

# LI-3950 Alignment instructions

## **WARNING**

Any repairs or adjustments should be made under the supervision of a qualified radiotelephone technician.

## **I TRANSMITTER**

### **1. Power Supply Voltage**

The Power supply voltage should be set for 8.4VDC measured at the radio during transmit. Periodically check the power supply voltage during the alignment procedure.

### **2. Frequency Setting**

- A. Connect a frequency counter or Communications Service Monitor to the Antenna through an RF power attenuator (10 watt minimum rating, 20 dB minimum attenuation).
- B. Depress the PTT switch.
- C. Adjust the VC1 trimmer capacitor such that the output frequency is equal to the channel frequency with a maximum error of +/- 200 Hz.
- D. Release the PTT switch.

### **3. Output Power Alignment.**

- A. Set the power supply voltage for 8.4VDC.
- B. Connect a Communications Service Monitor or a wattmeter and dummy load to the antenna connector.
- C. Depress the PTT switch.
- D. To be convinced for 2.0 Watt output power with a maximum Limit of +/-0.2 Watt.
- E. To be convinced for 0.5 Watt output power with a maximum limit of 400-800 mWatt.
- E. Release the PTT switch.

### **4. Deviation Adjustment.**

- A. Connect an audio generator to the microphone jack(JK1). The audio frequency Should be set at 1 KHz.
- B. Connect an FM deviation meter or Communications Service Monitor to the antenna connector through an RF power attenuator (10 watt minimum rating, 20 dB minimum attenuation). Set the monitor to read peak deviation.
- C. Depress the PTT switch.
- D. Adjust the audio generator level 100 mV rms.
- E. Changing R57 parameter for +/- 2.2 KHz maximum deviation. (With CTCSS tone)
- F: Changing R64 parameter for +/- 2.2 KHz maximum deviation. (With DCS Code)
- F. To be convinced +/- 1.9KHz without CTCSS tone.(1.5KHz dev. 20dB up)
- G. Release the PTT switch.

## II RECEIVER

### NOTE:

Insure that the proper channel has been selected before preceding with the alignment procedure.

#### 1. Power Supply Voltage

The proper voltage for testing is 8.4 VDC.

#### 2. Receiver Alignment

- A. Connect an RF signal generator or Communications Service Monitor to the antenna connector.
- B. Connect a SINAD meter and oscilloscope across the speaker terminals.
- C. Set the output level of the RF signal generator for -47 dBm. The generator should be set for +/- 1.5 KHz deviation of a 1 KHz tone.
- D. Set the audio output level for 0.6 Vrms. by adjusting volume.
- E. Reduce the output level of the RF signal generator for produce a 6-12 dB SINAD indication. (RF output Level < -119dBm)