

REGULAR READER (Christchurch).

—I find the Radiogram Five goes better with C-1 removed from the eliminator. With connections as they should be volume is only half.

A.: If grid-bias from a separate source is used there will, of course, be no grid bias resistance, and certain alterations will be necessary to the circuit. The cathodes will be earthed direct, and the grid return of the first audio transformer taken to an appropriate "C" tapping in the eliminator. This must be found by experiment. It is certain that if these connections have been made right the audio part will function quite well. It is just a matter of experimenting with the grid bias until the correct value has been found.

2. If I use the set with the "C-1" disconnected will it affect the valve?

A.: If you have no bias resistor in the circuit then it will most assuredly do so, but if bias resistors are used "C" battery tappings on the eliminator should be left alone.

STEWART (Mataroa).—My set is erratic, sometimes volume will come in at full strength, and at other times very weakly.

A.: This sounds like a broken down condenser. Have your set overhauled by an expert.

FARAD (Invercargill).—Using the enclosed circuit for an a.c. shortwave adapter, are all components correct?

A.: No; in the first place, the resistance is not employed in the filament circuit. The radio frequency choke is to be placed between the positive of the battery and

the connection to the tickler. Between the battery positive and the choke insert an audio frequency choke.

2. Could the regenerator condenser be omitted if I employed a correspondingly large number of tickler turns.—Yes.

3. What would be the value of the condenser between the plate of the detector valve and the audio frequency choke?—.3 mfd.

Note.—A suitable shortwave adapter is described in the 1930 "Guide."

EXPERIMENTER (Orari): I am

building the 100-watt transformer described in the 1931 "Guide." Should the winding start from one side and work back to the other side, and then a layer of paper, and then work back to the commencing side, or should it be wound all the one way?

A.: No; work in two directions. Work away from you, then a layer of paper, and then toward you.

2. For an oscillator coil of a super-het. set using 200 henrys and a .0005 condenser what will be the number of turns?

A.: On the secondary employ 65 and on the regeneration coil 30 turns.

3. In what order will the windings be on the coil?

Questions and Answers

A.: Wind the tickler at the high potential end of the secondary.

4. Will B2 choke be satisfactory for the power-pack?—A.: No; use B1.

NESCIO VERUM (Christchurch):

Your queries will be the subject of a special article now being prepared.

LINDY (Auckland): Can I use the transformer which comes with my dynamic speaker as an output transformer for push-pull stage? It is centre-tapped.

A.: Yes, providing it will stand up to the current, but if you double bias your valves you need have no worries on this score. If you wish to use an output transformer use a 1-1 and couple the secondary with the primary of the transformer already in the speaker.

2. I cannot reconcile your statement about double biasing valves with what I have seen previously.

A.: It is not the usual thing, but it is quite satisfactory and works. Furthermore, it will save the output transformer from a heavy drain.

SOUTHLAND (Tokanui): My set uses 220 valves. How can I change it to use 227?

A.: We are afraid you cannot; it would mean redesigning your set and this would be an expensive and difficult task.

QUAKE (H.B.): Could you advise the name of the agents for a Balkite battery eliminator?

A.: Ballinger's, Wellington, to whom we suggest you write for further information.

SOMNOS (Auckland): When will your instructions for making the Outspan Five a single dial set appear?

A.: To be quite frank we have not had success. We find that invariably sensitivity is lost when the condensers are ganged. It seems very difficult to balance the coils perfectly, so that they will resonate with the condensers on all frequencies. Some constructors have done this satisfactorily, whereas others have attempted it and have not had success. However, at some future date we will publish the necessary instructions.

V.G.W. (Wellington): Could the transformer of a Philips 450 charger be employed for a filament lighting transformer by rewinding the secondary? If so, how many turns and what gauge of wire must be used to give 2.5 and 4 volts each to supply 4 volts?

A.: Yes. You can compute the turns volt ratio at 5.5 turns per volt, and if you use 16 gauge wire you should be able to make the transformer you desire.

MOIWHARE (Feilding): Last year you mentioned the possibility of a shortwave adapter using the differential condenser. Has this appeared?

A.: Yes, in the 1931 "Radio Guide." 2. Would it be of any advantage to put the push-pull stage of the Radiogram Five in the Outspan Five in place of the last valve?

A.: Yes, a decided improvement, as you would get a far greater undistorted output.

R.A.P. (Pio Pio): Can you advise the impedance of the Jensen D9?

A.: We regret we do not have this available. Should anyone have located it would they kindly let us know?

2. Which pentode valve would you recommend to work with the above speaker?

A.: That depends upon the available battery voltage and current. We suggest a B443 type.

3. Is the reaction condenser in the Outspan Five .0002 or .00022—.0002.

KINCORA (Cambridge).—When I

bring my tuning dial into resonance the set bursts into oscillation. I have tried all the usual "cures" and have failed.

A.: We can suggest very little unless it is the placing of a 500 ohm resistance in series with the grids of one of the s.g. valves. That will stop the trouble, but it will to a certain extent make the set less sensitive.

CURIOUS (Timaru).—I want to use my speaker in another room. Would ordinary light flex be suitable?—Yes.

2. Is it advisable to put the "A" battery on load while it is still warm from charging?

A.: A battery after it has been charged should never, never, be warm. This indicates that the charging rate has been exceeded, and that the battery is being damaged. Never charge a battery at a rate greater than that stipulated by the manufacturers. If your battery is warm after charging the indications are that the makers' instructions have not been followed. Generally speaking, a radio battery should not be charged at a greater rate than two amps.

3. Is a pick-up worth while on a battery set operated from 90 volts?

A.: Yes; it will give better results than a good portable gramophone.

TRAPPER (Rangitua): Could I use a wavetrap such as described for an 8-valve a.c. broadcast set?

A.: Yes, but your set should not require a wavetrap.

R.O. (French Pass): I have a low tension magneto. Can this be used to charge a four-volt accumulator?

A.: Yes, but you will probably have to use a resistance made of 18 gauge resistance wire wound round a cylindrical former to break down the charging rate to about 2 amps.

2. Could I use three two-volt cells, having one on charge and two in use?

A.: It would not be a very good plan to use a partly run-down accumulator with a fully-charged one. A better plan would be to have two complete 4-volt batteries, or, if you are using two-volt valves, two-volt batteries, and use them alternately, the one not in use being on charge.

3. For best results in a B.D. s.g. set, should the aerial and tuning condensers be the same size?

A.: Not necessarily, providing the coils are matched to the condenser.

TUNED ANODE (Wellington): How many turns and what gauge wire must I use for the primary winding of a transformer to be employed in the double rectification crystal circuit?

A.: We do not advise you to make this. It would be a long, tedious job and even then may not give you the results you expect.

G.W. (Manakau): I have a five-valve set with 201A valves. Can I use the power unit and battery charger described in the "R.R." recently?

A.: Yes, but we suggest that you use a power valve in the last stage. You will have ample voltage from the power pack and applying this to the valve will do no damage providing the last two valves are adequately biased. This means increasing the "C" bias battery to whatever is stated by the manufacturers. "Bias at maximum anode voltage."

2. Would B+ s.g. be suitable for the detector, and what voltage is this?

A.: Yes, but a variable resistance must be placed in this lead. The value should be approximately 10,000 ohms, and must have connected across it a by-pass condenser of 2 mfd.

IN DOUBT (Lower Hutt): I have constructed "R. the W. Three," and am having trouble with the set distorting. Voices are very nasal.

A.: Try the use of a power valve of the B609 class in the second audio stage and bias this correctly.

2. What are the equivalent values of I.P., O.P., O.S., I.S.?

A.: B+ "P," "G," "T."

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