

B. INSTALLATION

POWER SUPPLY

1. **AC Operation.** The Swan Models 117-XC or 230-XC Power Supplies provide all necessary voltages required by the transceiver for AC operation. The supplies come equipped with a pre-wired plug and cable, all ready for plugging into the transceiver.

2. **DC Operation.** The Model 14-117 supply for mobile operation includes all necessary cables, connector plug, fuses, and installation hardware. The Jones plug for connection to the transceiver is furnished with the unit.

Power requirements for the Swan 500-CX are listed in the following table. Pin connections to the Jones type power connector are listed as an aid in connecting other brands or home-brew supplies.

JONES PLUG CONNECTIONS

	Pin	Nominal	Minimum	Maximum
High Voltage	8	800 VDC 550 MA	600 VDC Low Pwr.	1200 VDC Hi. Power
Medium Voltage	10	275 VDC 150 MA	225 VDC	325 VDC
Bias Voltage	3	-110 VDC 100 MA	-100 VDC	-130 VDC
Filament Voltage	4	12.6 V* 5.5 Amp	11.5 V	14.5 V
Relay Voltage	5	12 VDC 250 MA	10 VDC	14.5 VDC

* AC or DC

ANTENNA

1. **Fixed station.** Any of the common antenna systems designed for use on the high frequency amateur bands may be used with the Swan transceiver, provided the input impedance of the transmission line is not outside the capability of the pi-output matching network. The transmission line should be of the coaxial cable type. An antenna system which shows a standing wave ratio of less than 4:1 when using 50 or 75 ohm coaxial transmission line, or a system that results in a transmission line input impedance that is essentially resistive, and between 15 and 500 ohms will take power from the transceiver with little difficulty. If open-wire or balanced type transmission line is used with the antenna, a suitable antenna tuner is recommended between the transceiver and the feed line. Methods of construction and operating such tuners are described in detail in the ARRL Antenna Handbook, and similar publications. For operation on the 75 and 40 meter bands, a simple dipole antenna, cut to resonance in the most used portion of the band, will perform satisfactorily. For operation on the 10, 15,

and 20 meter bands, the efficiency of the station will be greatly increased if a good directional rotary antenna is used. Remember that even the most powerful transmitter is useless without a proper and efficient antenna system.

2. **Mobile Station.** Mobile antenna installations are critical, since any mobile antenna for use on the high frequency bands represents a number of compromises. Many amateurs lose the efficiency of their antenna through improper tuning. Points to remember about the mobile antenna used with the Swan 500-CX are:

a. The "Q" of the antenna loading coil should be as high as possible. There are several commercial models available which use high "Q" coils, including the Swan Model 45 and Model 55 five band "Swantennas."

b. The loading coil must be capable of handling the power of the Model 500-CX without overheating. In TUNE position, the power output of the transceiver may exceed 250 watts. Wide spaced, heavy wire loading coils are essential.

c. The SWR bridge is a useful instrument, but unfortunately it is quite often misunderstood, and overrated in importance. Basically, the SWR bridge will indicate how closely the antenna load impedance matches the transmission line. With long transmission lines, such as will be used in many fixed station installations, it is desirable to keep the impedance match fairly close in order to limit power loss. This is particularly true at the higher frequencies. The longer the line, and the higher the frequency, the more important SWR becomes. However, in mobile installations the transmission line seldom exceeds 20 feet in length, and an SWR of even 4 to 1 adds very little to power loss. The only time SWR will indicate a low figure is when the antenna presents a load close to 50 ohms, but many mobile antennas will have a base impedance as low as 15 or 20 ohms at their resonant frequency. In such a case, SWR will indicate 3 or 4 to 1, and yet the system will be radiating efficiently.

d. The really important factor in your mobile antenna is that it should be carefully tuned to resonance at the desired frequency. The fallacy in using an SWR bridge lies in the fact that it is sometimes possible to reduce the SWR reading by detuning the antenna. Field strength may actually be reduced in an effort to bring SWR down. Since field strength is the primary goal, we recommend a Field Strength Meter for antenna tuning.

e. For antenna adjustments, the Swan-500-CX may be loaded lightly to about 100 ma. cathode current instead of the usual 500 ma. This will limit tube dissipation during adjustments, and will also help reduce interference on the frequency. In any case, do not leave the transmitter on for very long at one time. Turn it on just long enough to tune and load, and get a field strength reading.