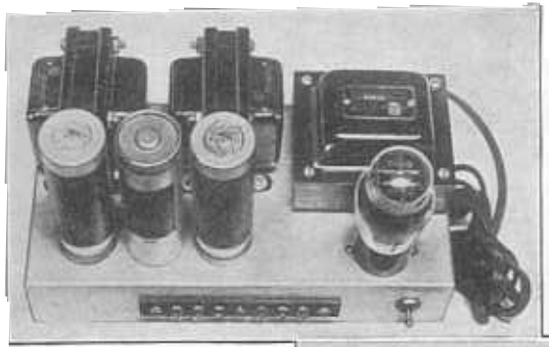
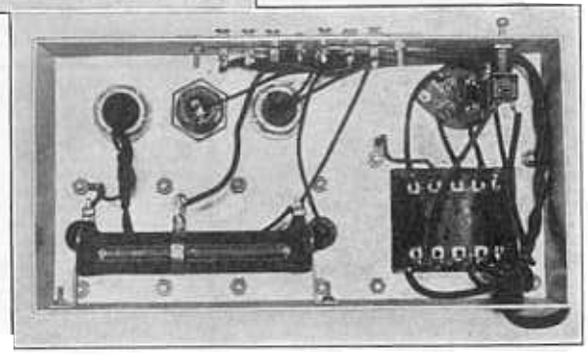


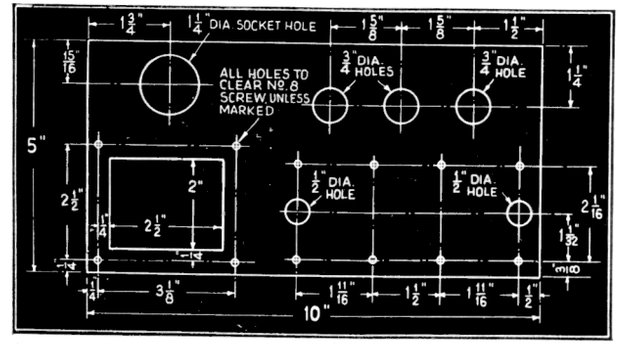
Two views showing the construction of the receiver power-supply.



Receiver Power-Supply

The several short wave receivers previously described require a separate power-supply. While the power-supply and the receiver may be incorporated in one unit, it is to the advantage of the experimenter to have the power-supply separate. This permits its use with other apparatus. This power-supply is constructed of good parts with ratings sufficient to work with the receivers in this book and still maintain a wide range of safety. If the experimenter desires to build larger receivers, that is, receivers having considerably more tubes than those illustrated in this book, it is advisable to use components of higher ratings. For instance, the power transformer in this particular power-supply, while delivering sufficient voltage at 70 milliamperes, will handle up to three or four tubes. In case larger receivers are to be used with it, we recommend that the transformer have a rating of at least 100 milliamperes. The filter choke coils of this power-supply are rated at 80 ma. These also should be increased to approximately 100 ma., if the larger sets are contemplated. No other values in the power supply need be changed in order to increase its current capacity. Another point which should be considered is the type tubes which may at some time or other be used during experimenting. Our diagram shows a single 6.3 volt filament winding. If at any time you expect to employ 2½ volt tubes in your receiver for some other experimental set-up, we suggest that the power-supply be equipped with a 2½ volt winding as well as the 6.3 volt winding. Such transformers are readily available. For convenience, we have used a 5x8x2 inch chassis constructed of 1/16" aluminum. All four sides are bent down in order to make it rigid. On one of these sides is mounted the terminal strip containing the plate and filament connections. On the other side we have the on-off toggle switch. The placement of these items can be learned from the photograph.

The output voltage of the power-supply is very important. In this particular one, the output voltage is 300 under normal load. Choke input is employed. If condenser input were used, the voltage would be entirely too high. If condenser input is desired, for any particular reason, the high voltage rating of the secondary should be around 250 volts. The bleeder or voltage divider connected across the output terminals of the filter consists of a 20,000 ohm 50 watt resistor. As can be seen in the diagram, one tap is provided in case lower voltages are required. This tap should be adjusted under load with the aid of a volt meter in order to obtain proper voltage. If more than one intermediate voltage is required, additional taps may be placed on the voltage divider. However, bear in mind that the resistor shown is only rated at 50 watts and that there is an idle current of approximately 15 milliamperes already flowing through it with no load. This means that the total additional load which the resistor will stand is 35 ma. If greater current requirements are necessary a resistor with a higher rating should be employed. One of approximately 75 to 100 watts would serve, depending upon the current drawn. During tests, this power-supply in conjunction with the receivers previously illustrated, was what might be considered hum-free. If trouble is experienced due to tunable hums, that is hums appearing in some places on the dial in the receiver and not in others, they may be eliminated by connecting .001 mf. condensers between each plate of the rectifier and one side of the filament. Juggling these connections may be necessary in order to completely eliminate tunable hums. Also, outside line noises can be reduced considerably by connecting a .1 mf. condenser between one side of the 110 volt primary and B-minus. Use a high grade 400 V. paper condenser.



Drilling specifications for power-supply chassis.

Parts List

STANCOR

1—Power transformer—P 948
2—Filter chokes—C-1420

AEROVOX

3—8 mf. electrolytic condensers (500 V).

I. R. C.

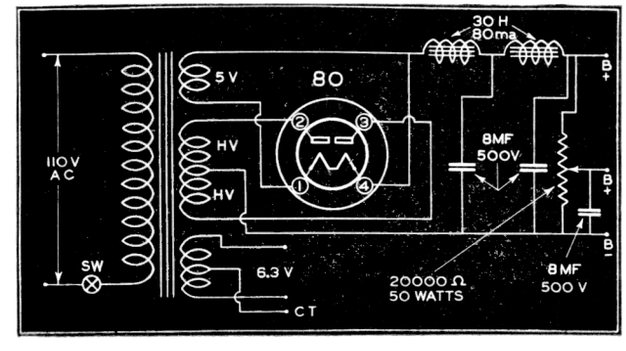
1—20,000 ohm voltage divider with one slider

R. C. A.

1—Type 80 rectifier

MISC.

1—5" x 8" x 2" chassis (1/16" aluminum)
1—Toggle switch



Wiring diagram and parts values for power-supply.