

with the negatives (either terminal) of each of the 2 and 6 mfd. condensers (two mfd. condensers arranged in parallel). Having completed the wiring of the condensers, carry this lead outside the box and label it C— (if grid bias is to be provided as a separate tap. It is unnecessary in most cases). From a point in this line the wire runs to the 1 mfd. condenser.

Now return and pick up the two leads from the power windings. These go to the two free terminals of the buffer condensers and then to the rectifying valves. In the case of the Raytheon valve (shown in lay-out diagram) these two wires go to the filament terminals of the valve socket. In the case of the 280 full-wave filament rectifier they go to P and G. The filament wiring for the full-wave valve goes directly to the F terminals, and one of these becomes a common positive.

Returning to the Raytheon valve, the P terminal is connected first with the filter choke and this with the free terminal of the big 2 mfd. condenser. The common terminal of the chokes is then connected with the free terminal of the smaller 2 mfd. condenser. A lead from this wire is marked "Bu. or 220" and taken out where the panel will be. The remaining side of the choke now becomes the common positive wire from which all others will be broken down. Connect this with the free terminal of the 6 mfd. condenser and carry the end (marked B+) to where the panel will eventually be placed.

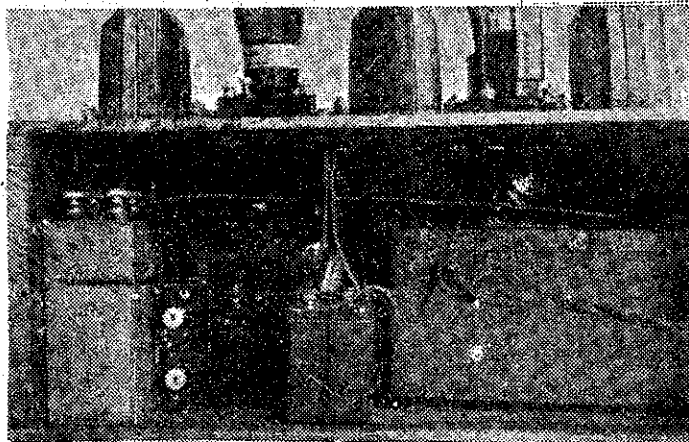
The common — terminals of the two .5 and the 1 mfd. condensers will be

connected, and this will become B—. If "C" bias is not required for purposes other than the amplifier, connect this "B" negative wire to "C" negative. If, however, separate bias is required a resistance of 400 ohms must be connected between them, such that the moving arm may

or D. This completes the base lay-out. It now remains to wire the panel.

The Distribution Panel.

SELECT a piece of ebonite, or well "Ducoed" 3-ply timber or any other insulating substance that might be conveniently handy. The writer



Photograph 2.—Back view of power pack, showing condensers (left), transformer and chokes (right), with bias-resistor condensers in foreground.

either short out the resistance or put it in. The moving arm is "B" negative. A lead from each of the free terminals of the two .5 condensers must be carried out to where the panel is to be placed, and marked R and D, corresponding in diagram 2 to R. and R2. Place a fixed resistance of 10,000 ohms where shown, connecting one side to B— and the other to be marked B + 2

found a piece of carpenter's asbestos such as is used in the construction of light out-dwellings, quite suitable. Four variable resistances (one 400 ohm for bias and three 0.5 megohm) are to be mounted on this panel and their spacing is left to the constructor. Along the bottom drill a dozen holes and mount the terminals. This board will now be mounted as one side of the

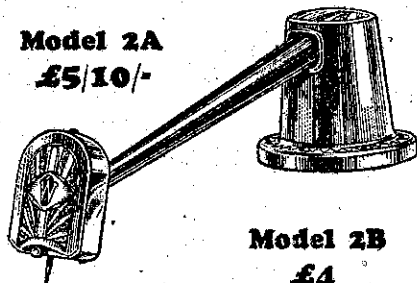
uncompleted box.

Connect the wire marked Bu. or 220 to the terminal third from the end away from the transformer. Label this "B + unvariable," followed by whatever voltage the transformer may be delivering. From the common positive (B+ or +) run a wire along the top of the panel, dropping leads to one side of each of the variable resistances, with the exception of the 400 ohm resistance. Connect C— to one side of the bias resistor and this to the first terminal on the board labelling it "C—." Connect B— to the other side of this and to the second terminal, labelling this "B—." It is unfortunate that the highest B+ and B— come so close together, but in the case of the original amplifier it was almost impossible to do otherwise, owing to the shortness of the A C leads from the transformer.

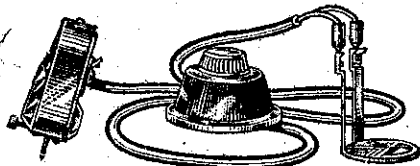
Connect the fourth terminal, marking it A, to the first resistance and then to No. 1 of the small condensers. The second variable resistance is connected to the next free terminal marked R and to the small 1 mfd. condenser No. 2. The final resistance is connected to the next terminal, labelling it D, and to the fixed resistance.

The next terminal is connected with a long lead to be taken to the cathode of the 227. The next two terminals are connected to the A C filament winding delivering 5 volts (or whatever the power values required) and marked A C 5, the next two marked A C 2.5 to the corresponding winding of the trans-

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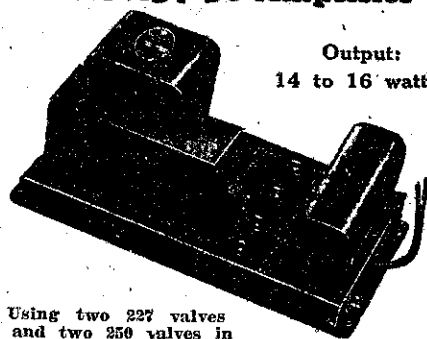
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