

INSTRUCTIONS FOR ALIGNMENT

The following alignment instructions are for use by a qualified technician should your transceiver ever need repair or realignment. After a long period of time and frequent use, it may be necessary to have worn out parts replaced, etc. so the information provided is most useful.

PROTECTIVE COVER

Turn Transceiver over (speaker grille upward), and remove the facing chassis cover (2 screws on each side). The speaker is connected by two leads to the main chassis so remove cover with care.

P.L.L CIRCUIT ALIGNMENT

10.24MHz

Connect a frequency counter to the pin 12 of IC102 and check to see $10.240460\text{MHz} \pm 100\text{Hz}$.

VCO ALIGNMENT

Set the Radio to channel 40 and in transmit mode. (make certain 50 ohm dummy load or wattmeter is connected to antenna terminal).

Connect a circuit tester between T.P and ground.

Adjust L201 to obtain +3.2V DC.

Set the Radio to channel 1 and in receive mode.

Check to see the T.P DC voltage dropping to a level between 1.0 to 2.0 volt DC.

As long as the DC level stays between 3.2V DC for Transmit at channel 40 and 1.0 to 2.0V DC for receive at channel 1, the VCO is set properly.

The magnitude of the T.P. voltage swing is determined by C187 at factory. The optimum value for C187 was found to be around 35 pfd.

ALIGNMENT OF TRANSMITTER CIRCUITRY

DRIVER STAGE ALIGNMENT

Select channel 20.

Connect an oscilloscope to the base of Q110.

Adjust L105, L111, L112 for maximum amplitude of scope display (27.79125MHz).

Connect the scope of Q111 Base.

Adjust L106 maximum amplitude on scope display.

POWER AMPLIFIER ALIGNMENT

Set power supply voltage to 13.2V and set the Radio to channel 20 position.

Connect a watt meter to the antenna connector.

Adjust L107, L108, L109 and L110 for maximum power indication. Also again touch up L106, L111 and L112 to peak power.

TRANSMIT FREQUENCY CHECK

1. Set the Radio to transmit mode with no modulation.
2. Connect the frequency counter to the antenna load or to the tab provided at the wattmeter.

The frequency should be within $\pm 800\text{Hz}$ from each channel center frequency as tabulated in the frequency table attached.

MODULATION SENSITIVITY ALIGNMENT

1. Set the unit into transmit mode and apply 20mV, 1KHz signal to the Mic input circuit.
2. RV105 2.2KHz deviation at this condition.
3. Next, decrease signal input to 6mV and observe that the deviation ratio is keeping a value higher than 60%.

RF METER ALIGNMENT

Adjust RV103 so that the meter pointer should indicate the same wattage as the reading obtained on the wattmeter. Refer to "3.6" in this alignment procedure.

ALIGNMENT OF RECEIVER CIRCUITRY

RECEIVER SENSITIVITY ALIGNMENT

1. Set the signal generator at 27.79125MHz, 1KHz and 1.5KHz deviation. Also set the radio channel 20 position.
2. Adjust L101, L102, L103, and L104 for maximum audio output across the 8 ohm dummy load resistor.

SQUELCH CIRCUIT ALIGNMENT

1. Set the signal generator to provide RF input signal of 60dB (1KHz, 1.5KHz deviation.)
2. Rotate the squelch control in full clockwise direction.
3. Temporarily adjust RV101 for maximum audio output, and note the audio output level. Then, adjust RV101 for optimum squelch action.

S-METER ADJUSTMENT

1. Set the signal generator to provide 40dB signal output.
2. Adjust RV102 so that the s-indicator read S "9" on the indicator provided on the front panel.