

been constructed, and is doing great work on the distant stations.

2. Would a Bluespot cone speaker work well on the set?—Yes.

3. Will it be battery or electric?—Battery.

4. Would a Daniell cell charger work satisfactorily with a six-volt accumulator with this set?—Yes.

"LOWLOSS" (Wellington): Is a frame aerial suitable to pick up 2YA on a crystal set? I had success once, but have never been able to get good results again.

A.: A frame aerial is not at all suitable for a crystal set, although you have made the adaptations to your crystal set that such an aerial requires. There is not enough signal pick-up from an aerial.

2. Is reception improved if the aerial is running, (a) at right-angles to the station, (b) toward the station?

A.: It should run toward the station with the lead-in of the point most distant from the station.

3. What is the optimum capacity for a condenser for 60 turns of wire?

A.: On a 2½ in. former, a .0005.

JAKA (Hataitai): In the Differential Two would 6 volt valves be more efficient than four volt?

A.: There will be very little difference, certainly not worth the extra running expense of the six volters.

2. Is a rheostat necessary if four or six volts are used, with a battery of the same voltage?

A.: No, but the rheostat makes a good volume control.

3. I extended the valve base with cardboard and covered it with a photograph negative which makes the circum-

ference half an inch greater than specified. I put on a few turns to counteract this. Would your specifications be satisfactory for the 60 to 100 metres coil?

A.: Yes, the slight difference you have made in the size of the coil will not have any material effect upon the tuning range of the coils.

4. Would it be worth while to construct an h.f. choke and if so what would be the details?

A.: A short-wave choke would be better than a long-wave one if you are intending to use shortwave only. A description appears on another page.

5. Is a "C" battery necessary for short-wave?

A.: It would be better as it would save the battery consumption and give you better tone.

THREE-COIL TUNER (Christchurch): I have made the circuit round the three-coil tuner and I enclose a diagram of it. It is not altogether satisfactory. Can I use three 201A valves?

A.: Three-coil tuner sets of the type indicated are more or less out of date. We are incorporating the very latest ideas in small sets in our Differential series, and would advise you to convert your set to this. However, 201A's would be quite suitable except in the last stage, though we advise the use of a high gain power valve.

2. I have wound the following turns on 3 in. coils:—Primary, 36; secondary, 90; tickler, 12. Are these correct?

A.: There are not sufficient tickler turns. Try doubling the number.

3. 3YA comes in all over the dial. Why is this?

A.: With a set such as this used without wavetrap, the local station will certainly come in all over the dial.

4. What value grid-leak would be suitable?—2 megohms.

5. Would a .001 by-pass condenser across the transformer make any difference to the circuit?

A.: It would probably cause it to oscillate more smoothly.

6. I get a crackling noise and then a rushing. Why this?

A.: It sounds like a defective grid-leak, or grid condenser. Try reducing the detector voltage and increasing the number of turns on the tickler as suggested.

7. Would a Ferranti 3-1 and Emmco 5-1 do for this circuit?

A.: Yes, they would be quite good.

NORTH ENDER (Dunedin). Is the Mullard screen-grid valve quite as good as the 224?

A.: No, they are about equal in efficiency.

2. Is the 625 a better power valve for heavy work than the 605?

A.: The 605 is a high gain power valve, and if you want to drive a large speaker and have 200 volts available, P625 would be the better valve.

3. How many turns would I put on the primary of an inter-valve transformer to match the 224 and 54V?

A.: On a 1 in. former you will require 40 turns.

4. Would a rheostat in the filament of A609 in the r.f. side be any use as a volume control?—Yes.

5. Would a decoupling resistance be needed in the plate circuit of the s.g. valve?—Probably not.

6. Where does the neutralising tap come on an 80 turn 2½ in. diameter former?—At the twenty-fifth turn.

S.W. (Hawera): I am experiencing a great deal of noise with my set and I cannot turn up the "A" battery unless there is a strong audio howl.

A.: We could have sorted your circuit out better had you sent us a theoretical diagram. Glancing over the one you have sent in we notice that you are using a 10-1 inter-valve transformer. This is far too high. Use at the most a 5-1, though a 3-1 would be better. This is probably the cause of all your trouble.

FOUR-450 (Rotorua): I have been troubled with decreased volume and have had two sets of valves blown out.

A.: It is not easy to say what is the matter with your set, and it probably would be a wise thing to have it properly overhauled. We suspect either a broken-down condenser or a "B" wire touching an "A" wire. Look over your set for any points where the insulation has been worn off, and then use one of your old valve bases, attaching the wires that come up from the filament prongs to a torch bulb rated at 6 volts. Put this in one of your sockets, then jerk the set about, fiddle with the wires, and do anything likely to repeat the circumstances under which the other valves burnt out. Repeat this with the torch cell in different sockets. If the torch bulb is blown and you cannot locate the trouble send your set to a reliable radio technician.

MY set works sometimes and then it refuses to make a sound. I have renewed the rectifier in the eliminator and notice that the voltmeter on the panel will first show 65 and then after about five minutes drops to 20, and later will fall right off to nothing.

A.: Have you tried another eliminator? It seems that there might be a broken-down condenser in the power pack, otherwise it would be a case of very carefully testing out the wiring and all the components to see that there is nothing broken down.

S.O.S. (Auckland): I cannot get my commercial three-valve set to work well. Do the parts in a valve set deteriorate after twelve months?

A.: The grid leak deteriorates and condensers may burn out. Valves lose their emission and batteries need renewing. Other than that there is very little that can deteriorate in a set.

2. Do you think my set wants overhauling?—Yes.

3. Would you advise me to discard it and replace it with a new electric set?

A.: No; we think your set can be fixed up by a reliable expert.

4. Would a three-valve set get the New Zealand stations and the Australian, at the same time cutting out 1YA?

A.: It will probably get the New Zealand and Australian stations, but it is doubtful if it would eliminate the local.

SHUNTER (Mercer): When will you publish the new B.D. circuit?—February 20.

2. When can the "Radio Guide and Call Book" be expected?

A.: Early in April.

3. Will you give me the specifications of a high frequency choke?

A.: They are given on another page.

4. Would the former described in the "Guide and Call Book" be suitable?—Yes.

5. I have an eliminator. How can I step-up the output to twice the capacity?

A.: You cannot without redesigning the transformer.

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"Radio Receiving Tubes," by Moyer and Westrel, 14/-.
"How Radio Receivers Work," by Roberts, 8/-.
"Radio Design," 1/- per copy.
"Radio Engineering" (a monthly issue), 21/- per annum.
"Wireless, the Modern Magic Carpet," by Ralph Stranger, 4/9 (Favourably reviewed by Editor "Radio Record").

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RADIO DIRECTORY

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BROWNING DRAKE SPECIALISTS	F. J. W. Fear & Co.
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BURGESS RADIO BATTERIES,	All Radio Dealers.
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MAJESTIC RADIO RECEIVERS	Kirkcaldie & Stains,
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MULLARD VALVES	All Radio Dealers.
PILOT 1930 PARTS—PILOT SUPER WASP KITS, GILFILLAN, KELLOGG and AT-WATER KENT SETS	Harrington's, N.Z., Ltd.,
	138-140 Queen St., Auckland. 40-42 Willis St., Wellington.
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