notice that VK5 is to be the host Division at the next Federal Convention. Blimey! I will have to tread carefully that week-end. Fanny VK5 full of VK3s over Easter. We must have committed a dreadful sin to reap that punishment!

Pete 5FM is reported as still pursuing the elusive "big one," armed with fishing gear galore and a trailer boat. There is no truth in the rumour that he is planning extensions on his arms to help him describe the ones that got away. Isaac Walton lives again!

Al 5ZC and Ses 5GP are busily engaged in installing a hot water system in the QTH of Al, but for some unexplainable reason at the moment of writing, the hot water is non est, which to you peasants may be taken as being up the spout. Get it, hot water up the spout. Get, hot water—OK skip it—I thought it was funny. Anyway, Al and Ses are clothed in protective clothing and dark thoughts, and should the hot water decide to issue forth, they even have an umbrella each. Hope springs eternal, etc., etc.

Rumour has it that the wild man from Lucindale, Arch 5XK, is about to become the proud owner of an automobile. Understand he has been seen garbed in motor coat, gloves, goggles, safety strap, parachute and shoehorn. In keeping with his leanings toward the unusual, the engine of the car is said to be mounted sideways with a double spring movement. You wind one whilst the other is running down. Plays 78-33-15 and 7½-mono or stereo. The Lord help the motorist who crosses his path! He will learn some mighty interesting insinuations with reference to his parents!

The Admiral (5ZAH) missed his code by nine points at the last sitting, passed his sending but slipped on the receiving. With true Naval spirit, he is by no means discouraged, and is determined either to get it next time, or fire a salvo over the examiner's head as a warning!

Luke 5LL has been having a field day with the c.w. signals on 14 Mc., and in his own words, "is as silly as ever he used to be in the good old days." Personally, I have heard him calling and working them, but I have never even heard one dot or dash from the other end. Perhaps he has transistors for eardrums.

Heard an old-timer on the band the other night, none other than Huck 5JU. Years since I heard him, and can't remember when I saw him last. Hearing you again Huck, gave me an acute attack of nostalgia. Oh for the good old days.

No doubt about this Ted 5JE. I spend all my time stressing in these notes that he is a fanatic about 7 Mc., and won't listen to any other band, no matter what happens, and then he goes and takes out the 3.5 Mc. c.w. section in the VK-ZL Contest! They must do it on purpose to trick me, there could not be any other reason.

One of the new set-ups of the new Council of VK5 is to send out to all those requiring it, a copy of the minutes of Council and general meetings. Now this I consider a good idea, no longer do I have to ring various jokers and spend hours pumping them for information as to the happenings of the various meetings, but can read them at my leisure. Unfortunately for me, I had to pay one shilling excess postage on the first one I received, and can only deduce that some new member of the Council is carrying on the vendetta of the old Council. How could you Pat 6US? Half my weekly pocket money gone!

Jim 5JK well and truly settled in his new QTH now, and keeping to his sworn statement that it would be years before he had time for on-the-air work. So much so that he has already erected a new mast and has been heard whispering sweet nothings into his microphone.

Joe 5RC (ex-GM3HM), one of my favourite Scotchmen, will have left our fair land to return to England at the end of May, via the States. He has asked me to convey to the boys of VK5 his thanks for making his stay of two years such a pleasant one, although he is sorry that circumstances did not permit him to be as active as he would have liked. He suggests that he will keep in touch with the doings in VK5 through the magazine, and in an excess of generosity even went as far to suggest that if he remains long enough in G land, he might even hear VK5PS. Well you never know Joe, I could bounce off of a satellite! Good luck, OM, nice to have had you, and hope you may return some day. By the way, you never got round to letting me into the secret of what they wear under those kilts. You promised, you know!

Harry 5MY rushed up to me at the meeting to tell me that he had paid his licence at the local post office and then received a letter from the Department threatening to cancel his licence because he had not paid up. You astound me, that such wickedness should exist. Off the record, my c.w. friend, and me too, see you in jail.

Joe 5JO, paying a visit to Cec 5CD, bumped into a well known old time radio identity in "Ned" Kelly, who used to be the technical development section secretary many years ago, also Jack 5LH and George 5GS, and quite a get-together was held. How was the red wine gentlemen? Don't answer that!

One of my novice spies reports that in his travels he bumped into Darcy 5BJ, of Kadina, and if the propagandist works, he should make a re-entry into Amateur Radio at any time. Nice work Darcy, think of the years that you have missed.

Talking of spies, two of my Eastern friends from Mount Gambier decided to pay a visit to the South Western VK3 Convention at Warrnambool. Welcomed with open arms and showered with hospitality, they were somewhat dismayed to hear a letter of apology read out by the Secretary 3AKN to the effect that Pansy 5PS could not make it, but not to despair, he would be sure to have a couple of spies planted at the Convention! In view of the fact that Col 5CJ and Stuart 5MS were the only two VK5s present, the sudden coldness that descended on the gathering in their direction was understandable. Sorry fellows, that's how dangerous I live over the border. Anyway, the coldness did not last long did it? Believe they had the time of their lives. Why didn't you put them up against the wall, Don 3AKN?

Glancing through last month's Divisional notes I could not but notice all the flattery aimed in my direction. Crawling will get you nowhere. 73, de 5PS—PanSy to you.

WESTERN AUSTRALIA

How the winter rain doth fall! With the weather has been lately, not so cold around this neck of the woods mark you, but wet, man, wet! Perhaps we should all be like Allan 6HR and start building v.l.f. tx in the form of an organ, as mentioned last month. These are a delight to the eye and the ear. You can change frequency by pushing a key with your finger, in fact, you can push several keys with several fingers and transmit on several frequencies at once. Harmonic transmission is permitted as well as the fundamental and further, you can wobble any frequency about its mid point. And there are no R.I.'s. What more do you want! Hope everything goes well for you Allan.

As a matter of fact news is coming in from all directions about Allan-type Hams, for we find that Allan 6AB recently gave his daughter away in marriage. Hams from various parts of the State attended; Bernie 6KJ from Albany and Herb 6XO from Katanning, and Pat 6PH representing Perth. I believe the whole thing was run with car-trial precision—two-way radio and so on. And we haven't mentioned the bridegroom. Quite unimportant of course, but his name is Graham, and I feel that you should know just how the possession of a Ham ticket can influence some families. It is on record that the outcome of recent discussions between Allan and Graham was "No ticket, no marriage." So, here comes another new Ham! Congrats. and best wishes to you both.

Single sideband is still claiming new adherents and we find that Bill 6BA is cutting the unnecessary bits off the carrier. M-m-m? Yes, well, I know there isn't any carrier either, but the signal still gets out. Herb 6XO is also badly bitten and as mentioned last month was finishing off. This has now been completed and she's "in the air." Good work, chaps.

Also mentioned last month was the fact that Clarrie 6XG had drifted East (this has nothing to do with changing frequency). We've had word that the trip is still in progress, for Mac 6MM also attended the I.R.E. Convention and saw Clarrie and commiserated with each other. That means I'll take an even money bet that they told each other how good W.A. is!

Not all the Hams go away, of course. Allan 6MO, our worthy Secretary, has been heard on 20 and I'm told that Kerry 6EA has been heard. Also I understand that one local Amateur, Nollamara direction, had trouble hearing the VR0 side of a contact on 40. Does that ring a bell with somebody?

Talking about being on the air, a spy tells me that Dave 6DG is having an attack of hamitis and is back on the breeze. Good for you, Dave, and it's true what they say, once a Ham, always a Ham.

This applies also to a man named Trigwell (better known to you mob as "Trig"), who has been toying with the possibility of taking out a call sign again. Never mind about doing the wrong thing, Trig, after all the worst that can happen to you is that someone will get the R.I. on your tracks. Get with it, man, and the best of luck!

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OBITUARY

"GEOFF" D. ASCHMAN, VK7GA

It is with deep regret that we record the passing of "Geoff" D. Aschman, VK7GA. Geoff came to Tasmania from New Zealand and was licensed in 1946. He took a great interest in Institute activities and was President of the Tasmanian Division during 1957. He showed quite a few young members the way towards their A.O.C.P. Geoff was an engineer in charge of Transmission Line Design and Construction, with the Hydro-Electric Commission of Tasmania.

Members of the W.I.A. extend to his relatives their deepest sympathy.

Incidentally, Len 6LG is a regular signal on a number of bands and not only at night, either. For now Len has retired, a Ham's life is a busy one. I enjoy your soliloquies, and I'm sure others do, too. Beading the mail recently, I heard you mention that some old codger was told he was growing deaf, and he replied that there was one way he could still grow and that was to grow deaf. With the signal that comes from 6LG, it wouldn't matter if he was deaf, he'd still hear it! Very nice copy, Len.

There is a word creeping into our language lately that I'm not sure that I like. Its expressive, not rude, and quite correct if used in its proper place. Wait a moment! I haven't told you what it is yet! The word is "pipeline". Now this is OK if you are describing a water feed from a reservoir to a city, but how it describes such things as having a pipeline into another firm or office. However, the point of all this is that my spy has told me that 6BD has a pipeline into Alaska with his quad. So you see, I thought I should explain so you wouldn't get a mental picture of a 10 ft. diameter pipe running across Australia in the general direction of America.

Odd things like that remind me that at the last Council meeting, there was talk about "the old days" when exhibitions were held and the demonstrator used a Tesla coil about 6 feet high. Cigarettes could be lit from the sparks and in fact you could even draw sparks from the blonde assistant. The good old days? Why, these were the days when they were tossing out germanium crystals (or equivalent) because they had reached their limit. Didn't even think of adding another cats whisker and making a transistor. 73, 6LS.

TASMANIA

Apparently my Divisional notes for the May issue went astray in the course of post, so I had better give the most important details from that effort. The Council appointments for the year 1968-69 were: Tom 7AL as President, Snowy 7CH and Len 7LB as Vice-Presidents, Snowy 7CH and Treasurer, Snowy 7CH and Ted 7EB as Bulletin Editors, David 7ZAI as Technical Editor to the Bulletin, Terry 7CT and Tom 7AL as Distribution Committee for the Bulletin. The two new members of Council are Ted 7EB (correctly dubbed "Ear Basher") and David 7ZAI. David has the privilege of being the first Limited licensee as a Councillor and heartiest congrats. to you, David. Charles 7KS has been appointed an ex-officio Councillor so as to act as Divisional Secretary, and we welcome you to that onerous job Charles.

Terry 7CT has indicated that the A.O.C.P. class he has conducted over the past year or more is about to come to an end, so we wish every success to the examinees to face the music soon. Terry has indicated that he will begin a new class probably in February next. Congrats. on a job well done, Terry, we are much indebted to you.

At the June general meeting we were very much impressed by the address and film shown by the director of Civil Defence. At the same time, we were made aware of the tremendous problems and opportunities for us to help our fellow beings and I had the impression that all present felt the same way. We were delighted to see a wonderful roll up at this meeting, despite the bitterly cold weather. To name just a few, Ray 7TR, Brian 7BP, Neville 7NC, Pat 7GV, Tiny 7JD were welcome faces. Doug 7DW was also present, after his wonderful trip by way of annual leave on the mainland through VK3 and VK2, just completed.

Several Hobart stations were pleased to help the T.V. Servicemen's Association members get an insight into Amateur Station operation late in May. Perhaps, t.v.i. problems, if and when they arise, might receive a sympathetic consideration from these chaps, now they have seen Amateur Stations at work. 73, 7ZZ.

NORTH WESTERN ZONE

No doubt due to the long and loud blast in last month's notes, we had a good attendance at the last zone meeting. Better turn up, you chaps, or I will let 7MX loose again! We were pleased to welcome visitor Peter Chalk, and also Len 3LN and XYL, who have been touring VK7 with car and caravan. This car is fitted with f.b. mobile s.s.b. rig, and has been giving good sigs throughout the State. Much time was spent probing in the innards of the unit after supper, and Len said a few words about the facilities available to his zone which made our mouths water.

As we have now decided to retain the Lakins Hall as a permanent meeting place, don't forget to bring along some db. to pay for it. Very pleasing to see headquarters come to our assistance in this matter. The auction next month should also help.

Basil Barnes sits for his ticket in July, so we all wish you the best of luck, Basil. Pity there isn't a couple more of the chaps in there with you. 73, 7ZBH.

HAMADS

Minimum 5/-, for thirty words.
Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C2, Vic., by 6th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

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this woman is making a transistor

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Pictured below: A technician from the Commonwealth Acoustic Laboratories positions an AWV transistor in one of the free Government hearing aids.



this man is installing it in a hearing aid

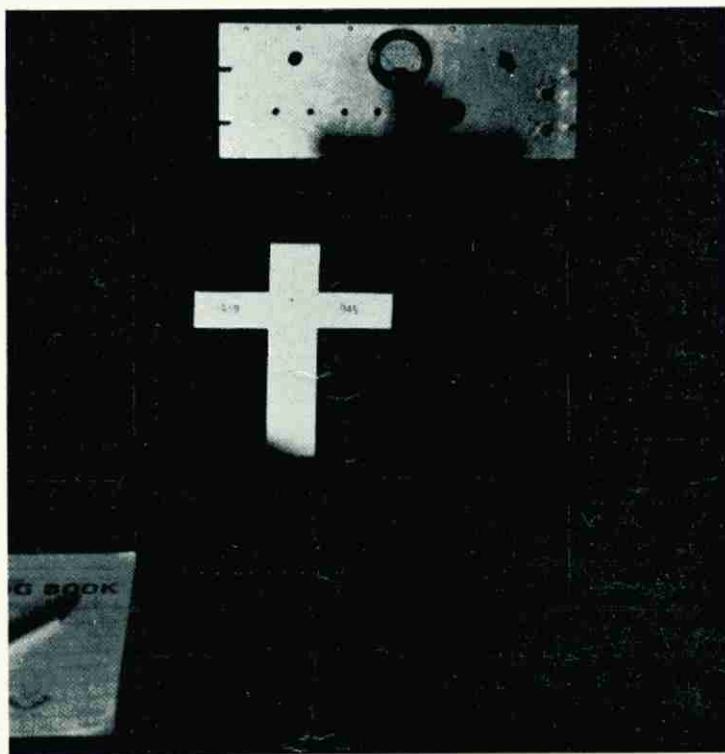
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A M A T E U R R A D I O

AUGUST 1963



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Vol. 31, No. 8

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"AMATEUR RADIO"

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Acknowledgments will be sent following the Committee meeting on the second Monday of each month. All Sub-Editors should forward their articles to reach "A.R." before the 8th of each month. Any item received after the Committee meeting will be held over until the next month. Publication of any item is dependent upon space availability, but in general about two months may elapse before a technical article is published after consideration by the Publications Committee.

★

Members of the W.I.A. should refer all enquiries regarding delivery of "A.R." direct to their Divisional Secretary and not to "A.R." direct. Non members of the W.I.A. should write to the Victorian Division, C/o P.O. Box 36, East Melbourne. Two months' notice is required before a change of mailing address can be effected. Readers should note that any change in the address of their transmitting station must, by P.M.G. regulation, be notified to the P.M.G. in the State of residence, in addition "A.R." should also be notified. A convenient form is provided in the "Call Book".

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Direct subscription rate is 24/- a year, post paid, in advance. Issued monthly on the first of the month, January edition excepted.

FEDERAL COMMENT

★

REMEMBRANCE DAY CONTEST

Once again our most popular Australian Contest is with us and serious contestants are preparing their gear to better their scores of last year. The changes to the Contest are few—however, two alterations agreed at Perth in 1962 have been made by way of amendment to the Rules published last month. The details of these changes are shown elsewhere in this issue.

The two amendments allow any Australian Amateur to obtain a certificate if he be a member of the W.I.A. or not. The other is the inclusion of the A.C.T. as a separate call area for certificate purposes, although, until formed as a Division, the A.C.T. may not win the perpetual State Trophy. Negotiations are also in hand to invite Sir Rohan Delacombe, the new Governor of Victoria, to deliver the opening address prior to the commencement of the Contest.

This year's Contest, like its predecessors, therefore promises to be a "bumper" one. We hope every entrant to the Contest will listen to the opening address, at that time give a little thought to the reason for the Contest, and carry the spirit and intent into the Contest itself—adopt good operating procedures, be unselfish, help your State to win by submitting your log, and most of all, enjoy yourself. Good luck.

NEW COMPONENTS

Every Amateur is interested in new components arriving on the market, or materials which will help improve or simplify his station equipment. One generally "window shops" at the popular radio houses for such items, but how many Amateurs look in other places, such as electrical stores, for new ideas?

We recently saw a new line of high impact plastic conduit and fittings, in a wide range of sizes, which appear to have great promise for Amateur work as well as in their intended use. These components are welded quite readily and easily, and impressed us with their light weight and strength. They would appear to be, size for size, more than competitive with their aluminium counterparts in price and weight.

An immediate idea which came to mind was the use of the conduit for beam elements. With a suitable metallic internal spray coating and the simplicity of welding and working, a very light beam could be built to last for many years and be completely waterproof into the bargain. Junction boxes and other fittings would no doubt have many other uses in the Amateur field.

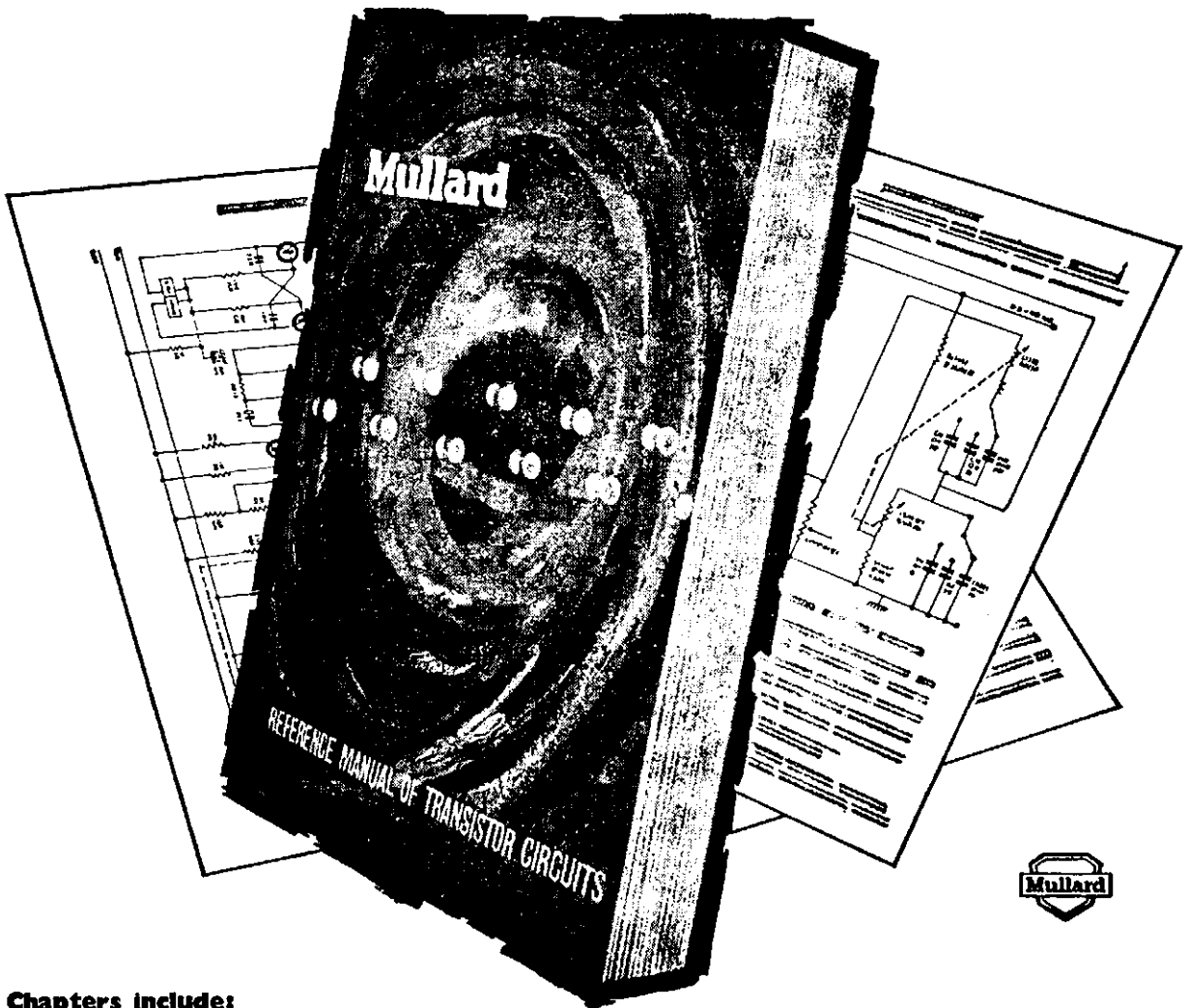
The average Amateur is an ingenious chappie and with some improvisation we foresee these materials being widely used in the near future. Maybe you have already seen and tried some of these items—if so, why not tell your fellow Amateurs about it—use this journal to disseminate your applications by writing an article which will be gratefully accepted.

FEDERAL EXECUTIVE, W.I.A.

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MT110

Amateur Radio, August, 1963

High Frequency Filter Type S.S.B. Transmitter

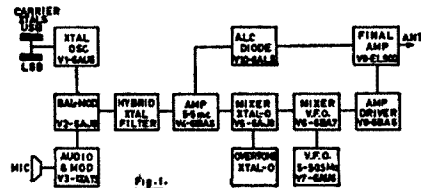
ARIE BLES,* VK2AVA

THE unit to be described is a 150 to 200 watt peak input s.s.b. transmitter, in principle capable of operation on any of the Amateur bands from 15 to 160 metres. It has been built in one version as a three-band 80-40-20 metres bandswitching unit, not larger than 9 by 12 inches chassis size.

The basic circuit diagram is presented herewith and possible modifications will be indicated. The presentation is not meant to be copied literally, but rather as an example of what can be assembled of locally available components, with as heart of the set a high frequency crystal filter composed of surplus type FT243 crystals at approximately 5,500 Kc. frequency.

PRINCIPLE OF OPERATION

Fig. 1 shows in simplified form the layout used. In a balanced modulator V2, r.f. carrier energy from the carrier oscillator V1 is modulated by audio frequencies from V3. The carrier is suppressed to a large degree and the residual carrier with two sidebands are fed through a four-crystal hybrid filter. Only one sideband will be passed, which is amplified in a stage of straight amplification in V4, and mixed in the following mixer/frequency converter stage V5 with fixed frequencies, derived from a third overtone crystal oscillator. The results are s.s.b. on still fixed frequencies, approximately 5,000 Kc. or so higher in frequencies than the desired Amateur bands.



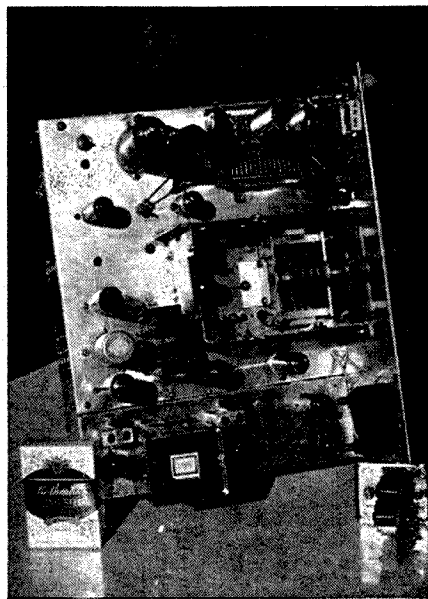
TRANSMITTER-BLOCK DIAGRAM.

Balanced modulator, filter and mixing frequency layouts have been described in earlier issues of "A.R." (Sept '62, Feb. '63, and April '63, respectively). The advantage of this system, first used by Hallicrafters, is reasonable freedom from images and other undesired mixing products, and the need of only one common v.f.o. frequency range to cover all Amateur bands, provided the intermediate mixing frequencies have been properly chosen (see Table 1).

The next step is to mix these intermediate frequency s.s.b. signals with v.f.o. voltage from V7 in the mixer V6, amplify the proper output in the corresponding Amateur band through V8 to drive the class AB1 final V9, the output of which is coupled to the antenna. A small voltage from that output is rectified in diode V10 and fed back to V4 to provide a.l.c. (automatic level control), just as a.v.c. is achieved in a receiver.

SUGGESTED MODIFICATIONS

There are modifications possible, some of which are schematically indicated in Fig. 2. Those that prefer the ultimate, at a price, in balanced modulators, the 7360 tube, could combine the crystal oscillator in the same envelope as the balanced modulator and also include a triode cathode follower stage to properly match the fairly low impedance of the crystal filter (see Fig. 2a). Another and even better method of frequency conversion to the Amateur bands is suggested in Fig. 2b. Instead of mixing the s.s.b. signal twice, the v.f.o. energy only is mixed with the overtone crystal frequencies and the output of that mixing combined with the basic s.s.b. signal. This may reduce possible mixing distortion, inherent with all mixing.

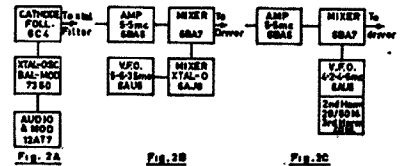


Above-chassis view of S.s.b. Transmitter.

Finally, as shown in Fig. 2c, and being the system successfully used by the makers of the Swan Transceivers, the intermediate mixing stage V5 can be eliminated entirely provided a stable v.f.o. can be built with enough second and third harmonic output on 9 and 12 Mc. to mix directly with the original

s.s.b. signal on 5.5 Mc. This certainly is not easy, but can be done, as amply proved by Swan.

The physical layout of the transmitter is shown in Fig. 3. A bandswitch and plugs for power and control wires are located at the right hand side of the chassis.



ALTERNATIVE-BLOCK DIAGRAMS.

Fig. 4 shows the complete basic circuit diagram of the block diagram of Fig. 1. The bandswitching has been omitted to simplify the circuit. It is obvious what circuits have to be switched to go from one band to another. It is strongly recommended to use plug-in coils if one cannot get the right five-gang ceramic switch assembly. Also the construction may be a bit involved for those who have only limited construction experience. There is ample space even in the small 9" x 12" layout to position plug-in coils between the tubes, close to the proper position in the circuit.

CARRIER OSCILLATOR

The simple Pierce type crystal oscillator is used, identical to the Collins b.f.o. circuit. Only 1 volt of carrier r.f. is required into the balanced modulator so the input to the oscillator is extremely small with the low screen voltage. For test purposes the other sideband carrier crystal can be switched in.

The carrier oscillator compartment should be shielded from the rest of the sideband generator sub-unit in order to prevent carrier leakage into corners where it is unwelcome.

BALANCED MODULATOR

This circuit is the PA0LZ single-ended pentagrid balanced modulator, not very well known outside Holland. The operating principle is simple, the cathode resistors, unbypassed for r.f. or a.f., cause a negative feedback, reducing the amplification of the carrier

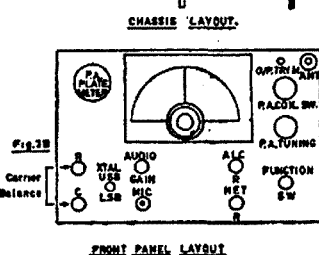
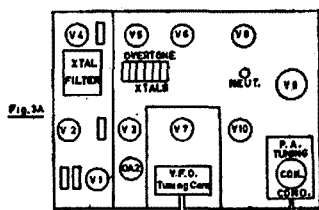
Overtone Osc. Frequency	S.S.B. Signal Frequency	Intermediate S.S.B. Freq.	V.F.O. Range	Output Range
13850 14850	5500 U.S.B. Same	19350 U.S.B. 20350 U.S.B.	5350-5000 6350-6000	14000-14350 U.S.B. Same
17850 18850	5500 U.S.B. Same	12350 L.S.B. 13350 L.S.B.	5350-5200 6350-6200	7000-7150 L.S.B. Same
14350 15350	5500 U.S.B. Same	8850 L.S.B. 9850 L.S.B.	5350-5150 6350-6150	3500-3700 L.S.B. Same

Table 1.

* 33 Plateau Road, Springwood, N.S.W.

voltage injected in grid No. 1, but at the same time creating an effective voltage on grids 2 and 3 (kept at zero r.f. potential) in opposite phase to the voltage on grid No. 1. At the proper setting of the cathode potentiometer, the resultant effects in the plate circuit will oppose each other, causing carrier balance.

The capacity from grid No. 1 to cathode and the trimmer from cathode to ground form a capacity bridge for proper carrier phase balance, done after adjusting the cathode potentiometer first for minimum carrier. To some extent the two adjustments interact.



The extra triode in the 6AJ8 is left unused. Other pentagrid mixers will work almost as well, except that the circuit constants may have to be modified for maximum carrier balance. The circuit is sensitive to overdriving, no more than 1 volt carrier should appear on grid No. 1 and likewise 1 volt of a.f. on grid No. 3 will produce plenty of sidebands. If the carrier cannot properly be balanced, there is bound to be leakage around the balanced modulator or overdrive on grid No. 1.

Incidentally, the same circuit is very effective as a receiver product detector, reducing the need for a low-pass filter in the detector output.

More than 1 volt of sidebands can be expected in T1. A single tuned circuit is not recommended here as the low impedance of the crystal filter will load the balanced modulator too heavily. Naturally it also loads the secondary of T1; the tuning here is fairly broad, but tolerable. An impedance match with a triode cathode follower is a good thing to add.

CRYSTAL FILTER

Enough has already been published and discussed over the air on this feature. Tuning the filter is very simple, little more is necessary than adjusting L1, L2 and L3 for maximum output on the centre frequency of the filter. A stable frequency meter is extremely useful to align the filter, but apart from that, no more than a good general coverage receiver with a reliable S meter is needed to align all other parts of the transmitter. Of course you are supposed to possess a grid dip oscillator and a reliable volt-ohm meter.

The crystal filter has some insertion loss and it is the right thing to amplify its output. At the same time, a.c. voltage can be applied to this amplifier stage. It is very simple to rectify a little voltage from the transmitter output stage and feed it back to an earlier stage, preferably operating on a different frequency than the output stage, in the same manner as a.v.c. is applied in a receiver.

Newcomers to s.s.b. could hardly do better than forget most of what they have learned in their a.m. time and start thinking in terms of receiver requirements. The a.l.c. action is very effective, reducing splatter interference due to overdriving the final amplifier and actually raises the average speech level. More s.s.b. rigs should be using a.l.c., including some commercial productions.

FREQUENCY CONVERSION

The system followed to convert the 5,500 Kc. fixed frequency s.s.b. signal to the desired Amateur band has been

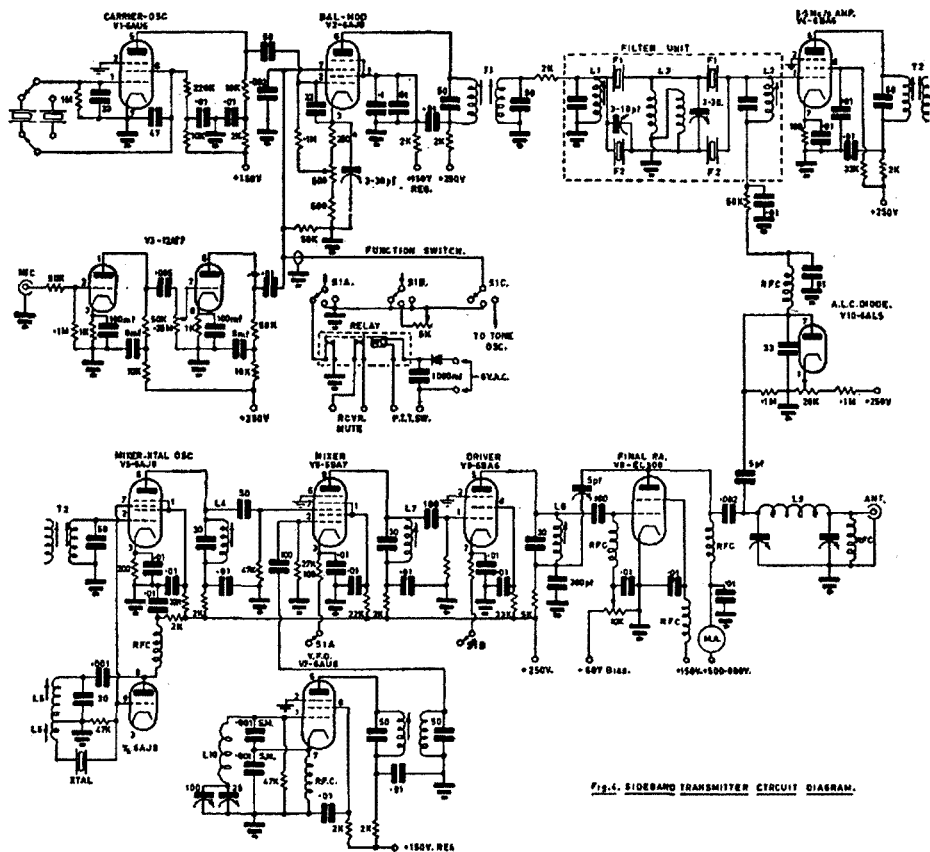


Fig. 1. SIDEBAND TRANSMITTER CIRCUIT DIAGRAM.

- T1, T2—TV 5.5 Mc. sound channel i.f. transformers or similar units.
- L1, L2—Any slug-tuned coil, resonating on 5.5 Mc. with 50 to 100 pF.
- L3—Toroid bi-filar wound coil, 20 to 23 turns (40-46 total) on 3/8 inch ferrite nut from walkie-talkie coils, the end of one winding connected to the start of the other for centre tap.
- L4—Resonating on approx. 19, 12 and 9 Mc. for respectively 20, 40 and 20 metre operation.
- L5—Resonating on crystal overtone frequencies.
- L6—One-third of turns of L5, with small slug to adjust the amount of feedback inductance.
- L7, L8—Resonating on 20, 40 and 80 metres respectively.

discussed above with the block diagram. The 6AJ8 used for V5 happened to include an extra triode for the crystal oscillator. The circuit for the third overtone crystal oscillator has not been used much elsewhere, but is very easy to adjust with the slug in the feedback winding L6.

Active overtone crystals will oscillate without this slug when L5 is resonated to the overtone frequency. Somewhat less active crystals can be given the correct amount of feedback with negligible effect on the tuning of L5.

The output circuit of V5 is resonated on the frequencies listed in the block diagram discussion. Mixing these intermediate frequencies with the v.i.o. output in mixer V6 produces the desired s.s.b. signal in the Amateur bands.

The v.i.o. is my favourite Clapp oscillator type, others may use their preferred Franklin or other Colpitts versions, provided they are stable oscillators. The secret here lies in the use of good components and rigid tension or friction-free mounting of the

- L9—3 inch length of B. & W. type 3015 or Willis type 4-16 coil, 48 turns 1 inch diam. for 80 metres, tapped at 15 turns for 40 metres and 5 turns for 20 metres.
- L10—V.i.o. coil, 30 turns, same coil material as L9.
- L11—Bandpass transformer for 5,000 to 5,350 Kc.
- S1—Function switch, 3 position, 3 gang. Position 1—P.T.T. (push to talk). Position 2—V.F.O. netting. Position 3—Test tuning with external audio tone source.
- F1—FT243 crystals, approx. 5,500 Kc.
- F2—Same, 1,800 to 2,000 cycles higher in frequency than F1.
- RFC—Radio frequency chokes, all approx. 0.5 millihenry, small types, except in the plate of V9 which must be a solid transmitter type.

components. There is no need to use a Command set as oscillator, you can do a better job by building your own Clapp.

A bandpass filter in the output of the v.f.o. will secure strict v.f.o. fundamental output and little else, like harmonics. What can happen there is shown in Table 2.

Some overtone crystal frequency voltage will always be present in the output stage of V5 and it is wise not to let it beat with an unwanted v.f.o. harmonic and produce an unwanted signal within or close to the Amateur band. Changing the v.f.o. range to 6,000 to 6,350 Kc. will reduce this trouble greatly.

DRIVE AND FINAL

We now can expect a s.s.b. signal of 1 volt or more peak value on the desired Amateur band as output from V6 and this needs to be amplified to "drive" the final stage to full output. Almost everywhere one sees tubes like 6CL6, 12BY7, etc., applied as drivers and far too many home constructors

have had difficulties with instability of their driver stages. All these tubes should be properly neutralised because they are never meant to be used as straight r.f. amplifiers and lack the proper internal screening between control grid and plate. But a small receiver-type r.f. amplifier tube like the 6BA6 will do the "driver" job just as well, is perfectly screened, and does not need more care than normal bypassing and separation of input and output circuits. In stage V8 with 2.5 watts input to the 6BA6, the output tube could be driven into grid current on peaks.

The final amplifier used is the Philips/Mullard equivalent of the now famous 6DQ5. The amount of fixed grid bias required will depend on the value of the screengrid voltage applied, which should be kept below 200 volts. A standing plate current of 25 mA. is safe for the final without grid drive. Properly loaded, it can be driven up to 200 mA. plate current with steady tone input, but have mercy on the little tubes and don't overdo that treatment. The output under those conditions

is enough to light a 60 watt bulb to more than full brilliancy.

The output circuit is the common pi-coupler and the stage is properly neutralised. Some commercials are already recommending an indicator for correct neutralisation; adjust the neutralising condenser until maximum output coincides with the dip in the plate current.

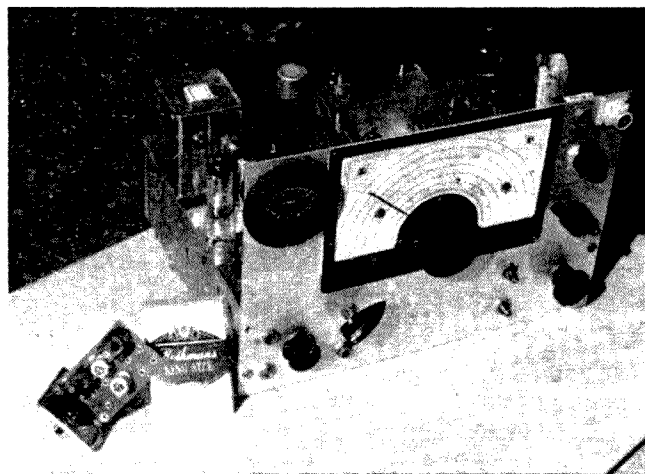
Finally, the a.l.c. diode should be added. The 10K potentiometer in its cathode adjusts the threshold of a.l.c. operation and its effect will be very noticeable.

NETTING

A final word on the netting arrangements. To a listener to a s.s.b. roundtable there is nothing more annoying than to have to re-tune from one station to another when they are not all on the same frequency. Transceiver users should not have any trouble to be on the same frequency provided they use their receivers properly. Personally I feel that others should check their netting more frequently, which some may be reluctant to do because of the difficulties they have in doing so. Either their transmitter signal blocks their receiver or is too weak to determine correct zero-beat with stronger stations. Also, some badly operating balanced modulators can produce extra beat notes and make guesswork of which to use. In this set the variable resistor in the cathode of the "driver", with the function switch in the netting position, will allow adjustment of the strength of the beat note in one's own receiver to the desired level.

Operation	V.F.O. Frequency	Second Harmonic	Overtone Crystal Freq. Leaking through to grid of V6	Unwanted Output as Difference of These Two Freq.
80 Metres	5350	10700	14350	3650
40 Metres	5350	10700	17850	7150

Table 2.

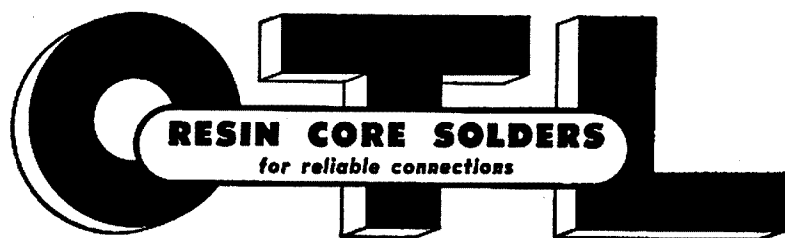


Lay-out of front panel of the S.s.b. Transmitter.

CONCLUSION

The performance of the prototype of this design has recently been heard by a fair number of stations on 40 metres and comparison with a signal from a Collins KWM-2 has been favourable. The unwanted sideband suppression can be better than 40 db. with proper adjustment of the crystal filter, and the a.l.c. feature helps to keep distortion products down.

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A PORTABLE BATTERY CHARGER

DAVID BILLS-THOMPSON*

GENERAL interest and activity in civil emergency services prompted the development of an inexpensive battery charger. Low cost was of primary importance and the search for components began among discarded electrical equipment at home. As the performance of the unit which was evolved proved to be very satisfactory, it was decided to make available those details which could be of use to people interested in W.I.C.E.N. and similar fields.

EQUIPMENT

An AT5 genemotor, which is rated at 26 volts input and 550 volts at 350 mA. output, was used with a 30 c.c. two-stroke engine.

COUPLING

By removing the fan from the genemotor, a small length of shaft was exposed. A bush was screwed to this, so that the unit could be direct coupled through a section of canvas rubber vacuum hose to a similar bush on the crankshaft. An output of 4 amps. at 12 volts was obtained with the first test. In this, the engine was operating at its maximum speed, which is not desirable for continuous use.

INCREASING THE OUTPUT

It was therefore necessary to increase the output of the generator for a given engine speed. This was achieved by connecting the two shunt fields in parallel. This increased the current through each coil and gave a higher flux density.

RECONNECTING THE FIELDS

To obtain this change in field connections, some of the binding tape was carefully removed to gain access to the internal connections of the thick series fields and the shunt fields. N.B. The shunt fields are of light gauge wire, and all physical disturbance of the winding must be kept to a minimum. Fig. 1 shows the original connection of the AT5 genemotor. The letters on the circuit indicate the ends of windings and their order shows the direction of current flow, i.e. the direction of current through the armature is from "C" to "D".

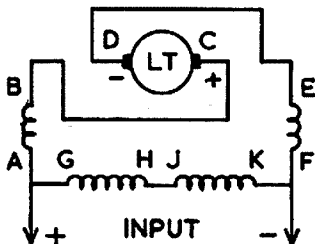


Fig. 1.

ELECTRIC STARTING

It should now be an easy matter to co-ordinate the series and shunt fields for an efficient start/generate circuit. A double pole double throw relay controlled by a push button was used in this unit. An ammeter and a cut-out were also included. The ammeter was wired so that it was not in circuit during starting. Fig. 2 shows the reconnection of the fields with the start relay, cut-out and ammeter. The letters identify the winding ends with those in Fig. 1.

REVERSING ROTATION

With the original internal connections, the armature rotation is anti-clockwise viewed at the fan end. Fig. 2 is drawn for the normal rotation, but in some cases it will be necessary to reverse this direction. Electrically, this can be done by two methods, i.e. reversing the armature connections, or by reversing the field connections. To maintain the correct h.t. polarity (negative to earth), the field connections should be reversed with respect to the armature. This means that the pairs of field connections shown in Fig. 2 as AF, HG and KJ should be reversed. Another possibility is to rotate the field system through 180° (two-pole machines only), but this simpler method may not be suitable for other types of genemotors.

PERFORMANCE

As a cumulative compound motor with 12 volts input it can provide 3 lbs./ft. of torque for starting the engine. The maximum charging rate was 12 amps. Using only one-third throttle opening,

the engine would run for about two hours on one pint of "petroll," with a charging rate of 6 amps.

H.T. END

The h.t. end was conserved for lighting purposes only. A 100 watt lamp

(Continued on Page 16)

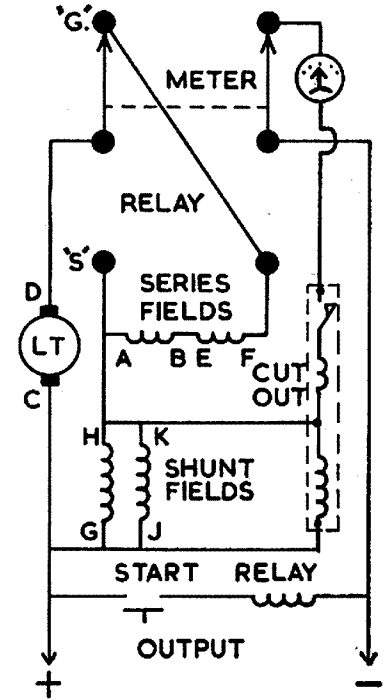
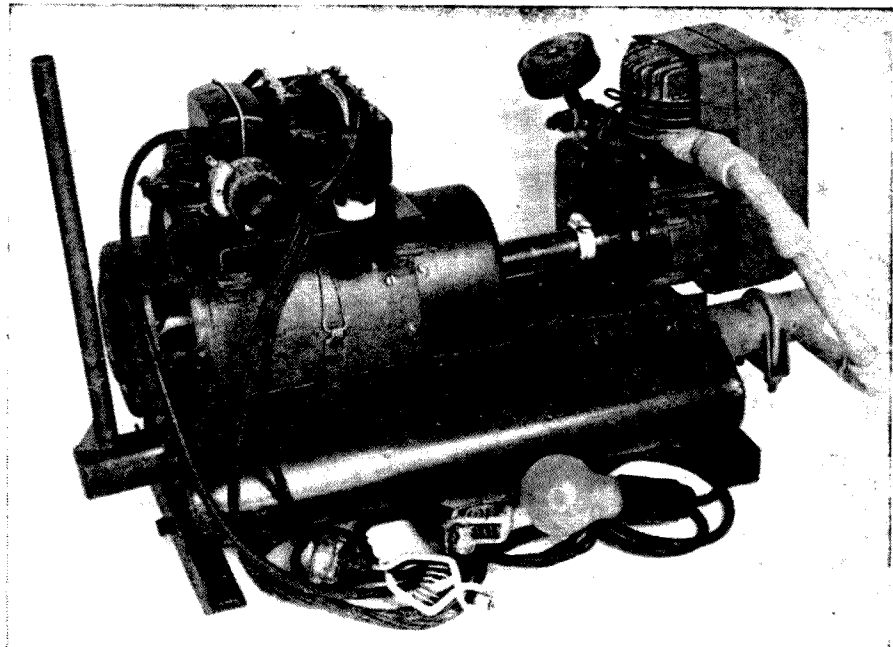


Fig. 2.



* 6a Fairmount Road, Hawthorn East, Vic.

Modifying the AR7 for S.S.B.

A. S. MATHER,* VK2JZ

THE modifications to be described will make the AR7 an almost ideal s.s.b. receiver and it will rival for Amateur-band operation the many excellent commercial receivers that are finding their way into Australian Amateur Stations, with the exception of the dial calibration. But even that could be remedied as will be discussed in the course of the article.

Although this article deals with the AR7, most of the modifications could be applied to any commercial receiver of a similar vintage.

It will be noted that it still leaves the AR7 with its normal coverage, as a communications receiver should it be desired; but for the Amateur bands, it should be used in conjunction with a crystal locked converter, so only 3.5 Mc. to 4 Mc. is tuned for optimum results.

Rather than attempt to show each modification separately, I thought it would serve the best purpose if the complete new circuit diagram was shown so it could be compared with the unmodified circuit and it will be obvious that there is very little left of the original.

The modifications will be dealt with under separate headings, any of which will improve the performance of the set either for a.m., c.w. or s.s.b.

TUBE COMPLEMENT

It is assumed that the filament wiring of the set has been altered to allow parallel operation of all filaments on 6.3v. a.c.

The 6U7Gs were replaced with EF39s and the 6K8G with an ECH33. The 6G8G second detector is removed and the socket is used for the 6SN7 audio a.g.c. tube. To this is added a 6BU8 product detector, a 150C1 voltage regulator, a 6BH6 100 Kc. marker oscillator, 6H6 noise limiter, and a 12AU7A a.g.c. rectifier and a.m. audio amplifier.

CAPACITORS

As there is a considerable amount of work to be done under the chassis, it is important that you remove all the original paper condensers and replace them with the newer, more efficient and smaller polyester types. The space gained will greatly facilitate the work of modifying the AR7, and although the originals may test satisfactorily, they have to be discarded. This applies to the 8 μ F. and 25 μ F. tubulars which can be replaced with advantage with the latest miniature types.

BANDSPREAD

A slow tuning rate is most important for s.s.b. and a crystal locked converter is used to heterodyne 28, 21, 14 and 7 Mc. to 3.5 Mc. A Band C coil box is modified to tune from 3.5 Mc. to 4 Mc. over the full range of the tuning dial. This takes care of 21, 14 and 7 Mc. and the first 500 Kc. of the 28 Mc. band.

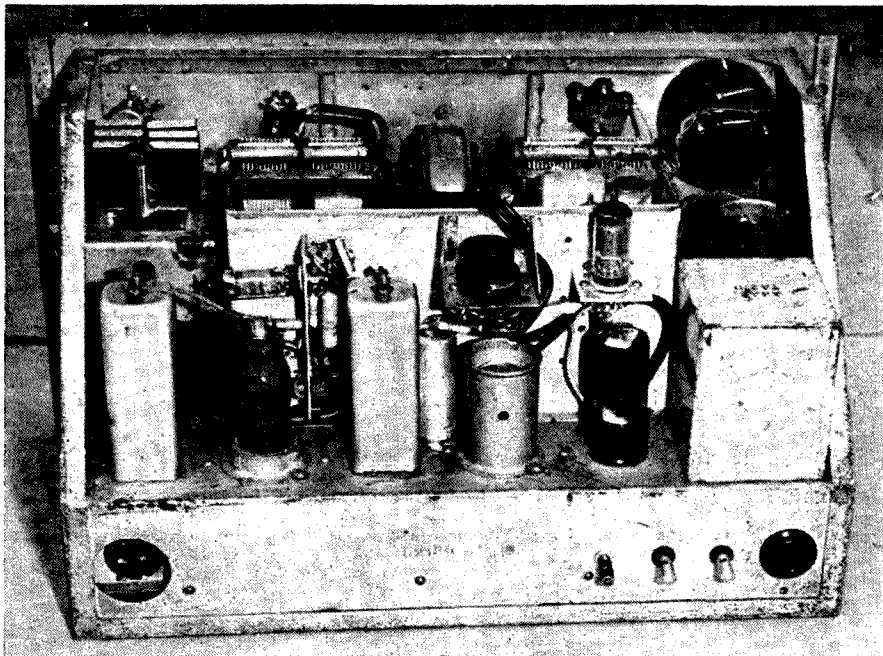
Rather than have less bandspread, I thought it better to settle for 3.5 Mc. to 4.0 Mc. tuning and use the original Band C coil box if necessary to tune all the 28 Mc. and 29 Mc. band if necessary.

AR7 coil boxes were very plentiful from disposals so a Band C box was modified by cannibalising another box for the series trimmers. The coils are not touched and only the trimmers were added in series with the coils and the original parallel trimmers and the 420 pF. ganged condensers as shown. It will be noted that no padder condensers are used in the oscillator section.

A 50 pF. trimmer was fitted to the hole formerly occupied by the tone control and wired across the aerial tuning gang to peak the antenna coil on weak signals.

We now have electrical bandspread which will greatly help in tuning s.s.b. This can be further improved by the addition of a manual vernier. Mine was designed and presented to me by John VK2AKB and used a $\frac{1}{4}$ " diam. rubber wheel to engage when wanted the edge of the AR7 tuning dial and turned by a 1" metal knob.

The bandspread is, however, so good that I find that the extra vernier control is seldom used.



Rear view of Modified AR7. Xtal filter and V11 will be seen at top left. Components along rear of chassis are (left to right): IFT3, V5 (with shield removed), IFT4, V6, V8, V13 and output transformer. Mounted on brackets are V10 (above V5), V9 (above V6 and V8) and V7 (above V13).

The slug, series trimmer and parallel trimmer in the oscillator section are first adjusted to spread the oscillator tuning as evenly as possible between the 450 and 50 markings on the tuning dial.

Linear bandspread is not possible with this system and the best I could do was:

450 dial mark —	3.5 Mc.
310 " "	3.6 "
230 " "	3.7 "
160 " "	3.8 "
100 " "	3.9 "
50 " "	4.0 "

The 100 Kc. marker makes these adjustments easy and the 2nd r.f., 1st r.f. and aerial coil were then aligned to the new frequency coverage.

It is at this point that the reader's ingenuity could improve the performance of the AR7 as it was an intriguing thought that perhaps the dial could be made to count in the opposite direction. That is when the dial turned in an anti-clockwise direction which increases the frequency, the dial readings would also increase.

Therefore, if one was patient and with a more linear method of bandspread, each division could be made to equal 1 Kc. on the dial.

To read the frequency on any band (7 Mc. excepted in my case) the dial reading would be the band frequency plus the dial reading as the receiver tunes 3.5 Mc. to 4.0 Mc., 500 Kc.

* "Wolaroi," 14 William St., Singleton, N.S.W.

Then, of course, it would be possible to fit a modern type dial and calibrate each band directly on it. I would certainly like to hear from anyone who has progressed along these lines. So much for that.

CRYSTAL FILTER

We now come to the half lattice crystal filter. This subject has been covered many times in "A.R.," "QST," "CQ," etc., and will only be dealt with in a general way in this article.

I use a channel 46 (455.5 Kc.) and a channel 47 (457.407 Kc.) crystal in the series mode of a half lattice configuration between the mixer and the 1st i.f. valve.

Although channel 44, 45, 48 and 49 crystals are shown shunted across the output of IFT1, I found that they had very little effect on improving the band-pass characteristic of the filter, but I left them in.

It would, of course, only be necessary to use any two adjacent channel crystals that are within the tuning range of the IFT's and the mixer oscillator frequency adjusted accordingly. Now I will stick my neck out and say I don't know how anyone manages to adjust such a filter as this without a wobulator and c.r.o. No doubt some sort of results are possible using a frequency meter and output meter, but this is tedious, time consuming and the results at best a compromise.

The small effort required to build up a simple wobulator will repay you with a classic bandpass curve approx. 3 Kc. wide with the maximum dip between peaks and very steep sides, 60 db. down and no secondary lobes.

With such a set up, you can immediately see where you are going and adjustment of IFT1, IFT2, IFT3 and IFT4 will quickly give you the required bandpass characteristic. This all sounds delightfully simple and it really is.

The original crystal holder and phasing condenser are removed and the 150C1 V/R and six FT241 sockets are installed on the metal cover above IFT1 and IFT2 as shown.

This filter will increase the i.f. gain so all leads must be kept as short as possible to avoid any instability, and shield the leads from IFT1 to the crystal sockets and from the crystal sockets to the grid of the first i.f. tube.

THE PRODUCT DETECTOR

The 6BU8 product detector is fitted between IFT4 and the 6SN7 a.g.c. socket (originally the 6G8G socket). The original circuit was first described in "CQ" and later in "A.R." When used as shown, the output is such that the first audio stage can be eliminated and the 6V6G can be driven directly from the transformer secondary, a step up of 1.3. The 6BU8 only requires about 3 volts r.f. drive, and as the b.f.o. injection voltage is normally taken from a tap near the cold end of the 6C8G b.f.o. coil, it is not sufficient. By removing the 0.05 μ F. by-pass condenser at the plate of the 6C8G and feeding the control grid of the 6BU8 through a 0.001 μ F. condenser from the 6C8G plate, approximately 4 volts of r.f. is obtainable.

1 "A New Product Detector," "CQ," August 1959.
 2 Sideband Notes, "A.R.," April 1962.

Remove the connection from the a.g.c. line to the b.f.o. switch so when the b.f.o. is turned on, the a.g.c. line is not shorted to ground.

It is well to remember here that if you do not have sufficient b.f.o. injection voltage (the re-inserted carrier) then strong s.s.b. signals will cause overmodulation and the r.f. gain will have to be reduced with resultant loss of output to the audio stage.

The 6BU8 will, however, handle extremely strong signals before overload and easily out-performs all the other product detector tubes that I have tried.

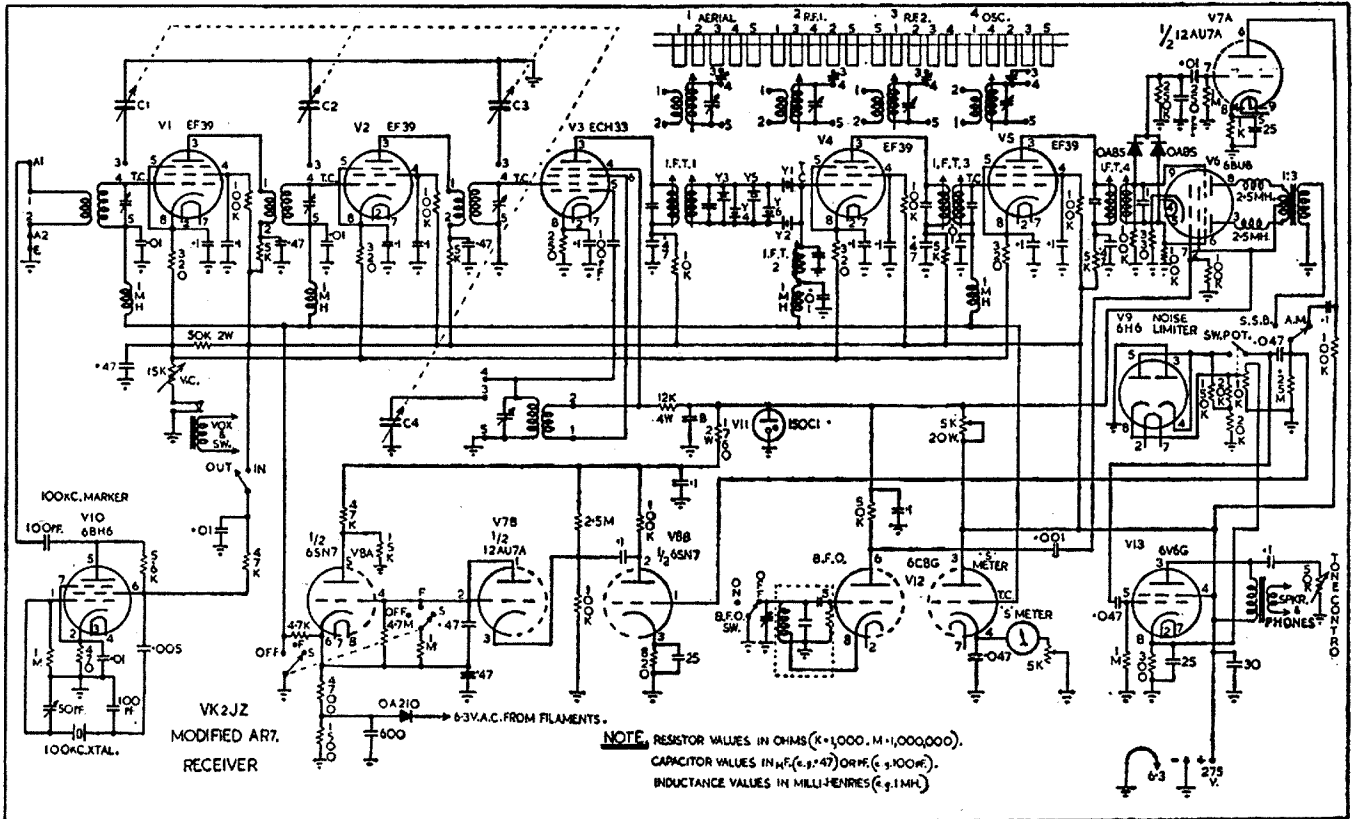
The output of the product detector is fed to one side of the s.p.d.t. rotary wafer switch fitted to the hole vacated by the phasing condenser.

The other side is connected to the output of the a.m. detector so this becomes the a.m.-s.s.b. switch.

A.M. DETECTOR AND AMPLIFIER

My receiver is used almost exclusively on s.s.b., but is capable of resolving quite easily any reasonable a.m. signal, DX or otherwise, in what is known as exalted a.m. reception, with the b.f.o. on.

The r.f. gain can be advanced and the 6BU8 makes quite a good a.m. detector without benefit of the b.f.o. as the tube apparently works in the form of a plate detector. However, I had a spare hole to be filled in and as greater signal handling ability with less distortion is obtainable from a diode detector, it was decided to install a diode rectifier for a.m. reception.



NOTE: RESISTOR VALUES IN OHMS (K=1,000, M=1,000,000).
 CAPACITOR VALUES IN μ F. (C. 1, P. 47) OR P.F. (C. 1, 100 P.F.).
 INDUCTANCE VALUES IN MILLI-HENRIES (C. 1, 1 MH).



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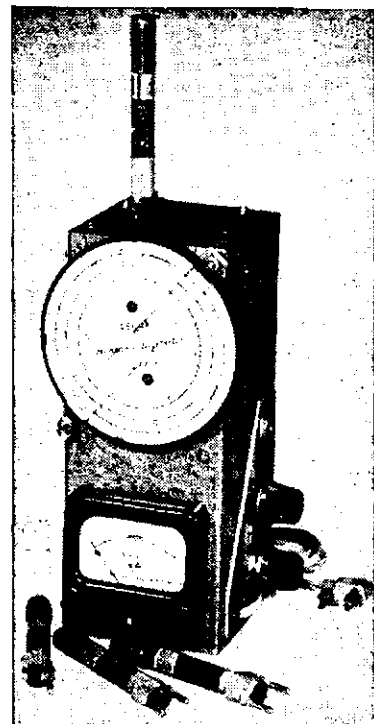
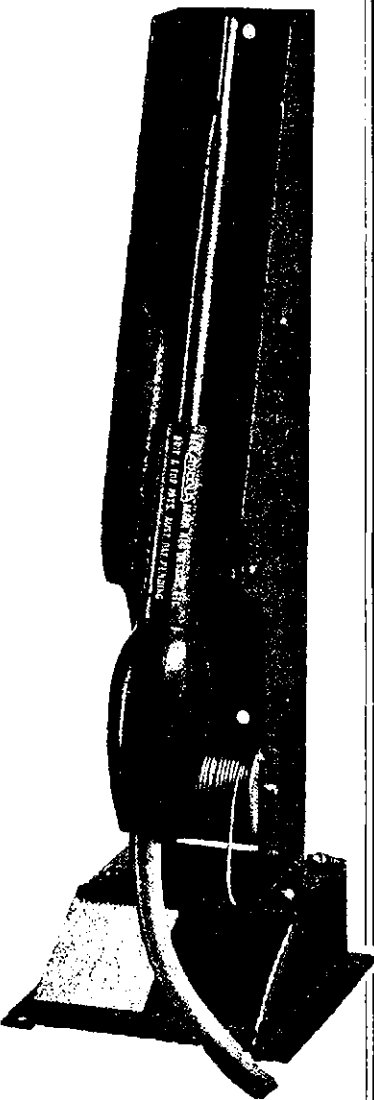
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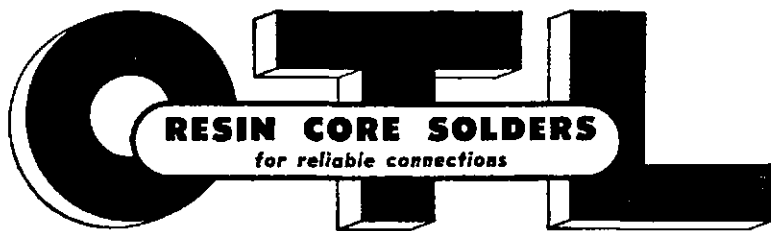
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As the input to the 6BU8 is balanced and the secondary of IFT4 was already loaded with two 100K resistors to earth, a full wave rectifier using two OA85s was also connected across IFT4. The rectified output across a 250K resistor by-passed with a 250 pF. condenser is fed to one half of V7A to bring the a.m. output to approximately the s.s.b. output of the 6BU8, and fed to the a.m.-s.s.b. switch as previously stated. As no a.g.c. voltage is taken from the am. detector, it is unimportant whether the rectified voltage is positive or negative.

AUDIO A.G.C.

The audio driven a.g.c. circuit was described in "QST" and readers would do well to consult the original article as I will only deal with its operation briefly.

A 6SN7 and half of V7 are used to give fast or slow a.g.c. controlled by a two-pole, three-position rotary switch mounted in the hole formerly used for the selectivity pot. This switch selects a.g.c., off, fast and slow. The 7.5 volts negative bias needed for the a.g.c. operation is obtained from the filament voltage by means of a OA210 silicon diode, 600 μ F. capacitor and a 1,500 ohm bleeder. The operation of the audio driven a.g.c. is as follows. V8B is an audio amplifier and when the delay voltage established at the cathode of V7B is exceeded V7B conducts and the 0.5 μ F. condenser in the plate circuit is rapidly charged.

The negatively charged end of this condenser is connected to the grid of V8A and as the cathode current of V8B decreases, the cathode voltage goes instantly to ground and so will the a.g.c. line. If sufficient audio voltage is available, the a.g.c. line will drop to -7.5 volts.

By paralleling a 1 meg. resistor across the 4.7 meg. resistor between grid and plate of V8B, fast a.g.c. is obtained in the middle position of the a.g.c. switch.

In the first or "off" position the a.g.c. voltage is grounded through the 4.7K resistor. The 100K and 0.05 μ F. RC combination in the cold end of the grid circuits of the controlled tubes are replaced with 1 mH. R.F.C.'s and 0.01 μ F. condensers to reduce the time constant and obtain full advantage of this system. We have now covered the four most important modifications, so now we will adopt a more orderly approach and return to the front end.

R.F. AND I.F. STAGES

In the original circuit the cathode resistor of the 1st r.f. tube is taken straight to ground. This is now paralleled to the cold end of the other controlled stages and grounded through a 15K pot. The extra variable resistance in conjunction with the positive voltage applied via the 50K resistor gives better control on strong signals than the original 5K pot.

The ground connection between the 15K pot is made by a relay by the vox system or a key switch for manual operation.

The cathode resistors were altered to 330 ohms and 100K series screen

resistors were used to conform to the manufacturer's published data.

Series screen grid supply is recommended because it gives a better signal handling ability to distortion ratio. It can be seen that in the in-operative position the four EF39s only are not conducting and the rest of the set draws normal tube currents.

MIXER

The mixer circuitry has not been greatly modified, a ceramic trimmer and series trimmer were used in the oscillator section of the coil box to improve the stability. Also, the 100 pF. oscillator coupling capacitor was replaced with negative co-efficient disc ceramic and a 3 pF. negative co-efficient capacitor placed across the oscillator trimmer in the coil box.

The ECH33 oscillator plate and screen are fed through four paralleled 47K 1 watt resistors from the regulated 150 volt supply to give 100 volts.

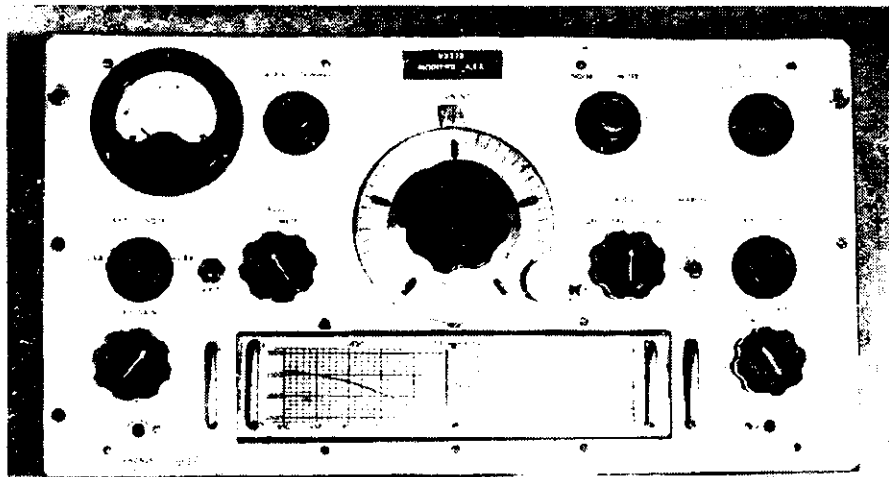
a really satisfactory one. When the ratio of the noise is large in relation to the signal, then most limiters will function satisfactorily, but the trouble arises when the signal is only a little way down below the noise. Any clipping or limiting, then affects the signal to the same extent as the noise.

As i.f. limiting upsets the bandpass curve of crystal filters, audio limiting had to be used.

I use a circuit previously described in "A.R." which limits the positive and negative audio peaks. The original article did not show a grid leak on the 6V6 which is necessary, and I use a 10K s.w. pot across to the 6V6 bias, to obtain the threshold voltage and to switch the limiter out when unwanted.

TUNING

You will find that with the bandspread now available, the b.f.o. can be set in the optimum position for upper or lower sideband reception; and all



Modified Front Panel of the AR7.

REGULATED SUPPLY

The 150C1 is adjusted to draw 15 mA. through a 5K 20 watt variable wire wound resistor and the regulated voltage is applied to 6BU8 plate and screen, ECH33 plate and screen grid, and b.f.o. plate.

CALIBRATION OSCILLATOR

The crystal calibrator tube and the 10X socket are mounted horizontally between IFT3 and IFT4, as can be seen in the photograph.

The original crystal toggle switch is used to supply h.t. to the 6BH6 in the "up" or "in" position. The output is run through shielded cable and coupled to the aerial terminal through a 100 pF. condenser. The variable trimmer is used in conjunction with WWV to bring the oscillator right on frequency.

Another coil box which will tune one of the receivable WWV frequencies or a separate receiver will have to be used as the modified Band C box and crystal locked converter will not do this.

NOISE LIMITER

I think that at best, noise limiters are a compromise as I have never had

tuning done with the main tuning control.

Once the optimum position for the b.f.o. control has been determined, it can be designated u.s.b. and l.s.b. and then left in either position for reception of the appropriate sideband.

TONE CONTROL

As I still had a hole left over, I used it to re-install the original tone control of the AR7. I never use it, I doubt if anyone will, so leave it out if you have not drilled the extra hole in the top right hand corner of the panel as I had for a previous modification.

VENTILATION

As five additional tubes have been added, which means extra heat dissipation, the cabinet was drilled to take the small eyelets used on ladies' belts, 112 on the top and 64 on the back.

CONCLUSION

Of necessity, I have only given very brief outlines of the modifications, but

(Continued on Page 16)

* "Improved Audio Driven A.g.c. Circuit," "QST," September 1960.

* "Painless Noise Limiting for 13/6," "A.R.," August 1959.

AN IMPROVED T-NOTCH FILTER*

H. O. LORENZEN, W3BLC

T-NOTCH Filters have been popular with Amateurs for some time and a number of commercial receivers for the Amateur incorporate such circuits. On the crowded c.w. and s.s.b. bands, especially, the operators of today need a means of rejecting unwanted signals.

After experimenting with conventional T-notch filters with fair results, the writer decided to try some electronic tricks to deepen the notch and thus improve the effectiveness of the filter. The circuit finally evolved is shown in Fig. 1 and deepens the notch roughly an additional 15 db.

By utilising a double triode it was possible to make up for the insertion loss of the filter by using the gain from the first triode section of the 12AX7. This arrangement also allows the circuit to incorporate cathode coupling for the T-notch filter. The rest of the system is straightforward. The second half of the dual triode provides feedback which effectively increases the Q of the filter and hence the depth of the notch. Balance of the bridge in the filter is obtained by adjustment of the 25K ohms potentiometer. Once carefully set this adjustment need not be touched.

was causing major errors in the resonance values indicated on the grid dip meter.

C3 and C4 should be of the same value and the majority of the tuning capacity should be in these two silver mica units. S1 serves to remove the T-notch filter from the circuit. A toggle switch was utilised in the prototype but it should be quite simple to obtain the same function by causing the trimmer to short at one extreme of its tuning range.

A fairly simple way to construct such a unit would be to obtain an ordinary 455 Kc. air trimmed i.f. transformer and use one coil for L1, removing all except one rotor plate from C1. A $\frac{1}{4}$ " brass rod should be filed to fit the slot snugly. The other trimmer can be used for C2 after removing the fixed capacity section by sawing through the support posts with a jeweller's saw and removing the extra plates.

The second coil in the i.f. transformer should be removed by sawing through the support dowel. This coil can then be used for L2 since most 455 Kc. i.f. transformers have an inductance of 1 mH. Care should be taken to be sure

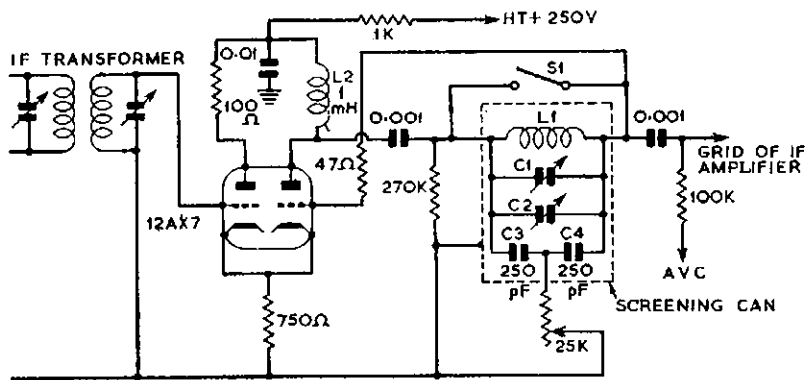


Fig. 1.—Circuit diagram of an Improved T-Notch Filter. The connection between the grid of the first half of the 12AX7 and the i.f. transformer should be as short as possible.

By utilising a b.f.o. unit with air trimmers a fairly simple modification was effected. First the knob controlled trimmer C1 was reduced to just three plates (1 rotor and 2 stator) so that it would give a suitable vernier action. Next, on the second trimmer C2 all the fixed capacity plates were removed so that the variable section then gave a change in capacity of about 25 pF. Since the inductance of L1 was approximately 1 mH. out of the can, the two silver mica capacitors C3 and C4 (each 250 pF.) were placed across the coil and the centre point brought out to the 25K ohms balance potentiometer. One caution should be mentioned here: the inductance of L1 outside the can and in the can varies widely. In this case it was sufficiently different to be outside the range of the 25 pF. trimming capacitor C2. The writer spent a weary evening determining the correct capacity values of C3 and C4 until it finally dawned on him that the shield

L2 is not too much larger than 1 mH. or oscillation may result. All the tuned circuits in the T-notch filter should be carefully shielded.

A 12A7 has the same base connections and a higher Gm than the 12AX7 but its characteristics apparently are not suited to this service. After numerous trials with differing component values the writer was unable to obtain the satisfactory smooth operation given by the 12AX7.

☆

1963 PAKISTAN DAY DX CONTEST OFFICIAL RESULTS

Tiger Amateur Radio Club, Dacca, Cantt., held its first Pakistan Day DX Contest on the occasion of Republic Day on 23rd March, 1963. The Contest has been sponsored to establish maximum contacts with Radio Amateurs all over the world and to give new country and zones for D.X.C.C. award.

A handsome 14 x 11 inch oriental design certificate with T.A.R.C. golden seal affixed on varied colour ribbons has been issued to leading operators in each country/call area. VK3HL was the Australian winner and recipient of a certificate.

—VK4SS.

THE CALL OF THE UNTAMED

The time was 04 hours E.A.S.T.
And twenty was as quiet could be.
No one it seemed but me,
Was waiting for one VK4HG.

If luck on me would but smile,
This op. from stormy Willis Isle,
Might hear me if I called a while—
But I sensed a waiting plie.

Dare I risk a short blind shout,
On the chance he'd be about.
No harm, if it raised but nought
So I tapped the call sign out.

Hell cut loose, as thousands bawled
4HG they blindly called.
And while the QRM hung palled,
Beams were swung and wildly hauled.

A lonely TI2 was there,
With a note like steak done rare.
As other tuned, I do declare,
'Twas like a madman's nightmare.

Code and sideband vied for space,
In this fiendish DX Race,
And to help it on apace,
The a.m. men joined in the chase.

And from the low end to the high,
For a cycles space did vie,
These DX busters from the sky
Hounding one unlucky guy.

Calling for an hour straight
With every guile and every bait,
The weakest at the wall must wait,
For in this, no man's a mate.

But where was Willis, all this while?
Only silence from the Isle,
Echoed back 8,000 mile,
To the madly waiting plie.

But did the truth ever dawn,
On the tumult, greedy, torn,
That Willis, isolate, forlorn,
Had never sent a sig that morn.

—AL, VK4SS.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

☆

Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff.

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Photographs will be returned if the sender's name and address is shown on the back of each photograph submitted.

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Please address all articles to the EDITOR "A.R.," P.O. BOX 36, EAST MELBOURNE, C.2, VICTORIA.

A Crystal Controlled Converter for 576 Mc.

C. J. KOSINA,* VK6LK

VERY little has been published in "A.R." regarding stabilised receiving equipment on the u.h.f. bands. Since a transmitter for this band was described recently† it was thought logical that this should be followed by a description of a suitable converter. The circuit is, of course, only a suggested design and many modifications should be possible.

R.F. AMPLIFIER

The tube type used here, an EC88, is a recent release by Mullard.‡ It is a triode, very moderately priced, designed for grounded grid operation up to 1,000 Mc. and will actually give a gain of 8 db. at 1,400 Mc. The gain at 600 Mc. is 18 db. with a noise figure of 9 db.

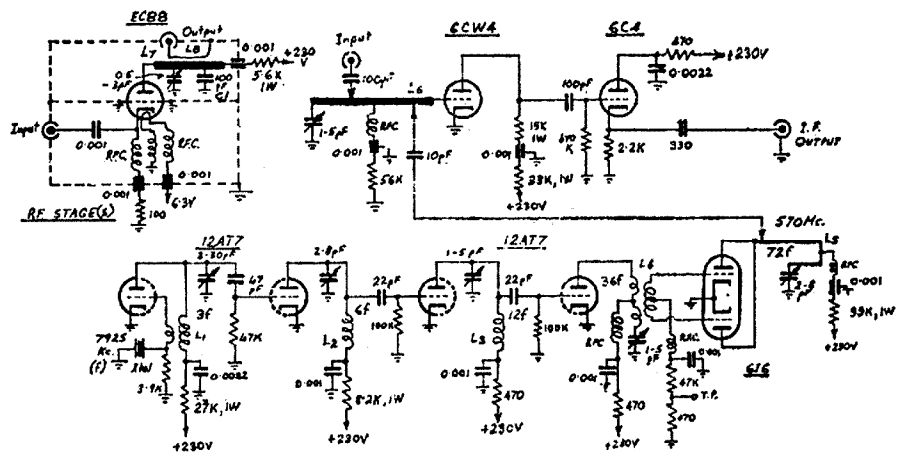


Fig. 1.—576 Mc. Converter. All resistors 1/2w. unless otherwise shown.

Constructional details of the amplifier are given in Fig. 2. A quarter wave trough line is used in the plate and resonated by a 0.5-3 pF. ceramic trimmer. The 100 pF. capacitor (C1) alters the electrical length of the line and when placed 1" from the plate pin, the trimmer resonates the circuit in the middle of its tuning range. The amplifier is thus capable of operating over a wide range of frequencies and could be used on the 432 Mc. band by simply altering the position of C1.

There is apparently little spread of characteristics of the tubes, five different tubes tried in the amplifier gave almost identical performance with only a slight re-tuning required. There were no instability problems, even when four stages were connected in cascade and the total r.f. gain under such circumstances being about 70 db. It is recommended that at least two stages are used so that mixer noise will not be significant.

Another tube tried was the 6CW4. However, due to the construction of

this tube, it has a high plate-cathode capacity and to date the author and others have not succeeded in constructing a sufficiently stable stage using this tube. If stabilised, the 6CW4 should give about the same gain as the EC88 but with a lower noise figure.

MIXER STAGE

A 6CW4 nuvistor triode is used in grounded cathode configuration, with a series tuned grid circuit. Both oscillator and signal are capacitively coupled to taps on the grid line. The layout of the mixer is shown in Fig. 3.

A simpler mixer circuit requiring no adjustment is a grounded grid type. Both signal and oscillator are applied to the cathode which is connected to ground via an r.f. choke. The heater

doubles to 95 Mc. and triples to 285 Mc. About 0.25 mA. grid drive is available to the final multiplier which is a 6J6 push-push doubler to 570 Mc., thus giving an i.f. of 6 Mc.

The layout of this section is not critical (Fig. 4), the only major requirement is that the 6J6 be reasonably close to the mixer stage. The amount of injection may be varied by altering the plate voltage of the 6J6, and best signal to noise ratio occurs at about 65 volts.

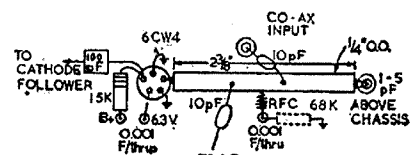


Fig. 3.—Layout of Mixer Stage.

COIL DATA

- L1: 9 turns, 3/4" diam., 3/4" long, 20 B. & S. enam.; feedback, 3 turns hook-up wire around cold end.
- L2: 10 turns, 5/8" diam., 1" long, 16 B. & S. enam.
- L3: 8 turns, 5/8" diam., 3/4" long, 16 B. & S. enam.
- L4: Plate—4 turns, 1/2" diam., 1/2" long, 18 B. & S. enam. wound as 2 + 2 turns with gap in centre for grid winding; c.t. for r.f.c. Grid—2 turns, 5/8" diam. 18 B. & S., adjust length to resonate with input capacity of 6J6.
- L5: Hairpin loop, 1 1/2" long, 3/4" diam. (total length of wire approx. 3 1/2"), 16 B. & S. silver plated, tapped 1/2" from plate pins for osc. output, centre tap for r.f.c.
- L6: 2 3/8" x 1/4" copper tubing (preferably silver plated), centre tapped for r.f.c. Osc. injection—approx. 1/2" from r.f.c. tube side. Input—approx. 1/2" from r.f.c. 1-5 pF. trimmer side.
- L7: 2" x 1/4" copper tubing. 0.5-3 pF. trimmer connected 3/8" from plate pin. C1 tap—see text.
- L8: 1" long loop, parallel to L7.

All r.f.c.'s. are quarter wave long wire wound on convenient diameter.

(Continued on Page 16)

supply is also through r.f. chokes and the grid is connected directly to ground. With this circuit, however, considerably more oscillator injection is required and the gain is slightly down on the grounded cathode type.

The noise figure of the 6CW4 as a mixer at this frequency is quite high and considerable preceding amplification is required before the mixer noise becomes insignificant.

OSCILLATOR MULTIPLIER CHAIN

Half a 12AT7 is used as an overtone oscillator on a frequency of 23.75 Mc. (crystal 7920 Kc.). The second half doubles to 47.5 Mc. The second 12AT7

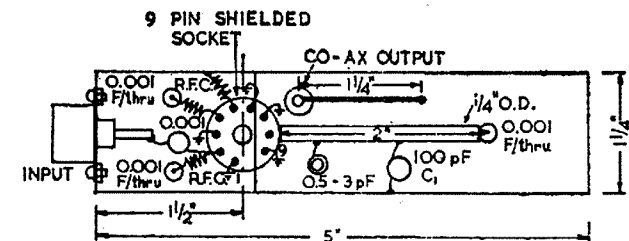


Fig. 2.—R.F. Amplifier Layout.

MATERIAL: 20 G. BRASS OR COPPER.

* 21 Darnell Avenue, Mt. Pleasant, W.A.
 † "Amateur Radio," November 1962, p. 6.
 ‡ "Mullard Outlook," Vol. 5, No. 4, July-August 1962, p. 47.



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VK-ZL OCEANIA DX CONTEST, 1963

W.I.A. and N.Z.A.R.T., the National Amateur Associations in Australia and New Zealand, invite world wide participation in this year's VK-ZL Oceania DX Contest.

Objects: For the world to contact VK, ZL and Oceania stations and vice versa.

When? Phone: 24 hours from 1000 GMT, Saturday, 5th October, to 1000 GMT, Sunday, 6th October. C.w.: 24 hours from 1000 GMT, Saturday, 12th October, to 1000 GMT, Sunday, 13th October.

RULES

1. There shall be three main sections to the Contest:—

- Transmitting phone.
- Transmitting c.w.
- Receiving—phone and c.w.

2. The Contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made. Mobile Marine or other non land-based stations are not permitted to enter the Contest.

3. All Amateur frequency bands may be used but no cross-band operation is permitted.

4. Phone will be used during the first week-end and c.w. during the second week-end. Stations entering both sections must submit separate logs.

5. Only one contact per band is permitted with any one station for scoring purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor, and must submit a separate log under his own call sign. (Not applicable to overseas stations.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points can be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact, and which will increase in value by one for each successive contact; e.g. if the number chosen for the first contact is 053, then the second must be 054, followed by 055, 056, etc. If any contestant reaches 999, he will start again from 001.

9. **Scoring:** (a) For Oceania Stations other than VK/ZL: 2 points for each contact on a specified band with VK/ZL stations; 1 point for each contact on a specific band with the rest of the world.

(b) For Best of the World other than VK/ZL: 2 points for each contact on a specific band with VK/ZL stations; 1 point for each contact on a specific band with Oceania stations other than VK/ZL.

(c) For VK/ZL Stations: 5 points for each contact on a specific band and in

addition, for each new country worked on that band, bonus points on the following scale will be added:

1st contact—	50	points
2nd	"	40
3rd	"	30
4th	"	20
5th	"	10

For this purpose the A.R.R.L. countries list will be used with the exception that each call area of W/K, JA, SM, UA will count as "countries" for scoring purposes as indicated above.

10. Logs. (i) Overseas Stations:

(a) Logs to show in this order: date, time in GMT, call sign of station contacted, band, serial number sent, serial number received, points. Underline each new VK/ZL call area contacted and use a different log for each band.

(b) Summary to show: call sign, name and address (block letters), details of equipment, total score by showing sum of VK/ZL call areas worked on all bands and total points for all bands. Sign a declaration that all rules and regulations were observed.

(ii) VK/ZL Stations: (a) Logs must show in this order: date, time in GMT, call sign of station contacted, band, serial number sent, serial number received, contact points, bonus points. Use a separate log for each band.

(b) Summary to show: call sign, name and address in block letters, score for each band by adding contact and bonus points for that band and as well, total score by adding band scores together, details of equipment used and power, declaration that all rules and regulations have been observed.

11. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

12. The ruling of the Federal Contest Committee of the Wireless Institute of Australia will be final.

13. **Awards. VK-ZL Stations:** The W.I.A. will award certificates to the top scorer on each band and the top scorer in each VK-ZL district.

Overseas Stations: Certificates will be awarded to each country (call area in W/K, JA, SM, UA) on the following basis:

- Top scorer using "all bands".
- Top scorers on individual bands.
- To those with minimum contact requirements to be determined by conditions and activity prevailing.

14. **Entries from VK-ZL Stations** should be posted direct to Federal Contest Committee, Wireless Institute of Australia, Box 638J, G.P.O., Brisbane, Australia, to arrive not later than 31st December, 1963.

Entries from Overseas Stations should be posted to Federal Contest Committee, Wireless Institute of Australia, Box 638J, G.P.O., Brisbane, Australia, to arrive not later than 19th January, 1964.

RECEIVING SECTION

1. The rules are the same as for the transmitting section, but it is open to all members of any S.w.I. Society in

the world. No transmitting station is permitted to enter this section.

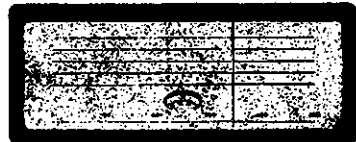
2. The Contest times and logging of stations on each band per week-end are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section as follows: date, time (GMT), call of the station heard, call of the station he is working, RS(T) of the station heard, serial number sent by the station heard, band, points claimed. Scoring is on the same basis as for the transmitting section and the summary sheet should be similarly set out.

4. Overseas stations may log only VK-ZL stations, but VK receiving stations may log overseas stations and ZL stations; while ZL receiving stations may log overseas stations and VK stations.

5. Certificates will be awarded to the top scorer in each VK-ZL call area and in each overseas scoring area.

EDDYSTONE PRECISION DIAL



Cat. No. 898

GEARED SLOW-MOTION DRIVE ASSEMBLY

A high grade assembly designed for instrument applications. The movement is gear-driven and fly-wheel loaded, giving a smooth, positive drive, with a reduction ratio of 110 to 1.

The pointer has a horizontal travel of 7 inches. A circular vernier scale, marked over 100 divisions, rotates five times for one traverse of the pointer, and, read with the "100" scale on the dial, provides a total of 500 divisions.

A diecast escutcheon, finished glossy black, is supplied and the assembly is complete with perspex window, knob, fixing screws, and mounting template. Overall external dimensions are 9-3/16" (23.34 cms.) by 5 1/4" (14.6 cms.). Weight is approx. 1 lb. 14 ozs. (0.85 kilogrammes).

Price: £9/17/9 inc. S.T.

DISTRIBUTED BY—

**WILLIAM WILLIS
& CO. PTY. LTD.**
428 Elizabeth St., Melbourne

C.C. CONVERTER FOR 576 Mc.

(Continued from Page 13)

OPERATING CONDITIONS

6BL8 oscillator: 100 v. at 5 mA.
 6BL8 doubler: 185 v. at 5.5 mA.
 12AT7 doubler: 220 v. at 5 mA.
 12AT7 tripler: 220 v. at 4.5 mA.
 6J6 doubler: 65 v. at 3 mA.
 6C4 cathode follower: 230 v. at 4.5 mA.
 6CW4 mixer: 65 v. at 3 mA.
 EC88 r.f. amplifier(s): 160 v. at 12.5 mA. each.
 Total current drain (excluding EC88s)
 35 mA. at 230 v.

PERFORMANCE

No accurate test equipment was available for checking the performance of the converter, however an approximate measurement indicates a noise figure of about 10 db. At the time of writing, an r.f. amplifier using a special low noise u.h.f. tube is under construction and this should bring the noise figure down to 5 db. A description of this amplifier should follow soon.

Activity on 576 Mc. is very limited and as a result, literature on this band is very scarce. The author would welcome any correspondence regarding this and other u.h.f. bands. ●

PORTABLE BATTERY CHARGER

(Continued from Page 7)

could be operated to more than full brilliance, while a charging rate of 2 amps was being maintained through the battery.

CHECKING "SLIP" ON THE COUPLING UNIT

This was done by using a small neon lamp as a "strobe-light." Only one lead was used. This was connected to the spark plug, the other was insulated. (See Fig. 3.) When the engine is running at full load, hold the neon near the coupling unit. If there is no "slip," the coupling will appear to be stationary. This test should be carried out in darkness for convincing results.

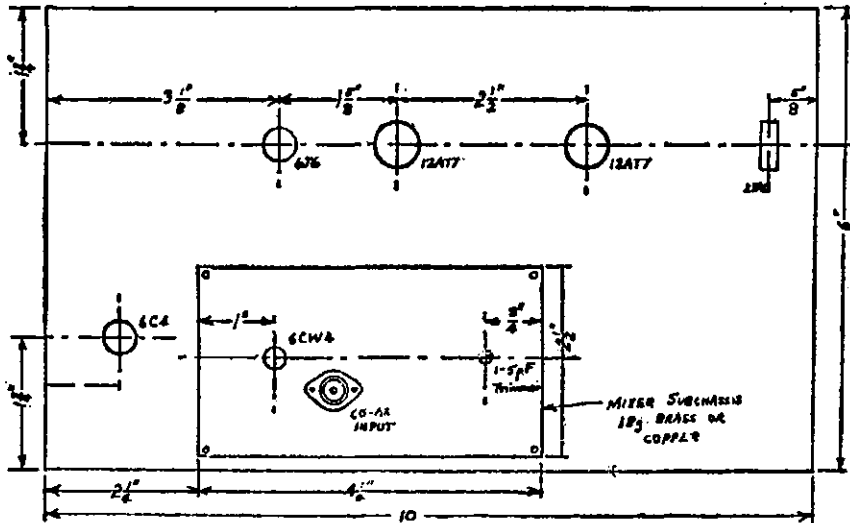


Fig. 4.—Converter Layout. Chassis: 18 gauge aluminium, 10 x 6 x 2½ inches.

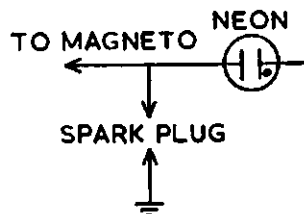


Fig. 3.

NOISE SUPPRESSION

No attempt was made to regulate the voltage or provide any means of filtering. Likewise ignition suppression was not incorporated, but may be considered according to requirements. The complete motor-generator was mounted on a Holden muffler, which provided a rigid base and a good means of silencing the exhaust. To remove condensation from the silencer, a drain plug was fitted at its lowest point.

USE

The prototype was tested over a period of two weeks in December 1962, when it gave a reliable performance with adequate charging and lighting facilities in a mobile marine station. The unit is continuing to prove invaluable, when operating a portable station in areas where electric supply is unavailable.



MODIFYING AR7 FOR S.S.B.

(Continued from Page 11)

those who tackle the job should have no trouble doing them their own way.

It should be obvious that extensive use of plastic covered shielded wire will have to be made, especially to the various controls.

I trust that you have been interested in the modifications to the AR7. You will no doubt be able to criticise or improve many of them, and I would like to hear from others who have carried out modifications.

An extra triode, for instance, could be made available by replacing the 6V6G with a 6BM8 or similar output triode-pentode. However, these modifications will do two things for sure. Give you a really hot s.s.b. receiver which is a pleasure to operate, and teach you a little more about s.s.b. receiver techniques whilst you are carrying them out. ●

HINTS AND KINKS

PRINTED CIRCUITS— COMPONENT REMOVAL

Removal of components from printed circuit boards can be simplified by the use of the following equipment. Furthermore, heat damage to diodes and transistors can be kept to a minimum by this method.

Procedure: Use a vacuum cleaner fitted with a suitable length of strong walled p.v.c. tubing (or brewer's hose) of about 15-20 mm. diameter connected to the suction side of the cleaner.

Suitably fit into the working end of the larger diameter p.v.c. tubing, a short length of 3-4 mm. teflon tubing (about 1 inch length is ample).

Apply a hot soldering iron to the area of printed circuits until solder melts freely, then suck away the molten solder. Solder shall be completely removed, leaving the pigtailed and the feed-through holes clear, giving easy access to bend pigtail for component removal.

Where suspect transistors are removed for testing, continued application of suction has a cooling affect on the pigtail.

The 15-20 mm. tubing should not be longer than that to give convenient use of the vacuum cleaner on the workshop

bench. The 1 inch length of 3-4 mm. teflon tubing is specified for two reasons:—

- (1) To keep the suction pressure up.
- (2) When solder is sucked up, it will set and lodge in a long length. It is a good practice to clean out the tubing (the 1 inch length) after each clean up of a solder point.

Caution! Teflon (tetrafluorethylenepolymer) will give off slight gasses above 250-275°C., which under prolonged dosage can be fatal.



AMENDMENTS TO R.D. CONTEST RULES

Rule 2: Members and non-members of the W.I.A. will be eligible for the awards.

Rule 14: Northern Territory and A.C.T. will both count as separate call areas for award purposes only.



ACKNOWLEDGMENT

It is regretted that credit was omitted from the article "Profile of VK3ZEB" published in the last issue. We are indebted to N. Town, VK3ANK for providing this article.

VK5JE OBTAINS D.X.C.C. ON 7 Mc.

Correspondence

TED has been interested in Amateur Radio since 1924, back in the days of the crystal and catswisker, and when 80 metres was considered "short waves".

Receiving his licence (No. 306) in 1926 at the age of 18, activities were confined mostly to the 80 metre and the 200 metre bands. Many broadcast listeners, if they are still alive, will remember "2JC Concord," operating on the broadcast band when the "regular" broadcast stations had closed down.

Migrating to Adelaide in 1935, he was allotted the call VK5JC and as such became a 14 Mc. phone addict, being responsible for some of the first regular VK-W contacts. In those days the number of VKs operating DX phone could be counted on two hands—now you would need a computer.

During the war, Ted was in the 2/1 Fortress Signals A.I.F., located on Timor, where the Japs found him in Feb. 1942. Many years were spent up in Thailand on the infamous Burma Railway, but even whilst a P.O.W. he managed to work three undercover radio receivers for which he received a "mention-in-despatches" award.

LIST OF COUNTRIES SUBMITTED FOR D.X.C.C.

The following countries were submitted for D.X.C.C. award. Figures in the right hand column indicate number of times a QSO was had with that country.

CM	2	KR8	6
CR9	2	KS4	2
DL	39	KS6	1
DU	5	KV4	3
EA	1	KW6	5
EI	2	KX6	5
EPI	1	KZ5	1
FAB	2	LA	1
F	10	MP4	1
FK8	6	OA	2
G	60	OE	2
GI	1	OH	16
GW	1	OK	7
HA	3	ON	1
HB	6	PA0	6
HC	2	SM	10
HK	3	SP	4
HL	6	TI	1
HP	4	UA1	2
HS	3	UA0	15
HZ	1	UB5	4
I	7	UC2	2
JA	183	UL7	1
K/W (see below)		VE	174
KC4	3	VK1 Macquarie Is.	4
KC8	5	VK Lord Howe Is.	1
KH8 Hawaii	57	VK	1
KH8 Kure Is.	2	VK9 Papua	2
KJ6	1	VK9 N. Guinea	4
KL7	30	VK9 Norfolk Is.	3
KM8	4	VF6	3
KP4	13	VF7	1
KP8	2	VF8	1
		VF9	2
		VQ2	6
		VQ3	3
		VQ4/5H3	12
		VR1	7
		VR2	14
		VR3	1
		VR4	2
		VR5	2
		VS1	14
		VS2/9M2	4
		VS4	2
		VS6	2
		VS7	5
		VS9	1
		VU	2
		XE	8
		YJ	4
		YO	3
		YS	1
		YU	5
		YV	11
		ZB	1
		ZC4	2
		ZD6	1
		ZE	11
		ZK	2
		ZL	1
		ZM6	1
		ZS	14
		9Q5 Congo	2
		4X4	3
		5X5 Uganda	1
		5N2	4

The following have been worked but as yet no QSL has been received:—

KG6	12	FW8	1
PK2	1	HI	5
LZ	3	AC4 (Phoney?)	1
FB8XX	1		

The above indicates that 934 DX contacts (excluding W and ZL) have been made on 7 Mc.

Below are details of W QSOs (this includes many repeat QSOs with the same station but no skeds kept):—

W1	315	W6	893
W2	811	W7	342
W3	450	W8	569
W4	444	W9	390
W5	371	W0	252

The grand total of DX worked on 7 Mc. is 934 plus 4,837 W contacts, making a total of 5,771 (excluding ZL of course).

For those interested in statistics, the above figures have been tabulated in yearly QSOs also and this information is available for the asking of VK5JE.

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

INTERNATIONAL FRIENDSHIP

Editor "A.R." Dear Sir,
On more than one occasion in the past I have received W QSLs carrying, besides the relevant QSO data the caption "Hams for Christ," etc.

These Hams who use (or allow to be used) Amateur Radio for religious campaigning, are taking the first step to destroy Amateur Radio's finest spirit, i.e. true friendship.

While I readily admit that one's personal philosophy or religion must encompass every aspect of one's existence, the introduction of a flavouring of religion, politics or color or creed into Amateur Radio will soon render suspect the now impeccable hand of international friendship which exists.

—Al Shawsmith, VK4SS.



HISTORICAL GLEANINGS—1914

In this year, under the title of "Wireless in Australia," the (then) Wireless Institute of Victoria, of Oxford Chambers in Bourke St., Melbourne, published a booklet containing the following information about Australian radio stations:—

- Commercial calls, land stations (including Army and Navy stations), 33.
- Commercial calls, ship stations (including all Navy and Merchant Marine ships frequenting Australian waters), 309.
- Experimental calls: N.S.W. 187, Vic. 185, Qld. 10, S.A. 20, W.A. 12, Tas. 10, total 404.

The preface of the booklet stated that it was the first of its kind for Australia, and filled a long felt want by Wireless Experimenters. The booklet also quoted some of the objects of the Wireless Institute of Victoria. These were very simple and served as a basis for the constitution under which W.I.A. operates today.

The office-bearers of W.I. (Vic.) at this time were: President, Vernon Cole; Vice-Presidents, W. King Witt (XKW) and F. F. O'Shannessy; Council: Douglas Harrison, Herman Lindow and John Strickland (XJS); Hon. Corresp. Sec., W. Endacott; C. R. Dodson; Hon. Org. Sec., John Welch (XJCW); Hon. Treasurer, Angus McGregor (XJEA); Postal Address, Box 1006, G.P.O., Melbourne; official station call sign, XPFJ.

Office-bearers of W.I. (N.S.W.) were President, C. P. Bartholomew (XBM); Hon. Sec., Malcolm Perry (XCP); Assist. Hon. Sec., N. H. Wright (XFQ); Postal address, Box 2, King St. P.O., Sydney; official station call sign, XADK.

Advertisers were: Lawrence & Hansen, Marconi Telefunken School of Radiotelegraphy, MacLurcan & Lane, Warburton & Franki Melb. Ltd.

Amongst the items offered for sale, which now only have historical value, were h.t. coils and spark gaps.

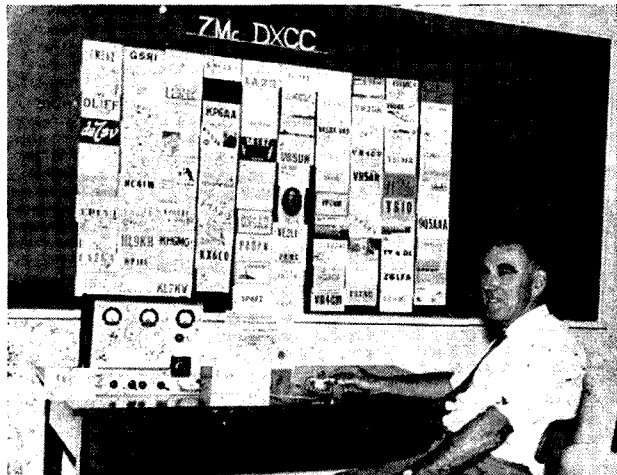
Prior to the publication of this booklet, the information available is somewhat sketchy; however indications are that individual experimenters were at work as early as 1900.

In 1901 Bill Jenvey made the first wireless tests with the S.S. "Ophir," when King George V. (then Duke of York) visited Australia.

By 1908 quite a few spark coil transmitters were being used by experimenters—receivers employed Coherer detectors which consisted of a tube full of filings, which were caused to cohere by the incoming signal, and decohere upon receipt of vibrations from a buzzer or bell.

1909 saw the introduction of galena and iron pyrite detectors complete with catswhiskers.

In 1910 occurred the first recorded incident of Amateur interference with another service. An unfortunate event, as the service affected was that of a ship in distress; however the situation was recouped in 1911 by another Amateur, who was the only one to hear and report a ship's distress signal. Both events took place in U.S.A.



There is no doubt that Amateur Radio proves a good training ground for future trained personnel in times of National emergency. (Are you on the beam, Canberra?)

Returning to Adelaide in 1946, Ted was given the call VK5JE, his old one having lapsed, and resumed activities on 14 Mc. The sudden growth in the popularity of three element beams made competition a bit too fierce so it wasn't long before eyes were cast on 7 Mc. Did it hold any possibilities for DX? Most of the gang said, "Who cares," but nevertheless it must be remembered that it is a Ham band after all.

Well after 11 years' work on the band D.X.C.C. has at last been acknowledged with Certificate No. 77. Ted comments, "Guess it is time to see what 80 and 160 metres really offers. What's that I hear?" "What about 6 and 2 metres?" "Maybe I get a bit nostalgic for my first love after Hamming for 37 years."

Greetings once again. Winter seems to have claimed its victims once again with the seasonal fall off in activities. Judging by the various reports this seasonal influence has extended to all States who have experienced a trying winter. The mid-winter 50 Mc. openings were quite good around the Eastern States with DX between VK5, VK4, VK3, VK2, VK7 and across to ZL, opening on a fortnightly basis (very convenient). A surprise here was an opening to Launceston on 23rd June, when Col VK7LZ worked VK3ZHH and myself—proved that watching t.v. pays dividends.

This coming season promises interesting results with the sunspot minima being reached early next year. Predictions are for an exceptional amount of short skip openings on 50 Mc. It might be possible to repeat 144 Mc. DX achievements of the past two seasons. It will be very interesting to see if a W.A.S. on 144 Mc. will occur here in VK—those with a number of States worked well, I'm sure, be working overtime to increase their tally. One path worth watching this year will be the VK3, VK5 to VK6 as the cycle might repeat itself this year. On 50 Mc. between VK3 and VK6 (Kalgoorlie area) should be worth watching as last season there was a number of openings across this path when no other VK6s were heard.

I am appealing once again for correspondents to augment the material from the existing Divisional scribes, particularly from Northern Qld., Broken Hill area, Northern N.S.W., Western and Eastern Victoria, in fact anywhere there is some v.h.f. activity away from the capital cities. Individual Amateurs or S.w.l.'s are most welcome sources of additional information. No matter how small, please drop me a line and let me know what's doing in your area. Only this way can we give an overall picture of v.h.f. activity in VK. Details of any special efforts to work DX on v.h.f. will receive full publicity if you will only supply the details (by the first of the month please). VK6 v.h.f. Amateurs are to be commended for their interest in the 70 Cm. band Their Gentleman's Agreement on the division of the band for stabilised and unstabilised gear and a.t.v. could well be used by all States. We trust that all Divisions can agree on something similar. See under VK6 notes for details of same.

Would the Secretary of the Burdekin (Qld.) Club please contact me again as I have mislaid his recent letter—my apologies. Also would the VK4 scribe please forward his notes to me at the above address—not to Bill's (3ARZ) address.—VK3ZGP.

NEW SOUTH WALES

The June Fox Hunt, organised by Dick Z2CF, turned out to be quite a comedy. Coming at a time when Sydney was having an unusual (?) amount of "wet", and being the dead of winter, a very good roll up of starters commenced the Hunt, 8 to 10 in number (couldn't see too well), and at the appointed time, with much screaming of tyres, they departed, supposedly in the direction of the Fox. First reported casualty was Z2SS, who lost his beam. Likewise John Z2AV who snapped the boom. Bob Z2AS had better take a bow for his effort in organising the Long Distance Hunt, as most of the bods have been raving about it. The winners of the Wednesday night Hunt were Z2PJ first, with Z2IP and Z2AWZ following. The Fox was holed up at a little reserve at Colo.

Transistor gear looks like getting a shot in the arm very shortly, with Les Z2BJ and Terry Z2BL doing some dabbling with transistor tx's, converters, rx's and the like. This was helped along by the importation of American Motorola N.P.N. silicon planar power transistors, which are now available at about 30/- each and have a collector dissipation of 3w. Les has made a contact from Camden to Horrie at Artarmon, using one of these, and Terry has made several cross-town contacts of about 15 miles with S8 to 9 reports. Les has been coerced into giving information on his converter and circuits for tx and rx will be available soon. If you can't wait, write to me and I'll try and scribble out a legible circuit for you, also sources for transistors.

Noel Z2NS is hitting the sideband trail soon with metal work and v.f.o. already under way, also has f.m. for 2 mx coming along. Reg Z2MR has been having a little trouble with his 146

Mc. f.m. net car phone, but when last heard was putting in a thumping big signal. David Z2VW is 'getting along with the Indians' now, with 120w. on 6 mx f.m. and is once again getting under way on a linear for 6 mx s.s.b. Incidentally, we lose Basil Z2LB from the ranks shortly when he takes up his new post in W.A., about 600 miles from Perth. Best of luck, Basil, and let's hope there are plenty of VK6 to VK2 break-throughs for the next few years.

6 mx DX has been very patchy once again and the only opening really worth reporting is from Keith Z2VL, who says that was an opening to ZL for about three hours on 23rd June, and shorter openings earlier in the month. Roger Z2RH reports that VK4s and VK5s were lifting above the noise over the last couple of week-ends, but not long enough to make a contact.

I had some notes from Max Z2MO at Raymond Terrace, but the main things are the same things—they still listen for sigs from Sydney, but never hear anyone. Next month I will give more details of doings in the Hunter area, but for the moment we're running out of space. Thanks for the info., Mac, and keep it coming.

Lastly, don't forget the new style Day Fox Hunt on 11th August, with Paul Z2PJ as Fox and starting place to be announced. (Watch "Bulletin" for this.)

That's it for another month and keep me informed of what's going on fellas. Somebody must be interested! 73, Z2BL.

VICTORIA

The V.h.f. Group meeting was held on 19th June at 478 Victoria Pde., East Melbourne. 32NJ was in the chair with some 40 persons present. The first item of business was the presentation to Z3AA of his VHF100 Certificate; good going, Graham!

3ARZ reported that the last Fox Hunt led by 3AOG attracted five hounds and was full of "incidents" and was eventually won by Z2JF. The Fox Hunt is held on the second Wednesday of each month, commencing on the east side of the "island" in College Crescent adjacent to the Foundling Home. New starters are most welcome. Starting time, 8 p.m.

Discussion then began on proposals to investigate some form of band planning on 2 mx and 70 Cm. 3ARZ spoke on using 144.0-144.10 Mc. as a segment for country Amateurs—by restricting its use to stations outside a 50-mile radius of Melbourne. The Sec., 3ZGP, described the R.S.G.B. 2 mx band plan, which divides the U.K. into zones, each zone using a particular segment of 2 mx and 70 Cm. Quite a few interested Amateurs spoke on the proposals and it was referred to the Investigating Committee to make firm proposals and submit them to all Amateurs.

The N.F.D. came up for discussion regarding the V.h.f. Field Day and it was decided that the V.h.f. Field Day would cover the same hours as the N.F.D.

A talk on 3 Cm gear by 3ZGM, and 3ALZ's 1296 Mc. g.d.o. followed, concluding with refreshments.

50 Mc.: This band has been getting more than its usual share of activity with almost fortnightly DX openings and it has brought quite a number of new stations on to the band. June 23 provided quite an interesting opening to 7LZ, who worked Z3HH and 3ZGP. Col was copying Channel 1 from Bendigo at the time. Seems t.v. has its uses after all.

144 Mc.: Although the weather has been really wintry, activity is being kept alive by the few stalwarts. 3VL at Numurkah is being worked regularly from Melbourne. 3ZER has s.s.b. going and is putting good signals from Melbourne; is running up to 50w. from a ZL linear, ex 3ZMV. It is also rumoured that 3ZL might soon follow suit on 6 and 2 mx.

VK3 6 Mx A.M. Net: Since its inception some two months ago this net has steadily expanded though availability of xtals appears to be holding many back. Some 70 odd ex mobile radio-telephones of the Reporter Mk. I variety have been distributed through VK3 disposals and a majority of these went to the country areas complete with a 5892.5 kc. crystal for the tx. In the metropolitan area, 3ALZ, 3ZGD, 3ZGP, 3RF, 3ZFS are using modified units, while 3AIJ (converted 522) and 3KC are using normal home stations. 3AHL has s.s.b. available, plus a.m. on the frequency.

3ALZ is modifying units and has all the know how. If you require your unit to be converted, Ian can oblige for a reasonable charge. If you have any queries, contact 3ALZ (please enclose s.a.e. if writing). He has compiled an article for "A.R." which should appear soon. (Ian's home phone number is 306-7974 and the best time to call is between 5-6 p.m.) 73, 3ZGP.

SOUTH AUSTRALIA

50 Mc.: The poor level of activity on this band was relieved by an opening to VK4 on 23rd June at 1300 hrs. C.S.T. 4ZAZ, who was worked by 5ZK, 5ZBR and others, offered the information that he had been viewing Channel 2 t.v. from VK2, VK3, VK5 and VK7 all the previous week (i.e. week ending 23rd June). So it appears there may have been a few openings that we did not know of. This is more understandable when we consider that the VK5 beacon has been off the air for about one month.

Glen Z5EE has a new mobile on 6 mx, running about 5w. to a 12BY7A. If Bob Z5FG doesn't write that article for "A.R." on the VK5 beacon soon, I'll write the darned thing myself.

144 Mc.: Activity on this band is fairly low, the fellows seem to be concentrating on construction. Mick Z5DR had a 2 mx tx finishing up with an 832A (equivalent) as a straight amplifier driving a QQE06/40. Mick hung a new crystal in the tx so that the 832A was being driven at 137 Mc. instead of 144 Mc. He then lifted the cathode of the 832A off earth and fed in 2 to 3 watts from a 7 Mc. "Command". There is then adequate drive to the QQE06/40 from this power mixer. This heterodyne v.f.o. is very stable and is better than many crystal signals (not that this is saying much). It is refreshing to see that Mick is no longer bothered by certain moral convictions that used to inhibit his use of v.f.o.'s two or three years ago.

General News: Probably the biggest thing this month was the Fox Hunt on 29th June. About 40 chaps in 14 cars turned up, seven cars being on 2 mx, six on 1 mx, and one car on 6 mx. The fox was transmitting on 6, 2 and 1 mx, and the hunt was on strictly a "mileage covered" basis. The outright winner was Douglas 5KK, second was 5ZK with 5ZBR/5ZJH in third position. Alf 5LA assisted your conductor as fox.

To facilitate the dissemination of the weekly 5WI session, the V.h.f. Group is building a 144 Mc. relay tx. This rig will use a QQE06/40 p.a. and will be completely portable so that it may be used wherever the Sunday morning broadcast is being conducted. Bob 5ZDX is in charge of the project and has been very ably assisted by donations of parts from many of the local Hams.

The disposals group in VK5 is staffed predominantly by v.h.f. operators and has been doing a very good job recently. Recent purchases have permitted members to obtain 25 yard lengths of R8GU (equivalent) at 10/- a length, not to mention ceramic 9-pin sockets and 30 pF. concentric trimmers at 6d. each. More active members of the Disposals Committee include 5II, 5BQ, 5ZK, and these chaps are assisted by 5ZKC, 73, 5ZCR.

WESTERN AUSTRALIA

Winter has come to VK6, the farmers now complain we have too much rain, but luckily 24 members braved the elements to attend the June meeting of the V.h.f. Group. The major items arising were the proposed new 50 and 144 Mc. beacons and a discussion of the use of frequencies in the new 420-450 Mc. band which is reported under 420 Mc. news.

The new beacons proposed will be constructed by the Group to replace those at present in use after some many thousands of hours of service. Both the beacons will have an 815 in the final and run approx. 50w. The identification will be VK6VF impressed by f.s.k. This method enables more power and easier identification of a weak signal. The constant carrier will also enable them to be used to align converters and receivers.

V.h.f. Scramble: The all-band scramble results are as follows: 6LK 73 pts., 6ZAA 63 pts., 6ZDS 62 pts., 6ZAG 33 pts. and 6ZDM 32 pts. 6MM claimed 7 pts. and won a special section for stations over 50 miles. This Scramble

showed many of our locals' shortcomings in their gear which are being rapidly rectified.

50 Mc.: Doug 6ZDW, Graham 6ZDB and Ken 6ZBT were one group who went mountain hunting. They tried sites at Mannington mill, 83 miles south of Perth, and Bunbury, 118 miles south of Perth. Quite good signals were heard at my QTH from both locations. Bill 6ZBJ has re-appeared on this band with a re-built tx using an 832A in the final. Glad to see you on again Bill. Mid-week activity lately is very slack, apparently the cold weather has made some shacks untenable.

144 Mc.: Dennis 6AW and Brian 6ZDE ran the June Fox Hunt. They found a small cave in a limestone cliff right on the river's edge near Fremantle. The signal had the appearance of coming from anywhere but the source and when 30 yards away the tone could not be picked up on a snoop loop. Tony 6ZDT and myself as co-pilot were the first of the only two teams to find the tx. Lance 6LR and Glen were second.

A solid core of 144 Mc. mobiles is being established and rather far reaching plans are afoot to increase these numbers. Narrow band f.m. is being considered as a likely standard for VK6 and availability and adaptability of t.v. components is being studied.

420 Mc.: A proposed Gentlemen's Agreement for the frequency use of this band has been submitted to the Group by Don 6HK, who worked in conjunction with several other Amateurs. The band has been divided into six segments, namely,

- 420 - 424.5 Mc.—Modulated oscillators.
- 424.5- 431.5 Mc.—Amateur T.V.
- 431.5- 432 Mc.—Guard Band.
- 432 - 438 Mc.—Xtal locked operation.
- 436 - 443 Mc.—Modulated oscillators.
- 443 - 450 Mc.—Amateur T.V.

These divisions may at first seem unnecessarily detailed, but they have been the product of some far-sighted clear thinking.

The two mod. osc. bands have been chosen to border the lower edge of the two t.v. bands as at this frequency the unwanted sideband will be extremely difficult to suppress and minimum interference is planned.

The two t.v. channels will enable simultaneous two-way t.v. contact and this is not too far in the future.

The xtal locked segment is chosen as 144 Mc. can be tripled into this part of the band and is the natural choice for this type of operation.

We in VK6 hope these suggested segments will be acceptable to all States as a Gentleman's Agreement. If they are, they could become an official W.I.A. Federal policy. Please let us know the views of other Groups on this matter as these frequencies should be thrashed out before too much equipment is constructed. A firm sound policy to this band will enable exchange of ideas from State to State and any v.h.f. Amateur changing his QTH Interstate will not be loaded with useless gear.

I cannot stress the urgency of this matter too much as 1964 will be much too late to decide what we are going to do and where we are going to do it. 73, 6ZDM.

TASMANIA

The 50 meg. converter mentioned last month will be completed by the time this goes to press. The subject of lectures was brought up and it was decided that each member should take it in turn to describe his gear, so that everyone can get some ideas on improving their equipment. The lecture this month was on the types of transceivers used in light aircraft, frequencies used, and the D.C.A. communications set-up in Tasmania, delivered by yours truly.

50 Mc.: At the time of writing, no DX reported on this band. The usual gang is active with the exception of 7ZAV, whose power tranny went up in smoke for no apparent reason.

144 Mc.: Activity is still high and getting better all the time. Reg and Will, 7ZAO and 7ZAQ, are re-building the final in the rig to improve its efficiency. Parallel lines are to be used as the tuned circuit and a blower is to be installed to keep the old 6/40 cool. 73, 7ZAV.

Some news from 7LZ: 7BQ and self are only active stations around here on 50 Mc. and we

only use it around Ross Hull times—have to be very careful with t.v.i.

On 144, it is a different story. At present there are 12 active stations around Launceston and another boy is awaiting his Z call. Some are only using low power, but the rx standard is good and beams range from 4 to 10 elements. When 7ZAI and 7ZAT were operating from Flinders Is. last April 8 of 12 had consistent contacts up to 103 miles, so it's not too bad. 7LZ, 7PF, 7BQ, 7DK, 7ZRJ, 7ZBR and 7ZRF are all at Launceston. 7ZEC at Evandale, 12 miles south of Launceston. 7RL, 7ZAH, Mt. Barrow, 4,000 ft. up; 7JF, 7ZBB, Poatina, approx. 20 miles s.w. of Launceston, 1,000 ft. up. 7ZBB is awaiting his full call. 7ZEC works into Hobart any time and is quite handy as a liaison when the band opens to VK3. At present I am unable to give frequencies as some changing around is going on and will give a list later.

7BR has almost completed his high power 144 gear and is due on any day. 7ZBH is active on 144 from Ulverstone and is in Launceston on week-ends with mobile gear.

PAPUA

Very little v.h.f. news to report once again this month. 50/144 Mc., no DX was heard during June. 49.8 and 49.9 Mc. ionospheric scatter stations were heard on seven days during the month. T.v. TNQ7 Townsville added a little variety to the rather sparse v.h.f. scene, reception being noted on 2nd, 3rd, 4th, 16th, 27th and 28th June. 9CK is a newcomer to 144 Mc. Murray has just completed a converter for this band. 73, 9AU.



CALL BOOK MAGAZINES

The Federal Treasurer of the W.I.A. again has for sale at £1 post paid a few back numbers of "Call Book Magazine," the great American directory of Amateurs. These have been used by W.I.A. Federal Officers and are in first-class condition.

There are two editions: (1) United States only; (2) "Foreign" edition, that is to say, all Amateurs except Americans.

Apply to Bob Boase, VK3NI, 50 Cardigan St., Carlton, Vic.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

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Hi there fellow twisters, here we are again with you. With the advent of the cold winter days, it does not inspire one to go out to the shack. That is if your shack is not in the house. So it may afford you the opportunity of getting your equipment ready for the forthcoming R.D. Contest. While on the subject of the R.D., make sure that you are quite conversant with the rules. There will be a few newcomers to the Contest this year and we would hate to hear that you had been disqualified because you had not read the rules properly. Best of luck to all of you in the Contest. Now what State is going to challenge VK3 this year?

As your scribe will be on holidays during the latter portion of August, I would appreciate it if you could let me have all correspondence by 16th of August. Any letters received after that date will have to be held over until the following month.

How many of you listen to the Voice of America's "Radio Amateur's Note Book"? This session can be heard every Sunday at 6.45 p.m. E.A.S.T. Sorry I can't give you the exact frequency, but have found that their transmission in the 31 mx band to be best at the present time. Many interesting interviews and talks can be heard on this programme, which is conducted by Bill Leonard, W2SKE.

Several years ago a Contest for S.w.l.'s in VK was organised and on acceptance from F.E., all S.w.l. Groups were circualised on the details, but to the best of my knowledge not one Group notified us on what they thought about it. And until such time as more interest is shown by members generally, we will certainly not waste our time and effort on such projects. I know that we have more S.w.l.'s in VK than is generally known, and it is from you silent types that we want to hear, as well as the few regulars. So how about it chaps, let us see if we can't all make the S.w.l. Groups into something really worthwhile.

All DXers will be interested to learn that there will soon be activity from ZD7. ZD7BW hopes to be going on s.s.b. by 7th August. There is also a good chance that ZD7SE will also be on the air. G3PEU will be on St. Helena for some two years, so don't despair if you can't hear him at first.

VICTORIA

Several years ago we submitted two awards to Council. They were the DXCC award for confirmation on having confirmed 100 countries, and the Heard All VK award. However, we would like to know if the award certificates are on hand at the present time.

At the last meeting of the Group, an illustrated tape lecture was presented. This lecture proved very popular with the members. The tape was one made available by courtesy of the VK2 Division. There were 23 members at the meeting, and our President Maurie also gave a short talk on s.s.b.

Noel L3101 has been unable to pay any attention to the bands for some time, due to health and personal reasons. Very sorry to learn of your news Noel, and do hope that you will soon enjoy better health and will be able to again soon take an active part in our hobby. Recently Noel received a certificate from "Popular Electronics".

Richard Mills, of New York, is very keen to become a member of the W.I.A. He has already made moves to join. Well Richard, you will be most welcome to this page.

Ron L3076 recently purchased himself a grid dip oscillator and has been having fun and games getting his v.h.f. converters on the nose. But he has found that he is not getting enough injection from the 144 Mc. oscillator and as a result he has had to make a few modifications. Hope you don't end up on 72 Mc. Ron, but with that g.d.o. you should be OK.

Maurie L3055 has been very busy with studies and home chores of late. With the addition of an harmonic (YL) to the family, Maurie has found very little time to chase DX. Your scribe has had the odd listen on the bands and recently erected a 21 Mc. dipole but has found that it was no better than the 14 Mc. beam. Greg L3138 is hearing plenty of DX on his recently-erected rotatable dipole. Bad luck the photo was not so good, Greg, better have another try some time. Had a phone call from Michael L3133 a while back. Michael is using a No. 11 rx at the moment as he

loaned his other rx to his YL, whom we hope may become an active S.w.l. Mike is on the look out for a 14 Mc. converter.

There are several cards in at the QSL Bureau for L3138 and L3141, so if those members would be kind enough to forward a stamp addressed envelope to the QSL Manager (Eric Trebilcock) your QSLs will be sent on to you. There is also a card for a non-member whose surname is Mackenzie.

Eric L3042 received 102 QSL cards during the month of May, but bemoans the fact that there were not many new ones amongst them. Well Eric, I am sure that most of us would fall over if we ever received that many in a month. At present Eric has been observing conditions on 160 metres. Like most of us, Eric is looking forward to the R.D. Contest and he strongly urges you to make sure that you get your logs in early.

NEW SOUTH WALES

Chas. L2211 has not been very active of recent weeks due to a number of reasons, and at the moment he is having a rest from S.w.l'ing. But no doubt Chas will be back into things when we get into the warmer months. Don L2022 is at the moment spending some leave up in VK4. Have a good holiday old son, and no doubt the rest from radio will also do you a power of good.

WESTERN AUSTRALIA

Our good friend, Peter L6021 has been busy on the bands as usual, and he is rapidly rising on the DX Ladder. This month Peter has

spent more time on 14 Mc. That's a change for you, not a bad band is it? Recently he erected a 7 Mc. folded dipole and has found an improvement. Peter mentions that 7 Mc. has been very good to W land of a morning. On 14 Mc., he has been hearing numerous ZS and ZE sigs. Wish you would pass a few over this way, we do hear some of them. Peter still listens to many of the novices in W land. Thanks for your interesting letter, Peter, and good luck in the R.D. Contest.

GENERAL

Most of the Groups seem to be rather inactive. How about you all proving me wrong? The R.D. always gives us an indication of the activity, although we are aware that there are many S.w.l.'s that are not interested in it. We would like to provide you with more news, but that is up to you to provide the news. See you in the "R.D." 73, Mac.

DX LADDER

	Countries		Zns.		S.s.b.		W
	Conf.	Hrd.	Conf.	Hrd.	Conf.	Hrd.	
E. Trebilcock	281	289	40	—	—	—	50
D. Grantley	113	259	38	20	104	35	35
A. Westcott	93	159	31	9	107	11	11
H. Hilliard	76	229	33	24	158	11	11
M. Cox	72	223	29	39	150	18	18
P. Drew	62	199	27	27	117	13	13
N. Harrison	44	119	29	4	20	35	35
I. Thomas	41	139	20	16	97	14	14
G. Earl	10	108	8	2	82	—	—
D. Coggin	10	92	7	3	60	14	14

YOUTH RADIO CLUBS

With a sigh, I must report that, as far as I can find out, Port Pirie is still the civilised capital of South Australia—it has an Amateur club with a conscience about its youthful citizens and it has some thoughts about the future of Amateur Radio. For the sake of anybody outside my usual circle of readers (all four of them!) who stumbles on this section by accident, I will state the facts causing these remarks.

The Y.R.C. scheme has two obvious points at least—it must do a great deal of good for the youth of this country (are you sure we won't get the wave of juvenile delinquency from other countries?) and it must make the position of Amateur Radio much stronger in the quickest way. Federal Executive backs this viewpoint. To all Divisions, except VK5, this makes good sense and, despite the voluntary nature of our administration, an Amateur has been found to be Co-ordinator in all other Divisions and the Divisions have given some backing on the lines I recently summarised.

For instance, with solid backing in VK2, over 40 Y.R.C.'s are active in N.S.W. and the numbers are steadily climbing. We must continue to hope that at least one public-spirited Amateur with just a little time and some interest in Youth can be found in Adelaide to co-ordinate these activities in that State, give the few struggling Club Leaders the Divisional help they need, and encourage potential Club Leaders who see the present handicaps. If one Co-ordinator is not there, why not a committee?

As forecast last month to my aforesaid four readers, I'd like to try an experiment—a daring one in these days when everyone expects 64,000 Royals for answering any question or writing 25 words of slop about somebody's soap. There is a need for a well-designed portable exhibition unit to take to schools, fetes, shows, exhibitions, etc., for the purpose of interesting young visitors and creating good public relations in general. I propose a competition with only satisfaction as a prize. Would anybody be interested to design an arrangement of display units of literature, constructional work, Amateur station, intriguing demonstrations, etc., for the above purpose? The complete array should be portable in two or three cars at the most. I'll be of what assistance I can, but I suggest an article, finally, in "A.R." by the designer.

News is still very scarce from VK4 and VK6. How about it? I have heard of one

half-witted Headmaster in Queensland who brushed off the Y.R.C. idea, but I can assure you his type is not common. All high schools are fertile fields.

Did you VK3s see "The Age" of June 6? You surely saw the four-column photo of the leaders of Eighth Footscray Scout Troop at their transmitter, 3AEF. Scout Master Les Marmo and brother John have both been through Canberra recently and were good enough to call in, so I had the news direct from Footscray. Bill 3AHT is licensee, operator and instructor, and Bert 3EGD lent the gear. Amongst other things, they have been most ingenious. They have two neighbouring Mayors of Sunshine and Footscray as patrons!

Recent additions in VK2 are at Hurstville Technical College and Cranbrook School (both in Sydney, in case you can't find them on a road map). I am looking forward to getting some details from Hurstville T.C. Secretary, but Brian Burton (ex-1KK, now 2AUN) writes from Cranbrook. "The Headmaster was dead-keen for me to start a Y.R.C. I have already had my first meeting and we are on the way. About 60 boys wanted to join, but we cut it down to 20 for a start. We are working in a beautiful new science block and will very soon apply for a licence." This sounds great stuff, Brian. I know you'll enjoy it, and I hope all the other G.P.S. becomes envious. You can show them what they are missing!

Here in Canberra, the word still spreads. The fanatics from Lyneham High, led by George ICE put on a show at the Police Boys' Club to publicise the start of a new radio course there under Mr. V. Sabanskis. The "Canberra Times" like any other newspaper, respects our news value and printed a report and a prominent photo. You club leaders should remember that all publicity helps—as long as you're on the right side of it. In addition, a new group met at Dickson High and should be active soon. That makes three high schools, Police Boys' Club, and Canberra Radio Society all doing something. One anxious group of 20 is stranded at Narabundah High without a leader. I'm hoping they'll be the fourth high school some day soon.

P.S. for FS—Please don't have so many of your flock counted twice or three times. Surely you couldn't have 120 at a meeting in the City of Churches and then nothing happens about Youth Radio Clubs! 73, 1KM.



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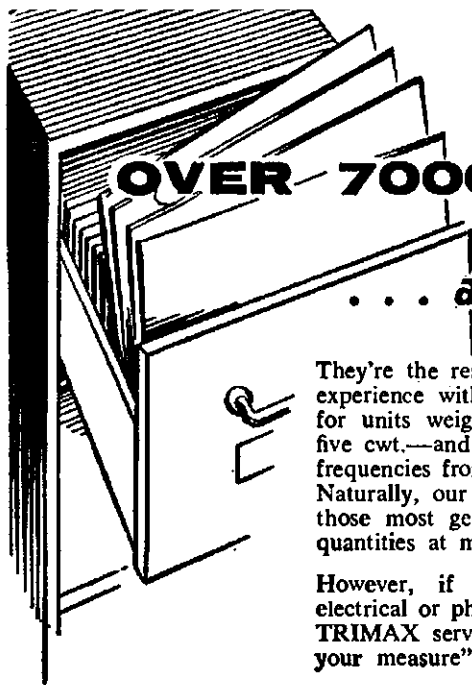
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Qualifications: Commercial Operator's Certificate of Proficiency or equivalent service experience, together with experience in operation and maintenance of ground installations.

CONDITIONS OF EMPLOYMENT: Two to four months preparatory work in Melbourne followed by approximately twelve months at the Station. Tentative sailing dates: Macquarie Island—early December, 1963; Mawson, Davis and Wilkes—late December, 1963. Whilst absent from Australia, kitting and maintenance are provided free by the Commonwealth, and there is an allowance of 37½% of salary up to a maximum of £575 per annum. In addition to which a district allowance of £325 per annum for married men, and £200 per annum for single men is paid. Recreation leave accrues at rate of five weeks per annum. Subject to the provisions of the Income Tax Assessment Act, Zone Allowance deduction of £270 may be allowable. Salaries commence within the appropriate range according to qualifications and experience. Employment will be in a temporary capacity under the Public Service Act 1922-1960.

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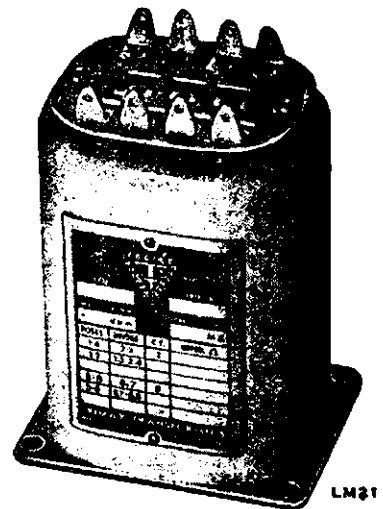


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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

F.E. MEETING, 3/7/63

General Business: Two members brought the matter of the possession of a heterodyne frequency meter as a condition of issuance of a full licence to the attention of the meeting, and as a result of discussion it was decided to determine exactly what equipment apart from a heterodyne meter was acceptable, it being pointed out in discussion that some approved types of wavemeters are inferior in accuracy to methods apparently unacceptable to the Department.

It was reported that the draft minutes of the Federal Convention were now complete and would be distributed as soon as possible.

It was also reported that due to difficulties with the Indian Government regulations, it had proved so far impossible to deliver the valves collected for Indian Amateurs. It was decided to approach the problem again, the period of elapsed time being considerable.

Executive viewed with concern the deletion of Federal matter from the published notes. It was pointed out that the publishing of a PRECIS of F.E. minutes was the subject of a directive by Federal Council at the last Convention. It was directed that the Editor of "A.R." be consulted on the matter.

Other matters of importance were discussed, but unfortunately, due to their presently confidential nature, details cannot be disclosed at this time.

VKSWIA BROADCASTS

It is intended that regular broadcasts from this station should commence within a month. It is intended that the transmissions should include items of a nature not usually covered by State Broadcasts—Federal News, High Speed Morse Transmissions, Technical Lectures, and any other material having a national interest.

It is also proposed that the station will be open for normal contacts wherein members can have direct contact with Federal Executive, as well as being employed in regular communication with members of Federal Council.

CHRISTMAS ISLAND RADIO CLUB

The following letter was recently received from the Secretary of the C.I.R.C., and was considered to be of such interest as to be worth publishing in full, as follows:—

Secretary, W.I.A.,
Dear OM,

We of Christmas Island, Indian Ocean, consider 6th May to be an important date for all Islanders interested in Amateur Radio as it marks the inauguration of the Christmas Island Amateur Radio Club. A copy of our constitution is enclosed herewith.

You will be interested to hear that we already have approx. 40 enthusiastic members of all races, Indian, Chinese, Malay and European and that the traditional spirit of Amateur Radio prevails.

The Club has been prompted by Don Reed, VK9DR, who now holds the post of Publicity Officer in our Club. Don is a member of the VK4 Division. Don has been in correspondence with Rex Black, VK2YA, and has received from Rex considerable information regarding the Youth Radio Clubs of Australia. He has also received much assistance from the VK4 Division through Peter Brown, VK4PJ (Hon. Sec.), and from Ken Long, VK4VM. Alan Shawsmith, VK4SS, has written to us for DX news.

Our Committee has decided to adopt the Youth Radio Clubs progressive examination grading system, namely, elementary, junior, senior and advanced senior, and we have asked VK2YA to arrange despatch of the first batch of certificates. We are awaiting instruction papers promised by the VK4 Division and hope to receive these shortly to assist our lecturers.

Affiliation is sought with W.I.A. as per our constitution and we would be pleased to receive information and the necessary documents to enable this matter to be finalised. Individual members will be encouraged to join the W.I.A. Please send application forms.

Through the courtesy of the British Phosphate Commissioners we have the use of a very fine Ham Radio shack, complete with lecture room, operating room and workshop.

We have all instructional facilities including a recorder and an epidioscope.

We would very much appreciate receiving any instructional tapes available (these can be dubbed and returned promptly). Also any back copies of "A.R.," "R. & H.," "CQ.," "QST." Handbooks, etc. for our library.

Usable junk, surplus disposals gear of any type and description, which some W.I.A. member may care to send to the Club would help us immensely as there is practically nothing available on the Island. The B.P.C. will send any items freight free to Christmas Island if delivered to their receiving depots in each State. Shipping contact, however, is more regular from Melbourne and Fremantle.

Our lads are very keen and we trust that the Club's efforts will be the means of guiding many an Asian lad into a useful electronic occupation apart from his interest in Ham Radio.

QSL Officer, Ron Ashley, will see that QSL is 100 per cent. through the Bureaux. Although VK9DR is the only licensed Amateur on our roll at present, it is probable that we will have more active Hams in the near future.

Appropriate publicity in "A.R." would be appreciated and we trust that QSL cards from Christmas Island will appear shortly in many a DX hound's shack.

(Sgd.) T. L. Menon, Hon. Secretary.

— . . . —

FEDERAL QSL BUREAU

As from 28th June the new address of the A.R.R.L. is 225 Main Street, Newington 11, Conn., U.S.A.

The R.S.G.B. 7 Mc. DX Contest is to be held on Oct. 19/20 and Nov. 2/3, 1963, the times being 0001 G.M.T. to 2359 G.M.T. in each instance. The first period is for phone and the second period for c.w. The Contest is between British Isles stations and overseas stations only. Further details from this Bureau and logs to be sent to R.S.G.B. not later than 25th November.

The R.S.G.B. staged its Golden Jubilee celebrations in London between 1st and 5th July.

The DX-pedition to PY0 (Trinidad), due to have been in operation in July, did not take place. Trinidad is a military installation of the Brazilian Government and PY4AS could not obtain permission to work from that location.

Claim forms for the Okinawa Awards sponsored by the KR6 Radio Club may be obtained from this Bureau.

Due to increasing costs, the Radio Sports Federation of the U.S.S.R. has announced the following charges for its Awards: R150S, R1000 and W100U Awards—14 I.R.C. R151R, R10R, R6K and Cosmos Award—10 I.R.C. All applications to Box 88, Moscow, U.S.S.R.

Philippine Amateurs have formed a society known as Philippines Amateur Radio League (P.A.R.L.) with address at 67 Espana Extension Street, Quezon City, Philippines. The QSL Bureau address is the same as above.

The R.S.G.B. advises that it has no connection with a body called the Radio Club of Scotland and all cards for GM should continue to be sent through the R.S.G.B. Bureau, Bromley, Kent, England.

—Ray Jones, VK3RJ, Manager.

— . . . —

NEW SOUTH WALES

HUNTER BRANCH

The last notes did not include a report of the June meeting of the Branch, so both June and July meetings will be reported this month. At the June meeting, the President, Les 2RJ, was laid up with the flu and yours truly took the chair. Because of this, the business section of the meeting was very short and the rest of the available time was taken by the lecturers. Neil 2ZCU chose as his subject "Audio for Your Transmitter" and after displaying a particularly neat piece of equipment, described how it was possible to compensate for various audio sources' deficiencies and put out a clean audio signal. Ian 2ZIF then described his efficiency method of modulation, enabling 100w, to be run mobile to a 6/40.

Again a well built sample of gear was shown and both lecturers are to be complimented on their thorough treatment of the subject and the well made rigs.

At the July meeting there were again two lecturers who spoke about the design and conversion of the radiophone tx-rx units for use on 2 and 6 mx. Those responsible were Wayne Murray and Bill 2ZCV. Again these were very practical talks and each lecturer was able to answer questions about the finer points of the inside bits. Then began a film show. Frank 2APO supplied the films and Rodney 2CN showed them to the fifty present in room 15. Yes, that's fifty—a remarkable roll-up again. The first two films were pretty routine technical stuff presented in a non technical way and the third film was a cartoon. This was really an uproarious end to a good evening and following a vote of thanks moved by Chris 2PZ, we all clapped loudly and went home.

Probably the most remarkable piece of news this month concerns Frank 2FC who was actually heard on the air! As it was in reply to the Monday broadcast, we hope that Frank will continue to call and even shame some of those other seldom-heard calls to come on as well. Leo 2QB is a regular attendee at the meetings, but that story about blown fuses preventing the r.f. from getting started, can't still be true, so what about it Leo and Harold and Harry and lots more—let's hear you!

Jim 2AHT has the new exciter for s.s.b. so I am told and works everyone with the greatest of ease, even though one of the reflectors has fallen off the beam. "It's all that s.s.b. windy weather," says Jim. "It's all that r.f.," say we. The apparent uselessness of 40 as a band for local contacts at night has caused Bill 2XT to go on 80 mobile, and even without a proper whip a good signal is heard. 2AYL is also busy with mobile gear, but no electronics are involved—it's the Jaguar.

Quite a lot of thought of late has been given to Amateur t.v. and among those known to be interested are David 2ZXA, Rodney 2CN and Les 2RJ. Whether the interest is in transmission or reception is not known, but Les at least is attending the Tech. to learn some more.

Because of the Jaguar, Stan has enlisted the aid of Mac 2ZMO with the QSL Bureau. This, Mac does in his spare time, when he's not converting 222s or letting off crackers. Stuart 2AYV is busy with some s.s.b. gear, nevertheless should be putting out his d.c. bands signal soon. Varley 2SF is active on 7 megs. and has a solid signal on that band.

One of these nights soon we'll have some of the boys giving lectures at the meeting, the following being the programme: "On Forty—Quick," by Sherwood; "My All-Band Fence," by Bruce Morley; "DX-pedition to Stockton," by Les Payne, and "How to Copy 80 Metres with No Antenna," by an anonymous Marmong resident.

In the far wastes of Wallsend or Cardiff, or wherever it is John 2ZJG has found enough time between night service calls to build a new shack so that he can get on high power and work some 144 Dog X-Ray out by the R.S.P.C.A.'s establishment. Also among the DX is Tony 2ZCT since he put up the new beam and Des 2ZDN is having particular success with the mobile on 2 mx. Key 2ZKW now has a crystal converter for 2 and Bill 2ZWM has cured the modulator troubles on the Minitrans. Len 2ZFD and Charlie, whose call I cannot remember, are both busy and should soon be on 144. Ernie 2ZFP may have success sooner than he expected as 28 Mc. has been suggested as the cross-town band in G land and there's no reason why it should not be the same here.

So that's about it for another month, but you won't forget to be at the Hunter Branch meeting on Friday, 2nd August, will you? It will be as usual in Room 15, classroom block at the University College and in response to popular demand will be another "Do It Yourself" night with members displaying and describing their own gear. This is a warmup for the October meeting which will be similar but with prizes for the best lecture. And to keep up with the latest news, listen to VK-2AWX on Mondays at 7 p.m. E.S.T. for the Hunter Branch Broadcast, and please call in, whether on a.m., s.s.b., or c.w. 73, 2AKX.

BLUE MOUNTAINS SECTION

Due to his working location being changed, Ron 2ADA has had to relinquish his position as publicity officer for the Blue Mountains Section. Yours truly (Noel 2ZNS) was elected to this position. I would like to thank Ron for the help he gave me personally and also for the notes which appear in "A.R." I only hope I can keep up the good work. Ron has been moved to Cooma by his firm.

There has been some rare activity in the Section. Rare! Yes, that's correct. Where are the two metre stations? We have on our records 21 stations who can operate on 2 mx. Apart from 2QA, 2MZ, 2AVN, 2ADA, 2ZFB, 2AWW, 2ASZ and yours truly, 2 mx operation in the Section has been nil. I did hear that John 2NC had to put his 2 mx rig on the shelf to make room for construction of his sideband rig. John, how about putting the sideband rig on the shelf and come back on 2 mx?

Yours truly is about to start construction of a sideband rig for 6 and 2 mx, with high power finals to follow. So please sharpen up your b.f.o., get out your pieces of wet string, and listen for 2ZNS on sideband.

Our Section now has what I consider must be a record. All the members of this Section are now licensed Amateurs. The latest addition is Derick Boyd, who has passed the exam. and is now waiting for his call sign. Congrats. Derick. When are we going to hear you on 2 mx?

At our last meeting held at Lawson on 21st June, there was a tape lecture by Frank 2QL. The subject was "Where do my signals go?" This lecture was to have been presented at the May meeting, but due to there being no tape recorder, it had to be held over until the June meeting. The June meeting was well attended, some 15 members and two tape recorders being present. The tape lecture was to have been illustrated by slides. What! no projector? Thanks to Arie 2AVA, who did a mighty job on the blackboard, sketching details that were on the slides.

Bob 2ASZ is preparing for his change in location to Blaxland. It appears as though he is going to move the shack first and build the house later. Bob is considering 10,000 Mc. from his location at Blaxland and should have a lot of success. He is going to erect a 50 ft. windmill tower on which he can mount his antennae.

Dennis 2AWW is also getting ready for 10,000 Mc. to keep Bob happy. Dennis is preparing for Amateur t.v. when 432 Mc. comes into operation. He hopes to be operating with equipment no longer required by the firm he works for. Lots of luck with this project, Dennis.

If there is an Amateur in this Section who can construct converters that will work and keep working, I think Al 2ZFB might like to see you. Al has been having trouble with converters that will not operate as they should.

Norm 2QA has been busy with the crossing of the Blue Mountains Sesqui Centenary. This has not left Norm much time for operating 2 mx. Norm reported to me that the Sesqui Centenary was a great success. 73, 2ZNS.

VICTORIA

JUNE COUNCIL MEETING

Time being short, these notes will be likewise. Apart from routine matters, Council had little to discuss. A proposal that this Division publish a monthly or bi-monthly news letter was considered, and it was decided that, provided the manpower for this project could be found, a newsletter could be a good thing. It could cover details of meetings, disposal hand outs, etc., in fact anything of interest to the VK3 Division. It would not be available for technical, articles acceptable for publication in "A.R."

A Public Relations Officer is still being sought and the President has this matter in hand.

The equipment officer reported on tests with 160 mx equipment at 3W1. As a result it was decided that this additional band would be brought into service, as soon as the equipment can be constructed.

Only seven names were submitted for membership, of which five were associates. This is not as high as previous months, but still a move in the right direction.

The W.I.C.E.N. co-ordinator reported on his attempts to obtain suitable insurance cover for members engaged in actual emergency operations, or approved W.I.C.E.N. exercises. He detailed the proposals so far made, and Council authorised him to arrange a policy on the basis of the best offer received. More details will be available after the cover is finalised.

The V.h.f. Group is a little unhappy with some aspects of the Division. The Management Committee was invited to discuss their problems

with Council, which they did. They will report back to their Group and in the meantime Council is acting on those of their grievances which are considered justifiable, and will report to the Management Committee later.

WESTERN ZONE

By the time these notes appear in print the Remembrance Day Contest will be very close at hand, so will wish every contestant the very best of luck and hope a number of our zone members will participate as in former years.

It is also only a few weeks until the Zone Convention, so we will have to get our heads together very shortly to arrange where it is to be held and what form it is to take.

Herb 3NN, Wilson 3AFU and Bob 3ARM have gear on 1.8 Mc. and are looking for contacts on that band. Keep listening and working chaps as I have heard there are ZLs, VK2s and VK5s listening for your signals. Merv 3AFO recently had some young stalwarts arrive to help him erect a new tower, but the clothes line occupied the place where he wanted to put it. It was suggested he do away with the clothes line and invest in a drying cabinet for the XYL, but he did not comment on the idea.

Bill 3AKW's signal has improved out of sight with the erection of a new half wave antenna, and with the 10-12 watts he can hold his own with the high power rigs in the zone hook-up. Herb 3NN and son, Garry 3ZOS, at Yanac, always seem to be doing something. Recently they became the proud owners of a Hallicrafters SX11 rx and are very pleased with it. They have also fitted a new mike to the modulation system and have a good quality signal, not that it was bad before.

Chas VRIB (ex-VK3IB), Tarawa, Gilbert Islands, will not have had time to get his rig on the air as yet, but hope to contact him on 14 Mc. c.w., a.m. or s.s.b. before long. Vic 3AEQ, having renovated his shack, is now in the process of building a table-top rig, as is your scribe, Bert 3EF. Bob 3ARM, Roy 3AOS, Wilson 3AFU and Trev. 3ATR are amongst the regulars on 3650 Kc. at 2000 hrs. on Wednesdays. As for the others, what they are doing I do not know. Because of not making their appearance now and again, it makes the writing of these notes very difficult.

Stop Press: By the time these notes are printed, Trev. 3ATR and XYL will be on the high seas cruising around some of the islands in the Pacific, taking in ZL1, FO8 and ZK1, and as it is his turn to pen a few notes shortly, we hope to have a full report on the trip. 73, 3EF.

NORTH EASTERN ZONE

3ACD reports having kept regular skeds with 3AHO, who is on a DX-pedition, firstly to Ocean Is. and at time of writing is at Nauru. Operating up to 10 hours a day, Bill has made between 5 and 6 thousand contacts. He took a brief spell on Tarawa Atoll to recuperate. It is expected that he would have left for home on 18th July.

3AFP reported to be making a transistorised re-counter. 3VL has returned home following a recent spell in hospital. Also on the sick list was 3ALF who went down with appendicitis. Whilst convalescing, Jan has variously worked on an aerial tuner, s.w.r. indicator, and on account of intention to go s.s.b., has fabricated cabinet and chassis to house the s.b. unit. It is going to be for a mobile with 6146 p.a. Jan is looking around for a windmill tower, meanwhile the folded dipole having proved unsatisfactory, he is going to re-erect the G5RV. 3AUL has been on the sick list for a few weeks and was missed from the bands. He reports that Trevor Thompson, of Yarrawonga, passed the theory and regs and is now waiting a call. Arthur otherwise is deeply involved with the Scout movement as a Group Scoutmaster. Gets mighty cold in them thar Smoko hills and our chicken wears longuns to cover his knobby knees.

3AVT building new home: figures there may be a possibility of using a spare room for a shack. Vincent has agreed to be nominated for W.I.A. membership. Following an intense

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CHANGE OF ADDRESS

W.I.A. members are requested to promptly notify any change of address to their Divisional Secretary, not direct to "Amateur Radio."

lobbying campaign around Shepparton, 15 active and dormant Amateurs have agreed to meet on 12th July to discuss further the possible formation of a Y.R.C. With this number of potential adult instructors, we anticipate evolving a roster of three per club meet, meaning only one meeting per month per head.

Some of the zone notes contain a smattering of good-natured banter (refer digs at 5PS, for example) and this makes easy the digestion of normally stereotype reporting. Arthur (not of M.A.D. fame) informs me that my comments re Kinnear Trophy damage, caused consternation amongst the previous holders. If my feeble efforts to emulate the aged experts were unsuccessful, I beg forgiveness. 73, 3ASY.

SOUTH WESTERN ZONE

Gordon 3AGV, of Colac, has had a two-way QSO with Bill 3XE of Hexham on 144 Mc. Bill 3WK of Wangoon. has been working on modulator. John 3EW and Stan 3SE are to be the proud owners of very nice s.s.b. rig from the States. Ted 3PS is back on the job again and is known for his c.w. John 3AGD came on recently on Thursday night's zone hook-up. Keep it up, John. 3AKR not heard, what about coming on Thursday nights. 3VA is back on after long silence.

Harry 3X1 hopes to go portable and mobile shortly to VK5, so keep your ears open. Norm 3EQ hopes to be back on the air shortly, maybe on 40 mx. Bill 3WK is the specialist on concrete foundations for masts. The zone station, 3ASZ, hopes to be very active from now on with Scout Jamboree of the Air later in year. Also 3X1 is hopeful of going portable to the local Scout camp when the Jamboree is on. 73 Bill Wines.

MOORABBIN & DISTRICT RADIO CLUB

Activities for the Club this last month have been such as to leave members a trifle exhausted. On Friday, 8th July, galore were obtained. Many of our younger members were seen after the sale carrying off their goodies. The July monthly meeting was followed by a W.I.A. taped lecture on baluns. The tape, together with accompanying slides, provided a most informative evening.

On Saturday, 27th July, members of the Club were treated to a most enjoyable social evening held at the home of Wally 3AHZ. Noticed the XYLs getting together for a good old session too. Don't blame them either. Blimey, you should hear the way the OMs carry on about the XEs, etc., that got away. Drive any gal fair up the wall.

Congratulations to Ken 3ZNJ who has received his certificate for the last Ross Hull, being top scorer in VK3. Congrats. are also in order for Andy 3ZAK who has just received his call. They tell me he has just finished his rx and will soon be appearing on 2 mx with a complete "home-brew" station. Jolly good show Andy.

Noticed that Harold 3AFQ is now on 160 mx with carrier control, running 18w. to a base loaded quarter wave vertical. He also has his 2 mx clover-leaf strung under the rafters in his shack and can be "heard" on the band running 18w. to a 522. What happened to "Home Brew" Harold? Lindsay 3ZNS has re-appeared on 2 mx, apparently having temporarily recovered from his attack of YLI. How long for Lins? And fancy, a 6 mx converter!

The club is considering starting a net on 2 mx a.m. somewhere above 145 Mc. Maybe this is the reason for the rumours about Peters 3XK and 3APD coming on to the band soon. Ken 3ACS seems to be getting a lot of fun out of being control station. Three times in a row; wonderful!

V.h.f. members have been active in the s.h.f. bands doing some very interesting experiments. Keep at it fellas! Peter 3ZPC is madly preparing for a 2 mx DX-pedition to VK4 in the coming holidays. Have fun Peter. David 3ZOP is busily constructing a high power final for his Channel O t.v.i. producer. Yours truly (Bob) is again active on 2 mx after an absence of some weeks. Who muttered something about "Zero Radiating Dipole"? Alf 3LC is also to be heard on 2 mx after many moons of absence. Welcome back Alf.

Don't forget the mid-year natter party to be held on 2nd August and also bear in mind

ADJUSTING THE WHIP →

S.w.l. Bill Wines (right), of Warrnambool, is seen making adjustments to the whip aerial on the rear of his car while Stuart VK5MS, of Mount Gambier, looks on. Both members attended the South Western Zone Convention. (Block courtesy of "Warrnambool Standard")

the next general meeting on the 16th. Information regarding Club activities can be obtained from Harold (our Secretary you know) 3AFQ. 73, 3ZRD.

QUEENSLAND

TOWNSVILLE AND DISTRICT

I must thank Bert 4LB for sending in the last month's notes for me as I was flat on my back in hospital, recovering from the operation. Glad to report that I am almost 100 per cent. again and will be back again at work long ere these notes are read.

Conditions still are waning with the result that the locals are not on the bands very much. That makes it very hard to find news to keep the notes going. Sorry to report that Claude 4UX is going to relinquish the sub-editorship for the VK4 Division. It seems that the Sunshine State finds it very hard to interest anyone in performing this task. No doubt each one has found it hard to get the doings on what the boys are doing as all the correspondents seem to fall by the wayside as the enthusiasm wanes after a while.

It seems that at long last the years have caught up with our old friend, Arthur 4FE, who retires at the end of August for a well earned rest and will be leaving Normanton early in September for a spot of leave before taking up residence in the big smoke. Now Arthur will be able to do all that DXing he wants to do. Ted 4EJ surprised the gang the other night as he went QRT for the evening meal as soon as the XYL called. He must have seen the light at last. What did the Five Dock boy say?

Bert 4LB is having strife with the tx, cannot hold the final current to the stipulated level as the circuit says. Charlie 4BQ still holds the fort on the Kookaburra Session; must be his aerial system as I find it hard to copy them. Allen 4BE and John 4DD still pop up on the air to exchange reports on the doings of the band. Since the bottom fell out of the thermometer during last week, the noise level has increased out of all proportion and only very good signals can override same. No news from the Cairns boys so had better pay them a visit again and find out why no reports. Don't forget you locals, the Scouts promise to roll up this year for the Jamboree. Forget about what happened last year and help out this time. 73, 4RW.

WIDE BAY AND BURNETT BRANCH

Frank 4FN, of the Central Qld. Branch, passed through our territory recently, driving his 85 Holden horses like Father Neptune on a visit up to the city, and a little later as he journeyed home in triumph, one of the enemy drove past him in great haste in his chariot and flung a thunderbolt at him, and so Frank drove home the rest of the way without a windscreen and cold ears.

I don't know just what the trouble is, whether it is the old man with the scythe catching up or if he is trying to economise, but Gordon 4GH has been heard—did I say heard?—on the air lately having omitted to turn on the modulator tap. Never mind Gordon, make out a list, pin it on the wall and tick off the items as you go through. You know, (i) have I switched on the heaters, (ii) the h.t., (iii) the modulator, (iv) aerial to transmit position, etc.

Jimmy 4HZ is busy bedding down his bees for the winter. An idea! Why not pipe a little soft sweet music to each hive, like "The Lullaby of the Bees," to keep them happy and contented over the cold dull winter months? A little later on when the birds appear, again play them "Spring Song" with gusto to urge them to be up and at it. But apart from his bees, Jimmy is giving consideration to planting a few more antennae on his antenna farm, to share all the power when he gets the new rig on the air. He recently paid a visit to Herb 4KM, of Mundubbera. I wonder what they talked about?

The Bundaberg class is making good progress. They even have a "Gentleman of the Cloth" taking his regular dose of ergs. Some of the boys there are still waiting for their call signs, while others have theirs allocated. Bill Sebbens is 4ZWS, Roy Spotswood is 4ZWR and with 4ZWH already operating, the boys will be thinking they are working America with all the "W" call signs.

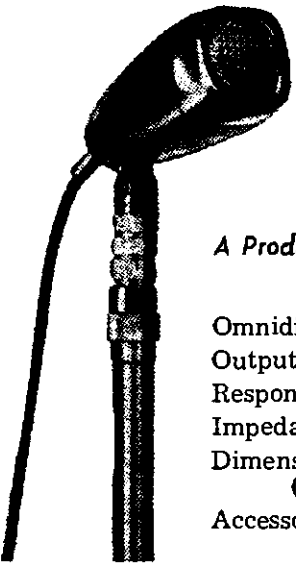
Bought a copy of "Woman's Day," 17th June I think it was, and saw a write up and some pictures on Rusty 4JM and Joslyn 4JJ, telling the world all about their Ham activities.

The Bundaberg Club is negotiating with the City Council for the use of the East Bundaberg water tower (i.e. the rooms under the tower) as their club rooms. If the rig runs hot, it should not be too much trouble to install water cooling, or as has been pointed out, the water tower is not intended to be used as a tank circuit. 73, Fred Cox.





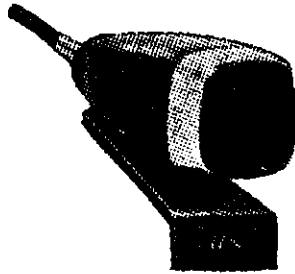
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SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division for June was held in the clubrooms to a capacity gathering of members and visitors, over 150 in number to be exact, and the original idea was to have held a buy and sell night with Brian 5CA as Master of Ceremonies. I say original idea, because what really did happen was that Brian did his best to carry out the idea, but suffered severe competition from at least five private general meetings in various parts of the room, an opposition selling table at the back of the room, to say nothing of long pauses and interruptions from various sources. I think the night could best be described as one of the best organised disorganisations that VK5 has ever seen or heard, and the only thing I cannot understand is why a couple of table tennis tournaments could not have been held at the back of the room, as well as perhaps a film evening or possibly a display of members' home built gear. Brian battled hard and long with the buy and sell, but to no avail, and the further the night went on, the greater the number of empty seats grew. The wisest thing I feel is to draw a veil over the sad proceedings, and hope that before the next buy and sell night is held, always assuming that it is intended to hold another one, that Council will take stock of the situation and find a suitable remedy.

Bill 5XB is not exactly in the pink at the moment of writing. It appears that he was about to do a strong man act with a 44 gallon drum off of a truck and never woke up it was empty until both he and the drum bit the dust! Charlie 5ON is another one who has not been too well lately. However, he is a wake-up to the whole situation and will take it easy in the future. You know what they say OM, better to have a few jobs undone than to have no jobs to do. Get the message?

Tom 5AQ heard in QSO with Tom 5TL, "The Voice to you," and believe it or not, on a.m. Tom is one of my mob again, don't know for how long, but I am satisfied with small mercies. He reports that he has a neighbour on the air with the call sign of 5DN, a comparative newcomer to the air.

Had a short contact with Ken 1KM on 7 Mc. the other evening. Sounds like a good bloke to me, even if he does "need" VK5 in his Youth Radio column. He fought shy of using my nickname, and seemed more at home with Warwick, and all I can say in my defence, Ken, is that a rose by any other name would smell as sweet!

Received several letters, and I am fair dinkum, too, on my companion for the Like-New Mixer which was in the May magazine. What cut me to the quick was the fact that I only made the Hints and Kinks column, but the Like-New Mixer made a full page spread. (Unlike his notes, PanSy did not pad the article.—Ed.) That's influence for you, of course I know why my contribution was played down, I don't play kiss-in-the-ring with F.E., nor do I number Presidents, etc., etc., ad nauseum, etc., etc., among my friends. I might have won the award of the year, too. Hints and Kinks gave it no hope.

News from the South East this month tells of the good attendance of members at the monthly meeting despite the cold weather. Among those present were 5CH, 5GJ, 5MS, 5ZER, 5ZLS, 5ZEV, 5ZFA, 5CJ, John Lehmann, and Trevor and Colin Hutchesson.

John Lehmann has passed his L.A.O.C.P. and is awaiting his call sign, whilst Col Hutchesson is still awaiting the results of his last effort. Congratulations to John and here's hoping to Col.

Stuart 5MS, believe it or not, now has two t.v. sets, the result I believe of a visit to Melbourne recently. Visits to VK3, and Melbourne in particular, have been the downfall of many a good man from VK5, but I never thought he would become a victim. I can only add that perhaps it is only a temporary lapse and all will be well soon, but it only goes to show to what lengths VK3 will go to sabotage the efforts of VK5.

Col 5ZEV is a P.M.G. technician stationed at Millicent and at present living at Rendelsham, about 40 miles from Mount Gambier. He provides a steady signal for the boys on 2 mx. Chris 5ZFA hails from Hatherleigh, about five miles north of Rendelsham, and hopes to be on the air soon. Both of these chaps drive the 40 odd miles to the monthly meetings, which I think you will admit is a mighty effort.

Leo 5GJ has his tower completed and it is a mighty construction. If all is to be believed it throws a shadow at times across Claude's (5CH) house. The worst is to come! On top of the tower is a t.v. aerial! Tut-tut. Claude 5CH is becoming more and more active on the bands and is still very pleased with the results of his antenna coupling device.

Received two somewhat unexpected letters this month, one from my Scotch palsy-walsy, Joe ex-5RC, who is on his way home to G-land. He has had a great trip home so far via VR2-KH8, and the letter was written from W6. He was sorry not to make the general meeting to say goodbye to all the gang, but emphasised again that he had greatly appreciated all the many little acts of kindness shown him during his stay in the premier State of VK5. The picture on the postcard was called the "crookedest street in the world" and I am wondering if this was a final dig at me? Anyway Joe, all the best, and hope to hear from you sometime. I can always use a Scotch espionage agent!

The second letter was somewhat mysterious, the envelope was marked M.V. Wanganella and the pages of the letter were marked Hang Fung Line, and the signature was Max 2ARZ, better known in VK5 as "Renew your licence at the General-Post Office Max". His opening remark of "So you nearly lost your licence, see if I care," was typical, although he did go on to say that he would be in ZL for about 7½ weeks and would be mobile on 80 mx and portable on 40 and 20 mx during most of that time. Apparently the letter was intended to create a feeling of envy in my mind, with me trying to keep my nose out of contact with the grindstone, and he living in the lap of luxury in ZL. However, it failed in its purpose, in my well-known modest and shy make-up there is no room for envy, my thoughts are too pure. He closed the letter somewhat cryptically by saying, "My regards to your wife, I think she must have a wonderful nature," and I was foolish enough to show it to her. Her halo, which she has always managed to wear in an upright position, despite my many unsuccessful attempts to scuttle it, is now fixed more firmly than ever and apparently Max, having nearly cost me my Amateur licence, now has designs on my marriage licence. Must have a wonderful nature indeed. Listen Brother, I could tell you a thing or two about her, but I won't, she is looking over my shoulder as I write!

Heard Steve 5ZB portable on 7 Mc. from VK2 the other night and was more than surprised to hear him say that his power was only 3 watts. He was coming in like a local to me and was enjoying himself among the wise men from the East, if all he said could be believed.

Doug 5KCK heard on 7 Mc. the other night and was interested in his remarks regarding his sojourn at Darwin recently, plus his experiences whilst on the air as 5KCK. He is in touch with the local boys whilst away and managed to enjoy the scenery as well. He is about to shift QTH, so thought I would give him a call, but no answer to my signal. Some 20 minutes later my telephone rang and he was on the other end to apologise for not coming back. It appears that when he pressed the button to come back everything blew up. I knew I was dynamite, but that was the first practical demonstration of my potential. Potential, get it—potential, get it—all right forget it! I am only trying to earn that extra nought the Editor gives me every year. Talking of Editors, and who would unless they wanted to keep sweet, have you noticed his somewhat caustic references to me lately? Apparently he does not realise my worth, nor do many others for that matter!

Every now and then, mainly at a general meeting of the Division, up comes a member and with a ring in his voice somewhat resembling the ring that would have been heard in the voice of Columbus when he discovered America, says, "What's wrong with the magazine these days? It consists mainly of reprints of overseas articles, and nothing from the Amateurs in VK." Now it always beats me, why don't they take their momentous discovery a little further to its logical conclusion and discover the reason for this. The remedy lies in their own hands, and when it is put up to them, without fail, they all look shocked and something in the magazine, why I haven't the time! Apparently everybody else has the time, but fail in their duty to these busy people, and should be put up against the wall. Quite frankly, it is no good coming to me and grizzling unless it is a positive grizzle, and strangely enough, those who complain the most have done the least to remedy the situation, although again strangely enough, they always seem to have time to criticise. Get the message?

Met a fellow Amateur today who told me that the reason why he was no longer a member of the W.I.A. was because it was too much trouble for them to send him an account at the beginning of each financial year. I pointed out to him the procedure now in existence, but he quite plainly said if it was too much trouble to send him an account, then it was too much trouble for him to

bother about the Division. Well there you are, it takes all types to make a world, and apparently the old method of sending out an account will have to come back, despite the added expense. What do you think?

Very little news from the Port Pirie Amateur Radio Club due to the fact that Bruce 5ZEG and XYL Pam are on a visit to the wilds of VK3. I warned them of the dangers and pitfalls awaiting them if they did so, but nothing I could say seemed to deter them. Pam is probably spending the huge fee of noughts she received from the Editor (a short pause for three cheers for Ye Old Ed.) for her excellent contribution in the June issue of the magazine, "Upper Sideband—XYL Type." Isn't that just like VK3—pay them with one hand and then lure them over to Melbourne and get them to spend it with the other!

The Youth Club Scheme at Port Pirie is improving with every month and the ages of the lads range from eleven years to sixteen to seventeen years, and the younger they are the keener they seem. Incidentally, one of my spies planted in Council tells me that it is the intention of Council to pay a visit this month to the Elizabeth Park Technical School in which electronics is taught as a separate subject. This visit could have some bearing on the extent to which the Youth Radio Club Scheme in VK2 can be applied in VK5.

Noticed in my recently received copy of "Info," the journal of the Elizabeth Amateur Radio Club, a short paragraph to the effect that owing to the continued confusion between the father-son call signs of Tubby 5NO and Jeff 5NQ, the latter has now had his call changed to 5ZP. I also noticed reference to the fact that Ron 5FY had offered the information that he had been able to renew his licence at the Elizabeth Post Office with the comment that "perhaps the journal would like to mention that in passing." Sound of hollow laughter and shouts of "See you in gaol before long." Wait until you get the follow-up letter, Ron!

Jim 5FO was at the meeting and during a chat with him he told me that he had at last succeeded in paying his licence at the local post office. However, his moment of triumph was somewhat dimmed with the follow-up notice that he received threatening him with cancellation of his licence if he did not hurry up and cough up. It would seem that a goodly majority of the locals have received such a communication recently and for some reason or other want to pin the blame on me! If I care—I will bake you a cake with a file in it! Perhaps.

Darcy 5JR was another welcome visitor at the meeting and is looking as young and debonair as ever he did. Tells me that he is keener than ever on our hobby and since he made his come-back, a few months ago, is getting more than his share of QSOs. Nice to see you again OM. Bruce 5ZEG was another to make himself known at the meeting, and for the few minutes I had with him seemed safe and sound from his trip to VK3. Last I saw of him he was in the middle of the v.h.f. gang and seemed to be holding his own. What did you do with the budding authoress Bruce? Leave her pecking at the typewriter?

I notice in the VK3 notes for last June, tucked away in a corner, and with no names, only call signs, the members of the new Council. I recoiled in horror at the call sign of the fifth member, and can only assume that the names were left out because of the effect of the insult on me. As an ex-VK3 chairman, and I repeat that statement, as an ex-VK3 chairman, I am speechless and can only assume that the general membership are in ignorance of the injury they have thrust upon me, probably the most famous of ex-VK3 chairmen in the history of that Division. What's that? I was never a VK3 chairman. Oh indeed, well just check up in the minutes and you will find that in the same year that I was the VK5 chairman I paid a visit to VK3 and attended a Council meeting, and was asked to sit in the chair whilst the old Council retired and the new Council was appointed. I might say that I held the office, if only briefly, with my characteristic modesty and decorum, and it was only the threat of bringing in the local constabulary—konstabulary—constabulary—well anyway, call in the coppers, that made me vacate the chair. This makes me the only Radio Amateur in VK who has held the joint positions of VK3 and VK5 Divisional chairman. So put that on your bazooka and play it. Bearing all this in mind, is it any wonder that I am cut to the quick with the decision of my old VK3 Division membership in allowing that afore-mentioned fifth member to sneak into the 1983-4 Council. Next to s.s.b., this is the worst blow that I have had since the P.M.G. made me discontinue using loop phone!

More in sorrow than in anger, and quite prepared for the worst in the future—I sign—73 de VK6PS—PanSy to you.

WESTERN AUSTRALIA

Before I go any further, don't forget the R.D. Contest. Tune up that rx, fix that tx, get a little enthusiastic and land in the middle of it. Remember what the day is for, that is, to commemorate the memory of those Hams who paid the supreme sacrifice in world conflict.

I know one bloke who is going to be in the Contest and that's Bill 6DD. Bill is situated at the town of Kalgoorlie. Loud and clear signals from 6KG's site have been heard. Mmm? Well, no, Bill hasn't got two tx's, he works at 6KG and operates 6DD. So as I was saying, loud and clear sigs on 80 have been heard and Bill is expected to do great things during the Contest. Don't suppose you could move 4 or 5 hundred miles east, Bill, for the Contest? You'd still be in W.A. but nice and close, like, to those perishing Eastern Staters.

I believe the Wireless Bird has been busy over recent months and chirpings and burpings have been heard from the QTHs of Wally 6ZAA and Neil 6ZDK who, of recent date, have been presented with a harmonic each. Our best wishes to all and may the better baby wind. Burp! owl! sorry!

Whilst Wireless Birds are not really animals, I believe there was a real fox hunt recently. Yes, the fox was Dennis 6AW and he was holed up in the cliffs of Mosman; real cool, like, man with a little tx of his own, which was putting out a better signal on the Canning side of the river than it was on the Stirling. And do you think this caused some fun! Anyway he was found by Tony 6ZDT and Allyn 6ZDM. Allyn will run the next one shortly and I can't tell you any more about this because if I do and Allyn finds out, he'll slay me, he will, because he wants to put it in the v.h.f. notes and if you want to know any more, you look there. See!

An interesting lecture was presented on the "Linear Accelerator" at a recent meeting. This had been suggested by Mac 6MM at a Council meeting a little while ago. How those poor little electrons get kicked about is terrible to behold. I wonder if W.A. people appreciate how lucky they are to have such a thing and the work which is being done along these lines. You know, x-rays and deep ray treatment and so on. Mmm? Sorry, I got a bit philosophical there, but it sort of makes you think, don't it.

There's one to make you think. How many apples in a barrel of grapes. No, no, that's not it. Ian 6CL has a new diesel plant, see. Now this is rated at 3.6 kw. not 3.6 kva., but kw's (so I've been told). The question is, why is it that the tone of the diesel changes when Ian turns on his tx? I hear you can plug on jugs and kettles, irons and grinders with no effect, and it's only when the rx/tx is over the tx side that this low growling, labouring, puffing, thumping noise issues forth. Very odd. Anyway, good luck Ian, a machine like that must certainly add to the joy of living away from the city. Er! Um! I'm not sure that sounds correct, but all the best.

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My spies down Katanning way are not very active at the moment, but the last time heard, Clarrie 6XG was all points East. I.R.E. Convention, etc. Should be back by the time you read this.

Now don't forget! R.D. Contest, 17th and 18th August. Be in it! 73, 6LS.

TASMANIA

There are many very interesting things to report on this month, but perhaps the two most interesting from the point of view of our hobby are the disappearance from 7 megacycles of most of the intruding commercial stations, and the licensing of Amateurs by Red China. I have only heard the stations with the prefix BY on c.w. and talking only amongst themselves, but even this is a great step forward.

Another piece of exciting news is the acceptance into membership of eight new members at the July Divisional meeting, and four of these new members are full members—Hugh 7DS, Brian 7BP, Bob 7IL and Winston 7ZAP. We extend to you all a hearty welcome, and hope you will all take an active part in Divisional affairs, whether it be administrative, band activity, or merely helping with the multitude of jobs to be undertaken.

The two mx boys will soon be hearing a signal from Edgar 7RY who is about ready to fire-up on that band. May I remind members that we have now lost the 288 Mc. band. Furthermore, the 420 to 450 megacycle band is not to come into operation until 1st January, 1964. Plans are afoot, particularly in the Hobart area, to have transmitters and converters ready for that band.

Our Secretary, Charlie 7KS, had a bout of sickness about the end of June, and so did his rig. I understand there was no connection between the two events. The v.h.f. boys have just about finished a 6 mx converter for use by the 7WI broadcast officer for re-transmitting the v.h.f. news each Sunday morning. It is intended that Terry 7CT will be the first user of this gear, so the three officers will then be equipped to do the re-transmission. Congrats to Den 7DK on having the initiative to re-transmit 7WI on 2 mx in the Launceston area, filling in a gap in our services. We are also delighted to learn of the increasing attendances at the Zone meetings, 22 at the June Northern meeting and 20 at the July Northern-Western meeting.

Remember chaps, the R.D. Contest is in August. We need a good score from you and make sure your logs are also entered well before the due date. We do not mind the QRM, it is a thrill to hear the VK7 stations making such a lot of noise.

Terry 7CT has just terminated, at time of writing, his lectures to the A.O.C.P. class, so they will be sitting for their exams shortly, and we wish them all success. Terry hopes to begin another class next February. The Division is very much beholden to you for your devotion to Amateur Radio, Terry, and publicly thank you for your efforts.

The July meeting took the form of a film evening, with emphasis on space travel and research. The films were well received. The meeting was also delighted to receive a letter from the Director of Civil Defence in Tasmania outlining our part in the future plans of his Department. Your help will be needed. 73, 7ZZ.

NORTH-WEST ZONE

Not a lot of Zone activity to report this month, everyone seems to have been very quiet lately, although it has been whispered that 7DA has been heard on the air! Yours truly has made a few contacts on mobile on 2 mx, mainly with Northern Zone chaps. These boys are keen up there, with several new Z calls now operating. Unfortunately these activities are now denied me due to lack of xtal—and wheels.

Unpredictable conditions seem to exist on all other bands at present, sometimes making the broadcast difficult to receive, even on 80 mx, although according to George 7XL, 40 mx DX with s.s.b. is commonplace.

We were pleased to see several chaps who seldom attend our meetings present last meeting, and to welcome Mr. L. E. Tongs, from Devonport. Athol 7LR arrived complete with a large quantity of goods for auction, this being conducted most capably by Max 7MX. This meeting was most successful, both from a social and financial aspect. It is pleasing to see regular good attendances at meetings, but what we need to look for are ways to make Amateur Radio more interesting and appealing to attract and hold the attention of both new and old members. We need more Radio in our activities, rather than just having a social club, which, excepting July, seems to have been the tendency of late. 73, 7ZBH.

NORTHERN ZONE

I missed out last month on the notes, though nobody's fault but my own, I was too late! I will have to mend my ways.

As far as activity is concerned, this has again been mainly concentrated on v.h.f., the 2 mx band has certainly been very active. There are now 10 active operators working this band and any night can find at least seven of these working. Eric 7ZEC consistently works Hobart from Evandale on sked, much to the envy of others in Launceston, but Bob 7ZRF has been able to hear the Hobart boys the last few nights. Den 7DK has been heard in Poatina, 35 miles away, on his 2 mx mobile, using a quarter wave whip, which shows good promise for mobile activity.

John 7JF has come up with a signal on 144, so now there are two 144 stations at Poatina. Ted 7ZBB successfully passed his c.w. for his full licence, and is waiting on his new call sign, so best of DX to you Ted on the lower bands. Bob 7ZRF has cured his modulator trouble and his signal now sounds terrific, especially with that beam pointed to Poatina. Graham 7ZER is a consistent worker on 2 mx. He can be heard every night and Graham has his sights on working the VK3 boys as soon as the next break-through occurs.

Very pleasing to see all those mobile signals coming on in VK7. Those I have heard in the north and north-west area are: Den 7DK, Peter 7PF, Col 7LZ, John 7JF, Ken 7KH, George 7XL, Syd 7SF, Max 7MX, and we should see several more on shortly. These mobile stations are all potential operators ready to go in an emergency. Now that the ball is rolling with the commencement of a W.I.C. E.N. organisation in Tasmania, this fact may become even more important.

The monthly meeting of the W.I.A. was a very interesting one, some old faces were seen at the meeting—Ray 7RK, Bill 7MC—and it was very pleasing to have them back. The subject of discussion was the revision and amendment of the Zone rules, and this developed into a quite lively discussion at times—in all, an enjoyable meeting. Reg 7RL was present also as a visitor and as Reg is associated with the local A.B.C. television station, we should see quite a lot more of him.

Den 7DK now has permission to re-broadcast the weekly 7WI session on 2 mx and this should be a help for the v.h.f. boys in the north. Arrangements are already in hand for representatives to contact Jack 7JB on Saturday evenings with news for the Sunday broadcast. Jack will record this news report on tape and replay on the broadcast. 73, Johnny Fox.

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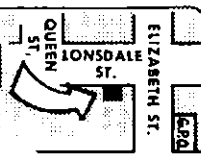
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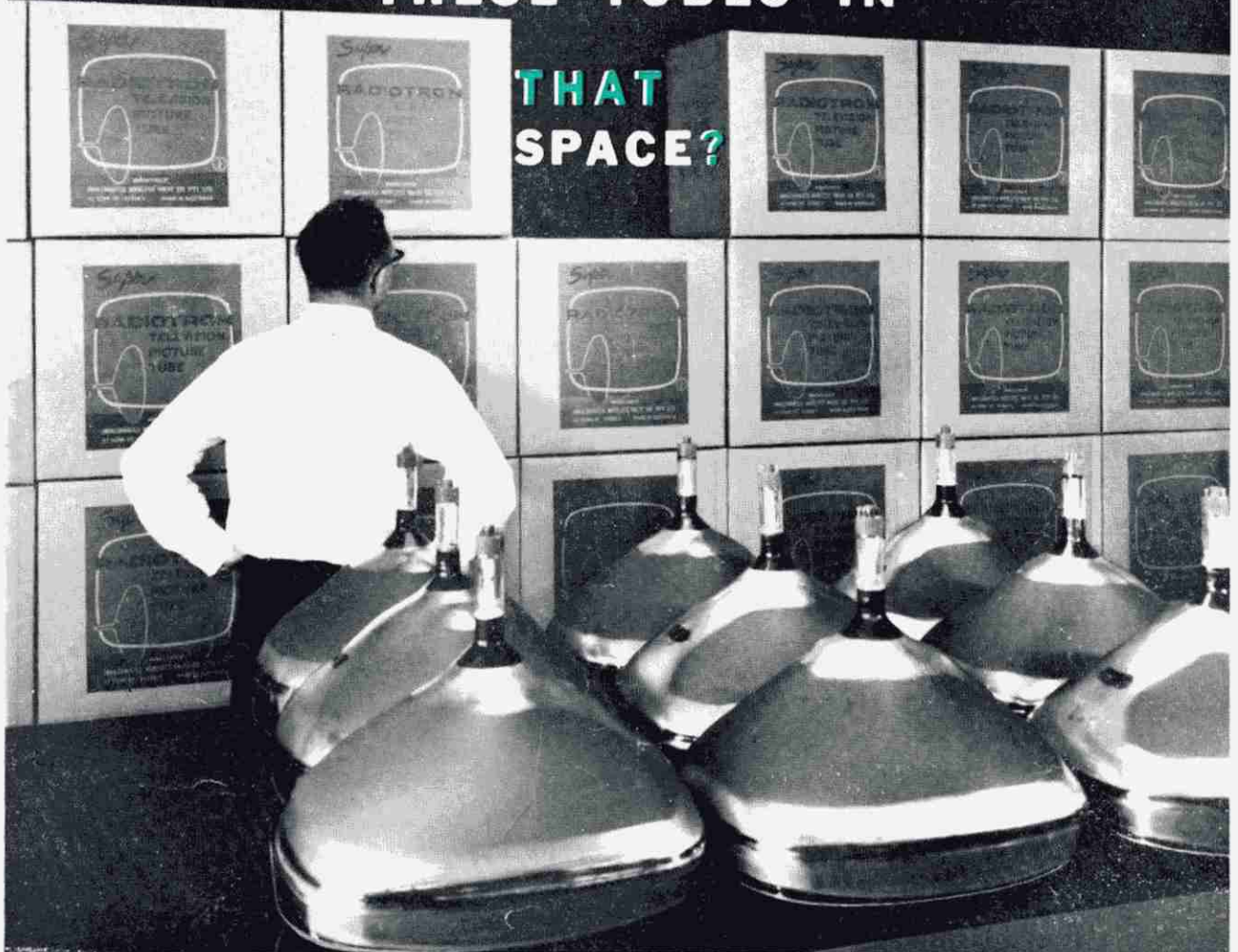


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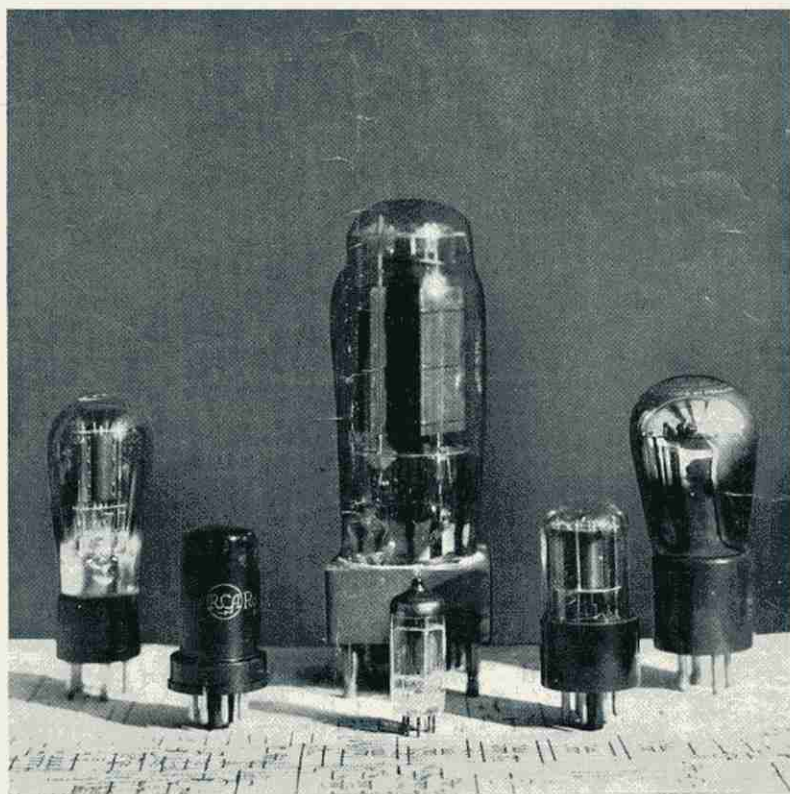
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FT 4672.76	FT 5205	DC 5710	LP 6040	FT 6550	DC 7362.5	DC 8488
FT 4676	DC 5210	FT 5740	FT 6050	FT 6560	FT 7373.3	DC 8525
FT 4695	FT 5237.5		LP 6110	LP 6561	FT 7375	DC 8562.85

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DC 8383.3 = 50.3 Mc.	DC 8010	DC 8017.5	DC 8022
DC 8400 = 50.4 Mc.	DC 8013	DC 8018	DC 8022.5
DC 8416 = 50.5 Mc.	DC 8013.5	DC 8018.5	DC 8023
DC 8450 = 50.7 Mc.	DC 8014	DC 8019	DC 8023.5
DC 8483 = 50.9 Mc.	DC 8014.5	DC 8019.5	DC 8024
DC 8500 = 51 Mc.	DC 8015	DC 8020	DC 8024.5
3.5, 7 Mc. Ham Bands:	DC 8015.5	DC 8020.5	DC 8025
FT Crystals of any frequency, £2.	DC 8016	DC 8021	DC 8025.5
	DC 8016.5	DC 8026	DC 8030.5
			DC 8035
			DC 8035.5

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"AMATEUR RADIO"

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★

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★

OUR COVER

During the past thirty-five years circuit components have been reduced in size and valves are no exception. Our cover shows a typical series of valves used during the past decades, and clearly shows the size reduction; all are of the same type.

FEDERAL COMMENT

★

At the Convention in Sydney earlier this year, the Federal Councillors agreed to put various schemes into operation immediately to raise monies from their members for the purpose of financing the trip of a W.I.A. representative to Geneva for the next International Telecommunication Conference. Each Division was given a subscription target figure based on their proportion of the total Institute membership, the total amount being estimated as about £3500.

Several Divisions have already made appeals to their members for subscriptions—some based on a small fixed amount for two or three years added to their membership dues, while other Divisions have thoughts on raising their quota by direct donations from their members. However, the important point is not so much how the money is raised, but why.

Most members of the W.I.A. have so often heard those familiar words—"to protect your frequencies"—that they have now become meaningless. Nevertheless, this statement is just as valid today as when it was first made. Commercial pressures at future conferences will be heavier than ever before, in addition to the clamour of many new services inaugurated at the last conference.

One might question the need for the Institute to send a delegate overseas but the reasons are many. The most important of these is that he is able to meet and discuss the Institute's problems with other societies' representatives and his very presence at the Conference will impress anyone that the Institute is taking the whole matter very seriously, to the extent of raising sufficient funds to send him and keep him there. For an Institute as numerically small as ours, compared with other overseas societies, this must reflect itself in added prestige. There are other less obvious reasons, all of which taken together, make it imperative for us always to send an Institute delegate to these conferences.

Your Divisional Council will in the near future be asking for your subscription or donation in a manner to be decided by them. Whatever amount is decided will be insignificant when compared with the price of other commodities today and will be a small enough price to pay for the continuance of our privileges. Be sure you subscribe to this fighting fund—be you an Institute member or not—for you may rest assured that any amount will be gratefully received and faithfully applied.

FEDERAL EXECUTIVE, W.I.A.

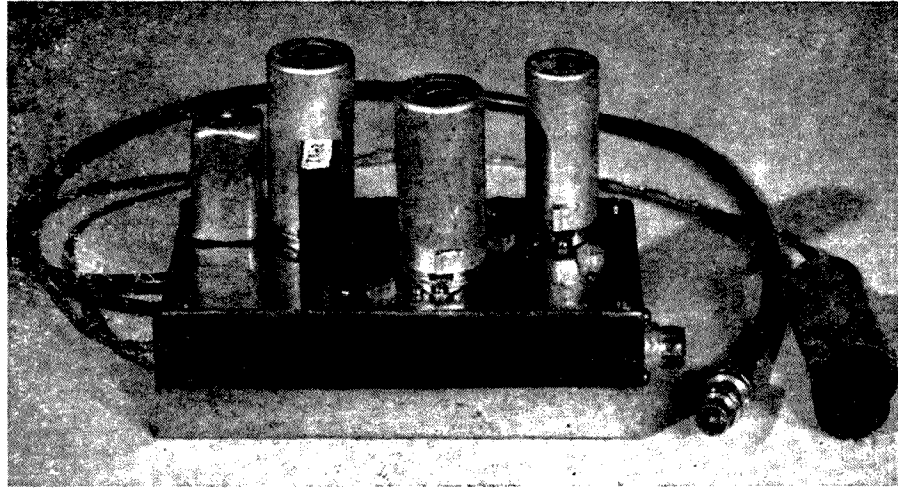
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Double Conversion With No Confusion

J. D. PURDON,* VK4PU

The circuit diagram with this article is of the Mark I. version, whereas the photographs are of the Mark II. version. The author recommends the inclusion of the L.T. R.F. choke visible in the photograph, but not shown in the circuit, as the omission of this component could lead to real strife.—Editor.



Double Conversion Converter.

MOST mobile receiving systems are designed around the use of a high frequency converter working into the standard b.c. car receiver, which serves as a tunable i.f. and audio amplifier. The car receiver is modified in most instances to take a noise limiter and provide power for the converter.

With the 50 megacycle band and image rejection in mind, a double conversion system is preferable and yet, the usual method of employing two crystals becomes sufficiently expensive to deter most of us from taking advantage of it. While on the other hand the one crystal plus one self excited stage, though usable, is not highly desirable for obvious reasons. However, if double conversion and crystal control throughout can be achieved with the use of only one crystal, these objections are no longer valid.

So it was with these thoughts uppermost that the following circuit was developed using a crystal around 7.360 Mc. Almost the first megacycle of six metres can be covered on the broadcast

dial, leaving a little room to spare below the band. Two of these converters have been constructed and are in use at the present time, giving really excellent performance.

Briefly, this is what happens. As shown in Fig. 1, a 6AN7, with its output on the broadcast band, has a crystal oscillating at 7.360 Mc. This frequency is multiplied six times in the triode section of a 6BL8; the product, 44.160 Mc., is mixed in the pentode section of the same tube with the incoming 50 Mc. signals from a 6AG5 r.f. amplifier. Now we do our sums and find that the difference frequency of 50 Mc.

minus 44.160 Mc. equals 5.840 Mc. This 5.840 Mc. signal is fed into the 6AN7 where it mixes with the original crystal frequency 7.360 Mc. Again the difference frequency, 7.360 — 5.840 equals 1,520 Kc., the top end of the b.c. band. The receiver tunes down in frequency to tune up on the 6 metre band.

It is of passing interest only, but perhaps worthy of mention here, that although this crystal frequency was chosen for the 50 Mc. mobile converter in particular, by a happy coincidence it also works out conveniently for the 21 and 28 Mc. bands. 21 Mc., using the fourth harmonic, falls on 1080 to 630

* Hill Street, Woombye, Qld.

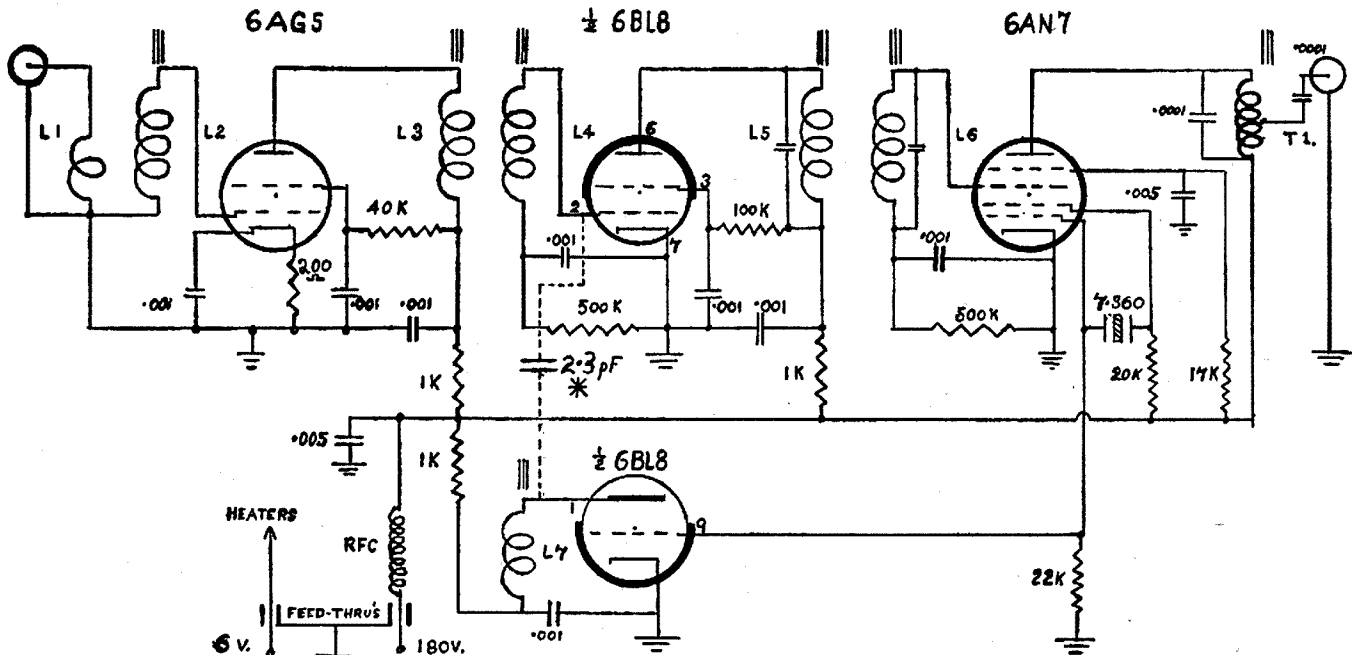


Fig. 1.—Double Conversion Converter. * May not be required.

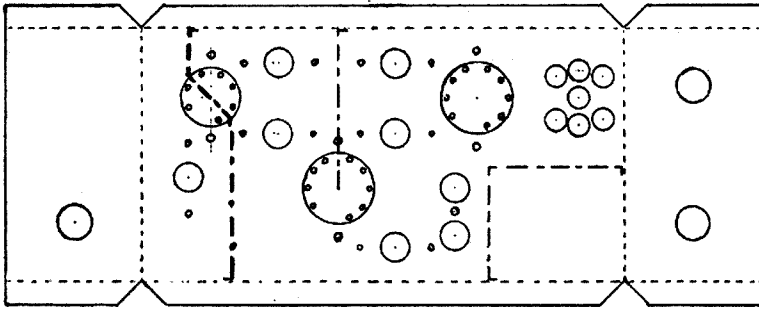


Fig. 2.—Half Scale Template. Dimensions after bending, $5\frac{1}{4} \times 2\frac{3}{4} \times 1\frac{1}{2}$ inches. Bend up along the dotted lines. Shields shown as broken lines.

ALIGNMENT PROCEDURE

Assuming that all coils have been grid-dipped reasonably close, the converter is plugged into the receiver or power source, the valves light up, and that whisp of smoke is only from your cigarette after all!

Make sure the crystal is oscillating, either by listening to it on a nearby receiver or reading the grid current. Then inject a low level 6 Mc. signal into the 6AN7 grid. Peak T1 about the centre of the b.c. band. Move the generator or signal source up to the grid of the first mixer (pin 2, 6BL8) and roughly peak L5 and L6. These can be stagger tuned later. The 6 Mc. signal is removed and a 50 Mc. one lightly coupled in its stead. Peak the core of L7, the multiplier coil.

If everything has gone according to plan thus far, it should be possible to place the base cover on our converter and complete the alignment from above the chassis with the antenna connected. Simply run the signal generator nearby and peak the core of L2, L3 and L4 until you are sure of the signal, then stagger tune L2, L3, L4, L5 and L6 for even response across the band.

That's all there is to it. Three feet of wire clipped to the generator or a crystal oscillator will provide an S9 signal 50 yards away.

In conclusion, I would like to express my gratitude to Don Stoner for having in his excellent Sideband Handbook given me the clue for this unique method of crystal juggling. To VK4VB, who loaned me the Handbook in the first place and is still patiently waiting for my carrier and lower sideband to disappear. To Ken Chiverton for constructing and photographing the streamlined Mark II. model and ably abetting me in the presentation of this article. Last and by no means least, to that stalwart v.h.f. gentleman whose name heads the W.A.S. 50 Mc. list, without whose encouragement, I would never have been game to try. ●

Kc. 28 Mc., using the fifth harmonic, falls on 1440 to 540 Kc.

For those of you who may be reluctant to embark on a project such as this, in view of the impending loss of 50 Mc. to certain victorious commercial interests, take heart! for by simply buying a rock 10 kc. lower, you can still have some of your cake and the 52 Mc. band as well.

As before, the crystal operates in the 6AN7 but at 7.350 Mc. this time, multiplied six times it becomes 44.100 Mc. 52 Mc. — 44.100 Mc. equals 7.900 Mc. Now subtract the crystal frequency from 7.900 Mc. and Q.E.D., 550 Kc. This time, the receiver tunes up in frequency on the b.c. band to tune up to 53 Mc. Naturally the coil dimensions will have to be changed somewhat, but in the case of L2, L3, L4 and L7 this would amount to no more than a turn or two at the most. As for L5 and L6, the modification mentioned later in the article regarding these coils would be most effective.

CONSTRUCTION

The accompanying under-chassis photograph and the half-scale template should make the job easier and no difficulty should be experienced in laying out all the components providing they are the miniature disc ceramics, feed-throughs, and $\frac{1}{4}$ -watt resistors as used here.

The tie points are provided by using feed-through capacitors in some instances, and in others by the collars of the coil formers themselves which incidentally are 6d. 5.5 Mc. video coils somewhat modified.

It may be as well to draw attention at this point to the differences between the prototype and the Mark II. version. The latter, although using essentially the same circuit, was re-arranged for a more compact layout and utilises a 12 volt heater run. It is this version which is shown in the photographs and template diagram.

The coils L5 and L6 were modified by replacing the original turns with pies from miniature i.f. transformers, and omitting the parallel capacitors, thereby broadening the bandpass. However, to avoid confusion, the coil data as used in the original version is listed here, and the constructor may experiment as he thinks fit. Some experiment with the output transformer T1 may be helpful also, in order to get optimum matching into the receiver.

In both Mark I. and Mark II., T1 is an aerial coil from a car radio coil kit and output was taken through a 100

pF. capacitor from a tapping on what is normally the grid coil.

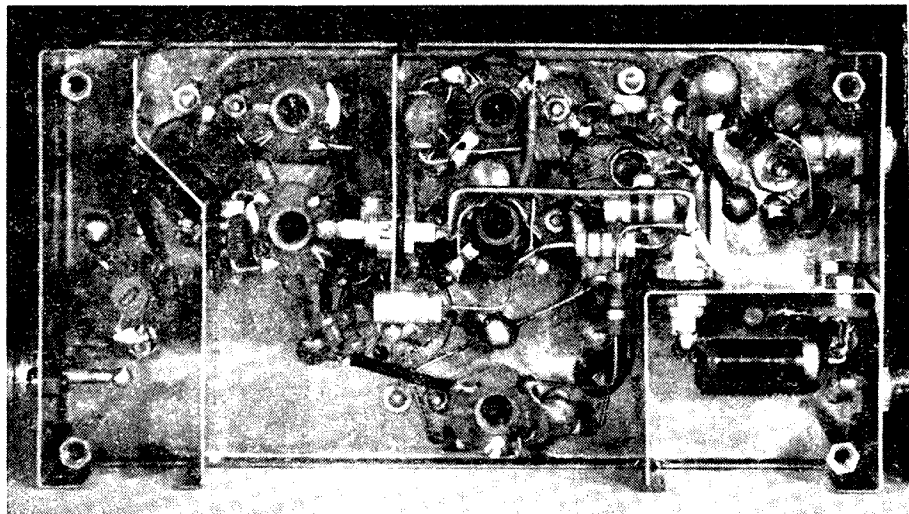
The shield across the r.f. amplifier socket must not be omitted and should extend the full width and depth of the chassis. There are three shields all told, shown on the template as broken lines.

The cable carrying h.t. and l.t. is run in shielded wire, well grounded at both ends and terminated by a suitable plug for attachment to the receiver power supply.

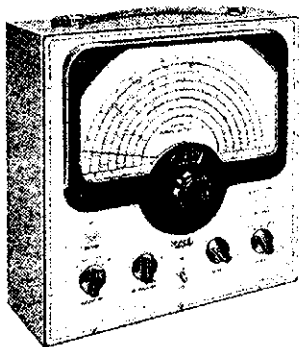
A handy anchorage for both the coax and shielded pair is provided by discarded potentiometer shaft bearings which are first carefully soldered to the braid and then held in place in the chassis by their hexagonal nuts.

COIL DATA

- All r.f. coils are 5.5 Mc. video coils, or $5/16"$ diam., 28 gauge, with slug.
- L1— $2\frac{1}{2}$ turns on the cold end of L2.
- L2—Remove 200 pF. capacitor, leave the slug and 13 turns.
- L3—Remove 200 pF. capacitor, leave the slug and 15 turns.
- L4—Remove 200 pF. capacitor, leave the slug and 13 turns.
- L5—Leave as is.
- L6—Leave as is.
- L7—Remove 200 pF. capacitor, leave slug and 17 turns.
- T1—Miniature aerial coil.
- R.F.C.—50 turns 30 gauge enamel wire close wound on a 1 meg. 1 watt resistor.



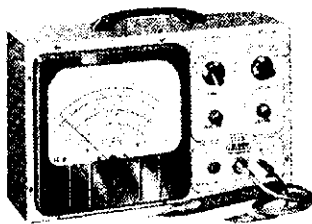
Under-chassis view of Converter.



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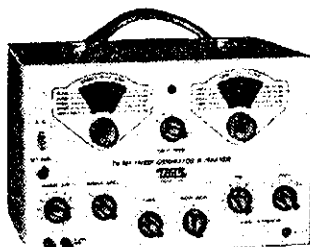
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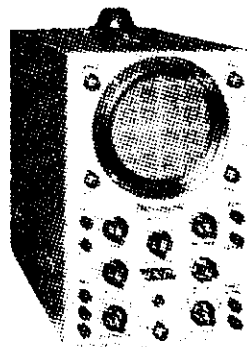
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PYE RADIO-TELEPHONES

With the advent of these units through W.I.A. disposals, Amateurs will no doubt be interested in the details regarding these units. The Publications Committee has a copy of the circuit diagram, but unfortunately it is not suitable for reproduction in these pages. However, arrangements have been made to supply photo copies at a cost of 3/- each to those interested.

Two basic types were produced, namely PTC116 operating between 60 and 100 Mc., and PTC117 operating between 100 and 184 Mc. These models operate from 12 volts d.c. Models for 6 volt operation have the suffix A, e.g. PTC116A. Some models may have the suffix W. These are fitted with wide-band transformers.

The transmitters are amplitude modulated, and using the double button carbon microphone supplied had a frequency response quoted as ± 2 db. from 100 to 3,000 c.p.s.

The valve line-up is xtal oscillator-multiplier, EF91; first multiplier, EL91; second multiplier (used in PTC117 only), L77; power amplifier, ECC91; modulator, EL42; the power output being better than 2.5 watts at 60 Mc., and better than 1 watt at 185 Mc.

The transmitter crystal frequency can be calculated from the following table:—

- PTC116 (60-100 Mc.):
carrier frequency $\div 6$.
- PTC117 (100-120 Mc.):
carrier frequency $\div 8$.
- PTC117 (120-184 Mc.):
carrier frequency $\div 12$.

The receiver is crystal locked and crystal frequency can be calculated as follows:—

- PTC116 (60-80 Mc.):
(carrier freq. + 2.9 Mc.) $\div 7$.
- PTC116 (80-100 Mc.):
(carrier freq. - 2.9 Mc.) $\div 9$.
- PTC117 (100-140 Mc.):
(carrier freq. + 2.9 Mc.) $\div 11$.
- PTC117 (140-184 Mc.):
(carrier freq. - 2.9 Mc.) $\div 17$.

A receiver sensitivity of $2 \mu\text{V}$. for an a.f. output of 50 mW. from a test signal modulated 30% at 400 c.p.s. may be expected. The signal to noise ratio is 8 db. or better for $1 \mu\text{V}$. input signal.

The a.v.c. characteristic is level within ± 3 db. for r.f. inputs between $5 \mu\text{V}$. and 100 mV. Maximum a.f. output is one watt into a three ohm speaker. An impulse type noise limited is fitted.

First i.f. image response of model PTC116 is 75 db. down, and all other spurious responses 80 db. down. For model PTC117 they are 55 and 60 db. respectively. The first i.f. frequency is the crystal plus 2.9 Mc., and the second i.f. frequency 2.9 Mc.

The valve line-up for the receiver uses five EF91s, two EF92s, one each DH77 and EL42.

The r.f. amplifier, crystal oscillator-multiplier, multiplier, first mixer and second i.f. amplifier are EF91s. The second mixer and first i.f. amplifier are EF92s. The DH77 is the detector, a.v.c. and a.f. amplifier. Audio output is provided by the EL42 which is also the modulator tube. The PTC

117 model uses a 6AK5 as the r.f. amplifier instead of an EF91.

The 12 volt models take 3 amps. on receive only, 3.5 amps. on stand-by, and 4 amps. on transmit. Approximately double these currents are drawn by the 6 volt models.

The eight-pin socket on the side of the unit is used to connect a test meter

(Type PTC405A) for alignment purposes. Although the Publication Committee have details of this test meter, it is considered that the average Amateur will be able to align this equipment with instruments already in his possession.

—Written by "A.R." staff from information supplied by I. F. Berwick, VK3ALZ.

Converting Units for 50 Mc. Mobile

Noting the reference in "A.R." May issue, to the possible use of an a.m. net on 53 Mc., the following information is given of previous conversions of these commercial units which will allow a quick conversion to be made with little brain teasing. The diagrams will allow you to quickly identify the components which it will be necessary to alter.

and centre tapped. The aerial link should be replaced by a three-turn link the same diameter and one-third meshed in p.a. coil.

The final should be resonated and the link adjusted for maximum output—approximately $2\frac{1}{2}$ watts. An 8.85 or 13.275 Mc. crystal may be used in the transmitter for 50.31 Mc. operating frequency. Do not forget to check that

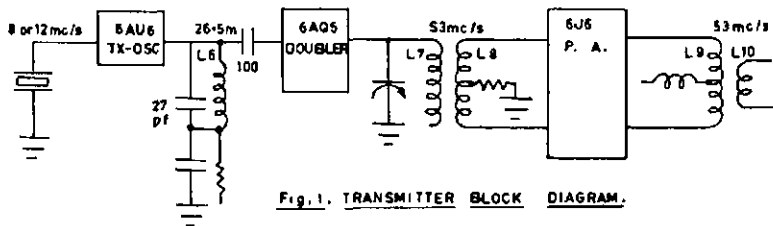


Fig. 1. TRANSMITTER BLOCK DIAGRAM.

THE TRANSMITTER

The slug tuned coil L6, when paralleled with a 27 pF. condenser, will resonate nicely at 26.5 Mc. Remove the 5 pF. mica condenser if there is already one in the circuit and save it for future use. Coil L7 should be removed from the Philips trimmer and replaced with a coil of same diameter and turns as L8. This coil resonates at 50 Mc. Finally replace the 6J6 plate coil (L9) with one wound of 12 gauge tinned copper wire, 11/16" internal diameter

the 6J6 is neutralised and that the transmitter is crystal controlled. Normally the neutralisation will already be set and will not need adjustment.

THE RECEIVER

The receiver is double converted, the fundamental of the crystal is used to control the conversion from the first to second i.f. Originally the eighth harmonic of the crystal was used to achieve the first conversion from the channel frequency to the first i.f.; in

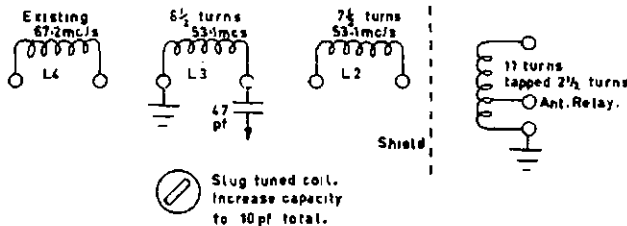


Fig. 2. RECEIVER COIL ALTERATION DATA.

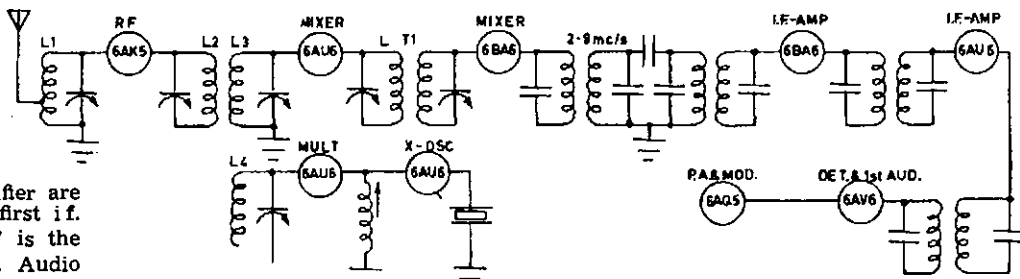


Fig. 3. BLOCK DIAGRAM OF RECEIVER.

our case we use the sixth harmonic. This is achieved as follows:—

Crystal frequency, 11.2 Mc.; sixth harmonic, 67.2 Mc.; receiver frequency, 53.1 Mc.; difference frequency, 14.1 Mc. As the second i.f. of the receiver is 2.9 Mc., the first i.f. equals 2.9 Mc. plus crystal frequency, equals 14.1 Mc., which is the difference frequency achieved in the first conversion, Q.E.D.

To commence to convert the receiver, tune T1 primary and secondary to 14.1 Mc. with the 11.2 Mc. crystal in place. L5 should have a total of 10 pF. placed across it and resonated using a g.d.o. to 33.6 Mc. L4 should resonate to 67.2 Mc. with no change in circuit. L1 will require re-winding to 11 turns, tapped 2½ turns from the earth end, and is to resonate at 53.1 Mc. L3 should be

re-wound with 6½ turns and also resonated at 53.1 Mc. with the 47 pF. coupling condenser attached to the top end of the coil. Finally, re-wind L2 with 7½ turns and resonate to 53.1 Mc. At this stage, if the unit was in working order before starting, a signal at 53.1 Mc. introduced at the aerial terminal, will allow the coils to be peaked, the sensitivity should be better than 2 µV. for 50 mW. output.

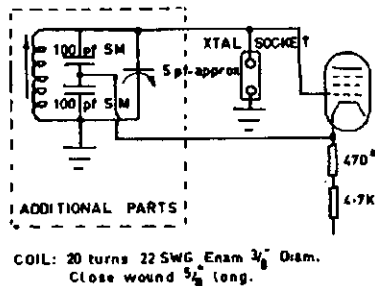


Fig. 4. MODIFICATION FOR TUNEABLE RECEIVER

You will notice that all the trimmers in the r.f. section resonate the circuit with very little capacity. This has been done purposely to keep the circuits reasonably wide-band. If you wish to make your mobile tunable over the range of 53.0-53.2 Mc., put aside for net purposes, this may be easily achieved by the following method. The crystal is removed and replaced by a variable tuned circuit which tunes 11.175 to 11.225 Mc. This will give a receiver frequency range of 52.975 to 53.225 Mc.

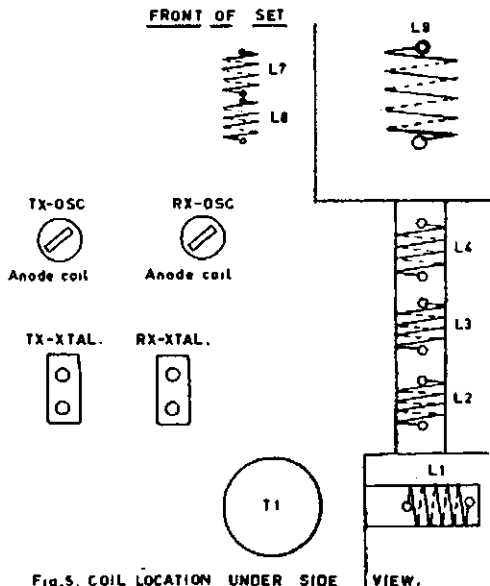


Fig. 5. COIL LOCATION UNDER SIDE VIEW.

Fig. 4 shows the circuit used. The variable capacitor and inductance will require juggling so that it covers the specified frequency (11.175 to 11.225 Mc.). The writer will be pleased to answer any queries enclosing a s.a.e.

—K. Woodward, VK2ZAU.

DO YOU KNOW YOUR "ISTORS"?

The term "transistor" and of course "resistor" are now well known, but a spate of similar terms are now appearing in electronic terminology, particularly in the U.S.A.

(a) CHRONISTOR

A sub-miniature electro-chemical elapsed time indicator. The indicator is a miniature electroplating bath, the size of a glass cartridge fuse. When a d.c. current of about 1 mA. drawn from the equipment being timed, passes through the unit, metal ions are deposited on the cathode which then changes in length with time. A time scale directly calibrated in hours is included.

(b) FERRISTOR

A miniature (8/16 inch cube) two winding, ferrite cored reactor which may be connected as an oscillator, free-running multi-vibrator, input amplifier, gate, time base, or ring counter. They are immune to damage from shock, vibration and accidental overload and are unaffected by humidity or temperature. They are designed to replace valves in high speed magnetic amplifier applications and in counting circuits.

(c) MAGNISTOR

A small saturable reactor for the control of pulses and sine waves from 100 Kc. to 30 Mc. at power levels under 100 watts. It has applications as a gate, switch, counter, register and amplifier.

(d) PERSISTOR

A miniature bi-metallic printed circuit loop operating at temperatures near absolute zero; its operation being based on the superconductivity characteristics of some metals at low temperatures. It has switching and storage applications in computers.

(e) RESISTOR

A circuit component which opposes the flow of current.

(f) SPACISTOR

A four-terminal transistor (base, collector, injector and modulator) utilising a reversed bias "p-n" junction to create a space charge for a very short period of time. It has an input frequency limit of about 10,000 Mc. and an output impedance of about 30 megohms.

(g) STABISTOR

A silicon diode which maintains a constant voltage drop of 0.5 volt in the forward direction.

(h) SURGISTOR

A miniature resistor and relay for insertion in the B plus circuit to limit current until the valve heaters and/or cathode are warmed sufficiently to accept full voltage without damage.

(j) THERMISTOR

A temperature-sensitive resistor with a high negative temperature co-efficient used in temperature compensation, time delay, power measurement and switching applications.

(k) THYRISTOR

A high-current, high-speed (0.0000002 sec.) switching transistor which can also be used as a high frequency amplifier.

(l) TRANSISTOR

A crystal type amplifying device made of a semi-conducting material such as germanium or silicon operating on the principle of electron flow in a solid.

(m) TWISTOR

A memory system developed by Bell Telephone Laboratories based on the fact that the magnetisation direction of wire made of magnetic material changes from lengthwise to helical if the wires are twisted, thus allowing memory matrices to be made without magnetic cores.

(n) VARISTOR

A network of four carefully matched (within 1 mA. at plus or minus 1 volt) diodes for use in bridge circuits or as a balanced modulator for carrier suppression.

—"R.A. Sigs. Journal."

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A TRANSISTORISED S.S.B. RECEIVER

VICTOR J. KITNEY,* VK6VK

FOR some time I had been considering the construction of a new receiver for the shack. The present one was built basically some years ago at Ballarat and has been modified several times as the mood caught me.

With the advent of transistors and some ideas suggested by my associates at work, I decided to take advantage of transistors for my next receiver.

INTRODUCTION

The circuit follows the same general arrangements as the superceded valve job that I was using, i.e. double conversion, half-lattice xtal filters in the second i.f., and it is constructed for s.s.b. use only.

CONSTRUCTION

Throughout the unit common emitter configuration has been used. The r.f., mixer and oscillator stages are built around OC171s and mounted on a small piece of matrix board 5" long by 7 holes wide. The d.c. supply for this board is regulated to -4 volts, using an OAZ203 zener diode, through a divider network.

To allow coil switching for band changing a minimum of tappings are used. This gives an unconventional appearance to the circuit by using capacitive impedance dividing network across the aerial coil. Also the collector coil on the r.f. stage has no collector tap.

The r.f. board is mounted on stand-off pillars under the chassis.

The i.f. and audio sections are assembled on matrix board, 12" long by 9 holes wide, and mounted on stand-off pillars on top of the chassis. The 455 Kc. i.f. section is supplied from -6 volts rail through a dropping resistor from the -9 volts supply. The audio section is operated directly from the -9 volts.

The first i.f. is 2 Mc. In order to obtain satisfactory i.f. gain control without introducing distortion, as was found to occur when varying the base bias, the idea of a carbon pot. across the low impedance link, to the base of the second mixer, was conceived. This allows the r.f. stages to function at full gain at all times. The 2 Mc. i.f. transformer was scramble wound and a link wound against the secondary winding.

The second mixer is a copy of the first and emitter injection is obtained from a xtal oscillator. Considerable time was spent in trying to get the xtal oscillator to work, and it was later discovered that the original xtal tried had very low activity. The present xtal oscillated readily and no feed back condensers were required.

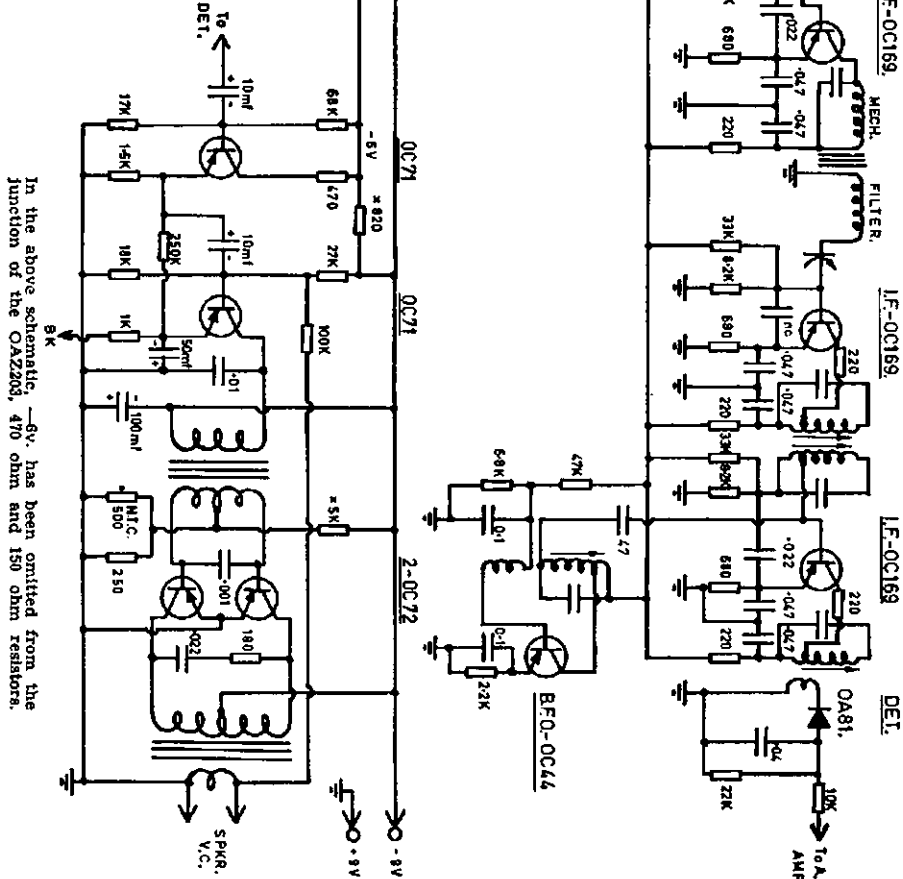
The second i.f. is 455 Kc., and use is made of a Collins mechanical filter to take care of selectivity. Here the circuit follows conventional lines, using double tuned transformers (Phillips CZ.320.483). The gain of the 455 Kc. section is quite high with the particular filter I have.

The collector current is fed through the input winding of the filter. As this is only about 1 mA., it is not considered detrimental to the filter. Note that the output of the filter is series tuned as it is working into a very low impedance at the base of the OC169. The neutralising condenser Cn is determined experimentally to suit the circuit.

The circuit of the b.f.o. is conventional, and operates all the time. The b.f.o. signal is amplified by feeding it into the base of the last i.f. amplifier before the detector. This has worked out satisfactorily, but some pulling of b.f.o. frequency is noticed when aligning the i.f.'s. at this point. (I have since obtained a xtal for the b.f.o. which suits the mechanical filter.)

The diode functions quite satisfactorily as a product detector with arrangements as above. There is a fairly large by-pass condenser on the diode load, but this, together with the 10K resistor, helps to form a decoupling network and pre-

(Continued on Page 11)



In the above schematic, -6v. has been omitted from the junction of the OAZ203, 470 ohm and 150 ohm resistors.

* 3 Sampson Road, Kalamunda, W.A.

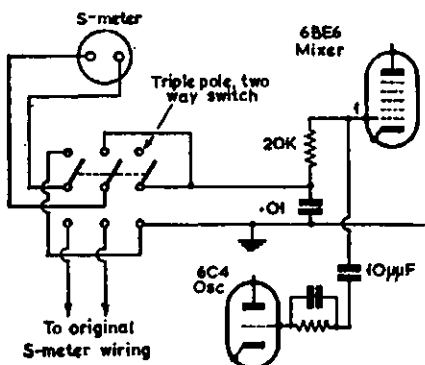
Determining Mixer Current*

FOR BETTER RECEIVER PERFORMANCE

S. E. JANES, G2FWA

VERY few of us can be sure that our receiver mixer stage is functioning for optimum performance. It is customary to inject the oscillator output into the mixer valve by one of several methods, after which one hopes for the best—but there is really no standard of comparison. If the oscillator output is low the result may be poor front-end performance. On the other hand, excessive injection will give a high noise-level and possible unexplained "birdies". In addition, it may also be responsible for t.v.i. caused by the receiver tuning.

The construction of a 21 Mc. bandspread coil for an HRO receiver first raised the problem of knowing what the oscillator output voltage should be and its relation to the positioning of the cathode tap. Then the up-dating of this HRO by means of modern valves brought to light an interesting table which is repeated in each A.R.R.L. Radio Amateur's Handbook; in the 1961 edition, for example, it is on page 95. This shows the recommended operating voltages for several modern mixer valves, with a column giving the various grid currents for optimum performance. This latter point appears to be generally overlooked not only in receiver construction but also in other applications, such as the mixer in s.s.b. transmitters.



Mention should be made concerning the method of bias for the mixer valve. If this is obtained solely by means of a grid resistor, then the injection voltage is not so critical providing it is adequate. It should be made optimum, however, if maximum signal-to-noise ratio is desired. If cathode bias is used the injection voltage is somewhat more critical, while fixed bias on the injection grid makes the whole arrangement quite critical.

The original mixer in the HRO required 45 volts for screen grid injection, but only 10 volts is necessary for the 6BE6 used in the re-valved HRO. This requirement is satisfied by an injector grid current of 0.5 mA. through a 20K resistor. The separate oscillator

valve in this case is a 6C4, in the circuit which has become the accepted standard for modernising the old HRO types.

It was found that the range of HRO coils showed a grid current variation in excess of 5:1. For example, the 14 Mc. bandspread coil produced grid current off the scale of a 1 mA. meter! This was reduced to the correct 0.5 mA. by lowering the cathode tap by one turn in the direction of the grounded end. With some coils, it may be found difficult to re-set the oscillator cathode tap, but any effort will be well rewarded. In particular, the construction of a good 21 Mc. bandspread coil will be facilitated by this check for finding the correct position for the tap.

If it is desired to have a permanent means of checking the mixer operation use may be made of any existing S meter. In the case of an HRO, this is a 1 mA. movement and it seems logical to take advantage of its presence. The diagram shows a method of switching the meter to perform the two functions. This refinement becomes a simple and direct method of reading the mixer grid current, and it is very satisfying to have this check on receiver performance. It must be remembered, however, that d.c. continuity to ground must be maintained for the injector grid of the 6BE6 and the switching as shown satisfies this condition. It is not necessary to close the S meter leads when measuring grid current, as the original switching for this function simply open-circuits the leads to the S meter when not required.



Further Notes on Modifying AR7 for S.s.b.

The author of this article (appeared last issue "A.R.") has sent along the following three points:—

On page 9 (bottom of column 1) maximum dip should of course be minimum dip.

The secondary of IFT1 is balanced to ground as in the original circuit of the AR7. (The condensers are inside the can.)

VK4DA has suggested that by reversing the position of each two-gang condenser, that is by putting the left hand one on the right hand side and vice versa, the tuning control will then count 0 to 500 as the frequency is increased.



YL/XYL AMATEUR CALL SIGNS

How many licensed female-operated Amateur Stations are there in Australia at present—10, 20, 30, 40 or 50?

According to information taken from the current Call Book and associated P.M.G. amendment lists the total is 18, made up of VK1 1, VK2 6, VK3 6, VK4 1, VK6 2, VK7 1, VK9 1. Out of this total at least a dozen have been heard operating on various bands in the past few months.

—BERS105/L3042.

A Sweep Generator for Aligning High Frequency Crystal Filters

It is all pretty straight-forward, except for a couple of small traps—the varicap has an inverse cube law and is rather non linear (!), but if you make sure that when you are using it for measurements that the diode bias is large compared with the sweep voltage, the linearity is all that is to be desired.

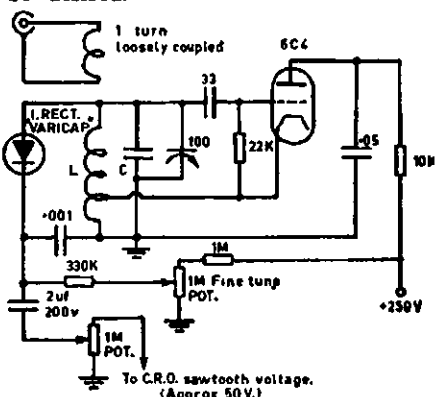


Fig. 1. SWEEP GENERATOR

Operate with the highest bias for best results, and only use the bias control for fine tuning.

Use a low frequency sweep (10-15 c.p.s.), and with the poor high frequency response of the probe (with my c.r.o.) it is quite practicable to use an external calibrated oscillator as a "marker", as shown in Fig. 3.

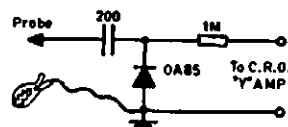


Fig. 2. THE PROBE.

The oscillator can be very loosely coupled to the circuit under test. Loose coupling of the sweep oscillator to the filter (etc.) is most desirable to prevent "pulling" effects, and a kind of variometer link would be a great advantage.



Fig. 3. TYPICAL RESPONSE CURVE.

None of the values I have shown are critical, having been selected by the hmm-let-me-see-this-ought-to-do method.

The only thing to add is that at low sweep frequencies a d.c. oscilloscope is an advantage, as with an a.c. coupled scope, with the display nearly filling the screen, some distortion is occasioned by the a.c. coupling finding a "mean level".

The sweep range of the unit described at around 6 Mc. is from 400 Kc. to 500 c.p.s.

—I. Macmillan, VK3CS.

* Reprinted from "The Short Wave Magazine," February, 1963.

SIDEBAND TOPICS—BUD POUNSETT,* VK2AQJ

DO YOU OFFEND?

No, no, this is not a toothpaste ad, but it is just as important. The question is, do you offend the other Amateurs who are using the same band, or adjacent commercial users by transmitting spurious signals?

It has been noted recently that several Amateurs in the capital cities have poor signals on the 20 metre band. The major complaint being interference to fellow Amateurs who live within a radius of up to five miles or so. This does not mean that country Amateurs do not transmit these illegal signals, very often there is no-one close enough to notice them. It also appears that the condition does not exist for any length of time on the 40 or 80 metre bands. Probably this is explained by the different propagation characteristics of these bands allowing these spurious signals to be heard over greater distances within Australia, resulting in general complaint from near and far.

If your transmitter radiates these totally unnecessary signals, you are the guilty one. Why should you inconvenience your fellow Amateurs? Why should you break the rules by spreading your signal over hundreds of kilocycles when it would be far more effective on the one single channel. You are also bringing sidebanders in general into disrepute and this is serious indeed.

In March 1963 "QST" is a very fine article written by "QST" technical editor, George Grammer, W1DF. If you have had any complaints directed at you, this article will greatly assist you in cleaning up your transmitter. We all like to feel that we are above reproach, we can make sure by following the suggestions in this article, "Checking Signal Quality With the Receiver". I found that an old steam iron with a broken thermostat and a

rather rusted up but serviceable element made an excellent dummy load if fed via an antenna coupler.

Howard L. Morrison, W1ESM, wrote an interesting article in "CQ," March 1963, entitled "Pentagrid Mixers for S.s.b. Exciters". This article has plenty of meat in it and contains some thought provoking ideas. [Our Editor may find space for it in a later issue.] Briefly it describes the advantages to be had by using such tubes as the 6SA7, 6SB7Y, 6BE6, 6BA7.

These tubes were especially made to function as mixers, but Mr. Morrison points out that when these tubes are used in receivers grid one is allowed to draw grid current. The grid-cathode circuit forms a diode circuit which is an efficient harmonic generator. When used in an s.s.b. exciter, this can lead to all manner of signals appearing in the output circuit which unless it has sufficient selectivity will pass these signals along toward the antenna. It is therefore recommended that these tubes not be operated under grid current conditions in the heterodyning oscillator input grid (normally grid No. 1) circuit. The article sets out some sample combinations of signals and harmonics that can create spurious signals quite close to the operating frequency.

Another source of spurious radiations is the choice of intermediate frequencies within the transmitter. Great care must be exercised in choosing these frequencies and their associated oscillator

frequencies, if a departure from a tried and proven design is contemplated.

Yet another source is the transmitter constructed with little or no thought given to shielding one stage from another. You cannot over do this shielding, too much is far safer than too little. You must restrict all the various signals in your sideband transmitter to those paths that the design intends, let them wander from the "straight and narrow" and you are in trouble.

If you find that your transmitter has output on other than the proper channel, do something about it. You will find plenty of people ready to help you, especially those you are keeping off the air. After all, it is your technical reputation that is at stake.

160 METRES—U.S.A.

Here is a brighter note. The F.C.C. in Washington, D.C., issued an order on February 22, making several changes in 160 metre frequencies within the U.S.A. and prohibiting the use of single sideband in this band. The order was scheduled to come into effect on April 15. Loud protests were forthcoming from all over the country and after an investigation into the interference aspect to the Loran service, the F.C.C. amended the order on April 10 to remove the ban on s.s.b. operation in this band. Has anyone heard any DX on s.s.b. on 160?

Spurious Responses in FT243 Crystals

While in the process of aligning a high frequency crystal filter (5.78 Mc.) with the aid of a sweep generator and a c.r.o., mounting frustration drove me to check the response of individual crystals, and found that out of eleven crystals, nine had spurious responses on the high frequency side of the main response, having amplitudes nearly as high as the main response.

Having spoken a terse verse or two, I stripped the crystal holders of both good and bad crystals to see if there was any basic difference, and found a wide variation in holders and mounting plates.

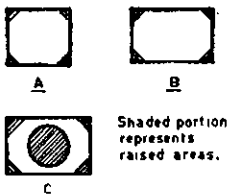


Fig. 1. CRYSTAL HOLDER PLATES.

I found, that apart from differences in pressure spring arrangements, that there was one square crystal, mounted between flat plates, on corner lands (good crystal); one rectangular crystal, mounted on corner lands, but with a

circular cut away in the plates, and a button in the middle (see drawing); this was also free of spurious responses. There were eight rectangular crystals, mounted on corner lands between flat plates (all very bad); and one rectangular crystal with a flat plate with corner lands on one side, and a circular cut-away plate on the other (moderately bad).

An idea springing to mind, I changed one of the bad crystals from a type "B" (see Fig. 1) to a type "C" holder and was rewarded with a clean response. Then I took a good crystal from a type "C" holder, and put it into a type "B" holder, and presto! Spurious responses from here to breakfast!

So, I selected the frequency plates I wanted, and put them in type "C" holders, and no more spurious troubles. So if you are building a high frequency crystal filter, and the pop-ups are driving you mad—have a look at the crystal holders!

As a final note, I might mention that the crystals involved were made by six different manufacturers, so there does not seem to be much doubt that the choice of crystal holding plate holds the key to spurious responses in rectangular plate FT243 crystals.

—I. Macmillan, VK3CS.

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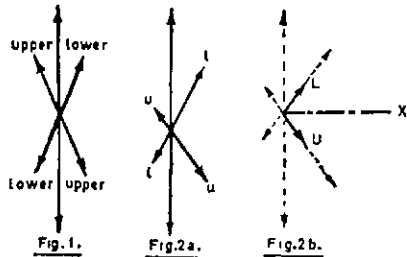
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ANOTHER METHOD OF GENERATING S.S.B.

Basically this method is a phasing system which achieves the necessary audio phase shift by means of a stratagem carried out at a radio frequency.

Consider a normal a.m. signal in antiphase to an identical signal (Fig. 1). Obviously both carrier and sideband frequencies will cancel out. Consider now what will happen if the upper sideband of one signal and the lower sideband of the other signal are attenuated (Fig. 2a). The resultant is shown in Fig. 2b.



A little thought will show that if the resultant sidebands were demodulated with an inserted carrier X, the resultant audio would be in quadrature (at 90°) to the original audio. The question is, is it possible to achieve this result?

Suppose an a.m. signal is generated at 5 Mc. and is fed through an off-tuned

resonant circuit. One set of sidebands will be attenuated more than the other. Forget for the moment the progressive phase shift across the signal spectrum so produced.

Now, suppose we take our original 5 Mc. unmodulated signal, multiply it by, say, 3 to 15 Mc. and feed it to one mixer, and by 5 to 25 Mc., and feed it to another mixer and combine the outputs of the two mixers at 15 Mc., with the lopsided a.m. as a common input (Fig. 3).

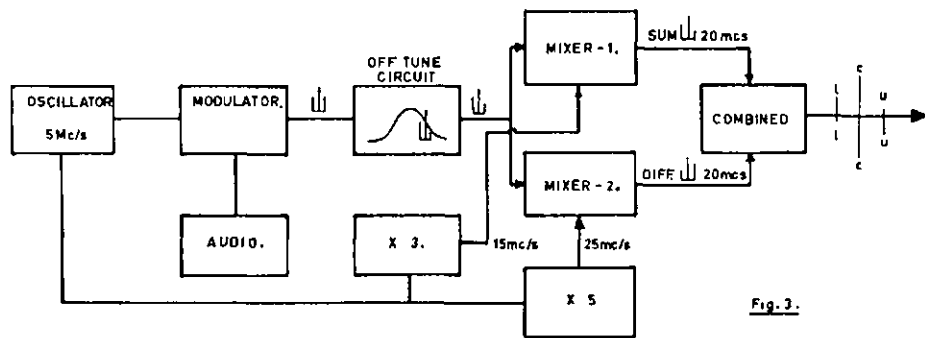
As one of the "local oscillators" is above the output frequency and one below, the resultant 15 Mc. signals have the sidebands exchanged so that, provided that we arrange the 15 Mc. "carriers" (produced from the 5 Mc. input) to be in antiphase, the condition shown in Figs. 2a and 2b will prevail.

As both mixers are fed with the same 5 Mc. signal, and the "spectrum" phase shift produced by the off-tune circuit is assumed to be symmetrical about the carrier, the effect of this will cancel.

All that remains is to mix the resultant d.s.b. output with d.s.b. produced at 15 Mc. (5 Mc. X 3) with the original audio, ensuring that the r.f. phase shift is 90° between the two, adjust the signal levels for cancellation, and we have s.s.b., by (basically) the phasing method.

I have deliberately avoided mention of practical problems in this discussion as this (original I believe) scheme is at present on a purely theoretical level and I feel is worthy of provoking some interesting discussion in Technical Correspondence.

—I. Macmillan, VK3CS.

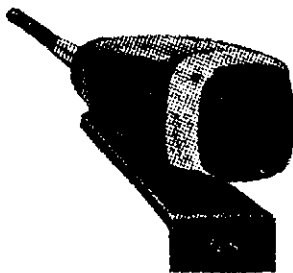


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Book Review

MORE ABOUT LOUDSPEAKERS

First Edition, by G. A. Briggs

Mr. Briggs seems to be as famous for his witty publications as he is for his excellent loudspeakers. To quote Mr. Briggs from his introduction, "This is not a text book." Be that as it may, he has included all the information needed to understand the operation, housing of, and listening to of loudspeakers.

A chapter on the design of cross-over networks is most complete in its coverage, as is the chapter on cabinet design.

We all know of course that sound reproduction is a controversial subject, so Mr. Briggs has included answers to a questionnaire by such famous names as James Moir, Cecil Watts, and Percy Wilson. This makes very interesting reading.

All in all, a book warmly recommended to those who like to explore the paths of high fidelity sound reproduction.

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"CQ" AMATEUR RADIO ANTHOLOGY II.

Edited by Art Seldman, K2BUS

Undoubtedly there are scores of Amateurs who possess a copy of "CQ" Anthology Volume 1, and who also refer to it at frequent intervals. This new edition covers the years 1952 to 1959 and consists, as did volume 1, of the best and most topical articles published in "CQ" magazine during that period.

The material is divided into eleven sections as follows: Improving equipment, v.h.f., s.s.b., surplus, mobile, transmitters and receivers, theory, operating, test equipment, r.t.t.y. and history.

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When the now famous R.S.G.B. Handbook was released it was immediately apparent that this was going to be a best seller.

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A few of the subjects covered are: aerial design, balun design, coax cables, frequencies of FT241 crystals, db. calculations, filter design, inductance charts, maths. tables, pi network tank circuit design, and we could go on and fill the page with subjects alone.

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UNDERSTANDING AMATEUR RADIO

By George Grammer, A.R.R.L.

When George Grammer adds his signature to a publication we can expect to see something special. "Understand-

ing Amateur Radio" is a new type of publication for A.R.R.L. It is designed for the beginner, but where many similar books leave him out on a limb, this one goes all the way. It is in fact a book that any Amateur, new or old, would find of great use. This applies particularly to the Australian Amateur as the transmitting equipment goes up to around the 150 watt mark.

Theory chapters are up to date and written in a most interesting manner. Construction includes h.f. and v.h.f. transmitters and converters.

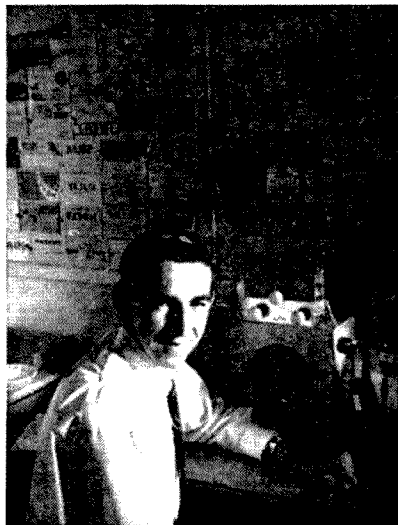
Price of this book is 28/6, which seems excellent value for over 300 pages of concise information. It is published by the American Radio Relay League.

Our copy direct from A.R.R.L.

THE WORLD RADIO T.V. HANDBOOK 1963, 17th Edition

From Denmark comes the 17th edition of this well known publication, and as usual it is packed with information for S.w.l's. and Amateurs alike. Apart from a complete list of short, medium and long wave broadcasting stations, t.v. and f.m. stations, there is comprehensive information on such things as solar activity, aeriels, frequency allocations, short wave conditions, etc. This book is better than ever and definitely recommended.

Copies from The Technical Book and Magazine Co., 295 Swanston St., Melbourne, and direct from the publishers, O. Lund Johansen Ltd. Local price is 31/- plus postage.



Peter Drew, WIA-L6021, an ardent Short Wave Listener.

EX-VR4CV

Alan Viegas, who was very active (mostly on c.w.) for quite a while as VR4CV, is at present living in Victoria. He gave many VKs their first VR4 contact and (he hopes) their first VR4 QSL card. Alan's future movements are obscure at present. He may, or may not, remain in Australia. His equipment is at present in the care of VR4CU. Any reader wishing to contact Alan can do so via the undersigned.

—Eric Trebilcock, VK3 Inwards QSL Manager

A Transistorised S.s.b. Rcvr.

(Continued from Page 7)

vents r.f. from the b.f.o. going into the base of the first audio stage.

The audio stage is very conventional also and no special ideas have been considered here. There is a reasonable amount of negative feedback in the circuit, which helps to reduce distortion. The first audio stage is an emitter follower, and the 250K resistor would normally be an audio volume control, but is wired flat-out in this case.

Power supply for this unit has been taken from the circuit as described in "Amateur Radio" for November 1962. This supplies the -9 volts very conveniently, and is a worthwhile asset where transistors are used.

Break-in operation is taken care of by opening the emitter of the first r.f. and second audio stages as shown in the circuit. These normally return to ground in the receiving position, and are lifted on transmit.

RESULTS

The unit was found to be extremely stable, have good sensitivity, low noise figure, and no cross modulation has been experienced. Though sections may appear to be unconventional, the overall performance is highly satisfactory. A measured sensitivity (at 14.3 Mc.) of better than 18 db. signal to noise ratio for a signal of 1 μ V. across 52 ohms was obtained (compare this with the 75S1). The only protection the r.f. stage has when transmitting is the aerial change-over relay.

CONCLUSIONS

It has been refreshing to take on a project such as this and finish up with such encouraging results. I am now considering the possibility of building the receiver into a transceiver-exciter coming out at 5.1 Mc. This will fit in with the phasing exciter in use at present. I would like to thank the boys at work who did a lot of urging to keep the project moving, otherwise it might still have been uncompleted. ●

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

STATISTICS

In a survey conducted recently, the I.A.R.U. obtained the following interesting facts and figures relating to:—

Number of Amateur Stations
U.S.A. 244,000, Japan 22,000, Great Britain 10,000, Brazil and Canada 9,000, Germany 8,000, Argentina 7,000, Australia 4,000.

Percentage of Amateurs, Society Members
Germany 75%, Great Britain 70%, New Zealand 60%, South Africa 55%, Australia 53%.

Maximum Power Input
1,000 watts—By 17 countries, including U.S.A., Brazil and Argentina.

800 watts—1 country.
750 watts—2 countries, including Canada.
500 watts—4 countries, including Japan.
300 watts—4 countries.
250 watts—3 countries, including Germany.
200 watts—3 countries.
150 watts—10 countries, including Great Britain and Australia.

—BERS195/L3042.

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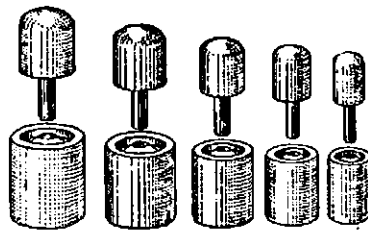
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3/4 inch	27/11	2 inch	46/0
7/8 inch	30/10	2-3/32 inch	72/3
1 inch	36/7	2-1/2 inch	85/9
1-1/8 inch	38/7	11/16 in. Square	55/4
1-1/4 inch	38/7	1 inch Square	55/4
1-3/8 inch	40/6	21/32 x 15/16 in. Rectangular	76/2

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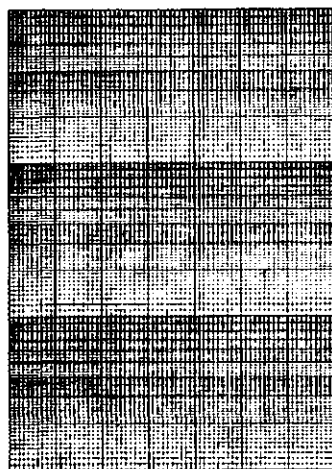
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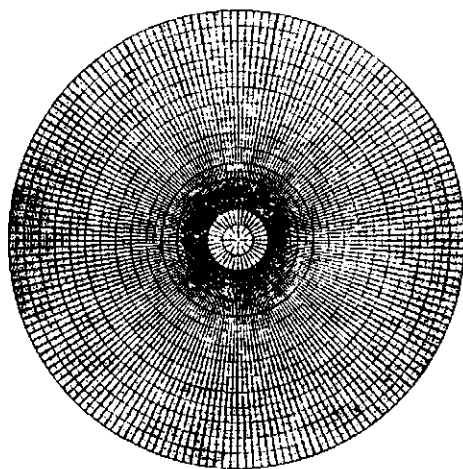
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JAMBOREE-ON-THE-AIR, 19th and 20th October

Federal Council has, in recent issues, urged Amateurs to encourage young people to take up the hobby of Amateur Radio in order to assist the nation in a technological and sociological way and to increase the Institute's membership.

The Boy Scout Jamboree-on-the-Air, is an activity worthy of the support of all Amateurs, and one which introduces a large number of young people of most impressionable age to a fascinating hobby.

Since it began in a small way in 1958, this annual international event has increased in popularity, until today, tens of thousands of Scouts in more than 76 countries are expected to be in the Sixth Jamboree, which is scheduled to begin on 19th October at 1000 hours E.A.S.T., and is to continue for 48 hours.

WHO CAN TAKE PART?

All Amateurs with a past or present association with the Boy Scouts Association, or those with Scout visitors in their shack can participate. Shortwave listeners, too, can help by inviting Scouts to listen to Jamboree activity on their receivers.

HOW YOU CAN HELP

Already many Scout Groups have begun to make their arrangements and while most will be visiting Amateurs, some Amateurs are setting up portable stations in Scout Halls and Camps. If you can help, offer your services to the local Scout Group—you will find them only too willing to accept! If you do not know any Scouts personally, or if you have difficulty in establishing contact, then get in touch with the coordinator for your area, whose name and call sign is given below.

SOME SIMPLE RULES

In case this is the first time that you are taking part, we will repeat a few simple rules governing the event.

1. The Jamboree is not a contest and there are no prizes given. A participation certificate, however, is sent to Scout Groups and Amateurs who send a report to the Branch Organiser.
2. The object is to work other "Scout" stations to give the boys an opportunity to talk to their counterparts and to swap experiences, etc.
3. You may enter the event by calling "CQ-Jamboree" or by answering a station you hear so calling.
4. Any authorised frequency or mode may be used. (Last year many Scouts used 6 and 2 mx which shows that in order to enjoy Jamboree-on-the-Air it is not necessary to work DX.)

BEFORE THE JAMBOREE

If Scouts are to get the most from Jamboree-on-the-Air, some preliminary training should be arranged. Training with a definite object adds realism to the event, and makes it much more interesting to the boy. Here are some suggestions:

Explain Radio Wave propagation to enable them to understand why they can hear a station a thousand miles away, but not one fifty miles distant.

Practice microphone technique using a tape recorder. Many Scouts are rendered speechless when confronted with a microphone for the first time.

Arrange for the Scouts to visit your shack a week or so before the Jamboree, to enable them to become familiar with your station's operation.

Offer your services to instruct the Scouts, say for an hour every two weeks, in the fundamentals of Electricity and Radio.

DURING THE JAMBOREE

Having made a Jamboree contact, give the details of the Scout Group you represent (or better still, let the Scouts in your shack give them).

During the event, ask the Scouts to take turns in recording the contacts in your log. (Be sure you check it.)

Don't introduce more than two or three Scouts at a time. The others can talk to the next contact.

Make sure that they know what to say. Each Scout should introduce himself, and then go on to say something of his town, his troop, patrol name, hobbies, weather, family, etc. Of course, every Scout should not say the same thing.

Help the Scouts to prepare some QSL cards, nothing elaborate, perhaps an original sketch which could be duplicated, or a postcard with a Group nametape, or badge attached, would do admirably.

Finally, send a report on your activities to your State Branch organiser, as soon after the event as you can.

BRANCH ORGANISERS

Information concerning the Sixth Jamboree-on-the-Air (19th and 20th October, 1963) can be obtained from the following Branch Organisers:—

New South Wales:

Brian Anderson (VK4AND),
14 Stuart Street, Longuville.

Victoria:

John Woodburn (VK3AGD),
"Wandobah," Dunkeld.

Queensland:

Noel Lynch (VK4OS),
Boy Scouts Association,
Queensland Branch,
132 Wickham Street, Valley.

South Australia:

Roland Guy,
4 Nanthea Terrace, Unley Park.

Western Australia:

O. J. McCullough,
Boy Scouts Association,
West Australian Branch,
842A Hay Street, Perth.

Tasmania:

D. J. Finlayson,
Boy Scouts Association,
Tasmanian Branch,
107 Murray Street, Hobart.

Papua-New Guinea:

John Gwilliam,
P.O. Box 44,
Konedobu, via Port Moresby, N.G.

FURTHER HELP

Further information and assistance can be obtained from the following Victorian Amateurs who have agreed to assist with co-ordination:—

VK3AHT, Bill Magnusson (State Co-ordinator; phone 314-6760 after 4.30 p.m.).

VK3ARL, Lin Brown; VK3WC, Ewan Cameron; VK3ALP, Jack Cations; VK3ABT, Jim Barber; VK3AUL, Arthur Lock; VK3ZK, Jim Stevens; VK3AKW, Bill Kinsella; VK3TH, Gordon Morrison; VK3AGD, John Woodburn (Branch Organiser).

Some of these stations will be on the air each Thursday evening on 80 metres from 2030 hours for the purpose of helping Amateurs who require assistance or information.

In addition, the State Co-ordinator for Victoria (Bill Magnusson) and the Branch Public Relations Officer for the Jamboree-on-the-Air (Les Marmo) will be on 80 metres on Tuesday evenings from 2030 hours and on 40 metres on Saturday afternoons from 1500 hours from VK3AEF (the station of the 8th Footscray Boy Scouts Amateur Radio Club) to give additional information and to receive publicity reports.

—L. D. Marmo, Public Relations Officer,
Jamboree-on-the-Air (Victoria).

★

Technical Correspondence

OVERTONE FREQUENCY OF CRYSTALS

Editor "A.R.," Dear Sir,

In the June issue of "Amateur Radio," A. S. Mather (VK2JZ) made reference in his article on "Crystal Locked Converters" (page 2) to crystals operating on their 2nd overtone, although he stated that the overtone frequency was approx. three times the fundamental. No reason or authority was given for this statement and I know of no other article, paper, or text book that could support this contention. Such classic texts as "Quartz Crystals for Electrical Circuits" by R. A. Heising and "Quartz Vibrators" by P. Vigoureux and C. F. Booth refer to 3rd, 5th, 7th, etc., overtone operation, i.e. only odd order overtones exist for AT or BT cut crystal plates oscillating in the thickness shear mode. Only AT or BT cut plates can be used in an FT243 holder and therefore I believe the statement in the article to be incorrect.

It is of interest to note that second overtone operation is encountered with some cuts of crystal, i.e. the overtone frequency is approx. twice that of the fundamental. The popular FT241 series of crystals in the range 300-500 Kc. employ CT cut plates that oscillate in a face shear mode and are capable of producing even order overtones, i.e. 2nd, 4th, 6th, etc. DT cut plates, commonly used at 100 Kc., are another type that can produce even-order overtones. Such operation, however, would not be encountered very often, if at all, in Amateur Radio work.

—David Rankin, VK3QV.

This month I would like to give you a short preview on a publication which all listeners to short wave radio should have. "World Radio Television Handbook," which is published each year, contains a wealth of information on the radio stations of the world, as well as a complete list of stations, addresses and a host of other information. This booklet is the only one that has complete and exact information for broadcasting and television. The 1963 edition has been completely revised and brought up to date. It contains a quantity of practical information about all radio and television stations of the world. Whether you only listen on the Ham bands or not, you will find this publication a worthwhile edition to your library.

VICTORIA

Records, records, yes that's right, we had a record attendance of 30 members at our July meeting, which is most encouraging. Much discussion took place on several matters during the evening. We have been considering the possibility of publishing a monthly or bi-monthly newsletter. Of course this depends on whether enough members are interested in this venture. Our Council representative will be at the Council meeting to put our proposals to them. But remember, even if enough members indicate they are interested in this project, we need your support in supplying news.

Our general president, Maurie, gave a short talk on s.s.b. reception, which was of much interest to all. Our constructions, which are held on the second Friday of each month, continue to be of much interest to members. We are looking forward to having as our guests at a future meeting the boys of the 8th Footscray Boy Scouts.

Our president (Maurie) will be acting as the QSL Officer for the VK3 S.w.l. Group. Maurie will hand out the cards at the meetings, but if unable to attend or you live in the country, cards will only be sent to you providing you supply Maurie with a stamp addressed envelope. I suggest that when sending down any envelopes, that you send down a slightly larger one than is used for the average sized letters. But do not send reports to Maurie if you wish to send your cards via the Bureau.

Talking of QSLs reminds me that recently Eric L3042 received a card for a report that was sent out 17 years ago. Your scribe recently had the pleasure of a visit from Michael and his YL Denise. And it looks as though Mike will have plenty of competition from Denise, as she is a very keen DXer on the bands.

Greg L3138 reports having received the following QSLs this month: G14RY, PJ5CG, YJ-1JB, VK9LA and VK0JM. At the moment Greg is considering erecting a two element beam for 50 Mc. Neil L3104 has been very busy constructing a tunable i.f. for his modified 2 "R. & H." 50 Mc. converter. Ron L3076 has at last got his 144 Mc. converter going to his satisfaction. Ron has a very nice v.h.f. set-up at Brighton. On 144 Mc. his r.f. catcher is an 11 element Yagi and on 50 Mc. he has a 2 element Quad. Ian L3065 had the misfortune to be involved in a motor accident earlier this year, and apart from the damage caused to his car, his tx was wrecked.

NEW SOUTH WALES

There is an upward trend in the VK2 Group. Increased attendances at the monthly meetings has been most noticeable of late, but they would like to see even greater numbers come along. With increased numbers at the monthly meetings they can organise better for future events such as lectures, etc. You also have the opportunity of meeting your fellow member and discussing s.w.l. problems with him.

Members living in the country and those who cannot attend meetings are invited to send their suggestions or general business to the Hon. Sec. of the S.w.l. Group, Tom Harding, C/o. Wireless Institute Centre, 14 Atchison St., Crows Nest. All items for publication in "Amateur Radio" should be sent to Chas. Abernathy, 30 Urunga Pde., Miranda.

Chas. has been receiving a number of QSLs of late, such as DJ2MG, VS6EW, VS6FA, HK3RQ, HK7JF, HP1JC, CP5EI, and KG6AOK. And here is a prize scoop, a QSL from Project Oscar. Chas. has been rewarded for his con-

sistent loggings of Project Oscar which, you might recall, was the Amateur Radio satellite which had a tx on 145 Mc. and sent out hi on c.w.

Now we would like to know if Chas. is the one lucky person in the S.w.l. Groups that has obtained this rare QSL card?

WESTERN AUSTRALIA

Our stalwart from the Sandgroper land, Peter L6021, has once again been in the thick of things. For the month he received the following QSLs: W3ECR, W2CWX, K4CH, W7HWQ, K7LJA, SL6BH, SP3AMZ, OE2JRL, HL9HK, ZS6FA, JA3EBJ, UD6BE, 5R8AA, VR30, SL5CX, VR1L/VB1, KG8NAA, UO5OA. Well that's not a bad list for the month old boy. After some months of contemplating,

Peter has at last decided to build the pre-amp. that was described in the August '62 issue of "R. & H." However he doubts if it will be ready for the R.D. Contest.

DX LADDER

	Countries	Zns.	S.s.b.	W	
	Conf.	Hrd.	Conf.	Hrd.	
E. Trebilcock	282	289	40	—	50
D. Grantley	113	259	38	20	104
A. Westcott	93	159	31	9	107
M. Hilliard	79	230	33	28	159
M. Cox	72	229	29	39	150
P. Drew	66	199	27	29	131
C. Abernathy	56	96	30	—	14
I. Thomas	42	139	20	16	97
G. Earl	18	114	11	6	88
D. Coggin	10	92	7	3	60

YOUTH RADIO CLUBS

Softly, softly this month in regard to the region nearly west of me. That Adelaide expert in multiplication (the bloke who gave me a nice P.S. last month) gave out the inside dope in his notes—I hope you're right, PS. Anyway, nothing but best wishes to any Divisional Council that backs Youth Radio Clubs, last in or not. It hasn't happened yet, but here's hoping.

Hint for Club Leaders: This is a don't-let-it-happen-to-you story. Here at Lyneham High, there was a small fire in the roof of the school burning out about an 8 x 4 ft. piece of ceiling in a corridor near our radio room. It was caused by a electrical fault around a ceiling light fixture and later this was officially confirmed. However, there was a strong move early in the proceedings to blame the boys in the Radio Club because our station VK1LS was near (20 feet away!) and we had put an antenna up nearby.

There are plenty of older people around who are only too ready to blame young people for anything that happens. In our case, we had right and a Headmaster on our side, but the moral for club leaders is plain. Follow regulations strictly in regard to electrical power outlets and wiring—in general, be like Caesar's wife or some nasty type will pounce on you with great relish. Especially take all possible precautions for the safety of the boys in your care.

Doug Williamson, who gives his time to looking after Elementary Certificates in VK2, gladdened this correspondent's heart by writing me some news. Some recent passes are: 1 honour (J. Dawson 98), 1 credit, and 1 pass from Downsland College, (Toowoomba, Qld.); 1 credit from Seton High; 2 credits and 1 pass from Patricia Brothers Inter. High at Liverpool, and 5 passes from Lyneham High. Booragul, Seton and Inverell High have Certificates waiting on practical tests. Doug himself (at Bass Hill) has some keen boys who have built an 807 amplifier and a 2-valve s.w. set, but time is the main problem as with the rest of us. Doug began by just offering

to look after the boys, but has developed an interest in Amateur Radio. He hopes to get A.O.C.P. soon and then his AT5, TR1935, Class C Wavemeter, G.D.O. and C.R.O. will do service. I'm looking forward to a QSO, Doug.

Ralph Satchell (Homebush Boys' High), who looks after Inter. Certificates in VK2, also writes. He agrees with a suggestion that simplified sheets of information—one sheet on one simple job—should be prepared, a few by each of us concerned, on a planned basis. This would avoid duplication of effort. More of this later. Ralph has about 15 first and second year boys very interested.

Ken Matchett (VK3 Supervisor) sends me his excellent Newsletter No. 2. He suggests some reference books including "Radio for Boys" (Bradley the author, in the Junior Teach Yourself series) and "Understanding Radio" by Welch and Eby (published by McGraw-Hill). Personally I strongly favour an excellent teaching book, "Elements of Radio" by Marcus and Marcus, which is well suited to medium standard boys and certainly not beneath those instructors not yet doing A.O.C.P. Ken has been invited by the Boy Scouts' Association to discuss the matter of Y.R.C. Certificates being used for Scout badges. Clubs listed in VK3 are Ringwood Tech., St. Anne's (Sale), 8th Footscray Boy Scout Group, Geelong E. Tech., Horsham High, Collingwood Tech., Warrnambool Tech., Blackburn High, and Scotch College. I seem to remember also VK-3AYL at C. of E. Girls' Grammar and VK-ANL at Morwell High School.

How's your publicity going, you club leaders? Here in Canberra we had a few shots of our club station in a recent "Four Corners" programme on A.B.C. television. Then we had a half-page with photos in "Canberra Times." You are all news, you know—and the more publicity you get for the boys (make sure it's for the boys and not yourself, as a matter of proper public relations), the more help you are likely to get. And how about some news for me, too? 73, Ken 1KM.

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The best way to commence this month's notes is to mention that our near neighbour, New Zealand, has agreed to introduce Technician class licences beginning late in September. They will be licenced to operate from 144 Mc. upwards and have the same limitations as our Z calls. Call signs will be the usual district prefix, ZL1, etc., and followed by letters from the block TAA-TZZ, i.e. ZLITAA, etc.

This is indeed very good news for v.h.f. operators in ZL as it will give a boost to v.h.f. operation both in ZL and in VK. There are already groups and individual Amateurs who will be concentrating on spanning the Tasman as often as conditions permit. We wish them all the best of DX.

Further news from ZL does not paint a bright future for Melbourne and Brisbane 52 Mc. operation when Channel 0 commences operation. Apparently in ZL, adjacent to ZL Channel 1 areas, 6 mx operation is very poor. Whether the blame can be placed on t.v. or t.v.-v. (viewing) cannot be ascertained. Construction of Channel 0 commences here in August, so it won't be long before transmissions commence.

This winter has certainly seen a decline in v.h.f. activity all round Australia. We trust that equipment construction and modifications have been the order of the day and look forward to hearing many more signals during the coming months. With the Ross Hull Contest in the offering in December, may we take the opportunity of suggesting that everyone swapping numbers, enter into the spirit of the Contest and forward a log. Only this way can it be made a success.

During October the annual Scout Jamboree-on-the-Air takes place. Much work goes into this venture and it is requested that all v.h.f. operators offer their services to those organising this effort. 2 and 6 mx provides a fine opportunity for cross-town contacts without QRM. Listen to your local Sunday Broadcasts for further information. That's all for this month from 3ZGP.

NEW SOUTH WALES

John 2ANF is an avid exponent of f.m. and recently, due to his efforts, plus the Bulletin staff, a pamphlet has been produced giving detailed information on an outrigger f.m. discriminator, also a diode modulator for n.b.f.m. Seems to be catching on in a big way, judging by the number I have to slope detect; have to build that unit, John. Steve 2ZSK is running around 80-90w, to a 6/40 and, coupled with a good location, he has a very potent signal on 2 mx. Bruce 2ZOT, who has been missing lately from the 146 f.m. net, has re-appeared, and being heard regularly to and from work in company with 2ZOW, 2ZSE, 2ZBL, 2ZMR, 2ZPB, with quite a few casuals dropping in from time to time, including 2ANF, 2ZAH, 2ZBJ, 2ZEV and an average of 2 or 3 new faces appears each week. Len 2ZSL will shortly be joining the fray, and we hope to link up the Sydney and Gosford base stations in the next few weeks. Les 2ZBJ is now the proud poppa of a seven pound girl; mother Sadie and father both doing well.

The night fox hunt was organised by Paul 2ZPJ, and I must admit it was a beauty. About ten cars were present at the start (Silverwater Park) and after a little delay, we got off to a "Le Mans" start at 2015 hrs. David 2ZVW and ye olde Dave 2AWZ took off first place. Supper consisted of about three gross of buttered buns, a mile of snags, and enough tea to drown in. Very good night, Paul.

Thanks to Mac 2ZMO, we have some news from the Hunter district: Sydney doesn't have a monopoly on all the hibernating Hams apparently, as the fellows at Cessnock have been laid low by either YLs or t.v. One way or the other, it keeps 2ZCV, 2KF and 2AIY pretty quiet. A few souls still brave the unbearable winter weather to come up for a rag chew, usually on Monday nights, and the list comprises such infamous types as 2ZMO, 2AYL, 2AYF, 2ZSG, 2ZKW, 2ZWM, 2CN, 2XT, 2XCT, 2RJ—probably all ex Bondi Icebergs.

Some new faces have appeared on the band in the Hunter area, one of whom is 2ZMK, serving a term in the R.A.A.F. at Williamtown, and whose home QTH is Newcastle. Also 2GF has been heard on the v.h.f. bands several times, but no details as yet. Len 2ZFB will also be making an appearance shortly.

A report was given to the Newcastle newspaper that the female Russian cosmonaut was heard operating on the Amateur 2 mx band and caused quite a stir, until it was found that the sigs had been heard on the old channel 5, apparently part of a regular news broadcast on the local t.v. Bet that put a twinkle in someone's eye!

Kevin 2ZKW at Maitland will probably have his new 80 ft. tower up as this goes to press, topped off with 10 elements for 2 and 6 elements for 6. Gordon 2ZSG reckons he'll throw a party to commemorate his first Sydney contact, and now that he has a new six element up, maybe we can start to expect an invitation any day. John 2ZJG has just moved into a salubrious new shack. That's the lot from Mac, except to mention that he is now on 6 with a vengeance and is hoping to have a lash at some DX soon.

September's lecture is by Les 2ZBJ on the design of fully transistorised 2 mx tx's and rx's, his assistant for the night being yours truly. 73, Terry, 2ZBL.

VICTORIA

The 63/64 Field Day series will commence in October and be a competitive series. On the third Sunday of each month "hundreds" of Amateurs will head towards the near (and distant) hills to set up their portable (!!) equipment before 11 a.m. to work fabulous distances on 50, 144, 576, 3,000 and 10,000 Mc. This will take place on Oct. 20, Nov. 17, Dec. 15, Jan. 19, Feb. will coincide with the National Field Day and cover the same rules and hours, and the last on March 15. They will stay on these same very exposed, sometimes wind or rain swept, positions until 5 p.m., hoping to work that rare and elusive DX. Will you join them or if you can't, participate from home. They will be looking for the country stations and interstate stations whom we hope will be particularly active that day.

Being competitive, the following scoring details apply: fixed to portable stations, 1 point per mile; portable to portable stations, 2 points per mile, with a multiplier of 2 for contacts on bands between 300-3,000 Mc. and 4 for stations operating above 3,000 Mc. All this plus a 5-point bonus awarded to the stations working the longest distance on each band. This will be decided by the management committee.

Scores should be forwarded to the publicity officers (3ZBZ or 3ZNJ) by the Saturday following to be recognised for the series—no logs, just scores. Your three best scores will be counted towards the final judging.

Basic rules will apply—no connection to private or public mains—portable generators (alternators) okay. You must be more than 1 mile from the home QTH. Distances in miles must be agreed upon during the contact. Suggestions for a suitable map will be made later. Crossband operation is not permitted for scoring. Group stations are permitted but the group should register those who are to operate during the series so that credit can always be given to the group.

Well, here are the basic details. We will be awaiting for spectacular results with all the mobile and portable gear around. Remember it's not much good having field days unless we use them. 3ZGP.

QUEENSLAND

The cold weather has apparently chased everyone to bed and at times it is difficult to raise a contact on 6 mx. Roy 3ZOM/W was in Brisbane on his way up to North Queensland and worked several of the local stations. He will be returning soon, so he may have an opportunity of working the rest of the active Amateurs here.

Allan 4ZLM has purchased a beam and should be radiating from it as soon as his school exams are completed. A new call on 6 mx is Bob 4ZRC. He is using 20w, to a pair of 2E26s and a super regen. rx. His freq. is 50.6 Mc. so tune up that end of the band.

On Sunday an intrastate contest was held by the W.I.A. and there is little doubt that if there were more stations on the v.h.f. bands, we could have won the contest on 6 mx. Within two hours everyone had worked all the stations and about 12 points was the maximum scored. Don't forget to enter your log as it may make the judges decide to have a v.h.f. section to the contest next year.

4ZBD has managed to acquire a car radio with s.w. coverage and has resurrected his mobile now that he has something to feed his converter into.

At last 2 mx is gaining popularity and at 8.30 each night one can be sure of a contact on this band. The tx hunt was held as usual with three cars taking part. 4ZEP and 4ZDF hid the tx on the city side of Mt. Gravatt. A 3 element beam was used instead of the usual aerial, and because of this, it was not possible to obtain a bearing at the starting point and the cars all went in different directions. First car on the site carried 4ZRH, 4ZCV and 4ZBT. It took them 20 minutes to locate the tx. After much waiting (70 minutes later) our champions 4ZAX and 4ZEK finally arrived. Two hours after starting time 4ZAA and 4ZAL arrived with a tale of how they searched another mountain near by. All enjoyed tea and biscuits as we yarned late into the night. 73, 4ZDF.

SOUTH AUSTRALIA

50 Mc.: Probably the most important news on this band (and indeed on 144) is the fact that the beacon tx is now back on the air. The beacon was closed down in May pending further arrangements regarding its location. During the time it was off the air a 144 Mc. section was added, and a special call sign obtained for the beacon (previously it had been using the call of the licensee who was controlling it).

As this is read the beacon will have been back on the air about two weeks. It is still located at the site of ADS7 on Mt. Lofty and transmits keyed c.w. on 50.5 and 144.5 Mc. continuously. The call sign is VK5VF and 30w. input is used on both bands to a QRE03/20 on 50 Mc. and a QQE06/40 on the higher band. Antennae are a turnstile and stacked turnstiles respectively. Many thanks to the chaps who so generously supplied parts and time, in particular to Clem 5GL for the two crystals.

Operators in the country areas are asked to listen for these transmissions and to call like mad when they are stronger than usual. New mobiles on 50 Mc. are Bob 5ZEQ and Barry 5ZLV.

144 Mc.: Peter 5ZKA is on 146.8 Mc. using a hotted up SCR522 and a 3 element beam. Peter is located at Reynella (10 miles south of Adelaide) and like Cro 5ZKC previously held a PA0 call. At Mt. Gambler Dale 5ZER finally has that 110 ft. tower up and the 2 mx beam is 115 ft. up! Chaps in western VK3 had best listen for this one, as well as for our beacon! John Lehmann is now licenced, 5ZHL; congrats, John.

For the Labour Day week-end (Oct. 12, 13 and 14) the Mt. Gambler chaps have big deals brewing. All manner of portable gear will be taken to Mt. Edward and they will then proceed to work all and sundry on 6 and 2 mx.

John 5ZDD has purchased a caravan and is going to put all his gear in this, and many mobile/portable jaunts are planned. A telescopic mast is included in this most novel and commendable set-up. Alf 5LA and Bob 5ZFG have a comprehensive article on our beacon in the melting pot.

General: On July 8 a meeting of the V.h.f. Group was held and it was decided that future meetings were to be held on a Friday evening. The next meeting will be held on Sept. 6. Friday evening was chosen because it was felt that some of the country chaps could get down for the meeting and not have to worry about work the next day. John 5ZDD kindly offered the use of a room and the Sept. meeting will be held at John's residence.

Geoff 5ZCQ has been elected as the V.h.f. Group's rep. on Council. Geoff replaces Gilbert 5GX who held this position for some time. Members thank Gilbert for the work he has done on their behalf.

New member of the V.h.f. Group is 5ZIS, welcome Trevor. Activity on 420 Mc. is flagging slightly, it will no doubt pick up in the latter stages of the year. 73, Al 5ZCR.

WESTERN AUSTRALIA

July Meetings: The normal monthly meeting was followed by the annual general meeting this month. 30 members attended. Two new members were admitted, they were Ray 6WU and Donald Bench. During the normal meeting

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VHF NOTES

(Continued from Page 15)

reports were received on the new beacons, the July field day and the July fox hunt.

Beacons: The 50 Mc. beacon is operating again with the F. Steyer fitted. The nominal test frequency is 50.06340 Mc. and the key down frequency is 50.062780 Mc. It has been decided to make the final tube in the new 50 and 144 Mc. beacons a 632A in preference to the proposed 615s. This would enable a power increase in the future by substituting a higher powered tube in the same socket. Provision will be provided to enable a.m. modulation if it is required.

V.h.f. Field Day: Twelve locations were manned by the Group for this Field Day and at some locations the boys pooled equipment, and a very enjoyable day was had by all. Six home stations were heard but only 6ZCX sent in a log, claiming 608 pts. Of the Field Day logs received, 6ZDT and 6ZCI claimed 1868½ pts., but owing to a misunderstanding of the rules this score may be disallowed. Other scores were 6ZDW 1520 pts., 6ZDO 1400 pts., 6MM 1275 pts. and 6ZAG 877 pts.

July Fox Hunt: Alyn 6ZDM, with the help of Peter 6ZBA, ran the fox hunt. It was a two-stage hunt with the transmitting frequencies 50 Kc. apart. Nine cars participated and a tie resulted, 6ZDW and his group were first at site No. 1 and second at site No. 2. 6ZDT was second at site No. 1 and first at site No. 2. Supper was partaken at Alyn's QTH and thanks were expressed to his XYL Betty.

Annual General Meeting: The election of officers and an amendment to the constitution were the major items of this meeting. The constitution amendment was handled first as it affected the election. The alteration was required to enable the office of vice-president to be created and also to provide the machinery whereby a member of the Council may be empowered by other Council members to chair the meeting with full powers in the absence of the patron, president and vice-president.

The officers elected were: Patron, Mr. Frank Dawson; president, Dennis 6AW; vice-pres, Graham 6ZDB; council members: Don 6HK, Charles 6LK, Wally 6ZAA; sec./treas., Rod 6ZDS; press cor., Graham 6ZDB; records sec., Charles 6LK.

50 Mc.: Peter 6ZBA is building a rig using push-pull 607s. He has a converter constructed and with a 5 el. yagi up about 50 ft., should be a power on this band soon. Ian 6CL at Milling is running tests and skeds to Perth every Sunday after the news broadcast. Three stations worked him on 21/7/63 on 50.17 Mc.

144 Mc.: Graham 6ZDB has built a tx and rx xtal locked, using f.m. for this band. Doug 6ZDW has a tx built and tests are being conducted as the basis of the VK6 carphone net. The rx has a xtal converter feeding into a 5.5 Mc. i.f. strip so that standard t.v. components may be employed if necessary.

420 Mc.: There are three converters going on this band and more under construction. I believe quite a few of the boys are planning triplers from 144 Mc. QQE03/20s seem to be the bottle most sought after. As techniques at this frequency are a complete change from v.h.f. on 50 and 144, some interesting results should be observed and a lot of our local boys will be relearning and revising some of their theories.

General: Tom 6ZCP is now 6DP and Bill 6ZDC is now 6DD. I believe 6MM was at Kalgoorlie staying with Bill 6DD and on conclusion of a contact with another Amateur they were called the Disney group. Maybe some day we will have Pluto on the band. Remember chaps, this v.h.f. column is only as good as the news we get to print, feed me and we will cut-out VK5 yet. 73, Alyn 6ZDM.

TASMANIA

The July meeting had a roll up of an even dozen and there was so much business and so many controversial points raised that Wilf 7ZAQ did not have time to deliver his lecture. It will therefore be held next month. The discussion included t.v.i., Jamboree-on-the-Air v.h.f. link and the Youth Radio Scheme. A lengthy discussion was also held on the subject of disposal.

50 Mc. DX at last! But only in very minute quantities. On 6/7/63 Wilf was successful in working two or three of the VK5 boys and heard a couple of VK2s and VK4s. During the past couple of weeks, a few weak s.b. signals from VK2 have been heard by Dave 7ZAI, but to date I have not heard of anyone else working or hearing DX. Not a great deal of activity during the cold winter months here in Tassie, so I guess a few openings may have been missed.

144 Mc.: John 7ZJG is a newcomer to this band and is heard on most week-ends and some

times during the week. No 2 mx rig at this QTH yet, so I had to go to Hobart with the mobile to work him. Winston (ex 7ZAP and 2ZWH) now 7ZAF again, is quite active on this band and has his comprehensive mobile rig working very well. Not much news of activity from up north, but some leaks through via Eric 7ZEC at Evendale. Eric works through to Hobart with 6/9 sigs over a path of 90 miles and keeps us informed of the doings up there. 73, 7ZAV.

PAFUA

50 Mc.: Several weak JA signals were heard on 7th July from 1500 to 1800 hrs. and again the same day around 1920 hours E.A.S.T. peaking at around 52. On the 8th, two weak unidentified signals heard at 1925 bearing E.N.E.; the accent sounded American but signals were not strong enough for any positive identification. The freq. was approx. 50.3 Mc. JA was again heard weakly at 2025 on 21st July and also the Asiatic f.m. station on the low end of 49 Mc. heard at S3 from 2040-2105 hrs. this night. No other DX was recorded during July. The usual ionosscatter 49 Mc. stations were heard on 7th, 8th, 9th, 11th, and 21st July.

144 Mc.: No activity during the month and no signals heard.

By the time this appears in print your scribe will be enjoying the cold weather of VK2-land, however anticipates returning to Port Moresby at the end of November just in time for the summer DX season. 73, Roy 9AU.

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Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

"HISTORICAL GLEANINGS—1914"

Editor "A.R.," Dear Sir,
The section in August "A.R." entitled "Historical Gleanings—1914" has been read with interest and will inspire nostalgic memories from many old timers.

I would, however, like to make a slight correction to the paragraph regarding the contact with S.S. "Ophir" in 1901. This was actually the work of my father, H. W. (Walter) Jenvey, who was then Chief Electrical Engineer to the Victorian Post Office. He was, at the time, operating his own experimental wireless station at Red Bluff, near Elwood, call sign RB, and was requested by the Victorian Government to establish the station at Queenscliff for the purpose of transmitting a welcoming message to the then Duke of York. As it transpired, S.S. "Ophir" did not carry wireless but H.M.S. "St. George," the escorting cruiser, was fitted and two-way communication with Queenscliff and later Red Bluff was carried out up to 30 miles. This is, so far as is known, the first recorded occasion of wireless communication between shore and ship from Australia.

It may be of interest to know that the tape recordings of both sides of much of this historic communication are preserved in the Melbourne Public Library. Coherers were, of course, used and these operated a Morse inker for the benefit of those who could not read by sound. I trust that the above details will be of interest.

—W. W. (Bill) Jenvey, VK2ZQ.

RE "YOUTH RADIO SCHEME"

Editor "A.R.," Dear Sir,
Try as I may I cannot convince myself that the Institute's work in attempting to establish Radio Clubs in Schools, is, from the student's point of view, a good thing.

The low birth rate of the depression years, together with the post-war boom, resulted in a big demand for labour until the early 1950s when the trend was reversed. Since then the position has shown only slight improvement.

The point of this is that whilst one could get by with a rudimentary education at one time, that time is now past.

The education of kids today is very important, and in years to come will assume critical importance. I believe that almost nothing, and certainly not a hobby, should be allowed to interfere with a child's education.

Now, some headmasters report that Radio Club members show good (and in some cases, improved) results in studies, however I feel that you and I (as Hams) are in a better position to judge the effect of Amateur Radio

on a child's education because we (or I anyway) have been observing it for years with great interest.

In all too many cases the results are detrimental (especially at tertiary level).

Radio is not a hobby like stamp collecting or bird-watching, it is a science with challenging and absorbing practical aspects.

Kids see it as this and with the zeal and curiosity characteristic of youth (and what a pity it is wasted on youth) they go for it.

It's no good (usually) trying to explain to them that they won't be able to make a living out of it.

You can't convince youth that its effort should be directed towards qualifications that will give it a worthwhile job in life (well, usually you can't, in some cases the kids have sufficient wisdom to see what's really important).

I have seen this happen time and time again, the child often completes his education successfully, but in many cases he does not and in practically all cases there is at least some detrimental effect.

Now I'm only speaking from my own observations and I am not advocating that the Institute drops the scheme, as I am sure it won't.

But if someone can demonstrate to me that the pursuit of Ham Radio can, in the majority of cases, benefit a child's education, then please do so.

Let any soul misinterpret my motives, let it be borne in mind that I have spent large quantities of time and petrol, for no financial reward, in the instruction of youth (most of whom had left school) and am directly responsible for a number of chaps being licenced. That last paragraph was distasteful to write (as it probably was to read) but sure as I do not include it someone will say I'm just plain lazy.

—Al Rechner, VK5ZCR.

★

A THOUGHT FOR THE SHACK

"Now it's on? . . . is it off? . . . I can't remember which. I think it's off!
His tombstone says:
He should have used the switch."

(Ack. ZS5 "Banana Blad.") —BERS195/L3042.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK6RU	2	264	VK5WL	14	211
VK6MK	43	282	VK3ATN	28	204
VK5AB	45	275	VK4HR	12	192
VK3AHO	51	269	VK4RW	23	188
VK4FJ	21	254	VK3JZ	61	185
VK6KW	4	211	VK3GB	50	183

New Member:
VK5GG 63 100

C.W.

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3KB	10	312	VK2AGH	71	241
VK3CX	26	296	VK3RP	58	229
VK4FJ	29	281	VK3FH	15	226
VK2QL	5	279	VK3BZ	6	222
VK3NC	19	266	VK5RX	23	220
VK6RU	18	242	VK3YD	27	220

Amendments:

VK3KB	75	214	VK3RJ	42	202
VK3ARX	66	212	VK3JF	70	189
			VK4RW	47	187

OPEN

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK2ACX	6	300	VK3HG	3	289
VK6RU	6	292	VK3NC	77	289
VK4FJ	32	290	VK3JA	43	252
VK6MK	74	284	VK4HR	7	233
VK2AGH	63	274	VK3BZ	4	231
VK3AHO	78	272	VK3WL	45	225

Amendments:

VK4RU	52	210	VK5GG	90	106
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Reports to hand show that conditions overall this month have been poor with hardly any bright periods. This is the typical July pattern and it will quite likely be well into August before the bands improve.

NOTES AND NEWS

CR5SP, Sao Thome Is., is audible on 21 Mc. a.m. QTH late afternoons.
GC3IFB will be operating from Alderney Is. from late August onwards.

5T5TA reported QRV 14130 s.s.b., 1900z.
ZM7AD has been heard regularly from the Island of Tokelau, 4100, 0700z.

9AI: DJ0IR expects to be on from San Marino during August and Sept. Call will be 9A1AR or 9A0IRA. No other info. to hand.

KW8AI, 14295 s.s.b. Tuesday and Wednesday between 1200/1700z.

ZL4JF: John, from Campbell Is., is reported active on 3.5 s.s.b.

VS9PSU is located on Perim Is. He uses 21 Mc. a.m., no time info.

VK9NT is in Rabaul. 14125 s.s.b. daily, 1200z.

3A2CL/MM is now cruising the Mediterranean. He will be operating soon from Athos Pen. He has applied for a distinct prefix (as in the case of HV1CN) and hopes to be counted as separate DXCC. (One very optimistic man, hi—Al.)

VR6TC is said to be active intermittently on 14100 on c.w., working any caller. QSL via WATAJ.

VP8GQ is reported now to be staying for another nine months. 7 and 14 c.w., also 80 when conditions possible.

VP2AV, who is ex G3CYC, on 14038 Friday and Saturday, 2145z.

VP2MM will be Mary K8ONV, who is going on vacation and will try and work from Anguilla.

FK8 is said to be the next stop for Ted Henry and family after FUBAF.

CO2BB, EA8BW 2330z, HIYCAF 0130z, KV4CI 2245z, UH8AE 0010z, KC4USV 0800z, FUBAG 0800z, and KS4AX 0900z are but a few good ones on 7 Mc.

JA1BRK plans to operate JA1BRK/T from Torushima Is. about 500 miles off the coast of Japan. He hopes to commence activities about 10th August and continue through into Sept. Freqs., 14005 and 14125.

PY1BCR/0 is on Trlnadade Is., 14028 Kc. Not a good note.

W4BPD, Gus at the time of writing is in AC5. His next stop is AC4. The journey will be undertaken by mule and pack horse I'm told. W4ECI, QSL manager for Gus, says that a batch of QSLs have been sent to Graham VK2AGH, so if you think you've missed out give Graham a call. Gus intends to be in Australia in October and it is planned to go to Lord Howe Island and Willis, etc., before returning to Southern Asia where he will use up some more rare prefixes before returning home. That's how it's planned now anyway, but of course there's many a slip 'twixt the cup, etc.

KG6ID, Parece Vela or Douglas Reef, went off OK. He's on now as JT1CA. A.R.R.L. says this is not a new one; it counts the same as Iwo Jima.

EA1FL/0 is on Annabon Is. and counts for EA0—no info.

AC5PN: Rumour says a Hallicrafters SR-150 has been sent to him. No other details.

Liberia: According to the R.S.G.B. Bulletin, all EL stations are temporarily shut down and their gear removed. No further info.

Indonesia: Official A.R.R.L. Bulletin No. 898 says: "Deletions to DXCC, effective May 1, 1963, are JZ0 and all PKs (Java, Sumatra, Neth. Borneo and Celebes). New country of Indonesia is hereby added including all territories listed above for contacts after May 1, 1963. Credit will be accepted starting Sept. 1, 1963."

VS1LP: Bob is now in Sumatra and may any day be on as WG0IA/PK. He is awaiting F.C.C. approval, but has the PK approval. This is legal, as long as he does not sign a PK call, and F.C.C. approves it. (Remember W3ZA/3W8?)

V55CW is intermittent on 14 Mc., but according to reports, he is not a good QSLer.

FMTWQ operates on 14125 s.s.b. on either Saturday or Sunday. If you want a sked, call WA0PM on 14260 kc., five minutes before sked time of 2000z.

Algeria: 7X2VX is on 14340-50 from 2100-2200z.

ZD3A is active on 14055-60 around 2000z.

Salpan: KP6SA is in the U.S. Coast Guard station in Kagapan, as reported by K2GGC/KG8. St. Helena can be heard on s.s.b. from August 7 until December 30, operated by G3PEU as ZD7BW.

The following are by courtesy of G2BVN: Three known cases of piracy come to be listed—VP2AC, saying QSL via K0BPO; EA0FL, who is apparently located in Spain; and PM1XX, worked by some U.S. stations.

For those looking for contacts with the North West Territories, G2TS recommends VE3BFC/V8B, active on 14098 kc. c.w. and 14125 kc. s.s.b. daily, between 1200 and 1700z.

CE0AC on Easter Island was heard recently in the London area by G3YF at 0200 on 14 Mc. c.w.

From China, BY9SX, BY1PK and BY1CK have all been heard on 14 Mc. c.w., working the Communist bloc countries. Also QRV on this band is UA1KED in Franz Josef Land.

Recently heard on 14 Mc. c.w., W4KKA/V59 is located in the Maldives Is.

G8KS reports that part of the VP2SY log transcript is missing, but that the situation will be remedied as soon as possible. S.a.s.e. or I.R.C. please, when requesting cards.

5N2JO has recently acquired a Viceroy tx and is very active on the low end of the 14 Mc. band, using s.s.b.

TU2AU is now active on 14 Mc. s.s.b., his home call being W8HMI. QSLs should go to R. F. Smith, C/o. U.S. Embassy, Abidjan, Ivory Coast.

Anybody missing a card from VS9OC should write to: 1933811 S.A.C. Rackstraw, J. G., Twynham Eleven, Royal Air Force, Masirah, B.F.P.O. 69, via London. He has all the logs up to date. VS9OC should be on s.s.b. in the near future, which will be another new country on this mode.

W9NLJ/VE1 will operate from Prince Edward Island during the period Sept. 24-30, on 3.5, 7 and 14 Mc. Particularly useful for ops. looking for P.E.I. QSOs for the W.A.V.E. Certificate.

If any VK/ZL stations are missing a card from ZD3P or GB3RAF, please contact G2BVN, R. F. Stevens, 51 Pettits Land, Romford, Essex, England. He has the logs and will be happy to oblige.

There have been several enquiries regarding the simultaneous use of the prefixes M1 and 9A1 by two stations operating from San Marino. How this state of affairs occurred is not known, but both these prefixes have been officially allocated to San Marino by the I.T.U. and presumably either may be used at the discretion of the licensing authorities.

ACTIVITIES

Ken VK3TL reports conditions as atrocious, but landed the following: 14 Mc. c.w.: HB1X, VE0MC, LZ1KPP, VE1VI, ZB1CR, TG9MO, UM8KAA, FUBAG, EA1BC, VK9BH (Nauru), Y07DZ, VK9LA (Cocos), JT1CA, KH6EDY (Kure Is.). Best QSLs read: 601WF, HK4EF, GC8KS (Jersey), HM4AQ, GW5TW, ZS4MG, KG6SX (Salpan).

Eric BERS195 never fails to send in a good list. 3.5 Mc. c.w. hrd.: VR2EH (1045z), VR2EL (1215z), W6XQJ, K7BUC/7, W7JLU. 7 Mc. c.w. hrd.: BVIUSG (1945z), BY1PK, BY9SX, CR-8AC (1300z), DU8TY, HM1BE, HM4AQ, KG-6NAA, KL7AZN, KR6NAE, KZ5CU, KZ5FC, VE3AVV, VK8UX, VK9BH, VQ4IV (2000z), VS1LU (1215z), 4XD4H, 4X4HS, 9M2DQ. 14 Mc. c.w. hrd.: KR6BG, KR6BY, KR6EU, KR-6FP, VK6BH, VK9BH, VR2EH. Rarest QSLs rec'd.: FW8DW (7 Mc.), HK3RQ, KC8BD, KG-6NAA, UD6AT, UD8BE, UD6BL, UH8NA, U1-8LB, UO5ZB, UQ2GK, VR2DI, WZKQT (3.5 Mc.), YV1GE, 9M2FT, VK0JM, VK2EW/M, JAIMHL/MM.

Yours truly, VK4SS, 7 Mc. c.w.: FUBAG, VK9BH (Nauru), YV4AU, HK4DP, T12PZ, HP1IE, VE1ZZ, KS4AX (Swan Is.), KC4USV. And for what's it's worth, DXCC 261, WPX 407, Awards 54.

Peter L8021 heard the following: 15 mx a.m.: DU1, G2-5, JA3-4-6-7-8, VS1LX, W5, W6, Z-7JR; c.w.: W6, 20 mx a.m.: VK0BE, VK0DM, W4-6, ZETJR, ZL1-3, 4SYTL; s.s.b.: G3, KZ5LC, PJ3AQ, VE7, VK9LA, VK9NT, W1-4-5-6-7-9-0, YV5BQE, ZL1, ZS5-6; c.w.: VK9RG, VS9MB, W5-6-7-0, ZE8JJ, ZSSVO, 5Y1A/MM. 40 mx a.m.: DUICE, DU1RS, DU9AL, DU9FB, DU9PC, DU9PET, W6VSS; s.s.b.: VE6-7, VK9BH, KL-

7BJW, W1-6-0, ZL2-3; c.w.: DJ3-4, DM2-3, DU6-8, EA8BW, G-8, G10FT, HA0KDA, JA1-3-4-6-7-8-0, KH6EO, KR6NG, OE2FU, OH2EDB, OH9QB, OK2KUB, EY7MP, SM4CHM, SP4KL, SP5AHZ, SP9LV, UA1-3-0, UBS, UL7, UQ2, UR2HY, VE1-2-3, YU1-W1-0, YQ4-7, YU3BGH, ZE1BF, ZE3JO, ZS6BK, 4S7EC, 9M2CF, 80 mx a.m.: ZL1-3; s.s.b.: VE2AGW, W4VCA/KH6, ZK1BS, ZL1-4; c.w.: WA6IVM, ZL1-2-3. Cards rec'd.: W3ECR, SP3AMZ, W2CWL, K7LJA, D-1FK, W7HWQ, SL6BH, OE2JRL, HL9KH, VS-6FA, JA3EBJ, VR30, SL5ZL, KG6NAA, K4CH, 9M2FZ, SL5CX, VR3L/VR1, 5R8AA, UO5OA, JA3DAZ, UD6BE.

ADDRESSES

EX-VR4CV—C/o. BERS195, 340 Gillies St., Thornbury, Vic.
HK3RQ—A.F.D.O. Aereo 4468, Bogota, Colombia—Sth. America.
KG6NAA—U.S. Naval Air Stn., Agana, Guam.
9M2FT—Box 102, Taipng, Perak, Malaysia.
JAIMHL/MM—9 Shi-oya-cho, Kagoshima City, Japan.
JT1AD—Box 639, Ulan Blator, Mongolia.
AP2AR—366 Purana Paltan, Dacca 2, E. Pakistan.
VR1N—Hammarlund, General P.O. Box 7388, New York 1, N.Y.

ZL4JF via ZL2GX, KG6ID via W9VPZ, FL5A via W4ECI, VS9KDV via VS9ADV, FUBAG via K7GDN, 9N1MM via WSKVQ, TFZWHB via K4MQD, DU0DM via DU1CE, FB8CB via WAZWBH, VPSLG via VP7LG, 5U7AH via K8EAB, VK8ZK via KV4AA, PY1BCR via PY1CK, ZD7BW via G3PEU.

SUMMARY

A look at the DX calendar shows that the Ham world is at the moment DX-pedition crazy. They are, in the small image of Christopher Columbus, setting out to all points of the compass for the anticipated pleasure of hearing the world calling them. It is impossible (unless one makes it a full time job) to keep pace with this sudden upsurge of Amateur activity.

How long will this bug of fashion last? Will it suddenly collapse like a pricked bubble as does so many of man's adventures? The top DX men cannot create new places much longer.

Great attraction always lies in something new. Soon less interest will be taken as these ventures become more commonplace. The first satellite caused hysterical excitement. Now no one bothers to look at the sky.

The DX-pedition interest may not subside as quickly as a deflated balloon, but familiarity will breed contempt. The end result will be a few more digits for the honour roll men and what is that?

My thanks to editors WA6TGY, K4IIF, G2BVN, Traffic News and VK3TL, BERS195, and s.w.l. Pete Drek for valuable info forwarded. 73, Al VK4SS.

TELEPHONES OF THE FUTURE

It was recently claimed in a popular world-wide magazine that "the President of U.S. was never more than two minutes from a telephone—whether he be at sea, in the air, in a motor vehicle or playing golf! Not only that, White House itself was that close to him."

Telephone scientists have now succeeded in building a new electronic system that will make present telephone marvels obsolete.

The new system, operating a thousand times faster than current equipment, eliminates all mechanical switching.

After more than a year of "test-runs" in Illinois, U.S.A., the new system is ready for commercial use. Among other new innovations is one whereby it will be possible to transfer a telephone call from one subscriber to another by dialling a special code number and the second subscriber's number prior to the first subscriber leaving home. When the visitor wishes to return home, he will be able "to switch to normal" just as easily.

Another feature of this new future marvel is the fact that a whole group of subscribers will be able to be brought together "on the telephone" for business discussions, etc., without any "hanging up" by anyone of those "in the telephone party".

(No doubt, in due course, this new system will be introduced into radiotelephone systems.)

—BERS195/L3042.



FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL

FEDERAL EXECUTIVE MEETING

The President expressed regret at the bereavement of Vice-President Max Hull (3ZS) whose mother passed away during the week. Members resolved to record their condolences in the minutes.

Correspondence included information on the 7th Australian Jamboree to be held in Victoria in '64/65; approval by the P.M.G. on the use of FI by Amateurs; disapproval by VK2 of the new Membership Certificate; comments by members on the Oceania question (VK-ZL Contest); and routine correspondence from the Divisions.

George Glover made mention of the 7th Australian Jamboree and participation by F.E. in providing Amateur communications facilities. He said that in response to our request, plenty of notice was being given us on this occasion, so that proper arrangements and preparations can be made.

It was reported that some informal discussion had taken place with the Department regarding Rule 86, and that the matter was being further investigated.

Ron 3RN, representing the Publications Committee, exchanged views with the Executive on several matters of mutual interest, and he was assured that in future the Publications Committee would be reliably informed of the date and venue of F.E. meetings.

HISTORICAL NOTES

Anyone with records or knowledge of Amateur activities in the early days is invited to send any information they may have to George Glover, VK3AG, C/o. Box 2147T, Melbourne, for inclusion in his series in "A.R."

Incidentally, George recently produced a copy of a booklet published by the then "Wireless Institute of Victoria" in 1914. Items like this are of particular interest and of course will be returned, if required, after the contents have been copied.

"HAM TIPS"

We understand free copies of R.C.A. "Ham Tips" can be obtained from R.C.A. Electron Tube Division, Harrison N.J., U.S.A.

CHINESE PROPAGANDA

A rumour exists in the News Services that W.I.A. members have been circularised by the Chinese Government concerning the current ideological split between them and the Russians. However it appears that S.w.'s., who have reported on Radio Peking, are the actual recipients of the documents. While these people may be W.I.A. members, it would be unfortunate if published comment implied by turn of phrase that they received the pamphlets because they were members of the Institute. We must be careful to ensure that no impression of political, or any other kind of alignment is created concerning the Institute, which is completely divorced from such matters. Therefore, members commenting publicly on happenings such as this should take care that their remarks are not misinterpreted.

FREQUENCY CUTS

Reports of frequency cuts, as quoted by "official sources" in Queensland, are entirely erroneous. Members in doubt about this might reflect that the matter is not in the hands of the aforesaid "official sources" and that the W.I.A. is represented on the Committee that does decide these things.

FROM BEHIND THE IRON CURTAIN

Doug Bowie, VK3DU, and a former Federal Secretary, has written from Moscow telling of his journey through China to the west via the luxurious Trans-Siberian railway, on his current world tour.

Doug says that he stopped over for three days at Ir Kutch in Siberia, and enjoyed the lavish hospitality of one of the local Hams. Unfortunately he was unable to visit the local Radio Club, but left sample W.I.A. Certificates and a W.I.A. badge for the Club President. When he arrived in Moscow he visited the Moscow Radio Club, where members admired the W.I.A. Certificates that were presented to them, and the President was delighted at the

gift of a W.I.A. badge. Doug also had the opportunity of visiting local Hams' home stations; being driven around in a member's car.

FEDERAL QSL BUREAU

Activity from Prince Edward Island (Canada) has been organised by W9NLJ between 24th and 30th Sept., 1963, and also during the annual VE/W Contest. While most operating is planned for c.w. near 3542, 7042 and 14042 Kc., s.s.b. will be available at times. Operation on other bands is subject to prevailing conditions. Contact with P.E.I. is an essential for those wishing to qualify for the W.A.V.E. award. All QSLs will be answered via Bureau unless s.a.s.e. is enclosed. For specific schedules and any other information, contact T. E. Pederson, W9NLJ, 5138 Pepin Place, Madison 5, Wisconsin, U.S.A. The call sign to be used from P.E.I. is W9NLJ/VE1.

Fred, VK8HB, who is currently making a big noise on 14 Mc. c.w. between 0600z and 0800z almost daily, is a Swiss lad who is employed by Connellan Airways. Fred, who has some nice equipment, is helping many stations to achieve the W.A.V.K.C.A. award.

Olavi, OH2BBR, advises of activity from Aland Island, OH0, during August and possibly later. Aland Island enjoys separate country status and all bands will be used. Mode is not stated but all QSLs go via W2CTN.

Advice has been received of the formation of A.R.A.—Amateurs' Radios Algerians—as of May 1963. This Society is the only official body for Amateurs in Algeria with address Postbox 2, Alger, Algeria. The QSL Bureau will be conducted by G. Deville, 21 Boulevard, Victor Hugo, Alger, Algeria.

The overall poor conditions that have persisted in VK on most of the DX bands during the past few months is reflected in the steep decline of cards through this Bureau during July when the total fell to just over 3,000 cards.

—Ray Jones, VK3RJ, Manager.

NEW SOUTH WALES

The monthly general meeting of the VK2 Division was held in Wireless Institute Centre, Crows Nest, on Friday, 26th July. A good attendance was treated to part two of Bob Winch's (2OA) lecture on "A.v.c. for S.s.b."—a most informative and entertaining follow up of his previously given lecture on this very complex subject.

With the Jamboree-on-the-Air just around the corner (Oct. 19-20) we do urge all Amateurs throughout the Commonwealth to fully participate in this very worthwhile international radio "get-together". A number of enquiries have been received by Council from enthusiastic Scouting Groups anxious to make personal contact with Amateurs who are prepared to make their shacks available for all or portion of this week-end.

Readers who are desirous of obtaining Slow Morse Recordings will be pleased to learn of the latest arrangements made by the VK2 Slow Morse Co-ordinator. Frank 2ACQ informs us that he anticipates being able to supply disc recordings with 40 minutes of nominated speed Morse for the approximate price of 12/8 per disc. There will be further information on these very satisfactory arrangements in the near future.

To the organisers of the South-West Zone Convention at Narandera, Council wishes you every success for the 5th and 6th October. This holiday week-end promises, as usual, to be a most interesting and enjoyable period for those fortunate enough to be able to attend.

The subject for the lecture at the October general meeting at Wireless Institute Centre

SILENT KEY

It is with deep regret that we record the passing of:—

VK3CH—A. C. Harris, 1/8/63.

will be titled "Communication Logic". This lecture will be ably presented by Vol Molesworth (2VO). 73, 2SW.

HUNTER BRANCH

The August meeting of the Branch was held on the 2nd at the University College. The "do it yourself" type of night has proved very popular of late and this meeting again took this form. Those who described gear chose widely differing topics and a most instructive night was had by the 29 who attended.

Frank 2AFO displayed a model of his one-man antenna mast and gave a very full description of its design. Those who have seen the installation agree that it is an excellent idea and Frank has even suggested that he might write an article for "A.R." Next came Stuart 2AYF who displayed a very interesting transistor audio oscillator which could be continuously varied from 15 c.p.s. to 15 kc. for use in testing and alignment. This was a practical design which worked extremely well. Stan 2AYL, besides being QSL officer, has the reputation of being the best chassis maker in the area and in his talk we found out why. Stan showed how to make a multiple chassis drilling jig, the one on display being for the Minitran project.

Kevin 2ZKW, who was reported to have a swimming pool in the back yard, told the meeting the full story of the 60 foot mast, for which the hole was dug. This made very interesting listening and all present learned some very practical physics in connection with the problems associated with the erection of large lattice towers. Keith 2AKX had on display that strange black box, the 2AWX tx and, taking care to hide the untidy bits, described its design. The final lecturer for the evening was Bill 2ZWM who had prepared a printed diagram of his "stand-by receiver" made from surplus parts. The set was an excellent example of thought and ingenuity and Bill is to be congratulated on an interesting lecture. Ian 2ZIF moved a vote of thanks to the lecturers and this was carried by acclamation.

Arrangements for the Dinner and Field Day to be held in October were given by Les 2R7, our worthy President, at the meeting. His right hand man, Gordon 2ZSG, helped in this and for your information, here it is. The usual meeting of the Hunter Branch set down for 4th October will again take the part of a "do it yourself" night but there will be a competition for the most interesting lecture and a prize will be awarded. It is hoped that as many visitors as possible will take part in this activity and the rules are simple. A maximum time of 10 minutes will be allowed

W.I.A. N.S.W. DIVISION

Hunter Branch

TWELFTH ANNUAL

CONVENTION

to be held

4th, 5th and 6th OCTOBER

Friday 4th at Newcastle University College, 8 p.m., competition night.

Saturday 5th at Esplanade Hotel, Telford St., Newcastle, 7 p.m., Annual Dinner.

Sunday 6th at Marmong Point, Lake Macquarie, Field Day.

For full details read Hunter Branch notes and the September Bulletin.

Book now with Hon. Sec., G. Sutherland, 15 Marine View, Newcastle, or Pierce Healy, 69 Taylor St., Bankstown.

Convention: £1/5/0 per person. Field Day only: 10/- per family ticket.

for each speaker to describe and demonstrate his gear which must be shown working. At the conclusion of the meeting an award will be made to the lecturer who, in the opinion of the judges, has presented the best item. So here's your chance to describe that piece of gear. Remember all members and visitors, whether associates or not, are invited to take part.

On Saturday, 5th October, the Annual Dinner will take place at the Esplanade Hotel, Telford St., Newcastle, commencing at 7 p.m. The guest speaker on this occasion will be Mr. Barry Beresford, of the Mullard organisation. Tariff will be 25/- per person for Dinner and Field Day.

A new location, Marmong Point, near Teralba, on Lake Macquarie, has been chosen for the Field Day this year. The day will commence at 9.30 a.m. with an all-band scramble and events during the day will include hidden tx hunts and a disposals shop with a launch trip for those who wish to get away from it all. The most popular event of the day is expected to be the multiple 2 mx tx hunt during which several tx's will be hidden within a 5 mile radius of Marmong, there being prizes for the contestant who finds the largest number and for the tx which remains un-found for the longest time. If attending the Field Day only, the admission charge will be 10/- per family ticket. Hot water will be available free and there is a well stocked shop and an excellent shark-free swimming pool within a few yards of the park. All details of the convention will be found in the Sept. Bulletin.

As far as activity round the Branch is concerned, I am sure that they have all gone into hibernation, or else, like Bill 2ZL are playing trains. Bill has at last put in the new piers for the railway so it's quite safe to visit him again without being asked to carry buckets of concrete out to the site. Jim 2AHT has the new Collins rig in full operation now and is having a great deal of success. He has at least eight new countries added to his score during the past month, which is quite good going as I cannot remember having eight all told as yet. Jack 2KQ, who, by the way, is just off on another 10 weeks holiday, is the proud owner of a super selective receiver which he built himself. I dare not give you details but watch out Mr. Collins. Bruce Morley is muttering something about getting rid of the two in line gear and buying a Drake. One rather nasty type told him to get some ducks as well—they'd just be right for Xmas.

Bob 2AQR really flattered me the other day. He reported my signal four S points louder than Bill 2ZL! Mr. Rose, this will never do, I'll still make those nasty remarks in the notes. Gordon 2ZSG is having another holiday, no doubt a big swindle to get the rest of his gear on the air. Tom Davis is thinking about having a big sale any time and Mac 2ZMO is still trying to straighten out the S meter needle which was bent when Kev 2ZKW put on the signal from the new tower. Big Bertha, Harold 2AHA's tx, is having the cobwebs brushed out which you will agree is a good thing. Bill 2XT is contemplating his forthcoming Oriental fit and Bill 2ZK is watching his aerial get further and further out of sight as the tree grows. Up in Cessnock where the grass grows the greenest, Chris and his boys are still hard at it keeping the viewers happy while one of the boys, Sherwood, dreams all day about his latest love—a beaten up AR8, sidecutters poised, ready for action. He's abandoned all thoughts of getting on the air and is going to be an s.w.l. for good. And I suppose there's lots more to tell but that's about it for this month.

Don't forget the next meeting which will be held, as all other Hunter Branch meetings, in Room 15, Classroom Block, Newcastle University College, at 8 p.m. on Friday, Sept. 6. The lecturers on this occasion are from the Central Coast Radio Club. Major 2RU will talk about a converter for 80, 40 and 20, and Lindsay 2ON will examine the selectivity curves of receivers using a wobulator and oscilloscope. So come along and hear these interesting talks. Just before I close, did you know that we may have another call sign in the area after the next exam? Well we're hoping. 73, 2AKX.

BLUE MOUNTAINS SECTION

The July monthly meeting was well attended, there being 18 members and 4 visitors present. The new heater proved to be more than ample for those present at the meeting. A tape lecture on "Silicon Diodes" was given, and was well received by all. A tape recorder and a slide projector were made available for this lecture. Thanks go to Dennis 2AWW and yours truly for providing these pieces of equipment. Keith 2ABK has acquired a new car, with which he is trying to prove it is the fastest car on the road, even before the smell of new

paint has worn off. I am very pleased to hear that John 2AGC has decided to come up on 2 mx again. Reg 2ZMR and Stephen 2ZSK are now happy again, John is constructing a s.s.b. rig.

Anyone listening on 2 mx may have heard some strange signals on about 144.8 Mc. It's really nothing to worry about. Norm 2QA has been sending Morse at a very slow speed for yours truly and anyone who may be interested. Norm, an ex instructor with the Forces, has been doing a really good job. Ken 2AVN is also going to join in on this instruction and relieve Norm to some extent. It looks as though there could be Morse instruction on two nights, instead of one. For those interested, listen around 1900 hours on Monday nights.

Stewart 2ZLS ran into a rusty nail and made a mess of his leg and had something like two months rest from work, but during this time his mouth was working overtime. Stewart is putting a 9 plus signal into this shack, and it sounds a really good signal, audio wise. By the time you read this Stewart should be back at work and fully recovered from his ailment.

I had an over or two with Jack 2ADF the other night. He had two lads from the Penrith High School in his shack, and from their remarks it appears as though they have a Radio Club in operation each Monday lunch time. Yours truly has donated a 522 rx for use by their club. The club has something like 12 members, and instruction is given by one of the teachers. Looks like we have another school radio club for the Youth Radio Scheme.

Derick Boyd is still waiting for his call sign. Derick has obtained his full call and at the time of writing, I do not know as to what frequencies he intends to operate on in the immediate future. Ray Watts, of Mt. Druitt, was to have sat for the last exam., and under the guiding eye of Warwick 2ZMS, we hope that Ray has done the right thing by his instructor. Best of luck, Ray.

Dennis 2AWW is still preparing for Amateur t.v. and next month I hope to have some details of his equipment. For those concerned, I will give details of the method of reporting to 2WI on Sunday mornings. 2AWW reports to 2WI at 1030 hours with any news from this section. At 1000 hours yours truly (2ZNS) calls 2AWW to give him any information that has to be put over 2WI. If Dennis is not there, I report in on 2 mx to the station who will be doing the v.h.f. broadcast on Sunday night. This station will then report to 2WI at 1025 hours. Anyone in the Blue Mountains Section can contact either Dennis or myself and we will pass on the information to 2WI. 73, 2ZNS.

CENTRAL COAST ZONE

Reports received from Doug 2ASA are that he is enjoying his tour of W-land immensely. He has been worked from VETTD, W6TGP and W6EXN along the West Coast as far south as San Diego. He should be able to tell us what Greyhound buses look like when he returns. Phil 2TX is still away in JA-land. The red carpet is being unrolled for Alec 2AAK, who returns from a short trip to VE and W. At a recent Gosford Radio Club meeting, Major 2RU spoke about construction of a simple crystal-controlled converter for 80, 40 and 20 mx and Lindsay 2ON demonstrated selectivity curves of the BC453 and Drake 2A on a cathode ray tube, using a simple wobulator. The output is taken via the product detector which gives an accurate picture on an ordinary oscilloscope.

Congratulations to Geoff 2XA (formerly 2ZGM) on obtaining his full ticket. He now operates an HT37 from Kanwal. When t.v. servicing permits, he is heard on 80 mx side-band. Further additions to the list of transmitting members are likely, as John 2ND is ably managing electronics theory classes for about 30 club members. Major 2RU has a hand in this with some practical demonstrations of components. Harry 2LX is President of Woy Woy Rotary Club for the next year, so we may not hear him so often on 20 mx. Former club member, Peter Van Gemert, was heard from 2AGN at Bathurst recently, and also on the same mike that old identity, Trevor 2NS. The latter gent says he will have to take a course of slow telephony—very appropriate for a man with fingers calloused by Morse key manipulation. Graham 2AGN got a word in edgeways towards the end of this memorable contact—after all, it was his station! He uses a Viscount tx.

Rod 2ACU is missed by the boys. He is holding the fort at Coonamble for some time, but manages to talk to us with the Swan transceiver most nights for a few hours on 80 mx. Reg 2AI and John 2RF are very busy with counting machines. A welcome visitor to the district recently was Stan 3ZE, from Melbourne. He seemed glad to get away from that city's bracing climate to enjoy a few weeks by the lake at Toukley.

Fred 2ALA is very pleased with his home-built s.s.b. phasing rig. He is active on 80 mx and gets good reports—nice bottle, the 6DQ5. Bryan 2AVJ is almost ready to go, with similar equipment, home-brewed. Wally 2AXH is still heard talking to his ZL friends and others on 80 mx. Norm 2ALJ has finished building his house at Terrigal and should be on again soon. Nice to see him at the club recently. 73, 2ON.

VICTORIA

JULY COUNCIL MEETING

The cold weather kept several members away, but by starting a quarter of an hour late we made a quorum with a margin to spare. Among the items discussed during the evening was the matter of Membership Certificates. This Division has used all they had and VK2 Division does not like the design of the existing job. As this is really a Federal matter, Federal Councillor will take the matter up with F.E.

The Air Force Association asked the Division to provide an exhibit at their show during the early part of September. This reopened the matter of exhibitions in general. After lengthy discussion, Council agreed that it could not accede to the request, as the time available for preparation was insufficient, and it was preferable to have no show than one which was below the required standard.

It was decided to form an "Exhibition Subcommittee" under the chairmanship of Kevin 3ARD to handle future exhibitions, and make sure that a high standard is maintained.

Ten names were considered for admission to the Division, four being for full membership and six for associate. These names will be submitted to next general meeting.

The condition of the rooms was again raised, and despite several gentle hints in these notes no improvement has been noted. If anything, the condition has grown worse. Therefore, all Groups having permission to use the rooms will be contacted and informed of the position. Any Group not co-operating, will have their privileges withdrawn.

It was decided that the offer by Keith 3YQ to make two test re-broadcasts on Sunday evenings would be accepted. The future of this additional outlet will be decided in the light of results.

We have a volunteer for the job of producing a news letter, and the first issue should be in members' hands in the near future.

Now all we need are more broadcast engineers. The only qualification is that engineers must be full licensees.

AUGUST GENERAL MEETING

Just on forty members donned snow shoes, mittens and heavy woollies to attend the August meeting, to hear a discourse on DXing. Ken 3TL covered propagation conditions, Ivor 3XB dealt with the outward QSL side of it, and Ray 3RU spoke on the aspects of the inwards QSL bureau and awards. Time ran short, so question time was cut short and left for informal discussion over a "cuppa".

Somewhere along the line it appears that I missed publishing the fact that the change of meeting place was a permanent move, and as a result somebody turned up at the old location. So friends, please remember that all future meetings will be held at the rooms at 478 Victoria Pde., East Melbourne.

W.I.A. N.S.W. DIVISION South Western Zone ELEVENTH ANNUAL CONVENTION at NARRANDERA

5th and 6th OCTOBER, '63

Hotel, Motel and Caravan Park accommodation available.

The usual field events will be held and a good time is assured for all.

For bookings, contact—

Frank Pearson, VK2ACQ,
42 Frederica St., Narrandera.

Very little general business was discussed, but the President did report that expert opinion had been sought on the problem of heating and ventilating the meeting room and that we were awaiting a quote for the work. This should arrive shortly and no time will be lost in carrying out the work. As I left early, I cannot vouch for the time everybody left, but no doubt the evening followed the usual pattern and saw the last one leaving in the early hours of the morning.

On 2nd August, John 3OR and myself attended a meeting at the headquarters of the Boy Scouts to consider aspects of the Jamboree-on-the-Air. As Council has already reviewed this matter, we were able to tell the Scouts that they could be assured of our full co-operation. It is now up to the Amateur fraternity not to let us down. Elsewhere in this issue you will find details of what you can do to help in this most worthy enterprise. We have agreed to make 3WY available for an official message to all participants at 8 p.m. on the Saturday of the event and all stations are asked to listen. That, I think, covers matters on an official level.

I believe a new record has been made in the v.h.f. range, that is assuming that 525 million megacycles is v.h.f. The distance is 200 yards. I have had the good fortune to see the equipment, which was constructed by one of the younger generation of enthusiasts. Having given considerable thought to this

OBITUARY

ALFRED CHARLES HARRIS (VK3CH)

The death occurred suddenly at the Ouyen District Hospital on 1st August, 1963, of Mr. Alfred Harris, VK3CH, aged 62 years. Although a resident of Birchip, Alf spent his earlier years at Rainbow. At Birchip, he was in charge of the power station for many years.

Alf's radio activities go back very many years and he will be sadly missed by old-timers on the bands.

We extend to his family and relatives our deepest sympathy.

equipment, I'm still not sure whether f.m. or a.m. was used. The fact is that the d.c. input to the final is modulated, but the output is predominately f.m., using a bandwidth of many megacycles. Quality of the received signal is quite good and I for one will be following the progress of this equipment with a great deal of interest.

Now for the ex VK3 chairman. It sure takes him a long time to catch up with things. That fifth member has been on VK3 Council for the last three years, and PanSy could not be speechless for that length of time. Just ask the editor. For the benefit of any VK5 readers, you will call to mind that 5PS has not been game to come to Melbourne since that memorable occasion he mentioned in his notes, although we are prepared to call a truce for a maximum period of seven days. I see he has not made mention of his sideband rig and no further info has come from our correspondent. Perhaps the rig died an unnatural death. 73, 3AFJ.

WESTERN ZONE

The Western Zone now welcomes two newcomers to its ranks—Neil Granville (3AQD) from Ararat and David Giles (3ADS) from Glenorchy. We are looking forward to hearing them on Wednesday nights. Rodney, a regular attender to our Zone Conventions, is now heard on the hook-ups with the call sign of 5CU/P.

Another new call, Max 3AR, of Laharum, will soon be on the air, as Max informs me that the rig he is building is nearing completion. Gavin Bain, of Warracknabeal, has sat for the exam.

Merv. 3AFO will be in VK6 by the time these notes are out and hopes to work back to the Western Zone from one of the many VK6 stations. Others in the Zone who have had pleasure of having holidays away lately are Alan 3HL, Trev 3ATR and Bill 3AKW.

The Western Zone Convention has been discussed on the hook-up of late and it appears that Ararat is the choice for the Convention this year.

There is quite a bit of building going on in the zone. Garry 3ZOS is building a 6 mx side-band rig and quite a few others are building table-top rigs and erecting different types of antennae. Bill 3AKW has only another three months to wait for connection to the S.E.C. power. It will not be long and the Zone will be 100 per cent. a.c. operated. I have been asked to mention in these notes that the Scout Jamboree-on-the-Air is on Oct. 19 and 20 and Bill 3AKW is again Zone Co-ordinator, so get in touch with Bill if you are interested in taking part this year. 73, 3ATS.

SOUTH WEST ZONE

The Zone always seems to be very busy. Bill 3WK has been busy working on modulators, towers and vertical antennae. 3ARJ, better known as "three minute John," is finding a little more time for the bands; hope he can keep it up. Sorry to hear that 3AKN has been on the not-so-well list; hope he is soon on the mend. Hear that Peggy, Mrs. 3AKN is taking up flying. Ted 3FS is finding a little time now and again to pound the brass, keep it up Ted. Harry 3XI has been portable over in VK5 land for three weeks, using a Type 3 Mk. II. By the way, Harry has a nice new rx. Peter 3FX must have gone bush, haven't heard from him for a while; how about making yourself known Peter. Eric 3ANQ still spends a fair time in the shack. Norm 3EQ still chases the JAs. Wal 3UT comes on now and again, when he cranks up the rig, as he terms it.

We would like to hear more of the Geelong, Ballarat and Hamilton boys on the Thursday night hook-ups, what about it boys? 3ASZ, the Zone station, is on the air most nights, particularly Thursday nights. 73, Bill Wines.

NORTH EASTERN ZONE

Main news this month is regarding Y.R.C. We had a meeting at Shepparton during July and 13 attended, 11 of whom accepted tasks. Actually looked like a Radio Australia stop-work meeting. 3IG and 3ALF were to interview all the radio and electrical shops re young scroungers known to be interested in radio. Have decided to limit our club to young folk who have left school. Word has passed around and we have had enquiries from youths mostly over age 30 years.

3ACK is progressing very well with practice on his electronic organ. Sorry Mr. Ed, 3AFP was making a transistorised rev-counter; not a re-counter.

The 2 mx dinner time network has become too well patronised, resulting in some members not coming on daily. Three chaps have agreed to be nominated for membership—Vin 3AVT, Frank Markham, and Ted 3AOB.

3IG recently constructed crystal locked converter for 7 Mc. to a car radio. This lad is to be married early in November. 3ALF has not as yet obtained a windmill tower. 3AYD is putting wire-netting patterns on his t.v. screen. My t.v. is interfering with my own rx; line oscillator gargles at regular spots on the 80 mx band, so will have to try some filtering. 73, 3ASY.

MOORABBIN AND DISTRICT RADIO CLUB

I am writing this month on the theme of reminding W.I.A. members of some of the activities of our club. An activity which members are enthusiastic about, and which non members may participate in and receive contacts for the Honorary Certificate, is the Club net on 3.6 Mc. This is now scheduled to commence at 2030 hours every Monday night and is still proving popular both for members and non members.

Our meetings, both formal and non formal, that is, on the third and the first Friday nights of every month, attract a good attendance even on these cold wintry nights, and now that spring is here we expect better than ever. An attraction, also, is our bi-yearly disposal auctions (white elephant nights). These are becoming even more popular, especially with our young members of whom we have a good percentage. Any person, no matter what age, is eligible to join our club, so long as he is interested in radio in some form.

Social evenings each month are also very popular. The Sept. evening is of a different type, and is being spent at the Ten-Pin Bowling Alley at Brighton on Saturday, 28th Sept. Last month we had the pleasure of Bob 3NZ and his XYL as our hosts.

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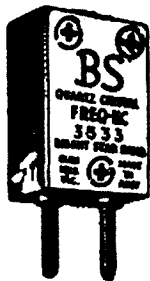
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Eighty metre Tx Hunts are still the order of the day and our next one will be held on Friday evening, 6th Sept., starting from the Club Room at 2000 hours.

Visits to interesting places are always enjoyed by those who come along and we are visiting the O.T.C. receiving station at Rockbank some time this month, so you see our activities are many and varied, and the Moorabin and District Radio Club is a good club to belong to. 73, 3LC.

QUEENSLAND

The jinx that has been troubling Uncle Xray sure descended on 4ZGM for his first lash at VK4 sub-editor last month. However we were saved from total disgrace by Fred Cox and 4RW. Thanks men. The end of July found us with a total membership of 470 and we look like achieving our target of 500 before Xmas. The Central Qld. Branch is really raking in new members and some of the other branches aren't far behind.

Our Sunshine State Contest went off well and now that the usual last minute rush of logs is in we should soon know who are our mainstays for the R.D. Contest. Some of the best contacts were rattled off smartly on 80 mx between Brisbane, Southport and Thulimbah.

Federal Council recently requested information on old time experimenters who sported XQ call signs. One at least has been traced. He was originally XQ1, W. H. Hannam, of Stanford, and is now VK2AXH of Terrigal.

A newcomer welcomed to the pipe smokers' club of 80 mx s.s.b. is Arthur 4BA, ex 4ZBA. We hope to see Arthur really busy there in the R.D. Contest and we understand that Herb 4KM has finally neutralised his transmitter. Frank 4FY tried to get his rig going in 21 degrees of frost the other morning up Thulimbah way. (Yes, it is the Sunshine State.) Len 4CK has a friend who is trying to be very helpful by keeping the QSL cards rolling in, but Len can't locate him to thank him in person. Even yours truly has had the odd card for a time when the rig was stacked under a corner of the house.

Tommy 4ZAL has been getting amongst it there lately on 6 and 2 mx. 4ZBD and 4ZCH, along with 4ZAS, have been helping him on 2 mx. 3ZOM mobile is a visitor to the Sunshine State at present and could be the cause of the woes of Ross 4RO. Mick 4ZAA was most impressed by the card from 3ZOM. The name was followed by the letters F.M.S.T. After racking the brain and finally settling for Fellow of the Meteorological Society of Tasmania, he found the very small print on the back which said Failed Morse Seven Times.

Did everyone hear Jimmy 4HZ on s.s.b.? What is there that some people don't do, eh? Max 4DA, out Dalby way, is flat out on his s.s.b. project. Other s.s.b. rigs aren't in the event with this one. Nothing less than three-eighths inch cast metal for the v.f.o. chassis, with the whole lot in an oven controlled to half a degree. Col 4CI carefully built up a high power final but the 80 mx critics who don't like their front ends overloaded, reported that the quality was poor and so Col is back to the original again and wondering what's wrong with the new one.

Saw in last month's epistle from PanSy that Jeff is breaking the filial bonds with Tubby to the extent even of having his call sign changed. Shame on you Jeff. Where is your old mate Ben 5BP these days? Did his feet start itching again? The old QTH is dead and deserted as apparently is all of the Alley, what with the last of the Mohicans in the form of Frank 8AE departing for other climes. Even our Editor must have memories of the duck shooting—black type, that is. Sorry to hear that Bill the main stay of the institution has given Amateur Radio away. I suppose it was an eye opener to some of the visitors to our happy shack to learn how the dusty conditions destroyed so many 80fs.

Uncle Xray has been busy gleaming news and sent along the following comments. The Burdekin Radio Club held its meeting on the last night of August, the main business of the evening being the organising of as many members of the club as possible to take part in the R.D. Contest. Altogether we hope to have seven club members competing. If 6 mx opens up we will have another three operating. After the meeting three Mullard films were shown and were appreciated by all. The evening concluded with supper provided by the XYL of Uncle Xray, with tea most daintily poured by Frank 4ZFA.

George 4GS is showing signs of interest in Amateur Radio. He actually asked what a certain bit of gear was and seemed most inquisitive. When informed that it was a Short

Wave receiver, his face was wreathed in smiles but the boys haven't yet quite worked out why. Notice that John 4DK attended the W.I.A. meeting in Brisbane. The old bug again John? No matter how long you leave Amateur Radio alone it will break out again. Giving up smoking is far easier than breaking away from Amateur Radio.

Claude 4UX, who has been using c.w. lately because no one would talk to him, found the fault that laid his signals low. Or rather Vic. Wright, an associate, found it. Viv climbed the tower and found that the shorting stub had not been soldered. So now Uncle Xray can use phone again to work DX, much to the relief of Jess, his XYL, who was certain that dahs no future in dits.

Frank 4CW lost his father recently. Mr. Hocking was a respected and well liked man and although not having any particular interest in radio was one of the early radio traders in his district. Some small idea of his popularity may be gained from the fact that 150 carloads of friends and relatives followed him to his last resting place. The Burdekin Radio Club was well represented amongst these.

By the time you read this Viv Wright will have some idea whether he will be driving a loco or a control panel in future. Well you were warned, Viv; if you work in radio you will be driven loco anyhow. Viv is sitting for a P.M.G. ticket.

Lou Sharpley, an associate s.w.l., will be clear of Kenmore Hospital after six months there by the end of August, and will be back at the dial twiddling that he has missed during his sojourn.

The Bundaberg Club are making progress with obtaining a lease of three floors of the East Bundaberg water tower as a club shack at a rental of £5 per annum plus normal rates. Lucky blighters! The Council is even providing materials for the club to instal to its own requirements. What a site! They don't even have to put up a mast. It's noticed that Ipswich, Bundaberg and Rockhampton clubs all have the backing of their Council, some of whom even attend their meetings. Now, if us Brisbane Amateurs could interest the City Council, there is a certain big building with a clock on it in a nice central position . . . 73, 4ZGM.

WIDED BAY AND BURNETT BRANCH

Attended the meeting of the above branch held in the Maryborough Scouts Hall, at which members from Bundaberg, Maryborough and Gympie signed the record book. After the business of the day had been dealt with, and the needs of the inner man attended to, Barry 4LN put on a programme of films, some of the subjects being on radio telescopes, a "Safety First" film called "Hazzards"—nothing to do with Jim Hazzard of the Bundaberg Club, and a film on mountain climbing, and oh brother, after watching the climbers walking up the sheer sides of the mountain, I felt like the old woman who said that she likes "terra firma" and the firmer the less terror. Some of the boys tried themselves out on blindfold hunts and all voted it a good day.

Two of the Bundaberg boys, Arch and Lee, recently visited the P.M.G. Dept. to show them what they could do with dots and dashes or dits and darrs, and let's hope that they were so impressed that they crossed the Z out of their call signs. John Antella was also in this effort, but he also had to convince them that he knew all the answers. Here's hoping.

The Gympie Radio Club has secured rooms and have fitted them up to start off the boys club on 8th August. Hope to tell you more of this next month. 73, Fred Cox.

TOWNSVILLE AND DISTRICT

Once again the R.D. Contest and the Scout Jamboree-on-the-Air is upon us. It beholds us one and all to get our gear overhauled so as to make it a lot better than previous years. Our State I know exhorts us all to submit logs in the R.D. Contest and we were only beaten last year by the chaps who operated and failed as usual to submit their logs. I know that there are a few each year who enter and fail to help out on a State basis. This is noticed by the call signs on the air and not mentioned in the list of names who have submitted their logs. It is only fair to submit a log so that the Committee can cross check the winning logs.

It is to be hoped that the Scouts take the opportunity in this district to visit the various Amateur shacks, where they will be most welcome and who knows that there may be some who will have their appetites whetted to study and join the ever-swelling ranks of Amateur Radio.

This morning heard John 2QJ/M on 3.5 Mc. and was pleased to see that he was again sojourning in the Sunshine State this winter. Bazil 4ZW has now joined the ranks of the

select few and is now the proud possessor of a Mark 3 Viceroy. Bob 4RW slightly upset to get a s.w.l. report to say he has a rough a.c. but musical note, but perfectly readable on ohone. How do they arrive at their report?

Charlie 4BQ still on the sick list and cannot make the best of it as there is no DX to be worked. (I can sympathise with him seeing I am still on sick leave.) On the grape vine I hear there is a 2 mx link between Gordonvale and Cairns, but sorry to say no activity in Townsville although Ayr and Townsville work on 6 mx. Reported from the far north that Alec 4MA about to stage a comeback after two years absence from the band. Deepest sympathy is offered to Harry 4HK and family on the sad loss of his father. S.w.l. Afton, somewhere in the Gulf country, is using a transistor set to monitor the boys, while Basil is using his HQ170. You will need some help Afton to get it back.

Wonders will never cease. August "A.R." arrived today, 31st July. Mine has had the bad habit of arriving after sending off the notes. Sorry to see that no notes appeared for 4WI, have to get another sub-editor seeing that the baldy headed chap tossed it in. Just couldn't take it. I bet there is a certain scribe who will be sorry to know the foregoing. No flowers by request. 73, 4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held in the usual clubrooms to a good attendance of members and visitors. For the benefit of the doubters and scoffers over the border the number was 114, and all present thoroughly enjoyed a lecture on electrical interference, its tracing and elimination, by Mr. R. Gurr (5RG), better known to all as Rob. The lecture was right up to his usual high standards, not too technical, instructive, easy on the ear and interlaced with just that little bit of humour which is the hallmark of the professional as against the amateur. Rob used the blackboard together with bits and pieces of equipment to prove his points, gave quite a few useful and practical hints and kinks, and all and all made the two and a half hours of his lecture seem more like minutes. An unusual but very effective closing of the lecture brought up on the rostrum Mr. Nutt, a representative for the Diakon condensers people, who displayed a number of condensers from stock, gave a short description of their capabilities, and answered any questions as to availability of supplies. Question time rounded off the lecture, and at its conclusion Rob must have felt well satisfied with his efforts, if the applause which followed the vote of thanks by Leith 5LG can be taken as an indication of the audience reaction. Smoke-oh followed, with George 5RX handing out QSL cards with reckless abandon to all and sundry (Rex 5DO even received a listeners card from Black Rock), and after order was restored, the business section of the meeting was ushered in and most of those present ushered themselves out.

The general business was purely local, and so as the afore-mentioned doubters and scoffers from over the border won't know too much about the internal doings of the VK5 Division, it will remain that way, and then Geoff 5ZCQ, our Federal representative, was given the floor to tell us all about the convention and what came out of it. This naturally took time, and at its conclusion, which co-ordinated with our official deadline of 11 p.m. for all meetings, the Chairman, Phil 5NN, thanked all present for their attendance and sped them on their various ways. Quite a pleasant and successful night I felt, and one which would bear repeating. Among the welcome visitors were Jeff 2AHM from Wentworth, Wally 5ZEH from Gumeracha, Eric 5ZEJ from Foreston, and K. Broad, who I understand is the resident at ADS7, up on Mount Lofty.

The social world this month was agog with excitement at the news that Arch 5XK and his XYL Ruth were celebrating their silver wedding anniversary at a little "do" somewhere in Clarence Park. Among those present were Luke 5LJ, Dave 5DS and Joe 5JO, and applause was loud and long as Luke presented Arch and his blushing bride with a silver tray from the Northern Net, which for the benefit of those a little slow to catch on was a threepenny bit in a large box! I was among those invited, but duty called in no uncertain manner, and I missed out. I still have my present for him, a couple of canaries and a weeny, and possibly an opportunity will present itself for me to do the right thing. Anyway you two love birds, congratulations and best wishes from all, and may the future years pass as happily as those behind you both. What's that Arch? What is a weeny?

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A weeny bit of birdseed of course. Oh I am glad that I have not that mind of yours. How low can one get!!

Jim 5JK about to enter hospital for an operation, although when this is being read he will probably be home taking it easy. I understand he was about to enter a lift at one of the city stores and copped the lot from a lady who was leaving the lift in a hurry. Just shows, one can't be too careful. Bad luck Jim.

So the secret is out. Pincott 3AFJ is writing the VK3 notes, and has been doing so for a long time. Well, what do you know, wouldn't you have thought that someone in the know would have let me know. At least I would have expected the chassis-giver-awayer Ron 3RN to have dropped me a line to tip me off, even if he had to tell me to keep mum. Well, see if I care. Anyway, it only goes to show just how much consideration the VK3 members have for one of their Presidents, even if only for ten minutes. My turn will come!

News is at a very low ebb from the South East this month and can only be blamed on the cold weather which has been prevalent throughout the State for the last couple of months or so. However, news at a low ebb never deters me, and for what it may be worth, Stuart SMS has been rebuilding his transmitter, although from what I hear the one-eyed monster still has him in his clutches, with Amateur Radio just breaking even. What's that? you deny it? well it made a paragraph didn't it? Claude 5CH usually to be found on 7 Mc, was reported to have been heard on 14 Mc. Personally I can hardly believe it, but the report came from someone who is a bit far for that to have been harmonic. What about it Claude? Leo 5GJ not very active, in fact his only claim to fame this month is that he has two TV beams on top of his new tower. Just how much fame this will bring him I cannot say, but I received the news with a tinge of sorrow. Erg 5KU, who for years has consistently made this column, either with radio or gliding, to say nothing of his exploits on c.w., has not been heard this month. It sure must have been cold down that way.

Les 5ZLS, Dale 5ZER, and Gary 5ZGR are also among those very busy rebuilding the gear during the winter months. I don't know how these chaps find the time, let alone the enthusiasm. Col 5ZEF has been transferred to Penola, and whether the move inspired him or not I cannot say, but he is reported as being in the throes of building a 2 mx mobile setup. Col 5CJ has found that with the changing conditions on 7 Mc lately, he has had a bit of a battle to be on sked for the now famous "lunchtime session", he also reports that 80 mx is much more reliable for the Sunday 5WI session.

Received a very welcome letter from Cec. 5BZ who is apparently having the time of his young life holidaying in G land. He was lucky enough to strike the R.S.G.B. 50th Anniversary celebration, and was right in the thick of it all. He spent the Tuesday visiting the B.B.C. Centre at White City, which almost left him speechless; on Wednesday he dined and wined at the London Members Luncheon Club; Thursday an all day trip on Father Thames to Hampton Court, and Friday at the R.S.G.B. Grand Jubilee Dinner. Cec. was tickled pink to be a VK5 among the 400 odd hams from various parts.

Much against my wishes, and definitely against my normal desires, I am finding myself of late in these notes increasingly becoming congratulatory toward little items of interest that keep on bobbing up in the magazine. It irks me of course, because in praising the magazine I am placed in the invidious position of praising the Editor and the Publications Committee, and when you realise just how harshly they treat me in return, you will quite understand my position. However my natural premeditatedness, my inborn quality of fair play, etc, etc, plus the fact that I am prepared to forget the incident of "Hints and Kinks" causes me to ask "Did you read the profile of VK3ZEB in last July's magazine?" If you skipped it, go back and read it. It contains a philosophy which will do us all good, and proves if nothing else, that the young people of today are just as good as they were in our day, despite anything you may read to the contrary. Although it hurts me in the process, I salute the magazine and those behind it.

Had a contact this week with Rodney 5CU who was portable at St. Kilda in VK3. He will be better remembered as 5ZCD of Bordertown, and is at present residing in VK3. He will be better remembered as 5ZCD of Bordertown, and is at present residing in VK3 doing the Morse for his Commercial Ticket. Although portable, he was putting in a good signal to me, and if the dinner bell

had not rung at the hostel where he is staying, we probably would still have been talking. Best of luck Rodney.

Received a letter from Ian 5QX via Brian 5CA with a few interesting details concerning the Woomera Radio Club, 5WC. He states that the Club is doing quite well and moved into the new premises early this year, and the rooms are a 100% improvement on the old rooms. The old good and faithful rhombic has been pulled down in favour of a system of vee beams which are working out real well. The Woomera Entertainment and Recreation Committee, may their shadows never grow less, was talked into providing the club with some new gear, including a Geioso receiver, microphone, Bendix frequency meter, model 8 Avometer, tri-band beam, etc, etc. The membership varies from time to time, due to the transfers to and from Salisbury, but the overall picture remains fairly static, which is all to the good. Ian himself has not too much spare time but has managed to keep a couple of projects going, one a mobile rig, nearly completed, and the other a crystal filter type s.s.b. transmitter, also nearly completed. He sends his regards to Rex 5DO, the members of Council, any of his friends and the members in general, to say nothing of that modest, athletic, muscular built, silver haired representative of the a.m. fraternity whose name will remain a secret to protect his blushes. Nice to hear from you Ian, and was particularly interested in the enclosed photo of the station. Made my mouth water.

Have had several discreet inquiries regarding "Dunky", that agile and at times noisy representative of s.s.b. recently dumped on my back door. He, or possibly she, is in the pink, has taken to me like a long lost relative, and quack-quacks to me at every opportunity, despite obvious signs on my part that I refuse to converse in that mode. He or she, is the prime favourite of the entire household, and is getting further and further away each day from the fate that I once consigned it to the oven! All attempts on my part to discover who was the author of the joke on me have so far failed, but my list of suspects is gradually being reduced to a minimum, so take care... beware... Pansy never forgets.

It has been pointed out to me by one of my more energetic than usual correspondents that a candidate at a recent Local Government election bore the name of R. Parasiers, Murray Bridge. Putting two and two together and getting seven in the answer, suggests that it would be none other than Bob 5RF. Long time no see or hear Bob? Called in one day at the station but you were missing. Hope you are well and still keen on the game, OM.

Country reports still stress the fact that the W.I.A. broadcasts on Sunday mornings are just plain non est at the moment, although the eastern State's sessions come in with a bang, including the misguided individual who thinks he is a broadcast station. 3.5 Mc is the best band for the session at the moment.

George 5KJ of Port Lincoln looks like being domiciled in the river areas in the near future, possibly around Berri, which would make him very near Hughie 5BC, who incidentally has managed to escape my news dragnet for the past month or so. How are you going Otto?

Fred 5MA is also another one who seems to have gone into smoke lately, but one of my highly paid spies, planted in the medical association, tells me that he has been down to Adelaide regarding a war injury affecting an ear or possibly ears. Hope all is well Fred.

Uncle Tom 5TL, who sometimes writes me from his cabin (oh how funny can I get?), tells me that I am permitted under the regulations to refuse to take delivery of any postal articles or letters that I might suspect to be a practical joke, or just a plain joke. That's all very well, but most of my correspondents with a yen for pulling my leg usually disguise their efforts with the pen and ink so well, that until the bomb goes off, or the itching powder is half way up my arm, or the death adder has struck twice or so, I never know what has hit me. No Tom, that won't work, I must continue to treat it as my cross of burden, my accolade of merit, my reward for good work, in fact to put it bluntly, my pain in the neck for being so popular! Notice in the dictionary that an accolade is usually conferred with a blow on the shoulder with the flat of a sword. How true, how true, only mine is usually given with the sharp side!

In closing the notes for this month, I must comment with regret on the fact that my opposite number in VK4, Uncle Xray, has decided to give it away. Sorry to read it OM, just when it looked like blossoming into a beautiful monthly exchange of compliments. A good job well done OM, a pity you decided to give it away. Regarding that libel printed slap bang in the middle of the VK5 notes recently. I have decided to treat it with

ignore, even though every contact I have wants the circuit details. The story of "Dunky" will never die, even though he might. Yum-Yum. However at the moment I am an outcast, the s.s.b.'ers don't want me because they call me an interloper, the a.m.'ers don't want me because they say I am a deserter, and the c.w.'ers won't have me because they say I have a glass arm. Nothing is left for me but f.m. and dreary future. Sob... Sob... Sob, 73 de PanSy to you. Not you Pincott.

WESTERN AUSTRALIA

Remembrance Day Contest? Oh, yes, by the time you read this we will be looking toward R.D. 1964. Can you still hear those hundreds of voices coming in as you walk down the street? Hope you enjoyed yourself anyway.

My spy network (which had given me high hopes some time ago) having been disintegrated, not to mention broken up, was given a fresh flip of life recently when a spy contacted me on the blower, i.e. landline transmission, and actually offered to spill the beans — I mean, give me some news. As you will see from the interesting tidbits which follow, this Ham covers a fair portion of the State. So just be careful! Big Brother is watching!

Starting up north at Carnarvon, we find that Les 6LF has made modifications to his screen modulator to an 813 and is putting in a very solid signal with the 500 watts — er — mile path to Perth. He believes the activities in other radio work in the area will result in one or two other Hams being stationed in the area and looks forward to some 6 mx work. I've heard that Les is also considering rebuilding his mobile gear and erecting a quad. Keep it up Les, nice to see the enthusiasm which is very hard to maintain when you are on your own.

Another one to change to screen modulation is "Glad" 6FG, at Miling. This is in place of grid bias modulation previously used and has resulted in much better signal reports being received now. Unfortunately the antenna needs re-erecting after it had been under test for wind loading and elastic limit during a recent gale. It didn't pass the test! Stiff luck, Glad, I know what it's like.

It must be a terrifying place in which to live, this Miling, for I hear that Ian 6CL just simoly threw a pair of 6146s away recently. Well, they were not any good anyway. They had gone very red in the face due to lack of drive, so Ian says. What is more likely, of course, is that Ian has been jacking up the voltage on the plate, now having the new diesel plant I spoke of last month. I would suggest you return to the old 807 Ian, it's much cheaper. Our sympathies anyway.

Moving on to Wyalkatchem we find Clem has been busy collecting pieces so he can become another candidate for the s.s.b. stakes and will be on the way shortly with his exciter. Unfortunately, Clem, like a number of other country members, has been busy also with the record level floods in the area, so the Railway Dept. has seen that Clem has had little time for Ham Radio. Hope things have settled down, Clem, by the time you read this.

Taking a short step towards the East, we find that Bill 6DD at Kalgoolie, as mentioned last month is very active. Bill is still being heard on 3.5 and 7 Mc. with a very potent 150 watts.

One call around the metro. area which had not been heard for some time is 6RS. The Grapevine and Smoke Signallers Association has been increased by one member for Ron 6RS has been active on 20 mx c.w. for some months now. Ron obtained the services of a disposals rig with an 813 in the final. There is a suggestion that Ron also has a tri-band beam. Guess you are in an excellent place to test beam towers, too, right on top of the Doubleview hill. Why! You can look both ways and see where the sig is going!

Whilst talking about metro. members, I am reminded that Bill 6RX, one of our blind Hams, has really gone for the t.v. side in a big way, having appeared before the cameras playing the piano. Congrats. to you, Bill, and best of luck to KYL, Aileen 6YL, too, for we have heard a whispie that the Wireless Bird is hovering around the QTH there.

Still on the City boys, I understand that Ralph 6RH has been having quite a degree of success on 20 mx s.s.b. Ralph has been using a QQE06/40 and has been heard working Ws. Good work, Ralph, keep it up.

Another of the local boys who has taken to the s.s.b. is Bill 6BA. Looks as though this s.s.b. is potent stuff, but with an ever growing number of addicts there is no shortage of contacts. Taking s.s.b. into the higher regions we find that John 6ZAG has built and re-built his 8 mx rig and I'm told has used everything about the place, including the kitchen sink.

One of the country boys who is in Perth at the time of writing is Bill 8DX who has a temporary QTH at the Repat. Hospital, Ward 10. Visitors welcome, but would suggest a call by phone first for, by the time you read this, Bill may be back at his QTH in Kalgoorlie. All the best, Bill.

Our G.O.M. of W.A. Radio, "Skipper" 6WS has decided to give up Ham Radio. "Skipper" feels that at 89 years (his birthday was on 18th July) the bands are just a little too crowded and he doesn't feel inclined to exert himself to do battle. He does, however, wish to extend his appreciation to all members for the help and assistance they have given him over the years. We salute you, too, "Skipper," as an example of courage, perseverance, and good fellowship we have seen displayed by you over the years.

At the time of going to press we are sad to report that "Skipper's" XYL passed away recently and we extend our sympathies to you, "Skipper." 73, 6LS.

TASMANIA

Youth Radio Clubs are progressing in VK7, and two clubs have been added in this past month, at St. Patrick's College and Scotch College, both in Launceston. Even though we have not yet begun actively to seek clubs, the scheme has begun to snowball and it makes you wonder where it will go, but it can only be to the good of our Wireless Institute, with increased listener, and eventually Amateur membership and activity. Can you help those of us already engaged in helping one or more of the Youth Radio Clubs? We can do with your help.

Ted YEB should, by the time you read this, be free from t.v.i. troubles and I am glad to report that it looks as though the rx next door was at fault and not Ted's tx. Terry 7CT has been on the mainland round the beginning of August, on business he tells us.

Our Division will again be taking part in the Jamboree-on-the-Air this year. A meeting between your Institute's representatives and the Scout movement took place in July to lay the foundations for this year's exercises. If the plans as laid are carried out, then this year should produce the best results from an organisational point of view so far. Your help is needed on the week-end of 19th and 20th October to make this event the success it deserves to be.

Another matter needing your help is the I.T.U. fund. Our Division is pledged to raise £200 by Easter next year. We thank Keith 7RX for donating half the proceeds of the sale of some of his surplus gear at the July Divisional meeting, which added £5/4/3 to the I.T.U. Funds. The fund now stands at about £20.

Remember to complete your R.D. log and forward it to the VK4 Division in plenty of time. Let us know also how you scored in the Contest so that your fellows can get an idea of your success.

The winter DX v.h.f. season has been very disappointing this year, with only a couple

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of interstate stations worked. We wonder whether there is a connection between the 6 mx DX season and the sunspot cycle? The v.h.f. boys, particularly John 7ZOO, have completed the design of a collapsible beam for Institute members, to work on 6 and 2 mx with high gain, and on the 432 Mc. band when available at a reasonable gain. This beam, a double vee, will fold up and be portable in a car boot. Some good v.h.f. mobile and fixed portable work from Mt. Wellington can therefore be expected this summer.

This year's very cold winter has caused a drop off in activity on the bands which, we hope, will be reversed with the coming of warmer weather. One exception to this, however, has been Ken 7KA, and it has been good to hear you on, Ken. 73, 7ZZ.

NORTH-WEST ZONE

The R.D. Contest is now over for 1963, and we hope that this Zone has helped the Division to the extent of previous years to help win back the trophy. It is rather unfortunate that star performer 7MS is still "rigless". Next year we may have more starters, as it is rumoured that Dennis 7IR may again run an A.O.C.P. class, quite a few members indicating they would be interested in attending. Several means of instilling interest in Amateur activities have been brought to our attention of late and it would pay to keep these in mind for the next general meeting. Practical ideas are essential with so many new and associate members.

The Annual General Meeting was conducted in August and new officers were elected. President David 7DA and Secretary George 7XL will take their respective chairs for the next 12 months. Yours truly will be scribe again, so you will have to put up with me another year, chaps! A new position of Zone Broadcast Liaison Officer was created and that able man, Max 7MX, has been elected to that office to supply notes for the Sunday Broadcast.

A pleasant surprise was a favourable Treasurer's report for a change, zone fees are now due and will help further, and don't forget the I.T.U. Fund!

Pleasing to see the interest taken by the Southern Zone in North and North-West activities, and the proposal of a liaison officer is a sound idea. The proposed exhibition of available disposals gear at our meetings would both increase sales and benefit those requiring gear.

Kevin 7ZAH is back amongst us for a few days before disappearing up the mountain again, and I hear Terry 7TT may have a 522 going on 2 mx soon. Always in favour of more v.h.f. 73, 7ZBH.

HAMADS

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Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

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SELL, Exchange, Amateur Radio gear and parts all types, and professional radio test equipment. Interested in v.h.f., u.h.f. gear and t.v. test gear. 97 Birkett St., Bedford Park, W.A.

SELL: Geloso 222 TR TX, £85. Geloso 209R Receiver, £140. Both as new, in crates. Also a Mosley TA33 Tri-Band Beam Antenna, £45. VK3 SW, 2 Adelaide Street, Highton, Vic. Phone Geelong 86881.

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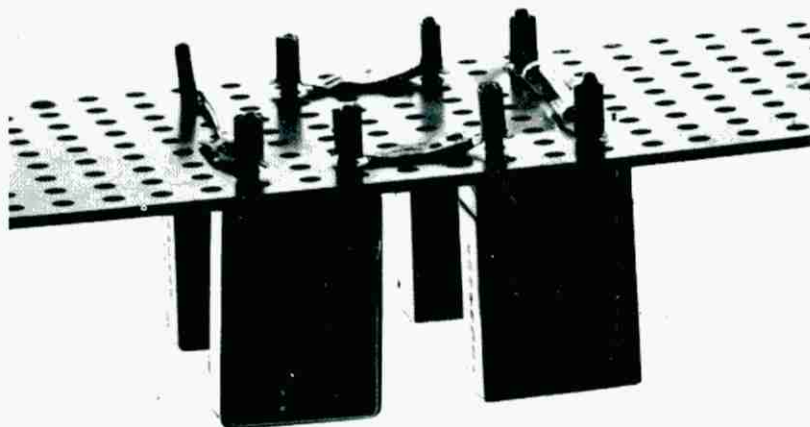
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OUR COVER

For full details of this month's
cover photograph refer to Hints and
Kinks on page 17.

EDITORIAL

★

For the past thirty-one years an unpaid voluntary committee has supervised the production of "Amateur Radio" magazine and it is fitting that in this anniversary issue all readers are more fully informed regarding their publication.

The cost of running "A.R." is borne by the Victorian Division, and in the opinion of the Publications Committee it is incorrect that any deficit is solely paid for by one Division; it is a national magazine. The question of finance has been highlighted by the continuing rising production costs, which threaten to use the slight financial resources of your committee. Past practice has been to utilise any excess income for improving "A.R.," but today this is impossible.

A solution is to increase, very slightly, the charge for "A.R.," but your committee consider that costs should not be increased to members or readers. Hence the problem is to improve the magazine without increasing its size, without increasing the cost of production, yet add features such as prediction charts, new valve data, new station call signs and addresses, etc. It is the considered opinion of the Publication Committee that "A.R." should have an increased technical content, but the only way new features can be added is to curtail some existing item.

As each Division publishes its own bulletin your committee considers that intrastate news and notes rightly belong in the Divisional bulletin. Accordingly "A.R." will decrease the space currently allocated for Divisional Notes, and will replace it with additional technical features.

Future issues of "A.R." will still have Divisional Notes but to a lesser extent, and these notes should be preferably of an interstate nature with a minimum of intrastate news. Fuller particulars will be sent direct to all concerned.

By making this information available to all readers it will ensure that everyone can logically discuss the matter and not blame their correspondent for omitting items they have forwarded for publication.

The cost of producing "A.R." is continuing to increase, and means have yet to be found to finance this inflating charge. The time must come when an approach will have to be made to each Division to agree to a very slight increase in the charge for "A.R.," but in the interim your committee will endeavour to continue to produce the same size of magazine each month. However it may be necessary to curtail the size of "A.R." if costs continue to rise. If it is essential to reduce the number of pages printed in any month, then all items in the magazine must of necessity be also curtailed. If you have ideas on this question of finance, it is suggested that you discuss them at your Divisional meeting.

K. M. COCKING,
on behalf of the Publications Committee.

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Modification of the 522 Equipment for F.M. Operation

Part One—TRANSMITTER AND POWER SUPPLY

E. C. MANIFOLD,* VK3EM

It is not suggested that the 522 is of the same calibre as the more modern mobile equipment, but as a base unit it does give a good performance depending on, as any v.h.f. band, location, etc.

At this stage let us consider the reasons for a mobile fixed frequency net.

In an emergency, there is no doubt that all stations, fixed and mobile, operating on the one frequency in a given locality, provides communication of which all listening are aware of the situation, and very often can take action as required, at short notice where directed.

The equipment, being crystal locked on frequency, ensures that there will be no chance of mistuned equipment at a critical time during an emergency, and hence nothing of importance will be missed. This same advantage works in normal times, when a mobile station calls for a contact, there will be every chance that there will be some base station listening who will be willing to have a chat, or as has often happened, the mobile station wants direction as to his locality, where a particular street is, or where a Ham friend is located, and as also has happened, asked the base station for assistance in times of mechanical trouble with his car.

Single frequency operation also demands good net discipline with no long winded conversations when there are any other stations on the net, as this prevents one of the greatest advantages being used, that of "push to talk," to get the message over with the minimum of time. Push to talk is a must for this type of operation where there are anything up to 20 stations operating at one time, likewise a short pause should be made between overs for any other "break in" station.

Possibly the most attractive benefit to be derived from the f.m. mode is where QRM problems are at their worst, from car and electrical sources, as at the writer's location. It is not possible to listen on any band at this QTH without a noise limiter, due to the incessant passing of cars and arc welding equipment in the vicinity, but with this f.m. equipment, even the weak fluttery mobile signals are copiable, something that has been impossible with 144 Mc. a.m. equipment.

There is a further bonus with f.m. operation, not applicable to a.m., in that two groups of stations can work on the same frequency, providing that they are separated by a few miles, and the stations in each group are located fairly close to one another, when it will be found that the strong local signals will override the more distant station without any heterodyne, but with a series of "birdies" in the background, which is easy to copy through.

● Having experienced the advantages of mobile f.m. operation with superseded models of commercial mobile f.m. sets, and knowing that the availability of this equipment has been limited, the suggestion that the well known and well used 522 surplus units may once again be re-vamped for this mode of operation, for use as a base unit, triggered the author into modifying the 522 for the second time. (See "A.R.," April 1948.)

So much for why! Let's get on with how?

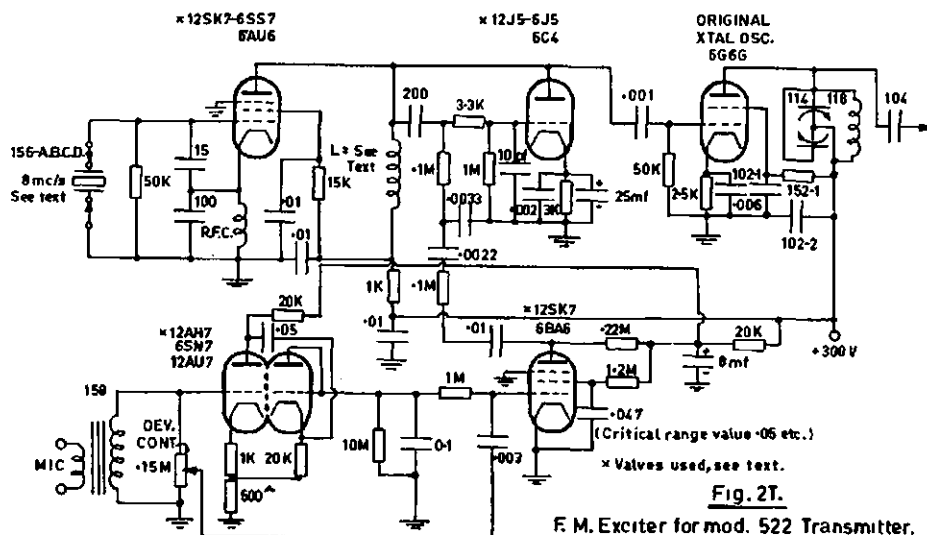
Several modifications have been done to both receiver and transmitter sections by members of the mobile f.m. group in VK3 and while these mods. are not the only way to do the job, after much experiment and discussion

The existing mechanism can be used if a d.c. supply is provided for the filaments and relays, and a push-button or selector switch for channel selection by the ratchet motor.

The top rack will require modification as there are a number of circuits provided for in the original which have no value to our application, but this can be left to the individual requirements, keeping in mind the advantages of multichannel pretuned selector operation for the f.m. frequencies.

The rack at this location was entirely re-wired to suit the carphone control circuits, as the power supply and ancillary circuits (speaker, etc.) are used when the carphone is on a.c. operation and so had to be interchangeable.

The modifications in circuit diagram Fig. 2T are the result of the assembling of ideas, and I am indebted to many of the f.m. group for their suggestions, which have provided the basis of this arrangement.



the methods suggested are probably the most satisfactory, using as much of the original equipment as possible with a minimum of extra parts. This is also the reason for the alternative ways of modifying being presented.

THE TRANSMITTER

The modification to the transmitter is not as extensive as the receiver section and so will be treated first.

It is desirable for rapid frequency changing to pretuned f.m. transmitting and receiving channels that the original frequency changing mechanism be retained, either as electrical or manually operated, utilising the rotating selecting finger section of the ratchet motor to select the channel, with an extension shaft and knob with pointer to indicate the selected channel.

It will be noticed that the valves used are of the older types, mainly because some came out of the 522 and others were available. Also it was thought desirable to re-use as much as possible of the existing parts.

However, if it is desired, equivalent miniature types have been indicated on the circuit diagram.

Before starting to remove unwanted parts, locate and link up from the modulation transformer the p.a. h.t. connections together with the h.t. line from the a.f. choke, as with a number of loose ends at a later stage these are a bit hard to trace.

Having done this, check with the original circuit (Fig. 1T) and remove the a.m. audio components with the exception of the mike transformer (158) and the speech amp. valve socket.

* 267 Jasper Road, McKinnon, Vic.

Remove all resistors from the resistor strips and replace in original location, as these will be re-used to mount other components when re-assembling.

The gain control (1 meg.) should be removed and re-used as the receiver gain control. The receiver gain control (150K) should be substituted as the deviation control, re-wired across the mike transformer secondary.

The audio section can now be re-wired as shown in Fig. 2T, when the components around the crystal oscillator have been removed.

Disconnect the crystal holders and switch from the existing 6G6G valve, but leave in position for re-connection to the new oscillator. Remove parts numbered in the original circuit as follows: 101-1, 103, 128-1, 128-2 and 151, re-connect 102-1 between screen and earth (at present connected to cathode) as screen by-pass.

The 6G6G now becomes a doubler stage only, by adding a 2,500 ohm cathode resistor and by-pass, together with 50K grid resistor and coupling condenser to the new crystal oscillator.

The original speech amp. valve is now used as the new crystal oscillator (6SS7) and is mounted on a small sub-chassis 4 1/2" x 2", together with the frequency modulator valve (6J5) and associated components, in a vertical position, in line with the end of the crystal holder strip, centrally placed between the p.a. and audio screen bulk-heads, leaving enough space to remove the valves from their sockets if necessary.

The 6SS7 is mounted on the top of the sub-chassis to provide short direct leads to the crystal holder switch, frequency modulator valve and 6G6G doubler.

All of the r.f. by-passes for the frequency modulator are mounted on the sub-chassis, but the 25 μ F. audio cathode by-pass and some of the frequency correction network is mounted in the audio section under the chassis, beside the 12SK7 constant voltage amplifier.

A tinplate shield (jam tin) was fitted across the underside of the main chassis and connected to the resistor strip mounting brackets as a precaution against r.f. feedback from the 832 tripler to the audio section.

The audio section consists of a 6SN7 as a microphone amplifier and rectifier to provide an a.g.c. voltage for the grid of the constant voltage amplifier valve (12SK7). This is done to compensate for the different speech levels and prevent over deviation.

The main audio amplifier is the 12SK7 valve, capacitively coupled to the deviation control across the mike input transformer and fed via a frequency correction network to the grid of the 6J5 frequency modulating valve.

This network is intended to provide pre-emphasis characteristic suitable for communication quality speech with a variable reluctance microphone, but seems to be satisfactory for use with the average carbon mike used in most hand-sets.

Selection of the 6SN7 for the position was governed by the heater current of 0.6 amp., which allowed the 6SS7 and 6J5 heaters to be paralleled and in series with the 6SN7, and as already mentioned were available.

- Fig. 1T.—Transmitter, BC625.**
- 100—15 pF. \pm 1 pF., 500V. ceramicon.
 - 101—10 pF. \pm 0.5 pF., 500V. ceramicon.
 - 102—0.006 μ F., 300V. mica.
 - 103—50 pF. \pm 1%, 500V. silv. mica.
 - 104—100 pF. \pm 5 pF., 500V. ceramicon.
 - 105—0.001 μ F. \pm 10%, 500V. mica.
 - 106—0.002 μ F. \pm 5%, 800V. mica.
 - 107—0.1 μ F. \pm 10%, 400V. mica.
 - 108—0.001 μ F. \pm 5%, 500V. mica.
 - 109—20 pF. \pm 1 pF., 500V. ceramicon.
 - 110—1 μ F. \pm 15%, 100V.
 - 111—0.5 μ F., 400V.
 - 113—0.0003 μ F., 500V. mica.

- 114—11 pF. \pm 1 pF. min. and 65.5 pF. \pm 1.5 pF. max. in parallel.
- 115—3.5 pF. \pm 1 pF. min. and 27 pF. \pm 1 pF. max. in series.
- 116—3 pF. \pm 1 pF. max. and 16.5 pF. \pm 1 pF. max. in series.
- 117—2.8 pF. \pm 1 pF. min. and 11 pF. \pm 1 pF. max. in series.
- 118—9 1/2 turns, 24 gauge enamel.
- 119—15 turns, 10 g., tapped 7 turns.
- 120—10 gauge.
- 121—2-0.2 turns, 10 g.
- 122—3 turns, 10 g.
- 125—1 meg., C taper.
- 126—430H, 5,000 ohms, 1 mA. max.

- 127—1 amp. 2 1/2M. r.f. choke.
- 128—2.5 mH., 125 mA., 50 ohms, 1 pF.
- 130—Relay, 12V., 200 ohms, 0.2 sec.
- 131—Relay, 12V., 200 ohms, d.p.d.t. and s.p.s.t.
- 132—25,000 ohms, 1W.
- 133—40,000 ohms, 1W.
- 134—1.53 ohms, \pm 1%, w.w.
- 135—0.76 ohm, \pm 1%, w.w.
- 136-1 and 136-2—4,000 ohms, 1W. (making total of 2,000 ohms, 2W.)
- 138—1 meg., 5%, 1W.
- 140—4 meg., 5%, 1W.
- 141—1 meg., 5%, 1W.
- 143—82 ohms, 5%, 1W.

- 144—4 meg., 5%, 1/2W.
- 145—15,000 ohms, 5%, 1W.
- 146—6,000 ohms, 5%, 1W.
- 147—18,000 ohms, 5%, 1W.
- 148—75 ohms, 5%, 1W.
- 150—50 ohms, 5%, 1W.
- 151—50,000 ohms, 5%, 1W.
- 152—50,000 ohms, 5%, 1W.
- 153—2,000 ohms, 5%, 1W.
- 154—5,000 ohms.
- 158—1 : 45.7 ratio.
- 159—1 : 2 ratio.
- 160—2 : 1 ratio.
- 162—38 turns, 28 g. enamel.

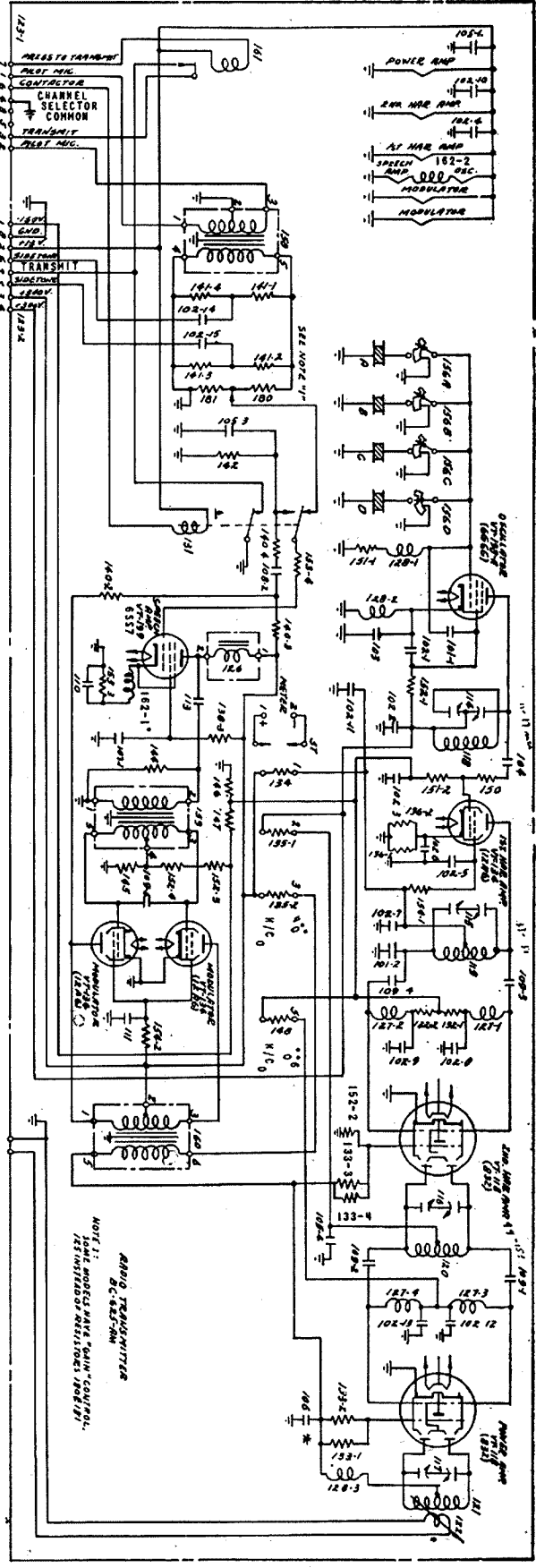




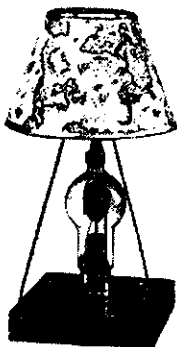
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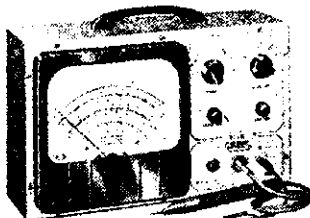
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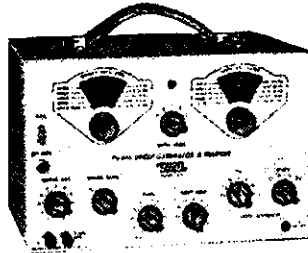
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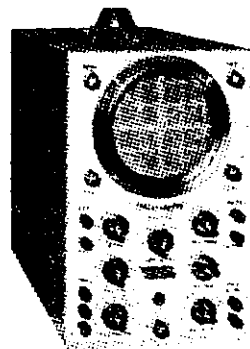
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The circuit for the 6SN7 is used in the carphone using a 12AU7 and works well. However, there are other ways of achieving this end so if it is preferred a diode rectifier can be used with another a.f. amplifier.

Should a crystal or dynamic microphone be required for use, it will be necessary to provide additional amplification between the mike and the 12SK7 c.v. amplifier valve.

A word with regard to the small, but important, coupling inductance between the crystal oscillator and frequency modulator plates. This coil requires to be untuned except by the plate capacities of the c.o. and f.m. valve, but is broadly tuned to be resonant at about 7 Mc.

Several inductances were tried, from a 2.5 mH. r.f. choke to the existing coil, both with and without iron and brass slugs, but the best operation was obtained with the following details.

Obtain a 7 mm. coil former, the one used came from Ham Radio Suppliers and was originally a 5.5 Mc. trap coil, but any 7 mm. former should do. Remove the iron slug and any existing windings, then wind 65 turns of 38 S.W.G. or 34 B. & S. enamelled copper wire. This will be approximately 7/16" long and take up almost all of the former, but is not critical. It is then installed between the 6SS7 and 6J5 unshielded on the sub-chassis.

It was thought that this system could have been used between the original 6G6G and 12A6, however it was realised that there would not be sufficient drive to the 12A6 for a tripler service, and led to the present arrangement, where there is ample drive for the 12A6 and up to approximately 30 kc. deviation at 8 Mc.

When obtaining crystals for this c.o. circuit, it would be advisable to specify the frequency required with a parallel capacitance of 30 pF., due to the wire and switch capacitance being higher than the usual Ham rig.

If it were found that the crystal was a little higher in frequency, it could be loaded with parallel capacitance to lower it to the correct frequency.

This is important with f.m. net operation as any appreciable difference in frequency at the discriminator or ratio detector will make the signal sound thin and distorted, also any background QRM will be noticed coming through with the signal.

Early in the f.m. picture in VK3, trouble was experienced with crystals reputedly on the same frequency, but when checked were sufficiently different to produce these effects.

It is most likely that all will be familiar with the tuning drill of the 522 transmitter, particularly if the unit has been used on a.m., but in case there are some who are using it for the first time, Table 1 will give an idea what to expect with regard to the meter readings. The meter should be an 0-1 mA. meter and have an internal resistance of 75 ohms.

It is recommended in the G.G. book that the plate current should not exceed 75 mA. with the aerial connected for the final p.a. Original 522 equipment operated with a plate voltage of 300v.

CRYSTAL FREQUENCIES

- Channel 1: 145.854 Mc. 8103 Kc.
- Channel 2: 146.000 Mc. 8111.4 Kc.
- Channel 3: 146.146 Mc. 8119.2 Kc.
- Channel 4: This can be your private link frequency. Hi!

TESTING

It is very desirable that any testing be done on another channel to No. 1. Alternatively, a shielded dummy load should be used on the transmitter to avoid QRM on the channel.

Since all receivers are crystal locked there is no chance of tuning off the frequency to avoid QRM caused by testing, and it has been found that QRM

to obtain an approximate reading of half saturation of the limiter, if possible.

Advance the deviation control until the limiter meter shows a kick downward, then reduce the control until there is just the slightest movement on speech peaks. As stated, this is a rough guide and it will have to be checked with another station for final setting.

The received signal should, of course, be clean, undistorted audio, even though it be received at such close proximity as your own shack.

The operation of the 6SN7 can be checked with a v.t.v.m. to see there is an a.g.c. voltage being developed at the grid of the 12SK7 under speech conditions which is necessary to ensure

Meter Pos.	Stage Tuned	Tune for	Meter Circuit	F.S.D.	Approx. Reading
1	1st Doubler (Anode 6G6G)	Peak	1st Harm. Anode 12A6	50 mA.	0.5 to 0.7 (25 to 35 mA.)
2	1st Harm. Amp. 12A6	Peak	2nd Harm. Anode 832	100 mA.	0.5 to 0.7 (50 to 70 mA.)
3	2nd Harm. Amp.	Peak	P.A. Anode 832	100 mA.	0.6 to 0.75
	P.A. Anode	Dip	P.A. Anode 832	100 mA.	0.6 to 0.75
4	Tune All Stages	Peak	R.F. Indicator	1 mA.	0.4 to 0.8
5	Tune All Stages	Peak	P.A. Grids	2 mA.	Above 1 mA.
6	No circuit connect.				

Table 1.

takes place up to five miles away with an unshielded dummy load, with the sensitive receivers in use on the frequency.

This particularly applies on initial tests when a new transmitter and a new operator get together.

The setting of the deviation control should be done with another station, after the r.f. section of the transmitter is working satisfactorily as there is no way of setting this control without a listening check, unless you have access to special equipment.

A rather rough guide can be obtained by separately powering the receiver and removing it from the immediate vicinity of the transmitter. Plug in a 0-1 mA. meter into the limiter grid metering socket and adjust the receiver

that the transmitter is not over deviated during normal operating.

Since completing the notes on the transmitter modification, other valves have been tried in the various socket positions, with suitable alteration to connections where required, to observe if there were any critical components with regard to similar valve types

As can be noted in Fig. 2T, the 12 volt series of tubes have been added, again because some are common to the 522 receiver and the 12SK7s were available.

All the older valves noted have been tried and found satisfactory, the miniature types are close electrical types and although not tried in the 522, are used in similar positions in the carphone equipment and the same results could be expected.



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Suggested Power Supply for Modified 522 Equipment

Although it is possible that everyone will have his own ideas on the subject of power supplies for the 522 gear, a control circuit and power supply circuit are attached which may serve for the ideas if nothing else.

The power supply case is used to house the external muting potentiometer, speaker volume control, speaker, and limiter grid current meter, in addition to the power supply equipment.

The transmitter h.t. supply is provided from a full wave voltage doubling silicon diode rectifier which delivers 300v. to the transmitter under load of approximately 250 mA.

Care should be taken to provide the output filter condenser with a voltage rating of 450v. working as the no load voltage rises to this value while receiving.

The receiver h.t. is obtained by using one of the silicon diodes as a half wave rectifier, as shown in the circuit diagram.

This gives 190v. under load of approximately 80 mA. and is more than adequate for the receiver to deliver enough audio to fill the shack and the back yard too.

Transmitter bias is obtained from a 130v. winding on the filament transformer, or a separate transformer if desired. A similar silicon diode, or a selenium rectifier, either half wave or

bridge connected, could be used in this position followed by a resistance capacity filter and a VR150/30 voltage regulator, to deliver —150v. to the transmitter.

Filament requirements are met by using two 6.3v. 3a. windings in series to give the necessary 12v. for the 522 receiver and transmitter filaments.

Another half wave rectifier, silicon or selenium, is used to obtain d.c. from the filament supply to provide voltage to operate the aerial/h.t. changeover relay (412) via the handset microphone "push-to-talk" switch. It will be necessary to connect a large condenser (500 μ F.) across this line to earth as a filter to prevent the relay from chattering.

The microphone voltage is derived from a back bias resistor and filter in the negative h.t. lead and is supplied to the earthy end of the mike transformer which is connected to the mike and p.t.t. switch, then to earth return.

Since the speaker is in the power supply case, and the volume control is inside the 522 case, a stepped volume control was provided across the 3-ohm speaker line in the power supply case.

Generally the audio level is fairly constant over a large range of signal input over 5 μ V., but there are times that it is desirable to increase the audio output if we want to move out of the shack while listening to the f.m. broadcast of the VK3WI news, etc.

This was the reason for putting the audio volume control in a more accessible place than in the top of the rack.

The original arrangement of the contacts of the aerial/h.t. changeover relay will have to be re-wired in the h.t. section to handle the two different voltages for the receiver and the transmitter as in the normal use there is only one h.t. voltage (300v.) which is switched to receive or transmit.

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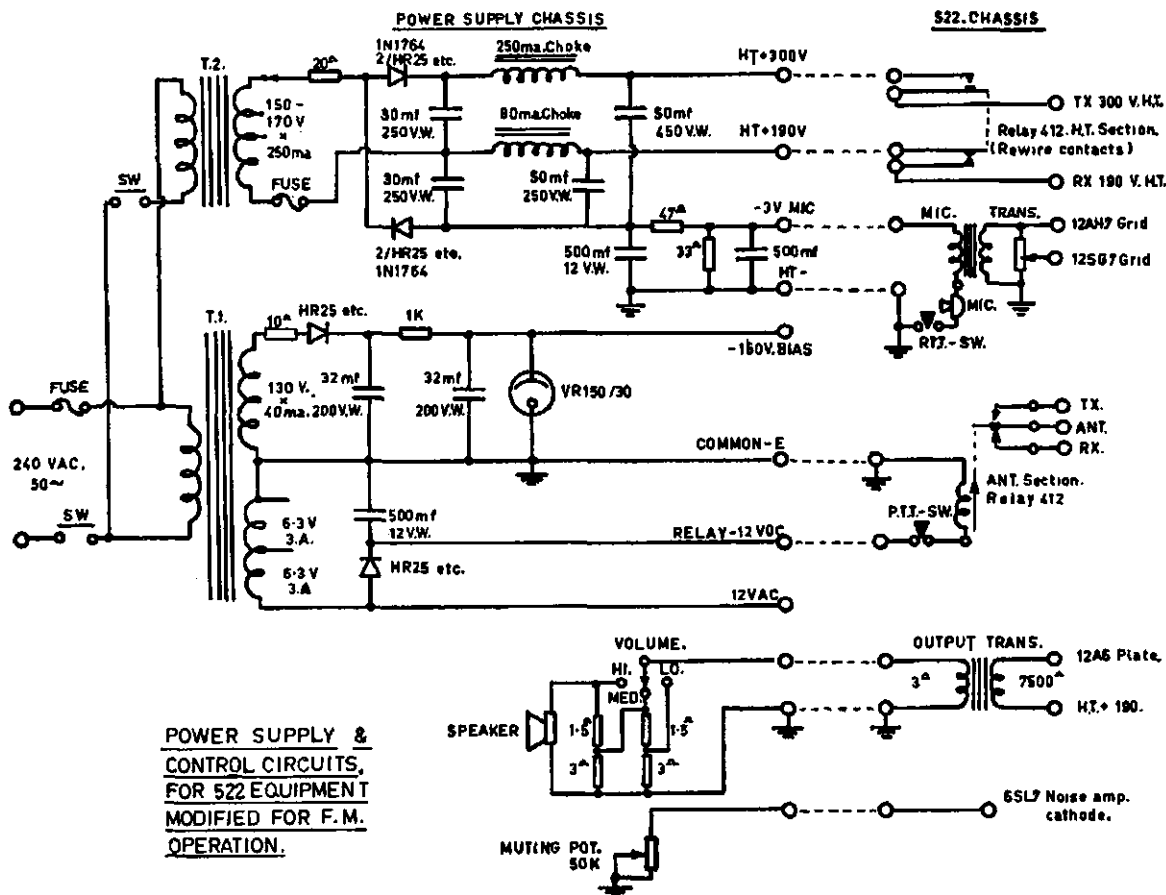
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IMPROVING YOUR MOBILE RECEIVER

ROY HARTKOPF, VK3ZOM*

SINCE I have recently been in Amateur Radio I have received not only advice but also some very useful bits of equipment from helpful Amateurs. I hope that these tips may in turn be useful to someone else.

Because I have been travelling interstate my efforts so far have been concentrated on mobile work and I installed a 50 Mc. rig in the car. Provided one builds a shockproof rig, with preferably a transistorised power supply, the biggest remaining headache is that of noise. The first step was to try to eliminate noise in my own car.

The biggest single improvement it is possible to make in most cars is to put a coaxial capacitor between the make and break contacts on the distributor and the low tension connection to the coil. Unfortunately these capacitors are as scarce as hen's teeth. Merely connecting an ordinary capacitor of about 0.5 μ F. from the wire to earth may not be very satisfactory.

In this case it is necessary to make some kind of filter. A shunt capacitor about 0.1 μ F., a small choke, and another capacitor is quite effective. A distinct improvement can usually be realised by putting all these inside a metal box and using feed through capacitors at input and output. This almost approximates to a coaxial capacitor. The value of feedthrough capacitors should be as high as you can get.

The next problem is that of high tension ignition noise. The usual practice here is to fit suppressors, but I have found suppressor cable is not only more effective, but far cheaper into the bargain. Many modern cars, incidentally, have this fitted, so if you have a modern car—1955 onwards—check before you buy any. This suppressor cable does not have any wire conductor in the middle at all. Instead, there is a kind of string doped with resistive material and this gives a distributed resistance of about 3,000 ohms per foot of cable. In addition, the insulating material is rubber, not plastic, and this also helps to damp the radiation. A set of suppressors costs from two to three pounds, while the suppressor cable retails at 1/3 per foot and the car can be completely rewired (it probably needs it anyway) for about fifteen to twenty-five shillings.

Generator hash is another source of trouble, but this and many other minor noise sources have been so frequently dealt with that they are not worth mentioning here. Look up any Handbook which deals with mobile work.

NOISE LIMITER

Having quite effectively cut down radiation from my own car, I found that the noise level was still quite intolerable, particularly on busy roads. So I set to work to make a noise limiter.

The main problem here was lack of room to jam anything more into the car radio receiver. So the limiter had to be something which did not require much space.

The circuit shown in Fig. 1 takes very little room and is extremely effective. The only disadvantage is that the audio available at the volume control is cut to about half.

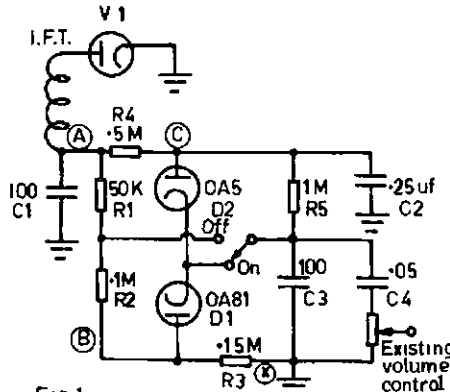


Fig. 1.

ⓐ If V1 has cathode bias then R3 is returned to cathode.

The method of operation is this. The detector diode creates at point A a negative voltage which is varying at audio frequency (the r.f. is by-passed by C1). Remember that this audio voltage is all negative because the positive cycles of r.f. and anything else are all cut off by the detector diode in the first place. Now at point B, we get exactly the same kind of voltage as we do at A, but half of it has been lost across R1 and R2.

At point C, however, the picture is quite different. Firstly, the voltage here is purely d.c. R4 and C2 act as a smoothing circuit and the voltage at C tends to rise to a value which is the average of the voltage at A, so that for half the time the voltage at A will be above the voltage at C, and for the other half of the time it will be below it.

At 100 per cent. modulation the audio voltage at A will go from nothing to twice the average (which is the voltage at C). So at 100 per cent. modulation the voltage at B (which is half the voltage at A) will swing from nothing to an amount which is equal to the voltage at C.

Now as long as the voltage at B is more positive (or less negative) than the voltage at C, there will be a current through D1, since its anode will be less negative than its cathode, and it will conduct. But as soon as a sharp negative spike appears at B the diode will cut off and the spike will be prevented from getting into the audio amplifier. In practice, through capacitance effects, etc., some of this spike may get through. But if it does, it will then cause the cathode of D2 to become negative with respect to the anode, which is tied to the voltage at C. Then D2, which is normally cut off, will conduct and the spike will be shunted to earth through the large capacitor C2.

One great advantage of this circuit is that the voltage at C automatically adjusts itself to the average strength

of the carrier and so there is no need for manual adjustment. But as soon as any spikes come along which exceed the maximum modulation, they are cut off by the one diode and any remnant is shunted by the other.

This belt and braces method is very successful. Where previously it was difficult in heavy traffic, to read signals less than strength 8, it is now possible to read in comfort signals down to strength three and four.

The switch shown will boost the audio output and cut out the limiter when it is not needed. There is no great need for it, but it is nice to have if only to show one's friends how effective the noise limiter is.

BEAT FREQUENCY OSCILLATOR

Finally, with so many stations on single sideband a beat frequency oscillator is becoming a necessity, even in mobile work. Again with a car radio comes the problem of space. The obvious answer here is a transistor. A transistor oscillator for 455 kc. is very simple and we won't go into details here. But two points are worth mentioning. First there is no need to alter the wiring of the car radio. A couple of inches of wire hanging in mid air near the i.f. transformers will give plenty of injection. Secondly, the great snag about the normal b.f.o. is that space for a tuning control and on-off switch is just non-existent in the usual car radio. The writer found the following solution a hundred per cent. effective.

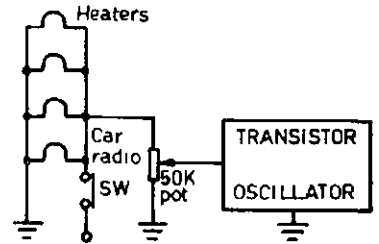


Fig. 2.

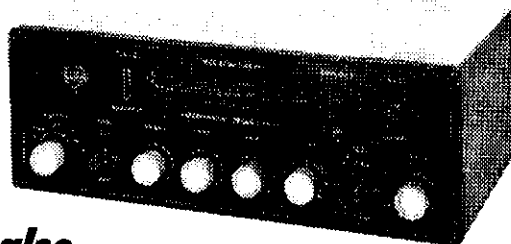
The oscillator in question was made to take 1 1/2 mA. at 6 volts. It would work quite well down to about 2 volts but the frequency varied with the voltage. So instead of connecting the oscillator direct to the battery, it was connected to the slider of a 50K potentiometer. The potentiometer (previously the tone control of the car radio, now put to better use) was connected as shown in Fig. 2. One side to battery and the other to earth. The potentiometer was set about half way and the b.f.o. tuned, with a slug, to 455 kc.

The remainder of the tuning is simply done by varying the voltage with the erstwhile tone control and when the b.f.o. is not required the tone control is turned fully round until there is no voltage on the oscillator. No switches, no tuning controls, no space headache. The variable voltage does the tuning.

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Pentagrid Mixers for S.S.B. Exciters*

HOWARD L. MORRISON, W7ESM

PENTAGRID (five-grid) tubes such as the 6SA7, 6SB7Y, 6BE6, and 6BA7 are familiar to Hams because of their frequent use in receivers. In most receivers they are used to change the frequency of the incoming r.f. signal to an intermediate frequency by heterodyning (beating) it with the local h.f. oscillator. In low cost receivers the pentagrid tube also oscillates in addition to its function as a mixer; when used in this way it is called a pentagrid converter. Pentagrid tubes are also often used as product detectors for s.s.b. signals, in which case the i.f. signal is heterodyned with a local i.f. oscillator, and the resulting difference frequencies are the desired audio signal.

Pentagrid tubes were designed especially for heterodyne mixing, and they offer certain advantages over other type tubes in this service. The signal grid (No. 3) draws no current, and so does not broaden the selectivity of the tuned circuit which drives it, and there is good isolation between the local oscillator and the signal circuits by reason of the screening effect of grids No. 2 and No. 4. These, together with other advantages to be described later, are good reasons for using pentagrid tubes as frequency converters in s.s.b. exciters. However, the writer has found that the operating conditions for these tubes in exciter use are quite different from their use in receivers if trouble with spurious signals is to be avoided.

FREQUENCY CONVERSION IN TRANSMITTERS

Once any modulated signal—a.m., f.m., s.s.b., or d.s.b.—is generated, its frequency can be changed only by the heterodyne method; that is, mixing it with the signal from a local oscillator (fixed or variable in frequency) in a device whose output will be the sum or difference of the original two frequencies. Such a device is called a mixer, but it must not be considered equivalent to mixers used, for example, in audio systems, where the output of a microphone is combined with that of a phono pickup. In audio mixers, the amplitude of the output signal is the sum of the instantaneous amplitudes of the input signals. No new frequencies are produced.

In a heterodyne mixer, the amplitude of one input signal is controlled in accordance with the instantaneous amplitude of the other one—which is another way of saying that it is an amplitude modulator. The modulated amplifier in an a.m. rig is actually a high-level heterodyne mixer, its output being not only the original carrier but new signals whose frequencies are the sum and difference of the carrier and audio signals. New frequencies are generated in the process of this kind of mixing.

A simple numerical example will show why the frequency of a modu-

● The use of pentagrid mixers in home-brew s.s.b. exciters can, if great care is not taken, produce a large number of spurious output signals. The author shows how these spurious signals may be eliminated.

lated signal can be changed only by the heterodyne method: Say that a 7.250 Mc. carrier is modulated with 1,000 cycles of audio. The sideband components will be 7.249 and 7.251 Mc. If a frequency tripler stage were to follow the modulated stage, the new carrier would be 21.750 Mc. and the sidebands would be 21.7477 and 21.753 Mc., and a receiver tuned to it would produce 3,000 cycle audio, not the 1,000-cycle original. If voice modulation in such a set-up were used, the r.f. signal would require a channel three times wider than necessary, and the op. would sound highly unnatural. Changing frequency by means of doublers and triplers, even in a.m. rigs, can be done only ahead of the modulated stage. On the other hand, if the modulated carrier in the above example was mixed with a 14.500 Mc. signal, the new carrier would be 21.750 Mc., but the sidebands would still be only 1,000 cycles from it: $7.249 + 14.500 = 21.759$, and $7.251 + 14.500 = 21.751$.

PROBLEMS WITH HETERODYNE MIXING

Though heterodyne mixing solves the problem of changing frequency while preserving the frequency difference between the sidebands, it can add two special ones of its own, even with pentagrid mixers, unless special precautions are taken. These special problems are encountered only when the mixer output signal is at radio frequency; they cause no trouble in receivers, where the output of the mixer is very much lower in frequency than either input signal. Both problems stem from the lack of selectivity in the output circuit of the mixer, usually a single L-C resonant tank. If the mixer drives an amplifier which requires grid current, the load on the tuned circuit reduces its selectivity still more. Even going to the trouble of using double-tuned circuits often fails to reject sufficiently unwanted signals in the mixer output.

The first problem arises from using a mixer that requires one of the two input signals (usually the ones from the local oscillator) to be at least ten, and preferably more, times stronger than the other in order to minimize distortion in the mixer output. (Distortion means the production of unwanted frequencies, as will be seen later.) This relation is true for all diode mixers and most other type tubes used for mixing except for pentagrid tubes operated as described below. Pentagrid mixers used in receiving-type conditions also use a strong oscillator signal.

To illustrate, suppose that it is desired to get an s.s.b. signal coming from a 460 Kc. filter into the middle of the 40 metre phone band. It could be mixed with a local oscillator of either 6.79 Mc. or 7.71 Mc.; to obtain 7.25 Mc. s.s.b. But notice the difficulty in expecting even a double-tuned r.f. circuit to pass 7.25 Mc. and reject a signal ten times stronger at 6.79 or 7.71 Mc. (If they aren't rejected, pink tickets will soon appear from the F.C.C. The loaded tank circuits in the linear amplifiers following the mixer will be fairly broad, and so offer only a little help in rejecting the unwanted signals.)

The second problem is the production of harmonics of one or both the input signals, together with beats between these harmonics, or between the original signals and the harmonics, all of which are called "cross-modulation products," or "spurious signals." Some of these unwanted signals often have a frequency such as to get by the mixer output circuit, along with the desired signal. When they do, the least that can happen is a flock of "birdies" in the local receiver—sometimes so many that it is very difficult or even impossible to tell which one corresponds to the transmitter carrier frequency when trying to set the v.f.o. The worst, of course, is that they will get amplified and radiated, clobbering different spots in the band unnecessarily, or else being outside the band altogether and so bring in pink tickets.

HARMONIC GENERATION

A long time before even the telephone was invented, mathematicians had proved that any waveshape can be made up by adding together, in proper amplitude and phase, sinusoidal waves whose frequencies are whole number multiples (i.e. "harmonics") of the frequency which corresponds to the rate of repetition of the original wave. In other words, any repeating wave, whatever its shape, is equivalent to the sum of a series of sinusoidal shaped waves which are harmonically related. Mathematical analysis also shows, and experiments demonstrate, that sharp corners in a wave mean many harmonics. (A theoretically perfectly square wave would have harmonics all the way to infinity.) The important thing to remember from this is that clipping a wave makes sharp corners, and therefore clipping a wave generates many harmonics. That is why the clipped output from a 100 Kc. crystal oscillator provides signals every 100 Kc. up into the v.h.f. range for calibrating receivers. It is also why a low-pass filter must follow the clipper in a speech amplifier. The filter removes many of the audio harmonics which would otherwise make the op's. voice sound harsh and raspy and broaden the signal bandwidth.

PREVENTION OF SPURIOUS SIGNALS

A diode is one of the very best clippers, and when most tubes are driven so hard that grid current flows, the

grid-cathode circuit functions as a diode clipper. Now the operating conditions for pentagrid mixers which are found in tube manuals and Amateur Handbooks are for receiver applications, where things like conversion gain and the ability to handle a very wide range of signal voltages on grid No. 3 are important. Consequently, high excitation on grid No. 1 is recommended, with grid current between 0.35 and 0.5 mA., depending upon tube type. Such operation involves clipping of the signal applied to grid No. 1, and the consequent generation of harmonics. In an s.s.b. exciter built by the writer, when two of the 6SA7 frequency converters in the high frequency section were operated with 0.5 mA. current in the grid No. 1 circuit, there were about six birdies inside the ten metre band

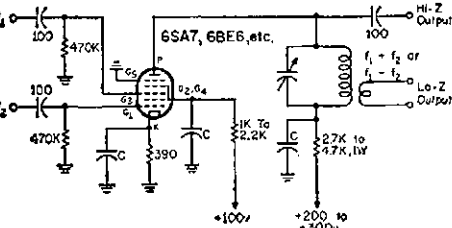


Fig. 1.—An operational pentagrid mixer circuit is shown above. By-pass capacitors C can be 0.005 μ F. if all frequencies involved are higher than 400 Kc. If the output frequency is within 25% of f_1 or f_2 , a double tuned output circuit is recommended. All resistors are $\frac{1}{2}$ watt unless otherwise noted and all capacitors are in pF.

alone, with three of them so strong that the one corresponding to the desired output frequency could not be identified for purposes of setting the v.f.o. There were more birdies outside the band. (Incidentally, don't blame all birdies on the exciter. In the case just mentioned there were more birdies which were found to be images in the receiver, itself a fairly expensive double-conversion commercial model.)

In order to find more suitable operating conditions for pentagrid tubes in exciter service, a test circuit using a 6SA7 was set up. 60-cycle and 8 Kc. audio voltages were used for the control grids, and an 8 Kc. tuned circuit of fairly high Q was used in the plate circuit. A cathode ray oscilloscope was connected across this tuned circuit for viewing the output waveshape. Such an arrangement allows one to determine not only the bias and signal voltages which cause clipping, but also any significant distortion (implying the presence of harmonics) due to operating on the more sharply curved portions of the tube's characteristics. The scope picture produced by such a set-up will be that of an amplitude modulated signal like the ones pictured in the Amateur Handbooks, provided that the tuned output circuit has low impedance at 60 cycles. Clipping in the grid circuits will show up as "overmodulation on negative peaks," except when the higher frequency signal is applied to grid No. 1, and is also large in amplitude. Tests were therefore made with both input signals applied to grid No. 3 in turn.

The testing resulted in the following conclusion: For type 6SA7 pentagrid mixer with a plate supply of 300 volts, with 100 volts on grids No. 2 and No.

4, and with a cathode bias resistor of 390 ohms, the signal applied to either grid No. 1 or to grid No. 3 should never exceed 2.5 volts r.m.s. (or 3.5 volts peak). Under these conditions there is no clipping, no grid No. 1 current, and very little distortion in the output. This is shown in Fig. 1.

All of the advantages of pentagrid mixers are had, and the two special problems are taken care of. Other pentagrid type tubes were not available when the above tests were made, but they all appear to be similar, to judge from their rated operating conditions in tube charts.

MEASURING SIGNAL INPUT VOLTAGES

If a vacuum tube voltmeter with a probe for measuring r.f. voltages is available, checking the signal voltages applied to grids No. 1 and No. 3 is easy. Remove the tube from its socket and insert the probe pin or lead into the socket hole corresponding to the desired grid. If the signal sources are tuned circuits, these will have to be re-trimmed a little to compensate for the difference between the interelectrode capacity of the tube and that of the probe. Do not try to use a long wire to a v.t.v.m. having no probe. Long means anything more than three inches.

If a regular v.t.v.m. is unavailable, a simple one can be lashed up in a few minutes. A suggested circuit is shown in Fig. 2. The tube and socket can be the probe, so there are no chassis mounting problems. The grid coupling capacitor serves as the actual probe wire. The plate milliammeter can be calibrated for 2.5 volts and similar

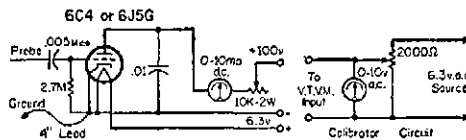


Fig. 2.—A simple v.t.v.m. that may be used to measure the signal voltages at the No. 1 and No. 3 grids. Also shown is a simple set-up that may be used for calibration.

values by using 60-cycle voltages from the heater circuit, as shown. In a simple v.t.v.m. like this, the meter "reads backwards," going down instead of up when an a.c. voltage is measured. It is not practical for measuring voltages more than about 8 volts, and the calibration is non linear (i.e. half a given meter reading does not mean twice the a.c. voltage). However, it is sufficient for the job at hand, and its simplicity and economy are attractive.

TECHNICAL ARTICLES

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S.W. Receiver with 1.6-60 Mc. Frequency Range

H. F. RUCKERT,* VK2AOU

THIS receiver is being described for the benefit of Radio Amateurs, self trained like the author, who still like to design and build their own equipment, who have and can use small tools, soldering iron, multimeter and g.d.o., who wish to keep their knowledge in step with the developments of electronic technology, and not burden the family budget with purchase price plus hire purchase charges for commercial equipment. This article is for those who can build, calibrate and service their gear without a dealer's service department, and who are not worried about re-sale value when incorporating improvements.

It is hoped that this article will show the younger generation that it is possible to become Radio Amateurs without first becoming capitalists to whom the price of the gear and the width of the chromium strips are a measure of status. (See "QST," March 1963, p. 37.)

To show those who still care about true Amateur Radio and to myself, that we can build modern receivers, up to the standard of the art, the following receiver was designed and built using only those facilities he should have before he gets his call sign.

HOW IT WAS DONE

The first receiver of any Amateur station should be one with a wide frequency range. If one has an Amateur-band "only" receiver, then it is important to have a second receiver to check what appears between the Amateur bands. There are WWV and WVVH, interesting radio stations acting as guides to DX conditions, emergency stations, and by no means the least important, harmonics from your own transmitter.

The receiver the writer had for these purposes was 20 years old and modernising was best carried out by a completely new design and construction. It was, at the same time, possible to incorporate the features which make the Amateur-band "only" receiver so important.

Some of the valves had seen t.v. service, but inspection showed that they were still quite good. The Goerler turret for band switching was once donated by a friend for technical information. The HRO dial was found in the junk box together with all the resistors needed. The fixed capacitors and the trimmers are nearly all of the ceramic version. This is not surprising, as the writer's job is the development of ceramic dielectrics and their manufacturing processes with a local manufacturer.

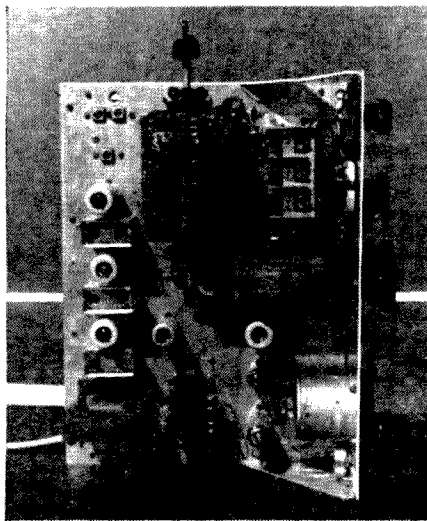
The crystals were of surplus origin and had been waiting many years for a suitable application. The mains transformer had burnt out in another receiver and was re-wound with the aid of a hand drill. Scrap metal was used for the chassis. All in all, not 1% of

the price listed for this type of receiver in importers' catalogues was required to finance this home-brew project.

THE CIRCUIT

Modern mixer valves have such low noise figures that one r.f. stage is capable of bringing the signal well above the mixer noise. The pentode section of the first 6U8 works as the r.f. stage, whilst the triode section is used in the crystal calibrator. The Ge-diode in the calibrator circuit increases the harmonic content substantially and the 100th harmonic is still quite strong. The aerial coupling coil is connected in such a way that symmetrical feeders can be attached.

The Goerler turret (locally available) has six ranges on easily removable strips. Each strip has three slug-tuned coils with four chambers. Three chambers were used for the tuned circuit, whilst the other chamber at the cold end, where the slug is located, was occupied by the coupling or feedback coil as the case may be.



Short Wave Receiver. Top: xtal filter slugs, coils, padders and trimmers containing turret, three-gang air capacitor, fixed ceramic capacitors near switch. Left side: i.f. strip with open i.f. coil ends and associated parts under larger shielding cans. Bottom: power supply choke, output transformer, a.f. valves, S meter.

The 16 mm. diameter ceramic trimmers are mounted alongside each coil. The coil strips also hold the oscillator padder capacitors, which are low voltage polystyrene types.

With a constant C_{max} to C_{min} ratio for all ranges, it was only necessary to calculate for one range, the r.f. coil inductance, parallel trimmer capacity, the oscillator coil inductance, the parallel and series padder capacity, to obtain three-point tracking. With series or parallel capacitor padding alone, only two-point alignment would be possible per coil range.

The L and C values so obtained, a one-hour job with the slide rule, can be multiplied or divided by simple ratio figures to obtain the values for all six ranges. A graph showing $\mu H. v.$ turns can be easily prepared on double log paper. Two coils are wound with the slug in a certain position having 50 and 10 turns, and a fixed close tolerance capacitor is connected in parallel with the coils. The g.d.o. tells the resonance frequency from which can be calculated the inductivity of the coils. A linear graph results on double log paper.

Using three chambers, the following formula can be used:

$$\text{Turns} = \sqrt[3]{n \mu H.}$$

The required bandspread is obtained by using five capacity ranges for each of the six coil ranges. In this way the frequency range of 1.6 to 60 Mc. can be split up in up to 30 ranges, which is necessary with a highly selective i.f.

The three-gang air dielectric capacitor covers 15 to 50 pF., and with a three-gang switch fixed ceramic capacitors of low TCc are connected in parallel, having 30 pF., 60 pF., 90 pF. and 120 pF. It is important that all fixed and variable capacitors are connected to the switch with very short leads, or series inductance will reduce their effect and the bands will no longer overlap at higher frequencies.

Additive mixing via 2 pF. is employed, which causes some pulling of the oscillator when the mixer tuned circuit is aligned. The oscillator tuning was checked with an absorption type frequency meter because it does not "lie," after the band-end frequencies had been worked out for each coil range.

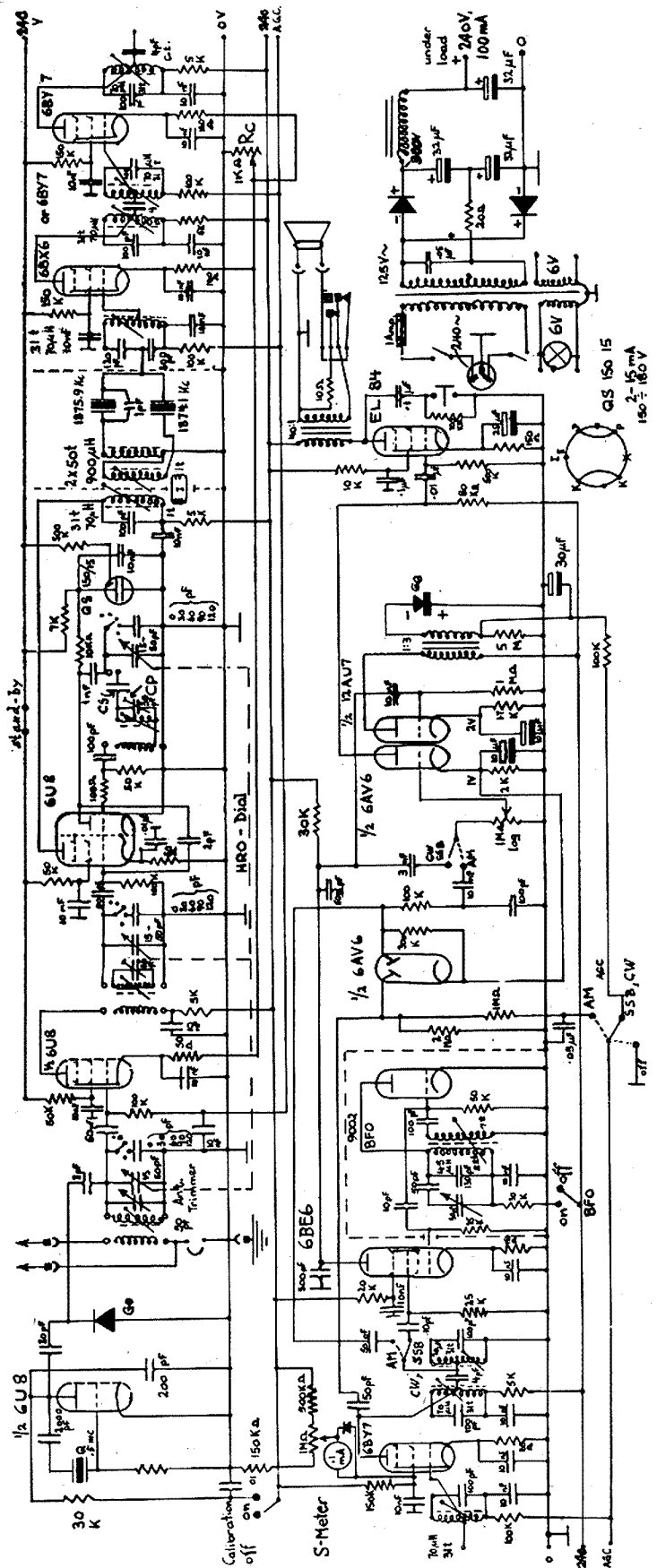
The r.f. and mixer tuned circuits were pre-aligned with the g.d.o. Final alignment can be carried out by using the g.d.o., or what have you, as a signal generator. The bands were so shifted that all Amateur bands appeared within one particular dial range. The Amateur bands cover 60 to 140 dial divisions on the HRO dial, which is a satisfactory degree of bandspreading.

Omitting coil taps, it was easy to obtain good tracking, which is assisted by using part of the r.f. stage capacity as aerial tuning correction trimmer. This trimmer improves r.f. gain and selectivity by tuning out the reactance of the feeder and aerial, which changes considerably over the wide tuning range and from aerial to aerial.

The oscillator plate voltage is stabilised with the SQ150/15. The only time "take-off" is experienced occurs when the r.f. stage is tuned to the intermediate frequency, because too many stages then work on that frequency.

R.f. feedback is greatly suppressed by the shields between the coil sets per stage, which have individual earthing lugs. The turret axle too has a separate earthing lug. The rhodium plated alloy contacts gave no trouble during twelve years of service of two similar turrets in my Hand-band receiver.

* 25 Berrille Road, Beverly Hills, N.S.W.



Circuit Diagram of Short Wave Receiver with 1.6-60 Mc. Frequency Range.

In the interest of temperature compensation, so that the drift is only in one direction, it is vital to place all the frequency determining L and C components on one side of the chassis, close together, and near warming up components, so that the L and all C's arrive at the same temperature at the same time. The compensation per range depends on how far the oscillator coil slug has been screwed in the coil. The N TCL iron coil slugs require P TCc capacitors, whilst ferrite P TCL slugs require N TCc capacitors.

To obtain sufficient image rejection with only two r.f. tuned circuits, it is necessary to use a fairly high i.f. of 1.5 to 5 Mc. Double conversion, advocated by the author since 1934 in Amateur publications, would give too many birdies with the wide frequency range to be covered, so single conversion was used.

The selectivity required today was obtained with a crystal filter, using two fixed adjusted crystals, which had no side responses. To utilise the selectivity offered by crystals, we must shield the i.f. sections of the receiver so well that they are as r.f.-tight as a good signal generator. If we have 1 mV. i.f. at the xtal filter, and 1 μV. (which does not seem to be much) leaks around the crystal, we cannot suppress off resonance signals more than -60 db. Insufficient shielding seems to be the main trouble of home constructions. See how this is done in the old HRO!

The second source of trouble is the matching of the crystal or crystals to the adjacent i.f. tuned circuits. A bifilar 1st i.f. filter secondary winding helps to bring identical voltages of opposing phase to the crystals. Lead lengths and component layout have to be selected in such a way that symmetry is not disturbed, or trimmer capacitors are required to correct this condition.

The i.f. coils have been wound on locally manufactured ferrite coil forms as used in transistorised receivers. The following coil inductance formula applies:

$$\text{Turns} = 3.7 \sqrt{n \mu H.}$$

To achieve symmetry, inductive coupling between the coils of the 1st i.f. filter was used. A one-turn link gives a very tight coupling, which can only be reduced by placing a large capacitor (1,000 pF. or so) or a resistor between the link coil turns. If the coupling is reduced too far, the tuning of the mixer stage plate circuit becomes critical and an increasingly deep dip between the crystal resonance peaks shows up, which is undesirable.

The bifilar coil tunes with the attached capacities close to the i.f. frequency of 1875 kc., but both first i.f. coils tune very broadly. To get the anti-resonance poles close and symmetrically placed to the resonance frequencies of the crystals, a one pF. capacitor parallel to the crystal with the higher frequency was all that was required. The flat top pass band within -3 db. points is about 3 kc. wide, and the poles with a frequency spacing of 7 kc. are 80 db. down. The small side lobes are down 60 db.

Of extreme importance is the capacitive tap (or inductive transformation point if used) at the next i.f. tuned circuit. The desired flat top and much of the crystal selectivity is lost if the

capacitor at the hot end of the next i.f. tuned circuit becomes too small. If the opposite case is used, a deep dip will be caused between the extremely sharp crystal peaks. A capacity tap compromise has to be found suitable for the frequency and type of crystal used. The third i.f. tuned circuit has to be tuned correctly to obtain a symmetrical i.f. response.

The crystal filter was separately adjusted and tested by using the g.d.o. as signal generator and a 50 μ A. meter was converted with a GE diode, a resistor and two capacitors to measure r.f. Time spent at this point is well worth while.

With little r.f. gain at higher frequencies, most of the amplification had to be achieved in the i.f. section. Three stages with t.v.-i.f. type valves like the 6BY7 were selected. Extra shielding precautions were necessary to prevent i.f. feedback and oscillation. Small shields were soldered between the grid and plate valve holder lugs. Small shielding cans had to be put over the open ends of the i.f. coils, covering also the adjacent capacitors. Only shielded wire came out of the cans. The screen grid voltage of the i.f. valves was reduced and made gliding by using higher dropping resistors.

4 pF. coupling capacitors give just about critical i.f. coupling by connecting the coil centre taps. The plates and grids are also connected to the coil centre taps to reduce feedback, to bring the i.f. gain to the required level, to improve selectivity and to reduce i.f. detuning when the space charge is moved by the a.g.c. voltage. The manual gain control adjusts the cathode bias of the r.f. and the first two i.f. stages. A bridge circuit is used to operate the S meter from the a.g.c. controlled screen grid voltage of the third i.f. valve.

A 6BE6 product detector, which has small coupling capacitors and low ohmic grid resistors to reduce the danger of overdriving it, can be used to receive c.w. or s.s.b. The valve 9002 operates the b.f.o. One diode each of the 6AV6 rectifies i.f. to obtain audio from a.m. signals and the a.g.c. voltage for a.m. operation. Filtered a.f. from the product detector is amplified in one half of the 12AU7, transformed 1:3 and rectified by a Ge diode to generate an a.f. controlled a.g.c. voltage for s.s.b. and c.w. reception. Even this unrefined a.g.c. circuit works quite well and is very convenient if local and much weaker DX stations have to be copied on the same frequency in quick succession.

The triode of the 6AV6 and the 6BQ5 (EL84) perform the audio amplification. The 100K ohm resistor across the headphone connections prevents a loud d.c. discharge of the blocking capacitor and adds to the safe operation of the headphones, which are earthed with one leg. A 10 ohm resistor, or a built-in loudspeaker, is automatically switched across the output transformer when the separate loudspeaker is disconnected. This protects the transformer and retains the proper load for the final.

With the simple to use and cool running silicon diodes available, a voltage doubling power supply presents no problems. It does not take long to wind the 500 turns or so as secondary winding on a burnt out mains transformer.

THE LAYOUT OF PARTS

In the interest of short i.f. leads the components of the tuned circuits are all above the chassis and the r.f. and mixer valve had to be mounted below the chassis. The cool running mains transformer is also underneath, whilst all i.f. filters are on top along the rear of the chassis with the valves between them.

The HRO dial is in the middle of the front panel. The turret, the fixed tuning parallel capacitors and the three-gang variable capacitor are so arranged that the shields are in line to be effective. The b.f.o. should be well shielded to prevent blocking of early i.f. stages, resulting in sensitivity reduction.

THE "HC" CAPACITORS

Much chassis space was saved, crowding around the 9-pin valve sockets prevented, and the climatic durability improved by using "HC" capacitors, locally manufactured as "Red Caps". This is the latest version of ceramic capacitor, available in this country for about two years.

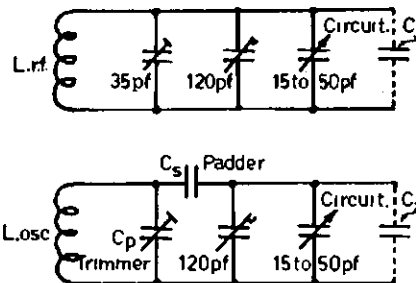
Australia was one of the first four countries in the world to produce these components without foreign licence or technical help. The HK type ceramic contains doping oxides, which help to retain reduction in the interior of the body when, after the reduction firing process, which makes the ceramic semi-conductive, the outside skin is re-oxidised.

effect, but these types usually have a lower insulation resistance than those of local manufacture.

TUNING DATA

The L and C values used in the i.f. section of the receiver are shown in the circuit. The r.f. and oscillator tuning data are listed in Table 1.

The tuning data is calculated for a capacity range of 65 pF. C_{min} and 215 pF. C_{max} , ratio $C_r = 3.3$. By reducing the capacity of the trimmers slightly, which are in parallel to all coils, a capacity variation of $C_r = 3.5$ or C_{min} of 60 and C_{max} of 210 pF. results. This allows for sufficient overlapping from coil range to coil range. The overlapping of the five C ranges for each coil range is obtained by using 30 pF. fixed capacity steps (e.g. 0, 30, 60, 90 and 120 pF.) and a variable air capacitor with 35 pF. variation (15 to 50 pF.).



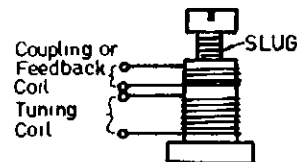
Range	f r.f. Range Mc.	L r.f. μ H.	Turns r.f.	f os. Range Mc.	L os. μ H.	Turns os.	Cs Padder pF.	Cp Coil pF.
1	1.7-3.06	51	71	3.575-4.935	38	61	165	22
2	3.06-5.5	15.5	40	4.935-7.375	11.5	32	300	12
3	5.5-9.87	4.7	22	7.375-11.745	3.5	17	550	6.6
4	9.87-17.8	1.42	12	11.745-19.675	1.05	10	1000	3.6
5	17.8-32	0.43	6 (8)	19.675-33.875	0.32	5 (7)	1800	2
6	32-57.2	0.13	3 (4.5)	33.875-59.075	0.097	3 (3.5)	3300	1.1

Table 1.—R.f. and Oscillator Tuning Data.

In the case of the 25v. type, this oxide skin, forming the dielectric, is only 0.0004" thick. A fine glaze layer of only a few millionths of an inch thickness help to improve the resistance and reliability of the dielectric. Silver electrodes fired on and soldered on leads are being used as in other ceramic capacitors. In fact one has here two capacitors in series in one piece with a common internally connected semi-conductive centre electrode.

All by-pass and coupling capacitors with circuit voltages up to 25v. are of this type. A 0.01 μ F. capacitor is about $\frac{1}{2}$ " diameter and these little discs did not mind a 150v. test.

The name HC stands for high capacity in contrast to HK, which means high k-factor, which is a very different type of ceramic capacitor. Some countries now make HC capacitors which depend partly on the so-called barrier layer



The aerial and r.f. stage coupling coils have one-quarter (range 1 and 2), one-third (range 3 and 4), and one-half (range 5 and 6) the number of turns as used for the r.f. coils of these ranges.

The oscillator feedback coils have to be so adjusted that per range at maximum capacity the oscillator still works with sufficient oscillator voltage at the mixer grid, but at the same time at minimum capacity the oscillator must not overswing and cause birdies.

(Continued on Page 17)

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A 160-Metre Converter for 80-Metre Receivers*

Compact Fixed-Tuned Unit Covering the Lowest-Frequency Amateur Band

PHILIP E. HATFIELD, W9GFS

INSPECTION of the frequency range of some Amateur band receivers might indicate that there is no band lower in frequency than the 3.5 Mc. band. While it is true that there isn't much space at the lower frequencies, still there is considerable activity in the tiny segments of the 160 metre band shared by Amateurs and Loran.

"UP" CONVERTER

A converter can be constructed to make these receivers operate in the 160 metre band by converting the 160 metre signals up in frequency to the 3.5 Mc. band instead of down in frequency as is done in most converters. Normally, the i.f. output frequency of a converter is lower than the input frequency. This is done to utilise some of the advantages of a low i.f. frequency. However, a converter can be designed to produce beat notes higher in frequency than the input signal just as well as lower. An example is the BC348 receiver which has an i.f. frequency of 915 Kc., but includes the range of 200 to 500 Kc.

The principle of converting up in frequency was used in the converter to be described. This converter was constructed to extend the frequency range of the station receiver, but it can be used with any receiver covering the 3.5 to 4 Mc. band.

A second departure from convention in this converter is to use fixed-tuned circuits in the r.f. amplifier and mixer at the rather low frequencies involved. This would not be practical if the old 160 metre band were to be covered, but a 25-Kc. band segment can be very satisfactorily covered in this manner. (In Australia, the band is 60 Kc. wide—1800 to 1860 Kc.—Ed.)

* Reprinted from "QST," January, 1962.

● Several current manufactured receivers as well as a good share of home-brew jobs do not include the 160 metre band. This easily-built converter unit puts a much neglected part of the Ham spectrum within the tuning range of any receiver covering the 80 metre band.

The physical layout of the converter illustrated was dictated by the necessity for matching it with other plug-in converters for the receiver. In this arrangement the converter obtains filament and plate voltages through an octal plug mounted on the bottom of the converter. However, almost any chassis or box can be used for the converter, and a small power supply may be built in if no means of taking power from the receiver is available.

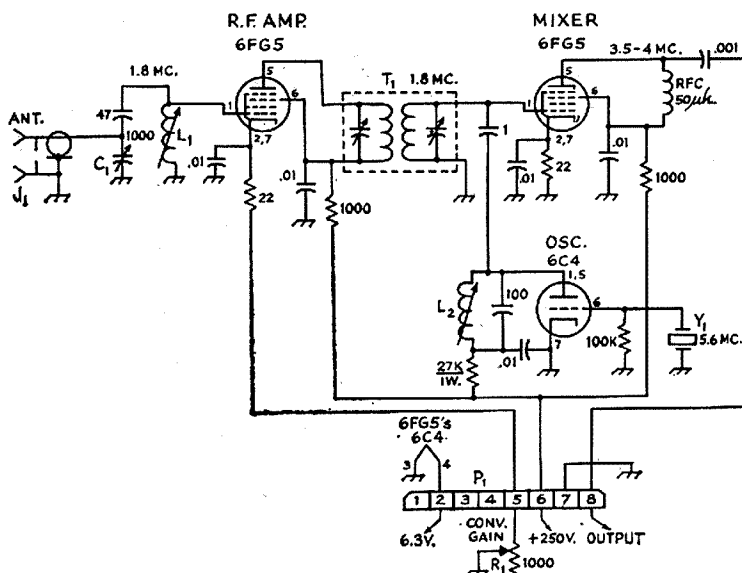


Fig. 1.—Circuit of the 160 Metre Converter. Resistances are in ohms and resistors are 1/2 watt unless indicated otherwise. Fixed capacitors of less than 0.001 μ F. are mica; others are ceramic. Decimal values of capacitance are in μ F.; others are in pF. except as indicated.

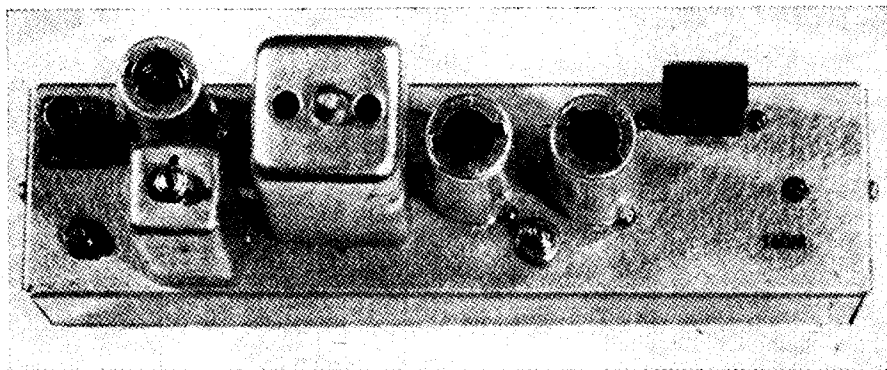
- C1—250-1,000 pF. (approx.) compression-type trimmer.
- J1—Chassis-mounting coax receptacle.
- L1—Approx. 200 μ H. (broadcast-band "loopstick").
- L2—Approx. 8 μ H.

- P1—Octal chassis-mounting plug.
- R1—1,000 ohm control (in receiver).
- T1—1,500 Kc. mica-tuned i.f. transformer, 10 turns removed from secondary.
- Y1—See text.

TUBES

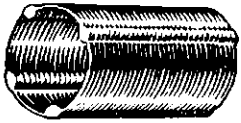
The circuit of the converter consists of an r.f. amplifier, a mixer, and a crystal-controlled oscillator. Both the r.f. amplifier and mixer tubes are 6FG5s. This relatively new General Electric tube is a "shadow-grid" beam pentode and has several advantages in Amateur usage that merit a short discussion here.

The 6FG5, unlike other pentodes, has an additional grid, placed between the control grid and the screen, and connected to the cathode. This additional grid reduces the ratio of screen to plate current and makes it practical to operate both the plate and screen at +250 volts. Use of the same voltage on plate and screen reduces the number of dropping resistors and bypass capacitors required. In addition, the transconductance of 9,500 micromhos makes



The 160 Metre Converter. The particular physical arrangement shown here is designed to fit into a unit-section type receiver. The "loopstick" used in the input circuit is mounted in the small can between the trimmer capacitor and the i.f. transformer which couples the r.f. stage to the mixer. Mixer and oscillator tubes, slug-tuned oscillator coil and crystal are to the right. The foundation is an 8 1/2 x 2 1/2 x 1 1/2 inch interlocking type box.

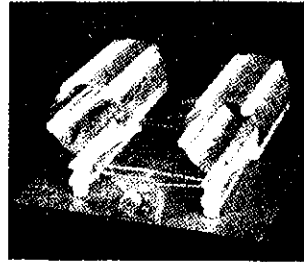
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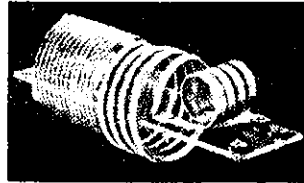
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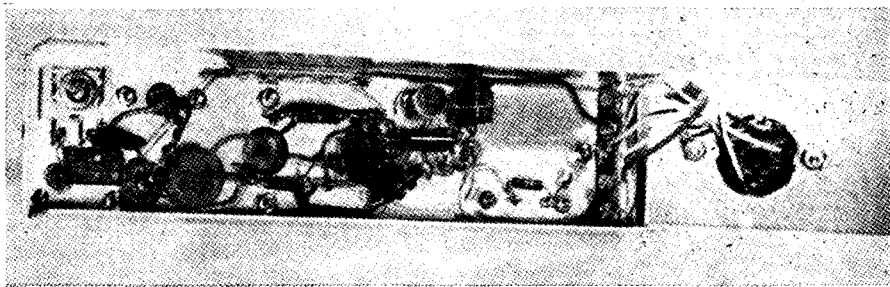
the tube a better performer than many commonly used pentodes. While not of importance at 160 metres, the low screen-to-plate current ratio reduces partition noise and makes the 6FG5 attractive also at v.h.f.

CIRCUIT

The input circuit of the converter, patterned after the one used in the once popular R-9'er, was designed to match the 50-ohm link used between the receiver and an antenna tuner; a conventional inductively coupled input circuit could just as well be used. This

able. Coverage of the two segments could also be obtained by switching trimmer capacitors across the broadcast coils. In either case, it would not be necessary to switch the crystal.

The idea of converting up in frequency may be extended to even lower frequencies than was done in this 160 metre converter. For example, a converter could be designed to cover the frequencies in the vicinity of 500 Kc. to allow reception of the ship and coastal c.w. traffic. Coverage of still lower frequencies is undoubtedly possible. ●



Converter with bottom cover removed. The input-circuit trimmer capacitor is in the upper left-hand corner. L2 is to the right of the tie-point strip, upper centre. The power connector is set in the bottom cover.

could be done by winding a few turns of wire as a primary on the broadcast band "loopstick" used as the input-circuit inductance. Interstage coupling between the r.f. amplifier and the mixer is through a 1,500 Kc. i.f. transformer. A compression-trimmer-tuned transformer was used and no difficulty was encountered in tuning the primary to 160 metres, although turns had to be removed from the secondary coil. An r.f. choke was used in the plate circuit of the mixer for simplicity. The crystal oscillator is conventional and uses a slug-tuned coil for the tuned circuit.

CRYSTALS

Since it is very difficult to prevent signals at 3.5 to 4 Mc. from leaking through with such a converter arrangement, some assistance may be had from proper selection of the crystal frequency. For example, if you are interested in c.w. only, pick a crystal that will make use of the phone portion of the 3.5 to 4 Mc. band for the tunable i.f. system. In this way you will avoid calling those very weak signals that may turn out to be operating in another band. Of course, if you are interested in phone, pick a crystal frequency that puts you in the c.w. portion of the 3.5 to 4 Mc. range. In addition, a simple low-pass filter may be placed between the antenna and the converter.

TWO-SEGMENT COVERAGE

If you wish to cover both segments of the 160 metre band presently available, several modifications of the converter are possible. One method would be to use replacement broadcast coils for the input and mixer circuits with a two-gang capacitor to tune both coils to the desired segment of the band. Here it might be necessary to remove a few turns from the secondaries of the coils, although if slug-tuned coils were used, sufficient range might be avail-

Short Wave Receiver

(Continued from Page 13)

With range 6, difficulties of this nature may be experienced. In this case it is possible to reduce the trimmer capacity further and use only the 0, 30 and 60 pF. fixed parallel capacitor ranges.

It is also possible to shift the low capacity ranges of coil range 5 so far that the frequency band up to 40 Mc. can be covered.

The coil table shows certain turn numbers in brackets. These are the calculated values. Due to lead inductance between the coils and the capacitors, the practical turn numbers had to be reduced to be able to make use again of the slug-tuning range.

One-fifth to three-quarters the tuning coil turns are required as oscillator feedback coil turns.

OTHER VERSIONS

The beginner may plan to build the complete receiver but simplify the circuit at first. The turret may be replaced at first by plug-in coils and the r.f. stage may be left out for the time being. The crystal filter can also be omitted, simply by replacing the crystals by a small ceramic capacitor between coil centre taps, not using the bifilar wound coil. It is, of course, advisable to leave the necessary space for the future inclusion of the omitted components.

The S meter may be any milliammeter with less than 2 mA. max. current.

It should not be too difficult to modify a three-gang radio capacitor to the required capacity range. ●

HINTS AND KINKS

H.F. CRYSTAL FILTER MOUNTING

Because of the increasing popularity of h.f. crystal filters, this month's cover shows a simple, yet effective means of mounting the crystals and the torroid.

A piece of "Zephyr" board is used to mount the four crystals which are pushed through the board. The valve lugs, taken from a cheap type of a wafer octal socket, are then pushed over the crystal pins and soldered. This provides a symmetrical low-loss type of construction. The torroid is clamped to the "Zephyr" board which is mounted below the chassis on standoff mountings.

Such a construction provides a very inexpensive, effective, mounting which is required to ensure that the signal travels through, and not around the filter.

If a shielded enclosure is used, then adequate space should be provided around all sides so that stray capacity is kept to the minimum.

A suitable torroid is the Mullard FX1299, wound with 26 turns of bifilar 26 gauge enamelled wire.

(Photograph of the unit is featured on the front cover.)

THOSE MISSING FEATURES

You probably have noticed that some monthly features of our journal are missing this issue. Unfortunately the copy for same had not arrived by the due time—hence they had to be omitted so that we could publish the magazine on time. Correspondents are reminded that copy must be received at P.O. Box 36, East Melbourne, C.2, by the 8th of the month preceding publication date.

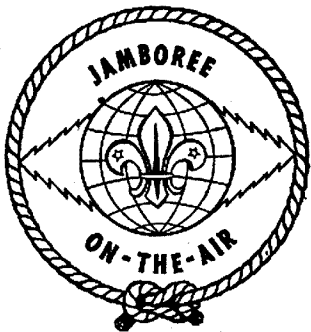
TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R.," in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff.

Photographs will be returned if the sender's name and address is shown on the back of each photograph submitted.

Please address all articles to the
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VICTORIA.



DON'T FORGET THE SIXTH JAMBOREE-ON-THE-AIR

We would like to thank those Amateurs who have signified their intention of assisting Scout Groups to take part in the Sixth Jamboree-on-the-Air during the week-end of 19th and 20th October. We remind you that this activity, which is not a Contest, begins at 1000 hours on 19th October and will continue for 48 hours.

It's aim is to help Scouts realise the world-wide nature of their Movement, to give them an opportunity to exchange views and establish new friendships with Scouts in other States and perhaps other countries, and to introduce them to the fascinating hobby of Amateur Radio. As a result of their participation in previous years, some Scouts have joined the Ham ranks and Scout Groups have set up their own Radio Clubs.

Generally speaking, conditions in 1962 were not good owing to the sunspot cycle, which, of course, is at present at the low point of its eleven-year span. There were sporadic openings, but these were far and few between. Nevertheless, Scouts enjoyed themselves whether they talked to the Group next door, or one a thousand miles away. It is expected that the four Scout Groups with their own Amateur Stations, VK4AH and VK4OS in Queensland, VK7BS in Tasmania, and VK3AEF in Victoria, will be in contact with each other during the Jamboree week-end.

The World Scout Bureau, with headquarters in Ottawa, Canada, will operate VE3WSB again, using a.m., s.s.b., and c.w. This station will normally be sending code at ten words per minute, but will gladly speed up or slow down on request for the benefit of those Scouts working towards proficiency in their signalling tests.

We are advised that the frequencies on which the World Bureau will be operating are as follows:—

- 80 Metres—3790 and 3850 Kc. on s.s.b.; 3760 and 3850 Kc., a.m.
- 40 Metres—7190 and 7290 Kc.
- 20 Metres—14130 and 14310 Kc., s.s.b.; 14195 and 14210 Kc., a.m.
- 15 Metres—21195 and 21350 Kc.

Remember that if you have Scouts in your shack, or if you are associated with the Boy Scout Movement in any way, or have been so associated in the past, you can take part in the Jamboree.

You may enter the event by calling "CQ Jamboree" or by answering a station you hear so calling.

If you require any further help or information contact your Branch Organiser, whose address appeared on page 13 of the September issue. Victorian Amateurs may get further information by calling into the Jamboree Net on 80 metres on Thursday evenings after 2030 hours.

Log sheets have been distributed to all Groups who have signified their intention of taking part, and it would be appreciated if these could be returned through the prescribed channels to the Branch Organisers before Nov. 18, to enable a report to be compiled for the World Scout Bureau.

A SPECIAL JAMBOREE MESSAGE FROM VK3WI

Rolfe W. McKellar, Chief Commissioner of the Boy Scout Association, Victorian Branch, known affectionately as "Bosun" to thousands of Victorian Scouts, will broadcast a special message from VK3WI to all Victorian Scouts during the course of the 6th Jamboree-on-the-Air.

An associate member of the W.I.A., "Bosun" is no stranger to Amateur Radio. Appointed Chief Commissioner earlier this year, he took over from Major-General R. J. J. Risson, C.B., C.B.E., D.S.O., E.D. Rolfe McKellar began Scouting in 1910 in Camperdown and has progressed through the Movement serving in many important posts. He is the holder of several of Scoutings highest awards. During the war, Rolfe served as a Major in the R.A.E.M.E.

He is a man who has devoted himself wholeheartedly to the Scout Movement. Energetic, efficient, and most likeable, he stresses the significance of the Scout Movement as a means of developing the character of our youth.

"Bosun" will broadcast on 3.5, 7, 50 and 144 Mc. at 2000 hours on Saturday, 19th October, and we ask you to encourage the young Scout visitors in your shack to tune in for their Chief.

—L. D. Marmo, Public Relations Officer,
Jamboree-on-the-Air, Victoria.

Technical Correspondence

OVERTONES

Editor "A.R.," Dear Sir,
Permit me to reply to VK3QV's letter in September 1963 "A.R." criticising a statement I made in a recent article "A Broad-Band, Band-switched, Crystal-Locked Converter," "A.R.," June 1963, concerning overtones.

I am afraid he did not at least pay me the compliment of carefully reading the article because in the second column on page 2 I certainly gave my reason for the statement.

No authority was given, however, as I did not think the statement was important enough to warrant it.

As some confusion seems to exist regarding the relation between overtones and harmonics, I will now quote.

"Physics for Students of Science and Engineering," by Halladay and Resnick, page 431, "The lowest frequency $\frac{3}{2}f$ is called the fundamental frequency f_1 and the others are called overtones. Overtones whose frequencies are integral multiples of the fundamental are said to form a harmonic series. The fundamental is the first harmonic. The frequency $2f_1$ is the first overtone or the second harmonic, the frequency $3f_1$ is the second overtone or the third harmonic, and so on."

"Principles and Applications of Physics," by Blich and Elder. Same explanation on page 304.

"Modern University Physics, Part 1," by Richards, Sears, Wehr, Zemansky. Same explanation, page 257.

—A. S. Mather, VK2JZ.

Editor "A.R.," Dear Sir,

Referring to David Rankin's (VK3QV) letter, published in the Technical Correspondence column of Sept. "A.R." I think that a lack of definition of terms, could have caused confusion.

The letter refers to an article by VK2JZ about crystal locked converters. Apparently the author had stated that the crystal oscillator used worked on their 2nd overtone and gave an output on a frequency approximating to three times the fundamental. David, in his letter, argued that it is impossible to excite standard cut crystals to oscillate in their 2nd overtone mode.

When I was doing University Physics, my lecturer told me that the term "overtone" referred to any signal which had a frequency

higher or over the fundamental frequency, e.g. the theoretical frequencies of overtones expressed as multiples of the fundamental of an excited thin bell are of the order of 1.000, 2.928, 5.423, 8.771 . . .

But assuming a signal with no such inharmonic behaviour, the first multiple of the fundamental is known as the first overtone; the second multiple, the second overtone.

However, using the "harmonic notation," the fundamental is known as the first harmonic; the first multiple, the second harmonic.

Thus the second overtone is synonymous with the third harmonic.

Now it is more common in the radio world to accept the first overtone and first harmonic (i.e. the fundamental is the first overtone as well as first harmonic). Assuming that this system is the one known and used by David VK3QV and that the system as outlined above is the one that the author of the original article had in mind when he put pen to paper, this accounts for the confusion.

While I make no claims to the validity of either of the above conventions, I do make a plea for a definition of terms in our hobby to save words (and tempers sometimes?) when the fault lies, not in technical inaccuracy, but the fact that the participants of a discussion start from different points as far as terms are concerned.

—John Ingham, VK5ZDZ.

Editor "A.R.," Dear Sir,

I agree with John VK5ZDZ that definition of terms probably gives rise to the differences in terminology for overtone operation of quartz crystals. My purpose in quoting two classic texts on quartz crystals in my previous letter was to illustrate that the commonly accepted method of reference was that that frequency approx. n times the fundamental was the nth overtone mode of operation. No doubt reasons could be produced to support the "VK2JZ notation" or others and if the inharmonic modes present in AT or BT cut crystals were considered the subject, would become almost impossibly complex. However, since there has been agreement on terminology amongst crystal manufacturers and users for many years, there seems no reason to introduce another system. More confusion than enough has arisen from such terms as "conventional current" and "electron current"; let us not make matters worse by departing from generally accepted terms unless there are excellent reasons for so doing.

—David Rankin, VK3QV.

VK5WI Portable at John Martins

In mid July, John Martins, one of Adelaide's largest stores, asked the South Australian Division of the W.I.A. if they could install an Amateur Station and display stand at their Audio Exhibition in their new auditorium. Bob Murphy, VK5ZDX, was appointed co-ordinator and offers of equipment were made by VK5KK and VK5ZDZ.

With the question of transmitters and receivers solved, stand and antennae were attacked. John Martins' display staff made up all the backdrops and notices, and gave us a free hand to use the roof area for the antennae.

As multi-band operation was desired, three separate antennae were erected. These were ground planes for 6 and 2 metres and an off-centre fed dipole for 80 through 10 metres. This latter antenna was fed with 300 ohm open wire which was coupled to the coax cable with a ferrite core balun. The ground planes were mounted on water-pipe masts, clamped to the fourth floor lift house stairs, while the long wire was strung between a flagpole on this lift house roof and the roof of the seventh floor lift house. The coax feeders for all antennae were run down the service well to the second floor auditorium.

The transmitting and receiving gear was set up at the back of the stand, which was about 20 x 15 ft. Various items of equipment were displayed in showcases around the stand and a complete closed-circuit television installation, exhibited by VK5ZEY, took up the balance of the space.

Installation of equipment was carried out on Saturday, 3rd August, and all was ready for the opening on Monday, the 5th. During the next two weeks 106 contacts were made from "VK5WI Portable at John Martins". Operating times were limited to 1230 to 1330 and 1630 to 1730, due to the shortage of day-time operators.

The interest shown in our stand was so great that John Martins gave Doug, VK5KK permission to operate VK5WI in the R.D. Contest from the auditorium. As the Exhibition finished on Saturday, 17th, there was a certain amount of pandemonium after 1130 to get things ship-shape in time for the start of the Contest at 1730. The 2 metre dipole was pulled down and replaced by a 15 metre dipole, which for some minutes looked likely to return to earth. Some speedy guying saved the day.

The only modification to the transmitter was to install a fan to keep the final bottle cool. At 1730 S.A.S.T., VK5WI hit the R.D. Contest with a roar heard far and wide.

Doug, was the only operator and except for a short snooze between 0400 and 0500 on Sunday, operated continuously from 1730 Saturday, till 1630 Sunday. (By 1630 there were no stations left on the air that VK5WI had not contacted.) Assisting Doug, with the logging were John VK5LV, Graham VK5ZGW and Geoff VK5ZCQ, while Doug's YL (Beverley) kept up the nourishment with black coffee and biscuits.

At about 0700 Sunday, Beverley went into action with a fry-pan to produce bacon and eggs with mushrooms. These had the desired effect and Doug, really started to make things hum. Great was the consternation when, after sending a number in the 180s, VK6WI received one in the 290s from VK5WI. The shocked snarl had to be heard to be believed.

A short pamphlet describing Amateur Radio and the W.I.A. was freely distributed, and whether any new members result or not, the favourable publicity still made the effort worth while.

The Divisional Council thanks all those who helped to make the Exhibition a success, in particular Bob VK5ZDX, as co-ordinator and Doug, VK-



★

VK5WI's Stand
at the
Audio Exhibition
in Adelaide

★

With the score at 404 contacts, the station closed down, and when Bob VK5ZDX arrived at 1700, dismantling commenced. By the time the transmitter rack and the receiver had been loaded into John's 'ute and the cooking utensils, cables, sleeping bags, etc., had been forced into either John's 'ute or Doug's. car, it was 2000 Sunday and a very weary mob of R.D. Contesters left the building.

The Exhibition created considerable interest among the general public, and the front of the stand was rarely de-

serted. A short pamphlet describing Amateur Radio and the W.I.A. was freely distributed, and whether any new members result or not, the favourable publicity still made the effort worth while.

The Divisional Council thanks all those who helped to make the Exhibition a success, in particular Bob VK5ZDX, as co-ordinator and Doug, VK-

—G. M. Taylor, VK5ZCQ.

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Crystal Oscillator: 1 Mc. to 16 Mc. (Crystal not supplied).

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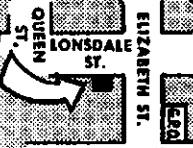
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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)

35 Whynot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Conditions at the time of writing this have not improved as much as hoped, with the coming of Spring. However, there is always the odd rare prefix audible, to hold the interest. 21 Mc. is predicted to produce good skip signals this Summer.

NOTES AND NEWS

JZ0HW from Sentani, West Irian, is active, evenings and mornings, on 14030 Kc. (It is not acceptable for D.X.C.C. status, since the creation of Indonesian country of West Irian.)

Montserrat: VP2NI is active on 20 mx s.s.b. Also supposed to be on c.w. QSLs go to K8ONV.

Aland Island: OK5VD/0 is reported about 14021 Kc. c.w.

Amsterdam Island: FB8ZZ is active again on 14030 Kc., 1130-1200z. QSL via Box 587, Tannarive, Malagasy Republic.

St. Helena: ZD7BW is now QRV and reported worked on 20 mx s.s.b.

Bahrain Island: Ian MP4BBW is back again and active on 20 mx s.s.b., but with weak signals due to antenna problem, which he hopes to solve shortly.

Cape Verde Islands, CR4: The HB9TL s.s.b. rig will stop off in CR4 land for a session by CR7CI, en route from CT1 to CR7.

Anguilla: Rumours of two DX-peditions here this fall, possibly to coincide with the "CQ" DX Contests. No details yet. VP2KP/A cards are out.

Torishima Island: Due on now as JA1BRK/T. This is a small island 200 miles north of the Bonins. It will not count as a new one for D.X.C.C.

Abudhabi: MP4TAD can be reached with s.b. on 14 Mc. Heard 5/6 about 14300. Abudhabi counts as Trucial Oman for D.X.C.C.

VQ8s: Raf and Harvey are going by boat to the VQ8s and Kure Muria in December.

Easter Island: Advance information has it that WA2KBH and possibly WA2WUV will

go to Easter Island in mid or late January for 7-10 days with 100v. 75A4 and possibly a KWM-2.

Liechenstein: Active on low end of 20 mx by several stations.

KC6KR is active from the Western Carolines. KC6BO in Palau is also QRV on both 7 and 14 Mc. c.w. low end. Also 3.5 Mc. 1000z and 21 Mc. 0200z.

TU8AU will be active for two years QTH Abidjan. QSL to Embassy, Abidjan, Ivory Coast. Mode, s.s.b., 14 Mc.

Operation is expected again from The Kure Muria Is. The VS9 boys are planning another expedition late Sept. or early October.

Carriacou Is.: VP2CC will not count as a new country. QSL, Box 6066, Flint 6, Michigan.

T1ZFH is a regular on 21 Mc. around 0200z; mode A1.

As I write this word has come to hand that gear has reached Christmas Is., Indian Ocean. Unofficially this is Hammurlund equipment, so soon things should be humming from this rare spot. VK9DR is on the air but does not pursue DX purposefully enough to satisfy the hounds.

(Much of the above by courtesy K4IIF, Ed. Florida DX-er.)

ACTIVITIES

Ken VK3TL says conditions poor, but worked-edges: 14 Mc. c.w.: AC5A/4, HK4DP, HC-1DC, EA4GZ, XE2FL, XE2GP and Europeans. 40 mx c.w.: AC4A, DU8RP. Best QSLs for the month were: VQ2WR, CN8FE, YS10, OZ-5BW, EP2RC, ZB21, 5B4FB, VQ4ET, VQ4ERR, CR8AA, XE2CW, 5A1TW, M1MV, FR7ZC/J, ET3JK, LZ1KSP, PY1BLT, DU8RP. (Congrats, Ken, on VK/001 on 7 Mc. for R.S.G.B. Contest.)

Frank VK2QL reports conditions very quiet but QSO'd these on c.w. 14 Mc.: AC5A/4, AP5JA, VK9DR (Xmas Is.), JA1BRK/JA, KP6AZ, 7 Mc.: VP2MM, AC5A/4, FUSAG, CP5EZ, T1ZPZ. QSLs recd. were: HL9KH, CP3CN, VQ8BT, ZL4JF, ZL1ABZ, FR7ZC/J, VP7NT, ZS1XR, HB4PB, VQ2ET, UF6FB, and HM4AQ.

Other contributors to "Activities" report bands so dull there is little worth listing. No report from Eric, BERS195 this month, so conditions must be poor.

ADDRESSES

VP2CC/C—Via W8EWS (W6JWD).
HI8MMN—Via WA6DAJ.
HK9LX—Via HK3LX.
AP2AR—Via W8QWI.
ZB1BX—Via W2CTN.
VR4CU—Henry Radio, 11240 Olympic Blvd., Los Angeles 64, Calif.
9A1TAI—Via W4VPD.
VQ8BFA—Via G8KS.
PX1IK—Via USKA.

SUMMARY

The A.R.R.L. has announced the new country criteria, as promised. It is now tougher than ever, and may make VQ8BFA from Agalegas count as another VQ8/9 that already exists. A copy of the new criteria will be in this bulletin. Also please note the new A.R.R.L. address. It is 225 Main St., Newington 11, Connecticut. Lastly, A.R.R.L. has issued a revised country listing and application sheets to be made out, whenever new ones are submitted for credit. It is really simple to use, and I'm sure it will be helpful to us all (except the honor roll guys).

The A.R.R.L. Listing is as follows:—

- Government Administration:** An area by reason of government, or a distinctively separate administration, constitutes a separate country.
- Separation By Water:** An island, or a group of islands, not having its own government or distinctively separate administration, is considered as a separate entity under the following conditions:
 - Islands situated off shore from their governing or administrative area, must be geographically separated by a minimum of 225 miles of open water. This point is concerned with islands off shore from

the mainland only. This point is not concerned with islands which are part of an island group, or are geographically located adjacent to an island group.

b. Islands forming part of an island group, or which are geographically located adjacent to an island, or island group, which have a common government or administration, will be considered as separate entities, provided there is at least 500 miles of open water separation between the two areas in question.

3. **Separation By Foreign Land:** In the case of a country, such as that covered by Point 1, which has a common government or administration but which is geographically separated by land, which is foreign to that country, if there is a complete separation of the country in question, by a minimum of 75 miles of foreign land, the country is considered as two separate entities. This 75 miles of land is a requirement which is applicable to land areas only. In cases of areas made up of a chain of islands, there is no minimum requirement concerned with the separation by foreign land.

(The above, by courtesy of Joe WA6TGY, Editor N.C.D.X.C.)

A club brought into being to perpetuate Amateur Radio's highest endeavour, is the newly-formed "S.s.b.'ers International". Its motto is: "Dedicated to building of friendship among all the people of the earth through Amateur Radio, and to enjoy ourselves in the process." This idealism is not beyond attainment, provided dissention and small talk does not clog its ranks. Listen to 14.333 for what promises to be Amateur Radio's most futuristic and biggest ever club, created individually.

73, Al VK4SS.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK6RU	2	286	VK3WL	14	211
VK6MK	43	282	VK3ATN	26	204
VK5AB	45	275	VK4HR	12	192
VK3AHO	51	269	VK2JZ	61	187
VK4FJ	21	255	VK4RW	23	186
VK6KW	4	211	VK3GB	50	183

Amendment:

VK3TL 62 115

C.W.

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK3KB	10	312	VK6RU	18	244
VK3CX	26	296	VK3RP	56	229
VK4FJ	29	282	VK3FH	15	226
VK2QL	5	279	VK3BZ	6	222
VK3NC	19	266	VK5RX	23	220
VK2AGH	71	247	VK3YD	27	220

Amendments:

VK3ARX	66	215	VK3TL	78	138
VK3AX	68	141			

OPEN

Call	Cer. No.	C't-ries	Call	Cer. No.	C't-ries
VK2ACX	6	300	VK3HG	3	269
VK6RU	8	294	VK3NC	77	269
VK4FJ	32	290	VK3JA	43	252
VK6MK	74	284	VK4HR	7	233
VK2AGH	83	280	VK3BZ	4	231
VK3AHO	76	272	VK3WL	45	225

Amendment:

VK3TL 85 172

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Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

YOUTH RADIO CLUBS

Editor "A.R.," Dear Sir,

I read Al Rechner's comments on the Youth Radio Club with, as far as possible, a neutral attitude, however I feel that some further comment could be made.

Whilst in complete agreement that education is most important, is not a good clean hobby equally important? Radio is not a hobby which can be treated lightly, time must be spent on it, and by fulfilling this requirement it is not only teaching them the basis of a good trade, but keeping their minds occupied and away from the many temptations which confront youth today.

Over the past 18 months I have been actively assisting our local Life Boy and Boys' Brigade teams in Morse and radio instruction, and it is very rewarding to myself and other leaders to see how keen these chaps are in their work—and their schooling is not suffering. When their schooling is finished, those anxious to become Hams will be handed over to Don VK2RS and the boys of the Albury Radio Club and have a good background to work on.

In the meantime, I can only convey my good wishes and congratulations to the W.I.A. for their interest in the work, and trust it will continue.

—Don Grantley, WIA-L2022.

Editor "A.R.," Dear Sir,

Al Rechner, in his letter to the Editor in the Sept. issue of "A.R." has made some careful observations on the training of youth in radio after some years in the organisation of youth radio clubs. I, too, have been in a position to make observations but from a different "angle", being a member of two radio clubs at tertiary level, and my conclusions correspond pretty well with those reached by Al.

Firstly, about a year ago a count was taken of the members of the Radio Club of the

University of Adelaide and it was found that the subject failure rate of the members was about twice that of non-members who were doing the same course.

When I was going through high school I was not a member of any club but my experience with my hobby during that time, and subsequently, lead me to two conclusions:—

Ham Radio is definitely a distraction to the student,

And although the method of thinking that Amateur Radio encourages is beneficial to the more elementary science subjects (inter physics and chemistry), the more advanced student with a "Ham fix" is at a serious disadvantage.

Dealing with them one at a time. Most Hams like to tinker with some little project and I found that although my station may be in good working order, I would always be thinking of little improvements, a noise limiter, a g.d.o., etc., as well as the obvious temptation of leaving the studies for a band opening.

One solution to this is what Alf VK5LA (now B.Tech. Electronics) did which was to disable transmitter and receiver during term time, pack it in a box and forget it!

This is not really the answer as everybody needs relaxation some time and I think you will agree Ham Radio provides this for young and old. It probably boils down to a matter of will-power. I do not know if it is a coincidence, but all the highly intelligent students I know seem to be able to switch their minds on and off as far as radio is concerned and really concentrate on studies when required. It's a pity that we weak-willed wretches are usually less brainy and need the swatting even more and probably do less of it!

To the second point. This is more directed to the student who is going on to higher studies. Nearly every science subject can be split into two parts—qualitative and quantitative. Ham Radio and the elementary science subjects are mainly qualitative—i.e. descriptive. Thus a lad who becomes interested in radio is likely to improve his school work because he gets into a certain way of thinking. But as he proceeds the subjects get more quantitative or mathematical until they become virtually applied mathematics and so the student with a "Ham fix" will have to adjust himself radically if he is to have any chance of success.

My suggestion then, if we must have youth radio training, is to raise the standard of elec-

tronics taught from the word go. For example it is impossible to understand impedance without a knowledge of complex numbers, which is not taught until Leaving Honours. And yet subjects like complex notation and calculus are not difficult concepts to grasp but a small knowledge of these is of much greater use than the horde of geometry that Intermediate students get thrust down their throats.

Very little is taught in schools about electronics and if mathematics is the language of the scientist, electronics are his modern day tools. I therefore think that more good would be done by enlarging the electronics in say the Physics courses, modifying the Maths syllabus and teaching a more mathematical electronics course right from the word "go". This way, I feel that a more broad education in electronics (as opposed to radio) can be given, it can be better controlled as well as setting the stage for higher study, and providing a solid foundation for the lad who takes a special interest and decides to make radio his hobby.

I have had personal contact with the above problems with my own studies and those of my friends, and I assure you that these problems are very real. I am now doing a course in Communication Engineering with a chap with no electronics experience at all, but a good mathematical background, and unprejudiced by preconceived concepts he is near the top of the class above the Radio Hams. The whole of your radio training is extremely complex and my admiration goes out to all those chaps who do give up their time to help the young. This question is not one between action and lack of action, but one of a choice between different plans of action and it is only by hearing from those who have had some experience in the field that the powers that be can judge which is the best plan of action. So comments, please, on this important phase of our hobby.

—John Ingham, VK5ZDZ.

Editor "A.R.," Dear Sir,

Al Rechner (VK5ZCR) is undoubtedly correct in one of his points ("A.R." Sept.)—that the education of our children is of critical importance. I can assure him, however, that his fear of harmful effects from the fascination of Amateur Radio is completely contradicted by the facts.

Just as Al did, I must mention one fact about myself as part of the argument. I am in charge of the Maths. Department of a large high school and so not only do I closely watch the daily studies and home-work in that subject, but as part of the administration I am in touch with all the work of the school. After 20 years of helping boys in secondary schools, develop an interest in Radio, I am sure that connecting an interest in radio with lack of success in studies is as unreal as blaming the Wright Brothers for the bombing of London. All my experience shows just the reverse of what Al fears. In nearly every case, an intense interest in radio leads to obviously improved study in Science and Maths., and also a better attitude in other subjects.

An unbalanced interest in anything at all can be a source of trouble. Parents may have to deal with sons who are fanatics about girls, money, ten-pin bowling, milk-bar gangs, cars, liquor, etc., etc. A boy who is unbalanced enough to do nothing but sit with headphones glued to his ears is doing far less harm than one who goes to excess on girls, etc. Usually he is easily encouraged to improve his knowledge. This, of course, should be one of the main aims of Youth Radio Clubs—and parents.

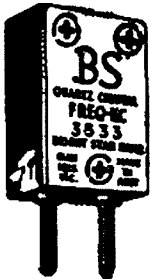
Al VK5ZCR says, "They won't be able to make a living out of it." You have a narrow view there, Al. It is true that very few will make a living out of Amateur Radio itself, but that is only a fraction of the story. A basic training in Electronics is a wonderful job preparation. No field of work possibilities is expanding as rapidly as Electronics in general. Every industry uses electronic aids, but even if you think only of radio and t.v. there are plenty of opportunities. One of our Y.R.C. boys of last year went straight into 2CA here as a trainee technician and even as early in the scheme as this, there are many instances of boys getting good jobs because of their basic Y.R.C. training.

I must end up with the most important point of all. We don't, as yet, have a fraction of the juvenile delinquency seen in most similar countries. We could have a wave of it. Nobody knows the full solution of this problem, but a challenging absorbing hobby such as Radio is at least part of the answer and contrary to what Al fears, it can certainly be controlled to do nothing but good.

—Ken Mattel, VK1KM.

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Several years ago we had two awards approved by Council, but so far we have not heard if anyone has gained one of these awards. Of course the D.X.C.C. award at the moment would only be available to the top two members on the DX ladder. Anyway, just to refresh your minds, and to inform our new members, the two awards are:

The D.X.C.C. which is awarded on confirmation of having QSLs from 100 countries on the Ham bands. All cards must conform to D.X.C.C. requirements, that is, all cards must show the following details: Date, time, band, emission, and either your WIA-L number or your full name.

The Heard All VK award requirements are: QSLs from VK1 to VK0, any VK9 and any VK0 area.

Well now who is going to be first to take off the H.A.V.K. award? These awards were designed to encourage you in our hobby and we hope that it won't be too long before we see some of these awards going off.

Well another R.D. Contest has come and gone. And it will be interesting to hear how you all fared in it. My spies tell me that several young members were at their receivers for almost the whole 24 hours. Bet there were some sleepy heads by Sunday night. Still as long as you had a good time that's the main thing.

DXers please note that 7X2 is the new call for Algeria. And 6Y is now Jamaica. STZAR is active from Sudan on s.s.b. at 14110 Kc. CE0AB is now active from Easter Island and he operates around 14040 Kc. Seven Hams in one family, how's that for a record? Where? In W land. The youngest Ham in the family is 9 years old.

VICTORIA

The annual meeting of the Group was held in August, but as your scribe was on holidays, you will have to wait until next month as to the result of the election of office-bearers plus any other news from the meeting.

Greg L3138 was very active in the R.D. Contest and my spies informed me that he may be one of the top scorers; good luck to you Greg. Maurice L3055 had rx trouble during the Contest, however he still managed to bag a few hundred points for VK3. He has very little time for DXing these days, due to studies, etc., but still manages to extract some r.f. off his aerials.

The news from the local front is very scarce at this time. So don't grumble about the local notes being shorter than usual. Your scribe hopes to get a converter going on 144 Mc. in the next couple of months, plus a 10 el. yagi. One QSL to hand this month, from 601WF.

Eric L3042 has moved over to VK5 for a little while. Hope you enjoy your sojourn Eric and come back all the better for your trip. By the way, boys, Eric was in the R.D. for as much time as he could afford.

Bob L3076 is going along very nicely on the v.h.f. bands and certainly does not miss much, except that exceptional opening on 144 Mc. to Adelaide recently. Believe that this was the first time that the band has seen contacts from Melbourne to Adelaide proper; bad luck Bob. Still you will no doubt make up for it in the warmer months. And who knows, we may get another interstate opening on Sporadic E this season. But whatever happens, I think 50 Mc. will be very good again this year.

Craig Cook has been doing a good job of the weekly notes for 3WI, and don't forget, if you have any news at all, send it in by all means. Remember it's up to us all, if we want the Group to go ahead.

Neil L3104 is working on his new v.h.f. set-up and from what I hear it sounds like he will soon have a very nice set-up. Always pleased to hear from you any time, Neil. At the moment, in between school and constructing gear, Neil is swatting for the Jan. exam. for the L.A.O.C.P.; good luck to you Neil.

NEW SOUTH WALES

Our old buddy, Chas L2211, has recently completed the pre-amp. that he has had his eyes on for a while. We will be interested to hear of your results Chas. At the moment, Chas is a bit browned off as regards listening on the bands. But is expecting that the old interest will live up again as the warmer weather comes around. I bet that once the

50 Mc. band livens up again, that our dial twisting friend will once more be at the helm.

What has become of Don L2022? Last time your scribe heard of Don, he was getting ready to depart to VK4 for a holiday. If you happen to read this Don old boy, we would very much like to hear from you again when you have a moment to spare.

Chas L2211 reports: Once again it is my pleasure to report the doings in VK2. Not a great deal of activity, but with the warmer weather ahead, we hope to see or hear from more members of our Group.

Quite a good roll up at our last meeting. Two new members joined the ranks, L2282 Tom Vaughan and L2283 Bob Mackintosh. We extend a hearty welcome to you both. Our thanks go to Ted L2249 for bringing along his projector and coloured slides of the Snowy project; to Barney L2201 for making possible the transistor replacement slide reels, which he gave to each member at the meeting; and to Norm 2AAV for his talk on Selectivity in Receivers. So chaps come along and enjoy as well as learn at our meetings.

Members are asked to send mail to the VK2 S.w.l. Secretary, Tom Harding, 33 Waratah Rd., Berowra, Sydney. This will speed up replies and save Tom a lot of travelling from his QTH, as he is a long way from headquarters.

I have received from Holland a booklet entitled "A Lot Depends On Your Aerial." It consists of eight pages of very interesting information for those in doubt on the subject. Write to Technical Dept., Radio Netherlands, Box 222, Hilversom, Holland, if you would like a copy.

WESTERN AUSTRALIA

Peter L6021 has as usual been very active at his receiver, and was very thrilled recently when he logged AC5A on 7 Mc. c.w. Nice going Peter, looks like we phone boys will have to brush up on our code.

Just before the R.D. Contest Peter's rx decided to play up on him. We hope that you were able to rectify the fault in time Pete. During the W.A.E. Contest, Peter stayed up all night and said that the band was excellent with loads of Europeans on 7 Mc. c.w. At about 4.30 a.m. he at last decided to close the eyelids for a while.

Fine work old boy, and the way you are going you will soon be up to some of the leaders on the DX ladder. Thank you for your interesting letter Peter, and look forward to hearing from you again next month. Seems like a waste of time trying to get anyone else to write to us from VK6 land.

73, Mac Hilliard.

DX LADDER

	Countries	Zns.	S.s.b.	W
	Conf.	Hrd.	Conf.	Hrd. Stat.
E. Trebilcock	281	289	40	— 50
D. Grantley	113	259	38	20 104 35
A. Westcott	93	159	31	9 107 11
M. Hilliard	80	231	33	29 180 12
M. Cox	75	223	29	40 150 18
P. Drew	68	199	27	27 117 13
C. Abernethy	58	96	3	— 14
N. Harrison	44	119	29	4 20 35
I. Thomas	41	139	20	16 97 14
G. Earl	18	114	12	7 89 —
D. Coggins	10	92	7	3 60 14

YOUTH RADIO CLUBS

One of the stalwarts of Port Pirie (it's in South Australia) called on me, VK5EQ, Bert Hollebon, and we spent a very pleasant evening. The organisation of the Y.R.C. affairs in Port Pirie is obviously top stuff and the results should follow. They have the active support of all the schools in town and they even look after one keen young man marooned 150 miles away in the outback.

Ken Matchett's excellent Newsletter No. 3 (VK3) to hand. This is one of the Division activities that links Y.R.C. together and encourages club leaders to battle on. As is natural to one who knows schools and values education, Ken gives some good advice about the importance of yearly school examinations: "Develop your hobby of radio and actively engage in it in your leisure hours, but do not let it prejudice your success at school. Let it augment your school studies, not hinder them."

Additions to the club list in VK3 are (club leaders in brackets): Christian Bros. Juniorate, Bundoora (Mr. R. Williams); Greythorn High, Nth. Bailywn (Mr. P. Boa); Australian Postal Institute, Hawthorn (Mr. R. Everett); Geelong Grammar, Corio (Mr. R. Maddever); Korumburra High (Mr. W. Miles); and Benalla Tech. (Mr. K. Cree). Would all local Amateurs please help? Another thought: I can't possibly imagine so many earnest teachers helping boys to develop something which could harm their studies.

Club News: Secretary Chris Doig, of Collingwood Tech., reports that the club meets every Monday between 3.20 p.m. and 4.0 p.m., Juniors under Mr. Aled and Seniors under Harry Major. Chris says, "In the first year, we study radio symbols and elementary circuits, and in the second year more advanced circuits. We are doing practical work on radio sets brought along by our members. We would be pleased to receive any old radio sets or parts to help us in assembling small sets." Good secretarial work, Chris.

Now comes a paragraph I would have put at the beginning, except that it might sound like trumpets blowing. Anyway, I'm already proud of the fine ability shown by George Brzostowski (VK1GB), still a pupil at Lyneham High, who passed A.O.C.P. fully at 18 years 1 month. Now we have received the

wonderful news that another pupil at Lyneham, Roger Davis, has fully passed A.O.C.P. and will soon be VK1RD. Roger was aged 15 years 9 months when he passed. He goes on the air about the time you receive this copy, so please answer his CQ and help him along. He is restricting activity until after his yearly exams.

I wish I could send this next paragraph to all Divisional Councils. The subject is the kind of help a Division can give to a club leader. I have had another newsworthy letter from Brian Burton (VK2AUN, ex-VK1KK), who started a Y.R.C. at Cranbrook School. Thanks to the organising of Rex VK2YA and the backing of VK2 Division, Brian has enough equipment for quite a decent little station—Philips No. 4 receiver, an AT5 No. 11, and a 522." Brian has antenna location trouble however. "The school is built into the side of a hill, with the science block on the lowest level. There are too many trees around, also, and the combinations makes a hazardous business. We have our call sign now—VK2AAO—and will be looking for contacts each dinner time and after school some afternoons."

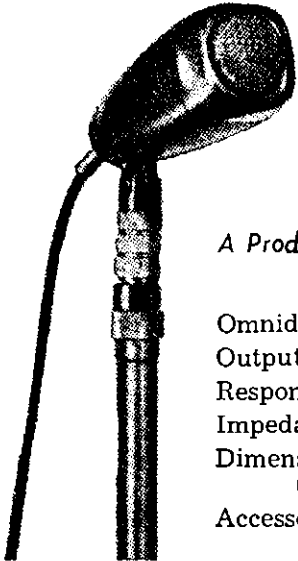
Random news from near and far. Can anyone help to form a new club at Birrong High? An anxious group has the approval of the Headmaster, but no teacher to help. . . . Efforts are being made to help form a Y.R.C. at Abbotshleigh College (Wahroonga, Sydney), a famous school for girls. This could be the third such, after VK3AYL at Melbourne C. of E. Girls' Grammar and St. Anne's (Sale). . . . Hurstville Evening College (Sydney) Radio Club had good results at Elementary Certificate exams. Two classes in Radio are being established next term. Mr. John Nixon is instructor now but more instructors and equipment are needed. . . . Mr. T. D. O'Connor, of Ryde (N.S.W.) has donated £2. His son, Brian, still at Primary School, is a non-club member and father sees the value of this fine hobby.

Help wanted at Meadowbank High (Sydney) where there is another anxious group but no qualified teacher. . . . Culcairn Central School (N.S.W.) has registered, fortunately, with two teachers who are radio addicts. However, there is the usual urgent call for components and magazines. . . . 73, Ken VK1KM.



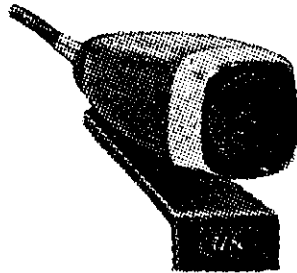
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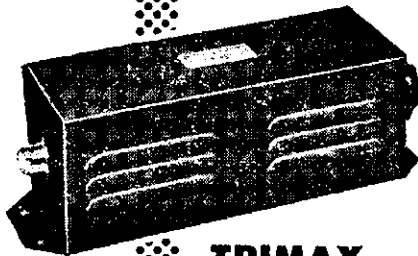
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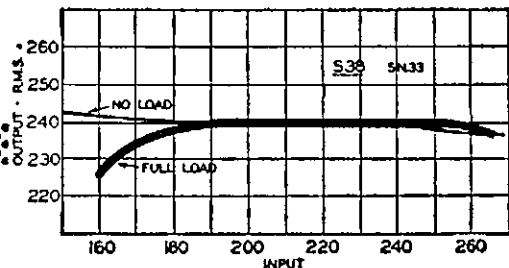
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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

NEW SOUTH WALES

HUNTER BRANCH

At the Sept. meeting of the Branch, held in the University College, two visiting lecturers from Gosford, Major 2RU and Lindsay 2ON, took the floor while thirty-two members and visitors learned some of the mysteries of s.s.b. and rx selectivity curves. Major had on display a two-valve s.s.b. tx associated with a Command Q5'er to make a very small and efficient transceiver for s.s.b. Lindsay displayed the response curves of the variable selectivity Drake rx on an Amateur built oscilloscope using a home-brew wobulator. All this proved of great interest to the members present and at the conclusion of the meeting a vote of thanks to the lecturers, moved by Les 2RJ, was carried by acclamation.

It was pleasing to see in the audience two other visitors from Gosford, Fred 2ALA and Reg 2AI. Fred being able to assist by display of a project converter and Reg having tucked under his arm a Collins transceiver, which also had its picture played on the green screen. Bill 2CW was also there so this could mean that any year now we may hear him on the air.

Leo 2QB was to have described his g.d.o. at the next do-it-yourself night but enquiries show that it resides in a drawer at his house and he's forgotten which one it is. Frank 2APO has had another aerial triumph in the shape of a collinear beam for 20 mx. He manages to work all the DX about the place. In far off G land waits Lionel 2CS while the fog swirls about his feet and he dreams of sunny Australia. This lucky man was fortunate to win a prize at the R.S.G.B. meeting, Sherwood 2AJF, our happy tv. mechanic from Cessnock, went hunting a tx the other day. It was his own AT21 though and the reason was all due to the over zealous use of his side cutters.

New Woods has completed his converter, using hybrid valves and it is performing really well, although there is some ignition noise which is difficult to eradicate. Talking of eradication, reminds me that Mac 2ZMO is trying to eradicate the Indians out at Raymond

Terrace, all the time being chased by some very angry squaws. What a lovely pattern you put on my screen, Mr. O'Brien. Sporting a healthy tan is Kev 2ZKW, just returned from the Gold Coast. He needed the holiday after working so hard on that tower you know, and John 2ZJG is at last in the new shack out by the dog's home. Neil 2ZCU and Des 2ZDN are all but ready to put on an Amateur t.v. signal. This is real progress and I wish them all the best with the picture transmission. This information passed on by Bill 2ZCV who also is keeping up with the times by building a really neat and functional g.d.o. I must cajole him to present it to the meeting at the next do-it-yourself night because it really is a fine piece of work.

Harry 2YL, who has not been well of late, did manage to get on the air during the R.D. Contest and is sending in a log. Good work Harry, and I hope the health continues to improve. Bruce Morley is still muttering about that Drake rx, even more so since he saw the demonstration by 2ON and Belmont Bob has at last finished the modulator. To congratulate him, Mrs. Bob gave him a shiny new microphone. And I suppose that even though there is much more to tell of wonder and delight around the Branch, that must be it for now.

Don't forget the Convention will you, all the details are in the Bulletin and last month's "A.R." and also don't forget the next meeting. It will be held, as usual, in Room 15, Classroom block, Newcastle University College, at 8 p.m. on Friday, 4th October, and that's competition night. So be in it, you might win the prize. If the mobile gear isn't working by now, then it's nearly too late, but come along anyway and meet all the boys at Marmong Point. See you there, 73, 2AKX.

he has not been able to put as much time on the air as he would like too. Have not heard anything of Ray Watts. He was to have sat for the A.O.L.C.P. exam., but as yet I have heard no reports. Ken 2AVN is back on 40 mx with the noise. Possible Ken has the same idea as I have, there are no stations on 2 mx. Had a round of golf with 2ADA while Ron was back in this part of the world. The venue for this duel was Springwood, 73, 2ZNS.

VICTORIA

JULY COUNCIL MEETING

Apart from routine matters the evening's business was devoted to matters concerning the property, the news letter and 3WI broadcasts. Firstly the property. It was decided that heating and ventilation definitely had to be given priority and as a result the tender we had for the job would be accepted and the work commenced immediately, in the hope that it would be completed before the next general meeting.

In discussing the News Letter it was reported that the Publications Committee hoped to reduce the notes, which are of limited interest, in favour of information of interest to all States. Due to changed circumstances, there is too much work entailed in editing and re-writing the notes in a more acceptable form before passing them to the printer. To make alterations after the notes are set is an expensive process, and a luxury the magazine cannot afford. The Mag. Rep. therefore requested Council's permission to delete VK3 notes from the Magazine and incorporate them in the News Letter. Some members felt this was a drastic step and it was finally agreed that only matters of national interest would find their way into these columns, and our domestic matters will go to the editor of the news letter, who will publish or not as he sees fit. Now as there is little chance of much national importance coming up for publicity, this is to all intents and purposes the last time I'll be doing this job.

Now to 3WI. There has been a lot of dissatisfaction with the broadcasts, some justified and some otherwise. The matter was brought to a head by the fact that it was missed completely on a recent Sunday. Council spent much of the evening trying to find a solution which would be acceptable to all concerned. No useful purpose would be served by going into the pros and cons of the differences of opinion. The most favoured proposal was to call a meeting of all those concerned under an independent chairman to formulate a new

SILENT KEY

It is with deep regret that we record the passing of:—

VK3GG—E. L. ("Bon") Guest.
VK3JK—J. K. (Jim) Herd.

BLUE MOUNTAINS SECTION

The August monthly meeting was held at the Lawson Council Chambers on Friday, 18th. There were 13 in attendance, including Norm 4ZNS, who was on a short visit to this State. Arrangements for our Field Day were discussed and it was decided to hold it on Sunday, 27th October. The venue will be the same as last year, the swimming pool grounds at Lawson. All the usual events will be decided, plus others. These include a 40 and 80 mx scramble for portable or mobile stations who are attending the Field Day; home stations that are attending the Field Day are eligible for a prize; prize for the best piece of home built equipment. There will also be a display of s.s.b. equipment by Arie 2AVA. Our Field Day has been well attended in the past, and we hope this one will be no exception.

Ron 2ADA has been working in Cooma for the past few months and informs me that he is having t.v.i. trouble when operating on 80 or 40 mx. Ron assures me that he has just about cured this trouble and hopes to be operating on 8 mx shortly, possibly s.s.b.; best of luck with this project. Ron, Wal 2MZ and family have been in hospital recovering from hepatitis. We all wish you a speedy recovery. Norm 2QA has also had his XYL in hospital with hepatitis and for the past few weeks Norm has been chief cook and bottle washer at his QTH. Hope your XYL is better very soon, Norm.

John 2NC (No Clues) has been having his share of troubles with his s.s.b. tx. It appears as though he is putting double sideband into the xtal filter and coming out with a.m. I think there is an easier way to obtain a.m., John. Understand that Derick Boyd has obtained his call, but he has to wait until Nov. before it becomes available. Derick will be operating under 2UX. Ray 2ABY was back on 2 mx recently and had QSOs with 2NC and yours truly. Ray has been operating on 20 mx of late with his s.s.b. rig. Due to studies,

BLUE MOUNTAINS FIELD DAY

will be held on
27th OCTOBER, 1963

at the
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W.I.A. N.S.W. DIVISION Hunter Branch TWELFTH ANNUAL CONVENTION

to be held

4th, 5th and 6th OCTOBER

Friday 4th at Newcastle University College, 8 p.m., competition night.

Saturday 5th at Esplanade Hotel, Telford St., Newcastle, 7 p.m., Annual Dinner.

Sunday 6th at Marmong Point, Lake Macquarie, Field Day.

For full details read Hunter Branch notes and the September Bulletin.

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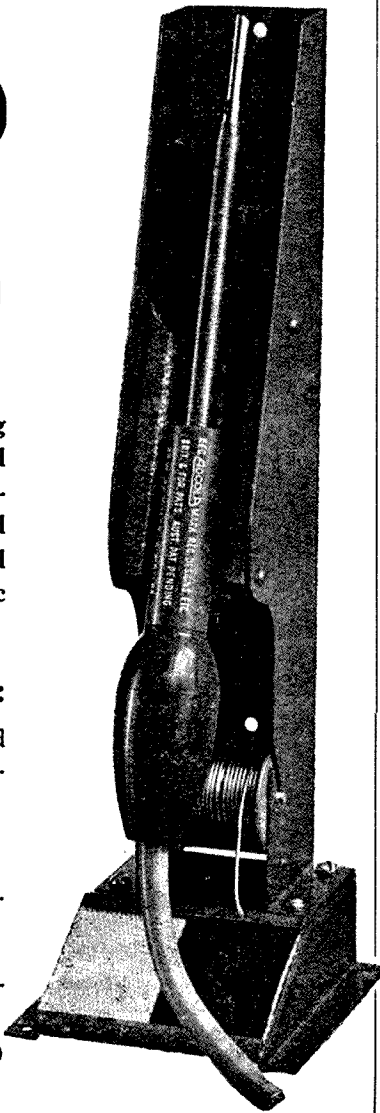
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policy. Now to jump the gun and get ahead of the story, nobody could be found to chair such a meeting and it was thrown back into Council's lap. A scheme has now been arranged to see us at least through till the end of this year. If it works well, we carry on the same system in future. If not, then some other scheme will have to be cooked up. No matter which way we look at the problem, we must have more man-power as Council has ruled that, at no time, will operation at 3WI be permitted with only one engineer present. In other words, there must at all times be two on the job, one of whom must have a full licence, the other can be a limited licensee. Now we have automatically increased the number of persons eligible to volunteer, so what about it V.h.f. Group? About a dozen extra on the roster would be ideal, and as it only means attending about one week in six, should not be a great burden. We, on Council, consider this a job for those at present not doing a job for the Institute and thus taking some of the load from Council members who are all now doing four or five jobs each.

The only other matter of general interest for the evening was the Jamboree-on-the-Air. The President (John 3OR) and Ken 3AFJ recently attended a meeting with the organisers of this function at Scout Headquarters and gave a report to Council, who ratified the undertakings given to the Scouts. Elsewhere in this issue you will find further mention of this event and Council hopes that everybody will attempt to help.

AUGUST GENERAL MEETING

So much for the affairs of Council. Let us press on to the August general meeting. The meeting opened on an unhappy note as the President announced the passing of "Ron" Guest, 3GG. A minute's silence was observed as a small token of respect to his memory. Only the older members of the Division will appreciate the value of his work for the Division, especially in the early post-war years.

The agenda item for the evening was a lecture from Kel 3ZFG, whose subject was "Crystal Filters". Kel very ably outlined the problems encountered and methods of solving them. As I see it, the most necessary commodity used in the construction of these filters is patience, and although I've searched through back issues nobody has advertised it. The meeting's thanks to Kel was expressed in the usual manner.

Only two items of general business were brought up, and as they qualify as being of national importance, they get a mention. This Division has decided, on the vote of members, to ask the F.C.C. to amend the rules of the Field Day to permit 24-hour operation commencing at 1600 hours on Saturday through until 1600 hours on the Sunday. These times of course being E.A.S.T. It was at the same time resolved to outline our case to all other Divisions, seeking their support to get some really prompt action and have the new rule incorporated in the next Field Day.

The other matter raised was incorporating a section in the R.D. Contest for v.h.f. operators. It is believed that this matter already has the attention of F.E. As Federal Councillor was not present, this matter has been deferred until such time as it can be discussed with him.

That's all from me, apart from a greeting to my friend in VK5. Even if I cannot have a shot at him in future in these columns, I'll find some other way.

Now to other VK3 items.

NORTH EASTERN ZONE

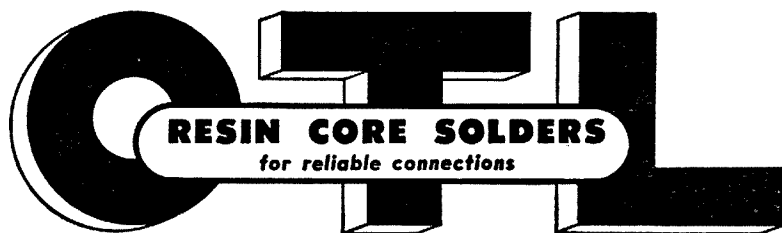
Stan Waite passed L.A.O.C.P. and is awaiting call sign. Understand Ray Thomas is all steamed-up to have a go. 3AYD, 3ALP and 3ASY entered into the R.D. Contest. 3AYD installed a VR tube in the rx; now finds less trouble to resolve s.b. sigs. 3ACK still perfecting his technique with the electronic organ and has ventured to install it in the lounge. This room is now cluttered with speaker enclosures.

The Y.R.C. project is awaiting recruits; not enough youths have come forward to warrant formation of a club as yet. For myself, I have completely wrecked the I155 and plan to build the R. & H. "Deltahet" front-end and tuneable i.f., so will not be heard for quite some time I guess. 3ASF is in hospital again at time of writing, due to a recurrence of an old trouble. Heard tell 3AUL may be transferring to Gippsland area. 73, 3ASY.

MIDLAND ZONE

Despite the absence of notes in the past two issues of "A.R." there is still some activities in the Midland Zone. Members please note that I have at last made my appearance on 80 mx with 8 to 9 watts. I will, however, be on with 80w. within the next few weeks. Our

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Monday night hook-ups on 80 mx are fairly well represented from Swan Hill, Elmore, Kyneton, Bendigo and Castlemaine with zone members operating portable in Melbourne. Representation from other areas would be welcome, so what about it fellows on Monday evenings from 8 p.m.

Neville 3ACN is operating a.m. and s.s.b. and is the lone Bendigo station heard on 80. Ian 3MO and Geoff 3AQL active on 20 as well as 80. Kevin 3AHA is a regular on the hook-ups with 3KO also active. Col 3FO not heard recently on 80 but assures me personally he does get on on occasions. Jim 3SV snowed under with official duties at present.

The matter of our general meeting venue which was to be held last month has not yet been finalised, but all members will be receiving official notice shortly as well as over the air on Monday nights. 73, 3ND.

QUEENSLAND

The Sunshine State Contest winner, with 48 points, was Al 4LT, who was closely followed by Alf 4OL with 47 points. Albert is now the proud possessor of a Heathkit multimeter. A practical trophy such as this really inspires the boys to work for it. The VK4s appeared to be in the thick of the R.D. Contest and there has been all sorts of speculation as to how well we went. However, the v.h.f. boys had nothing to do but twiddle their thumbs. Frank 4FN knocked up 23 contacts in one 27-minute session, but duty called just when the going was good and Frank had to spend the rest of the Contest at the place where he least wanted to be at the time. Our President, Pat 4KB, chased all the spiders and wogs out of his rig in preparation for the Contest and when the smoke and the smell died down after the big flash, with Pat's first words, the Contest was well and truly over. Another highlight was the feature photo in the "Courier Mail" of a typical happy smiling Amateur enjoying the delights of the Contest.

One of the visitors to our August meeting was Frank 4FN, from the Central Queensland Branch. Frank reported to us on the progress of his Branch and he really has some progress to report. The membership of this Branch was 104 at last count, and classes are progressing well at the local Technical College, with the odd science master as instructor. Total membership of the Division is now nearing the 500 mark and we look like achieving our aim of 500 before Christmas. Three women have applied for membership of the Central Queensland Branch! It seems that Rockhampton with a population of 50,000 odd can round up more for their monthly meeting than Brisbane with a population of well over a dozen times that of Rocky.

The Division's display in the "Courier Mail" window went off well and we hope to see applications soon from those who had their interest heightened that little extra. We could not get Oscar in time for the display, but if it comes later in the year we will have another one. The Ipswich and District Radio Club also had a window display recently and as a result now have some new members.

So many Amateurs have been travelling hither and yon recently that it's impossible to keep up with all their tricks. Possibly it's only envy speaking but all the Southerners seem to be heading north and vice versa.

The gentleman from Alderley who is kind to fish has been knocking the G09 tx's into shape and now has them on the air for the 4WI sessions. Good work, Alf. I hear they haven't worked for many years. Eddie 4OW should have his Collins outfit back from Christmas Island by this and perhaps on the air. Eddie has been off colour for a while, but is OK again. Is the Brisbane climate too chilly after Darwin Eddie? Gordon 4GH had a very good contact with a G recently. Trouble is, the G was in Gordon's QTH and not in G-land. The same gentleman will be starting up on 160 metres from Maryborough very soon. What about you making 160 metres your next project fellows? We hear Arthur 4AW is moving from his Nundah depot. It could be that the disposal chif should be there when he moves and position himself between the door of Arthur's shack and the garbage cans.

Arrangements are coming along fine for the Jamboree-on-the-Air and some 80 odd stations will be in operation. Let's hope conditions will be good. Our country spies seem to have fallen by the wayside, but let's hope they can make it next time. If we don't get news, we can't print it, can we? 73, 4ZGM.

TOWNSVILLE AND DISTRICT

It was pleasing to read in "A.R." just to hand that the Cinderella or Sunshine State has acquired a new Sub-Editor. It is to be hoped that he reigns long and is not deterred with the spectre of the blue pencil.

Things over the past month have been very quiet on the bands, especially after the tumult had died down from the R.D. Contest. It was pleasing to note that some of the chaps had really high numbers in the scoring and when taking the points into account, Queensland should rate higher than last year. Also noted that the 3.5 Mc. band was crowded. As usual, I worked sufficient to submit a log and count for the State; worst of being a shift worker. Basil 4ZW was sorely tempted to stay home from work on the Sunday as he had lost his voice (the kids had relief).

Word has been received from the Z boys in Cairns that they expect an opening on 6 mx at any time. They have heard the trans-equatorial scatter on a number of nights and the pulse stations are coming in around 49.9 Mc. Nary an opening to Townsville as yet, although I have listened at the times they have been heard.

Claude 4UX is getting out the broomstick to make sure that the locals help out in the Scout Jamboree. Quite a few southern boys enquiring if there will be any activity in this area. Well chaps, it will depend on the Scouts themselves as all the local Amateurs are always ready and able to help out at any time when asked.

Frank 8AE has dropped in twice and now on his way to Rocky per motor bike. Never know he may decide to live in your city. Bert 4LB managed to get a sky hook up for 80 and now joins in the hook-up. It is amusing to hear the boys on this band as the dishes required to be washed up. What an excuse for missing out when talking to 4RW. Just as well I can take it!

Now is the time chaps when it behoves you one and all to think wisely and remember to weigh in for the I.T.U. Fund, otherwise we will be curtailed in our personal representation at the Conference. Don't be like last time. Only a few had the interest at heart and subscribed. Help now, remember we had a poor response from the individual Amateurs in Queensland last time as my index carefully compiled shows.

Just met Allan 4BE, who is busy packing up on transfer to the big smoke. He will be sadly missed by all as it never was any trouble to him to come around and help out anyone who was having a bit of strife in keeping on the air. Could always be relied upon to stand by and give test, etc. Not everyone suffers from Mondayitis, because recently my local QRM rolled up at work at 6 a.m. and was told that it was his day off! Wouldn't it. 73, 4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held this month as usual in the clubrooms to a very representative gathering of 82 members, which for interstate consumption I announce the figures were audited by that well known firm of Ananias-Ananias and Ananias, and took the form of a display of members' home-constructed equipment.

Quite a representative collection of gear was displayed and explained by the exhibitors, and the three awards went to Ron 5KS for his s.s.b. equipment, both transmitting and testing; Bob 5ZDX for his 6 mx mobile tx and converter, and last but by no means least, George Edmeads for his e.r.o., which, as he proudly proclaimed, was made from plenty of bits and pieces. Nice work gentlemen.

Other equipment displayed, not necessarily for judging, included a tape deck by Geoff 5TE, Keith 5KH with a mobile transceiver, Doug 5KK with a transistorised mobile power supply of 180 watts, and a mobile tx for 7.50-144 Mc.; Ron 4ZDC with a yagi beam which included a novel method of terminating the feeders, Al 5MF with a s.s.b. rx plus plenty of propaganda for the said s.s.b. and Trevor Marshall for a 6 mx rx. Incidentally, Trevor took the floor like a veteran and gave a description of his rx which would have put to shame many a member present, three times his age. He attends the Plympton High School and if this is an example of the present day student, then we have nothing to fear for Amateur Radio in the future, practically or administratively. An excellent display, gentlemen, and thank you for making the night so interesting.

Noticed Roy 5DA, "Buck" to you, sitting talking to an old-timer in Marshall Hider during the meeting, and in a chat with Marshall later, he said he felt quite at home after all these years, but did not know more than a handful of the members present. I told him not to worry about that, I attend almost all the meetings and don't know half the members present myself.

Somehow or other the visitors' book managed to get lost and all the visitors had to stand up and announce themselves. Imagine the fright

I got when I heard one of them stand up and say, "My name is George Glover." Diving under the nearest chair and waiting for the shots in my direction, I was more than relieved to hear that the visitor was not a VK3, but a G3FFO who has settled in VK5 and intends to take out a licence. He tells me that he has spent quite a while in Egypt and has worked plenty of VK5s. Know him? The whole business upset me terribly. I could not sleep all night. I kept on hearing a voice saying, "I am Ken Pincoff," and then the machine gun would start. I tell you, you can't trust these VK3 Jokers. They bob up all over the place without warning.

Very little to report from the S.E. of VK5 for this month. At their last monthly meeting night there was an unusually small attendance, only 5MS, 5KU, 5CJ, 5ZLS and Col Hutcherson being present. Opportunity was taken to welcome Erg 5KU back to the fold, so at least what little news there is to report is good.

Claude 5CH heard on 7 Mc. at various times, in fact I even had a contact with him myself. Claude is shortly to venture into the unexplored wilds of VK6 for a holiday. Hope you have a good time OM.

Had a listen on 3.5 Mc. around midnight the other week and was rewarded with a listen-in to a contact with a maritime-mobile station in Olaf 3AH and Alex 2JZ. Olaf was en route to Whyalla and was using a transistorised set-up that had to be heard to be believed. Have not heard any more of him since, but then I don't usually listen that late, only when my conscience bothers me or when there is a rumour of an invasion from VK4.

The Woomera Radio Club, 5WC, was heard at good strength the other Saturday afternoon working everybody right and left. It appears that the club was celebrating its 10th anniversary and was endeavouring to contact as many stations as possible on the day and was handing out special QSL cards to prove it.

Understand that the Crystal Brook gang are tinkering with the idea of having another get-together of the boys, possibly in November. This is a privately arranged "do," but anybody who is interested is always welcome and any information could be obtained from Luke 5LL or Dave 5DS. Judging by the success of the last one, the attendance this time should be a bumper.

Doug 5EI, our worthy Treasurer, and Pat 5US, our genial Secretary, have both resigned from their respective positions and their places have been taken by a couple of Harry's—Harry 5MY who will be Treasurer and Harry 5EU who will be the Secretary. We are sorry to see the first two go, they have done a good job, even if Pat did post me the Council minutes and cost me an excess postage of one bob, and we welcome the last two who, incidentally, volunteered for the job, and can we say any more in their favour than that. Nice work boys, we salute you.

Another retirement from the Council is Clive, who was the operator of 5WI. He is another one who has done sterling work for the Division and the Council, giving a lot of his time for the benefit of Amateur Radio in general, and is probably better known under the call sign of 5PE.

It was decided by Council that the VK5 journal will be issued every two months and the technical articles shall be the responsibility of the Technical Committee. The editorial staff will be Ted Brice 5CA and his telephone is 79-2821, and he will not be too proud to answer it if you ring with any items of news for the journal. If you are nervous of microphones, you may still write to him at 34 Fisher St., Fullarton, and if by any chance you can't write, or you have no pen or paper, he is not above lending an ear at the general meetings.

Don 5TM is re-broadcasting the 5WI Sunday morning session on 160 mx and it is putting a solid strength 9 throughout the Adelaide area. It is on an experimental basis at present, and reports would be appreciated from listeners far afield with the object of relating any reports to the 40 watts input being used.

The new Technical Committee for VK5 was launched recently and big things are expected of this body. Naturally its role is an important one and can benefit all active Amateurs. If you have a problem don't hesitate to get in touch with the Committee, don't be too proud or too shy, who knows, you might stump them. O—oh, if only I could, but I am afraid it is wishful thinking.

Jim 5JK is home from hospital at the moment of writing, but is still confined to his bed, and may be there for another month.

Council recently visited the Elizabeth Park Boys' Technical High School and had a close-up of the facilities provided for teaching elementary electronics. Whilst maintaining a close silence on their opinions of the effects of the visit, one of my spies planted in Council tells me that the Youth Radio Scheme, as implemented

in the other States through High Schools, may have to be modified before it can be adopted in VK5. Council is considering all the aspects of this before committing the members to the task of implementing any youth training in radio in VK5. Are you listening Ken?

This month saw the introduction of a new radio serial, "The Green Valleys," which is fast becoming VK5's answer to "The Blue Hills." The leading male role is taken by George 5CV, the leading female role is taken by "Mum" (XYL of George), the male juvenile lead by Mate 5AO and the juvenile female interest by "Jen" and "Missy". George 5CV has been travelling through VK3, VK2 and VK4 and with his mobile set-up has been on sked with his harmonic, Mate 5AO, on 7 Mc., nightly at 5.30 p.m. I have not missed an episode and have alternated between joy, tears, suspense, and have even eaten my fingernails up to the elbow at the hair-raising doings of the intrepid travellers. Joking aside, George, how you had a good long trip and you and "Mum" enjoyed yourselves. Incidentally, how low can one sink? "Mum" wanted to go to Scotland for your long leave, aren't you going in the wrong direction? Also, don't think we swallowed that yarn about running out of petrol at Hay, nor that you had left your bankbook home! You will get your just deserts, George.

Well, I can see the red pencil poised in the graceful and artistic fingers of Ye Ed., so I had better take the hint, after all he might make me make way for F.E., just like he said. You were only joking, weren't you, my old palsy,walsy. 73, de 5PS (PanSy to you).

WESTERN AUSTRALIA

Ge. some people are keen. I have been told that 6KN was heard calling on 80 mx at 20 minutes to 12, our time. No, not during the day, but during the dark time. Somebody must have been about because he had just finished a contact with a VK3 who appeared to be knocking caps off 807s.

Talking about knocking things off, I believe that 6VA has been knocking a European or two off with his two element beam for 14 Mc. on the long path to Europe. Congrats., OM. Presume the next project will be to add the third element and then you'll hit the spots, probably both ways at once.

Some months ago we mentioned, on our sick list, the name of Rose Hardwick, L6002. Rose has, with Eric L6001, her XYM (that means "ex young man" as if you didn't know) been a tower of strength on the listeners' side of the Division. We are pleased to know that Rose's health has improved and she is now back at work again.

Lady members reminds me, after discussing Aileen 6YL and Bill 6RX last month, I am happy to report that Aileen gave a good account of herself during the recent R.D. Contest, as did Bill, who says his Collins 75A4 has been returned from Melbourne where it had been under repair. So we should be able to hear a signal or two now, Bill.

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That reminds me, some of our Advisory Committee boys have mentioned that they have heard unmodulated carriers operating in the Ham bands. All members are reminded that they should identify themselves when testing. If you are working on the tx only, work into a dummy load. If on the sky wire, say who it is, even though you may not think you are getting out—you could be surprised!

Had another funny one at the Council meeting, too. Alyn 6ZDM was telling us the things he cops on 50 Mc. Y'r know the way he does? Presumably they were in layers coming out of the speaker, couldn't separate them at all. Vic 6VK came in with, "that's the trouble with these broad-band crystals." Don't understand that one. I always thought crystals were fairly sharply tuned devices; however!

One sharply tuned device which is giving trouble is that beam of 6LR. Lance is still having problems. Soon he'll have someone to talk over his problems with as Lance's XYL is getting interested in this side of her husband's affairs. How about getting the XYL to take a note or two for the "A.R." col. Lance? Women are so good at that sort of thing.

There's no doubt about it, people get up to some odd things when they become Hams. I have a report that Tom 6KS has a great heap of empty (repeat, empty) beer cans in his back yard and is thinking of coming back on the air again. All right! Ask the obvious question and see where it gets you. As it happens there is a quite sound and logical reason for Tom to have a pile of empty beer cans in his yard. Apart from the fact that he can't carry them away, he's going to make a "beer can vertical" so there! Hope it doesn't stagger about too much Tom. I'll be interested to see how it works, if nobody else!

Shades of the R.D. and all that. Jim 6RU must have kept pretty close tabs on who was operating, because I heard him mention that there were 13 or 14 Hams who didn't operate. He's keen, that boy! All the best, 73, 6LS.

TASMANIA

As our usual scribe is out of action this month, yours truly has been delegated the task of lapsing into journalism. 7ZZ, our usual correspondent, met with an accident concerning a glass door and was "awfully cut up about things," necessitating hospitalisation and a fairly long recovery period. Seriously, Ian, we all wish you a speedy recovery.

Believe that Pat 7GV has become the proud owner of a 122 set. Getting ready for a run at the Hamfest, Pat? Heard a lot of strange VK7 call signs on the air during the R.D. Contest. Had to check the call book to see whether they were legitimate. How about letting us hear you on the air more regularly?

A very successful auction was held at the conclusion of the August meeting and many bargains were picked up by members. I hope everybody is getting geared up for the Hamfest early in November, to be held in the Cambelltown area. Get that mobile gear out and dusted off in readiness and get that whip aerial pruned and tuned and let us see just how many mobile stations we can get on the air for the occasion. Those who attended the last show will remember what a grand time we had, so pass the word along.

Our next event requiring the co-operation of Amateurs will be the Jamboree-on-the-Air, to be held in October. So get with it chaps and make this the best Jamboree yet. Remember, your assistance can make or mar the whole show, so let's make and not mar.

That's all for this month, so cheers to all, and remember, "The I.T.U. is up to you." 73, Charley Tango.

NORTH WESTERN ZONE

We have had a visitor to the zone recently in Geoff 7ZAC, who also came along last meeting to show his 2 mx portable rig.

The proposed Civil Defence Communications system has been put before us and a recorded tape on the subject sent for our enlightenment. However, due to many impractical aspects, not the least being the use of the 27 Mc. band, little interest has been aroused.

Very pleasing indeed to see the meetings so well attended, but more radio activity on the air, on the work bench, and with the text books is applicable for most of us, myself included! Let us hope an A.O.C.P. class does eventuate for the benefit of our many associates.

Very sorry to see that fellow scribe 7ZZ is in hospital. Wish you a speedy recovery, Ian.

And don't forget the I.T.U. Fund. The response so far has been poor. I'm sure we all realise just how vital is the need for a representative at the Conference. 73, 7ZBH.

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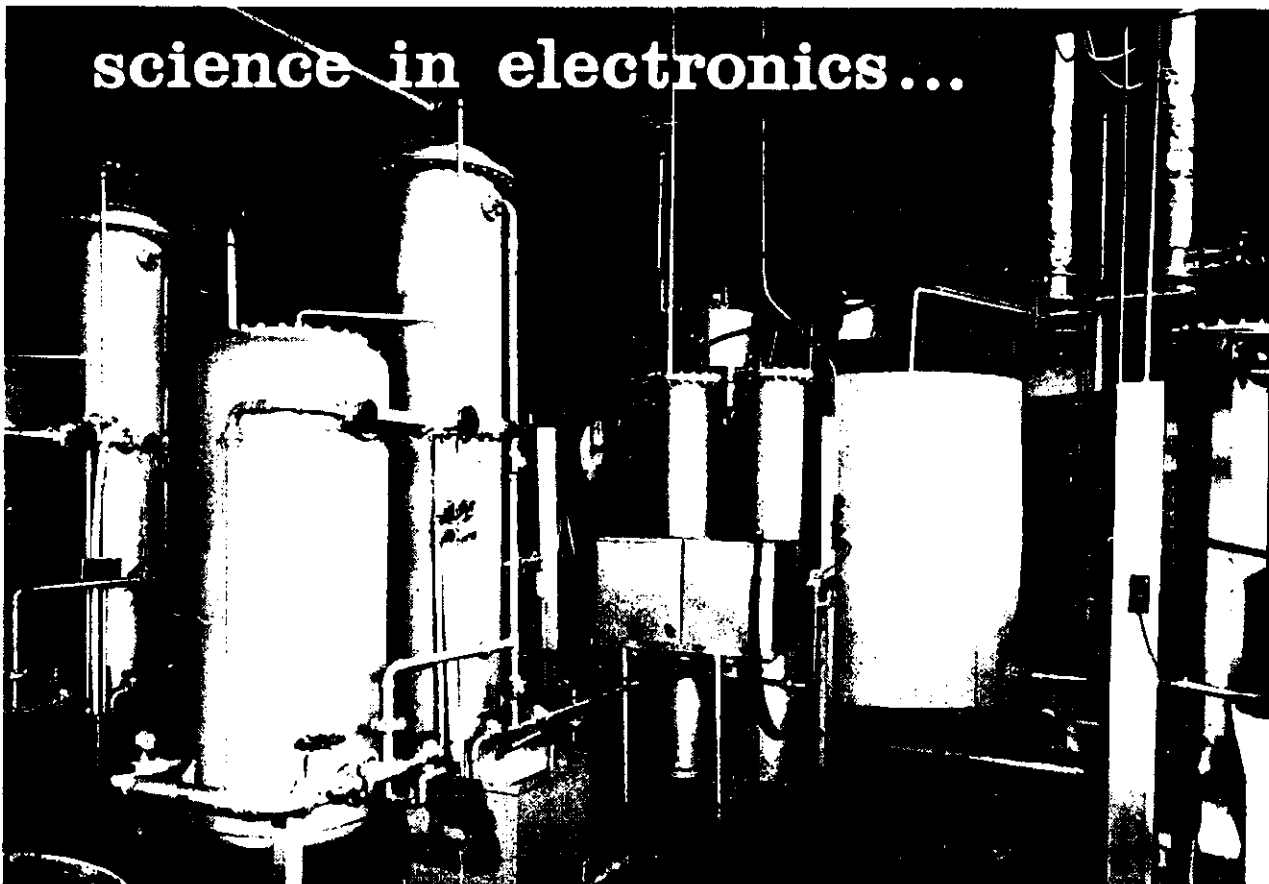
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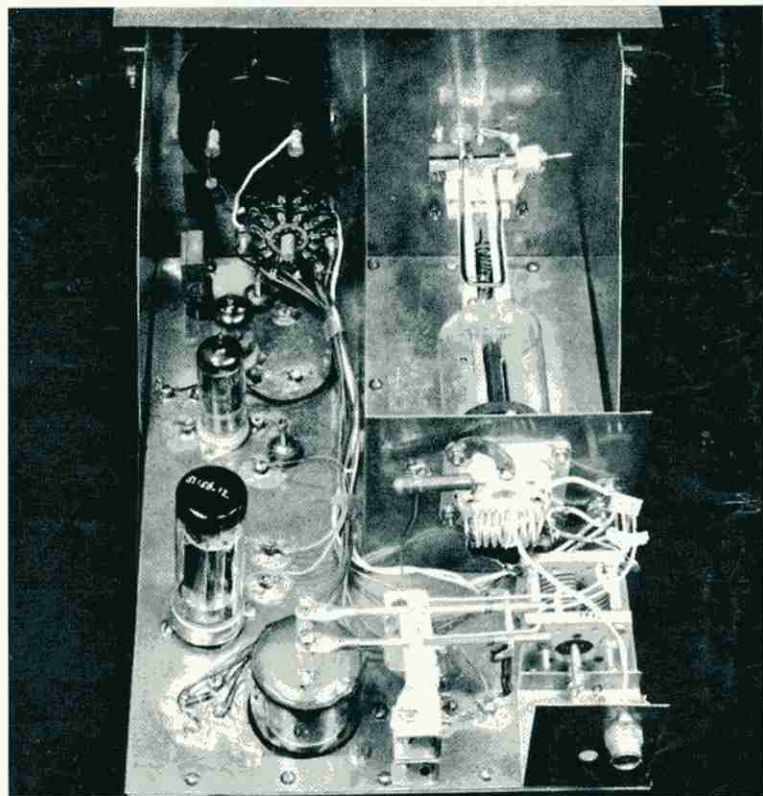
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OUR COVER

For full details of this month's cover photograph refer to Single Sideband on 432 Mc. on page 15.

FEDERAL COMMENT

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In April 1963 the Secretary-General, International Telecommunications Union, Geneva, invited the Australian Government, together with all member administrations, to send a delegation to the Extra-ordinary Administrative Radio Conference to allocate bands for Space Radio communication purposes which opened in Geneva on 7th October this year.

To deal with problems which will arise as a result of proposals for frequency allocations for the Space Service, Postmaster-General Davidson formed a special Ad Hoc Committee to which the Wireless Institute of Australia was invited as a voting member representing the Amateur Service.

Known as the Radio Frequency Allocation (Space Service) Committee it has worked over the past many months to determine the brief for the Australian Delegation to Geneva. At the numerous meetings held in Melbourne and Canberra, the Wireless Institute of Australia has been represented by Mr. Arthur Ernest Tinkler, VK3ZV, whose expenses have been paid by the Government.

As a result of his expert co-operation and his knowledge of the problems involved during the deliberations of this Committee, the Government invited the W.I.A. to send an observer representative with the Australian Delegation to Geneva. This was accepted and after discussions with Federal Executive, Mr. Tinkler undertook the representation of the Amateur Service at the Conference.

Deliberations in respect of the Space Service requirements involved many services and therefore of necessity the activities of the Committee were of a restricted nature. However, through its representative the Wireless Institute of Australia kept close watch on the problems involving our v.h.f. and u.h.f. assignments and, at the final meeting of the Committee, the status quo was maintained.

Never before has the world-wide Amateur Service faced such problems relative to its frequency assignments as it has faced in the last decade and it must expect to face even greater problems in the future. To deal with these problems representation at Government level is imperative and it is the role of the Wireless Institute of Australia to act for the VK Amateurs. The Institute has pledged itself to do this with all its might despite opposition from mis-informed sources, contending that it is unable to do anything effective. It has successfully campaigned to have representation at Government level on frequency allocation committees and the work of its representative has been praised by responsible officials. Because its members belong to a Service with quite wide overall frequency allocations it is in the best interests of all other frequency users that the Institute plays its effective part in formulating any plan for the successful engineering of the frequency spectrum on an equitable basis.

To say that the Institute can do nothing about Amateur problems is foolish. To say that it should do everything in its power to protect the Amateur frequency allocations is realistic thinking! The ill-informed few who say we are unable to do anything would be the first to say . . . "why didn't the W.I.A. do something" . . . if the future wrecked our chances and we indeed had done nothing!

FEDERAL EXECUTIVE, W.I.A.

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Modification of the 522 Equipment for F.M. Operation

Part Two—THE RECEIVER

E. C. MANIFOLD,* VK3EM

THIS section has, in the past, been rather neglected, mainly due to the lack of selectivity for a.m. use without a good deal of work being done to improve this fault. (A fault so far as Ham's are concerned, but satisfactory for the original purpose.)

This still applies, but to a lesser degree, since we want a bandwidth of approximately 30 Kc. to accommodate the f.m. deviation in present use on 145 Mc.

R.F. AND MIXER SECTIONS

The modification follows the suggestions as published in "QST" a few years ago by Robert E. Fairbrother, WIPYO ("QST," April 1949).

The 9003s in r.f. and mixer valve sockets are removed and replaced with 6AK5s, but this is not the only story as the 6AK5s will "take off" so it will be necessary to alter the front end as follows.

Remove the front end r.f. and mixer sub-chassis from the set and remove stator and rotor plates, leaving two stator plates and one rotor plate in each section, which will give a tuning range of 120 to 130 Mc. with the trimmers fully in, and 135 to 165 Mc. with the trimmers fully out, so don't be timid about removing the plates.

It is important that you exercise great care when doing this because the fragile ceramic rotor shaft is easily broken.

Removal of Condenser Plates

After finding that there have been some of the local Hams that have tried to remove plates from this tuning gang and broken the shaft, it was thought that it might be a good idea if these notes were included to assist and to help avoid the breakages that have been experienced.

The actual removal, though being a bit difficult, is mainly a matter of care and patience, the technique being quite simple.

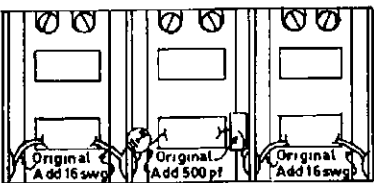


Fig. 1. Extra earthing & bypass on RF & Mixer. Tuning gang.

First remove the tuning gang from the chassis so as to get at both sides of the stator plates with ease. The rotor is turned to the opposite side stator section and work is commenced on the cleared stator section.

Take a sharp, narrow pair of sidecutters and insert the points **only** of the blades between the outer plates and snip through the top support bar. The correct side of the sidecutters to use

will be seen after the first section of the bar is cut, as one side of the cutters will not affect the rest of the plates and will leave the bar holding the remaining plates firmly.

This allows the first plate to be spread from the others with a screwdriver, then take the long-nosed pliers, push them right down as far as possible and grip the plate firmly, proceed to twist the pliers, side to side, until the solder at the base gives away.

Treat each plate separately until there are two plates left at the centre of the gang, on opposite sides, corresponding to each other.

Alternatively, a small fretsaw or jeweller's saw may be used to cut through each part of the support bars before removal of each plate.

Now the ticklish operation of removing rotor plates is tackled. Turn the rotor plates until the centre of the plates are facing outwards, clear of both stator plates.

The gang can then be replaced in the chassis and all connections remade, although it is a good idea to do all the modifications to the ant., r.f. and mixer sections by replacing the coils, etc., at the same time as this part, while out and easy to get at.

From remarks heard passed on occasions, it seems that there have been quite a few casualties when attempting to do this job, but by using this method there have been three modifications done at this QTH without a failure to date.

Should you be unfortunate enough to break the ceramic shaft when attempting to remove the rotor plates, it would be satisfactory to only use the trimmers to peak the coils if only one channel operation was required, but it may be found that for more than one channel a compromise tuning would have to be made. Since this has not arisen to date at this QTH, it is a suggestion which may be of some use. I hope that you don't have to apply it.

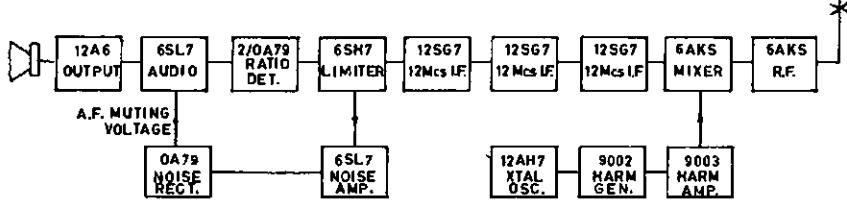


Fig. 2. Block diagram of single conversion.

Gently push a screwdriver down between the outer plates and spread the outside plate far enough from the other to slip the long-nosed pliers at least half way down the plate.

Grip the plate with the pliers firmly and start to twist the plate with the pliers gently, side to side, a little at a time, increasing the movement as the solder starts to break away at the points of the rotor plate where soldered to the metal section around the ceramic shaft.

To avoid too much strain on the ceramic shaft while this operation is being done, the gang should be held in the hand, the fingers gripping the remaining plates at the sides while twisting. This will assist in taking the pressure off the ceramic section of the shaft.

It is not advisable to hold the gang in a vise as it is easier to feel how much pressure is being applied when the gang is hand-held.

With care in the initial stages, one gets the feel of how well the plates come out, but be **patient** until you remove one or two plates, or you will find that there is no need to remove any more plates if the shaft gives up the struggle. There are few replacements to be obtained to try on again.

Continue with the removal of the rotor plates until there is but one plate in each section of the gang, corresponding to the two remaining plates in the stators.

(Do not alter the two-gang section containing the 9002 and 9003 harmonic generator and harmonic amplifier.)

Replace the existing two-turn coils in each section with three turns of 16 s.w.g. tinned, or preferably silver plated copper wire, and the original aerial coil with two turns of similar wire, taking care to observe the original winding direction and spacing, as this is important.

Remove the original r.f. and mixer grid coupling condensers and resistors and replace with the smallest 33 pF. ceramic condensers available, to be connected between the valve pin lug and the gang coil mounting pillar. Reconnect the original grid resistor across this condenser, both with the shortest leads possible.

By-pass the r.f. cathode resistor with the 680 pF. condenser removed from the a.v.c. line which is now earthed.

Remove the existing r.f. screen dropping resistor and replace with 15K, 1 watt, for the 6AK5.

It will be noted that there is an existing earth connection from the tuning gang sections to frame at aerial, r.f. and mixer positions, as shown in Fig. 1. An additional earthing wire must be added as shown, together with a 500 pF. by-pass for the r.f. plate section, using leads as short as possible in each position.

Remove the mixer cathode resistor and short the valve pin lug as direct as possible to frame (earth).

* 267 Jasper Road, McKinnon, Vic.

The 1st i.f. transformer (No. 291) is now removed and the 60 pF. condenser across the mixer plate coil is removed from the coil, to be re-fitted direct from mixer plate to earth. Leave the 15 pF. ceramic condenser across the i.f. coil and replace the transformer.

The existing plate decoupling resistor for the mixer is removed and is replaced with two 20K, 1 watt, parallel resistors as common dropping decoupling resistance for the mixer and r.f. stages, to provide 150v. maximum. This resistor may be subject to variation depending on the h.t. voltage available.

These modifications will provide a sensitive and stable front end with approximately 10 to 12 db. gain over the original 9003s.

I.F. STRIPS

Two versions of this modification have been made, single and double conversions, the single conversion being the original 12 Mc. i.f. amplifier with the addition of a limiter, ratio detector, noise amplifier and rectifier (for muting), and altered audio section. See Fig. 2 for block diagram.

The audio and muting circuits are common to both receivers, but in the double conversion model the i.f. transformers have been removed and re-wound for an i.f. frequency of 4.4 to 5 Mc.

Which i.f. amplifier you decide on is a matter of choice, or requirement, but it can be said that the double conversion is very much better than the single conversion as it is possible to achieve 1 μV. sensitivity with the double conversion as against 3 μV. for the single conversion at 145 Mc.

The main objection to the single conversion is the lack of selectivity if, and when, multi-channel operation becomes necessary, but for short haul work, country town, and link operation, it is quite satisfactory.

12 Mc. Version

As previously mentioned, the a.v.c. is removed entirely since we want as strong a signal as possible to the limiter input to provide signal saturation of this stage. This will give a semi constant level to the ratio detector and, more important, a fairly constant audio output level, which will allow the gain control to be set for average listening level from the speaker over a very wide range of signal input levels.

All by-pass condensers and resistors are removed from the a.v.c. connection on each i.f. transformer and this point is earthed by securing a solder lug under the nearest can-securing nut and soldering to the i.f. connecting pin, with the exception of the limiter grid which should be wired as shown in Fig. 4.

A tinfoil (another jam tin) shield was installed from the front end cut-out in the chassis and turned across the chassis approximately 3" from the end to a point in line with the original 12C8 socket to isolate the i.f. stages from the limiter, ratio detector and audio circuits.

It was also found necessary to increase the values of the second i.f. valve cathode resistor to 400 ohms to prevent instability. Care should be taken to decouple and by-pass h.t. leads if instability is experienced.

- 201—10 pF., 500V.
- 202—0.0068 μF., 300V.
- 203—47 pF., 500V.
- 204—15 pF., 500V.
- 205—220 pF., 500V.
- 206—0.006 μF., 300V.
- 207—60 pF., 500V.
- 208—15 pF., 5%, 500V. N680K ceramic.
- 209—100 pF., 500V.
- 210—330 pF., 500V.
- 211—0.1 μF. three-section, 400V.
- 212A—10 μF., 350V.
- 212B—20 μF., 350V.
- 212C—5 μF., 150V.
- 212D—5 μF., 150V.

- 213—1 μF., 100V.
- 214—82 pF., 2%, 500V.
- 215—No part.
- 216—6-36 pF. tuning gang.
- 217—Tuning gang.
- 218—Tuning gang trimmers.
- 221 to 228—Inductors.
- 236—150K audio gain pot.
- 237—2,000 ohms squelch pot.
- 241—R.F.C.
- 246—Squelch relay, 5,000 ohms.
- 251—0.47 megohm, ½W.
- 252—0.1 megohm, ½W.
- 253—330 ohms, ½W.
- 254—6,800 ohms, ½W.

- 255—1.8 megohms, ½W.
- 256—1,000 ohms, ½W.
- 257—330K ohms, ½W.
- 258—680K ohms, ½W.
- 259—10 ohms, ½W.
- 260—27K ohms, ½W.
- 261—1,200 ohms, ½W.
- 262—560K ohms, ½W.
- 263—47K ohms, ½W.
- 264—10K ohms, ½W.
- 265—2.7K ohms, ½W.
- 266—270K ohms, ½W.
- 267—100K ohms, ½W.
- 268—390 ohms, ½W.
- 269—270 ohms, ½W.
- 270—470 ohms, ½W.

- 271—82K ohms, ½W.
- 272—120K ohms, ½W.
- 273—5.6K ohms, ½W.
- 274—2.2 megohms, ½W.
- 275—470K ohms, ½W.
- 276—18K ohms, ½W.
- 277—1.8K ohms, ½W.
- 278—1.5K ohms, ½W.
- 279—47K ohms, ½W.
- 280—1 megohm, ½W.
- 281—150K ohms, ½W.
- 282—33K ohms, ½W.
- 291 to 294—I.F. Transformers.
- 295—Audio input transformer.
- 296A—Audio output transformer.
- 296B—Choke, 6 HY., 50 mA.

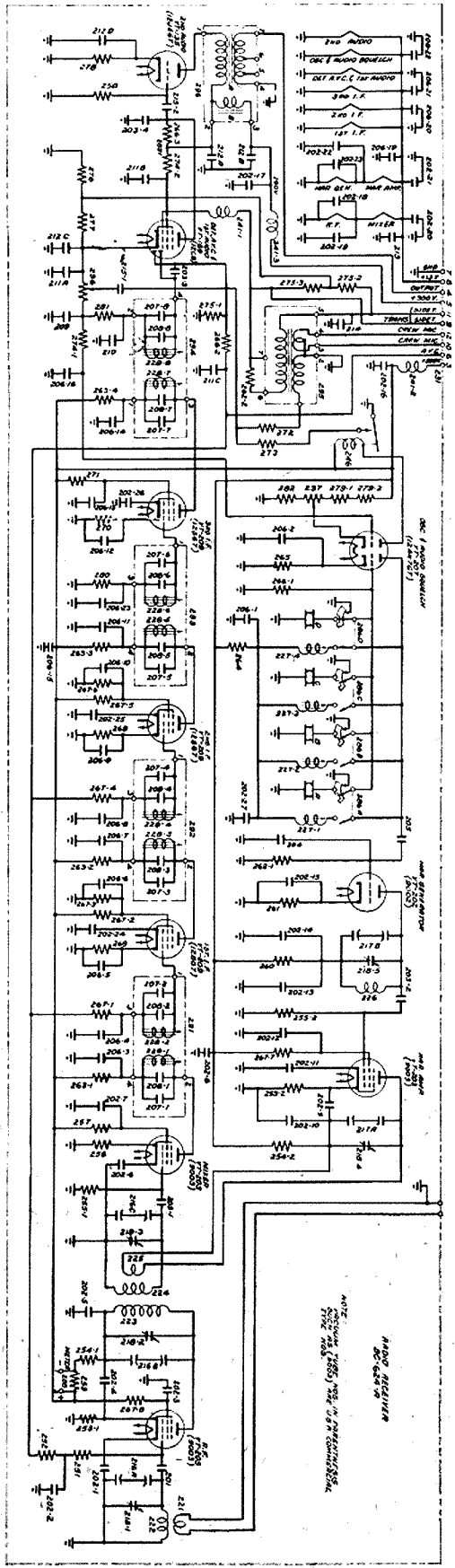


Fig. 3.—Receiver BC624A

The original 12C8 valve is removed and re-wired for a sharp cut-off pentode (6SH7, 6AU6, etc.) to be used as the limiter stage. This is followed by the ratio detector transformer and two OA79 diodes as ratio detector. These should be selected for this position.

If desired, a 6H6 or 6AL5 could be substituted in this position without any difference being noticed in operation.

A valve socket is fitted in the position of the transformer 296 and wired for a 6SL7 or 12AX7. This becomes the 1st audio and noise amplifier for the muting voltage rectifier and should be wired as shown in circuit drawing, Fig. 4.

The original 12J5 output is re-wired for a 12A6 and an output transformer fitted in the position of the squelch relay.

Double Conversion

The 1st and 2nd 12 Mc. i.f. transformers are left, together with the 1st 12SG7 valve as the 12 Mc. i.f. amplifier.

The 2nd 12SG7 valve now becomes the second mixer and is wired as shown. The following i.f. transformers are removed and rewound to the coil details given later.

It will also be noted that there is another transformer required in the modified circuit, but as there has been so many of these receivers wrecked, it should not be too difficult to obtain an extra one.

In any case, it would be in order to rewind an ordinary type of the 1½" square can i.f. transformer with two similar windings to those of the ones to be modified to 4.4 Mc., using similar condensers, and allow the slugs to tune the coils to resonance.

There is no alteration to the 3rd 12SG7 valve, this followed by transformer 294, and an extra 12SG7 stage and transformer to feed into the 6SH7 limiter. The limiter valve is located in this mod. in the electrolytic condenser hole and the necessary heater and h.t. wiring added.

Tinplate shield brackets (jam tins again, or a piece of the same one) are installed between the limiter valve and the ratio detector transformer, located in the hole previously occupied by the transformer 296, and resistor mounting strips are fitted to these shields to secure diodes, resistors and condensers for these circuits.

No mention has been made of the second conversion oscillator, which is

only necessary in the double conversion model. This is the second half of the 12AH7 crystal oscillator and was the original squelch tube.

It should be mentioned that it is entirely practical to use the one crystal for both conversions, 12 Mc. and 4.4 Mc., in the double conversion receiver.

The difficulty with one crystal is that the difference in the various channel frequencies means that the 1st i.f. must be a compromise for any, but one frequency, and must be capable of accepting a band of frequencies about 11.75 Mc., depending on the crystal selected. It also creates some difficulty with the ratio detector alignment for best noise rejection and quality.

To avoid this condition, a second crystal was installed to provide constant i.f. frequencies to both mixers. It might be added that the crystal was available, which helped to decide matters.

The final frequency line-up was as follows:—

Channel	1st Freq. Mc.	1st Osc. Kc.	1st I.F. Mc.	2nd Osc. Kc.	2nd I.F. Mc.
	145.854	7450	11.75	7320	4.43
	146.000	7457.83	11.75	7320	4.43
	146.146	7465.94	11.75	7320	4.43

There is nothing to dictate that these frequencies be followed as variations either way of crystals that you already have could be used. These happened to be available and suitable, but the frequencies suggested as the channel frequencies are highly desirable in their acceptance throughout Australia.

The positions for the components in the double conversion is as follows: The 12C8 valve socket is used as the extra 12SG7 i.f. stage at 4.4 Mc. and is followed by the extra transformer in the position of transformer 295. The electrolytic condenser hole becomes the 6SH7 limiter valve socket and the ratio detector transformer is installed in the hole left by the audio output transformer 296.

The 6SL7 valve and socket replace the squelch relay as 1st audio and noise amplifier and the output transformer is fitted on top of the chassis between the 6SL7 and 12A6 valves.

The metering plug in the r.f. section is no longer of any use since we have removed the a.v.c., so we can now re-wire it across a 1,000 ohm resistor in series with the limiter grid resistor to

provide indication of grid current in this stage for signal strength and alignment purposes, as without some metering it will be impossible to align the receiver correctly.

ALIGNMENT

Check voltages at all points in the receiver and test the audio section for correct operation. Plug an 0-1 mA. meter into the metering point and tune an unmodulated a.m. (or f.m. oscillator with oscilloscope) to the frequency to be aligned (4.4 or 12 Mc.) and connect to the grid of the limiter stage.

Align the ratio detector first by connecting a v.t.v.m. from one side of the 8 µF. condenser in the ratio detector circuit to earth, using a low d.c. range approximately 5 to 10v. Tune the ratio detector transformer primary to maximum reading, reducing the oscillator input if necessary to keep meter on scale.

Remove the v.t.v.m., set at centre zero scale, and re-connect to the audio output point or centre tap of the 350 pF. condensers, and tune transformer secondary to centre zero scale, making sure that the slug tunes through resonance, as indicated by the v.t.v.m. moving first in one direction to a maximum, through zero, to a maximum in the opposite direction. Then reset to centre zero, using as low a voltage range on the meter as possible for the final setting.

This will probably have to be re-checked when a signal of known accurate frequency is received, unless the alignment oscillator is of very good accuracy frequency wise. In any case it would be good procedure to re-check later.

The alignment oscillator should be moved to the grid of the 12SG7 and i.f. transformer (294-M No. 2) and tuned to maximum indication on the limiter grid meter.

The remaining i.f. alignment is standard procedure for all types of super-heterodynes, using the limiter grid meter as the indicating device, and reducing the oscillator input to keep the meter readings at a low level, approximately quarter maximum reading.

It will most likely be found that the limiter grid will saturate at a reading of approximately 0.5 mA., but limiting action will be taking place from a much lower reading.

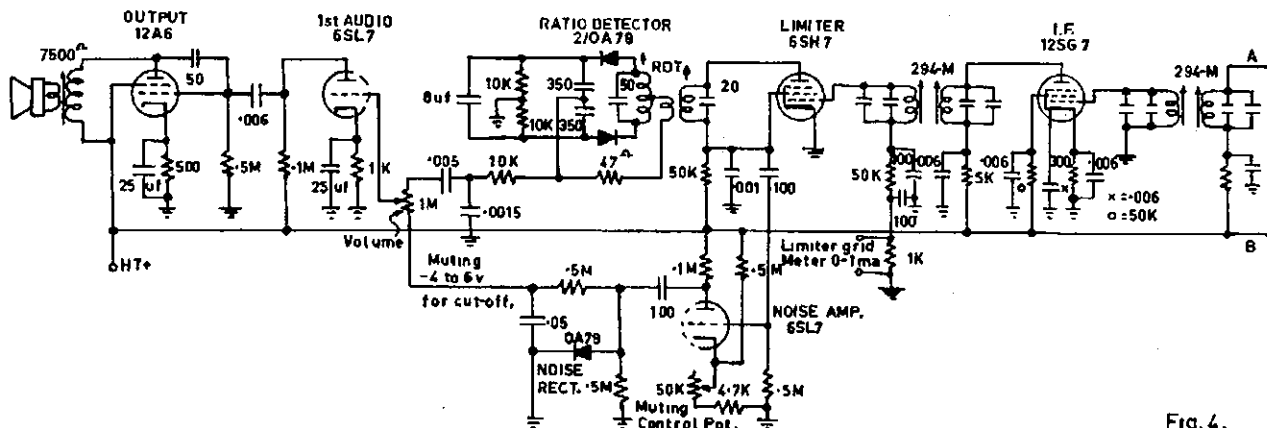
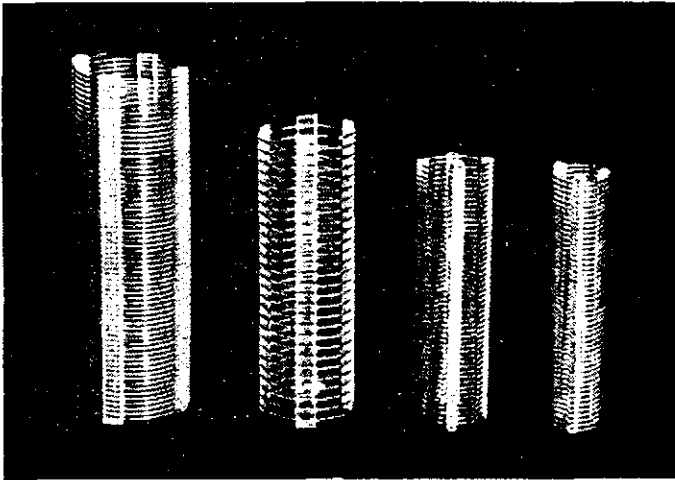


Fig. 4.

AIR-WOUND INDUCTANCES



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1-08	1/2"	8	3"	No. 3002	5/3
1-16	1/2"	16	3"	No. 3003	5/3
2-08	3/8"	8	3"	No. 3006	6/3
2-16	3/8"	16	3"	No. 3007	6/3
3-08	3/4"	8	3"	No. 3010	7/4
3-16	3/4"	16	3"	No. 3011	7/4
4-08	1"	8	3"	No. 3014	8/5
4-16	1"	16	3"	No. 3015	8/5
5-08	1 1/4"	8	4"	No. 3018	10/6
5-16	1 1/4"	16	4"	No. 3019	10/6
8-10	2"	10	4"	No. 3907	13/9

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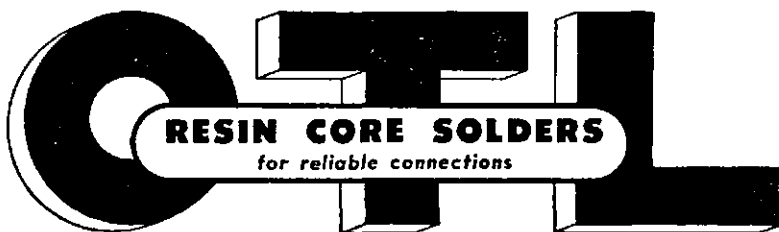
References: A.R.R.L. Handbook, 1961; "QST," March 1959;
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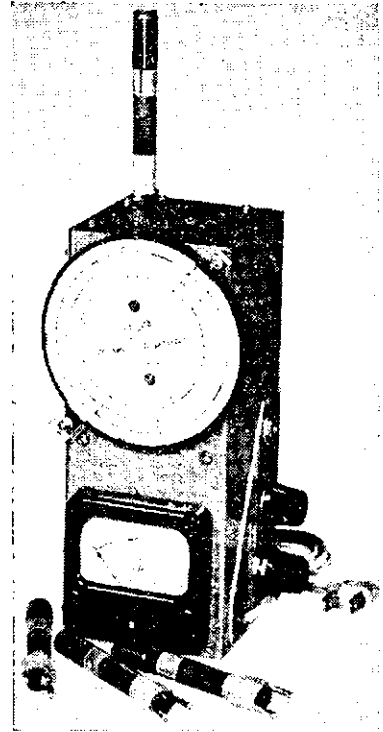
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SIMPLE SIDEBAND

Epilogue

C. G. HARVEY,* VS1AU (Ex VK3UO, VK2AQU)

A FEW years ago I described a simple home-grown phasing transmitter. The article created sufficient interest to tempt me to record a further stage in development.

The phasing rig, crowded on to a Command chassis, provided about 4,000 wonderful QSOs with very few reports below Q5, even when signals were down to S3. Its only component failures have been open-circuit AN54 and AN54A audio transformer primaries. After failure of a third set of transformers, I decided the time had come to try a different method of producing s.s.b.s.c.

This was not due to dissatisfaction with the phasing method, which has really done a wonderful job, and has not been temperamental, as is sometimes alleged. Certainly there is a need to adjust the carrier suppression frequently, but this is such a simple matter that it does not constitute grounds for abandoning the method.

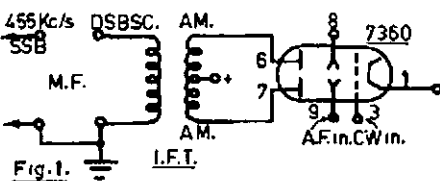
Providing a c.r.o. is available initially, it is child's play to adjust the r.f. phase shift network which, in my experience, will then stay adjusted for a very long time. VK2AQU even survived a rough road and sea journey from the Blue Mountains to Singapore without readjustment! Readers may also recall some tests on a crystal lattice filter which were published in 1961. Whilst this work was educational, it was a slow business to run curves and plot the results. Even more fiddle seemed necessary, if I was to achieve the classical passband in the Handbooks. I know it can be done, and probably with lots of patience and a stock of cheap crystals, one might settle for this method. However, when an opportunity arose to try the brute-force mechanical filter method, I needed little convincing that this was probably the simplest and most effective method. Perhaps it is not the cheapest, but then the time comes when one is prepared to trade time in the workshop and the smell of hot resin for time on the air, operating convenience, and reliability.

The object of the 1963 programme, therefore, was to simplify and improve the s.s.b. exciter, reduce its size and power requirements, and investigate the heresy of transceiving. So, as a result, instead of using eleven tubes to get three watts, I now use five, and reports from stations who have got to know VS1AU/VK2AQU say that the signal is noticeably cleaner and takes up less space on the band just like the book said it would.

Now there is a lot of waffle talked about the amount of carrier and unwanted sideband suppression needed. The jargon is impressive, but I know it has been responsible for frightening

some chaps away from s.s.b. They feel the technicalities of getting that last db. of suppression are beyond their mental or workshop capability, and that as a result their signal will be poor and they may be unable to effect a remedy.

The facts of life at present are that unless you live in a crowded Amateur community where signals are consistently way over S9, it matters little whether or not your carrier suppression is fair or exceptional! As for the unwanted sideband, any half-way decent receiver hacks off the unwanted sideband whether it is transmitted or not.



The fact that we still tolerate a.m. and double sideband signals is good evidence that perfect suppression of the unused sideband is not essential. Don't get me wrong. Rotten sideband is as objectional as chirps, yoops and splatter. But there is a happy medium where an s.s.b. signal which might only be graded fair in the laboratory is quite acceptable and probably not noticeably different to its neighbours on the Amateur DX bands. Certainly a signal has to be poor to cause comment. I'll be surprised if you draw fire even when you insert, accidentally or otherwise, a lot of carrier, or degrade the unused sideband.

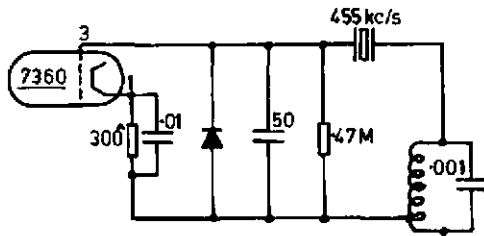


Fig. 2.

The addition of a few components to the balanced modulator enables the grid-cathode to become the carrier generator circuit.

Proof? Sure! VS1AU has often necessarily operated in such conditions for longer than I care to admit, and has drawn only an occasional comment, usually from stations equipped with commercial gear and c.r.o.'s. (Note carefully: the same lack of reaction will not however be found if you attempt to overdrive!) Nevertheless, for the good of the sport, the radiated signals should be as close as possible (within reason) to the current state of the art.

Because financial and technical considerations exist, one cannot expect a

rank beginner to indulge in double conversion multiband transceivers with optimum specifications. My phasing exciter cost less than the new mechanical filter alone, and this consideration may well be sufficient to justify the use of a phase shift network exciter instead. In deciding how far to go, the rule of thumb seems to be that the necessity for really good suppression increases with the quantity, proximity and tolerance of other Amateurs, and is closely related to frequency! What is A-OK on 14 Mc., may make your ears burn on 3½.

Now to some simple sideband practice. The split beam penthode family of tubes like the 6AR8 and the 7360 now make possible a very simple balanced modulator in which to mix the carrier and audio, and suppress the carrier.

By adding a mechanical filter, the unused sideband can be very effectively removed and really good, stable, reliable s.s.b.s.c. obtained. Unfortunately, however, it must be on the frequency determined by the mechanical filter, a nominal 455 kc.

The addition of a few components in the grid-cathode circuitry of a 7360 provides a simple carrier oscillator without the need for an extra tube. Carrier suppression can be obtained by balancing either, or both, the anode and deflection plate circuits.

At this point let me stress the need for shielding and decoupling which is effective at 455 kc. If the carrier generator radiates, it will probably get into the receiver i.f. strip and make like a b.f.o. This may be just what is needed in a single-band transceiver, but it will also cause you some bother when you try to copy the other sideband.

Similarly the 455 kc. carrier can leak around the mechanical filter and spoil the bottom of its nice steep skirts. You probably won't notice it on the air, but the effect is easily measured with appropriate apparatus.

Better button-up the oscillator section in such a way that the output of the mechanical filter is far removed from the oscillator section, and from the power supply leading to it. In my experience, it is a lot easier to put shields in before you start wiring than afterwards.

Make no mistake about the excellence of suppression of the unused sideband by a mechanical filter. Also it is fixed and cannot suffer from maladjustment. Just provide a stable carrier oscillator which sits on the 60 db. point of the skirt and even when signals are S9 plus, the fellows won't be able to hear anything on the unused side of your suppressed carrier frequency. To change sidebands, just swap the carrier generator on to a similar position on the other skirt. Alternatively, swap the v.f.o. on to the other

* Hq. Far East Air Force, R.A.F., Changi, Singapore 17.

† Kokusai MF455/10K.

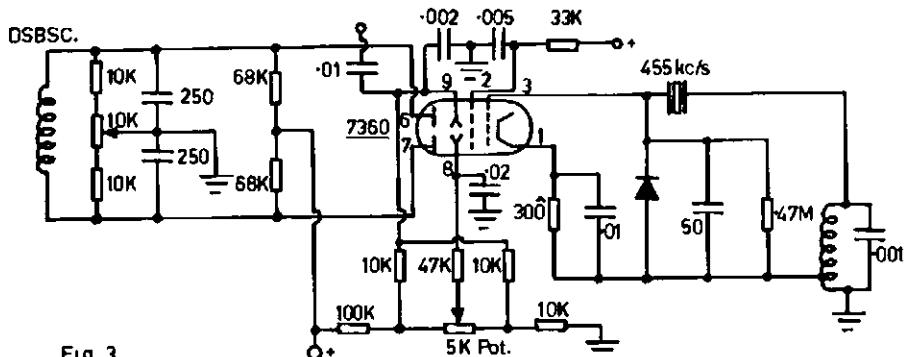


Fig. 3. Carrier Oscillator & Balanced Modulator (QST March 1960)

side of the transmitter i.f. The crystal method is easier, and helps to sustain v.f.o. stability, by eliminating switching and unnecessary leads in a self-excited stage.

Choice of proper carrier insertion frequencies is simple too. It comes marked on the graph supplied with every Kokusai filter. It is not critical providing you realise that you can be changed into a soprano (or bass) if the frequency used is too far from optimum.

The classical "QST" circuit (March 1960) for a combined carrier oscillator and balanced modulator is shown at Fig. 3. It works very nicely, but can be simplified considerably without noticeable effect.

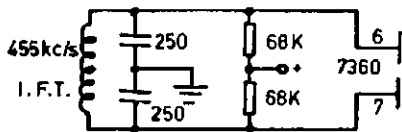


Fig. 4. First Simplification: Result, r.f. output up by 50%, carrier balance only slightly degraded.

The obvious places to start simplification are in the plate balance circuitry (see Figs. 4 and 5) and in the deflection circuitry (Fig. 6). The arrangement in Fig. 5 is suitable for those with Collins filters. The input to the Kokusai filter is capacitatively unbalanced, and will prevent you getting carrier suppression. The cure is to use an i.f. transformer between the 250 pF. capacitors and the mechanical filter.

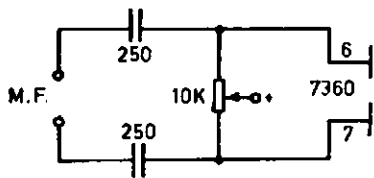


Fig. 5. Instead of applying lop-sided audio to the deflection plates as in Fig. 3, we can easily use half a 12AX7 as a conventional phase splitter, and so avoid having to d.c. balance the deflection anodes.

The savings over Fig. 3 amount to one i.f.t., one pot., eight resistors and two capacitors, with no obvious change in performance. Also, the whole s.s.b. generator fits on an empty 1/2 lb. tin of chocolates, consumed during the planning stages!

Those of you who still use aluminium for chassis, might care to consider the use of tin plate instead. A chocolate tin demonstrates the advantages well. Firstly, by-pass capacitors and shields can be tacked to the chassis exactly where required, proper shielding can be accomplished by soldering the edges of the shield so that there are no r.f. leaks and, of course, feed-through capacitors can be quickly soldered in place without cooking the coaxial insulators. There is another advantage too, if the tin snips are missing, the XYLs scissors will cut tin plate quite nicely, and without subsequent comment!

We now have the problem of getting the 455 kc. s.s.b.s.c. into an Amateur band. This is quite easy, once the mental stumbling block of having mixers in transmitters as well as receivers, is overcome. Although a double conversion transmitter doesn't seem quite right, it is just another application of basic principles, which will work if given half a chance.

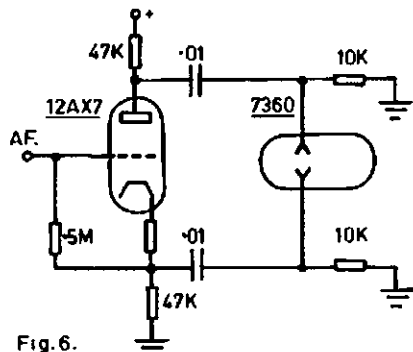


Fig. 6. Delete d.c. carrier suppression balance voltage and substitute push-pull audio from conventional phase splitter.

In the present single band exciter, I elected to use single conversion from 455 kc. to 14 Mc. Now the greybeards will tell you that you shouldn't do this, because the demon "image response" will get you, outside the Amateur bands too. Well, it might, if you are unlucky with stray C, or careless with Q. Providing you are reasonably sensible with tuned circuitry after the mixer, keep the v.f.o. injection down to sensible levels, and don't overdrive, the chances are that, like me, you won't have any trace of the unwanted image audible in the shack, let alone down the street. The secret is in having sufficient unloaded tuned circuits after

the mixer, which can attenuate an image 910 kc. from signal frequency.

Now with a fixed carrier generator frequency, the v.f.o. injection oscillator decides whether or not you will appear on upper or lower sideband. If you put the v.f.o. on the low side of the 14 Mc. band, and use a 456.4 kc. carrier crystal, you will produce 14 Mc. upper sideband. If you put the v.f.o. on the high side, you will be in for a lonely time, as lower sideband is not used on 14 Mc. without prior arrangement.

If your station receiver happens to have a 455 kc. i.f., it is likely that the local oscillator is also set on the low side of 14 Mc. If so, all that is needed to transceive is a length of coax and a small coupling capacitor to the receiver local oscillator. You are then in the transceive business—providing you arrange to mute the receiver when transmitting. This concept can be developed in a number of ways (Fig. 7), but has one shortcoming which is serious.

Unless you can arrange to mechanically or electrically limit the receiver coverage to the Amateur bands, the time will come when an inadvertent out-of-band transmission occurs. This is almost inevitable if the station is vox equipped. Fortunately, my Super Pro receiver now has so much bandsbread that it does not cover the whole of 14 Mc. in one sweep. Consequently, although still possible, the chance of out-of-band transmission is much reduced. If you do decide to use the station receiver local oscillator, which after all is already calibrated, voltage-stabilised and acceptably stable, I suggest you arrange to mark the receiver dial in some way which alerts you when the transmitter, as well as the receiver, is tuned outside an authorised band.

You may feel that extracting some injection voltage from the receiver will degrade the receiver. Most receiver oscillators have loads of oscillator r.f. to spare, and if you take care where and how you pick it off, capacitive loading can be negligible. If necessary, a cathode follower, or a simple valve or transistor isolating stage can be used if distances between the transmitter exciter and receiver are to be large. Due to the extra C, there will be some effect on the receiver oscillator frequency, but the oscillator trimmer and slug can be used to put the calibration back where they were originally. A minor complication with this system is that unless the mechanical filter pass-band and the receiver i.f. passband coincide, reception will not occur exactly on the transmitted frequency, and vice versa. Again, this is not critical, because within reasonable limits the receiver b.f.o. frequency can be juggled to take out minor discrepancies.

Personally, I have come to the conclusion that a separate filter in the receiver is a better proposition than using the same mechanical filter for reception and transmission.

The addition of extra connections for the dual role increases the stray C and degrades the isolation across the mechanical filter, and hence spoils its adjacent channel rejection capability. Whilst not going as far as saying two filters are essential, for the present I prefer to retain a simple crystal half lattice in the receiver i.f. strip and bask in the luxury of good transmitted

s.s.b. There will be some who say to do it the other way round, but the cost will show in increased exciter complexity. Furthermore, receiver selectivity cannot be exploited unless all stations in a net have similar passbands. Consequently, it is usually better to QSY to a clear channel, rather than be too insistent on adjacent channel QRM protection.

For those who have trouble neutralising, Fig. 8 shows a simple and usually effective method. If NC is about 5 pF. and the tube is a 6146 or similar, NCs will come out about 0.001 μ F. If NCs is made too big, NC will have to be made larger. Perfect neutralisation is not generally needed and it is convenient to make NC fixed (i.e. a gimmick) and use the nearest convenient value

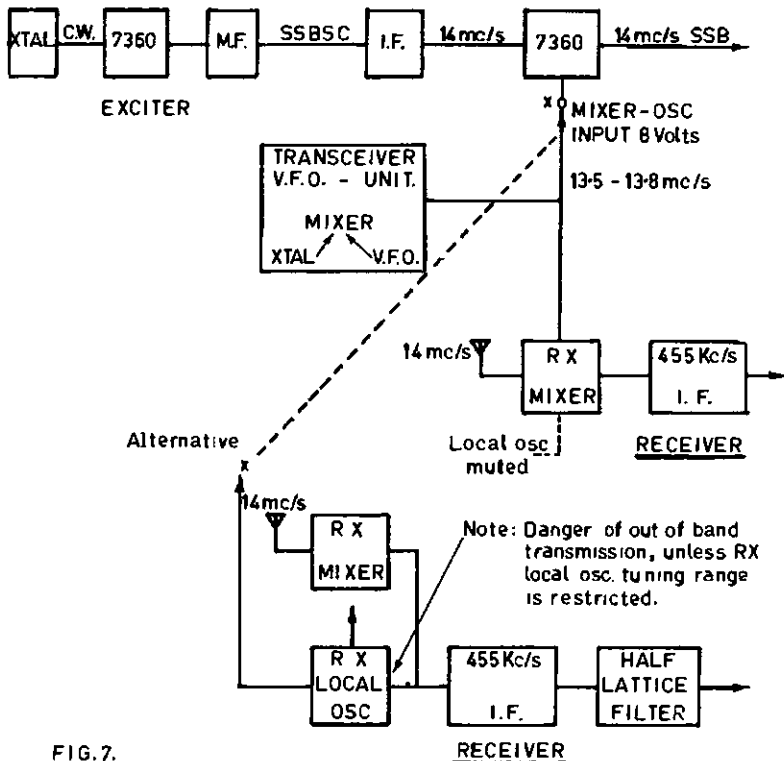


FIG. 7.

Now a few words about the remainder of the exciter.

Not much signal comes out of a mixer and it has subsequently to be amplified sufficiently to shake the grid of a linear. Also, for coverage of the band, it is desirable to provide sufficient gain to be able to stagger tune all stages and still have enough gain left to use a.l.c. Now lots of gain provokes instability, for which the cures are shielding, bypassing, decoupling, neutralising and swamping. Choice of a suitable mechanical layout which avoids mutual coupling is important. You will find that the transmitters which sound the cleanest are those with the least regeneration. Distortion products increase sharply with regeneration, which is often the cause of signals which, although very good, are not crisp and "clean".

It is also as well to remember that the exciter must necessarily be operated in a strong r.f. field from its associated linear amplifier. If this field can penetrate the signal frequency or near signal frequency circuits of the exciter, you are going to have a case of r.f. feedback to cure, which might prove stubborn. Again, prevention is better than cure.

There is nothing unusual about driver stages. I find a 12BY7 and a EL84 combine nicely to drive a 1625 with gain to spare.

available for the NCs by-pass, which stabilises the stage.

Finally, to lay a ghost. Some s.s.b. dogma falls in the "desirable but not essential" class. Amongst these are bias supply regulation, h.t. filter capacity and h.t. supply regulation.

While you may have greater peace of mind with a stiff bias supply and hundreds of lethal microfarads on the linear high voltage supply, the simple power supplies used for many years by VK3UO/VK2AQU for c.w. and a.m., have worked admirably on s.s.b. without alteration. The designs follow old A.R.R.L. Handbook criteria, and in some cases now have even less L and C than recommended years ago for c.w.

The point is that nothing in electronics is sacred, and that a bit of

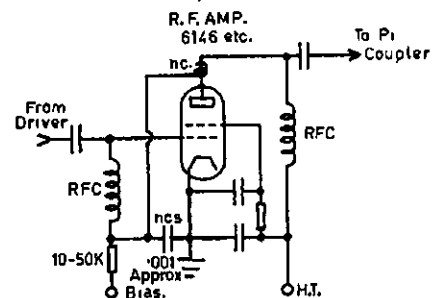


FIG. 8

Grid Dip Oscillator for 430 Mc.

Whilst building equipment for 430 Mc. a need was found for a g.d.o. to cover this frequency. To this end the following fixed coil unit was built (Fig. 1).

The heart of the unit is a butterfly tuned circuit which covers the range 340 to 500 Mc. It consists of a butterfly condenser, 30 + 30 pF., together with L, which is made of two pieces of copper strip each 2 1/2" x 3/8" bent into a "U" and soldered one to each side of the butterfly condenser.

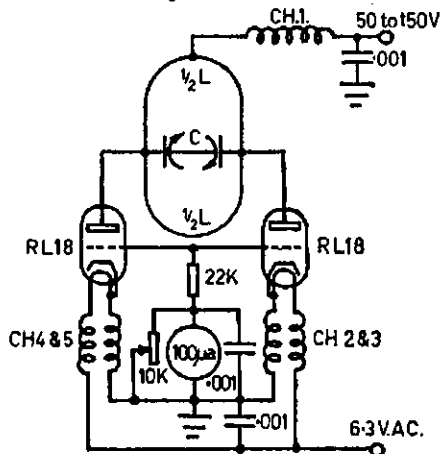


Fig.1. G.D.O. for 430mc/s.

The whole is laid out and constructed so that the leads are very short and the valves are soldered directly into circuit.

On test a parasitic indication occurred at 440 Mc. which was traced to CH4. Re-positioning and stretching out this choke removed the parasitic.

The by-pass condensers are 0.001 μ F. feed throughs. Choke 1 to 5 each consist of 28 s.w.g. close wound 1" long, 1/8" diameter.

The circuit was found to oscillate quite readily over the range with h.t. voltage as low as 50 volts.

The butterfly circuits and valves are enclosed in a shielded box with one half of L protruding through the open end.

To calibrate, it is necessary to have access to a signal source or receiver covering the frequency range involved.

—C. B. Edmonds, VK3AEE.

honest experimenting and a give-it-a-go attitude sometimes can bring rewards at small cost. The troubles start when too many corners are cut, simultaneously, or too drastically. However, any a.m. or c.w. station can be made to radiate good s.s.b. easily, by replacing the v.f.o. with a s.s.b. exciter, and juggling the buffer and final bias.

Why not have a go? And write up your experiences for "A.R."! Every word published on s.s.b. will have the long term effect of helping someone less competent, or less dedicated, to make up his mind whether or not to try s.s.b.

As it is not difficult or expensive, every station which converts from a.m. to s.s.b. is making room for one more station on the band.

It might be your pal, your son, or even the XYL—so, move over, mate! ●

Crystal Locking "Lafayette" HE30 Receiver

W. J. BELL,* VK3WK

**COPY REQUIRED EARLIER
FOR JANUARY ISSUE**

The following details provide for crystal locking the "Lafayette" HE30 Communications Receiver on a spot frequency, such as for W.I.C.E.N., or for monitoring of rural fire net frequencies, for which it was produced.

It includes an OB2 regulator tube which will supply regulated h.t. to both the new crystal oscillator and the variable oscillator, depending on which is in use.

Use noise limiter switch position for the "crystal-variable" switch. Either wire a.n.l. permanently into circuit or leave disconnected.

Replace a.n.l. switch with a d.p.d.t. toggle switch.

Fit a two-lug terminal strip under i.f.t. mounting bolt behind dial flywheel.

Disconnect 1K resistor (running from pins 5, 6, 7 of 6BE6 oscillator tube to three-lug terminal strip) from the terminal strip and re-connect to an insulated lug on new two-lug terminal strip.

Replace three-lug tag strip near switch with a four-lug tap strip.

Build the 6C4 crystal oscillator on a 2" x 2" x 1" chassis as illustrated and mount behind Q multiplier chassis, making use of the two Q multiplier mounting screws. Drill 1/4" hole beneath new chassis and fit 1/4" grommet.

Wire switch as illustrated (Fig. 4) and connect heater lead from crystal oscillator to pin 3 of 6BA6 r.f. tube V1.

Connect lead from 47 pF. coupling capacitor from crystal oscillator to pin 1 of 6BE6 mixer V2.

Connect the two B+ leads to crystal oscillator chassis as per Figs. 2 and 4.

To use: Crystal must be 455 Kc. higher than desired listening frequency. Switch set to correct band. Switch on crystal oscillator. (This will automatically disable variable oscillator.) Tune band-set for maximum noise (or for highest S meter reading if a signal is available). Antenna peaking and all other controls will function normally. ●

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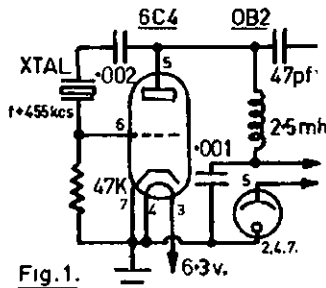


Fig. 1.

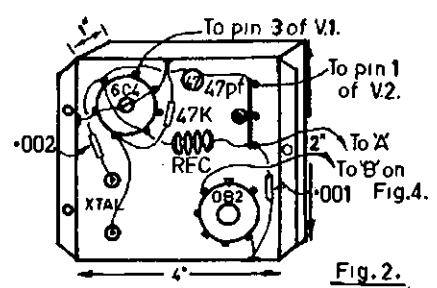


Fig. 2.

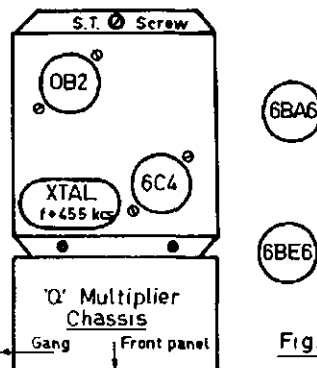


Fig. 3.

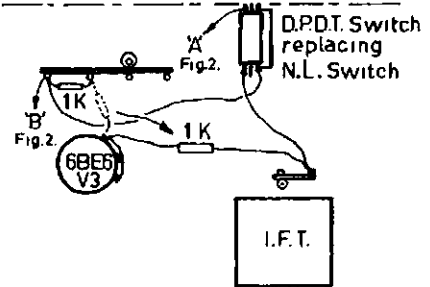


Fig. 4.

* Staywood Park, Wangoom, via Warrnambool, Vic.

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Manuscripts should preferably be typewritten but if handwritten please double space the writing. Drawings will be done by "A.R." staff.

Photographs will be returned if the sender's name and address is shown on the back of each photograph submitted.

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LOOKING AT PHONE SIGNALS*

THE RECEIVER AS AN ANALYSER

GEORGE GRAMMER, W1DF

● The best way to find out something about a phone signal is not to listen to it. Not listen to it, that is, as a phone transmission. Treat it as a collection of c.w. signals and you begin to hear some things that aren't always evident in "normal" reception.

ANY receiver that will bring in c.w. signals satisfactorily can be used for checking phone signals. Although the check is purely qualitative, more than that isn't to be expected from a receiver. Quantitative measurements, whether on incoming signals or your own, take a great deal of auxiliary apparatus. However, a qualitative check will go a long way toward the goal of keeping signals clean.

Furthermore, you don't have to know much about your receiver's technical characteristics in order to make a fair assessment of the quality of a phone signal. It's largely a matter of knowing how to set the controls and knowing what to look for. The "how" is easy; the "what" takes some practice—critical observation and comparison of the various kinds of signals you run across on the air. While there isn't anything complicated about it, the technique differs from that used in ordinary reception.

First, about the receiver's controls. Turn off the a.g.c. This is vital. Any variation in receiver gain while you are examining a signal makes it practically impossible to interpret what you hear. Set the audio gain well up and turn the r.f. gain down to the point where the average signal is of moderate strength. Turn on the b.f.o.

BEWARE OF OVERLOADING

Before doing any phone checking you have to find out something about the receiver's ability to handle signals. An easy way is to tune across a c.w. band. When you come to a strong signal, vary the r.f. gain control. If the audio output keeps coming up as you increase the gain, the control is operating in the right region. If the output starts to level off at some point on the gain control, the receiver is beginning to overload. There is a change in the character of the beat note at that point; the tone begins to sound a bit thin or mushy. Also, signals and noise in the background will "bounce" in intensity with the keying of the signal. These effects will readily be recognised after you have heard them a few times.

Pick out the strongest signal and set the r.f. gain well below the point where overloading starts. You should still be able to get all the output you need by increasing the audio gain.

Unless the controls are set in this way the receiver can't handle the

stronger incoming signals without overloading. Overloading has to be avoided at all costs if your observations are to be useful.

ADJUSTING THE B.F.O.

Next, set the receiver's selectivity to maximum and turn off the b.f.o.¹ Tune in a c.w. signal by adjusting the tuning control so the response to the background noise is maximum when the sender's key is down. An unmodulated steady carrier can also be used, if such a signal happens to be available.

When the gain controls are adjusted as described, the background noise increases when a signal is present, just as it does when the b.f.o. is turned on. This is opposite to what happens when the a.g.c. is used and the manual r.f. gain is at maximum; in that case the background noise decreases when a signal is tuned in.

Finally, turn on the b.f.o. and adjust it to give a beat tone of about 500 cycles on the signal so tuned in. Either side of zero beat can be used.

CHECKING A PHONE SIGNAL

At this point you're ready to take a look at a phone signal. The a.m. broadcast band is a good place to start, if your receiver happens to be one that covers it. Broadcast modulation is likely to be held under proper control, and your object is to find out what the sidebands of a properly modulated signal are like.

First, tune in a carrier, adjusting the tuning for the selected beat tone. For the moment, ignore the modulation, which will sound like a miscellaneous collection of beat tones. Concentrate on the carrier beat. Two characteristics will stand out: (1) the pitch of the tone is constant; that is, the frequency of the carrier is not in the least affected by the presence or absence of modulation, and (2) the carrier amplitude also is constant. There will be no changes in carrier amplitude that occur simultaneously with modulation. If you are tuned to a distant station and there is fading, the fading will cause variations in carrier strength, but careful listening will show that these variations are quite independent of the actual modulation.

Now tune off about a kilocycle to the side which makes the carrier beat tone rise in frequency. You'll now be in one of the two sidebands, and if the receiver selectivity is high the carrier beat either will be much weaker or will have practically disappeared. Listen carefully to the beat tones that rise

¹ It may not always be easy to do this, since the b.f.o. and a.g.c. cannot be controlled independently in some receivers (although it is usually practical to pull out the b.f.o. tube temporarily). Also, receivers with product detectors do not lend themselves to this method of setting the b.f.o. frequency since the detector does not (or should not) function when the b.f.o. is not operating. In such cases the b.f.o. has to be set to give approximately the desired tone on background noise. This is good enough if the selectivity is high.

and fall with the modulation. Unless the station is in the middle of a commercial (when the rules are sometimes conveniently overlooked) the sideband beat tones will have a clean, smooth sound—a little hard to describe accurately but easily recognisable after a short listening session. Continue moving the tuning away from the carrier frequency and there will be no change in the character of these beats, except that as the tuning is moved farther from the carrier their intensity usually will decrease. These smooth-sounding beats are "legitimate" sidebands.

BANDWIDTH

If the receiver tuning dial is calibrated closely enough it is possible to get a fairly accurate idea of the transmitted bandwidth by this beat method. Concentrate on those beats which have the same tone for which you set the b.f.o. at the start. Find the frequency setting, farthest from the carrier, at which you get that tone from a sideband component. Then the difference between that dial reading and the dial reading for the carrier is equal to half the signal bandwidth—half, rather than total, because you've looked at only one of the two sidebands.

Estimating bandwidth by this method requires the ability to concentrate on the right beat tone. Obviously, it is easier to recognise the beats when the receiver has high selectivity, because then the strongest beats will always be around the right tone regardless of the tuning-dial setting.

One other thing will have been noticeable about the properly modulated signal you've been examining: the sideband components are always relatively weak-sounding compared with the carrier. This has to be so, because with voice or programme modulation the average power in one sideband is only about one-eighth the carrier power. Furthermore, this power is divided up among the various component frequencies of the sideband, so any single component will have even less power. Occasionally, if you happen to be listening to music, a single tone will stand out, but even in this case its amplitude usually will be 6 db. or more below the carrier amplitude.

ANALYSING THE PROCESS

If you aren't wholly familiar with receiver operation a diagram of this process may help. Fig. 1 is typical of the frequency-vs.-amplitude distribution that might exist in a good a.m. phone signal at some instant. Each sideband consists of a series of frequency components associated with a voice sound. These components usually have harmonic relationship, to a close degree, for any given sound; in Fig. 1 all the side frequencies shown are produced by audio tones that have harmonics of 200 cycles. More important, however, is the fact that each sideband



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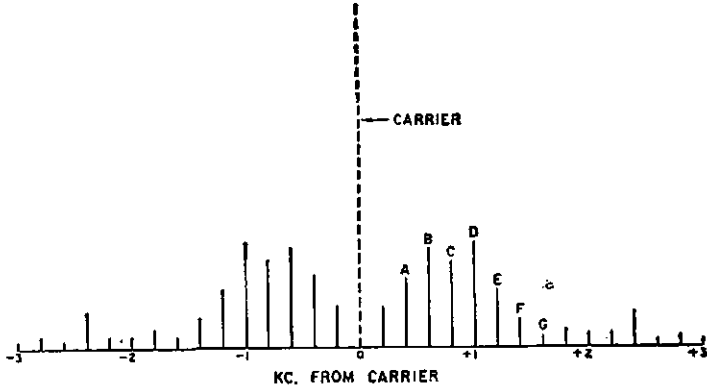
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consists of a group of distinct frequencies. It is not just a continuous mess. Each separate frequency gives a separate, and reasonably stable, beat tone with the receiver's b.f.o.

If the receiver can handle a group of these frequencies without doing injustice to any of them—i.e. without overloading—the individual beat components will stand out just as any one of a similar group of closely spaced c.w. signals will retain its individuality. Sideband components of this sort are



★
Fig. 1.—A properly modulated a.m. signal may have, instantaneously, side frequencies, distributed something like the pattern in this drawing. The frequency pattern from instant to instant with voice modulation.
★

generated in a properly modulated transmitter, and sound "clean" with the receiver's b.f.o. on.

By using as much selectivity as the receiver offers, the number of sideband components heard at any one time is narrowed down. In Fig. 2 a curve typical of "500 cycle" selectivity is shown superimposed on the lettered group of sideband components from Fig. 1. The response range shown is 60 db. If the receiver is tuned to the frequency of side component D, the response to that component will be as shown by the vertical line. This response is relative to the carrier-only response; the scale here differs from that of Fig. 1 because the former was plotted to an intensity (voltage or current) scale while Fig. 2 is in decibels. The sideband components labelled B, C, E and F would have the decibel response shown, as a result of the effect of the selectivity on their original amplitudes. Note that A and G are so far down (more than -60 db.) that they do not even show on the graph. This is also true of all components higher in frequency than G and lower in frequency than A, including the carrier.

If the receiver's b.f.o. is offset from the selectivity curve by 500 cycles as shown (this was the object of the method of setting the b.f.o. frequency detailed earlier) each sideband component will give a beat tone as shown in the upper scale. The selectivity restricts these tones to a relatively narrow range centering around 500 cycles. This also will be true when the receiver is tuned to other parts of the signal. When this point is appreciated the beat tone method of checking bandwidth becomes clear.

Practically speaking, any sharply peaked selectivity curve—such as the kind a Q multiplier or the old-type crystal fixed gives—is best for this type of checking. While your mind can be trained to exclude those tones which differ appreciably from the one for which you originally set the b.f.o., it

is easier with a highly peaked selectivity curve because then only a frequency component right on the peak—that is, one that gives the selected beat tone—really stands out.

SPLATTER

Splatter frequencies arising from overmodulation tend to have a different character than legitimate sidebands. There is a harshness associated with them that again is hard to describe but not hard to recognise. Listen for this

sort of thing during commercials, particularly, and with the tuning set toward the edge of the band you found to be occupied during normal program transmissions.

The harshness associated with splatter is the result of a different type of sideband-frequency distribution. The onset of splatter is usually abrupt, giving an effect something like key clicks. Also, the side frequencies it generates are often much more closely spaced than the sideband components of proper voice modulation, so that distinct tones are less easily recognisable.

CHECKING AMATEUR SIGNALS

An hour or so spent in listening this way will give a much better idea of what a phone transmitter is really doing than months of listening to what actually is being said. Furthermore, what is learned is as useful in appraising an s.s.b. signal as it is for judging a.m.

Really horrible examples of overmodulation may have been missing in this preliminary training of listening to a well-modulated broadcast station. They are much less rare in the communication services—including sad to say, Amateur. However, it is well to start off by learning what a good signal is like. If yours is a Ham-bands-only receiver, you will have to identify the right kind through pre-knowledge of how it should sound. The difference between good and bad is clear enough, after you've heard both kinds.

With this background in checking modulation you're in a position to take a look at Amateur signals and find out a few things about them. However, before condemning any signal you hear as not being up to par, ask yourself two questions: First, is there any possibility that the receiver is being overloaded, either by the signal in question or by one that may be far enough removed in frequency so that you aren't aware of its presence? That r.f. gain control setting is important. Second,

if there are harsh "burps" indicating splatter from overmodulation or s.s.b. flattening, do they belong to the signal you're blaming? In a crowded band identification of bits and pieces of splatter is sometimes pretty difficult.

In other words, make sure that the signal being checked is the one you're actually hearing, and that no spurious receiver effects are being introduced. An overloaded receiver is worthless as a checking device. Most receivers have so much gain that even a weak signal can be amplified up to the overload point unless care is used in holding down the amplification. The lower you can run your r.f.-i.f. gain, the better.

A.M. PHONE

With these precautions well in mind, you'll have no difficulty in spotting overmodulation on a.m. signals. "Overmodulation" here means any nonlinearity that results in splatter outside the proper channel. Very often it isn't overmodulation in the commonly accepted sense of the word, but is "spurious" generated by attempting to make a modulator do more than it is capable of doing. The actual modulation percentage may be well below 100. The effect is much the same in either case.

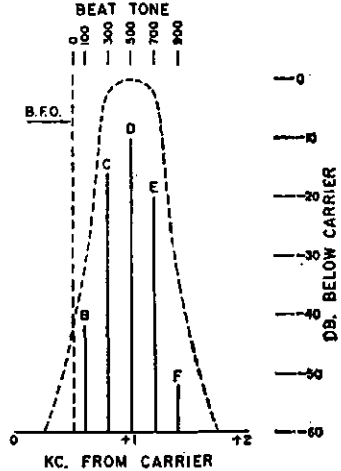


Fig. 2.—With high selectivity, only those sideband frequency components to which the receiver is actually tuned will give appreciable response. This drawing shows the relative response a selective receiver would give on the lettered components in Fig. 1. The scale at the top shows the beat tone each component would produce when the b.f.o. is offset 500 cycles from the peak of the selectivity curve. In this case only C, D and E would result in appreciable audio output.

You can find out still more by this method. Tune in the carrier and listen to the beat carefully while the transmitter is being modulated. A good many v.f.o.'s can't "take it" when a succeeding stage is modulated. A change in the carrier beat frequency during modulation shows this up; it is most easily detected if the beat tone is made as low as possible. The change is often at a syllabic rate, giving an effect something like frequency-shift keying; the principal cause of this is a change in power supply voltage when the modulation throws on an extra load.

If the v.f.o. frequency is modulated at an audio rate, the carrier will take on a mushy character during modulation. Audio f.m. leads to some undesir-

able effects; the combination of f.m. and a.m. causes distortion, increases bandwidth, and makes the sidebands unsymmetrical. If you run across such a signal, change to normal phone bandwidth, and with the gain controls still the same and the b.f.o. still on, try to tune the receiver to zero beat with the carrier. If there is appreciable audio f.m. it won't be possible to make the voice sound right. The same test on a stable signal will give no special difficulty, although it may not be possible to hold the exact zero-beat adjustment for any length of time because of minute frequency drifts in the transmitter's or receiver's oscillators.

The beat-note checking method also will show up changes in the carrier amplitude. As there are many controlled-carrier a.m. phone signals, an increase in carrier amplitude while modulating is often to be expected. However, if the carrier amplitude decreases, something is wrong with that signal. It may be poor power supply regulation, but is just as likely to be something that results in the generation of spurious modulation components. A check of the sidebands will show which.

S.S.B.

Examined in this way, s.s.b. signals differ from a.m. only in the absence of the carrier and one sideband. Properly generated and amplified, the sideband components will have the same clean sound to them that properly modulated a.m. sidebands do. Overdriving a linear amplifier will result in "burps", especially noticeable outside the desired sideband channel and particularly in the

undesired sideband region, just as a.m. overmodulation does.

Since there is supposed to be no carrier with s.s.b., the receiver's b.f.o. must be set up on a c.w. signal or unmodulated carrier as described earlier. This is obviously not the same setting that would be optimum for s.s.b. reception; the b.f.o. frequency is offset by 500 cycles or so from the s.s.b. setting. With this offset, you can easily determine whether any carrier is being transmitted; a continuous carrier will give a steady tone, usually weak compared with the sideband, but nevertheless present. You can also detect a carrier that rises with modulation. It is "keyed" along with the voice, sounding something like slow c.w. with a very soft make and break. This is caused by incomplete carrier balance, which may be a dynamic effect—that is, the carrier may be quite well balanced out when there is no modulation, but becomes unbalanced when it is being driven by audio.

With high selectivity it is possible to check the bandwidth of an s.s.b. signal by the beat method, and particularly to see whether there is appreciable output in the undesired sideband region. As shown by Fig. 2, the beat tone that your b.f.o. is adjusted for will predominate only when a sideband component is on the frequency to which the receiver is set. If your mind is trained to exclude any other tones you may hear, you may be sure that you aren't being deceived by instrument errors. The selectivity has to be high enough so that the audio image of the

b.f.o. tone is negligible; in other words, you have to have true single-signal c.w. reception.

TRANSMITTER CHECKING

Of course, all this is only preliminary to the real object—checking your own transmitter. Practice on incoming signals of all types will give you the insight needed for analysing your own signal. Having found out how to spot defects in others, you're well prepared to find out what, if anything, is wrong with your own.

Some suggested setups for checking your own transmitter will be discussed in a subsequent article. In the meantime, give a try at being your own sideband analyst. The only equipment you need is a receiver. ●



MODIFICATION OF THE 522 FOR F.M. OPERATION

(Continued from Page 5)

Limiter saturates not recorded
Limiting constant over 10 μ V. approx.
Muting opens at 5 μ V.
Noise quieting 18 db. at 5 μ V.
A.M. rejection at 5 μ V. 6 db. approx.
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It will be noted that some of the tests were done on one receiver and not on the other. This was due to the two sets being tested at different times and not having the previous test sheet at the time of the second test, consequently some were missed and unfortunately have not been retested to date.

FINAL COMMENTS

Three channels were mentioned in connection with the receiver crystals. These have also been published in "A.R." (July 1963, p. 7) and I would like to endorse the acceptance of these channels as standard throughout Australia, mainly because "F.M. Mobileers" are going to be much more common when there is more of this equipment released from commercial service during the next few years.

These chaps are going to be moving intrastate and interstate, and what could be more enjoyable, or useful in an emergency, than to have the privilege of "break in" wherever you may be on these frequencies. Likewise, what could be more frustrating than to know that there is a net operating and not be able to "break in" for the sake of acceptance at this early stage of standard Australia-wide frequencies.

This article could not be published but for the assistance given by members of the VK3 f.m. gang and I would like to acknowledge the help given by John Spicer, VK3ZEL, who has spent much time checking and advising from time to time with air tests, some he doesn't know of since they were done on the receiver while he was operating, and also to Jim Stewart, VK3ZFS; Jack Leitch, and George Crisp, VK3ZJQ, for their interest and practical help during the period of modifying the perennial "Surplus 522" gear.

So here's hoping that you will put that 522 to good use, and get a lot of pleasure from operating on the "Friendly F.M. Net". ●

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SINGLE SIDEBAND ON 432 Mc.

C. B. EDMONDS,* VK3AEE

SOME thought was given to the problem of obtaining single sideband on 432 Mc. It would seem that practical equipment falls into one of two broad categories:

- (a) Low level mixing,
- (b) High level mixing.

Low level mixing has much to recommend it, but leaves a problem of power amplification at the operating frequency. This may require three or even four stages of linear amplification.

Power mixing demands extra precautions and designing to prevent the radiation of undesired by-products of mixing as these would be at a much higher level.

With an existing 14 Mc. s.s.b. exciter on hand, it was therefore decided to use power mixing and the following article describes equipment for heterodyning the output of this exciter to 432 Mc.

The stages involved are shown in block form in Fig. 1. The first heterodyne section consists of an overtone oscillator on 42.5 Mc. driving a 6CL6 amplifier which is pi coupled to cathode of the 832 balanced mixer.

The value of the 832 grid swamping resistors was chosen to suit the drive available at 14 Mc., which was fed to the grids in push-pull.

No balancing controls were found necessary with the particular valve used and any 42.5 Mc. components which may be present at the output is too low to be measured.

The oscillator is in a shielded compartment, the wall of which fits snugly across the 6CL6 valve socket. The earthed pins of this socket are soldered directly to the shield. Under these conditions the 6CL6 is perfectly stable, no doubt this is helped by the low impedance across the grid.

transfers power via L8 in the centre of L9 to the grids of V6 (a push-pull tripler), the anode circuit of which is resonated by L10 and stray capacities to 125 Mc.

125 Mc. is capacitively coupled to the grids of V7, a QQE03/20 push-pull tripler. The anode circuit of V7 is a quarter wave resonant line on 375.3 Mc. which is tuned by means of a sliding shorting bar.

375.3 Mc. is then fed in parallel to both grids of V8 (QQE06/40) balanced mixer by L12. L12 consists of a loop coupled to L11 and a length of open wire transmission line. This length of transmission line is chosen so that L12 is in quarter wave resonance. This further attenuates any undesired frequencies which may be present at that point.

Several methods of coupling this frequency to the QQE06/40 were tried, but best results were obtained by the method set out in this article and accompanying drawings.

Feeding the signal to the cathode of the 06/40 resulted in overall instability and it was found essential that the 06/40 cathode be directly earthed. 56 Mc. is fed to the grids of the 06/40 in push-pull and the value of the swamping resistor was chosen to suit the drive available. Optimum output was found to occur when the grids were driven so as to just reach grid current, i.e. 0.1 mA. Any drive in excess of 0.1 mA. caused a decrease in output.

The anode circuit tuned to 432 Mc. consists of a quarter wave line tuned by a preset shorting bar. It was hoped to use a butterfly circuit in this position, but the internal length of the valve anode leads proved to be too long and multiple resonance occurred. The output is taken via L16, a balanced output link (Balun) was tried at this position but no perceptible difference was noted. With 40 watts d.c. input, this mixer gives 4 watts output on 432 Mc.

The only spurious signal which could be detected in the output was a small amount of 375 Mc. Much effort was made to eliminate this component, without success, it was found to be due to direct feed through the inter-electrode and in-built neutralising capacitors. In

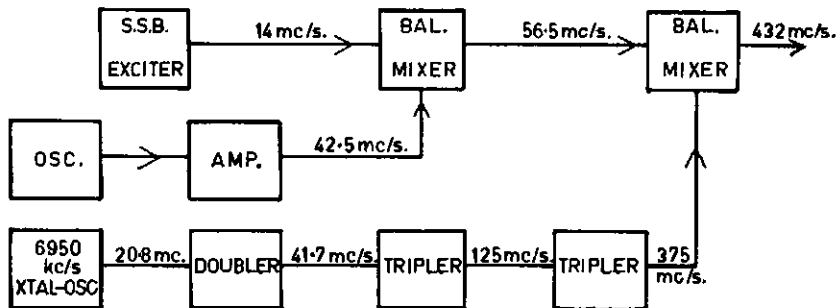


Fig. 1- BLOCK DIAGRAM.

Balanced mixers are used as this circuit will cancel the most troublesome source of spurious signals, i.e. the heterodyning frequency.

Mixing 14 Mc. to 432 Mc. in one stage would give heterodyning frequency only 14 Mc. removed from 432 Mc. and an image only 28 Mc. away. For this reason heterodyning is achieved in two steps.

After much thought it was decided to use 56 Mc. as the first step of heterodyning. Some country stations may have to use a different frequency, depending on the local t.v. situation.

No spurious signals or instability is apparent due to the harmonic relationship between the input, output and heterodyning frequency. (This might not be the situation if the 832 were driven into grid current.)

The second unit heterodynes 56 Mc. to 432 Mc. and is built on a copper chassis. The first stage is a 5760 squier overtone oscillator and cathode follower, with output at 20.85 Mc. This is capacitively coupled to the grid of a 6CL6 doubler, the anode of which is resonated to 42 Mc. by L6 and the stray capacities. L7 is a two-turn link closely coupled to the cold end of L6. This

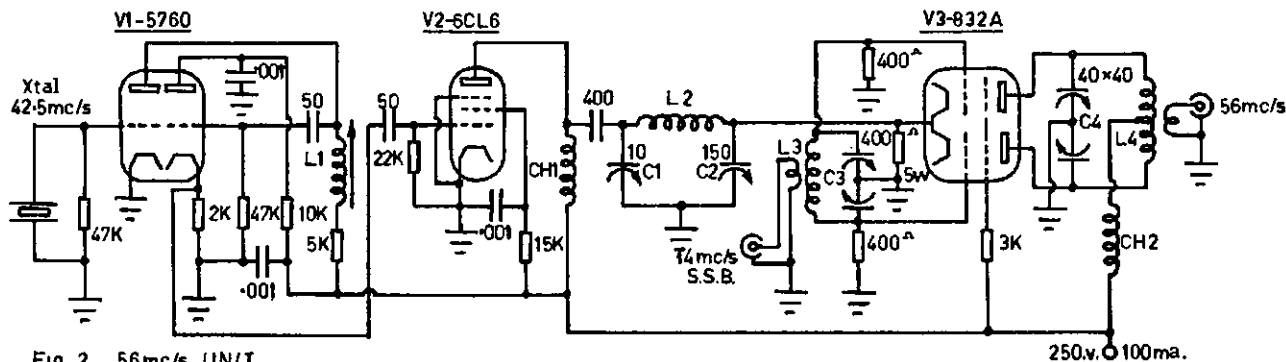


Fig. 2. 56mc/s. UNIT.

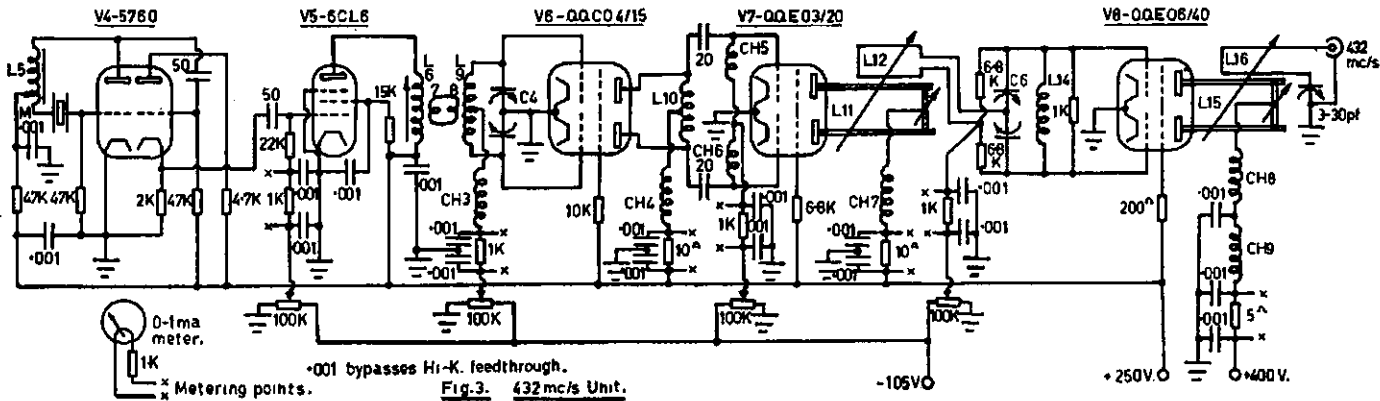


Fig. 3. 432 mc/s Unit.

this respect a tube without in-built neutralisation may prove more satisfactory.

In this case the 375 Mc. component is attenuated by tuned circuits in a subsequent 432 Mc. linear amplifier.

With the metering constants shown, grid currents are 2 mA. for f.s.d. Plate currents 100 mA. for f.s.d. except in the case of V8 which is 200 mA. f.s.d.

The layout is not critical providing normal v.h.f./u.h.f. precautions are observed. All circuits are built on an open chassis with the exception of V8 which is in its own shielded component, above the chassis. The valve being mounted horizontally through the shield partition adjacent to V7, so that L12 can reach from the anode circuit of V7 to the appropriate points in the grid circuit of V8.

The transmission line portion of L12 can be bent to suit a particular layout, but sharp bends should be avoided. L12 was resonated, after being bent to the required shape, by using a g.d.o. and trimming the length for resonance. All fixed bias voltages were made adjustable so as to give adequate control of drive.

No decoupling is used in the heater circuits as a multiple secondary transformer was used. Should it be desired to use a common heater winding, decoupling may be necessary. Alignment proved to be quite easy, all circuits were set to frequency with the aid of a g.d.o. When power was applied very little final trimming was found necessary. L10 is resonated by varying the spacing between turns.

All tests and adjustments were made using a dummy load.

A photograph of this unit appears on the front cover of this issue.

COIL DATA

- L1—3/8" diam., 12 turns. Ex BC733 former with iron dust core.
- L2—1" d., 8 t. 16 s.w.g., 1 1/4" long. Spacing adjusted for optimum output.
- L3—1" d., 20 t. 16 s.w.g., c.w., 5-turn link close coupled to centre.
- L4—5/8" d., 8 t. 16 s.w.g. Air spaced self supporting, 2-turn link loosely coupled.
- L5—3/8" d., 28 t. tapped at 4. Ex BC-733 former with iron dust core.
- L6—3/8" d., 12 t. 28 s.w.g., c.w. Ex BC733 with iron dust core.
- L7—2 t. closed coupled to cold end of L6.

- L8—3/4" d., 2 t., close coupled to centre of L9.
- L9—3/4" d., 10 t. 16 s.w.g., air spaced, self supporting.
- L10—3/4" d., 4 t. 16 s.w.g., self supporting, spaced for resonance.
- L11—Two lengths of 1/8" d. tube, 3 1/2" long, shorted at approx. 3", spaced 5/8" centres. Plus 3/4" for anode connectors.
- L12—See Fig. 4. Spaced approx. 1/4" from L11.
- L13—1/2" d., 2 t., close coupled to centre of L14.
- L14—1/2" d., 8 t. 16 s.w.g., air spaced, self supporting.
- L15—Two lengths of 1/4" d. rod, 3-1/4" long, shorted at approx. 2-5/8", spaced 5/8" centres.
- L16—14 s.w.g. hairpin loop, 5/8" by 2-3/4" long, spaced approx. 1/8" from L15.
- CH1—28 s.w.g. close wound, 1 1/4" long, 3/8" diam.
- CH2—28 s.w.g., c.w., 1 1/4" l., 1/4" d.
- CH3—28 s.w.g., c.w., 1 1/2" l., 1/4" d.
- CH4—28 s.w.g., c.w., 1" l., 1/4" d.
- CH5—Red Devil.
- CH6—Red Devil.

- CH7—28 s.w.g., c.w., 1 1/2" l., 1/4" d.
- CH8—12 turns 16 s.w.g., 1" l., 1/4" d.
- CH9—12 turns 16 s.w.g., 1" l., 1/4" d.

OPERATING CONDITIONS

Valve	I _g	I _p	Fixed Bias
V2	0.8 mA.	25 mA.	0
V5	0.8 mA.	25 mA.	0 to -10v.
V6	2.0 mA.	40 mA.	-105v.
V7	1.9 mA.	40 mA.	-105v.
V3—Ig nil.			
I _p 70 mA.			
42.5 Mc. component on cathode,			
11v. r.m.s.			
D.c. cathode bias 32v.			
14 Mc. component on grids, 5v.			
r.m.s. to each grid.			
V8—Ig 0.1 mA. max. on speech peaks only.			
I _p 40 mA. with 375 Mc. drive removed.			
I _p 50 mA. with 375 Mc. drive only.			
I _p 100 mA. with 375 Mc. drive and 56 Mc. speech peaks. Fixed bias approx. -30v.			
432 Mc. power output 4 watts with steady tone drive and 0.1 mA. grid current.			

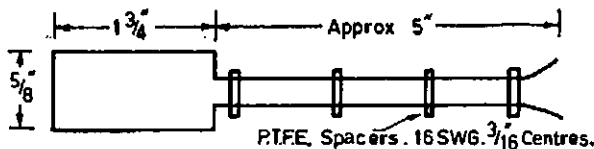


Fig. 4. - L12.

N.F.D. CONTEST—Suggested Amendment to Duration

The following letter has been sent to F.C.C. re an alteration to the duration of the N.F.D. Contest:—

Dear Sir,

At the last meeting of the Victorian Division, the following motion was passed:—

"That this Division approach the Federal Contest Committee with the proposal that National Field Contest be made continuous from Saturday 1600 hours until Sunday 1600 hours."

It was also resolved to send copies of this letter to all Divisions and publish it in "A.R." in order to enlist support and stimulate discussion with a view to possible implementation for 1964.

Some reasons for this proposal are:

1. With increased club participation, the time, trouble and work involved is hardly justified by the present "broken" effort.
2. 4 p.m. to 4 p.m. allows time to set up, and to pack up at a reasonable hour on Sunday.
3. 24-hour operation gives a cross-section of band conditions.
4. Club participation allows "shift" operation for the benefit of those who want to sleep.
5. Night time operation would allow more portable to portable contacts when bands are quieter and less crowded.

We would welcome your comments on the proposal, and your support, and would ask that you give the matter urgent consideration.

—J. Battrick, Pres., VK3 Div., W.I.A.

NATIONAL FIELD DAY CONTEST RESULTS, 1963

As indicated by the number of logs submitted this year, popularity of this Contest does not appear to have increased over that of last year. However, the rate of scoring shows a remarkable increase over that of last year and some really excellent individual scoring was achieved, notably that of VK6WC and VK7JF.

High scoring was no exception to the multiple-operator portable stations as they, too, submitted very high scoring logs. Noteworthy of these were VK3APC, VK5LZ and VK6VF who all scored over 2,000 points.

The standard of the logs submitted was of a fairly high order, but in particular the log of VK3APC deserves recommendation as regards its neatness.

Judging from the descriptions of equipment included on logs, there exists some really fine portable equipment, and to describe it all would require more space than can be allotted here.

As a final remark, mention is made of VK3CS/P's operating point. In their own words: "The locale is inhospitable in the extreme. A bare rock and gravel volcanic outcrop, some 300 feet above the surrounding plain, dotted with a few tufts of hardy scrub grass and dominated by a blackened tree, dead for decades. The road up to the summit is a boulder-strewn path cut up the side of the hill for who knows what purpose. Towards the top, the track is hard to see and it is easy to drive into a position which can only be backed out of. The ground will not successfully take pegs, and to ensure trouble-free operating in high winds, loxins are let into the rocks for guy anchors, and left permanently."

That could almost be described as N.F.D. the hard way.

In conclusion, we would like to thank all who participated and submitted logs, and at the same time congratulate the award winners.

—Federal Contest Committee, W.I.A.

AWARD WINNERS

Section A (Portable Phone):	
VK2AAH—H. F. Burtoft	749 pts.
VK3WK—W. J. Bell	806 "
VK4OL—A. J. Hansen	448 "
VK5WC—F/O. E. Sundstrup	1124 "
VK6MM—M. J. McDonald	148 "
VK7JF—J. E. Forster	1109 "
Section B (Portable C.W.):	
VK2YB—W. J. Lewis	204 pts.
VK3AFQ—H. L. Hepburn	77 "
VK4OL—A. J. Hansen	124 "
VK6MM—M. J. McDonald	35 "
VK7CH—C. Harrison	269 "
Section C (Portable, Multi-Op.):	
VK2APQ—P. J. Healy	1308 pts.
VK3APC—Moorabbin & District Radio Club	2603 "
VK5LZ—Elizabeth Amateur Radio Club	2398 "
VK6VF—V.h.f. Group of W. Australia	2189 "

Section D (Fixed Stations):	
VK2APK—D. Kiesewetter	770 pts.
VK3ASZ—S.W. Zone, W.I.A., Victoria	765 "
VK4UK—C. P. Singleton	260 "
VK5RR—R. G. Harris	275 "
VK5WU—R. G. Jaeschke	120 "
VK7SM—S. G. Moore	670 "

Section E (Receiving):	
WIA-L2023—D. W. Shephard	585 pts.
WIA-L3042—E. W. Trebilcock	835 "
WIA-L2233/VK4—R. L. Edwin	275 "
WIA-L5041—D. J. Coggins	765 "
WIA-L6021—P. W. Drew	640 "
WIA-L7025—B. Kelly	550 "

Section C (Portable, Multi-Op.):			
	Pts.	Pts.	
VK2APQ	1308	VK3CS	1136
VK3APC	2603	VK5LZ	2398
3RN	1923	VK6VF	2189
3WI	1159	6AS	203

Section D (Fixed Stations):			
	Pts.	Pts.	
VK2APK	770	3ALD	50
2ZO	110	3KS	25
2EY	65	VK4UK	260
VK3ASZ	765	VK5RR	275
3AIT	550	5LL	220
3EF	515	5TM	115
3XB	470	5CL	70
3AZM	345	5TN	65
3LW	320	5PE	60
3AHG	265	5WI	60
3AHA	235	VK6WU	120
3QV	180	VK7SM	670
3PP	110	VK8UX	15

INDIVIDUAL SCORES

Section A (Portable Phone):			
	Pts.		Pts.
VK2AAH	749	VK3LW	108
2RX	737	VK4OL	448
2ASZ	383	4PJ	155
2ARZ	185	VK5WC	1124
2GJ	39	5GG	346
VK3WK	806	5XY	285
3AFU	334	5GL	80
3ASW	316	5PE	40
3WB	293	VK6MM	148
3ADU	250	VK7JF	1109
3XN	178	7DK	633
3JO	172	7BJ	48
3AFQ	112		
Section B (Portable C.W.):			
	Pts.		Pts.
VK2YB	204	VK4OL	124
2JM	163	VK6MM	35
2ARZ	81	VK7CH	269
VK3AFQ	77	7LJ	72

Check Logs—	
VK1SG	VK5TL
VK4GH	VK7CH
Section E (Receiving):	
WIA-L2023—D. W. Shephard	585 pts.
WIA-L3042—E. W. Trebilcock	835 "
WIA-L3099—J. Jobson	700 "
WIA-L3064—R. G. Loutit	490 "
WIA-L3127—R. F. Gething	405 "
SWL-VK3—P. J. Gibson	375 "
WIA-L3126—B. Theodore	335 "
SWL-VK3—D. C. Diamond	315 "
WIA-L2233/VK4—R. Erwin	275 "
WIA-L4028—T. A. Lane	240 "
SWL-VK4—C. Paton	85 "
WIA-L5041—D. J. Coggins	765 "
WIA-L5015—W. J. Clayson	565 "
SWL-VK5—D. B. Murdoch	270 "
WIA-L6021—P. W. Drew	640 "
WIA-L6005—D. S. Pratt	570 "
WIA-L7025—B. Kelly	550 "

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NOW THEY'RE ALL FOR RADIO*

JAMBOREE-ON-THE-AIR STARTED IT!

By L. D. MARMO,† G.S.M. 8th Footscray

It all began in 1960. I was shopping in Footscray the week after the Group had taken part in the Jamboree-on-the-Air, for the first time, when a diminutive Cub stopped me, and said enthusiastically, "Oh boy, Skip, we had beaut. fun last Saturday! Wouldn't it be great if we could have the Jamboree-on-the-Air all the time?"

Why not, I reflected. And so the idea of the 8th Footscray Boy Scouts' Amateur Radio Club was born . . . suggested by a small boy.

We then gathered information, and started to correspond with the Ashgrove, Queensland, Boy Scout Group, who had begun the first Scout Radio Club in Australia in 1961.

It was not until September 1962 that we considered that we had sufficient data to make an approach to the proper authorities. However, the difficulty of obtaining skilled technical assistance, and the provision of suitable equipment, caused us to delay until early 1963.

★

Opening of 8th Footscray Boy Scouts' Amateur Radio Club at Maidstone on June 4, 1963. L. to R.: John Marmo, Gavin Hare, Dennis Price, Maxwell Manning and Les Marmo (seated).

★

In the meantime, the Wireless Institute of Australia had proposed a scheme to develop in youth an interest in Radio and Electronics. To provide incentives, and to give recognition to members, they proposed to introduce a system of Radio Proficiency Certificates on a graded basis.

This was the answer to many of our problems. Here we had offered to us a ready-made interesting programme of activity, which recognised skill and achievement. An approach was made to the Institute and we became Youth Radio Club No. 0002 on their register.

P.M.G. PERMITS

An application to the Radio Branch of the Postmaster-General's Department for a licence to transmit on the short wave, accompanied by the licence fee of £1 and a letter assuring the P.M.G. that their regulations in relation to the

operation of Amateur Stations would be rigidly observed, brought forth official permission and the issue of call sign VK3AEF for the Group.

Having been granted a licence, and admitted to membership of the Wireless Institute Youth Radio Scheme, the Club has begun regular meetings in the Scout Hall on Tuesday nights and Saturday afternoons.

A programme which includes radio construction, electrical and radio theory classes, shortwave listening, and station operation (in which the Scouts hope to make local, interstate and overseas contacts) is now operating.

ACHIEVEMENT

You may ask, what has the formation of this Club achieved?

Firstly, it is hoped that Scouts and Senior Scouts will develop an interest in Radio and Electronics which can be pursued as a vocation, or a hobby through life.



Secondly, by keeping alive the spirit of fraternity, fun and fellowship, which was so evident in the Jamborees-on-the-Air, the Group will be carrying out in a practical way, the provisions of the 4th Scout Law.

In Queensland, the Ashgrove Boy Scout Group and Oakleigh Group both have Radio Clubs and operate their own Club Stations. Ashgrove is VK4AH and Oakleigh is VK4OS. In Tasmania, VK7BS is operated by members of the 13th Hobart Group, and in N.S.W. 1st Auburn Senior Scouts have formed a club and Broken Hill Scouts will be on the air before long.

In the West, 1st Kalamunda Group has just begun.

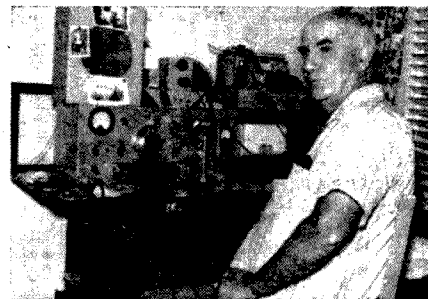
It is easy to visualise a chain of Scout Radio Clubs throughout Australia and even throughout the world, all regularly in contact with one another, forming friendships among their numbers and broadening their outlook and understanding of the Scout Law.

Other Man's Station

FRANK BENTLEY, VK5MZ

Frank received his licence on 22nd October, 1931, and joined the celebrated "M" gang with the call sign of VK5MK, which he held until World War II, when naturally Amateur Radio ceased for the duration.

The end of the war found him not very interested in coming back on the air, but was finally talked into resuming his hobby by Reg VK3MZ, this time with the new call sign of VK5MZ, and using a Type 3 Mark II, which he used continuously until early in 1962 when he astounded the natives by coming up with a Geloso to an 807, modulated by a pair of 807s.



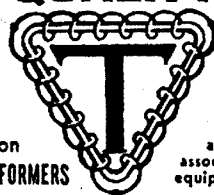
Frank has worked most countries available on c.w., and in 1954 started the regular telephony schedule with Reg VK3MZ and the late Jim VK3LM, which with Carl VK5SS joining in 1955, has been on 7 Mc. at 6 p.m., Adelaide time, without fail ever since.

For many years an executive in the S.A. Combined Church Calisthenics and Dancing Interstate Team, he visited Ballarat each year for the competitions, making firm friends among the local Amateurs in that city.

Still as keen as ever, Frank is typical of the non-technical enthusiast who chose Amateur Radio as his hobby in what is known, rightly or wrongly, as "The good old days" and has never regretted his choice.

A good "Bloke" and a good Amateur, with a soft heart in the right place; what more could one ask?

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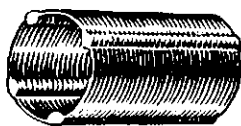
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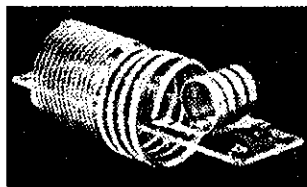
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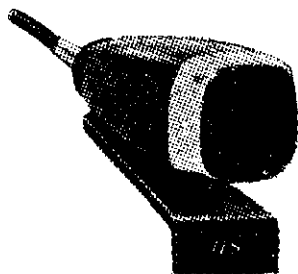


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Model 603 is a Dynamic Microphone ideal for music, speech and particularly magnetic recording. Can be used on stand or on a small table base.

Smart square shaped aluminium pressure cast case with stainless steel wire mesh.

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ROSS HULL MEMORIAL V.H.F. CONTEST, 1963-64

The Federal Contest Committee of the Wireless Institute of Australia invites all Australian and Overseas Amateurs and Short Wave Listeners to participate in this annual Contest which is held to perpetuate the memory of the late Ross Hull whose interest in v.h.f. did much to advance the art.

A handsome Perpetual Trophy is awarded annually for competition between members of the W.I.A. in Australia and its Territories, inscribed with the name and life work of the man whom it honours. The name of the winning member of the W.I.A. each year is also inscribed on the Trophy. In addition, this member will receive a suitably inscribed, framed photograph of the Trophy.

Objects: Amateurs in each VK Call Area will endeavour to contact Amateurs in other Australian Call Areas and Overseas.

Date of Contest: 14th December, 1963, to 12th January, 1964.

Duration: From 0001 hours E.A.S.T. (1401 hours G.M.T.) on 14/12/63 and 13/12/63 respectively, to 2359 hours E.A.S.T. (1359 hours G.M.T.) on the 12/1/64.

RULES

- There shall be three main sections to the Contest:
 - Transmitting, Open, 50 Mc. and higher.
 - Transmitting, Phone, 50 Mc. and higher.
 - Receiving, Open, all bands, 50 Mc. and higher.
- All Australian and Overseas Amateurs may enter for the Contest whether their stations are fixed, portable or mobile.
- All Amateur v.h.f. bands may be used, but no cross-band operating is permitted.
- Amateurs may enter for any one of the transmitting sections. All contacts must be consecutively numbered in the one number sequence to facilitate checking.
- Only one contact per band per station is allowed each calendar day.
- Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a contestant and must submit a separate log under his own call sign.
- Entrants must operate within the terms of their licences.
- Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of 5 or 6 figures

will be made up of the RS (telephony) or RST (c.w.) report plus three figures commencing from 001 for the first contact and will increase in value by one for each successive contact. If any contestant reaches 999 he will start again with 001.

9. **Entries** must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than one month after the Contest (i.e. not later than 12/2/64) and addressed to the **Federal Contest Committee, W.I.A., Box 638J, G.P.O., Brisbane, Queensland.**

10. **Scoring** for all sections will be based on the attached table. Contestants will have to agree between themselves as to the distance between their stations. Such distances must be shown in their log entry in the column usually used for remarks or bonus points.

11. **Logs:** All logs shall be set out as in the example and in addition will carry a front sheet showing the following information:

Name Call Sign
 Address Section
 Claimed Score

Declaration: I hereby certify that I have operated in accordance with the Rules and Spirit of the Contest.

Signed
 Date

Note: Entries on the front sheet must be clearly shown in block letters.

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed the regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the winners of each section in each VK and Overseas Call Area. The VK contestant who returns the highest score in the transmitting sections and who is a financial member of the W.I.A. will hold the Trophy until the next Ross Hull Contest is decided, and in addition will receive an appropriately inscribed photograph of the Trophy.

GENERAL

The method of scoring over the last few years has been evolved from suggestions made by the majority of VK Divisions. Comments from contestants

are invited regarding the abolition or retention of the present scoring system for 6 and 2 metre contacts under a distance of 50 miles between stations. It is suggested that contestants obtain a large scale map of Australia and of their State and mark on these maps the radial distances from their location in accordance with the scoring table.

RECEIVING SECTION

1. Short Wave Listeners in Australia and Overseas may enter for the Contest, but no transmitting station may enter.

2. Contest times and logging of stations on each band are as for the transmitting sections.

3. To count for points, logs will take the same form as for transmitting sections but will omit the serial number received. Logs must show the call sign of the station heard (not the station worked), the serial number sent by it, and the call sign of the station being worked.

Scoring will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ.

4. A station heard may be logged only once per calendar day on each band for scoring purposes, but additional reports will be of value to the F.C.C.

5. **Awards:** Certificates will be awarded to the highest scorer in each VK and Overseas Call Area.

SCORING TABLE

Distances Between Stations	Mc.				Higher
	50	144	200-400	576	
Up to 10 miles	1	1	1	1	5
Over 10 and up to 25 miles	1	1	1	2	10
Over 25 and up to 50 miles	1	1	2	10	30
Over 50 and up to 100 miles	4	2	6	20	60
Over 100 and up to 200 miles	10	4	10	30	80
Over 200 and up to 300 miles	20	10	16	40	
Over 300 and up to 500 miles	10	16	30		
Over 500 and up to 1,000 miles ..	2	30	40		
Over 1,000 and up to 5,000 miles ..	10	40			
Greater than 5,000 miles	20	50			

EXAMPLE OF TRANSMITTING LOG

Date/Time	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Rcvd.	Distance	Points Claim.	Blank

NOTE.—State whether Time is E.A.S.T. or G.M.T.

EXAMPLE OF RECEIVING LOG

Date/Time	Band	Station Heard	RST/NR. Sent	Station Called	Points Claim.	Blank

NOTE.—State whether Time is E.A.S.T. or G.M.T.

S W L

OHO, KL7, ZD8, ON4, LZ, FF8, VP8, XW8, 5H3, WO

Sub Editor: J. M. (Mac) HILLIARD, WIA-L3074

57 Gardenia Street, Blackburn, Victoria

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

Greetings fellow listeners. This month I would like to say a few words about what some people refer to as "Donald Duck" talk, i.e. single sideband. The whole nature of s.s.b. is one to conserve the radio frequency spectrum used by the Amateurs, so that there can be more channels of communication for a given number of kilocycles. As most of us know, there is an ever increasing demand for more channels for communication. Single sideband allows more voice QSOs per band than any other mode of transmission. The use of s.s.b. has shown that a two to one reduction of bandwidth is entirely possible as compared to amplitude modulation.

S.s.b. has a distinct advantage over a.m. as regards selective fading. An a.m. signal is subject to distortion because of fading. The s.s.b. signal takes up so few kilocycles that it is not subject to selective fading. Selective fading should not be confused with the normal fading that exists on any sky wave signal.

The days of a.m. are by no means over, as not everyone can afford to start up on s.s.b., but it is interesting to note that at a recent v.h.f. display in W land, that all the rigs on display were s.s.b. rigs. By the way, an s.s.b. signal has a gain of 9 db. over an a.m. station.

Well so much for my monthly chat. Now let's look at the local scene and see what you have all been doing of late.

VICTORIA

Roger L3158 and his friend motored up near Kinglake for the R.D. Contest and set up camp, but they had their share of troubles as their battery went flat on them during Saturday night, and as a result they were forced off the air for many hours. However they had a good time which was the main thing. By the way, you v.h.f. boys, Roger may be able to help you out with your beam troubles.

Our popular President Maurie has been as busy as ever, but has been having converter troubles, however Bob Young is looking into the rx. Talking of Bob, he is another of our members who have been too busy to devote much time to Ham Radio.

Thirty-six people were at our Sept. meeting, which I am sure must be an all time record. In fact one had to fight a way through the crowd to get a seat. We had as our guests, members of the 8th District Footscray Boy Scouts, with Bill 3AHT, who is one of the big chiefs. Our guest speaker for the evening was Eric Trebilcock, WIA-L3042, who spoke to us on S.w.l'ing and of his experiences. Eric has been active since 1926 and his discourse on the importance of sending out correct reports was very interesting for all of us and I am sure that we all learned a great deal from his talk. Eric went on to say that in his opinion, it took about five years to become proficient at S.w.l'ing. He also showed us a number of QSLs and awards that he had won over the years. Many thanks Eric for a really first class evening.

Before our President introduced our guest speaker, several important matters came up and I will touch on them briefly. Council have granted us permission to erect an aerial for the AR7 which belongs to the Group. In future we will be able to borrow books from the library on meeting nights. We also have permission to produce a newsletter. However, there are several important issues to be gone into on that score.

Greg L3138 is now active on 50 Mc. with a new converter and a 2 el. quad is almost ready.

Neil Duncan is swatting very hard at the moment for the January exam. for the ticket. Best of luck for the ticket. Neil. Noel L3101 has been a little more active recently and has been hearing a little DX on 14 Mc. Several months ago Barry Butler, who is a member of the VK2 Group, paid Noel a visit and Noel took him into one of our meetings. Very pleased that you made the meeting, Barry, but sorry that I was not there to meet you. Craig L3093 hopes to have his ticket before the end of the year. Best of luck to you Craig.

NEW SOUTH WALES

Conditions have not been good in this neck of the woods so far as the Ham bands are concerned. Ross L2233 reports hearing XE2 and OA5 on 7 Mc. Ross is with the No. 1

Wireless Regiment at Cabarlah in Queensland. Don L2022 writes that owing to other commitments he has been out of s.w.l. activities for some time. However he did manage a few hours during the R.D. Contest. Your scribe, L2211, managed some listening in the R.D. Contest. Thought for the month: Safety starts between the ears, keep applying it through the years. 73, Chas. L2211.

Late news: Don L2022 had the misfortune to burn out a transformer in his rx just before the VK-ZL Contest. Bad luck, Don.

WESTERN AUSTRALIA

Our stalwart from VK6 land has really had a feast with the DX over the past month. In fact Peter says that he thinks that the past month would have been one of his best efforts yet, and looking at the most excellent log that he sent over, it would certainly seem like it. Despite rx troubles just before the R.D. Contest, Peter managed to get going for the event and ran up a very fine score.

Peter managed to get his pre-amp. going just before the R.D., then at the last moment it failed altogether. Yes, that sort of thing often seems to happen to most of us at times. Hope that you soon find the trouble, Peter.

Thanks for a mighty interesting letter, Peter, and by golly, that DX log of yours certainly makes our mouths water, that's for sure. 73, Mac Hilliard.

YOUTH RADIO CLUBS

We seem to be a live issue, judging by recent correspondence. This is as it should be. The whole Amateur fraternity should debate the Youth Radio Scheme. Those who debate the issue should have certain information at hand, otherwise their debate could be merely an insincere justification of a desire to have the present frequencies exclusively for the use of themselves and a few friends. For the debate, find the answers to these questions. Has the average age of Amateurs been rising? Has our percentage rate of increase approached that of most well-developed countries? Is it not the stated official attitude that only large numbers will justify retaining frequencies? Where can you find the large number of new Amateurs?

The VK2 Y.R.C. Scheme continues on the move with new clubs and new ideas. In regard to clubs, the latest figures I have to hand show 32 clubs in N.S.W., 20 in Victoria, 14 in Tasmania, 7 in Queensland, and 1 in Port Pirie. My apologies to any others—I have heard of some indirectly. Can you make it definite? I would like to hear from you.

In regard to ideas, there are the Radio-Telephony Operator's Certificate and Radio-Telegraphy Operator's Certificate to encourage club members to make contact from the club station and learn correct procedure. Details can be had from 2YA. Prizes are also offered (from cash donations) for (a) sets of training charts to help club activity, (b) first to gain Intermediate, Radio-Telephony and Radio-Telegraphy Certificates, and (c) best set of constructional projects for Intermediate Certificate.

Club leaders will find the weekly publication "Understanding Science" has had some useful articles on elementary electricity and radio. The coloured illustrations would make good training charts. It may not be easy to get back copies but Municipal Libraries may help. Articles are in issues 1, 2, 3, 16, 20, 21, 23, 24, 25, 26, 37, 39, 40.

With the co-operation of officials concerned, Roger Davis went on the air as VK1RD on his 16th birthday. He has c.w. and a.m. on 80 and 40 at present and would appreciate a call.

Rex Black (2YA) is considering making a tape with colour slides on Y.R.C. Can you supply transparencies of interesting activities in your club? If so, get in touch with Rex—cost refunded, by the way.

Y.R.C. was officially blessed in the N.S.W. "Education Gazette" this month. Can you arrange that (with photos, etc.) in your own State? 73, VK1KM.

	DX LADDER		S.s.b. Conf.	W. Stat.	
	Countries Conf.	Zns. Hrd.			
E. Trebilcock	281	289	40	—	50
D. Grantley	115	265	38	20	105
A. Westcott	93	159	31	9	167
M. Hilliard	82	231	33	31	161
M. Cox	79	226	30	46	158
P. Drew	71	209	28	30	138
C. Aberneathy	56	96	30	—	—
N. Harrison	49	129	30	5	27
I. Thomas	41	139	20	16	97
G. Earl	22	116	15	9	92
D. Goggins	10	92	7	3	60

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VICTORIA

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

YOUTH RADIO SCHEME

Editor "A.R.," Dear Sir,

As the originator of the Youth Radio Scheme I should be grateful if you could afford me the opportunity to reply to the opinions expressed by Al Rechner, VK5ZCR, in September issue.

First, it is pleasing to find that someone is sufficiently interested and concerned about young people to question the wisdom of diverting their attention from education by instituting a Radio Club system in secondary schools. It is gratifying, also, to note that your correspondent is sufficiently open-minded to request that someone should attempt to allay his fears.

If we examine Al's letter, it is obvious that he has made a strong point in stressing the need to improve educational standards so that young people can cope with the rapid changes in our modern society. As a teacher of over thirty years' experience I deplore the encroachment of tawdry, trivial and often degrading media which beset the younger generation to-

day and drastically undermine the effects of those who seek to improve cultural and educational standards. As a result of experience in organising hobby clubs in secondary school I feel that the development of such interests and activities can have a stabilising influence on young people and can fill the vacuum that would otherwise be occupied by less desirable occupations. A teenager with a supervised and progressive hobby is far less likely to engage in delinquent behaviour. I can quote many cases of lads whose behaviour and attitudes have changed materially after they joined a school hobby club.

Al admits that certain headmasters admit some improvement in the academic performances of Radio Club members, but decries this authoritative opinion on the grounds that Amateurs have been in a better position to judge by observations over a period of years. It seems to me that there is some confusion and invalidity of argument on this point. I feel that the opinions of headmasters and teachers in schools where Radio Clubs have been established are certainly worthy of more consideration than your correspondent is prepared to admit. Also, as the Youth Radio Scheme has been operating for only a short time, I submit that any conclusions made by observation of quite different situations must be invalid when offered as arguments against the Youth Radio Scheme of this Institute. I am quite willing to concede that over-enthusiasm in any direction can have adverse effects on educational progress at any level. However, the fault lies not with the activity itself but with the parents of the young people so affected. There must be many youths whose excessive participation in Boy Scout work has proved detrimental to their scholastic progress. However, one does not condemn the Boy Scout movement because of the failure of parents to guide their sons wisely. I think we can quite reasonably claim the same consideration for our Youth Radio Scheme.

Far from being a rival and a detriment to school education, the Youth Radio Scheme is designed to support and supplement the normal secondary courses. Perusal of the syllabuses will show that our Certificate requirements include passes in Mathematics and Science and there have been many instances reported by Club Leaders of Club members "pulling up their academic socks" in order to meet our Certificate specifications. Examination of secondary Science courses will reveal considerable overlap in topics in electricity and magnetism and Keith Howard's recent article in "Radio, Television and Hobbies" shows clearly the close relationship that exists between his Radio Club activity and the formal courses of the Science Department.

Last year one of my Club members attempted the Departmental Intermediate Certificate examination and was absolutely delighted when he discussed the Science paper, which contained questions in Electricity and Magnetism closely resembling those which he had been required to answer in the Elementary Radio Certificate written examination.

I might stress, also, that of the six members of the Youth Radio Scheme Committee in New South Wales, four are Education Department

teachers and the great majority of Club Leaders belongs to this profession. Also, both New South Wales and Victorian Education Departments have given their approval to the formation of Youth Radio Clubs in Departmental Schools, and, I can assure you, this permission would not be given without careful assessment of the value of such a move.

One of the important functions of our Youth Radio Clubs is to provide vocational guidance towards careers in Radio, Television and Electronics. With interested teachers as Club Leaders it is apparent that really interested boys can be directed into occupations where they will be round pegs in round holes and will enter those vocations with interests already established. It is obvious, too, that teachers in charge of High School Radio Clubs will encourage members to attain the academic standards required for the various occupations into which the boys will proceed, and will restrain those whose excessive zeal in Radio may tend to undermine their school studies unduly. The close supervision inherent in school Radio Clubs is a major feature in favour of the Youth Radio Scheme, as it obviates situations, such as those observed by Mr. Rechner over a period of years, where youthful enthusiasts engage in hobby Radio to the stage where their studies suffer.

I should like to quote from an address presented to the Institution of Radio Engineers by Mr. S. O. Jones, Managing Director of S.T.C.: "Today radio and electronics are expanding at a rate which amazes even the most blasé amongst us. It is opening up new horizons for mankind and there is now hardly an aspect of our daily lives which is not, in some way, influenced by the techniques and applications of this young branch of science." If the Youth Radio Scheme can help to make young people aware of these exciting developments and can direct the more able of its Radio Club members into these developing fields, I feel that our voluntary effort will have been worthwhile. If the leaders of the Soviet Union can appreciate and foster by governmental agencies the great potential talent in Radio and Electronics that exists among its junior citizens, surely our Australian young people are entitled to whatever help and encouragement we can give them in this direction.

As members of the Wireless Institute we cannot afford to ignore the advantages to be gained by fostering the Youth Radio Scheme. Already there has been a movement from the Youth Radio Scheme into the ranks of Associate and Full Members and, as time passes, this trickle could become a torrent. One of the stated aims of the Youth Radio Scheme is "to increase the membership of the Wireless Institute of Australia by encouraging Youth Radio Club members to continue their association with the Institute by becoming financial members. No organisation can hope to expand without an influx of new members and only the most unthinking W.I.A. members will be content to envisage our organisation as a static body.

—R. C. Black (VK2YA), Supervisor, Youth Radio Scheme, N.S.W. Div., Federal Co-ordinator, Youth Radio Scheme.

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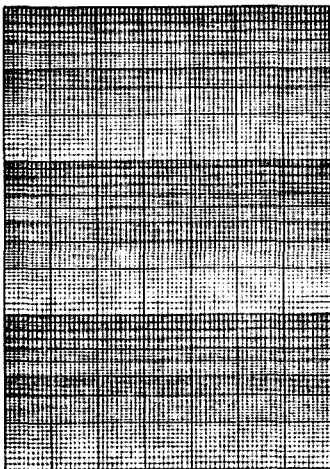
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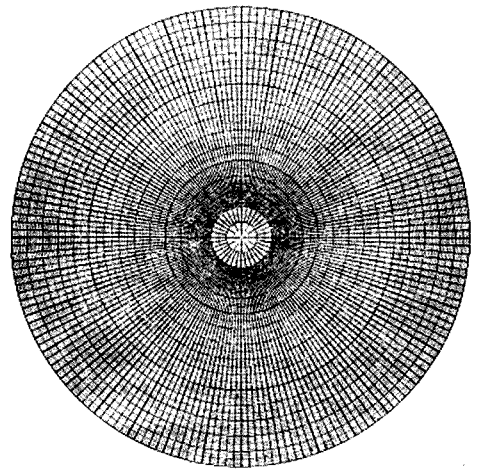
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VHF

50 - 144 - 420 - 576 - 1296 Mc.

Sub Editor: LEN POYNTER, VK3ZGP.

14 Esther Court, Fawkner, N.15, Victoria

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

From ZL comes news of an effort to work into VK from Don ZLIAQW, who was recently in Melbourne and discussed the matter with me. Don's branch of the N.Z.A.R.T. hopes to erect a high power phone station on Mt. Pirongia (3,925 ft.). Antennae will be stacked 10E, yagis and Nuvistor front-end converter into a Collins 75A4. A frequency close to the band edge is visualised and it is hoped to have some special characteristic on the carrier for positive identification. However, when further details are known publicity will be given through "A.R." and if possible all Divisions will be notified.

There is also news that ZL4 might be represented on 6 mx this year—A v.h.f. group has been formed in Dunedin and more activity is promised. ZLIABL will be running s.s.b. on 2 mx with a 6/40 linear to a 6 over 6 skeleton slot. Apparently there is other 2 mx s.s.b. activity in ZL.

Readers of this page would be interested in any special activity contemplated during the forthcoming season. So if you have heard anything please let me know and I will publicise their efforts.

With the use of ex-commercial gear of the mobile variety each State will keep in mind the use of 53.032 Mc. here in VK3 as a 6 mx a.m. net frequency and where possible continue to use same. The net is growing slowly and will move quite rapidly during the next few months as more crystals become available. If you're visiting Melbourne with these mobile units remember this frequency.

A small item I came across recently was that a line of chokes similar to the Ohmrite series in the U.S. are available here in VK. They are known as Insulated Chokes Types CLA and CL-I made by I.R.C. Types CLA are available in a range from 0.22 microhenries, approx. self resonant freq. 440 Mc. with a current rating of 2,600 mA. to 7.5 microhenries, 76 Mc. at 275 mA.

Type CL-I commences at 0.47 mH., 330 Mc. at 1,850 mA., to 24 mH., 46 Mc. at 175 mA. They are both 1/4 inch diameter, CLA is 25/32 inch long and CL-I is 1 1/4 inches long. Suggested circuit applications are such as filament chokes, plate loads, series and shunt peaking inductances, wave traps, parasitic suppressors, line terminating impedances, cathode chokes, antenna chokes and grid chokes. Price is around 2/- retail. A data bulletin is available through I.R.C.

Many thanks to Alyn 6ZDM for his efforts in the past from VK6. Welcome to the new writer, Graham 6ZDB. Scribes are requested to forward their notes to me no later than 2nd of the month. (Correspondingly earlier for the January issue.—Ed.) 73, 3ZGP.

NEW SOUTH WALES.

We received some news from Mac 2ZMO, but received it a little late for inclusion in the last notes, so here it is now. "The big thing up this way was the break through to Sydney on 20th and 21st August, the world and his lady were on the band up here. Les 2ZBJ, from Camden, had the biggest signal on the Wed. night, and I also worked 2HE, 2ZVW and 2ZRU, although he faded out before we finished the contact. Some of the others heard were 2ZSK, 2ZQX, 2AFW, 2ZBA, and 2HL. The Cessnock gang are still very quiet and have heard 2KF once since the last notes. Gordon 2ZSG has finally beaten the "sound barrier" to Sydney. How blasé can you get—Fred 2ZAP is now demonstrating how easy it is to work Sydney using a beam inside the garage, listening to Ross 2ZRU at readability 5." Thanks for the news Mac.

Latest from Sydney Suburbia is the news that Peter 2ZPB has graduated (?) to Ragchewers Anonymous with the receipt of his new call sign, 2AXJ. Len also turned the trick at the same exam., but hasn't received his new call at the time of writing.

Before we go any further, we'll just refresh your memories with the agenda of coming events, and keep them in mind. The Nov. lecture will be by John 2ZAV on Receivers for 432 Mc., and the Nov. Fox Hunt will be on the 27th, starting at Top Ryde, with Horrie 2HL as the Fox. Dec. 14 is the Xmas Party preceded by a short tx hunt, ending you know where. A Xmas Scramble will be held on Dec. 22, so mark your calendar. Winner of the Sept. Fox Hunt, run by 2AWZ/

2ANF, was Dave 2ZVW, followed by Tim 2ZTM for second place.

Since this will be my last set of notes I would suggest that any news you care to forward, be sent to Dave 2AWZ, the V.h.f. Group Secretary, who will forward them to the right man. 73, 2ZBL.

VICTORIA

Jack 3ZGP at Montrose is building up a beam and he should have a very good signal on 6 from his location. Ross 3ZNR is building up a portable rig for field days and it runs about 12w. to a 2E26 with carrier control modulation. Stan 3ZPL at Moe recently acquired a new rx, and Marconi AD108D, and would like information on it and if anybody could help they could pass it to 3ZNJ, address in call book. Andy 3ZAK at St. Kilda hopes to be on soon running 15w. to an 832 and the rx is an ABP conv. to a home-brew. 3MT, the Royal Melbourne Institute of Technology Radio Club, has been very active lately and they run about 70w. to a QQE08/40, the antenna is stacked cloverleafs up 100 ft. Also 3ZEM, the Footscray Tech. Radio Club, were on the air on Education Day and have a special QSL card for the event. Their gear was 15w. to a 2E26, 3ABP converter to a home-brew rx and stacked cloverleafs.

David 3ZOP at Moorabbin recently finished a 9 el. 2 mx beam and is working on a converter for 2 mx. Max 3ZCW, late of the Mallee, is now operating from Auburn on 6 mx and he is still mistaken for a DX station. Bill 3ZBZ at Chadstone has built up a new 6 mx tx running 30w. to an 815, modulated by 607s and his new freq. is 51.28 Mc. (Up amongst the ZLs Bill?) Bob 3ZRD at Hampton has been looking at 6 mx gear lately and it looks like we might hear Bob on 6 soon. Graham 3ZIX and Graham 3ABY have been plotting together lately and the outcome is that they hope to have a link between their QTHs on 3,200 Mc. 73, 3ZNJ.

QUEENSLAND

The V.h.f. meeting was held on Friday, 20th Sept., with the usual members attending. Great interest was shown in a transistorised communicator being constructed by 4ZAX. On Tuesday the 24th, DX came through well, with VK5 being worked for short intervals. A new station on 6 mx is John 4ZFH, although he has had a licence for two years or so, this is the first time he has been on the air consistently.

Over the last few months certain people have been talking about c.w. practice. It appears to me that if the full calls want the 2 calls to do the Morse they should come on v.h.f. occasionally and perhaps provide some slow c.w. to a.m. contacts. About the only full call heard on 6 mx is 4ZK and very rarely 4WD, 4EZ and 4HC.

Latest acquirement by the multitude is ex taxi two-way units. About six of these units have found their way into the hands of the future motorists. 4ZEP has his unit converted and is mobilising with great speed around Brisbane. It seems hard to believe what that 3w. transceiver has done. With all the talk of mobiles around and at least two stations hoping to pay VK2 a visit at Christmas, we should not have any excuse for getting lost when Interstate. 73, 4ZDF.

SOUTH AUSTRALIA

50 Mc.: The only opening on 50 Mc. during August occurred at 1415 hrs. C.S.T. on 11th. 3ZBJ/4 in the Simpson Desert, close to the VK3 border, was worked by local stations. Glen was using his mobile gear and a 6 el. beam. Interestingly enough, this sporadic E opening corresponded with a very good tropospheric opening on 144 Mc. (q.v.)

144 Mc.: This band was in fine shape on the week-end of 10th and 11th August. An excellent tropospheric opening to VK3 permitted many contacts. This was the first occasion on which an Adelaide station worked into Melbourne. 3ZLJ and 3ZJQ were the strongest Melbourne stations and they worked many locals, including 5RO, 5ZBR and 5ZDR. Other Victorian stations worked were 3ATN, 3ZCJ, 3CI and 3AGV.

Whilst the VK5 beacon station was responsible for the opening being noticed in the first instance, the beacon proved something of

a difficulty because Adelaide stations could not hear the VK3 stations owing to interference from the beacon. The beacon was subsequently closed down for the remainder of the opening, whereupon the QSOs came thick and fast.

432 Mc.: This band is moving slowly, however if the movement is maintained we should have several stations on by the New Year. Brian 5ZBR has a QQE08/40 tripler ready, also Geoff 5ZCF. Cor 5ZKC can't make up his mind whether to use a 416B or a 417A in his 70 Cm. converter. (What a dilemma!) Brian 5TN is settling for 6CW4s in his. 73, 5ZCR.

WESTERN AUSTRALIA

The level of activity on the v.h.f. bands in VK6 is improving considerably as the weather improves and people suddenly realise that the DX season is only a matter of months away. Tony 6ZDT has completed his new 6 mx rig and aerial system and is hoping to improve his tally of interstate stations this year. John 6JW has made a welcome re-appearance on 6 mx after being off this band since 1946. Another newcomer to the band recently was Tom 6ZBU.

Two metres has been a little more active of late with the W.I.A. News being relayed on this band by Bob 6BE, using n.b.f.m. The main activity on this band has been cross-band working, either 8-2 mx or 2-1/2 mx. Brian 6VV was down from Geraldton recently and is determined to be active on 432 Mc. next year. This 300-mile path should be very interesting as both 6 and 2 mx have been used regularly over this path since last summer.

A V.h.f. Field Day will be held on Sunday, 1st Dec., between 1090 and 1600 hrs. using the same rules as before.

The last fox hunt was run by David 6DI and Tom 6DP with the fox hidden in Wembley Downs, some 7 miles from the start. After a few incidents that cannot be published here, the winners were Colin 6ZCI, Barry 6ZCF and Peter 6ZBK. 73, 6ZDB.

TASMANIA

50 Mc.: Nothing out of the ordinary on this band of late. Still the same crew on around 1800 hours each night.

144 Mc.: Activity is well and truly on the increase on this band of late. Ian 7ZZ and Edgar 7RY are now active in the south plus a return to the band by Lee 7KC and Rick 7ZAT. Also Wolfe 7ZAG. In the north of the island, Den 7DX is conducting Morse practice on 2 mx and also re-broadcasting 7WI around Launceston. Along the coast Terry 7TT, Bob 7ZAA and Harry 7ZBH are active and I believe Max 7MX and one or two others are either on or interested. 73, 7ZAV.

PAPUA

50 Mc.: No signals heard on this band during the month, despite a close watch for the first sign of the summer DX season.

144 Mc.: No activities on this band during the month.

Roy 9AU has gone and should be sporting a VK2 call from the Bega area in the near future. Many thanks for everything, Roy, we hope to hear and work you in the coming season. 73, 9ZBV.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

FEDERAL QSL BUREAU

Walter Vedder, DL9FF, a member of the Hammariund DX-pedition to Corsica in July last, writes that they discovered the reason why most stations failed to receive a QSL from F9IC/FC. They learned that the home of Jean had been destroyed in a snow storm a few years ago and most of his logs and cards had been lost in the storm. They are endeavouring to decipher all legible QSOs in the remaining logs, etc., and will take steps to issue QSLs.

The "Denpa Kagaku," Japanese radio magazine, is sponsoring a "Worked All Islands Award" in various grades. As the requirements are a little involved, they are omitted here due to space considerations, but may be had from the W.I.A. Federal QSL Bureau or direct from JAIBN.

Writer has been presented with a copy of the U.S.A. Post Office Directory, through the generosity of Mort, W6JU. This publication is invaluable to stations seeking to qualify for the U.S.A.C.A. award as it lists all Post Offices together with their counties. Writer will make the publication available on loan for limited periods. Contact the Federal QSL Manager.

The Radio Society of Ceylon has sponsored a Worked Ten Ceylon Award. Full details may be had on application to this Bureau or from the Society, P.O. Box 907, Colombo, Ceylon.

The new QSL Bureau address for KG6 is Box 445, Agaña, Guam.

A private attempt was made to obtain award certification reciprocity with the A.R.R.L. in order to avoid the long delay, risk of loss of cards, and cost of mailing cards for the A.R.R.L. D.X.C.C. and other awards. WIBDI, the A.R.R.L. Communications Manager, has replied regretting that the request cannot be complied with for the following reasons:—

1. The A.R.R.L. insists on retaining absolute control of all its awards.
2. The multiplicity of present-day DX-peditions requires careful consideration of new country status.
3. If the A.R.R.L. granted reciprocity of award certification, they (A.R.R.L.) would then be called upon to examine and certify thousands of applications each year from U.S.A. Amateurs for overseas awards, involving large labour and other costs.

—Ray Jones, VK3RJ, Manager.

FEDERAL AWARDS

V.H.F. AWARDS

V.h.f. Awards have recently been issued as follows:—

- W.A.S. 50 Mc.—No. 42, VK5KO, 6/5/63.
No. 43, JA1BYM, 14/6/63.
No. 44, JA4IO, 7/10/63.
(The JA contacts were mostly 1958-60.)
V.H.F.C.C.—No. 25, VK2ZRU, 144 Mc.,
21/3/63.
No. 26, VK4ZCH, 50 Mc.,
28/3/63.

D.X.C.C.—MALAYSIA

As from 16/9/63 the separate listings of Singapore (VS1), Sarawak (VS4), British North Borneo (ZC5) and Malaya (9M2) are cancelled and the following two new and separate listings will be substituted:

VS1 Singapore and 9M2 Malaya.
VS4 Sarawak and ZC5 Sabah (formerly British North Borneo).
Credit may still be obtained for the deleted listings vide Rule 2:2.

W.A.V.K.C.A.

Twenty-one awards have been made this year to date.

—A. Kissick, VK3KB, Manager.

SILENT KEY

It is with deep regret that we record the passing of:—

- VK2FX—Frank Cross.
VK2AJZ—Harry Solomon.

NEW SOUTH WALES

Very little to report this month chaps. The monthly general meeting was held in Wireless Institute Centre on Friday, 23rd August, and a very interested audience was given quite a deal to think over, following Vol's (2VO) lecture on Communications Logic. The evening finished late and all present agreed that the subject was one of the most unusual and entertaining ones ever presented.

Since last month's notes, the R.D. Contest has come and gone. We, in VK2 trust that all stations who participated have submitted their logs in order for New South Wales to at least be in the running. This Contest was very well patronised, and it was very pleasing to hear so many of the "not-often-on-the-air" stations in there pitching.

By the time these notes are published, the Scout Jamboree-on-the-Air will have taken place. From all indications this very worth while annual week-end of activity will also be participated in by a goodly number of stations.

As mentioned in the opening paragraph, news is scarce here at the moment, so I will not try and pad things out. See you next month, 73, 2SW.

HUNTER BRANCH

This month's notes concern the most important event in the Branch Calendar, that of the annual Convention. This year the Convention was held over three days—Friday, Saturday and Sunday. On Friday, 4th Oct., constructional competition was held in the Tech. College. Those taking part displayed a most interesting variety of gear. In order of appearance were Tony Z2CT, with a modified "Minitran"; Jan Oosterveen, three-transistor receiver; Bill Z2CV, g.d.o.; Stuart, 2 mx tx and modulator; Des Z2DN, 2 mx transceiver; Gordon, regulated power supply; Bill Z2WM, 2 mx tx and modulator, and Norm Z2NF, a soldering iron from the junk box. The judges had a most difficult task in deciding who was to take off the prize—a cup from the Division and a prize from the Branch. However, it was decided to award this to Des Z2DN. Congratulations Des on a first class job. As well, the committee decided to award a special prize to Jan Oosterveen for his three-transistor receiver.

On Saturday evening the annual Dinner of the Branch was held at the Esplanade Hotel. There were forty present and after a most enjoyable meal the toast to the visitors was proposed by Les 2RJ, Branch President. Mr. A. Butler, District Radio Inspector, replied on behalf of the visitors. Chris 2PZ proposed the toast to the W.I.A. and this was replied to by Vic 2VL, Divisional President. The guest speaker for the evening was Barry 2ABB, from Mullard Ltd., who gave us an idea of the future uses of transistors.

Sunday, 6th Oct., dawned wet and cold and for a time it was thought that the field day activities would be washed out. However as the day went on the weather improved and conditions for transmitter hunting were ideal. The venue at Marmong Point was ideal from the competition viewpoint and there was ample space for car parking. The first event, an all-band scramble with few restrictions, was won by Dave 2AWZ with Harold 2AAH and Bill 2XT close behind. In the first two mx hunt Les 2RJ cunningly concealed the rig, but it was found, first by Bob 2QA. The 7 Mc. hunt was won by Bill 2XT. The afternoon 2 mx hunt was a multiple affair, the rigs being hidden by Ian 2ZIF, Les 2RJ and Tony Z2CT. Two hours was allowed the hounds and all three tx's were found by the 2AYF/2ZSG team, Stuart and Gordon.

As far as local news this month is concerned, most of the boys have been preparing for the Convention and for this reason their on-the-air activities have been at a low ebb. Jim 2AHT was heard working the DX on the week-end of the Convention and it is expected that he will again run up a big score in the VK-ZL. Otto VK2SI has been awarded the full call, his DL licence being accepted as qualifications. Otto has the rig ready for c.w. and is building a modulator so you can expect to hear him on soon.

Branch members were greatly shocked to hear of the sudden death of Frank Cross, VK-2FX, during the month. Frank had become one of Newcastle's best known Amateurs, having been first licenced in 1929. In later years he owned a radio business in Mayfield. The Branch extends profound sympathy to his widow.

The date of the November meeting, which was to have been held on the first Friday of the month, has been changed. Bob 2OA is to lecture to the Branch and since the first Friday is also the V.h.f. Group meeting night in Sydney, Bob cannot come till the next week. So remember chaps, the second Friday of November, that's the 8th, is the meeting night. And come along to room 15, classroom block, Technical College, Tighes Hill. Remember it was once called the University College—well we've been severely censured for calling it that so from now on it must be the Tech. College—same place really! See you there, 73, 2AKX.

VICTORIA

WESTERN ZONE

The 6th Oct. saw a large gathering of the boys at Ararat for the Annual Zone Convention. A large roll up participated, comprising 3AZM, 3ATS, 3ADS, 3AFO, 3ATR, 3EF, 3AQD, 3GN, 3AAQ, 3AEQ, 3AKW, 3AKP, 3NN and son Gary with new Z call, 3AGD, 5CU and Keith 5Z7, 3AR, 3AFU, 3ANQ and also Brian McDonald with a VK3Z call. Our new President of the Zone is Bert 3EF, who will ably continue the good work of Merv 3AFO, the retiring President. Unanimously re-elected for Secretary was Bill 3AKW. Bill's term as a Zone Secretary must be running into a record very soon. Vice-Presidents are Vic 3AEQ and Wilson 3AFU.

On the suggestion of 3AAQ it was decided to streamline our zone hook-ups on 80 mx on Wednesday nights. Bert 3EF has been nominated Zone Co-ordinator for calling in stations, with each station limited to two minutes per over. This will make for a fast and efficient get-together with no one tied up for long periods unnecessarily and I am sure will attract larger attendances. It was very nice to see familiar welcome faces from the South Western Zone in the form of 3AGD and 3AEQ.

After the meeting the group proceeded to an inspection of Channel 3 and Channel 6 Ballarat and our thanks go to the staff of both stations who spared no effort in showing the group the entire set-up from start to finish. The Convention rounded off with a Dinner and an inspection of new equipment, followed by a short showing of films by 3ATR on a recent trip to Tahiti.

Wireless Institute of Australia

Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 10th FEB., 1964

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

Persons desirous of being enrolled should communicate with—
Secretary W.I.A., Victorian Division, P.O. Box 36, East Melbourne (Phone: 41-3535, 10 a.m. to 3 p.m.), or the Class Manager on either of the above evenings.

MIDLAND ZONE

Activities for the month of Sept. have subsided somewhat, both from my own activities as well as the rest of the members. Unfortunately I had to make an urgent trip to VK4 early in the month and was off the air for a while. This, of course, leaves me with nothing to report on except my own activities, which are confined to operations on the 20 mx band and the building of s.s.b. equipment. The only member contacted for the month was 3MO, with Ian putting in a hefty signal here on 14 Mc. 73, 3ND.

MOORABBIN AND DISTRICT RADIO CLUB

Several enjoyable outings by the club in recent months have included a tx hunt and a ten-pin bowling night. The tx hunt was attended by some 39 persons in 13 cars, including Scouts from 8th Footscray and 1st and 3rd Brighton Troops. The next tx hunt is on Dec. 6 and with the warmer weather this could be an even better event, and I will be sorry to miss it but expect to be en route to VK6 land for four weeks on that date. However the hunt on 80 mx is open to non members also and starts at 2000 hours. A group of 30 members with YLs and XYLs (as applicable) attended the bowling night and it certainly showed up some dark horses—must have been practising in their lunch time. It was a highly entertaining night.

At the club "night on the air" on Oct. 4 the younger members stirred up some DX although the presence of Maxine (Graham 3ZMQ's YL) may have had added the necessary glamour to attract the KH6s—could be an asset in DX Contests, Graham. Jim 3KE added to the amusement by playing a tape recording of some of the night's discussions (?) he taped.

Hear that Bob 3NZ is now allowed up and about. We all wish you a speedy recovery, Bob, and back to using your f.b. s.s.b. gear. Which reminds me, we had an interesting discussion night on s.s.b. and its construction, this month led by Bill 3JE. 73, 3ARD.

QUEENSLAND

Weather is topical—not tropical—in VK4 once more; even in Amateur circles. It seems the bottom of the jet stream lowered over Brisbane shortly after we last went to press and more than one antenna suffered. Especially that mighty beam of 4VJ, which is rather prominent, to say the least, at any time. Before the wind we had quite a lot of rain but not as much as in VK2 where, 'tis said, they no longer dig their gardens but stir them instead. Anyway, 4DA is sort of jubilant, along with 4OK, 4RH and other assorted landed gentry, about the rain. With the resultant crops, there should be the odd new tx on the air.

Then after the Sept. general meeting the lecture subject was—yes, you guessed—weather. Actually, the application of radio and radar to the gathering and transmission of weather data, as related by 4ZGM. The evening was unseasonably warm and pauses to remove the coat and loosen the tie and to restore modulation, which had failed due to bias build-up on the tonsils, were greeted from the back benches by most uncharitable remarks about who should be prepared for the current weather.

During the month we achieved our "by Christmas" target of 500 VK4 members. A lot of the new members are in the Branch clubs which are very active in training the newcomers. The Central Qld. Branch at Rockhampton is especially active with classes and some really good lectures are broadcast by the Branch station 4IR on Saturday afternoons. Are these heard in other Divisions?

The Divisional station is looking up. Alf has invested in a tape recorder and now broadcasts taped news from the country boys. Seems they can all talk but can't write. Anyway it's a good idea and goes over well when the tapes are up to scratch. The frequency response of the different recorders seems to vary somewhat.

Ross 4RO is still getting cards the easy way, via the services of a helpful pirate. Some are rare DX too. Are you sure you aren't sleep-walking Ross? Seriously though, such things make one wonder about the mentality of the people who can keep on using someone else's call sign like that. Ted 4EJ is busy on a rx to end all rx's; a Racial affair. Let's know how it performs Ted. The V.h.f. boys up Cairns have the fingers crossed for a Trans-equatorial breakthrough and have been hearing the northern scatter stations. 73, 4ZGM.

WIDE BAY AND BURNETT BRANCH

Jimmy 4HZ left home a few weeks ago (now don't get me wrong, he took his XYL Nell with him) and headed north to see how the

other fellows lived, worked and played. He visited Vic 4BJ (Bundaberg), Frank 4FN (Gracemere), Claude 4UX (Ayr), Charlie 4BQ (Townsville) and others. Lewis 2AWS, from Pt. Macquarie, was filling in a few days in the Sunshine State at Bundaberg and was on his way over to Viv 4EJ to say a few words in the Kookaburra session when he ran over a dog, and upon stopping to express sorrow to the owner, found himself speaking to a previous neighbour from his own home town. One never knows whom he is going to run into or over in this shrinking world.

The Bundaberg boys like to do the difficult first, the impossible will come a little later. Bill Sebbens and Roy Spotswood have been disturbing the ether in the 2 mx region, and it is reported that Les 4XJ in one attempt to pull Bill in stretched his converter to breaking point, but like the elephant's trunk, it has now gone back to normal gain. It must be good fun on this band as Bill 4WH is also thinking of joining this band any day now. So you boys who want your W.A.S. certificate for 2 mx there's a tip for the VK4 end of it.

Frank 4FN tells of the fellow who constructed his t.v. antenna by welding empty beer containers together. Just as well it was not his car radio aerial or he would have been booked for being under the influence.

The boys of the Branch met in Maryborough last month to have a draw for some disposals gear, and some went home happy, others a little disappointed. Ah well, it may not be good for us if we got all we wanted in this life, although it is very nice if you can manage it.

Met Bert Ward, who is ex-G3WD, and who brought his 160 mx gear out with him and hopes to be using a VK4 call soon, so look out for him.

See you next month, 73, Fred Cox.

CENTRAL QUEENSLAND BRANCH

4FN's main activity is on 80 mx with occasional bursts on 40. Frank has just finished an f.b. mod. monitor and noise and distortion meter. Old friends of Mark 4MJ will be sorry to hear that he has been very sick; get well soon OM, we're all pulling for you. Joe Waterworth has built up a code practice oscillator for the class he so ably conducts; but he is having no end of trouble trying to get the Gowler turrets in the new rx to go. Anyone with experience on these things could drop Joe a line—he'd sure appreciate it.

Lance 4ZAZ has a 9 Mc. phasing s.s.b. rig on 144 Mc., all home-brew, and working f.b.; the linear should soon be completed using a QQE06/40. Hal 4DO is on his way back from G-land on the last leg of his world tour and appears to have looted four continents for slubrious gear. Riley 4SE has a new "Free-way," so has had to go all modern with transistor p.s. for the mobile. Yours truly (4ZCK) has the usual pile of unfinished projects including a new s.s.b. tuneable l.f. rx (nearly finished) and 50 Mc. phasing, printed circuit, all transistor exciter, which appears very promising. If I can get the bugs out of this, will probably knock out an article on same. (The aim is 150w. p.p. s.s.b. on 6 in. 1½ cubic feet including p.s.)

TOWNSVILLE AND DISTRICT

Arthur 4FE dropped in for a brief talk on the way from Normanton to Melbourne on Leave. During the past three weeks Jim 4HZ has been touring the best part of the State. Stayed a few days and had the time of his life imitating Donald Duck, then went up to Cairns to see Basil 4ZW.

Very pleased to hear that Jess, XYL of 4UX, has at last got her hearing back. Believe it took a bashing as Claude and Jim vied for the honour of the best talker. Say, who did really win?

The 2 boys in Cairns have been asked to collect times and durations of the openings of the Tropical Scatter on v.h.f. and forward reports to the local university here. So far I have heard nothing in the openings.

Alan 4PS is busy overhauling the gear as he expects an extra crowd of Scouts on Jamboree week-end. Another welcome visitor turned up today in the person of Frank 8AE, who has finished at Alice Springs and is touring round looking for a nice place to settle in; maybe enjoy our climate. 73, Bob 4RW.

SOUTH AUSTRALIA

The monthly general meeting of the VK5 Division was held as usual in the clubrooms to a slightly below average attendance, about 110 members and visitors to be exact, and took the form of a three-man lecture on 432 Mc. Organised by the V.h.f. Group, the subject

was handled in turn by Gary 5ZK, Al 5ZCR and Cor 5ZKC. Gary discussed propagation, Al then stepped up and talked on aeriels and feedlines, Gary came back and as an encore enlarged on transmitters. Al, not to be outdone, then took up the matter of receivers, and to wind up the proceedings, Cor spoke at length on test equipment for the band. In this way the subject of 432 Mc. was covered in its entirety, although all of the lecturers stressed that they could have talked a lot longer on the subject if time had permitted. Judging by the rapt attention of the audience throughout the lecture, a keen interest has been aroused in the band. The V.h.f. Group is to be congratulated on their efforts and also as to the choice of their speakers.

Among the visitors were Lindsay 2ON, Eric 3ANC and Brian 5ZFT. We thank them for their company and hope to see them again sometime.

Gordon 5XU has just arrived back in VK5 after a business trip to W land. Had a chat with Lindsay 2ON at the meeting. It appears that he had just returned from VK8 after attending an eye doctor's congress for a fortnight, and although he stressed how busy he had been over there, he let slip that he had a chat to 6VK, 6RY, 6RU and 6MK. I suppose he says the same to all the scribes that he meets, but he told me that he always reads the VK5 notes and even went as far as to say that he likes them. Thank-you for those kind words, Sir, I hope the Editor reads this, he might appreciate me more!

Listened in to a three-way contact on 7 Mc. the other day between Joe 5JT, Roy 5DA ("Buck" to you) and Frank 5MZ. Intrigued me to note that the combined ages of the three was 188 years, but I won't tell any tales out of school as to who made up the bulk of the total of years.

Received a letter from Fred, the father of John 5ZJH, telling me of John's unfortunate and nasty accident as he was leaving the Institute of Technology on the night of Thursday, 12th Sept. At the time of writing he is an inmate of Ward 3A, Royal Adelaide Hospital, East Wing, with a broken thigh and naturally will be off the air for some time. Sorry to hear it, John, and hope by the time this is being read that all is well again.

Talking of accidents, Jack 5LR was mixed up in a smash over the week-end. He was crossing the South Road at about midnight and a motor bike ran into him. Jack's wife was badly knocked about and admitted to hospital with a compound fracture of the ankle, but Jack came out of it unmarked.

The above two paragraphs brings to mind that Dr. Ross Adey (ex-5AJ and one time VK5 member of Council), a former reader in anatomy at the University of Adelaide, and now professor of anatomy and physiology at the University of California, has been given the first Charles Judson Herrick award for meritorious contributions to comparative neurology. Congratulations are the order of the day.

Noticed that Harry Gillard passed away this month. He will be better remembered for his photographic ability and knowledge, although he was keen on Radio and attended many meetings of the Division back a few years ago. Our sympathy is extended to his wife Eileen and also to Roger and Joyleen.

A certain pen-friend of mine in VK1 will be interested and pleased to know that a committee has been proposed to liaise with the S.A. Education Department to organise Youth Radio training in VK5 along lines which, at the moment, must remain a deep and dark secret. Do ye Ken?

Periodically a member will contact the Secretary or Treasurer about the non-delivery of the magazine, and more often than not the reason is that their subscription to the Division has lapsed. Sometimes of course the works have jammed up and a genuine mistake has been made clerically. However, if your magazine mysteriously stops arriving don't suspect black magic, personal animosity, discrimination or the colour of your tie, but check up on the subscription receipt and if this is OK, start bouncing the ball.

Les 5NJ still going merrily on his mobile way, although for a little while recently he looked like coming to an abrupt stop. The converter started playing tricks and the trouble was finally located in the transistor mixer, much to the relief of the car battery, which had also almost reached the end of its tether. Nice signal Les. Brian 5OJ, when heard here, was in the midst of organising a search party for the missing grid current to his final. Extra good signal at the time, but had his fingers crossed just in case. Claude 5CH called in to see me on his return from Perth and all points west, and brought me greetings and salutations from some character over there known as Len 6LG. Nice to hear from you OM, have heard you at times on 7 Mc., but you were

HAMADS

Minimum 5/-, for thirty words.
Extra words, 2d. each.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

FOR SALE: Command Tx 3-4 Mc. with crystal, £7. Auto-transformer 3 kw. 230-110v., £12/10/0. 100-1,000 Kc. Crystal, A.W.A. type R583B, £5. Pi-Coupler five-band, 500w., £2. Driver Transformer 6V6 to AB2 807s, £2/10/0. Wally Middleton, VK3IT, Phone Croydon 3-1839; 22 Belmont Road, Croydon.

FOR SALE: 40 mx 15w. a.m. Mobile Station, tx/convtr./mic., BC453 i.f., remote tuning cond., 12v. d.c.-d.c. convtr., c/l whip and car mount, etc. £55 complete or may separate. Further details on request. VK3UJ, A. Roudie, Croydon Way, Croydon, Vic. Ph. 3-3307.

GELOSO Tx 222, £85. AKA1 Tape Recorder, 2 speed, 2 track, Model 903, has 2 microphone channels, as new, £90. T. E. Straughair, 23 Tristantia St., East Doncaster, Vic.

SALE: Auditory tuning device, transistorised, self contained battery and speaker. Sensitive, can detect ordinary receiver oscillator. Not a gimmick, but an instrument. Details from VK6WS.

SELL: AR88 L.F. Receiver, £50. Would consider other gear as part payment. 11 Valve and 4 diodes S/W Rx with S meter, covers 3 to 17 Mc., bandspread on 20-40-80 metres, b.f.o., product detector, noise clipper, £20. Six valve B/C band S/W, band spread on 19, 20, 31 and 40 metres, magic eye tuning, £8. Suit S.w.'s. All in good order. H. L. Roach, 28 Foster Ave., Glenhuntly, Vic. SWL 3163.

SELL: One 80-10 mtr. 14 valve double conv. Receiver, comprising of Geloso G209R Front End unit and dial, crystal controlled i.f. section (6 x 85 Kc. i.f.t.), 100 Kc. crystal calibrator, b.f.o., a.m., s.s.b. variable a.v.c., S meter, etc. 240 volt., excellent condition. One 144 Mc. 5 valve Xtal Conv. to suit above complete with built-in power supply, 240v. The complete receiving station at a Bargain Price, £125/0/0. VK2NI, 83 Ocean Beach Rd., Woy Woy, N.S.W. Phone 903 Woy Woy.

SELL: 122 Transceiver in perfect order and appearance, complete with £10 worth of spares and manuals, for £30. H. Michael, VK3ASI, 6 Lindon St., East Geelong, Vic. Phone 9-3318.

S.S.B. Filter Crystals per set of six, incl. carrier crystals, 5780 or 375-430 and 495-535 Kc., 3 Guineas. Same filters aligned, mounted in plug-in shielded cans, 6 Guineas. Mounted FT 243 Crystals, any frequency, 3.8 to 6.5 Mc., 0.01%, 15/- each. Some 40 metre crystals also 15/- each. VK2AVA, A. Bles, 33 Plateau Road, Springwood, N.S.W. Phone 394.

Have on hand a further report from 6YL/6RX combination. Latest is that a boy harmonic arrived recently. Congrats. and best wishes all round.

New arrivals brings to mind that Lionel Allen (ex 9LA) will be transferred back from Cocos Is. at Christmas time to this State.

As you are no doubt well aware, s.s.b. is claiming victim after victim. A fairly late addict is Ted 6JG of Bunbury, who has been doing some extensive work on this side of the business. One of the troubles which Ted was having recently was the instability in his v.f.o. variation in level and frequency, and so on. Some concentrated investigation into the v.f.o. box revealed a small compact nest of black ants cosily ensconced amongst the bits. Guess you need ant suppressors as well as carrier suppression Ted. Trust all OK now.

Another one of the country boys paid us a visit recently, Cyril 6CN of Kellerberrin. Pleased to see you Cyril and I believe you have some nice gear that hasn't had much use for the last four months or so. Also a recent visitor from Geraldton was 6VV, who says thanks to the 80 mx gang for their efforts when the Industrial Exhibition gave an opportunity for the Geraldton boys to show the public what a Ham does.

Although people like Les 6WL and Alan 6AB are going sideband, we find that people like Cedric 6CD, who only recently got his full ticket, is mobile a.m. on 20 and 40 mx. Cedric has a table-top rig, all bands, at home as well. Advancing towards a full ticket is Bob 6ZCY. Bob is on the way with his Morse now, but I understand the Wireless Bird paid a visit with the first harmonic, a boy, and this is liable to slow Bob up. Congrats. all round anyway.

All visitors who have been into Jim 6RU's shack will know there is very little wall space available for hanging awards and cards and things. This is because most of the wall space is occupied by calendars donated by Uncle Dave in the States. They're not all the current year's either, but who cares! Anyway, the whole point is that Jim recently won an award, the W.A.Z. phone award from "CQ". Now we don't doubt that this is a difficult one to get Jim, but what we do want to know is—where are you going to find room in the shack to hang it? 73, 6LS.

TASMANIA

With our usual scribe, Ian 7ZZ, still out of action, it is my pleasure to write these notes for the next couple of months. Firstly, don't forget the Hamfest to be held on 2nd and 3rd Nov. at Campbell Town. This promises to be an even bigger and better event than last year, so tune up that mobile gear and come along. Bill 7YY has a very interesting device working on h.f. at the moment. The tx is completely electronically controlled, there being no carrier with no modulation and it is impossible to over modulate, the carrier being always 100 per cent. filled. No other details to hand, but am assured that it is not the usual vox system.

VE3BEI, from London, Ontario, is teaching at the Hobart High School at the moment. Welcome to Tassie and hope your stay is a pleasant one. The Royal Yacht Club transceiver under construction by this Division is just about ready for testing. Ted 7EJ finds that his s.s.b. rig works better without an antenna coupler. He is getting much more output now and the unit seems easier to tame. Terry 7TT is building gear for 2 mx and I believe 7MX is getting the bug too. After a long absence, 7ZAG is with us again on 2, and Dave 7ZAY has a new rig going.

Remember the I.T.U. 73, 7ZAV.

NORTH-WEST ZONE

Firstly, I'm sure all will join me in congratulating Basil on getting his ticket. Already 7EL is well known on 40 and 80 mx, having made some 136 contacts in three weeks! Very good, Basil. Max 7MX has now fitted a two-stage half lattice filter to his rx, mainly to keep George 7XL from spreading all over the dial, I believe. Terry has his 522 rx going and hopes to have the tx on the air in the near future. David 7MS is still "rig-less" at present, but a formidable s.s.b. rig is slowly but surely being built to astound us all. George 7XL is building a filter s.s.b. generator, but is still using the phasing unit at present on the air. Believe he really makes the a.m. boys look sick on the Sunday round-up when conditions are bad.

Kevin 7ZAH was heard in Launceston from Ulverstone on 2 mx. Believe this is just about a record from these places. Meetings have been well attended lately, and another pleasing note is that our finances are still in a healthy state. Hamfest in November, so roll up all who can. See you there, 73, 7ZBH.

WESTERN AUSTRALIA

Vic. 6VK has got the bugs out of the 6DQ5 on s.s.b. Vic found that to use it as a linear amp. it had to be neutralised. Incidentally, Vic also mentioned that he had found the connections on the modulation transformer for 6W1 incorrect. Apparently a manufacturing fault, which after correction, gave reports of broadcast quality.

Repairs to Receivers, Transmitters; Construction and Testing; T.V. Alignment; Low Noise Xtal Conv., any frequency, £18/10/0 plus tax.

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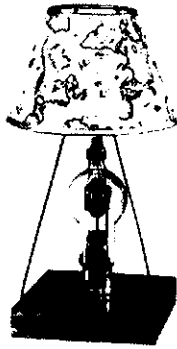
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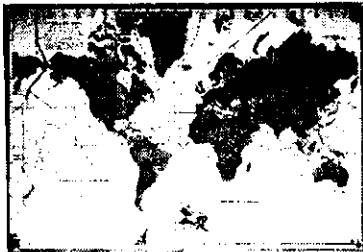
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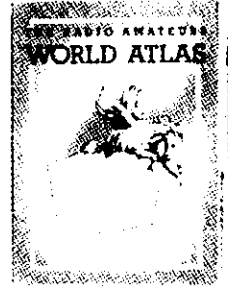


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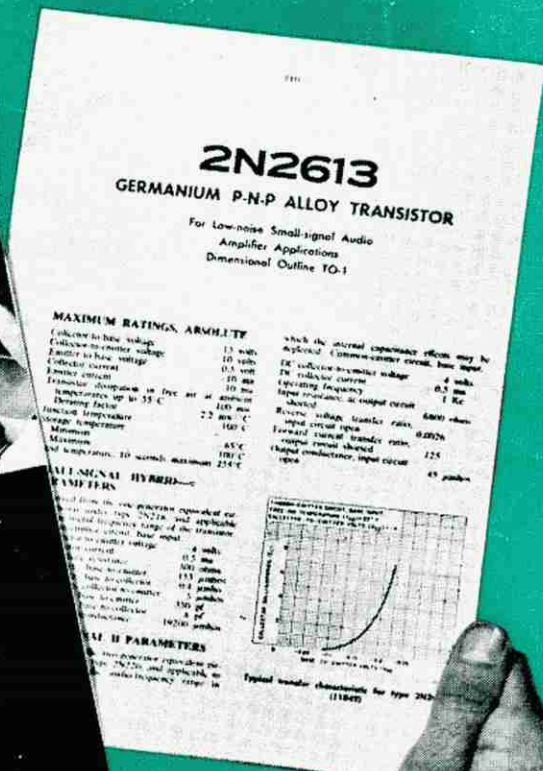
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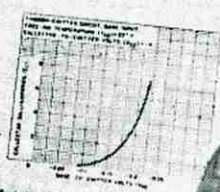
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Vol. 31, No. 12

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OUR COVER

The Trophy presented to the winner of the Ross Hull Memorial V.h.f. Contest.

FEDERAL COMMENT

★

Around 1946, Dr. Werner von Braun, the now famed American rocket specialist who originally designed the V2 bomb, wrote his "Mars Project"—hardly a book, as it was a step by step design of the necessary facilities required to send a space vehicle to Mars—in which it was postulated that frequencies in the vicinity of 140 Mc. would be the most suitable for space-to-space communications and probably earth-space control. At this time, it had not been possible to test this theory, but subsequent launchings of probes and satellites have given scientists and the electronician the opportunity to put this early theory to the test.

It is evidence itself that the Doctor's pronouncement was correct, when at Geneva in 1959, a new Earth-Space service came into being and was allocated a number of small portions of the spectrum for this work, the lowest assignment being 136-137 Mc.! Since 1959, the number of launchings have gradually increased to the stage where a sufficient number of frequencies were not available to cater for the necessary control of these space vehicles. The result has been the need for an Extraordinary Radio Conference on this subject alone and at the time of writing such a meeting is still under way at Geneva.

It was not by chance that the W.I.A. happened to have a representative in Geneva for this Conference—from which he will have returned by the time this is read—but the result of his having been a member of a Government committee which arranged the brief for the official delegation to Geneva and of also being appointed as an official observer with the delegation. For the reasons given above, there has been continuous indirect pressure on the services allocated frequencies in the 140 Mc. region to make room for expansion of the Space requirements. This information, for a variety of reasons, has not been widely known, but the Executive have had the matter, through our representative, constantly under surveillance. This, to a large extent, has been the reason why the delegation's brief was to maintain the status quo for the Amateur frequencies in this part of the spectrum.

Although there is still a large amount of work and other determinations to be made, we are happy to report through our representative in Geneva, that despite quite a struggle, the status quo for the Amateur in Australia and throughout the world, has maintained the 1959 Geneva allocations. The exception is that a footnote allows Amateurs to make use of OSCAR type satellites for communication purposes between 144-146 Mc. This has been again a great triumph for the Amateur everywhere and particularly in Australia, and does not in these few brief words indicate the amount of effort that has been poured into deliberations to achieve this happy state of affairs.

With the festive season so close upon us, no nicer Christmas present could have been given the Amateur Service than this knowledge that yet one more battle for frequencies has been won. It is with the greatest satisfaction that Federal Executive wishes all members and non-members alike a very happy Christmas!

FEDERAL EXECUTIVE, W.I.A.

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AC126	High-gain audio pre-amplifier and driver of the p-n-p alloy junction type	32	32	10	100	5	90*	500**	TO-1
AC127 AC132	n-p-n/p-n-p germanium alloy junction transistors for use in complementary Class 'B' output stages	+32 32	+32 32	+10 10	+200 200	+10 10	90* 90*	280** 500**	TO-1 TO-1
AC128 2-AC128	High-gain germanium alloy junction transistor of the p-n-p type designed for use in Class 'B' output stages	32	32	10	1A	20	90*	550**	TO-1
AD140 2-AD140	Germanium junction power transistor of the p-n-p alloy type intended for use as an amplifier in the output stages of receivers and amplifiers operating from either battery or AC mains.	55	55	10	3.0A	500	100*	35W**	TO-3
AF114N	Germanium transistor of the p-n-p alloy diffused type designed for use up to 100Mc/s	32	32	—	10	1	75	50***	TO-44
AF115N	Germanium transistor of the p-n-p alloy diffused type designed for use up to 100Mc/s as mixer-oscillator and for use as RF amplifier up to 27Mc/s	32	32	—	10	1	75	50***	TO-44
AF116N	Germanium transistor of the p-n-p alloy diffused type designed for use as mixer-oscillator and RF amplifier up to 16Mc/s	32	32	—	10	1	75	50***	TO-44
AF117N	Germanium transistor of the p-n-p alloy diffused type designed for use as mixer-oscillator and RF amplifier up to 6Mc/s	32	32	—	10	1	75	50***	TO-44
OC74N 2-OC74N	High-gain germanium alloy junction transistor of the p-n-p type designed for use in Class 'B' output stages	20	20	6	300	—	90*	550**	TO-1

*** $T_{amb} = 45^\circ\text{C}$

** with suitable heat sink

* 200 hours operation

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M 127

Checking Signal Quality with the Receiver*

GEORGE GRAMMER, W1DF

AMATEUR c.w. and phone transmitters generate signals that are intended to be listened to at the receiving end. The quality of the signal is judged by what the receiving operator hears. (Discounting the S meter reading, of course!) This being the case, there is no better "ultimate" instrument than a good receiver for checking a transmitter. Practically every Amateur, therefore, has the means right at hand for finding out whether his transmissions will stand close inspection.

Lack of fancy test equipment is no excuse for putting out a poor signal. Oscilloscopes and meter-type indicators are invaluable while making adjustments and in routine monitoring, if what they present visually is properly interpreted. But the answers they give are, at best, indirect and somewhat inconclusive; they cannot show the actual frequency band occupied by a signal, for example.

What to listen for, in using a receiver for transmitter checking, has been covered in an earlier article.¹ How to go about doing it when the transmitter and receiver are in close proximity is another matter. The receiver, like any other device used for measurement, is quite capable of giving false results when not handled properly.

The problem can be stated in simple terms: The transmitter's signal must be reduced in strength to a level well within the receiver's normal signal-handling capability. But transmitter testing has meaning only when the transmitter can deliver its full output, while F.C.C. regulations forbid the extensive one-way transmissions you have to make in finding out what, if anything, is wrong. So testing on the regular antenna is "out". The use of a dummy antenna is mandatory.

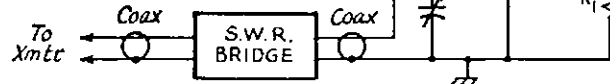
DUMMY ANTENNAE

At one time a good dummy antenna that would handle some power was mostly something to dream about. However, in recent years several solutions have been offered. There are low-cost commercial dummies available, including kits, for practically any legal Amateur power level. There are also rod-shaped ceramic resistors (Globar type CX) in values equaling transmission line impedances, essentially non-reactive and capable of dissipating up to 100 watts.² Methods for using ordinary resistors also have been devised, at least for powers up to 100 watts or so.³ Any Ham who can afford a transmitter can afford a dummy antenna to go with it—and he should have one.

● No oscilloscope, audio generator, v.t.v.m., or whatnot? No handicap, either, and no excuse for having a poor signal. You can find out what you need to know about your transmitter's output without any of these things, useful as they are.

It is a mistake to assume that to be useful for transmitter testing a dummy antenna has to have some specified ideal characteristics, such as a pure resistance of 52 ohms over a wide frequency range. Such a dummy is convenient to use and will let you measure your actual power output, with the help of an r.f. ammeter. But this isn't at all necessary. The principal thing is that the dummy should be capable of dissipating whatever power the transmitter puts out, and should be reasonably stable in operation. That is, its resistance should not change to any significant extent with heating. It is for this reason that incandescent lamps are not suitable; the lamp resistance depends too much on the current in the filament. This is not a serious handicap in rough adjustment of a transmitter, but it is a distinct disadvantage when modulation, especially s.s.b., is being checked, and can lead to erroneous observations.

Non-inductive wire-wound resistors are available in the 10-watt size (Sprague 457E) at reasonable cost, and although not completely free from reactance at Amateur frequencies, this causes no difficulties when an exact value of "pure" resistance is not re-



quired. They can be wired in various combinations of parallel and series to come out in the neighborhood of 50 to 75 ohms, and need no special treatment—other than keeping connecting leads short—if your transmitter's final stage has adjustable loading. If it doesn't, any practicable combination of such resistors can be made to look like a pure resistance of the desired value by the method shown in Fig. 1. The s.w.r. indicator shows when the resistance is transformed to the right value to match a transmission line.

The common parallel-tuned matching circuit is shown in Fig. 1, but if you already have a transmatch using a different circuit it can be used just as readily. Whatever the circuit, the adjustments are made in the same way as when an actual transmission line or antenna is used in place of the dummy antenna, R1.

Putting a dummy antenna together in this way makes economic sense only when it can be done at a considerable

saving as compared with buying a complete unit. It is probably not very attractive for continuous power levels above 50 to 100 watts. But bear in mind that a resistor combination capable of dissipating, say, 50 watts continuously will take at least 100 watts with c.w. keying and probably as much as 200 watts p.e.p. on s.s.b., because of the intermittent nature of the transmitter's output.

The tuned dummy antenna arrangement can be used successfully even if no s.w.r. bridge is handy. It simply takes a bit more cut-and-try. Put the transmitter's controls at the settings normally used when working into an antenna, and then try different coil-tap positions and tuning adjustments in the transmatch until the transmitter loads normally with a minimum of re-adjustment of the transmitter's controls.

For higher power there are some expedients (which are also useful for low power). Heating elements from household appliances such as irons and toasters will dissipate quite a lot of power. These elements usually have a flat-strip resistance wound on mica cards. While they are far from non-inductive, the inductance is not so high as to make them unusable. It may even be possible to use the appliance as is; the writer has had good results on all bands from 80 to 10 simply by clipping onto the plug terminals of an old-

Fig. 1.—A transmatch and dummy load resistor, R1, can be used to simulate a 50 or 75 ohm line for testing, even though the actual value of R1 differs widely from these figures. The resistance should be reasonably non-reactive, but does not have to be "pure". See text for discussion of resistors. LC constants for various bands are given in the Handbook and Antenna Book.

fashioned "no-pop-up" toaster and connecting it directly to the transmitter. The amplifier tank circuit, a pi network having the garden-variety LC constants, handled it just as well as it handled a perfectly-matched transmission line. Any such appliance is worth a try. One having a detachable line cord would appear to have the best chance of working, although it may even be possible to feed the r.f. through the cord in some cases.

TEST SET-UP

The complete test set-up is shown in Fig. 2. An essential part of it is the "actuator"—the substitute for you in your regular capacity as talker on phone or key manipulator on c.w. Actually, you don't need a substitute for c.w. testing since it isn't difficult to operate a key while tuning the receiver and listening. However, if you have an electronic keyer it can be set to make continuous dots, thus letting you have both hands free.

* Reprinted from "QST," March, 1963.

¹ Grammer, "Looking at Phone Signals," "QST," December, 1962; "A.R.," November, 1963.

² Available through Workman T.V. Inc., 309 Queen Anne Road, Teaneck, N.J., U.S.A.

³ Tilton, "V.H.F. Dummy Loads," "QST," March 1960. Geiser, "Wide-Band Moderate-Power Dummy Loads," "QST," December 1959.

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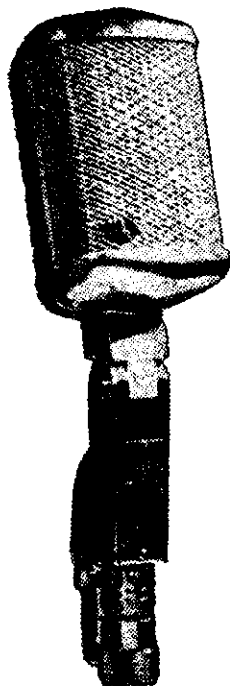
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Phone is a different story. You can't talk and do a good job of listening to your signal at the same time. Neither can you hope to enlist someone else's voice for an extended period. What is needed is an untiring source of audio comparable with what you put into the microphone yourself. Also, if you want to use a speaker instead of headphones in your testing it must be a silent source. The ideal actuator is a tape recorder. If you have one, as many Hams do, you obviously can record your own voice and do your testing under conditions as close as possible to actual operation on the air. Recorders usually have pre-amplifier or external speaker connections, or both, from which audio can be taken, and it requires no circuit diagram to feed one or the other of these outputs into the microphone jack on the transmitter.

There is one possible hitch—the output voltage level may be higher than is desirable for going into the microphone pre-amplifier. This can be handled, usually, by cutting down the gain in the recorder's amplifier so no

graph is one; there are many 100-percent voice recordings that are suitable for the purpose. The output of a phono pick-up is not generally usable directly, since a crystal or ceramic pick-up ordinarily has too much to simulate a microphone and a magnetic has too little. Here again you can take the output from a pre-amplifier, using an attenuator as in Fig. 3 if necessary. The same type of attenuator can be used directly on a crystal pick-up, with resistances totalling something of the order of 1 to 5 megohms. Shielding is a necessity with such high resistances.

Still another source of continuous talk, or very nearly so, is the a.m. broadcast band. Audio can be taken from the speaker voice-coil terminals in the b.c. receiver, but use caution with small power-line radios. Make sure that neither voice-coil terminal is tied to a "hot" a.c.-d.c. chassis before you try this method. The output voltage problem is the same as with the recorder, and should be handled in the same way. One speaker lead will have to be disconnected from the speaker

settings you found optimum for listening to incoming signals.

One further point needs consideration in using the receiver for monitoring. In c.w. and s.s.b. testing (and to a lesser extent with controlled-carrier a.m.) the load that the transmitter puts on the power line varies with the modulation. This may cause the line voltage to fluctuate, possibly with adverse effects on the receiver's stability. To settle this question, use the receiver normally—i.e. with the antenna connected and an incoming signal tuned in. Pick a frequency sufficiently far from your transmitting test frequency so there is no interference from it.⁴ Let the transmitter operate into the dummy antenna and watch carefully for any change in beat note in the incoming carrier, or shift in naturalness on s.s.b., while your transmitter is being modulated. If the receiver stands this test, you're ready to go. If it doesn't, there is no simple alternative but to try to find an a.c. outlet for the receiver that won't show such large voltage changes. While instability of this sort won't have an appreciable effect on the bandwidth of the transmitter, as measured by the receiver, it can be misleading if you are listening for carrier frequency shift or keying chirps. If there is no way to avoid it you have to discount transmitter stability checks to some degree.

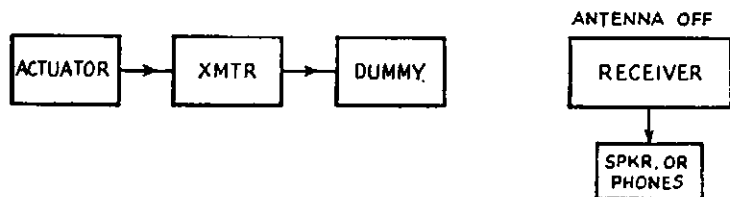
Once you're sure you've eliminated any possibility of receiver overloading and instability, examine your transmitter's signal carefully. Using the highest available selectivity, check the bandwidth as described in the earlier article, and listen particularly for spurious "burps" outside the channel that the signal should occupy legitimately. As you can readily vary the audio gain in the transmitter while listening, it is no problem at all to find the level at which spurious sidebands start to become noticeable. In turn, this level can be observed on the transmitter's meters. Their readings may surprise you in comparison with what you've been seeing in your ordinary operating. But after a test such as this, they will take on some real significance, where before you had been working in the dark.

To have the most meaning, the actuating signal should be your own voice, which is why a tape recorder makes such an excellent addition to the test gear. If you have to use other voices, try to avoid those having entirely different pitch and timbre. If a radio is the "actuator," scout around among the disk jockeys and compare the results.

Testing in this way doesn't strain finances, but when done intelligently it will give you all the information you need about your signal. If your pals on the frequency miss you for an evening, you'll be all the more welcome when you get back, provided you've cleaned up the things that may have been wrong. This, and the confidence that your transmissions will stand critical examination, should be more than ample payment for the small trouble and the time off the air.

⁴ If connecting the antenna to the receiver causes feedback troubles, the transmitter can temporarily be put on a different band, preferably higher in frequency, while the receiver is being checked in this way.

Fig. 2. Set-up for using the station receiver for transmitter checking.



stage ahead of the gain control in the transmitter's speech amplifier will be overloaded. If hum becomes bothersome when this is done, it can be overcome by using a simple external attenuator as shown in Fig. 3. R1 should be about 10 times R2, and the sum of the two should equal whatever resistance the pre-amplifier output of the recorder is intended to work into, if the pre-amplifier output is used. As this resistance value is fairly high, shielded wire should be used for the connections, in order to avoid stray hum pick-up. It may also be necessary to shield the resistors, which can easily be done by wrapping them with aluminium foil over a wrapping of paper for insulation, with the foil connected to the shields on the connecting wires.

If the audio is taken from the speaker output terminals, the total resistance may be of the same order as the voice coil impedance, usually around 8 ohms. The value isn't critical, and as long as a low resistance is used, shielding should not be necessary. Needless to say, the recorder's internal speaker should be shut off if you want to listen with a speaker on your receiver.

If you don't have a recorder there are still other possibilities. A phono-

graph is one; there are many 100-percent voice recordings that are suitable for the purpose. The output of a phono pick-up is not generally usable directly, since a crystal or ceramic pick-up ordinarily has too much to simulate a microphone and a magnetic has too little. Here again you can take the output from a pre-amplifier, using an attenuator as in Fig. 3 if necessary. The same type of attenuator can be used directly on a crystal pick-up, with resistances totalling something of the order of 1 to 5 megohms. Shielding is a necessity with such high resistances.

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THE RECEIVER

A normally shielded transmitter working into a dummy antenna, even if the dummy is not shielded, should not radiate more signal than can be handled by the receiver. No doubt it will be necessary to disconnect the receiving antenna; after all, the "spray" from the transmitter will still be rather strong within a few feet of the set. Here a great deal depends on the overall shielding, both transmitter and receiver, so it is possible to talk only in general terms. Re-read what was said in the earlier article¹ about setting the receiver's controls. You should aim to get the signal pick-up down to the point where you can use about the same gain settings on your own signal as you did on distant signals when the receiving antenna was connected. If the receiver, transmitter and dummy antenna are really well shielded, it may be necessary to use a few inches of wire as a receiving antenna in order to get the needed signal strength. If the signal is too strong, try running the antenna trimmer off tune, and if that doesn't do it, try pulling out the r.f. amplifier tube in the receiver—anything that will let you get a moderately strong signal with the gain

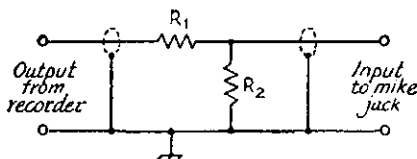


Fig. 3.—Simple voltage divider for reducing audio voltage to a manageable level for the transmitter's speech amplifier. Ordinarily R1 will have about ten times the resistance of R2. A variable control having the same overall resistance can be substituted for the two resistors.

A TWO-BAND RECEIVER FOR AMATEUR SERVICE

VOL MOLESWORTH,* VK2VO

THERE is nothing original or clever about this receiver. It was designed and built for a young new Amateur, fresh with his Z call, who wanted a simple and inexpensive receiver to cover the two-metre band and also to tune in Divisional broadcasts on 7146 kc. and callbacks on 7050 kc. It turned out to be such a hot little unit that it was decided to write it up for "A.R." There may be other beginners around who want a simple set. For this reason a fairly detailed description will be given of layout, circuitry, and alignment.

This receiver is presented, also, as an example of the correct use of disposals gear. Except for such "finished" units as BC221 frequency meters, complete receivers and other odd items, most disposals gear needs considerable modification before being of use in the shack. The correct use of this type of equipment, we suggest, is to isolate the components of use, and re-build them on a new chassis, using the relevant portions of the old front panel as a template for a new panel. This has a number of advantages; but to state only two, it enables the new Amateur to standardise on a given chassis size, and the new front panels, painted grey and labelled with Teknical transfers, give a professional finish to the gear—something of which even the fundamentals and XYLs will approve.

This receiver is part of a complete two-metre station, comprising three chassis which will sit one above the other in a tabletop cabinet. At the time of writing, only two of the units have been built and tested—the power supply chassis, which contains two separate power supplies (one for the receiver, the other for the transmitter and modulator), and the receiver chassis. The chassis are 13" x 7" x 2", and the front panels are 14" x 9". The chassis are mounted with half an inch panel clearance at the bottom and at each side.

THE TUNER

There are six controls and a S meter on the front panel. At the centre is the large tuning knob, calibrated 0 to 100; to the left of the meter is the b.f.o. trimmer; from left to right along the bottom of the panel: the audio gain, meter zero, r.f. gain, and bandswitch.

The bandswitch in one position connects the 40 metre aerial to the primary of the aerial coil of the tuner; in the other position it does three things (1) it earths the 40 metre aerial, (2) puts high tension on the two-metre converter, and (3) connects the output of the converter to the primary of the aerial coil.

The tuner covers from 4 to 7.5 Mc. The tuning condenser (three gang) and the aerial, r.f. and oscillator coils are taken from an RC8 transceiver. This originally covered from 2 to 4 Mc., and

from 4 to 10 Mc., in two switched bands. We took only the higher frequency coils and by adding capacity across the gang, and twiddling the coil slugs, brought them down to a top limit of 7.5 Mc. Similar coils are found in a number of disposals transceivers, such as the No. 19, 122, etc.

One stage of r.f. amplification is used, a 6BA6, but a 6U7 would do as well. The converter is a 6K8, and there is only one stage of i.f. (a 6BA6, or 6U7). The two i.f. cans at 455 kc. are taken from a disposals receiver, as is the 455 kc. b.f.o. coil and tuning capacitor. The detector is a 6AV6 and the audio output a 6AQ5, but a 6SQ7 and 6V6 would do just as well.

We used one half of a 12AT7 for the b.f.o. and the other for an S meter amplifier. The S meter, by the way, came from a 522 test set. Removed from its tin box, it is found to have an attractive face calibrated 0 to 9, which is ideal for S points. The antenna sockets and the speaker jack on the rear of the chassis are also ex disposals.

First, identify the coil windings on the aerial, r.f. and oscillator coils. When you are quite certain of the connections, remove them from the transceiver, open them up carefully, and renew the wires, carefully noting the colour coding. We used red for B+, pink for plates, blue for grids, and green for earth or a.v.c.

Next, remove the tuning condenser and mount it on the chassis so that its shaft comes out exactly in the centre of the panel, which should be first attached to the chassis. The height of the shaft will depend on the dial you are going to use, but almost certainly this will be a vernier, so allow room for it. Cut three large holes beneath the tuning condenser to allow connection to the three sets of fixed plates.

The aerial coil, 6BA6, r.f. coil and oscillator coil are mounted down one side of the condenser, to afford short connections from the grid windings to the fixed plates in each section.

The mixer valve is mounted alongside the oscillator section of the gang on the other side. Leave enough room for the moving plates to open fully. In front of this are mounted the first i.f. coil, 6BA6, and 12AT7. The second i.f. coil and the b.f.o. coil are mounted in Indian file next to the 12AT7, and alongside them again, the detector valve, audio valve, and speaker transformer. The detector valve is placed at the front of the chassis to be near the audio gain control.

The circuit of the 4-7.5 Mc. tuner is quite conventional. The secondary of the aerial coil is connected between grid pin 1 of the 6BA6 and earth. Pins 2 and 7 (suppressor and cathode) are linked, by-passed with a 0.1 μ F. capacitor, and connected by a 100 ohm resistor to the top of the 5,000 ohm r.f. gain pot. The screen (pin 6) is also by-passed with a 0.1 μ F. and connected

to B+ through a 47,000 ohm resistor. The plate (pin 5) is capacitively coupled to the grid of the 6K8 through the gang, has an r.f. choke in series with a 10,000 ohm resistor to B+, by-passed at their junction with a 0.05 μ F. capacitor.

Signal is fed to the 6K8 converter valve, which is housed in an ex-disposals shield can, through the top cap grid. The cathode (pin 8) is earthed, and the screen (pin 4) by-passed with a 0.1 μ F. and connected to B+ through a 47,000 ohm resistor. The oscillator plate (pin 6) and grid (pin 5) are connected to the appropriate oscillator coil windings through small value capacitors. The oscillator plate is fed with 150 volts regulated from a VR150 in the power supply, decoupled with a 10,000 ohm resistor and 0.1 μ F. capacitor. (Unless this network is included, the oscillator will shift frequency if the cable connecting the receiver and power supply chassis is moved.)

The 6K8 plate (pin 3) is connected to the primary of the first i.f. transformer, the other end of this winding being by-passed with a 0.5 μ F. and connected to B+ through a 4,700 ohm resistor. The secondary of the transformer is connected to grid pin 1 of the 6BA6 i.f. amplifier valve, the other end of the winding being by-passed with a 0.05 μ F. and connected through a 100K resistor to a.v.c. The cathode and suppressor (pins 2 and 7) are earthed; the screen (pin 6) by-passed with a 0.1 μ F. and connected to B+ with a 50,000 ohm resistor, and the plate (pin 5) connected to the primary of the second i.f. transformer, the other end of this winding being by-passed with a 0.05 μ F. and connected to B+ through a 4,400 ohm resistor.

One end of the secondary of the second i.f. transformer is connected to diode pin 6 in the 6AV6, the other end passing through a 50K and a 500K resistor in series to earth. The bottom of the winding and the junction of the two resistors is by-passed with a 100 pF. capacitor, and from the junction audio is taken off through a 0.02 μ F. capacitor to grid pin 1, which has a 5 megohm grid leak.

A 100 pF. capacitor is connected between diode pins 5 and 6, and from pin 5 the a.v.c. voltage is developed. In the usual manner, a one megohm resistor is connected from pin 5 to earth, and another one megohm placed in series with the a.v.c. line, at the other end of which a 0.05 μ F. capacitor is wired to earth. (Varying the value of this capacitor will vary the speed of the a.v.c. system.)

The audio section of the 6AV6 has the cathode earthed and a 120K ohm plate resistor. Audio is fed to the top of the volume control (a 500K pot.) through a 0.02 μ F. capacitor, and the moving arm goes to grid pin 1 of the 6AQ5. This is also wired conventionally, the cathode (pin 2) having a 300 ohm 3 watt wire wound resistor and

* 3 Bass Street, Kingsford, N.S.W.

25/40 by-pass, and the speaker transformer primary connected across the screen and plate (pins 5 and 6).

The circuit of the b.f.o. is copied from the transceiver from which the coil and trimmer were taken, and you would be well advised to adopt the same procedure. One half of a 12AT7 is used for the b.f.o. The other half forms part of a well known bridge circuit for an S meter. One half of the bridge is formed by a 470 ohm resistor in series with the valve, which has a 3,000 ohm wire wound pot. in the cathode; the other by a 470 ohm resistor in series with a 25,000 ohm 2 watt resistor (we used two large 50Ks in parallel). The meter is connected between the plate of the valve and the junction of the 470 ohm and 25,000 ohm resistors, and a.v.c. is applied to the grid of the triode. With the r.f. gain turned off, the 3,000 ohm pot. is adjusted until the meter reads zero. With the r.f. gain advanced, it will give upward swings as powerful stations are tuned in.

A four-pin socket is used for the cable connecting to the power supply. Four pins are required for B+, 150 volts regulated, filament plus, and earth.

THE CONVERTER

The 144 Mc. converter was taken from an STR-9 transceiver, but any 2 metre converter will do, providing it has an output on 4 Mc. for 144 Mc. The STR-9 has three stages of frequency multiplication from a crystal—a trebler, a trebler, and a doubler. Using a 7777.77 Kc. crystal, we multiply first to 23.3 Mc., then to 69.9 Mc., and finally to 139.9 Mc. The STR-9 employed one stage of r.f. amplification and a pentode mixer (6AM6) with an i.f. output at 9.72 Mc. A.v.c. was applied to the grid of the r.f. amplifier and negative bias to the grid of the mixer. The five valves are tuned by a five-gang capacitor, with additional trimmers across each tuned circuit.

With the 7777 Kc. crystal plugged in the main shaft was tuned for maximum output at 139.9 Mc., and the shaft then locked into position. The trimmers on the frequency multiplier were adjusted for maximum oscillator output. In the mixer, a one megohm resistor was wired from grid to earth (replacing the negative bias voltage), a 15,000 ohm resistor placed in the plate circuit, and a 6C4 cathode follower wired in. The cathode follower has a 47K grid leak, 1,500 ohm

plate load, and 2,200 cathode resistor, output being taken from the cathode through a 470 pF. capacitor to the bandswitch.

CALIBRATION

To calibrate the receiver, switch to the h.f. range. Put the tuning condenser all in (fully meshed), and screw the trimmer across the oscillator section of the gang about half way in. With a signal generator, find out what the frequency is. It should be about 4 Mc. If it is too low, withdraw the slug from the coil until 4 Mc. is found. If it is too high, the frequency may be lowered by putting in more slug.

Now turn the gang all out (fully unmeshed) and find your top frequency, which should be around 8 Mc. If it is too high, increase trimmer capacity. If it is too low, reduce trimmer capacity. Then go back to the gang fully meshed, and re-adjust the slug in the oscillator coil for 4 Mc.

Repeat the whole procedure several times, until no further adjustment makes any improvement.

To align the aerial and r.f. coils, pump signal at 4 Mc. into the aerial with the gang fully meshed, and adjust

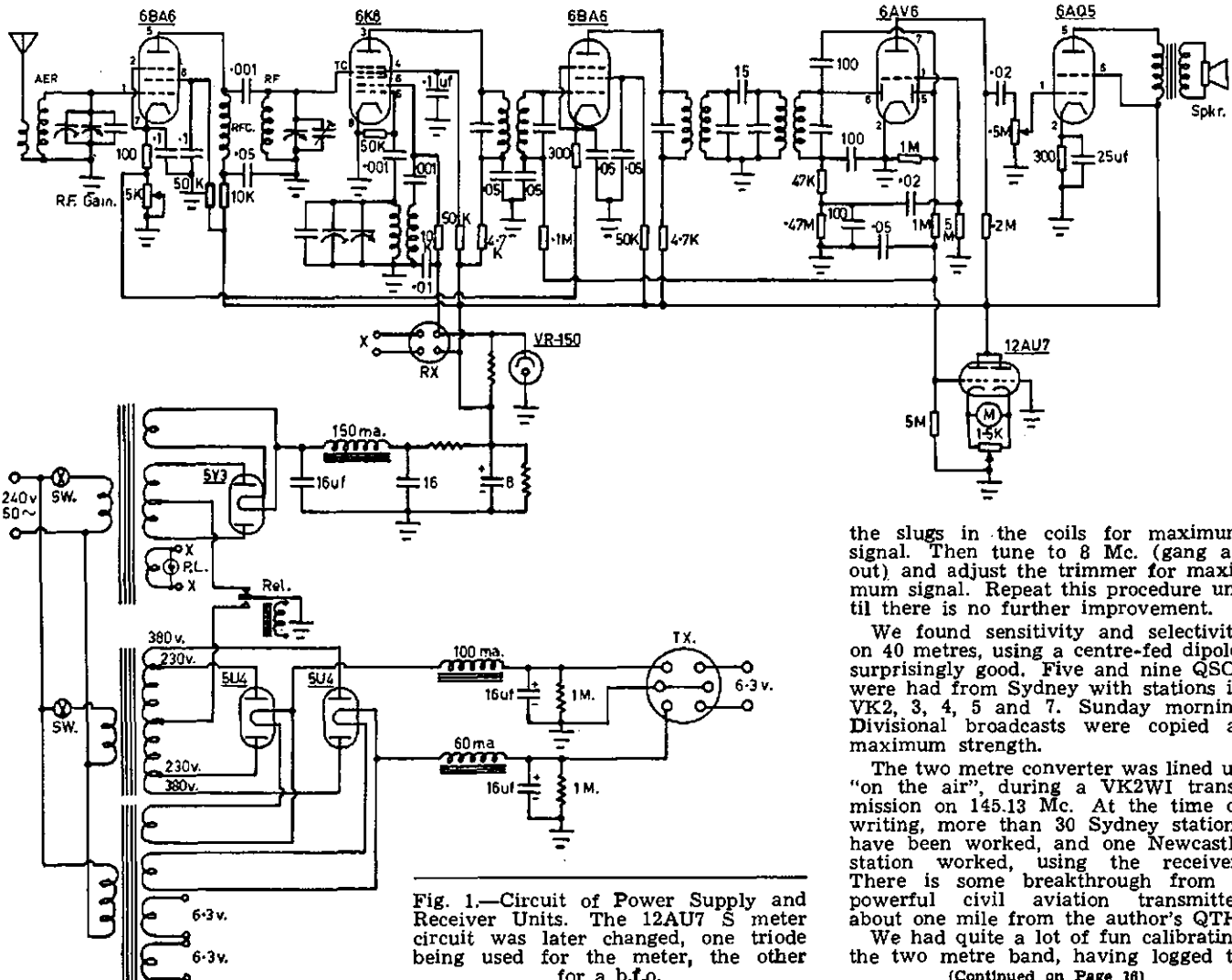


Fig. 1.—Circuit of Power Supply and Receiver Units. The 12AU7 S meter circuit was later changed, one triode being used for the meter, the other for a b.f.o.

the slugs in the coils for maximum signal. Then tune to 8 Mc. (gang all out) and adjust the trimmer for maximum signal. Repeat this procedure until there is no further improvement.

We found sensitivity and selectivity on 40 metres, using a centre-fed dipole, surprisingly good. Five and nine QSOs were had from Sydney with stations in VK2, 3, 4, 5 and 7. Sunday morning Divisional broadcasts were copied at maximum strength.

The two metre converter was lined up "on the air", during a VK2WI transmission on 145.13 Mc. At the time of writing, more than 30 Sydney stations have been worked, and one Newcastle station worked, using the receiver. There is some breakthrough from a powerful civil aviation transmitter about one mile from the author's QTH.

We had quite a lot of fun calibrating the two metre band, having logged to
(Continued on Page 18)

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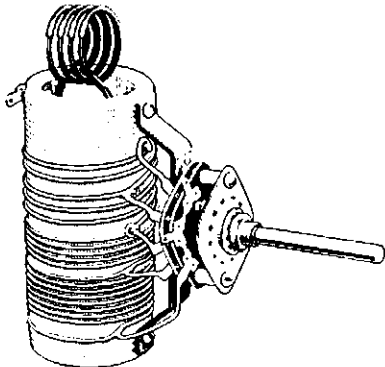
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Type 4/111 for use with parallel tubes type 6146s, 807s, etc.

Type 4/112 for use with single ended tubes type 6146, 807, etc.

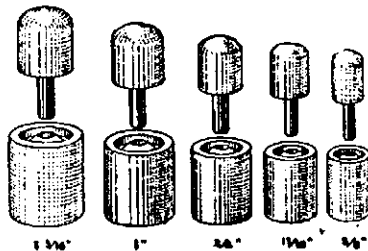
Both Types, Price: 39/6 (inc. S.T.)

EDDYSTONE 250 pF. CONDENSERS

Type 817 condenser, suitable for use with input of all above Pi-Couplers. Rated 1,200 volts r.m.s., ceramic insulation, fit space 2 inches square by 2¼ inches deep. (Output condenser normal small two or three gang b.c. condenser.)

Price: 45/- (inc. S.T.)

"WILLIS" CHASSIS PUNCHES



MADE OF FINEST GRADE TOOL STEEL

3/8 in. punch	22/-	1-1/16 in. punch	36/-
1/2 in. "	22/-	1-1/8 in. "	38/-
5/16 in. "	22/-	1-3/16 in. "	40/-
7/16 in. "	22/-	1-1/4 in. "	48/-
5/8 in. "	24/-	1-8/8 in. "	52/-
11/16 in. "	26/-	1-1/2 in. "	56/-
3/4 in. "	28/-	1-5/8 in. "	60/-
7/8 in. "	38/-	1-3/4 in. "	72/-
1 in. "	36/-	2 in. "	80/-

SPECIAL SIZES MADE TO ORDER

"Q-MAX" CHASSIS CUTTERS

SCREW TYPE

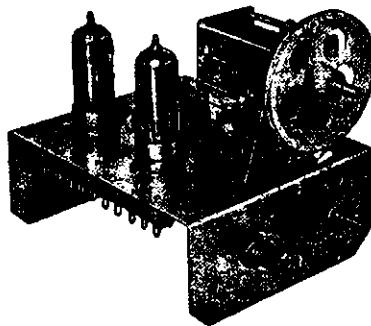
BRITISH MADE

SAVES TIME — GIVES PROFESSIONAL APPEARANCE

SIZES	SIZES
1/2 inch ... 27/11	1-1/2 inch ... 40/8
5/8 inch ... 27/11	1-3/4 inch ... 44/1
3/4 inch ... 27/11	2 inch ... 46/0
7/8 inch ... 80/10	2-3/32 inch ... 72/3
1 inch ... 88/7	2-1/2 inch ... 85/9
1-1/8 inch ... 88/7	11/16 in. Square ... 55/4
1-1/4 inch ... 88/7	1 inch Square ... 55/4
1-3/8 inch ... 40/8	21/32 x 15/16 in. Rectangular ... 76/2

The "Q-Max" range of Screw Type Chassis Cutters serve a most useful purpose where holes are to be punched on chassis where components are already mounted. The SQUARE and RECTANGULAR punches save the hard work involved in transformer, plugs and sockets, I.F.'s., etc., cut-outs.

GELOSO V.F.O.



Model 4/104 V.f.o. Unit. Tunes six Amateur bands. Uses 6CL6 and 5763 valves. Supplied complete with handsome calibrated dial, pointer and perspex escutcheon. (Valves extra.) Notes on circuit application and operation upon request.

Price: £10/5/- plus 12½% S.T.

WILLIS AIR-WOUND INDUCTANCES

No.	Diam.	T.P.I.	B. & W. Equiv.	Price
1-08	½"	8	No. 3002	5/3
1-16	½"	16	No. 3003	5/3
2-08	¾"	8	No. 3006	6/3
2-16	¾"	16	No. 3007	6/3
3-08	1"	8	No. 3010	7/4
3-16	1"	16	No. 3011	7/4
4-08	1"	8	No. 3014	8/5
4-16	1"	16	No. 3015	8/5
5-08	1½"	8	No. 3018	10/6
5-16	1½"	16	No. 3019	10/6
8-10	2"	10	No. 3907	13/9

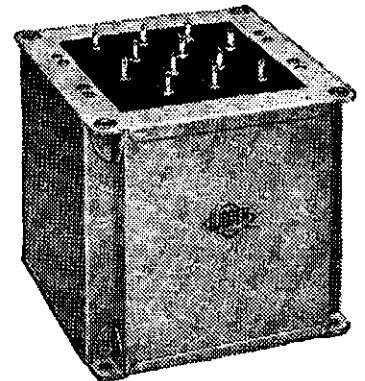
SPECIAL ANTENNA ALL-BAND TUNER INDUCTANCE

(equiv. B. & W. No. 3907-7")

7" length, 2" diam., 10 t.p.i., 24/6

References: A.R.R.L. Handbook, 1961; "QST," March 1959; "Amateur Radio," Dec. 1959.

WODEN MULTI-MATCH MODULATION TRANSFORMERS



List No.	Audio Watts	RF Inp. Watts	Price inc. sales tax
UM9	10	20	£5/16/0
UM1	30	60	£7/9/9
UM2	60	120	£10/13/3
UM3	120	240	£12/2/6
UM4	250	500	on application

GELOSO 2620A FRONT-END RECEIVER TUNING KIT

Covers All Amateur Bands.

Price: £25 plus 25% Sales Tax (Please add 10/- Freight and Packing)

WILLIAM WILLIS & CO. PTY. LTD.

428 ELIZABETH STREET. MELBOURNE, C.1

Phone 34-6539

AN EASY WAY OF LOGGING FOR R.D. CONTESTS

HOW did you make out, keeping track of whom you had worked and on which band, during the last R.D. Contest? Well if you had trouble like I did in 1961 and 1962, this may interest you.

I have tried many different methods, all of which have had many pitfalls and have proved highly unsatisfactory. Now let's reminisce over the last three years. Take 1961 for instance. Well, with 350 QSOs we ended up in quite a mess. I tried taking a slip of paper for each call area and as time went by I tried desperately to place in alphabetical order the stations worked. At the same time we ticked the adjacent columns representing the various bands. Alas, this was "no chop" as to speak. Sheer bedlam; as time went by it was obvious that the "system" was breaking down. Many the time was the reply, "sorry OM have worked."

Now in 1962 we really had it organized. It seemed, oh so simple, just obtain one of those "ideal desk calendars" and on working each station you arrange them in alphabetical order with call sign on top, band and your number alongside (i.e. 001). What a set-up. Couldn't miss. Just imagine the words spoken when the "Board of Control" in all her glory charged through the door, cup of tea in hand. The draught caused the papers to fly . . . Never mind, enough said!

Well it was close to the 1963 Contest and the position was desperate, something had to be found and found fast, too! Let us consider the basic requirements.

1. Something very simple and fast. (And probably most important.)
2. Not many pieces of paper.
3. Able to tell at a glance said station on that band.

I decided that you knowing what number you gave to a certain station was irrelevant if the "system" was "fool proof". Well enough of the preamble, here is how it works.

First of all you take, say, six pieces of paper about 15 inches square, and divide it into half-inch squares. Label it A-Z across the top, and A-Z vertically (downwards) with both "As" corresponding. See Fig. 1.

VK3 CALL AREA					
	A	B	C	D	→ Z
A					
B					
C					
D					
↓					
Z					

Fig. 1.

Label each piece of paper to represent the various call areas. Obviously you don't have to make up a sheet for your own call area, and suggested groupings are as follows: VK1 and VK2, VK3, VK4, VK5/8, VK6, VK7, VK9 and VK0.

Now if you work a station on 80 mx you could use various colours, for designation, or do as I did, simply use the figure 8. For the other bands use 4 for 40 metres, 2 for 20 metres, 1 for 15 metres, and anything for the other bands.

Here's how it works. Let's take all possibilities. Say you work VK3AB on 40 metres. Remember always that the first letter of the call sign indicates the horizontal direction and the last letter indicates the vertical direction. It is hence logged as in Fig. 2, i.e. along A, down to B, with 4 meaning 40 metres.

VK3 CALL AREA					
	A	B	C	D	→ Z
A					
B	4				
C					
D					
↓					
Z					

Fig. 2.

4 = VK3AB on 40 metres.

Now if you work VK3AAB on 40 metres, you would log as shown in Fig. 3. The "A" indicates the first letter and the same procedure is followed as for VK3AB. Get the idea? Simple, what?

You may well ask how to distinguish between VK0 and VK9 or VK1 and VK2 on the same sheet. This I leave to you and you could do as I did with say VK9AB and VK0AB (the possibility being fairly remote)—use different colours (red and blue biro respectively).

Well, in conclusion, I must say if you are careful and don't get the call areas mixed up, you will find the method highly satisfactory, extremely quick (able to call a station after checking in time before he has finished his CQ). Also it provides a good method of checking your final score, by simply counting up the number of 2, A2, etc., and multiplying that total by points for that call area.

The half-inch squares do not get too cluttered as 400 QSOs proved.

A fact is that he who knows whom he has worked whilst tuning the band, quickly generally nets high scores, everything else being equal.

Anyway, chaps, I hope this "system" is of some help to you and personal modifications can be made to suit the occasion.

Best of luck and high scores in the R.D. Contest.

VK3 CALL AREA					
	A	B	C	D	→ Z
A					
B	A4				
C					
D					
↓					
Z					

Fig. 3.

A4 = VK3AAB on 40 metres.

N.B.—The "A" takes form of the middle letter. That is, "B4" for VK3ABB.

—Doug. McArthur, VK8KK, ex-VK5KK.

ELECTRICITY IN AUSTRALIA

This year, 1963, we celebrate the centenary of the first use of electricity in Australia, produced by batteries at the Sydney Observatory in June 1863. It is worth noting that in Australia, Tamworth (N.S.W.) had the distinction of being the first town to be lighted by electricity—this was in 1888. The records of progress reveal, strangely enough, that Sydney, in 1904, was the last of the capitals in this country to be electrically lighted.

—WIA-L3042/BERS195.

S.S.B. CRYSTALS

Set of Five Gold-Plated Matched Crystals

Mounted in HC6U Holders
Suitable for 455 Kc. I.F.s.

Price £16-10-0 per Set
+ 12½% Sales Tax

Full details on request.

BRIGHT STAR RADIO

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S.E.12, Vic. Phone 57-6387

RESULTS OF 1963 R.D. CONTEST

QUEENSLAND'S FIRST WIN

HONOURS for this year's Remembrance Day Contest go to Queensland for having won the trophy for the first time in the history of the Contest. The log return from VK4 was the highest ever for Queensland, and this is the contributing factor to the winning of the Remembrance Day Contest.

Generally, the standard of the logs was good and the Western Australian Division are to be commended in that all logs submitted were on the official W.I.A. log sheets. Unfortunately there are still a few logs below the required standard which were tolerated, but in future logs not up to standard will be disqualified. Several of the listeners' log received showed very little knowledge of the Contest Rules by the contestants.

All sections of the Contest were keenly contested and some fine individual scores were recorded. South Australia had the highest log average whilst Western Australia had the high-

est percentage participation. High scoring seems to be a regular occurrence from South Australia. Conditions for the Contest were not first rate and there was a lot of activity on the low frequency bands during night time operation. Another interesting feature of the Contest is the increasing activity on single sideband. This mode of operation is on the increase and a lot of contestants used it to their advantage on 80 metres.

The scoring system for the Contest appears to suit the contestants in all States, and it is indeed a pity that the two larger States cannot have a larger percentage of Amateurs participating in the Contest and submitting logs.

In conclusion, our congratulations once more to Queensland and hope that in next year's Contest we may see even more Amateurs on the air, particularly from New South Wales and Victoria.

—Federal Contest Committee, W.I.A.

NEW SOUTH WALES

Top Six Logs—

VK2AHM	1205	points
2RS	935	"
2AHH	913	"
2BO	802	"
2ABA	733	"
2DO	629	"

Open—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK2AHM	441	1205	VK2AUC	70	160
2BO	301	802	2ADE	47	121
2DO	252	629	2DI	22	89
2VN	168	486	2AAB	26	49
2EL	136	437	2GJ	15	40
2AGS	116	237	2AHA	7	30
2YL	91	206	2AND	9	22
2HC	46	163			

Phone—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK2RS	325	935	VK2AEC	32	83
2AHH	324	913	2VH	44	82
2ABA	282	733	2OE	30	76
2ANO	211	604	2AIA	17	70
2TS	234	467	2AI	41	68
2FE	170	400	2CK	24	65
2ALV	157	382	2APQ	40	63
2AFD	140	345	2XT	30	62
2AEB	132	306	2RU	23	61
2AXL	105	289	2RJ	30	61
2ARU	120	247	2AKK	25	51
2APP	87	222	2AKV	12	50
2AQJ	101	212	2AKL	24	50
2RX	56	208	2ASC	25	40
2HD	95	206	2ALA	20	38
2DM	77	157	2AWA	13	27
2AGZ	72	156	2AAJ	5	25
2GI	62	149	2CU	7	23
2AS1	53	148	2AAH	11	23
2CM	36	140	2AWN	11	23
2AGX	57	137	2RA	9	22
2AIM	45	133	2AWX	10	22
2ALZ	50	122	2EZ	6	19
2YN	53	122	2LA	10	18
2AJQ	52	107	2WG	10	15
2MW	48	106	2ACO	10	14
2AJL	50	106	2HH	8	12
2LV	44	103	2ADA	9	12
2RV	46	103	2ACQ/P	7	9
2ATS	34	99	2ACQ/P/Log		
2AGH	35	98	2ZSK	disqualified	
2APO	32	92			

DETAILS OF STATE SCORES

	Total State Score	Aver. Top Logs	Licenses	Log Entry	Percentage	State Log Aver.	Total State Points
New South Wales	18,162	869	1,427	107	7.4	169.7	2,230
Victoria	15,819	674	1,392	69	4.9	229.2	1,458
Queensland	16,564	469	469	99	21.1	167.3	4,197
South Australia	19,145	912	545	82	15.0	233.4	3,792
Western Australia	11,711	653	317	88	27.7	133.0	3,904
Tasmania	5,491	508	164	38	23.1	144.5	1,780

STATE TROPHY

Queensland 4,197 points

Highest State Log Average

South Australia 233.4 points

Highest Individual Score

VK5ZP 1,440 points

Award Winners

Open—

VK1AB—G. Chisholm	22	pts.
2AHM—R. J. Whyte	1,205	"
3ALZ—I. F. Berwick	826	"
4DJ—G. F. Pooley	778	"
5ZP—J. McL. Vale	1,440	"
6RU—J. E. Rumble	727	"
7DK—D. H. Kelly	478	"

Phone—

VK1VP—E. Penikis	311	pts.
2RS—D. C. Haberecht	935	"
3MO—I. J. Williams	737	"
4WW—N. B. Walden	658	"
5WI—Operator VK5KK		
(D. A. McArthur)	1,032	"
6CL—J. H. Clinch	807	"
7AI—K. M. Saxon	657	"

C.w.—

VK1SG—T. A. Brinkley	145	pts.
2QL—F. T. Hine	517	"
3AXK—S. R. Coleston	448	"
4VR—L. D. Rickaby	386	"
5ZC—A. J. Penney	472	"
6SM—M. H. Saw	361	"
7SM—S. G. Moore	501	"

Receiving—

VK1—A. Davis	389	pts.
L2211—R. C. Abernathy	883	"
L3138—G. N. Earl	717	"
VK4—K. Chiverton	506	"
L5015—W. J. Clayton	736	"
L6021—P. W. Drew	980	"
VK7—G. C. Johnston	951	"

AUST. CAPITAL TERRITORY

Open—

Call	Cont.	Pt.
VK1AB	7	22

Phone—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK1VP	122	311	VK1BB	31	81
IAWU	51	106	IRS	11	45
1ACA/Log			1GB	10	13
1KM	57	102	1ML	8	12

C.w.—

Call	Cont.	Pt.
VK1SG	61	145

C.w.—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK2QL	177	517	VK2OY	29	90
2APK	136	407	2EH	32	86
2YB	105	277	2JM	32	77
2QK	97	263	2ZO	27	70
2GT	71	200	2PQ	30	68
2XQ	65	171	2GW	18	48
2EO	45	125	2HZ	10	24
2LF	45	124	2OT	12	23
2ZC	36	109	2IV	10	19
2SU	38	100	2ASJ	5	16
2PU	40	93	2ADG	6	11

VICTORIA

Top Six Logs—

VK3ALZ	826	points
3MO	737	"
3TL	685	"
3AZZ	635	"
3OM	603	"
3AIT	537	"

Open—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK3ALZ	285	826	VK3QV	102	232
3TL	232	685	3AKN	103	216
3AZM	158	420	3AST	98	183
3KB	101	238	3HL	24	69

C.w.—

Call	Cont.	Pt.	Call	Cont.	Pt.
VK3AXK	185	448	VK3NK	26	51
3XB	171	418	3JS	20	47
3RJ	89	222	3LC	20	46
3APJ	55	102	3YE	26	44
3ARX	37	98	3AND	21	40

Phone—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Phone section.

Open—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Open section.

C.w.—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the C.w. section.

TASMANIA

Top Six Logs—

Table listing Top Six Logs for Tasmania with call signs and points.

Open—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Open section in Tasmania.

Phone—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Phone section in Tasmania.

C.w.—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the C.w. section in Tasmania.

QUEENSLAND

Top Six Logs—

Table listing Top Six Logs for Queensland with call signs and points.

Open—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Open section in Queensland.

Phone—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Phone section in Queensland.

C.w.—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the C.w. section in Queensland.

WESTERN AUSTRALIA

Top Six Logs—

Table listing Top Six Logs for Western Australia with call signs and points.

Open—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Open section in Western Australia.

Phone—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the Phone section in Western Australia.

PAPUA NEW GUINEA AND TERRITORIES

C.w.—

Table with columns: Call, Cont. Pt., Call, Cont. Pt. listing various call signs and points for the C.w. section in Papua New Guinea and Territories.

ANTARCTICA

Table listing call signs and points for Antarctica.

RECEIVING SECTION

Australian Capital Territory

Table listing call signs and points for the Australian Capital Territory receiving section.

New South Wales

Table listing call signs and points for the New South Wales receiving section.

Victoria

Table listing call signs and points for the Victoria receiving section.

(Continued on Page 14)

SOUTH AUSTRALIA

Top Six Logs—

Table listing Top Six Logs for South Australia with call signs and points.

WARBURTON FRANKI

For Your Radio and T.V. Accessories



W.F. are now distributors of the Famous CANNON PLUGS

Types available from stock include:—

XL-3-11	3-Pin Female Line	9/6 + S.T. 12½%
XL-3-12	3-Pin Male Line	9/- + S.T. 12½%
XL-3-13	3-Pin Female Panel	9/6 + S.T. 12½%
XL-3-14	3-Pin Male Panel	7/3 + S.T. 12½%
XL-3-15	3-Pin Right Angle Female Line	24/- + S.T. 12½%
XL-3-42	3-Pin Floor Receptacle Male	9/- + S.T. 12½%
XL-4-11	4-Pin Female Line	13/- + S.T. 12½%
XL-4-12	4-Pin Male Line	12/- + S.T. 12½%
XL-4-13	4-Pin Female Panel	13/- + S.T. 12½%
XL-4-14	4-Pin Male Panel	10/4 + S.T. 12½%

Enquiries welcomed for other types.

METAL SPEAKER BOXES

Finished in Grey Hammertone Enamel.

Oval 5" x 3"	47/6	Round 6"	20/8
Oval 7" x 4"	57/6	Round 8"	23/4
Oval 9" x 6"	75/-	All Prices + S.T. 25%	

The round speaker boxes are open backed, but the oval ones are completely enclosed.

TRANSISTOR AUDIO AMPLIFIERS

PK 544. Five Transistors—push-pull output. Works from 9 volt battery. Low impedance input; output impedance 8 ohms. Boxed with circuit and wiring instructions.

100/- + S.T. 25%

BARGAINS!

● GANGED POTS

With d.p.s.t. switch, 2 meg. linear.

7/9 + S.T. 25%

● SILICON DIODES

400 p.i.v. at 1 amp.

6/3 each or 70/- doz. + S.T. 25%

● CHASSIS PUNCHES

Hammer Type. Locally made and guaranteed. Set of three, ⅜", ⅜", 1-3/16".

59/6 S.T.E.

● DYNAMIC MICROPHONES

High impedance with in-built stand.

24/- + S.T. 12½%

● AMERICAN TAPE

Irish Brand, 5" 1,200' Reels, Mylar Base.

47/6 inc. tax and postage

MATRIX BOARD

New Miniature Series

Hole size: 0.045", hole spacing 0.1".
Stock Sizes 3" x 3" 2/10 + S.T. 12½%
of Boards: 6" x 6" 9/6 + S.T. 12½%
9" x 9" 20/- + S.T. 12½%

Other sizes available up to max. of 34" x 24".

Hardware No. 253 Wedge Pin 9d. doz.
to suit: No. 285 Eyelet Tag 1/- doz.
No. 314 Turret Pin 7d. doz.

SOLDERING IRONS

Six-Second Push-Button Type

Uses screw-in copper tips and carbon elements. Supplied complete with transformer for mains use, or may be used from accumulator.

85/- S.T.E.

+ Pack and Post 2/6.

NEW - 2-W. TRANSISTOR AUDIO AMPLIFIERS

Completely encapsulated in Epoxy Resin. Size: 3¼" x 2" x ⅜". Works from voltages of 4½ to 12. Output impedance 3.2 to 45 ohms. Leaflet supplied shows how to use as:—

- Stereo Amplifier. ● Stereo Converter.
- Intercomm. ● P.A. System, or as
- Signal Tracer.

£6 + S.T. 25%

+ Pack and Post 1/-.

2-STATION TRANSISTOR INTERCOMM. UNITS

Complete with connecting wire and battery.

80/- + S.T. 12½%

+ Pack and Post 2/-.

SIGNAL GENERATORS

LEADER—Combines Quality with Low Price

LSG10

Frequency Range: 120 Kc. to 260 Mc. (six bands) and Calibrated Harmonics 120 to 260 Mc.

R.F. Output: Over 100,000 Microvolts.

R.F. Control: Variable with two taps.

Modulation Frequency: 400 c.p.s.

A.F. Output: 2-3 Volts.

A.F. Input: Approximately 4 volts.

Valves used: One 12BH7 and one 6AR5.

Size: 6½" x 10" x 4½". Weight: 6 lbs.

Price £12/16/- + S.T. 12½%

Pack & Post: Vic. 5/-, other States 7/6.

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359 LONSDALE ST., MELBOURNE — MU 8351

- TRADE ALSO SUPPLIED
- OPEN SAT MORNING

Please include postage or freight with all orders.

MICROWAVE TESTS

On 25th May, 1963, a group comprising VKs 3ZOV, 3ZAF, 3ZMQ, 3ZKC/T and Peter McKenzie carried out a series of microwave tests between Mt. Dandenong (2,040 ft. above sea level) and a point 18 miles away at Highett (140 ft. above sea level). All obstacle clearance criteria were satisfied and path opticality was also verified by sending a light beam from Highett to Mt. Dandenong with a 20-inch searchlight reflector. Stabilised equipment operating on the 3,300 Mc. allocation was used to determine the following:—

- (1) Median path attenuation.
- (2) Deepest fading over this short-term test period.
- (3) Path reliability using the result from (2).
- (4) Gain of several parabolic antennae and yagi systems.
- (5) Diffraction loss over trees of a green cross-section and height and agreement of theoretical diffraction loss with that obtained here.
- (6) Maximum available signal/noise ratio for a baseband of 4 Mc. (i.f. bandwidth 10 Mc.) and comparison with predicted figures.
- (7) The effects of system non-linearity due in part to (a) natural multipath propagation, (b) deliberately introduced multipath signals, as compared with test-bench linearity performance.

Parts (6) and (7) were intended mainly to help evaluate the overall long-distance behaviour of a flying-spot scanner video system which has so far only been used in conjunction with this equipment over a much shorter distance.

The 3K Mc. f.m. transmitter comprises a 100 mW. temperature-controlled klystron (726A) with an electronic regulated power supply. Fre-

quency stabilisation ($\pm 0.01\%$) is absolute, using a temperature controlled reference cavity and a negative-feedback control loop. The klystron is matched to its load by means of a coaxial dielectric double slug tuner, giving a residual v.s.w.r. not greater than 1.5. A 3K Mc. a.m. transmitter is now available which delivers an average output power of 50w. and a peak power output of 45kw. using pulse modulation.

The 3K Mc. receiver uses a single-ended coaxial crystal mixer with matching facilities and a temperature controlled local oscillator klystron. The l.o. may be reference cavity stabilised as before, or "locked" to the transmitted signal. Twelve i.f. stages follow the mixer, including three limiters and a wide-band discriminator. Base-band (4 Mc.) and single voice channel (10 Kc. bandwidth) amplifiers with cathode follower output, together with a receiver tuning error-signal feedback loop follow the discriminator. This mixer-i.f. chain combination is in duplicate for space or frequency diversity facilities. The receiver noise figure is 14 db. with r.f. preselection, good mixer matching and approximately 500 μ A. of crystal current.

Equipment for 5K Mc. is similar but uses a Heil tube transmitter delivering 500 mW., or alternatively an a.m. c.w. magnetron delivering some 300 mW., with a wide-band a.m. i.f. strip. The 10K Mc. system using 723A/B klystrons and wave guide r.f. components is essentially similar to the 3K Mc. system, but with a power output of only 15-20 mW. when the klystron tuning struts are modified.

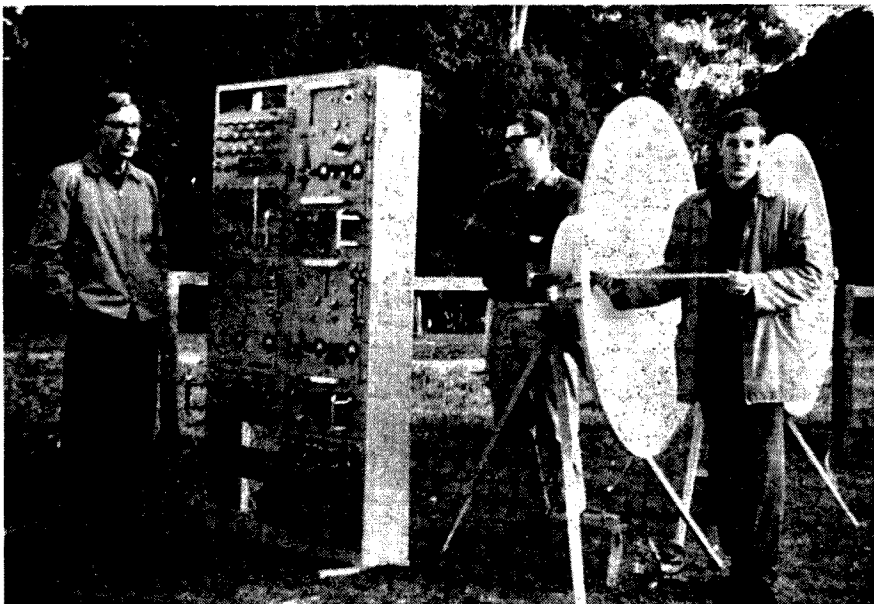
The antenna system is common to all bands and consists of one or two 4 ft. tripod-mounted paraboloids with dipole or horn wave guide feeds as required.

The equipment at both ends is basically similar, and both are capable of handling a video signal on all microwave bands. Mains and all h.t. supplies to this equipment are stabilised. This is essential for avoiding unnecessary errors in the path analysis. Available test equipment includes power measuring bridges, a standard horn, a slotted line, frequency meters and calibrated attenuators.



Mt. Dandenong gear and John VK3ZAF. Not shown, but present, was Peter McKenzie.

For the Mt. Dandenong test, the overall discrepancies between theoretical and actual results were not greater than $\pm 3\%$. The path attenuation at 3K Mc. was measured as 134 db. with a maximum recorded fade of 12 db. The maximum available (unweighted) base-band S/N was 38 db. The single voice channel f.m. improvement over



Gear at Highett. Left to right: Martin VK3ZOV, Michael VK3ZKC/T, and Graham VK3ZMQ.

Wireless Institute of Australia
Victorian Division

A.O.C.P. CLASS

commences

MONDAY, 10th FEB., 1964

Theory is held on Monday evenings, and Morse and Regulations on Thursday evenings from 8 to 10 p.m.

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this figure was approximately 20 db. In these tests a two-channel, six-speed strip chart recorder was used at the Mt. Dandenong end. One tree in the far-field of the antenna caused a diffraction loss of 15 db., and measured absorption losses for several bushes and trees were also in this region.

The r.f. portion of the link was initially adjusted at both ends by means of frequency meters, whilst prismatic compasses were used for dish alignment. Some fifteen minutes were then required for finer link adjustments. The initial frequency difference at either end by this means of link frequency alignment was measured as less than half a megacycle.

After carrying out surveys for Fresnel clearance last year, more extensive microwave link equipment operating on 3K, 5K and 10K Mc., together with a flying spot scanner television system, was set up last January at Mt. Macedon (3,300 ft. above sea level) by VKs 3ZAF and 3ZKC/T and at Arthur's Seat (1,050 ft. above sea level) by VKs 3ABY, 3ZMQ, 3ZIX—the path distance being 70 miles. Due mainly to a failure in the six metre liaison equipment and some unusual difficulties on Mt. Macedon, the two-day operation was unsuccessful.

A number of long-distance (50-200 miles) microwave paths have been examined and several of the shorter-distance paths comply with the "first Fresnel zone" clearance and also the "50 \sqrt{D} " criterion for path obstacle clearance requirements.

The main technical problems at present are lack of heavier transport for the equipment and petrol or diesel alternators for reliable power. It is for these and other reasons that we have been forced to postpone further experiments, at least until a suitable solution is found. Certain simplifications will also be made to reduce the overall weight of the equipment.

Responsibility for maintaining reliable 2 metre liaison lay in the capable hands of VK3ZAF and Peter McKenzie (Dandenong) and VK3ZMQ (Highbett).

The Highbett end of the link was erected on sloping ground outside the VK3ZMQ QTH.

Our group also gratefully acknowledges the co-operation of the HSV7 management and the HSV7 transmitter staff on Mt. Dandenong.

Although our aims were primarily those outlined previously, this microwave QSO will be claimed as an official two-way Australian v.h.f. record for the 3,300 Mc. band.

—M. L. Oliva, VK3ZKC/T.

ROSS HULL MEMORIAL V.H.F. CONTEST

Please note the following amendments to the scoring table of the above Contest:—

Delete 288 Mc.—Withdrawn from Amateur Service from 1/7/63.

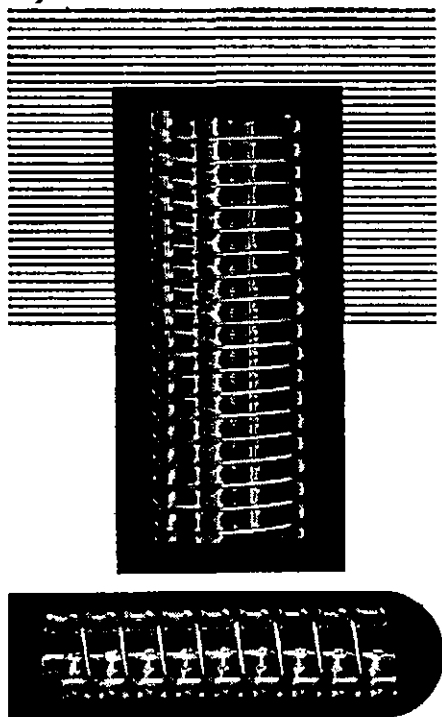
Insert 420 Mc.—From and including 1/1/64. Scoring for 420 Mc. contacts will be identical with that shown for 576 Mc.

576 Mc. Band: It has been erroneously stated in some quarters that this band is not available after the end of December 1963. Page 6 of the current issue of the Call Book states that 576 Mc. band "is allocated on a temporary basis until required by the Broadcasting Service." As no advice of such requirement has been received from the Australian Broadcasting Control Board, this band is still fully available to the Amateur Service.

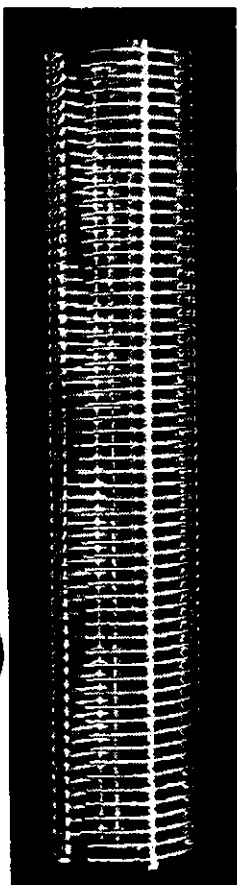
R.D. CONTEST RESULTS

(Continued from Page 11)

Queensland			
K. Chiverton	.....	506	points
WIA-L4018—C. H. Thorpe	.....	433	"
W. Whiteway	.....	368	"
L. O. Tully	.....	282	"
I.2233/VK4—R. Erwin	.....	198	"
L4011—G. Milner	.....	196	"
L4025—R. E. Rumble	.....	174	"
L4031—J. L. Kelly	.....	107	"
L4027—C. Paton	.....	104	"
L4010—G. V. Franks	.....	90	"
VK4ZGD—Ineligible Log.			
South Australia			
WIA-L5015—W. J. Clayson	.....	738	points
L5049—D. DeCean	.....	587	"
P. J. Usher	.....	409	"
L5020—F. W. Ashlin	.....	401	"
L5058—G. Bolt	.....	289	"
D. Murdoch	.....	278	"
R. Whellum	.....	157	"
Western Australia			
WIA-L6021—P. W. Drew	.....	980	points
L6005—D. S. Pratt	.....	522	"
L6010—H. J. Thompson	215	"
Tasmania			
G. C. Johnston	951	points
R. Balfour	387	"
R. J. Mutton	424	"
S. Cooper	203	"



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S.S.B. TIPS

THE SWAN TRANSCEIVER

This is not meant as an advertisement for the Swan manufacturers, they really don't need it, as anyone knows who has heard their sets on the air. The block diagram (Fig. 1) gives the general outline. It has been re-drawn from the operating manual's picture, where it is not too clearly presented.

The circuitry is very simple, they originally used a hybrid crystal filter on 5775 Kc., now have changed to approx. 5,200 Kc. in the newer tri-band versions, so that the 20 and 80 metre American phone bands are covered with one v.f.o. frequency range.

The v.f.o. is a type Colpitts circuit. Its frequency is doubled in the plate circuit for 20 and 80 metres, and tripled for 40 metre operation.

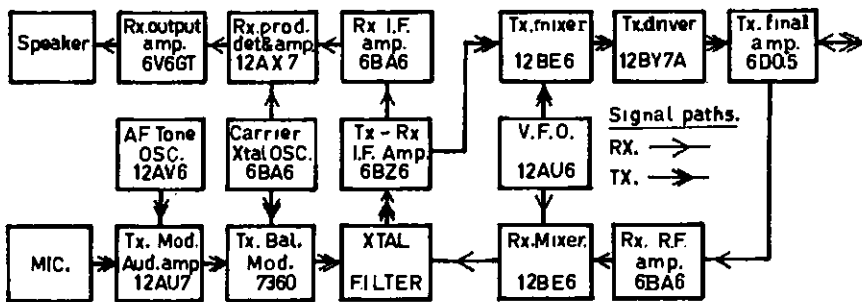


Fig. 1. BLOCK DIAGRAM 'SWAN' TRANSCEIVER.

None of the r.f. circuits in the set are switched in going from reception to transmission, not even the antenna! The p.a. plate circuit serves as a tuned input circuit for the receiver r.f. amplifier.

The change-over relay applies a 90 volt negative blocking bias on the tubes in the set's stages not being used, and also opens the plate voltage supply to the same stages.

The oscillators are permanently connected to both the receiver and transmitter mixers and the input to the crystal filter; likewise to both the balanced modulators and to the receiver mixer, as well as the output of the first i.f. amplifier to the next two stages. This seems to do no harm at all and certainly simplifies the transceiver.

S.S.B. RECEIVER A.V.C. AND PRODUCT DETECTOR

Many, and some very complicated, circuits have been published in the past and I wonder whether the fairly simple circuit used in the Collins KWM2 is sufficiently known. It is shown in Fig. 2.

One tube, the 6BN8, does the entire function of a.v.c. rectification and product detection. Evidently Collins is not afraid of b.f.o. voltage leaking back into the a.v.c. rectifier section and upsetting the (delayed) a.v.c. action. Note the small resistor from grid to ground in the product detector!

In addition, they control the r.f. gain of the receiver in the same grid circuits of the r.f. amplifier and two i.f. amplifiers, where the a.v.c. voltage is applied, with an adjustable negative bias.

Where the S meter of the receiver works on the screen current of the first i.f. amplifier, this control affects the S meter reading just as in most receivers, but the received signal still continues to register on the S meter in the normal manner and to the original strength indication! So one can actually read the strength of the peak signal level by backing off the r.f. gain till the S meter just barely kicks on the peaks of the received signal.

AMPLIFIED AUTOMATIC LEVEL CONTROL (A.A.L.C.)

There are as many ways to apply a.l.c. to a s.s.b. transmitter as there are perhaps methods of applying a.v.c. in a receiver—delayed, hang-on, amplified and what have you. It all boils

down to feeding a bit of the output voltage rectified back to one or more control stages earlier in the set.

Hallicrafters, in their new s.s.b. transceiver SR150, apply what they call something new, amplified automatic level control, not load control, as erroneously mentioned several times in the s.s.b. column in June '63 "A.R." On first sight there seems nothing new, just as in a receiver where one can amplify the signal in a separate stage before rectifying for a.v.c. voltage. But there is a difference.

Hallicrafters no doubt figured that if their twin output tubes are operating in AB1 up to the point of grid current flow, there should be plenty of output and to obtain even more would require extensive measures of final drive regulation, etc. So why not limit the drive to the final amplifier to just that point of grid current flow?

To do this, they include a fairly large resistance in the return of the final amplifier grid circuit to the negative bias source and only provide by-pass for r.f. As soon as grid current flows, a small audio voltage will appear on this resistor. This audio voltage is fed to the grid of a triode, amplified and rectified with a pair of diodes. The resultant rectified voltage controls the grid of the r.f. stage after the crystal filter.

In that manner, with proper control of the a.a.l.c. time-constants, only a fraction of a phrase will draw grid current and immediately the gain of the set is reduced. The result is a perfectly clean signal with hardly a trace of distortion products. Worth duplicating!

—Arie Bles, VK2AVA.

NEXT FEW ISSUES OF "A.R."

Readers should note that the January 1964 issue of "A.R." will be printed early in December 1963, and should be received in your mail box about late December. The February 1964 issue of "A.R." will be printed also in December, due to the fact that our Printer will be closed during January. As a result of this, it was not possible to print any DX, V.h.f., Sideband, S.w.l., Y.R.C., Federal or Divisional notes, nor any Hamads. This edition will be a technical issue without any other features. It will be mailed early in February 1964, hence you may not receive it in your post box until mid February. So please do not write in complaining that this particular issue is late.

Publication will return to normal with the March 1964 issue, for which all copy should be received at P.O. Box 36, East Melbourne, C.2, by the 8th February, 1964.

"IT HAS BEEN SAID"

The D.X.C.C. "rat race" seems to cause participants to forget some of the Amateur's Code. The latest development was overheard recently where arrangements were being made for a sked to be made with a DX station where activity is limited, for an American station, the operator of which was absent from the U.S. Another Amateur was to operate the station of the absentee for the sked. Fortunately A.R.R.L. have caught up with some of the questionable practices from time to time and disallowed claims for credit.

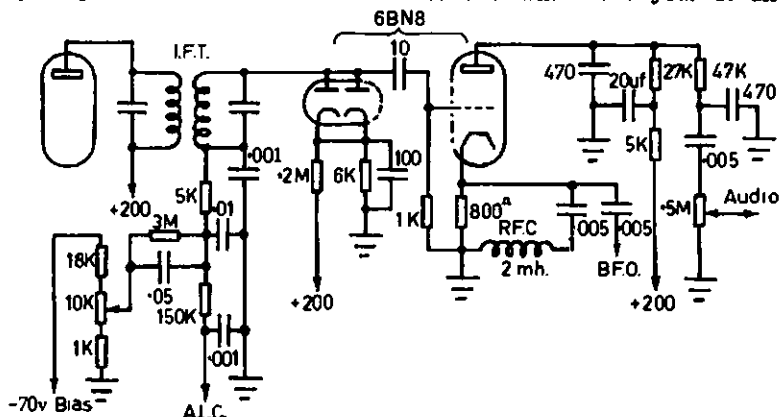


Fig. 2. COLLINS AVC-PRODUCT DETECTOR.

TWO-BAND RECEIVER

(Continued from Page 7)

date stations stretching from 144.01 to 146.26 Mc. Fortunately, the dial "expands" as we tune up the band.

POWER SUPPLY

As remarked earlier, the power supply contains two separate supplies, one for the transmitter and modulator, and one for the receiver. The front panel contains a switch for 240 volts a.c. to each supply, a pilot lamp, and a meter calibrated 0-200 mA. This meter reads the total current drain of the receiver supply, which is 100 mA. on h.f., and 130 mA. on v.h.f.

The receiver supply consists of a transformer providing 250 volts a side at 150 mA., with a 5Y3 and a capacity input filter. Under load, it provides 275 volts d.c. A resistor drops this for the VR150, which provides 150 volts regulated for the h.f. oscillator. The centre-tap of the h.t. secondary and the shield are earthed by a relay, which open circuits the earth connection on transmit. The transformer and capacitor are new, but the valves, chokes, sockets and resistors are ex disposals.

The transmitter supply is made up of disposals gear. The transformer came from a p.a. amplifier ("Now hear this!") and provides a h.t. winding tapped at 380 volts a side, and 230 volts a side. The filament transformer has two 6.3 volt and two 5 volt windings. Thus we were able to provide two h.t. outputs, each using a 5U4. One provides about 350 volts d.c. through a 100 mA. choke input filter, the other about 250 volts d.c. through a capacity input filter. The larger voltage will be used for the p.a. of the transmitter (probably a 6N7); the lower voltage for the exciter and pre-amp. stages. Current from the major transmitter supply will be read in the p.a. meter and/or modulation meter, so there is no need for a meter for this on the power supply panel.

The receiver chassis is placed in the bottom compartment of the tabletop

cabinet, which places the tuning knob convenient to the hand. The power supply sits in the centre compartment, and the top compartment will hold the transmitter and modulator. The cabinet is made of 8" x 1" maple, and measures 19" high by 15" wide. It will be given a coat of undercoat and painted grey enamel. All cable connections are made at the rear. A six-pin socket is used for the transmitter power supply, merely to distinguish it from the receiver supply. ●

OBITUARY

MALCOLM PERRY, EX-XCP

Malcolm Perry's death on 8th October took from the thinning ranks of Wireless Pioneers one who had been active in the Wireless Institute since its foundation in March 1910. He followed Wal. Hannam (active still as VK2AXH) as Secretary of the Institute when Wal. departed with the Mawson Expedition for service in the Antarctic in 1911.

The Official Call List of the Wireless Institute of N.S.W.—as it was then called—indicates that Malcolm operated a spark transmitter under the call of XCP. All pre-World War I. Amateur Call Signs commenced with the letter "X".

Resumption of Amateur activities in 1910 saw Malcolm very active in handling Wireless Institute affairs. Interesting reports of lectures given at the Institute meetings appeared in detail in the magazine "Sea, Land and Air," which was well known and remembered by all genuine old timers of those days.

Malcolm attended both openings of the Dural Station and the Wireless Centre at Atchison Street. This memorable occasion has been recorded in colour film as he chatted with Chas. MacLurcan (VK2CM) and Jack Pike (VK2JP), who may, even now, be swapping reminiscences of the foundation days of Amateur Radio with Malcolm in the Spiritual Lands of the Great Brass Pounder.

JACK FERGUSON, VK2FJ

One of the real old timers, Jack Ferguson, VK2FJ, was prominent in the affairs of the Old Waverley Radio Club in days gone by. Since the war, in his retirement at Saratoga, he was very active on 10 and 15 metres. A great worker and supporter of the Central Coast Section of the Institute, N.S.W. Division, Jack will be sadly missed by all of us.



TO YOU, THE READER

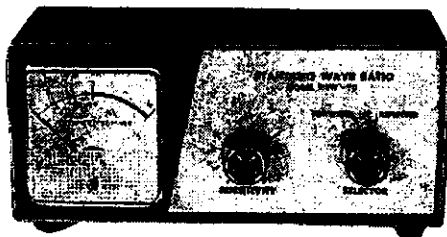
On behalf of the Publications Committee of "A.R." it is my very pleasant duty to wish you, the reader, and your family, the Compliments of the Season.

It has been with your assistance that your magazine has been published for yet another year, as it is the readers who maintain the continuity of publication, because it is your activities, both technical and personal, which makes the contents of "A.R." So it is very sincerely that we wish you a Merry Christmas.

—Ye Ed.



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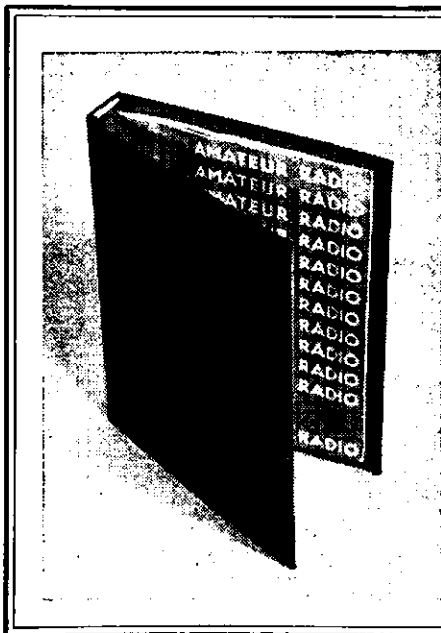
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VHF

50 - 144 - 420 - 576 - 1296 Mc.

Sub Editor: LEN POYNTER, VK3ZGP.

14 Esther Court, Fawkner, N.15, Victoria

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

The DX season is about to commence and attention will be focused on what will be the last year of 50 Mc. Channel 0 in Melbourne is scheduled to begin test transmissions on 1st April, 1964, and a new era in t.v.i. and i.t.v. will begin. This DX season will occur during the sunspot minima and many will be interested in its outcome.

It is hoped that the peak of the season will occur during the Ross Hull Contest when the numbers using the bands will be at a maximum. Because of this, your operating technique should be at maximum and all the courtesies of an Amateur operator should be extended to your fellow Amateurs. The use of excessive modulation should be avoided and the v.f.o. should be used with discretion. These courtesies make for easier operation all round.

Don't forget that there are many stations operating above the first 500 kc. and tune that section. You will be surprised how many stations operate high in the bands.

So far it appears 8KK will be operating from Alice Springs. (Refer VK5 notes.) 3ZBJ/P last heard of in the Simpson Desert, will probably be back in VK3 early in Dec. No news is known of any other special activity this season.

Of interest was the VK4-JA opening on Sept. 24 when JAs 1-3 were worked in VK5 between 1500-1900 S.A.S.T. Many VK5/Ps worked their first J.A. On Sept. 28 3ZEU/P in Gippsland heard one JA but could not raise him—who said the band was dead!

Of special note to all correspondents. Please forward your notes to reach me no later than 2nd of each month. Due to the editorial set-up all the notes must be in earlier and I must meet an earlier deadline. Any notes reaching me later than the 2nd cannot be considered, so keep the good work up and remember the earlier date. For future reference, there will be no v.h.f. notes appearing in the Feb. '64 issue, but please forward me your notes as usual.

I would like to take this opportunity of wishing you all the very best wishes for Christmas and for the coming year. I trust that you all enjoy bumper DX during the season, no matter what band. Don't forget 420-450 Mc. next year and look forward to hearing of your success in these notes.

Those using 420-450 Mc. after 1st Jan. for Ross Hull Contest should use the points for 576 Mc. section and include them in your score. All stations participating in the R.H. should send in a log no matter how small the score. 73, see you on 50 Mc. during the Contest, 3ZGP.

P.S.—Welcome to Reg. 2ZMR, new writer for VK2 this month.

NEW SOUTH WALES

John 2ANF's October meeting lecture seems to have an effect around the band, with a lot more stations using phase modulation, also some have been building discriminators. Last check on those using p.m. or f.m. are 2ANF, 2DR, 2ZAR, 2ZRG, 2ZKP, 2ZCF (50 nix), 2ZHM, 2NC (has one, but won't use it; how about it John?), 2ZNS (if it will go), 2AQA (50 mnx), 2ZAV, 2ZBL (146 Mc.), 2ZGB.

All VK2 users are reminded from time to time that the first 100 kc. of 144 Mc. band, by gentlemen's agreement, is to be used by country stations trying to work into Sydney. It seems this agreement is not being kept by a few signals I have been hearing lately.

John 2ZAV's lecture on 432 Mc. at Nov. meeting was well attended and absorbed by all. The Blue Mountains and Newcastle boys were also represented. Don't forget the v.h.f. auction at Wireless Institute Centre on Friday, Dec. 6.

The Jamboree-on-the-Air seemed a fairly successful event on v.h.f. I counted 15 stations on 2 mx in Sydney; at Newcastle area, 2ZKW and 2AKP were active. Charles Hunt L2239 received his call sign and is now 2ZLH. 2ZSB is smoking cigars and throwing parties in celebration of working Wollongong. 2ZKW is working on 50 Mc. for the coming season.

Bob 2OA is on the sick list, and has had to give up activities in the Institute for a while. Sorry to hear this Bob, but hope to see you soon. The Oct. fox hunt with 2HL as the fox, resulted in Lance 2ZKP with Bob 2ZAR taking first place, David 2ZVW and Mac 2ZH second, and Paul 2ZPS third. 73, 2ZMR.

VICTORIA

The first item of news this month is that the V.h.f. Group will be holding the second v.h.f. Get-together for this year. It will be held at Warringal Park, at the end of Bell Street. There will be talk-in stations on six and two metres, both a.m. and net freqs. will be used. Council has donated a sum of money to buy some v.h.f. transmitting tubes which will be awarded as prizes, so on Dec. 1 bring your YL, XYL, and a picnic lunch to Warringal Park at 11 a.m. and enjoy yourself.

The Field Day held on 20th Oct. was very successful with 18 portable stations out. The 2 mx band gave some good QSOs to VK5 on the day, with 5CS, 5ZHL, 5ZEV and others being worked. At the moment the place getters are 1. 3ZER/P; 2. 3ZOB/P; 3. 3ZAV/P; 4. 3ZJ/P.

DX of late in VK3 has mainly been in the VK5 area, although some VK7s have been worked on 2 mx. On 6 mx 4ZAX was worked recently while a few weak signals have been heard to the north as everybody waits for the DX to break and the contest to start.

Neil 3ZRT at Caulfield is a newcomer on 2 mx and is putting out a fine signal for his 18w. and a dipole. David 3ZOP is now on two with 30w. and a 9 el. beam. Norm 3NM is also new on two. Jim 3ZCE (Frankston), who fights the DX back with a stick, is now on six with 5w. to a 6CK6 and 3 el. beam. Peter 3ZCF hopes big things with his new rig and 10 el. beam. John 3ZLQ is back on 6 and 2 with a 50 ft. mast and celebrated by winning the 6 and 2 mx scrambles. Andy 3ZAK (St Klida) has tamed his jumpy carrier and will soon be on a.m. Bert 3KU and XYL Peg at Kilmore have been putting a fine signal into Melbourne on 2. Peter 3APD is active on 2 mx, we think a fugitive from 80 mx QRN. Max 3ZCW has now a solid signal on both 6 and 2 mx. Rod 3ZIW has been threatening locals with the idea of 100w. and 4 ten-el. yagis. Stan 3ZPL (Moe) has been active around Melbourne as a 2 mx mobile. Graham 3ZMQ has been very active of late only he has not been doing the talking, Maxine, his YL, has more or less taken over his rig. 73, 3ZNNJ.

SOUTH AUSTRALIA

50 Mc.: Biggest news here is that Douglas 8KK (formerly 5KK), of Alice Springs, is on 50 Mc. He is working at 8AL and we hope to hear him in the coming season. Frequencies and equipment details are so far unknown, but it appears that Doug is not using the big,

big Adelaide rig (4/250A). Probably his mobile is in use (832A).

After the sensational JA opening in Sept., this month has been quiet. New chums on 6 include 5JX (50.025) and 5ZDH. New mobiles are Brian 5ZCO, Ian 5IK and Jack 5ZJT.

During the Labor Day week-end (12th Oct.) the Mt. Gambier V.h.f. Society went portable on Mt. Edward and worked Adelaide stations (200 miles) as follows: 5ZDR, 5ZMK and 5ZDY as well as hordes of VK3s on 6 and 2 mx.

5ZNK is a new man at Virginia (40 miles north) who has been working into Adelaide.

144 Mc.: The onset of warmer weather has provided us with a few tropo. openings on this band. On Oct. 19 5ZDR worked 3AGV (Colac) and 5ZEV (Rendlesham, 180 miles), also 3ZAV mobile on Mt. Winesham in the Grampians. Port Pirie, Crystal Book and Whyalla (all about 130 miles) have been worked from Adelaide quite a lot recently.

Bob 5RG (formerly 9RO) has been on 2 mx lately using a SCR522. Cor 5ZKC has his full licence—5CW. We assure you that the beacon will be on either 144.5 or 144.8, and once it changes to the higher frequency it will probably stay there. In the meantime, play it safe and tune both frequencies. The 6 mx beacon will remain unchanged on 50.50 Mc. 73, 5ZCR.

TASMANIA

50 Mc.: Nothing out of the ordinary cooking on this band at the moment, but one or two are thinking of building gear in readiness for the coming DX season.

144 Mc.: There have been a few openings to VK3 from the north during the past month and VK5 and VK2 have been heard in Burnie. Activity is ever on the increase with 17 stations now active in the south and about 10 or 12 along the north coast, with new stations coming on nearly every week.

At our last meeting (October) we had a visit from Sed Tanner, VE3BBI, who hails from London, Ontario, and is teaching temporarily in Hobart at the moment. 73, 7ZAV.

PAPUA

Only signals heard during the month were the trans equatorial scatter stations on 49.9 Mc. These signals reached S9 on four nights and were audible on a total of eleven nights. 9ZBV is active most evenings between 5 p.m. and 9 p.m. 9CK has not been heard lately, and a new Z call should be on the air in the near future. 73, 9ZBV.

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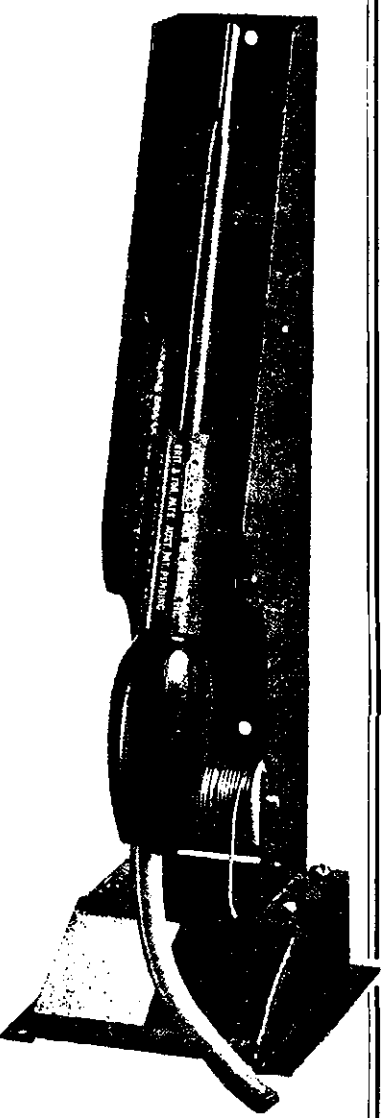
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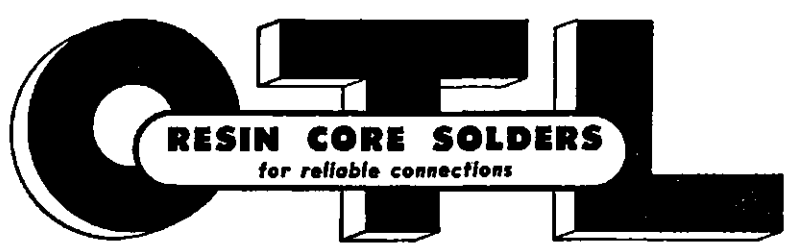
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Sub Editor: ALAN SHAWSMITH, VK4SS (Phone 4-6526, 7 a.m.-4 p.m.)

35 Wynnot Street, West End, Brisbane, Qld.

ADDRESS CORRESPONDENCE FOR THIS PAGE DIRECT TO THE SUB EDITOR

This year's conditions have been the worst in my memory, which goes back more than a quarter of a century. Spring, now almost past, has given us little of its usual liveliness. The bands generally remained flat and at the best the signals on them are weak. This is more of a disappointment for the OT's rather than the newcomers who have experienced nothing else. However, it's a very ill wind that produces no good and the new set of conditions create a very real challenge to the avid DX'er. Improved equipment, particularly antennae, are absolutely necessary now. The QRP'ers too are now on a greater handicap.

On 28 Mc. there will be an odd opening, but for practical purposes useless. 21 Mc. does have signals on it daily but this past six weeks the prefixes have been of little consequence, mostly Ws and Js.

7 Mc. has been letting through some good long path DX, but 14 Mc. overall has been the best band and is likely to continue so. What would Amateur Radio do without 20 for DX purposes?

VK activity is down. This is to be expected, but not good, as the vacant spaces left present an enticement for illicit operation from those who have little regard for our space allocations. 80 and 40 both at night have many unidentified signals whose origin seem to be north of VK. At a recent I.A.R.U. regional conference in Malmo, Sweden, it was proposed that even in the face of continued QRM from outside sources, 7 Mc. activity must continue.

NOTES AND NEWS

K4LJD is now operating from Somal, using call 601BW. Modes, s.s.b. and c.w. He will be there for 18 months. QSL to WA4FXE, Box 811, Orlando, Fla.

VSPPHH is now active from Perlis Is. D.X. C.C. status to be determined. However, it most likely will count as Aden.

XW8AL, who gives his name as Phan, is reported active on 14 Mc. around 1330z. Try around frequency of 14280 Kc.

The J8B prefix has been ruled to count as Japan for D.X.C.C.

TC5ZA is the call of Rundy W3ZA on 14002 and 14085 Kc. c.w. and 14115 and 14315 s.s.b.

W stations working PK, JZ0, 3W8 and HS are subject to have their licence suspended.

VP2VS is VEBRG. He has been very active of late using the former call on 7 Mc. c.w. QSL manager is VEBTP, 12907 136 Ave., Edmonton, Alberta. (All above by courtesy of Florida DX'er, Ed. K4IIF.)

ZD9AM on Gough Is. is one worth getting hold of. QSLs go to Box 197, Benoni, Transvaal. Activity will continue till April 1984.

You may want to follow William Willis on his sole raft drift right across the Pacific. His identification is Salvita Three. This 70-year-old American navigator gives his position and any other relevant data twice daily, three hours before and after sunrise his time.

HZ1AMS has been QRV from Saudi Arabia and still active. He also has licences for Bahrain, Qatar and Muscat, and is trying for a permit to operate from Jordan soon.

ZL3GI, Tony Willis, is now in the Sudan. He will apply for a permit. He is ex-ZDINWW and ZD2NWW.

CEOZI at the time of writing this is reported to be active on both 14 and 7 Mc. c.w. and looking for VK on the latter band around 1000z. (Much of the above by courtesy of G2EYN, DX Ed. R.S.G.E.)

AP5GB is said to be Gus' (W4BPD) current prefix. Reported movements after this are Afghanistan and Aden.

TU2AU continues to put out a big signal from the Ivory Coast on 14050 and 14110 around 2100z—best times and frequencies.

V51, VS4, 9M2, ZC5 have been deleted from the official A.R.R.L. D.X.C.C. list. V51 and 9M2 will now count as one country, for D.X.C.C. credit. QSL cards will be accepted for credit as from February 1984. (HB9GX)

5T5AD, UJ8KAA, UH8AY, daily around 14107 Kc. at 0200z.

VE8RH is an ex-VK4. Plans to return home in 1984. VE8 is NWT and Zone 1 for W.A.Z. (BERS195)

VQ4FO is now VK4FO. Welcome to Sunny Queensland. Are you active, OM? (BERS195)

OH2YV reports hearing and calling VK5KO on the Top Band. Rumour has it that VK5KO has worked Europe on this band (160 metres).

VK0VK reports hearing many Ws on 80 down in Antarctica, but cannot raise them.

VR4CV and the QSL situation. BERS195 is awaiting logs from K6EC. He will then send out cards pertaining to Al's Solomon Island sojourn.

David VK3QV has shifted down to 21 Mc., using 50w. to a three element beam. Europeans have been heard around 1000 hours, but not easy to work.

For those interested in late DX news, the Northern California DX Club, under the call of their memorial station, W6TI, broadcast on c.w. and according to propagation, a DX news bulletin. The station can be heard checking in with VK2QL prior to commencement of the broadcast. For the next few months the broadcast takes place on approx. 7035 kc. at 0730 GMT each Sunday. The transmission is made by tape.

ACTIVITIES

Frank VK2QL worked, 7 Mc.: GW3AX, CE0ZI, UG6AD, VP2SV, VQ4IV, 5H3HD, HL5X, 9N1MM, VP8QG, 14 Mc.: VS4FS, VP8GG, HS1CM, YA1A, UG6AD, VP2KT, HL5X, KG6SA, VS9MB, 9N1MM, 3.5 Mc.: W3MFW, W6LDD, ZK1AB, ZL1ABZ, W2GCL, VE1ZZ, WISWX/1, W2PEB, W8IED, W2EOB, W9ADN, W9AQQ, K8SMA, JA8AK, W9HUZ, W5WZG, HL5X. On 21 and 28 Mc.: HL5X. QSLs received: JA1EBB/KG6, DU8FR, XE5FL, VP5XG, HS2DM, K7VAX/KS6, BV2A, VR1N, VK6BH, FR7ZC/G.

Ken VK3TL, despite poor conditions, had a good month. Worked on 20 mx s.s.b. when the long path to Africa and Europe was open during the late afternoons were CN8A, 7, CO8C, CR7GF, DU1BSP, E17D, IT1TAI, FG7XT, HM4AQ, HZ1AB, JT1CA, KG6SA, MP4BCB, MP4BBW, VS9ASS/MP4T (Trujillo Oman), PJ3AO, PJ5MF (Sint Martin), T2JIC, T2ISS, VK0DR (Xmas Is.), VP2SY (St. Vincent), VQ4AA, VR4CU, VS9AAA, YA1A, YSIIM, XZ2AD, ZB1A, ZL1ABZ (Kermadec), 3A2CP, 4U1ITI, 4X4IC, 5A5TW, 6N5X (Sth. Korea), 9A1CWN (San Marino), 9G1DY (Ghana) and many Europeans.

Eric BERS195 has been logging some good ones, as shown by the following. 1.8 Mc. c.w.: VK5KO, ZL3OX, ZL3RB. 1.8 Mc. a.m.: VK3AGD, VK3YQ. 3.5 Mc. c.w.: HL5X, JA6AK, W2PEO, W7JC, W9ADN, W9AOW, ZK1AR. 7 Mc. c.w.: HL5X (1230z), HM1AS (1830z), HM4AQ (1100z), VK9RG, VR2DK, VS1PF (1930z), VS1ZF (1400z), YV3JZ (1100z), VU2PF (1945z), ZK1AR, ZL1ABZ (Kermadec, 1930z), 4X4WF (2015z), 4X4DH (1945z), 9N1MM (1200z), 5H3HD (1940z), 5B4TC (2030z), 5A3CJ (2100z). 14 Mc. a.m.: FK8AU, JA2ANR, FK8BB, VK9RH (Norfolk Is., 2300z), ZK1AR, 14 Mc. c.w.: KG6SA, HK7AHM (0330z), CP5EZ, DU5DM (0800z), FUSAG, FK8AB, HL5X, KM8CE, KR8BI, KC6BO (1100z), PJ2AE (0500z), PY1MCC (0830z), VQ8AL, ELOB/MM, VR1B (0800z), VR2EH, VS9MB, 9M2FT, VV4AU, ZK1AR, ZK1BV, 9N1MM (1400z). Best QSLs for October: JA3VX (3.5 Mc.), KP4BJU (7 Mc.), UC2WE, UD6BW, UL7BG, VE8DX (Zone 2), VE8RH, VK4HG and VK4WV (Willis Is.), VK9BH (Nauru), VR1N, VS6OF (7 Mc.), 4X4DH, 9M2FT.

Don L2022 is listening again, and sent in these, 1.8 Mc. c.w.: VK5ZF, VK5KO, ZL3OX (approx. 1000z). 3.5 Mc. c.w.: ZL, W6EDR and other Ws. 7 Mc. c.w.: VV5AXA, JA1BZR, HB9JG, HP1IE, JA8AI, G2YK, 6N5X, ZL1ABZ (Kermadec), HK4JC, YV1AB, UA0KCU, VR2EK, JA6JS, 14 Mc. c.w.: HK3RQ, JZ0HW, VS9OS, UL7CH, T12PZ, UB5KPV, UC2BW, Y12WS, UO5PK, HC1FP, EA2CL, OK2OQ, HM11B, UP2KCF, VR2EH, PY1BLT, HASKDQ, FUSAG, VR1B, UJ8AF, PJ2AE, UM8KAE, CX1FB, UQ2GA, EA1BC, ON4FH, GC2FMV, 14 Mc. s.s.b.: ZS7R, T12KZ, XE1NS, ZL1ABZ, T12HP, HL9KH, KX3BU, OA4CV, WGAQ/KJ6, ZS1CD, PTAS, 6N5X, KC6BO, ZK1AR, 9M2DQ, OZ5KG, G3NG, HM8AU, KP4RX, UA0EH, JA0AC, KL7BZO, FK4AQ, I1AMU, ZK1BS, HC1BS, JT1CA, LU6MR, HL9PR, I1TV, 21 Mc. c.w.: JA1ELX.

David VK3QV lists 21 Mc. only: Stations worked, a.m.: DU7SV, KG6AA, KH6FAH, JA, T12JE, VR4CB, VR4CU, ZL2ABP, 6N5X (QTH, South Korea); c.w.: JA1, 3, 4, 6, 8, HM1AF, UA2VB, UA0EH. Stations heard, a.m.: DU1MR, DL1KB, G3FXX, HM1AA, SM5, TG9US, UA3KND, UA0KFG, VK9SB, VS1Q, XZ2KN, OH5SM, ZK1AR. c.w.: K6QPG, KH6, KZ5EH, HL9KH.

Dietmar VK2APK has been busy, as the following list shows, 40 mx c.w.: DL7AA, HL5X, KC4USB, UA3RX, UA0FE, UB5IF, 20

mx c.w.: AC3PT, AC7A, CP5EZ, DM3XVO, FU8AG, HB9TT, HM1AB, HL5X, JT1KAA, LA3EG, OE1RZ, ON4FU, PAOLOU, SL6BH, SP5ACN, UI8AP, UL7, UN1BN, UTSAA, VK4JQ, VK9DR, VP8FTR, VP9DL, VU2GWZ, Y04KCF, ZK1BV, 9N1MM, 20 mx s.s.b.: DU1BSP/C, DU5DM, F2ZF, GB2SM, GD3GMH, GM3PVP, HK3AFB, HB9AAF, HL5X, HM4AQ, HS1I, IT1TAI, KG6SA (Saipan), W4VGL/KG6 (Marcus Is.), KZ5WI, LU6AJ, OE1RZ, OK3CDR, ON4DM, PA0GMU, PY4TK, SL5BO, TG9MP, T12HG, UL7FA, UI8AG, UM8KAB, UR2BU, UTSAA, VK4JG, VK9DR, VK0VK, VS1MB, VU2NR, XW8AL, YN1LC, YS1FA, ZB1CR, 4X4, 6N5X, 601WF, 9A1CWM, 9N1MM, 15 mx c.w.: G3LJO, GW3AQV, HL5X, HM1AF, OH2BR, UM8KAA, Y06XU, ZK1AR, 15 mx a.m.: HM1AB, G3KFT, KC6BO, KL7BNL, VK9RG, 6N5X.

Peter Drew, L6021 heard on 15 mx a.m.: HM1BW, JA1-2-3, HS1I, G2AJB; c.w.: G3FKB, OK1MX, VS1GZ, 20 mx a.m.: XZ, VU2FB, EP2BU, KR6OF, LU9ADG, VR4CU, ZK1AR, s.s.b.: FK8, UL7FA, G3, 4X4, HB9, VE2, 45Z, VS9, 9N1, T2, VK9MV, HK3LX, DL7EZA, DJ1FN, ZS6, VK4JQ (Willis), V9BY, HL9KH, FRY/FC, HMBBF, CX2CO, DU1AN, PZ1AX, KA5RE, LU9DAH; c.w.: VU7, G3, VK9DR, Y93EH, DJ7JG, VS1ZF, LZ1KIB, VS0C, TG9AD, TL8SW, MP4, OE1WT, HA8KU, F3YR, HA5AT, EP2DM, 9M2CP, AP2AR, DU5DM, HB9KO, OE3ZJP, 4.0 a.m.: ZL5, ZK1AR; s.s.b.: CX2CO, JA3, KH6, VP7CZ, W, 9M2DQ; c.w.: HM1AB, VSI, DU, KH6, VP8QG, KR8, HM1BW, YU2GAB, G3, I1HM, OH6SD, 45TEC, SM5, ZE1AK. 80 c.w.: UA1KAA, UB5IB, UP2KBC, UP2OO, UR2KAN. 160 s.s.b.: VK5NN; c.w.: VK5KO.

SUMMARY

Your next Sub-Editor for this page will be Bert Behenna, VK5BB. There is no need to say give him all the support you can. This is Aloha and I must confess a touch of nostalgia as I conclude as I have honestly enjoyed the work and learnt much in the process.

My sincere thanks to all those who kept this column going with their regular letters. Perhaps a special word of gratitude to Eric BERS195, whose reports seldom failed and always contained QTHs and various other info besides his activity reports.

Merry Xmas to one and all. 73 and DX for 1984. Al, VK4SS.

W.I.A. D.X.C.C.

Listed below are the highest twelve members in each section. New members and those whose totals have been amended will also be shown.

PHONE

Call	Cer. No.	C't-ries	Call	Cer. C't-ries
VK6RU	2	292	VK3WL	14 211
VK6MK	43	284	VK3ATN	26 204
VK5AB	45	275	VK4HR	12 182
VK3AH	5	269	VK2JZ	61 189
VK4FJ	21	255	VK4RW	23 186
VK6KW	4	211	VK3GB	50 183

C.W.

Call	Cer. No.	C't-ries	Call	Cer. C't-ries
VK3KB	10	314	VK2AGH	71 252
VK3CX	26	300	VK3RP	56 229
VK4FJ	29	282	VK3FH	15 226
VK2QL	5	279	VK3BZ	6 222
VK3NC	19	286	VK3ARX	66 222
VK6RU	18	253	VK5RX	23 220

Amendment:
VK3RJ 42 207

OPEN

Call	Cer. No.	C't-ries	Call	Cer. C't-ries
VK2ACX	6	300	VK3HG	3 269
VK6RU	8	300	VK3NC	77 269
VK4FJ	32	290	VK3JA	43 252
VK6MK	74	286	VK4HR	7 233
VK2AGH	83	286	VK3BZ	4 231
VK3AH	76	272	VK3WL	45 225

S W L

Awards: Here are further details of the Heard All VK Award. One card from the following are required, to enable you to become eligible for this award: VK1, VK2, VK3, VK4, VK5, VK6, VK7, VK8, plus one card from Christmas Island or Cocos Keeling VK9, one from Nauru or Norfolk Island VK9, one each from Territory of New Guinea, Papua VK9, one from Macquarie or Heard Island VK0, plus one from the Australian Antarctic mainland.

Eric Trebilcock is our awards manager and all applicants should send their QSLs to him, but don't forget to include return postage. Our other award is the D.X.C.C., and we are going to have a special certificate for this. When you reach 200 countries confirmed let us know and you may be presented with DX200 award. This one is only a suggestion at the moment, but we think that you will agree that it is not a bad idea. The awards will be available early in the new year for certain.

Congratulations to the award winners in this year's National Field Day Contest in the receiving section. It is pleasing to see so many entries for this contest. After a slow start, this contest is rapidly becoming more and more popular each year. Congrats to you, Eric, for upholding the VK3 S.w.l. Group in the Contest. Owing to other commitments I will be unable to carry on with these notes in the new year and I would like to thank all contributors.

VICTORIA

Our Annual Xmas Wind-up will take place on Friday, 13th Dec. So come along and wind up the year in the proper way. Soft refreshments will be available during the evening. Maurie has been up to his neck with work, however he has still had that odd listen on the bands. Greg L3138 has been busy fishing in between the DX. He has been rewarded already with his new 50 Mc. converter, as he has heard some VKAs. Neil Duncan is at the moment very busy studying for his ticket. Yours truly has found conditions fair at times. Have even heard several weak unidentified signals on 28 Mc. one night. TTSAN has been heard on 14 Mc. s.s.b. Greg recently heard what he thought to be a VK7 and a ZL on 50 Mc., however it turned out that they were on 14 Mc.! (His converter i.f. is 7 Mc., so can anyone help him with the answer on this one.)

NEW SOUTH WALES

The monthly meetings are gradually getting more support from members, who are benefiting greatly by the talks and the discussions that take place during the evenings and over supper which always terminates our happy and informative get-together.

Radio New Zealand welcomes reports from overseas listeners. All reports are acknowledged by QSL card. All reports should include the wavelength, date, time, and if any, details of interference. Radio New Zealand programme to Australia from 1000 to 2145 E.A.S.T., ZL7 on 49 metre band, ZL2 on 31 metres. Address Radio New Zealand, Box 2396, Wellington, C.I. New Zealand.

Radio Amateurs' Notebook from the Voice of America can be heard at 1845 E.A.S.T. Sundays on the 31 and 41 metre bands. Radio Canada S.w.l. Sessions, 1730 E.A.S.T., Sundays, 49 metre band.

Ross L2233/VK4 is using a National T63T with a 5 ft. aerial. In the R.D. Contest he managed 198 points. Sid L2258 has an AMR300 but is having trouble with the coils at present. Don L2202 reports that he spent five hours in the phone section of the recent VK-ZL Contest and in that short space of time managed a good score, plus four new countries. Don's latest card to hand is from LU4NB. Congrats. on receiving your award for the 1963 ZL Memorial Contest.

Now is the time to make sure your v.h.f. gear is working, as the Ross Hull Contest will soon be under way. Thought for the month: Work safely, don't become a ghost of your former self. 73, Chas. Aberneathy.

QUEENSLAND

It is very pleasing to see our Sunshine State on this page again. Afton L2136/VK4 has been away on his Gulf trip, and of course has not been able to listen on the bands and means the fact that he is unable to get off 93 confirmed. Pleased to have heard from you again Afton.

Chas. L4018 enquires about the VK Award. Pleased to hear from you Chas, who has a very fine list of awards that he has won over the years. They include: R.S.G.B. 21-28 Mc. Contest 1959; The Elizabethan Award, 1961; VK-ZL Contest, 1956-57; National Association of Armchair Adventurers; Edmond Amateur Radio Society W5, 1961; National Field Day, 1960-61; R.D. Contest, 1957; Oregon Centennial Club W7, 1959; Ross Hull Contest, 1958-59-60; All Japan Districts; Heard All Continents; Diploma Ribatyo, 1957; Heard Zone 4, 1963, and several more.

WESTERN AUSTRALIA

Peter L6021 put up a good score in the recent VK-ZL Contest. On the broadcast band Peter has been hearing some rather choice DX, such as Germany, Belgium, Monaco, India, Philippines, Egypt, South Africa, Yugoslavia, Vatican, New Zealand, Austria, Singapore, The Monaco station runs 400kw. Thanks very much Peter on the offer of that magazine and will be happy to see it.

Was pleased to receive a letter from Ken, another keen S.w.l. in VK6. He finds the forwarding of s.w.l. reports by direct mail a bit on the expensive side and was interested to know if other members QSLed direct or through the Bureau? Direct is certainly the best way to send them, but as you say it gets a bit expensive to send many that way. A number of S.w.l.'s. do send their cards through the Bureau.

Now come on you other VK6 boys, let's hear from you, and so join us on our monthly page.

May 1964 bring you much happiness and good health. A Merry Christmas to you all. 73, Mac Hilliard.

DX LADDER

	Countries	Zns.	S.s.b.	W
	Conf.	Hrd.	Conf.	Hrd.
E. Trebilcock	281	289	40	—
D. Grantley	115	268	38	20
A. Westcott	93	159	31	9
M. Hilliard	83	234	33	32
M. Cox	80	231	30	47
P. Drew	75	212	28	31
C. Aberneathy	56	96	30	—
N. Harrison	49	129	30	5
L. Thomas	41	139	20	16
G. Earl	34	129	19	16

—Mac Hilliard, WIA-L3074.

Correspondence

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

S.W.L. RADIO SCHEME

Editor "A.R.," Dear Sir,
During the past months much has been said and done for the Youth Radio Scheme. Has anyone ever considered giving assistance to S.w.l.'s?

There would be no need to promote an interest in radio for that is already there. An interest that could be furthered no end if assisted.

I must admit that on occasions by invitation we have had talks by full members, which have been well received. This method of seeking information should not be in an institution such as ours. I feel sure that we would retain those associate members that gradually disappear from the ranks if some medium of tuition was organised by the full members of the W.I.A.

Surely there must be chaps who are willing to spare one evening to impart a little knowledge to our members, for after all, there are only twelve meetings in a year.

S.w.l.'s. join the W.I.A. with the thought in mind that some form of teaching is to be had only to find themselves dependent on other S.w.l.'s. The foundation is there, so with co-operation from full members willing to give a little of their time, the effort in assisting associate members would be more than appreciated.

—Chas. Aberneathy, WIA-L2211.

CALL BOOK MAGAZINE

The Federal Treasurer, W.I.A., has for sale at £1 post paid, some recent back numbers of this great directory of Amateurs. There are two editions: United States and "Foreign," i.e. the world except United States. Apply Bob Boase, VK3NI, 50 Cardigan St., Carlton, Victoria.

YOUTH RADIO CLUBS

We have now crossed the Tasman Sea! In May, Rex Black answered a query from New Zealand and sent full details of the Youth Radio Scheme. Following is part of a reply received recently: "In reply to your letter of 18th May, we wish to advise that the matters laid out in this letter were discussed fully at our Annual Conference in June of this year. It was decided by the Conference to set up a committee to look into fully the possibilities of setting up a similar Youth Radio Scheme throughout this country, under the supervision of New Zealand Association of Radio Transmitters. As this may take some time, we are therefore quite happy to allow Mr. John Gilbert of Auckland to enrol his Radio Club as a member in your Scheme." Hearty congratulations to the wise men of ZL!

Ken Matchett's fine VK3 Newsletter No. 5 arrived here with good news of progress there. Val Barnes, equipment officer, has supplies of germanium diodes and some radio equipment, as well as a supply of "A.R.," "R.T.V.H." and other publications. These are available on "permanent loan." Since "the Amateur is friendly," the donated equipment should continue to arrive—provided there are constant reminders. Other items in the Newsletter tell of doings in the clubs. Wonthaggi Tech. School Radio Club had a roll-call of 12 at the last meeting. V.h.f. demonstration was arranged at Christian Brothers' College, Bundoora, by Dave 3ZMX, Bert 3ZFC and Ray 3ZOE. Twelve members of the School Club operated with Ray (mobile) and Allan 3ZNG.

I was surprised to find the readiness with which a few Amateurs pounced on any small lapses by our two new call signs—George 1GB and Roger 1RD. Our thanks, however, to the great majority who helped them with tests or merely answered their CQ with a friendly contact. Club leaders should be very firm on the subject of safety as a top requirement. Impatience to get on the air could produce a lowering of safety standards—the young operator should be carefully protected from this. Next in importance is the quality of signal, which should be very good, preferably tested by you before it carries the new call sign. Finally, operating procedure should be well drilled beforehand and tactfully monitored afterwards for a short time. 73, Ken IKM.

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FEDERAL AND DIVISIONAL MONTHLY NEWS REPORTS

(SEND CORRESPONDENCE DIRECT TO DIVISIONAL REPORTER NAMED AT PARA. END)

NEW SOUTH WALES

HUNTER BRANCH

The November meeting was held at the Technical College, the lecture being Amateur Television, by Des 2ZDN, Neil 2ZCU and Rodney 2CN who gave a most comprehensive three part lecture on history, theory and practice of t.v. transmission. Neil described a method of using the local t.v. signal to scan a slide, with the programme off, of course. Des displayed various units concerned with generation of 432 Mc. signals and displayed a closed circuit set-up with flying spot scanner and 14 inch t.v. rx. Rodney described and displayed some very expensive camera tubes. Des hopes to be able to take pictures mobile with a transistorised camera unit—only 27 transistors.

Forty-one members and visitors were there to listen and watch. At the last examination four local chaps sat for the big quiz, three for the full ticket and one for the limited. Bruce collected another big batch of QSLs for Jim 2AHT at the meeting; Jim must have a mighty score by now. It was a delight to see a visitor to our last meeting in the form of Bill 2ZL. Tony 2ZCT has been a very proud father the last couple of weeks. During the short time he was able to get away without asking permission, Tony built a new turn-stile for the car to give omnidirectional signals on 2. As well he reckons a few more pieces added will make a play pen if the idea is not unanimously agreed upon at home.

Les 2RJ also has a reason now for not being on the air as much as he'd like since he's been given some extra chores to do following the arrival of the infant. During November there is to be a hobbies exhibition at Scone and the branch has clubbed together to display some Amateur gear at this function. It is hoped that this may fire up some enthusiasm in the top of the valley and introduce the Amateur to the public as is our aim.

Kevin 2ZKW, Vic 2AKP, Des 2ZDN and Frank 2APO did a good job during the Scout Jamboree-on-the-Air to further enhance the name of the Radio Amateur and our congratulations go to them and any others who may have been missed for a job well done. By the time you read this, Lionel 2CS will be back in his favourite country and don't forget that he will be the lecturer at our December meeting, to show slides and talk about the trip. Try to make it if you can. The usual place, room 15, classroom block, at the Tech. College is the venue and the date is Friday, 6th Dec. As Bill 2ZL will be supplying the supper, I'm sure you'll want to come. Hope we'll see you as there is no meeting until February. Seasons Greetings and 73, 2AKX.

VICTORIA

MIDLAND ZONE

The month of October showed an increase in activity in the Midland Zone, particularly on the 80 mx band, despite the varying conditions and static level. The Monday night hook-ups on this band have improved, both in numbers and general activity of zone members, together with a few more zone members coming in to keep the ball rolling. Stations active are VKs 3KU, 3KD, 3FO, 3ND, 3AHA, 3AQL, 3MD, with 3ZIK still active on 2 and 1 mx with other members of the zone active on this band. I was on the air for the Scout Jamboree and had a Castlemaine Troop here on the Sunday morning at which time several good contacts were made. Morrie 3KO also was very active on the Jamboree and as the result is now a regular attender on the hook-ups on Monday nights.

SILENT KEY

It is with deep regret that we record the passing of:—

VK2FJ—Jack Ferguson.
Ex-XCP—Malcolm Perry.

As we have difficulty in getting sufficient members to attend zone meetings, it has been decided to conduct as much of our zone business on the air each Monday evening on 80 metres, so all members please note. We usually get under way about 8.30 p.m.

20 mx activity is spasmodic and although I have had some good DX contacts on this band, the interesting feature is the re-appearance of short skip which allows Interstate contacts quite frequently. The increase in s.s.b. activity is also very noticeable. 73, 3ND.

WESTERN ZONE

Guess we all enjoyed the Convention held last month in Ararat. Have some very keen members travelling almost 200 miles each way. Next year Convention will be held early in October, near the border so as these chappies will have an easier day.

Was pleased to see George 3GN, who has not been active for a while. Alan 3HL was unable to come to the Convention because of a wog, but is fit again now, working s.s.b. and a.m. mostly on the DX bands. Your scribe for this month will have S.E.C. power before these notes go to print. 73, 3AKW.

SOUTH WESTERN ZONE

There has been more activity in the past few weeks with 3AGD and 3AKR attending the Thursday night hook-ups. We are hopeful of hearing more of the zone members on especially the Ballarat and Hamilton boys.

3WK is a regular along with 3XE, 3AXI and self. 3ARJ seems to like burning out transformers. 5CJ was in Warrnambool recently, but did not drop in to say hello, you will be in trouble if you do that again Col. With re-

ference to the Jamboree-on-the-Air, John 3AGD is to be commended on his job of organising in this zone. Harry 3AXI and Bill Wines operated portable with the Second Warrnambool Scouts at their camp in the Brucknell bush, but were very shielded. Had contact with Allan 3AYD at Mooroopna but a strong signal washed us out, however Jack 3JA turned his home tx on and we took the boys to his QTH and made some good contacts. Doc Gardner and Bill Wines have now started the Y.M.C.A. Radio Club with 20 students, the official club call sign should be 3AAW. We will meet each Wednesday night at 7.30 p.m. and will be on hook-ups each Thursday night and Sunday morning W.I.A. call-back. 73, Bill Wines.

QUEENSLAND

TOWNSVILLE AND DISTRICT

We all were expecting to have a wonderful time on the Scout Jamboree week-end, but the noise set in and it was frustrating to have so many Scouts and Cubs in attendance when so little was heard and worked. My score was 16 QSOs for 20 hours at the rig. To all those who participated we offer our thanks.

TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

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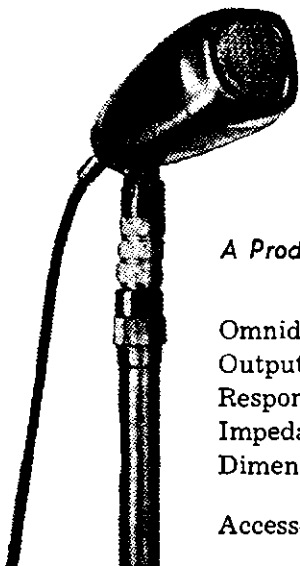
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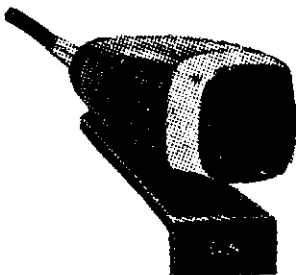
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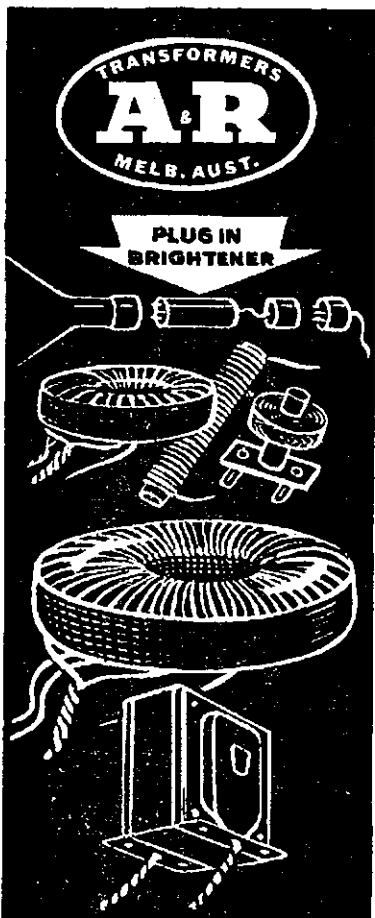
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The weather has now altered since and the Europeans can be heard weakly around 6.30 p.m. E.A.S.T. Bert patiently waits the arrival of George 8NE from the north west. Charlie 4BQ, Ted 4EJ and John 4DD are seldom heard on the band. I wish each and every one the Seasonal Greetings, also in the New Year may your signals never fade. 73, 4RW.

WIDE BAY AND BURNETT BRANCH

Those who tune in to the Kookaburra session on 80 mx at 0700 must be well informed on matters pertaining to radio as the boys discuss antennae, capacitors, radar, push-pull, silicon rectifiers, etc. Newt 4QW came up the other morning with push-push, I thought that he was calling the cat. Graham 4DJ, who has been enjoying a few months holiday at home in Maryborough, is returning to New Guinea. Bert ex-G3WD, Maryborough, now has his VK call which is 4WK, and 160 mx is his stamping ground. Gordon 4GH at Maryborough did his bit by setting up a rig at the Scouts' hut and made 11 contacts of about half an hour each, so that would give the Scouts a fair insight into Amateur Radio. Harry 4ZHG Barry 4LN and Eric 4XR had groups of Scouts at their places. They contacted among others Jim KH6ELQ at Pearl Harbour, Hawaii. Jim was tickled at Harry's "Australian" accent. Harry, by the way, came from G land not many years ago. Eric also came in on this QSO and when they signed off there was a mad scramble from Hams all around the country to have a QSO with him. Another contact was DUIBS/P in the Philippines, whose XYL was doing the logging for him. The station had been operating for 48 hours continuously with relieving operators. They were just acknowledging the call and giving the report as there were so many lined up waiting their turn for a contact. So all things considered, the Jamboree appears to have been a success. 73, Fred Cox.

WESTERN AUSTRALIA

I hear our fame is spreading and we have some very interested bodies on Christmas Is. (Indian Ocean side). A recent successful candidate for the Ham exam was Allan Morgan, 9MD, and we send especial congrats to Allan and all those interested on the island. There is a move afoot in the formation of the local Christmas Island Radio Club, interest is running high and their thanks go to anyone who has donated books, etc., to help them along. The recent 40 mx scramble in Sept. brought Mac 6MM to the top in winning the President's Trophy, with 6KN taking off the Life Members' Trophy.

A host of reports about the Jamboree-on-the-Air during October. Alyn 6ZDM and 6ZBA were hosts to the 1st Tuart Hill Troop. Pat 6PH had 30 Scouts at various times over the period from Kenwick, Wattle Grove, and Riverton. However, the winning ticket must go to Jim 6RU who not only had Scouts and Commissioners present, but Girl Guides as well, and Jim says he is looking forward to the time when they have a Girl Guide Jamboree on the Air! This is closely followed by Ted 6TM who had six Scouts camping on his property at Waroona for the week-end!

Pat 6PH is going to shift to Narrogin. Does anyone listen to Slow Morse? We don't know, neither does Alec 6AS, who has been patiently sending Morse for 12 months now, so if anybody is listening, send in a report, please.

In about six months time we hope some good men will be saying they will come to the aid of their Division. Vacancies will exist on Council for various offices. Start thinking about it now, adjust your programme for 1964 to include a year's service for this Division.

On behalf of all Council members and this Division may I wish you and yours all the best for a Happy Christmas and many more contacts in the year of 1964. 73, 6LS.

TASMANIA

On 8/12/63 the ZLs are holding a mammoth field day on 50 and 144 Mc. Stations from all over both islands will be taking part. The

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VK7 V.h.f. Group is organising a station to operate from Mt. Wellington on 144.1. The call used for the occasion will be VK7WI and operations will commence about 1200 hours our time.

The Scout Jamboree-on-the-Air was by far the most successful held to date. The main reason for this was that the Scouts were better prepared, more sensible questions being asked, and more informative answers given. Stations known to have been participating in the south were 7RX, 7ZZ, 7CT/P at Hounville, 7JB who operated with 7BS, the 13th Hobart Scout Station, portable at Orielton Park, 7EB, 7MF, 7SJ and 7EJ portable at Sorell.

We were recently visited by 5LC and 2ZTM. By the time this goes to print, 7CT will be equipped for reception on 50 Mc., so that he can re-broadcast the v.h.f. notes on the 7WI broadcast. 73, 7ZAV.

NORTH-WEST ZONE

The festive season is almost upon us once more, and no doubt will bring a lot of mobile and portable operation on the bands. In fact Max 7MX has jumped the gun and is somewhere down South on holiday, complete with mobile and fishing rod. Hamfest for '63 is now over. The general opinion is that it was not up to the high standard of last year's function, due mainly to the lack of organised activities, especially those for h.f. operators. Quite a number of North-West Zone members attended. Rather sad to relate that George 7XL lost his mobile whip antenna on the way down, to put him out of action for the day. Merry Xmas to all. 73, 7ZBH.

HAMADS

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Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received at P.O. Box 36, East Melbourne, C.2, Vic., by 8th of the month, and remittance should accompany the advertisement. Call signs are now permitted in Hamads. Dealers' advertisements not accepted in this column.

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FOR SALE: Tx Geloso into QQE06/40, mod. pair 2E26, complete power supply, very small and compact, £25. AR88, absolutely mint condition, £100. Class C Wavemeter and vib. supply, £7/10/0. Broadcast chassis, going OK, each £2/10/0. Car Radio, 8 miniature tubes, permability tuned, works OK, 12 v., £7/10/0. Type 3 Mk. II. and spares, 6146 p.a., transistor modulator, perfect, £20. Dual Vib. Supply for AR88, £7/10/0. BC457A Command Tx, £4. BC458A, converted 80 mx v.f.o., £3. BC454B, 3-6 Mc. Rx, complete, 12v. genemotor and loop aerial for Tx Hunts, £7/10/0. B. & W. Coil Turret, new, 80-10 mx, £3. 12v. Genemotor, complete, cables for 522, perfect, £3. Rx,

b.c./s.w., 5-18 Mc. approx., miniature tubes, £5. C.r.o. Tube, 5FP7, new, £1/10/0. Miniature Wire Recorder, plays 2 hours, complete, miniature battery charger and twin microphones, etc.. mint condition, cash £135, sell £35. Palec Mod. Osc., 150 Kc. to 30 Mc., £15. Philips Oscilloscope, as new, £17/10/0. S.w.r. Meter, twin 0-1 mA. meters, £2/10/0. Tx, small and compact, 1.6-7 Mc., transistorised power supply and mod., £15. Miniature transistorised Rx and B.f.o. for Transmitter Hunts, £3. VK3NZ, 17 College Grove, Black Rock, Vic. Phone 99-4363.

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MOSLEY TA-33 (500w.) Three element Tribander (10-15-20 mx) Beam in original carton, never assembled, £35. John Miles, VK1JM, Mathematics, I.A.S., A.N.U., Box 4, G.P.O., Canberra. Phone 4-0422, Ext. 2962.

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SELL: Heath DX40-Geloso, all bands, both units power supplies enclosed. A.m./c.w., conversion data for s.s.b. available. Very good condition, £70. VK4CK, 72 Canning St., Warwick, Qld.

SELL: KWMI Collins S.s.b. Transceiver, c/w 240v. a.c. power supply, covers 14-30 Mc., easily extended to 7 Mc. (see "CQ" Aug. 1962). Nearest offer to £300 gets an immaculate unit. 23 Surrey Road, Keswick, S.A.

SALE: Panda Explorer Transmitter, all bands, crystal mike, 150 watts. Write VK6WS.

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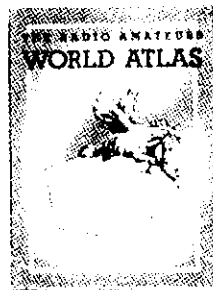


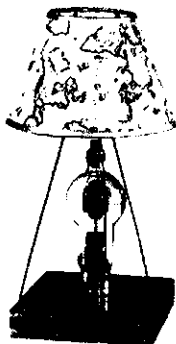
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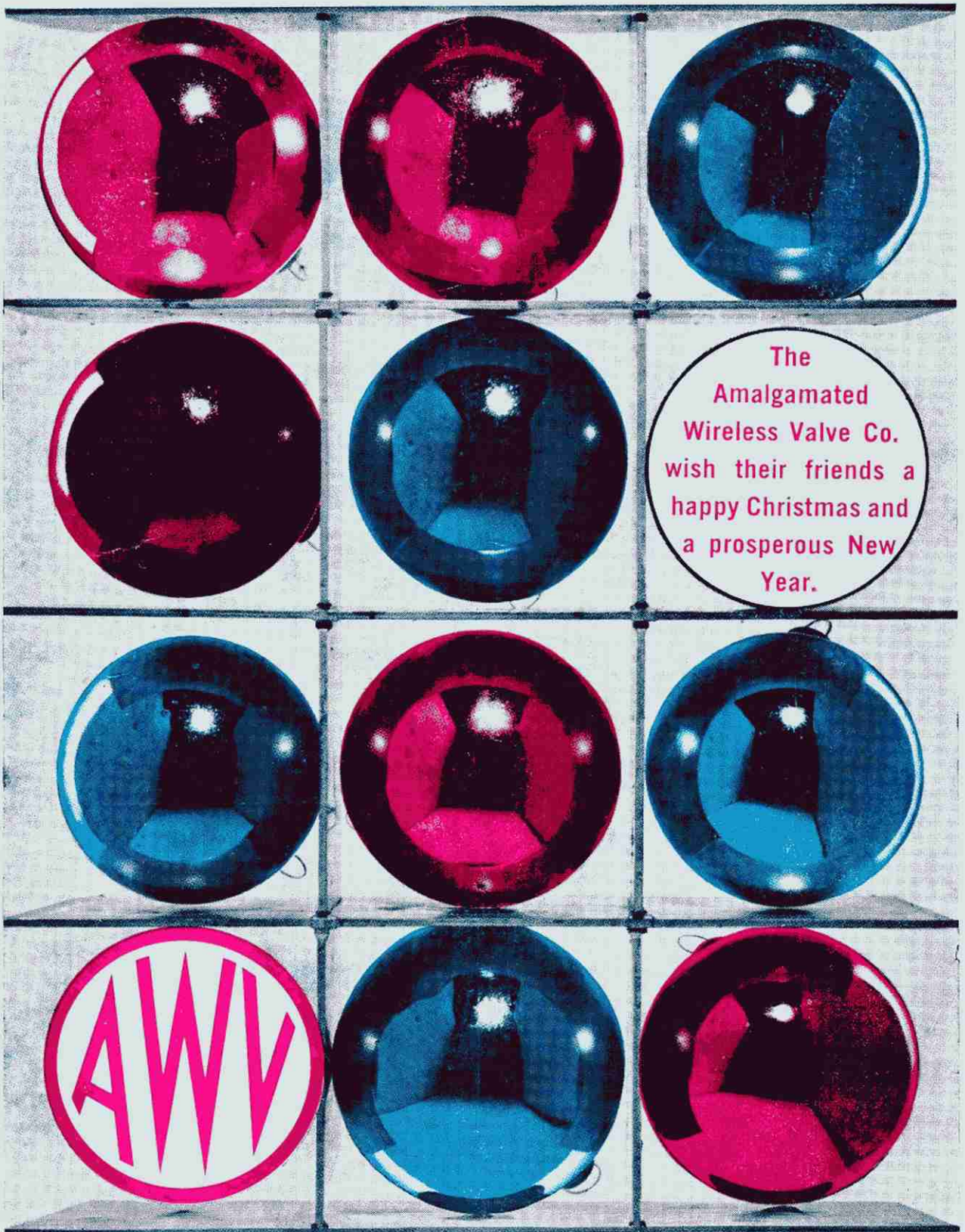
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