Installation Note

Agilent PSA Spectrum Analyzer Flash Memory Installation Kit

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Flash Memory Installation Kit

Products Affected:	PSA E4440A
	PSA E4443A
	PSA E4445A
	PSA E4446A
	PSA E4448A
Serial Numbers:.	US00000000/US99999999
	MY00000000/MY99999999
To Be Performed By:	(X) Agilent Service Center
	(X) Personnel Qualified by Agilent
	(X) Customer
Estimated Installation Time:	1 Hour
Estimated Verification Time:	0.5 Hours

Introduction

This installation kit includes the latest Flash memory assembly and a CD that contains the latest instrument firmware and measurement personalities. The replacement Flash board has been preloaded with the operating system and core instrument firmware only. Therefore, if your instrument requires optional measurement personalities, you must reload them from the CD included with this kit or from the Agilent PSA web site.

NOTE   All user stored files such as instrument states or traces from the original Flash assembly will be lost.

CAUTION   The following procedure must be done at a static safe work area.

Installation Kit Parts List

Contents of Flash Memory Upgrade Kit

Quantity	Description	Agilent Part Number
1	64 MB Flash board	Not available separately
4	Stand-offs	0380-4163
1	Firmware Update Kit	E4440-60087
1	Installation Note	this note

Tools Required

❏ Microsoft® Windows® based Personal Computer with Local Area Network (LAN) card.

❏ Windows NT® 4.0 or greater, Windows® 98

❏ CD-ROM drive

❏ Printer compatible with the PSA or DOS formatted 3.5" floppy disk. (Optional)

The following hand tools are required:

Description	Agilent Part Number
TORX Hand Driver - Size T10	8710-1623
TORX Hand Driver - Size T20	8710-1615
Diagonal cutters	N/A

WARNING   **This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protected earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited.**

WARNING   **The power cord is connected to internal capacitors that may remain live for 5 seconds after disconnecting the plug from it's power supply.**

WARNING   **The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch (disconnecting device).**

WARNING   **The opening of covers or removal of parts is likely to expose dangerous voltages. Disconnect the product from all voltage sources before starting to open.**

WARNING   **These servicing instructions are for use by qualified personnel only. To avoid electrical shock, do not perform any servicing unless you are qualified to do so.**

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Installation Procedure

If the instrument is functioning well enough to view the instrument configurations on screen, these configurations should be printed or copied down.

The Flash memory board is attached to the CPU assembly, so it is necessary to remove this assembly. The CPU assembly slides into the instrument from the rear panel, plugs directly into the motherboard, and is held in place with screws on the CPU plate. The CPU assembly cannot be removed without removing other assemblies. Perform the following procedures in order:

1. Remove the instrument outer case.

2. Remove the instrument top brace.

3. Remove the A6 SCSI board.

4. Remove the A7 Digital IF assembly.

5. Remove the A26 CPU assembly.

6. Replace the A26A2 Flash board on the CPU assembly.

7. Install the CPU assembly into the chassis.

8. Install the Digital IF assembly and SCSI board.

9. Install the instrument top brace and outer case.

10. Install the option designators and license keywords (if necessary).

11. Install the option firmware.

Since the Flash memory does not contain calibration data, and the instrument will perform an auto align when powered up, instrument re-calibration should not be required following this repair. The installation of the hardware should take about 1 hour to complete. Installation of optional measurement personalities and re-licensing varies with the number of options.

For assistance at any time during this procedure, get in touch with your nearest Agilent Technologies Sales and Service Office. To find your local Agilent office access the following URL or call the following telephone number:

http://www.agilent.com/find/assist

1-800-452-4844 (8am-8pm EST)

Capture Configuration Information (if possible)

NOTE   If the instrument is able to boot and display the softkey menus, it should be possible to gather information using the following process. This procedure will provide a record of the options with the associated license keys as well as I/O configurations for the purpose of installing them into the new 64 MB Flash board.

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1. Power on the PSA.

2. Connect a printer to the PSA. If a printer is unavailable, you can save the configuration information to the PSA floppy disk (drive A:), then place the floppy in your computer and print. If there is no way to provide a print out, then you must carefully write down the instrument information on a piece of paper.

   To set up the PSA to save a screen file to the floppy:
   insert a DOS formatted floppy into the PSA disk drive.

   Press **File**, **Save**, **Dir Select**, choose [-A-], press **Dir Select** again to read the directory.

   Press the **Type** key and select **Screen**. Press **Save Now**.

NOTE   Although you will not need this first saved screen, the process of saving this first screen enables future screen saves.

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3. On the PSA press **System**, **More**, **More**, **Licensing**, **Show License** to display the list of loaded firmware options and their associated license keywords. Press the **Print** key to print this list, or press the **Save** key to save it to a floppy disk, or manually copy the options and the associated license keys.

4. Press **System**, **More**, **Show System**. Under the Options heading, you can see the designators for the hardware and firmware options. Hardware options are; 1DS (preamp), B7J (electronic attenuator), and BAB (APC 3.5 mm connector). Press the **Print** key to print this list, or press the **Save** key to save it to a floppy disk, or manually copy the option designators.

5. Press **System**, **Configure I/O**. Press the **Print** key to print this list, or press the **Save** key to save it to a floppy disk, or manually copy all softkey labels such as IP Address and Host Name.

6. If you saved the configuration information to the floppy, print out the files now to assure they are correct.

Instrument Outer Case

CAUTION   If the instrument is placed on its face during any of the following procedures, be sure to use a soft surface or soft cloth to avoid damage to the front panel, keys, or input connector.

Removal

1. Disconnect the instrument from ac power.
2. There are two handles on the sides of the instrument that must be taken off. Refer to Figure 1. Using the T-20 driver, loosen the screws that attach each handle **(1)**. Remove the handles.
3. Remove the four bottom feet **(2)**. This is done by lifting up on the tabs on the feet, and sliding the feet in the direction indicated by the arrows.
4. Remove the four screws **(3)** that hold the rear feet **(4)** in place.
5. Pull the instrument cover **(5)** off towards the rear of the instrument.
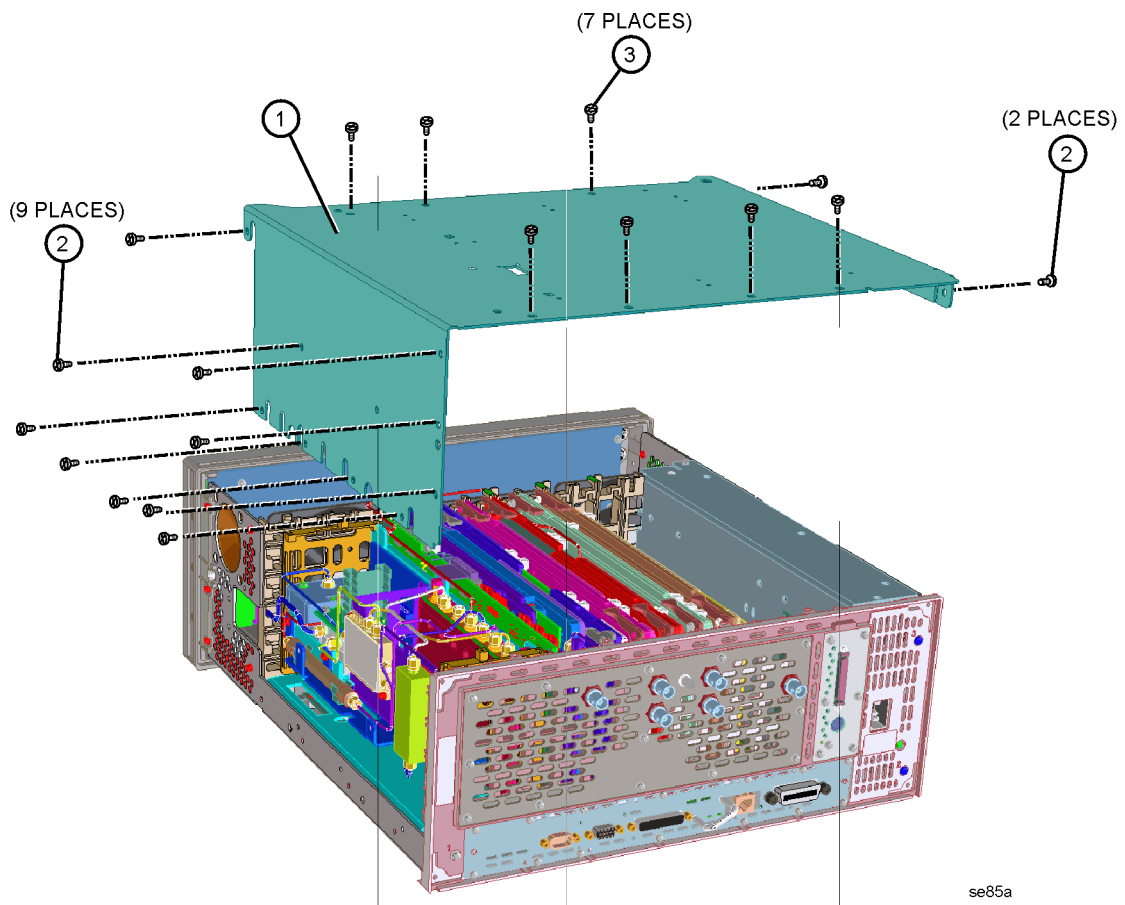
Figure 1   Instrument Outer Case Removal
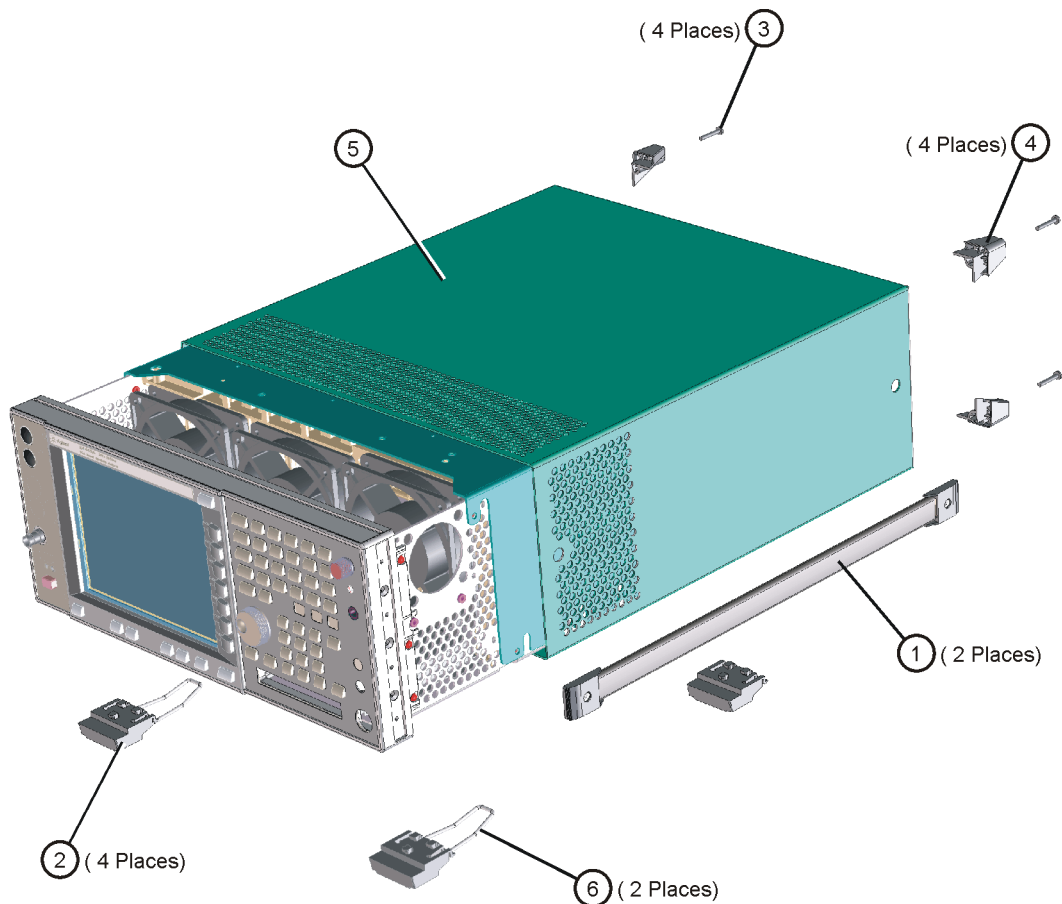
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Top Brace

Removal

1. Using the T-10 driver, remove the top screws **(3)** (one screw is under the security label) and the side screws **(2)** attaching the top brace **(1)** to the deck. Refer to Figure 2.

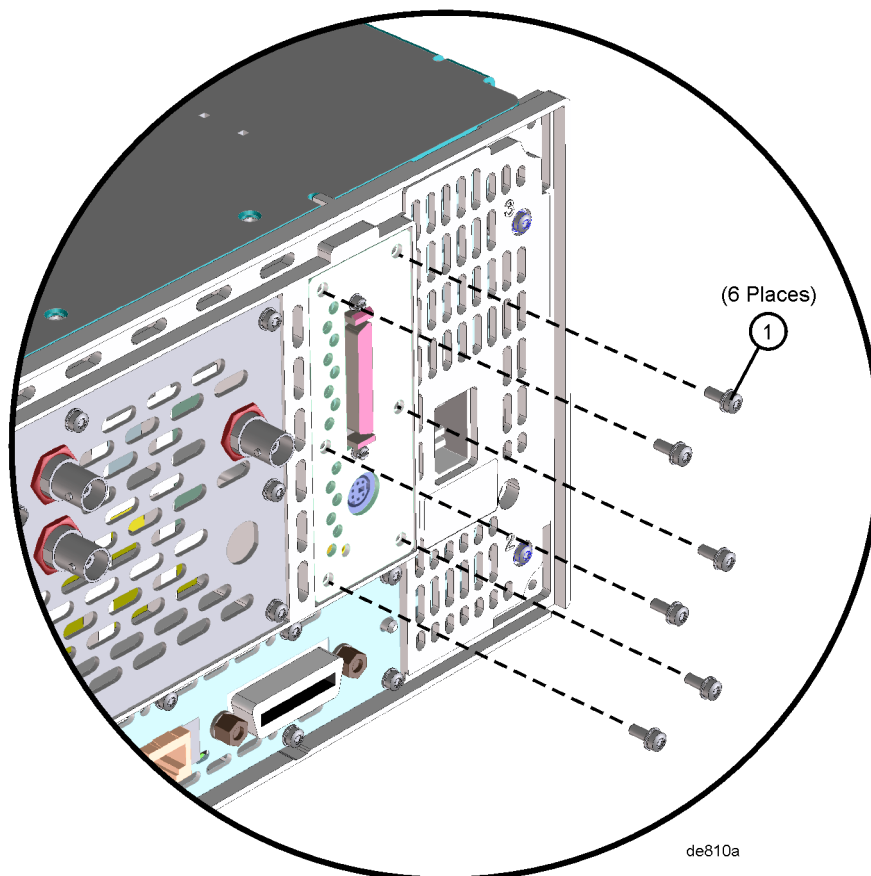2. The top brace can now be removed from the deck.

Figure 2   Top Brace

A6 SCSI Board

Removal

1. Refer to Figure 3. At the rear of the instrument, use a T-10 driver to remove the 6 screws **(1)** securing the small panel to the frame.

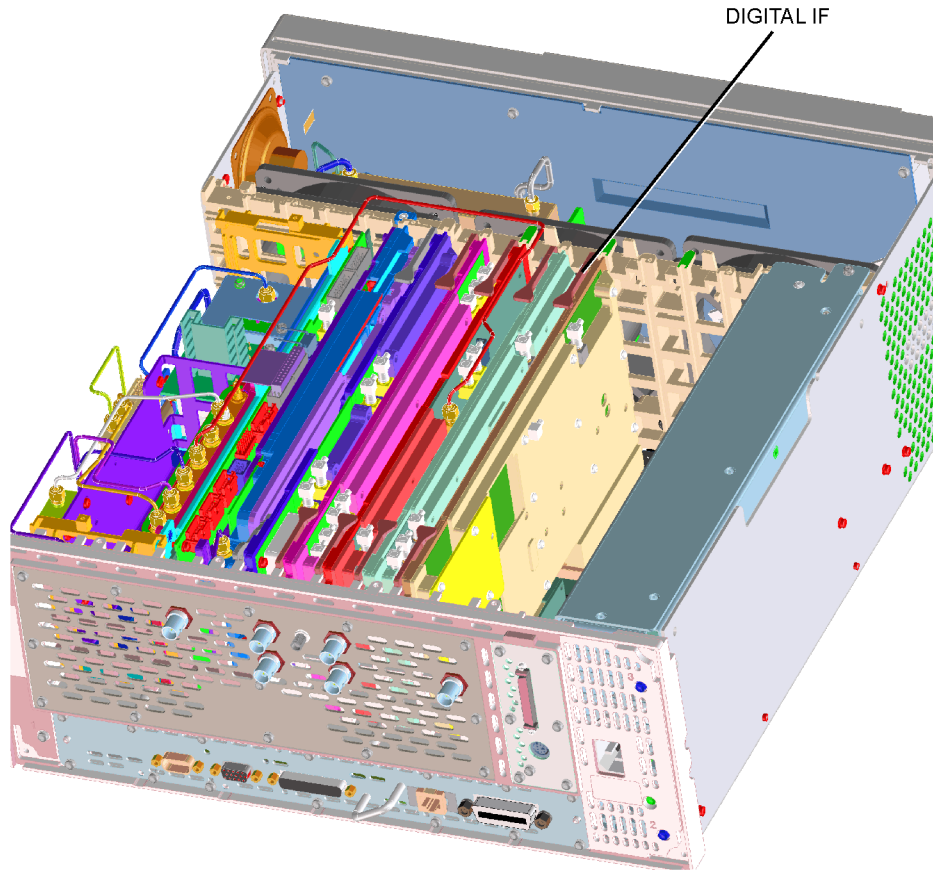2. The SCSI board can be removed through the rear panel by pulling up on the board to disengage it from the CPU board.

Figure 3   SCSI Board Removal

A7 Digital IF Assembly

shows the location of the A7 Digital IF assembly in slot 4.

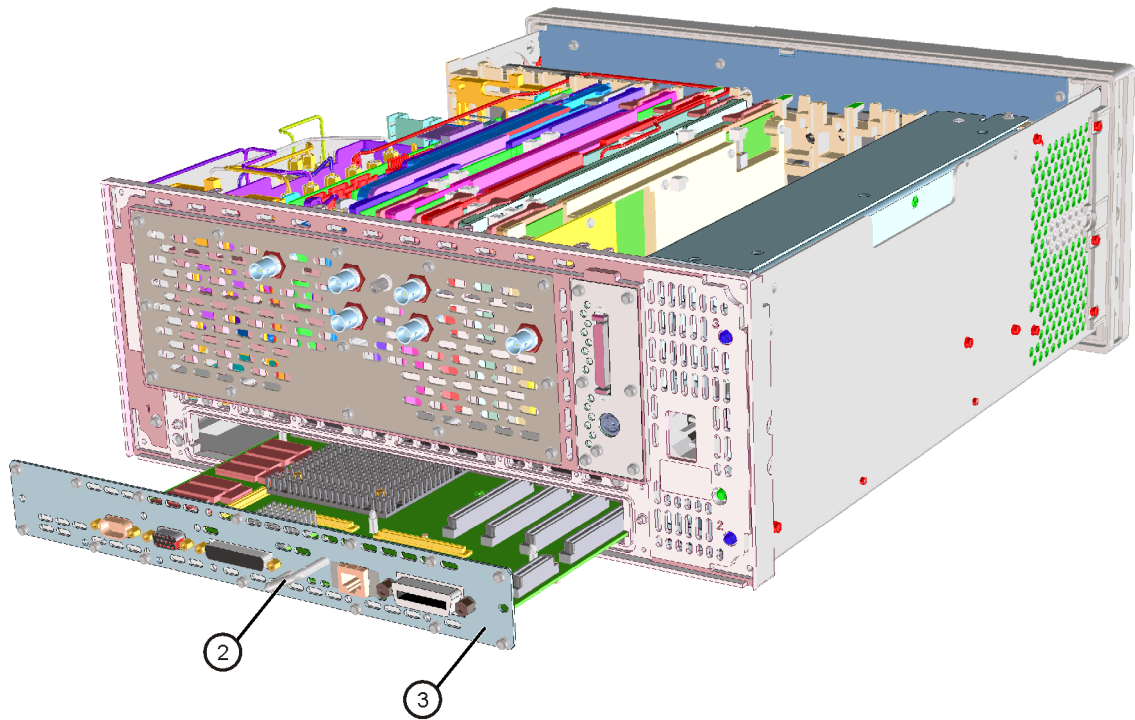**Figure 4   Vertical Board Assembly Locations**

DIGITAL IF

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Removal

The cables that connect to this assembly do not need to be removed since you are going to pull the assembly out of the chassis and lay it down on the instrument. Use the board ejectors located on the Digital IF assembly to carefully pull it out of the chassis.

If there are any other assemblies in slots 2 and 3, remove them now.

A26 CPU Assembly

Removal

1. Using the T-10 driver, remove the 14 screws **(1)** from the rear panel as shown in Figure 5.

2. Read the **Warning** on the rear dress panel before removing the CPU assembly from the deck.

3. Refer to Figure 6. Use the handle **(2)** to slide the A26 assembly **(3)** out of the deck by pulling towards the rear of the instrument.

Figure 5   CPU Screw Locations

1 (14 PLACES)

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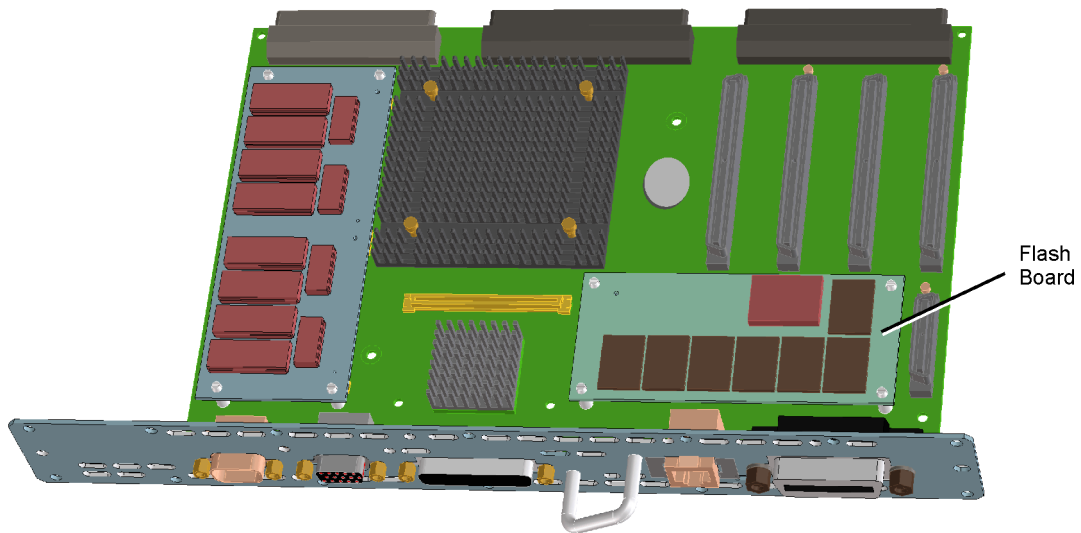**Figure 6   CPU Assembly Removal**

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A26A2 Flash Board

Removal

1. Refer to Figure 7. Cut the standoffs flush with the top of the memory board, and carefully pull up on the A26A2 Flash board to disengage it from the CPU assembly. Remove the standoffs from the CPU board.

Figure 7   A26A2 Flash Board Location

Flash
Board

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Installing the Replacement Flash Board

1. Install the 4 plastic standoffs (included in the Flash Replacement Kit) into the CPU board.

2. Carefully position the Flash board over the plastic standoffs and press on the 4 corners of the Flash board to snap the board into the standoffs. Assure the CPU connector and Flash board connector are mated.

3. Assure the plastic feet on the bottom of the CPU assembly are secure. Sometimes they will become loose or unattached when the CPU is removed from the instrument.

4. Slide the CPU assembly back into the chassis and assure the CPU and motherboard connector mate. The CPU plate should fit snugly against the rear frame.

5. Install the Digital IF assembly into slot 4. Assure the cables are not pinched when the assembly is inserted. Hook the ejectors under the tabs on the rear frame and mid web. Carefully push down on the ejectors to mate the assembly with the motherboard connectors.

NOTE   If the Digital IF ejector handles do not lay against the assembly casting, the assembly may not be inserted fully. If this problem persists, remove the CPU rear plate and install the CPU board, then install the Digital IF, then re-attach the CPU plate. If the Digital IF is not seated, auto align failures can occur.

6. Replace the SCSI board by inserting it into the opening on the rear frame. Carefully position the board in the CPU board connector and push down to mate. Replace the 6 screws using a T-10 driver. Torque to 9 inch pounds.

7. Using the T-10 driver, secure the CPU assembly to the rear frame with the 14 screws. Torque to 9 inch pounds.

8. Install any other assemblies removed earlier from slots 2 and 3, being careful of cable routing.

9. Plug in the power cord and turn on the instrument to check for proper operation. The instrument should boot up, run the auto align routine, and then display the spectrum analyzer screen. If problems occur, check all cable connections and assure the Digital IF assembly is fully inserted into the CPU and motherboard connectors.

NOTE   When the instruments power is first turned on, a message at the bottom left corner will read "File Sys Initialized". This message is normal after updating from the 48 MB memory card to the 64 MB card. Cycle the power again to clear this message.

10. Press **SYSTEM**, **Config I/O** and install the GPIB and IP addresses.

11. Disconnect the instrument from ac power.

12. Carefully position the top brace on the deck. There is an alignment pin on the mid web/fan assembly that should match up with the alignment hole on the top brace. Make sure that no coaxial cables will get pinched underneath the brace.

13. Using the T-10 driver, replace the top screws first, and then the side screws after the top screws are tightened. Torque to 9 inch pounds.

14. Slide the instrument cover back onto the deck from the rear. The seam on the cover should be on the bottom. Be sure the cover seats into the gasket groove in the front frame.

15. Replace the four rear feet to the rear of the instrument. Torque to 21 inch pounds.

16. Using the T-20 driver, replace the handles. Torque to 21 inch pounds.

17. Replace the four bottom feet by pressing them into the holes in the case and sliding in the opposite direction of the arrows until they click into place. Note that the feet at the front have the tilt stands.

Install the Option Designators and License Keywords

Locate the print-outs or notes you took regarding installed instrument options and license keywords. Most, but not all options require installation of a license keyword before the option will be available for use.

If your instrument suffered a memory failure, call an Agilent Technologies sales or service office for assistance obtaining a list of option designators and license keywords for your instrument.

To find your local office access the following URL or call the following telephone number:

http://www.agilent.com/find/assist
1-800-452-4844 (8am-8pm EST)

On the instrument front panel press **System**, **More**, **More**, until the **Licensing** key is visible. Press **Licensing** and **Option**. This will activate the alpha editor menu. Use the alpha editor and the front panel numerical keypad to enter the upper-case option designators (such as B7J). Enter the letters using the alpha editor and the numeric keypad to enter the numbers. Press the **Enter** key. Note that the option designator now appears on the **Option** key.

Press **License Key**. The license key number is the hexadecimal number that will require the entry of both letters and numbers, Use the alpha editor and the front panel numerical keypad to enter the license key number. Your entry will appear in the active function area of the display. If you make a typing error, use the backspace key to correct the error. Check the license key number you entered. Press **Enter**, **Activate License**.

Install the Option Firmware

The firmware update kit, included in this memory upgrade kit, contains a CD of the instrument firmware including all options. See the CD installation instructions included in the kit and allow the on-screen step-by-step instructions guide you through the installation.

After completing the firmware update process, press **System**, **More**, **Show System** and verify all expected options are present.

The latest firmware is available on the internet at: http://www.agilent.com/find/psa.

The memory replacement process is now complete.