ESCALA

G30 Expansion Unit Removal and Replacement Procedures

ESCALA

G30 Expansion Unit Removal and Replacement Procedures

Hardware

Trademarks and Acknowledgements

We acknowledge the rights of the proprietors of the trademarks mentioned in this manual.

All brand names and software and hardware product names are subject to trademark and/or patent protection.

Quoting of brand and product names is for information purposes only and does not represent trademark misuse.

Contents

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

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)**.
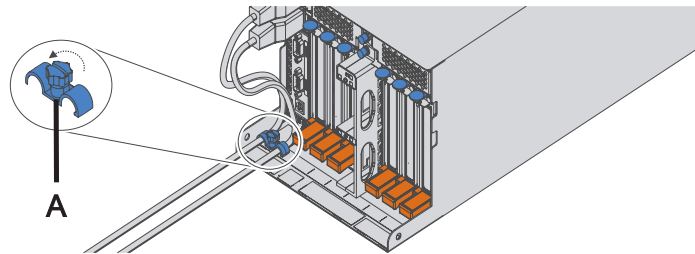
2. Remove the power supplies

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.
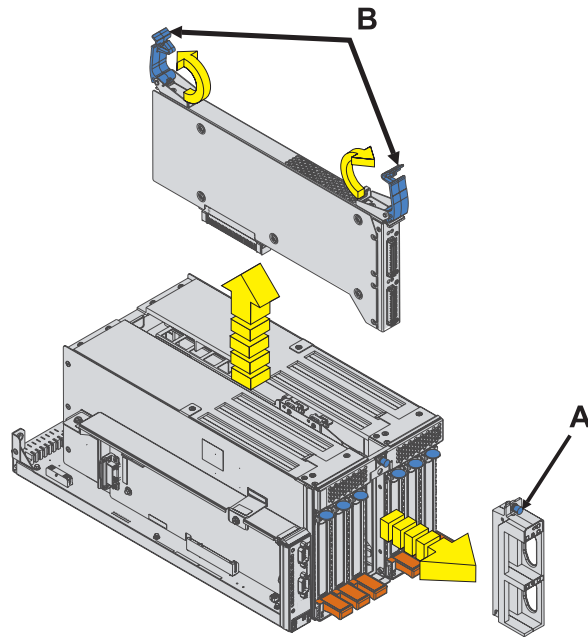4. Turn the blue thumbscrews **(B)** in the direction shown to unlock the PCI shuttle assembly.
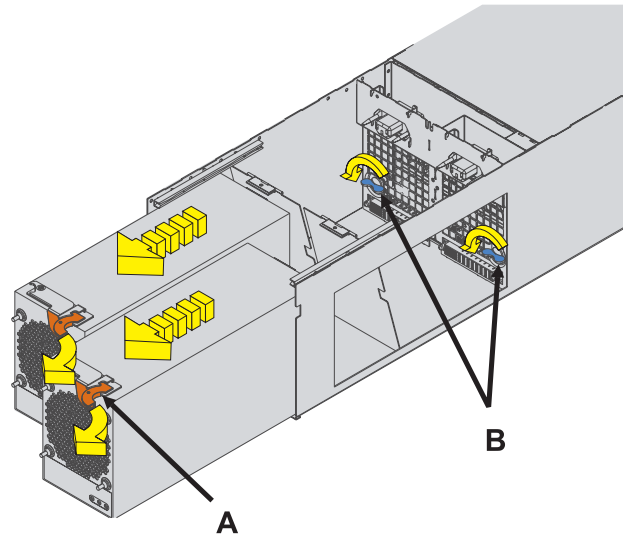
3. Remove the PCI Shuttle Assembly

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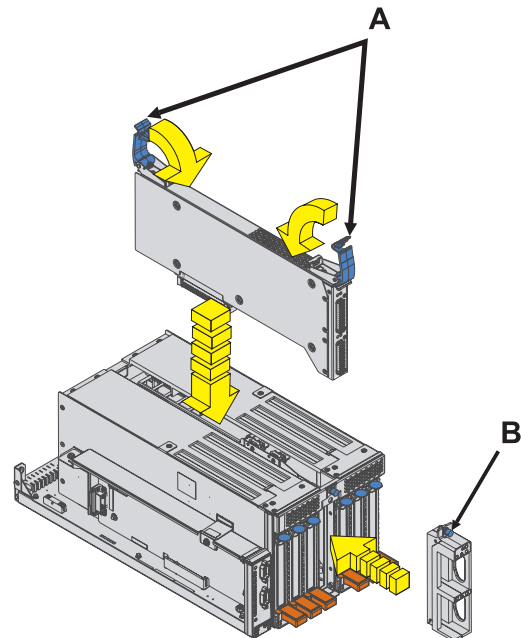3. Slide the PCI shuttle assembly from the I/O subsystem as shown in the diagram.
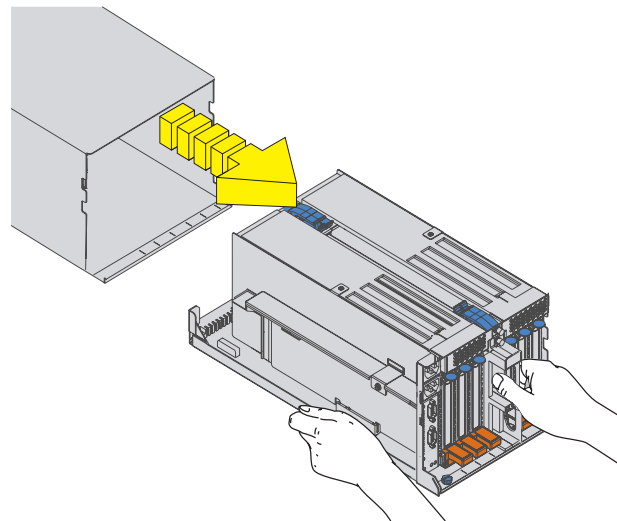
4. Remove the GX Card

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.
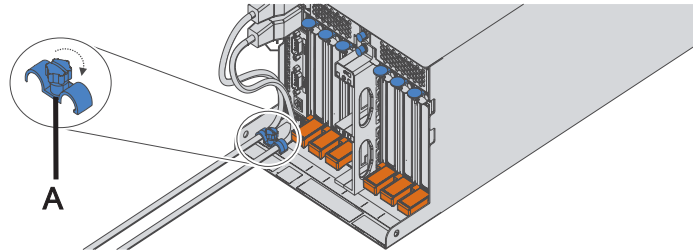3. Connect the cable that was previously removed to the GX card.
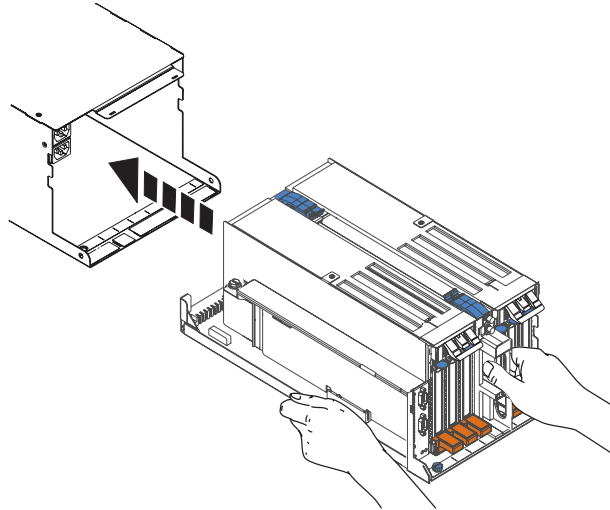
7.   Install the power supplies

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.
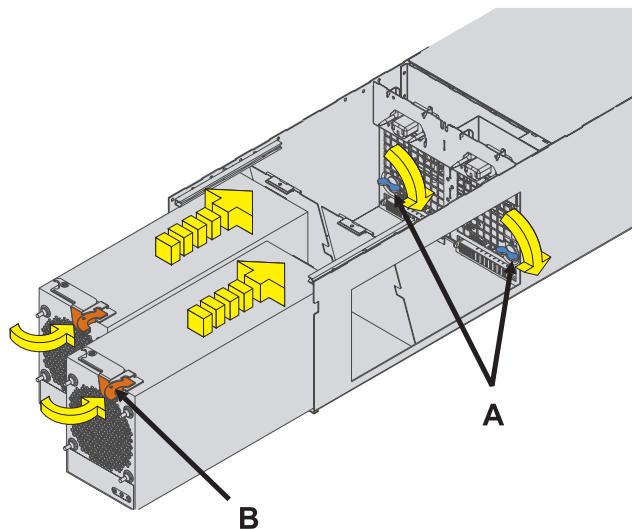
8. **Install the cable-management bracket**

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)**.
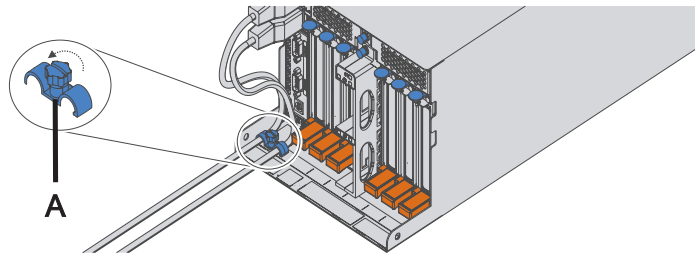
3. **Remove the I/O Subsystem Service Access Cover**

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.
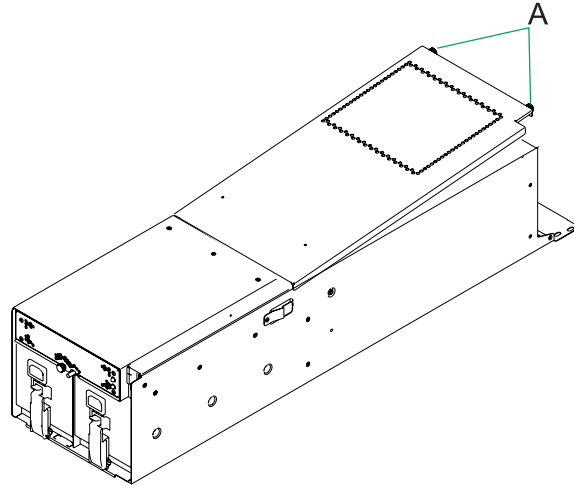

4. **Remove all PCI Adapters**

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.
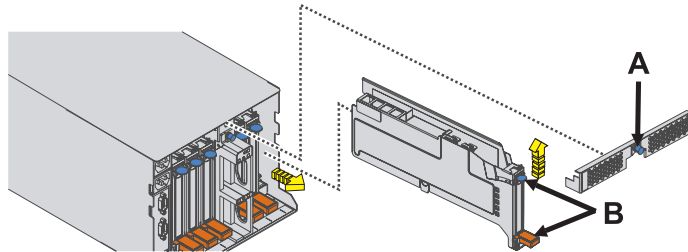
5. **Remove the power supplies**

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.
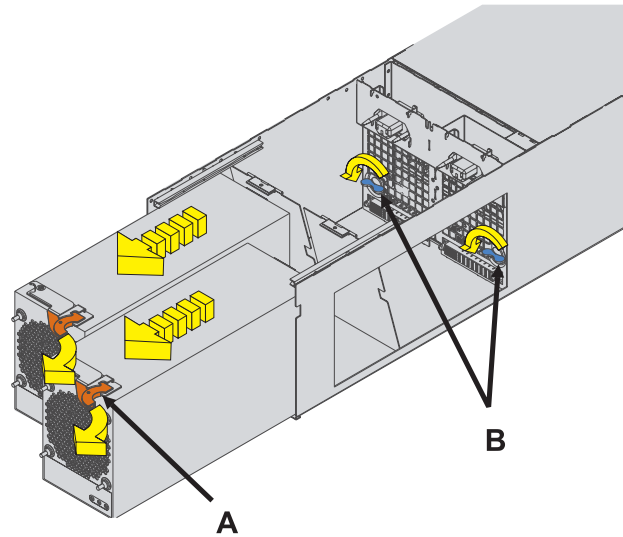
6. **Remove the PCI Shuttle Assembly**

Slide the PCI shuttle assembly from the I/O subsystem as shown in the diagram.
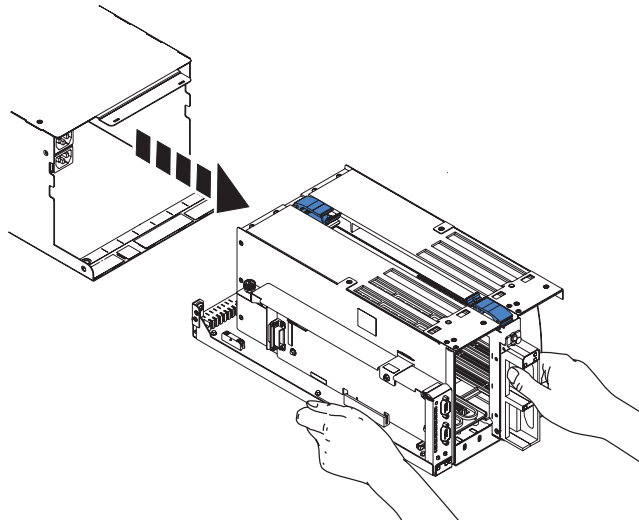
7. Remove the GX Card

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.
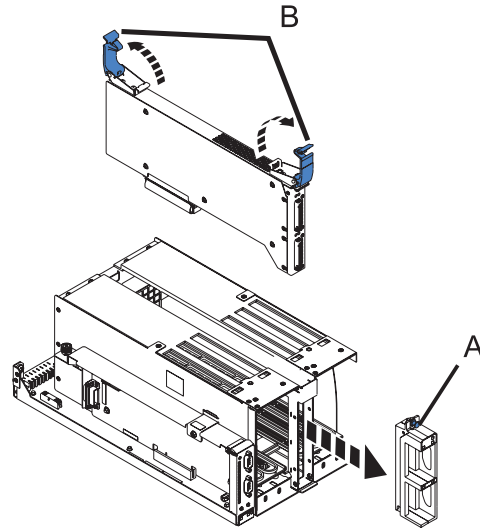
8. Remove the SPCN Card

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.
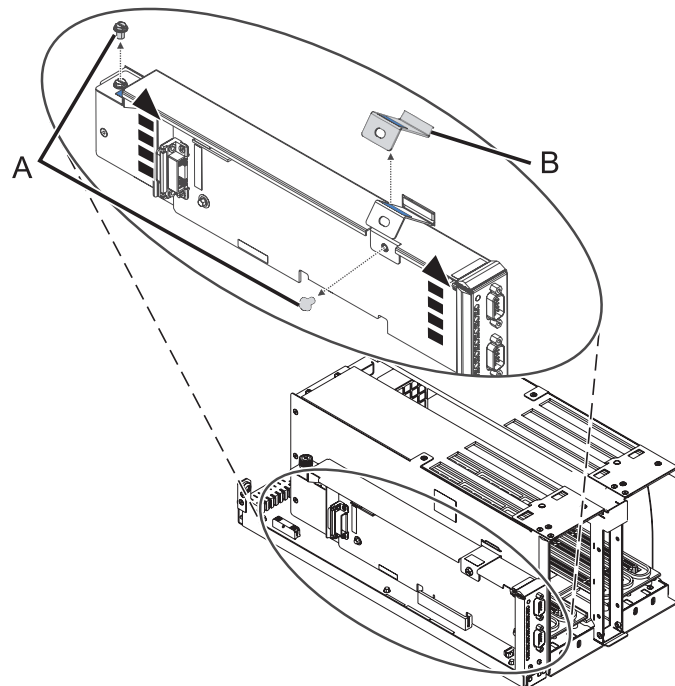
9. Install the SPCN Card

1. Carefully push the SPCN card into its slot in the PCI shuttle assembly.
2. Install the screw **(A)**.
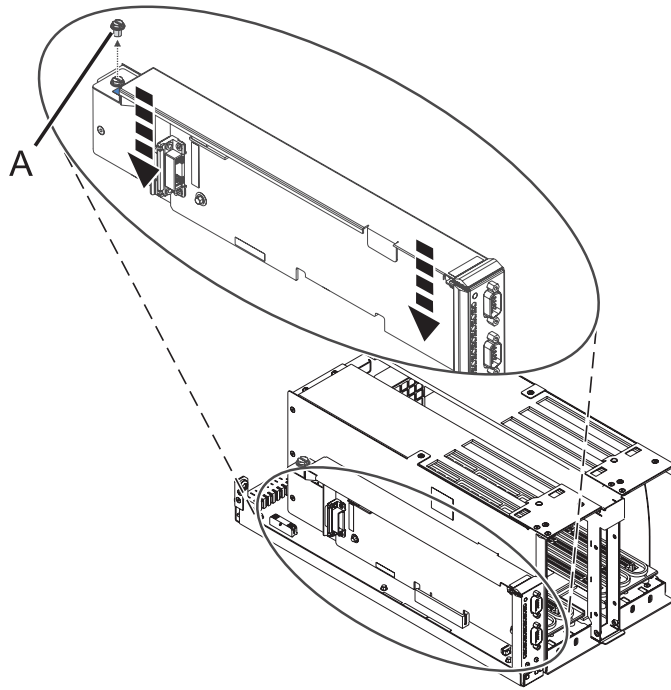
10. Install the GX Card

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)**.
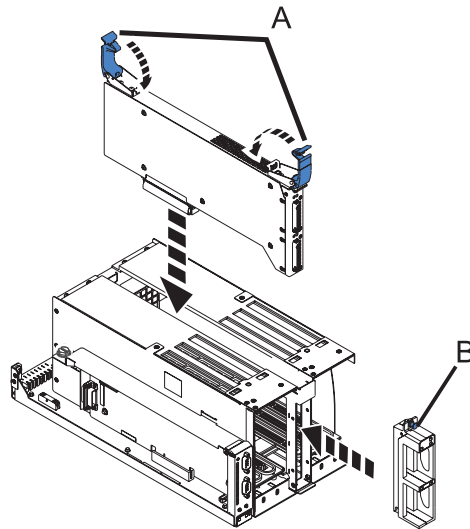
11. Install the PCI Shuttle Assembly

Slide the PCI shuttle assembly into the I/O subsystem as shown in the diagram.
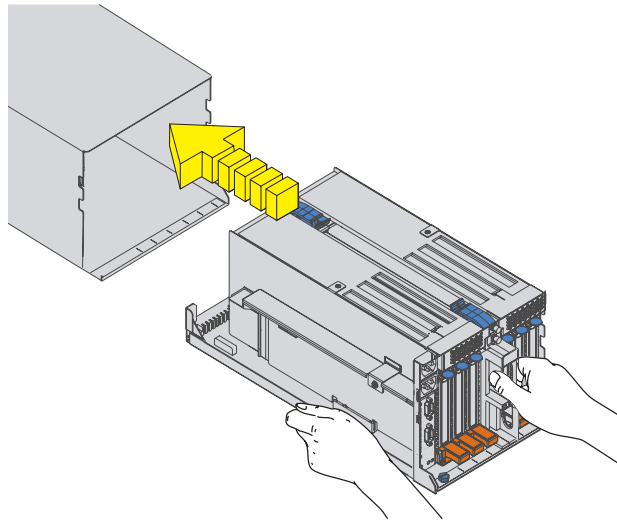
12. Install the power supplies

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.

A

B

13. 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.
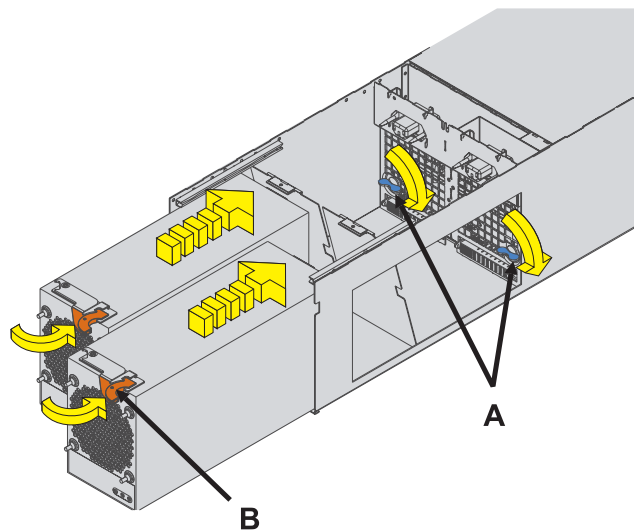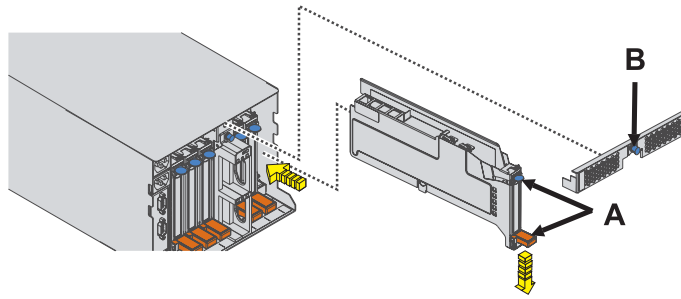
14. Install the I/O Subsystem Service Access Covers

1. Position the cover over the rear of the I/O subsytem.
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.
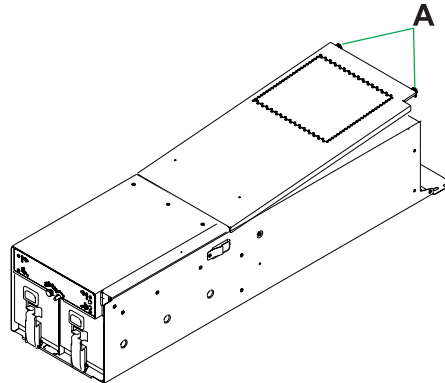
15.   **Install the cable-management bracket**

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.

16.   **Verify the repair**

Go to Verification Procedures.

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

Front

E1   E2

Fault/Identify

DC Output

AC Input
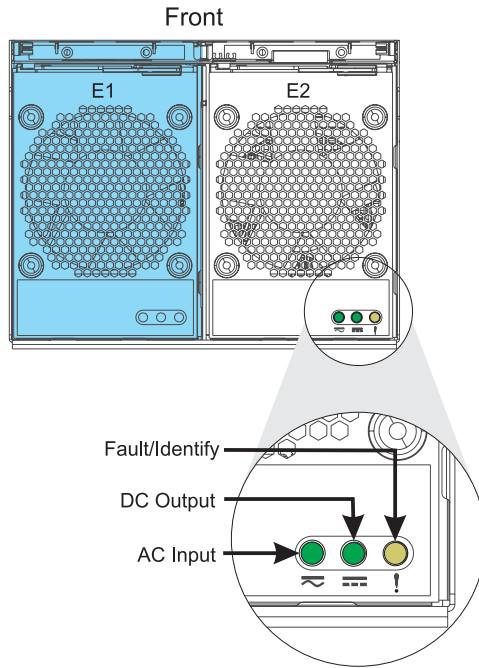
**Is there a functioning power supply meeting
these conditions?**
Yes   No
↓   Go to step 4

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   No, continue with   No
concurrently   power off

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

↓	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 on page 18.

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.
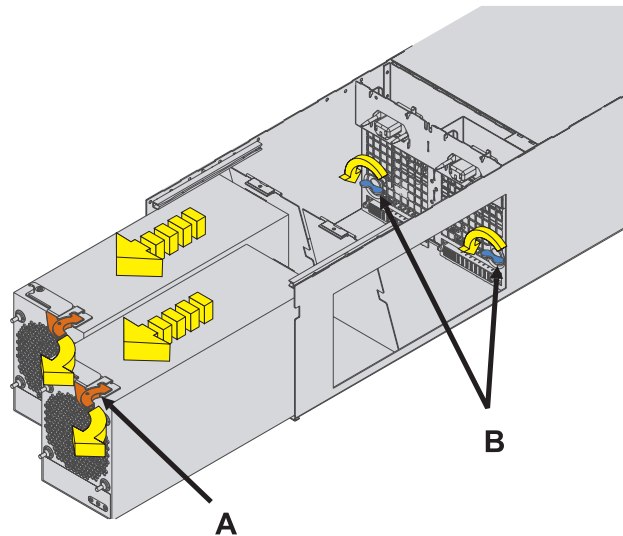
6.

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

Yes	No
↓	Go to step 7

7. **Remove the Power Supply**

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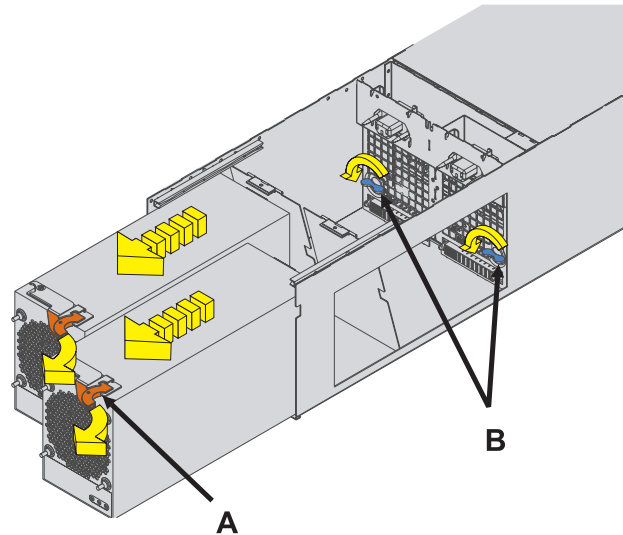
1. At the back of the system, disconnect the power cord that corresponds to the power supply being serviced. This action begins the two-minute time limit to exchange the power supply.
2. Rotate the power supply handle **(A)** in the direction shown to unseat the power supply.
3. Pull the power supply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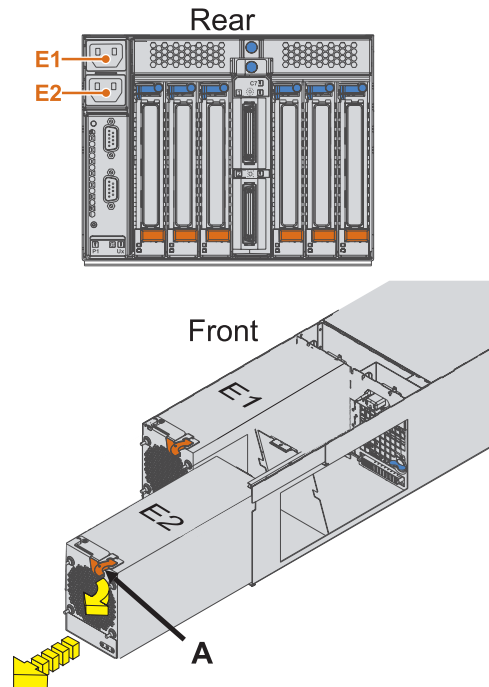2. Rotate the power supply handle **(A)** in the direction shown to unseat the power supply.
3. Pull the power supply straight out from the I/O subsystem.
4. Push the replacement power supply straight into the I/O subsystem.
5. Rotate the power supply handle **(B)** in the direction shown to seat the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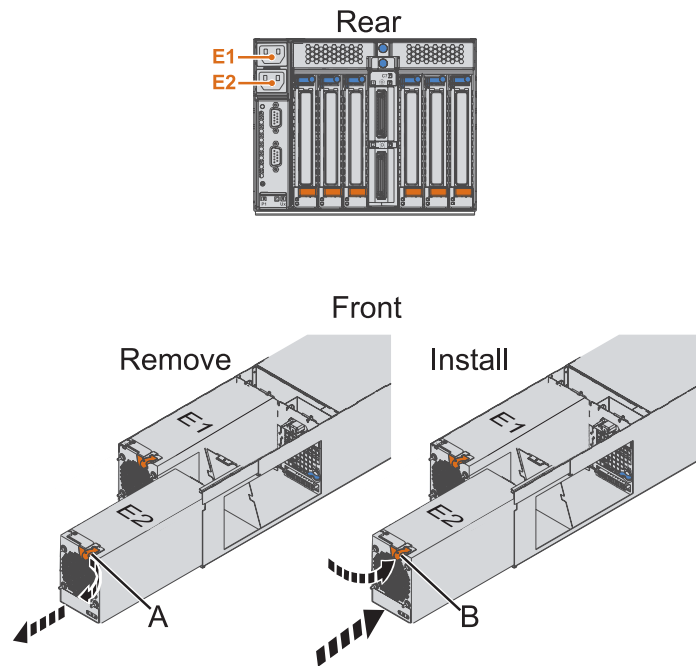
9. **Install the Power Supply**

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.
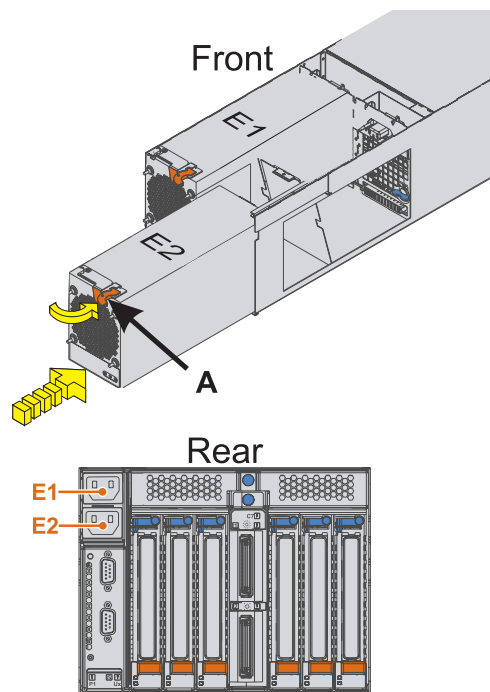
10. **Verify the repair**

Go to your system's verification procedures.

SPCN Card

Use this procedure to service the 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)**.
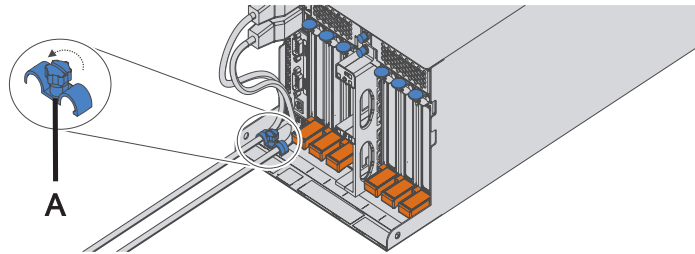
3. Remove the power supplies

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.
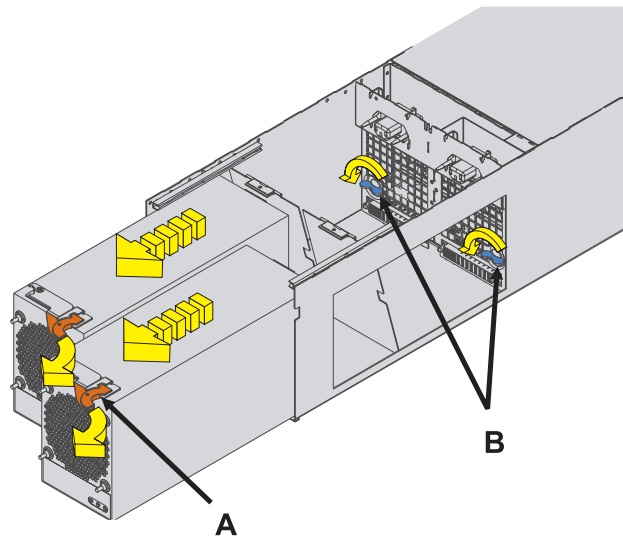
4. Remove the PCI Shuttle Assembly

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.
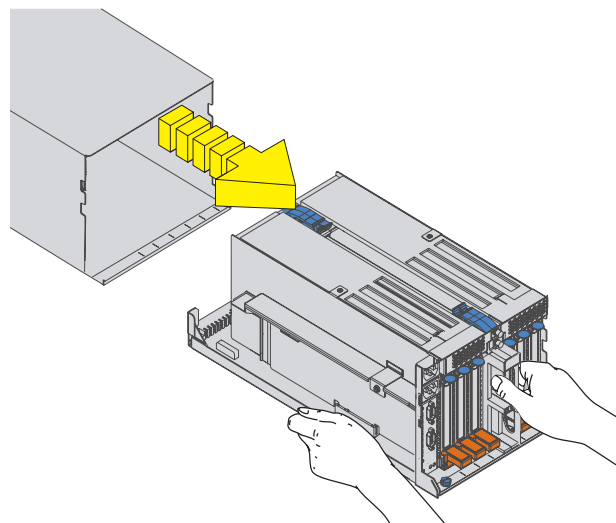
5. **Remove the SPCN Card**

1. Remove the screw **(A)**.
2. Carefully pull the SPCN card from the PCI shuttle assembly.
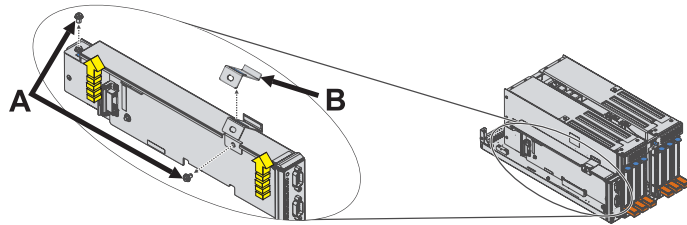
6. **Install the SPCN Card**

1. Carefully push the SPCN card into its slot in the PCI shuttle assembly.
2. Install the screw **(A)**.
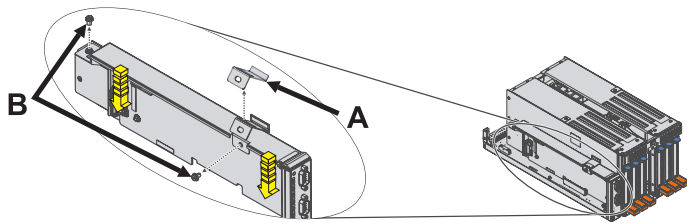
7. Install the PCI Shuttle Assembly

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.
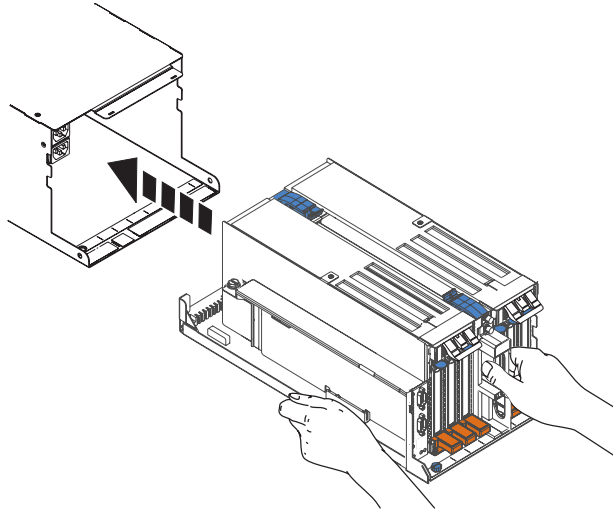
8. Install the power supplies

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.
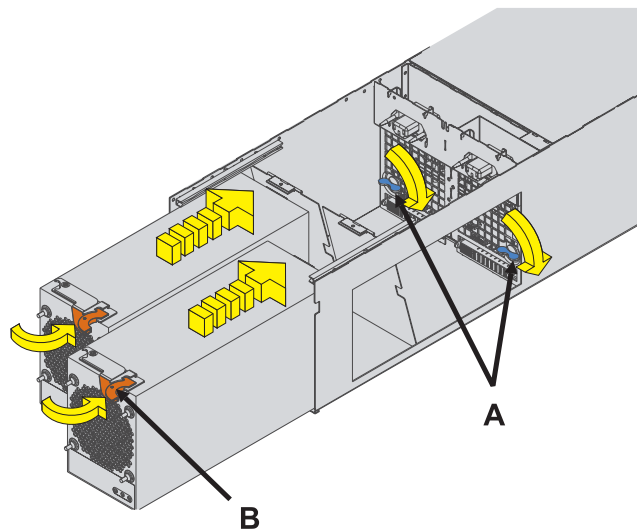
9. **Install the cable-management bracket**

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.
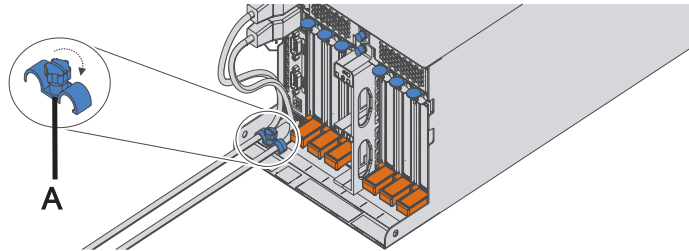
10. **Verify the repair**

Go to Verification Procedures.

Appendix. Notices

This information was developed for products and services offered in the U.S.A.

The manufacturer may not offer the products, services, or features discussed in this document in other countries. Consult the manufacturer's representative for information on the products and services currently available in your area. Any reference to the manufacturer's product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any intellectual property right of the manufacturer may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any product, program, or service.

The manufacturer may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the manufacturer.

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law: THIS INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. The manufacturer may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to Web sites not owned by the manufacturer are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this product and use of those Web sites is at your own risk.

The manufacturer may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning products not produced by this manufacturer was obtained from the suppliers of those products, their published announcements or other publicly available sources. This manufacturer has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to products not produced by this manufacturer. Questions on the capabilities of products not produced by this manufacturer should be addressed to the suppliers of those products.

All statements regarding the manufacturer's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

The manufacturer's prices shown are the manufacturer's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

If you are viewing this information in softcopy, the photographs and color illustrations may not appear.

The drawings and specifications contained herein shall not be reproduced in whole or in part without the written permission of the manufacturer.

The manufacturer has prepared this information for use with the specific machines indicated. The manufacturer makes no representations that it is suitable for any other purpose.

The manufacturer's computer systems contain mechanisms designed to reduce the possibility of undetected data corruption or loss. This risk, however, cannot be eliminated. Users who experience unplanned outages, system failures, power fluctuations or outages, or component failures must verify the accuracy of operations performed and data saved or transmitted by the system at or near the time of the outage or failure. In addition, users must establish procedures to ensure that there is independent data verification before relying on such data in sensitive or critical operations. Users should periodically check the manufacturer's support websites for updated information and fixes applicable to the system and related software.

Trademarks

IBM, the IBM logo, and ibm.com are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol ($^{®}$ or $^{™}$), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at www.ibm.com/legal/copytrade.shtml.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Other company, product, or service names may be trademarks or service marks of others.

Electronic emission notices

Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER6 processor.

Federal Communications Commission (FCC) statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against

harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Compliance Statement

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

Avis de conformité à la réglementation d'Industrie Canada

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

European Community Compliance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

European Community contact:
IBM Technical Regulations
Pascalstr. 100, Stuttgart, Germany 70569
Tele: 0049 (0)711 785 1176
Fax: 0049 (0)711 785 1283
E-mail: tjahn@de.ibm.com

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.

VCCI Statement - Japan

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

The following is a summary of the VCCI Japanese statement in the box above.

This product is a Class A Information Technology Equipment and conforms to the standards set by the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Electromagnetic Interference (EMI) Statement - People's Republic of China

```
            声      明
   此为 A 级产品，在生活环境中、
   该产品可能会造成无线电干扰。
   在这种情况下，可能需要用户对其
   干扰采取切实可行的措施。
```

Declaration: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical action.

Electromagnetic Interference (EMI) Statement - Taiwan

```
      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。
```

The following is a summary of the EMI Taiwan statement above.

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

IBM Taiwan Contact Information:

台灣IBM 產品服務聯絡方式：
台灣國際商業機器股份有限公司
台北市松仁路7號3樓
電話：0800-016-888

Electromagnetic Interference (EMI) Statement - Korea

이 기기는 업무용으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며, 만약 잘못 판매 또는 구입하였을 때에는 가정용으로 교환하시기 바랍니다.

Please note that this equipment has obtained EMC registration for commercial use. In the event that it has been mistakenly sold or purchased, please exchange it for equipment certified for home use.

Germany Compliance Statement

Deutschsprachiger EU Hinweis: Hinweis für Geräte der Klasse A EU-Richtlinie zur Elektromagnetischen Verträglichkeit

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2004/108/EG zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 Klasse A ein.

Um dieses sicherzustellen, sind die Geräte wie in den Handbüchern beschrieben zu installieren und zu betreiben. Des Weiteren dürfen auch nur von der IBM empfohlene Kabel angeschlossen werden. IBM übernimmt keine Verantwortung für die Einhaltung der Schutzanforderungen, wenn das Produkt ohne Zustimmung der IBM verändert bzw. wenn Erweiterungskomponenten von Fremdherstellern ohne Empfehlung der IBM gesteckt/eingebaut werden.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:
″Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen.″

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2004/108/EG in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC EG Richtlinie 2004/108/EG) für Geräte der Klasse A.

Dieses Gerät ist berechtigt, in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Konformitätserklärung nach des EMVG ist die IBM Deutschland GmbH, 70548 Stuttgart.

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

Electromagnetic Interference (EMI) Statement - Russia

ВНИМАНИЕ! Настоящее изделие относится к классу А.
В жилых помещениях оно может создавать
радиопомехи, для снижения которых необходимы
дополнительные меры

Terms and conditions

Permissions for the use of these publications is granted subject to the following terms and conditions.

Personal Use: You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative works of these publications, or any portion thereof, without the express consent of the manufacturer.

Commercial Use: You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of the manufacturer.

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any data, software or other intellectual property contained therein.

The manufacturer reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by the manufacturer, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

THE MANUFACTURER MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THESE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

BULL CEDOC

357 AVENUE PATTON

B.P.20845

49008 ANGERS CEDEX 01

FRANCE

REFERENCE
86 A1 95FA 01