

**3-8 - PUSH - TO - TALK CONNECTIONS:** Pin 8 of the 11-pin power plug is connected to the tip of the mic. jack. The microphone should be wired so that its push-to-talk switch is connected to the tip of the mic. plug. See Section 3-10 for suitable microphone plugs. When the push-to-talk switch on the microphone is closed, Pin 8 of the power plug is grounded. Pin 8 of the power plug should be connected to the coil of a DC-operated relay which will turn on the power supply. We recommend the PSA-PTT kit which consists of a 6 volt DC relay, a semi-conductor diode and a 250 mfd filter condenser to provide DC to operate the DC relay from a 6.3 volt AC filament source. Use of AC in the relay circuit is likely to induce hum in the audio, although, due to the rapid drop in audio frequency response below 350 cycles, such operation may be possible in an emergency. See Section 3-5 and 3-6 for mobile connections.

**3-9 - KEY JACK:** The key jack is a standard 2-wire closed circuit 1/4 inch jack. Any standard straight or semi-automatic mechanically operated key may be used. If electronic keying is used, the keyer must be able to pass full cathode current of the final amplifier plus cathode current of the oscillator, approximately 300 milliamperes. Voltage across the key is limited to approximately 55 volts.

**3-10 - MIC. JACK:** The microphone circuit is suitable for any hi-impedance crystal, ceramic or dynamic mic. The jack will accept a 3-circuit plug with .206 inch barrel and tip diameter, such as Switchcraft S-260, S-290, or #480, or military/surplus plugs PJ-068 or PL-68. The microphone cable should be wired with the push-to-talk lead to the tip, the "hot" audio lead to the ring, and the shield to the sleeve (chassis ground).

**3-11 - R. F. OUTPUT AND RECOMMENDED ANTENNAE:** The RF output jack will accept the standard UHF series coaxial connector, such as Amphenol 831SP or surplus PL259. The pi-network circuit is designed to load properly into a 50 or 75 ohm antenna on all bands. An antenna with standing wave ratio of over 1.5 or 2.0 may be difficult to load. If it is impossible to alter the antenna for a better match, the length of the coaxial cable feeding the antenna may be lengthened or shortened until a satisfactory loading condition is obtained. IF IT IS NECESSARY TO LENGTHEN OR SHORTEN THE FEEDLINE TO LOAD PROPERLY, IT IS POSITIVE PROOF THAT THE ANTENNA IS MISMATCHED, HAS STANDING WAVES, and IS NOT OPERATING AT MAXIMUM EFFICIENCY. With an SWR of 2.0 to 1, about 10% of the transmitter power is reflected back from the antenna. With an SWR of 6.0 to 1, 50% of the transmitter power is reflected back from the antenna! It is strongly recommended that a properly matched antenna be used, both for maximum efficiency and strongest signal and to prevent possible damage to the final tank circuit and tubes due to reflected power. Most commercially made beams, trap antennae and mobile antennae will be satisfactory but, if there is any difficulty in getting proper loading, buy, beg or borrow a standing wave meter and measure the SWR --- and then do something about it! A good antenna tuner is a satisfactory solution when nothing can be done to the antenna itself to improve the match.