



***knight-kit* 50-Watt CW Transmitter**

THE Knight-Kit 50-watt transmitter is basically a high-power radio frequency generator designed to provide CW (continuous wave) output on the 80, 40, 20, 15 and 10 meter amateur radio bands. The various bands are selected by means of the two-section bandswitch, S-3A and S-3B in the schematic diagram. These two sections move simultaneously to select the proper taps on the plate coils, L-2 and L-6, of the oscillator and amplifier stages for the desired band. The specific frequency of operation is determined by the frequency of the crystal (xtal) plugged into the oscillator circuit. The operating frequency can also be selected through use of an external VFO (variable frequency oscillator) plugged into the oscillator circuit.

A type 6AG7 power pentode is used in the oscillator stage. It is wired in a modified Pierce circuit with the screen grid being used as the plate of the oscillator. C-1, the .001 mfd capacitor functions as a blocking capacitor to keep DC from the power supply off the crystal. C-3, the 10 mmfd capacitor, provides the necessary feedback or excitation, through the grid

return circuit, to sustain oscillations. The plate circuit of the tube functions as an amplifier when the tuned circuit consisting of C-4 and L-2 is tuned to the frequency of the crystal being used. The plate circuit functions as a multiplier or doubler when C-4 and L-2 are tuned to a multiple of the crystal frequency. Coupling from the oscillator circuit in the tube to its plate circuit is accomplished in the electron stream within the tube. C-2, the .01 mfd capacitor, bypasses RF in the cathode circuit to ground. L-1, the radio frequency choke, keeps RF off the key which connects at the jack, J-2. C-21, the .005 mfd capacitor, suppresses sparking at the key contacts as the transmitter is keyed.

The RF power amplifier is a type 807 tube. Output from the oscillator stage is coupled to the power amplifier grid circuit through C-6, the 100 mmfd capacitor. L-3, L-4 and the resistors paralleled across them form a network for suppression of parasitic oscillations (usually between 150 and 200 mc). The inductance of the chokes lowers the parasitic frequency and the resistors suppress it. Resistors R-3 and R-4 in