



Questions and Answers



Short-wave Adapter.

HAVING in view the construction of a short-wave adapter, will you kindly inform me as to:

1. Whether it is possible to use a "B" eliminator satisfactorily with (a) a short-wave set, (b) a short-wave adapter, using a separate "B" supply for the detector, the eliminator being used only for the audio stages?

A.: An eliminator for short-wave work will in most cases work in quite well. If it is at all rough, an extra choke in the "B" supply to the by-pass condenser would be all that is necessary. Battery current on the detector would possibly overcome this.

2. Whether the method of constructing coils described in the "Radio Record" for December 9, 1927, would be more efficient than that illustrated on page 103 of the "Listeners' Guide."

A.: Large space-wound coils are more efficient than smaller plug-in, but the difference is so very slight that the added convenience of the plug-in coils well outweighs any advantage gained by space-winding the turns.

3. In constructing a transformer for the supply of A.C., does the number of turns indicated in the table in the "Listeners' Guide" require doubling or halving?

A.: As there will be no centre tap or rectifier, the number of turns will be exactly as indicated in the table.

A License Question.

IF I were to install a valve set would I have to get my license altered if I now have one for a crystal set? asks "R.M." (Newtown).

A.: Provided the valve set is of an approved type, no. In almost every case commercial sets are approved. All those appearing in the "Radio Record" come within the Act.

Distortions from a Dynamic.

"DYNAMIC" (Blenheim) has recently acquired a dynamic speaker that gives him results that are not equal to those he used to get from a good cone speaker. He asks if a step-down transformer or output filter is necessary between the last valve and this speaker.

A.: As it is commercially made there is no necessity for any output device other than that supplied by the speaker. If possible, take the speaker to a friend's place and check the results thereby obtained with your own. If the speaker is then at fault return it to the agent who sold it to you.

Converting a Set to Short-wave.

"J.D." (Marton) sends a circuit diagram of a three-valve Brownings-Drake, and asks if he can adapt the coils for use with short-wave. He states that the primary and the tickler will contain twelve turns of 34 gauge wire.

A.: A set of short-wave coils may be constructed and used as described by "Pentode" in his description of "Round the World Two," a short-wave receiver described in our issue dated April 26. It

is considered that unless a valve of very low impedance is used as radio frequency, it would be advisable to increase the number of primary turns to about 15, and use 30 gauge wire. The same time, it may be necessary to put more turns on the tickler. Again, 30 gauge wire would be an improvement.

2. What is the function of the neutralising condenser?

A.: Briefly, the function of this piece of apparatus is to balance out the inter-valve capacity of the radio frequency valve. "Cathode" is preparing a special article in his "The Design of Inductance Coil" series, which will deal with this question very fully.

Position of Valves.

I HAVE had my set for two years, and just replaced the valves, writes "J.W.A." (Awakeri). I am wondering whether I have done right. The positions (according to a sketch) are as follows:—First and second radio, R.C.A.; detector and first audio, Philips; second audio, R.C.A.

A.: Without stating more specifically the number of the R.C.A. valves, it is impossible to say whether the combination is the best obtainable. It is questionable whether 615 as first audio could not be improved by the use of R.C.A. 201A, or Philips 609. The last valve should be an R.C.A. 112A or 171A, or Philips 605 or 609. Of course, other makes of power valves may be used equally well in the last stage.

Power Valve as First Audio.

CAN you help me to get better results, writes "E.E.D." (Pahiatua). When the set goes into oscillation, it makes a bubbling sound like a motor-boat engine and the set distorts. I am using a resistance-coupled amplifier with two 605 valves in the audio, a UX200 detector, and two 201A's in the radio stages. A Mullard pentode is in the last stage.

A.: You are using two power valves where you should be using general purpose valves. The 605's are intended for last stage operation only. Their use in any other portion of the set saturates the transformer, causes distortion, and wears the battery down very rapidly. Substitute these valves by 609's or 201A's.

Units for the Silk Diaphragm.

"A.J.A." (Oamaru) asks where he might obtain the 66P unit referred to in the description of the silk diaphragm speaker, and where he can obtain the bolt with a hole in the centre for holding the pieces of silk together.

A.: 66P can be obtained from the Rodger Importing Co., Christchurch, but 66A and 66K, other suitable speakers, are procurable from many dealers. If unobtainable locally, Fear and Co., Wellington carry a stock (price 80s. and 32s. 6d.). The bolt can probably be obtained from any engineers or radio dealer. It is unlikely that it would be carried in stock, but it could be very easily made. The volume from this speaker, providing a good set is used, would be ample for your requirements.

2YA on a Crystal Set.

CAN you explain why I get 2YA and 2FC on my crystal set, when I am situated in the Auckland district? writes "E.B." (Bombay).

A.: You have evidently a very good crystal in your set. Long-distance reception on this type of set is not uncommon. Listeners in Wellington are known to have received 2FC regularly for some considerable time.

A Defective Transformer.

"W.E.L." (Napier) appears to have a defective transformer, for he states that after the set has been switched off for, say, twenty-four hours, it appears to be dead, then after a few seconds, a few loud crashes are received, and then the set settles down to normal. If a finger is placed on the frame of the first audio transformer, a noise prevails in the loudspeaker, similar to the scratching of a pickup.

A.: This latter statement causes the second audio transformer to be suspected. When once the set is going the break in the winding is arced across, and the set functions normally. When, however, any interruption or vibration occurs, the circuit is opened and closed rapidly, causing a crackling noise. Replace this transformer or have it tested, and it will no doubt become apparent where the trouble is situated.

2. Is a fixed condenser necessary in a push-pull amplification stage?

A.: The correspondent does not state in which position the condenser is to be placed, but if it is a DC circuit, there is no call for a by-pass condenser in any position, unless across the primary of the input transformer.

3. Can you suggest an automatic volume control to counteract fading?

A.: Sorry, I wish we could, it would be worth money.

Gauge of Wire.

CAN you identify the pieces of wire attached under the following headings: gauge, ohms per yard, current carrying capacity.

A.: Both samples. Gauge 40 SWG, enamel; ohms per yard, 1.3; current carrying capacity, 20 milliamps.

2. I have recently installed my 5-valve neutrodyne in a cabinet, but find that when both rheostats are turned on an an-

noying whistle which rises in volume occurs, and an annoying plop is frequently heard in the speaker, but this can be turned off by adjusting the ordinary condensers. Adjusting the neutralising condenser seems to have no permanent effect.

A.: It appears that the set is not neutralised, for although you may alter the neutralising condenser, the set may yet remain unstable. Neutralise it as suggested in the "Radio Listeners' Guide," and if the squealing still persists, look for an open circuit or a resin core joint in both neutralising circuits. Test the valves for emission, and try shifting the speaker and the speaker cord to do away with any chance of pickup. An output filter may have a good effect. It is likely that in shifting the set to the cabinet, you altered the relation of the components to one another, or damaged one of the contacts in the radio stages.

Tone Mushy.

THE tone is a bit mushy in my three-valve set, writes "D.W." (Auckland). I blew out the original valves and replaced them with the equivalents in different makes. I have tried different bias, but without results. All my batteries are O.K., as is my antenna and ground system.

A.: Was the tone mushy before the new valves were introduced. If not, then the introduction of these valves is at the base of the trouble. The detector in this circuit is very sensitive to any change, and the writer's experience has been that very few valves can replace this one with any measure of success. Both are high-resistance, and theoretically there should be no difference, although there is a difference of 20,000 ohms in their impedances. Probably the voltage is too high for this new detector, so try the effect of a 1 megohm grid leak in the plate lead to the detector. Lift the wire between the by-pass condenser and the first audio transformer, and put the grid leak in here. This should reduce the voltage and solve the trouble. Does the application of the screen grid voltage make any difference in the signal strength. If not, this valve is at fault.

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