

NetApp® Filers

F85 Field Service Guide

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Preface

About this guide

This guide describes the field service procedures for replacing, upgrading, and maintaining hardware units in the NetApp® F85 filer.

Use this guide after you familiarize yourself with the system hardware by reading the guides in the following table.

Note

The most current versions of these guides are available on the NetApp on the Web (NOW) Web site at <http://now.netapp.com>.

Reference document...	Provides information about...
<i>Data ONTAP System Administrator's Guide</i>	How to operate and manage your filer
<i>F85 Hardware Guide</i>	Initial system installation
<i>Diagnostics Guide</i>	How to operate the diagnostics available for NetApp filers.

This guide does not provide information about disk shelves. For disk shelf information, see the hardware guide for the disk shelf that is part of your system.

Audience

This guide is for qualified system administrators and service personnel who are familiar with Network Appliance™ filers. The procedures in this guide describe replacement, upgrade, and maintenance tasks for personnel with the following skills and experience:

- ◆ Working familiarity with small computer system hardware and operation
- ◆ Basic understanding of common networking concepts and practices
- ◆ Working familiarity with accepted tools and procedures for installing and operating sensitive electronic equipment

Terminology

In this guide,

- ◆ *Filer* refers to an F85 filer.
- ◆ *Disk shelf* refers to the SDS12 disk shelf.
- ◆ *Expansion adapters* refers to the following:

- ❖ NVRAM III adapter
- ❖ SCSI adapters
- ❖ Network interface cards (NICs)

Note

See the *System Configuration Guide* at <http://now.netapp.com> for a current version of the list of expansion adapters that you can use with your filer.

Special messages

This guide contains special messages that are described as follows:

Note

A note contains important information that helps you install or operate the system efficiently.

Caution

A caution contains instructions that you must follow to avoid damage to the equipment, a system crash, or loss of data.

WARNING

A warning contains instructions that you must follow to avoid personal injury.

Safety Information

Safety rules

You must follow these safety rules when working with this equipment:

WARNING

Failure to follow the directions contained in the following statements could result in bodily harm or loss of life.

- ◆ When installing disk shelves and a filer/NetCache™ Appliance into a movable cabinet or rack, install the equipment from the bottom up for best stability.
- ◆ To reduce the risk of personal injury from hot surfaces, allow the internal components time to cool before touching them or installing options.
- ◆ To reduce the risk of personal injury or damage to the equipment, ensure that the equipment is properly supported or braced when installing options.
- ◆ This equipment is designed for connection to a grounded outlet. The grounding type plug is an important safety feature. To avoid the risk of electrical shock or damage to the equipment, do not disable this feature.
- ◆ This equipment is furnished with one or more replaceable batteries. There is danger of explosion if the battery is incorrectly replaced. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Warning for units with two power supplies

If your filer, NetCache Appliance, or disk shelf has two power supplies and you need to turn the unit off, heed the following warning:

WARNING

This unit has more than one power supply cord. To reduce the risk of electrical shock, disconnect all power supply cords before servicing.

AVERTISSEMENT

Cet appareil comporte plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant d'effectuer le dépannage.

ACHTUNG

Dieses Gerät besitzt zwei Netzanschlussleitungen. Vor Wartung alle Anschlüsse vom Netz trennen.

About this chapter This chapter identifies the field-replaceable units in the F85.

Topics in this chapter This chapter provides information about the following topics:

- ◆ “[Overview of the field-replaceable units](#)” on page 2
- ◆ “[Required tools and equipment](#)” on page 3

Overview of the field-replaceable units

About field-replaceable units

You can remove and install F85 field-replaceable units in the field. You must purchase all field-replaceable units from Network Appliance or an authorized reseller.

Units that you can individually replace

You can replace the following units in the F85 in the field:

- ◆ Control panel assembly
- ◆ Expansion adapters
 - ❖ NVRAM III (nonvolatile random access memory) adapter
 - ❖ SCSI adapter for tape drive backup
 - ❖ SCSI adapters for the SDS12
 - ❖ Network interface cards (NICs)
- ◆ Batteries
 - ❖ NVRAM lead-acid battery
 - ❖ Motherboard lithium battery
- ◆ SCSI backplane board
- ◆ Motherboard DIMMs
- ◆ Chassis fan subassemblies
- ◆ CPU and heat sink assembly
- ◆ 3.5-inch diskette drive assembly
- ◆ SCSI disk drives
- ◆ Power supplies
- ◆ Power supply distribution board
- ◆ filer bezels for rack mounted or tower systems
- ◆ Motherboard without DIMMs

Units that you cannot individually replace

You cannot individually replace the onboard 10Base-T/100Base-TX Ethernet interface on the motherboard; you must replace the motherboard.

Required tools and equipment

Tools and equipment

To replace components, you need the following tools and equipment:

- ◆ Key to the F85 keylock
- ◆ #1 and #2 Phillips screwdriver
- ◆ 1/4-inch nut driver, preferably with magnetic insert tip
- ◆ Antistatic wrist strap and grounding leash
- ◆ Antistatic bag

Caution

The filer uses electronic components that are sensitive to static electricity. Static discharge from your clothing or other fixtures around you can damage these components. Wear an antistatic wrist strap and grounding leash to free yourself of static electricity before touching any electronic components.

If you are adding expansion adapters to the filer, check for information about expansion adapter slot assignments in the *System Configuration Guide* at <http://now.netapp.com>.

About this chapter This chapter provides the necessary procedures for replacing units in the F85.

Topics in this chapter

This chapter provides information about the following topics:

- ◆ [“Opening the F85”](#) on page 6
- ◆ [“Replacing the control panel assembly”](#) on page 8
- ◆ [“Installing or replacing expansion adapters”](#) on page 10
- ◆ [“Replacing the NVRAM III battery”](#) on page 14
- ◆ [“Replacing the SCSI backplane board”](#) on page 18
- ◆ [“Replacing the chassis fan assembly”](#) on page 21
- ◆ [“Removing the cooling shroud”](#) on page 27
- ◆ [“Replacing SDRAM DIMMs on the motherboard”](#) on page 29
- ◆ [“Replacing the lithium battery on the motherboard”](#) on page 32
- ◆ [“Replacing the CPU and heat sink assembly”](#) on page 34
- ◆ [“Replacing the motherboard”](#) on page 36
- ◆ [“Reinstalling the cooling shroud”](#) on page 41
- ◆ [“Closing the F85”](#) on page 42

Opening the F85

Opening the F85

To open the F85, complete the following steps.

Step	Actions
1	Shut down the filer by entering the following command at the console: halt Caution — Always use the halt command to perform a clean shutdown.
2	Turn off all the power to your filer and, if applicable, the disk shelf.
3	Unplug the AC power cord from the filer power supplies.
4	If your F85 is installed in a rack, remove it from the rack.
5	Wear the antistatic wrist strap and attach the grounding leash to the filer chassis.
6	Turn the keylock on the front bezel of the computer to the unlocked position.
7	Grasp the bezel by the indentation on the top (tower installation) or side (rack installation) of your filer and pull it slightly away from the filer chassis.
8	Pivot the bezel downward until it is at right angles to the filer chassis.
9	Grasp the bezel along the edge adjacent to the filer chassis and unsnap the bezel to remove it from the filer chassis.
10	Loosen the three thumbscrews along the front edge of the side cover.
11	Slide the side cover about 1/2 inch (12 mm) toward the front of the filer, and grasp the top of the cover at both ends. Rotate the top edge of the side cover away from the filer chassis, and lift it away from the filer chassis.

Step	Actions	
12	Repeat Steps 8 through 11 to remove the remaining side cover, if necessary.	
13	If you are...	Then...
	Replacing the control panel assembly	Go to “ Replacing the control panel assembly ” on page 8.
	Replacing any expansion adapter	Go to “ Installing or replacing expansion adapters ” on page 10.
	Replacing the NVRAM III battery	Go to “ Replacing the NVRAM III battery ” on page 14
	Replacing the SCSI backplane board	Go to “ Replacing the SCSI backplane board ” on page 18
	Replacing the chassis fan assembly	Go to “ Replacing the chassis fan assembly ” on page 21
	Replacing any of the following components: ◆ CPU and heat sink assembly ◆ SDRAM DIMMs ◆ Motherboard lithium battery ◆ Motherboard	Go to “ Removing the cooling shroud ” on page 27.

Replacing the control panel assembly

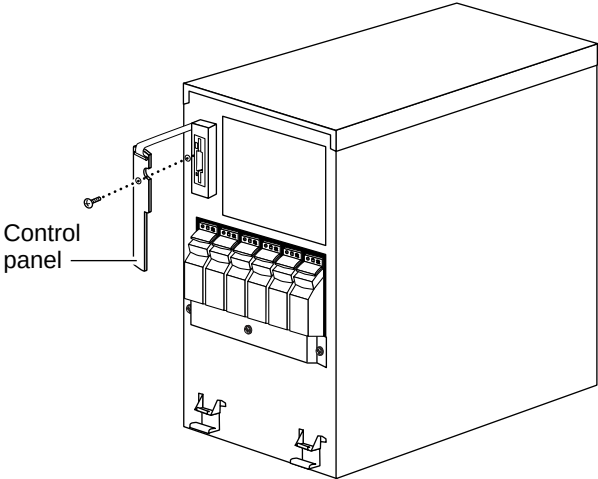
About replacing the control panel assembly

Replacing a control panel assembly consists of the following procedures:

- ◆ “[Removing the control panel assembly](#)” on page 8
- ◆ “[Installing the control panel assembly](#)” on page 9

Removing the control panel assembly

To remove the control panel assembly, complete the following steps.

Step	Action
1	Open the side cover on the left side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Disconnect the control panel cable from the PANEL connector near the top of the system board toward the front of the filer chassis. 
3	Remove the screw holding the control panel assembly to the front of the filer chassis.
4	Lift the control panel assembly out of the filer chassis hooks.

Step	Action
5	Remove the control panel assembly cable from the hole in the filer chassis.

Installing the control panel assembly

To install the control panel assembly, complete the following steps.

Step	Action
1	Slide the slots in the control panel assembly over the upper filer chassis hooks.
2	Slide the control panel assembly down until its bottom edge engages the lower filer chassis hook.
3	Secure the control panel assembly with the screw.
4	Reconnect the control panel cable to the PANEL connector near the top of the system board toward the front of the filer chassis.
5	Close the F85. Follow the procedure in “Closing the F85” on page 42.

Installing or replacing expansion adapters

About installing or replacing expansion adapters

This section describes the steps involved in replacing an expansion adapter or installing a new expansion adapter. Replacing an expansion adapter consists of the following procedures:

- ◆ “[Removing an existing expansion adapter](#)” on page 11
- ◆ “[Installing an expansion adapter](#)” on page 12

Expansion adapters used

The F85 uses the following expansion adapters:

- ◆ NVRAM III adapter
- ◆ SCSI adapter for disk storage
- ◆ SCSI adapter for tape storage
- ◆ NICs

Note

The *F85 Hardware Guide* lists the supported network interfaces.

Slot assignments for expansion adapters

If you are adding expansion adapters to your filer, the *NetApp System Configuration Guide* at <http://now.netapp.com> provides current configurations for the following information:

- ◆ Expansion slots that are available on your filer
- ◆ Supported adapters
- ◆ Expansion slot assignments

Caution

Only install supported expansion adapters in the assigned expansion slots. To ensure compatibility, performance, and reliability, you must obtain expansion adapters for your filer from Network Appliance or an authorized reseller.

Removing an existing expansion adapter

To remove existing expansion adapters, complete the following steps.

Step	Action	
1	Open the side cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “Opening the F85” on page 6.	
2	Note which cables (if any) are connected to the connectors on the faceplate of the expansion adapter before disconnecting the cables. Caution_____ Do not disconnect or connect SCSI cables while your filer is powered up. You could cause permanent damage to the hardware. _____	
3	If you are replacing...	Then...
	The NVRAM adapter	Unplug the electrical wires from the J1 connector on the NVRAM adapter. See the figure in “Replacing the NVRAM III battery” on page 14.
	A SCSI adapter	Disconnect the internal SCSI cable connections to the adapter.
4	Release the expansion card bracket by completing the following steps: a. Press and hold the clip on the back of the system. a. Press the release tab on the latch inside the filer chassis. a. Rotate the latch away from the expansion-card bracket.	
5	If the expansion card is a full-length card, release the card’s inner end by opening the tab on the plastic card guide.	
6	Grasp the expansion card by its top corners, and carefully remove it from the expansion card connector.	

Step	Action	
7	If you are...	Then...
	Not installing a replacement expansion adapter	Install a metal filler bracket over the empty card slot opening.
	Installing a replacement expansion adapter	Go to “ Installing an expansion adapter ” on page 12.

Installing an expansion adapter

To install an expansion adapter, complete the following steps.

Step	Action	
1	If you are...	Then...
	Installing any new adapter	1. Take it out of the antistatic bag and discard the bag. 2. Go to Step 2.
	Installing a replacement adapter	1. Take the replacement adapter out of the antistatic bag and place the used adapter into the same antistatic bag. 2. Go to Step 3.
	Reinstalling all other adapters Note _____ You reinstall adapters when you replace the motherboard. _____	Go to Step 4.

Step	Action	
2	Remove the expansion slot filler bracket by completing the following steps: - Press and hold the plastic tab on the outside of the filer chassis. - Press the release tab on the latch inside the filer chassis. - Open the expansion card latch and remove the filler bracket.	
3	Insert the adapter firmly into the expansion card connector on the motherboard. When the adapter bracket is aligned with the brackets on the filer chassis, close the expansion card latch.	
4	If you are...	Then...
	Replacing or reinstalling an NVRAM III adapter	Plug the electrical wires into the connector on the NVRAM III adapter. See the figure in “Replacing the NVRAM III battery” on page 14.
	Replacing or reinstalling a SCSI adapter	Reconnect the internal SCSI cable connections to the adapter.
5	If the expansion adapter is...	Then...
	A full-length adapter	- Secure the inside edge of the adapter by closing the plastic latch on the card guide over the top edge of the adapter. - Go to Step 6.
	Not a full-length adapter	Go to Step 6.
6	Reconnect the cables to the external connectors on the replacement expansion adapter.	
7	Close the F85. Follow the procedure in “Closing the F85” on page 42.	

Replacing the NVRAM III battery

About replacing the NVRAM III battery

The NVRAM adapter has one detached, sealed, lead-acid battery that is recharged whenever the system is turned on and operating normally. If the battery continues to read low after 24 hours of normal system operation, you must replace the battery or the NVRAM III adapter.

Note

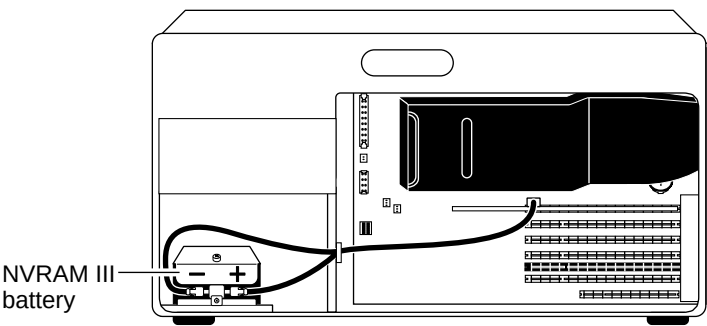
The NVRAM III adapter in the F85 is different from the NVRAM adapter in other models of NetApp filers. It is not interchangeable with NVRAM adapters from other models of NetApp filers.

Replacing the NVRAM battery consists of the following procedures:

- ◆ “[Removing the NVRAM III battery](#)” on page 14
- ◆ “[Installing the NVRAM III battery](#)” on page 16

Location of the NVRAM III battery

The following figure shows the location of the NVRAM III battery.



Removing the NVRAM III battery

To remove the NVRAM III battery, complete the following steps.

Step	Action
1	Open the side cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.

Step	Action
2	Unplug the electrical wires from the connector on the NVRAM III adapter.
3	Loosen the battery carrier thumbscrew securing the NVRAM III battery to the filer chassis. Caution ————— If the NVRAM III battery is leaking, follow the procedure in “ Handling a leaking NVRAM III battery ” on page 15.
4	Lift the battery carrier and carefully remove the NVRAM III battery.
5	Set the NVRAM III battery aside.

Handling a leaking NVRAM III battery

The hazardous components of the NVRAM III battery are lead, sulphuric acid, fiberglass, and polystyrene.

To handle a leaking NVRAM III battery, complete the following steps.

Step	Action
1	Neutralize the leaking substance with bicarbonate (baking soda), sodium carbon (soda ash), or calcium oxide (lime).
2	Flush the neutralized substance with water into the sewage system. WARNING ————— Do not flush or pour the unneutralized substance into the sewage system. —————

Step	Action	
3	If the unneutralized substance...	Then...
	Has made contact with skin and the contact area is large, or if blisters form	Flush the affected area with water and see a physician.
	Has made contact with an eye	Call a physician immediately and flush the eye with water until the physician arrives.
	Is ingested	Call a physician. If the patient is still conscious, also flush the patient's mouth with water and have the patient drink milk or sodium bicarbonate solution.

Installing the NVRAM III battery

To install the NVRAM III battery, complete the following steps.

WARNING

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to manufacturer's instructions.

AVERTISSEMENT

Il y a danger d'explosion s'il y a remplacement incorrect de la pile. Remplacer la pile seulement avec une pile du même type ou d'un type équivalent recommandé par le fabricant. Mettre au rebut les piles usagées selon les instructions du fabricant.

ACHTUNG

Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Die Batterien nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ ersetzen. Gebrauchter Batterien nach Angaben des Herstellers loswerden.

Step	Action
1	Lift the battery carrier and carefully place the NVRAM III battery within it.
2	Secure the battery carrier to the filer chassis by tightening the thumbscrew.
3	Plug the electrical wires into the connector on the NVRAM III adapter.
4	Close the F85. Follow the procedure in “ Closing the F85 ” on page 42.

Replacing the SCSI backplane board

About replacing the SCSI backplane board

The SCSI backplane board supports hot swappable SCSI disk drive installation and removal. The integrated SCSI controller resides on the PCI local bus for optimum performance.

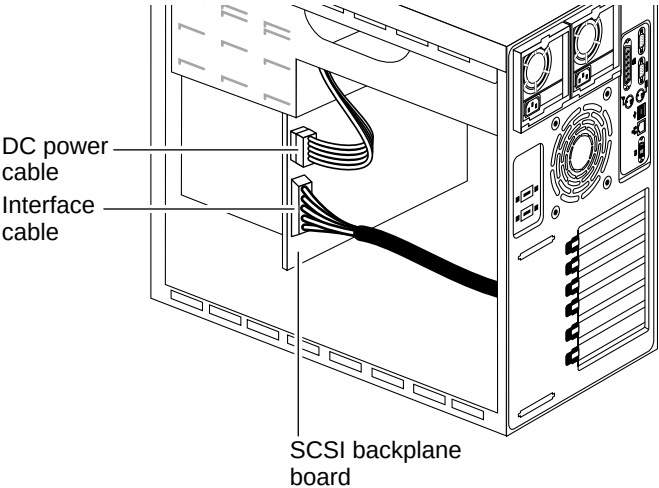
Replacing the SCSI backplane board consists of the following procedures:

- ◆ “[Removing the SCSI backplane board](#)” on page 18
- ◆ “[Installing the SCSI backplane board](#)” on page 19

Removing the SCSI backplane board

To remove the SCSI backplane board, complete the following steps.

Step	Action
1	Open the side cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Unlatch and pull the disk drives a half inch (12 mm) away from their SCSI backplane connector.

Step	Action
3	Record the connector used and disconnect all cables attached to the SCSI backplane board.  DC power cable Interface cable SCSI backplane board
4	Loosen the thumbscrew on the SCSI backplane board.
5	Slide the SCSI backplane board out and away from the system board about 1/4 inch (6.3 mm) and lift it off the L-shaped mounting tabs on the disk drive cage.

Installing the SCSI backplane board

To install the SCSI backplane board, complete the following steps.

Step	Action
1	Slide the SCSI backplane board over the L-shaped mounting tabs on the disk drive cage and onto the system board.
2	Tighten the thumbscrew on the SCSI backplane board.
3	Connect all cables to the appropriate connectors on the SCSI backplane board.
4	Push the disk drive into place and secure the disk drive carrier latch.

Step	Action
5	Close the F85. Follow the procedure in “ Closing the F85 ” on page 42.

Replacing the chassis fan assembly

About this section

This section identifies the location of the chassis fan assemblies on your filer and describes how to replace each fan assembly.

Note

To maintain UL, CSA, and TUV safety certifications, you must obtain replacement chassis fan assemblies from Network Appliance. Using unapproved replacement chassis fans voids the safety certifications.

Location of the chassis fan assemblies

There are two chassis fan assemblies on an F85. One fan assembly is on the chassis back panel and one fan is beneath the drive bays.

For detailed information

This section describes the following topics:

- ◆ [“Replacing the back panel chassis fan assembly”](#) on page 22
- ◆ [“Replacing the drive bay chassis fan assembly”](#) on page 25

Replacing the back panel chassis fan assembly

About replacing the back panel chassis fan assembly

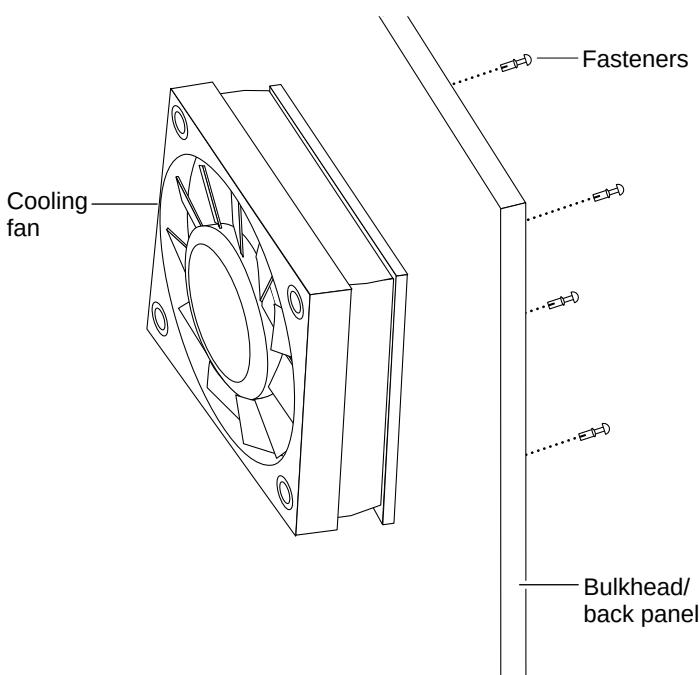
Replacing a back panel chassis fan assembly consists of the following procedures:

- ◆ “[Removing the back panel chassis fan assembly](#)” on page 22
- ◆ “[Installing the back panel chassis fan assembly](#)” on page 24

Removing the back panel chassis fan assembly

To remove the back panel chassis fan assembly, complete the following steps.

Step	Actions
1	Open the filter cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Remove the cooling shroud by following Steps 2 and 3 of the procedure described in “ Removing the cooling shroud ” on page 27.
3	Disconnect the cooling fan cable from the FAN3 (back fan) connector on the motherboard

Step	Actions
4	Remove the four fasteners that secure the fan to the back of the chassis by completing the following steps: - On the fan side, use the flat surface of a flat-tipped screwdriver to push the plunger of each fastener into the fastener barrel. - On the outside of the chassis, grasp the extended head of the fastener and pull it out completely . Set aside the four fasteners for later use.  The diagram illustrates the removal of four fasteners. On the left, a 'Cooling fan' is shown with four circular fastener ports. On the right, a 'Bulkhead/back panel' is shown with four corresponding fastener heads. Dotted lines connect the fasteners on the fan to the bulkhead, with the label 'Fasteners' pointing to the top-most connection.
5	Remove the fan from the chassis.

Installing the back panel chassis fan assembly

To install the back panel chassis fan assembly, complete the following steps.

Step	Actions
1	Secure the fan to the back of the chassis using the four fasteners you set aside.
2	Connect the fan power cord to the system board FAN3 connector.
3	Reinstall the cooling shroud. Follow the procedure in “ Reinstalling the cooling shroud ” on page 41.

Replacing the drive bay chassis fan assembly

About replacing the chassis fan assembly

Replacing the drive bay chassis fan assembly consists of the following procedures:

- ◆ “[Removing the drive bay chassis fan assembly](#)” on page 25
- ◆ “[Installing the drive bay chassis fan assembly](#)” on page 26

Removing the drive bay chassis fan assembly

To remove the drive bay chassis fan assembly, complete the following steps.

Step	Actions
1	Open the filter cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Unlatch and pull each disk drive 1 inch (25-mm) out of its slot.
3	Remove the SCSI backplane board by following Steps 3 through 5 of the procedure described in “ Removing the SCSI backplane board ” on page 18.
4	If a full-length expansion card is installed in expansion slot #1, remove it to ensure adequate clearance to remove the fan fastener from the bulkhead.
5	Disconnect the front cooling fan cable from the FAN1 (front fan) connector on the system board.
6	Remove the two fasteners that secure the fan to the bulkhead of the chassis by completing the following steps: a. On the fan side, use the flat surface of a flat-tipped screwdriver to push the plunger of each fastener into the fastener barrel. b. On the other side of the bulkhead, grasp the extended head of the fastener and pull it out completely. Set aside the two fasteners for later use.

Step	Actions
7	Remove the fan from the chassis.

Installing the drive bay chassis fan assembly

To install the drive bay chassis fan assembly, complete the following steps.

Step	Actions
1	Slide the left side of the fan under the two chassis tabs on the left side and position the fan to rest on a third tab extending from the bulkhead.
2	Secure the fan to the bulkhead using the two fasteners you set aside.
3	Route the fan power cord through the hole in the bulkhead near the system board FAN1 connector.
4	Connect the fan power cord to the system board FAN1 connector.
5	Reinstall any expansion card you removed from slot #1.
6	Reinstall the SCSI backplane board by following Steps 1 through 4 of the procedure described in “Installing the SCSI backplane board” on page 19.
7	Close the F85. Follow the procedure in “Closing the F85” on page 42.

Removing the cooling shroud

About the cooling shroud

The plastic cooling shroud inside the F85 facilitates improved airflow over the microprocessor. You must remove this shroud if you are replacing one of the following components:

- ◆ CPU and heat sink assembly
- ◆ SDRAM DIMMs
- ◆ Motherboard lithium battery
- ◆ Motherboard

Removing the cooling shroud

To remove the cooling shroud in the F85, complete the following steps.

Step	Action	
1	Open the filer cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.	
2	Unscrew and remove the two retention pins securing the cooling shroud to the motherboard.	
3	Lift the end of the shroud closest to the front of the system until the other end of the shroud disengages from the cooling fan on the system back panel. Note _____ Since the shroud fits tightly into the system back panel, you may have to move it from side to side to manouever it out.	
4	If you are...	Then...
	Replacing the SDRAM DIMMs	Go to “ Replacing SDRAM DIMMs on the motherboard ” on page 29.

Step	Action	
	Replacing the motherboard lithium battery	Go to “ Replacing the lithium battery on the motherboard ” on page 32.
	Replacing the CPU and heat sink assembly	Go to “ Replacing the CPU and heat sink assembly ” on page 34.
	Replacing the motherboard	Go to “ Replacing the motherboard ” on page 36.

Replacing SDRAM DIMMs on the motherboard

About replacing SDRAM DIMMs

This section provides the supported memory configurations for your filer and the procedures for replacing the SDRAM DIMMs on the motherboard. Replacing the SDRAM DIMMs on the motherboard consists of the following procedures:

- ◆ “[Removing an SDRAM DIMM](#)” on page 29
- ◆ “[Installing an SDRAM DIMM](#)” on page 30

Supported memory configuration

The supported memory configuration for the F85 is 3.3V, unbuffered, 2 x 128 MB SDRAM DIMMs. The DIMMs must be in slots A and B.

Note

Only two of the four available slots for DIMMs are populated.

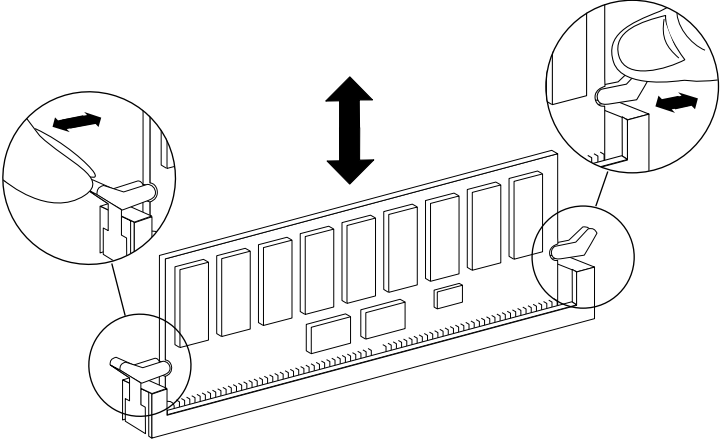
Caution

All DIMMs must be listed on the Network Appliance Approved Parts List. Contact Network Appliance Sales to obtain this list. Unapproved DIMMs have not been tested for reliability and might cause system downtime.

Removing an SDRAM DIMM

To remove an SDRAM DIMM, complete the following steps.

Step	Action
1	Open the filer cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Remove the cooling shroud by following Steps 2 and 3 of the procedure described in “ Removing the cooling shroud ” on page 27.
3	Locate the DIMM that you want to remove.

Step	Action
4	Push apart the latches on either side of the DIMM to release the DIMM from its slot, as shown. 
5	Pull the DIMM out of the slot.
6	Set the DIMM aside in an antistatic bag.

Installing an SDRAM DIMM

To install an SDRAM DIMM, complete the following steps.

Step	Action
1	Locate the DIMM slot for the DIMM you are installing. Note_____ If you removed the DIMM from slot A, you must place the replacement DIMM in slot A. If you removed the DIMM from slot B, you must place the replacement DIMM in slot B. _____
2	Hold the DIMM by its top corners to avoid damaging the components.

Step	Action
3	Insert the DIMM straight into the slot. The DIMM fits tightly in the slot, but should go in easily. If not, realign the DIMM with the slot and try again. Caution_____ Visually inspect the DIMM to verify that it is evenly aligned and fully inserted into the slot; otherwise, the edge connector on the DIMM does not make complete contact with the slot. _____
4	Push carefully, but firmly on the top edge of the DIMM until the latches snap into place.
5	Reinstall the cooling shroud. Follow the procedure in “Reinstalling the cooling shroud” on page 41.

Replacing the lithium battery on the motherboard

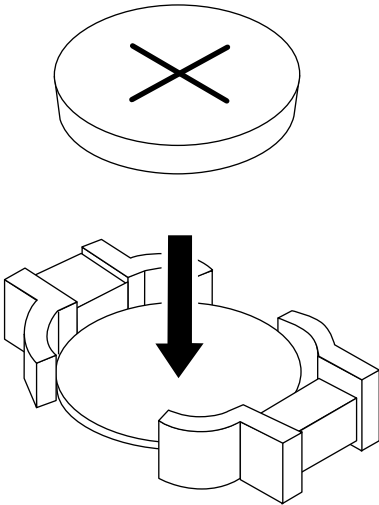
About replacing the motherboard lithium battery

Replacing the 3.3V lithium battery on the motherboard consists of the following procedures:

- ◆ “[Removing the motherboard lithium battery](#)” on page 32
- ◆ “[Installing the motherboard lithium battery](#)” on page 33

Removing the motherboard lithium battery

To remove the motherboard lithium battery, complete the following steps.

Step	Action
1	Open the filer cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Remove the cooling shroud by following Steps 2 and 3 of the procedure described in “ Removing the cooling shroud ” on page 27.
3	Lift up the battery toward the open side of the battery holder, as shown. 

**Installing the
motherboard
lithium battery**

To install the motherboard lithium battery, complete the following steps.

WARNING —————
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to manufacturer’s instructions.

AVERTISSEMENT —————
Il y a danger d’explosion s’il y a remplacement incorrect de la pile. Remplacer la pile seulement avec une pile du même type ou d’un type équivalent recommandé par le fabricant. Mettre au rebut les piles usagées selon les instructions du fabricant.

ACHTUNG —————
Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Die Batterien nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ ersetzen. Gebrauchter Batterien nach Angaben des Herstellers loswerden.

Step	Action
1	Turn the battery so that the positive side is up (marked with a “+”) and install it in the battery holder.
2	Reinstall the cooling shroud. Follow the procedure in “ Reinstalling the cooling shroud ” on page 41.

Replacing the CPU and heat sink assembly

About replacing the CPU and heat sink assembly

Replacing the CPU and heat sink assembly consists of the following procedures:

- ◆ “[Removing the CPU and heat sink assembly](#)” on page 34
- ◆ “[Installing the CPU and heat sink assembly](#)” on page 35

Caution

When handling the CPU and heat sink assembly, take care to avoid the sharp edges on the heat sink.

Removing the CPU and heat sink assembly

To remove the CPU and heat sink assembly, complete the following steps.

Caution

The CPU and heat sink assembly can get extremely hot during system operation. Be sure the assembly has had sufficient time to cool before you touch it.

Step	Action
1	Open the filer cover on the right side of the F85 by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Remove the cooling shroud by following Steps 2 and 3 of the procedure described in “ Removing the cooling shroud ” on page 27.
3	Using one hand, push apart the latches on either side of the guide bracket about 1/4 inch (6.3 mm) to disengage the microprocessor connector from the socket.
4	Using a rocking motion, pull the COU and heat sink assembly away from the guide bracket assembly.

Installing the CPU and heat sink assembly

To install the CPU and heat sink assembly, complete the following steps.

Step	Action
1	Using one hand, push apart the latches on either side of the guide bracket about 1/4 inch (6.3 mm).
2	Slide the CPU and heat sink assembly into the guide bracket from which you removed the defective CPU and heat sink assembly.
3	Using a rocking motion, firmly seat the CPU and heat sink assembly until the tabs on the guide bracket snap into place over the ends of the heat sink.
4	Reinstall the cooling shroud. Follow the procedure in “ Reinstalling the cooling shroud ” on page 41.

Replacing the motherboard

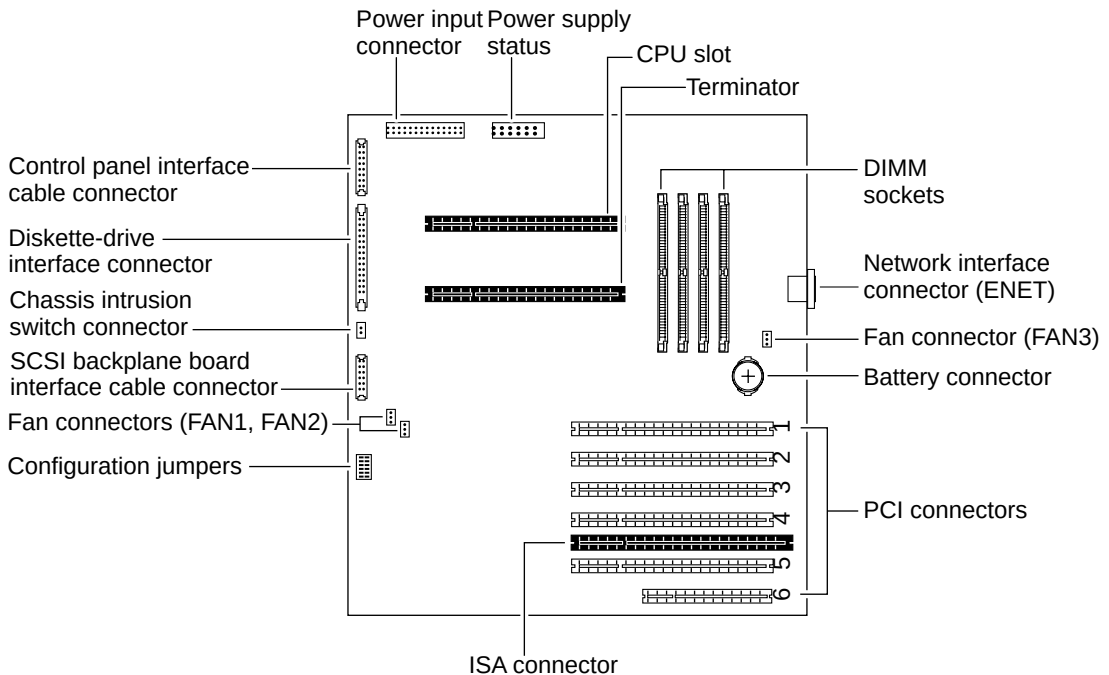
About replacing the motherboard

Replacing the motherboard consists of the following procedures:

- ◆ “[Removing the motherboard](#)” on page 37
- ◆ “[Installing the motherboard](#)” on page 39

Location of motherboard jumpers and connectors

The following illustration shows the location of the motherboard jumpers and connectors.



Removing the motherboard

To remove the motherboard, complete the following steps.

Caution To prevent shorting the NVRAM III battery, you must perform this procedure on a nonconductive surface. Shorting the NVRAM III battery causes data loss.

Step	Action	
1	Open the F85 filer by following Steps 2 through 12 of the procedure described in “Opening the F85” on page 6.	
	Note If any motherboard failure occurs, your filer performs a “dirty shutdown,” which makes it impossible for you to perform the recommended clean shutdown. However, your data from the last transaction is still buffered in the battery-backed memory on the NVRAM III adapter.	
2	Remove all external peripheral cables from their connectors at the back of the computer.	
3	Remove the cooling shroud by following Steps 2 and 3 of the procedure described in “Removing the cooling shroud” on page 27.	
4	Record the slot number of all expansion adapters.	
5	If the adapter is...	Then...
	The NVRAM III adapter	Without disconnecting the cable connecting the NVRAM III adapter to the NVRAM III battery, lift the adapter out of the expansion slot and carefully lay it on the nonconductive surface.
	A SCSI adapter or a NIC	Remove any expansion card internal cables and remove the adapters from the expansion slots by following Steps 2, 4, and 5 of the procedure described in “Removing an existing expansion adapter” on page 11.

Step	Action
6	Record the locations and remove all other internal cables attached to the motherboard.
7	Using a #2 Phillips screwdriver, remove the three screws securing the motherboard and bracket assembly to the filer chassis. Set the screws aside for later use.
8	Slide the motherboard and bracket assembly toward the front of the chassis until it stops.
9	Allow the motherboard and bracket assembly to tilt outward slightly.
10	Lift the motherboard and bracket up and out of the chassis and lay the bracket, motherboard side up, on a flat surface.
11	Remove all SDRAM DIMMs by following Steps 2 through 6 of the procedure described in “Removing an SDRAM DIMM” on page 29. Set the DIMMs aside for later use.
12	Remove the CPU and heat sink assembly by following Steps 3 and 4 of the procedure described in “Removing the CPU and heat sink assembly” on page 34. Set the CPU and heat sink assembly aside for later use.
13	Lift the terminator that is in the secondary microprocessor bracket up and out of the bracket. Set the terminator aside for later use. Note _____ Although there are two microprocessor brackets, your NetApp filer has been configured to support only one microprocessor. _____

Step	Action
14	Remove the microprocessor mounting brackets by completing the following steps: - Loosen the four screws that secure each bracket to the motherboard. These screws remain attached to the bracket. - Lift the bracket away from the motherboard and set it aside for later use.

Installing the motherboard

To install the motherboard, complete the following steps.

Step	Action
1	Set the replacement motherboard jumpers to the same settings as the motherboard you removed.
2	Remove the motherboard lithium battery from the antistatic bag and place it in the battery slot.
3	Install the microprocessor mounting brackets by completing the following steps: - Place each bracket into position on the motherboard. - Tighten the four screws that secure each bracket to the motherboard.
4	Fit the motherboard and bracket assembly over the inside rail at the bottom of the chassis, and slide it into place.
5	Reinstall the CPU and heat sink assembly by following Steps 1 through 3 of the procedure described in “Installing the CPU and heat sink assembly” on page 35.
6	Align the notch on the terminator card with the socket on the guide bracket assembly and guide the card into the secondary guide bracket assembly.

Step	Action	
7	Reinstall all SDRAM DIMMs by following Steps 1 through 4 of the procedure described in “ Installing an SDRAM DIMM ” on page 30.	
8	Using a #2 Phillips screwdriver, secure the motherboard and bracket assembly to the filer chassis with the three screws you saved.	
9	Using the information that you recorded earlier, reconnect all internal cables that connect to the appropriate ports on the motherboard.	
10	If the adapter is...	Then...
	The NVRAM III adapter	Without disconnecting the wire from the NVRAM III battery, carefully turn over the NVRAM III adapter that is lying on the nonconductive surface and reinstall it in the expansion slot.
	A SCSI adapter or a NIC	Reconnect any expansion card internal cables and reinstall the adapters from the expansion slots by following Steps 3 through 6 of the procedure described in “ Installing an expansion adapter ” on page 12.
11	Go to “ Reinstalling the cooling shroud ” on page 41.	

Reinstalling the cooling shroud

Reinstalling the cooling shroud

To reinstall the cooling shroud in the F85, complete the following steps.

Step	Action
1	Hook the upper edge of the large opening on the end of the cooling shroud over the top of the cooling fan on the system back panel.
2	Lower the other end of the cooling shroud into place over the microprocessor. Caution_____ Hand tighten the retention pins securing the cooling shroud. Do not use tools or over-tighten these retention pins. _____
3	Secure the cooling shroud by reinstalling the two retention pins.
4	Close the F85. Follow the procedure in “Closing the F85” on page 42.

Closing the F85

Closing the F85

To close the F85, complete the following steps.

Step	Action	
1	Check all cable connections, especially those that might have come loose during your work. Fold cables out of the way so that they do not catch on the computer cover.	
2	Check that no tools or parts (including screws) are left inside the computer.	
3	Fit the side cover over the side rail at the bottom of the chassis, and slide it closed.	
4	Secure the cover with the three thumbscrews.	
5	Repeat Steps 3 and 4 to reinstall the remaining side cover, if necessary.	
6	Snap the two tabs near the lower inside edge of the front bezel into the corresponding metal clips on the chassis, and pivot the bezel upward into its closed position.	
7	Turn the keylock on the front bezel of the computer to the locked position.	
8	If you had removed your F85 from a rack, reinstall it in the rack.	
9	If the unit you replaced is...	Then...
	Not the SCSI backplane, the motherboard, or the motherboard lithium battery	1. Insert the NetApp Diagnostics diskette into the F85 diskette drive. 2. Go to Step 10.

Step	Action
	The SCSI backplane 1. Insert the Utility diskette that came with your unit into the F85 diskette drive. 2. Turn on the F85. 3. When asked, press F1 to continue. 4. Select the following option: Update ESM and System Backplane 5. Exit the Utility when you have completed the updates. 6. Remove the Utility diskette. 7. Insert the NetApp Diagnostics diskette into the F85 diskette drive. 8. Go to Step 10.

Step	Action
	The motherboard or the motherboard lithium battery 1. Insert the Utility diskette that came with your unit into the diskette drive. 2. Turn on the F85. 3. When asked, press F1 to continue. 4. Select the following option: Change Service Tag 5. Select the following option: Update ESM and System Backplane 6. Select the following option and make a note of the information: Display MAC address Note _____ You need the MAC address for network configuration. _____ 7. Exit the Utility after you complete the updates. 8. Remove the Utility diskette. 9. Insert the NetApp Diagnostics diskette into the F85 diskette drive. 10. Go to Step 10.
10	Reboot the system to boot the diagnostics program. After the booting process, the Diagnostics Monitor appears listing all available features.

Step	Action
11	Run the specific diagnostics that apply to the unit that you installed or replaced. Note_____ Some field replacement units have do not have specific diagnostics tests. _____

About this chapter This chapter describes the procedures for replacing the diskette drive assembly.

Replacing the diskette drive assembly

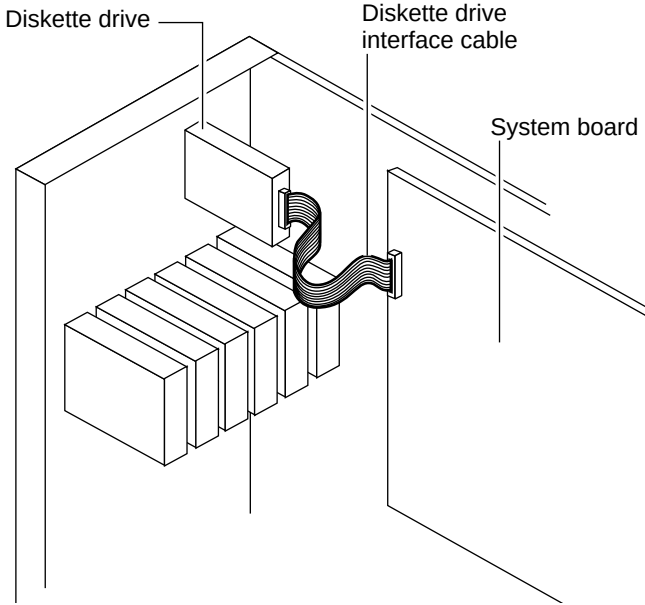
About replacing the diskette drive assembly

Replacing the diskette drive assembly consists of the following procedures:

- ◆ “[Removing the diskette drive assembly](#)” on page 48
- ◆ “[Installing the diskette drive assembly](#)” on page 49

Removing the diskette drive assembly

To remove the diskette drive assembly, complete the following steps.

Step	Action
1	Open the filer cover on the left side of the F85 filer by following Steps 1 through 11 of the procedure described in “ Opening the F85 ” on page 6.
2	Disconnect the power cable and the interface cable from the back of the diskette drive. A line drawing showing a perspective view of a diskette drive assembly. The assembly consists of a main drive unit and a series of five smaller drive units below it. A ribbon cable, labeled 'Diskette drive interface cable', connects the back of the main drive unit to a connector on the 'System board'. The system board is shown as a vertical panel on the right. Labels with leader lines point to the 'Diskette drive' (the main unit), the 'Diskette drive interface cable', and the 'System board'.

Step	Action
3	Remove the retaining screw from the front of the filer chassis at the left side of the diskette drive.
4	Slide the diskette drive assembly out of the bay.
5	Rotate the diskette drive assembly to the right so that the tabs at the back of the bracket clear the diskette drive bay opening.
6	Remove the four bracket mounting screws securing the bracket to the diskette drive, and remove the diskette drive. Set the screws aside for later use.

Installing the diskette drive assembly

To install the diskette drive assembly, complete the following steps.

Step	Action
1	Slide the diskette drive into the bracket and secure it with the four bracket mounting screws you set aside.
2	Slide the diskette drive assembly into the bay.
3	When installing the diskette drive assembly, make sure that the tabs at the back of the bracket engage the slots at the back of the bay. The back of the bay is visible through the open left side of the computer.
4	Tighten the retaining screw to the left of the diskette drive assembly to secure it to the filer chassis.
5	Reconnect the power cable and the interface cable from the back of the diskette drive.
6	Close the F85. Follow the procedure in “Closing the F85” on page 42.

About this chapter

This chapter provides the procedures for identifying a failed disk drive and for removing and installing a hot-swappable disk drive in your F85.

Replacing a disk drive in an F85

About disk drive failures

When a disk drive fails, the F85 logs the following disk drive failure identification message in the messages log and to the system console.

```
Fri Oct  9 15:58:08 GMT [rc]: Disk 0b.1 is broken
1 disk is broken.
Fri Oct  9 15:58:08 GMT [rc]: A disk is missing from one or more
RAID groups.
```

In the preceding message, the failed disk drive is identified as 0b.1. The following table provides an explanation of this identification, which is the disk host address.

Note See the *Data ONTAP System Administrator’s Guide* for more information about the disk host address.

Disk host address	Explanation
4b	This is the host adapter number. The numeric value usually indicates the expansion slot number in which the SCSI adapter is installed.
1	This value indicates the SCSI ID number. The drives are identified as SCSI ID 0 through 5. In this example, the drive identified as SCSI ID 1 is the drive that must be replaced.

Removing a disk drive

To remove a disk drive, complete the following steps.

Note Since the disk drives are hot-swappable, the F85 need not be shut down.

Step	Action
1	Wear the antistatic wrist strap and attach the grounding leash to the filer chassis.

Step	Action	
2	Turn the keylock on the front bezel of the computer to the unlocked position.	
3	Grasp the bezel along the edge adjacent to the filer chassis and unsnap the bezel to remove it from the filer chassis.	
4	If your F85 is...	Then...
5	A tower system	Pivot the bezel downward until it is at a right angle to the filer chassis.
6	A rack-mount system	Pivot the bezel to the right until it is at a right angle to the filer chassis.
7	Wait until the drive status indicators adjacent to the drive bay signal that you can remove the drive safely. The drive status indicators flash sequentially as the drive is powered down. When all the drive's status indicators are turned off, the drive is ready for removal.	
8	Open the drive carrier handle to release the carrier.	
9	Slide the carrier toward you until it is free of the drive bay.	
10	Remove the four screws that secure the disk drive to the carrier and remove the drive from the carrier. Set the screws aside for later use.	

Installing a disk drive

To install a disk drive, complete the following steps.

Step	Action
1	Pull the new disk drive out of the antistatic bag and put the disk drive you are replacing into the same antistatic bag.
2	Insert the replacement disk drive into the carrier and secure it with the four screws you set aside.

Step	Action	
3	Install the replacement disk drive and carrier into its slot.	
4	Raise the handle until it engages the front panel, then close the latch to ensure that the disk drive is fully seated in the SCSI backplane board.	
5	Snap the two tabs near the lower inside edge of the front bezel into the corresponding metal clips on the chassis, and	
6	If your F85 is...	Then...
7	A tower system	Pivot the bezel upward into its closed position.
8	A rack-mount system	Pivot the bezel to the left into its closed position.
9	Turn the keylock on the front bezel of the computer to the locked position.	

About this chapter

The F85 is equipped with a power supply distribution board to accommodate two independent hot swappable power supplies. This chapter provides the necessary procedures for replacing the power supply distribution board and the hot swappable power supplies.

Note

To maintain UL, CSA, and TUV safety certifications, you must obtain replacement power supplies from Network Appliance.

Topics in this chapter

This chapter describes the following topics:

- ◆ [“Replacing the power supply”](#) on page 56
- ◆ [“Replacing the power supply distribution board”](#) on page 59

Replacing the power supply

About replacing the power supply

Replacing the power supply consists of the following procedures:

- ◆ “[Removing the power supply](#)” on page 56
- ◆ “[Installing the power supply](#)” on page 58

Note

The power supply in the F85 is different from other NetApp filers and is not interchangeable with those power supplies.

WARNING

The power supply is heavy. Support it with both hands to avoid possible injury to yourself or to others when installing or removing it.

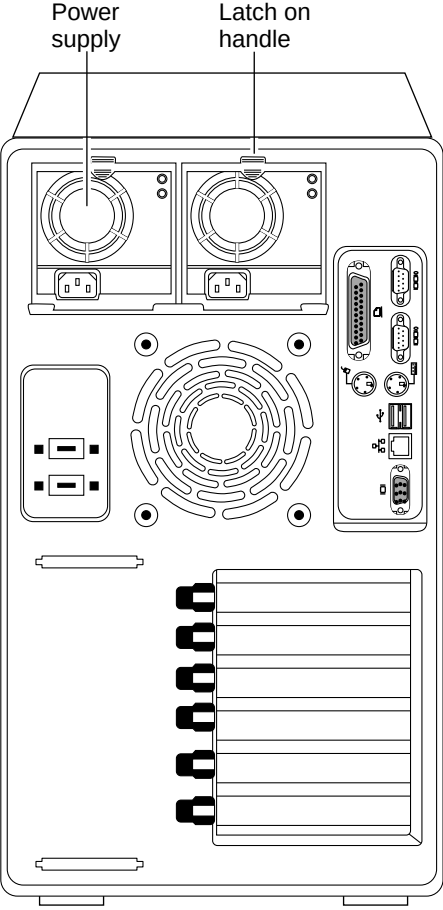
Removing the power supply

To remove the power supply, complete the following steps.

Note

Because you have two power supplies that are hot swappable, there is no need to shut down the filer.

Step	Actions
1	Verify that the red failure indicator is lit on the faulty power supply.
2	Disconnect the AC power cable from the AC power receptacle on the back of the power supply you intend to remove.

Step	Actions
3	Using your thumb and index finger, squeeze the latch in the middle of the power supply handle.  The diagram shows the rear panel of a system chassis. At the top, there are two circular power supply handles. Each handle has a latch in its center. Labels with leader lines point to these components: 'Power supply' points to the left handle, and 'Latch on handle' points to the latch on the right handle. Below the handles is a large circular fan. To the left of the fan are two USB ports. To the right are various other ports including a serial port, a parallel port, and a FireWire port. Below the fan is a horizontal slot. At the bottom, there is a large vertical slot with a handle on the left side.
4	Rotate the handle downward to release the power supply from the system chassis.

Step	Actions
5	Pull the power supply 1 inch (25 mm) away from its back connector. WARNING ————— Avoid touching the connector on the back of the power supply. Wait 10 to 20 seconds after disconnecting the power supply from its slot connector to allow energized components to dissipate the energy. —————
6	Pull the power supply out of the chassis and set it aside.

Installing the power supply

To install the power supply, complete the following steps.

Step	Action
1	Slide the power supply into the chassis. Caution ————— Do not use excessive force when sliding the power supply into the chassis. You can damage the connector. —————
2	Rotate the power supply handle to the closed position. For better leverage, press against the upper corners of the handle.
3	Connect the AC power cable to the power supply and to the electrical outlet. Make sure that the AC power cable passes through the plastic strain-relief clip on the system back panel.
4	Observe the back panel of the power supply to verify that the green power indicator LED is lit and that the red failure LED is off.

Replacing the power supply distribution board

About replacing the power supply distribution board

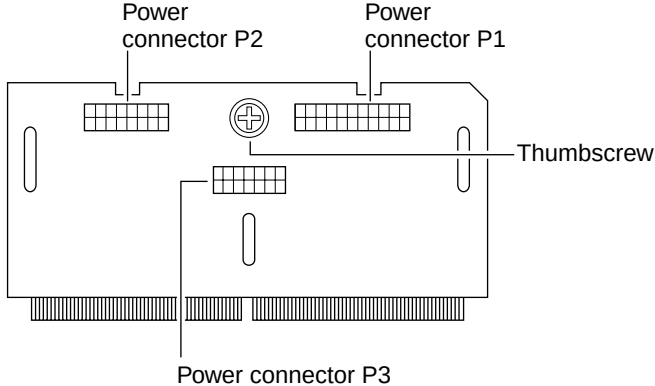
Replacing the power supply distribution board consists of the following procedures:

- ◆ “[Removing the power supply distribution board](#)” on page 59
- ◆ “[Installing the power supply distribution board](#)” on page 60

Removing the power supply distribution board

To remove the power supply distribution board, complete the following steps.

Step	Actions
1	Open the F85 filer by following Steps 1 through 12 of the procedure described in “ Opening the F85 ” on page 6.
2	Remove the two screws at the front edge of the top cover and set them aside for later use.
3	Slide the top cover forward about a half inch (12 mm) and lift the top cover off the chassis.
4	Remove both hot-swappable power supplies by following Steps 2 through 6 of the procedure described in “ Removing the power supply ” on page 56.

Step	Actions
5	Record the mating connector location on the power supply distribution board and disconnect the 12-conductor power cable harness attached to the P3 connector.  The diagram shows a rectangular power supply distribution board. At the top, there are two 12-pin connectors labeled 'Power connector P2' (left) and 'Power connector P1' (right). Below these, in the center, is a 6-pin connector labeled 'Power connector P3'. A thumbscrew is shown on the right side of the board, labeled 'Thumbscrew'. The board is mounted on a chassis, indicated by a hatched area at the bottom.
6	Record the mating connector location on the power supply distribution board and disconnect the 24-conductor power cable harness attached to the P1 connector.
7	Record the mating connector location on the power supply distribution board and disconnect the 18-conductor power cable harness attached to the P2 connector.
8	Loosen the thumbscrew on the power supply distribution board and remove it from the chassis.

Installing the power supply distribution board

To install the power supply distribution board, complete the following steps.

Step	Action
1	Connect the 12-conductor power cable harness to the P3 connector on the power supply distribution board.
2	Connect the 24-conductor power cable harness to the P1 connector on the power supply distribution board.

Step	Action
3	Connect the 18-conductor power cable harness to the P2 connector on the power supply distribution board.
4	Fold the cable harnesses out of the way as you are inserting the power supply distribution board into the chassis.
5	Tighten the thumbscrew on the power supply distribution board and secure it to the chassis.
6	Reinstall both hot swappable power supplies by following Steps 1 and 3 of the procedure described in “ Installing the power supply ” on page 58.
7	Place the top cover on the filer chassis and slide it back into position.
8	Secure the front edge of the top cover to the filer chassis with the two screws you set aside.
9	Close the F85. Follow the procedure in “ Closing the F85 ” on page 42.

About this appendix This appendix lists the regulatory notices you need to be aware of when installing and operating your Network Appliance equipment.

Regulatory notices

FCC notices (U.S. only)

Network Appliance devices are designed for a CFR 47 (Code Federal Regulations) Part 15 Class A environment.

The FCC and Network Appliance guarantee the user's rights to operate this equipment only if the user complies with the following rules and regulations:

- ◆ Install and operate this equipment in accordance with the specifications and instructions in this guide.
- ◆ Modify this equipment only in the ways specified by Network Appliance.
- ◆ Use shielded cables with metallic RFI/EMI connector hoods to maintain compliance with applicable emissions standards.
- ◆ If the system has nine or more fibre channel disk shelves, install the system in two or three NetApp System Cabinets to maintain performance within Part 15 of CFR 47 regulations.

Compliance with Part 15 of CFR 47

This equipment has been tested and found compliant with Part 15 of the CFR 47 rules for Class A digital devices. These rules are designed to provide reasonable protection from interference to electronics equipment operated in a commercial environment.

Operation of this device is subject to the following two conditions:

- ◆ This device cannot cause harmful interference.
- ◆ This device must accept any interference received, including interference that may cause undesired operation.

Compliance with ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A conforme à la norme NMB-003 du Canada.

Compliance with EN regulations

Marking by the symbol  indicates compliance of this Network Appliance device to the EMC Directive and the Low Voltage Directive of the European Union. Such marking is indicative that this Network Appliance device meets the technical standards listed in “Declaration of Conformity,” later in this appendix.

Caution

This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Bureau of Standards, Metrology, and Inspections notice (BSMI, Taiwan only)

警告使用者：

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Translation of the BSMI notice:

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Declaration of Conformity

Network Appliance, Inc.
495 East Java Drive
Sunnyvale, CA 94089, U.S.A,

declare under our sole responsibility that the products

Type of equipment	Description	Model Number	Year of Manufacture
Network file server	NetApp® F85 filer and SDS12 disk shelf	SMM, AMP	2000

to which this declaration relates conform to the following standards:

EN 60950:1992, Information Technology Equipment (Safety)

EN 55022:1987, Emissions Requirements for Information Technology Equipment

EN 55024:1998, Immunity Requirements for Information Technology Equipment

EN 60825-1, Safety of Laser/LED Equipment

following the provisions of the directives listed below:

73/23/EEC, 'Low Voltage Directive' (Product Safety)

89/336/EEC, Electromagnetic Compatibility Directive

Part number: 210-02638

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