

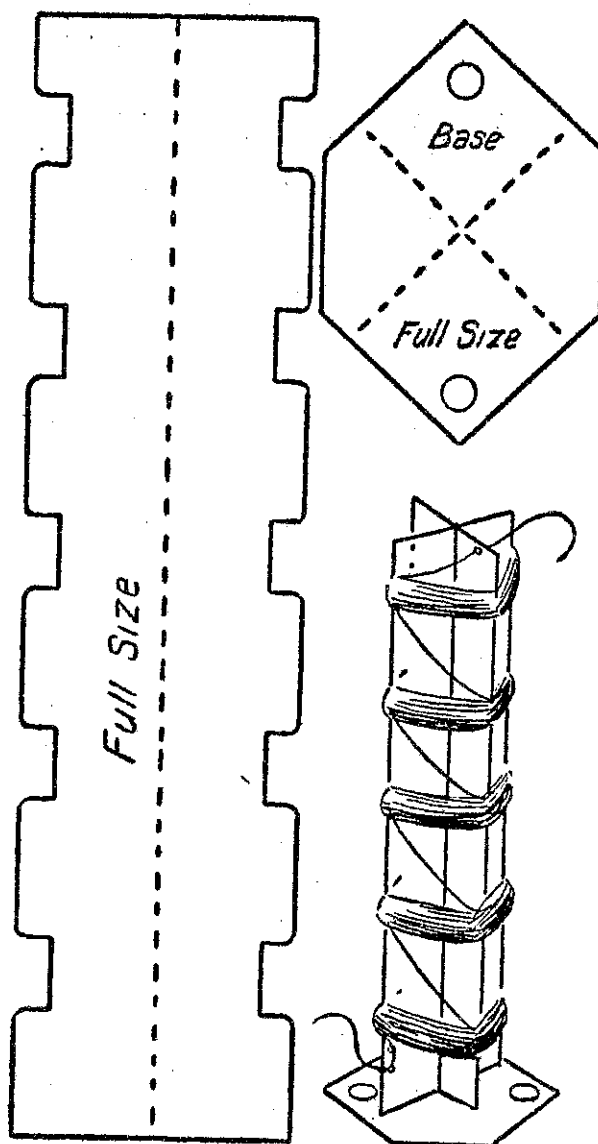
screws. Two small brackets bolted to the baseboard and screwed to the panel will strengthen the whole and lessen the strain on the small screws. Holes to take the three condenser spindles can be drilled $4\frac{1}{2}$ in. apart, the left one being $2\frac{1}{2}$ in. from the panel end. The rheostat is mounted on the right of these three condensers, while underneath are drilled two holes to take the two speaker terminals. These are brought out to the front, together with the speaker leads, so that the 'phones can be used if necessary by simply disconnecting the speaker. On the extreme left are two more terminals for connecting to the loop with a small piece of flexible wire.

Reference to the layout diagram will give the disposition of the various parts. A narrow terminal strip is screwed along the back, arranged with six terminals, on which short leads are taken down to the batteries underneath. As will be seen, the grid leak and condenser has to be suspended, and for this purpose a short piece of thick bus-wire is used to connect to the grid terminal of the detector valve.

On the left, close to the end of the baseboard, screw the first valve holder. Behind this is the neutralising condenser. Next screw the metal plate of the screen and mount the coil vertically in the middle of this. Making room for the grid leak and condenser between the coil screen and detector valve holder, this holder is screwed into place. The radio frequency choke and by-pass condenser are fastened as shown. This small fixed condenser will also have to be suspended by stiff buswire and not screwed to the wooden baseboard. At the side of this is mounted the resistance capacity unit. Before mounting slide out the coupling condenser and test with the 'phones and a 45-volt battery. After the first click, no other loud clicks should be noticed. If this condenser leaks, the results will be horribly distorted music and speech, and a faulty condenser here should always be looked for in the event of poor reproduction. In the extreme right-hand corner at the back is screwed the transformer, arranged with the plate

and grid leads convenient for their respective terminals on the valve holders. The remaining two valve sockets can be arranged in the spaces behind the rheostat.

In portable receivers the small B batteries which are used are subjected to a fairly heavy load, and may, with



Radio-Frequency Choke

use, develop slight noises. A m.f.d. condenser is therefore used to smooth out the slight irregularities in direct current, and also helps to lower the resistance of the B battery. It is always advisable to incorporate one in any set.

Wiring.

EVERYTHING is ready for the wiring, and the easiest way to tackle

this is to wire all the filament wiring first. In the theoretical diagram the filament rheostat was omitted, but this can be arranged in the positive lead from the A battery. All the wiring can be done with rubber-covered flex or 20-gauge tinned wire covered with insulated sleeving. Follow each wire carefully, and when fixed cross out from the diagram. This is perhaps the safest way to do the wiring, and it can be seen at a glance if any wiring has been left out.

Although the grid and plate wires are shown with right-angle bends in the diagram, make all these wires as short as possible, so that they run straight from each terminal. When leading wires to the coil, arrange them to be down close to the metal base plate, so that small pieces can be cut out of the shield to allow these wires to pass through.

Laying Out.

HAVING wired and fixed up the components so that a jar will not upset anything, the receiver can be tried

out. This is done before fixing in the cabinet.

Stand the set on a support so that two flexible leads can connect up the frame aerial. Connect up the batteries and the speaker or 'phones and insert the valves in the following order:—HF, detector, 1st L.F., 2nd L.F. Turn on the rheostat and tune in the local station. The frame aerial will have to be pointing to this station, as will be the case whenever using the frame.

To operate, tune-in on the two left-hand dials, and use the right-hand condenser dial as a reaction or volume control. The rheostat knob is used to control the voltage in the filaments, and should never be used at a higher reading than necessary. As the battery supply is 3 volts and the filaments consume two volts only, a certain amount of resistance will always have to be in use, except when the batteries are running down.

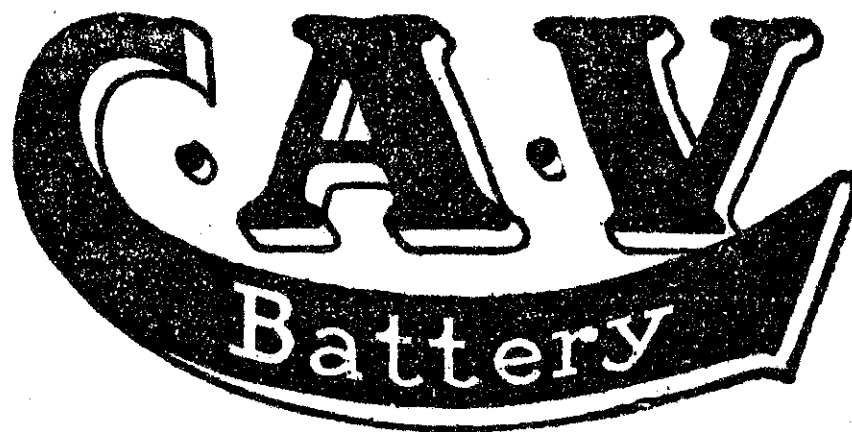
Neutralising.

To neutralise the set disconnect the filament positive lead temporarily from

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