

Coil L2, which has two windings, is broad-tuned to cover the 40-meter band. This coil is also used when receiving, and is then connected to receiver RF amplifier V8A and receiver mixer V8B.

Driver V5

Driver V5 receives the signal voltage from coil L2 through parasitic suppressor resistor R50. The ALC line is also connected to V5 to control transmitter gain, and to cut off the driver when receiving. Single-tuned coil L3 and double-tuned coil L2 form a bandpass device that covers the frequencies of the 40-meter band without the necessity of tuning the driver stage. Voltage for bridge neutralization of final amplifier tubes V6 and V7 is fed through capacitors C63 and C64 to the bottom of coil L3, and across C55. The small winding of coil L3 is used for the input signal from the antenna when receiving.

RF Final Amplifiers

RF final amplifiers V6 and V7 are connected in parallel. High voltage plate connections are under the chassis. The grids are connected by a long foil strip on the circuit board. This strip is bypassed at its ends by capacitors C61 and C71 to suppress VHF oscillations. Cathode resistor R71 is a meter shunt for measuring cathode current when the meter switch is in the BIAS SET position.

Tubes V6 and V7 are operated as linear amplifiers, with high power sensitivity. Grid load resistor R72 is connected to the Bias Adj control through R73, to allow adjustment of the grid voltage for proper operation. The Bias Adj control is grounded through resistors R75 and R203 when transmitting. When receiving, this control is grounded through resistors R76 and R77 to increase the grid bias to cut off the final tubes.

Automatic Level Control (ALC)

No grid current is drawn by tubes V6 and V7 in normal linear operation; however, when higher than normal grid drive is applied, grid current will flow and change the bias voltage. This higher-than-normal grid drive, caused by too much audio signal, makes the bias voltage change at an audio rate. This varying bias voltage is coupled through capacitor C75 to diodes D70 and D71, which rectify the signal to develop

the negative ALC voltage, which is applied to V2A, V4, and V5. Resistors R78 and R79, along with capacitor C74, filter this voltage and provide the proper time delay for ALC action. The entire ALC circuit is biased above ground by resistors R76 and R77 to cut off the transmitter section when receiving.

Transmitter Output Circuit

The plates of the RF amplifier tubes are connected to the supply voltage by choke RFC61. Their signal is coupled to the pi-section output circuit through capacitor C67. Output coil L4 is tuned by the Final Tune capacitor. Antenna loading is fixed by capacitor C77 for a 50 Ω load. With the Function switch in the Tune position, a sampling of the output voltage from resistors R61 and R62, and diode CR60, gives a meter indication to indicate proper adjustment of the Final Tune capacitor.

RELAY TRANSMIT-RECEIVE SWITCHING

Switching between transmitting and receiving is done by the relay. Section A of the relay switches the antenna, and section C switches the bias voltages.

Section B of the relay, which is connected to the external relay connection at the Power plug, can be used to control external equipment, such as a linear amplifier or antenna relay. Because one side of the external relay connection is grounded to the Transceiver chassis, the connection must not be used to switch any voltage in a circuit that operates above ground, as the chassis would become "hot," causing a possible shock hazard.

VOX AMPLIFIER V10 AND RELAY AMPLIFIER V2B

The Transceiver can be switched from receive to transmit by either the push-to-talk or the VOX method. VOX Amplifier V10 is normally operated in a saturated condition; that is, with very low plate voltage and maximum plate current. Positive half cycles of the voice signals from V1A have no effect on V10, however, the negative half cycles cause the plate current to drop, thus increasing plate voltage. This increased plate voltage fires the neon lamp providing a positive switching action. The voltage from the neon lamp is then amplified by relay amplifier V2B, which operates the relay. Capacitor C105 and resistor R107 form a delay