



# Questions and Answers



## Defective Batteries.

"G. A." (Invercargill) states that since shifting his factory-built set and driving his speaker by means of a connection through the wall he has not had success. One of the valves will not light.

"A." Although the set worked before this alteration we suspect that the batteries are at fault, the greater lead to the speaker will occasion a greater voltage drop, and unless the batteries are well up they will not be able to sustain it. The fact that the valve does not light indicates either that the valve itself is at fault or the batteries will not supply enough current to light the filament. It is possible that the new position of the speaker is causing a faulty contact, making a high-resistance connection.

## Failing to Log 4YA.

"J. F.O. (Nelson), who has just shifted into the district, states that he cannot receive 4YA in his new locality.

"A." It appears that he is in a bad position. Each station has a zone in which it is difficult for a receiver to pick it up, and it appears that our correspondent has happened into one of these. Maybe the set has been damaged in transit and rendered less sensitive.

## Power Transformer Interference.

WE are in an unfortunate position, writes "Transformer" (Waitotara), for a power transformer close by occasions a great deal of interference. Can we do anything to minimise this in the way of altering the direction of the aerial?

"A." Yes. The aerial should point away from the transformer. If this does not minimise the interference, erect a counterpoise, which in effect is another aerial slung under the main aerial at a distance from the ground just sufficient to be out of the way. See our article on "Interference" published a short time ago.

## A.C. Adapter.

COULD you send me the circuit of an all-electric adapter and also explain what you mean by saying "the use of batteries were required?" writes "T.N." (New Plymouth).

"A." All-electric short-wave adapters are rarely recommended for amateur construction and it is usual to employ one of the battery models. So long as battery current is used on the filament, eliminator current may be used on the plate. For the filament dry cells would be sufficient. A suitable adapter was described in the "Listeners' Guide," but omit the fixed condenser between "P" of the valve socket and A plus.

## Oscillation Trouble.

I HAVE a new kit set, writes D.M.L. (Hawera), but find that I cannot turn down the filament current without causing oscillation. If I wish to control volume I must detune.

"A." There may be several reasons for oscillation, as it seems that this is the cause of the trouble. There may be an open neutralising system (if this is used with the screen grid valve), excessive plate voltage on the R.F. valve, excessive grid bias on the screen grid or open bypass condensers between the plate of the

radio valve and the filament circuit. Examine these points carefully and if necessary apply the continuity test with either a pair of telephones or a voltmeter and a small battery.

## Excessive Filament Voltage.

"RHEOSTAT" (Oamaru) has constructed the "Radio Record" "B" eliminator, and has had considerable success. He used the filament winding to light a power valve, but in this part of the business was unsuccessful. One valve was burnt out, and he now wants to know how he can test the filament potential.

"A." It is advisable to obtain a reliable A.C. meter. These are readily obtainable and will read low voltages from half a volt to about seven. They are, however, rather expensive, and it would not be advisable to purchase one for a single test. The easier method is to obtain two 30 ohm rheostats and insert one in each of the leads from the filament winding to the valve. Turn these into the maximum position and try another valve. If an old one of which the emission is almost exhausted is not readily obtainable get a torch bulb registered at four volts and try it in the circuit. If it burns out or unduly bright increase the resistance, but be quite certain that the resistance will carry the current.

## Units for Cone Speaker.

I HAVE made a large linen cone speaker, writes W.M.B. (Matamata), but I am unable to obtain a suitable balanced armature unit with a reed of necessary length. With both Blue Spot and Baldwin units the reeds are too short.

"A." Use either and extend the reed by tapping it and threading on a collar and an extension reed. Suitable tapped rods may be obtained from almost any radio dealer or failing these from Fear and Co., Wellington.

WHAT is the difference between 66A and 66K units? asks J.B. (Nelson).

"A." 66A is not adjustable, whereas 66K is. 66A and 66 Anchor differ only slightly.

2. If the rheostat is turned full on there is less volume when it is about half on. Is this usual?

"A." There may be two reasons for this. Either the valve is, with the rheostat half on, heated to its maximum and further heating causes choking, or with the greater emission with the rheostat full on, either the valve or the speaker is overloaded. This would first manifest itself by distortion.

3. If I disconnect the detector or r.f. lead I can still hear weak signals. Is this correct?—Yes.

4. I have a four-pole 6-volt car generator which I wish to use for a battery charger. It works all right in a motor but will not generate. What is the cause of this?

"A." The question is not clear. Does the correspondent mean that it will work all right with the motor, but will not function satisfactorily when charging an outside battery. If this is the case, or if it will not charge at all, it is a case for a motor electrician.

## 2RF Browning Drake.

I HAVE just finished the 2RF Browning Drake described in the Radio

"Listener's Guide," writes R.A.B. (Kaiapara), but am in doubt as to whether the end of the secondary winding of the secondary radio frequency transformer should be connected with A+ or A—.

"A." A negative bias is always applied to the radio frequency valves so that the connection (the grid return) will be joined to A— as shown in the lay-out diagram.

2. I have used .00035 condenser in all four position; how many turns shall I put on the aerial coil for one of these condensers?

"A." Use 24 gauge double silk covered wire and wind on 68 turns without any space. This would be the specification for all grid coils tuned with these condensers.

3. The reaction condenser does not have any effect. With the tickler in position as per instructions, the set is uncontrollable.

"A." Reduce the number of turns on this coil and include a by-pass condenser between the plates of the radio frequency valves and A— or earth.

## Screen Grid Detector Two.

CONCERNING this receiver, K.A.K. (Oamaru) asks the number of turns for broadcast coils for this set.

"A." As the aerial is tuned with a .0001 condenser, two coils will be necessary. Using 24 gauge wire D.S.C. the number of turns is as follows:—150-300 metres, 80 turns; 300-500 metres, 160 turns.

Note.—There was a slight confusion in the text, follow the diagram for connections.

## Improving Selectivity.

HOW can I improve the selectivity of my set? asks "D.F.B." (Dunedin). The tuning condenser has 21 movable plates, with a honeycomb coil. I find

the local station, even when very low power, comes in all over the dial.

"A." The simplest way to improve the selectivity of any set is to build a wave-trap like that described in the "Radio Listeners' Guide." Other methods are reducing the coupling between the aerial and the grid coil of the first r.f. transformer, putting the condenser in series with the aerial, and shortening the aerial.

2. I have added a two-valve amplifier, but when I heat the filament to anything like the correct voltage the hiss becomes too loud to hear the distant stations. I hear 2BL very weakly, no stronger than with the single detector. The voltages and grid bias are O.K. and the set oscillates properly.

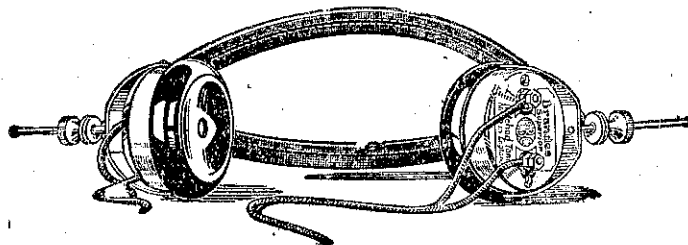
"A." There appears to be either a mistake in the wiring or a defective component. Taking it for granted that you have thoroughly checked up the wiring and compared it with an authentic diagram we should suspect first the audio transformers. Try reversing the connections to the primary and test these by the continuity method. This commonly known as the 'phones and cell has been several times described in the "Radio Record" and the "Listeners' Guide." Heating the valve past its allotted temperature will not increase the emission but will shorten its life.

## Converting a Set to A.C.

M.K. (Wellington) has raised some interesting points relative to the conversion of a three-valve set to A.C. He has enclosed a copy of his circuit, in which we have marked the changes necessary to make this an all-electric. (1) My valves will consume 1.95 amps. If I wire the transformer with 18-gauge will this be sufficient?

# Brandes

The Name to know in Radio



Made in England

Price 15/-

OBTAINABLE FROM ALL RADIO DEALERS or  
INTERNATIONAL RADIO Co. Ltd., Ford Bldgs., Wellington