

latter cathode, which goes direct to earth—are earthed to the chassis via biasing resistances of various values. Similarly, with the further exception of the first detector, all these biasing resistances are by-passed with condensers. Now the idea is to make this series of connections before proceeding to any other part of the circuit.

The next series of connections to be made might well be to the screening grids of the type 224 valves. These are made to the grid terminal on each valveholder. Here again the feeds are all through resistances by-passed with condensers, and may be completed as a group. The volume control and the resistance in series with it really form a part of this group with the additional by-pass condenser and may be completed at the same time.

The wiring of the oscillator—not forgetting the connection from it via a condenser to the cathode of the first detector—may now be completed as a further group, following which we may turn attention to the completion of the intermediate assembly.

Band-Pass Filter Connections.

If we examine our three band-pass filters we find that there are three connections to be made from each, and flexible leads to make these may be attached in readiness. It will be convenient to attach the three plate leads (one from each filter) first. The lead from the first filter will be seen to go to the plate terminal of the first detector valve; this lead will require to be fairly long. The leads from the other two filters go each to a plate terminal on the next preceding i.f. valveholder. Similarly with the three grid leads. The first two will terminate in clips for the grid terminals of the next succeeding i.f. valves, while the third will connect to the grid terminal on the second detector valveholder.

That leaves us with three leads—one from each filter—and these are seen to be all intended for connection to B positive via resistances. At this stage, then, it may be well to run a B positive lead along the whole length of the

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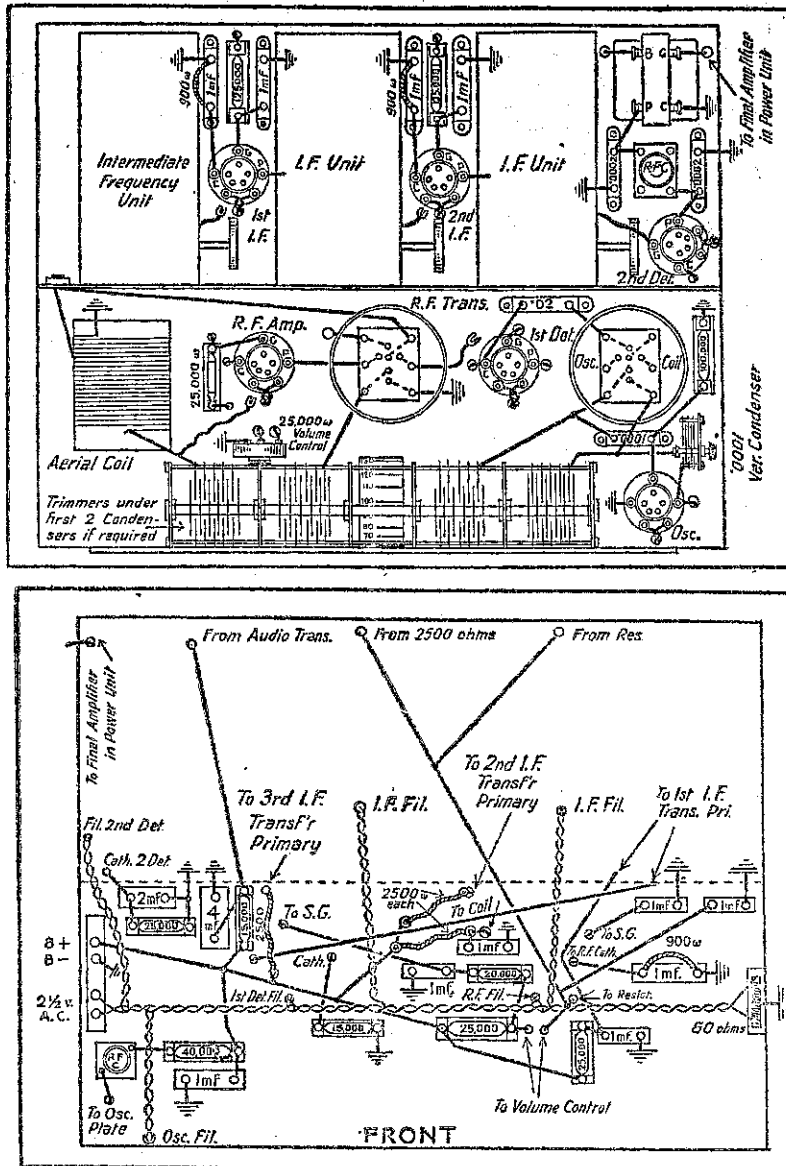


Fig. 1. Upper. Fig. 2. Lower.

receiver and start to make the various connections to it. Firstly, there are these three leads, the resistances in which are already by-passed within the filter units. Then there is a lead to the 25,000 ohm resistance in series with the volume control. In addition there are leads, each with a series resistance by-passed by a condenser, to (a) the radio-frequency transformer primary, (b) the oscillator r.f. choke, and (c) the primary of the audio transformer.

Completing the Wiring.

If at this stage all the connections which have been made are ticked off on the theoretical diagram it will be seen that not only is there relatively little wiring to complete, but that this is confined to two or three well-defined groups. Excepting a straightforward connection from plate of r.f. valve to primary of r.f. transformer, these are (a) tuned circuit of r.f. valve and aerial connection to tapping on coil, (b) tuned circuit of first detector and alternative aerial connection to coil socket, and (c) plate circuit of second detector and audio transformer connections. These groups may now be completed and a careful check of the wiring made both in groups and as a whole. If everything seems satisfactory it is fairly safe to assume that the receiver is ready for attaching to its power pack and final amplifier

Short Waves or Short Memories?

UNDED the above heading, the "The Electrician," October 30, 1931, publishes the following:—Less than seven months ago several motor-coach loads of journalists, including representatives of most of the London dailies, listened on the cliffs above St. Margaret's Bay to a demonstration given by the International Telephone and Telegraph Corporation's Laboratories at Hendon in co-operation with the laboratories of Le Material Telephonique in Paris. On that occasion each member of the party had the opportunity of exchanging perfectly clear speech with Mr. Ulrich on the French side of the Straits—a distance of nearly 25 miles—the wavelength used being 18 cm. Yet on Wednesday most of the London dailies published a Reuter telegram from Santa Margherita announcing that the Marchese Marconi had on the previous day "created a fresh record when he held a wireless telephone conversation from Santa Margherita to Sestri Levante—a distance of a little over 10 miles—on waves on only half a metre. Even "The Times" printed this statement without comment and some of the more sensational journals "splashed" it. Without in any way desiring to belittle the achievement reported by the Marchese Marconi, we do feel that the London daily Press has radiated with even less than its usual accuracy on this occasion.

sharp corners of the holes are removed, the insulation seems to fray to some extent, and to safeguard against trouble it is wise to provide at least three layers of insulation if insulating bushes are not used. The very last word of advice under this heading is to test all resistances—especially of the flexible variety—before inserting them, and to use heavy-duty resistances wherever the current to be carried is appreciable.

The process of tuning and adjustment for best results will be briefly described next week.

FOR automatic grid bias the resistance necessary to produce a given value of bias can be found by dividing this figure by the anode current passing through the resistance concerned, the current being expressed in amps.

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