PROGRAMMING

The SD-125 Series radio requires the ACC-900 Programming Software, ACC-2000 Interface Module, 9-15 VDC 200mA Power Supply and QPA-4000 Programmer Interface Cable. Refer to the ACC-900 Programming Manual (P/N: 680-110-0032) for detailed information on programming the SD-125 Series radio.

ALIGNMENT PROCEDURE

The SD-125 UHF/VHF Receiver is by design, broad band covering UHF(400-430 MHz & 440-470 MHz) and VHF(148-174 MHz) and should require no special alignment, unless repairs are performed on the receiver portion.

Should repairs be necessary, use the "Test Equipment Diagram" on page 17 & the "Alignment Points Diagram" on page 18, in conjunction with the following procedures:

- An Extender Board (P/N: 650-060-0016) is required in order to separate the Digital and RF PCB's to allow access to the alignment points. Installation instructions are provided with the Extender Board Assembly.

RECEIVER

1. Apply a standard test signal to the receiver antenna terminals.
2. Adjust T1 for maximum sensitivity and audio output with minimum audio distortion.
3. Adjust RV403 for the specific audio output level.

RX VCO

1. Set the unit to the highest receive frequency, 470MHz(UHF), 174MHz(VHF) and adjust the VCO L303 to 8 volts.
2. Set the unit to the lowest receive frequency 440MHz(UHF), 148(VHF) and check that the VCO voltage is above 2.0 volts. If voltage is below 2.0 volts, adjust L303 for 2.0 volts or more.

- Note: Use TP1 to measure the voltage.

TRANSMITTER

Connect the unit to a Service Monitor with the power meter setting to the 10 W scale (or autorange)

TCXO

Set the channel selector to the mid-range frequency 460 MHz, adjust TCX01 for a reading of 460 MHz ±200Hz (155 MHz VHF models).

TX VCO

1. Set the unit to the highest transmit frequency, 470MHz(UHF), 174MHz(VHF) key the transmitter and adjust the VCO L203 to 8 volts.

2. Set the unit to the lowest transmit frequency 440 MHz(UHF), 148(VHF) key the transmitter and check that the VCO voltage is above 2.0 volts. If voltage is below 2.0 volts, adjust L203 for 2.0 volts or more.

- Note: use TP1 to measure the voltage.

TX Deviation and Balance Adjustment

1. Set the unit to a mid-frequency and input the TX data with 400 Hz standard audio level.

2. Increase the signal level to 20 dB from standard level.

3. Monitor the demodulated signal from service monitor. Adjust RV3 to make the monitored signal to be a balanced square wave.

4. Reduce input signal to the standard level and adjust RV2 for the standard deviation.

APC

1. Adjust RV1 for High Power (5W)

2. Adjust RV6 for Low Power (1W)

3. This completes the transmitter alignment procedures.

SD-125 Squelch setting using the ACC-2000 Interface Module

Maxon's wide range of data radio products since the crystal control module (DM-0500 series) had their squelch level setting by hardware touch up. With the new SD-125 series, the squelch level to open or close (unmute or mute) is set up by software control.

The RSSI utilizes the A/D conversion that will be fed to the microprocessor, which in turn will use this input to determine the squelch level setting to control the mute and unmute of the receiver.

Default setting of squelch level for all the SD-125 from our manufacture and workshop is approximately set at:

1. Squelch open (unmute) at -114dBm to -113dBm (0.45 - 0.5mV of the RX signal strength)

2. Squelch close (mute) at -117dBm to -116dBm (0.3 - 0.35mV of the RX signal strength)

Changing the default squelch settings requires use of the programming adaptor box. This box is designed for use not only as part of the programming kit but also as a tool of squelch level setting.

The minimum equipment required for squelch level setting is a RF signal generator. Radio communication test equipment is recommended.

1. Power up the programming adaptor box (use the DC supply of 9 - 15 Volts 200mA).

2. Hook up the SD-125 unit to the programming adaptor box, and its antenna connector to the RF input port of the RF signal generator.

3. With the adaptor box turned "off", simultaneously press and hold both "ON/OFF" and "WRITE" buttons down.

4. Release the "ON/OFF" button first then the "WRITE" button next. (LED indicator on the box will flash twice after that it may stay on / off, this is of no concern , because depending on the signal strength of the RF generator as well as the pre-set level of squelch the SD125 may be in standby mode (LED OFF) or in receiving mode (LED ON)

5. Adjust the RF signal generator for the desired signal strength to OPEN squelch (e.g. default setting is -113dBm, that is equivalent to 0.5mV)

6. Press and release "READ" button, LED indicator will flash 3 times then it will be ON.

7. Adjust the RF signal generator for the desired signal strength to CLOSE squelch (e.g. default setting is -116dBm, that is equivalent to 0.35mV)

8. Press and release "READ" button, LED indicator will flash 1 time then it will be OFF.

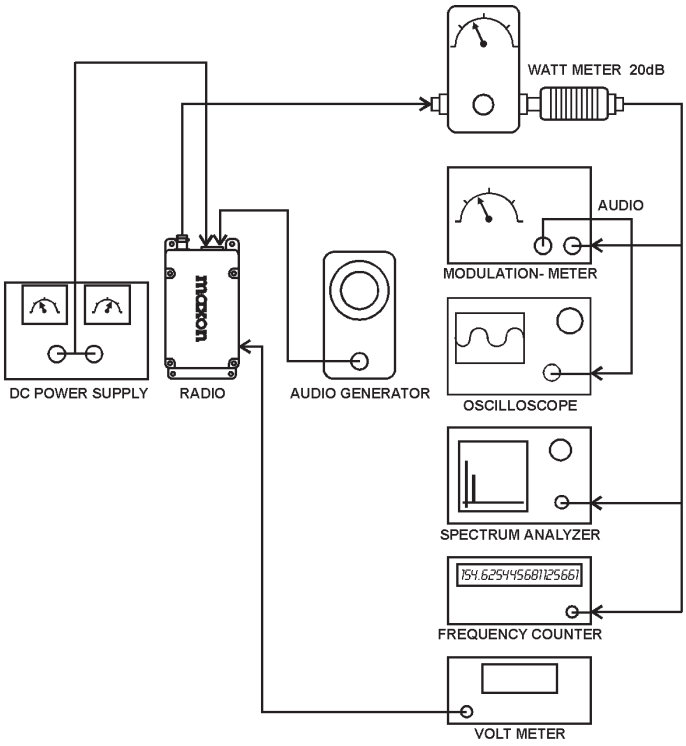
9. Press and release "WRITE" button, LED indicator will flash twice.

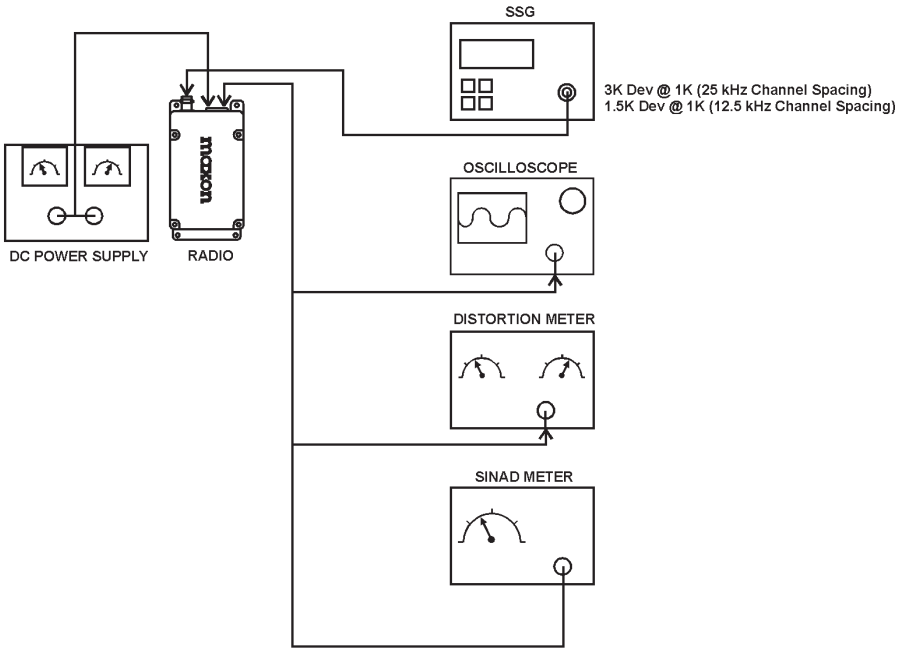
10. Squelch level is now set. Test for desired level by increasing or decreasing the RF signal to levels set

for open and close squelch (mute LED will be OFF & unmute LED will be ON).

- NOTE: The difference of RF signal strength between the unmute and mute levels must be greater than or at least equal to 0.15mV (i.e. at least -123.5dBm) for the squelch setting to work properly. If they are too close to one another, RSSI through the A/D conversion can not differentiate between the mute and unmute level properly. As a result, it would cause the CD (Carrier Detect) to act intermittently.

TEST EQUIPMENT SETUP





1. S.S.G. : @ 1kHz Audio:

3 kHz Deviation (25 kHz Channel Spacing)
1.5 kHz Deviation (12.5 kHz Channel Spacing)

2. AF Generator : 10mV & 20dB Up.