

Replacing a Front Group Service LED Cable Assembly

This procedure replaces a front group service LED cable assembly in a NonStop S-series server online. The front group service LED is part of this cable assembly, so if that LED fails, you must replace this entire cable assembly. You do not need to shut down the system before replacing a front group service LED cable assembly.

The following is a high-level summary of the tasks required to replace the assembly. Each task in this outline is linked to step-by-step instructions about how to perform the task. After you complete a task, click the check box.

1 [Read the cautions.](#)

2 [Gather the proper tools.](#)

3 Unpack and inspect the replacement cable assembly.

If the replacement cable assembly is damaged, you must order another replacement cable assembly before continuing with this procedure.

4 Remove the disk drives from slots 04, 05, and 06 of the enclosure. Follow Steps 1 through 3 of Replacing an Internal Mirrored Disk Drive CRU or Replacing an Internal Nonmirrored Disk Drive CRU.

5 Remove the PMF CRU or IOMF CRU from slot 50 of the enclosure using the appropriate OSM action or guided procedure. See Guided Procedures.

Follow the OSM action or guided procedure until you have removed the CRU. Perform Steps 6 through 8 of this procedure and then reinstall the CRU and resume the OSM action or guided procedure exactly where you left off.

6 [Remove the front group service LED cable assembly.](#)

7 [Install the front group service LED cable assembly.](#)

8 Reinstall the disk drives in slots 04, 05, and 06 of the enclosure. Follow Steps 4 through 7 of Replacing an Internal Mirrored Disk Drive CRU or Replacing an Internal Nonmirrored Disk Drive CRU.

9 Reinstall the PMF CRU or IOMF CRU in slot 50 of the enclosure by resuming the OSM action or guided procedure exactly where you left off.


Cautions for Replacing a Front Group Service LED Cable Assembly



Cautions:

- You must remove and install a PMF CRU or IOMF CRU when replacing the front group service LED cable assembly. OSM actions and guided procedures are the only supported methods for removing and installing these CRUs. For more information on OSM actions and guided procedures, see [Guided Procedures](#).
- Whenever you handle a CRU, follow [standard operating practices](#) to avoid damage to the equipment.
- Do not attach the grounding clip of a wriststrap to an enclosure door or to any painted surface.
- Keep the appearance-side enclosure door closed during normal operation of the server. Keeping the door closed reduces electromagnetic interference (EMI) and optimizes cooling, prolonging the life of components. When both fans are functioning, you can safely open the door for a limited time to perform maintenance or upgrade procedures, but remember to close the door when you are finished with the procedure. For more information, see [Safe Operating Times With Enclosure Door Open](#).

Standard Operating Practices

 **Caution.** Replace only one CRU or FRU at a time. Attempting to replace more than one hardware component at a time might cause serious system outages, processor halts, and connectivity problems.

Whenever you replace a CRU or a FRU, use the following standard operating practices to minimize any potential damage to the equipment:

- Complete HP training courses on system support for NonStop S-series servers.
- Inspect the replacement CRU or FRU for any physical damage before installing it. Check the connectors on the CRU, FRU, or backplane for bent or broken pins and for any other obvious damage. If there is damage to the CRU or FRU, you need to order another one.
- Remove all jewelry and metal accessories, such as rings, watches, and necklaces, before working with the equipment. These items can damage electrical equipment or result in personal injury.
- Restrain any dangling items that can get caught in electromechanical equipment, such as long hair and sleeves, before working with the equipment.
- Follow the [ESD Guidelines](#) for working in an electrostatic discharge (ESD)-protected environment and for handling CRUs and FRUs.
- Avoid permanent damage to components from overheating by observing the time limits for an enclosure door to be open with only one fan running.

The following table indicates the amount of time that components in a fully loaded NonStop S-series system enclosure, with the appearance-side door open and only one fan operating, can operate before overheating.

Safe Operating Times With Enclosure Door Open

Altitude	Ambient Room Temperature			
	25°C (77°F)	30°C (86°F)	35°C (95°F)	38°C (100°F)
Sea level	>45 minutes	36 minutes	21 minutes	13 minutes
1,524 meters (5,000 feet)	38 minutes	22 minutes	13 minutes	8 minutes
3,048 meters (10,000 feet)	25 minutes	14 minutes	10 minutes	5 minutes

For example, if your computer room has an ambient room temperature of 25°C (77°F) and is at an altitude of 1,524 meters (5,000 feet), you have approximately 38 minutes to replace or reinstall the second fan before components inside a system enclosure overheat.

Related Topic

[ESD Guidelines](#)

ESD Guidelines



Figure: [Working in an ESD-Protected Environment](#)

Observe the following electrostatic discharge (ESD) guidelines whenever servicing electronic components:

- Obtain an ESD protection kit and follow the directions that come with the kit. You can purchase an ESD kit from HP (T99247-A00) or from a local electronics store. Ensure that your ESD wriststrap has a built-in series resistor and that the kit includes an antistatic table mat.
- Before you unpack a replacement CRU or FRU, place the CRU or FRU package on the antistatic table mat and attach the grounding clip on your wriststrap to the mat.
- When you unpack the CRU or FRU, do not cut into the ESD protective bag surrounding the CRU or FRU. The protective bag protects the CRU or FRU and can be reused for storing the CRU or FRU that has been replaced.
- Before you move the CRU or FRU from the antistatic table mat, attach the grounding clip from your ESD wriststrap to any unpainted metal surface on the CRU or FRU frame.
- Before you bring a CRU or FRU in contact with a system enclosure, attach the grounding clip on your ESD wriststrap to any unpainted metal surface on the enclosure frame.
- When you remove a CRU or FRU from a system enclosure, first pull the CRU or FRU partway out of the slot and then attach the grounding clip on your ESD wriststrap to any unpainted metal surface on the CRU or FRU frame.
- Store CRUs or FRUs that require ESD protection in ESD protective bags.
- The figure [Working in an ESD-Protected Environment](#) illustrates how to use an ESD kit when servicing CRUs or FRUs.

i Note: An ESD protection kit can be purchased from HP using the following order number and part number:

Order Number: ESD-kit

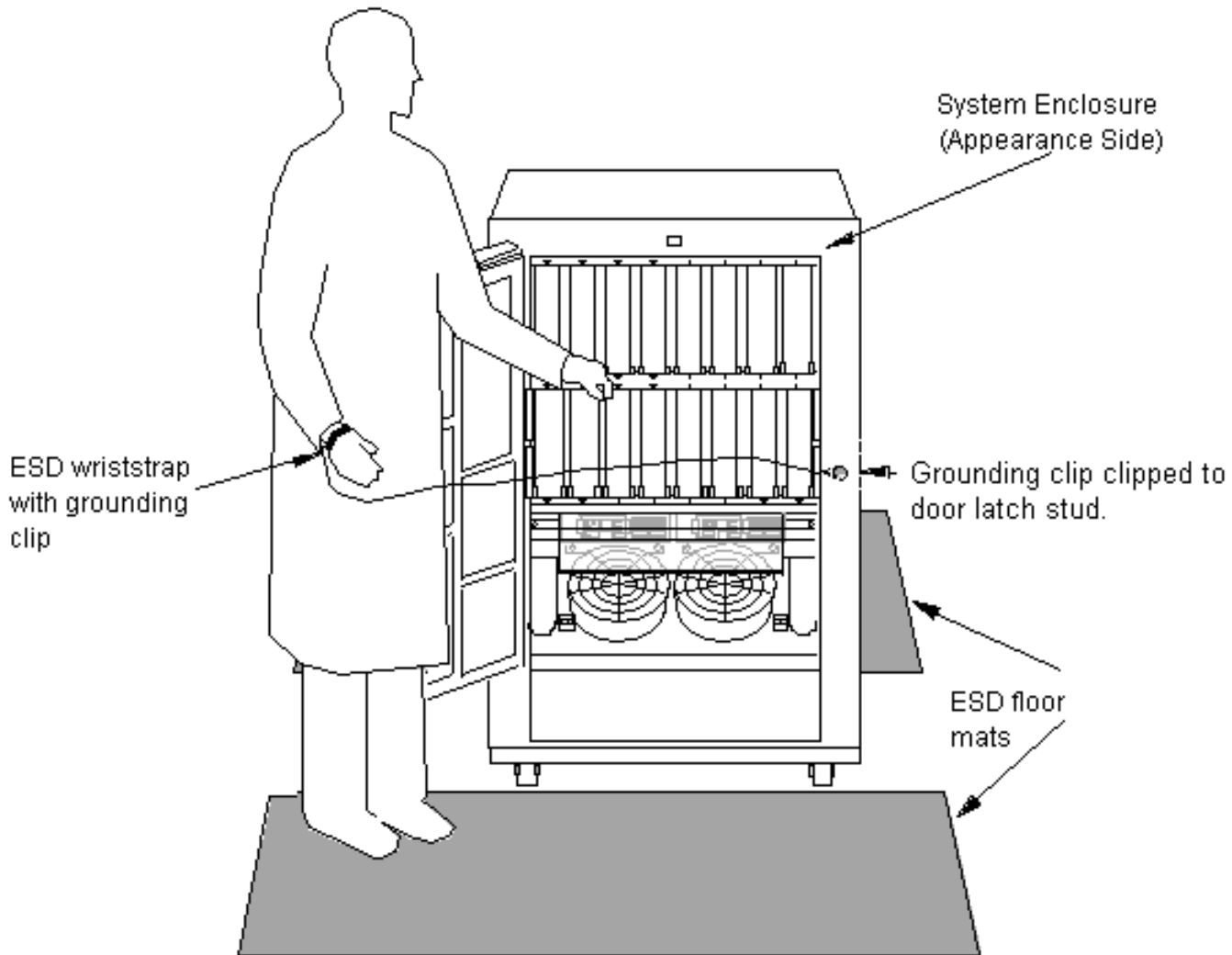
Part Number: T99247-A00

Related Topic

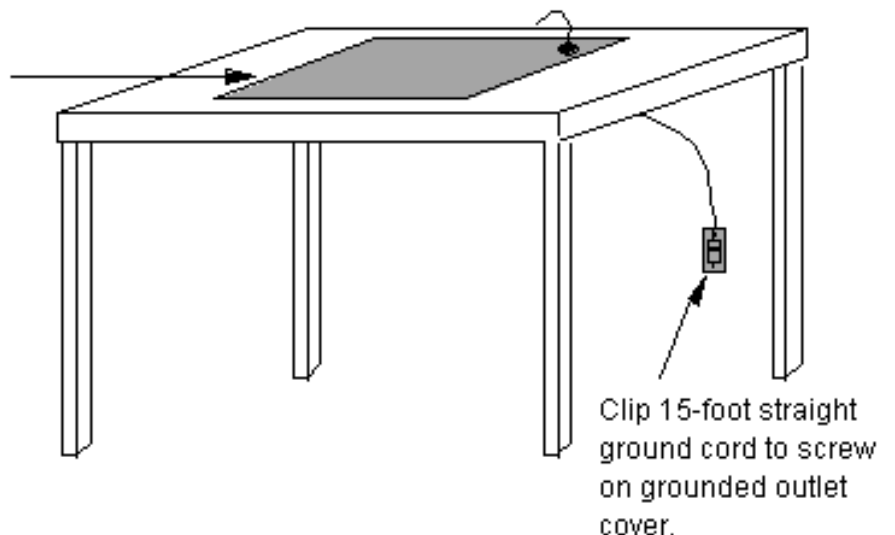
[Standard Operating Practices](#)

Figure: Working in an ESD-Protected Environment

This figure illustrates how to use an ESD kit when servicing customer-replaceable units (CRUs) and field-replaceable units (FRUs).




ESD antistatic table mat.
Mat should be connected
to a soft ground (1 megohm min.
to 10 megohm max.)



Gathering the Proper Tools to Replace a Front Group Service LED Cable Assembly

You need some or all of the following tools to replace a front group service LED cable assembly:

Tool	Used to...
Antistatic mat (recommended)	Provide a static-free environment for removal and installation of CRUs
Electrostatic discharge (ESD) wriststrap with grounding clip	Protect the CRUs from damage caused by electrostatic discharge
Wire cutters	Cut cable ties
Cable ties	Secure the replacement cable assembly
Slotted screwdriver or small utility knife	Pry the group service LED connector out of its opening in the system enclosure
Flashlight	Check the connectors for bent or broken pins
Phillips screwdriver	Loosen the captive thumbscrews on a disk drive CRU

 **Note:** An ESD protection kit can be purchased from HP using the following order number and part number:

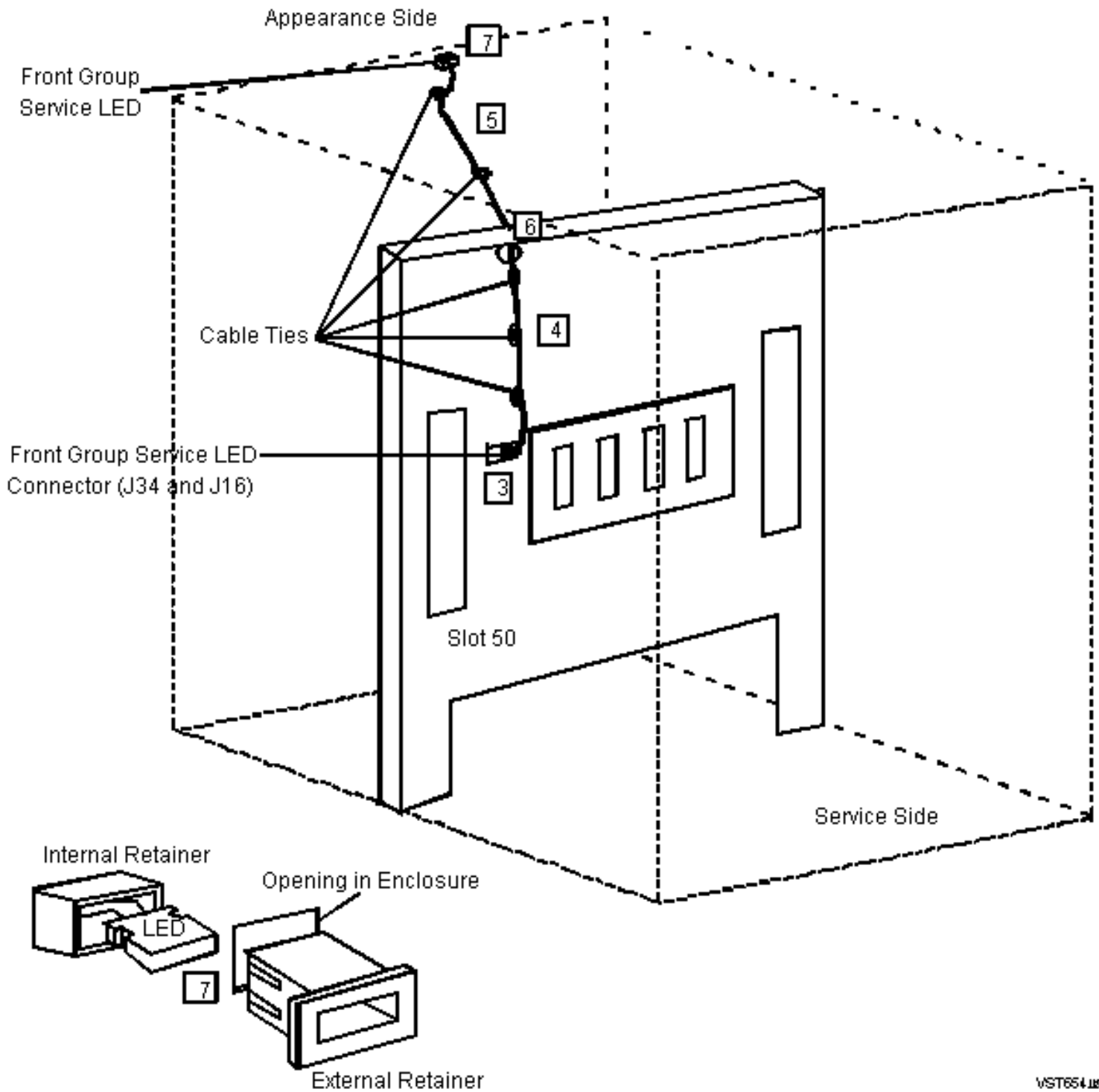
Order Number: ESD-kit

Part Number: T99247-A00

Removing a Front Group Service LED Cable Assembly

- 1 Place an antistatic table mat on a flat horizontal work surface near this enclosure. Put on an ESD wriststrap and attach the grounding clip to any unpainted metal surface on the enclosure frame, such as the door latch. Refer to [ESD Guidelines](#).
- 2 Open the service-side enclosure door, if any.
- 3 From the service side of the enclosure, reach into the empty slot 50 and unplug the front group service LED cable assembly from its connector, marked J34 and J16, on the backplane. Refer to [Figure: Removing a Front Group Service LED Cable Assembly](#) for this and following steps.
- 4 Use wire cutters to cut the three cable ties that secure the cable assembly to the cable tie mounts inside slot 50 on the upper right-hand side. Be careful not to cut the cable assembly.
- 5 From the appearance side of the enclosure, reach inside slots 04, 05, and 06 and use wire cutters to cut the two cable ties that secure the cable assembly to the cable tie mounts on the upper surface. Be careful not to cut the cable assembly.
- 6 From the service side, unthread the plug end of the cable assembly through the opening at the top of the backplane behind slots 04, 05, and 06.
- 7 With one hand, reach inside the appearance side and hold the internal retainer for the front group service LED. With your other hand, from outside the enclosure, pull the external retainer off of the LED and then pull the LED to remove the cable assembly from the enclosure.

Figure: Removing a Front Group Service LED Cable Assembly



Installing a Front Group Service LED Cable Assembly

- 1 With the appearance-side enclosure door open, continue to observe ESD protection guidelines. Refer to [ESD Guidelines](#).
- 2 Remove the external retainer from the LED on the cable assembly and, from outside the appearance side of the enclosure, insert the external retainer into the opening for the front group service LED. Refer to [Figure: Installing a Front Group Service LED Cable Assembly](#) for this and following steps.
- 3 From inside the appearance side, insert the LED of the cable assembly into the external retainer you just installed.
- 4 From inside the appearance side, push the internal retainer over the external retainer and press both retainers together to secure the LED in its opening in the enclosure.
- 5 Thread the plug end of the cable assembly through the opening at the top of the backplane behind slots 04, 05, and 06.
- 6 From the service side of the enclosure, plug the cable assembly into the connector marked J34 and J16 on the backplane behind slot 50.
- 7 Use three cable ties to secure the cable assembly to the cable tie mounts inside slot 50 on the upper right-hand side. Cut off any excess cable tie, being careful not to cut the cable assembly.
- 8 From the appearance side of the enclosure, use two cable ties to secure the cable assembly to the cable tie mounts on the upper surface of slots 04, 05, and 06. Cut off any excess cable tie, being careful not to cut the cable assembly.

Figure: Installing a Front Group Service LED Cable Assembly

