Bull ESCALA PL 3200R

Installation Guide

ORDER REFERENCE
86 A1 80EF 04

Bull ESCALA PL 3200R

Installation Guide

Hardware

March 2004

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The following statement applies to this product. The statement for other products intended for use with this product appears in their accompanying documentation.

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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.

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This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / 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.

Attention: 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.

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This product has been designed and built to comply with IEC 60950.

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This equipment is manufactured to the International Safety Standard EN60950 and as such is approved in the UK under the General Approval Number NS/G/1234/J/100003 for indirect connection to the public telecommunication network.

The network adapter interfaces housed within this equipment are approved separately, each one having its own independent approval number. These interface adapters, supplied by the manufacturer, do not use or contain excessive voltages. An excessive voltage is one which exceeds 70.7 V peak ac or 120 V dc. They interface with this equipment using Safe Extra Low Voltages only. In order to maintain the separate (independent) approval of the manufacturer's adapters, it is essential that other optional cards, not supplied by the manufacturer, do not use main voltages or any other excessive voltages. Seek advice from a competent engineer before installing other adapters not supplied by the manufacturer.

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

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

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この装置は、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。　ＶＣＣＩ－Ａ

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

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

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.

Radio Protection for Germany

Dieses Gerät ist berechtigt in Übereinstimmung mit Dem deutschen EMVG vom 9.Nov.92 das EG–Konformitätszeichen zu führen.

Der Aussteller der Konformitätserklärung ist die Germany.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese von Geräten gilt folgende Bestimmung nach dem EMVG:

Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind.

(Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

Hinweis

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

Safety Notices

Attention: When moving or relocating certain configurations of the system, the Bulk Power Regulators (BPRs) must be removed from the top of the rack (front and rear) to ensure product stability. Specifically, removal of the top two BPRs in the front and rear is required in systems that have fewer than 2 I/O drawers in the rack.

A *danger* notice indicates the presence of a hazard that has the potential of causing death or serious personal injury. *Danger* notices appear on the following pages:

- on page vi
- on page 1-9

A *caution* notice indicates the presence of a hazard that has the potential of causing moderate or minor personal injury. *Caution* notices appear on the following pages:

- on page vii
- on page 1-9
- on page 1-11
- on page 4-12
- on page 4-20

For a translation of the safety notices contained in this book, see the *System Unit Safety Information*, order number 86 X1 11WD.

Electrical Safety

Observe the following safety instructions any time you are connecting or disconnecting devices attached to the system.

DANGER!
An electrical outlet that is not correctly wired could place hazardous voltage on 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.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communications lines.

Caution:
This product is equipped with a four–wire (three–phase and ground) power cable for the user's safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.

DANGER!
To prevent electrical shock hazard, disconnect all power cables from the electrical outlet before relocating the system.

Caution:
This unit has more than one power supply cord. Follow procedures for removal of power from the system when directed.

Caution:
Energy hazard, remove power before servicing.

Caution:
Energy hazard, remove all jewelry before servicing.

Laser Safety Information

Caution:
This product may contain a CD–ROM, DVD–ROM, or laser module on a PCI card, which are class 1 laser products.

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 the IEC 825 (first edition 1984) as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.

Caution:
All laser modules are designed so that there is never any human access to laser radiation above a class 1 level during normal operation, user maintenance, or prescribed service conditions. 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. Only trained service personnel should perform the inspection or repair of optical fiber cable assemblies and receptacles.

Environmental Notices

Product Recycling and Disposal

Components of the system unit, such as structural parts and circuit boards, can be recycled where recycling facilities exist. Companies are available to disassemble, reutilize, recycle, or dispose of electronic products. Contact your account representative for more information. This system unit contains parts such as circuit boards, cables, electromagnetic compatibility gaskets and connectors which may contain lead and copper/beryllium alloys that require special handling and disposal at end of life. Before this unit is disposed, these materials must be removed and recycled or discarded according to applicable regulations. This book contains specific information on each battery type where applicable. This product may contain a sealed lead acid battery(s) or nickel–cadmium battery(s). The battery(s) must be recycled or disposed of properly. Recycling facilities may not be available in your area.

For information on reuse, recycling or proper battery disposal procedures, contact your sales representative or local waste disposal facility.

Acoustical Noise Emissions

level at workstations (emission sound pressure level at the 1–meter bystander positions) does not exceed 70 dB(A).

Der Geräuschpegel der Einheit ist kleiner oder gleich 70 db(A).

Declared Acoustical Noise Emissions

	Acoustical Characteristic			
Product Configuration	**Declared A–Weighted Sound Power Level, L_{WAd} (B)**		**Declared A–Weighted Sound Pressure Level, L pAm (dB)**	
	Operating	**Idle**	**Operating**	**Idle**
7040 Acoustical Doors	7.5	7.5	57	57
7040 Slimline Doors	7.9	7.9	62	62

Notes:

1. Noise levels cited are for a typical configuration (A–Frame: Bulk Power, CEC cage, battery option, media drawer, and two I/O drawers).
2. The 0.6–B (6–dB) reduction in noise emission levels with the acoustical rear door corresponds to a factor of 4 reduction. That is, the noise level of a single A–Frame with thin covers is about the same as the noise level of four A–Frames with acoustical covers.
3. L_{WAd} is the upper–limit A–weighted sound power level; LpAm is the mean A–weighted sound pressure level at the 1–meter bystander positions; 1 B = 10 dB.
4. All measurements made in conformance with ISO 7779 and declared in conformance with ISO 9296.

Data Integrity and Verification

These 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 our support websites for updated information and fixes applicable to the system and related software.

About This Book

This book provides information about how to set up and cable the server, install and remove options, and verify server operation.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Highlighting

The following highlighting conventions are used in this book:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
Italics	Identifies parameters whose actual names or values are to be supplied by the user.
`Monospace`	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.

Related Publications

The following publications provide related information:

- The *System Unit Safety Information*, order number 86 X1 11WD, contains translations of safety information used throughout this book.
- The *HMC Installation and Operations Guide*, order number 86 A1 83EF, provides information to system administrators about how to install and use a hardware management console (HMC) to manage a system.
- The *PL 3200R Service Guide*, order number 86 A1 82EF, contains reference information, maintenance analysis procedures (MAPs), error codes, removal and replacement procedures, and a parts catalog.
- The *PL 3200R User's Guide*, order number 86 A1 81EF, contains information about how to use the system, use diagnostics, use service aids, and verify system operations.
- The *Diagnostic Information for Multiple Bus Systems*, order number 86 A1 26HX, contains diagnostic information, service request numbers (SRNs), and failing function codes (FFCs).
- The *Adapters Information for Multiple Bus Systems*, order number 86 A1 27HX, contains information about adapters, devices, and cables for your server. This manual is intended to supplement the service information found in the *Diagnostic Information for Multiple Bus Systems*.

- The *Site Preparation for Rack Systems*, order number 86 A1 30PX, contains information to help you plan your installation.

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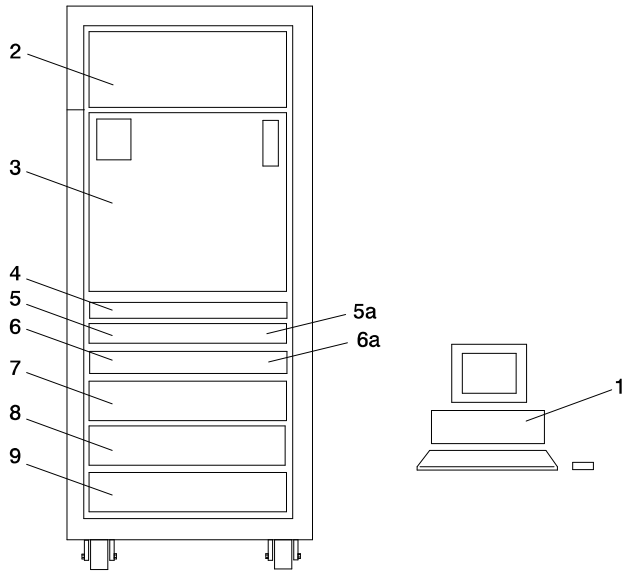
Chapter 1. Installing the ESCALA PL 3200R

Use the procedures in this chapter to set up your ESCALA PL 3200R . Installing the ESCALA PL 3200R can take approximately eight hours.

Minimum System Configuration

The minimum system configuration consists of the redundant bulk power subsystem, one processor subsystem, a media subsystem, and one I/O subsystem in the same rack, as well as access to a hardware management console (HMC).



1 Hardware Management Console

2 406/1R Bulk Power Subsystem

3 406/81 Processor Subsystem

4 406/81 Media Subsystem

5* Primary 406/1R Integrated Battery Feature (IBF) for the Primary Power Subsystem is located in the front of the rack. (Optional)

5a* Redundant 406/1R Integrated Battery Feature (IBF) is located in the rear of the rack. (Optional)

6* 406/1R Integrated Battery Feature (IBF) for the Power Subsystem is located in the front of the rack. (Optional)

6a* Redundant 406/1R Integrated Battery Feature (IBF) is located in the rear of the rack. (Optional)

7 406/1D I/O Subsystem

8 406/1D I/O Subsystem (Optional)

9 406/1D I/O Subsystem (Optional)

***** 406/1D I/O Subsystem, if features 5 and 6 are not installed).

A secondary rack may be required to support additional I/O subsystems and is placed to the left of the primary rack.

Multiple System Configurations

The system configuration may vary. Other configurations include the following:

- Multiple ESCALA PL 3200R servers attached to one HMC. For more information on this configuration, see Appendix B. Attaching Multiple ESCALA PL 3200R s to One Hardware Management Console on page B-1.
- Multiple HMCs attached to one ESCALA PL 3200R .

Prerequisites to Installing the ESCALA PL 3200R

Before installing the ESCALA PL 3200R , ensure that the following have been completed:

- Doors have been ordered. The ESCALA PL 3200R has the following types of doors:
  - Primary Rack Front Door (Universal)
  - Secondary Rack Front Door (Universal)
  - Primary/Secondary Rack Rear Door (Slimline)
  - Primary/Secondary Rack Rear Door (Acoustical)
- Planning procedures outlined in *Site Preparation for Rack Systems*, order number 86 A1 30PX, are complete.

Weight Reduction

Certain system configurations may include a primary rack that weighs in excess of 2500 pounds (doors removed) as shipped from manufacturing. Some elevators have a weight restriction that prevents lifting these systems. To reduce the weight of affected systems to less than 2500 pounds, service personnel must remove all (up to six) Bulk Power Regulators (BPRs) installed in the system. For instructions on removing the BPRs, see step 3 on page H-3.

Racks affected by this weight limitation are those in which the primary 7040 Model 61R frame with a 406/81 Processor Subsystem has three (or more) 406/1D I/O Subsystem and four (or more) IBFs. This weight reduction is only required for these systems when the installation process requires the primary rack to be reduced temporarily to less than 2500 pounds.

Note: Systems ordered with the height reduction feature do not require this weight reduction.

Before You Begin

To ensure that all of the installation steps are complete, the installer should use the following installation checklist during the installation process:

- Complete the Installation Checklist on page 3-1

Note: If the system you are installing will be managed by an HMC, and the HMC is not installed and functional, see the *HMC Operations and Installation Guide* , order number 86 A1 83EF, for instructions on installing the HMC. Install the HMC, then return here to continue with this procedure.

Step 1. Unpack the ESCALA PL 3200R

Unpack the ESCALA PL 3200R , and proceed to Step 2. Check the Inventory on page 1-2.

Step 2. Check the Inventory

To verify that you have all the items shipped with the ESCALA PL 3200R , use the packing lists for each ship group.

The contents of the ESCALA PL 3200R tool kit are as follows:

Quantity	Description
5	Pad Cleaning Brush
2	Door Key
1	MCM Torque Wrench
1	L3 Support Tray
1	Magnifier Lens
1	Wrench
1	DASD Tool
1	Test Card
1	Tool Box Kit
2	Insertion Tool
1	Book Assembly
1	Tool Kit Case
1	Screwdriver
1	ASM Tool

Verify with the customer that the following items are available. You will need them to complete this installation.

- A floor plan, showing where to place each rack
- The items necessary for installing a modem, including the correct telephone jack, power cords, cables, and a power source

For information about the HMC inventory, refer to the *HMC Operations and Installation Guide*.

Primary Rack Inventory

The following is a list of rack inventory items:

- Front and rear door for the primary rack
- Two power cords
- Optional display and keyboard

Secondary Rack Inventory (If Ordered)

The following is a list of secondary rack inventory items:

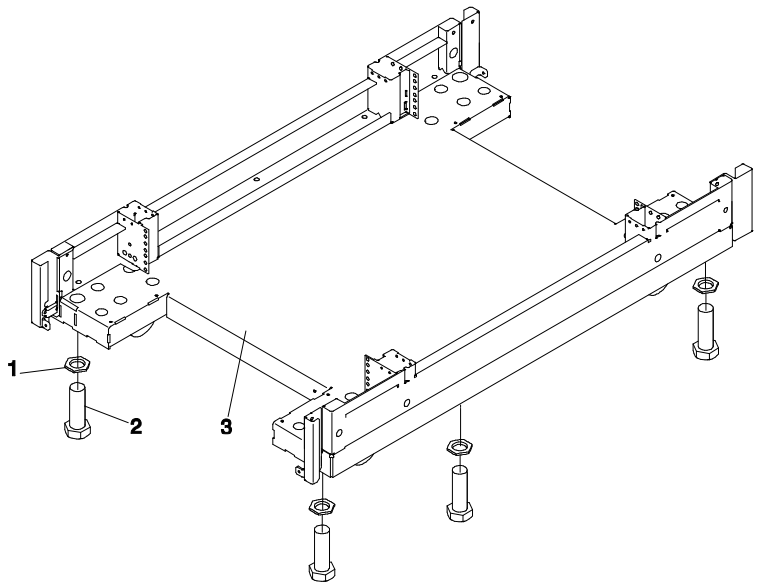
- Front and rear door for the secondary rack
- Rack to rack bolt–together kit hardware
- Optional display and keyboard

Step 3. Position and Level the Primary Rack

If the customer plans to secure the rack to the floor, see Appendix A. Securing the Rack on page A-1.

To adjust the leveling feet on the rack, do the following:

1. Ensure the rack is positioned according to the customer plan.
2. Loosen the jam nut on each leveling foot by turning the nut counterclockwise (away from the bottom of the rack).
3. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
4. Adjust the leveling feet downward as needed until the rack is level. When the rack is level, tighten the jam nuts against the base by turning the nut clockwise (toward the bottom of the rack).



1 Jam Nut

2 Leveling Foot

3 Rack Base (Front)

Step 4. Attach and Cable Secondary Rack (If Ordered)

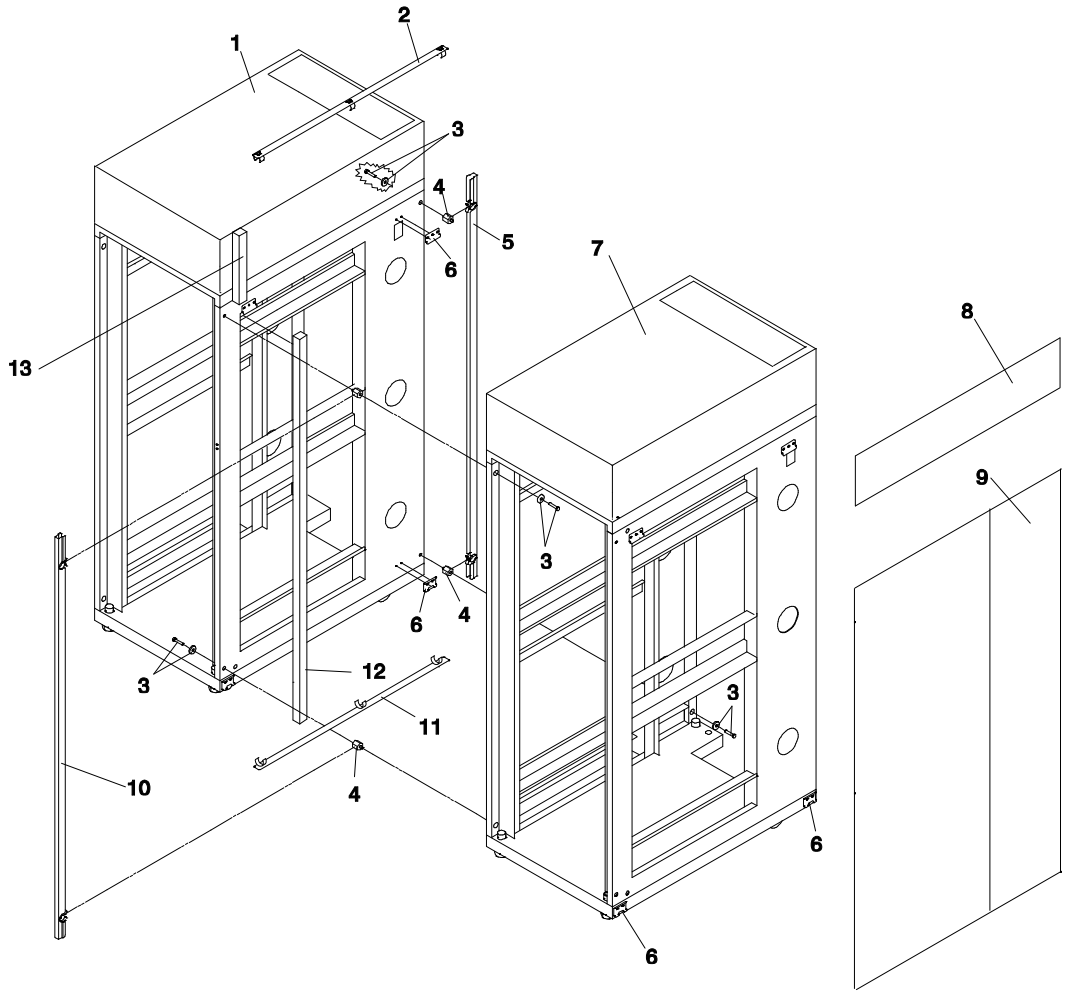
If you are installing a suite of racks, do the following:

1. If they are installed, remove the side panels from each rack. To remove the side panels:
   a. Lift the two panel–release tabs up. See the following illustration for the two panel release tab locations.
   b. Pull the panel up and away from the rack chassis. This motion will release the panel from the two lower J brackets.
   c. Store the side panels away from the work area.
2. Remove the two Z brackets and the two J brackets . These brackets are used to hang the side panels. See the following illustration.
3. Attach the bottom EMC trim (part number 11P2872) to the secondary rack, using four screws.

4. Stand facing the front of the first rack and locate the right side.
5. Install a standoff in the upper–left corner and lower–right corner of the first rack. Tighten the standoffs to the side of the rack. See the following illustration for standoff placement locations.
6. Locate the second rack's left side.
7. Install a standoff in the upper–left corner and lower–right corner of the second rack. Tighten the standoffs to the side of the rack.
8. Mount the lower long vertical foam strip on the secondary rack, starting at the bottom EMC trim.
9. Mount the top short vertical foam strip on top of the bottom foam strip.
10. Position the racks together.
11. Align the bolt clearance holes on the rack to the standoff threaded holes located on the ends of the standoffs.

    Note: You may have to adjust the leveling feet when aligning the standoffs to the clearance holes on the rack.

12. Install a bolt and washer in all four standoff hole positions, as shown in the following illustration. Do not tighten the bolts at this time.
13. After the racks are bolted together, level the racks.
14. Tighten the four standoff bolts in the standoff holes.
15. Place the front and back vertical EMC trim panels (part number 11P095) into position. The barrel spring clips located on the vertical trim panel snap over the upper and lower standoffs.
16. Snap the top EMC trim panel (part number 11P1105) into position. The spring clips located at each end of the top trim panel snap over the vertical trim panels and lock it into position.
17. Connect the cables that go between the racks.
18. If you are securing the racks to the floor, go to Appendix A. Securing the Rack on page A-1.



1 Secondary Rack

2 EMC Top Trim (P/N 11P1105)

3 Bolt and Washer (Comes in kit 31L8302) (Bolt PN 1621549 / Washer PN 84X5850)

4 Threaded Standoff (Comes in kit 31L8302) (PN 31L7535)

5 Front Vertical Trim (P/N 11P095)

6 J Bracket (Qty. 4)

7 Primary Rack

8 Top Frame Side Cover

9 Primary Side Cover

10 Rear Vertical Trim (P/N 11P095)

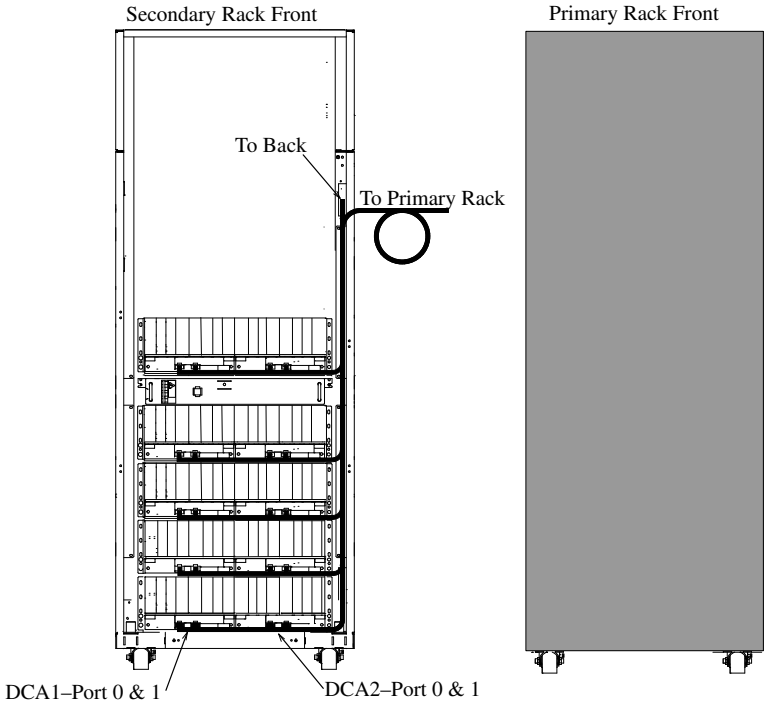
11 EMC Bottom Trim (P/N 11P2872)

12 Lower Vertical Foam

13 Top Vertical Foam

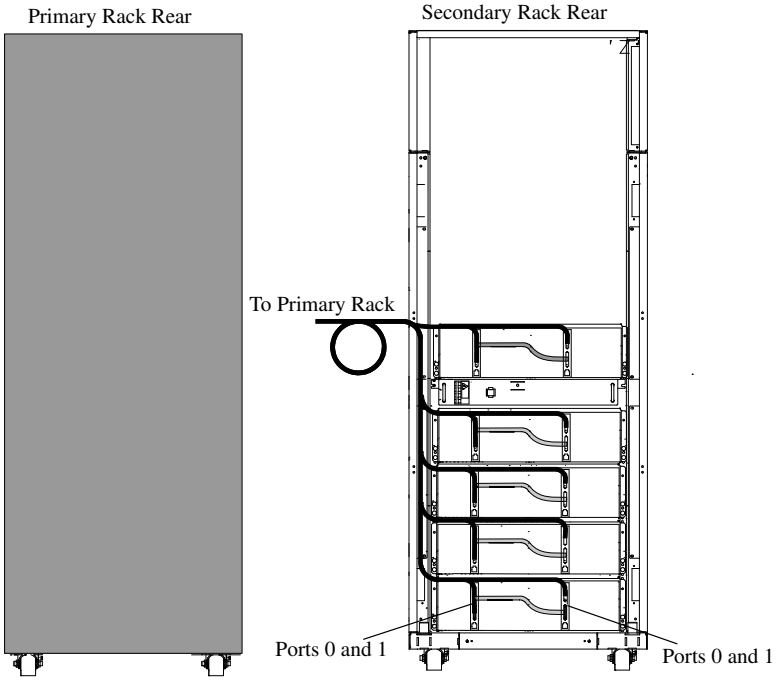
Connecting Internal Power Cords for the Secondary Rack

If you are installing a secondary rack, route the power cords from the primary rack to the secondary rack and connect them to the drawers in the secondary rack. For additional information on routing power cords, see Appendix F. Cabling Information on page F-1.



Connecting I/O Cables for the Secondary Rack If you are installing a secondary rack, route the I/O cables from

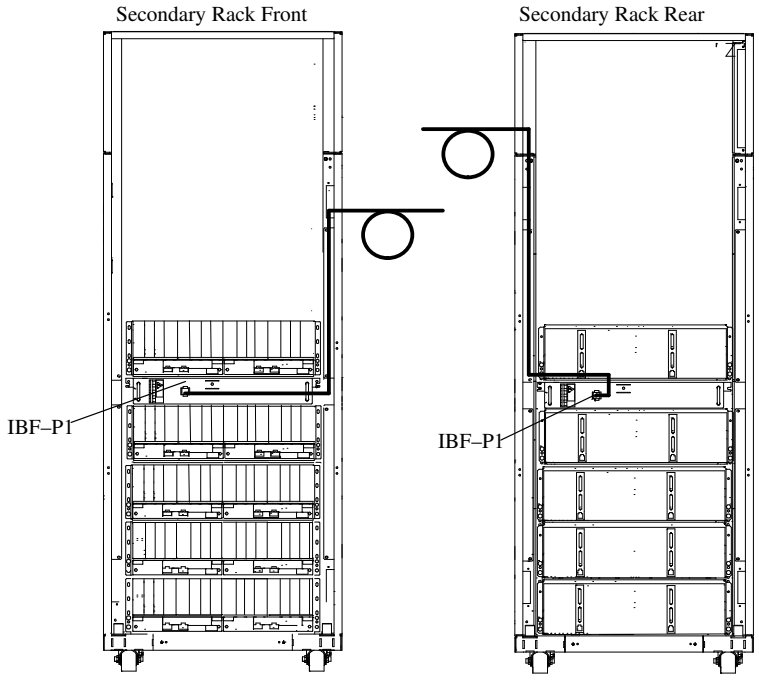
the primary rack to the secondary rack and connect them to the drawers in the secondary rack.



Note: For more information about cabling the ESCALA PL 3200R , see Appendix D. Subsystem Positioning and Cabling on page D-1.

Connecting the Integrated Battery Feature Power for the Secondary Rack

If you are installing an IBF for the secondary rack, route the cables as shown in the following illustration:



Step 5 . Affix the MCM/L3/Passthrough Plug Map to the Right Frame Extender

With the front cover open, locate the right frame extender (located on the opposite side of the unit emergency power off (UEPO) switch. The 50–mm (approximately 2 inch) wide label should be installed vertically, along this extender, approximately in line with EIA frame positions 22 – 28.

The trifold label has two hook–and–loop strips attached to the back. Remove the adhesive backing from the fastener and attach it to the frame extender as described above. A small piece of fastener is used to help keep it folded while attached to the frame.

Using the Map Label

Whenever an MCM or passthrough module is added as an MES, or replaced or reseated during a repair action, a sticker with the module's serial number is provided for use with the map label according to its plugging location. If the serial number label is not available, record the serial number of the MCM or passthrough module when it is added, reseated, or replaced, along with the number of times plugged. This module is then allowed three plugs with each plug recorded on label. If the module must be removed and reinstalled a fourth time, it must be replaced from field spares or with an MES.

The process is similar for the L3 module, except that a separate serial number sticker is not provided. Instead, the serial number is located on a sticker attached to the L3 heatsink. Record the serial number of the L3 module when it is added, replaced, and reseated, along with the number of times plugged. If the module must be removed and reinstalled a fourth time, it must be replaced from field spares or with an MES.

In addition, whenever an MCM, passthrough, or L3 module is replaced or reseated, the interposer plug count menu, which is one of the service processor menus, must be updated.

See the ”Interposer Plug Count Menu” in the *ESCALA PL 3200R Service Guide* for more information.

Step 6 . Observe this Safety Notice During Installation

DANGER

An electrical outlet that is not correctly wired could place hazardous voltage on 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.

Use one hand, when possible, to connect or disconnect signal cables to prevent a possible shock from touching two surfaces with different electrical potentials.

During an electrical storm, do not connect cables for display stations, printers, telephones, or station protectors for communication lines.

CAUTION:
This product is equipped with a four–wire (three–phase and ground) power cables for the user’s safety. Use this power cable with a properly grounded electrical outlet to avoid electrical shock.

CAUTION:
This unit has more than one power supply cord. Follow procedures for removal of power from the system when directed.

CAUTION:
Energy hazard, remove all jewelry before servicing.

Step 7 . Check the Cables and Connect I/O Devices

Cables may loosen during shipping. Check for loose cables before completing the installation . For cabling illustrations, see Appendix D. Subsystem Positioning and Cabling on page D-1. For further details on the cable descriptions and labels, see Appendix F. Cabling Information on page F-1. For High Performance Switch (HPS) cable and tailgate installation, see Appendix E. ESCALA PL 3200R Cable Installation and Management on page E-1.

Connect any externally attached I/O devices to the I/O subsystems at this time using the following procedures:

Note: If a display, Universal Serial Bus (USB) keyboard, and a USB mouse were ordered, do the following. If these components were not ordered, perform steps 4 on page 1-4 and 5 on page 1-8.

1. Connect the keyboard cable to the Keyboard/Mouse Attachment Card (adapter type N–D).

   Note: Use any one of the four ports on the adapter; however, the adapter can support only one connection at a time.

2. Connect the mouse cable to the USB port on the upper corner of the rear of the keyboard.
3. Attach the display cable to either one of the two ports located on the graphics adapter.

4. Check all blind swap cassettes for broken latches by lightly pushing down on the rear of the handles. Replace any broken latches.
5. Check to ensure adapters are seated by pushing down on the small metal tab on top of the adapter.

The placement of the graphics adapters and keyboard adapters is described in Appendix I. *PCI Adapter Placement Reference.*

Step 8 . Verify that the Unit Emergency Power Off (UEPO) Switch is in the *Off* Position

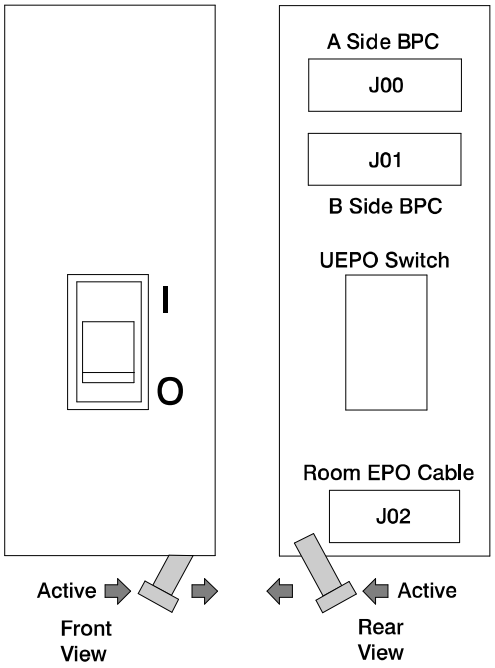
Note: *UEPO* refers to the red unit emergency power off switch located on the unit. *EPO* refers to the computer room emergency power off.

The unit emergency power off (UEPO) switch is located on the front of the primary frame (A Frame) of each ESCALA PL 3200R . When the switch is tripped, utility power is confined to the machine power compartment. All volatile data will be lost.

Computer Room Emergency Power Off (EPO)

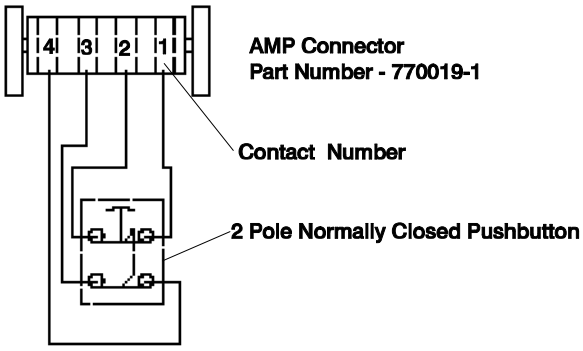
Attention: When the integrated battery feature (IBF) is installed and the room EPO is tripped, the batteries will engage and the computer will continue to run. It is possible to attach the computer room EPO system to the machine UEPO. When this is done, tripping the room EPO will disconnect all power from the power cords and the IBF backup unit. In this event, all volatile data will be lost.

To incorporate the IBF into the room EPO, a cable connection must be made to connect to the back of the system UEPO panel. The following diagrams illustrate how this connection is made.



The preceding figure illustrates the back of the machine UEPO panel with the room EPO cable plugging into the machine. After the switch actuator is moved to make the cable connection possible, the room EPO cable must be installed for the machine to power on.

In the following figure, an AMP connector 770019–1 is needed to connect to the system UEPO panel. For room EPO cables using wire sizes #20 AWG to #24 AWG, use AMP pins part number 770010–4.



Step 9 . Check the Outlets and the Power Source

CAUTION:
Do not touch the receptacle or the receptacle faceplate with anything other than your test probes before you have met the requirements in below.

Do the following to ensure that the customer has provided the correct power to the system:

1. This system is equipped to use 200–240 V / 380–415 V / 480 V ac, single–phase or three–phase. Check that the correct power source is available.
2. Have the customer locate and turn off the branch circuit breaker and attach tag S229–0237, which reads ”Do Not Operate.”

   Note: All measurements are made with the receptacle faceplate in the normally installed position.
3. Some receptacles are enclosed in metal housings. On receptacles of this type, perform the following steps:

   a. Check for less than 1 volt from the receptacle case to any grounded metal structure in the building, such as a raised–floor metal structure, water pipe, building steel, or similar structure.

   b. Check for less than 1 volt from receptacle ground pin to a grounded point in the building.

   Note: If the receptacle case or faceplate is painted, be sure the probe tip penetrates the paint and makes good electrical contact with the metal.
4. Check the resistance from the ground pin of the receptacle to the receptacle case. Check resistance from the ground pin to building ground. The reading should be less than 1.0 ohm, which indicates the presence of a continuous grounding conductor.

   Note: If measured impedance is greater that 1 ohm and the test instrument used was a digital multimeter, verify that the grounding impedance is correct by using an appropriately approved ground–impedance tester.
5. If any of the checks made in substeps 2, 3 and 4 are not correct, ask the customer to remove the power from the branch circuit and make the wiring corrections; then check the receptacle again.
6. Check for infinite resistance between the phase pins. This is a check for a wiring short.

   CAUTION:
   If the reading is other than infinity, do not proceed! Have the customer make necessary wiring corrections before continuing. Do not turn on the branch circuit CB until all the above steps are satisfactorily completed.

7. Have the customer remove tag S229–0237, which reads ”Do Not Operate” and turn on the branch circuit breaker.

   Note: If your power source does not have a standard receptacle, check for voltage using local procedures. Measure for appropriate voltages between phases. If no voltage is present on the receptacle case or grounded pin, the receptacle is safe to touch.

8. With an appropriate meter, verify that the voltage at the outlet is correct.

   Note: For 200–240 V, the acceptable phase–phase voltage measurement range is 180–254 V.For 380–415 V, the acceptable phase–phase voltage measurement range is 342–440 V.For 480 V, the acceptable phase–phase voltage measurement range is 432–509 V.

9. Verify that the grounding impedance is correct by using the ECOS 1020, 1023, B7106, or an appropriately approved ground impedance tester.

10. Have the customer turn off the branch circuit breaker and attach tag S229–0237, which reads ”Do Not Operate.”

Step 10 . Connect and Route the Power Cords to the ESCALA PL 3200R

Before you connect the power cords, loosen or remove the cable retainers and filler plate located along the side and bottom of the frame.

The following lists each of the brackets and recommended range of cable sizes for each:

Part Number	Description	Quantity	Recommended Usage
07H6823	Cable Retention Bracket	2	Use in the base of the frame to retain cables leaving the frame. This bracket is used for large diameter cables.
07H6824	Cable Retention Bracket	12	Use in the base of the frame to retain the cables leaving the frame. This bracket is used for medium diameter cables.
11P1262	Cable Retention Bracket	4	Use in the base of frame to retain the cables leaving the frame. This bracket is used for small diameter cables and fiber.
07H6764	Filler Plate (thin)	3	Use in the base of the frame to cover the openings. Install in the base of the frame after all of the cable retention brackets are installed.
07H6763	Filler Plate (wide)	4	Use in the base of the frame to cover openings. Install in the base of the frame after all of the cable retention brackets are installed.
31L7174	Soft Cable Ties (roll)	1	Use to organize the cables leaving frame.

The ESCALA PL 3200R has two power cords, one in the rear and one in the front. To route the front power cord, do the following:

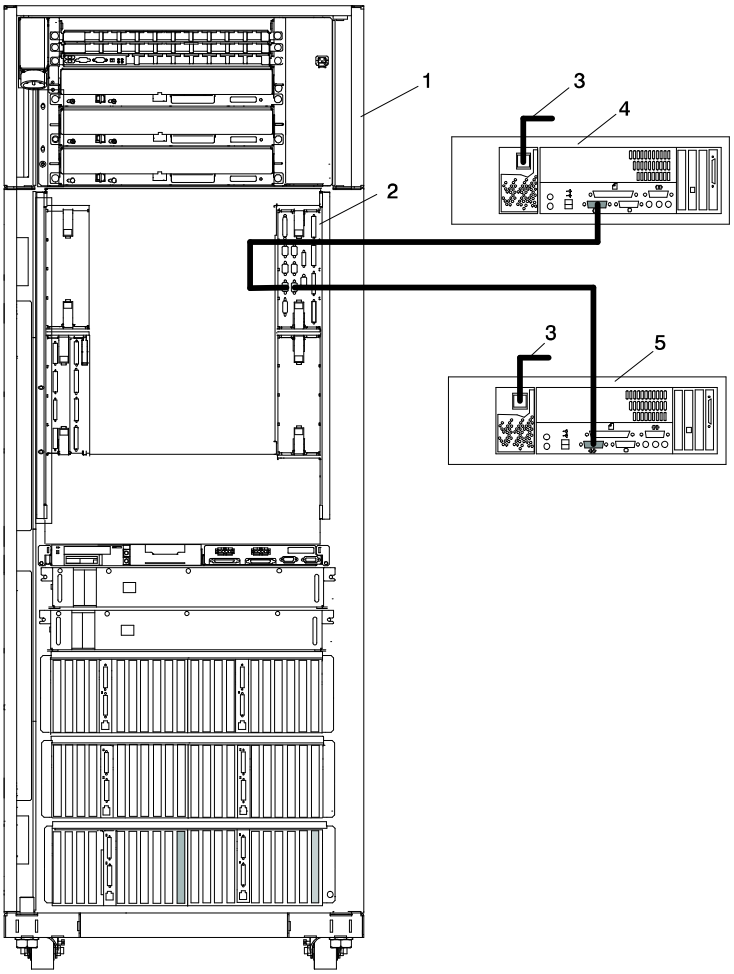
1. Connect the plug to the Bulk Power Assembly (BPA), and ensure that the dots are aligned on the plug and receptacle.
2. Secure the power cord in the channel, with the brackets from top to bottom.
3. Loosen the screw on the brackets in the track on the left side. Remove the UEPO switch, and route the power cord behind the UEPO switch.
4. Remove the lower panel of the frame, and route the cord through the channel under the frame.
5. Route the front power cord underneath the frame to the front floor tile hole. For more information about floor cutouts, refer to the *Site and Hardware Planning Information*, order number SA38–0508.
6. Replace the lower panel of the frame.
7. Replace the UEPO switch on the front of the system.

To route the rear power cord, do the following:

1. Connect the plug to the Bulk Power Assembly (BPA), and ensure that the dots are aligned on the plug and receptacle.
2. Secure the power cord in the channel with the brackets from top to bottom.
3. Remove the lower panel of the frame, and route the cord through the channel under the frame.
4. Route the rear power cord underneath the frame to the back floor tile hole. For more information about floor cutouts, refer to the *Site and Hardware Planning Information*, order number SA38–0508.
5. Replace the lower panel of the frame.

Step 11 . Verify the Hardware Management Console (HMC) Installation

Verify that the HMC is installed, then connect the HMC serial cable to serial port HMC1 on the primary I/O book. For two HMCs, connect the redundant HMC into serial port HMC2 on the primary I/O book. The following illustration shows the location of the serial ports on the rear of the HMC and the HMC connectors located on the primary I/O book.



1 Primary Rack

2 Primary I/O Book

3 Power Plug to External Power Source (wall plug)

4 Primary HMC Connected to serial port HMC1* in Primary I/O Book

5 Optional Second HMC Connected to serial port HMC2* in Primary I/O Book

* May be labeled HSC1 and HSC2

The part numbers for the serial cables for the ESCALA PL 3200R are the following:

Part Number and Description	Position
11P3955 6–m cable	9 Position to 9 Position
11P3956 15–m cable	9 Position to 9 Position
31L7196 15–m cable	9 Position to 25 Position

Step 12 . What is the Next Step?

The next step in the installation procedure is to apply power to the system and verify that the system is ready to be used for regular operations. Complete the steps in the checklist in Chapter 3. Completing the Installation on page 3-1 to verify that the system is ready, and then return to Step 13 . Turn on the IBF Breaker (If Present) on page 1-15 to complete the installation.

Step 13 . Turn on the IBF Breaker (If Present)

Turn on the Integrated Battery Feature (IBF) breaker before turning the UEPO switch on the ESCALA PL 3200R .

Step 14 . Have the Customer Activate the Designated Circuit Breakers

Have the customer activate the designated circuit breakers by doing the following:

1. Ensure that the tag S229–0237, which reads ”Do Not Operate,” has been removed.
2. Reset the circuit breaker.

   Note: The following steps should be performed only by the service representative.
3. Turn the ESCALA PL 3200R UEPO switch to the `ON` position.
4. Verify that the LEDs on the bulk power assembly are on. Verify that `OK` displays on the ESCALA PL 3200R operator panel.

Step 15 . Install the Doors

This step describes how to install the front and rear doors on the ESCALA PL 3200R . For more information about the doors, see Prerequisites to Installing the ESCALA PL 3200R on page 1-2.

Note: The upper pin is longer than the bottom pin. The door is made of aluminum for weight reasons.

Install the Front Door

To install the front door, do the following (refer to the illustration on page 1-16):

Note: After installing the front and rear doors, it may be necessary to adjust the latch.

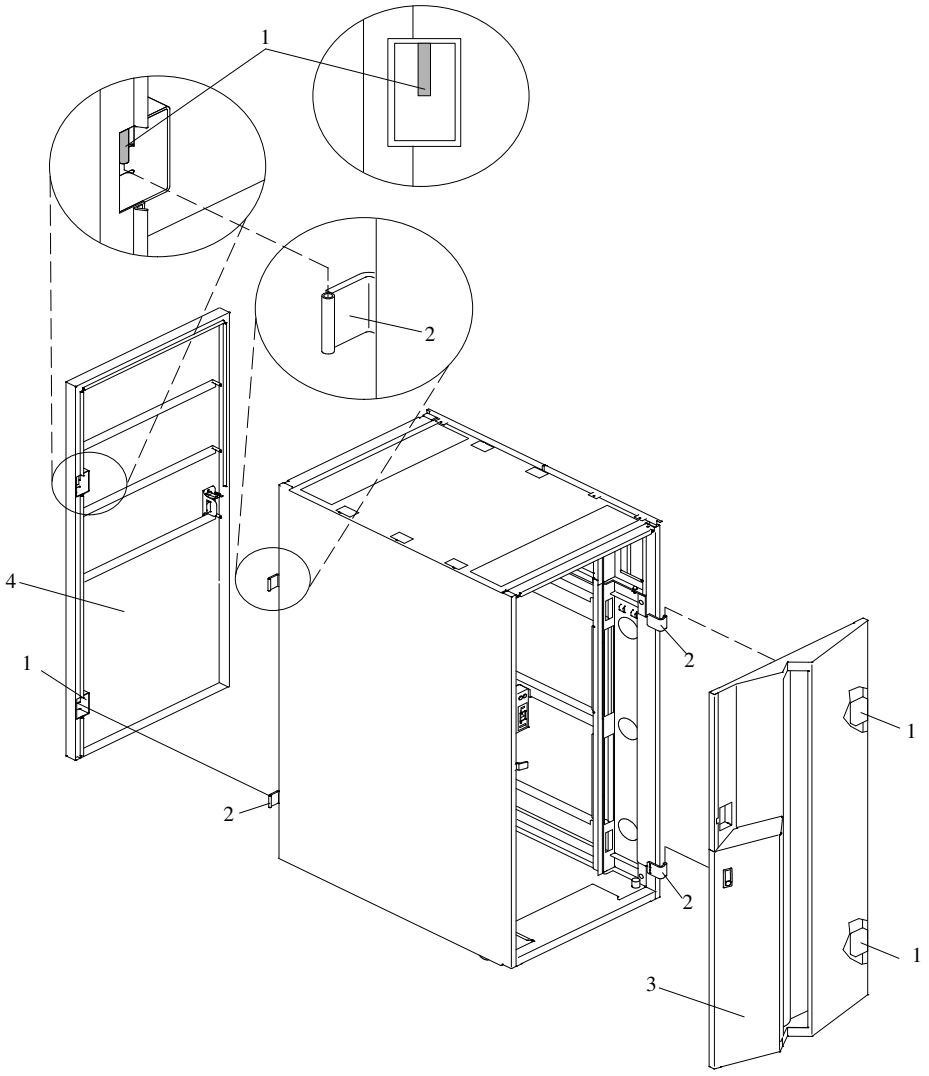
1. Holding the door vertically and opened at approximately 45 degrees from the frame, lift the door and carefully engage the top pin into the hinge hole.
2. Continue to hold the door vertically and lift slightly to engage the bottom pin. Before removing your hands from the door, verify that the pins are engaged in the hinge holes.
3. Position the door so that both the top and the bottom hinge pins (1) partially engage the hinges.
4. Simultaneously slide the top and bottom hinge pins on the front door into the top and bottom hinges (2) on the rack.
5. Close the front door, and engage the latch on the left side of the door.
6. Remove the protective plastic strip used to protect the decorative copper mylar strip during shipping and handling.

Note: The copper mylar strip may appear to be scratched or damaged if you don't remove the protective plastic strip.

Install the Rear Door

To install the rear door, do the following (refer to the illustration below:

1. Position the door so that both the top and the bottom hinge pins (1) partially engage the hinges.
2. Simultaneously slide the top and bottom hinge pins on the rear door into the top and bottom hinges (2) on the rack.
3. Close the rear door, and engage the latch on the left side of the door.



1 Hinge Pin (Typical Front and Rear Door)

2 Rack Hinge (Typical Front and Rear Door)

3 Front Door

4 Rear Door

Proceed to Verifying the Hardware Operation

Proceed to Chapter 2. Verifying the Hardware Operation on page 2-1.

Chapter 2. Verifying the Hardware Operation

Use the system verification procedure discussed in this chapter to check the system for correct hardware operation.

Considerations Before Running This Procedure

Read the following before using this procedure:

- The AIX operating system must be installed on your system before you attempt to perform this procedure.
- If this system unit is directly attached to another system unit or attached to a network, be sure communications with the other systems are stopped.
- This procedure requires use of all of the system resources. No other activity can be running on the system while you are performing this procedure.
- This procedure requires a hardware management console (HMC) attached to the HMC port on the ESCALA PL 3200R .
- This procedure runs the AIX online diagnostics in service mode on a system booted in full system partition mode.

Does the system have AIX diagnostics preinstalled?

Yes	Go to Loading the Online Diagnostics in Service Mode on page 2-4.
No	Go to Loading the Standalone Diagnostics from CD–ROM on page 2-4.

Power On the System

You can power on the ESCALA PL 3200R by using HMC or by using the power button on the media subsystem operator panel.

For more information about using the HMC, refer to the *HMC Operations and Installation Guide* .

HMC Power–On

To power on the managed system, you must be a member of one of the following roles:

- System Administrator
- Advanced Operator
- Operator
- Service Representative

To use the HMC to power on the managed system, do the following:

1. In the Navigation area, click the **Partition Management** icon.
2. In the Contents area, select the managed system.
3. In the menu, click **Selected**.
4. Select **Power On**.

   You are asked to select a power–on mode from the following:

   – Partition Standby

– Full System Partition

– System Profile

– Power–on Autostart

The next section discusses each of these power–on modes.

Note:: You must power off your managed system to switch between using the full system partition and using either logical or affinity partitions. You must also power off the system between using logical paritions and affinity partitions.

Partition Standby

The partition standby power–on option allows you to create and activate logical partitions. When the partition standby power–on is completed, the operator panel on the managed system displays LPAR..., indicating the managed system is ready for you to use the HMC to partition its resources.

Note:: The full system partition is listed as *Not Available* because the managed system was powered on using the partition standby option.

Full System Partition

The full system partition power–on option allows you to use all of the system's resources under one operating system after the system has been powered on. This is the traditional single–system method of using your system's resources.

The physical operator panel on your managed system displays progress codes when you boot the system in this mode.

If you select the full system partition option, you can then select one of the following profiles:

Power On Normal
: This profile boots an operating system from the designated boot device.

Power On SMS
: This profile boots to the System Management Services (SMS) menus. The SMS menus include:

  . Select Language

  . Change Password Options not Available in LPAR Mode

  . View Error Log

  . Setup Remote IPL (Initial Program Load)

  . Change SCSI Settings

  . Select Console not Available in LPAR Mode

  . Select Boot Options

Power On Diagnostic Stored Boot List
: This profile causes the system to perform a service mode boot using the service mode boot list saved on the managed system. If the system boots AIX from the disk drive and AIX diagnostics are loaded on the disk drive, AIX boots to the diagnostics menu.

  Using this profile to boot the system is the preferred way to run online diagnostics.

Power On Diagnostic Default Boot List
: This profile is similar to Power On Diagnostic Stored Boot List Profile, except the system boots using the default boot list that is stored in the system firmware.

Power On Open Firmware OK Prompt
: This profile is used only by service representatives to obtain additional debug information. When this selection is enabled, the system boots to the open firmware prompt.

For more information about these power–on options, see the service documentation for your managed system.

System Profile

The system profile option powers on the system according to a predefined set of profiles.

Note:: The profiles are activated in the order in which they are shown in the system profile.

Power–on Autostart

This option powers on the managed system to partition standby mode and then activates all partitions that have been powered on by the HMC at least once. For example, if you create a partition with four processors, and then you use dynamic logical partitioning (DLPAR) to remove one processor, and then shut down the system, the Power–on Autostart option activates this partition with three processors. The system activates the partition with three processors because the three–processor configuration was the last configuration used, and the HMC ignores whatever you have previously specified in the partition's profile. Using this option, the partitions boot using AIX, even if some of the partitions had previously been defined to use another power–on option.

Media Subsystem Operator Panel Power–On

Perform the following steps to power–on the processor subsystem and attached I/O subsystems using the power button on the media subsystem operator panel.

1. Open the rack door. Look for `OK` in the primary operator panel display, which indicates that the system is in standby mode.

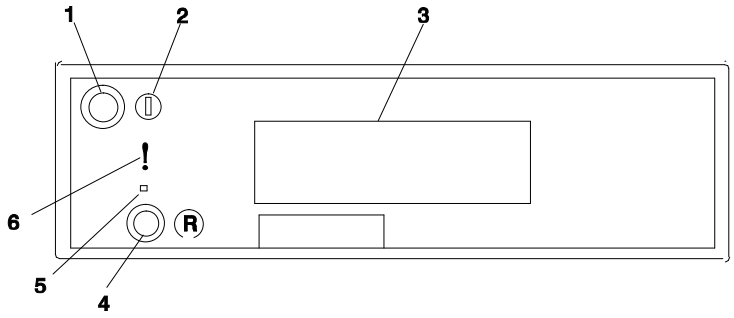
   Note:: If the power has recently been connected to the system, you might need to allow approximately five minutes after the OK prompt displays before pressing the power–on button on the media subsystem, or using the service processor, to turn the system power on.

2. Press the power–on button on the media subsystem operator panel.

The power LED on the media subsystem operator panel starts blinking at a fast rate. 9xxx checkpoints appear in the operator panel display.

When the power–on sequence is complete, the following events have occurred:

- The power LED on the media subsystem operator panel stops blinking and stays on.
- The power LEDs on the I/O subsystem come on and stay on.



1 Power–on button

2 Power LED

3 Operator panel display

4 Reset button

5 Service processor reset button (Service use only)

6 Disturbance or system attention LED

Loading the Online Diagnostics in Service Mode

Note:: Online diagnostics are not available when the system is running Linux.

To run the online diagnostics in service mode from the boot hard disk, do the following:

1. From the HMC, click **Server**.
2. From the HMC, click **Partition Management**.

   For more information about full system partitions, refer to the *HMC Operations and Installation Guide* , order number 86 A1 83EF .
3. From the HMC, click **Server Management**.
4. Select the ESCALA PL 3200R in the Contents area, right–click on the mouse, and select **Open Terminal Window**.
5. From the service processor menu on the VTERM, select Option 2 **System Power Control**.
6. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
7. Select option 98 to exit the system power control menu.
8. Use the HMC to power on the managed system in full system partition mode by selecting the managed system in the Contents area.
9. Highlight the desired system by right–clicking on or selecting the system in the Contents area. On the menu, click **Selected**.
10. Click **Power On**.
11. Click the **Power on Diagnostics Stored Boot List**.
12. Ensure that the media subsystem contains no media devices.
13. Enter any passwords, if requested.

    Note:: If you are unable to load the diagnostics to the point when the `DIAGNOSTIC OPERATING INSTRUCTIONS` display, go to Loading the Standalone Diagnostics from CD–ROM on page 2-4 .

Go to Running System Verification on page 2-5.

Loading the Standalone Diagnostics from CD–ROM

To run standalone diagnostics in service mode from CD–ROM, use the following steps:

1. Stop all programs, including the operating system (get help if needed).
2. Remove all tapes, diskettes, and CD–ROMs.
3. Power off the ESCALA PL 3200R (for more information, see *HMC Operations and Installation Guide* , order number 86 A1 83EF , for more information).
4. In your desktop area, right–click on the mouse and select **Open Terminal Window**.
5. From the service processor menu on the VTERM, select option 2, **System Power Control Menu**.
6. Select option 6. Verify that the state changes to `currently disabled`. Disabling fast system boot automatically enables slow boot.
7. Select option 98 to exit the system power control menu.
8. Use the HMC to power on the managed server in full system partition mode. Select **Power on Diagnostic Default Boot List**.

9. Insert the CD–ROM into the CD–ROM drive in the media subsystem in the ESCALA PL 3200R (*not* into the HMC CD–ROM drive).

Go to Running System Verification on page 2-5.

Note:: If you are unable to load standalone diagnostics, call your support center for assistance.

Running System Verification

Before you run system verification, the diagnostics must have been loaded. For information about how to load diagnostics, see Chapter 2. Verifying the Hardware Operation on page 2-1.

When the Diagnostic Operating Instructions display, do the following to run system verification:

1. Press Enter.
2. If the terminal type is requested, you must use the **Initialize Terminal** option on the Function Selection menu to initialize the operating system before you can continue with the diagnostics.
3. Select the **System Verification** option on the Diagnostic Mode Selection menu.
4. To run a general checkout of all installed resources, select the **All Resource** option on the Diagnostic Selection menu. Follow the instructions on the screen to complete the checkout procedure.

   To check one particular resource, select that resource on the Diagnostic Selection menu.

The checkout program ends with either of the following results:

- The Testing Complete screen displays a message stating `No trouble was found`.
- The A Problem Was Detected On (Time Stamp) menu displays, with either a service request number (SRN) or an error code. Make a note of any codes displayed on the display or operator panel.

To perform additional system verification, go to Performing Additional System Verification on page 2-5. To exit diagnostics, go to Stopping the Diagnostics on page 2-5.

Performing Additional System Verification

To perform additional system verification, do the following:

1. Press Enter to return to the Diagnostic Selection menu.
2. To check other resources, select the resource. When you have checked all of the resources you need to check, go to Stopping the Diagnostics on page 2-5.

Stopping the Diagnostics

To stop the diagnostics, do the following:

1. To exit the diagnostics, press the F3 key (from a defined terminal) or press 99 (from an undefined terminal).
2. If you changed any attributes on your terminal to run the diagnostics, change the settings back to normal.
3. This completes the system verification.

If the server passed all the diagnostic tests, the verification process is complete and your server is ready to use.

If you received an error code, record the code and go to the *ESCALA PL 3200R Service Guide*.

Verifying Partition Standby Operation

Use the following instructions to verify that the system can be booted to partition standby mode. Perform this procedure just before you turn the system over to the customer.

1. At the HMC, select **Server**, then **Partition**.
2. In the Navigation Area, select **Server Management**.
3. In the Contents area, select the managed system and right click on the managed system.
4. Select **Power On**.
5. In the Power On Operations menu, select **Partition Standby**.
6. Click OK.
7. If the boot to partition standby is successful, **LPAR** will appear in the operator panel. Reboot the system to full system partition.
8. If the boot to partition standby is not successful, follow normal service procedures to correct the problem.

Verifying that the Latest HMC Software is Installed

Use the following instructions to verify the software level of the HMC that is managing the system you just installed.

1. Determine the level of the HMC software running on the HMC. If you don't know the level of your HMC's software, refer to the section entitled "Updating the HMC Software" in the *HMC Operations and Installation Guide* , order number 86 A1 83EF.
2. Go to the following Web site for the latest HMC corrective service software: http://techsupport.services.ibm.com/server/hmc/corrsrv.html. If the level of software on your HMC is not at the same level as the version on the Web, download and update the HMC software to the latest level. Instructions for updating the HMC software can be found in the *HMC Operations and Installation Guide* , order number 86 A1 83EF.

Final Installation Tasks

This section contains information on completing the installation of the ESCALA PL 3200R .

For instructions on returning the crates, refer to the crate unpacking instructions provided with the ESCALA PL 3200R .

Completing System Records and Installation Procedure

Update the ”System Records” in Appendix C. System Records on page C-1 to reflect the configuration of the system adapters and devices that are installed. After completing the records, deliver this book to the system administrator. The system administrator can proceed with installing and configuring the operating system.

Configuring the Network

To configure the network, the following tasks must be performed:

- Configuring Inventory Scout
- Collecting Vital Product Data (VPD)
- Configuring Service Agent

For more information about performing these tasks, refer to the *HMC Operations and Installation Guide* .

Chapter 3. Completing the Installation

This chapter contains information about how to ensure that the installation is complete and you are ready to turn the system over to the system administrator. Complete the steps described in this chapter *after* you verify the hardware operation as described in Chapter 2. Verifying the Hardware Operation on page 2-1.

Complete the Installation Checklist

The installation instructions prompt you through the installation procedure. Use this checklist as you work to ensure that the installation process is complete.

Note:: The procedures referenced in this section might be optional on your system. Contact your service support representative for more information.

To complete an installation when an HMC is used to manage a full system partition on a managed system, the installer must complete the following:

1. Locate the installed HMC. If the HMC is not already installed, install it now. Refer to the *HMC Operations and Installation Guide* , order number 86 A1 83EF.
2. Arrange the HMC and attached devices so that they can be used comfortably. Refer to the *HMC Operations and Installation Guide* , order number 86 A1 83EF.
3. Ensure that the HMC is running. Refer to *HMC Operations and Installation Guide* , order number 86 A1 83EF.
4. Connect the power to the system. Refer to Step 10 . Connect and Route the Power Cords to the 406/90 on page 1-12.
5. Verify the system operation by completing the procedures in Chapter 2. Verifying the Hardware Operation on page 2-1.
6. Verify that the latest firmware and adapter/drive microcode code are installed. .
7. Ensure that the operating system is installed:

   If an operating system has been preinstalled in your system, go to the next step.

   If you plan to install the operating system now, see the installation instructions provided with the operating system.

   – The operating system can be installed from a CD (if a CD–ROM drive is installed). For this method, the system must have a CD–ROM drive.

   – The operating system can be installed from a Network Installation Management (NIM) server. For information about installing AIX from a NIM server, see the *AIX 5L Installation Guide and Reference*, order number SC23–4389 .
8. If the system is not running, start the system. Refer to the *HMC Operations and Installation Guide* , order number 86 A1 83EF , for procedures on starting the system from the HMC.
9. Configure the network and the automated service reporting functions. Perform the following procedures:

   a. Configure Inventory Scout Services and Service Agent.

   b. Collect vital product data.

   c. Transmit vital product data. For more information about performing these tasks, refer to the *HMC Operations and Installation Guide* , order number 86 A1 83EF .

10. Leave this installation guide with the system administrator.

Leave this Document with your Customer

Because customers may need this guide to perform various tasks, leave this guide with them for their reference.

Chapter 4. Installing Options

This chapter describes how to install and remove PCI adapters and PCI adapter cassettes.

PCI Adapters

Note:: Linux does not support hot–plugging any hot–pluggable PCI adapters or devices. A system with Linux installed on one or more partitions must be shut down and powered off before replacing any PCI adapter or device assigned to a Linux partition. Follow the non–hot–pluggable adapter or device procedures when replacing a PCI adapter or device in any partition with Linux installed.

Most PCI adapters can be removed and replaced, or installed in the system without turning off the power to the entire system. These adapters are referred to as *hot–pluggable PCI adapters*. Some adapters are not hot–pluggable and power must be removed from the system for adapter removal, replacement, or installation. Though some adapters are not hot–pluggable, they must still be installed in the cassette.

Note:: An adapter or an adapter blank filler must be installed into the PCI adapter cassette assembly before it is reinstalled in a system unit or an I/O drawer.

Before you remove or replace an adapter, determine if the PCI adapter you are working with is hot–pluggable. See Appendix I. *PCI Adapter Placement Reference.*

When assembling, inserting or removing a blindswap cassette, verify that the foam ”T–shaped” EMC gasket strip is firmly attached to the sheet metal bezel. This includes all applications where these gaskets are used (for example, riser cards, blank fillers or any of the various cassette assemblies).

Visually inspect the top and bottom of the gasket strips insuring that they are firmly bonded to the sheet metal. Look for any of the following:

- gaskets that are starting to unwrap
- gaskets lifting or peeling off of the sheet metal
- gaskets protruding from the sheet metal bezel when all cassettes, fillers, or risers are plugged into the system.

Inspect both the gasket on the cassette or filler that was removed and the gasket visible in the PCI slot.

If a bad gasket is found on a cassette, then the entire cassette must be replaced with a new cassette and gasket. If a bad gasket is found on a riser card, then the I/O Planar containing the riser card needs to be replaced.

If you are removing a PCI adapter that is:

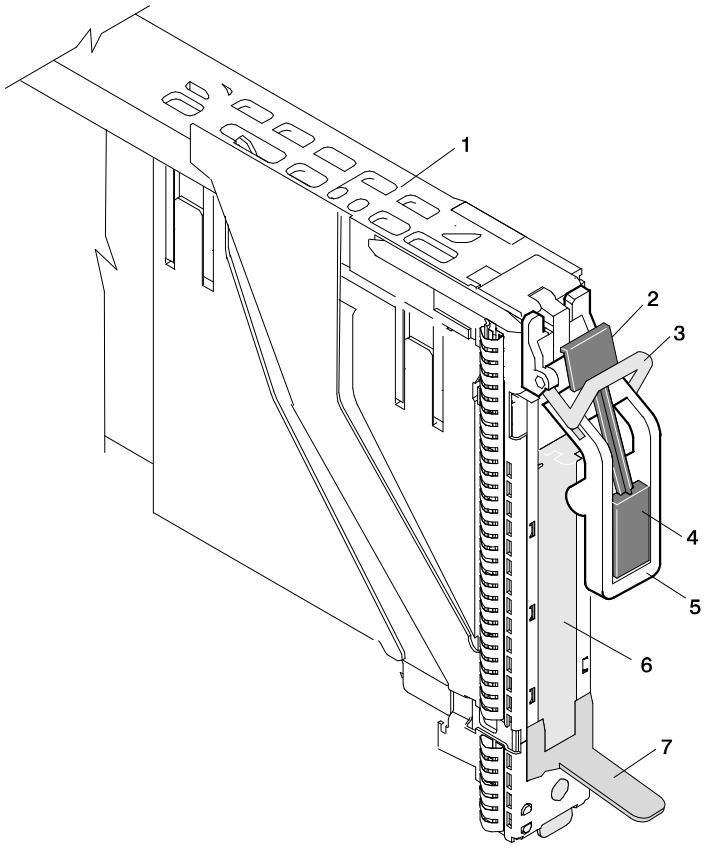
- Not hot–pluggable, go to Removing a Non–Hot–Pluggable PCI Adapter on page 4-7.
- Hot–pluggable, go to Hot–Pluggable PCI Adapter on page 4-7.

Removing a PCI Adapter Cassette

Attention: Perform this procedure only when you are instructed to by the removal and replacement procedures in Removing a Non–Hot–Pluggable PCI Adapter on page 4-7 or Hot–Pluggable PCI Adapter on page 4-7.

Note:: An adapter or a blank filler must be installed into the PCI adapter cassette before it is reinstalled in a processor subsystem or an I/O subsystem.

The following illustration shows the PCI adapter cassette.

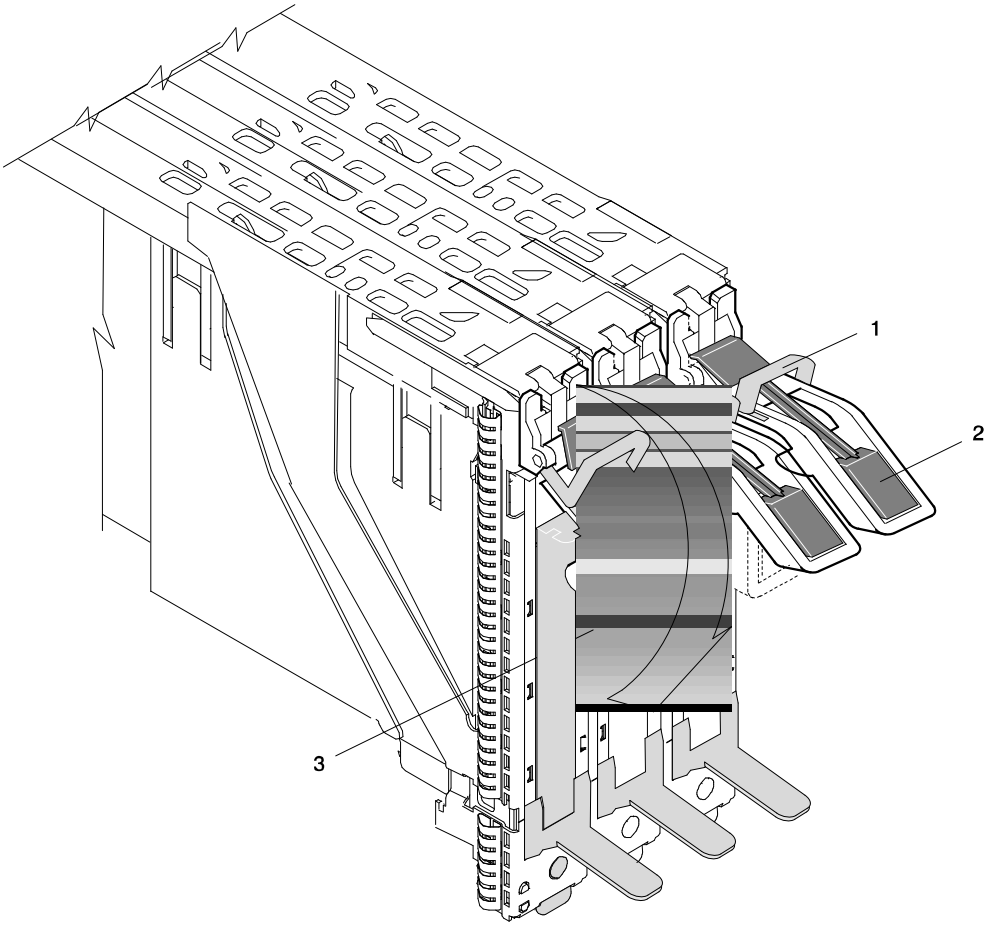


1 PCI Adapter Cassette
2 Handle–Release Lever Latch
3 Locking Bar
4 Handle Release Lever
5 Handle
6 PCI Adapter Tailstock Tab
7 Adapter Cassette Pull Tab

To remove a PCI adapter cassette, do the following:

1. Determine which PCI adapter cassette you are removing.
2. Disconnect any cables that are connected to the PCI adapter.

3. Press the handle release lever, then push the handle to the down position. See the following illustration.



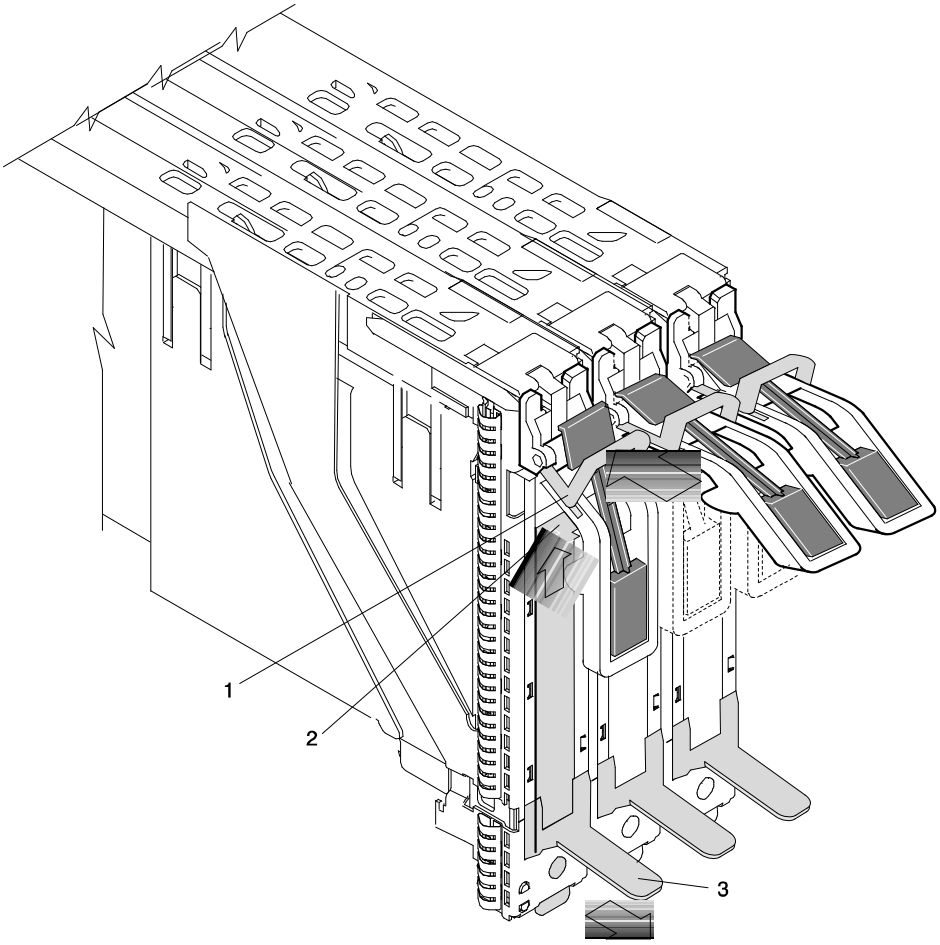
1 Locking Bar

2 Handle Release Lever

3 Handle in the Down Position

4. Push in the locking bar until it clicks into the locked position. See the following illustration.

   Note:: In this position, the locking bar locks the handle in the down position and prevents it from being pulled up while the PCI adapter cassette is being removed.



1 Locking Bar

2 PCI Adapter Tailstock Tab

3 Adapter Cassette Pull Tab

5. Position your index finger under the handle and push up the adapter tailstock tab. Grasp the adapter cassette pull tab with the other hand. Pull the PCI adapter cassette from the adapter slot by pulling on the adapter cassette pull tab. *Do not* pull on the handle when removing the adapter cassette. Notes:

   a. Pulling on the handle may reengage the adapter connector, preventing the cassette from sliding out.

   b. Do not force the PCI adapter cassette out of the PCI adapter slot. The cassette will slide out smoothly when this step is performed correctly.

   c. Do not remove more than one adapter cassette at a time.

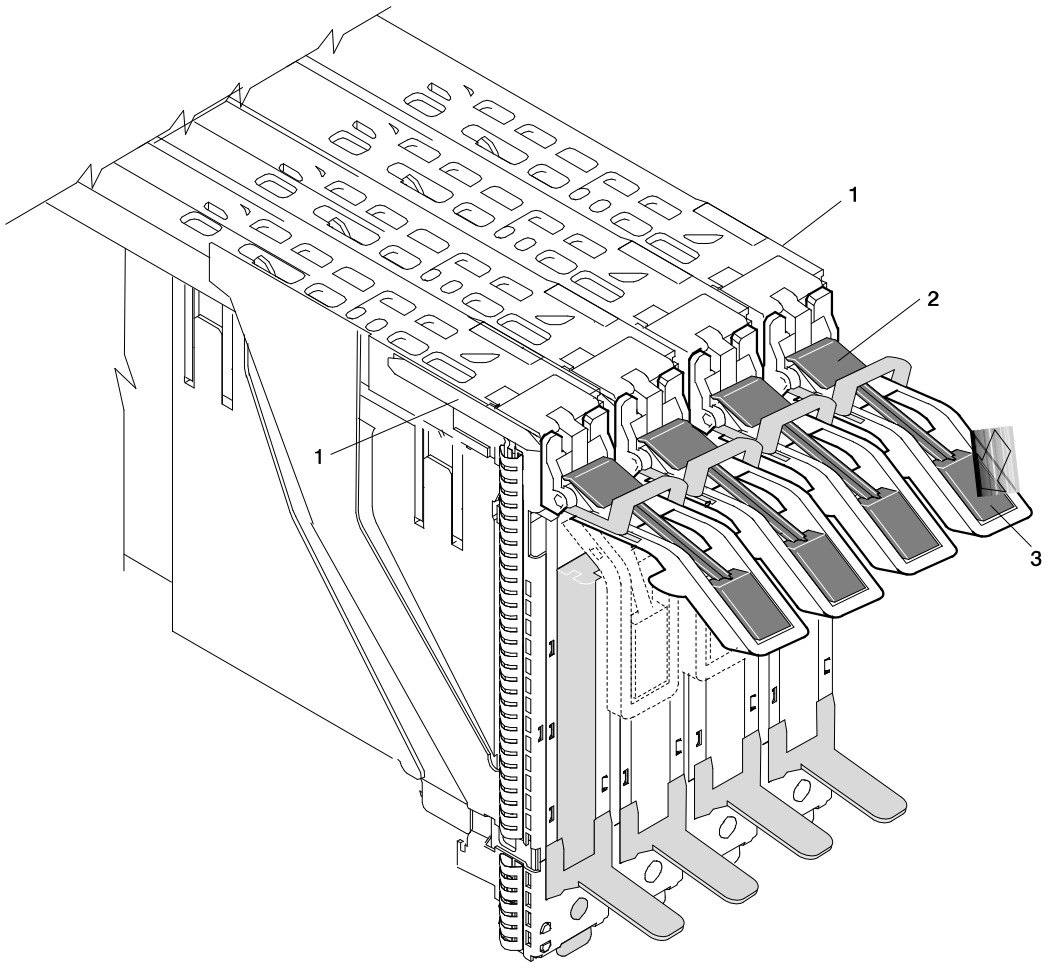
Replacing a PCI Adapter Cassette

Attention: Perform this procedure only when you are instructed to from Removing a Non–Hot–Pluggable PCI Adapter on page 4-7 or Hot–Pluggable PCI Adapter on page 4-7. Before you replace the PCI adapter cassette, check the following:

- Before installing a PCI adapter cassette in the system, an adapter or blank filler must be installed in each PCI adapter cassette and the top cover for the system must be installed.
- Check the adapter in the cassette that you are about to install, and make sure that the adapter is held firmly on all four corners by the retaining arms and ratchet clips.
- Review the procedures beginning with PCI Adapter or Blank Filler Removal from a Snap–Assembly–Type Cassette to make sure that the adapter is correctly installed in the cassette.

To replace a PCI adapter cassette, do the following:

1. Depress the handle release lever located in the center of the PCI adapter cassette handle. Move the handle down completely to the fully down position. See the following illustration.



1 Cassette Dovetail Rails

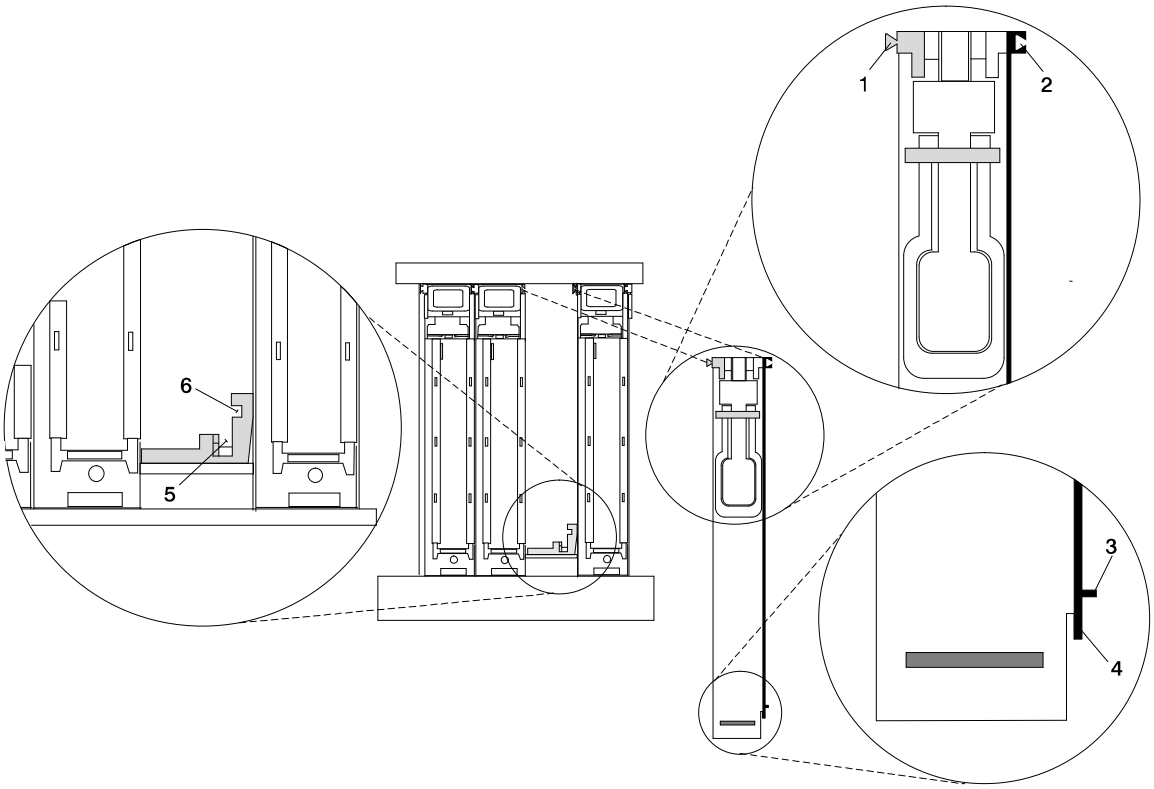
2 Handle–Release Lever Latch

3 Handle Release Lever

2. Push the top of the locking bar in until it clicks into the locked position.

   Note:: In this position, the locking bar locks the handle in the down position and prevents it from being pulled up while the PCI adapter cassette is being removed.

3. Examine the PCI adapter slot opening carefully, and note the location of the dovetail rails and the cassette guide rails. A flashlight can be used to enable you to see the dovetail rails and the cassette guide rail slots, as shown in the following illustration.



1 Cassette Left Dovetail Rail	**4** Cassette Bottom Guide Rail
2 Cassette Right Dovetail Rail	**5** Side Guide Rail Slot on System Board
3 Cassette Side Guide Rail	**6** Bottom Guide Rail Slot on System Board

4. Hold the PCI adapter cassette at the PCI adapter slot so that the PCI adapter cassette is perpendicular to the slot and level with the slot opening.
5. Align the bottom edge of the PCI cassette cover with the PCI cassette guide rail on the system board or I/O unit.
6. Slide the cassette partially into the guide.

   Attention: If the cassette does not slide in smoothly, the cover might not have engaged the PCI cassette guide rail. Carefully pull the adapter back out and start again.

7. As you slide the cassette into the slot, ensure that the dovetail rail on the top of the PCI adapter cassette aligns with the mating slots on any cassettes that might be installed on the left and right sides.
8. Push the cassette in until it is flush with any other installed cassettes.
9. Visually check to ensure that the cassette is parallel with the cassettes to the left or right. If the cassette is not parallel with the neighboring cassettes, the cassette dovetail rails might not be correctly engaged. If the cassette is not correctly aligned, you might need to

pull it out so you can see the ends of the dovetail rails. If so, reinsert the cassette, ensuring that the dovetail rails engage on both sides of the cassette.

Note:: If there are no other cassettes installed, it is not necessary to check the alignment of the dovetail rails.

10. Depress the handle release latch. Lift the handle up until the handle–release lever clicks when it locks into position.

Note:: To aid you in seating the PCI adapter connector, it may be necessary to press down on the adapter tailstock tab. The PCI adapter is completely installed into the PCI adapter slot when the handle is in the fully raised position and the tailstock is seated into the slots located on the system board.

Attention: Do not force the handle into the raised position.

Removing a Non–Hot–Pluggable PCI Adapter

To remove a non–hot–pluggable adapter, do the following:

1. Turn off power and remove the power from the system.
2. Determine the slot from which you are removing the adapter.
3. Refer to Removing a PCI Adapter Cassette on page 4-2. When you have completed the PCI adapter cassette removal procedure, return here.
4. If you are installing another adapter in this slot, follow the instructions given in Replacing a Non–Hot–Pluggable PCI Adapter on page 4-7. If you are not installing another adapter in this slot, install a blank PCI adapter cassette into the slot. Refer to Replacing a PCI Adapter Cassette on page 4-5.
5. Connect power to the system and turn the power on.

Replacing a Non–Hot–Pluggable PCI Adapter

Replace the adapter using the following procedure:

Note:: Because the adapter you are installing is not hot–pluggable, shut down the system and remove power before performing this procedure.

1. If you have just removed an adapter and you are replacing it in the system, use the procedures in PCI Adapter or Blank Filler Removal from a Snap–Assembly–Type Cassette on page 4-12 to install the replacement adapter into the PCI adapter cassette.
2. Go to Replacing a PCI Adapter Cassette on page 4-5 to replace the appropriate cassette in the PCI slot, then return here.
3. Connect power to the system.
4. Return the system to normal operations.
5. Set the color slide to blue.
6. Ensure that the adapter is configured when the system completes the boot process.

Hot–Pluggable PCI Adapter

Before performing the following procedure, read Safety Notices on page vi.

Attention: The Linux operating system does not support these hot–plug procedures. Also, Linux does not support hot–plugging any hot–pluggable PCI adapters. Systems with Linux installed on one or more partitions must be shut down and powered off before replacing any PCI adapter assigned to a Linux partition. Follow the non–hot–pluggable adapter procedures when replacing a PCI adapter in any partition with Linux installed.

The following hot–plug procedures take you through removing and replacing hot–plug PCI adapters using software that presents procedures on your display. The LEDs on a PCI adapter cassette are described in either your installation guide or service guide.

Removing and Replacing a Hot–Pluggable PCI Adapter Notes:

1. Use this procedure only when you are replacing an adapter with an identical adapter. If you are replacing an adapter with an adapter that is not identical to the adapter removed, go to Removing and Replacing a Hot–Pluggable PCI Adapter on page 4-8, and then to Installing a New Hot–Pluggable PCI Adapter on page 4-9.
2. When a system containing a defective adapter is booted, the system considers that the PCI slot is empty, and adapter LEDs do not light. Under this condition, it is safe to remove the adapter from the system at this time.

To replace an adapter, perform the following steps:

1. Determine the slot from which you are removing the adapter.
2. Ensure that any processes or applications that might use the adapter are stopped.

   Note:: Removing a hot–pluggable PCI adapter requires the system administrator to take the PCI adapter offline before performing any PCI adapter hot–plug procedures. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

   For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*.
3. Log in as root user. If the system is a partitioned system, log in as root user on the partition that has the adapter assigned to it.
4. At the command line, type **smitty**.
5. Select **Devices**.
6. Select **PCI Hot Plug Manager**.
7. Select **Unconfigure a Device** and press Enter.
8. Press F4 to display the Device Names menu.
9. From the menu, select the adapter you are removing.
10. If you are replacing the adapter, go to step 11 below. If you are not replacing the adapter, do the following:
    a. Use the Tab key to answer NO to **Keep Definition**. Press Enter.
    b. Go to step 12 below.
11. Answer YES to **Keep Definition**. Press Enter.
12. The ARE YOU SURE screen displays. Press Enter to verify the information. Successful unconfiguration is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
13. Press F3 to return to the PCI Hot–Plug Manager menu.
14. Select **List PCI Hot–Plug Slots**.
15. If the List PCI Hot–Plug Slots menu indicates that the slot is not empty, go to step 17 below.
16. If the List PCI Hot–Plug Slots menu indicates that the slot is empty, do the following:
    a. Press F3 to cancel.
    b. Select **Add PCI Hot–Plug Adapter**, and press Enter. The display screen indicates that the PCI slot is empty.
    c. On the display screen, select the indicated empty slot. Look at the adapter you intend to remove. A slow blinking amber LED located next to the adapter on the PCI riser

card indicates that the slot has been identified. Press Enter. The adapter has been put into the action state.

d. Disconnect any cables that are connected to the adapter being removed.

e. Completely remove the hot–plug adapter from the slot. The LED goes off.

f. Go to step 21 on page 4-9.

17. When you are instructed to remove the adapter from the adapter slot, disconnect any cables that are connected to the adapter being removed, and then refer to Removing a PCI Adapter Cassette on page 4-2.

18. Install the replacement adapter into the PCI adapter cassette. See PCI Adapter or Blank Filler Removal from a Snap–Assembly–Type Cassette on page 4-12.

19. With the replaced adapter installed into the PCI adapter cassette, refer to Replacing a PCI Adapter Cassette on page 4-5.

20. If you installed an adapter into the adapter cassette, connect the appropriate cables and devices to the adapter connectors.

21. Continue to follow the screen instructions until you receive a message that the replacement is successful. Successful replacement is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.

22. If you *did not* install an adapter into the adapter cassette, go to step 23 below. If you *did* install an adapter into the adapter cassette, do the following:

    a. Press the F3 key to return to the PCI Hot–Plug Manager menu.

    b. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful replacement is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.

23. If you do not have other adapters to replace, continue with the next step.
    OR
    If you have other adapters to replace, press the F3 key to return to the PCI Hot–Plug Manager menu and then return to step 14 above.

24. Press F10 to exit the Hot–Plug Manager.

    If you have added, removed, or replaced any adapters, run the **diag –a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.

Installing a New Hot–Pluggable PCI Adapter

Note:: Before installing a new adapter, ensure the device driver for the adapter is installed. Check with the system administrator if the device driver is not already installed.

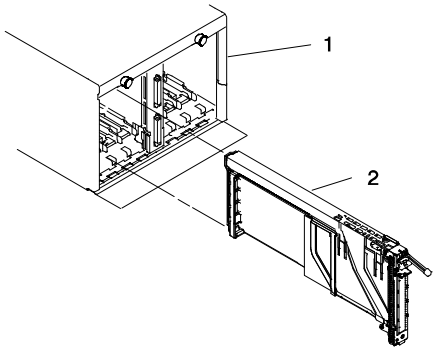
To install an adapter, perform the following steps:

1. Install the new adapter into a PCI adapter cassette. See PCI Adapter or Blank Filler Removal from a Snap–Assembly–Type Cassette on page 4-12.
2. Log in as root user. If the system is a partitioned system, log in as root user on the partition that has the adapter assigned to it.
3. At the command line, type `smitty`.
4. Select **Devices**.
5. Select **PCI Hot Plug Manager**.
6. From the PCI Hot–Plug Manager menu, select **Add a PCI Hot–Plug Adapter** and press Enter. The Add a Hot–Plug Adapter window displays.
7. For adapter placement information, see the Appendix I. *PCI Adapter Placement Reference*. Select an empty PCI slot for the adapter.

8. Select the appropriate empty PCI slot from the ones listed on the screen, and press Enter.
9. Follow the instructions on the screen to install the adapter until the visual indicator (LED) for the specified PCI slot is set to the *Action* state.
10. Install the new adapter in the adapter slot by performing the following:
    a. Lower the black handle completely.
    b. Push the locking bar until you hear a clicking sound.
    c. Hold the assembly straight on and level with the slot.
    d. Align the bottom edge of the PCI cassette cover with the PCI adapter guide rail on the I/O backplane.

       Note:: If there is a cassette to the left of the one you are installing, align the ridge on the cover with the ”tick” in the notch of the neighboring cassette.

    e. Slide the cassette partially into the guide.
    f. Ensure that the dovetail on the top track aligns with its mating component(s) on both sides.



1 I/O Subsystem **2** PCI Adapter Cassette

    g. When the cassette is fully inserted, prepare to activate the handle by lowering the locking bar. Lift the handle all the way up until you hear a click. The PCI adapter should be completely seated.
    h. Set the color slide to the orange color indicating that the adapter in the cassette is hot–pluggable.
11. Connect the appropriate cables and devices to the adapter.
12. Continue to follow the screen instructions until you receive a message that the installation is successful. Successful installation is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
13. Press the F3 key to return to the PCI Hot–Plug Manager menu.
14. Select **Install/Configure Devices Added After IPL** and press Enter. Then follow the instructions on the screen. Successful installation is indicated by the `OK` message displayed next to the **Command** field at the top of the screen.
15. If you do not have other adapters to install, continue with the next step. OR If you have other adapters to install, press the F3 key to return to the PCI Hot–Plug Manager menu and then return to step 6.
16. Press F10 to exit the Hot–Plug Manager.

If you have added, removed, or replaced any adapters, run the **diag –a** command. If the system responds with a menu or prompt, follow the instructions to complete the device configuration.

PCI Hot–Plug Manager Access

Attention: The Linux operating system does not support these hot–plug procedures. Also, Linux does not support hot–plugging any hot–pluggable PCI adapters. Systems with Linux installed on one or more partitions must be shut down and powered off before replacing any PCI adapter assigned to a Linux partition. Follow the non–hot–pluggable adapter procedures when replacing a PCI adapter in any partition with Linux installed.

The installation instructions for hot–pluggable PCI adapters refer you to these procedures when it is appropriate to perform them.

Note:: A PCI adapter is only hot–pluggable if the PCI adapter supports hot–plug applications. See Appendix I. *PCI Adapter Placement Reference*.

Accessing Hot–Plug Management Functions

Note:: Removing or installing a Hot–Pluggable PCI adapter requires the system administrator to take the PCI adapter offline prior to performing the operation. Before taking an adapter offline, the devices attached to the adapter must be taken offline as well. This action prevents a service representative or user from causing an unexpected outage for system users.

For additional information about taking an adapter offline or removing it from the system configuration, see the *AIX System Management Guide: Operating System and Devices*.

To access the hot–plug menus, do the following:

1. Log in as root user. If the system is a partitioned system, log in as root user on the partition that has the adapter assigned to it.
2. At the command line, type `smitty`.
3. Select **Devices**.
4. Select **PCI Hot Plug Manager** and press Enter.
5. The PCI Hot–Plug Manager menu displays. Return to the procedure that directed you here. For a description of the menu options, see below.

PCI Hot–Plug Manager Menu

The following options are available from the PCI Hot Plug Manager menu:

Note:: For information about the PCI slot LED states, refer to either your installation guide or service guide.

List PCI Hot–Plug Slots

Provides a descriptive list of all slots that support PCI hot–plug capability. If the listing for a slot indicates it holds an ”Unknown” device, select the **Install/Configure Devices Added after IPL** to configure the adapter in that slot.

Add a PCI Hot–Plug Adapter

Allows the user to add a new PCI hot–plug–capable adapter to the slot with the system turned on. You will be asked to identify the PCI slot that you have selected prior to the actual operation. The selected PCI slot will go into the *Action* state and finally into the On state.

Note:: The system will indicate the slot holds an ”Unknown” device until you perform the **Install/Configure Devices Added After IPL** option to configure the adapter.

Replace/Remove a PCI Hot–Plug Adapter

Allows the user to remove an existing adapter, or replace an existing adapter with an identical one. For this option to work, the adapter must be in the *Defined* state (see ”Unconfigure a Device” option below).

You will be asked to identify the PCI slot prior to the actual operation. The selected PCI slot will go into the *Action* state.

Identify a PCI Hot–Plug Slot

Allows the user to identify a PCI slot. The selected PCI slot will go into the *Identify* state.

Unconfigure a Device

Allows the user to put an existing PCI adapter into the *Defined* state if the device is no longer in use.

This step must be completed successfully before starting any removal or replacement operation. If this step fails, the customer must take action to release the device.

Configure a Defined Device

Allows a new PCI adapter to be configured into the system if software support is already available for the adapter. The selected PCI slot will go into the *On* state.

Install/Configure Devices Added After IPL

The system attempts to configure any new devices and tries to find and install any required software from a user–selected source.

The add, remove, and replace functions return information to the user indicating whether the operation was successful. If additional instructions are provided on the screen, complete the recommended actions. If the instructions do not resolve the problem, see the following:

- If the adapter is listed as Unknown, perform the **Install/Configure Devices Added After IPL** option to configure the adapter.
- If you receive a warning indicating that needed device packages are not installed, the system administrator must install the specified packages before you can configure or diagnose the adapter.
- If you receive a failure message indicating a hardware error, the problem might be either the adapter or the PCI slot. Isolate the problem by retrying the operation in a different PCI slot, or trying a different adapter in the slot. If you determine that you have failing hardware, call your service representative.

PCI Adapter or Blank Filler Removal from a Snap–Assembly–Type Cassette

CAUTION:
Metal edges might be sharp.
C38

Use this procedure when you are preparing to install or replace an adapter or an adapter blank filler in the system unit or an I/O drawer.

Note:: An adapter or an adapter blank filler must be installed into the PCI adapter cassette assembly before it is reinstalled in a system unit or an I/O drawer.

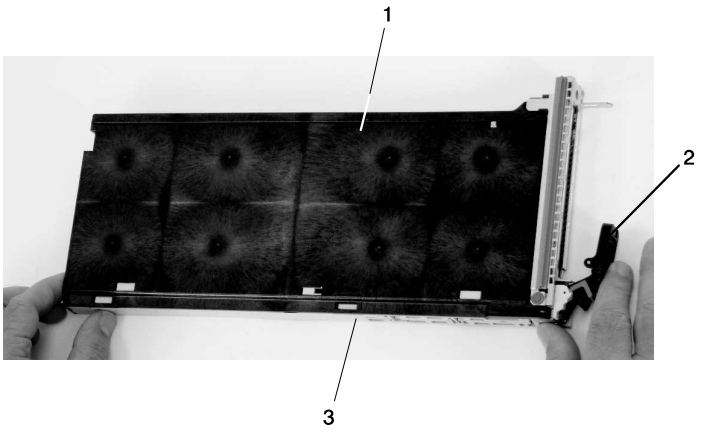
Determine the slot of the system or I/O drawer in which you plan to install or remove an adapter, and refer to the procedures for removing an adapter from the system. Before beginning this procedure, remove the PCI adapter cassette assembly from the system unit or I/O drawer.

Note:: It may take approximately 30 to 40 minutes to perform this procedure the first time. This time includes using the instructions in this guide and performing the steps. Thereafter, performing this procedure usually takes approximately 10 minutes.

Before performing the following steps, familiarize yourself with the entire procedure.

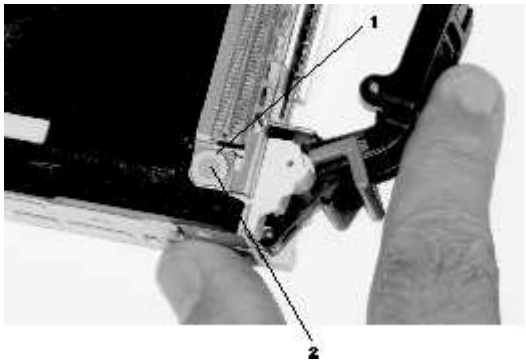
To remove a PCI adapter or blank filler from a cassette assembly, do the following:

1. Place the PCI adapter cassette assembly on a flat work surface with the cover facing up, and the top of the adapter facing you. See the following illustration.

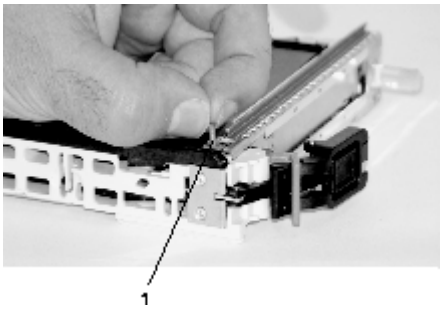


1 Cover
2 Handle
3 Top of Cover

2. Using two fingers, remove the bushing–lock pin from the bushing. The bushing–lock pin can be removed by pulling it out of the bushing with your fingernails.

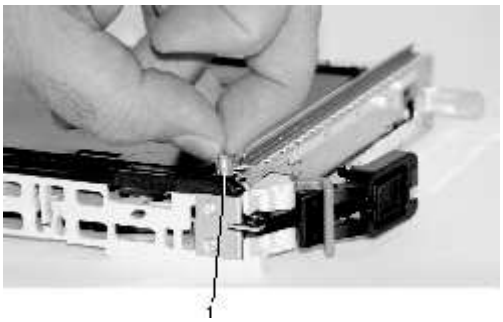


1 Bushing
2 Bushing–Lock Pin



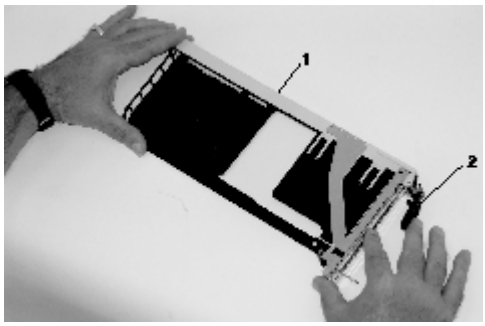
1 Bushing–Lock Pin

3. Remove the bushing. The bushing can be removed by pulling it out of the PCI adapter cassette assembly with your fingernails.



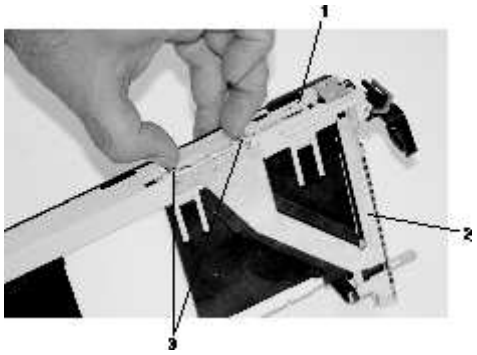
1 Bushing

4. Turn over the PCI adapter cassette assembly so that the top is facing away from you.



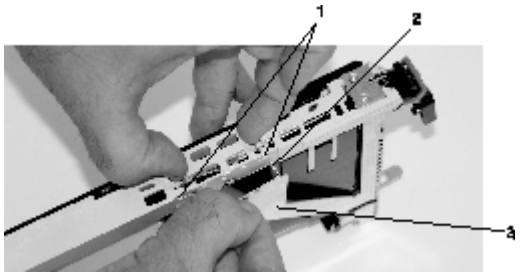
1 Top of Adapter
2 Handle

5. Remove the bezel, as follows:
   a. Locate the plastic latch fingers in the top part of the cassette.



1 Top of Cassette
2 Bezel
3 Plastic Latch Fingers

b. Using one hand, pinch the plastic latch fingers, and with your other hand, carefully lift the top part of the bezel extension out until the tabs clear the slots in the PCI adapter cassette assembly.

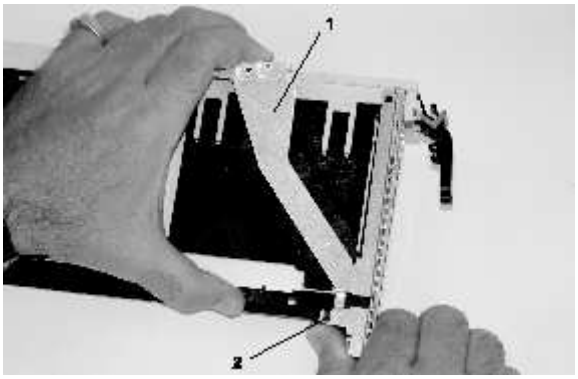


1 Slots

2 Tab

3 Bezel Extension

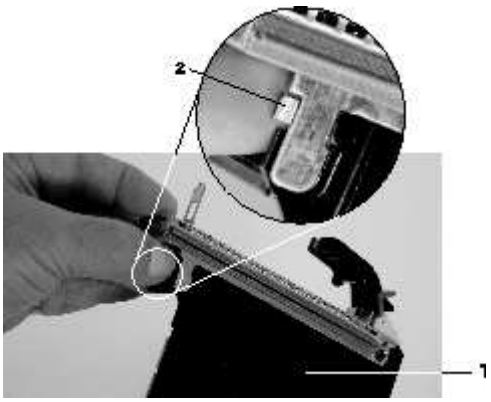
c. While holding the bezel extension out, push the plastic cover latch out of the bezel hook, as shown in the following illustration. This action allows the bezel to be removed.



1 Bezel Extension

2 Plastic Cover Latch in Bezel Hook

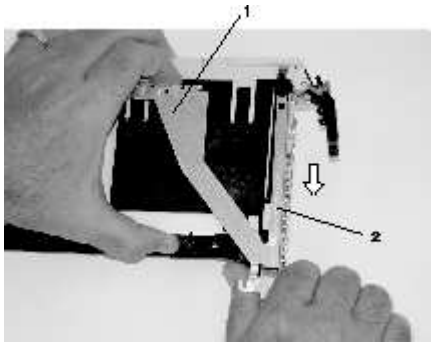
d. On the opposite side of the cassette (cover side), push the cover latch to release the bezel.



1 Cover Side

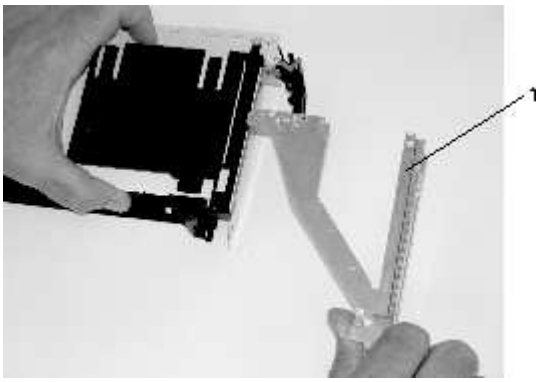
2 Cover Latch

e. While holding the bezel extension out, carefully slide the bezel off. You might have to work from both sides to loosen the bezel assembly from the cassette assembly. When the bezel is free, slide it completely off the cassette assembly, and set it aside.



1 Bezel Extension

2 Bezel

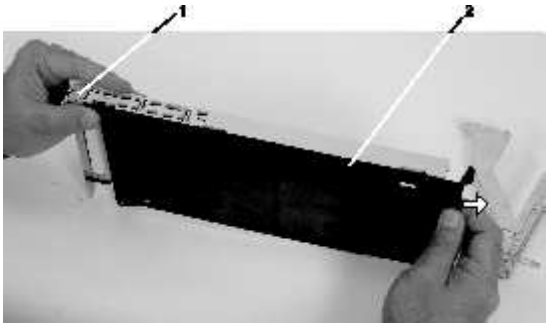


1 Bezel

6. Turn over the cassette so that the cover is facing up, as shown in the following illustration. Remove the cover from the cassette as follows:

   a. Slide the cover until it releases from the cassette assembly.

      Attention: The cover might be tight and difficult to slide. If you grasp the left end (handle end) of the cassette and the right end of the cover, you can use enough force to pull the cover off the PCI adapter cassette assembly.

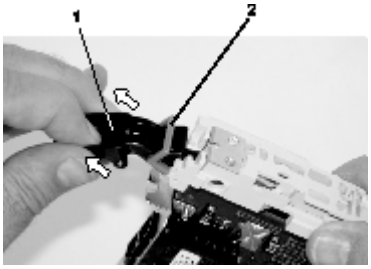


1 Left End of the Cassette

2 Cassette Cover

   b. Lift the cover off the assembly, and set it aside.

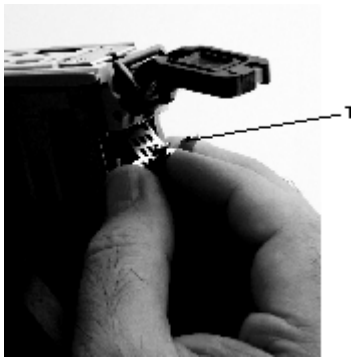
c. Depress the handle release lever to unlock the locking bar. The locking bar is located on the handle, ensure that the handle is pulled into the unlocked position. Raise the handle on the cassette linkage assembly until it locks into the up position (the blank filler or adapter moves downward).



1 Handle Release Lever

2 Locking Bar

7. Remove the metal EMC shield from the top of the tailstock.



1 Metal EMC Shield

8. Remove the blank filler or adapter that is installed in the cassette linkage assembly.

Note:: If there is a blank filler in the cassette linkage assembly, as shipped from the manufacturer, there are two adapter arms. One adapter arm is used with short adapters (short adapter arm) and the other adapter arm is used with long adapters (long adapter arm).

If you are removing a short adapter or blank filler, see Short Adapter or Blank Filler Removal on page 4-17.

If you are removing a long adapter, see Long Adapter Removal on page 4-19.

Short Adapter or Blank Filler Removal

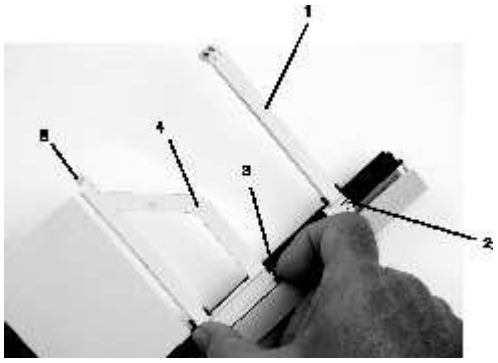
To remove a short adapter or blank filler, do the following:

1. Slide the long and short adapter arms away from the adapter or blank filler by doing the following:

   a. Each adapter arm has a release tab that allows the arm to be moved away from the adapter or blank filler in the cassette assembly. Use your fingernail to lift the tab, to allow each arm to be moved away from the adapter or blank filler. Lift the release tab on the short adapter arm, and push on the slotted tab to release the end of the blank filler.

   Note:: If you plan to install a short adapter, leave the long adapter arm on the cassette linkage assembly. If you plan to install a long adapter, remove both the long and short adapter arms from the cassette linkage assembly in the next step.

b. Slide the long and short adapter arms away from the blank filler or adapter.



1 Long Adapter Arm

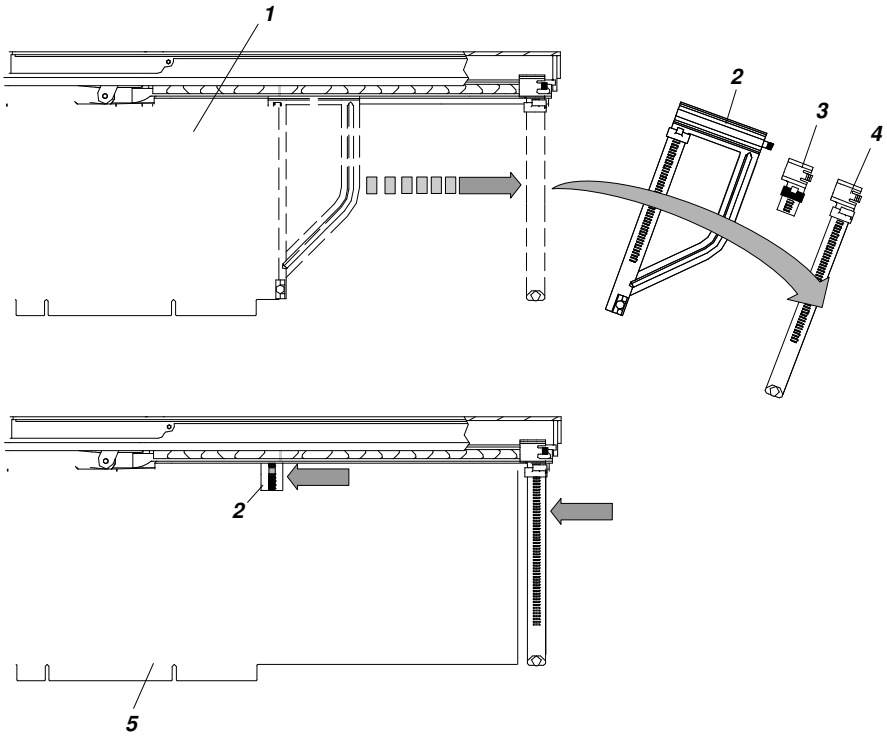
2 Release Tab

3 Release Tab

4 Short Adapter Arm

5 Slotted Tab

Note:: Some dual linkage PCI adapter cassettes might contain a middle–spacer arm to be used with long adapter cards only. The middle–spacer arm and its installation can be seen in the following illustration.



1 Short PCI Adapter Card

2 Short Adapter Arm

3 Middle–Spacer Arm

4 Long Adapter Arm

5 Long PCI Adapter Card

2. Remove the adapter or blank filler from the cassette linkage assembly by rotating the bottom of the tailstock out, as shown in the following illustration. Store the adapter or blank filler in a safe place.

1 Cassette Linkage Assembly

2 Bottom of Tailstock

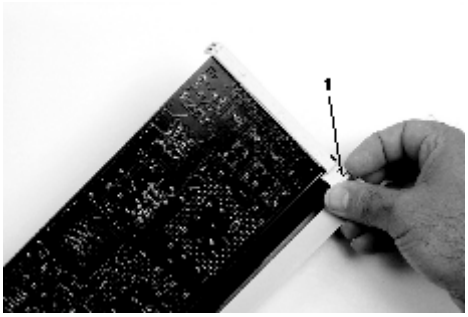
3 Handle

3. The removal procedure for the PCI adapter cassette assembly is complete. To install a new adapter or blank filler in the cassette, go to Installing a New Hot–Pluggable PCI Adapter on page 4-9.

Long Adapter Removal

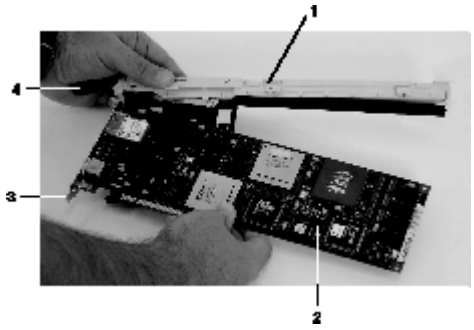
To remove a long adapter, do the following:

1. Each adapter arm has a release tab that allows the arm to be moved away from the adapter in the cassette assembly. Use your fingernail to lift the tab, to allow the arm to be moved away from the adapter. Lift the release tab on the long adapter arm, and slide it off the cassette linkage assembly.



1 Release Tab

2. Remove the adapter from the cassette linkage assembly by rotating the bottom of the tailstock out, as shown in the following illustration. Store the adapter in a safe place.



1 Cassette Linkage Assembly
2 Adapter
3 Bottom of Tailstock
4 Handle

3. The removal procedure for the PCI adapter cassette assembly is complete. To install a new adapter or blank filler in the cassette, go to Installing a New Hot–Pluggable PCI Adapter on page 4-9.

Note:: If you are going to install a short adapter card, and your cassette linkage has the middle–spacer arm installed, remove the middle–spacer arm and install the short adapter arm, refer to step 1a on page 4-17. The middle–spacer arm and long adapter arm can be stored on the cassette linkage. See the illustration on page 4-18. To install a short adapter into a cassette see Replacing an Adapter in a PCI Adapter Cassette.

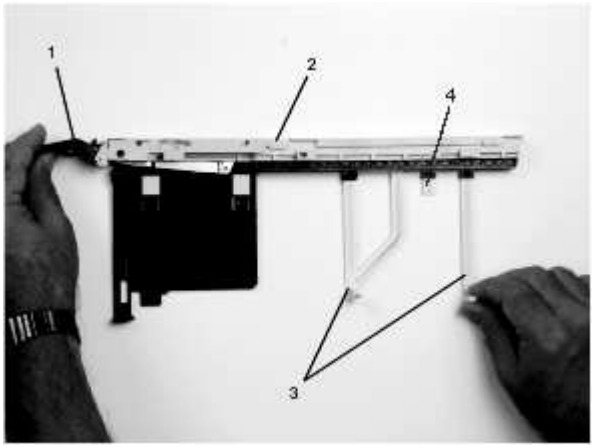
Replacing an Adapter in a PCI Adapter Cassette

CAUTION:
Metal edges might be sharp.

This procedure is performed when preparing to install a new adapter or a blank filler in the processor subsystem or an I/O drawer. Familiarize yourself with the entire procedure before performing the following steps.

1. Place the empty PCI adapter cassette assembly linkage on a flat work surface in front of you. Position the cassette so that the handle is in the raised (up) position, and on the left, with the top of the linkage facing away from you.

Note:: Your PCI adapter cassette assembly linkage might not have the short or long adapter retaining arms or the middle–spacer arm installed if you removed them during the removal procedure. In the following illustration, both arms are shown.



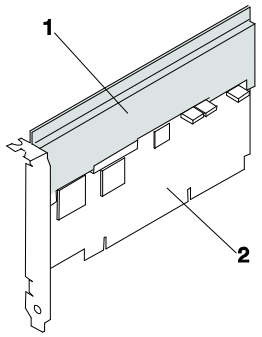
1 Handle

2 Cassette Linkage Assembly

3 Retaining Arms

4 Middle–Spacer Arm

Note:: If you are installing an adapter that is in the following list, use the additional brackets listed to help when you seat the adapter during installation. There are unique brackets **(1)** for each adapter type **(2)**:

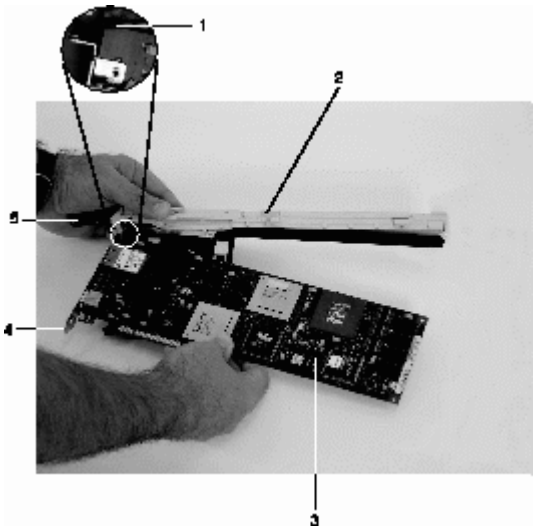


Feature Code	Description	Bracket Part Number
2751	S/390 ESCON Channel PCI Adapter	31L8728
2969	Gigabit Ethernet–SX PCI Adapter	44P2676
2975	10/100/1000 Base–T Ethernet PCI Adapter	44P2676
4962	10/100 Mbps Ethernet PCI Adapter II	44P0321
5700	Gigabit Ethernet–SX PCI–X Adapter	53P5450
5701	0/100/1000 Base–TX Ethernet PCI–X Adapter	53P5450
5706	2–Port 10/100/1000 Base–TX Ethernet PCI–X Adapter	53P5450
5707	2–Port Gigabit Ethernet–SX PCI–X Adapter	53P5450
6203	PCI Dual Channel Ultra3 SCSI Adapter	44P2661
6228	2 Gigabit Fibre Channel Adapter for 64–bit PCI Bus	44P2675
6239	2 Gigabit Fibre Channel PCI–X Adapter	44P3912

2. To determine if you are installing a long adapter or a short adapter, use the following steps. If you know the length of your adapter, skip the following steps and proceed to step 3 below.

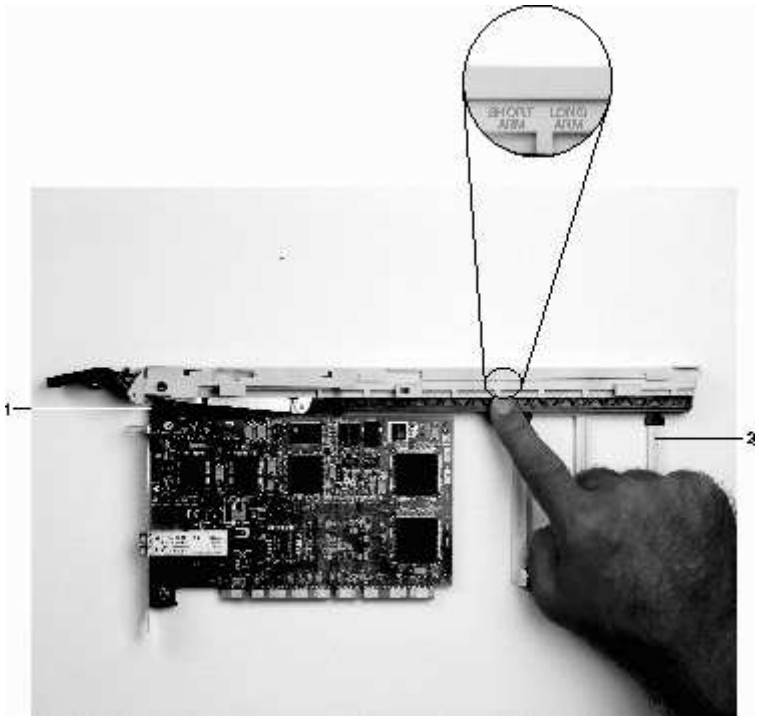
   a. Remove the adapter from its protective packaging and, if present, remove the plastic extension handle from the end of the adapter.

b. Place the adapter or a blank filler over the cassette, with the upper–left corner aligned into the top adapter–retaining clip.



1 Top Adapter–Retaining Clip
2 Cassette Linkage Assembly
3 Adapter
4 Bottom of Tailstock
5 Handle

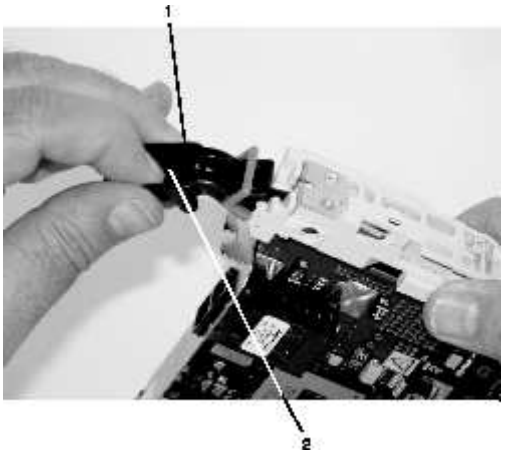
c. The cassette linkage assembly is marked to show long or short adapters similar to the adapter shown in the following illustration. Check the right end of the adapter to determine if it is long enough to fall into the long area of the cassette linkage assembly. Ensure that the corner on the left end of the adapter is still aligned into the top adapter–retaining clip, and determine the length of the adapter.



1 Top Adapter–Retaining Clip
2 Long Adapter–Retaining Arm and Clip

3. Remove the adapter or blank filler and ensure that the handle is in the up position. If you need to move the handle, ensure that the locking bar is pulled into the unlocked position, and then rotate the adapter handle until the handle is in the up position (the cassette linkage assembly will extend down beyond the cassette top).

   If you are installing a short adapter or blank filler, go to Short Adapter or Blank Filler Installation on page 4-23. If you are installing a long adapter, go to Long Adapter Installation on page 4-35.



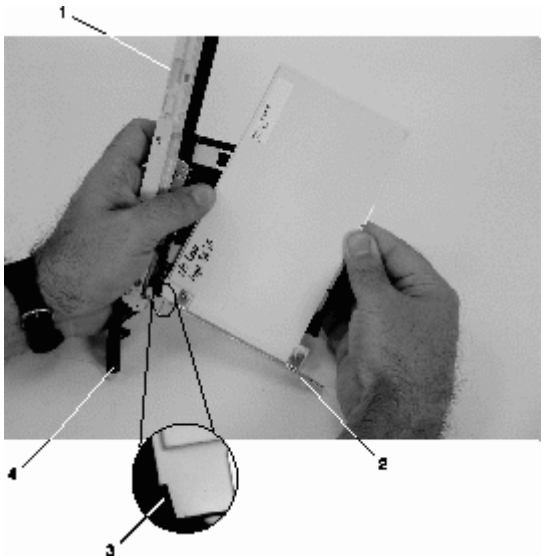
1 Handle Release Lever

2 Lock

Short Adapter or Blank Filler Installation

To install a short adapter or blank filler, do the following:

1. Place the adapter or blank filler into the cassette so that the upper–left corner of the adapter engages the adjustable top adapter–retaining clip as shown in the following illustration.



1 Cassette Linkage Assembly

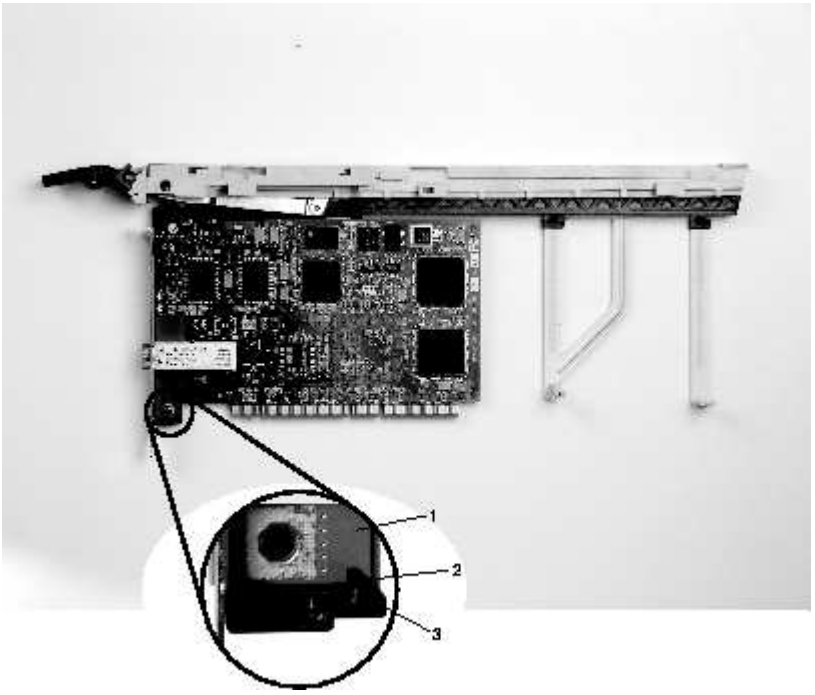
2 Bottom of Tailstock

3 Retaining Clip

4 Handle

2. Rotate the adapter so that the adapter engages the slot in the bottom adapter–retaining clip and the top corner of the adapter is seated into the adjustable top adapter–retaining clip.

   Note:: If the adapter is not a full–height adapter, you must slide the adjustable top adapter–retaining clip downward until the lower edge of the adapter is seated into the slot on the bottom adapter–retaining clip.



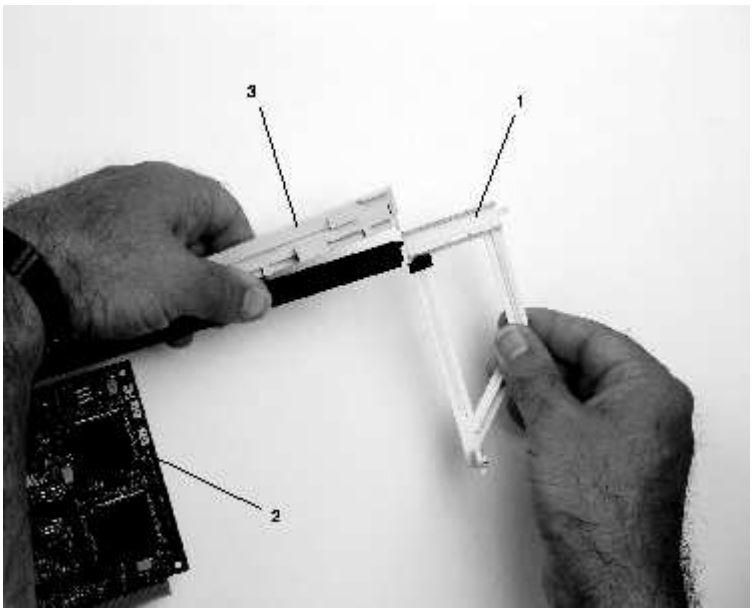
1 Adapter

2 Slot

3 Bottom Retaining Clip

3. Slide the short adapter–retaining arm toward the adapter or blank filler on the cassette linkage rail.

   If the short–adapter retaining arm has been removed from the cassette linkage rail, install the short–adapter retaining arm and then slide the arm until it contacts the adapter or blank filler as shown in the following illustration.

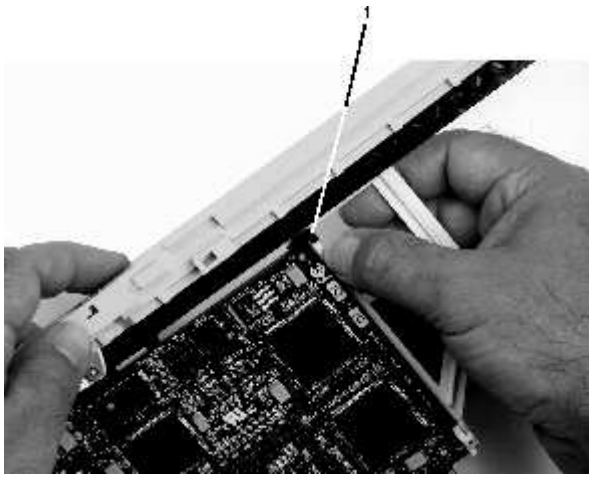


1 Short–adapter Retaining Arm

2 Adapter or Blank Filler

3 Cassette Linkage Rail

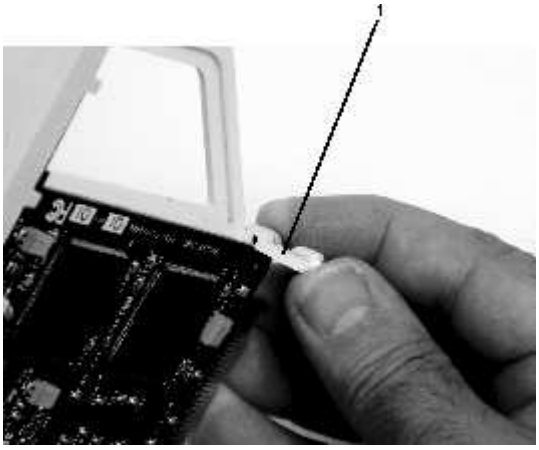
4. Ensure that the adjustable top retaining clip catches the corner of the adapter as shown in the following illustration:



1 Short Adapter Top Retaining Clip

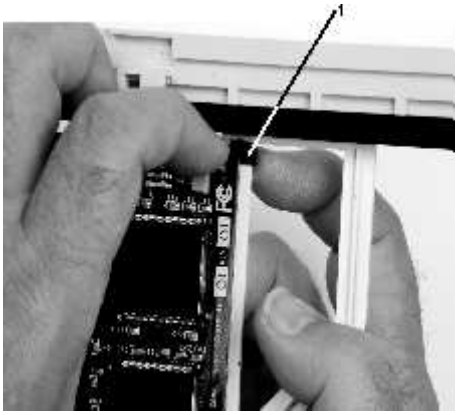
5. Use the lower short adapter arm clip to engage and hold the bottom of the adapter.

   Note:: It might be necessary to apply pressure to engage and hold the bottom of the adapter.



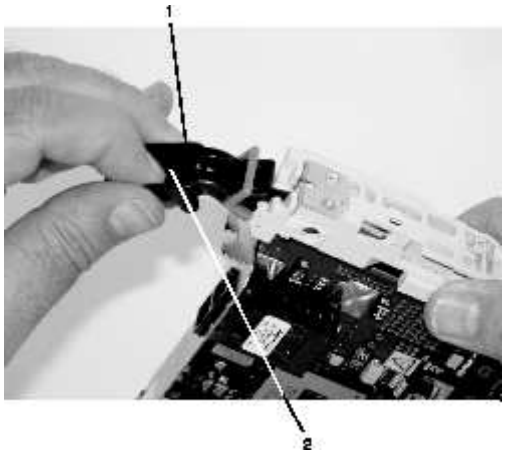
1 Lower Short Adapter Arm Clip

6. To hold the top of the adapter, slide down the adjustable top adapter–retaining clip on the retaining arm. Ensure that the bottom edge of the adapter is held by the lower part of the adapter retaining arm.



1 Adjustable Top Adapter–Retaining Clip

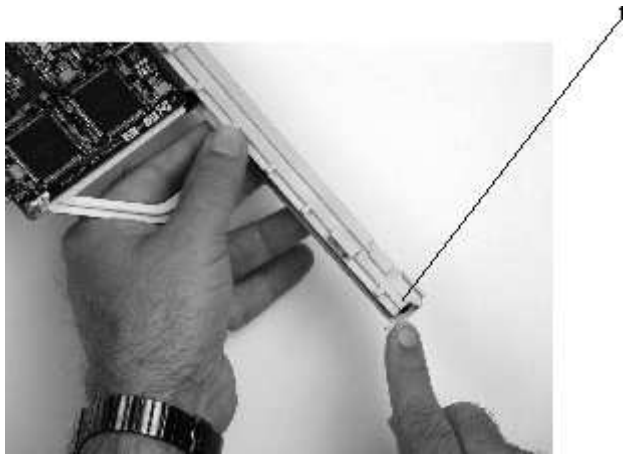
7. Press the lock on the handle, and rotate the adapter handle until it is in the down position (adapter or blank filler moves up into the cassette assembly).



1 Handle Release Lever

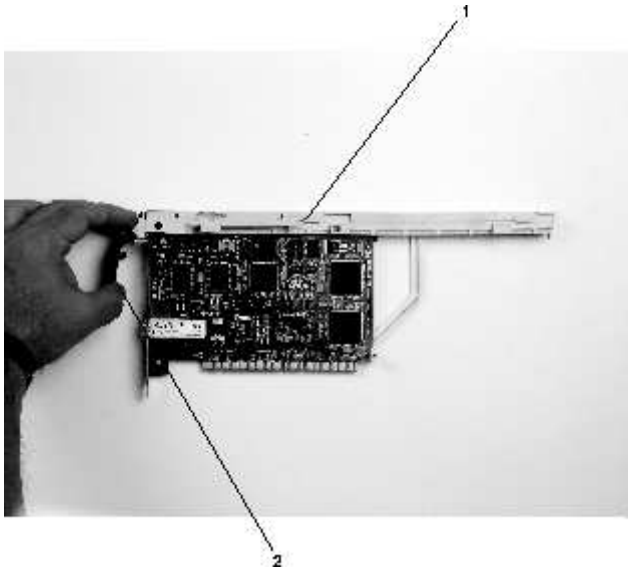
2 Lock

Ensure that the right end of the cassette linkage rail moves up into the cassette linkage assembly as shown in the following illustration:



1 Right End of Cassette Linkage

8. Position the adapter and cassette assembly with the handle on the left (in the down position) and the top facing away from you.

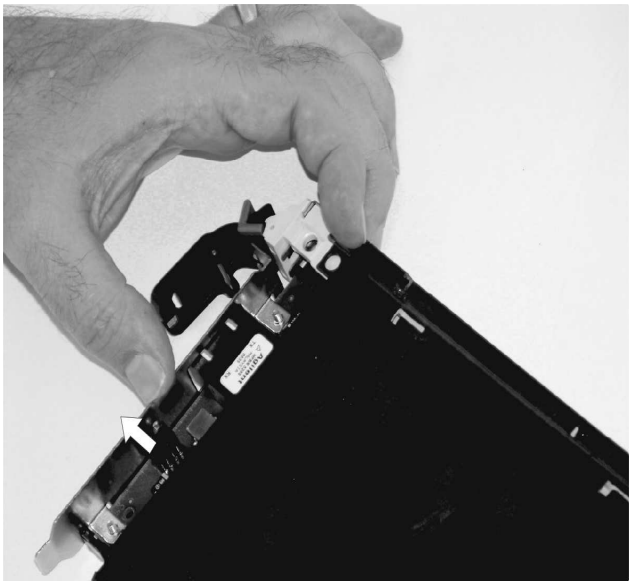


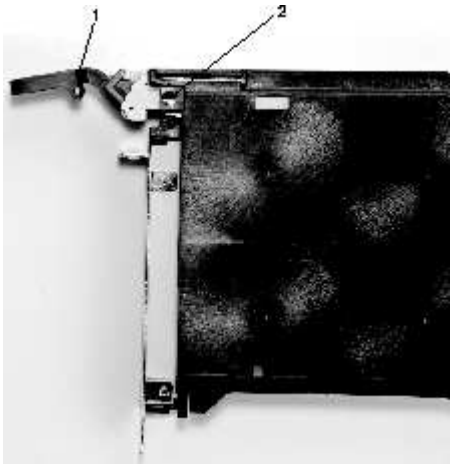
1 Top of Cassette

2 Handle

9. Install the cover on the cassette assembly, as follows:

   a. Place the cassette cover on the cassette assembly as shown in the following illustration. Slide the cover toward the handle until the hole in the cover aligns with the hole in the cassette assembly.





1 Handle

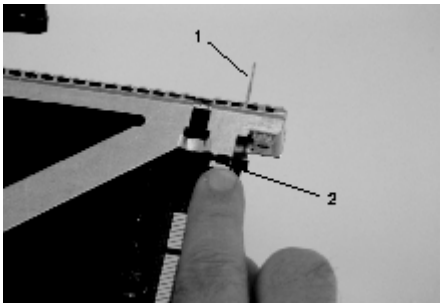
2 Holes Aligned

10. Install the bezel assembly using the following procedure:

    a. Carefully slide the bezel onto the cassette assembly.

1 Bezel

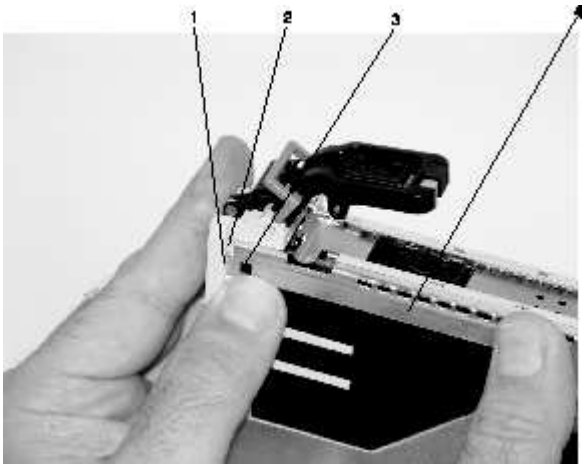
    b. Align and insert the cover arm latch in the hooked notch in the bezel.



1 PCI Adapter Pull Tab

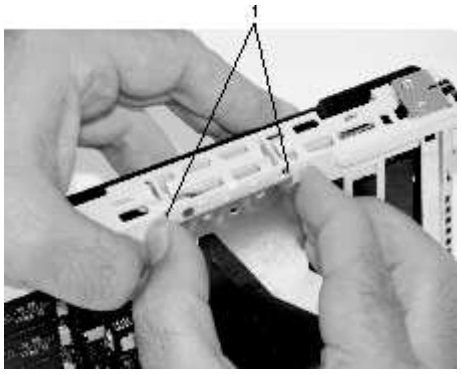
2 Hooked Notch in the Bezel for the Cover Arm Latch

    c. Align the top of the bezel assembly into the grooves on the top of the cassette assembly. Push the bezel onto the cassette linkage assembly until the tab on the top of the bezel is seated in the recess of the cassette assembly.



1 Recess
2 Groove
3 Tab
4 Bezel Assembly

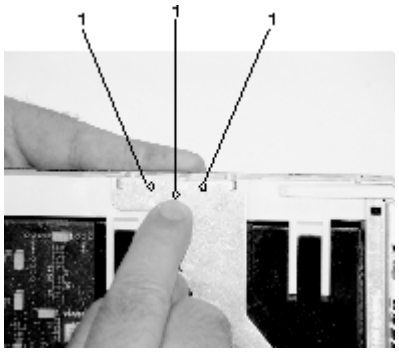
d. Insert the two tabs on the bezel extension into the two slots on the cassette linkage assembly.



1 Tabs

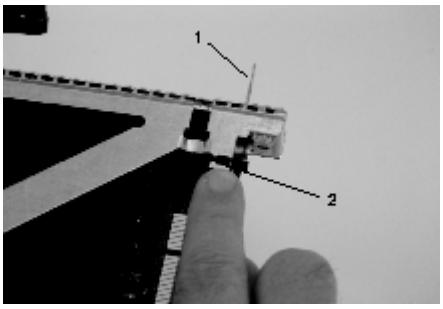
11. Check for the following:

a. Ensure that the extension arm engages the pins on the cassette. You should be able to see the three pins in the holes in the arm. The bezel tab should be seated as shown in the following illustration.



1 Pin

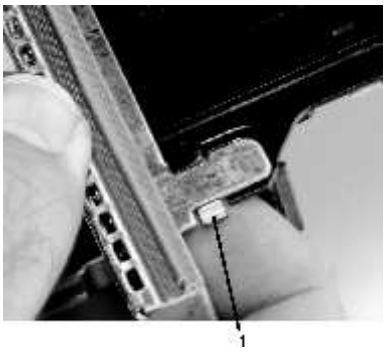
b. Ensure that the cover arm latch is completely pressed into the hooked notch on the bezel as shown.



1 PCI Adapter Pull Tab

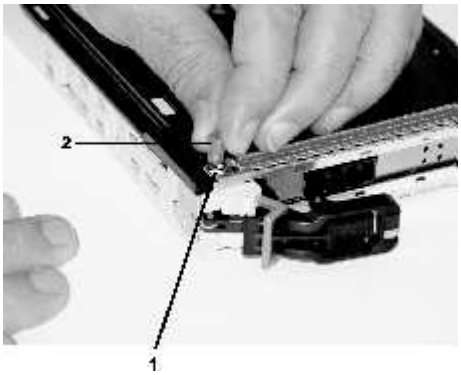
2 Hooked Notch in the Bezel

c. Turn the cassette assembly over so the cover is facing up. Check the cover latch to ensure that it is holding the bezel to the cover as shown.



1 Cover Latch

12. Ensure the holes are aligned, and insert the bushing–lock pin into the bushing as shown.



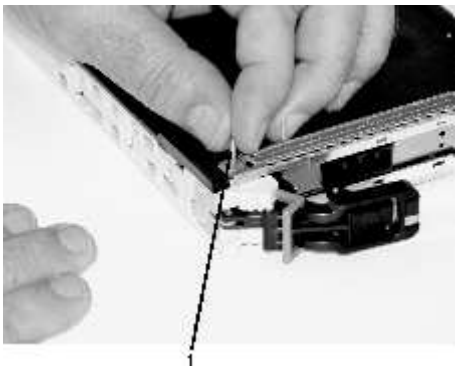
1 Bushing

2 Bushing–Lock Pin

The following illustration shows the location of the bushing in the cassette.

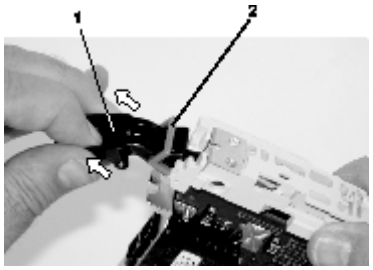
1 Location of the Installed Bushing and Bushing–Lock Pin

13. Insert the bushing–lock pin into the hole in the bushing, and push it in until it seats as shown in the following illustration.



1 Bushing–Lock Pin

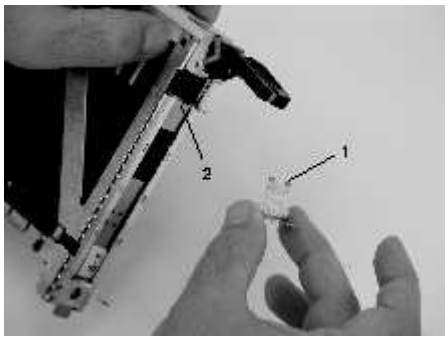
14. Depress the handle release lever to ensure the locking bar on the handle is pulled into the unlocked position. Raise the handle on the cassette linkage assembly until it locks into the up position (the blank filler or adapter moves downward).



1 Handle Release Lever

2 Locking Bar

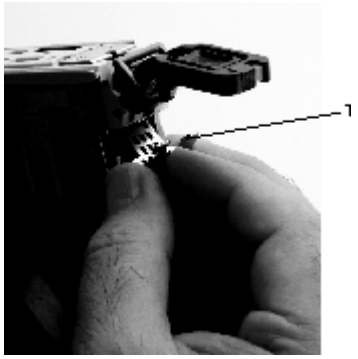
15. To install the metal EMC shield on the adapter bracket, grasp the EMC shield as shown in the following illustration, and do the following:



1 Metal EMC Shield

2 Installation Location for the Metal EMC Shield

a. Ensure that the metal EMC shield slides up inside the top of the cassette.

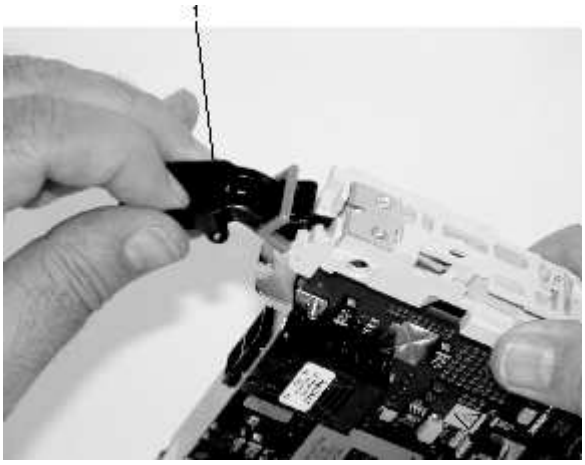


1 Metal EMC Shield

b. The metal EMC shield has clips that slide over the top of the tailstock. Ensure that these clips are holding the metal EMC shield to the tailstock.

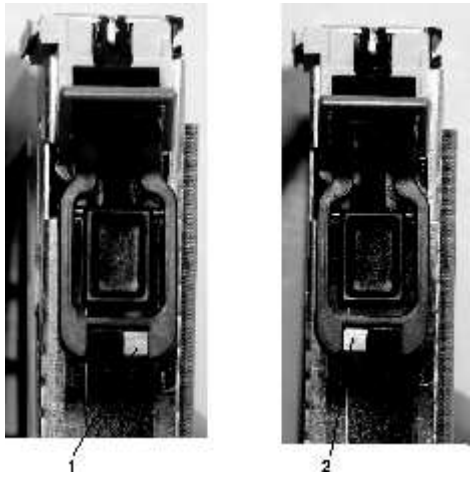
1 Top of Tailstock

16. Depress the handle release lever on the handle, and rotate the adapter handle until the handle is in the down position (adapter or blank filler moves up into the cassette assembly).



1 Handle

17. Using the system documentation, determine if the adapter you are installing is hot–swappable. If the adapter is hot–swappable, move the slider on the color indicator to allow the orange color to be visible. If the adapter is not hot–swappable, the blue color is visible.



1 Orange indicates Hot–Swappable

2 Blue indicates Not Hot–Swappable

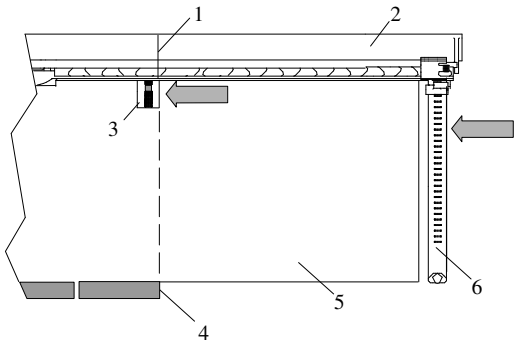
18. The adapter is ready to be installed into a system or an I/O drawer.

Long Adapter Installation

To install a long adapter, use the following procedure.

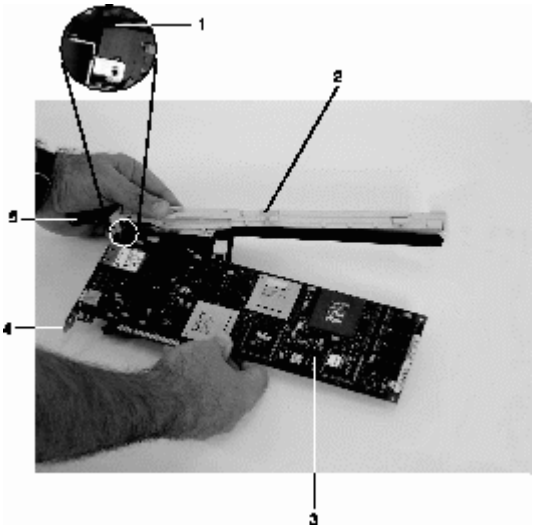
1. If installed, remove both long and short adapter retaining arms. See step 1a on page 4-17 to remove the arms.
2. Install the middle–spacer arm, see the following illustration.

   Note:: Some long adapters are shipped with a middle–spacer arm. If your adapter uses the middle–spacer arm, slide it onto the cassette linkage as shown in the following illustration. If there is an embossed line on the face of the top rail, align the middle–spacer arm as shown in the following illustration. If there is no line embossed on the face of the top rail, align the middle–spacer arm with the leading edge of the adapter's connector, as shown in the following illustration.



1 Embossed Middle–Spacer Alignment Lines
2 Top Cassette Rail
3 Middle–Spacer Arm
4 Adapter Connector (Leading Edge)
5 Long Adapter Card
6 Long Adapter Arm

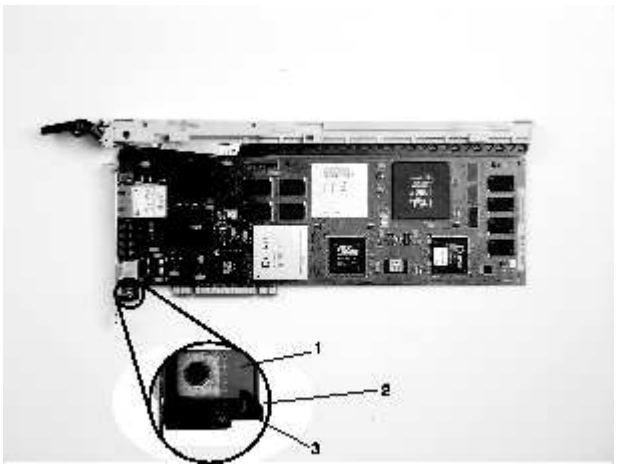
3. Place the adapter into the cassette so that the upper–left corner of the adapter engages the top adjustable adapter–retaining clip as shown in the following illustration:



1 Top Adapter–Retaining Clip
2 Cassette Linkage Assembly
3 Adapter
4 Bottom of Tailstock
5 Handle

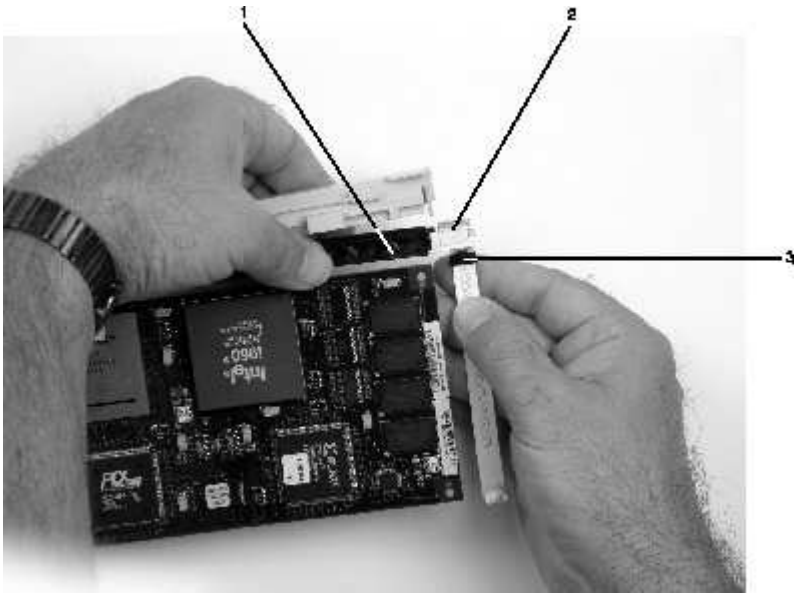
4. Rotate the adapter so that the adapter engages the slot in the bottom retaining clip and the top corner of the adapter is seated into the top adjustable adapter–retaining clip.

   Note:: If the adapter is not a full–height adapter, slide the top adjustable adapter–retaining clip downward until the lower edge of the adapter is seated into the slot on the bottom retaining clip.



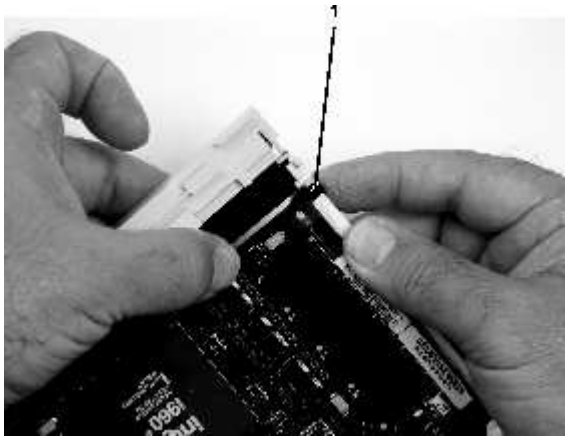
1 Adapter
2 Slot
3 Bottom Retaining Clip

5. Install the long adapter–retaining arm onto the cassette linkage rail, as shown in the following illustration, and slide the arm toward the adapter.



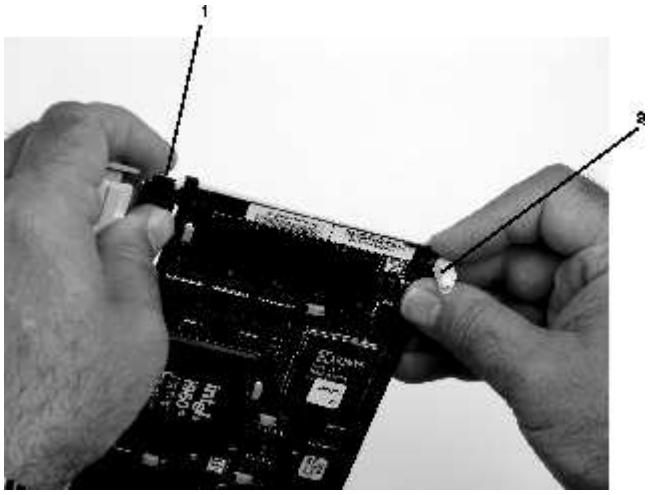
1 Cassette Linkage Assembly
2 Adapter Retaining Arm
3 Top Adapter Retaining Clip

6. Ensure that the top adjustable adapter–retaining clip catches the corner of the adapter as shown in the following illustration.



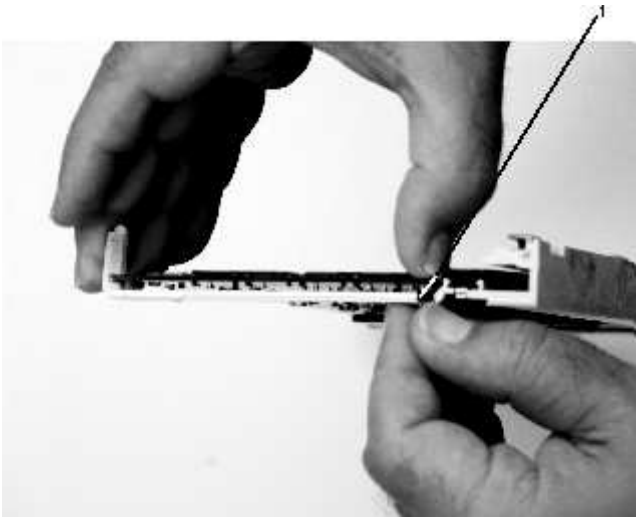
1 Top Adjustable–Retaining Clip

7. Ensure that the bottom edge of the adapter is held by the groove in the lower part of the adapter–retaining arm.



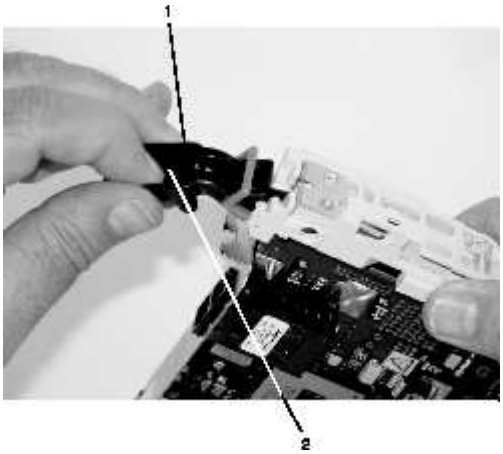
1 Top Adjustable–Retaining Clip **2** Long Adapter Retaining Arm Slot

8. To hold the top of the adapter, slide down the top adjustable adapter–retaining clip on the retaining arm.



1 Long Adapter Retaining Arm

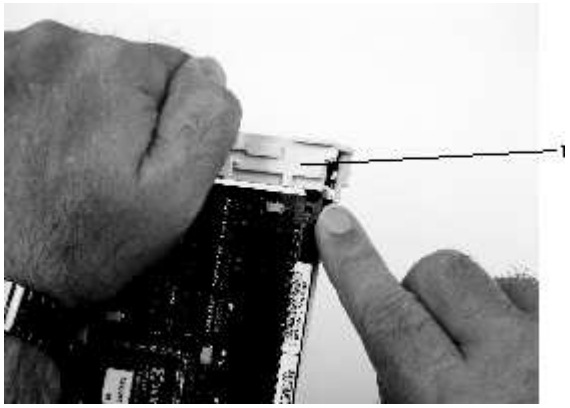
9. If you installed a middle–spacer arm, ensure that the adapter–retaining clip is seated around the top edge of the adapter.
10. Depress the handle release lever on the handle. Rotate the adapter handle until it is in the down position (adapter or blank filler moves up into the cassette assembly).



1 Handle

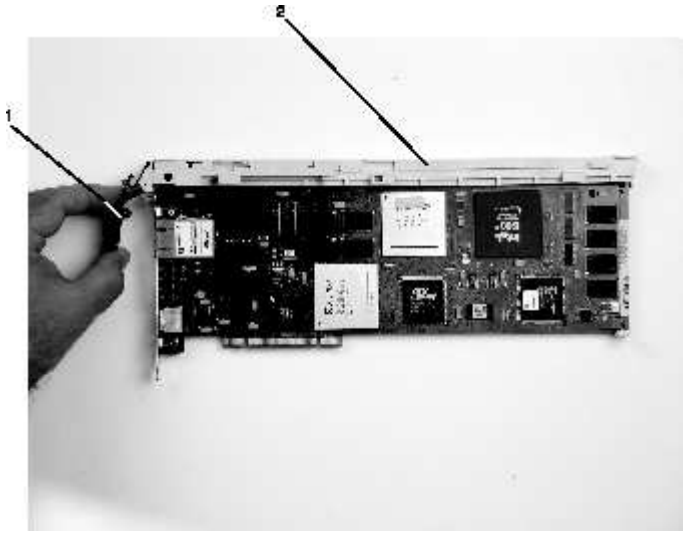
2 Handle Release Lever

Ensure the right end of the cassette linkage rail moves up into the cassette linkage assembly as shown:



1 Right End of Cassette Linkage

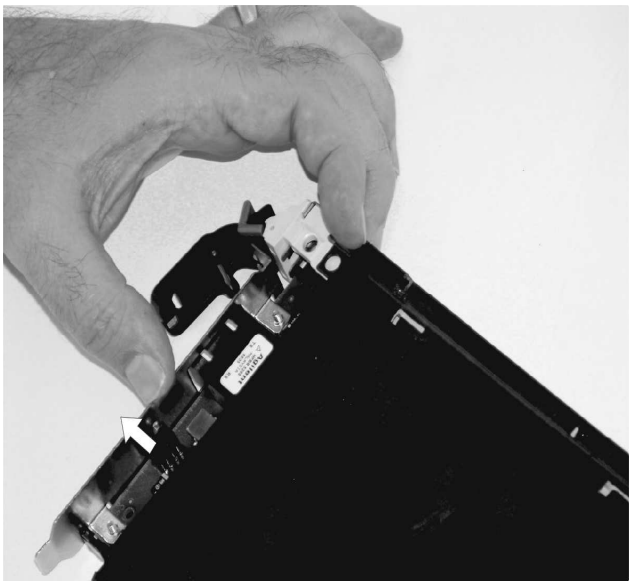
11. Position the adapter and cassette assembly with the handle on the left (in the down position) and the top facing away from you.

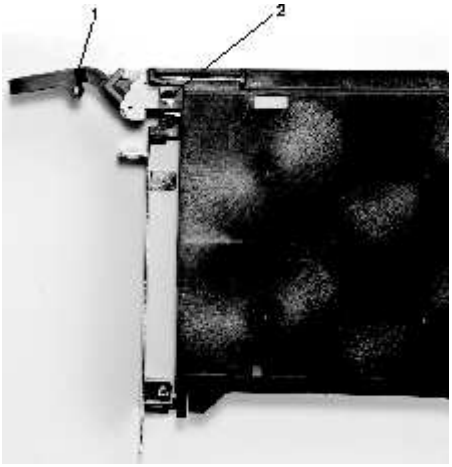


1 Handle

2 Top of Cassette

12. Install the cover on the cassette assembly by placing the cassette cover on the cassette assembly as shown. Slide the cover toward the handle until the hole in the cover aligns with the hole in the cassette assembly.



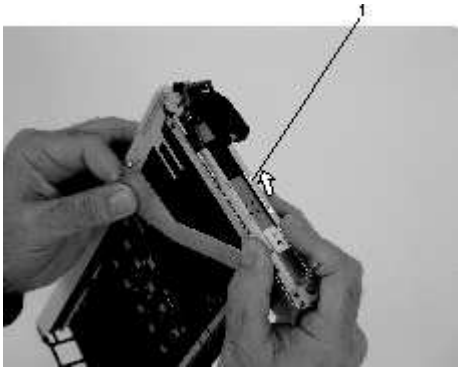


1 Handle

2 Hole Aligned in the Cover

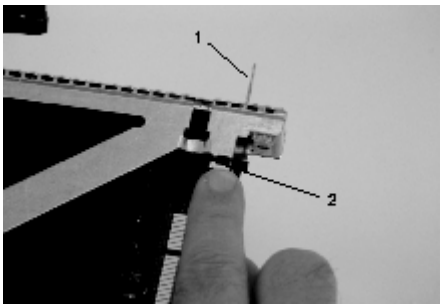
13. Install the bezel assembly using the following procedure:

    a. Carefully slide the bezel onto the cassette assembly.



1 Bezel

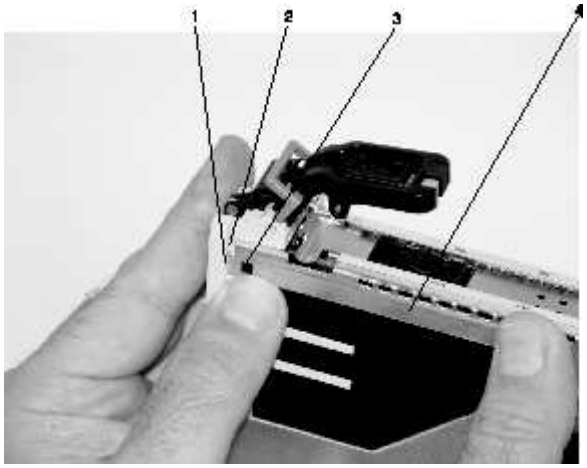
b. Align and insert the cover arm latch in the hooked notch in the bezel.



1 PCI Adapter Pull Tab

2 Hooked Notch in the Bezel

c. Align the top of the bezel assembly into the grooves on the top of the cassette assembly, and push the bezel onto the cassette linkage assembly until the tab on the top of the bezel is seated in the recess of the cassette assembly.



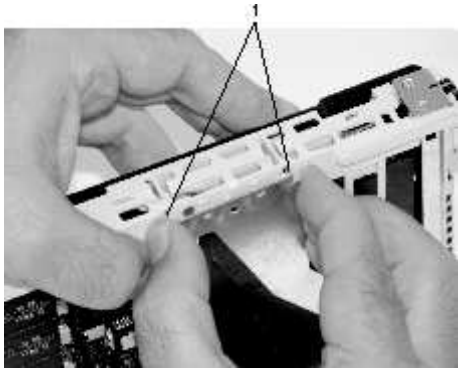
1 Recess

2 Grooves

3 Tab

4 Bezel

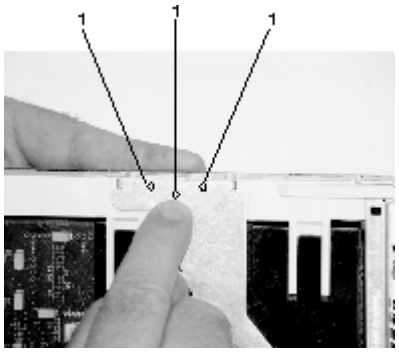
d. Insert the two tabs on the bezel extension into the two slots on the cassette assembly.



1 Tabs

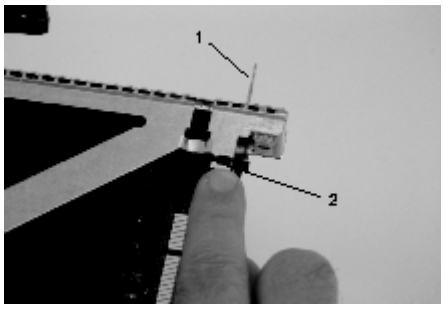
14. Check for the following:

a. Ensure that the extension arm engages the three pins on the cassette. You can see the pins in the holes in the arm. The bezel tab is seated as shown in the following illustration.



1 Pins

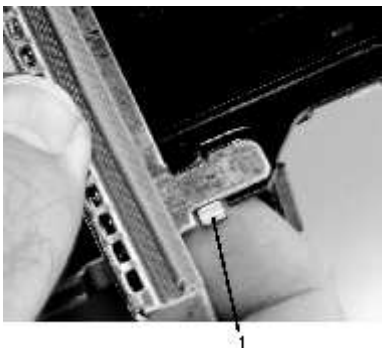
b. Ensure that the cover arm latch is completely pressed into the hooked notch on the bezel as shown.



1 PCI Adapter Pull Tab

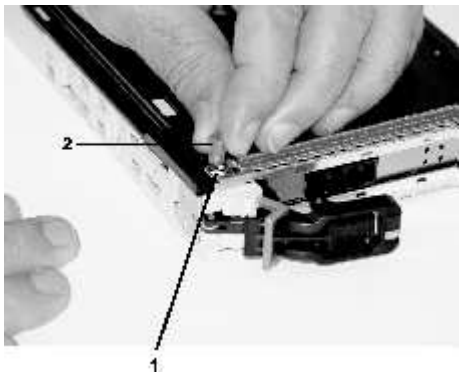
2 Hooked Notch in the Bezel

c. Turn the cassette assembly over so that the cover is facing up. Check the cover latch to ensure that it is holding the bezel to the cover as shown.



1 Cover Latch

15. Position the adapter with the cover side facing up. Ensure that the holes are aligned, and insert the bushing as shown.



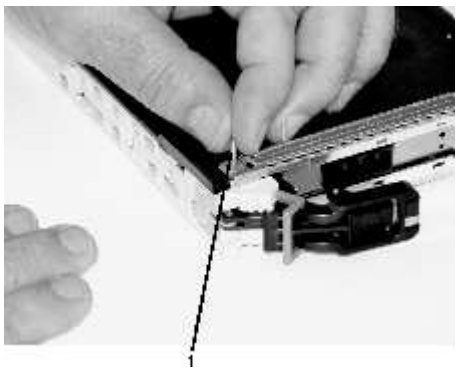
1 Bushing

2 Bushing–Lock Pin

1 Bushing

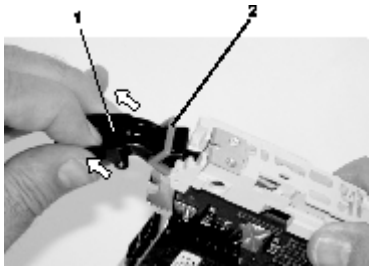
2 Bushing–Lock Pin

16. Insert the bushing–lock pin into the hole in the bushing. Push on the pin until it seats.



1 Location of the Installed Bushing and Bushing–Lock Pin

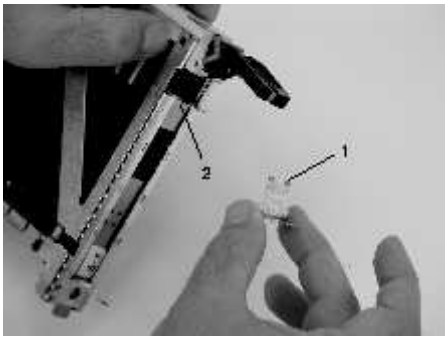
17. Depress the handle release lever to ensure the locking bar on the handle is pulled into the unlocked position. Raise the handle on the cassette linkage until it locks into the up position (the blank filler or adapter moves downward).



1 Handle

2 Locking Bar

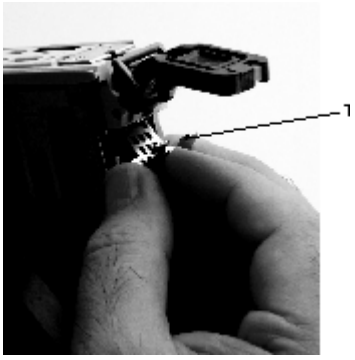
18. To install the metal EMC shield on the adapter bracket, grasp the metal EMC shield as shown in the following illustration, and do the following:



1 Metal EMC Shield

2 Adapter Bracket

a. Ensure that the shield slides up inside the top of the cassette.



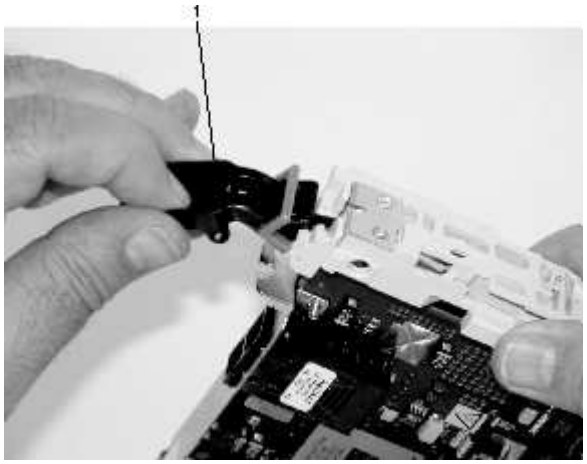
1 Metal EMC Shield

2 Adapter Bracket

b. The metal EMC shield has clips that slide over the top of the tailstock. Ensure that these clips are holding the EMC shield to the tailstock.

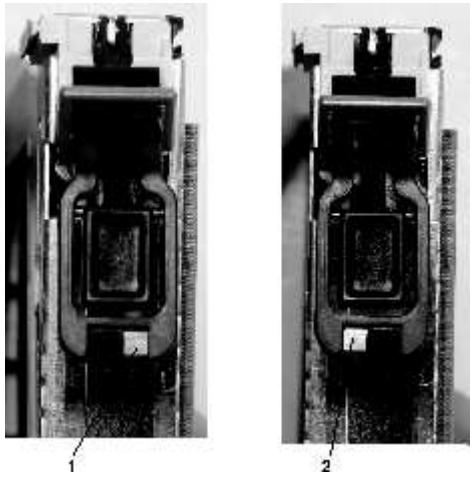
1 Top of Tailstock

19. Press the lock on the handle and rotate the adapter handle until the handle is in the down position (adapter or blank filler moves up into the cassette assembly).



1 Handle

20. Using your system documentation, determine if the adapter you are installing is hot–swappable. If the adapter is hot–swappable, move the slider on the color indicator to allow the orange color to be visible. If the adapter is not hot–swappable, the blue color is visible.



1 Orange indicates Hot–Swappable

2 Blue indicates Not Hot–Swappable

21. The adapter is ready to be installed into a system or an I/O drawer. For more information, refer to your system documentation.

Appendix A. Securing the Rack

This appendix contains information about installing the rack for the ESCALA PL 3200R . This procedure is optional and should be performed if the customer has ordered the appropriate hardware kits to bolt the system to the floor. For further information, refer to part number 44P0159, the installation instructions for RPQs 8A1183, 8A1185, and 8A1186 as follows:

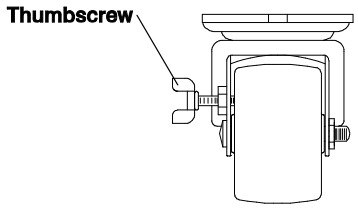
- RPQ 8A1183 for attaching the rack–mounting plates to the concrete floor (non–raised floor)
- RPQ 8A1185 to attach the rack to a concrete floor when on a raised floor (9–1/2 inches to 11–3/4 inches high)
- RPQ 8A1186 to attach the rack to a concrete floor when on a raised floor (11–3/4 inches to 16 inches high)

Positioning the Rack

Note: The customer should unpack the rack and position it in the room. If this has not been done, consult the customer and the marketing representative as necessary.

To unpack and position the rack, do the following:

1. Remove all packing and tape from the rack.
2. Position the rack according to the customer floor plan.
3. Lock each caster wheel by tightening the thumbscrew on the caster.



Installing the Frame Kit

The following tables show the parts required for each of the tie–down kits (a non–raised floor, short–raised floor, and a long–raised floor).

Rack Tie–Down Kits

11P4759 Frame Tie–down Kit (Non–Raised Floor) (RPQ 8A1183)			
Item	**Part Number**	**Qty**	**Description**
Item 3 in illustration on page A-5.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page A-5.	11P3529	4	Hinge plate
Item 8 in illustration on page A-5.	11P3530	2	Latch plate
Item 6 in illustration on page A-5.	11P3531	2	EQ support
Item 2 in illustration on page A-5.	11P3532	2	Shipping bar (upper)
Item 7 in illustration on page A-5.	76X4687	2	Latch bolt
Item 1 in illustration on page A-5.	1624804	20	Screw (hex flange, 20mm, long)
Item 9 in illustration on page A-5.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page A-5.	1622307	8	Washer (M8, hinge)
Item 1 in illustration on page A-6.	11P3528	2	Plate lock–down
Item 2 in illustration on page A-6.	05N6345	4	Spacer
Item 4 in illustration on page A-6.	05N6344	4	Bushing
Item 5 in illustration on page A-6.	21L4309	4	Washer
Item 3 in illustration on page A-6.	0130985	4	Washer
Item 6 in illustration on page A-6.	05N6346	4	Bolt

11P4757 Frame Tie–down Kit (Short–Raised Floor) (RPQ 8A1185)			
Item	**Part Number**	**Qty**	**Description**
Illustration on page A-11.	44P0673	4	Turnbuckle Assembly (short)
Item 3 in illustration on page A-5.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page A-5.	11P3529	4	Hinge plate
Item 8 in illustration on page A-5.	11P3530	2	Latch plate
Item 6 in illustration on page A-5.	11P3531	2	EQ support
Item 2 in illustration on page A-5.	11P3532	2	Shipping bar (upper)
Item 7 in illustration on page A-5.	76X4687	2	Latch bolt
Item 1 in illustration on page A-5.	1624804	20	Screw (hex flange, 20mm, long)
Item 9 in illustration on page A-5.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page A-5.	1622307	8	Washer (M–8, hinge)

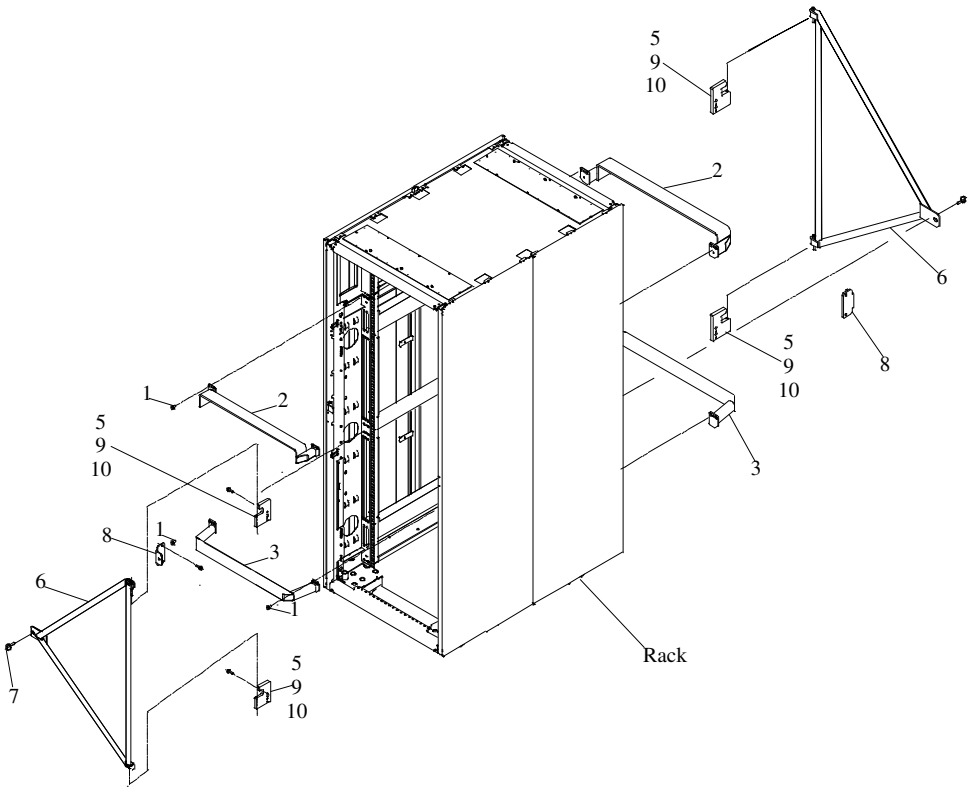
11P4758 Frame Tie–down Kit (Long–Raised Floor) (RPQ 8A1186)			
Item	**Part Number**	**Qty**	**Description**
Illustration on page A-11.	44P0674	4	Turnbuckle Assembly (long)
Item 3 in illustration on page A-5.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page A-5.	11P3529	4	Hinge plate
Item 8 in illustration on page A-5.	11P3530	2	Latch plate
Item 6 in illustration on page A-5.	11P3531	2	EQ support
Item 2 in illustration on page A-5.	11P3532	2	Shipping bar (upper)
Item 7 in illustration on page A-5.	76X4687	2	Latch bolt
Item 1 in illustration on page A-5.	1624804	20	Screw (hex flange, 20mm, long)
Item 9 in illustration on page A-5.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page A-5.	1622307	8	Washer (M–8, hinge)

Mounting Internal Rack Components

To mount the internal rack components, do the following:

Attention: This procedure is performed by the service representative.

1. Using four M–8 (20 mm) screws (item 1 in illustration on page A-5), install the top shipping bar (item 2 in illustration on page A-5) at EIA unit location 32.
2. Using four M–8 screws (item 1 in illustration on page A-5), install the bottom shipping bar (item 3 in illustration on page A-5) at EIA unit location 18.
3. Repeat steps 1 and 2 to install shipping bars in the rear of the rack.
4. Attach the front top hinge (item 5 in illustration on page A-5) on the vertical rail (located approximately at EIA unit 29–30 on the vertical rail) with two 25 mm screws (item 9 in illustration on page A-5) and two washers (item 10 in illustration on page A-5).
5. Attach the front bottom hinge (item 5 in illustration on page A-5) on the vertical rail (located approximately on EIA unit 6–7 on the vertical rail) with two 25 mm screws (item 9 in illustration on page A-5) and two washers (item 10 in illustration on page A-5).
6. Repeat steps 4 and 5 to install the hinges on the rear rail.
7. Attach the latch plate (item 8 in illustration on page A-5) with two M–8 (20 mm) screws (item 1 in illustration on page A-5).
8. Repeat step 7 to attach the latch plate in the rear of the rack.
9. Attach the triangular braces (item 6 in illustration on page A-5) in both the front and rear of the rack.
10. Install the latch bolts (item 7 in illustration on page A-5).



1 Screw (hex flange, 20 mm long)
2 Shipping bar (upper)
3 Shipping bar (lower)
5 Hinge Plate
6 EQ Support
7 Latch Bolt
8 Latch Plate
9 Screw (hex, 25mm, long, hinge)
10 Washer (M 8, hinge)

Determine Your Next Step

Use the following to determine your next step:

- If the rack is being attached to a concrete (non–raised) floor, proceed to Attach the Rack to a Concrete (Non–Raised) Floor on page A-6.
- If the rack is being attached to a raised floor, proceed to Attaching the Rack to a Short–Raised or Long–Raised Floor on page A-8.
- If the rack is not being attached to the floor, proceed to Step 3. Position and Level the Primary Rack on page 1-4.

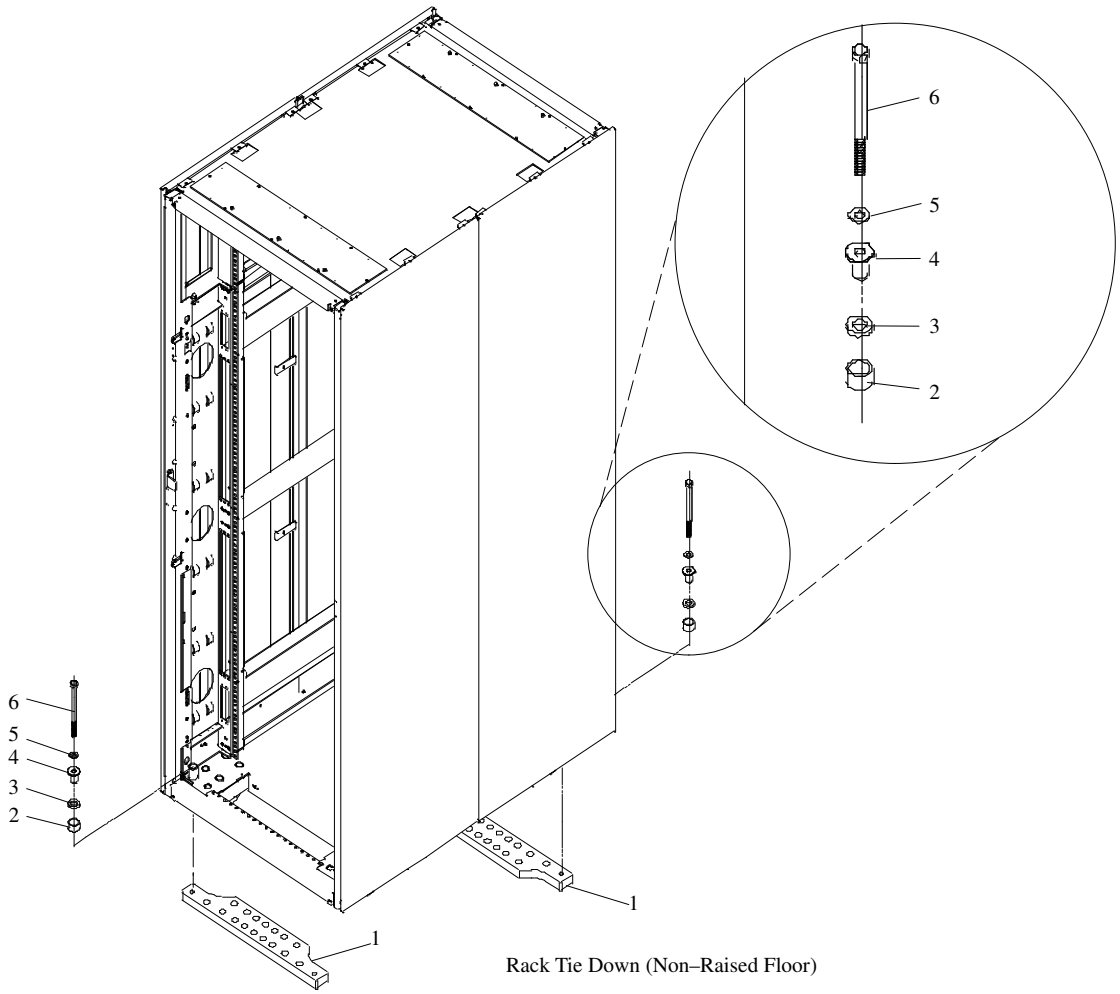
Attach the Rack to a Concrete (Non–Raised) Floor

Use this procedure to attach the rack to a concrete (non–raised) floor.

Attention: It is the customer's responsibility to ensure the following steps are completed before the service representative performs the tie–down procedure.

Note: The customer should obtain the service of a qualified structural engineer to determine appropriate anchoring of the mounting plates. A minimum of three anchor bolts for each mounting plate must be used to secure the plates to the concrete floor. Because some of the drilled holes may be aligned with concrete reinforcement rods below the surface of the concrete floor, additional holes must be drilled. Each mounting plate must have at least three usable holes, two that are on opposite sides and opposite ends of each other, and one hole at the center. The mounting plates should be able to withstand 2500 pounds pulling force on each end.

1. Be sure the rack is in the correct location.

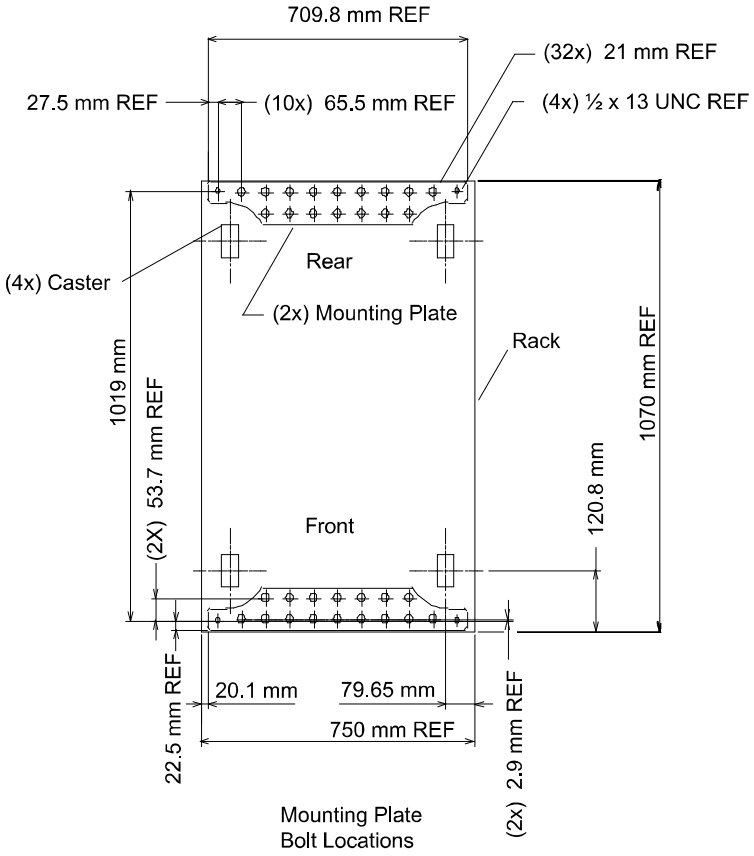


Rack Tie Down (Non–Raised Floor)

1	Plate Lock–Down (mounting plates)	**4**	Bushing
2	Spacer	**5**	Washer
3	Washer	**6**	Bolt

2. Place the mounting plates (item 1 in illustration on page A-6), front and rear, in the approximate mounting position under the system rack.

3. To align the mounting plates to the system rack, do the following:
   a. Place the four rack–mounting bolts (item 6 in illustration on page A-6) through the plate assembly holes at the bottom of the rack. Install the bushings and washers (item 4 and 5 in illustration on page A-6) to ensure bolt positioning.
   b. Position the mounting plates (item 1 in illustration on page A-6) under the four rack–mounting bolts (item 6 in illustration on page A-6) so that the mounting bolts are centered directly over the tapped holes.
   c. Turn the rack–mounting bolts (item 6 in illustration on page A-6) three or four rotations into the tapped holes.
4. Mark the floor around the edge of the mounting plates, as shown in the following illustration:



5. Remove the mounting bolts from the threaded holes.
6. Move the rack away from the mounting plates.
7. Mark the floor at the center of each hole in the mounting plate (including tapped holes).
8. Remove the mounting plates from the marked locations.
9. At the marked location of the tapped mounting holes, drill two holes approximately 1 inch to allow clearance for the ends of the two rack–mounting bolts. The ends of the rack–mounting bolts may protrude past the thickness of the mounting plate. Drill one hole in each group of anchor bolt location marks as indicated on the marked floor.
10. Using at least three bolts for each mounting plate, mount the mounting plates to the concrete floor.

Attention: It is the service representative's responsibility to complete the following steps.

1. Reposition the system rack over the mounting plates.
2. Place the four rack–mounting bolts through the plate assemblies, with the D–washer positioned so that the straight side of the washer is facing inward toward the system rack.
3. Place the isolator bushing (item 4 in illustration on page A-6) inside the leveling foot, with a washer between the isolator bushing and the floor plate.
4. Turn the rack–mounting bolts three or four rotations into the tapped holes.
5. Turn the leveling foot of the plate assembly down until it contacts the mounting plate, and then level the rack using the four leveling feet.
6. Lock the leveling feet by tightening the lock nut.
7. Tighten the four rack–mounting bolts into the mounting plates.

Attaching the Rack to a Short–Raised or Long–Raised Floor

Attention: It is the customer's responsibility to ensure the following steps are completed before the service representative performs the tie–down procedure.

Note: To accommodate a floor with a depth of more than 16 inches, a steel beam or a steel channel adapter for mounting the subfloor eyebolts is required. The customer must supply the floor eyebolts.

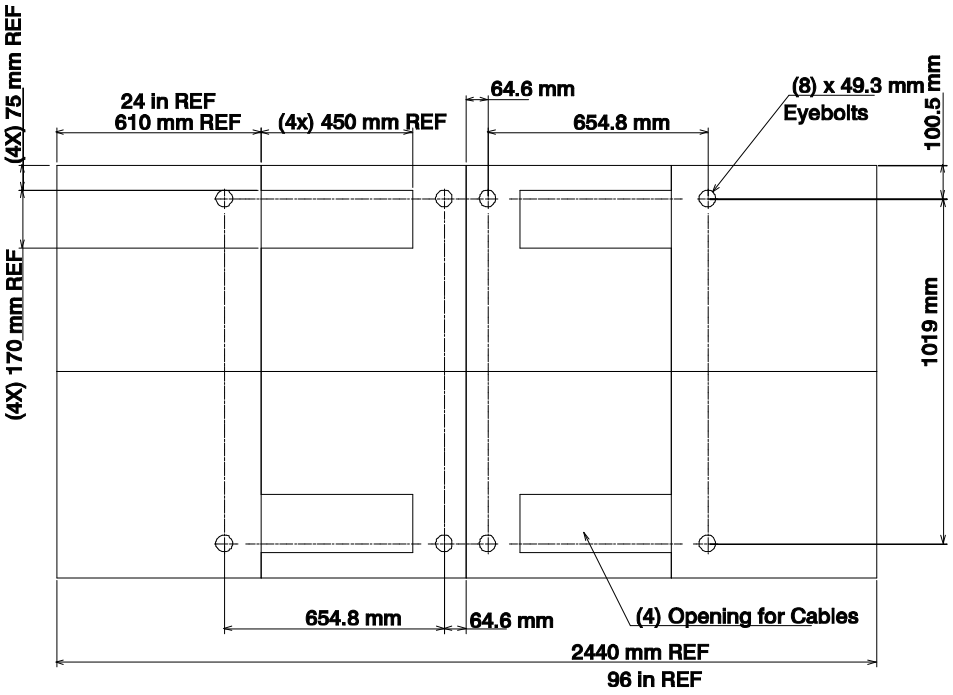
Consider the following when preparing the floor for tie–down:

- The hardware is designed to support a frame weighing no more than 2636 pounds.
- The estimated maximum concentrated load on one caster for a 2636–pound system is 900 pounds. For a multiple system installation, it is possible that one floor tile will bear a total concentrated load of 1800 pounds.

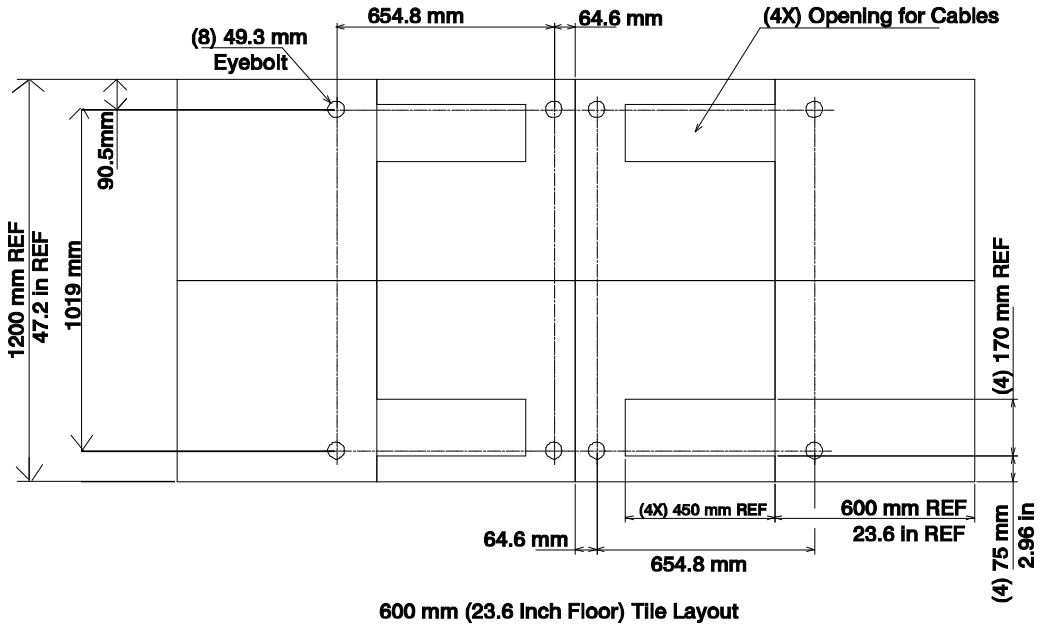
To install the eyebolts, do the following:

1. Obtain the service of a qualified structural engineer to determine the appropriate installation of the eyebolts.
2. Consider the following before installing the eyebolts:
   - Floor eyebolts must be securely anchored to the concrete floor.
   - The minimum height of the center of the internal diameter is 1 inch above the concrete floor surface.
   - The maximum height is 2.5 inches above the concrete floor surface. Higher than 2.5 inches can cause excessive lateral deflection to the tie–down hardware.
   - The eyebolt's internal diameter should be 1–3/16 inch, and each eyebolt should be able to withstand 2700 pounds. The customer should obtain the service of a qualified consultant or structural engineer to determine the appropriate anchoring method for these eyebolts and to ensure that the raised floor can support the floor–loading specifications .

3. Install the four eyebolts that match the dimensions given in the following illustrations.



24 Inch Floor Tile Layout



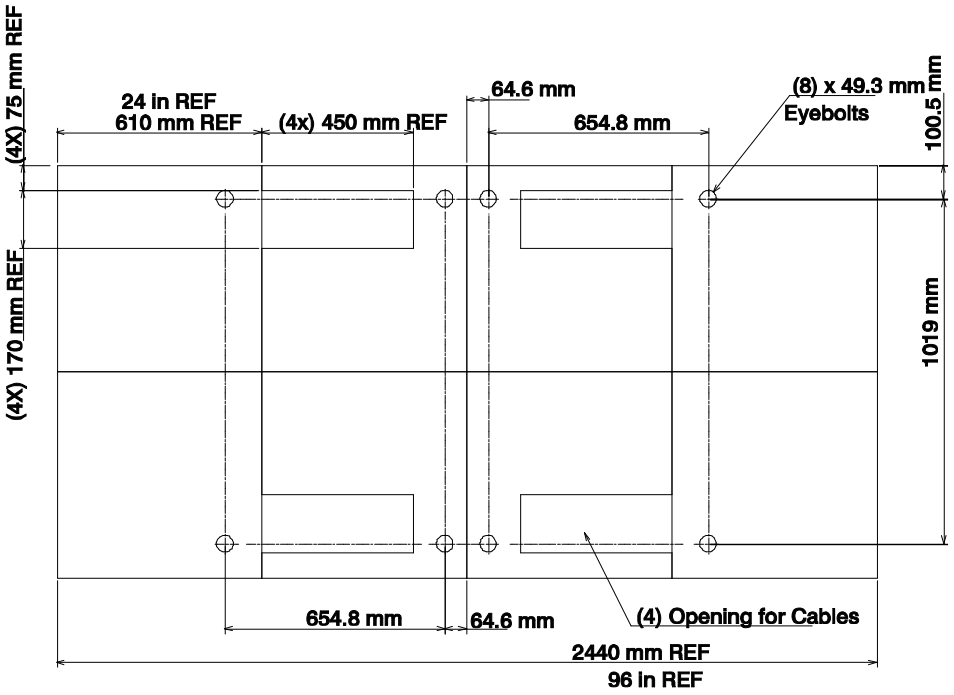
600 mm (23.6 Inch Floor) Tile Layout

4. Install the eyebolts in the floor.

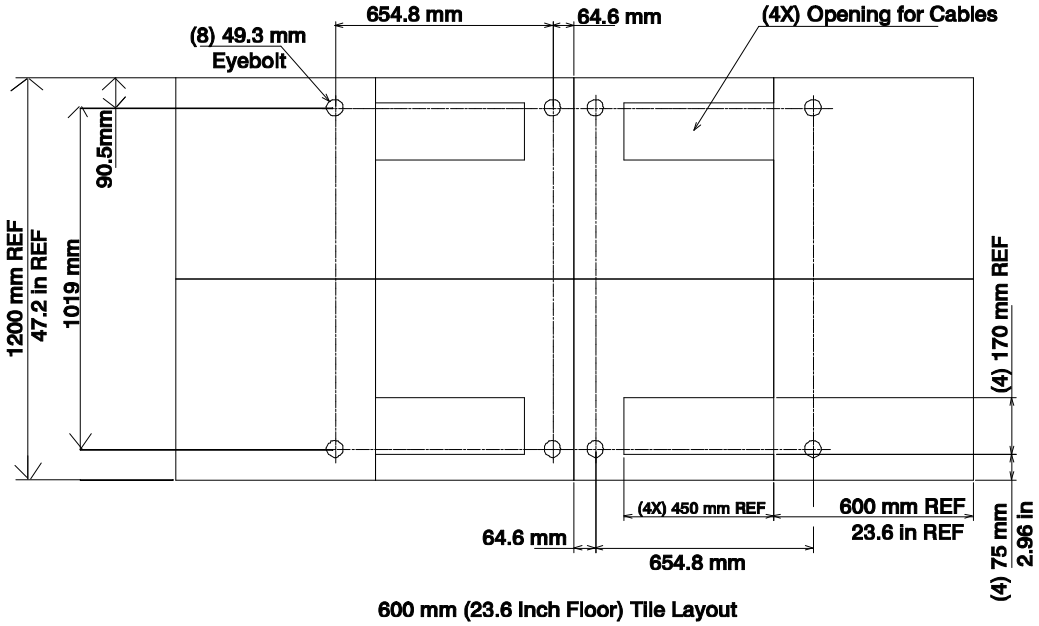
To install the frame, do the following:

Attention: It is the service representative's responsibility to complete the following steps.

1. Before starting the installation, check all cable openings in the floor panel and location of the rubber bushing holes so that they match the dimensions given in the following illustrations.



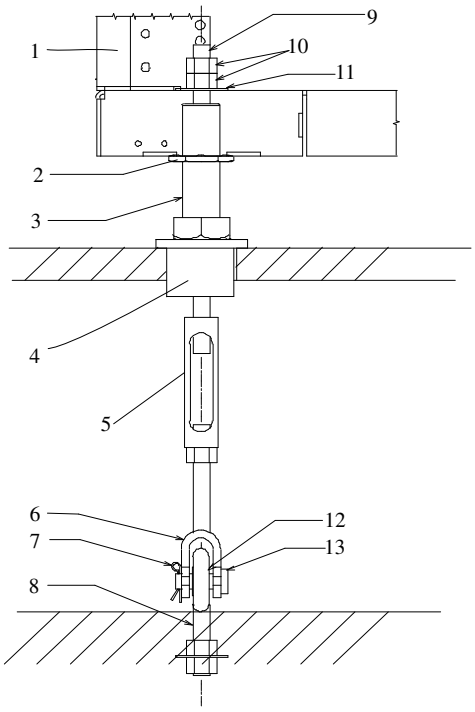
24 Inch Floor Tile Layout

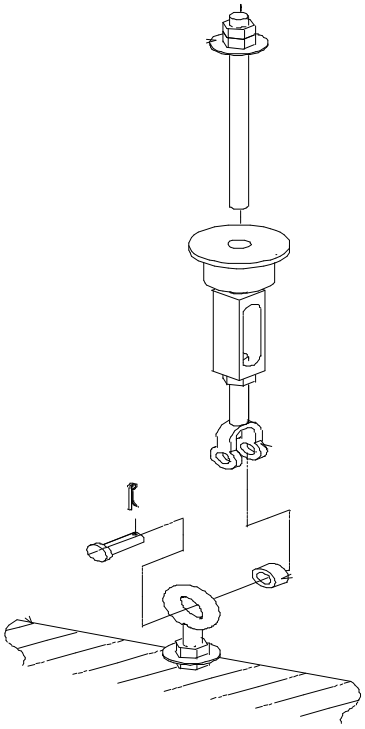


600 mm (23.6 Inch Floor) Tile Layout

2. Power off the system and make sure all cables and connectors are disconnected and are not dangling around the frame. The frame should be free to roll.

3. The floor eyebolts should be already secured to the concrete floor. Verify the height of the center of the floor eyebolt to the concrete floor or the steel beam/channel adapter mounted to the concrete floor. Ensure that the turnbuckles can accommodate the total height of the raised floor.
4. Remove the floor tiles around the area where the frame(s) will be installed.
5. Remove the pin and the spacer from the lower jaw (see the following illustrations).





1 Frame
2 Jam Nut
3 Rack Leveler
4 Rubber Bushing
5 Turnbuckle (Short or Long)
6 Lower Jaw
7 Pin
8 Floor Eyebolt (customer–supplied)
9 Threaded Rod
10 Nut
11 Washer
12 Spacer
13 Shaft

Note: The difference between the two turnbuckle assemblies is the length of the turnbuckle.

The Short Turnbuckle Assembly (part number 11P4755) is used for a 9–1/2 inches to 11–3/4 inches raised floor.

The Long Turnbuckle Assembly (part number 11P4756) is used for an 11–3/4 inches to 16 inches raised floor.

6. Place the spacer inside the floor eyebolt, and place the floor eyebolt between the lower jaw. Reinstall the shaft, pin, and spacer.
7. Remove the threaded rod and rubber bushing from the turnbuckle assembly.
8. Install the floor tile that has the rubber bushing holes that are aligned with the eyebolt locations.
9. Install the rubber bushings in the floor tiles.

10. Move the frame so that the frame leveler is located over the rubber bushings.

    Attention: To avoid a tipping hazard, make sure that the frame casters do not roll into the cable opening.

11. Turn the leveling foot of the plate assembly down until it contacts the bushing, and level the rack by tightening the lock nuts on the four leveling feet.
12. Lock the leveling feet by tightening the lock nut.
13. Insert the threaded rod into the inner hole of the leveler and the rubber bushing.
14. Thread down the threaded rod until the tip of the rod is approximately 1 inch inside the turnbuckle.
15. Insert the nuts and hand–tighten the nuts.
16. Repeat the previous three steps so that all assemblies are completely installed, as shown in the previous illustration.
17. Tighten all the nuts to 40 ft–pounds.

The frame is now secured.

Installing the Frame–Ground Straps

Install a frame–ground strap on all ESCALA PL 3200R systems if the following conditions are met:

- A frame–ground strap is provided for installation.

  AND

- The customer provides a ground to which the frame–ground strap will attach.

Attention: It is recommended that all ESCALA PL 3200R systems that are installed in 7040 Model W42 racks, be grounded. However, two frame–ground straps are *required* on a rack for a switched clustered environment (for example, when in a scalable parallel (SP) Switch–2 connected clustered environment). One frame–ground strap must be installed at the front bottom–left side of the rack, and the second frame–ground strap must be installed at the rear bottom–left side of the rack.

Raised–Floor Environments

Raised–floor environments can be short–raised or long–raised floors. For additional information on site planning for the system, refer to ESCALA PL 3200R information in the *Site Preparation Guide for Rack Systems*. The frame–ground straps provided with the system are intended for use with a grounded raised floor.

Attention: If the site raised floor has pedestals that are not grounded, ask the customer to consult with a certified electrical contractor to have the floor pedestals grounded.

To install the frame–ground straps on a rack in a grounded raised–floor environment, perform the following steps.

1. Ensure that the raised–floor is grounded. A grounded–raised floor has pedestals that are connected with ground wire so that an electrical ground can be installed from equipment to pedestals, and then to an earth ground.

   If the raised floor is not grounded, stop, and ask the customer to arrange to have the floor grounded.

   If the raised floor is grounded, go to the next step.

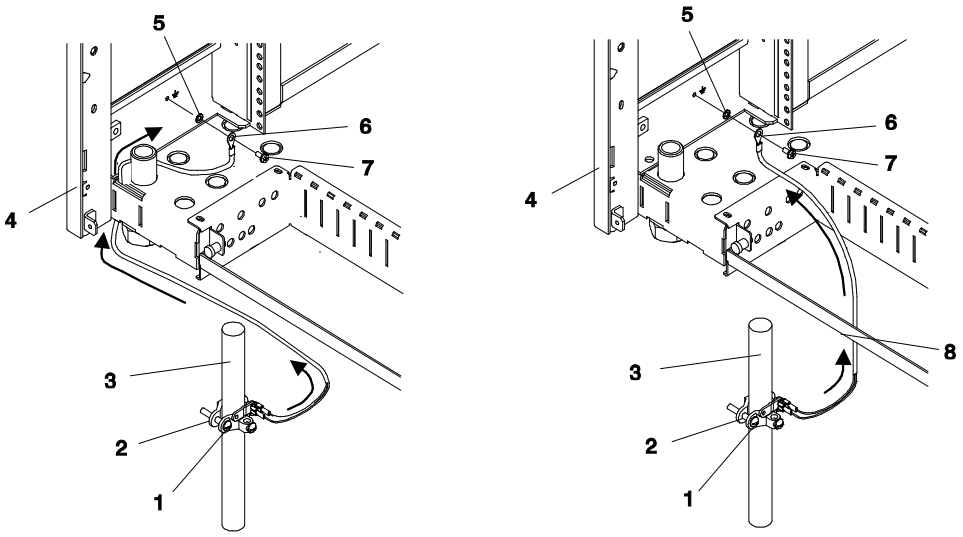
2. If the rear door on the rack is not open, open the door.
3. To install a frame–ground strap at the front bottom–left side of the rack, do the following:

a. At the front bottom–left side of the rack, attach the lug end of the ground strap (part number 44P2814) to the ground connection symbol on the rack using a screw (part number 2665528) and a lockwasher (part number 1623347, if supplied). Tighten the screw using an 8–mm nutdriver.

The ground strap can run alongside the rack power cord to exit the frame.

Note: Ensure that the lockwasher is installed between the frame surface and the ground–strap lug.

See the front view of the rack in the following illustration.



Front of Rack

Rear of Rack

1 Screw on Ground Clamp (for tightening the clamp)

2 Grounding Clamp

3 Metal Floor Pedestal

4 Rear Bottom–left Side of Rack

5 Lockwasher (install if supplied)

6 Ground–Strap Lug

7 Screw (for attaching lug to rack)

8 Ground Strap

Note: See the different routing for the frame–ground strap at the front and rear of the rack.

b. Position the grounding clamp (part number 5457808) around a grounded floor pedestal.

c. Using a screwdriver, tighten the screwon the ground clamp to secure the clamp to the floor pedestal.

d. Attach the other end of the ground strap to the ground strap clamp on the floor pedestal.

4. To install a frame–ground strap at the rear bottom–left side of the rack, do the following:

a. At the rear bottom–left side of the rack, attach the lug end of the ground strap (part number 44P2814) to the ground connection symbol on the rack, using a screw (part number 2665528) and a lockwasher (part number 1623347, if supplied). Tighten the screw using an 8–mm nutdriver.

Note: Ensure that the lockwasher is installed between the frame surface and the ground strap lug.

See the rear view of the rack in the previous illustration.

b. Position the ground strap clamp (part number 5457808) around a grounded floor pedestal.

c. Using a screwdriver, tighten the ground strap clamp screw to secure the clamp to the floor pedestal.

d. Attach the other end of the ground strap to the ground strap clamp on the floor pedestal.

5. If no other service procedures are being performed at the rear of the rack, close the rack door.

Non–Raised Floor Environments

Determine if the frame–ground straps are required (refer to the *Attention* in Installing the Frame–Ground Straps on page A-12). If the system is installed in a switched clustered environment (Switch–2 connected clustered environment), refer to ESCALA PL 3200R information in the *Site Preparation Guide for Rack Systems* for an alternate solution.

Appendix B. Attaching Multiple ESCALA PL 3200R s to One Hardware Management Console

This appendix details how to attach multiple ESCALA PL 3200R servers to one HMC. The HMC might have an 8–port async adapter or a 128–port async adapter installed to allow multiple servers to connect. Procedures for configuring both of the async adapters follow.

Installing the 8–Port async Adapter

The 8–port serial adapter is an option for the HMC. The 8–port serial adapter software is included in the HMC's base software image. The 8–port async adapter must be configured by the service representative when the HMC is installed. You must log in as root user to do these procedures.

For instructions on how to install and configure the 8–port adapter in the system with the HMC, see the *HMC Operations and Installation Guide* .

To install and configure the 8–port adapter in the system, do the following:

1. To access the HMC microcode maintenance function, obtain the password from software support and log in as hscpe.
2. In the HMC Navigation area, click **Problem Determination**.
3. In the Contents area, click **Microcode Maintenance**. The User Authentication window opens.
4. Enter the HMC system unit's serial number and the password provided by software support. The Microcode Maintenance Menu window opens.
5. Select **Launch xterm shell** to open a command prompt window.
6. Type `su –,` then log in as root user.
7. Type the following command to run the configuration utility: `/usr/sbin/digiConf`. You must provide the following answers to the following questions:
   a. Question: How many boards would you like to install? Answer: Enter the total number of 8–port and/or 128–port async adapters in the system.
   b. Question: Board #1. What type of board is this? ('L' for list) Answer: Use board type 15
   c. Question: Do you want to set Altpin on this board? ('y' or 'n') Answer: No If two 8–port adapters are installed in the system, you must provide the following answers to the following questions:
   a. Question: Board #2. What type of board is this? ('L' for list) Answer: Use board type 15
   b. Question: Do you want to set Altpin on this board? ('y' or 'n') Answer: No
8. The HMC is configured. Reboot your PC to load the adapter device driver.

Connect the Serial Cables from the ESCALA PL 3200R to the 8–Port Async Adapters

Up to two optional 8–port async adapters can be installed. The D–shell connector on the back of the adapter attaches to the 8–port expansion cable. The cable is approximately 3 feet long, and on the other end, has a slim box (8–1/2 inches x 3 inches x 1–1/2 inches) with 8 separate serial port connectors on it. The cable is labeled *ISA 8–Port Cable*. Serial cables can be connected from any of the ports on the 8–port expansion cable to the HMC1 ports on the managed systems.

If you are using a second, redundant HMC, connect cables from all the ESCALA PL 3200R HMC1 ports to the 8–port cable on the primary HMC, and connect all the ESCALA PL 3200R HMC2 ports to the 8–port cable on the redundant HMC.

Note:: The second HMC system serial port is reserved for use by the modem.

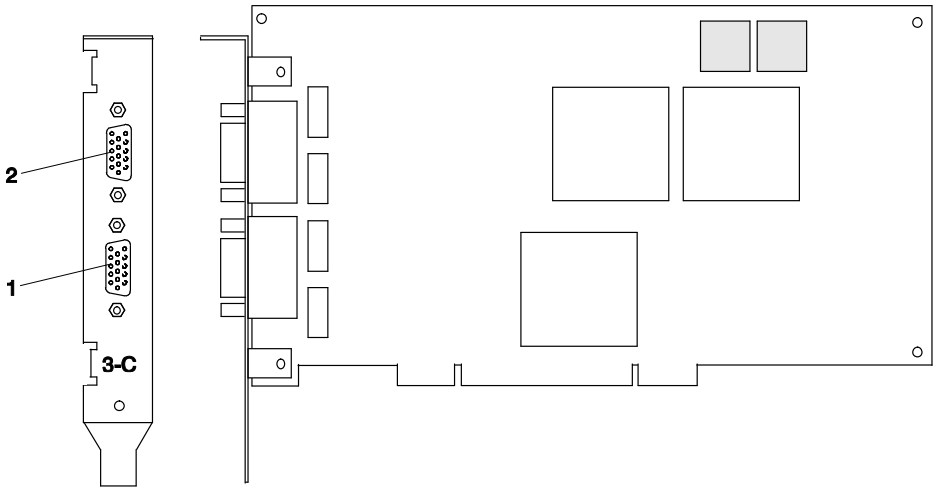
Installing the 128–Port Async Adapter

The 128–port async adapter is an option for the HMC. It must be configured by the service representative when the HMC is installed. The 128–port async adapter software is included in the HMC base software installation package.

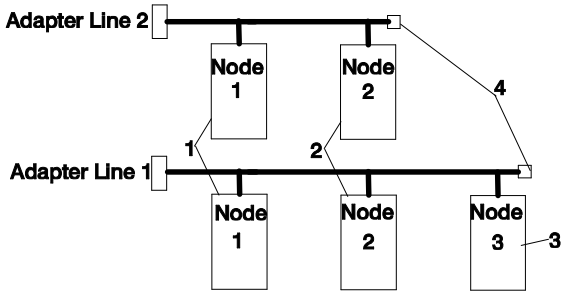
This adapter provides the control function and connectors to attach eight 16–port remote async nodes (RANs). When all eight nodes are attached, this combination provides 128 EIA–232 or RS–422 communication ports.

128–Port Async Adapter Line Connectors

The 128–port async adapter contains two 15–pin D–shell connectors. The connector that is closest to the edge connector that plugs into the HMC is line 1. The RANs are cabled in a daisy chain and are terminated using a line terminator. The following illustration shows the adapter and the line connectors.



The following illustration shows an example of a typical RAN configuration. In this example, RANs are connected to both line 1 and line 2 of the adapter.



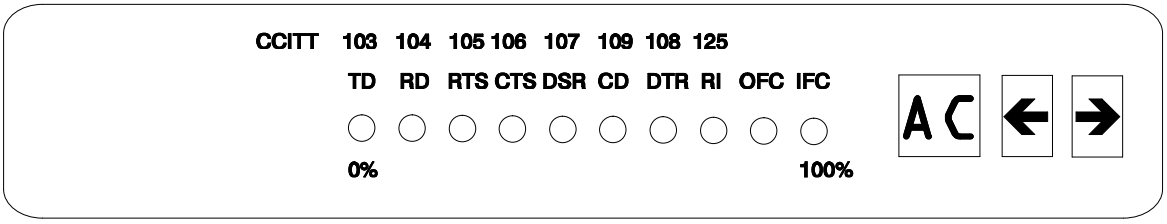
1 RAN Nodes
2 RAN Nodes
3 RAN Node
4 Terminators

- Up to eight RANS can be attached to one adapter total. If four are attached to line one, then only four more can be attached to line 2.
- RANs *must* be numbered in ascending order. The RAN closest to the adapter is assigned as node 1. No gaps in the numbering should occur. Example, numbering RANs as 1, 3, 4 in a line will cause configuration problems.

Setting a RAN Node Number

The *AIX Asynchronous Communications Guide* provides information about configuring and running diagnostics on the 128–port async adapter and associated RANs.

The adapter identifies RANs by their node numbers. Each RAN in a daisy chain must have a unique node number (*1n–4n*), which must be set during installation. The node numbers must be assigned in ascending order with the lowest number assigned to the RAN closest to the 128–port async adapter. The following illustration shows the front panel of a RAN.



To set the RAN node number, do the following:

1. Turn on the RAN and wait for the power–on self–test (POST) to complete.
2. When `P1` is displayed on the front panel seven–segment LED display, press the left arrow button once. The current node number is displayed, for example, `1n` for node 1.
3. Press the right arrow button to advance the node number through the eight possible settings (*1n–8n*).
4. When the desired node number is displayed, press the left arrow button again to select the number. The display now reads Pn (indicating a pass condition). If there was an error, the display reads *En*.

   In the case of duplicate node numbers, the RAN farthest from the host adapter displays `En`, instead of `AC`, when the system is started.

Configuring the 128–Port Async Adapter

When a 128–port async adapter is installed in the HMC and the HMC is first used, the adapter must be configured.

For instructions on how to install and configure the 8–port adapter in the system via the HMC, see the *HMC Operations and Installation Guide* .

To configure the 128–port async adapter in the HMC, do the following:

1. Obtain the root password from the customer.
2. To access the HMC microcode maintenance functions as the hscpe user, contact software support to obtain the password.
3. In the HMC Navigation area, click **Problem Determination**.
4. In the Contents area, click **Microcode Maintenance**. The User Authentication window opens.
5. Enter the HMC system unit's serial number and the password provided by software support. The Microcode Maintenance Menu window opens.
6. Select **Launch xterm shell** to open a command prompt window.
7. Type `su -,` then log in as root user.
8. Type the following command to run the configuration utility: `/usr/sbin/digiConf`. The configuration utility will guide you through a series of questions:
   a. Question: How many boards would you like to install? Answer: Enter the total number of 8–port and/or 128 –port async adapters that are installed in the HMC PC.
   b. Question: Board #1. What type of board is this? ('L' for list) Answer: Use board type 16 (128–port async PCI)
   c. Question: How many ports does this digiBoard have? The following table contains the only possible values::

8	40	72	104
16	48	80	112
24	56	88	120
32	64	96	128

   Board #1 How many ports? (1–16) Answer: Count the total number of enhanced RANs you are attaching to the 128–port async adapter and multiply by 2. For example: two (RANs) multiplied by 2 equals 4. Enter the selection number 4), for 32 in this example, at the prompt.
   d. Question: Do you want to set Altpin on this board? ('y' or 'n') Answer: No

   If two 128–port async adapters are installed in the system, the utility repeats the previous sequence of questions for each adapter.
9. Type the following command to run the second configuration utility: `/usr/sbin/cxconf`. The configuration utility will guide you through a series of questions. The term *C/CON* is synonymous with *Enhanced RAN* or *RAN*:
   a. Question: How many C/X cards do you have? Answer: Enter the total number of 128–port async adapters installed in the HMC PC.
   b. Question: How many C/CONs (RANs) are connected to card 1 line 1? Answer: Enter the total number of RANs on line 1. For this example, two C/CONs (RANs) are connected to line 1.

c. Question: What type of wiring scheme are you going to use for card 1, line 1?

```
A) 8 Wire Direct
B) 4 Wire Direct
C) RS422 Sync
D) RS232 Sync
Answer: A
```

d. Enter the type of communication mode to use on line 1.(Type L for a list) [14] Answer: 14

e. Question: How many ports does this C/CON (RAN) support? (conc #1) Answer: 16

Note: The maximum number of ports here is 16.

f. Question: How many C/CONs (RANs) are connected to card 1, line 2? Answer: Enter the number of RANs connected to line 2. If RANs are connected to Line 2, return to step 3 above, and repeat the previous steps for line 2.

The HMC is configured to load the adapter device driver upon reboot. Reboot the HMC PC.

Connect the Serial Cables from the ESCALA PL 3200R to the 128–Port Async Adapters

Up to two optional 128–port async adapters can be installed. The D–shell connectors on the back of the adapter attach to RANs. Serial cables can be connected from any of the ports on a RAN to the HMC1 ports on the managed systems.

If you are using a second, redundant HMC, connect cables from all the ESCALA PL 3200R HMC1 ports to the RAN on the primary HMC, and connect all the ESCALA PL 3200R HMC2 ports to the RANs on the redundant HMC.

Note:: The use of the second HMC system serial port is not recommended because, by default, this port is to be used for the modem.

Verify that Installation is Complete by Using the HMC Interface

The HMC provides a predefined user ID called hscroot. The hscroot password is abc123. This hscroot user ID is a member of the System Administrator rolehscroot. When the console is powered on for the first time, use this user ID to log in. After you are logged in, you can create additional users.

Note:: If the customer is installing a second ESCALA PL 3200R , the HMC may have been preinstalled, and the hscroot password has probably been changed. If the HMC was already present from a previous installation, ask the customer for a login ID. The customer may have already set up a special login for a service representative; if so, use this login ID. You might request that a special user ID be created for the service representative role to perform service functions.

After you power on your HMC, the HMC login window displays, and prompts you to enter your user ID and password.

After the installation is complete, the ESCALA PL 3200R displays on the HMC interface. It may take a few minutes for a new system to display in the user interface after the cable is connected. When you log in to the HMC, the HMC management window opens, and the management environment is already selected. Select **Partition Management** to see the list of managed systems. This window is divided into the Navigation area and the Contents area.

The navigation panel displays a hierarchy of icons that represent collections of systems, individual systems, managed resources, and tasks. Each Navigation area icon identifies an application. At the highest point, or *root* of the tree, is the Management Environment. The

Management Environment contains one or more host system applications that is managed by the console. Each system application contains its own set of applications that contain managed objects, tasks, and actions for a related set of system entities or resources.

The contents area panel displays results based on the item you select in the Navigation area. When you click on an application in the Navigation area, the Contents area displays the tasks you can perform using that application.

Each HMC contains the following set of application icons:

- System Manager Security
- Server Management
- System Configuration
- Users
- Frame
- HMC
- Inventory Scout Services
- Service Agent
- Service Focal Point
- Problem Determination

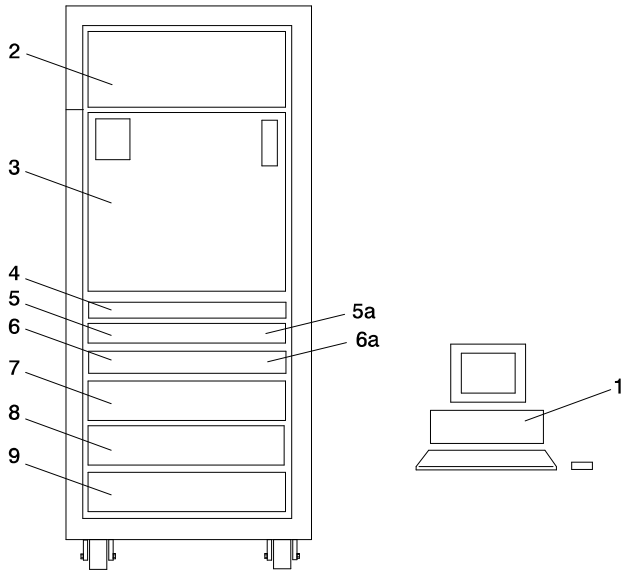
Verify that the installation is complete for each ESCALA PL 3200R that you have connected to the HMC using the serial port, the 8–port async adapter, or the 128–port async adapter. When you have finished the verification procedure, go to Chapter 2. Verifying the Hardware Operation on page 2-1.

Appendix C. System Records

Use this appendix to keep a record of your server configuration.

Record the Identification Numbers The basic server consists of the redundant bulk power subsystem,

one processor subsystem, a media subsystem, and one I/O subsystem in the same rack, as well as access to one HMC.



1 Hardware Management Console

2 406/1R Bulk Power Subsystem

3 406/81 Processor Subsystem

4 406/81 Media Subsystem

5*,6* Primary 406/1R Integrated Battery Feature (IBF) (Optional) for the Primary Power Subsystem
Redundant 406/1R Integrated Battery Feature (IBF) (Optional) is placed in the rear

7 406/1D I/O Subsystem

8 406/1D I/O Subsystem (Optional)

9 406/1D I/O Subsystem (Optional)

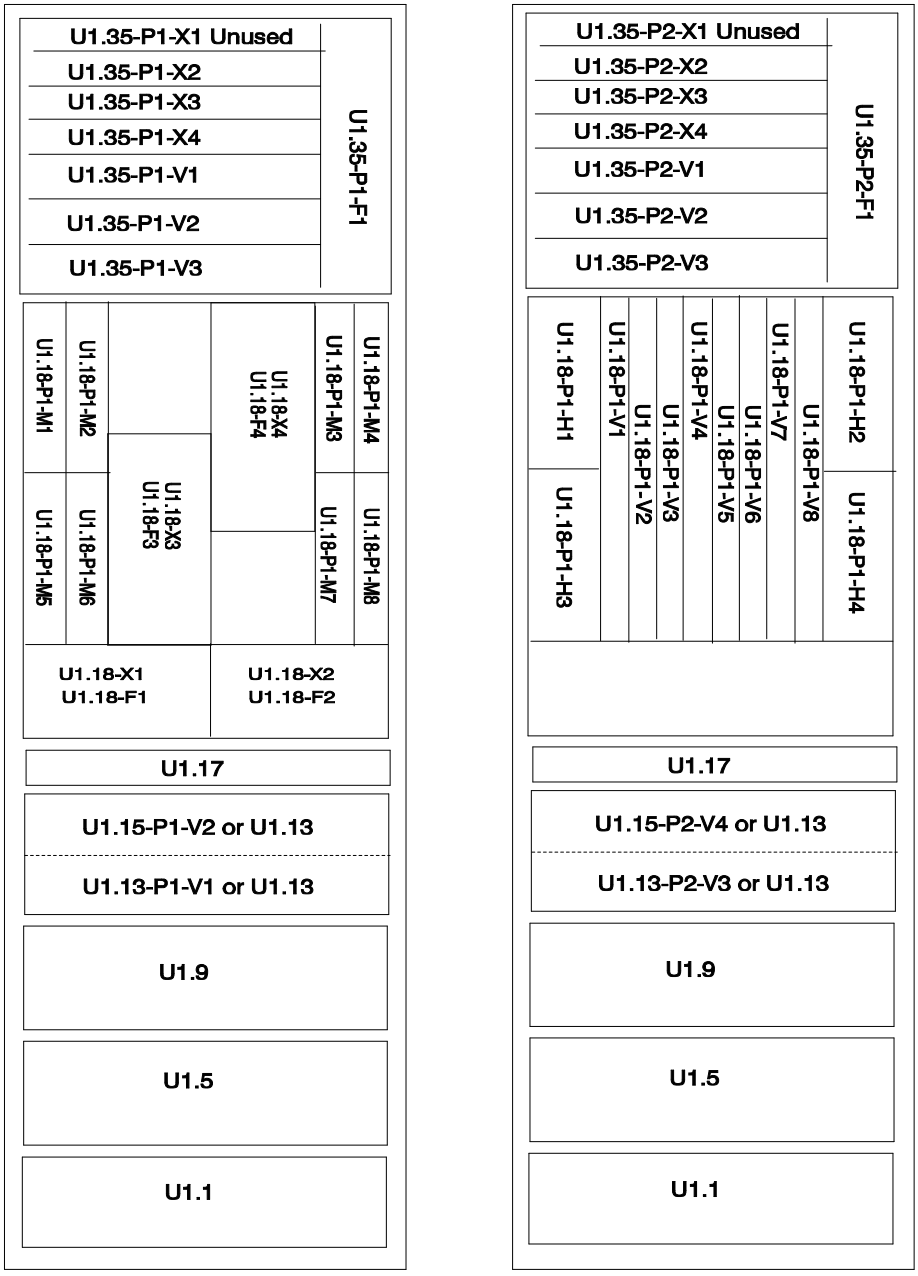
***** 406/1D I/O Subsystem (Optional, if features 5 and 6 are not installed).

Use the following to keep a record of your components.

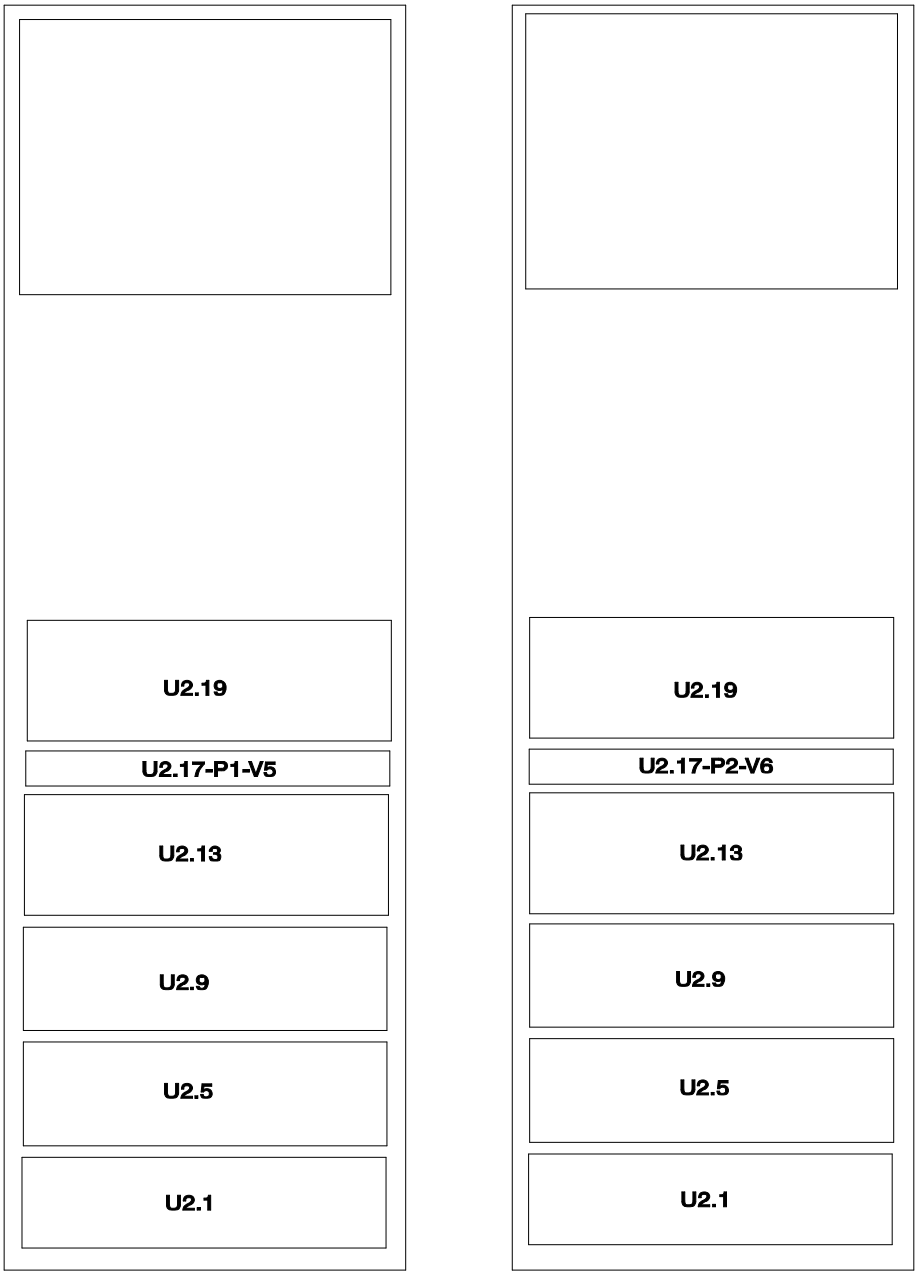
Component	Serial Number
ESCALA PL 3200R	
I/O Drawer 1	
I/O Drawer 2	
I/O Drawer 3	
I/O Drawer 4 (or Drawer 7 if installed)	
I/O Drawer 5	
I/O Drawer 6	
I/O Drawer 7	
I/O Drawer 8	

Record System – Processor, Memory, and I/O Configuration

The following illustration shows the location codes for the primary rack. These codes are used to identify the major functional units in the ESCALA PL 3200R .



The following illustration shows the location codes for the secondary rack. These codes are used to identify the major functional units in the ESCALA PL 3200R systems.



Physical Memory Card	Location available	Other Information
MCM 0 installed	U1.18–P1–C1	
MCM 0 VPD Card	U1.18–P1–H2.3	
Memory	U1.18–P1–M2	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
Memory	U1.18–P1–M3	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
L3 Modules	U1.18–P1–C6 U1.18–P1–C7 U1.18–P1–C10 U1.18–P1–C11	
L3 VPD Card	U1.18–P1–H2.1	
MCM 2 installed	U1.18–P1–C4	
MCM 2 VPD Card	U1.18–P1–H2.4	
Memory	U1.18–P1–M6	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
Memory	U1.18–P1–M7	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
L3 Modules	U1.18–P1–C14 U1.18–P1–C15 U1.18–P1–C18 U1.18–P1–C19	
L3 VPD Card	U1.18–P1–H2.1	
MCM 1 installed	U1.18–P1–C3	
MCM 1 VPD Card	U1.18–P1–H2.5	

Memory	U1.18–P1–M4	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
Memory	U1.18–P1–M8	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
L3 Modules	U1.18–P1–C8 U1.18–P1–C12 U1.18–P1–C16 U1.18–P1–C20	
L3 VPD Card	U1.18–P1–H2.1	
MCM 3 installed	U1.18–P1–C2	
MCM 3 VPD Card	U1.18–P1–H2.6	
Memory	U1.18–P1–M1	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
Memory	U1.18–P1–M5	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB • 64 GB
L3 Modules	U1.18–P1–C5 U1.18–P1–C9 U1.18–P1–C13 U1.18–P1–C17	
L3 VPD Card	U1.18–P1–H2.1	
Primary I/O Book	U1.18–P1–H2 – Slot 0 – I/O Drawer 1 – I/O Drawer 2	• RIO Connector A0 and A1 • RIO Connector B0 and B1

Secondary I/O Book	U1.18–P1–H3 – Slot 2 – I/O Drawer 3 – I/O Drawer 4	• Inside RIO Connector C0 and C1 • Inside RIO Connector D0 and D1
Secondary I/O Book	U1.18–P1–H3 – I/O Slot 2 – Drawer 5 Drawer 6	• Outside RIO Connector A0 and A1 • Outside RIO Connector B0 and B1
Secondary I/O Book	U1.18–P1–H4 – I/O Slot 3 – Drawer 7 Drawer 8	• Outside RIO Connector C0 and C1 • Outside RIO Connector D0 and D1

Verify that All Hardware is Present

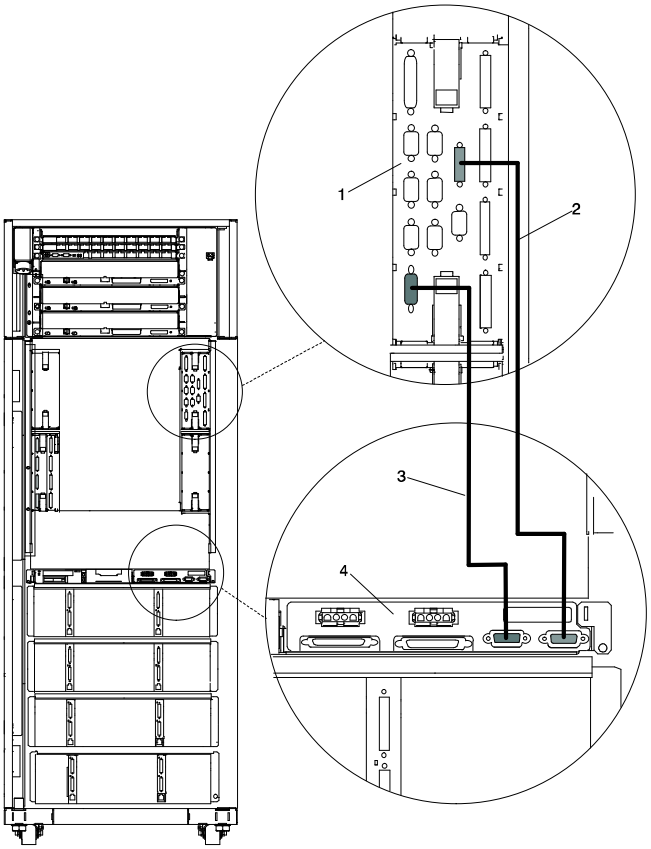
To verify that all hardware is present, do the following at the command line:

- Run **lsslot –cpci** to verify the adapters are plugged into the physical slot they are plugged in. Make note of the adapter types and positions the adapters are plugged in.
- Run **lsdev –Cc adapter** to verify that all the adapters are in the available state. If any adapters are in defined state, contact your next level of support.
- Run **lspv** and count the number of hdisks (hard disks) that appear in the system. Verify that the number equals the number of hard disks physically in the system. Make note of the hard disks and which one(s) contain rootvg (root volume group).
- Run **lsdev –Cc disk** to verify that all the hard disks are in the available state. If any of the hard disks are in the defined state, contact your next level of support.
- Run **lsattr –El mem0** to verify the total amount of memory recognized by the system. If the total is not the correct amount, contact your next level of support.
- Run **bindprocessor –q** to verify how many processors are available. If the correct number or processors are not available, contact your next level of support.

Appendix D. Subsystem Positioning and Cabling

This section describes subsystem positioning and cabling for the ESCALA PL 3200R .

Operator Panel Cable and Diskette Drive Cable to the Media Subsystem (Rear View)



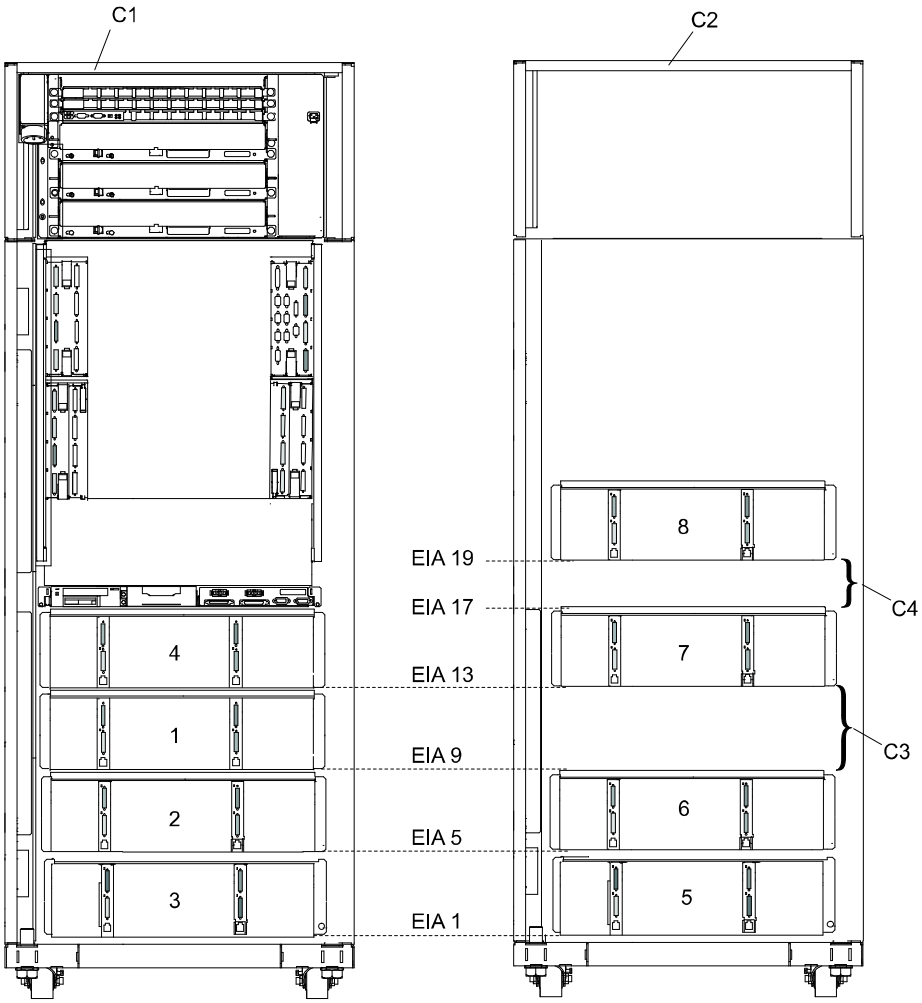
1 Primary I/O Book

2 Cable Connecting the Operator Panel to the Media Subsystem

3 Diskette Drive Data Cable

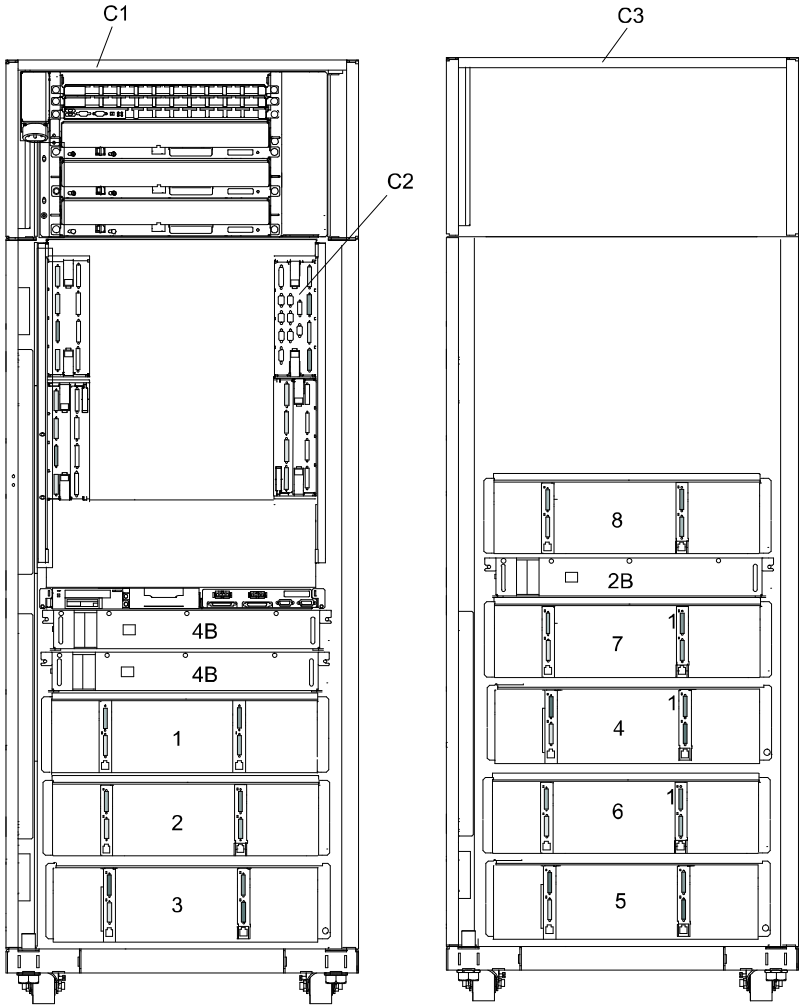
4 Media Subsystem

I/O Subsystem Positions, Fully Populated Primary and Secondary Rack (Rear View without IBF)



C1 Primary Rack
C2 Secondary Rack
C3 Blank Space
C4 Blank Space
1 First I/O Subsystem
2 Second I/O Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem

I/O Subsystem Positions, Fully Populated Primary and Secondary Rack (Rear View with IBFs)



C1 Primary Rack

C2 Primary I/O Book (Book 0)

C3 Secondary Rack

1 First I/O Subsystem

2 Second I/O Subsystem

3 Third I/O Subsystem

4 Fourth I/O Subsystem

4B Four IBFs (primary rack), Position 4

5 Fifth I/O Subsystem

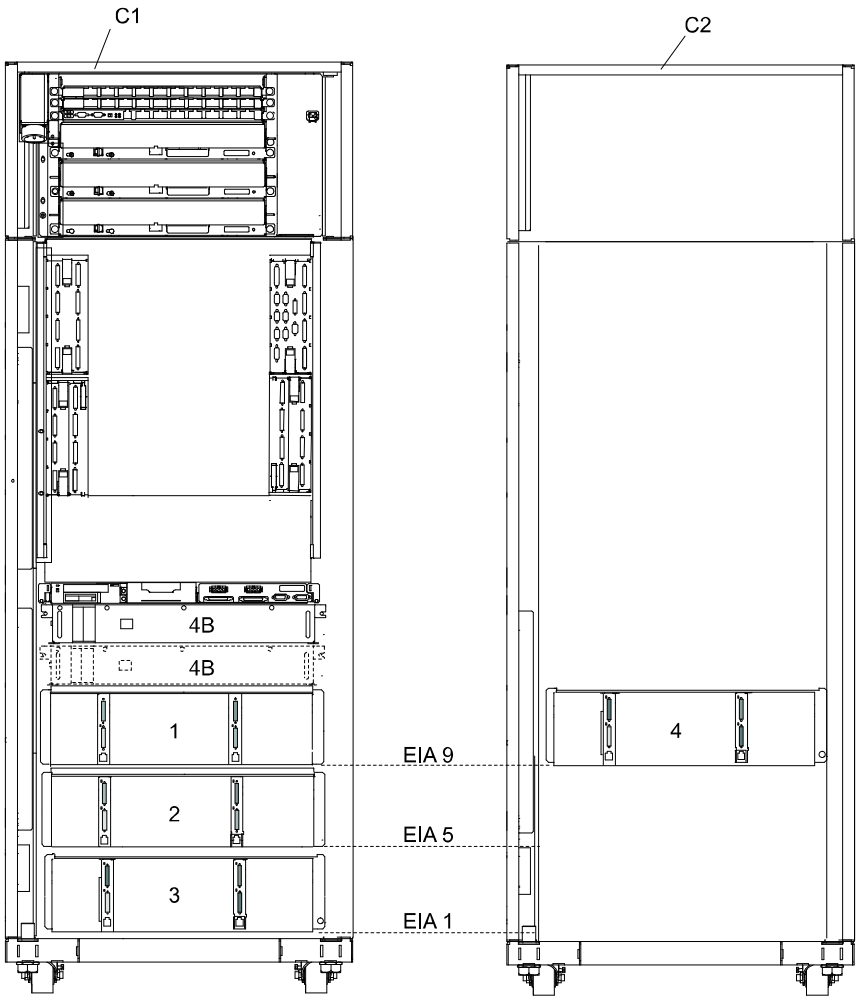
6 Sixth I/O Subsystem

7 Seventh I/O Subsystem

2B Two IBFs (secondary rack)

8 Eighth I/O Subsystem

Placement of Subsystem 4 in a Two–Rack Configuration (Rear View with IBF)



C1 Primary Rack

C2 Secondary Rack

1 First I/O Subsystem

2 Second I/O Subsystem

3 Third I/O Subsystem

4 Fourth I/O Subsystem

4B Four IBFs

Note: The physical location shown for I/O Subsystem 4 is populated only when IBFs are present and four or more I/O subsystems are installed.

RIO and RIO–2 Cabling Rules

If the CEC RIO ports are standard RIO, thumbscrew–style connectors, then connect a two–planar I/O loop to the RIO ports of the CEC in the following order:

1. Primary I/O Book Slot 0 (1, 2, 3, or 4 MCMs): RIO 1 A0&A1, RIO 2 B0&B1
2. Secondary I/O Book Slot 2:
   - 2 MCMs: RIO 3 C0&C1, RIO 4 D0&D1
   - 3 or 4 MCMs: RIO 3 C0&C1, RIO 4 D0&D1, RIO 5 A0&A1, RIO 6 B0&B1
3. Secondary I/O Book Slot 3 (4 MCMs): RIO 7 C0&C1, RIO 8 D0&D1 Notes:

1. Secondary I/O Book Slot 1 is not allowed with CEC standard RIO connections.
2. One I/O planar loops are not allowed with CEC standard RIO connections.

If the CEC RIO ports are gigabyte RIO, or RIO–2, connectors, then connect either a one I/O planar loop or a two planar I/O loop to the first 16 RIO ports of the CEC in the following order:

1. Primary I/O Book Slot 0 (1, 2, 3, or 4 MCMs): RIO 1 A0&A1, RIO 2 B0&B1
2. Secondary I/O Book Slot 2:
   - 2 MCMs: RIO 3 C0&C1, RIO 4 D0&D1
   - 3 or 4 MCMs: RIO 3 C0&C1, RIO 4 D0&D1, RIO 5 A0&A1, RIO 6 B0&B1
3. Secondary I/O Book Slot 3:
   - 2 MCMs: RIO 5 A0&A1, RIO 6 B0&B1
   - 3 or 4 MCMs: RIO 7 A0&A1, RIO 8 B0&B1

Although two I/O planar loops are not permitted on the last 12 RIO ports of the CEC, you can connect additional one I/O planar loops to the next 12 RIO ports of the CEC in the following order:

1. Secondary I/O Book Slot 3 (4 MCMs): RIO 9 C0&C1, RIO 10 D0&D1
2. Secondary I/O Book Slot 1:
   - 3 MCMs: RIO 9 C0&C1, RIO 10 D0&D1, RIO 11 A0&A1, RIO 12 B0&B1
   - 4 MCMs: RIO 11 C0&C1, RIO 12 D0&D1, RIO 13 A0&A1, RIO 14 B0&B1

Note: Use required pairs of RIO ports without omitting any.

The following RIO port speeds are available:

- Standard RIO uses a thumbscrew retention physical connector and runs at 500 MB per second.
- Gigabyte RIO, or RIO–2, uses a bayonette retention physical connector and runs at 1 GB per second.

Two I/O planars are available, one for RIO and one for RIO–2, that may be placed in either side of an I/O subsystem. They can be identified by their RIO connector style.

Rules for connecting RIO and RIO–2 CEC ports to I/O subsystem RIO and RIO–2 ports are the following:

- CEC RIO ports must not be connected to I/O subsystem RIO–2 ports, even with the available RIO–2 to RIO cables.
- RIO–2 to RIO cables must only be used to connect CEC RIO–2 ports to I/O subsystem RIO ports.

- RIO to RIO cables must only be used to connect CEC RIO ports to I/O subsystem RIO ports.
- RIO–2 to RIO–2 cables must only be used to connect CEC RIO–2 ports to I/O subsystem RIO–2 ports.

Rules for connecting RIO and RIO–2 I/O planars to the CEC RIO and RIO–2 ports are the following:

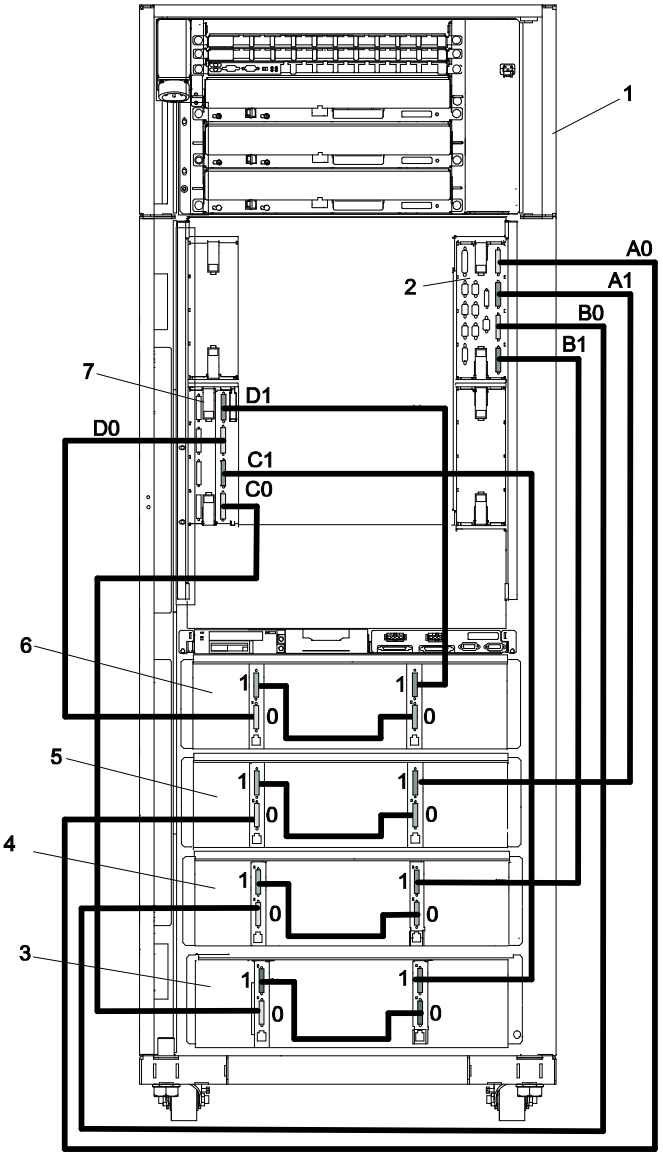
- CEC RIO ports must be connected to 2 RIO planars per loop. Up to 8 I/O subsystems can be connected.
- CEC RIO–2 ports can be connected to RIO and RIO–2 I/O planars with appropriate cables in one planar loop or two planar loops in the following order:
  1. Cable any I/O subsystems with RIO I/O planars in both the left and the right positions with 2 I/O planar loop connections. The maximum data rate for each RIO I/O planar is 500 MB per second.
  2. Cable any I/O subsystems with RIO–2 I/O planars in both the left and right positions with 2 I/O planar loop connections. The maximum data rate for each RIO–2 I/O planar is 1 GB per second.
  3. Cable any I/O subsystems with a RIO I/O planar in one side and a RIO–2 I/O planar in the other side with 1 I/O planar loop connection.

     The maximum data rate for the RIO I/O planar is 500 MB per second, and for the RIO–2 I/O planar, the maximum data rate is 2 GB per second. However, in the event of a cable failure, there is no redundant path for the 2 GB per second RIO–2 I/O planar. Restoring the redundant path for the RIO–2 planar reduces the data rate to 1 GB per second. I/O subsystems with a RIO I/O planar in one side and a RIO–2 I/O planar in the other side with 2 I/O planar loop connections are not allowed.
  4. Cable any I/O subsystems with RIO–2 I/O planars in both the left and the right positions with one I/O planar loop connections. The maximum data rate for each RIO–2 I/O planar is 1 GB per second with data path redundancy, or 2 GB per second without data path redundancy.

Note: If all I/O planars are connected to the CEC with one I/O planar loops, the maximum number of I/O subsystems connected to the system is reduced to seven .

I/O Subsystems (1 Through 4 without IBFs) RIO Cabling to I/O Books, Two I/O Planar Loop Configuration, 2, 3, or 4 MCMs Only

Note: The following figure applies to CECs with RIO, or thumbscrew retention, connections.

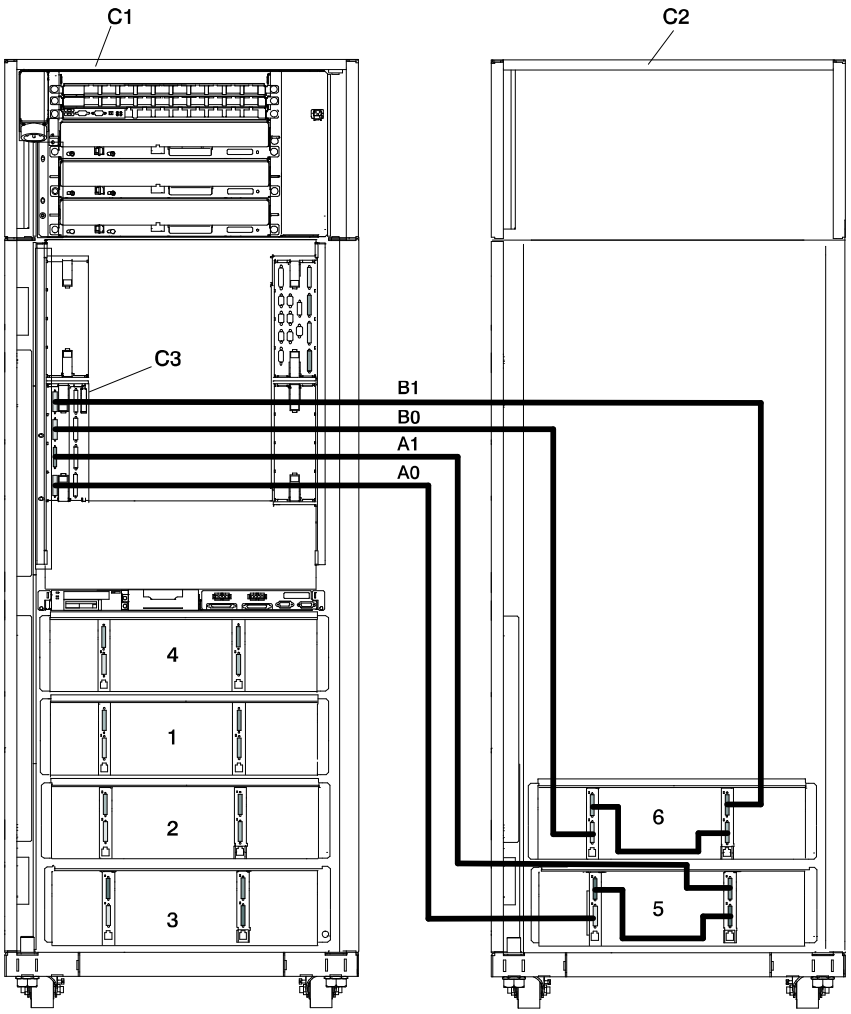


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Fourth I/O Subsystem
7 Secondary I/O Book

I/O Subsystems (5 and 6) RIO Cabling to the Secondary I/O Book, Two I/O Planar Loop Configuration, 3 or 4 MCMs Only

Note: The following figure applies to CECs with RIO, or thumbscrew retention, connections.

Shown Without IBFs



(artname: a4aa5039.eps)

C1 Primary Rack

C2 Secondary Rack

C3 Secondary I/O Book

5 Fifth I/O Subsystem

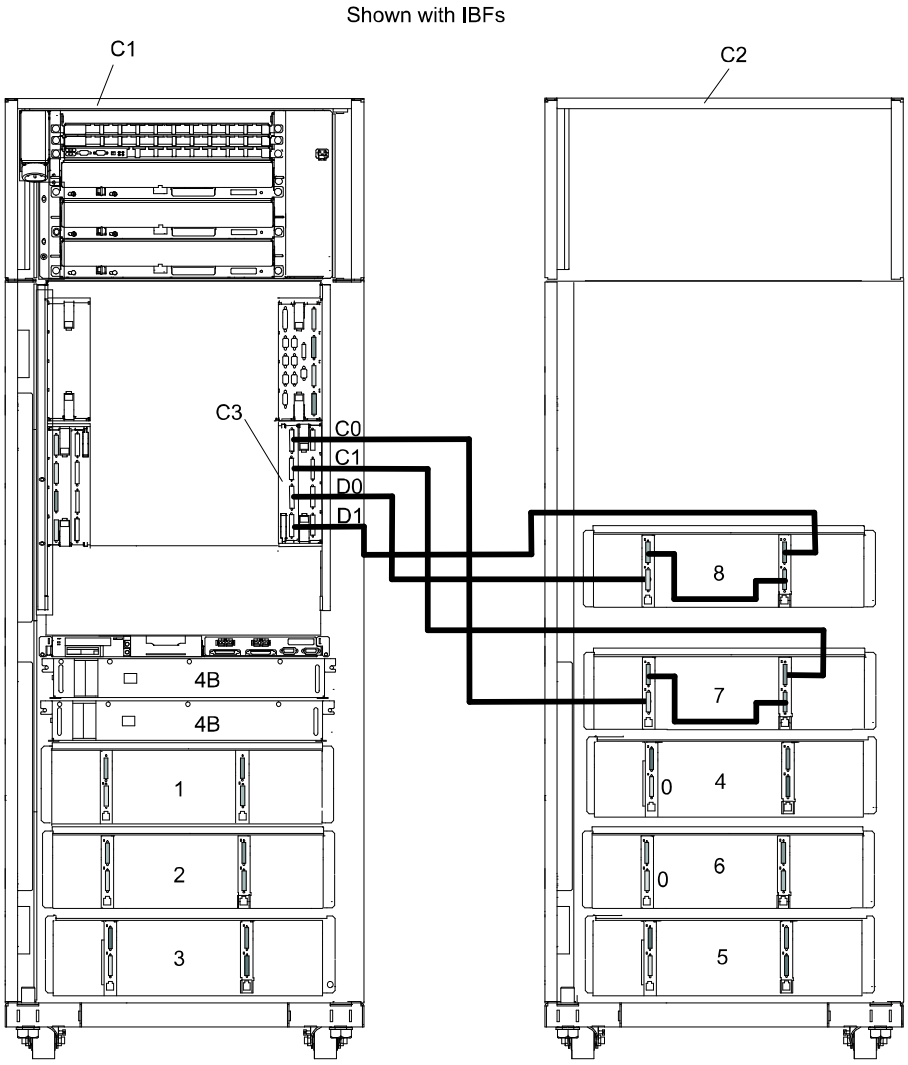
6 Sixth I/O Subsystem

Note:

RIO cabling to I/O Subsystems 5 and 6 is the same for configurations with or without the IBFs.

I/O Subsystems (7 and 8) RIO Cabling to the Third I/O Book, Two I/O Planar Loop Configuration, 4 MCMs Only

Note: The following figure applies to CECs with RIO, or thumbscrew retention, connections.

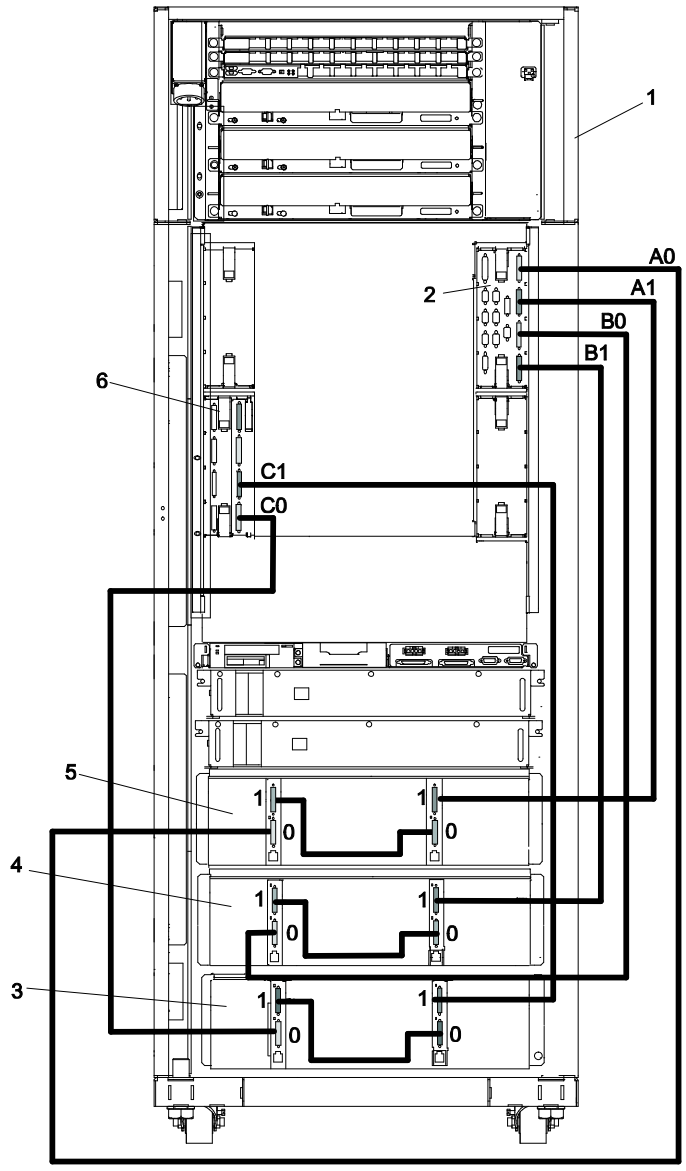


C1 Primary Rack
C2 Secondary Rack
C3 Third I/O Book (Book 3)
1 First I/O Subsystem
2 Second I/O Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
4B Two IBFs (maximum), Position 4
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem

Note:
RIO cabling to I/O subsystems 7 and 8 is the same for configurations with or without the IBFs.

I/O Subsystems (1 through 3 with IBFs) RIO Cabling to I/O Books, Two I/O Planar Loop Configuration, 2, 3, or 4 MCMs Only

Note: The following figure applies to CECs with RIO, or thumbscrew retention, connections.

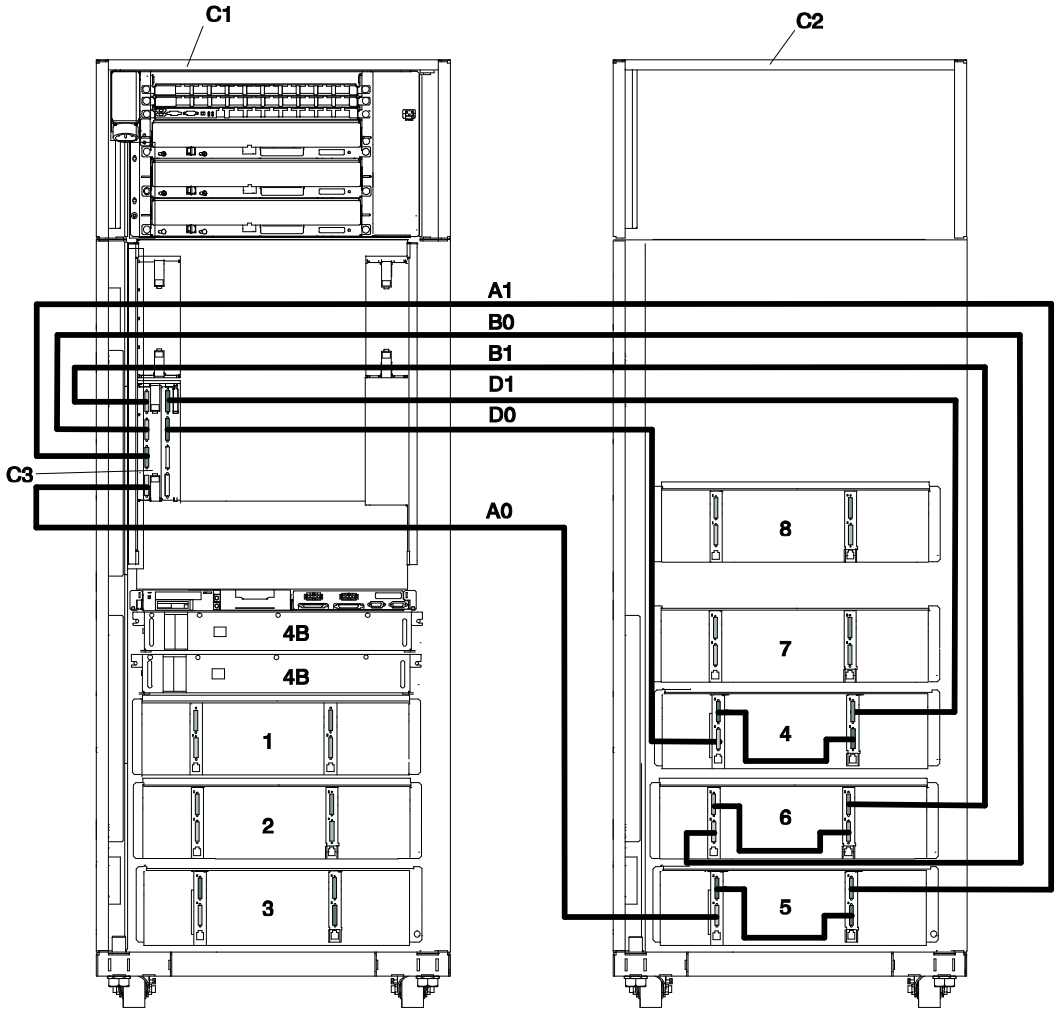


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Secondary I/O Book

A0 Connection to I/O Book (Book 0)
A1 Connection to I/O Book (Book 0)
B0 Connection to I/O Book (Book 0)
B1 Connection to I/O Book (Book 0)
C0 Connection to I/O Book (Book 2)
C1 Connection to I/O Book (Book 2)

I/O Subsystems (4 through 6 with IBFs) RIO Cabling to I/O Books, Two I/O Planar Loop Configuration, 3 or 4 MCMs Only

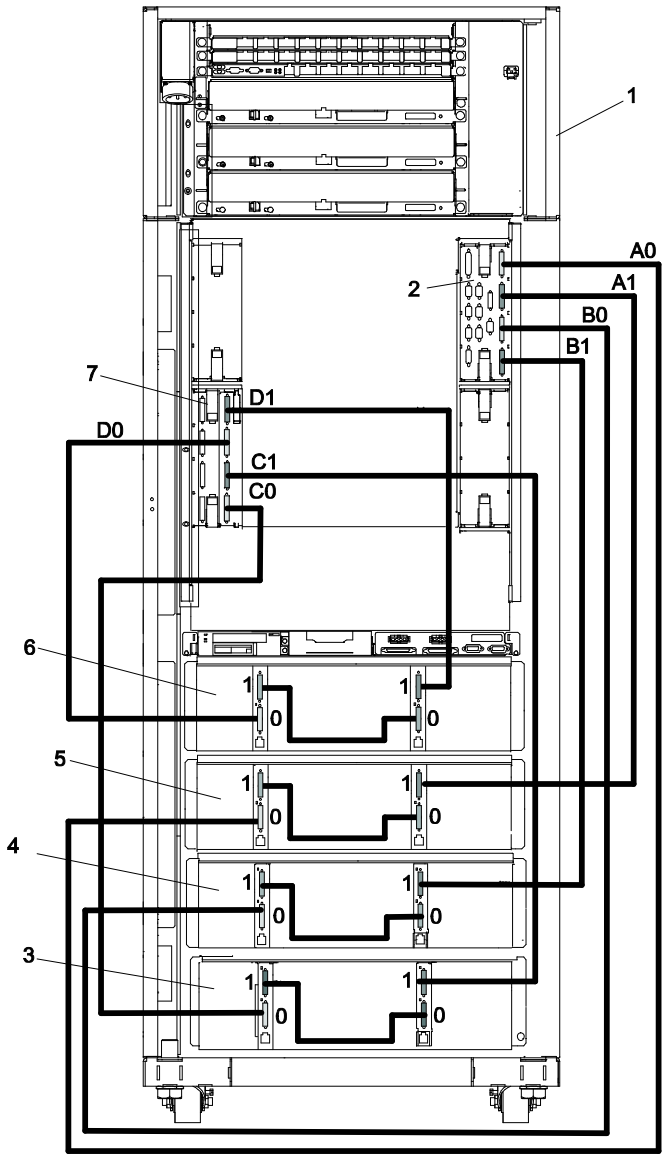
Note: The following figure applies to CECs with RIO, or thumbscrew retention, connections.



C1 Secondary Rack
C2 Primary Rack
C3 Secondary I/O Book in I/O Slot 3
C4 Secondary I/O Book in Slot 2
1 First I/O Subsystem
2 Second I/O Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
4B Integrated Battery Feature (IBF)
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem
A0 Connection to I/O Book (Book 2)
A1 Connection to I/O Book (Book 2)
B0 Connection to I/O Book (Book 2)
B1 Connection to I/O Book (Book 2)
D0 Connection to I/O Book (Book 2)
D1 Connection to I/O Book (Book 2)

I/O Subsystems (1 Through 4 without IBFs) RIO–2 Cabling to I/O Books, Two I/O Planar Loop Configuration, 2, 3, or 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

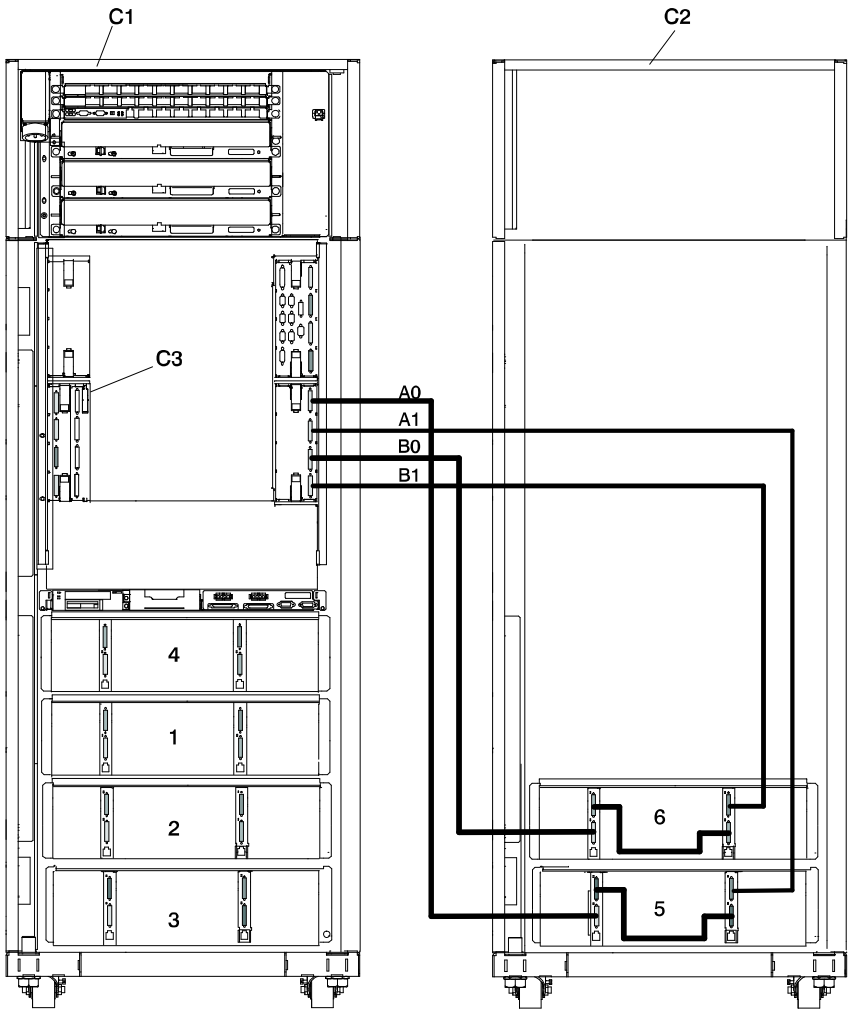


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Fourth I/O Subsystem
7 Secondary I/O Book

I/O Subsystems (5 and 6) RIO–2 Cabling to the Secondary I/O Book, Two I/O Planar Loop Configuration, 2 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

Shown Without IBFs



C1 Primary Rack

C2 Secondary Rack

C3 Secondary I/O Book

5 Fifth I/O Subsystem

6 Sixth I/O Subsystem

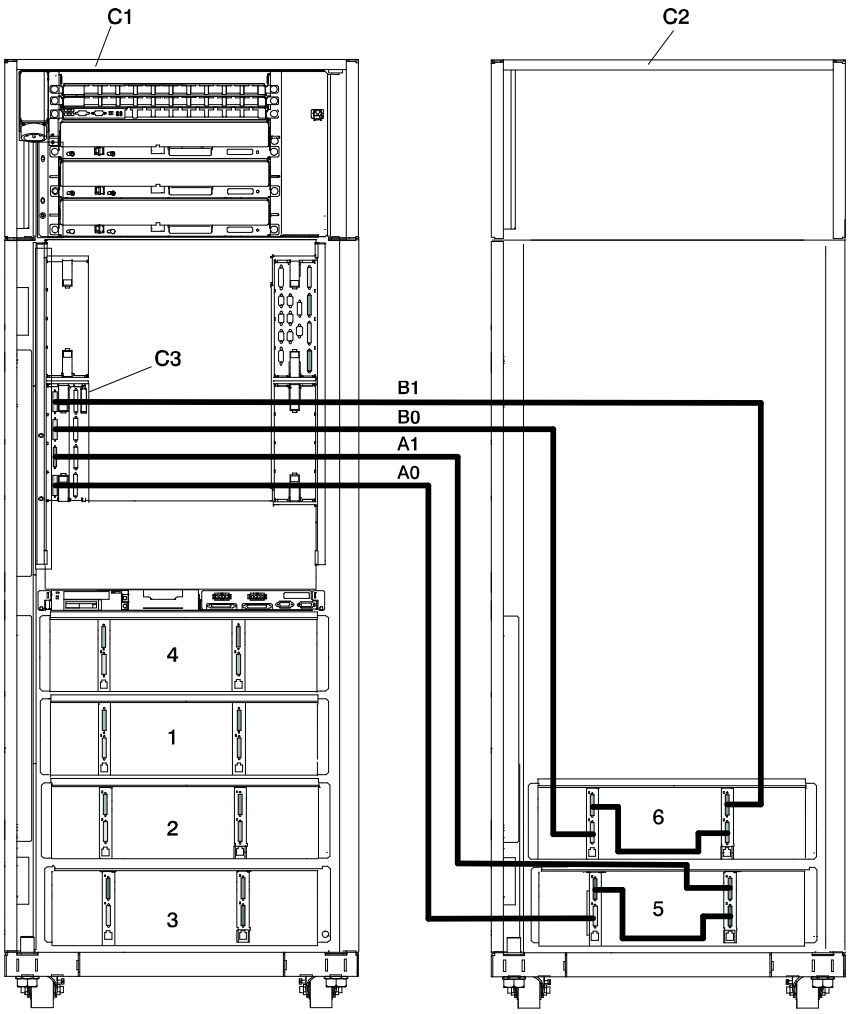
Note:

RIO–2 cabling to I/O Subsystems 5 and 6 is the same for configurations with or without the IBFs.

I/O Subsystems (5 and 6) RIO–2 Cabling to the Secondary I/O Book, Two I/O Planar Loop Configuration, 3 or 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

Shown Without IBFs



C1 Primary Rack

C2 Secondary Rack

C3 Secondary I/O Book

5 Fifth I/O Subsystem

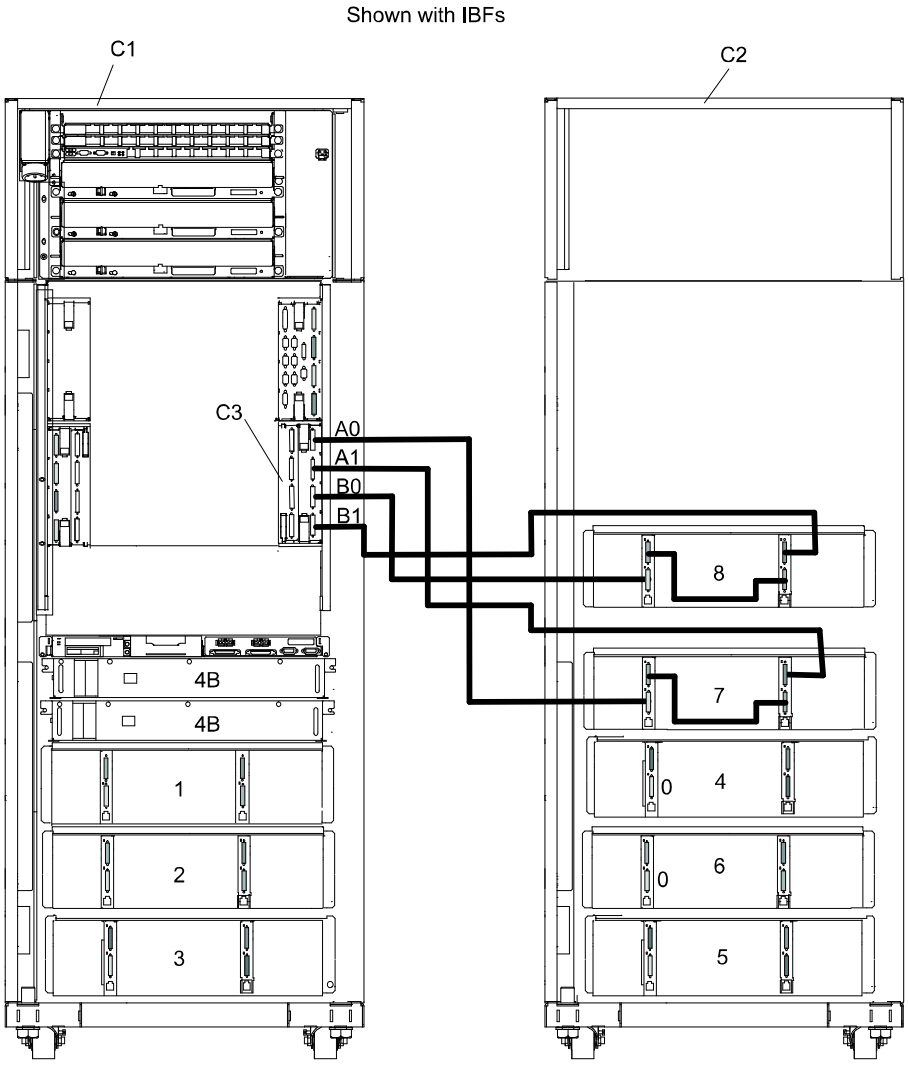
6 Sixth I/O Subsystem

Note:

RIO–2 cabling to I/O Subsystems 5 and 6 is the same for configurations with or without the IBFs.

I/O Subsystems (7 and 8) RIO–2 Cabling to the Third I/O Book, Two I/O Planar Loop Configuration, 3 or 4 MCMs Only

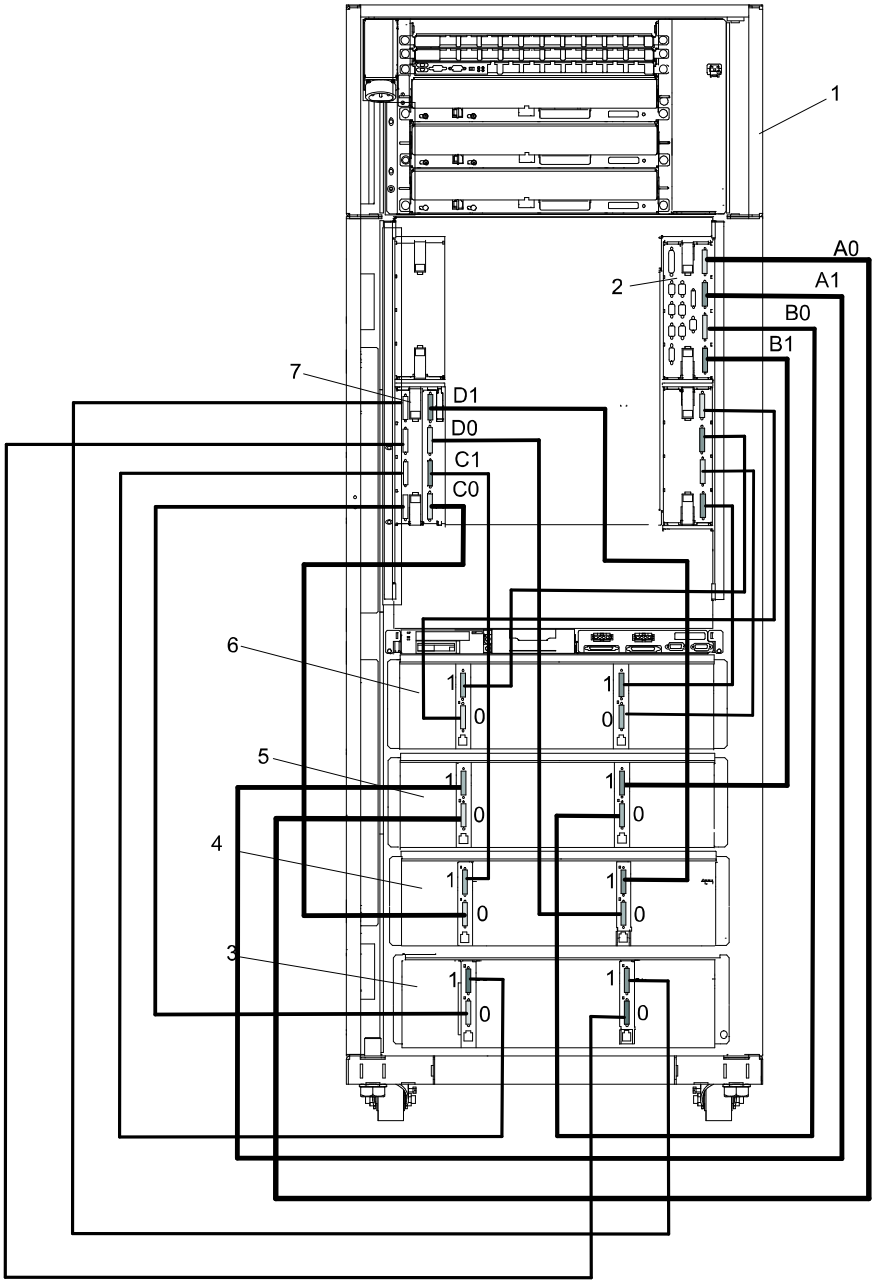
Note: The following figure applies to CECs with RIO–2, or bayonette retention connections.



C1 Primary Rack
C2 Secondary Rack
C3 Third I/O Book (Book 3)
1 First /O Subsystem
2 Second Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
4B Two IBFs (maximum), Position 4
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem
A0 Connection to I/O Book (Book 3)
A1 Connection to I/O Book (Book 3)
B0 Connection to I/O Book (Book 3)
B1 Connection to I/O Book (Book 3)

I/O Subsystems (1 Through 4 without IBFs) RIO–2 Cabling to I/O Books, One I/O Planar Loop Configuration, 3 or 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

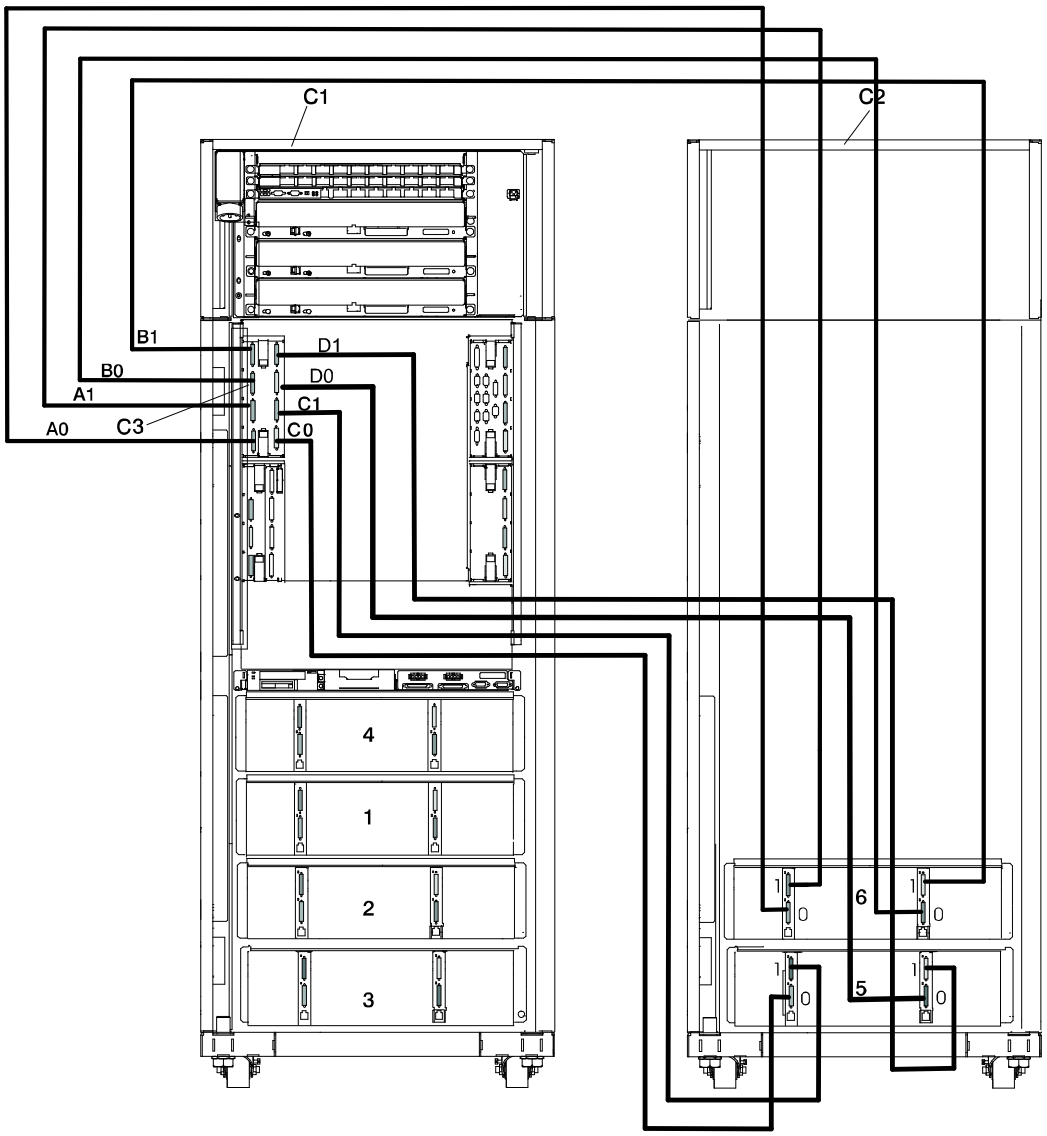


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Fourth I/O Subsystem
7 Secondary I/O Book

I/O Subsystems (5 and 6) RIO–2 Cabling to the Secondary I/O Book, One I/O Planar Loop Configuration, 3 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

Shown Without IBFs



C1 Primary Rack

C2 Secondary Rack

C3 Secondary I/O Book

5 Fifth I/O Subsystem

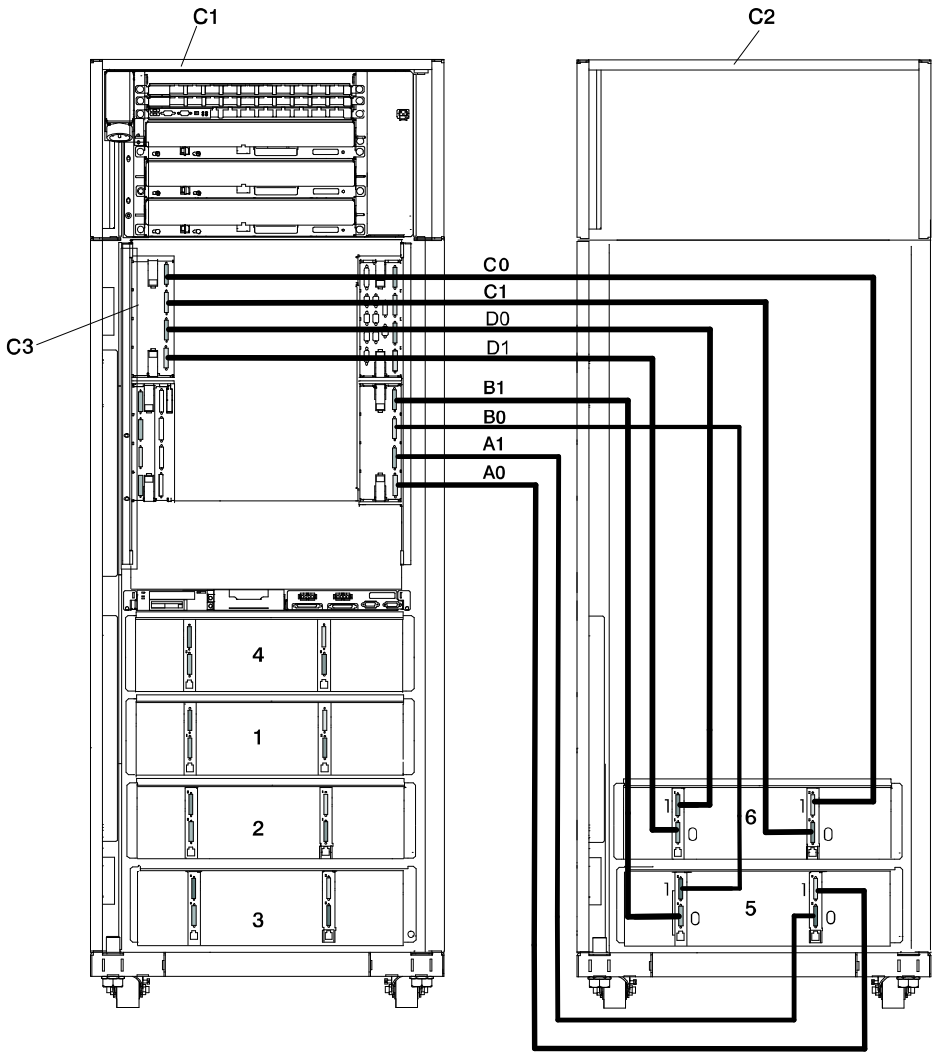
6 Sixth I/O Subsystem

Note:
RIO–2 cabling to I/O Subsystems 5 and 6 is the same for configurations with or without the IBFs.

I/O Subsystems (5 and 6) RIO–2 Cabling to the Secondary I/O Book, One I/O Planar Loop Configuration, 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

Shown Without IBFs



C1 Primary Rack

C2 Secondary Rack

C3 Secondary I/O Book

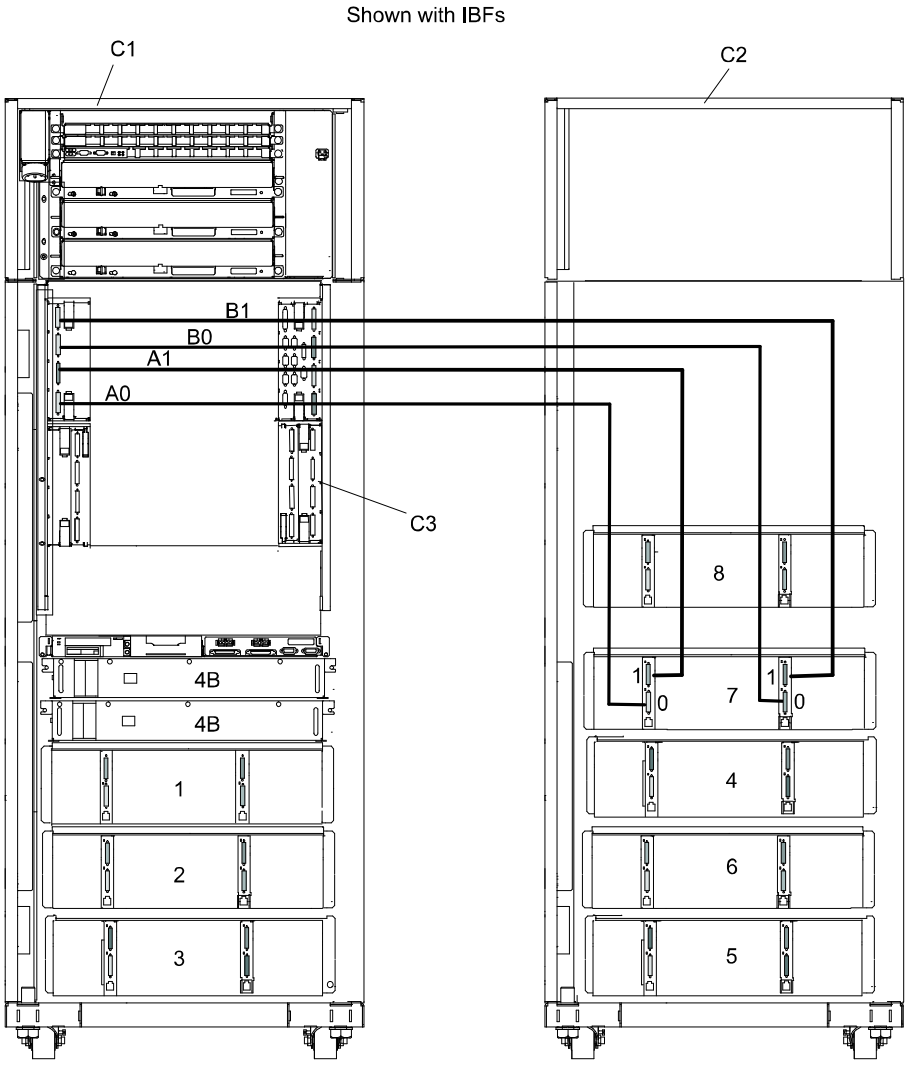
5 Fifth I/O Subsystem

6 Sixth I/O Subsystem

Note:
RIO–2 cabling to I/O Subsystems 5 and 6 is the same for configurations with or without the IBFs.

I/O Subsystems (7) RIO–2 Cabling to the Fourth I/O Book, One I/O Planar Loop Configuration, 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.



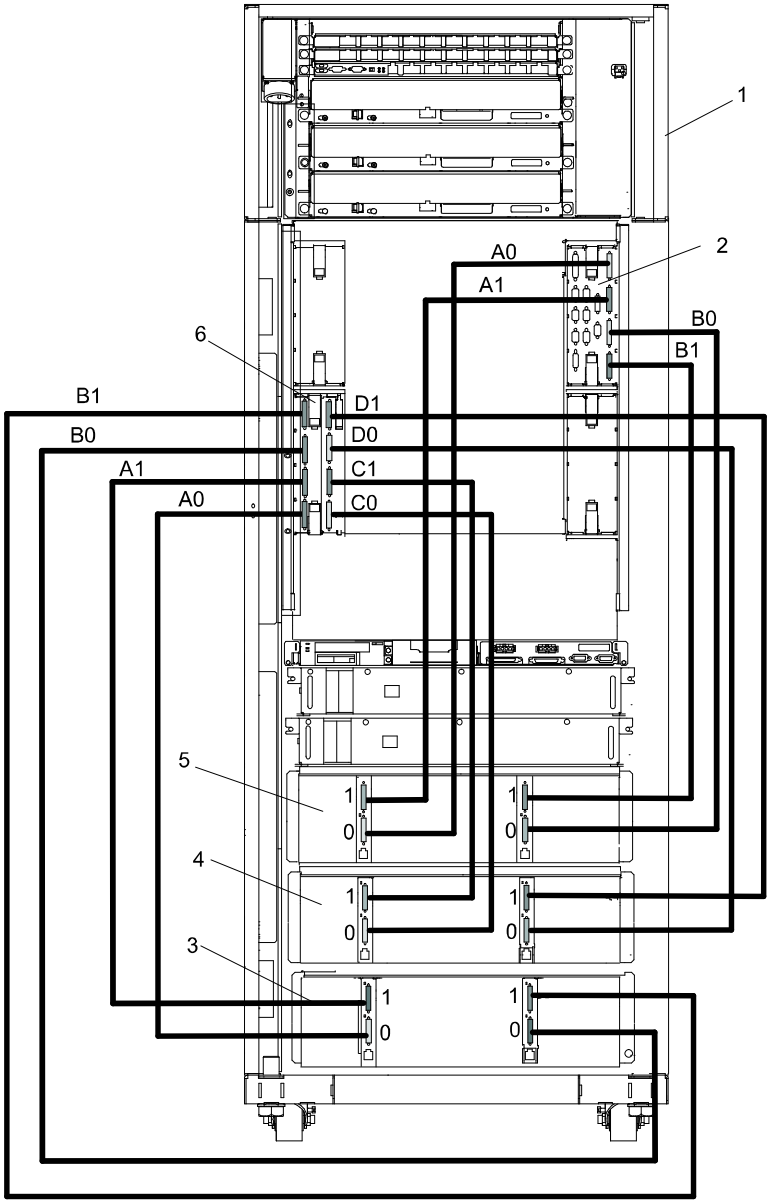
C1 Primary Rack
C2 Secondary Rack
C3 Third I/O Book (Book 3)
1 First I/O Subsystem
2 Second I/O Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
4B Two IBFs (maximum), Position 4
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem

Notes:

1. RIO–2 cabling to I/O subsystem 7 is the same for configurations with or without the IBFs.
2. The maximum number of I/O subsystems allowed is reduced to seven when all I/O planars are connected to their own RIO–2 port pairs.

I/O Subsystems (1 through 3 with IBFs) RIO–2 Cabling to I/O Books, One I/O Planar Loop Configuration, 3 or 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

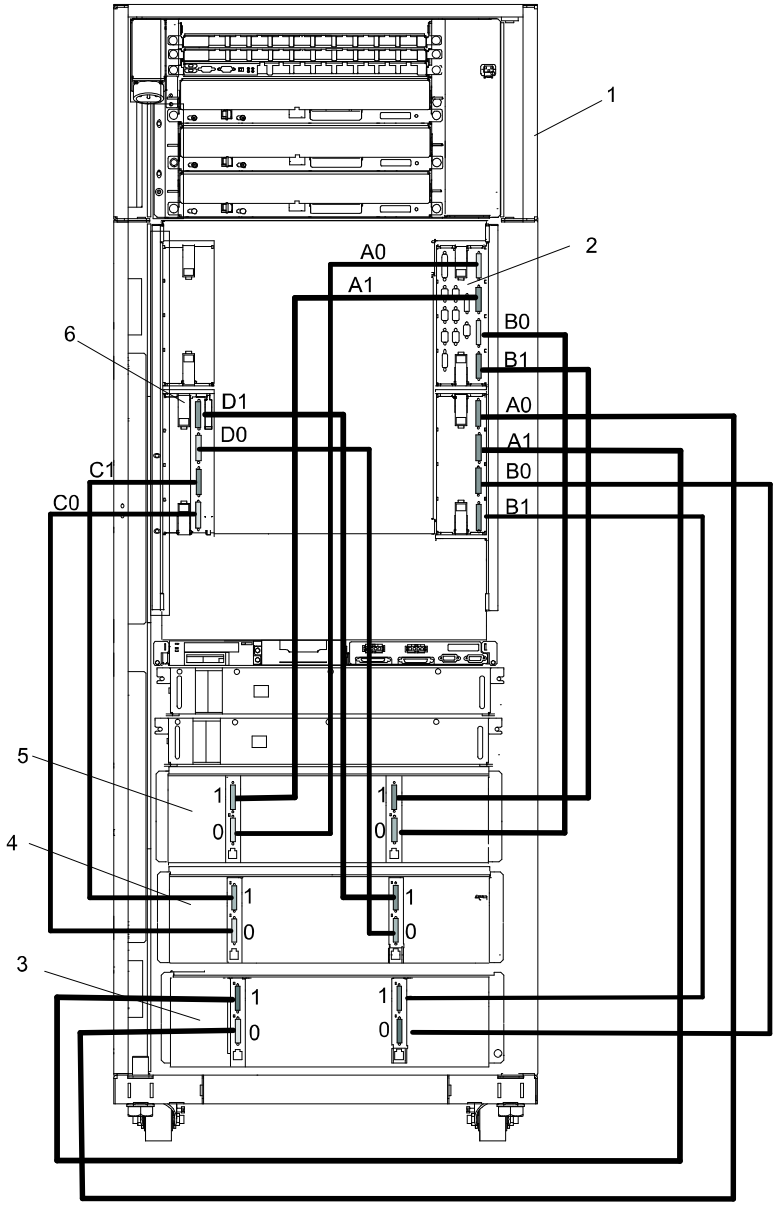


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Secondary I/O Book

A0 Connection to I/O Book (Book 0)
A1 Connection to I/O Book (Book 0)
B0 Connection to I/O Book (Book 0)
B1 Connection to I/O Book (Book 0)
C0 Connection to I/O Book (Book 2)
C1 Connection to I/O Book (Book 2)

I/O Subsystems (1 through 3 with IBFs) RIO–2 Cabling to I/O Books, One I/O Planar Loop Configuration, 2 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.

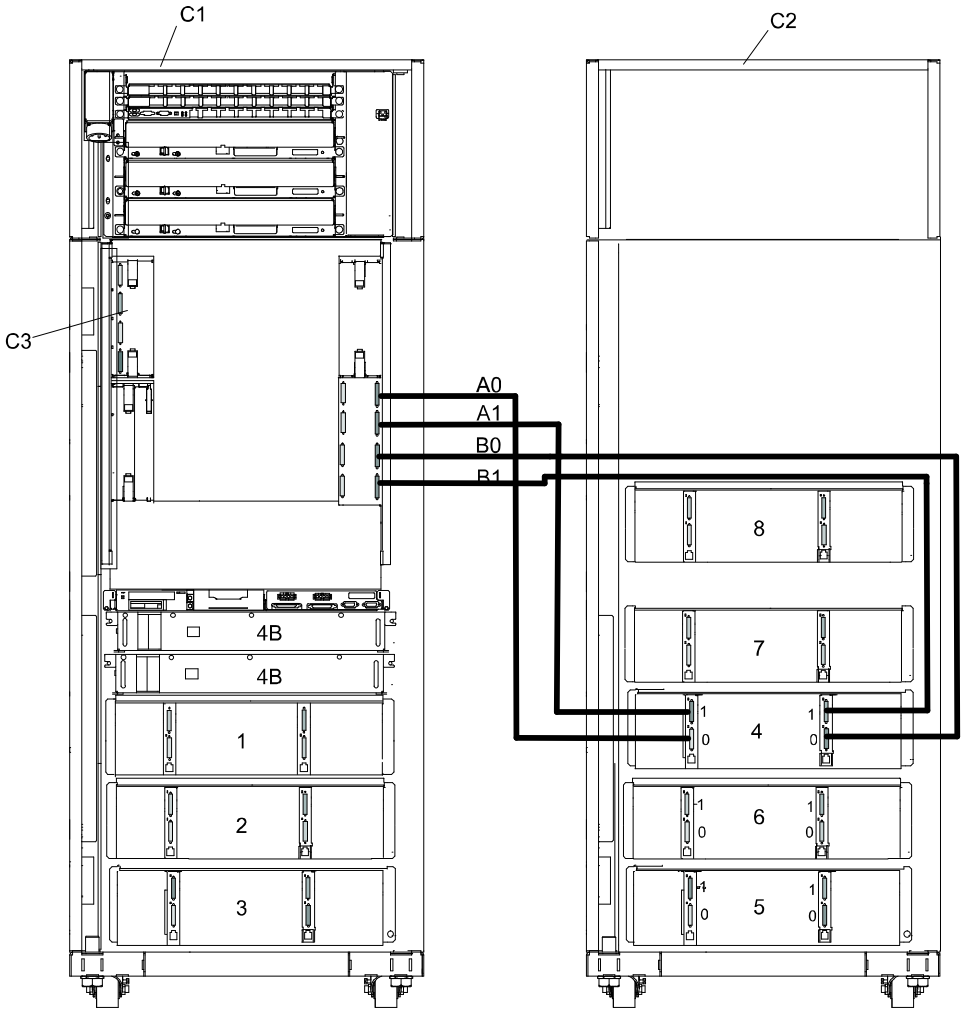


1 Primary Rack
2 Primary I/O Book
3 Third I/O Subsystem
4 Second I/O Subsystem
5 First I/O Subsystem
6 Secondary I/O Book

A0 Connection to I/O Book (Book 0)
A1 Connection to I/O Book (Book 0)
B0 Connection to I/O Book (Book 0)
B1 Connection to I/O Book (Book 0)
C0 Connection to I/O Book (Book 2)
C1 Connection to I/O Book (Book 2)

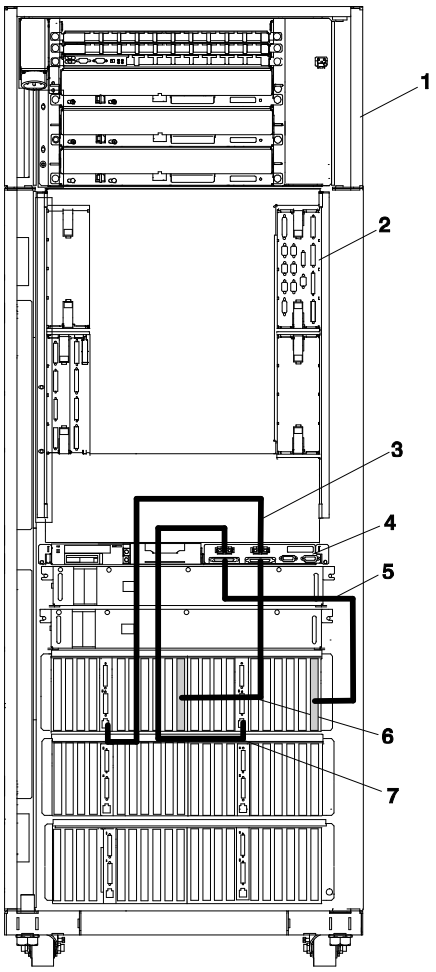
I/O Subsystem (4 with IBFs Installed) RIO–2 Cabling to I/O Book 3, One I/O Planar Loop Configuration, 3 or 4 MCMs Only

Note: The following figure applies to CECs with RIO–2, or bayonette retention, connections.



C1 Secondary Rack
C2 Primary Rack
C3 Secondary I/O Book in I/O Slot 3
C4 Secondary I/O Book in Slot 2
1 First I/O Subsystem
2 Second I/O Subsystem
3 Third I/O Subsystem
4 Fourth I/O Subsystem
4B Integrated Battery Feature (IBF)
5 Fifth I/O Subsystem
6 Sixth I/O Subsystem
7 Seventh I/O Subsystem
8 Eighth I/O Subsystem
A0 Connection to I/O Book (Book 2)
A1 Connection to I/O Book (Book 2)
B0 Connection to I/O Book (Book 2)
B1 Connection to I/O Book (Book 2)
D0 Connection to I/O Book (Book 2)
D1 Connection to I/O Book (Book 2)

Power and SCSI Cables to the Media Subsystem



1 Primary Rack

2 Primary I/O Book

3 Power Cable for Media Subsystem Front Drives

4 Rear of Media Subsystem

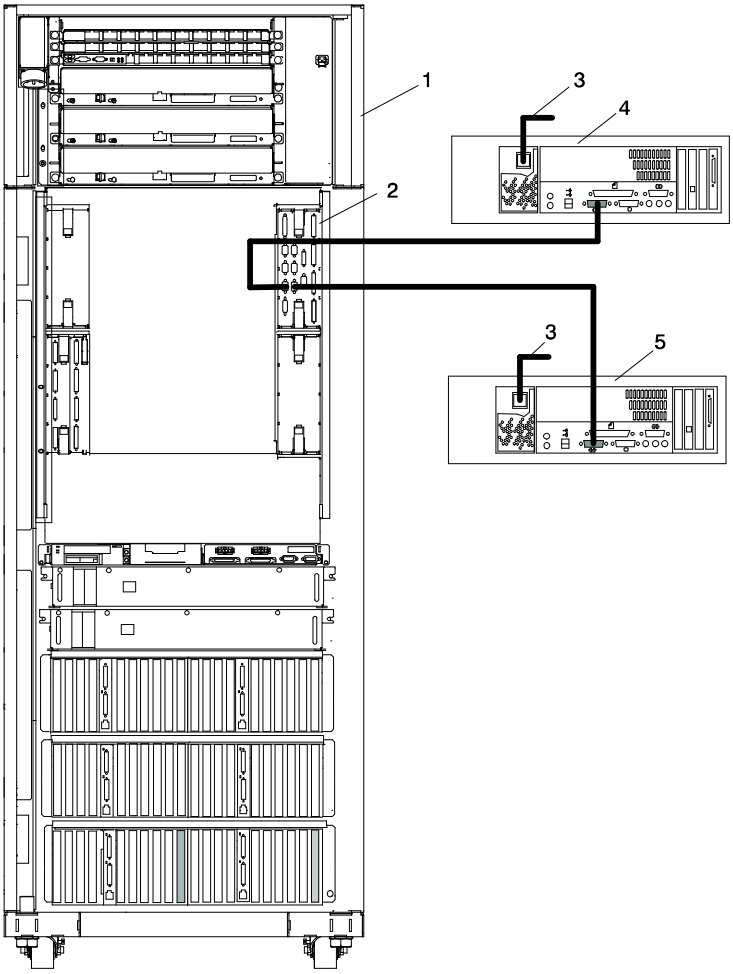
5 SCSI Cable for Media Subsystem Rear Drives

6 SCSI Cable for Media Subsystem Front Drives

7 Power Cable for Media Subsystem Rear Drives

Hardware Management Console (HMC) to the Primary I/O Book

To connect your HMC to the ESCALA PL 3200R , connect the serial cable into serial port 1 located on the back of the HMC. Connect the other end of the serial cable into the HMC1 connector located on the primary I/O book in the managed system. The following illustration shows the location of the serial ports on the back of the HMC and the HMC connectors located on the processor subsystem.



1 Primary Rack

2 Primary I/O Book

3 Power Plug to External Power Source (wall plug)

4 Primary HMC Connected to HMC #1 in Primary I/O Book (HMC #1 may be labeled HSC #1)

5 Optional Second HMC Connected to HMC #2 in Primary I/O Book (HMC #2 may be labeled HSC #2)

Appendix E. Cable Installation and Management

In some configurations, cables that are not properly supported might damage the associated connectors. Connector damage can be prevented by following the procedures described in this section. These procedures **must** be used for installing I/O cables, administrative LAN cables, and High Performance Switch (HPS) cables in a M/T 7040–W42 frame.

This section describes the procedures you **must** follow when installing a 7040 frame, especially with administrative LAN and High Performance Switch cables. Failure to follow these procedures might damage network components. The objectives of these procedures are to:

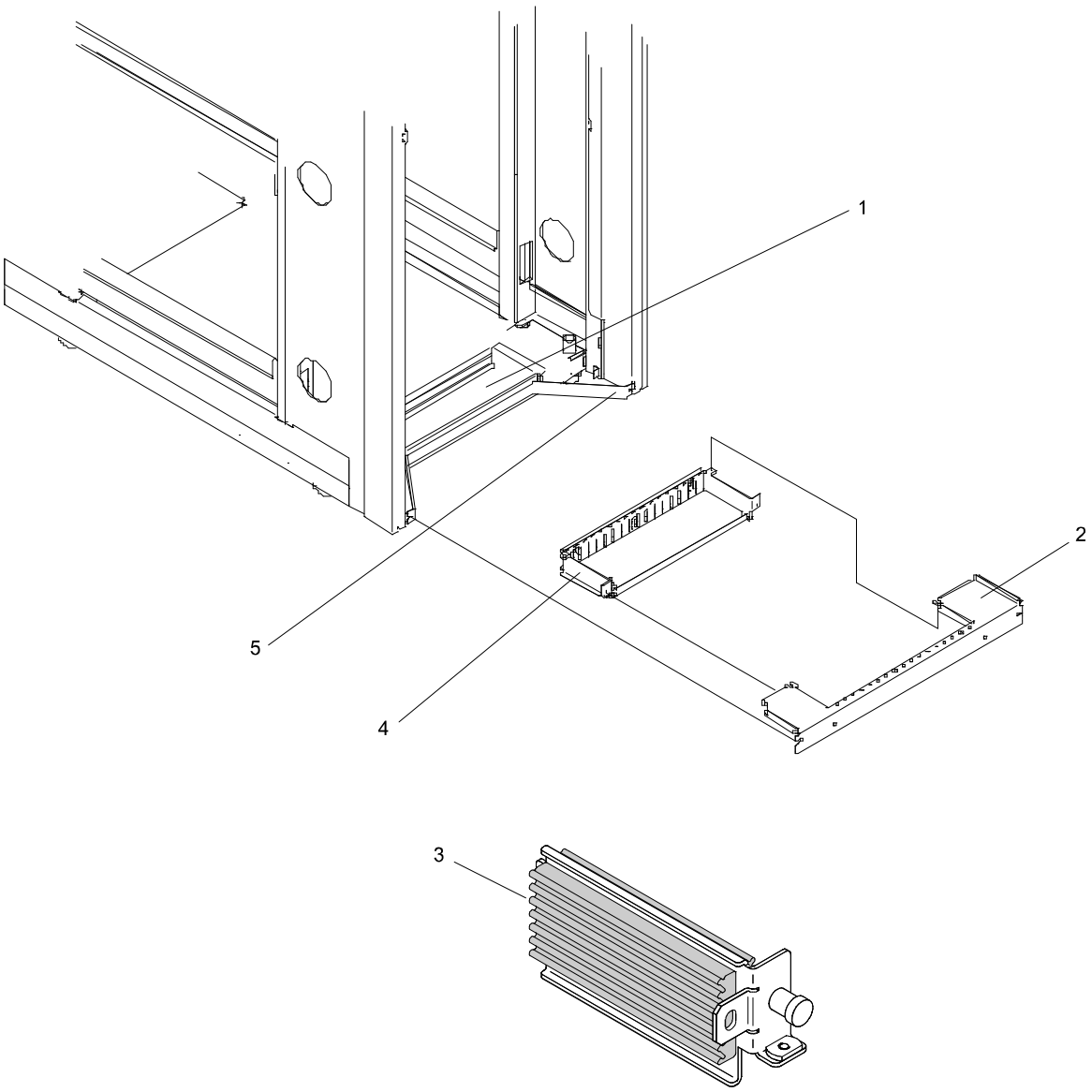
- Provide HPS cables with continuous support and strain relief.
- Minimize the possibility of pin damage to the SNI ports.
- Form consistent cable groups.
- Maintain efficient cooling.

A high–level workflow for cable installation is as follows:

1. Install the frame.
2. Route all signal cables up through the tailgate.
3. Separate cables into groups based on their location and size.

   Note:: If a High Performance Switch is in the configuration, the cables **must not** be connected to SNIs or switch port connection cards until the weight of each cable is fully supported.
4. Make certain that cable groupings do not interfere with PCI adapter slots.
5. Make certain that the cable bend radius allows clearance for closing the rear door but is not so sharp that it places excessive strain on the cable or the associated connectors.
6. Cable the frame starting with the upper cable connections and working down.
7. Apply tailgate insert clamp supports for the cables from left to right.

The following illustration shows the tailgate assembly and standard frame extenders of a properly cabled frame. Refer to the service guide for more parts information.



1 Rear Cutout

2 Extender

3 Tailgate Insert

4 Cable Management Backet

5 Stiffener

Note:: **Do not** connect any High Performance Switch cables (if installed) until instructed to do so.

1. Move the frame into position over the floor tile cutouts.
2. If you have not already done so, install the frame using the appropriate installation instructions.
3. Verify that the cable management bracket (tailgate) is properly installed on the base at the rear of the frame, if not:
   a. Remove the shipping bracket from the rear of the frame.
   b. Install the stiffener into the rear cutout on the base of the frame.
   c. Attach the cable management bracket (tailgate) to the stiffener.

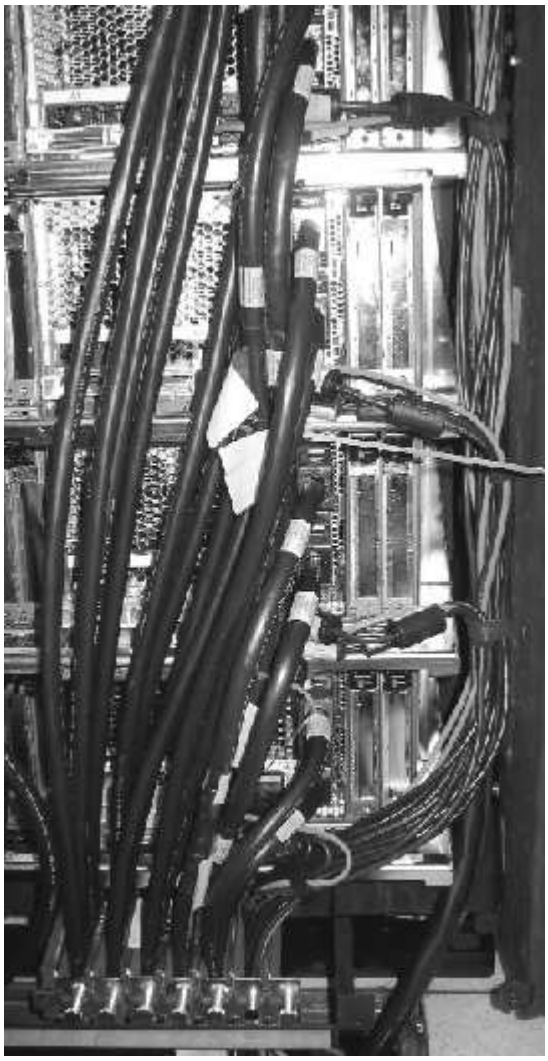
d. Make sure that the extender is available for installation after all cables have been installed.

4. Route all HMC, Ethernet, I/O, and HPS cables up through the tailgate. Notes:

   a. Main power cables do not pass through the tailgate assembly.

   b. High Performance Switch cables **must not** be connected to SNIs or switch port connection cards until the cable weight is supported.

The following illustration shows a properly cabled frame.



Before starting this part of the procedure:

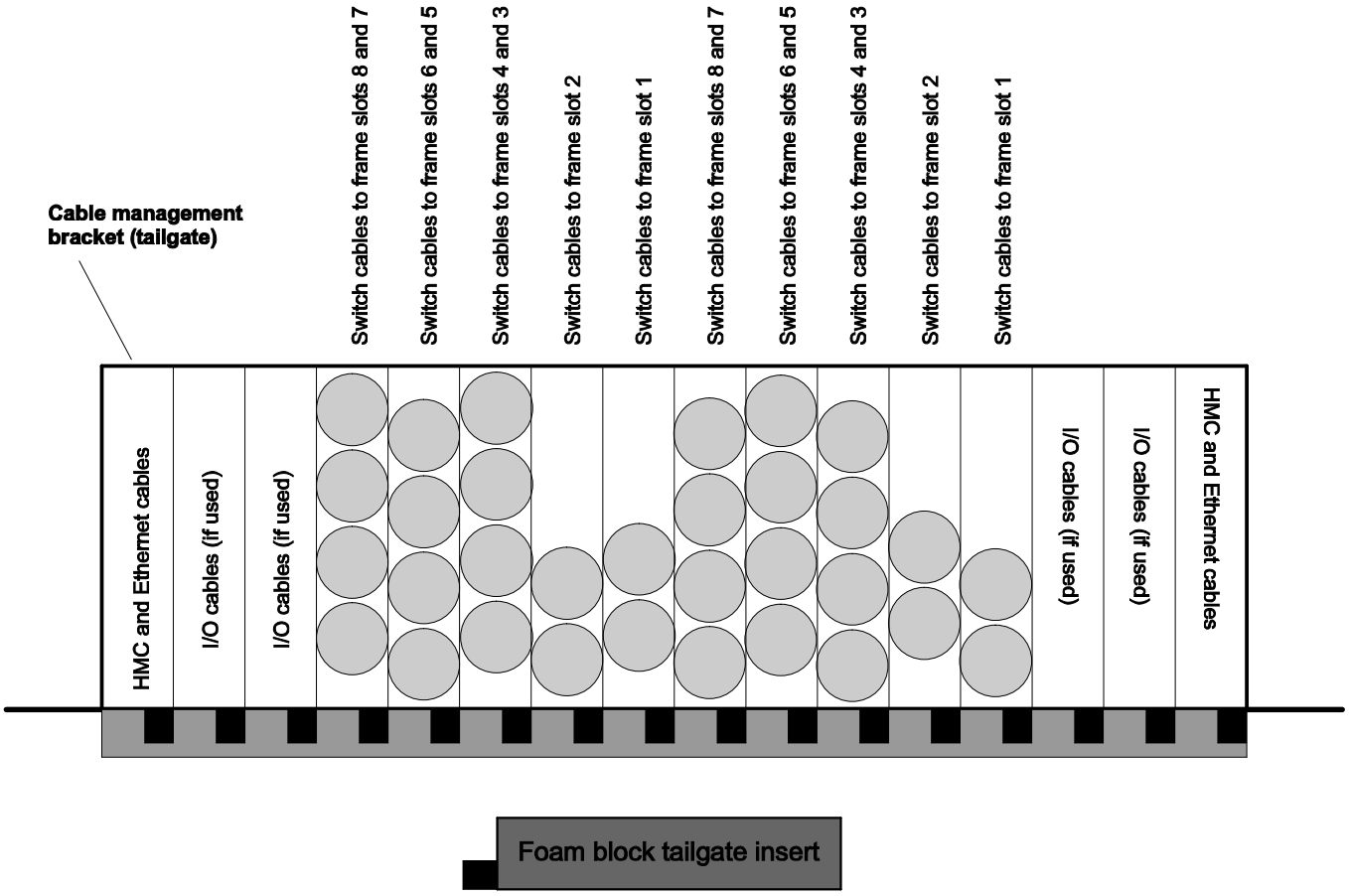
- Verify that all HMC, Ethernet, I/O, and HPS cables (if present) are inside the tailgate.
- Cables are clamped into the tailgate from left to right. If HPS cables are present, locate these cables closer to the right side of the tailgate by using the foam–block tailgate inserts.
  - Install one or more foam–block tailgate inserts into any open slot (refer to the tailgate illustration above).

Note:: **Do not** connect any HPS cables until instructed to do so.

After the preliminary steps are complete:

1. Sort the HPS cables into groups based on SNI port location, but do not clamp or connect cables until instructed to do so. An *overview* of the next few steps is as follows:
   a. Switch cables will be clamped into the tailgate in groups of either four or two.
   b. High Power Switch cables get clamped into the next available tailgate slot.
   c. Continue this cable pattern working down the frame and clamping to the right in the tailgate.
2. Before routing the switch cables, position the HMC, Ethernet, and I/O cables but **do not** clamp these cables into the tailgate until instructed to do so.
   a. Route the HMC and Ethernet cables to the appropriate connectors and connect each cable.
      . If present, make certain the HMC and Ethernet cables do not interfere with the SNI ports.
   b. Wire tie the HMC and Ethernet cables into a bundle running down the side of the frame.
   c. Wire tie any I/O cables into a bundle running down the side of the frame.
3.
4. If HPS cables are present, without plugging the switch cables into the SNI ports, take the switch cables and raise them into position.
   a. Check any cable labels and verify that you have the correct cables for each SNI port.
   b. Make certain that the cable for the upper SNI port extends further than the cable for the lower SNI port.
   c. Place a wire tie far enough down the cable set so that the cables will have sufficient length for a gentle bend radius.
   d. Wire tie the cables together.
5. Clamp any HPS cables into the next available tailgate slot using a rubber–faced, tailgate insert with the appropriate thickness of rubber.
6. If they are used, clamp the I/O cables into the tailgate using tailgate inserts. Depending on the number and size of the I/O cables, you may have to use one or two tailgate slots and clamping inserts.
7. Clamp the HMC and Ethernet cables into an available tailgate slot using a tailgate insert.
8. Insert foam–block tailgate inserts into any remaining tailgate slots.

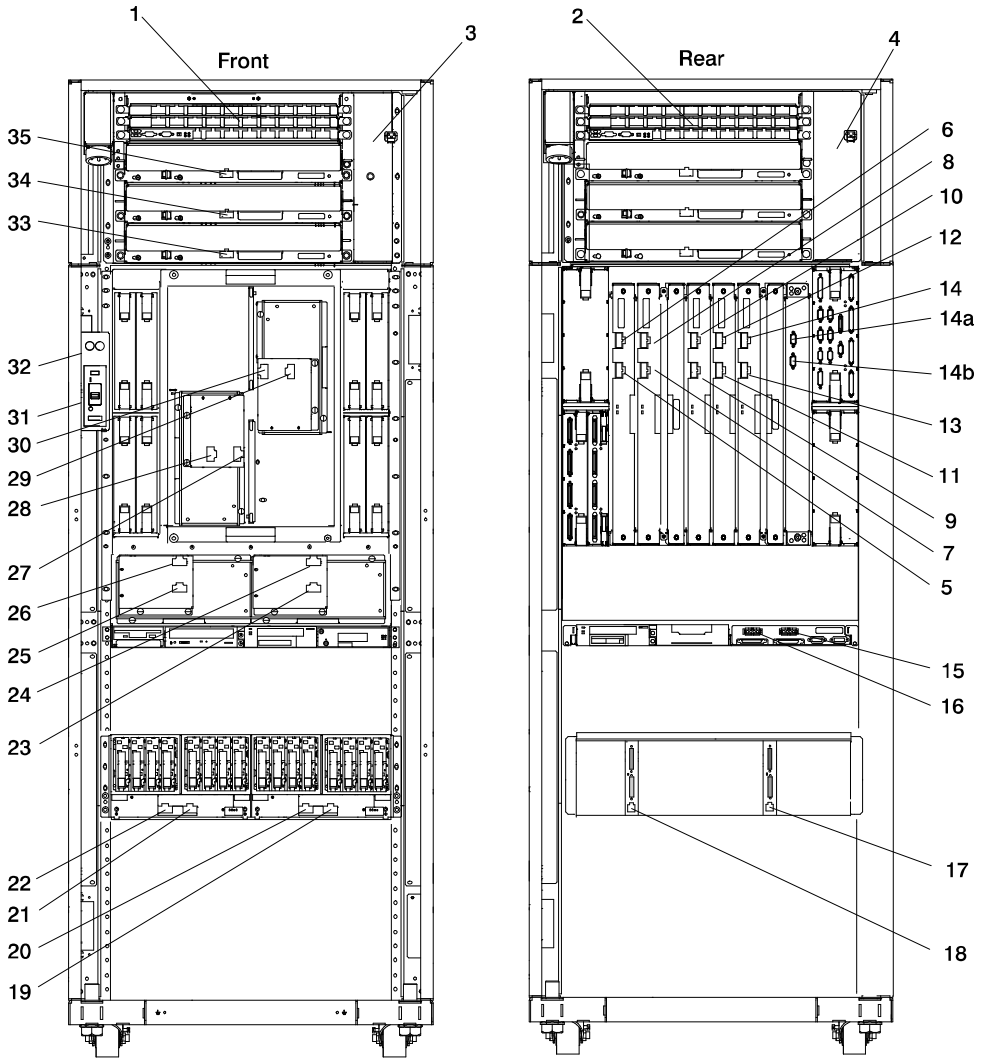
If you have properly cabled the frame, the cable layout should look like the following illustration.


Cable management bracket (tailgate)
HMC and Ethernet cables
I/O cables (if used)
I/O cables (if used)
Switch cables to frame slots 8 and 7
Switch cables to frame slots 6 and 5
Switch cables to frame slots 4 and 3
Switch cables to frame slot 2
Switch cables to frame slot 1
Switch cables to frame slots 8 and 7
Switch cables to frame slots 6 and 5
Switch cables to frame slots 4 and 3
Switch cables to frame slot 2
Switch cables to frame slot 1
I/O cables (if used)
I/O cables (if used)
HMC and Ethernet cables
Foam block tailgate insert

Appendix F. Cabling Information

This appendix provides information about the location and label colors of the ESCALA PL 3200R cables.

Power Cabling



Index	Part Number	Units Per Assy	Description
1	N/A		Bulk Power Distribution on the A side of the system (BPD A Side)
2	N/A		Bulk Power Distribution on the B side of the system (BPD B Side)
3	N/A	1	A35–BPC–P03 to Bulk Power Fan P1–F1, Cable attached to FAN (BPF–A)
4	N/A	1	B35–BPC–P03 to Bulk Power Fan P2–F1, Cable attached to FAN (BPF–B)
5	11P4449	1	B35–BPC–P08 to DCA–1–P01, Red

6	11P4448	1	A35–BPC–P08 to DCA–1–P00, Red with white stripe
7	11P4451	1	B35–BPC–P09 to DCA–2–P01, Red
8	11P4450	1	A35–BPC–P09 to DCA–2–P00, Red with white stripe
9	11P4453	1	B35–BPC–P10 to DCA–3–P01, Red
10	11P4452	1	A35–BPC–P10 to DCA–3–P00, Red with white stripe
11	11P4455	1	B35–BPD1–P08 to DCA–4–P01, Red
12	11P4454	1	A35–BPD1–P08 to DCA–4–P00, Red with white stripe
13	11P4457	1	B35–BPD1–P09 to DCA–5–P01, Red
14	11P4456	1	A35–BPD1–P09 to DCA–5–P00, Red with white stripe
15 to 17	11P4303	1	I/OB9–P00 to Media P02
16 to 18	11P4303	1	I/OB9–P01 to Media P00
19, 20,21, 22	N/A		B35–BPDx–P0x to I/O Subsystem #x For more information about these cables, refer to RIO Cables, RIO–2 Cables, and I/O Power Cables on page F-3
23	11P4462	1	B35–BPC–P05 to (AMD2–P01) MDA2–J02, Red
24	11P4461	1	A35–BPC–P05 to (AMD2–P00) MDA2–J01, Red with white stripe
25	11P4460	1	A35–BPC–P04 to (AMD1–P01) MDA1–J02, Red
26	11P4459	1	A35–BPC–P04 to (AMD1–P00) MDA1–J01, Red with white stripe
27	11P4463	1	A35–BPC–P06 to (AMD3–P00) MDA3–J01, Red with white stripe
28	11P4464	1	B35–BPC–P06 to (AMD3–P01) MDA3–J02, Red
29	11P4465	1	B35–BPC–P07 to (AMD4–P00) MDA4–J02, Red with white stripe
30	11P4466	1	B35–BPC–P07 to (AMD4–P01) MDA4–J01, Red
31	11P1596	1	B35–BPC–P02 to UEPO J01, Red
32	11P1595	1	A35–BPC–P02 to UEPO J00, Red with white stripe
33	11P2998	2	A35–BPR–P00 to A–IBF3–P00 (Secondary Frame)B35–BPR–P00 to B–IBF3–P00 (Secondary Frame)
34	11P4248	2	A35–BPR–P00 to A13–IBF2–P00B35–BPR–P00 to B13–IBF2–P00
35	11P2998	2	A35–BPR–P00 to A15–IBF1–P00B35–BPR–P00 to B15–IBF1–P00

RIO Cables, RIO–2 Cables, and I/O Power Cables

FRU Part Number	Units Per Assy	Description
11P2355	Up to 8	RIO cable 0.5–meter
11P0272	Up to 16	RIO cable 2–meter
44H9137	Up to 16	RIO cable 15–meter
00P5238	Up to 8	RIO–2 cable 1.75–meter
00P5239	Up to 16	RIO–2 cable 2.5–meter
21P5477	Up to 16	RIO to RIO–2 cable 6–meter
53P5242	Up to 16	RIO to RIO–2 cable 1–meter
53P5243	Up to 16	RIO to RIO–2 cable 3–meter
53P5454	Up to 16	RIO–2 to RIO–2 cable 1–meter
53P2675	Up to 16	RIO–2 to RIO–2 cable 8–meter
53P2676	Up to 16	RIO–2 to RIO–2 cable 3.5–meter
11P4490	1	I/O Subsystem 1 power cable (DCA1–P01)
11P4491	1	I/O Subsystem 1 power cable (DCA1–P00)
11P4492	1	I/O Subsystem 1 power cable (DCA2–P01)
11P4493	1	I/O Subsystem 1 power cable (DCA2–P00)
11P4494	1	I/O Subsystem 2 power cable (DCA1–P01)
11P4495	1	I/O Subsystem 2 power cable (DCA1–P00)
11P4496	1	I/O Subsystem 2 power cable (DCA2–P01)
11P4497	1	I/O Subsystem 2 power cable (DCA2–P00)
11P4498	1	I/O Subsystem 3 power cable (DCA1–P01)
11P4499	1	I/O Subsystem 3 power cable (DCA1–P00)
11P4500	1	I/O Subsystem 3 power cable (DCA2–P01)
11P4501	1	I/O Subsystem 3 power cable (DCA2–P00)
11P4502	1	I/O Subsystem 4 power cable, primary rack (DCA1–P01)
11P4503	1	I/O Subsystem 4 power cable, primary rack (DCA1–P00)
11P4504	1	I/O Subsystem 4 power cable, primary rack (DCA2–P01)
11P4505	1	I/O Subsystem 4 power cable, primary (DCA2–P00)
11P4514	1	I/O Subsystem 4 power cable, secondary rack (DCA1–P01)
11P4515	1	I/O Subsystem 4 power cable, secondary rack (DCA1–P00)
11P4516	1	I/O Subsystem 4 power cable, secondary rack (DCA2–P01)
11P4517	1	I/O Subsystem 4 power cable, secondary rack (DCA2–P00)
11P4506	1	I/O Subsystem 5 power cable (DCA1–P01)
11P4507	1	I/O Subsystem 5 power cable (DCA1–P00)
11P4508	1	I/O Subsystem 5 power cable (DCA2–P01)
11P4509	1	I/O Subsystem 5 power cable (DCA2–P00)
11P4510	1	I/O Subsystem 6 power cable (DCA1–P01)
11P4511	1	I/O Subsystem 6 power cable (DCA1–P00)
11P4512	1	I/O Subsystem 6 power cable (DCA2–P01)

11P4513	1	I/O Subsystem 6 power cable (DCA2–P00)
44P0190	1	I/O Subsystem 7 power cable (DCA1–P01)
44P0191	1	I/O Subsystem 7 power cable (DCA1–P00)
44P0192	1	I/O Subsystem 7 power cable (DCA2–P01)
44P0193	1	I/O Subsystem 7 power cable (DCA2–P00)
44P0194	1	I/O Subsystem 8 power cable (DCA1–P01)
44P0195	1	I/O Subsystem 8 power cable (DCA1–P00)
44P0196	1	I/O Subsystem 8 power cable (DCA2–P01)
44P0197	1	I/O Subsystem 8 power cable (DCA2–P00)

Note:: The cables tied along the raceway may settle during shipment and might be tight when reconnecting to the BPA. To be reconnected, the cable ties may need to be loosened and the cable slack pulled up.

From	To(A=Primary) (Z=Secondary)	Description	Label Color
A35B–BPD1A–P00	A09B–DCA1–P01	BPD1A to I/O Subsystem #1	Purple W/Stripes
A35P–BPD1B–P00	A09B–DCA1–P00	BPD1B to I/O Subsystem #1	Purple
A35B–BPD1A–P01	A09B–DCA2–P01	BPD1A to I/O Subsystem #1	Purple W/Stripes
A35P–BPD1B–P01	A09B–DCA2–P00	BPD1B to I/O Subsystem #1	Purple
A35B–BPD1A–P02	A05B–DCA1–P01	BPD1A to I/O Subsystem #2	Yellow W/Stripes
A35P–BPD1B–P02	A05B–DCA1–P00	BPD1B to I/O Subsystem #2	Yellow
A35B–BPD1A–P03	A05B–DCA2–P01	BPD1A to I/O Subsystem #2	Yellow W/Stripes
A35P–BPD1B–P03	A05B–DCA2–P00	BPD1B to I/O Subsystem #2	Yellow
A35B–BPD1A–P04	A01B–DCA1–P01	BPD1A to I/O Subsystem #3	Green W/Stripes
A35P–BPD1B–P04	A01B–DCA1–P00	BPD1B to I/O Subsystem #3	Green
A35B–BPD1A–P05	A01B–DCA2–P01	BPD1A to I/O Subsystem #3	Green W/Stripes
A35P–BPD1B–P05	A01B–DCA2–P00	BPD1B to I/O Subsystem #3	Green
A35B–BPD1A–P06	A13B–DCA1–P01	BPD1A to I/O Subsystem #4 (no IBF)	Blue W/Stripes
A35P–BPD1B–P06	A13B–DCA1–P00	BPD1B to I/O Subsystem #4 (no IBF)	Blue
A35B–BPD1A–P07	A13B–DCA2–P01	BPD1A to I/O Subsystem #4 (no IBF)	Blue W/Stripes
A35P–BPD1B–P07	A13B–DCA2–P00	BPD1B to I/O Subsystem #4 (no IBF)	Blue
A35B–BPD2A–P04	Z09B–DCA1–P01	BPD1A to I/O Subsystem #4 (with IBF)	Yellow W/Stripes
A35P–BPD2B–P04	Z09B–DCA1–P00	BPD1B to I/O Subsystem #4 (with IBF)	Yellow
A35B–BPD2A–P05	Z09B–DCA2–P01	BPD1A to I/O Subsystem #4 (with IBF)	Yellow W/Stripes
A35P–BPD2B–P05	Z09B–DCA2–P00	BPD1B to I/O Subsystem #4 (with IBF)	Yellow
A35B–BPD2A–P00	Z01B–DCA1–P01	BPD2A to I/O Subsystem #5	Red W/Stripes
A35P–BPD2B–P00	Z01B–DCA1–P00	BPD2B to I/O Subsystem #5	Red

A35B–BPD2A–P01	Z01B–DCA2–P01	BPD2A to I/O Subsystem #5	Red W/Stripes
A35P–BPD2B–P01	Z01B–DCA2–P00	BPD2B to I/O Subsystem #5	Red
A35B–BPD2A–P02	Z05B–DCA1–P01	BPD2A to I/O Subsystem #6	Purple W/Stripes
A35P–BPD2B–P02	Z05B–DCA1–P00	BPD2B to I/O Subsystem #6	Purple
A35B–BPD2A–P03	Z05B–DCA2–P01	BPD2A to I/O Subsystem #6	Purple W/Stripes
A35P–BPD2B–P03	Z05B–DCA2–P00	BPD2B to I/O Subsystem #6	Purple
A35B–BPD2A–P06	Z13B–DCA1–P01	BPD2A to I/O Subsystem #7	Green W/Stripes
A35P–BPD2B–P06	Z13B–DCA1–P00	BPD2B to I/O Subsystem #7	Green
A35B–BPD2A–P07	Z13B–DCA2–P01	BPD2A to I/O Subsystem #7	Green W/Stripes
A35P–BPD2B–P07	Z13B–DCA2–P00	BPD2B to I/O Subsystem #7	Green
A35B–BPD2A–P08	Z19B–DCA1–P01	BPD2A to I/O Subsystem #8	Blue W/Stripes
A35P–BPD2B–P08	Z19B–DCA1–P00	BPD2B to I/O Subsystem #8	Blue
A35B–BPD2A–P09	Z19B–DCA2–P01	BPD2A to I/O Subsystem #8	Blue W/Stripes
A35P–BPD2B–P09	Z19B–DCA2–P00	BPD2B to I/O Subsystem #8	Blue

Appendix G. Service Processor Setup and Test

Attention: This procedure applies to modems attached to the serial ports (S1 and S2) on the primary I/O book (location U1.18–P1–H2). It does not affect the operation of the modem attached to the hardware management console (HMC).

The call–out function is normally handled by the Service Focal Point application running on the HMC.

Note:: The call–out and surveillance options are disabled in partitioned systems.

For your convenience, an example of a basic service processor setup checklist is included here. Your setup may include more or fewer of the available features, so you can adjust this checklist for your own application.

Service Processor Setup Checklist

1. Shut down the managed system, and wait for the `OK` in the physical operator panel.
2. Open a virtual terminal window on the HMC.
3. Start the service processor menus.
4. Set the system name.
5. Enable Surveillance.
6. Configure call–in/call–out.
7. Attach modems if necessary. If modem attachment is not necessary, proceed to step 8. To attach a modem, do the following:
   a. Exit the service processor menus.
   b. Disable the 350 V dc outputs from the Bulk Power Assembly (BPA) by placing the UEPO switch in the *off* position.

      Attention: With the UEPO *off*, power is still present within the BPA.
   c. Attach the cables and modems.
   d. Place the UEPO switch in the *on* position.
8.
9. Test both of the following:
   - Call–In, go to Testing Call–In on page G-2
   - Call–Out, go to Testing Call–Out on page G-2

Your service processor is now ready for use.

Testing the Service Processor Setup

This section contains sample testing procedures to help ensure your service processor setup is working.

These tests include communicating with the server operating system. Before you start, ensure that the necessary serial port(s) is configured. If you need assistance, refer to Serial Port Configuration on page G-3.

The server should be powered off as a result of the Service Processor Setup Checklist on page G-1.

Testing Call–In

1. At your remote terminal, call in to your server. Your server answers and offers you the service processor Main Menu after requesting your privileged–access password.
2. Select **System Power Control**.
3. Select **Power–On System**.

   When you are asked if you wish to continue powering on the system, type `Y`.
4. After the system firmware and operating system have initialized the server, the login prompt displays at your remote terminal if you set up seamless modem transfer. This may take several minutes. When the login prompt displays, you have successfully called the service processor.
5. Type `logout` to disconnect from the operating system. The message `No Carrier` displays on your remote terminal.
6. Call your server again. The operating system answers and offers you the login prompt. If these tests are successful, call–in is working.
7. Log in and type `shutdown -F` to shut down your server.
8. The message `No Carrier` displays on your remote terminal.

Testing Call–Out

During the setup, you entered your phone numbers for the pager and customer voice. These numbers are used for this test.

1. Your remote terminal is disconnected as a result of the Call–In test.
2. Call your server again.
3. At the service processor Main Menu, select **Call–In/Call–Out Setup** menu, then select **Call–Out** test. This action causes a simulated error condition for the purposes of this test.
4. After a few moments, a message displays, regarding an illegal entry. Press Enter to clear the message and return to the main menu.
5. When your telephone rings, answer the call. You should hear the sound of a telephone being dialed. This is your computer trying to page you.

If this test is successful, call–out is working correctly.

Serial Port Configuration

To configure the serial port on an AIX system, do the following from an AIX console:

1. Log in as `root` user.
2. To determine if you have any serial ports already configured, type:

   ```
   lsdev -Cc tty
   ```

   If no serial ports are configured, none are listed. If you want to configure serial ports that are not listed, continue with the remaining steps.
3. Identify the serial port(s) with the modem(s).
4. Type `smit tty`.
5. Select **add tty**.
6. Select **RS232**.
7. Select **Baud rate 9600** or higher.
8. Select **login enable** and set the flow control to RTS.
9. Commit the selections and set up any other needed serial ports.
10. Exit SMIT.

Appendix H. Removing and Installing the Rack Top Frame

The following scenarios exist for performing this procedure:

- Removing and installing the rack top frame for clearance through doorways
- Installing the rack top frame that was shipped unattached from the rest of the frame

Note:: If the clearance is close (an interference of 1/2 inch or less), removing the side covers may be all that is required. For side cover removal instructions, see Removing the Covers on page H-2.

For additional information, refer to RPQ8A1173. For clearance procedures, go to Removing the Rack Top Frame for Clearance Through Doorways on page H-3. For the reduced height procedure, go to Preparing for Rack Top–Frame Installation for ESCALA PL 3200R (Reduced Height Option) RPQ8A1173 on page H-9.

Attention: Due to the weight of the rack top frame, two people are required to restore the rack to full height.

The weight of components is outlined as follows:

Item	Weight
Rack Top Frame and Crate	463 lbs.
Rack Top Frame with Power (4 BPRs and 4 BPDs)*	329 lbs.
BPR	30 lbs.
BPD	14 lbs.
BPE	40 lbs.
Rack Top Frame without Rails	66 lbs.
Rack Top Frame with Rails	73 lbs.
Notes: 1. Maximum total weight can be up to 561 lbs. 2. * Can be shipped with up to six BPRs and six BPDs.	

Required Tools

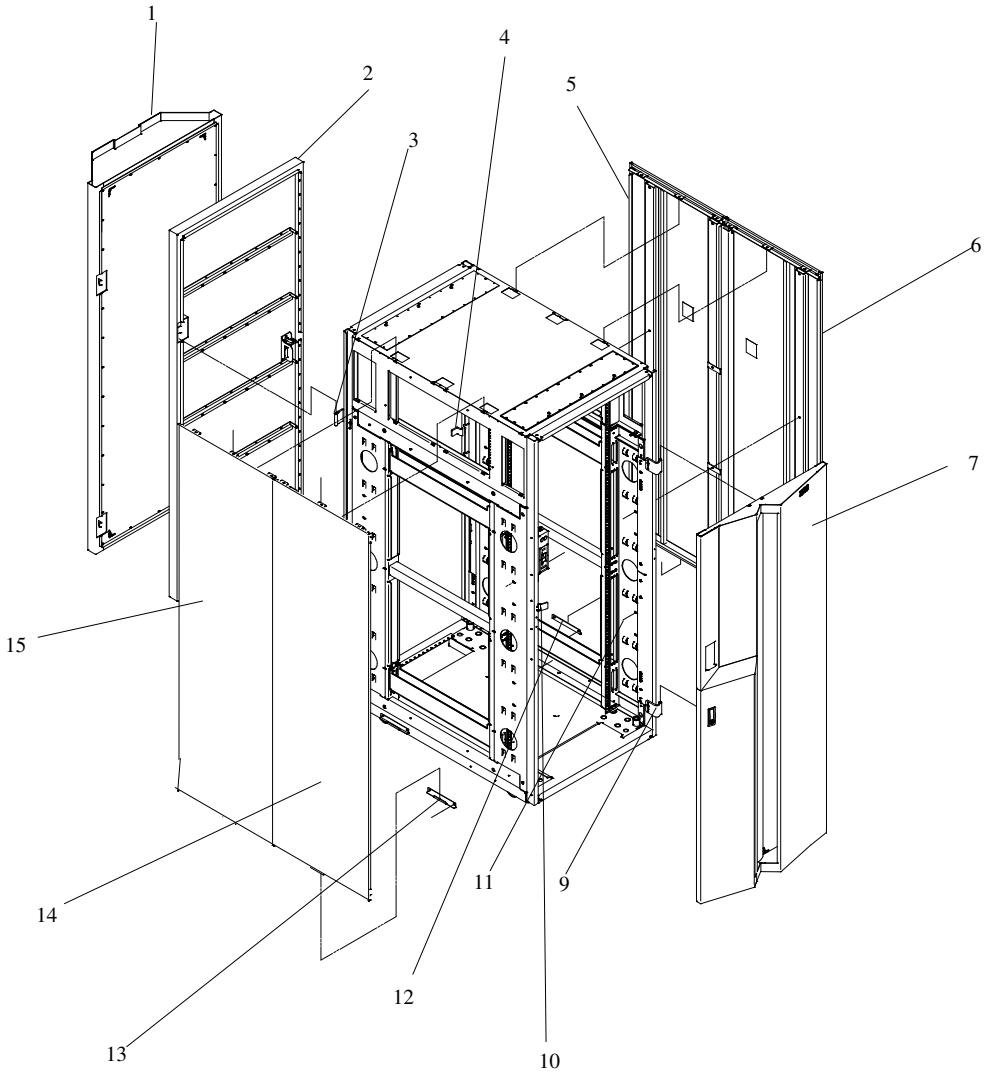
The following tools are necessary to remove or install the rack top frame:

- Ladder
- Stepladder

Tool	Description
Ratchet	3/8 inches Square Drive
Ratchet Accessories	3/8 inches Drive, 6 inches Extension X2 (8–inch reach required)
Drive Socket	3/8 inches (10mm)
Drive Ratchet	1/4 inches
Drive Socket	5/16 inches (8mm)
Torque Tool (Part Number 6422789)	Included in the tool kit and used for various FRUs, such as the BPR, BPC, BPDs, and BPFs.

Removing the Covers

This procedure describes how to remove and replace the side covers of the ESCALA PL 3200R .



1 Part Number 44P0127 Rear Cover

2 Part Number 44P0107 Rear Cover

3 Part Number 11P4106 Hinge
Part Number 2665525 Screw

4 Part Number 44P0126 Rear Latch
Part Number 54G2882 Screw

5 Part Number 44P0126 Right Cover
Part Number 54G2882 Screw

6 Part Number 11P3600 Left Cover
Part Number 44P0125 Screw

7 Part Number 44P0105 Front Cover

9 Part Number 11P3535 Hinge
Part Number 2665525 Screw

10 Part Number 11P1096 Front Latch
Part Number 54G2882 Screw

11 Part Number 77G0599 Screw
Part Number 1625437 Washer, Side Cover

12 Part Number 05N6585 J Bracket
Part Number 2665528 Screw, Side Cover

13 Part Number 05N6585 J Bracket
Part Number 2665528 Screw

14 Part Number 44P0126 Right Cover
Part Number 54G2882 Screw

15 Part Number 44P0125 Left Cover
Part Number 54G2882 Screw

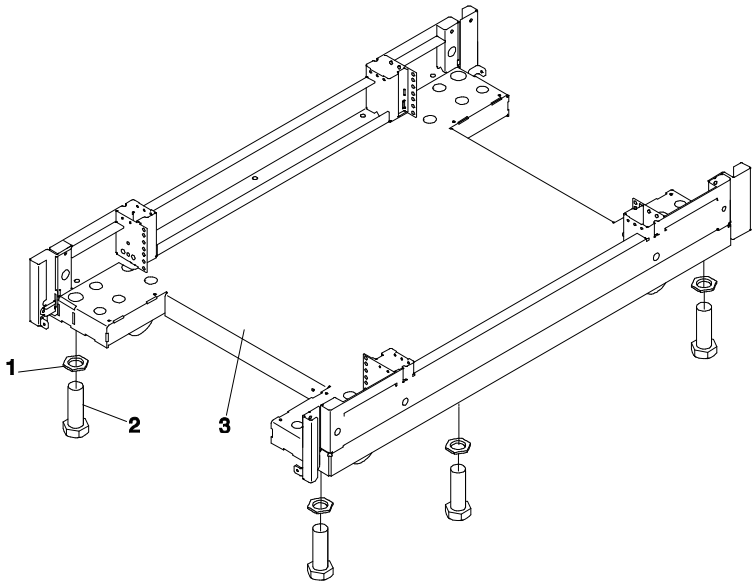
Complete the following steps to remove the side covers:

1. Always remove the right side cover first.
2. Remove the (2) screws and washers inside the frame (part numbers 77G0599 and 1625437).
3. Remove the (3) screws at the top of the frame (part number 54G2882). The use of a stepladder is recommended for this procedure.
4. With all the screws removed, rock the cover to the right from the top. There are features built into the cover that lock it behind the left cover, and these features must be clear before you can lift the cover from the frame. To make lifting the cover easier, tilt the top of the cover away from the frame after the feature tabs have cleared the left cover.
5. Use steps 2 and 3 to remove the the left side cover.
6. With all the screws removed from the cover, tilt the top of the cover away from the frame and lift off.

Removing the Rack Top Frame for Clearance Through Doorways

The following steps describe removal of the rack top frame for clearance through doorways.

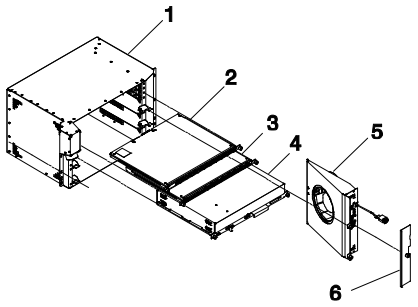
1. Use the jack screws to stabilize and lift the rack off the floor, as follows:
   a. Loosen the jam nut on each leveling foot by turning the nut counterclockwise.
   b. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
   c. Adjust the leveling feet downward as needed until the rack is level. When the rack is level, tighten the jam nuts against the base by turning the nut clockwise.



1 Jam Nut
2 Leveling Foot
3 Rack Base

2. Disconnect cables from the BPDs.
3. Remove the front and rear BPRs, BPDs, BPCs , and the fan assemblies.

Attention: Make note of location identification of the BPRs and BPEs for later reinstallation. If these components are not reinstalled in their original location, the ESCALA PL 3200R will not power on.



1 BPE
2 BPD
3 BPC
4 BPR
5 BPF
6 Fan Cover Plate

a. Remove the BPRs (item 4 in the previous illustration), as follows:

   i. Make sure the ON/OFF switch is in the UNLOCK/OFF position.

   ii. Loosen the thumbscrew on each side of the BPR, using the torque tool (part number 6422789).

   iii. Rotate the release levers up on each side of the BPR. This will unseat the BPR.

   iv. Pull the BPR straight out from the Bulk Power Enclosure (BPE).

   v. Repeat for the other BPRs . There can be up to six BPRs , with three in front and three in back.

b. Remove the Bulk Power Controllers (BPCs) (item 3 in the previous illustration), as follows:

   i. Loosen the thumbscrew on each side of the BPC, using the torque tool.

   ii. Pull the BPC straight out from the Bulk Power Enclosure.

   iii. Repeat for the other BPC. There are two BPCs, with one in front and one in back.

c. Remove the BPDs (item 2 in the previous illustration), as follows:

   i. Loosen the thumbscrew on each side of the BPD, using the torque tool.

   ii. Pull the BPD straight out from the Bulk Power Enclosure (BPE).

   iii. Repeat for the other BPDs . There can be up to four BPDs , with two in front and two in back.

d. Remove the BPFs (item 5 in the illustration on page H-4) as follows:

   Note:: A grille covers the fan on the front of the fan assembly.

   i. Locate the BPF to be replaced.

   ii. Remove the fan cover plate (item 6 in the illustration on page H-4).

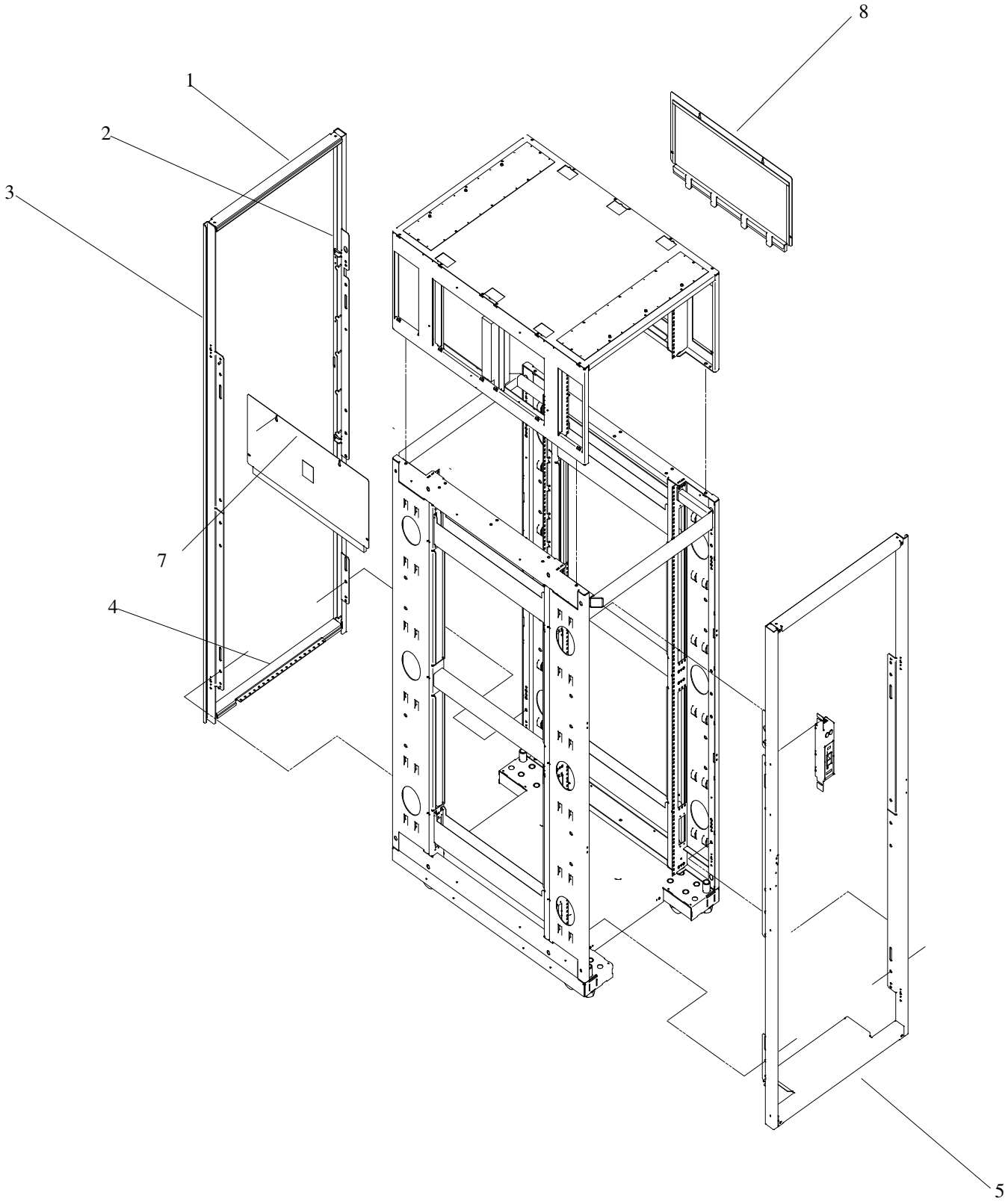
   iii. Loosen the upper and lower fasteners using the torque tool.

   iv. Pull the BPF straight out of the BPE.

   v. Repeat for the other BPF. There are two BPFs, one in front and one in back.

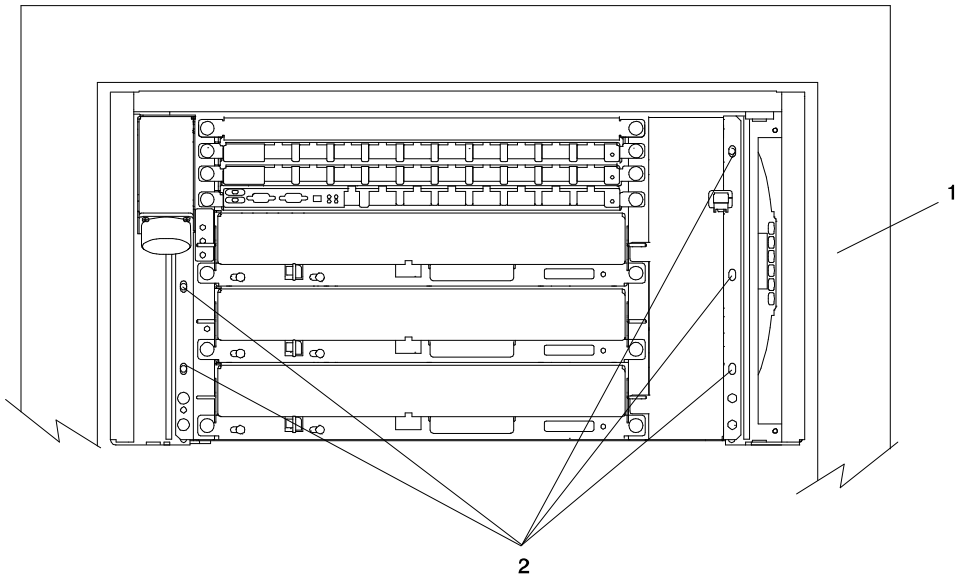
e. Remove any front and rear bulk power fillers.

4. Remove the top frame side covers (items 7 and 8 in the illustration on page Removing the Covers on page H-2), as follows:
   a. Remove the two screws at the top of each side panel.
   b. Lift up the panel from the top, and pull it away from the rack.
5. Remove the frame extenders as follows:
   a. Remove the UEPO switch (item 6 in the following illustration), as follows:
      i. Unplug the cables.
      ii. Remove the top and bottom screws.
   b. Remove the rear top and bottom frame extender (items 1 and 4 in the following illustration) by removing the two screws (one on each side).
   c. Remove both rear frame extenders (items 2 and 3 in the following illustration) by removing the three bolts on each side.
   d. Repeat steps 5b and 5c for the front frame extenders.



1 Top Frame Extender
2 Left Frame Extender
3 Right Frame Extender
4 Rear Frame Extender
5 Front Frame Extender
6 UEPO Switch
7 Rack Top Frame Left Side Cover
8 Rack Top Frame Right Side Cover

6. **Attention:** Two people are required to remove the BPEs. Remove the BPEs (item 1 in the illustration on page H-7).



1 Bulk Power Enclosure

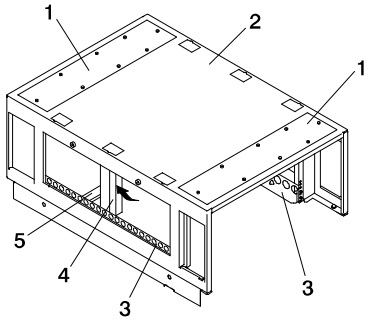
2 Hex–Head Screw Locations

   a. Remove the five hex–head screws from the front BPE.

   b. Remove the five hex–head screws from the rear BPE.

   c. Install two shipping brackets (part number 11P2923) on both the front and rear of the frame using 8 M8 X 16mm bolts (part number 164803).

7. To reduce the weight so that it is the maximum two–person limit, do the following:



1 Top Panels for Front and Rear Rack Top Frame

2 Rack Top Frame

3 Left and Right BPE Rails

4 Foam and Metal Air Baffle

5 Rack Top–Frame Cross Brace

   a. Remove the eight screws around the perimeter of the top panels at the front and rear of the rack top–frame assembly. Remove the two top panels (item 1 in the preceding illustration) .

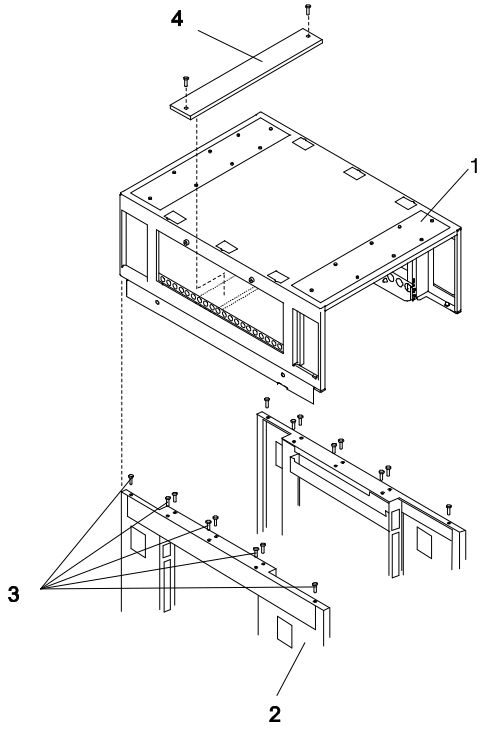
   b. Carefully note the orientation and position of the foam and metal air baffle (item 4 in the preceding illustration) at the middle left side of the rack top frame assembly. Remove the screw, then tilt the baffle toward the front of the rack top frame.

Note:: The foam and metal upright air baffle *must* be reinstalled on the left side in its original location. The foam baffle is a critical part for proper cooling of the BPEs.

c. Remove the single screw at each end of the cross brace (item 5 in the illustration on page H-7). Remove the cross brace.

d. Remove the two screws at the front of the left BPE rail, and remove the rail (item 3 in illustration on page H-7) .

e. Remove the two screws at the rear of the right BPE rail, and remove the rail (item 3 in illustration on page H-7) .



1 Rack Top Frame

2 Rack Chassis

3 Top Frame Bolts

4 Rack Top–Frame Cross Brace

8. Remove the 16 M8 X 20mm bolts (part number 1624804)

9. Lift the rack top frame off the locating pins and remove it.

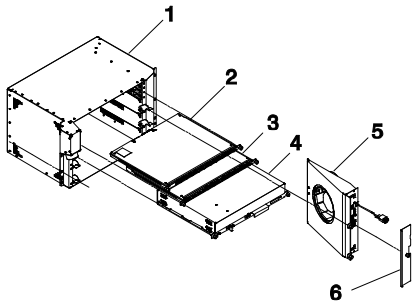
Note:: Two people are required to lift and position the rack top–frame assembly.

Preparing for Rack Top–Frame Installation for ESCALA PL 3200R (Reduced Height Option) RPQ8A1173

To prepare the rack top frame for installation, do the following:

1. Unpack the frame.
2. Unpack the rack top frame.
3. Use the jack screws to stablize and lift the rack off the floor.
   a. Loosen the jam nut on each leveling foot by turning the nut counterclockwise.
   b. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
   c. Adjust the leveling feet downward as needed until the rack is level. When the rack is level, tighten the jam nuts against the base by turning the nut clockwise.
4. Remove the front and rear BPRs, BPDs, BPCs , and the fan assemblies.

   Attention: Make note of location identification of the BPRs and BPEs for later reinstallation. If these components are not reinstalled in their original location, the ESCALA PL 3200R will not power on.



1	BPE	**4**	BPR
2	BPD	**5**	BPF
3	BPC	**6**	Fan Cover Plate

   a. Remove the BPRs (item 4 in the previous illustration), as follows:
      i. Make sure the ON/OFF switch is in the UNLOCK/OFF position.
      ii. Loosen the thumbscrew on each side of the BPR, using the torque tool (part number 6422789).
      iii. Rotate the release levers up on each side of the BPR. This will unseat the BPR.
      iv. Pull the BPR straight out from the Bulk Power Enclosure (BPE).
      v. Repeat for the other BPRs . There can be up to six BPRs , with three in front and three in back.
   b. Remove the Bulk Power Controllers (BPCs) (item 3 in the previous illustration), as follows:
      i. Loosen the thumbscrew on each side of the BPC using the torque tool.
      ii. Pull the BPC straight out from the Bulk Power Enclosure.
      iii. Repeat for the other BPC. There are two BPCs, with one in front and one in back.

c. Remove the BPDs (Iitem 2 in the previous illustration), as follows:

   i. Loosen the thumbscrew on each side of the BPD, using the torque tool.

   ii. Pull the BPD straight out from the Bulk Power Enclosure (BPE).

   iii. Repeat for the other BPDs . There can be up to four BPDs , with two in front and two in back.

d. Remove the BPF (item 5 in the illustration on page H-9) as follows:

   Note:: A grille covers the fan on the front of the fan assembly.

   i. Locate the BPF to be replaced.

   ii. Remove the fan cover plate (item 6 in the illustration on page H-9).

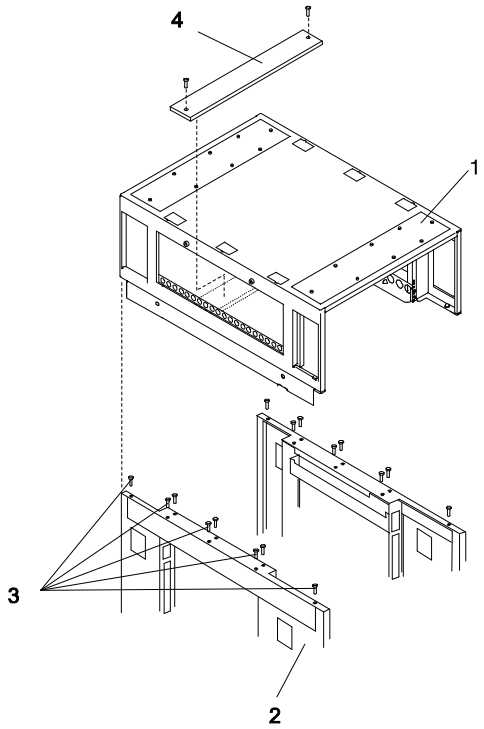
   iii. Loosen the upper and lower fasteners, using the torque tool.

   iv. Pull the BPF straight out of the BPE.

   v. Repeat for the other BPF. There are two BPFs, one in front and one in back.

e. Remove any front and rear bulk power fillers.

5. To reduce the weight so that it is the maximum two–person limit, do the following:



1 Top Panels for Front and Rear Rack Top Frame

2 Rack Top Frame

3 Left and Right BPE Rails

4 Foam and Metal Air Baffle

5 Rack Top Frame Cross Brace

a. Remove the two screws at the left and right of the top frame side covers (items 7 and 8 in the illustration on page H-6).

b. Lift off the covers.

c. Remove the eight screws around the perimeter of the top panels at the front and rear of the rack top–frame assembly. Remove the two top panels (item 1 in the illustration on page H-10) .

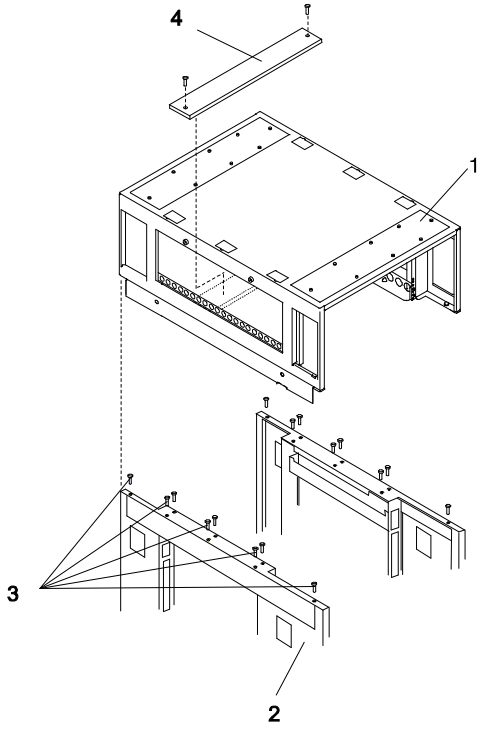
d. Carefully note the orientation and position of the foam and metal air baffle (item 4 in the illustration on page H-10) at the middle left side of the rack top frame assembly. Remove the screw, then tilt the baffle toward the front of the rack top frame.

Note:: The foam and metal air baffle *must* be reinstalled on the left side in its original location. The foam baffle is a critical part for proper cooling of the BPEs.

e. Remove the single screw at each end of the cross brace (item 5 in the illustration on page H-10). Remove the cross brace.

f. Remove the two screws at the front of the left BPE rail, and remove the rail (item 3 in illustration on page H-10) .

g. Remove the two screws at the rear of the right BPE rail, and remove the rail (item 3 in illustration on page H-10) .



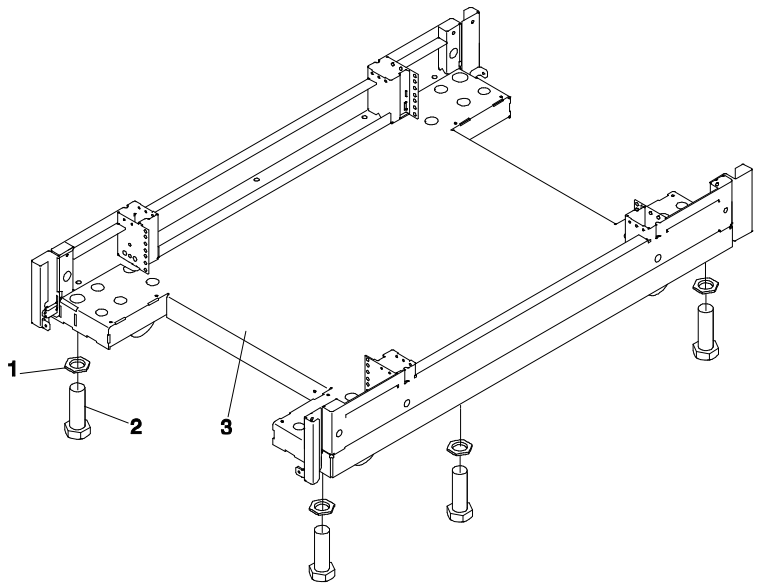
1 Rack Top Frame
2 Rack Chassis
3 Top Frame Bolts
4 Rack Top Frame Cross Brace

Proceed to Installing the Rack Top Frame on page H-12.

Installing the Rack Top Frame

To install the rack top frame, complete the following:

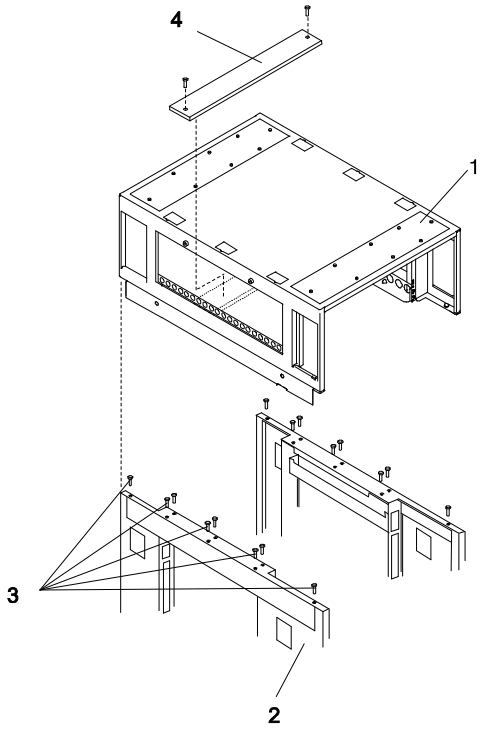
1. If you have not done so, use the jack screws to stabilize and lift the rack off the floor, as follows:
   a. Loosen the jam nut on each leveling foot by turning the nut counterclockwise.
   b. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
   c. Adjust the leveling feet downward as needed until the rack is level. When the rack is level, tighten the jam nuts against the base by turning the nut clockwise.



1 Jam Nut
2 Rack Base
3 Rack Base

2. Position the rack top frame on top of the rack by orienting the two front labels on the rack top frame assembly and the frame. As you face the frame, this label is on the right front of the frame.

Note:: Two people are required to lift and position the top frame assembly. To assist with the installation, a stepladder and ladder are provided with the reduced height option (RPQ8A1173) ship group.



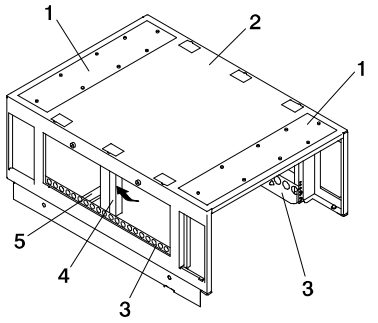
1 Rack Rack Top Frame
2 Rack Chassis
3 Top Frame Bolts
4 Rack Top–Frame Cross Brace

a. Align the rack top frame with the four alignment guides on top of the rack.

b. Fasten the rack top frame to the rack, using 16 M8 X 20mm bolts (part number 1624803). Tighten the bolts securely to ensure solid contact along the mating surfaces of the rack and the rack top frame.

3. Install the front and rear top panels (item 1 in illustration on page H-13) for the rack top frame.

4. Install the left and right BPE rails, (item 3 in the illustration on page H-13).

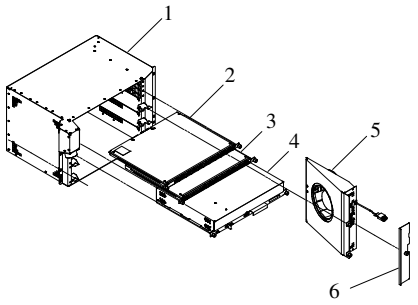


1 Top Panels for Front and Rear Rack Top Frame
2 Rack Top Frame
3 Left and Right BPE Rails
4 Foam and Metal Air Baffle
5 Rack Top–Frame Cross Brace

5. Insert and align the foam and metal air baffle (item 4 in the illustration on page H-13) to the left side of the rack top frame, securing it in place with a screw.

6. Install the rack top–frame cross brace (item 5 in the illustration on page H-13).

7. Install the front and rear BPEs (item 1 in the illustration on page H-14).

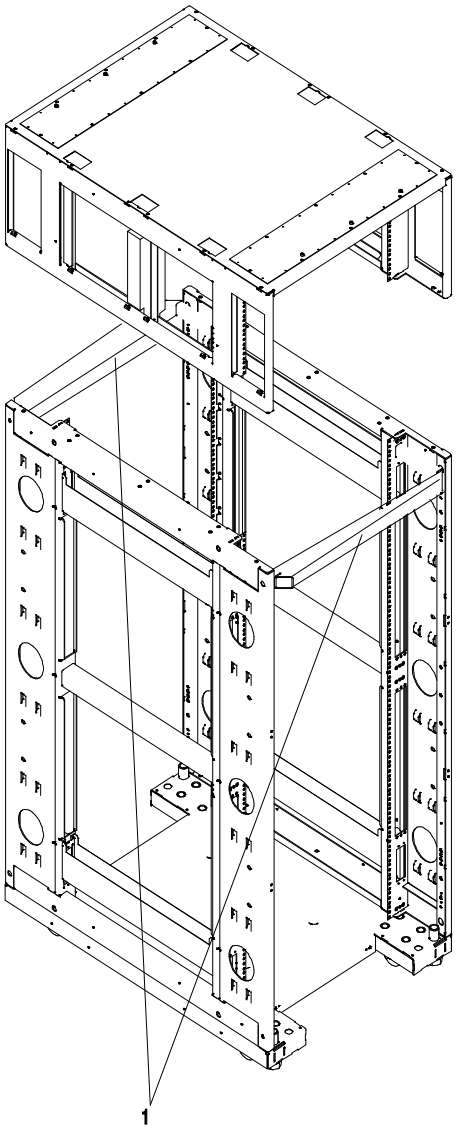


1 BPE
2 BPD
3 BPC
4 BPR
5 BPF
6 Fan Cover Plate

8. Install the BPRs (item 4 in illustration on page H-14) as follows:
   a. Make sure the ON/OFF switch is in the UNLOCK/OFF position.
   b. Push the BPR straight into the Bulk Power Enclosure (BPE).
   c. Tighten the thumbscrew on each side of the BPR, using the torque tool (part number 6422789).
   d. Rotate the release levers down on each side of the BPR.
   e. Repeat for the other BPRs . There can be up to six BPRs , with three in front and three in back.
9. Install the Bulk Power Controllers (BPCs) as follows:
   a. Push the BPC straight into the Bulk Power Enclosure (BPE).
   b. Tighten the thumbscrew on each side of the BPC, using the torque tool.
   c. Repeat for the other BPCs. There are two BPCs, with one in front and one in back.
10. Install the BPDs as follows:
   a. Push the BPD straight into the Bulk Power Enclosure (BPE).
   b. Tighten the thumbscrew on each side of the BPD, using the torque tool.
   c. Repeat for the other BPDs . There can be up to four BPDs , with two in front and two in back.
11. Install the BPFs (item 5 in the illustration on page H-14) as follows:

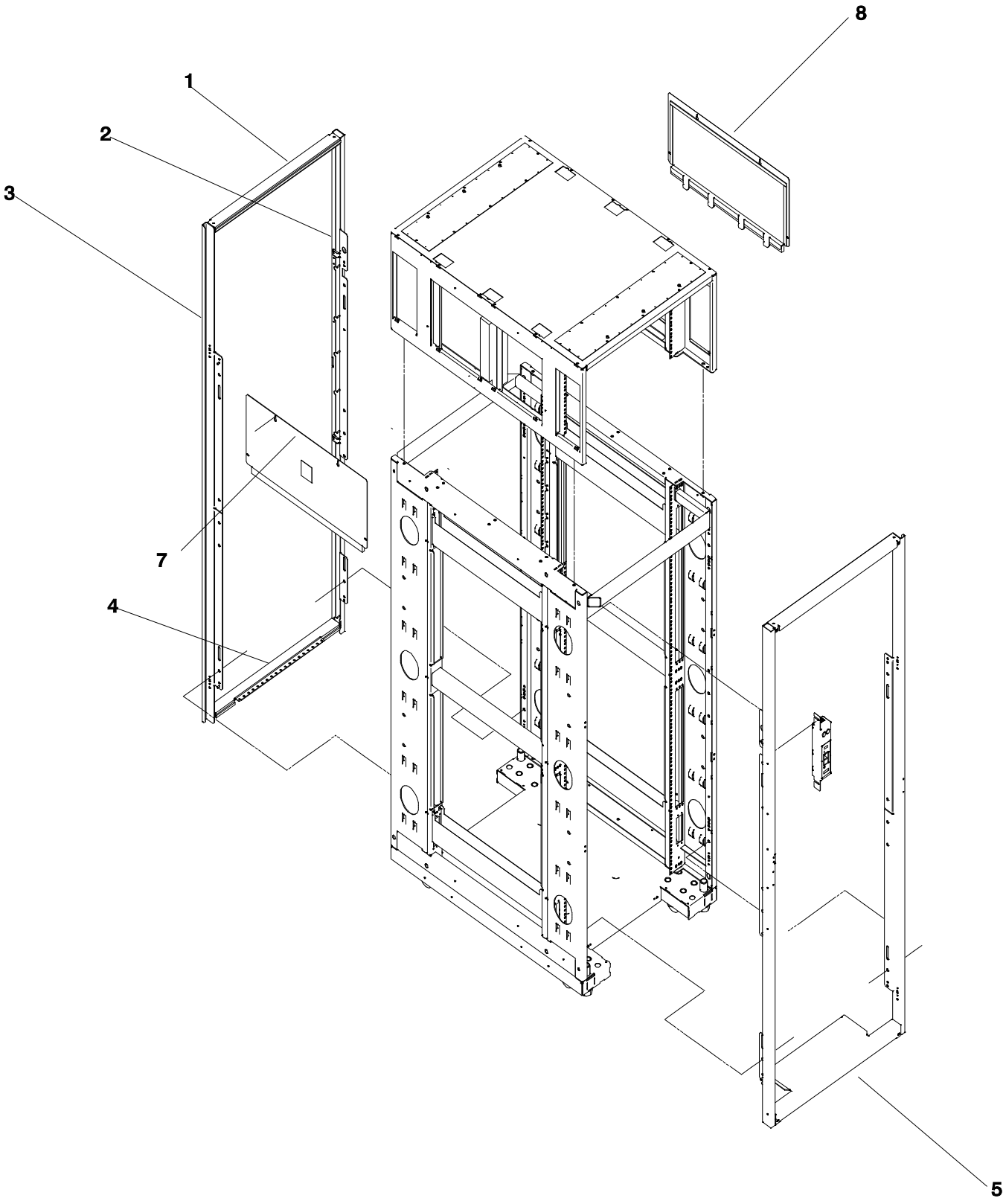
   Note:: A grille covers the fan on the front of the fan assembly.

   a. Locate the BPF to be installed.
   b. Install the fan cover plate (item 6 in the illustration on page H-14).
   c. Push the BPF straight out of the BPE.
   d. Tighten the upper and lower fasteners, using the torque tool .
   e. Repeat for the other BPF. There are two BPFs, one in front and one in back.
12. Install any front and rear bulk power fillers.
13. For the reduced height option, remove the front and rear upper shipping bars (item 1 in the following illustration).



1 Shipping Bars

14. Install left and right top–frame side covers (items 7 and 8 in the following illustration).
15. Attach all removed cables to the BPD. If an IBF exists, also attach all removed cables for the BPC and the BPR. For cabling instructions, see Appendix F. Cabling Information on page F-1 and Appendix D. Subsystem Positioning and Cabling on page D-1.
16. Install the frame extenders.



1 Top Frame Extender
2 Left Frame Extender
3 Right Frame Extender
4 Rear Frame Extender
5 Front Frame Extender
6 UEPO Switch
7 Left Side Cover
8 Right Side Cover

17. Install the UEPO switch, as follows:
    a. Install the top and bottom screws. Screws should be bottomed against the end of the slot prior to tightening.
    b. Plug in the cables.

Replacing Covers

Refer to page Removing the Covers on page H-2 while performing this task.

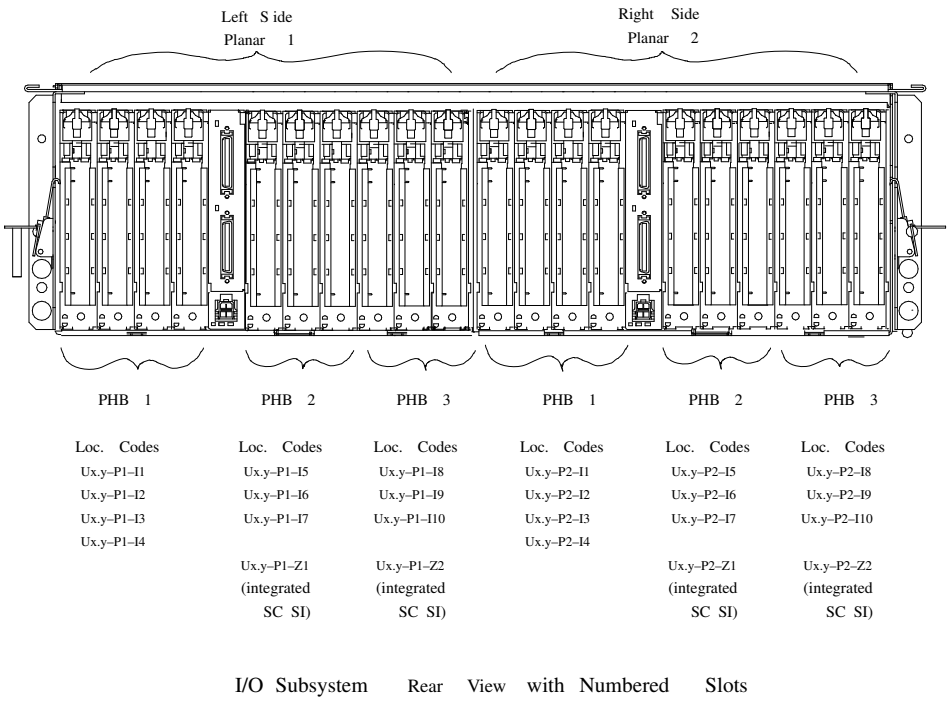
1. Examine the bottom of the frame side for two ”U” brackets installed at the bottom. These correspond to open slots in the bottom of the covers.
2. Always install the left side cover first.
3. Lift the cover and engage the slot into the ”U” bracket, holding the cover at approximately a 30–degree angle, with the top away from the frame.
4. Install the top three screws (part number 54G2882). Use a stepladder for this procedure. Push against the top of the cover to compress the gasket to allow alignment with the tapped holes in the top of the frame.
5. Install the two inside screws and washers (part numbers 77G0599 and 1625437).
6. Install the right side cover into the ”U” bracket, while holding it an angle away from the frame.
7. Because the right side cover has tab features that engage behind the left side cover, the cover must be rocked to the right from the top to clear the left side cover. After clearing the cover with the tabs, push the cover against the frame while rocking it back to the left. The cover should rest on the ”U” bracket. The top flange should rest on the frame, and the tabs should be positioned behind the left cover.

   Note:: The covers should be flush in the middle with a small gap between them.
8. Repeat steps 4 and 5 to complete the installation of the right side cover.

Appendix I. PCI Adapter Placement Reference

Installing an Adapter in an ESCALA PL 3200R

Adapter cards for the Escala PL 3200R plug into PCI adapter slots in the left or right side in the I/O subsystem. Each drawer is capable of handling up to 20 PCI adapters. Most of the PCI slots are capable of 32–bit or 64–bit interface with interface speed of 33 MHz or 66 MHz. Three slots/Planar Six/Drawer (P1–I8, P1–I9, P1–I10, P2–I8, P2–I9, P2–I10) are restricted to 5 V dc, 33 MHz adapters.



I/O Subsystem Rear View with Numbered Slots

Use the preceding illustration to identify slot locations described in the following table. The first adapter from an adapter group is placed in the first slot (per the table) in the drawer. After the first slot selection has been used, use the second slot in the list. If a designated slot is filled, move to the next available slot.

Logical Partition (LPAR) Considerations

Place redundant devices in separate I/O drawers for best availability performance. Place non–redundant devices in the same I/O drawer. If you place non–redundant devices in one drawer, the system is less exposed to other–drawer failures.

Some devices do not have enhanced error handling (EEH) capabilities built in to their device drivers. If these devices fail, the PCI Host Bridge (PHB) they are placed in will be affected. If the I/O subsystem encounters a severe error, all slots in the PHB are affected as well. To clear this condition, you may reboot the system. In addition, it is also possible to remove the failed PCI slots on an affected PHB from the partition profile or profiles that include these PCI slots, and reboot the partition or partitions that terminated at the time of the error.

To avoid PHB errors related to non–EEH adapters, it is strongly recommended that if a non–EEH adapter is used, then all slots on that PHB should be assigned to a single LPAR. For information on PHB locations on the I/O subsystem, refer to the preceding illustration. To determine if your adapter has EEH capabilities, refer to the following table.

Note: In regards to the adapters listed as non–EEH below, check with your service provider about the availability of AIX device drivers which might add EEH functionality in the future.

Escala PL 3200R Adapter Placement Guide

The new generation of PL3200R (PL3200R+) supports two evolutions:

1. the RIO link transmission band has doubled (new RIO–2 version)
2. the slot type is PCI–X. instead of PCI.

The PL3200R supports an IO_DRAWER model with two planar groups, each with 10 PCI slots .

The FC 6563 planar is the same as the previous version. It supports PCI slots.

The FC6571 planar is a new model supporting PCI–X slots.

These two planars will not cohabit in the same IO_DRAWER.

Définitions:

SLOT PCI or PCI–X board location.

PHB Group of slots managed by a specific internal interface.

PLANAR group of 10 slots or 3 PHB connected via a RIO (remote IO to the memory)

FC6563 or FC6571
PLANAR model

SLOT	PHB	PLANAR	FC6563	FC6571
1	1	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
2	1	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
3	1	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
4	1	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
5	2	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
6	2	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
7	2	1	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
8	3	1	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz
9	3	1	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz
10	3	1	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz
11	1	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
12	1	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
13	1	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
14	1	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
15	2	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
16	2	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
17	2	2	64 bit 3.3V 33/66 MHz	64 bit 3.3V 66/133 MHz
18	3	2	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz
19	3	2	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz
20	3	2	64 bit 5V 33 MHz	64 bit 3.3V 66/133 MHz

Use the following tables to identify specific slot locations for the following adapters in your PL 3200R. The slots listed refer to the HMC (Hardware Management Console) location codes detailed in the preceding illustration.

Version with RIO–2 and PCI–X (PL 3200R+, planar FC6571)

Priority	Adapter Type	Label	FC	MI	PCI Slot Location (1) per drawer	Max per Planar/ Drawer/ system	Max per LPAR	EEH	Hotplug
1	**PCI 64 bits Fibre Channel 2 Gb/s**	5704	6239	DCCG173 –0000	1,11,5,15,8,18,2,12,6,16, 9,19,3,13,7,17,10,20,4, 14	10/20/140	80	Y	Y
	Ethernet 1000 Base–SX **Ethernet 10 /100/1000 B–TX**	5700 5701	5700 5701	DCCG156 –0000 DCCG157 –0000	1,11,5,15,8,18,2,12,6, 16,9,19,3,13,7,17,10, 20,4,14	10/20/140	80	Y	Y
	Ethernet 2 port 1000 Base–SX **Ethernet 2 port 10 /100/1000 Base–TX**	5706 5707	5706 5707	DCCG165 –0000 DCCG166 –0000	1,11,5,15,8,18,2,12,6, 16,9,19,3,13,7,17,10, 20,4,14	10/20/80	40	Y	Y
3	**Dual Channel Ultra320 SCSI** **Dual Channel Ultra320 SCSI RAID**	5710 5711	5710 5711	MSCG058 –0000 MSCG057 –0000	1,11,5,15,8,18,2,12,6,16, 9,19,3,13,7,17,10,20,4, 14	10/20/40	40	Y	Y
3	**PCI 64 bits Fibre Channel 2 GB/s** **PCI 64 bits Cpper Fibre Channel**	B4–E B4–E B4–A	Bull	DCCG154 –0000 DCCG155 –0000 DCCG147 –0000	1,11,5,15,8,18,2,12,6,16, 9,19,3,13,7,17,10,20,4, 14	10/20/80	80	Y	Y
3	**PCI 2 Channel Ultra3 SCSI RAID**	4–Y	6203	MSCG048 –0000	10,20,1,11,5,15,8,18,2,1 2,6,16,9,19,3,13,7,17,4, 14	10/20/30	30	Y	Y
4	**10/100 Mbps Ethernet PCI**	A–F	4962	DCCG137 –0000	1,11,2,12,3,13,4,14,5,15, 6,16,7,17,8,18,9,19,10, 20	10/20/140	80	Y	Y
5	**8 Port Asyn. EIA–232E/RS–422A PCI**	3–B	2943	DCCG130 –0000	10,20,9,19,8,18,7,17,6, 16,5,15,4,14,3,13,2,12,1, 11	4/8/16	16	Y	Y
6	**High Speed Token Ring PCI**	B5–R	4959	DCCG135 –0000	10,20,9,19,8,18,7,17,6, 16,5,15,4,14,3,13,2,12,1, 11	10/20/40	40	Y	Y
7	**X25 2 port Multiprotocol com.**	B2–L	2962	DCCG140 –0000	10,20,9,19,8,18,7,17,6, 16,5,15,4,14,3,13,2,12,1, 11	6/12/20	20	Y	N
30	**PCI Universal Differencial Ultra SCSI**	4–U	6204	MSCG044 –0000	10,20,9,19,8,18,7,17,6,1 6,5,15,4,14,3,13,2,12,1,1 1	5/10/20	20	Y	Y

1. From 1 I/O drawer (2 I/O Planars) to 8 I/O drawers max. => 16 I/O Planars. PCI Slot locations are the same for both planars of an I/O drawer.

Version with RIO–1 and PCI (PL 3200, planar FC6563)

Pri	Adapter Type	La-bel	FC	MI	PCI Slot Location (1) 2 planars per drawer	Max per Planar/ Drawer/ system	Max per LPAR	EEH	Hot plug
1	**ULTRA SCSI SE**	4–K	6206	MSCG040 –0000	10,20	1/2/2	2	Y	Y
2	**PCI 64 bits Fibre Channel 2 Gb/s**	5704	6239	DCCG173 –0000	1,11,3,13,5,15,7, 17,9,19	5/10/80	80	Y	Y
	10/100/1000 Mbps Ethernet PCI	A–A	2975	DCCG150 –0000	1,11,5,15,8,18,2, 12,6,16,9,19,3,13, 4,14	5/10/80	80	Y	Y
	Gigabit Ethernet SX PCI	B5–N	2969	DCCG144 –0000					
	Ethernet 1000 Base–SX	5700	5700	DCCG156 –0000					
	Ethernet 10 /100/1000 B–TX	5701	5701	DCCG157 –0000					
	Ethernet 2 port 1000 Base–SX	5706	5706	DCCG165 –0000	1,11,5,15,8,18,2, 12,6,16,9,19,3,13, 4,14	10/20/80	40	Y	Y
	Ethernet 2 port 10 /100/1000 Base–TX	5707	5707	DCCG166 –0000					
3	**PCI 64 bits Fibre Channel 2 GB/s**	B4–E	Bull	DCCG154 –0000	1,11,3,13,5,15,7,1 7,9,19	5/10/80	80	Y	Y
		B4–E		DCCG155 –0000					
	PCI 64 bits Cpper Fibre Channel	B4–A		DCCG147 –0000					
	Dual Channel Ultra320 SCSI	5710	5710	MSCG058 –0000	1,11,3,13,5,15,7,1 7,10,20	5/10/40	40	Y	Y
	Dual Channel Ultra320 SCSI RAID	5711	5711	MSCG057 –0000					
	PCI 2 Channel Ultra3 SCSI RAID	4–Y	6203	MSCG048 –0000	1,11,3,13,5,15,7,1 7,10,20	5/10/30	30	Y	Y
4	**10/100 Mbps Ethernet PCI**	A–F	4962	DCCG137 –0000	1,11,2,12,3,13,4,1 4,5,15,6,16,7,17,8 ,18,9,19,10,20	10/20/80	80	Y	Y
5	**8 Port Asyn. EIA–232E/RS–422A PCI**	3–B	2943	DCCG130 –0000	10,20,9,19,8,18,7, 17,6,16,5,15,4,14, 3,13,2,12,1,11	4/8/16	16	Y	Y
6	**High Speed Token Ring PCI**	B5–R	4959	DCCG135 –0000	10,20,9,19,8,18,7, 17,6,16,5,15,4,14, 3,13,2,12,1,11	10/20/40	40	Y	Y

7	**X25 2 port Multiprotocol com.**	B2–L	2962	DCCG140 –0000	10,20,9,19,8,18	3/6/20	20	Y	N
8	**PCI Universal Differencial Ultra SCSI**	4–U	6204	MSCG044 –0000	10,20,9,19,8,18,7, 17,6,16,5,15,4,14, 3,13,2,12,1,11	5/10/20	20	Y	Y

Notes:

1. From 1 I/O drawer (2 I/O Planars) to 6 I/O drawers max. => 12 I/O Planars. PCI Slot locations are the same for both planars of an I/O drawer.
2. The adapters that do not support the EEH function should be placed on different slots that those connected to the same bridge or PHB.
   PHB1: slots 1, 11, 2, 12, 3, 13, 4, 14. 533MB/sec max.
   PHB2: slots 5, 15, 6, 16, 7, 17. 533 MB/sec max
   PHB3: slots 8, 18, 9, 19, 10, 20. 266 MB/sec max.

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