Installation Note

Agilent Technologies
ESA Spectrum Analyzers and EMC Analyzers
Front Panel Interface Board
Kit Number: E4401-60241

Agilent Technologies

Part Number E4401-90263
Printed in USA July 2001

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Introduction

Products Affected:	E4401B ESA Spectrum Analyzer E4402B ESA Spectrum Analyzer E4403B ESA Spectrum Analyzer E4404B ESA Spectrum Analyzer E4405B ESA Spectrum Analyzer, E4407B ESA Spectrum Analyzer E4408B ESA Spectrum Analyzer E4411B ESA Spectrum Analyzer E7401A EMC Analyzer E7402A EMC Analyzer E7403A EMC Analyzer E7404A EMC Analyzer E7405A EMC Analyzer
Serial Numbers:	US00000000/US99999999 MY00000000/MY99999999
Options:	all
To Be Performed By:	(X) Agilent Technologies Service Center (X) Personnel Qualified by Agilent (X) Customer
Estimated Installation Time:	1.0 Hours

Front Panel Interface Board Kit, E4401-60241

Quantity	Description	Part Number
1	Front panel interface board assembly	E4401-60234
1	Jumper	1258-0141
1	Installation note	E4401-90263

Tools Required

T-8 TORX screwdriver

T-10 TORX screwdriver

T-15 TORX screwdriver

Torque Settings

Tighten screws to the following torque limits:

Item	Torque in Inch-Pounds
M3.0 T-8 TORX screws	6
M3 T-10 TORX screws	9
M4 T-15 TORX screws	21

WARNING **Before you disassemble the instrument, turn the power switch to Standby and unplug the instrument. Failure to unplug the instrument can result in personal injury.**

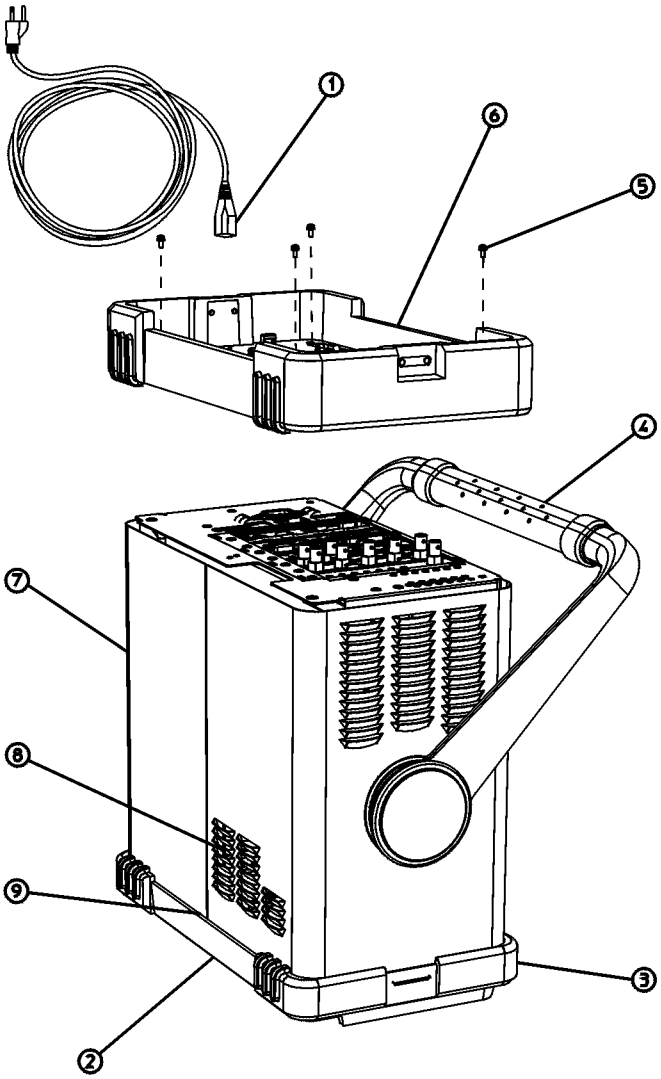
CAUTION Electrostatic discharge (ESD) can damage or destroy electronic components. All work on electronic assemblies should be performed at a static-safe workstation. Refer to the documentation that pertains to your instrument for information about static-safe workstations and ordering static-safe accessories.

Procedure

Dress Cover Removal

1. Referring to Figure 1, disconnect the analyzer from ac power **(1)**.
2. Remove any adapters or cables connected to the front panel **(2)**.
3. Position the handle **(4)** to the rear of the analyzer.
4. Carefully place the analyzer on the work surface with the front frame **(3)** facing down.
5. Remove the four screws **(5)** that hold the rear frame **(6)** and dress cover **(7)** in place.
6. Remove the rear frame **(6)** and dress cover **(7)** by sliding them towards the rear of the analyzer.

Figure 1 Dress Cover and Rear Frame Removal and Installation



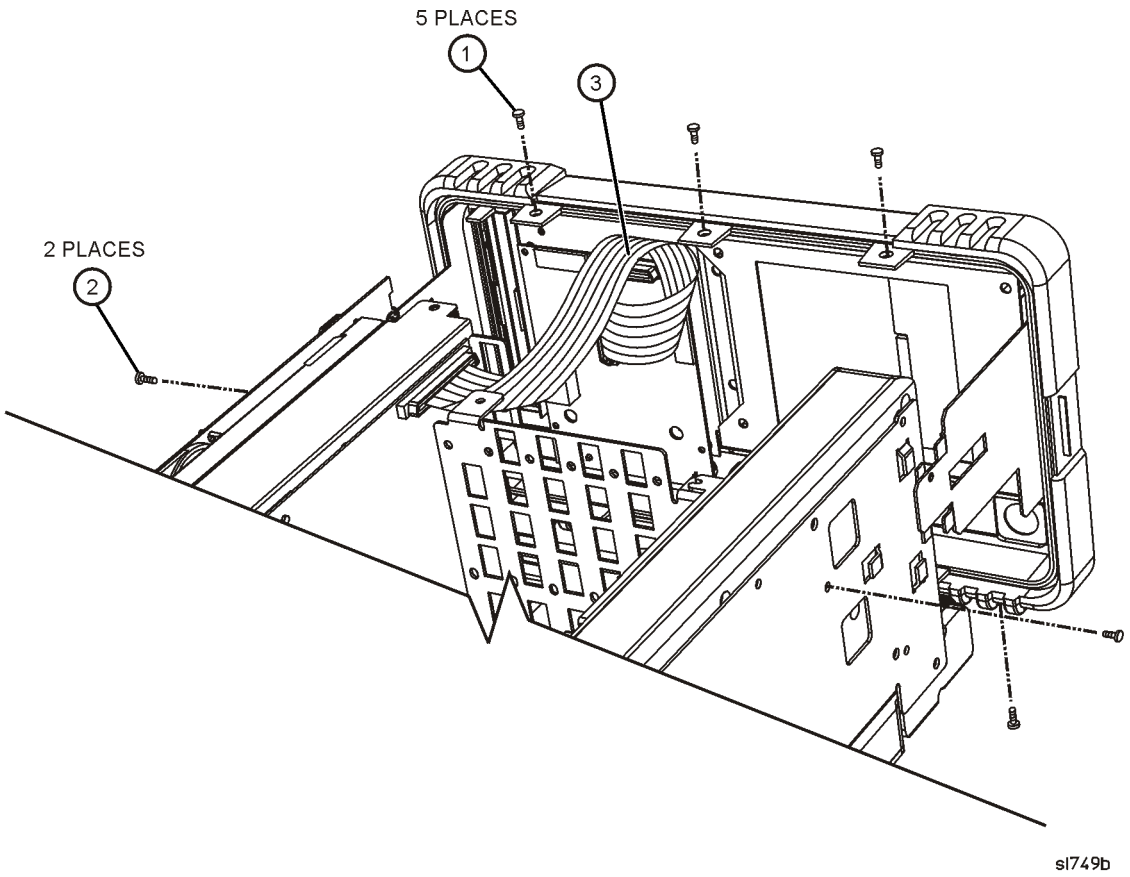
Front Frame Extension

The front frame assembly can be extended from the instrument without detaching any connections or removing the chassis cover.

1. Referring to Figure 2, with the instrument still on its face, remove the five screws **(1)**, two on the bottom side and three on the top of the instrument, that secure the front frame to the RF assembly and chassis cover.
2. Place the instrument with the top side facing up and remove the remaining two screws **(2)** that secure the front frame subpanel to the chassis.
3. Slide the front frame forward until it catches on the tabs on the sides of the chassis.

Front Frame Removal

Figure 2 Front Frame Assembly Removal

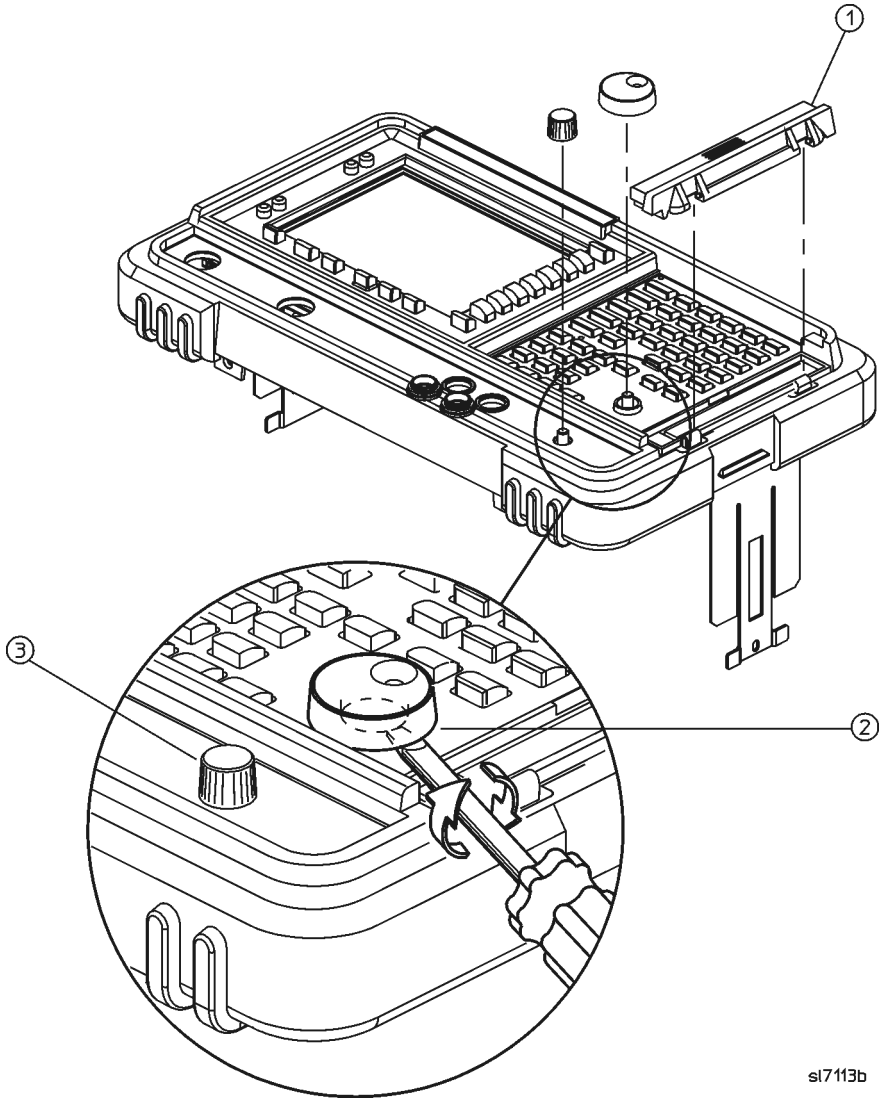


1. Referring to Figure 2, disconnect the ribbon cable **(3)** from the front panel interface board.
2. Carefully pull the sides of the front frame subpanel away from the chassis and over the tabs on the chassis.
3. Slide the front frame forward to disengage from the chassis assembly.

Front Panel Interface Board Removal

1. Referring to Figure 3, remove the media door **(1)** from the front panel.
2. Insert a flat-blade screwdriver under the RPG knob **(2)** as shown in Figure 3, and twist it to remove the knob.
3. Grasp the volume knob **(3)** and pull it off.

Figure 3 Removing the Knobs



4. Referring to Figure 4, disconnect the two 2-wire backlight cables **(1)** from the inverter board.
5. Disconnect the keypad ribbon cable **(2)**
6. Disconnect the display ribbon cable **(3)**.

CAUTION The display ribbon cable connector **(3)** is very delicate. With a small screwdriver or similar tool, gently push the lock tabs to the **(Unlocked)** position out from the back of the connector. Excessive force on the locking tab will break the retaining clips, and if broken, board replacement will be necessary. See Figure 4.

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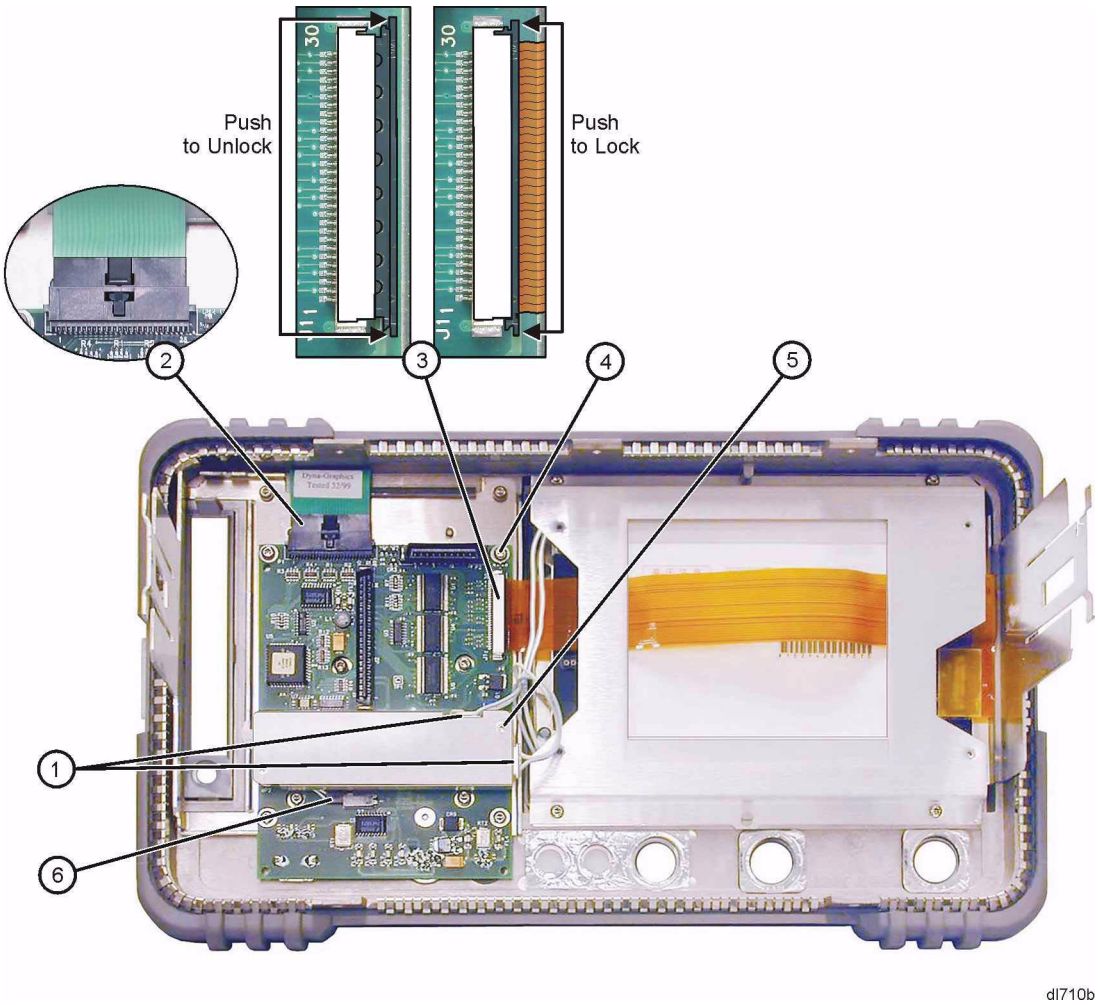
7. Remove the four screws **(4)** that secure the front panel interface board to the front frame.
8. Remove the front panel interface board from the front frame assembly.

Figure 4 Front Frame, Rear View



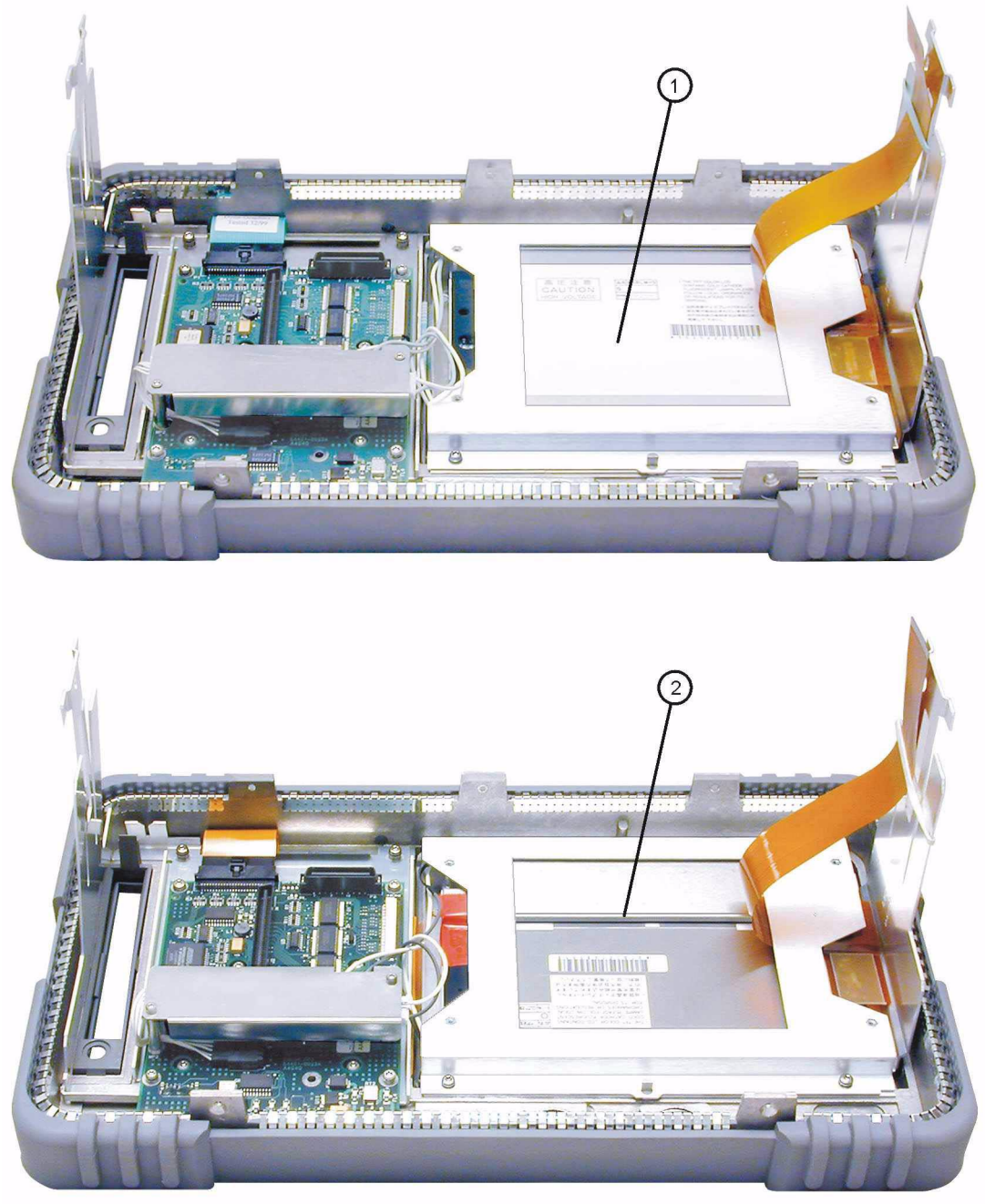
NOTE There is a water-seal gasket placed around the volume control shaft that may need to be repositioned during the replacement procedure.

Preparing the New Front Panel Interface Board

1. Referring to Figure 4, remove the two screws **(5)** of the inverter assembly.
2. Disconnect the inverter cable **(6)** from the old front panel interface board.
3. Set the old front panel interface board aside.
4. Attach the inverter cable **(6)** to the new front panel interface board supplied in this kit.
5. Position the inverter assembly and replace the two mounting screws **(5)**.

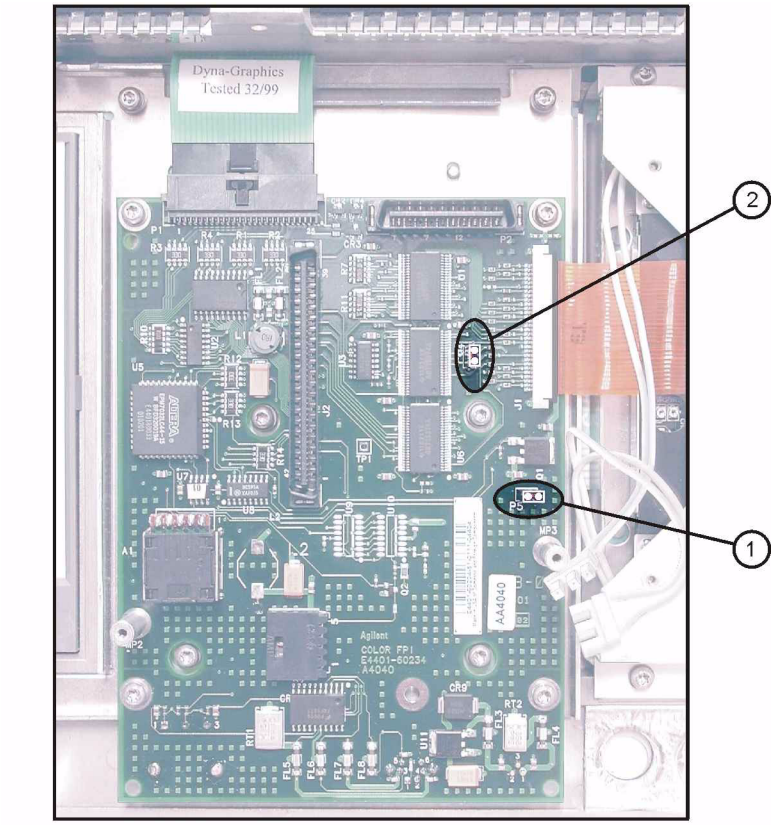
6. Determine if the analyzer has an old or new-style display. When viewed from the rear as shown in Figure 5, the old display is flat **(1)**, and the new display has a distinctive step **(2)**.

Figure 5 Identifying the Display



7. Referring to Figure 6, if the analyzer has a new LCD display, it only needs the jumper at P5 **(1)**. This jumper should already be in place on the front panel interface board. If you have an older display the jumper at P6 **(2)** will need to be added.

Figure 6 Front Panel Interface Board Jumpers



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Front Panel Interface Board Replacement

1. Place the front panel interface board in the front frame assembly as shown in Figure 4. Make sure the water seal is in place around the volume shaft.
2. Replace the four screws **(4)** that secure the board to the front frame. Tighten them to 9 inch-pounds.
3. Connect the keyboard cable **(2)**.
4. Connect the display ribbon cable **(3)** to the front panel interface board.

TIP An easy way to insert this delicate cable into the connector is to place your finger on the cable, in the center of the LCD display, and gently slide the cable toward the connector until they align. Then, providing guidance with the other hand as necessary, slide the cable until the end slips into the connector. Ensure the cable end is seated completely and is aligned straight within the connector body. Continue to hold the cable in place with your finger, and with the other hand gently press the locking tabs to the **(Locked)** position. See Figure 4.

NOTE If you experience display problems, check this connection.

5. Reconnect the two 2-wire backlight cables **(1)** to the inverter board, making sure that the cables are dressed away from the openings for the control knobs.
6. Referring to Figure 3, press the volume **(3)** and RPG **(2)** knobs onto their control shafts.
7. Replace the media door **(1)**.

Front Frame Replacement

1. Align the front frame subpanel rails with the chassis as shown in Figure 2.
2. Referring to Figure 2, connect the ribbon cable **(3)** to the front frame assembly.
3. Carefully slide the front frame toward the chassis, assuring the ribbon cable is not pinched between assemblies, and the RF input connector lines up correctly with the opening in the front frame.

NOTE Make sure the water seal is still in place around the input connector (and around the A2 tracking generator connector if the instrument is an Option 1DN or 1DQ) before reinstalling the front frame assembly.

4. Referring to Figure 2, replace the screws **(1)** that secure the front frame to the chassis. Tighten them to 9 inch-pounds.

Dress Cover Replacement

1. Referring to Figure 1, place the spectrum analyzer on the work surface with the front frame **(3)** facing down.
2. Replace the instrument outer case and rear frame assembly **(6)**, matching the grill **(8)** on the bottom of the case to the bottom of the analyzer.
3. Fit the leading edge of the case completely into the slot **(9)** on the back of the front frame assembly.
4. Replace the four screws **(5)** to fasten the rear frame to the instrument. Tighten them to 21 inch-pounds.