

FOR THE SERVICEMAN
THE ULTIMATE 7-VALVE BANDSPREAD
MODEL R.O.
GENERAL DESCRIPTION

Basic Circuit:

A type 7B7 loctal pentode is used as a radio frequency amplifier with tuned input and inductive coupling to the grid of the frequency changer. The frequency changing stage utilizes an ECH21 loctal triode heptode in a tuned plate oscillator circuit. A three-gang condenser controls the R.F. stage, the frequency changer triode, and the frequency changer heptode.

A 7B7 loctal pentode as the intermediate amplifier follows, which is in turn coupled to a type 7C6 duodiode triode combining the functions of detection, A.V.C. rectification, and voltage amplification. The triode section of the 7C6 is capacitively coupled to a type 7C5 beam power amplifier delivering approximately 4.5 watts of power to the 8 in. Rola speaker. Full-wave rectification is achieved by the use of a type 5Y3-G octal, and adequate filtering is provided by means of a brute force filter. The electron ray indicator is a type 6U5G.

I.F. Alignment:

A signal generator modulated 30 per cent. at 400 cp/s. is coupled between the control grid of the ECH21 and ground by means of a 0.1 μ f. condenser. I.F. cores should be adjusted in the following order: Diode core, 7B7 plate core, 7A8 plate core, 7B7 grid core. The adjustment is made for maximum output at 460 kc/s.

An input of 30 microvolts should produce an output of 50 milliwatts.

Calibration:

Shortwave Band 1.—Adjust 21.5 mc/s. point with T.14 and 17.8 mc/s. point by fanning shortwave oscillator coil inductance.

Shortwave Band 2.—Adjust 15.2 mc/s. point with T.13.

Shortwave Band 3.—Adjust 11.8 mc/s. point with T.12.

Shortwave Band 4.—Adjust 9.6 mc/s. point with T.11.

Broadcast: Adjust 1400 kc/s. point with trimmer T.15 and 600 kc/s. point with T.16. Adjust 1000 kc/s. point by means of iron core 3.

R.F. Alignment:

Shortwave Band 1.—A signal generator is coupled to the antenna coil by means of a standard dummy antenna. Adjust for maximum output the 21.5 mc/s. point with T.4 and T.9 and the 17.8 mc/s. point by means of fanning antenna and detector coil inductances.

Shortwave Band 2.—Adjust 15.2 mc/s. point with T.3 and T.8.

Shortwave Band 3.—Adjust 11.8 mc/s. point with T.2 and T.7.

Shortwave Band 4.—Adjust 9.6 mc/s. point with T.1 and T.6.

Broadcast.—Adjust for maximum output 1400 kc/s. point with T.5 and T.10. Adjust for maximum output 600 kc/s. point by means of iron cores 1 and 2.

(For circuit, please see next page.)