



Questions and Answers



CABBAGE (Gisborne) writes concerning our instructions for fitting headphones to an electric set. "I have had phones fitted to my eight-valve a.c. set, but find them unsuccessful. One cannot pick up the distant stations any better than he can on the loudspeaker. I would not advise anyone to fit phones to an electric set. I have taken mine off." In reply to this, we would remark that we are in complete agreement with our correspondent. If you cannot pick up the station on the speaker you would have very little chance of picking it up on the phones, for the simple reason that the noise will be magnified out of proportion. However, phones can often be fitted to an electric set to make listening more comfortable and convenient. Thus, if you wish to listen to the set at some distance from it, you can run a relay line and use the phone only, or, if you are sitting up late at night, and do not want to disturb the house, the phones can be used with the volume turned down. Phones have very many more uses than for merely picking up distant stations.

J. R.W. (Roxburgh).—I have built the Knife Edge Rejecta," but cannot separate KFI from 4YA. The two stations heterodyne. Similarly I cannot eliminate 4RK in favour of 1YA.

A.: We are afraid that the best built wavetraps will not operate stations that are close enough to heterodyne. See our article in last week's issue.

2. I could not procure d.c.c. wire, so I used d.s.c. Would this make any difference?—No.

3. How could I employ the parts I now have to rectify the trouble?

A.: We are afraid you cannot do anything to improve matters. A wavetraps will restrict a broad station to something like its proper frequency, but it will certainly not help heterodyning stations.

CORRESPONDENTS must attach this coupon to all queries sent to the Technical Editor (Box 1032 Wellington). Limit three questions, unless letter is accompanied by 1/- fee.

Name of set

Number of valves

Name

Address

.....

Nom de plume

To be kept in subsequent inquiries.

Date

Please Note:—

(1) Be specific and brief, tabulating, if possible.

(2) Write legibly, and on one side of the paper.

(3) We do not design circuits, but accept suggestions for feature articles.

Solving trouble, as different from advice, is difficult by correspondence and while letters are given every consideration, answers are not necessarily correct—they are only our opinion based on the matter supplied which may be quite inadequate. Intricate and involved specifications cannot be supplied without a specialist's fee.

They heterodyne before they get to your set, so to speak, so that the wavetraps do not really get much of a chance.

DECIBEL (Masterton): I enclose a sketch of my set. The voltages seem unduly high. Is this so?

A.: The voltages are fairly high. It almost seems as though a resistance has broken down. The average modern valve will take a high voltage on the plate, but 215 on the plate of the screen-grid valve is rather too high, and it would be as well to check through the resistances in the main chain, and, if these appear to be all right, put in a resistance between the high tension supply and the common plate lead. The voltage on the 245's is about right, although the valves are not balanced properly, which accounts for the difference in grid-bias. The difference in grid-bias may be due to the valves or the biasing resistances being different.

2. The detector and first audio resistances are the same colour. How would a difference of 15 volts on the plate be accounted for?

A.: By two facts. The detector passes more current, and consequently the resistance, which we are presuming to be the same as that in the first audio, will break down the voltage to a greater extent. The action of unrectified current on the grid of the valve has a further effect in tending toward an increased plate current, and whatever increases the current, lowers the voltage. We presume you have changed the detector and first audio valve, so that the difference is not due to the valves themselves.

3. What current passes in the resistances marked X?

A.: It is impossible to say. You would need to know the drain between "A" and earth. This is the bleeder current. You would have to place a milliammeter between the X resistance and earth and find out the current, then, knowing the voltage dropped, you could calculate the resistance. Undoubtedly, in working out your voltages, you forgot to allow for the bleeder current, and this may be in the vicinity of 15 mamps. In calculating resistances and current, where bleeder resistances are used, you must always add in the bleeder current. Thus, if the screens must be supplied with 1½ mamps, and the next resistance down is a bleeder to earth, and passes 15 mamps, a total of 16½ will flow through both resistances, and this, of course, will have a very big effect upon the voltage.

HERE (Herekino).—1. What constitutes a by-pass condenser?

A.: See the "Diagnosis of Radio," about a month back.

2. Would results be as good, leaving out the .006 condensers when using a six-volts accumulator and "B" batteries in the "Sellens' Shortwave Set?"

A.: That is more than we can say. They prevented instability in the original model. You may find that it will go just as well without it. In any case, try.

3. What are the different "B" tappings?

A.: The "B" voltages really depend upon what you are willing to place upon the valves. "B" 4 and "B" 5 could quite well be joined together, and might be of the highest voltage available, say 135 volts. "B" 3, 22½ approximately, "B" 2 might again be 90 or even 135, and "B" 1 half of "B" 2.

4. I use A615 and A609 in H.R. 4. Would they do for detector and second audio stages of the "Sellens?"—Yes.

5. Is it necessary to shield when one lives far from interference?

A.: Yes. The shielding is not against local interference, but against self-oscillation.

6. Could .00014 condenser, not a double space, be used instead of a .0001?

A.: It could be used, but it will throw out your tuning. You could reduce its capacity to a .0001 by using in series a condenser of a capacity of .0003.

7. I am still battling with R. the W. detector circuit, as an adapter. I am getting plenty of Morse and some stations. What distance apart should secondary and tickler be?

A.: You must try them to see where the optimum coupling is. They should be fairly close.

8. Are my valves right, A615, A609?

Yes.

9. I find I get better results with r.f. valve removed from the set.

A.: This is sometimes the case. It takes a load off the battery, and to some extent prevents back coupling.

10. I enclose a sample of wire. I used 100 turns jumble wound. Is it satisfactory for this purpose, and if so, what is the size?

A.: It is fairly coarse for the r.f. choke, the diameter being 30 s.w.g. d.c.c.

J.P. (Dunedin): Could you supply information regarding a set of coils for the Outspan Five, in order that I may make it into a six-valve set?

A.: For the three r.f. stages you will make three coils identical, that is, aerial coil and first and second radio. These will be as follows:—Sec. turns, 80; 26 d.s.c.; primary turns, 25; 34 d.s.c., wound as described in the "R.R." 4th coil: Sec. turns, 80; 26 d.s.c.; primary turns, 25; 34 d.s.c.; tickler, 30 turns, 32 d.s.c. We think to start with you had better make all the coils with the same number of turns on the secondary, and then remove turns if necessary, to match.

2. What coil alterations will be necessary to use Philips A630 valve in the r.f. stage in a four-valve Browning Drake?

A.: You may have to do some experimenting to use this valve in the first stage. Generally it is necessary to double the number of turns on the primary coil.

3. Could you give me a diagram of connections showing how to add further s.g. r.f. stage to the Outspan Five?

A.: We are not particularly keen on supplying diagrams. The third r.f. stage is merely a duplicate of the first. However if you cannot manage it, send us a stamped and addressed envelope and we shall sketch out a diagram for you.

DX87W. (Wellington): Is it possible to convert a locally-made all-electric local station receiver into one capable of getting distant stations?

A.: We think it most inadvisable to attempt any alterations to this set. The most serious drawback is the power pack, which is built to supply exactly the current required and no more.

W.E.O. (Masterton): What valves are used in the Radiogram Five battery set in the "Radio Guide"? Would the 222 type be satisfactory in the r.f. stage?

A.: Yes, 222 would be quite satisfactory. The wiring is like this. The grid is at the top of the valve and consequently the wire that now goes to the grid terminal in the present layout must come to the top of the valve. The connection

to the coil and fixed plates of the tuning condenser will likewise come from the top of the valve. The spare "G" terminal takes the wire that now goes to the "P" terminal. The "P.T." terminal now left free has connected with it the plate wire which goes through into the next stage. In other words, the grid is at the top of the valve, the plate prong connected with the plate of the valve, and grid prongs with the screening grid.

POWER (Otago).—I have a commercial eight-valve receiver less than three months old. When running round the dial from 100 to about 80, with full volume, there is a loud plopping noise, accompanied by whistling and squealing when static is bad.

A.: The set is oscillating, and it appears that you will have to get in touch with the agents who sold you the set so that it may be overhauled properly. It would be unwise for us to advise you to tamper with commercially-made receivers. As a matter of fact, the writer has encountered a somewhat similar trouble, and it has been traced to a defective volume control or resistances.

2. Would noises from power leaks occur all over the dial or only at certain frequencies?

A.: It would depend upon how severe they are. The possibilities are that they would be all over the dial. We think that much of the noise is due to your set being out of order.

C.H.W. (Invercargill): I have constructed the Sharman Receiver from a recent feature in the "Radio Record," and the results were splendid. My log includes the Dunedin stations, 3YA, 2YA, and 2BL. I could not hear anything until I shorted out the condenser in series with the crystal, although the receiver could be heard oscillating gently when a semi-permanent crystal was used.

A.: The set usually goes better with the condenser, which is used to control the flow of h.f. current to the crystal and so provide reaction. However, if it is

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