

The "Ranger Two"

Simple, Cheap, Efficient



THE recently-described "Differential" series of receivers has proved exceedingly popular—so much so, in fact, that for several weeks great difficulty was experienced by many readers in securing differential reaction condensers. Fresh shipments of these are now to hand, however, and may be obtained from any radio dealer.

For smooth, efficient control of oscillation, especially in short-wave work, where reaction is critical, differential condensers possess a distinct advantage over the older type, and for this reason were incorporated in the "Differential" series of receivers.

A number of correspondents, however, who have ordinary reaction condensers on hand, and who do not wish to go to the expense of purchasing the differential type, have written in asking for a modified version of the "Night Hawk" two, for use only on the broadcast band. In response to these requests, we publish below a description of the "Ranger Two."

It is a receiver of the det. audio type, and, while exceedingly easy to construct, gives excellent results. Good loudspeaker strength from the local station, provided it is not too distant, may be expected, as well as headphone reception of the main New Zealand and Australian stations.

The Coil.

THE coil is of the conventional three-winding type, and is so easy to wind that even those for whom radio is a new hobby will experience no difficulty whatever in its construction.

A three-inch length of cardboard or ebonite former two inches in diameter is first secured, and about 3-8ths of an inch distant from one end, two small holes are drilled, about 1-8th of an inch apart. One end of the 28 gauge d.s.c. wire is passed through these in turn, and then doubled back and passed through the first hole again, thus leaving the free end inside the former. A short length is left projecting for

connecting purposes 25 turns, unspaced, are now carefully wound on, and the end passed through two more holes similar to those made at first. If any difficulty is experienced in keeping the windings tight while the holes are being made, a dab of seccotine or a drawing-pin used as a temporary anchor will overcome it. Some three or four inches of wire are allowed for connecting purposes, and the remainder cut off. The primary is now complete.

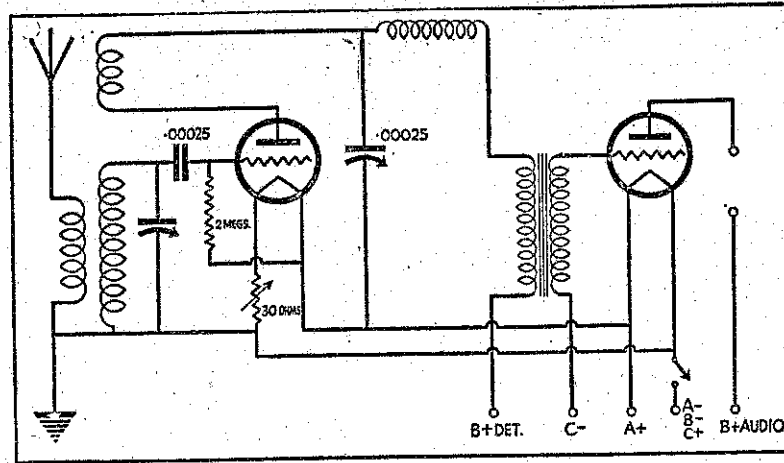
Exactly 1-8in above the primary winding make two further holes, and just as before, anchor the free end and wind on, in the same direction, 72 turns of 26 gauge d.s.c. wire. This is the secondary, and it is finished off in exactly the same manner as that described for the primary.

Now for the third and last winding—the reaction or tickler coil. This is wound on in exactly the same manner as the other two, and is commenced 1-8in. above the secondary coil. It consists of 35 turns of 28 gauge d.s.c.

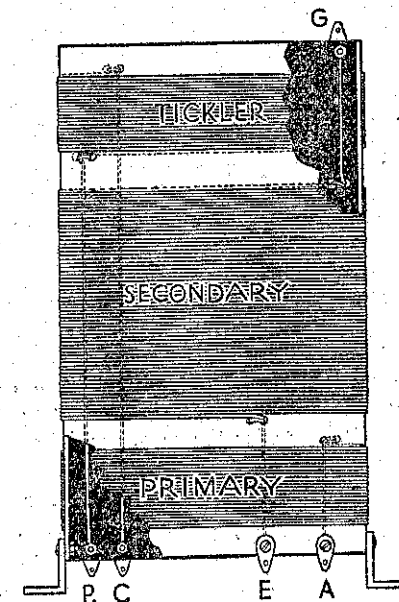
and should be wound in the same direction as the other two.

Except for the connection of the ends to the metal tags, which are mounted on the former, the coil is now complete.

Reference to the lay-out and coil diagrams indicate clearly the mounting of the tags. It will be noticed that "G," or the top end of the secondary winding, is mounted on top of the



Theoretical diagram of "Ranger Two."



The coil.

former, and all the others on the bottom. Also "E," the bottom of the secondary and the bottom of the primary, are taken to a common tag. Unfortunately this is not shown very clearly on the coil diagram.

Those who do not wish to wind their own coils may have them made up or purchase them ready made from a radio dealer.

Condensers.

WHILE the original model was constructed for a .00035 tuning condenser, it is now somewhat difficult to obtain these, and so our specifications are prepared for a .00035. Generally speaking, however, it is advisable to keep the size of the condenser down. Nevertheless, when it comes to actual performance, there is very little difference between the set using a .00035 and that using a .00035 condenser. For a .00035, 15 extra turns should be wound upon the secondary coil, and the primary and tickler increased by 3 each.

The Lay-out.

THE lay-out of the set should not give anyone difficulty, as the placing of every component is very clearly illustrated in the accompanying illustration. The order of procedure is generally to commence with the drilling of the panel, then attach the two condensers, the rheostat, switch, and the jack. The two condensers are 3in. from the top and 2 1/2in. from the side. The switch and jack are 1/2in. from the side and 2in. above the base board. The rheostat is in the dead centre, lengthwise, and 5in. from the top.

Having done this, lay out the components on the baseboard which, for convenience, might be a piece of 3in. timber, 8in. x 9in. It is wise to make the base board a little smaller than the panel, so that if at any later date it is desired to put a box round the set, the protruding panel makes a neat finish. Note particularly the way the coil is turned round and its proximity to other components. Do not screw the grid condenser (.00025 on the right) to the base board unless it is one of the wholly insulated type, such as a T.C.C. It is not a bad plan to suspend this between the grid terminal of the coil and the two megohms grid-leak. However, if the constructor decides to do this, this operation is performed during the wiring. For the two megohms grid-leak it is necessary to use a grid-leak holder, as the method of returning it to the filament is slightly differ-

The Ranger Two

Consider these prices before making your selection of parts. Remember, we do not sell inferior parts and that our prices include postage.

.0005 Variable Condenser, Ormond, 8/6; A.W.A., 10/6. .00025, Ormond, 7/6; Pilot, 8/6. Special Coil, 4/-; Vernier Dials, Ormond, 6/6. Rheostat, 2/6. Plain 3in. Dials, 9d. Jacks, 1/6. Terminals, insulated, 3d. each. Telson Transformer, 10/6. A.F.H., £1/2/6. T.C.C. Grid Condenser, 1/6. Cable, 7d. yd. 1lb. 26 d.s.c., 2/- Kitset with Blue Print, Vernier Dials, 1 Valve, £4/5/-.

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