

5796 and 7314 model G30 removal and replacement procedures□□

ESCALA Power7



REFERENCE
86 A1 58FF 03

ESCALA Power7

5796 and 7314 model G30 removal and replacement procedures□□

This publication concerns the following models:

- Bull Escala E5-700 (Power 750 / 8233-E8B)
- Bull Escala M6-700 (Power 770 / 9117-MMB)
- Bull Escala M7-700 (Power 780 / 9179-MHB)
- Bull Escala E1-700 (Power 710 / 8231-E2B)
- Bull Escala E2-700 / E2-700T (Power 720 / 8202-E4B)
- Bull Escala E3-700 (Power 730 / 8231-E2B)
- Bull Escala E4-700 / E4-700T (Power 740 / 8205-E6B)

References to Power 755 / 8236-E8C models are irrelevant.

Hardware

May 2011

BULL CEDOC
357 AVENUE PATTON
B.P.20845
49008 ANGERS CEDEX 01
FRANCE

REFERENCE
86 A1 58FF 03

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Contents

Safety notices	v
Removal and replacement procedures	1
Removal and replacement procedures	1
GX Dual-Port 12X Channel Attach adapter	3
PCI adapter.	7
PCI shuttle assembly	7
Power supply	15
SPCN card	19
Notices	25
Trademarks	26
Electronic emission notices	26
Class A Notices	26
Terms and conditions	30

Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, a safety information booklet is included in the publications package shipped with the product. The booklet contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information in the booklet. You should also refer to the booklet any time you do not clearly understand any safety information in the U.S. English publications.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM[®] servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005)

DANGER

Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet.
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.
- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices.



- Each rack cabinet might have more than one power cord. Be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock.

CAUTION

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.
- *(For fixed drawers.)* This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack.

(R001)

CAUTION:

Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building:

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are no empty U-levels between devices installed in the rack cabinet below the 32U level.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 230 mm (30 x 80 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

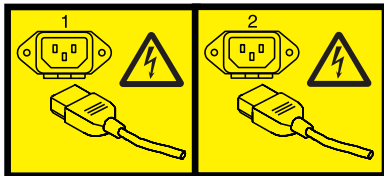
(L001)



(L002)



(L003)



or



All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

CAUTION:

This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)

CAUTION:

Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. (C027)

CAUTION:

This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)

CAUTION:

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information: laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metallically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

Removal and replacement procedures

Here you will find installation and maintenance information for the 5796 and 7314-G30 expansion units.

Removal and replacement procedures

Use the removal and replacement procedures when you repair, maintain, or exchange your system parts.

Before you begin a replacement, perform these tasks:

1. If you are performing a replacement procedure that might put your data at risk, ensure, if possible, that you have a current backup of your system or logical partition (including operating systems, licensed programs, and data).
2. Review the installation or replacement procedure for the feature or part.
3. Note the significance of color on your system. Blue or Terra-cotta on a part of the hardware indicates a touch point where you can grip the hardware to remove it from or install it in the system, open or close a latch, and so on. **Terra-cotta** might also indicate that the part can be removed and replaced with the system or logical partition power on.
4. Ensure that you have access to a medium, flat-blade screwdriver.
5. If parts are incorrect, missing, or visibly damaged, contact your service provider or next level of support.

DANGER

When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- Connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
- Connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Disconnect the attached power cords, telecommunications systems, networks, and modems before you open the device covers, unless instructed otherwise in the installation and configuration procedures.
- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. Remove the power cords from the outlets.
3. Remove the signal cables from the connectors.
4. Remove all cables from the devices

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. Attach the power cords to the outlets.
5. Turn on the devices.

(D005)

Attention:

Failure to follow the step-by-step sequence for FRU removal and/or installation may result in FRU or system damage.

Use the following precautions whenever you handle electronic components or cables.

- The electrostatic discharge (ESD) kit and the ESD wrist strap must be used when handling logic cards, SCMs, MCMs, electronic boards, and disk drives.
- Keep all electronic components in the shipping container or envelope until you are ready to install them.
- If you remove, then reinstall an electronic component, temporarily place the component on an ESD pad or blanket.

GX Dual-Port 12X Channel Attach adapter

Use this procedure to service the GX Dual-Port 12X Channel Attach adapter.

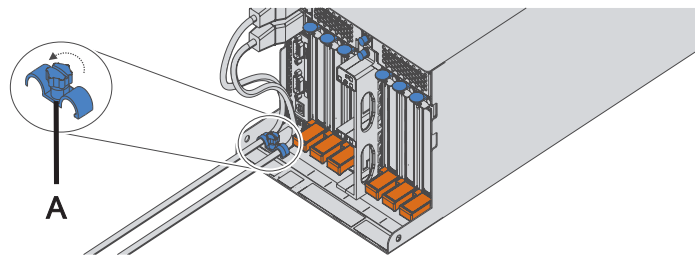
This unit will be serviced nonconcurrently.

Power should be removed from the unit containing the FRU in the location field above. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the ac input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

You must also power down the server connected to the 7314-G30 or feature code 5796 if the server is: A 9406-MMA or 9117-MMA with System Firmware at EM320_040_031 or EM310_069_048 or below. An 8204-E8A with System Firmware at EL320_040_031 or below.

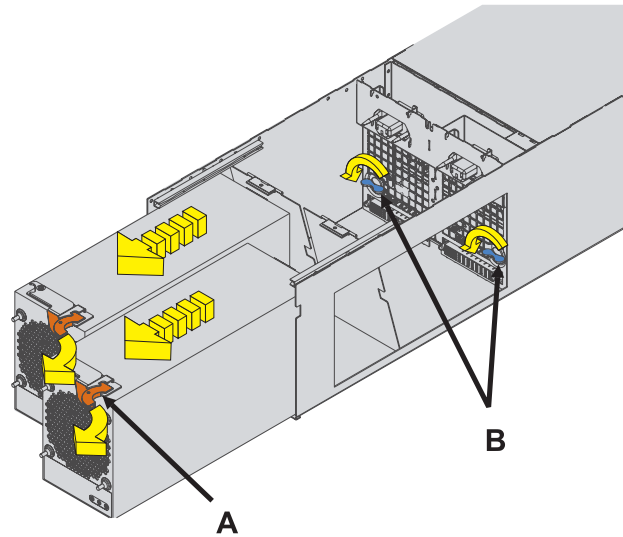
1. Remove the cable-management bracket

1. Label, then disconnect the ac power cords from the back of the system.
2. Remove the cable-management bracket retaining screw (A).



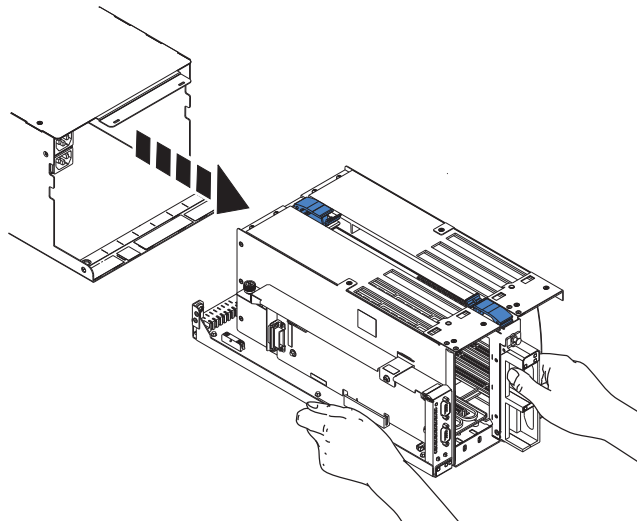
2. Remove the power supplies

1. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
2. Pull the power supply straight out from the I/O subsystem.
3. Repeat these steps to remove the other power supply.
4. Turn the blue thumbscrews (B) in the direction shown to unlock the PCI shuttle assembly.



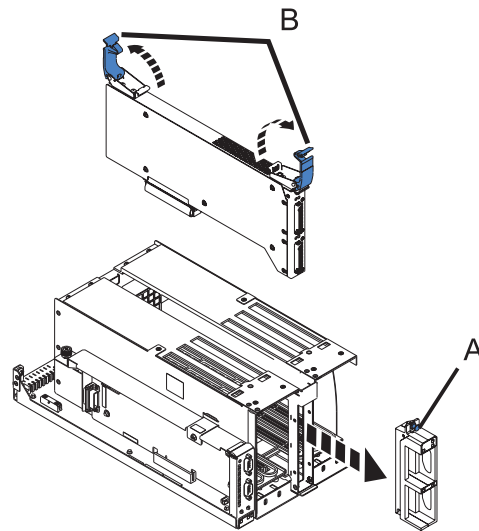
3. Remove the PCI shuttle assembly

Slide the PCI shuttle assembly from the I/O subsystem as shown in the diagram.



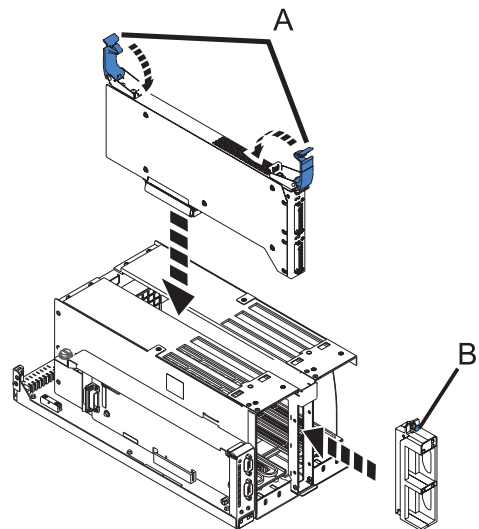
4. Remove the GX Card

1. Pull out the locking knob **(A)** and remove the front GX card cover.
2. Squeeze the release latches **(B)** to release them from the card and rotate in the direction shown.
3. Carefully pull the card out of the slot.



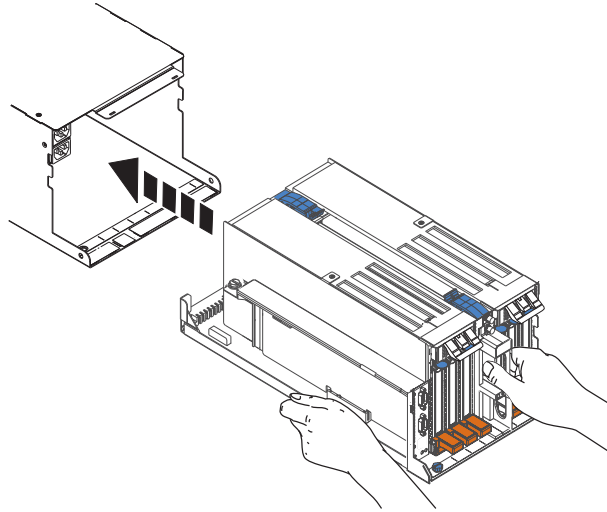
5. Install the GX Card

1. Carefully push the card into the slot.
2. Rotate the release latches **(A)** in the direction shown, then push them down to secure the card.
3. Install the front GX card cover and push in the locking knob **(B)**.



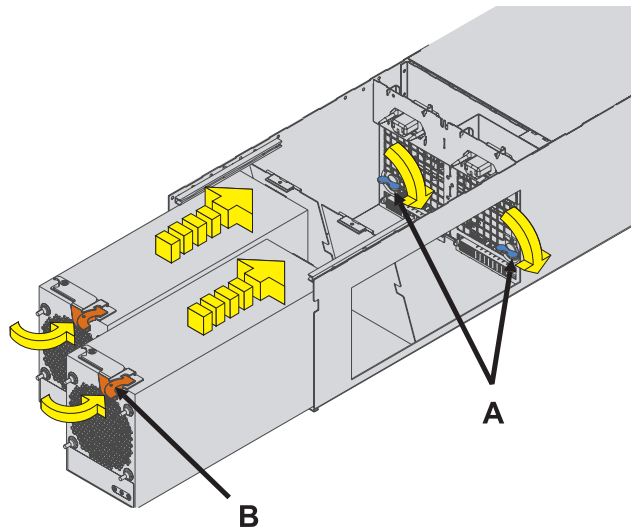
6. Install the PCI shuttle assembly

1. Slide the PCI shuttle assembly into the I/O subsystem as shown in the diagram.
2. Reconnect all PCI and SPCN cables previously removed from their adapters.
3. Connect the cable that was previously removed to the GX card.



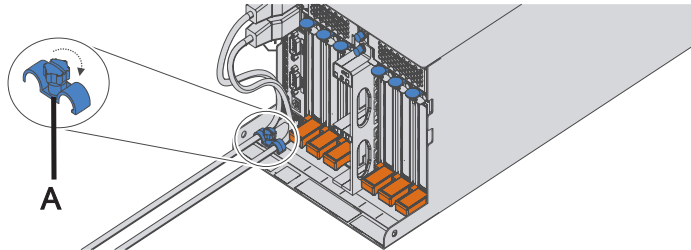
7. Install the power supplies

1. Turn the blue thumbscrews (**A**) in the direction shown to lock the PCI shuttle assembly.
2. Push the power supply straight into the I/O subsystem.
3. Rotate the power supply handle (**B**) in the direction shown to seat the power supply.
4. Repeat the steps to install the other power supply.



8. Install the cable-management bracket

1. From the back of the rack, install the cable-management bracket retaining screw (A).
2. Reconnect the ac power cords to the back of the system.



9. Verify the repair

Go to Verification Procedures.

PCI adapter

Use this procedure to service a PCI adapter.

If your system is managed by the Hardware Management Console (HMC), use the HMC to complete the steps for removing and replacing a PCI adapter. For instructions, see *Removing a part using the Hardware Management Console*.

The PCI adapter is serviced concurrently. Select the procedure below based on your operating system.

If you are doing a concurrent repair using the AIX® operating system, go to *Removing and replacing a PCI adapter* contained in a cassette in an AIX partition that is powered on.

If you are doing a concurrent repair using the IBM i operating system, go to *Removing and replacing a PCI adapter* contained in a cassette in an IBM i partition that is powered on.

If you are doing a concurrent repair using the Linux operating system, go to *Removing and replacing a PCI adapter* contained in a cassette in a Linux partition that is powered on.

PCI shuttle assembly

Use this procedure to service the PCI shuttle assembly.

- 1.

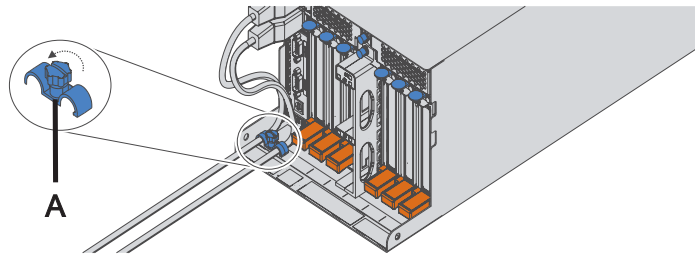
This unit will be serviced nonconcurrently.

Power should be removed from the unit containing the FRU in the location field above. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the ac input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

You must also power down the server connected to the 7314-G30 or feature code 5796 if the server is: A 9406-MMA or 9117-MMA with System Firmware at EM320_040_031 or EM310_069_048 or below. An 8204-E8A with System Firmware at EL320_040_031 or below.

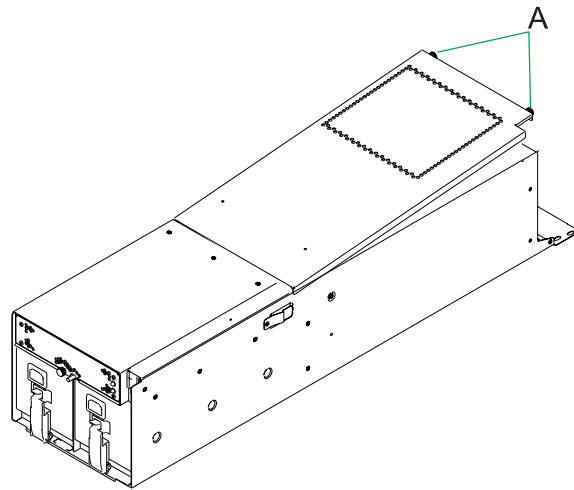
2. Remove the cable-management bracket

1. Label, then disconnect the ac power cords from the back of the system.
2. Remove the cable-management bracket retaining screw (A).



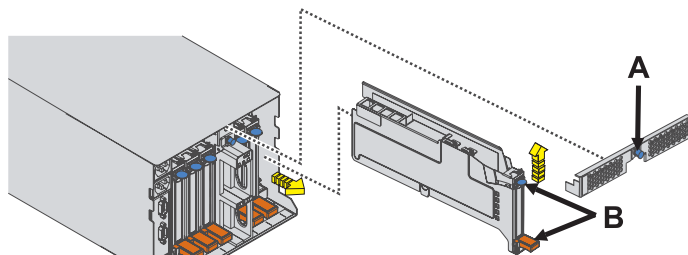
3. Remove the I/O Subsystem Service Access Cover

1. Loosen the two captive thumbscrews (**A**) located at the rear of the cover.
2. From the rear of the I/O subsystem, lift the cover and slide it backwards until the front disengages.
3. Lift the cover off the I/O subsystem unit.



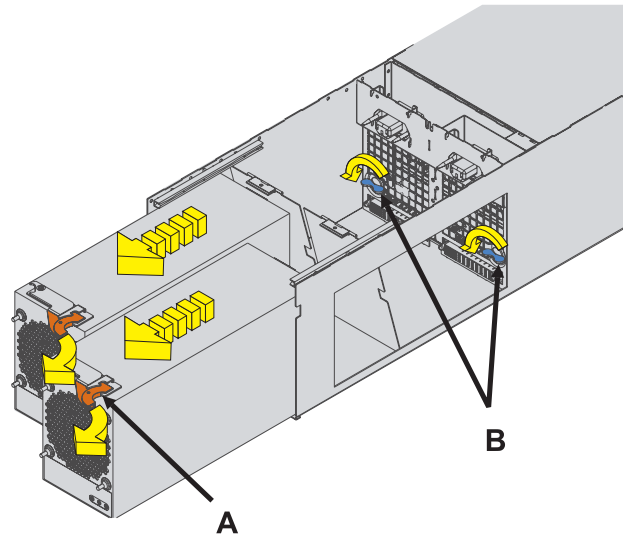
4. Remove all PCI Adapters

1. Remove both EMC Shields (if present) by pressing the tabs (**A**) while sliding them out.
2. Label, then disconnect all GX, PCI, and SPCN cables from their adapters.
3. Lift up the PCI handles (**B**) and pull the PCI adapter straight out from the PCI shuttle assembly.
4. Repeat these steps until all PCI adapters have been removed.



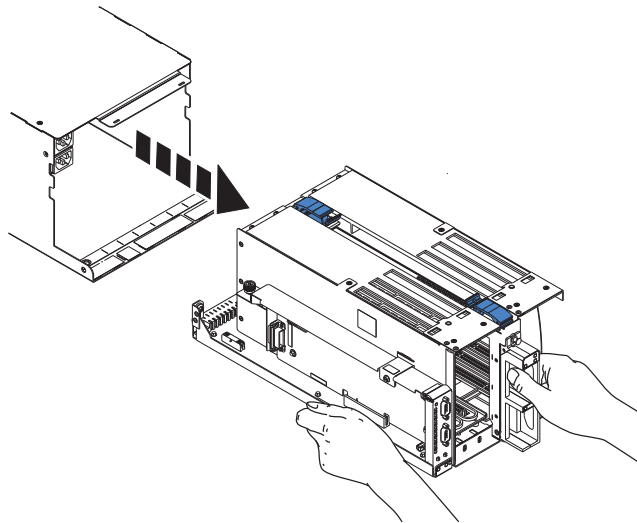
5. Remove the power supplies

1. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
2. Pull the power supply straight out from the I/O subsystem.
3. Repeat these steps to remove the other power supply.
4. Turn the blue thumbscrews (B) in the direction shown to unlock the PCI shuttle assembly.



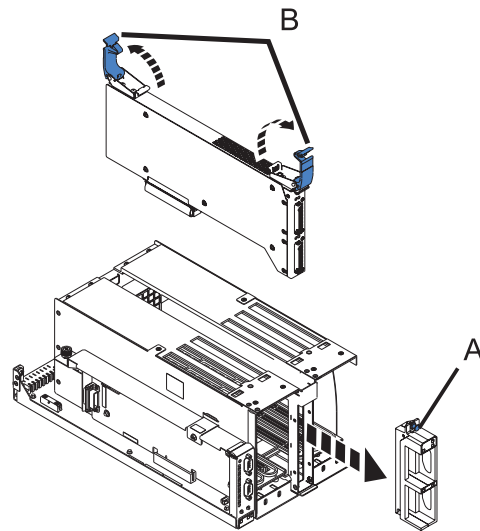
6. Remove the PCI shuttle assembly

Slide the PCI shuttle assembly from the I/O subsystem as shown in the diagram.



7. Remove the GX Card

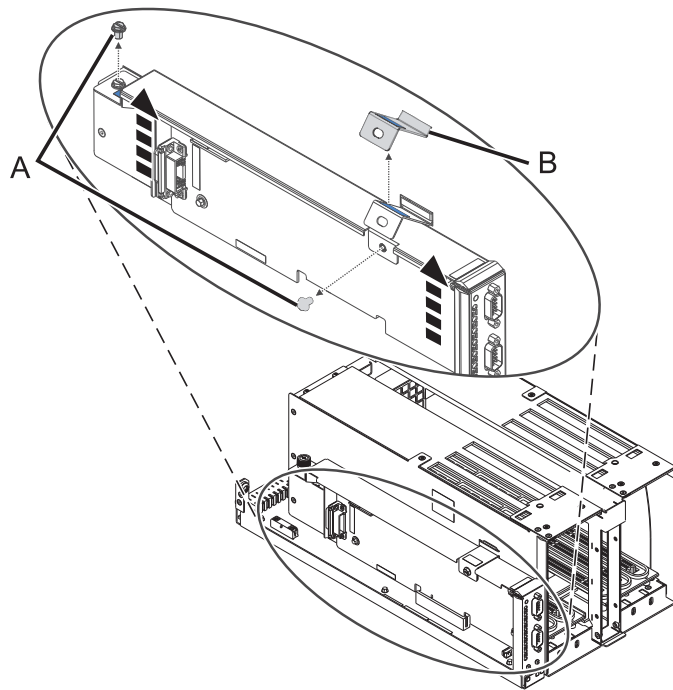
1. Pull out the locking knob (A) and remove the front GX card cover.
2. Squeeze the release latches (B) to release them from the card and rotate in the direction shown.
3. Carefully pull the card out of the slot.



8. Remove the SPCN card

If the new PCI shuttle assembly includes a new SPCN card then go to step 10.

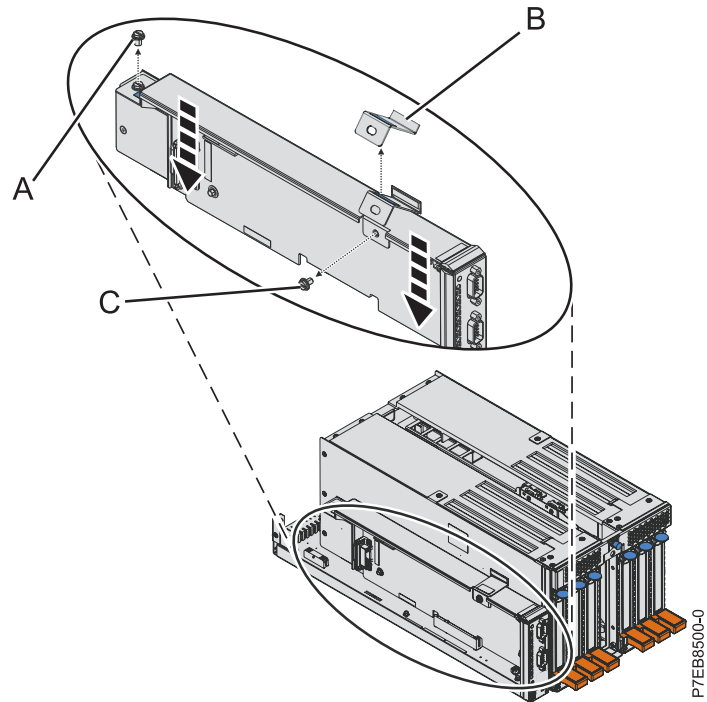
1. Remove the screw (A).
2. Carefully pull the SPCN card from the PCI shuttle assembly.
3. Set the failed shuttle to the side and position the new shuttle nearby, so you can reinstall the parts into the new shuttle.



9. Install the SPCN card

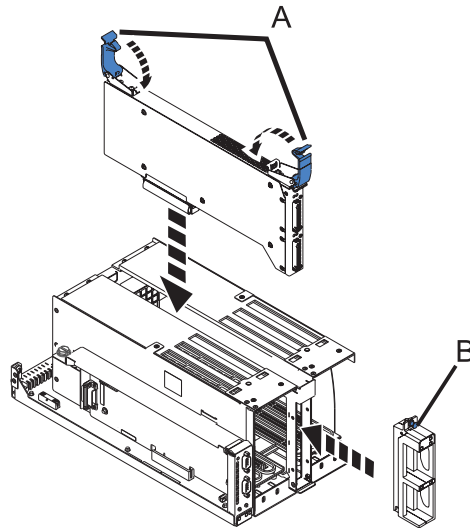
Note: Discard the hold-down bracket and the screw, for installing a new SPCN card. The hold-down bracket and the screw is used for shipping the product.

1. Remove the screws (A) and (C), and then remove the clip (B).
2. Carefully install the SPCN card.
3. Tighten the screw (A).



10. Install the GX Card in the new shuttle

1. Carefully push the card into the slot.
2. Rotate the release latches (A) in the direction shown, then push them down to secure the card.
3. Install the front GX card cover and push in the locking knob (B).



11. Install the PCI shuttle assembly

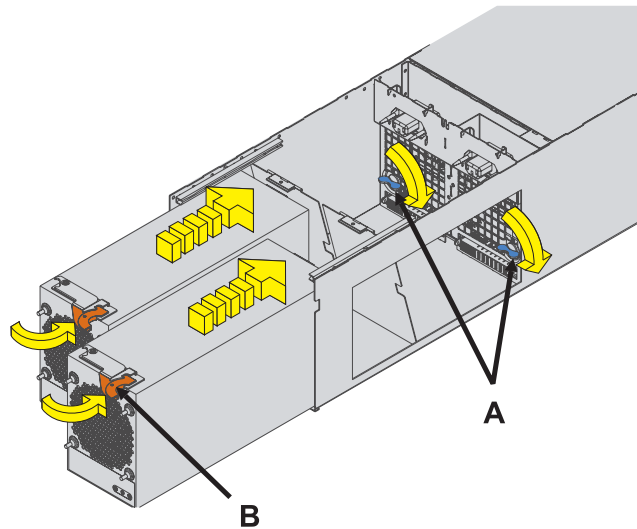
Slide the PCI shuttle assembly into the I/O subsystem.

12. Update the Vital Product Data

Perform the procedures to update the Vital Product Data (VPD) information with the machine type, model, and serial number for the management console.

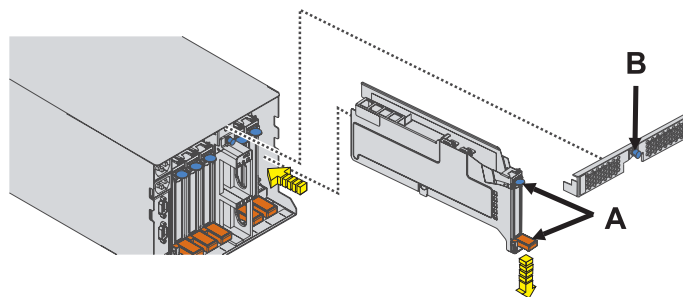
13. Install the power supplies

1. Turn the blue thumbscrews (**A**) in the direction shown to lock the PCI shuttle assembly.
2. Push the power supply straight into the I/O subsystem.
3. Rotate the power supply handle (**B**) in the direction shown to seat the power supply.
4. Repeat the steps to install the other power supply.



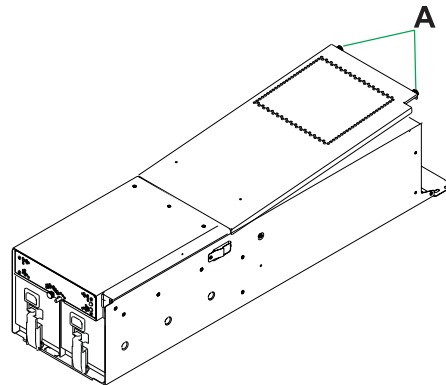
14. Install all PCI Adapters

1. Slide the PCI Adapter straight into its slot in the PCI shuttle assembly.
2. Push down on the PCI handles (**A**) to secure the adapter in place.
3. Repeat these steps to install the other PCI adapters.
4. Install the EMC Shields (**B**) by sliding them into their slots near the top of the shuttle assembly.
5. Reconnect all GX, PCI, and SPCN cables previously removed from their adapters.



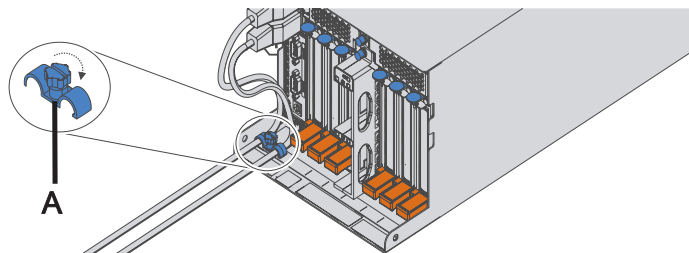
15. Install the I/O Subsystem Service Access Covers

1. Position the cover over the rear of the I/O subsystem.
2. Align the service access cover with the I/O subsystem so that the front portion of the cover engages with the front part of the I/O subsystem chassis. The flanges on the left and right sides of the cover should be on the outside of the I/O subsystem chassis.
3. Hold the cover down and slide it forward toward the front of the I/O subsystem. The front edge of the service access cover engages the front portion of the I/O subsystem.
4. Push in to engage and then tighten the thumbscrews (A) located at the rear of the cover.



16. Install the cable-management bracket

1. From the back of the rack, install the cable-management bracket retaining screw (A).
2. Reconnect the ac power cords to the back of the system.



17. Verify the repair

Go to Verifying a repair.

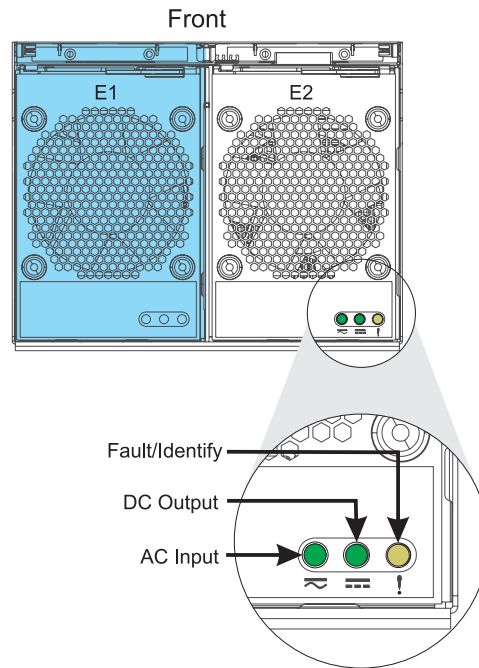
Power supply

Use this procedure to service the power supply.

1. Determine if this procedure can continue concurrently

To continue the repair concurrently, the following conditions must be true:

- A properly functioning power supply must already be installed in the system. This power supply has three LEDs, which must be set as follows:
- ac Input - on, not blinking
- dc Output - on, not blinking
- Fault/Identify - off



Is there a functioning power supply meeting these conditions?

Yes	No
↓	Go to step 4

2. Determine if you are able to exchange concurrently

Attention: If you are performing this procedure concurrently, from the moment the power cord is disconnected, the exchange of the power supply must be completed in *less than two minutes*. If you cannot replace the power supply in less than two minutes, the system will automatically shut down.

READ the following steps, have the replacement power supply ready, then decide if you are ready and able to continue this repair within the two-minute limit.

Remove the power supply:

Read the following steps. *Do not* perform them yet.

1. At the back of the system, disconnect the power cord that corresponds to the power supply being serviced.
2. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.

Install the new Power Supply:

1. Push the power supply straight into the I/O subsystem.
2. Rotate the power supply handle (A) in the direction shown to seat the power supply.
3. At the back of the system, reconnect the power cord to the corresponding power supply.

Are you ready to perform this repair in less than two minutes?

Yes, continue
concurrently

No, continue with
power off

No

↓

Go to step 4

**This ends the
procedure.**

3.

The power supply will be serviced concurrently. The unit will stay powered on while the power cord that corresponds to the power supply is removed. The unit can only run for a couple minutes with one power supply. Do not remove the power cord until instructed to do so.

Go to step 7 - Concurrent.

4.

The procedure can only be performed with power off.

Select an action

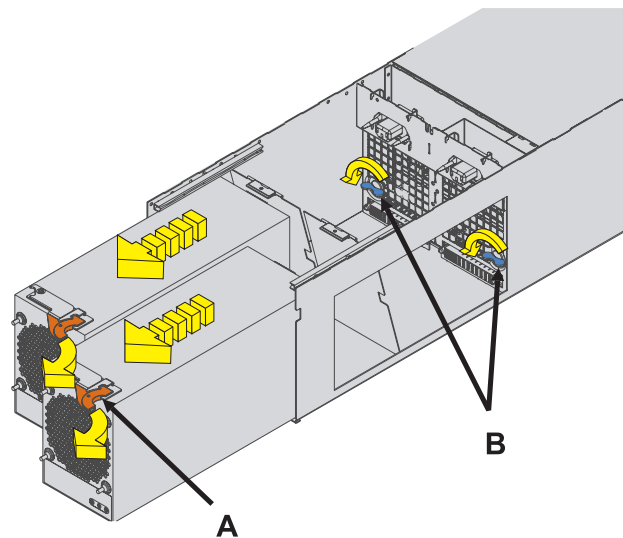
Non-concurrent repair.
Power off the unit and
continue the repair.

↓

**This ends the
procedure.**

5.

1. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
2. Pull the power supply straight out from the I/O subsystem.
3. Repeat these steps to remove the other power supply.
4. Turn the blue thumbscrews (B) in the direction shown to unlock the PCI shuttle assembly.



6.

Are you performing a miscellaneous equipment specification (MES) install operation?

Yes

No

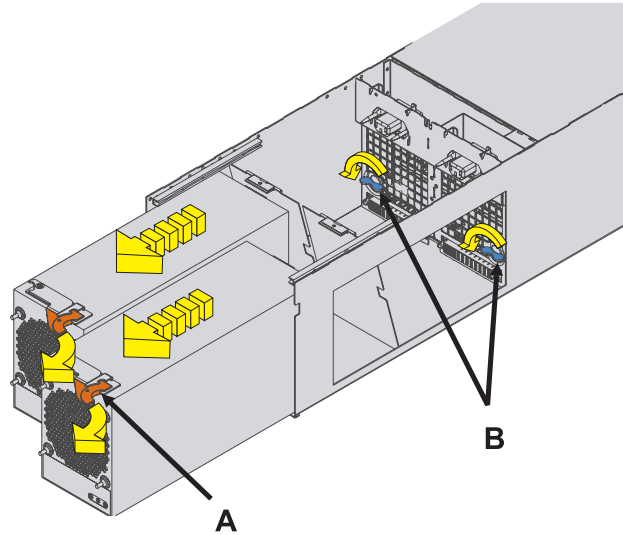
↓

Go to step 7

7. Remove the Power Supply

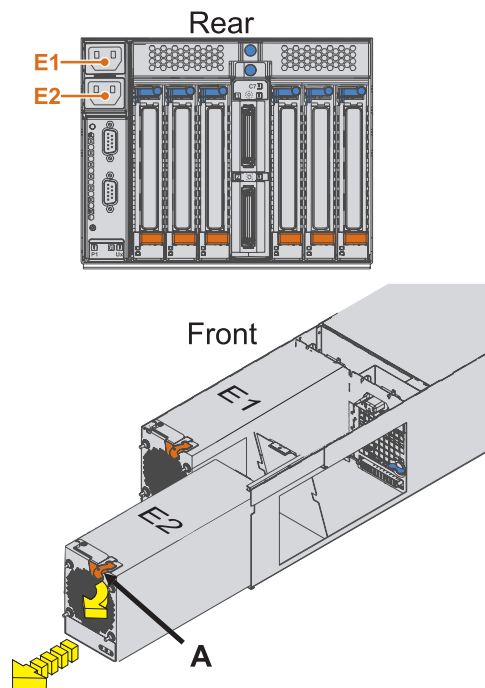
Non-concurrent

1. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
2. Pull the power supply straight out from the I/O subsystem.
3. Repeat these steps to remove the other power supply.
4. Turn the blue thumbscrews (B) in the direction shown to unlock the PCI shuttle assembly.



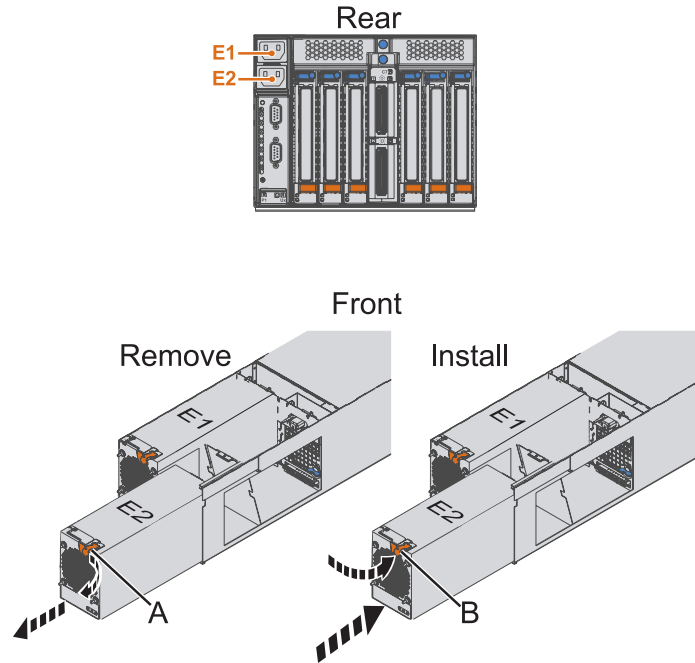
Concurrent

1. At the back of the system, disconnect the power cord that corresponds to the power supply being serviced. This action begins the two-minute time limit to exchange the power supply.
2. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.



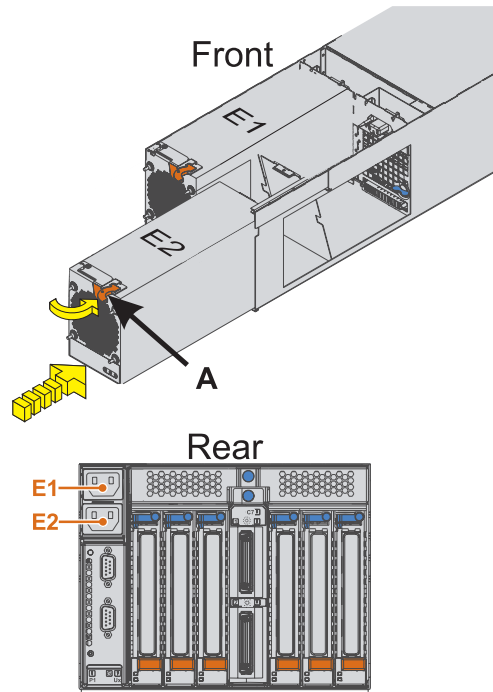
8. Exchange the Power Supply

1. At the back of the system, disconnect the power cord that corresponds to the power supply being serviced. This begins the two-minute time limit to exchange the power supply concurrently.
2. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.
4. Push the replacement power supply straight into the I/O subsystem.
5. Rotate the power supply handle (B) in the direction shown to seat the power supply.
6. At the back of the system, reconnect the power cord to the corresponding power supply.



9. Install the Power Supply

1. Push the power supply straight into the I/O subsystem.
2. Rotate the power supply handle (A) in the direction shown to seat the power supply.
3. At the back of the system, reconnect the power cord to the corresponding power supply.



10. Verify the repair

Go to Verifying a repair.

SPCN card

Use this procedure to service the system power control network (SPCN) card.

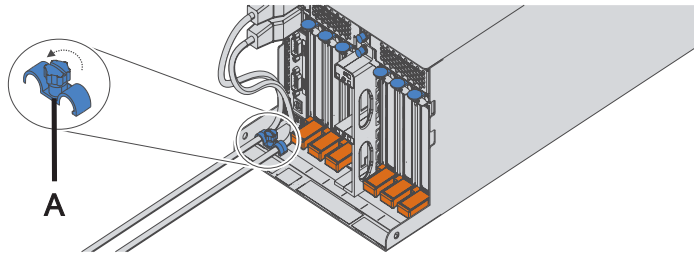
1.

This unit will be serviced nonconcurrently.

Power should be removed from the unit containing the FRU in the location field above. If this unit is powered on, power it off now. When the unit is completely powered off, disconnect the ac input source by removing the power cord from the unit. Do not apply power to the unit until directed to do so in this procedure.

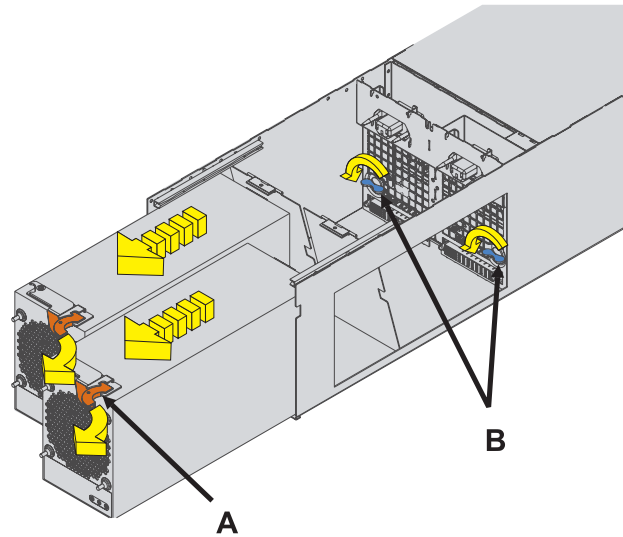
2. Remove the cable-management bracket

1. Label, then disconnect the ac power cords from the back of the system.
2. Remove the cable-management bracket retaining screw (A).



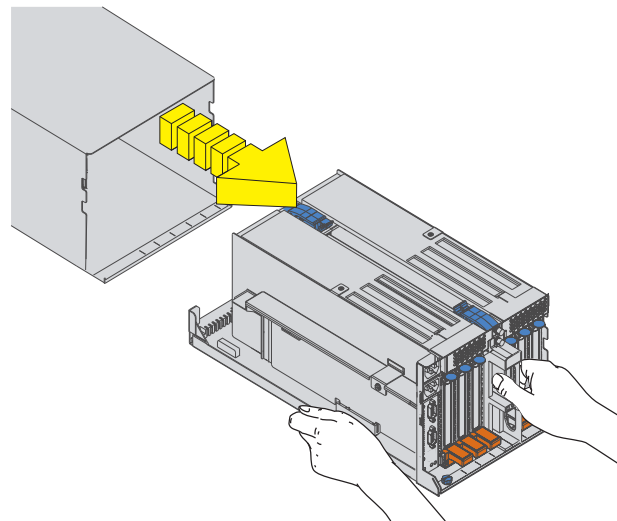
3. Remove the power supplies

1. Rotate the power supply handle (A) in the direction shown to unseat the power supply.
2. Pull the power supply straight out from the I/O subsystem.
3. Repeat these steps to remove the other power supply.
4. Turn the blue thumbscrews (B) in the direction shown to unlock the PCI shuttle assembly.



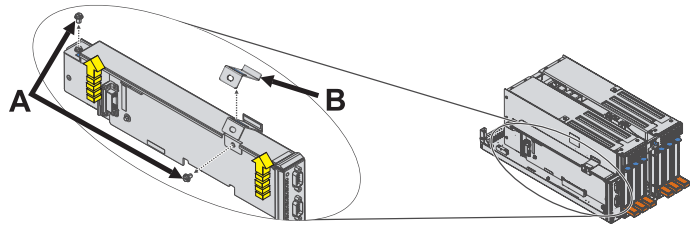
4. Remove the PCI shuttle assembly

1. Label, then disconnect all GX, PCI, and SPCN cables from their adapters.
2. Slide the PCI shuttle assembly from the I/O subsystem as shown in the diagram.



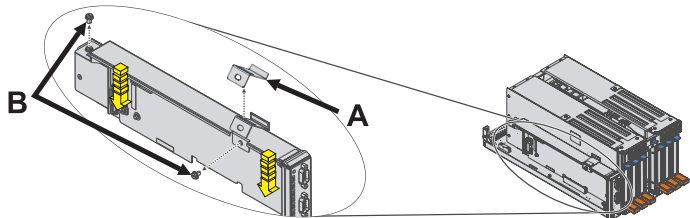
5. Remove the SPCN card

1. Remove the screw **(A)**.
2. Carefully pull the SPCN card from the PCI shuttle assembly, retaining clip **(B)** by lifting it, as shown in the figure.



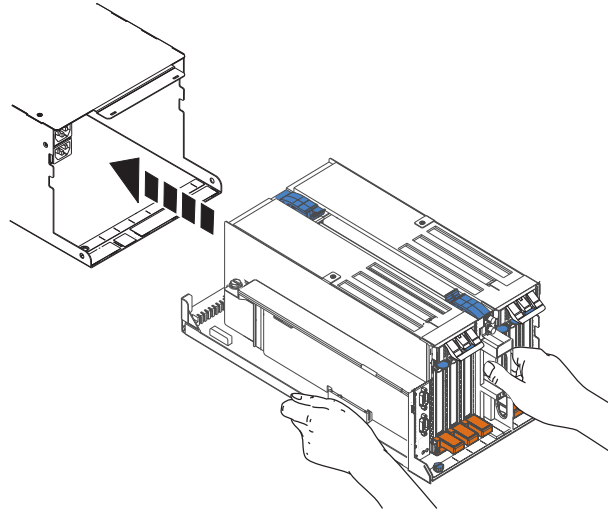
6. Install the SPCN card

1. Carefully push the SPCN card into its slot in the PCI shuttle assembly.
2. Install the screw **(B)**.
3. Reinstall the SPCN card retaining clip **(A)** by pushing it down, as shown in the figure.



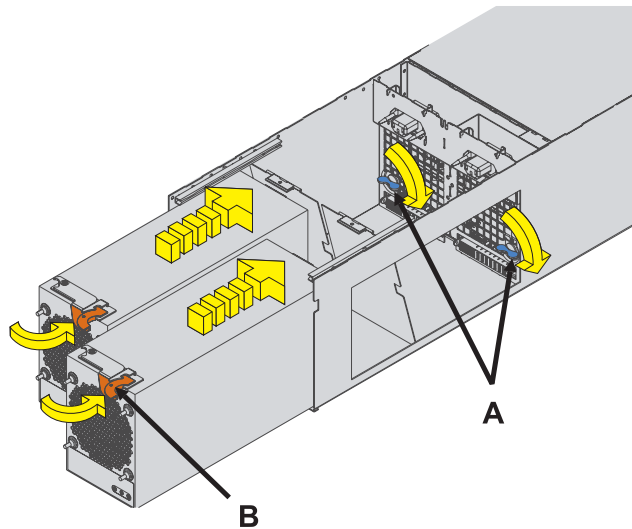
7. Install the PCI shuttle assembly

1. Slide the PCI shuttle assembly into the I/O subsystem as shown in the diagram.
2. Connect all GX, PCI, and SPCN cables that were previously removed from their adapters.



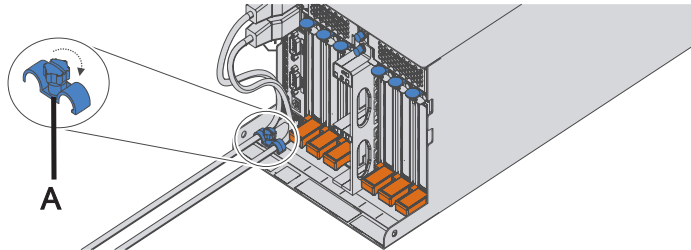
8. Install the power supplies

1. Turn the blue thumbscrews (A) in the direction shown to lock the PCI shuttle assembly.
2. Push the power supply straight into the I/O subsystem.
3. Rotate the power supply handle (B) in the direction shown to seat the power supply.
4. Repeat the steps to install the other power supply.



9. Install the cable-management bracket

1. From the back of the rack, install the cable-management bracket retaining screw (A).
2. Reconnect the ac power cords to the back of the system.



10. Verify the repair

Go to Verification Procedures.

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European Community contact:
IBM Deutschland GmbH
Technical Regulations, Department M456
IBM-Allee 1, 71139 Ehningen, Germany
Tele: +49 7032 15-2937
email: tjahn@de.ibm.com

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