

Final Radio Alignment in Maintenance Mode

NOTE: To gain access to the Maintenance Menu press FUNC, NEXT, then the 2nd side button then the MODE button. Use the side buttons to select the items on the page. Press NEXT to step to the next pages.

Setting MIC Gain:

- 1) Go into the Configuration menu by pressing FUNC, NEXT, 2nd side button.
- 2) Press MODE button to access the Maintenance Menu.
- 3) Press the top side button to select Band 1 MIC level setting. Select Band 1 on radio jig.
- 4) Connect coax to Band 1 antenna connector and to test set.
- 5) Set Test set to inject a 1kHz tone at -13 dbm or .466 V p-p (173 mvRMS) in to MIC 1 input.
- 6) Key Band 1 and rotate knob to adjust MIC 1 gain to measure 1.5 KHz on the test set. Un-key radio.
- 7) Press the second side button to select Band 2 MIC level adjustment. Move coax to Band 2 antenna port and select Band 2 on jig.
- 8) Key Band 2 to set MIC gain on Band 2. Repeat these steps for bands 3 & 4 if applicable.
- 9) Select Band 5 Mic and select Band 5 on jig and Key the unit. Rotate the MIC setting so that the radio is set to 2.5 kHz deviation. Un-key radio. Skip this step if the unit has a VHF AM or UHF AM RF module installed.
- 10) Press the NEXT button to get to the RX audio settings.

Setting Max Receive Audio Level:

- 1) Connect coax to Band 1 antenna connector. Select Band 1 on radio Jig.
- 2) Set test set to inject a signal on the receive frequency of -47 dBm or 1mv RF with 1 kHz tone with 1.5 kHz deviation.
- 3) Set test set to show 10 Vrms scale on voltmeter or scope.
- 4) Rotate knob to set maximum audio signal for 6 V rms.
- 5) Move coax to Band 2 antenna port and switch radio jig to Band 2.
- 6) Select Band 2 level adjustment. (2nd side button)
- 7) Set test set to receive frequency.
- 8) Rotate knob to set level of 6 V rms.
- 9) Repeat the above steps for bands 3 & 4 if applicable.
- 10) For VLOW, Set test set to inject a signal on the receive frequency of -47 dBm or 1mv RF with 1 kHz tone with 3 kHz deviation. For VHF AM and UHF AM, Set test set to inject an AM signal on the receive frequency of -47 dBm or 1mv RF with 1 kHz tone with 30 % Modulation.
- 11) Select Band 5 level adjustment. (5th side button)
- 12) Rotate knob to set maximum audio signal for 6 V rms.
- 11) Press the NEXT button to get to the Band 5 TX power and Squelch settings.

Setting Band 5 power levels (VHF low Band):

NOTE: These adjustments are for the TDFM-9300 with the VHF Low Band Analog Module. Skip these steps for radios with VHF AM or UHF AM modules.

- 1) Move Coax to Band 5. Select the TX HI power menu by pressing the top side button.
- 2) Key radio and adjust TX HI Power soft pot to 10 Watts. Un key radio.
- 3) Select the TX low power side key.
- 4) Key radio and adjust TX LO Power soft pot to 1.03 Watts. Un key radio.

Setting Band 5 Squelch level:

- 1) Set the test set signal level so that the receive audio is at 22 dB SINAD.
- 2) Navigate to the 3rd Maintenance Menu. Select the RX Squelch Menu side button.
- 3) Rotate knob to adjust Band 5 squelch so that the receiver is just open.
- 4) Check operation by turning the signal level up and down on the test set.
- 5) Pres ESC to return to normal display.

Setting The Configuration Menu:

- 1) Press FUNC, NEXT and the second side button to invoke the Configuration Menu.
- 2) Set the Knob Default to "Volume".
- 3) Set the Vol / Chan mode to "Both".
- 4) Set Num Lock to "Enabled".
- 5) Set the Recall Mode to "Enabled".
- 6) Set Panel Lighting to "28 V".
- 7) F1 – F4 keys to "Normal".
- 8) Press NEXT to go to the next page.
- 9) Set Dual User to "Enabled".
- 10) Set Always On to "Disabled".
- 11) Press NEXT to go to the next page.
- 12) Set test set audio generator to 1000 hz at –13 db level.
- 13) Select Band 1 on radio Jig and select Band 1 Side Tone on the side buttons.
- 14) Rotate knob to set Side Tone 1 to a level of +3dbm (+- 1 db). Switch radio jig to Band 2.
- 15) Select Side Tone 2 on the radio. Rotate the knob to set the Side Tone #2.
- 16) Repeat the above steps for Side Tones 3 to 5 if applicable.
- 17) Press NEXT to go to the next page.
- 18) Set Squelch blink to Disabled on all bands.
- 19) Press "ESC" to return to normal display.

KeyLoader Test (Optional Factory Test Only)

NOTE: This test is done if any of the modules are equipped with Encryption and a KVL 3000+ or KVL 4000 Keyloader is available. Only Bands 1 to 4 can have encryption and can be Key loaded. There is no encryption on analog band 5.

Loading Keys

- 1) Select the desired band by pressing the desired BAND side button.
- 2) Turn on the Keyloader, select TARGET, KEY, then SCROLL left or right to select required keys.
- 3) Connect the keyloader to the TDFM-9300 Program connector with keyloader cable KVL-9000 P/N 127500. The display on the radio will show "KEYLOADING".
- 4) Press LOAD on the Keyloader to program the key(s).
- 5) Press another BAND key on the TDFM-9300. Wait for the module to display KEYLOADING, then load keys. Repeat for the other bands as required except Band 5.
- 6) Disconnect the keyloader cable and power cycle the TDFM-9300.
- 7) Tune to a channel with encryption programmed. Verify the encryption key(s) are loaded by pressing the ESW switch. A key name of "SECURE" or "SECURE 1", "SECURE 2" or "SECURE 3" will flash on the display. If the display shows "KEY FAIL", then the key(s) did not load.

Zeroing Keys

- 1) Zero the test keys from the radio. Repeat steps 1 to 3 (above). Turn on the Keyloader, select TARGET, KEY, then SCROLL left or right to select ZERO KEYS. Press ZERO to clear the keys in the module.
- 2) Press the BAND key on the TDFM-9300 to select other modules. Wait 3 seconds for the module to go into keyload mode. Press ZERO on the keyloader to clear the keys. Repeat for all modules with encryption.
- 3) Disconnect the Keyloader & cable, and power cycle the radio.

Final Settings

- 1) Power up the TDFM-9300.
- 2) Set bands 1 to 4 to Zone 1 and Channel 1.
- 3) Set all volumes to mid range.
- 4) Set the ESW to the "O" position (Bands 1 to 4).
- 5) Set the TSW to the "A" position (Bands 1 to 4).
- 6) Set Band 5 to Channel 001.
- 7) Save the settings by powering down the radio by pushing and holding the knob.