

## ALIGNMENT INSTRUCTIONS

The transceiver has been fully aligned at the factory before shipment to you and does not normally require further adjustment. When necessary, however, the receiver and transmitter may be aligned as indicated.

### RECEIVER ALIGNMENT

1. Connect an external 12 volt DC power source to the transceiver.
2. Connect an RF Signal Generator to the external antenna receptacle on the transceiver. Make sure the antenna switch is in the "EXT" position.
3. Set the generator frequency to 50.5 Mc and adjust the generator output for a signal of approximately 10  $\mu$ V, modulated at 400 cps.
4. Tune the receiver dial to the 50.5 Mc generator signal.  
NOTE: The "S" meter should read S5-S6. If it does not, reduce or increase the generator output to obtain this reading.
5. Tune L2, L4, L5, L6 and L7 for a maximum reading on the "S" meter.
6. Set the receiver and generator to 50 Mc.
7. Adjust L3 for a maximum reading on the "S" meter.
8. Set the receiver and generator to 51.5 Mc.
9. Adjust VC-1 for maximum reading on the "S" meter.
10. Repeat steps 6 and 7 and then steps 8 and 9 until no further result is observed.  
NOTE: L8 and VC-2 do not require alignment outside of the factory. Do not attempt to adjust them unless they have obviously been tampered with. If it is necessary to adjust L8 for a maximum reading on the "S" meter be sure to carefully melt the waxen seal on the coil. Failure to do so may result in a damaged core.

### TRANSMITTER

IMPORTANT. Before attempting to place the HA-650 in the transmit mode you must check the following.

- a) If you are using the built-in whip, always make sure it is fully extended and that the antenna switch is in the "INT" position.
- b) If you are using the external antenna jack on the HA-650, always make sure the antenna switch is in the "EXT" position.

REMEMBER, TRANSMITTING WITHOUT A PROPER ANTENNA LOAD WILL DESTROY THE FINAL RF OUTPUT TRANSISTOR.

NOTE: When aligning the transmitter section be sure to use a crystal in your preferred section of the band.

1. Connect an RF wattmeter (52 ohms) to the external antenna jack on the transceiver and plug in the microphone. Set the antenna switch to "EXT".
2. Rotate the slug of L15 clockwise to the point where oscillation begins. Advance the slug 3 1/2 turns further.