

# **External Boot Drive for Agilent Logic Analysis Systems**

## **Installation Guide**



**Agilent Technologies**

# Notices

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### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

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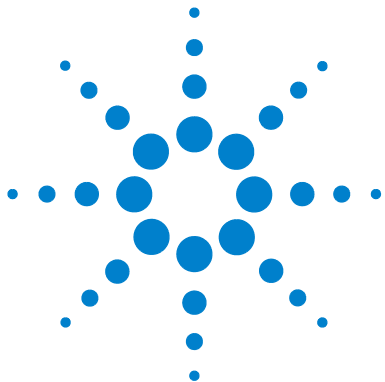
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If you ordered the 16900 Series logic analysis system frame with the external boot drive option (Option 009), the frame's internal hard disk drive has been removed and the SATA interface card has been installed at the factory. In this case, the drive has been imaged to be compatible with the frame hardware. Go on to "[Step 8. Connect and power up the external boot drive](#)" on page 18.

If you ordered the E5862A external boot drive conversion kit to use as an extra drive for a logic analysis system that has the external boot drive option, you must image the extra drive (using the included recovery software) to match the frame BIOS/hardware the drive will be connected to. Begin with "[Step 8. Connect and power up the external boot drive](#)" on page 18.

If you ordered the E5862A external boot drive conversion kit as an external boot drive for use with a logic analysis system that has an internal hard disk drive, you must remove the frame's internal hard disk and image the external



## Installation on 16900 Series Logic Analysis Systems

drive (using the included recovery software) to match the frame BIOS/hardware. Begin with “[Step 1. Prepare the instrument for disassembly](#)” on page 7.

### CAUTION

Electrostatic discharge can damage electronic components. Use grounded wrist straps and mats when handling electronic components.

---

## Step 1. Prepare the instrument for disassembly

Do this procedure before doing any disassembly procedure on the instrument.

- 1 Close the *Agilent Logic Analyzer* application software.
- 2 Back up any data and license files you want to retain using LAN, USB flash drive, writable CDs, etc.
- 3 Power off the system using one of the methods explained below.
- 4 Remove the power cord.
- 5 Move the instrument to a static safe work environment.

### WARNING

**Hazardous voltages exist on the power supply. To avoid electrical shock, disconnect the power from the instrument before performing the following procedures. After disconnecting the power, wait at least six minutes for the capacitors on the power supply board to discharge before servicing the instrument.**

---

### CAUTION

Damage can occur to electronic components if you remove or replace assemblies when the instrument is on or when the power cable is connected. Never attempt to remove or install any assembly with the instrument on or with the power cable connected.

---

## To power off the system

There are several ways to power off the logic analysis system.

### NOTE

When powering off the logic analysis system, wait until the fans stop turning (about 15 seconds) before turning the logic analysis system back on. This ensures that internal circuitry restarts in a known state.

---

### Using the Windows Shutdown

On the logic analysis system desktop click **Start> Shut Down** or if you are running remote desktop, click **Start> Settings> Windows Security> Shut Down**. This software power off does the following:

- Closes all programs that are running.

- Writes all data to the disk.
- Turns off the power supply.
- If the system is unplugged while it is off and then plugged back in, the system will not power on until the power button is pressed.

### **Using a Short Press of the Power Button**

Pressing the power button on a frame for a short time (less than 2 seconds or so):

- Closes all programs that are running.
- Writes all data to the disk.
- Turns off the power supply.

If the power button is depressed for a short time (less than 2 seconds or so) while another instrument has an open Remote Desktop connection to this instrument, a message on the logic analysis system screen (not on the remote desktop) will pop up asking if you really want to power down. Clicking the 'yes' button results in the above events. Clicking 'no' will prevent the shutdown and not answering the dialog box (neither clicking "Yes" or "No") will have no effect. Further short presses on the power button will have no effect.

### **Using a Long Press of the Power Button**

Pressing the power button for more than 4 seconds will power the system down abruptly. Use this method only when other methods have not responded:

- Programs that are running will not be shut down. Any data that has not been written to the disk will be lost.
- Turns off the power supply.
- If the system is unplugged while it is off and then plugged back in, the system will not power on until the power button is pressed.
- If the system does not boot, the hard disk drive will need to be re-imaged.

### **Unplugging the Power Cord or Power Loss**

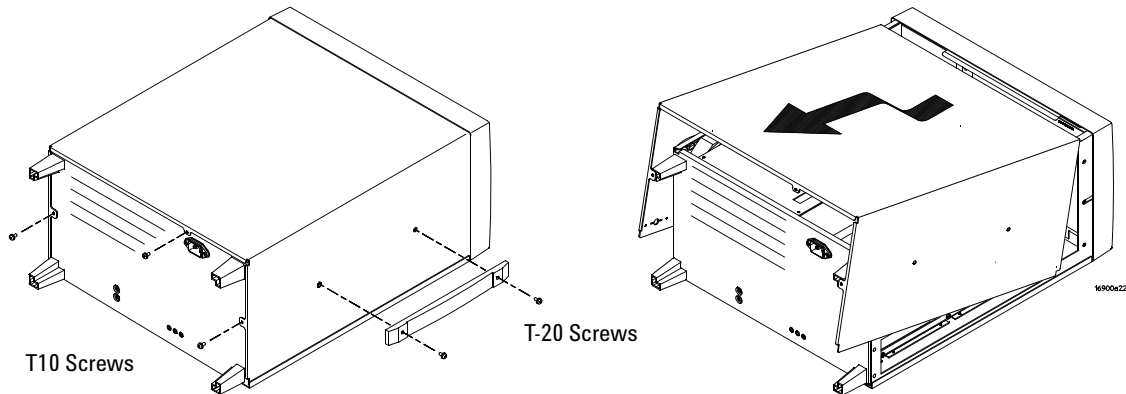
Unplugging power while the instrument is turned on or a power loss is similar to the long press of the power button with one exception:

- When the system is plugged back in, it will power up and boot into Windows.



## Step 2. Remove the cover

- 1 Using a Torx T20 screwdriver, remove the handle assembly.
- 2 Using a Torx T10 screwdriver, remove 3 screws that secure the cover to the chassis.
- 3 Slide the cover back and up to remove.



### CAUTION

When reinstalling the handle assembly, ensure that the screws are torqued to 2.372 Newton meters (21 inch pounds) so that they do not work themselves loose.

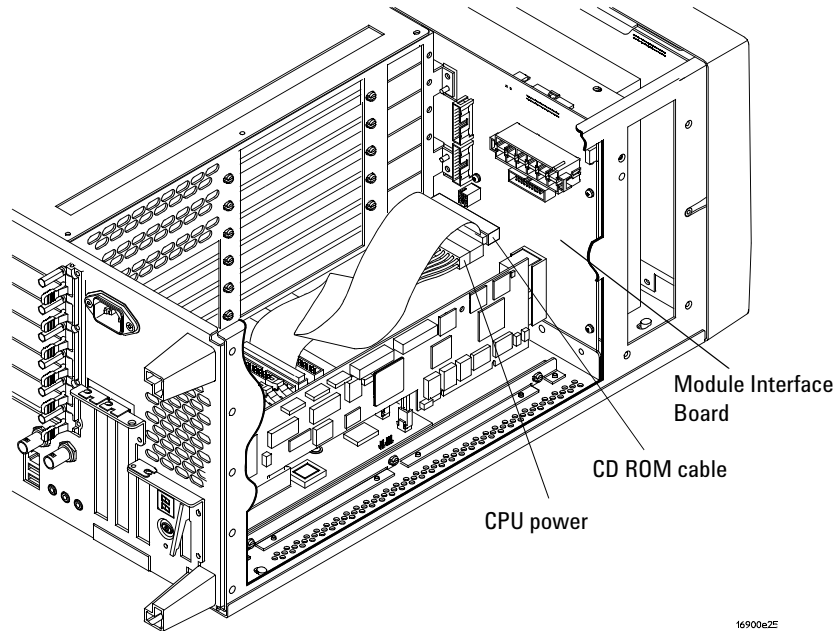
## Step 3. Remove the CPU tray

### CAUTION

Before removing the CPU tray (after the cover is removed), attach a grounding wrist strap to the chassis.

### 16900A and 16902A CPU tray

- 1 Disconnect cables from the module interface board.

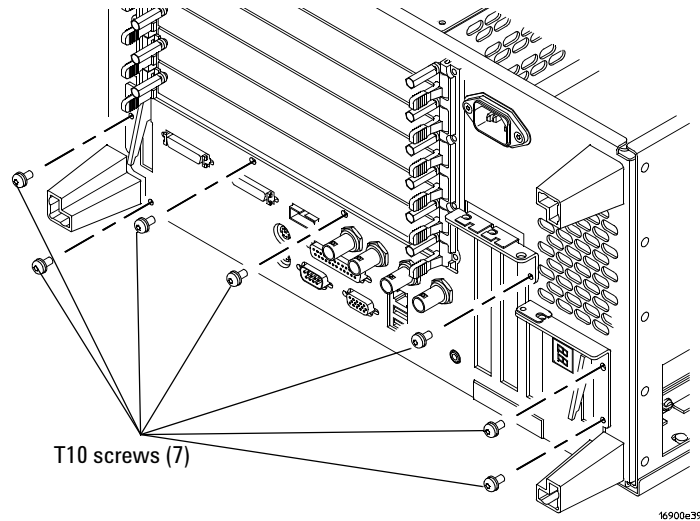


- 2 Remove 7 screws from the back of the CPU tray using a Torx T10 screwdriver.

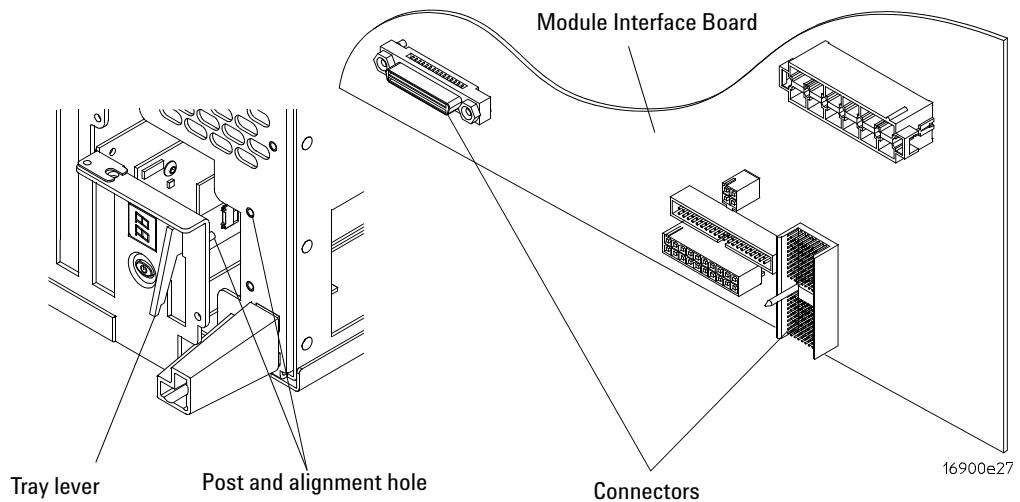
### CAUTION

Do not loosen the other screws on the rear sheet metal; they position the rear sheet metal with respect to the CPU motherboard, and this position should not be shifted. Doing so can make it difficult to make a reliable connection between the PCI cards and the CPU motherboard.

## Installation on 16900 Series Logic Analysis Systems

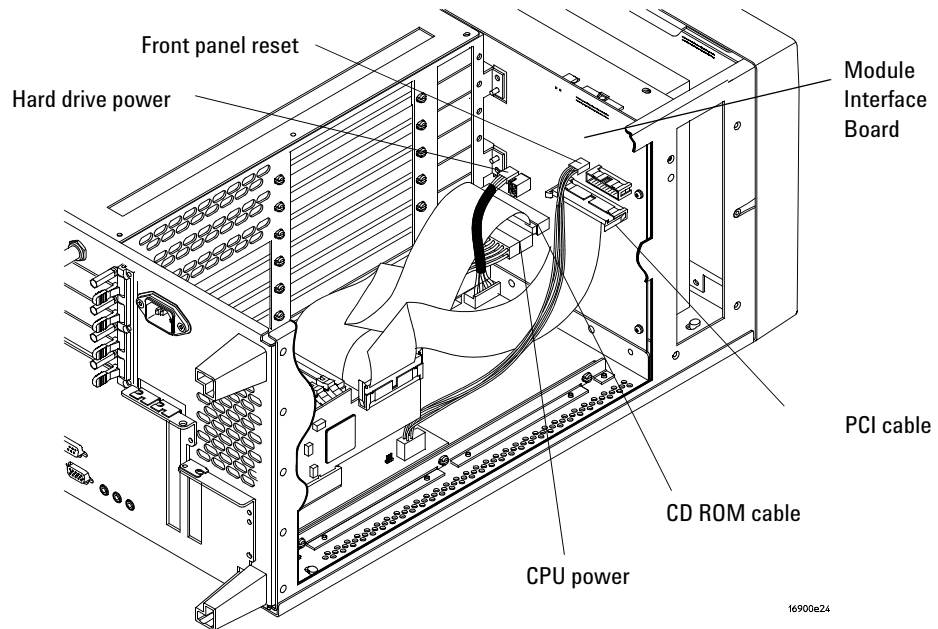


- 3 Use the tray levers to pry and disconnect the CPU board from the module interface board and slide the tray out being careful not to catch the loose cables on anything.



## 16903A CPU tray

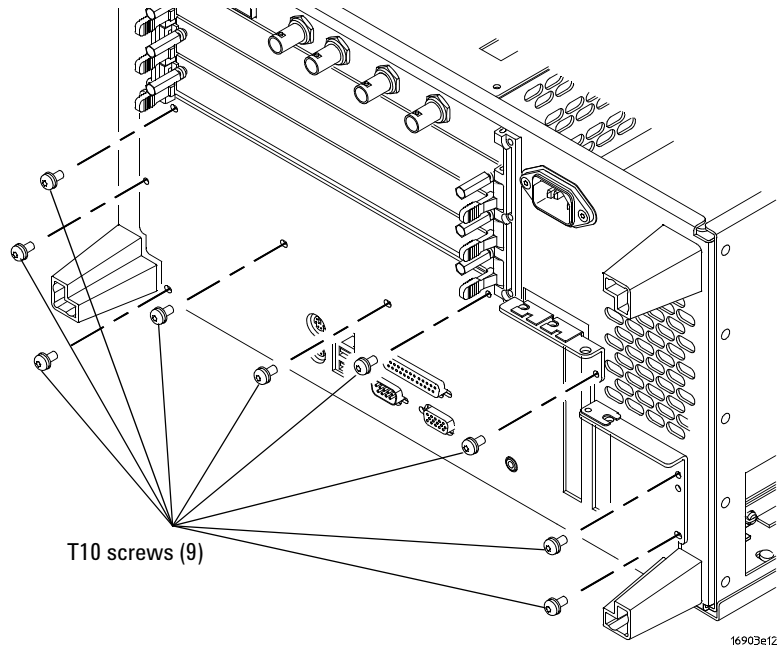
- 1 Disconnect cables from the module interface board.



- 2 Remove 9 screws from the back of the CPU tray using a Torx T10 screwdriver.

### CAUTION

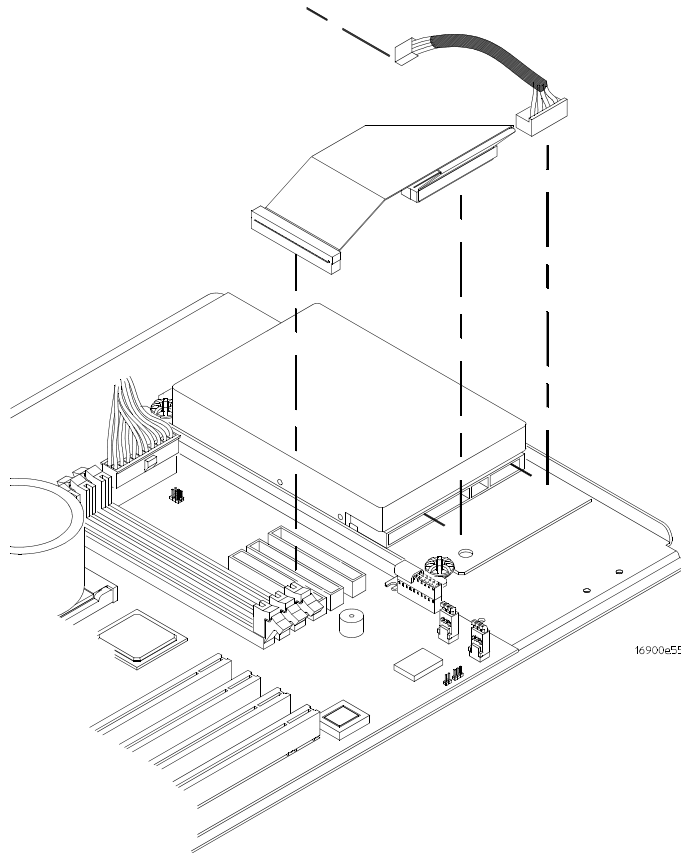
Do not loosen the other screws on the rear sheet metal; they position the rear sheet metal with respect to the CPU motherboard, and this position should not be shifted. Doing so can make it difficult to make a reliable connection between the PCI cards and the CPU motherboard.



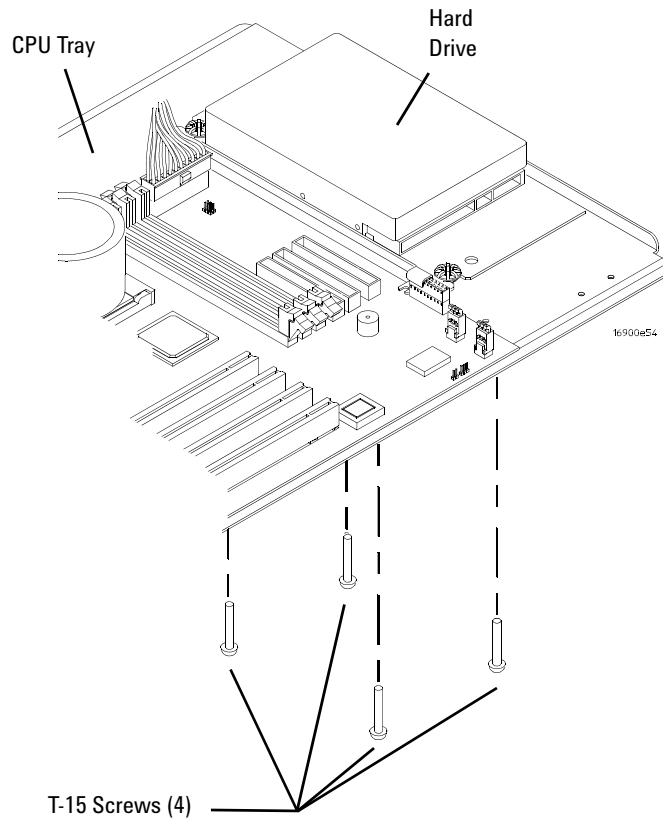
- 3 Slide the tray out being careful not to catch the loose cables on anything.

## Step 4. Remove the internal hard disk drive

- 1 Disconnect the IDE (80-wire) cable and the power (4-wire) cable from the internal hard disk drive.
- 2 Remove the internal hard disk drive cables:
  - a Disconnect the IDE cable from the motherboard and remove it.
  - b If you have a 16900A or 16902A frame, disconnect the power cable from the I/O board and remove it. (If you have a 16903A frame, the power cable was already disconnected from the module interface board.)

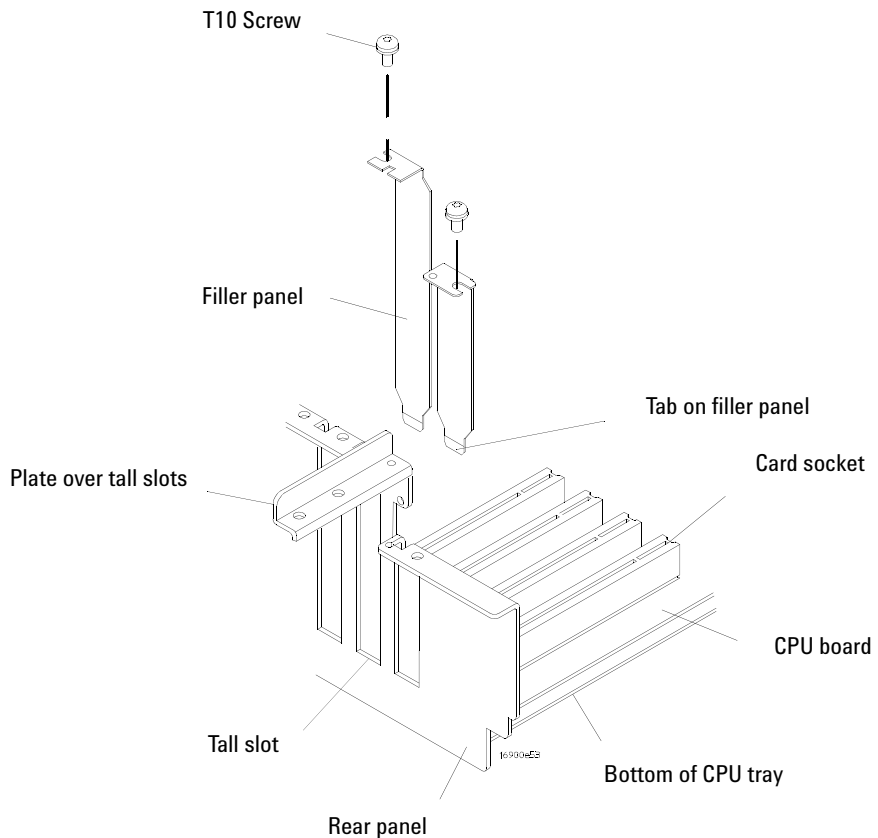


- Using a Torx T15 screwdriver, remove the 4 screws that secure the hard drive to the hard drive plate. These screws are accessible through holes in the bottom of the CPU tray.



## Step 5. Install the SATA interface card

- 1 Using a T10 screwdriver, remove the screws securing the tall slot filler panel covers to the rear panel of the CPU tray.
- 2 Swing the plate over the tall slot(s) out of the way (as shown in the following figure), and remove the filler panel.



- 3 To install the SATA interface card, ensure that the tab at the bottom of the card is aligned with the slot in the bottom of the CPU tray between the motherboard and the rear panel.
- 4 Press the card securely into the socket on the motherboard.

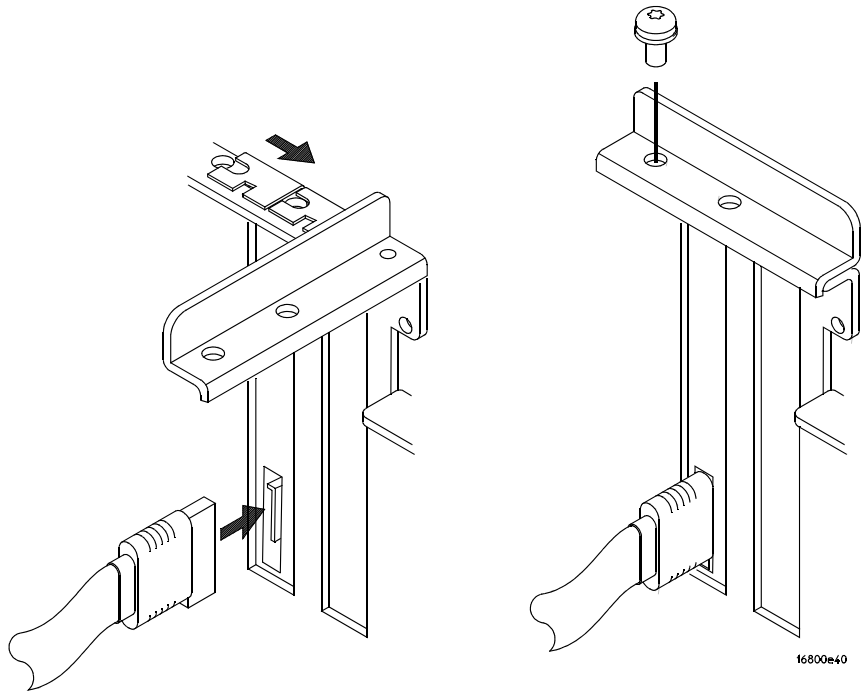


- 5 Connect the SATA cable to the port on the interface card.

This adjusts the interface card's position so there is adequate room to disconnect and reconnect the SATA cable after the installation is complete.

### NOTE

If you do not adjust the interface card's position (by connecting the SATA cable to the port), it may be difficult or impossible to connect the cable after the card securing screws are tightened.



- 6 Swing the plate back into place.
- 7 Replace the screw(s).

## Step 6. Replace the CPU tray

- 1 To install the CPU tray, reverse the procedure shown in “Step 3. Remove the CPU tray” on page 10.

## Step 7. Replace the cover

- 1 To replace the cover, reverse the procedure shown in “Step 2. Remove the cover” on page 9.

### CAUTION

When reinstalling the handle assembly, ensure that the screws are torqued to 2.372 Newton meters (21 inch pounds) so that they do not work themselves loose.

---

## Step 8. Connect and power up the external boot drive

- 1 If the SATA cable is not already connected to the port on the SATA interface card in the 16900 Series logic analysis system frame, do that now.
- 2 Connect the other end of the SATA cable to the external boot drive.
- 3 Turn the external boot drive power on by connecting its power cable and setting its power switch to the on position.

## Step 9. Power up the logic analysis system

- 1 Turn on the logic analysis system.

If the external boot drive is connected to the port on the SATA interface card, the orange LED on the external drive will light up to show that the drive is recognized and is active.

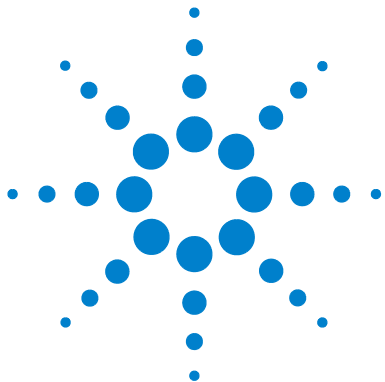
If you ordered the 16900 Series logic analysis system frame with the external boot drive option (Option 009), the drive is shipped from the factory with the operating system, frame drivers, and application software installed. In this case, you are done with the external disk installation procedure and should continue on with the first-time set up procedures in the logic analysis system *Installation Guide*.

If you ordered the E5862A external boot drive conversion kit, the drive is shipped from the factory with boot software that identifies the appropriate operating system recovery DVD. In this case, continue on with the steps in this and the next section.

- 2 Locate the recovery DVD identified on the logic analysis system display.

## Step 10. Recover the operating system and re-install software

- 1 Using the appropriate recovery DVD, restore the operating system. Follow the instructions that come with the recovery DVD.
- 2 Install the *Agilent Logic Analyzer* application software. Follow the installation/upgrade instructions provided on the web download page (<http://www.agilent.com/find/la-sw-download>) or with the application software CD.
- 3 Install any additional application software.
- 4 Restore the data and license files you backed up in “Step 1. Prepare the instrument for disassembly” on page 7.



## 2 Installation on 16800 Series and 16901A Logic Analysis Systems

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- Step 5. Install the SATA interface card 28
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- Step 8. Connect and power up the external boot drive 30
- Step 9. Power up the logic analyzer 31
- Step 10. Recover the operating system and re-install software 32

If you ordered the 16800 Series or 16901A logic analysis system frame with the external boot drive option (Option 109), the frame's internal hard disk drive has been removed and the SATA interface card has been installed at the factory. In this case, the drive has been imaged to be compatible with the frame hardware. Go on to [“Step 8. Connect and power up the external boot drive”](#) on page 30.

If you ordered the E5862A external boot drive conversion kit to use as an extra drive for a logic analysis system that has the external boot drive option, you must image the extra drive (using the included recovery software) to match the frame BIOS/hardware the drive will be connected to. Begin with [“Step 8. Connect and power up the external boot drive”](#) on page 30.

If you ordered the E5862A external boot drive conversion kit as an external boot drive for use with a logic analyzer that has an internal hard disk drive, you must remove the frame's internal hard disk and image the



## Installation on 16800 Series and 16901A Logic Analysis Systems

external drive (using the included recovery software) to match the frame BIOS/hardware. Begin with “[Step 1. Prepare the instrument for disassembly](#)” on page 23.

### CAUTION

Electrostatic discharge can damage electronic components. Use grounded wrist straps and mats when handling electronic components.

---

## Step 1. Prepare the instrument for disassembly

Do this procedure before doing any disassembly procedure on the instrument.

- 1 Close the *Agilent Logic Analyzer* application software.
- 2 Back up any data and license files you want to retain using LAN, USB flash drive, external USB CD/DVD writer, etc.
- 3 Power off the system using one of the methods explained below.
- 4 Remove the power cord.
- 5 Move the instrument to a static safe work environment.

### WARNING

**Hazardous voltages exist on the power supply. To avoid electrical shock, disconnect the power from the instrument before performing the following procedures. After disconnecting the power, wait at least six minutes for the capacitors on the power supply board to discharge before servicing the instrument.**

---

### CAUTION

Damage can occur to electronic components if you remove or replace assemblies when the instrument is on or when the power cable is connected. Never attempt to remove or install any assembly with the instrument on or with the power cable connected.

---

## To power off the system

There are several ways to power off the logic analyzer.

### NOTE

When powering off the logic analyzer, wait until the fans stop turning (about 15 seconds) before turning the logic analyzer back on. This ensures that internal circuitry restarts in a known state.

---

### Using the Windows Shutdown

On the logic analyzer desktop click **Start> Shut Down** or if you are running remote desktop, click **Start> Settings> Windows Security> Shut Down**. This software power off does the following:

- Closes all programs that are running.

- Writes all data to the disk.
- Turns off the power supply.
- If the system is unplugged while it is off and then plugged back in, the system will not power on until the power button is pressed.

### **Using a Short Press of the Power Button**

Pressing the power button on a frame for a short time (less than 2 seconds or so):

- Closes all programs that are running.
- Writes all data to the disk.
- Turns off the power supply.

If the power button is depressed for a short time (less than 2 seconds or so) while another instrument has an open Remote Desktop connection to this instrument, a message on the logic analyzer screen (not on the remote desktop) will pop up asking if you really want to power down. Clicking the 'yes' button results in the above events. Clicking 'no' will prevent the shutdown and not answering the dialog box (neither clicking "Yes" or "No") will have no effect. Further short presses on the power button will have no effect.

### **Using a Long Press of the Power Button**

Pressing the power button for more than 4 seconds will power the system down abruptly. Use this method only when other methods have not responded:

- Programs that are running will not be shut down. Any data that has not been written to the disk will be lost.
- Turns off the power supply.
- If the system is unplugged while it is off and then plugged back in, the system will not power on until the power button is pressed.
- If the system does not boot, the hard disk drive will need to be re-imaged.

### **Unplugging the Power Cord or Power Loss**

Unplugging power while the instrument is turned on or a power loss is similar to the long press of the power button with one exception:

- When the system is plugged back in, it will power up and boot into Windows.

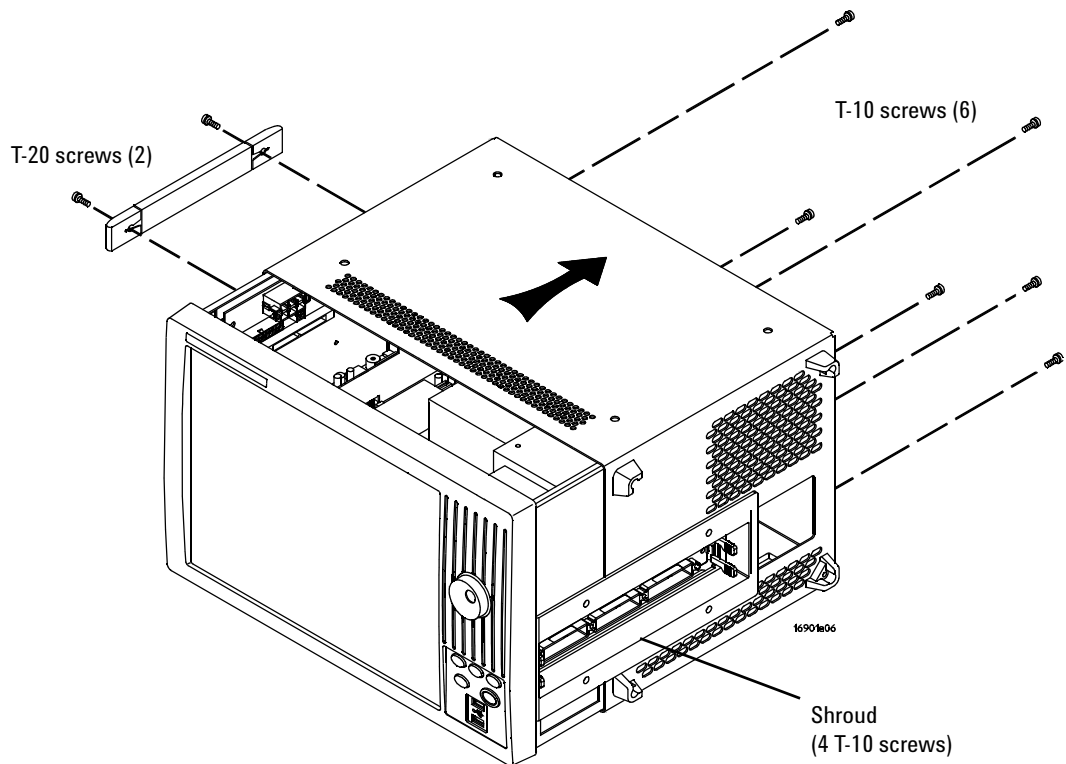


## Step 2. Remove the cover

- 1 Using a Torx T20 screwdriver, remove the handle assembly.
- 2 Using a Torx T10 screwdriver, remove 6 screws that secure the cover to the chassis.

Optional for 16901A: Removing the shroud may make it easier to remove and replace the cover. In this case, remove 4 T10 screws; then, remove the shroud.

- 3 Slide the cover back to remove.

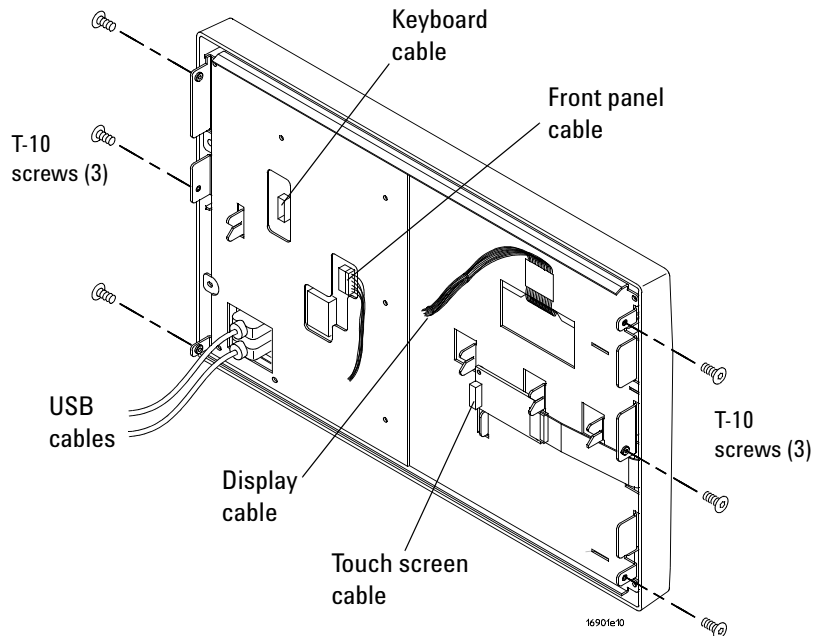


### CAUTION

When reinstalling the handle assembly, ensure that the screws are torqued to 2.372 Newton meters (21 inch pounds) so that they do not work themselves loose.

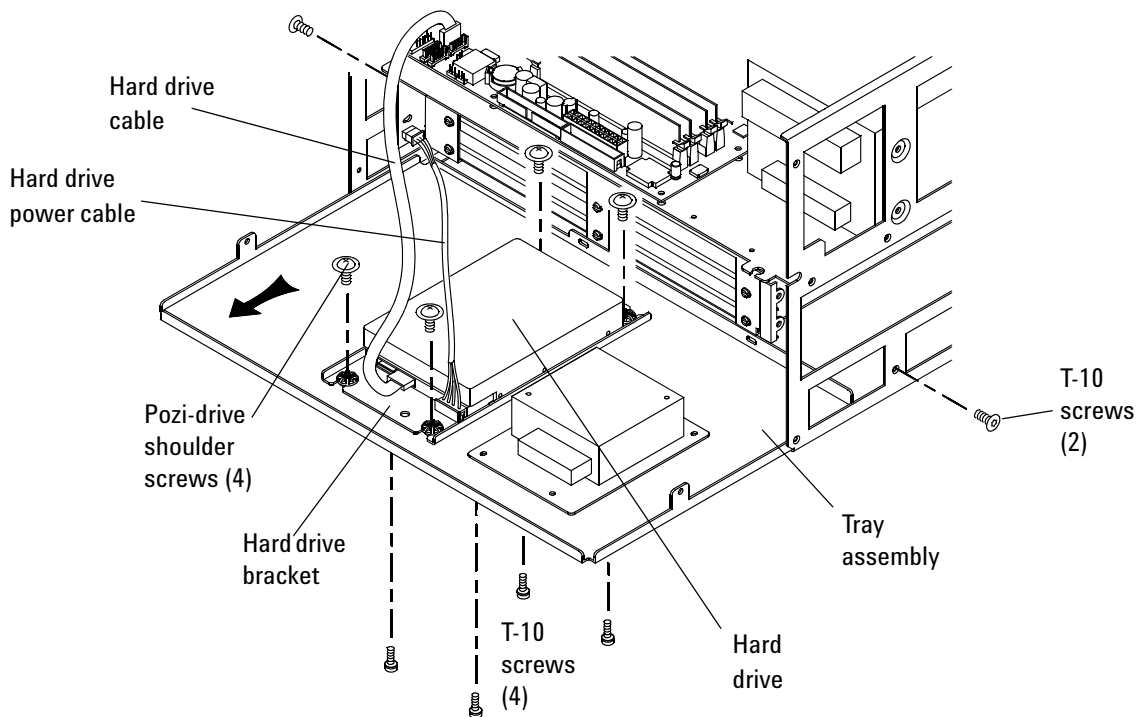
## Step 3. Remove the front panel assembly

- 1 Disconnect the following cables:
  - USB cables from the motherboard.
  - Display cable from the display board or from the motherboard if applicable (use care when disconnecting to avoid damage).
  - Touchscreen cable from the touch screen controller board (if the frame model has touchscreen).
  - Keyboard cable from the keypad board.
  - Front panel cable from the backlight inverter board.
- 2 Using a Torx T10 screwdriver, remove 6 screws that secure the front panel to the chassis.
- 3 Remove the front panel assembly.



## Step 4. Remove the internal hard disk drive

- 1 Using a Torx T10 screwdriver, remove the 2 side screws that secure the tray assembly to the chassis.
- 2 Slide the tray out just enough to be able to disconnect the 2 hard drive cables from the hard drive.
- 3 Using a Torx T10 screwdriver, remove the 4 screws that secure the hard drive to the hard drive bracket. These screws are accessible through holes in the bottom of the tray assembly.
- 4 To remove the hard drive bracket, remove the 4 Pozi-drive shoulder screws with washers that secure it to the tray assembly.



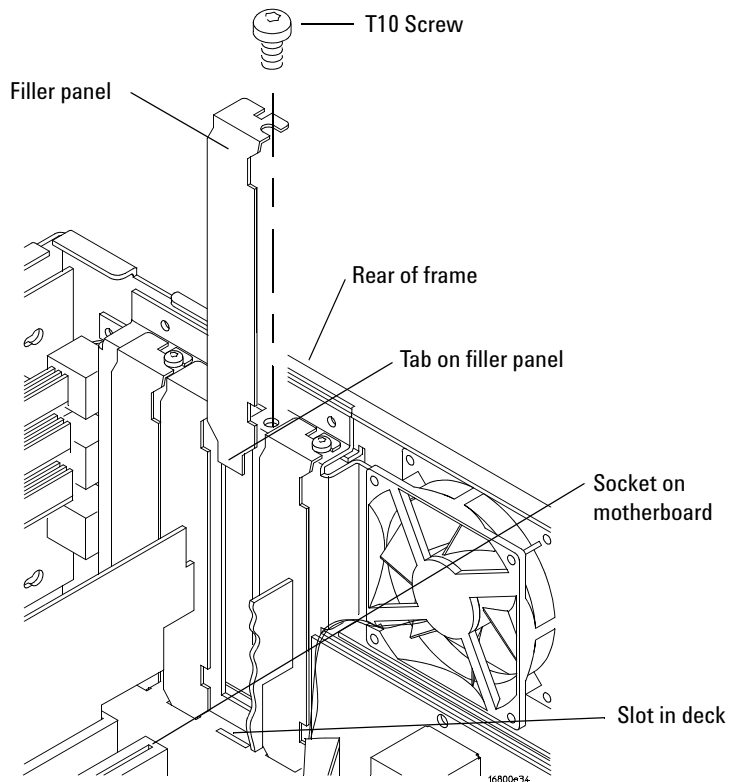
- 5 Remove the internal hard disk drive cables:
  - a Disconnect the SATA cable from the motherboard and remove it.
  - b Disconnect the power cable from the MIB board and remove it.

## Step 5. Install the SATA interface card

- 1 Using a T10 screwdriver, remove the screws securing the filler panel to the rear of the frame.
- 2 Remove the filler panel.

### NOTE

Depending on the motherboard, the PCI slot location for the SATA interface card may be different.



- 3 To install the SATA interface card, ensure that the tab at the bottom of the card is aligned with the slot in the deck.

- 4 Press the card securely into the socket on the motherboard.
- 5 Connect the SATA cable to the port on the interface card.

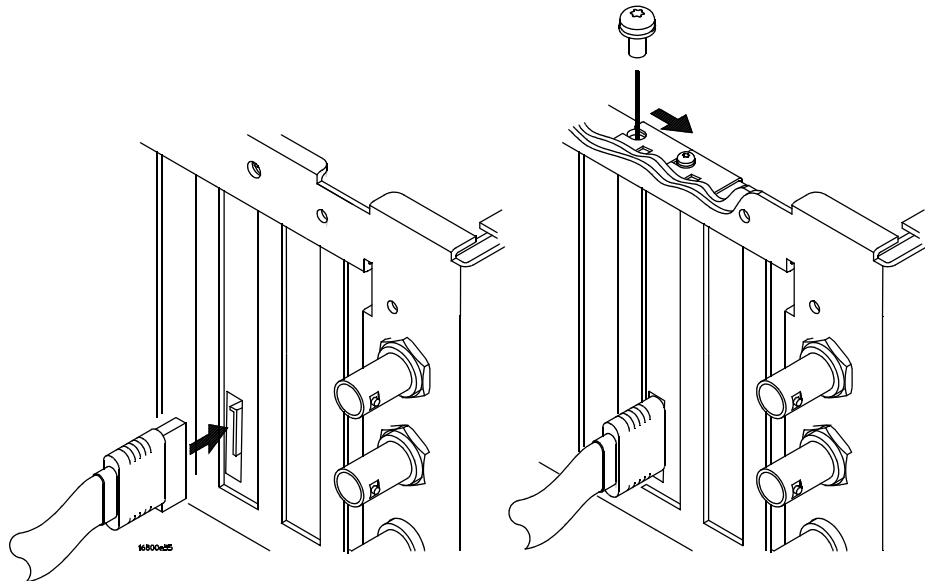
This adjusts the interface card's position so there is adequate room to disconnect and reconnect the SATA cable after the installation is complete.

### NOTE

If you do not adjust the interface card's position (by connecting the SATA cable to the port), it may be difficult or impossible to connect the cable after the screws are tightened.

### NOTE

Depending on the motherboard, the PCI slot location for the SATA interface card may be different.



- 6 Replace the screw(s).

## Step 6. Replace the front panel assembly

- 1 To install the front panel assembly, reverse the procedure shown in “Step 3. Remove the front panel assembly” on page 26.

## Step 7. Replace the cover

- 1 To replace the cover, reverse the procedure shown in “Step 2. Remove the cover” on page 25.

### CAUTION

When reinstalling the handle assembly, ensure that the screws are torqued to 2.372 Newton meters (21 inch pounds) so that they do not work themselves loose.

---

## Step 8. Connect and power up the external boot drive

- 1 If the SATA cable is not already connected to the port on the SATA interface card in the 16800 Series or 16901A logic analysis system frame, do that now.
- 2 Connect the other end of the SATA cable to the external boot drive.
- 3 Turn the external boot drive power on by connecting its power cable and setting its power switch to the on position.

## Step 9. Power up the logic analyzer

- 1 Turn on the logic analyzer.

If the external boot drive is connected to the port on the SATA interface card, the orange LED on the external drive will light up to show that the drive is recognized and is active.

If you ordered the 16800 Series or 16901A logic analysis system frame with the external boot drive option (Option 109), the drive is shipped from the factory with the operating system, frame drivers, and application software installed. In this case, you are done with the external disk installation procedure and should continue on with the first-time set up procedures in the logic analyzer *Installation Guide*.

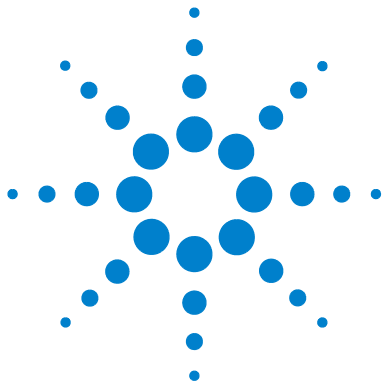
If you ordered the E5862A external boot drive conversion kit, the drive is shipped from the factory with boot software that identifies the appropriate operating system recovery DVD. In this case, continue on with the steps in this and the next section.

- 2 Locate the recovery DVD identified on the logic analyzer display.

## Step 10. Recover the operating system and re-install software

- 1 Connect a keyboard, mouse, and USB DVD-ROM drive to the logic analyzer.
- 2 Using the appropriate recovery DVD, restore the operating system. Follow the instructions that come with the recovery DVD.
- 3 Install the *Agilent Logic Analyzer* application software. Follow the installation/upgrade instructions provided on the web download page (<http://www.agilent.com/find/la-sw-download>) or with the application software CD.
- 4 Install any additional application software.
- 5 Restore the data and license files you backed up in "Step 1. Prepare the instrument for disassembly" on page 23.





## 3 Characteristics

### Operating

**Table 1** Operating Environment

Shock:	80 g, 64 in/sec.
Temperature:	5°C to 55°C (+41°F to 131°F).
Humidity:	5% to 95% relative humidity, non-condensing.
Altitude:	-304.8 to 3,048 m (-1,000 to 10,000 ft).
Vibration:	Linear: 10 to 300 Hz, 3.0 g (0 to peak). Random: 10 to 300 Hz, 0.3 g rms.

#### CAUTION

While operating, do not expose the drive to more than 5 to 500 Hz at 0.3 g rms.



### Non-Operating

**Table 2** Non-operating Environment

Shock:	54 g, 292 in/sec.
Temperature:	-40°C to 65°C (-40°F to 149°F).
Humidity:	5% to 95% relative humidity, non-condensing.
Altitude:	-304.8 to 12,192 m (-1,000 to 40,000 ft).
Vibration:	Low-frequency: 5 to 20 Hz, 0.195 inches (double amplitude). High-frequency: 20 to 300 Hz, 2.41 g rms.

#### CAUTION

In non-operating conditions or in storage, do not expose the drive to more than 5 to 500 Hz at 3.0 g rms.



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