

TUNEUP PROCEDURE

Preparations

- Place a fully charged battery on the radio or connect the radio to a 7.5 v power supply.
- Connect the tuning cable assembly to the radio side connector and to the COM port on the computer used by the tuner program. (Note: This is customizable in the tuner program)
- Start the tuner program on the computer.
- Power on the radio.
- Read the current tuning values by File -> Read Radio Information and SoftPots.

Frequency Adjustment

- Setup the test equipment to monitor the carrier frequency.
- Select frequency adjustment on the tuner with TxAlign -> Reference Oscillator Warp. The tuner will display a screen with single slider control, a PTT Toggle button and a Program button.
- Click on the PTT Toggle button to key up the transmitter.
- Adjust the slider control with the mouse to warp the transmitter to within 10 Hz.
- Click on the PTT Toggle button to dekey the transmitter.
- Save the value with the Program button.
- Exit the Reference Oscillator Warp function

Transmit Power Adjustments

Note: The radio supports operation at two different power levels (High and Low) on a channel by channel basis. There are separate alignment screens for high and low power.

- Setup the test equipment to measure transmitter power.
- Select power adjustment on the tuner with TxAlign -> Transmit Power -> High. The tuner will display a screen with seven slider controls, a PTT Toggle button and a Program button. Each slider corresponds to one RF frequency subrange.
- Select the first slider.
- Click on the PTT Toggle button to key up the transmitter.
- Adjust the slider control with the mouse to set the transmitter power to the value as indicated in the table below:

<u>Radio Power</u>	<u>Power Set Point</u>
6 watts	6.6 watts
5 watts	5.5 watts
4 watts	4.4 watts
3 watts	3.3 watts
2 watts	2.2 watts
1 watt	1.1 watts

- Click on the PTT Toggle button to dekey the transmitter.
- Repeat for each subrange.
- Save the values with the Program button.
- Exit the Transmit Power function.
- If the radio is uses only high power channels, proceed to adjust deviation. If low power channels are used, repeat the procedure above for low power alignment by selecting TxAlign -> Transmit Power -> Low.

TUNEUP PROCEDURE (Continued)**Transmit Deviation**

- Setup the test equipment to measure deviation.
- Inject a 1000 mV peak to peak tone at 1000 Hz into the tuning cable assembly Audio In port.
- Select deviation adjustment on the tuner with TxAlign -> VCO Attenuation. The tuner will display a screen with seven slider controls and a PTT Toggle button. Each slider corresponds to one RF frequency subrange.
- Select the first slider.
- Click on the PTT Toggle button to key up the transmitter.
- Adjust the slider control with the mouse to set the transmitter deviation to as indicated in the table below:

Channel Spacing
20.0 kHz

Deviation Setting
4.50 kHz

- Click on the PTT Toggle button to dekey the transmitter.
- Repeat for each subrange.
- Save the values with the Program button.
- Exit the VCO Attenuation function.

Modulation Balance

- Setup the test equipment to measure deviation.
- Inject a 100 mV peak to peak tone at 80 Hz into the tuning cable assembly Audio In port.
- Select modulation balance adjustment on the tuner with TxAlign -> Modulation Balance Attn. The tuner will display a screen with seven slider controls, a PTT Toggle button and a Program button. Each slider corresponds to one RF frequency subrange.
- Select the first slider.
- Click on the PTT Toggle button to key up the transmitter.
- Note the deviation from the 80 Hz tone.
- Change the tone frequency to 3000 Hz.
- Adjust the slider control with the mouse to set the transmitter deviation to with 2% of the value at 80 Hz.
- Click on the PTT Toggle button to dekey the transmitter.
- Repeat for each subrange.
- Save the values with the Program button.
- Exit the Modulation Balance Attn. function.