

HX370S Alignment

The HX370S has been carefully aligned at the factory for the specified performance across the land mobile band.

Realignment should therefore not be necessary except in the event of a component failure.

All component replacement and service should be performed only by an authorized STANDARD HORIZON representative, or the warranty policy may be voided.

The following procedures cover the sometimes critical and tedious adjustments that are not normally required once the transceiver has left the factory. However, if damage occurs and some parts are replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced.

We recommend that servicing be performed only by authorized STANDARD HORIZON service technicians who are experienced with the circuitry and fully equipped for repair and alignment. Therefore, if a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized STANDARD HORIZON service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components. Those who do undertake any of the following alignments are cautioned to proceed at their own risk.

Problems caused by unauthorized attempts at realignment are not covered by the warranty policy. Also, STANDARD HORIZON must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners. Under no circumstances should any alignment be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty components replaced, and the need for realignment determined to be absolutely necessary. The following test equipment (and thorough familiarity with its correct use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy. While most steps do not require all of the equipment listed, the interactions of some adjustments may require that more complex adjustments be performed afterwards. Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Have all test equipment ready before beginning, and follow all of the steps in a section in the order presented.

Required Test Equipment

1. RF Signal Generator with calibrated output level at 200 MHz
2. Deviation Meter (linear detector)
3. AF Millivoltmeter
4. SINAD Meter
5. Inline Wattmeter with 5% accuracy at 200 MHz
6. Regulated DC Power Supply: adjustable from 6 to 17 VDC, 3A
7. 50-ohm Non-reactive Dummy Load: 10W at 200 MHz
8. Frequency Counter: >0.1 ppm accuracy at 200 MHz
9. AF Signal Generator
10. DC Voltmeter: high impedance
11. VHF Sampling Coupler
12. AF Dummy Load: 8 ohm, 2W
13. Oscilloscope
14. Spectrum Analyzer

Alignment Preparation & Precautions

A dummy load and inline wattmeter must be connected to the main antenna jack in all procedures that call for transmission, except where specified otherwise. Correct alignment is not possible with an antenna. After completing one step, read the following step to determine whether the same test equipment will be required. If not, remove the test equipment (except dummy load and wattmeter, if connected) before proceeding.

Correct alignment requires that the ambient temperature be the same as that of the transceiver and test equipment, and that this temperature be held constant between 20 and 30°C (68 86°F). When the transceiver is brought into the shop from hot or cold air it should be allowed some time for thermal equalization with the environment before alignment. If possible, alignments should be made with oscillator shields and circuit boards firmly affixed in place. Also, the test equipment must be thoroughly warmed up before beginning.

Note: Signal levels in dB referred to in this procedure are based on 0 dBm = 0.5 μ V(closed circuit).

PLL & Transmitter

Set up the test equipment as shown for transmitter alignment.
Maintain the supply voltage at 7.5V DC for all steps.

To set up Alignment, press the [▼] key and [MEM]key while turning the transceiver on.

PLL Reference Frequency

- 1) Press the [▼] or [▲] key, and set [rEF] on display. Then, press the [PRESET] key, the radio now is in the Reference Frequency Alignment Mode.
- 2) With the wattmeter, dummy load and frequency counter connected to the antenna jack, while transmit this frequency, and press the [▼] or [▲] key to adjust frequency, if necessary, so the counter frequency is within 100 Hz of this frequency. And press the [PRESET] key to return to the menu mode.

Transmitter Output

Press the [▼] or [▲] key, and set [HP] on display. Then, press the [PRESET] key, the radio now is in the Transmitter High Output Alignment Mode.

While transmit this frequency, and press the [▼] or [▲] key to adjust the output power to 5 W. And press the [PRESET] key to return to the menu mode.

Press the [▼] or [▲] key, and set [CP] on display. Then, press the [PRESET] key, the radio now is in the Transmitter Mid Output Alignment Mode.

While transmit this frequency, and press the [▼] or [▲] key to adjust the output power to 2.5 W. And press the [PRESET] key to return to the menu mode.

Press the [▼] or [▲] key, and set [LP] on display. Then, press the [PRESET] key, the radio now is in the Transmitter Mid Output Alignment Mode.

While transmit this frequency, and press the [▼] or [▲] key to adjust the output power to 1 W. And press the [PRESET] key to return to the menu mode.

Transmitter Deviation

While tuned to 155.5 MHz, adjust the AF generator level for 50 mV output at 1kHz to the MIC jack.

Press the [▼] or [▲] key, and set [dEU] on display. Then, press the [PRESET] key, the radio now is in the Transmitter Deviation Alignment Mode.

While transmit this frequency, and press the [▼] or [▲] key to adjust the deviation to 4.2 kHz. And press the [PRESET] key to return to the menu mode.