

## **MAINTENANCE**

### **4.1 DISASSEMBLY**

#### **4.1.1 DUST COVERS**

Access to voltage test points is made possible by removal of the control unit dust covers.

The dust covers are attached with four flat-head Phillips screws for the top cover and five screws for the bottom cover. Locate the four screws on the top cover, two each on both sides of the frame which are located closest to the top of the unit. The screws for the bottom cover are the four screws located along the bottom edge of the unit, directly aligned with the screws for the top cover, plus one screw in the middle of the bottom cover.

#### **4.1.2 FRONT PANEL (C-722/C-962)**

The front panel should be removed only when better access to the front section of the Control Unit is necessary.

The front panel is attached with eight flat-head Phillips screws, four on each side of the unit. Two of the four screws are located directly to the rear of the Dzus fastener extensions on the frame, while the other two are located on the mounting lip between the two Dzus fasteners.

#### **4.1.3 FRONT PANEL (C-722A/C-962A)**

The front panel is attached with four flat-head Phillips screws, two on each side of the unit. These are located on the mounting lip between the two Dzus fasteners.

#### **4.1.4 FRONT BEZEL (C-722/C-962)**

The front bezel need not be removed for most C-722/C-962 servicing. In the event that it becomes necessary, refer to the following steps.

The channel knob must be removed first. Set the channel selector knob to M before the two hex screws are loosened. Because the knob's set screw alignment does not correspond to the flat side of the switch shaft, it is important that the channel selector not be rotated from the M position during servicing of the unit.

#### **4.1 DISASSEMBLY (cont.)**

##### **4.1.4 FRONT BEZEL (C-722/C-962) (cont.)**

1. Remove front panel as outlined in Section 4.1.2.
2. Turn the knobs to counter clockwise (CCW) position (MAIN VOL/OFF), then loosen the two hex screws from each knob.
3. Carefully unplug the front bezel from the front panel.

##### **4.1.5 LIGHTED PANEL (C-722A/C-962A)**

The lighted panel need not be removed for most C-722A/C-962A servicing. In the event that it becomes necessary, refer to the following steps.

1. The channel knob must be removed; however, before loosening the two set screws, set the channel selector knob to M. The knob's set screw alignment does not correspond to the flat side of the switch shaft, therefore, it is important that the channel selector not be rotated from the M position during servicing of the unit.
2. Remove the CHANNEL SELECTOR knob.
3. Remove the MAIN and GUARD VOLUME knobs.
4. Remove the four screws, two on each side, located in the mounting lip, positioned just outside of the Dzus fasteners.
5. Carefully unplug the lighted panel from the front panel.

##### **4.1.6 PC BOARDS**

The PC boards will seldom need to be removed; however, should this become necessary, follow these steps.

1. Remove the top and bottom covers and the front panel as outlined in Sections 4.1.1 and 4.1.2.
2. Remove the four flat-head Phillips screws located in both sides of the frame which attach the PC board hanger brackets.

#### **4.1 DISASSEMBLY (cont.)**

##### **4.1.6 PC BOARDS (cont.)**

3. Carefully unplug the PC boards from the Interconnect Board.
4. If removal of Interconnect Board becomes necessary, follow steps 1 through 3, then remove the four screws on the back panel that hold the connector clips in place. Carefully remove the four remaining screws, hex posts and washers from back of frame, then carefully slide the Interconnect Board out.

#### **4.2 C-722/C-722A/C-962/C-962A OVERALL PERFORMANCE TESTS**

The control unit will be considered ready to return to service when the following performance is verified. The performance tests may be made with the C-722/C-722A connected to an operating RT-7200 or the C-962/C-962A connected to an operating RT-9600. **NOTE: The control units may be checked in conjunction with other RT-7200/RT-9600 family transceivers.**

##### **4.2.1 SQUELCH INDICATORS, SQUELCH TEST AND VOLUME CONTROLS**

With the PTT Inactive and no RF signal on the RT-7200/RT-9600 antenna connector, turn the ON-OFF switch to the ON position. Verify that no noise is heard and that neither squelch annunciate lamp glows. Depress the SQUELCH TEST button and verify that noise can be heard and can be adjusted in loudness by rotating both the MAIN VOLUME and the GUARD VOLUME controls. Also verify that the squelch annunciate lamps are glowing.

##### **4.2.2 CHANNEL LOADING FUNCTION**

Using the instructions for channel programming, as stated in the Installation/Operators Manual, load new frequency information into each channel memory location; channels 1 through 15, TX and RX, and G1 and G2. Use different numbers for TX and RX. Review the information after each loading to verify that the RX frequency changes instantly to the programmed TX frequency and, upon release of the PTT, vice versa. (To observe the PTT operation on the C-722A/C-962A models, the DISPLAY ON pin must be grounded.)

**4.2 C-722/C-722A/C-962/C-962A OVERALL PERFORMANCE TESTS (cont.)**

**4.2.2 CHANNEL LOADING FUNCTION (cont.)**

Select the TX GUARD function. Operate the PTT and verify that both G1 and G2 frequencies appear in the display. Release of the PTT should allow the displays to return to the selected RX frequency.

**4.2.3 TRANSMIT INDICATOR AND PTT**

With the RT-7200/RT-9600 terminated in an RF wattmeter and the XMTR switch in the MAIN position, activate the PTT. Verify that the transmit annunciate lamp is glowing and that approximately 10 watts of RF is being generated by the transceiver. De-activate the PTT and verify that the transmit annunciate lamp is not glowing.

**4.2.4 CHANNELLING**

With a frequency counter set to monitor the RF output signal (with the transceiver and control units set-up as in Section 4.2.3) verify an output frequency within  $\pm$  750 Hz of channel frequency for each of the 15 channels. Set the XMTR switch to the GUARD position. Verify an output frequency within  $\pm$  750 Hz of each guard channel as selected by the GUARD switch.

**4.2.5 TONE SQUELCH**

With a test receiver (capable of monitoring subaudible tone frequencies) set to monitor the RF output signal, set the transceiver and control units as in Section 4.2.3 and verify that tone channels 1 through 8 produce the corresponding subaudible tone frequencies that are set in the RT-7200/RT-9600. Verify that no tone is produced in the OFF position.

Additionally test the C-722A/C-962A TONE SQUELCH toggle switch by verifying that tone squelch operates as indicated in the previous paragraph when the switch is in the "ON" or the "OFF" position. Verify that tone channel is controlled by the tone thumbwheel when the switch is in the "MAN TONE" position. Also test the transceiver in the receive mode by observing proper tone squelch operation from the appropriate tone channel in either the "ON" or the "MAN TONE" position and verify that tone squelch operation is disabled in the "OFF" position.

#### **4.3 TROUBLESHOOTING**

The schematic diagrams in Section 5 will serve as useful aids in troubleshooting procedures.

The following voltage levels should appear at various test points within the control units. The voltages should be measured with the control unit connected to an operating RT-7200/RT-9600. The abbreviations G.T. and L.T. indicate "greater than" and "less than".

<u>TEST POINT</u>	<u>DESCRIPTION</u>	<u>INACTIVE</u>	<u>ACTIVE</u>
A2P1-7,8,9	ANNUNCIATE	G.T. 3.0 VDC	L.T. 0.5 VDC
A2P1-28	PTT	G.T. 10.0 VDC	L.T. 2.0 VDC
A2P1-21,22, 31,33,36,37, 38,39,40,41, 43,44,45,46, 47,48	BCD CODING	G.T. 10.0 VDC	L.T. 2.0 VDC

Also refer to the Table 3.4.1 for EARM address voltages.

