

1.1 EXHIBIT 10A

1.2 Transmit Power Tuning

Power tuning is performed using Motorola Professional Radio Tuning Software available to Motorola Technical Field Representatives.

There are 2 variations of Transmit Power Tuning; they are High Power and Low Power Tuning.

Note: When checking the RF power output of the radio with a test set, always use a pad of at least 30dB attached to the radio end of the RF cable. This will avoid an RF mismatch and ensure a stable RF reading that will not change with varying lengths of connecting cable.

Transmit High Power level for Professional portable radios

RF Band (MHz)	High Power (W)
VHF (136-174)	5.2 - 5.7
UHF Band 1 (403-470)	4.2 - 4.6
UHF Band 2 (450-527)	4.2 - 4.5

To perform Transmit High Power Tuning, do the following:-

1. Under the Tx Align menu, select Transmit Power, then select High.
2. Press PTT Toggle. This will key the radio up at F1.
3. Adjust the high power level to be as defined by country power level specifications by moving the slider/spin control or keying in values in the edit control (press ENTER to confirm your selection after typing in the softpot value).
4. Press PTT Toggle to dekey the radio, go to the next frequency point by selecting the slider, typing in the edit control box (press ENTER to confirm selection after typing in the softpot value) or toggling the softpot value using the spin control.
5. Press PTT Toggle again to key up the radio at the selected frequency point.
6. Repeat steps 3-5 for (F2-F7).
7. Press Program to store the softpot values into the radio's codeplug.
8. Exit the Transmit High Power function.
9. If the radio uses only high power channels, proceed to adjust modulation. If low power channels are used, perform Transmit Low Power Tuning as defined below.

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Transmit Low Power level for Professional portable radios

RF Band (MHz)	Low Power (W)
VHF (136-174)	1.1 - 1.3
UHF Band 1 (403-470)	1.1 - 1.45
UHF Band 2 (450-527)	1.1 - 1.45

To perform Transmit Low Power Tuning, do the following:-

1. Under the Tx Align menu, select Transmit Power, then select Low.
2. Press PTT Toggle. This will key the radio up at F1.
3. Adjust the power level to be as defined by country power level specifications by moving the slider/spin control or keying in values in the edit control (press ENTER to confirm your selection after typing in the softpot value).
4. Press PTT Toggle to dekey the radio, go to the next frequency point by selecting the slider, typing in the edit control box (press ENTER to confirm your selection) or toggling the softpot value using the spin control.
5. Press PTT Toggle again to key up the radio at the selected frequency point.
6. Repeat steps 3-5 for (F2-F7).
7. Press Program to store the softpot values into the radio's codeplug.
8. Exit the Transmit Low Power function

1..1 PA Bias Tuning

IMPORTANT: Tuning must be performed for both High and Low power for UHF and VHF radios.

1. Ensure that the radio's antenna output is terminated in a 50 Ohm load. This is to prevent self destruction of the PA.
2. Under Tx Align, select PA Bias, select High Power.
3. Measure/read the dc current drawn by the radio (specifications will vary from radio to radio). Call this X. This value should typically range from 70-100mA or 0.07-0.1A.
4. Press Toggle Voltage to enable the PA control voltage edit box/spin control.
5. Increase the Voltage softpot value and measure/read the current from the meter. Call the new value Y.

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6. Increase Y until Y - X is within the range given for PA current in table below.
7. Press Toggle Voltage again to disable the PA control voltage edit box/spin control.
8. Press Toggle Bias 1 in order to enable the PA Bias softpot.
9. Increase the softpot value to obtain Z until Z - Y is within the range for Bias Current as indicated in the table below.
10. Press Toggle Bias 1 again to disable the PA Bias softpot.
11. Program the Bias softpot into the radio's codeplug by pressing Program.
12. Exit the PA Bias High Power function.
13. Under Tx Align, select PA Bias, Low Power.
14. Repeat steps 3-11.
15. Exit the PA Bias Low Power function.

UHF B2	PA Current	Bias Current
450-527	30mA-45mA	600mA-700mA