

5. If no AC waveform appears, adjust the DC balance potentiometer (under the crystal side plate) until the waveform appears. (Most units manufactured after August, 1973 do not require this adjustment.)

Find the middle of this adjustment, or adjust the potentiometer for either the highest frequency waveform (triangular or square wave, depending on the source model) or for the highest reading on the AC VOM.

6. Slowly tune the fundamental oscillator tuning screw clockwise until the waveform drops out or the AC voltage drops to zero on the VOM.

If the unit has a crystal that places the output frequency at the high end of the band, it may be necessary to continue to tune until a second lock occurs. Check for the proper lock point with a frequency meter or counter to insure locking on the correct harmonic of the reference oscillator.

7. Switch the scope to DC (2 V/cm scale) or the VOM to 30 VDC full scale. (The leads should still be connected between the phase lock terminal and ground.)

8. Check for lock by rocking the fundamental oscillator tuning screw slightly. The absolute magnitude should decrease as the tuning screw is rotated clockwise.

If the voltage does not change, the unit has not locked and has stopped sweeping. Repeat steps 4 and 5, then continue tuning the fundamental oscillator until lock occurs.

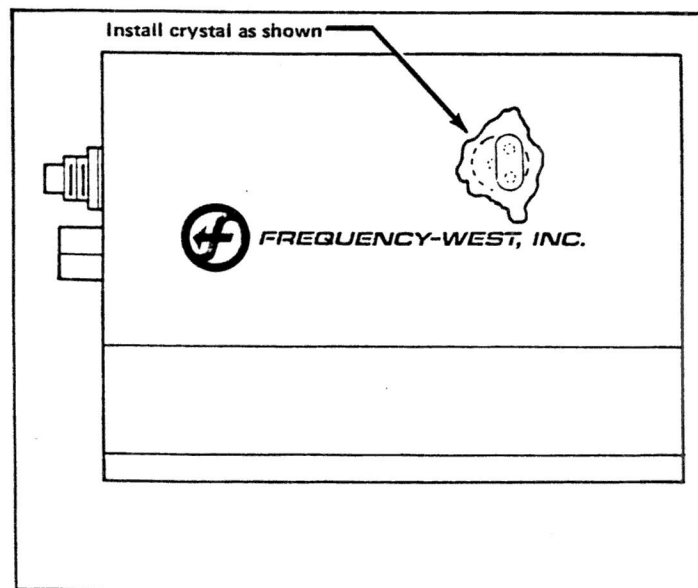


Figure 2

9. Tune the fundamental oscillator to the edge of the phase lock range. This should be between  $-3V \pm 2V$  and  $-16V \pm 2V$ . The unit should remain locked between these voltages and go into sweep as the fundamental oscillator is tuned further. This verifies that the unit remains phase locked over the appropriate tuning voltage range.

10. Set the fundamental oscillator so that the voltage at the phase lock terminals is  $-7.5$  volts. Tuneup is complete.

#### NOTE

*For units with lock limit alarm: To verify the operation of the lock limit alarm circuitry, connect a VOM (x10 ohm scale) between the lock limit terminal and ground. As the unit is tuned from one end of the lock range to the other ( $-3V \pm 2V$  to  $-16V \pm 2V$ ), the VOM will read either zero or infinity. It will be infinity between approximately 4.5 and 13VDC (as read at the phase lock terminals), and zero elsewhere.*

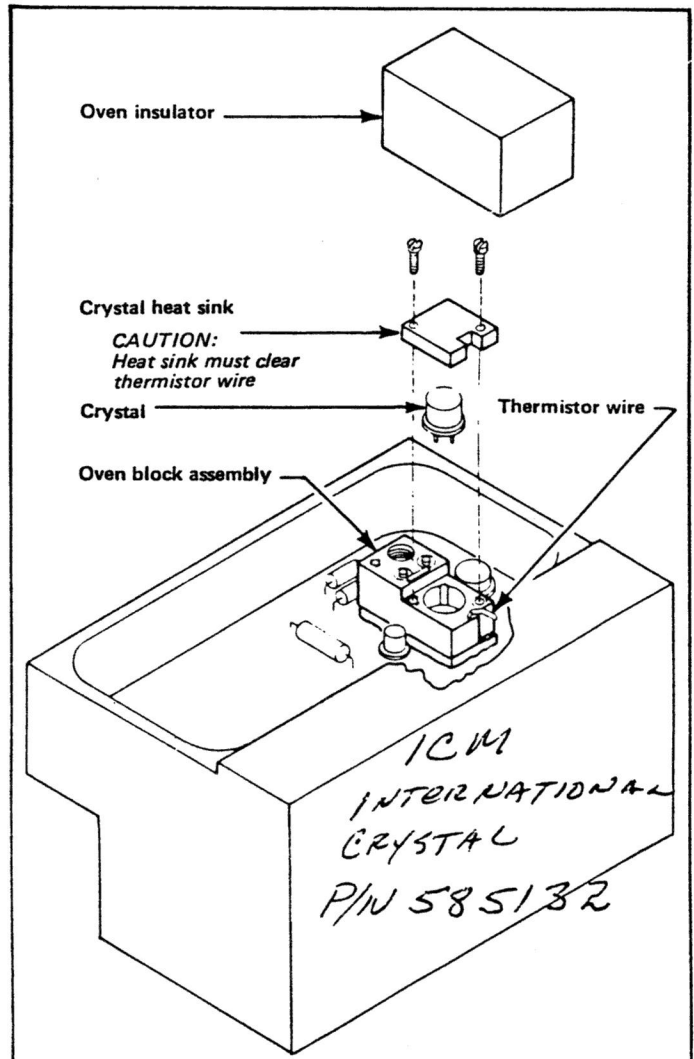


Figure 3