

5-Meter Super-Het

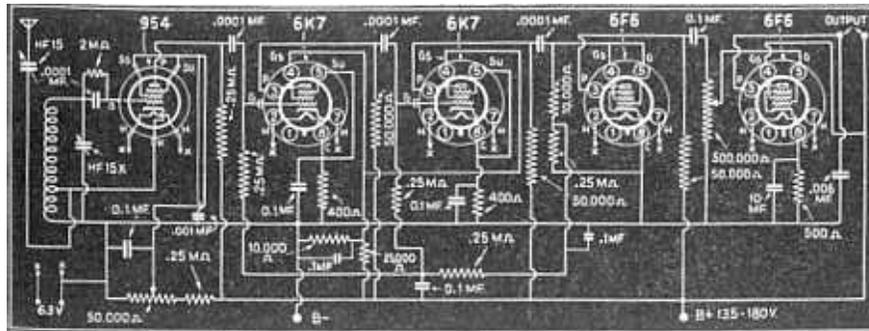
ALTHOUGH this 5-meter receiver is intended for use with the 5-meter MOPA previously described, it can be used by the fan for receiving police calls and television signals. There are five tubes in a resistance coupled circuit. Four are metal tubes, while the fifth one is an "acorn" regenerative detector.

Resistance coupling is employed because of its low cost and simplicity of construction. The entire receiver is built in a Crowe metal can, measuring 10" x 5" x 6½".

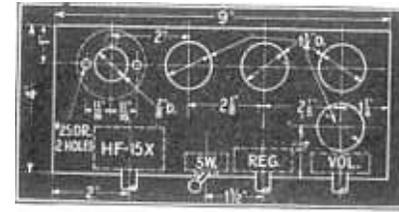
Since this receiver is an autodyne superheterodyne, each station will appear in two spots on the dial, but very close together. The band width of the receiver is nearly 100 kc. and makes it possible to receive modulated oscillators as well as other types of signals having a slight amount of frequency modulation.

The quality, when a crystal controlled signal is being received, is very good because of the very wide band width. Excellent music and entertainment programs can be received from the ultra-high frequency television and experimental stations. During unusual atmospheric conditions, it is possible to receive stations thousands of miles distant with excellent quality.

In order to facilitate tuning and increase stability, automatic volume control is incorporated in the receiver. This is brought about by employing a 6F6 connected as a high- μ triode as the second detector. The automatic volume control voltage is obtained from the grid circuit at the center tap of the grid resistor and returned to the grids of the two 6K7 I.F. amplifiers. This automatic volume control arrangement is very effective and eliminates the necessity for an R.F. gain control.



Wiring diagram of resistance coupled ultra-high frequency receiver.



Drilling specifications.

All leads must be short and direct, and it is advisable to keep them well separated, especially the grid and plate leads. Although the diagram does not show it, the grid leads from the two 6K7's are shielded with copper braid. This braid covers the grid lead right from the grid cap to the point where it goes through the chassis. It is grounded at this point with a soldering lug placed under the nearest screw.

A 15 mmf. tuning condenser is employed. This is a Hammarlund "HF-15-X" and the coil has 10 turns of No. 12 tinned copper wire ¼" in diameter and spaced to a length of 1¼". Although the 15 mmf. capacity is rather high, tuning it is not too critical. In order to adjust the range of the tuning circuit slightly, the coil turns may be spaced farther apart or squeezed together depending upon the desired results. Also, if just the 5 meter amateur band is to be covered, several plates may be removed from the "HF-15-X" tuning condenser. Adjustment of this part of the circuit will have to be done experimentally.

The receiver power supply described previously in this book works very nicely with the 5 meter super-het. However, any good power supply should give sat-

isfactory results, providing the maximum voltage is somewhere in the neighborhood of 180 volts. When putting the receiver into operation, turn the regeneration control all the way off and the audio volume control all the way on. Then advance the regeneration control until a slight hiss is heard. Outside interference such as crackling and buzzing noises will also be heard. Then rotate the tuning dial until the station is heard. Final adjustment of the antenna condenser and the regeneration control, as well as the tuning condenser, should bring it up to full speaker volume.

Parts List

HAMMARLUND

- 1—HF-15-X condenser
- 1—HF-15 condenser
- 1—S-900 acorn socket

I. R. C.

(Resistors)

- 5—¼ meg. ½ watt
- 1—¼ meg. 1 watt
- 3—50,000 ohm ½ watt
- 1—2 meg ½ watt
- 2—400 ohm ½ watt
- 1—10,000 ohm ½ watt
- 1—500 ohm 1 watt
- 1—10,000 ohm 1 watt
- 1—25,000 ohm 1 watt
- 1—50,000 ohm potentiometer
- 1—500,000 ohm potentiometer

CORNELL DUBILIER

(Condensers)

- 4—.0001 mf. mica
- 1—.001 mf. mica
- 1—.006 mf. mica
- 7—.1 mf. paper (tubular)
- 1—10 mf. electrolytic

R. C. A.

- 1—954 tube
- 2—6K7 tubes
- 2—6F6 tubes

MISC.

- 1—Crowe box
- 1—National Dial
- 3—Knobs
- 4—Oetal wafer sockets

Bottom view showing by-pass condensers and fixed resistors.

