

had an ordinary cone speaker. You need a power valve if not a power amplifier to get the best results from such a speaker.

2. Can I use a trickle charger to energise the speaker field which is wound for a 6-volt supply?

A.: Yes, but you will need to shunt an electrolytic condenser across the output of the charger.

3. Will the wire taken from the primary of an ordinary transformer be suitable for winding the moving coils?

A.: If you use a step-down transformer the fine wire would be quite satisfactory.

DUPLEX (Blenheim): Do you consider it worth while to have the super-heterodyne receiver illustrated in the accompanying magazine made up?

A.: It is a good receiver, but we venture to say a better one will be described in our constructional columns before long.

2. Do you consider its distance-getting ability is greater than that of the standard factory-built set?

A.: Most decidedly yes.

3. Does it comply with the P. and T. regulations?

A.: If you wind a separate and secondary for the aerial coil it will probably do so. It is just hard to say whether a circuit can be approved by merely looking at it. The set has to be tested in the P. and T. laboratory.

V.C.T. (Wanganui): How many plates of the size enclosed are necessary to make a .00005 and a .00015 condenser?

A.: For the .00005 use two moving and three fixed, for the .00015 use eight fixed and seven moving. They will be quite suitable for the "Advance" short-wave receiver in the "Radio Guide."

T.O. (Invercargill): My aerial is 40 feet high at one end and 25 at the other. I get a great deal of noise which is not apparent when using an indoor aerial or when the outside aerial is shortened to 60 feet.

A.: It would seem that some of the joints are not satisfactory or that you are living in a locality where interference is bad and the shorter aerial minimises the pick-up.

KELBURN (Wellington): Would you let me know the number of turns for the broadcast coils of the Sellens short-wave receiver? I am using valve base coils.

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A.: You will need two coils, the first will have a secondary of 80 and a tickler of 30. The next will have a secondary of 148 and a tickler of 65. These specifications apply to the detector coil. The r.f. coil will have the same number of secondary turns as the detector, but the primary will be a few turns less than the secondary in each case. The wire is 30 gauge enamel for the secondary and 30 gauge d.s.c. for the secondary.

2. In the lay-out diagram the switch is shown between the plate of the first audio and the grid of the second audio.

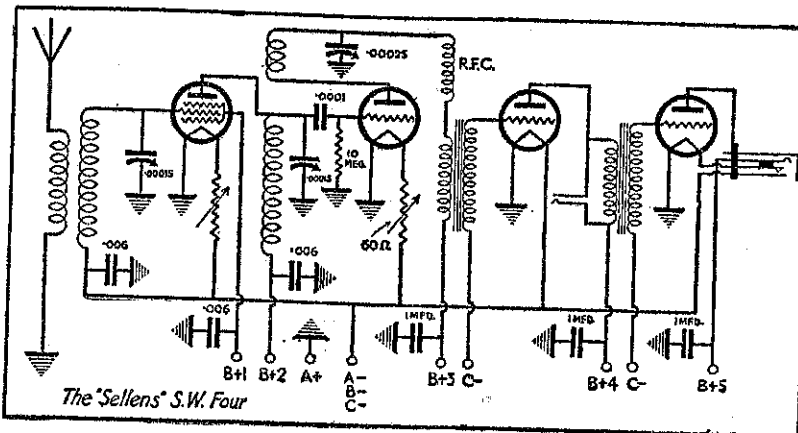
correct you will get your set to function all right.

2. The broadcast set to which the adapter has to be connected has two stages of tuned r.f. Is this sufficient?—Yes.

3. Must the return from L.5 be connected to any point of the set?—No.

4. Would increasing the number of turns on L.4 cause the set to oscillate?

A.: If correctly constructed it should oscillate with the number of turns given, but increasing the number of turns would certainly help oscillation.



The "Sellens" S.W. Set illustrates tuned anode method of coupling of the s.g. valve to the detector.

The text differs from this. Which is correct?

A.: From the plate of the first audio to the grid of the second audio.

POWER PENTODE (Kauroa): In which issue of the "Radio Record" were details of the Loftin Four published?

A.: December 4, 1930.

2. Is it harmful to use a 232 type s.g. valve with zero grid bias?—No.

3. In a recent issue of the "Radio Record" mention was made of a new pentode for portable and battery sets which had a very low "A" and "B" battery consumption. What type is this?

A.: The new Philips B443.

NESCIO VERUM (Cashmere): I intend to build the Loftin Four with 245 parallel valves, using a dynamic speaker with a 2500 ohms resistance. Where can this be used?

A.: Substitute it for the 2500 resistance in the published circuit.

2. Can I use .00035 ganged condensers with matched shielded coils instead of those published?—Yes.

3. What hum bucking condenser is used, .5 or 1 mfd.?

A.: Either will do.

4. Will I have to increase the secondary voltage to accommodate for a 2500 ohms field resistance?

A.: No, not unless this is used in a position other than that indicated in the text of the previous articles.

B. G. (Nelson): I have a five-valve neodyne set and wish to put in another power valve. Do I have to put in another "B" battery as well as a "C"?

A.: It depends upon the amount of voltage you now have available. A power valve should be worked with a power of 135 volts, though 90 will do. It is really better to put in the extra block and bring your "C" battery up to that required by the manufacturers for the particular valve you install.

RHO SIGMA (Ngao): I have recently completed, according to the somewhat meagre specifications in the 1931 "Guide," the super het. shortwave adapter and it failed. I have had to guess at some of the components.

A.: We publish herewith a diagram with full explanations, also a diagram of the layout. If you will follow the instructions given and get the components

F.D.W. (Lower Hutt): Can I add a stage of r.f. to the a.c. Night Hawk shown in the "Guide"?

A.: If you intend using it for all-wave work it is not advisable to do so. We hope at some future date to describe the Electric Night Hawk, also the Electric Kestrel, but we cannot say anything definite yet.

STUMP (Napier): I constructed the Loftin Four and followed the instructions to detail, but every time the condensers are brought into resonance the set oscillates. How can this be prevented?

A.: By reducing the number of turns on the primary coils and r.f. chokes in the "B" leads to the screen grid valve.

2. How many primary turns are required for a transformer using a stalloy core 1.8-in. x 1.3-16in., and what are the number of turns per volt?

A.: Primary 1470 turns, of 28-gauge wire, turns per volt 63.

L.H.L. (Lower Hutt):—I would like the specifications of a two-valve battery set. Can you supply full particulars?

A.: We shall do so very shortly when we describe the Ranger Three.

G.H.G. (Oamaru):—Would one transformer and two r.c.c. stages deliver as much volume as two transformer stages?—Yes.

2. Would 7/18 aerial wire be any improvement over 7/029?—As far as signal pick-up is concerned?

A.: 7/18 being slightly large, then 7/22 (or 7/029) would theoretically be the better wire, but it is doubtful if there would be any appreciable difference between the two.

DIEHARD (Seddonville):—Is the Sparrow Hawk Differential Adapter suitable for my 5-valve set?—Yes.

2. Would I get good results with same.

—Yes.

3. How much would it cost to build?—about £8/10/-.

E.R.W. (Wellington):—My accumulator has lately been bubbling, and acid has been escaping freely. Within a fortnight the liquid fell below the level of the plates.

A.: It seems that there is an internal short circuit, unless, of course, you are overcharging. Charge it fully and drain off the acid. Wash out with distilled

water. Refill with acid of the correct density (1.125), and then recharge and use. If the bubbling persists take the battery to a specialist. You must not drain off the liquid without fully charging the accumulator, but once having done so you can leave the accumulator without liquid for some time. You will be quite safe for ten days.

SCREEN (Cambridge) Would you supply the following information relative to the power grid system of rectification: (a) The value of the condenser; (b) the value of the grid leak; (c) approximate detector voltage; (d) connection of the grid return.

A.: Condenser, .0001 to .00015. (b) The grid leak, 15 to 25 megohms. (c) Detector voltage as high as possible. Anything from 135 volts up. (d) A grid return goes to A+. See the diagram reproduced herewith.

2. I have not had success by adding an s.g. valve. One appears to give me a lift no greater than that of an ordinary triode, whereas two are little better, and three very little improvement on the two. With one s.g. valve, oscillation is altogether absent, but with two or more it was so bad that I had to reduce the primary until there was little or no amplification in the system. The valves, etc., are fully shielded with aluminium. I believe inter-action is taking place between the plates and the grid of the s.g. valve.

A.: Oscillation appears to be taking place because of common leads or common resistances, and if you use plenty of by-



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