bridge to make sure it has an SWR of 1-1/2 to 1, or less. Operation with a high SWR will result in overloading the output tubes. When using a SWR bridge, carrier may be obtained for tuning the antenna by switching the FUNCTION switch to the TUNE position. Care must be taken that the SWR bridge is not overloaded when transmitting SSB, since the peak output power is much higher than the output in TUNE. The antenna must be matched to, and fed with, 50 Ω coax cable for best results; the transmitter is not designed to load into random lengths of wire or open-wire transmission lines.

Special care must be taken with mobile installations, since short loaded and center loaded antennas are very critical to tune. An operating frequency change of 10 or 20 kc will often change the antenna tuning considerably. Better antennas with loading coils have higher "Q" and sharper tuning. Follow the antenna manufacturer's instructions carefully to obtain proper adjustment.

CRYSTAL CALIBRATION

Convenient, accurate signals at 100 kc intervals for receiver dial checking can be obtained by using the Heath Crystal Calibrator. The Crystal Calibrator can be plugged into the calibrator socket of the Transceiver. It is turned on by pulling out the AF GAIN control knob.

IN CASE OF DIFFICULTY

1. Recheck the wiring. Trace each lead in colored pencil on the Pictorial as it is checked. It is frequently helpful to have a friend check your work. Someone who is not familiar with the unit may notice something consistently overlooked by the constructor.

2. It is interesting to note that about 90% of the kits that are returned for repair, do not function properly due to poor connections and soldering. Therefore, many troubles can be eliminated by reheating all connections to make sure that they are soldered as described in the Proper Soldering Techniques section of this manual.

3. Check to be sure that all tubes and cable connections are in their proper locations. Make sure that all tubes light up properly.

4. Check the tubes with a tube tester or by substitution of tubes of the same types and known to be good.

5. Check the values of the parts. Be sure that the proper part has been wired into the circuit, as shown in the pictorial diagrams and as called out in the wiring instructions.

6. Check for bits of solder, wire ends or other foreign matter which may be lodged in the wiring.

7. If, after careful checks, the trouble is still not located and a voltmeter is available, check voltage readings against those shown in Figures 11 and 12. NOTE: All voltage readings were taken with an 11 megohm input vacuum tube voltmeter. Voltages may vary as much as 10%.

8. A review of the Circuit Descriptions will prove helpful in indicating where to look for trouble.

9. Check the power supply and antenna.

NOTE: To aid in servicing or troubleshooting the Transceiver, refer to the Resistance and Voltage readings on Figures 11 through 13 and the Circuit Board X-Ray Views shown in Figures 14 and 15 on Pages 54 and 55.

Breaks in the foil of the circuit board can easily be detected by placing a bright light under the foil side of the board and looking through the board from the lettered side. A break will appear as a hair-line crack in the foil.