IBM

@server

pSeries 690 Installation Guide

Installation Guide

SA38-0587-01

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Contents

Safety Notices

Attention: When moving or relocating certain configurations of the system, the Bulk Power Regulators (BPR's) must be removed from the top of the rack (front and rear) to ensure product stability. Specifically, removal of the top two BPR's in the front and rear is required in systems that have less then 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:

- vii
- 16

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:

- viii
- ix
- 16
- 19
- 19
- 22

For a translation of the safety notices contained in this book, see the *System Unit Safety Information*, order number SA23-2652.

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 IBM 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.

Data Integrity and Verification

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

About This Book

This book provides information on 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.

Online Publications

IBM @server pSeries publications are available online. To access the online books, visit our Web site at: http://www.ibm.com/servers/eserver/pseries/library/hardware_docs/

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 SA23-2652, contains translations of safety information used throughout this book.

- The *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590, provides information to system administrators on how to install and use a Hardware Management Console (HMC) to manage a system.

- The @server *pSeries 690 Service Guide*, order number SA38-0589, contains reference information, maintenance analysis procedures (MAPs), error codes, removal and replacement procedures, and a parts catalog.

- The @server *pSeries 690 User's Guide*, order number SA38-0588, contains information on how to use the system, use diagnostics, use service aids, and verify system operations.

- The *RS/6000 and @server Diagnostic Information for Multiple Bus Systems*, order number SA38-0509, contains diagnostic information, service request numbers (SRNs), and failing function codes (FFCs).

- The *RS/6000 and @server Adapters, Devices and Cable Information for Multiple Bus Systems*, order number SA38-0516, 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 *PCI Adapter Placement Reference*, order number SA38-0538, contains information regarding slot restrictions for adapters that can be used in this system.
- The *Site and Hardware Planning Information*, order number SA38-0508, contains information to help you plan your installation.
- The *Electronic Service Agent for pSeries and RS/6000 User's Guide*, order number LCD4-1060, contains information on using the Electronic Service Agent.

Trademarks

The following terms are trademarks of International Business Machines Corporation in the United States, other countries, or both:
- AIX
- AIX 5L
- RS/6000
- e (logo)
- pSeries

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

Chapter 1. Getting Started

This chapter helps you get started with installing and configuring the pSeries 690 environment. The following information is included in the chapter:

- @server pSeries Roadmap
- Documentation Overview - Brief description of the printed and softcopy documentation shipped including targeted audience
- Configuring Online Documentation - How to install and view the online documentation.

The @server pSeries Roadmap helps you locate marketing, service, and customer task information. The roadmap guides you through the tasks and the publications that document those tasks.

Marketing and Customer Tasks

Begin

Managed by HMC ?

Yes → Planning

Site and Hardware Planning Information
Hardware Management Console for pSeries Operations Guide

No → Planning

Site and Hardware Planning Information

Service Personnel Tasks

Hardware Installation

eServer pSeries Installation Guide
Hardware Management Console for pSeries Operations Guide

Hardware Installation

Customer Tasks

AIX Installation in a Partitioned Environment
AIX Installation Guide
AIX Network Installation Management Guide and Reference

Configuring Logical Partitions

Yes

Is System Using Logical Partitions ?

No

Installing/Configuring the Operating System

Installing/Configuring the Operating System

Configuring Full System Partition

Installing/Configuring Applications

AIX Installation in a Partitioned Environment
Application Documentation
AIX Documentation Library

Using the System

AIX Documentation Library
eServer pSeries User's Guide
eServer pSeries Service Documentation

The web address for the IBM eServer pSeries general service documentation is:
http://www.ibm.com/servers/eserver/pseries/library/hardware_docs

The web address for the AIX 5L documentation library is:
http://www.ibm.com/servers/aix/library

Documentation Overview

This section provides descriptions, and target audience information for the @server pSeries and AIX 5L documentation libraries. Some of the documentation may only be available in printed form or in softcopy form. Based on the documentation content, the books are divided into the following categories: **Planning**, **Installing and Configuring**, and **Using the System**.

Table 1. Planning

Documentation Title	Description	Audience	Type
Site and Hardware Planning Information	Contains information to help plan for site preparation tasks, such as floor-planning, electrical needs, air conditioning, and other site-planning considerations.	Marketing, system administrators	softcopy
Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers, are included.	System administrators	printed and softcopy

Table 2. Installing and Configuring

Documentation Title	Description	Audience	Type
@server pSeries 690 Installation Guide	Provides information on how to install system hardware, cable the system, and verify operations.	Service personnel	printed and softcopy
Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers are included.	System administrators	printed and softcopy
AIX Installation in a Partitioned Environment	Provides information on how to install AIX in the operating system in an LPAR environment.	System administrators	printed and softcopy
AIX 5L Installation Guide	Provides information on how to install, manage, and maintain the AIX 5L operating system.	System administrators	printed and softcopy
AIX 5L Network Installation Management Guide and Reference	Provides information about using Network Installation Management (NIM) to install the AIX 5L operating system.	System administrators	printed and softcopy
PCI Adapter Placement Reference	Outlines system-specific PCI adapter slot placement and adapter support configurations.	Service personnel	printed
AIX 5L Release Notes	Provides late-breaking information for a specific AIX release.	System administrators	printed and softcopy

Table 2. Installing and Configuring (continued)

AIX 5L Documentation CD	AIX documentation library (system management guides, user guides, application programmer guides, commands and files references, AIX man pages, and so on).	System administrators	softcopy

Table 3. Using the System

Documentation Title	**Description**	**Audience**	**Type**
Hardware Management Console for pSeries Operations Guide	Provides information on how to configure and use a Hardware Management Console (HMC). Logical partition (LPAR) tasks, such as configuring and managing partitions on multiple host servers, are included.	System administrators	printed and softcopy
@server pSeries 690 User's Guide	Provides using, problem determination, and service processor information.	System administrators	printed and softcopy
@server pSeries 690 Service Guide	Contains MAPs, removal and replacement, error code, and parts information to help diagnose and repair the system. Also contains MAPs that are not common to all systems.	Service personnel	printed and softcopy
Diagnostic Information for Multiple Bus Systems	Combines operating instructions for hardware diagnostic programs with common MAPs and SRNs (Service Request Numbers).	Service personnel	printed and softcopy
PCI Adapter Placement Reference	Outlines system-specific PCI adapter slot placement and adapter support configurations.	Service personnel	printed
Hardware Management Console for pSeries Maintenance Guide	Contains MAPs, removal and replacement, error code, and parts information to help diagnose and repair the system.	Service personnel	printed and softcopy
Adapters, Devices, and Cable Information for Multiple Bus Systems	Provides information about adapters, devices, and cables that are attached to or used within the system.	System administrators	printed and softcopy
System Unit Safety Information	Contains the English version of safety notices, as well as translations of those safety notices into other languages.	System administrators, service personnel	printed and softcopy
AIX 5L Documentation CD	AIX documentation library (system management guides, user guides, application programmer guides, commands and files references, AIX man pages, and so on).	System administrators	softcopy

Configuring Online Documentation

It is not necessary to install the operating system's online documentation onto your server. You can access all of the documentation through the Internet at the following Web address: http://www.ibm.com/servers/aix/library However, if you use the Documentation Library Service to search any online documentation, it searches only the registered documentation that is installed. It does not search the documentation at the above Web site.

Viewing the Online Documentation from the Documentation CD

To view the online documentation, you must have an HTML browser installed on your system. The Netscape browser is located on the AIX 5L Expansion Pack.

Installing the Online Documentation on a System

To install the online documentation, do the the following:

1. Type **smitty install_latest**.
2. Enter INPUT device / directory for software in the field provided and press Enter.
3. In the Install Software menu, use the F4 key to list the documentation packages and filesets that are available to install. Select a package or fileset by highlighting the appropriate choice and pressing the F7 key. Press Enter when you have finished making your selections.
4. Select the appropriate responses for the remaining questions in the Install Software menu or accept the default choices. When you have finished making your selections, press Enter. From the confirmation menu, press Enter to install the software.
5. Press F10 to exit the SMIT menu and return to the command line.

Installing the online documentation on a Documentation Server

For detailed information on how to install and configure a documentation server and install the documentation, refer to the Using the Documentation Library Service section in the *AIX 5L Installation Guide*.

Chapter 2. Installing the pSeries 690

Use the procedures in this chapter to set up your pSeries 690.

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 for pSeries (HMC).

1	Hardware Management Console	**5*,6***	Primary 7040 Model 61R Integrated Battery Feature (IBF) (Optional) for the Primary Power Subsystem.
			Redundant 7040 Model 61R Integrated Battery Feature (IBF) (Optional) is placed in the rear.
2	7040 Model 61RBulk Power Subsystem	**7**	7040 Model 61D I/O Subsystem
3	7040 Model 681 Processor Subsystem	**8**	7040 Model 61D I/O Subsystem (Optional)
4	7040 Model 681 Media Subsystem	**9**	7040 Model 61D I/O Subsystem (Optional)
		*****	7040 Model 61D I/O Subsystem (Optional, 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 pSeries 690 servers attached to one HMC. For more information on this configuration, see Appendix E, "Installing Multiple pSeries 690s To One Hardware Management Console" on page 65.
- Multiple HMCs attached to one pSeries 690.

Prerequisites to Installing the pSeries 690

Before installing the pSeries 690, ensure that the following have been completed:

- Doors have been ordered. The pSeries 690 has the following types of doors:
  - PrimaryRack Front Door (Universal)
  - Secondary Rack Front Door (Universal)
  - Primary/SecondaryRack Rear Door (Slimline)
  - Primary/SecondaryRack Rear Door (Acoustical)
- Planning procedures outlined in *Site and Hardware Planning Information*, order number SA38-0508, 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) plugged Bulk Power Regulators (BPRs) installed in the system. For instruction on removing the BPRs, see step 3 on page 110.

System affected by this weight limitation are the primary frame of systems having 7040-61R frame with 7040 Model 681 Processor Subsystem and three (or more) 7040 Model 61D I/O Subsystem and four (or more) IBFs. This weight reduction is only required for these systems when the installation requires the primary rack to be reduced temporarily to less than 2500 pounds during the installation process.

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

Step 1. Unpack the pSeries 690

Unpack the pSeries 690, and proceed to "Step 2. Check the Inventory" on page 9.

Step 2. Check the Inventory

Use the packing lists for each ship group to verify that you have all the items shipped with the pSeries 690.

Other tools that might be needed for installation, but not shipped with the system, include:

- Electronic Service Multimeter
- Lift Tool
- Service Vacuum
- Service Ladder
- Stepladder

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, line cords, cables, and a power source

Refer to the *IBM Hardware Management Console for pSeries Operations Guide* for information on the HMC inventory.

PrimaryRack Inventory

- Front and rear door for the primaryrack
- Two line cords
- Optional display and keyboard. See "Position the HMC and Monitor" on page 22 for further details.

Secondary Rack Inventory (If Ordered)

- Front and rear door for the secondary rack
- Rack bolt-together kit hardware
- Optional display and keyboard, (refer to "Step 7. Check the Cables and Connect I/O Devices" on page 17 for additional information).

Step 3. Position and Level the PrimaryRack

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).
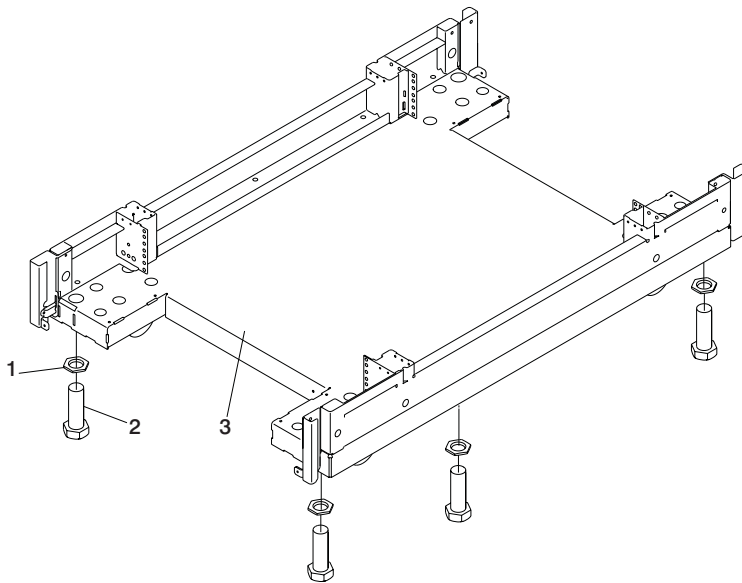
| **1** Jam Nut | **3** | Rack Base (Front) |
| **2** Leveling Foot | | |

If the customer plans to secure the rack to the floor, see Appendix D, "Securing the Rack" on page 51.

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

Use the illustration on page 12 for more information on following these procedures.

1. Screw two standoffs to the primaryrack and the other two to the secondary rack.
2. Attach EMC bottom trim to the secondary rack, using four screws.
3. Place lower vertical trim foam on the secondary rack, starting at the EMC bottom trim.
4. Place top vertical foam on top of the bottom foam.
5. Place the top EMC trim on top of the secondary rack, using the middle two screws. Do *not* tighten the screws yet.
6. Place the two vertical EMC trim panels into position. The trim panels are located so that the flanges point into the frame and fit on the tabs of the bottom and top EMC trim.
7. Screw down the top EMC trim to lock in the vertical trim.
8. Roll the two frames together being careful not to damage the EMC trim with the standoffs.

9. Use screws and washers to screw the frames together.
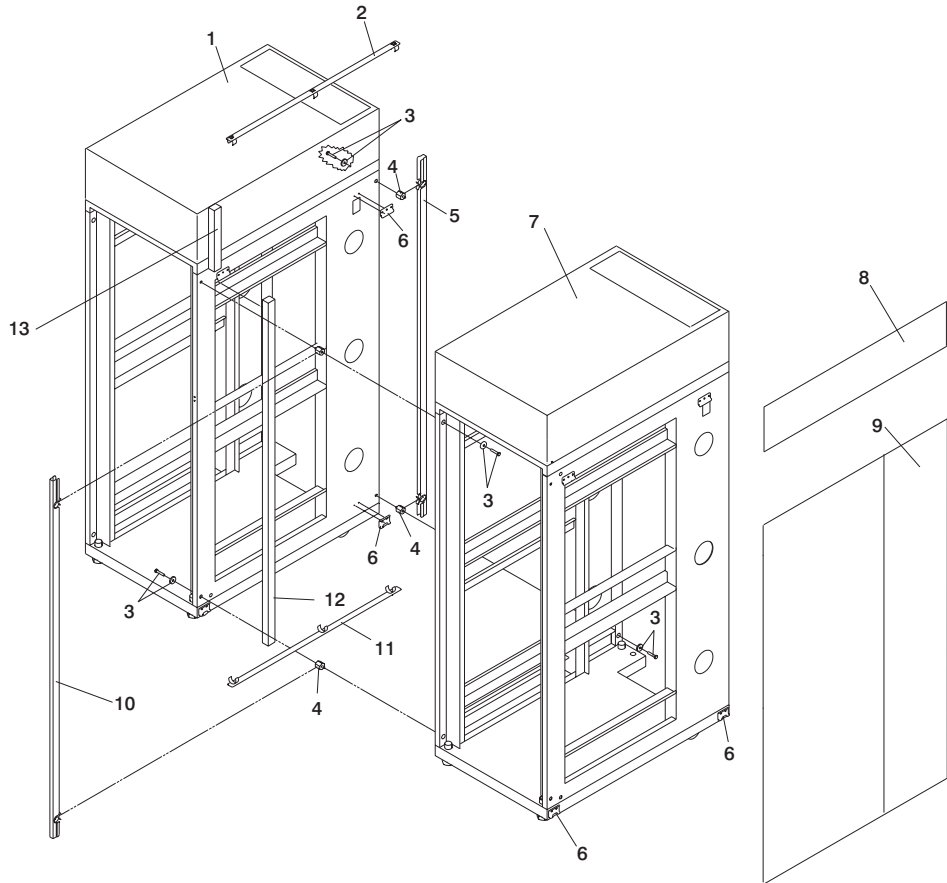
1	Secondary Rack	**8**	Top Hat Side Cover
2	EMC Top Trim	**9**	Primary Side Cover
3	Bolt and Washer (Qty. 4 each)	**10**	Rear Vertical Trim
4	Threaded Standoff (Qty. 4 each)	**11**	EMC Bottom Trim
5	Front Vertical Trim	**12**	Lower Vertical Foam
6	J Bracket (Qty. 4)	**13**	Top Vertical Foam
7	Primary Rack		

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. See Appendix H, "Cabling Information" on page 95 for additional information.

Secondary Rack Front　　　　　**Primary Rack Front**

To Back

To Primary Rack

DCA1-Port 0 & 1　　　　　　**DCA2-Port 0 & 1**
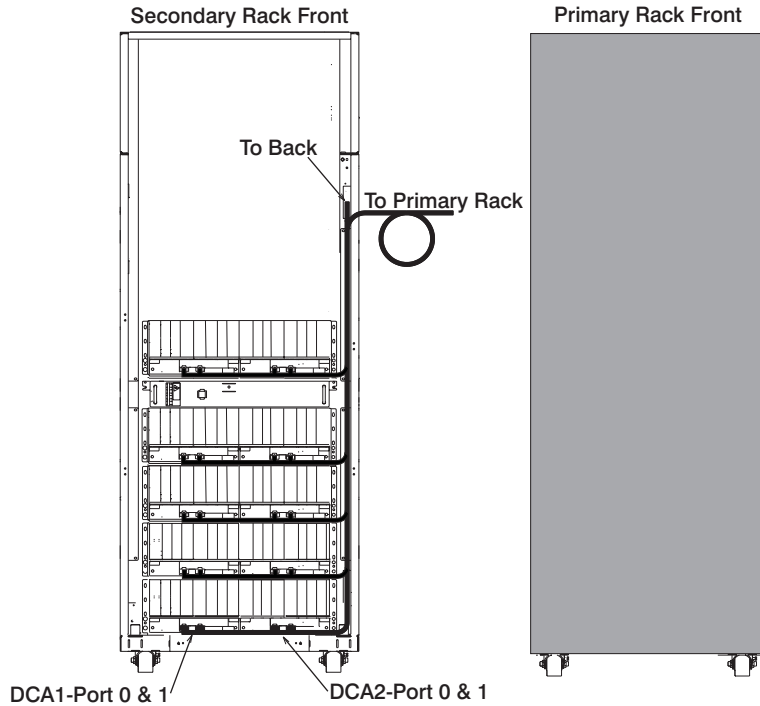
Connecting I/O Cables for the Secondary Rack

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.

Primary Rack Rear

Secondary Rack Rear

To Primary Rack

Ports 0 and 1

Ports 0 and 1
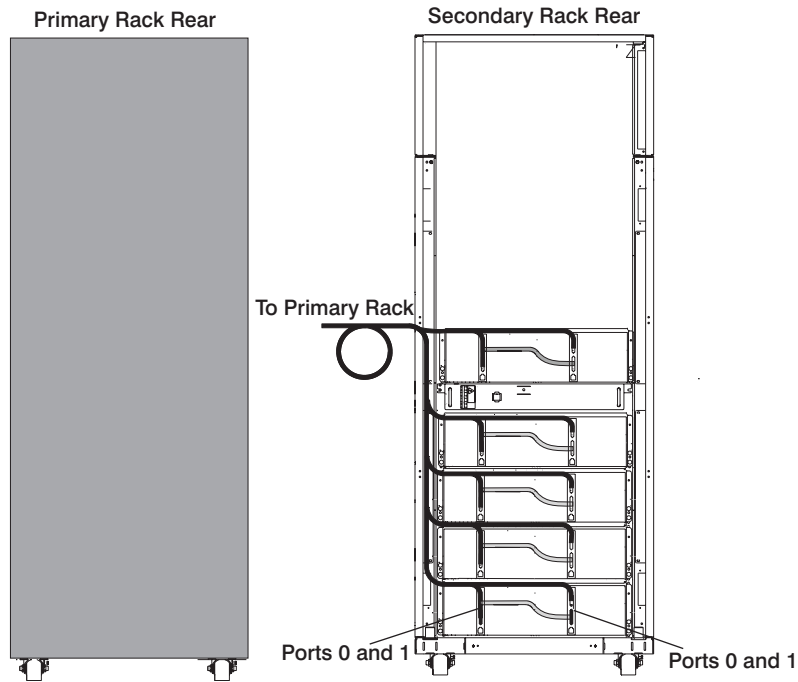
Note: For more information on cabling the pSeries 690, see Appendix G, "Subsystem Positioning and Cabling" on page 83.

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:

Secondary Rack Front   Secondary Rack Rear

IBF-P1   IBF-P1
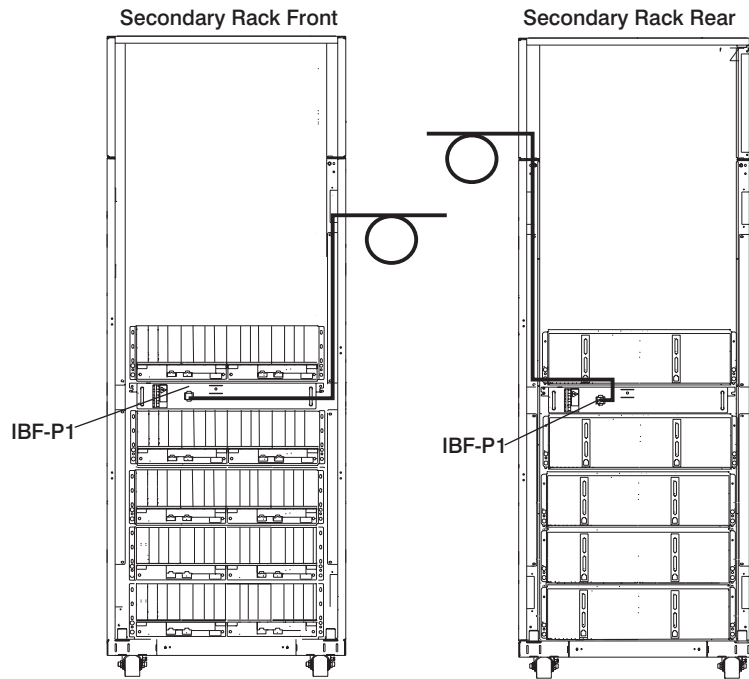
Step 6. Observe this Safety Notice During Installation

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 G, "Subsystem Positioning and Cabling" on page 83. For further details on the cable descriptions and labels, see Appendix H, "Cabling Information" on page 95.

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

If a display, Universal Serial Bus (USB) keyboard, and a USB mouse were ordered, do the following. If these components were not ordered, proceed to 4 and 5 below.

1. Connect the keyboard cable to the Keyboard/Mouse Attachment Card PCI (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 rear of 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 and keyboard adapters is described in the *PCI Adapter Placement Reference*, form number SA38-0538.

Step 8. Verify that the 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 pSeries 690. 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 backup feature 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 line cords and the internal battery feature 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.

A Side BPC

J00

J01

B Side BPC

UEPO Switch

I

O

Room EPO Cable

J02

Active ➡ ⬅ ➡   ⬅ ⬅ Active

Front
View

Rear
View
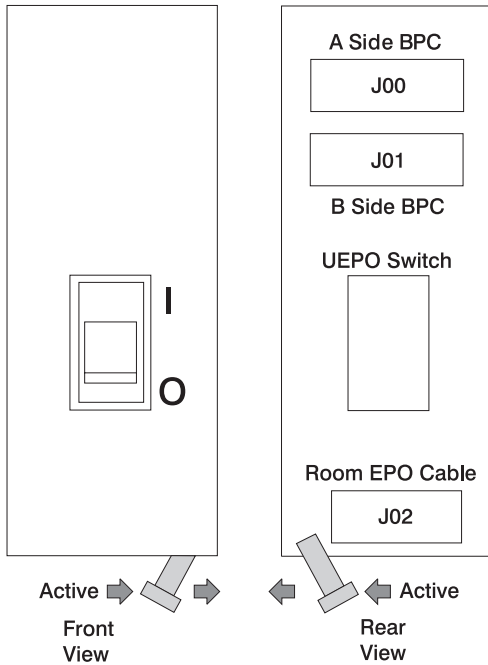
This figure illustrates the back of the machine UEPO panel with the room EPO cable plugging into the machine. Notice the switch actuator. Once the switch actuator is moved to make the cable connection possible, the room EPO cable must be installed for the machine to power on.

|4| |3| |2| |1| AMP Part Number - 770019-1

Contact Number

2 Pole Normally Closed Pushbutton
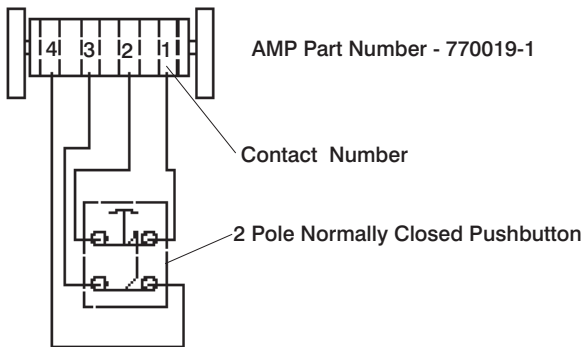
In this figure, an AMP connector 770019-1 is needed to connect to the system UEPO panel. For room EPO cables using wire sizes #20 AWG to #24 AWG, use AMP pins part number 770010-4.

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, 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 pSeries 690

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 tables shows a listing of 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 pSeries 690 has two power cords, one in the back 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 on floor cutouts, refer to the *Site and Hardware Planning Information*, order number SA38-0508.

To route the back 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 from top to bottom in the channel with the brackets.
3. Remove the lower panel of the frame, and route the cord through the channel under the frame.
4. Route the rear line cord underneath the frame to the back floor tile hole. For more information on floor cutouts, refer to the *Site and Hardware Planning Information*, order number SA38-0508.
5. Replace the UEPO switch on the front side of the system.

Step 11. Install the Hardware Management Console (HMC)

The Hardware Management Console (HMC) user interface provides the functions needed to create and maintain a multiple-partitioned environment.

Position the HMC and Monitor

CAUTION:
Follow handling precautions provided with the unit.

Position the HMC and monitor at or near their desired location, using the following guidelines:

- Use caution when lifting or moving the HMC.
- Use caution when lifting or moving the monitor.
- Leave enough space around the HMC to safely and easily complete the setup procedures.
- Be sure to maintain at least 51 mm (2 inches) of space on the sides of the system unit and 152 mm (6 inches) at the rear of the system unit to allow the system unit to cool properly. The front of the system requires a minimum of 76 mm (3 inches) of space. Blocking the air vents can cause overheating, which might result in a malfunction or permanent damage to the system unit.
- Place the HMC in a location where all necessary power outlets and network connections can safely be reached.
- Place the display in a stable and sturdy location.

Connect the Cables

Use the following steps to connect the cables to your HMC. Look for the small icons on the back of your HMC, which show where to attach the cables for the keyboard, mouse and monitor.

1. Attach the monitor cable to the monitor connector, and tighten the screws.
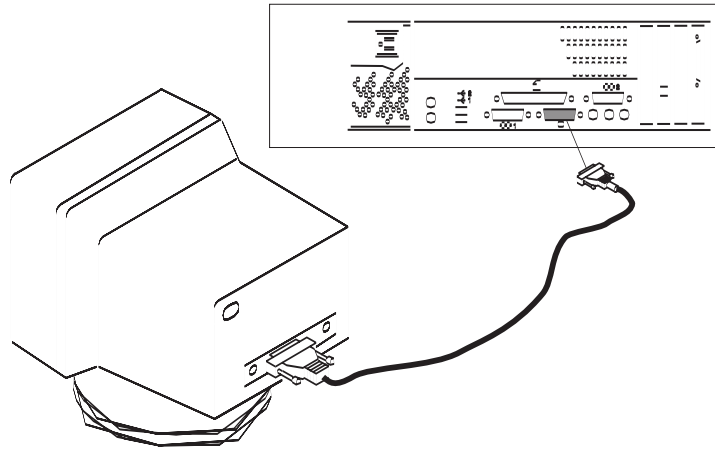
2. If a label for the monitor was shipped with your system, attach the label to the bottom-right corner of the monitor.

3. Attach the power cord to the monitor (item 1 in the following illustration). If the HMC has a voltage switch, ensure that it is in the correct position for the supply voltage.

   Attention: *Do not* the plug power cords into the electrical outlet at this point.
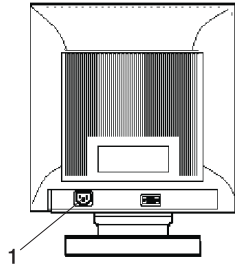
4. Connect the mouse and keyboard to their connectors, as shown in the following illustration.
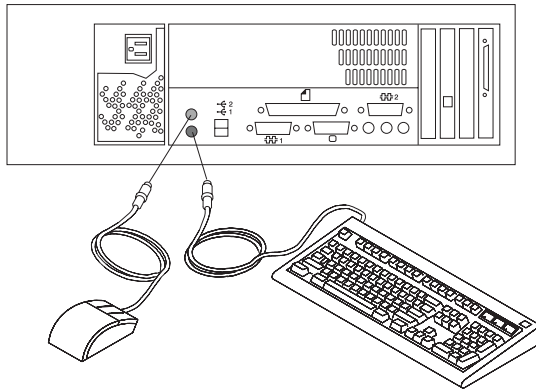
5. Connect the HMC serial cable to serial port HMC1 on the primary I/O book. For two HMCs, connect the redundant HMC into serial port HMC2 on the primary I/O book. The following illustration shows the location of the serial ports on the back of the HMC and the HMC connectors located on the primary I/O book.

1	Primary Rack	**4**	Primary HMC Connected to serial port HMC1* in Primary I/O Book
2	Primary I/O Book	**5**	Optional Second HMC Connected to Serial Port HMC2* in Primary I/O Book
3	Power Plug to External Power Source (wall plug)		* May be labeled HSC1 and HSC2

The part numbers for the serial cables for the pSeries 690 to the HMC are as follows:

Part Number and Description	Position
Part Number 11P3955 6m cable	9 Position to 9 Position

Part Number 11P3956 15m cable   9 Position to 9 Position
Part Number 31L7196 15m cable   9 Position to 25Position

Connect the External Modem

The external modem is used in conjunction with the HMC's Service Agent and Call Home features. To properly service your machine, it is important that you configure the Service Agent feature correctly the first time. For more information about configuring the modem and the Service Agent feature, see "Configure the Service Agent" on page 37.

To connect the external HMC modem, do the following:

1. Connect the modem cable to the external HMC modem (1).
2. Connect the other end of the modem cable to serial port 2.
3. Connect the phone cable line port of the external modem (2).
4. Connect the other end of the phone cable to the analog jack on your wall.
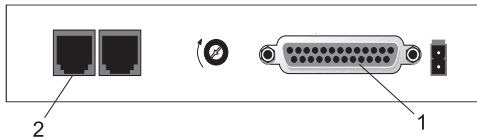
| 1 | Modem Cable Outlet |
| 2 | Phone Cable Outlet |

Check the Microswitch Setting on the Modem

Check the microswitch settings on the modem. The settings should be set as follows:

Switch	Position	Function
1	Up	Force Data Terminal Ready (DTR)
2	Up	Hardware Flow Control (&E4)
3	Down	Result Codes Enabled
4	Down	Modem Emulation Disabled
5	*Down	Auto Answer Enabled
6	Up	Maximum Throughput Enabled
7	Up	Ready to Send (RTS) Normal Functions
8	Down	Enable Command Mode
9	Down	Remote Digital Loopback Test Enabled
10	Up	Dial-Up Line Enabled

11	Down	Asynchronous Terminal (AT) Responses Enabled (Extended Responses Enabled)
12	*Down	Asynchronous Operation
13	UP	28.8KB Line Speed
14	Up	
15	Up	Carrier Detect (CD) and Data Set Ready (DSR) Normal Functions
16	Up	2-Wire Leased Line Enabled
Note: * Only switches 5 and 12 are changed from the factory default settings.		

Connect the LAN Cable (If Applicable)

The LAN cable is recommended because each active partition reports errors to the HMC's Service Focal Point application through the LAN network. The HMC must be attached to the system's LAN, and each partition should have a LAN adapter assigned as a resource.

Connect the LAN to the adapters assigned to each partition and to the LAN connection on the HMC system hardware.

Plug in the HMC Power Cord

1. Plug in the power cord, as shown in the following illustration.
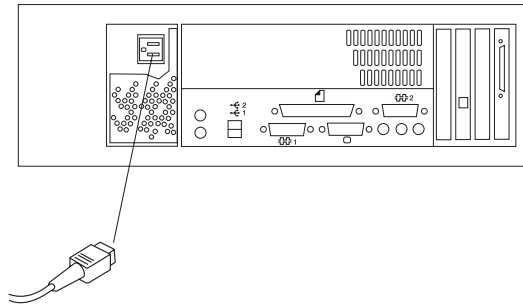
2. Plug in the power cords for the monitor, HMC, and modem into electrical outlets.

Step 12. Turn on the IBF Breaker (If Present)

Turn the Integrated Battery Feature (IBF) breaker on before turning the UEPO switch on the pSeries 690.

Step 13. 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: Only the following steps should be performed by the IBM service representative.

3. Turn the UEPO switch to the ON position.
4. Verify that the LEDs on the bulk power assembly are on. Verify that OK displays on the pSeries 690 operator panel.

Step 14. Set the Console's Date and Time

The battery-operated clock keeps time and date for the HMC. You might need to set the console's date and time under the following circumstances:

- If the battery is replaced in the HMC
- If your system is physically moved to a different time zone

To set the console date and time, do the following:

1. Power on the HMC.
2. Log in as hscroot (the password is abc123).

   Note: User IDs and passwords are case-sensitive. Enter the user ID and password exactly as shown.

3. Click the HMC Maintenance Icon.
4. In the Navigation area, click the **System Configuration** icon.

5. Select **Customize Console Date / Time** to open the Customize Console Date / Time window. This window is similar to the following:
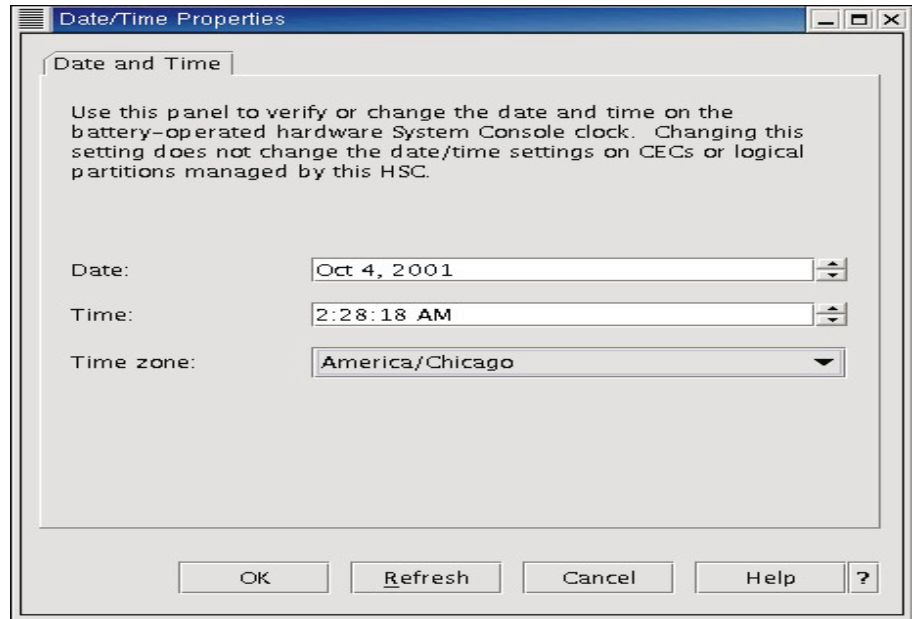
6. Either type or use the up and down arrows to enter the date and time information as appropriate.
7. From the list, select the time zone closest to your location, and click **OK**.

To view the clock's currently set time, click the **Refresh** button.

Step 15. Ensure that the Latest Firmware, HMC Code and Adapter/Drive Microcode are Installed

Prior to completing the system installation, ensure the latest firmware, HMC code and adapter microcode are installed.

For the latest Firmware code:
- Access CORE
  - From CORE, choose **CORE Product Family** and **eServer pSeries - RS/6000**
  - Choose **CORE Machine Type** and **pSeries - RS/6000 - Microcode-System/Service**

For HMC core:
- Go to the website http://techsupport.services.ibm.com/server/hmc?fetch=home.html and select **Corrective Service**

For the latest adapter/drive microcode:

- Access CORE or go to the website
  http://techsupport.services.ibm.com/server/mdownload/download.html

Proceed to Verifying the Hardware Operation

The installation of the pSeries 690 is now complete. Proceed to Chapter 3, "Verifying the Hardware Operation" on page 31.

Chapter 3. 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 for pSeries (HMC) attached to the HMC port on the pSeries 690.
- 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".

NO   Go to "Loading the Standalone Diagnostics from CD-ROM" on page 32.

Loading the Online Diagnostics in Service Mode

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

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

    Refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590, for more information on full system partitions.
3. From the HMC, select **Server Management**
4. Select the pSeries 690 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 or selecting the desired system in the Contents area. On the menu, choose **Selected**.

10. Select **Power On**.

11. Select the **Power on Diagnostics Stored Boot List** option.

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".

Go to "Running System Verification" on page 39.

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 AIX operating system (get help if needed).

2. Remove all tapes, diskettes, and CD-ROMs.

3. Power off the pSeries 690 (refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590, 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 pSeries 690 (*not* into the HMC CD-ROM drive).

Go to "Running System Verification" on page 39.

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

Chapter 4. Completing the Installation

This chapter contains information on the final installation steps. Complete the steps described in this chapter *after* you verify the hardware operation as described in Chapter 3, "Verifying the Hardware Operation" on page 31.

For instructions on returning the crates, refer to the crate unpacking instruction shipped with the pSeries 690.

Install the Doors

This section describes how to install the doors on the pSeries 690. For more information on the doors, see "Prerequisites to Installing the pSeries 690" on page 8.

Install the Front Door

To install the front door, do the following (refer to illustration on page 34):

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

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

Install the Rear Door

To install the rear door, do the following (refer to illustration on page 34):

1. Position the door so that both the top and the bottom hinge pins partially engage the hinges.
2. Simultaneously slide the top and bottom hinge pins (1) 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.
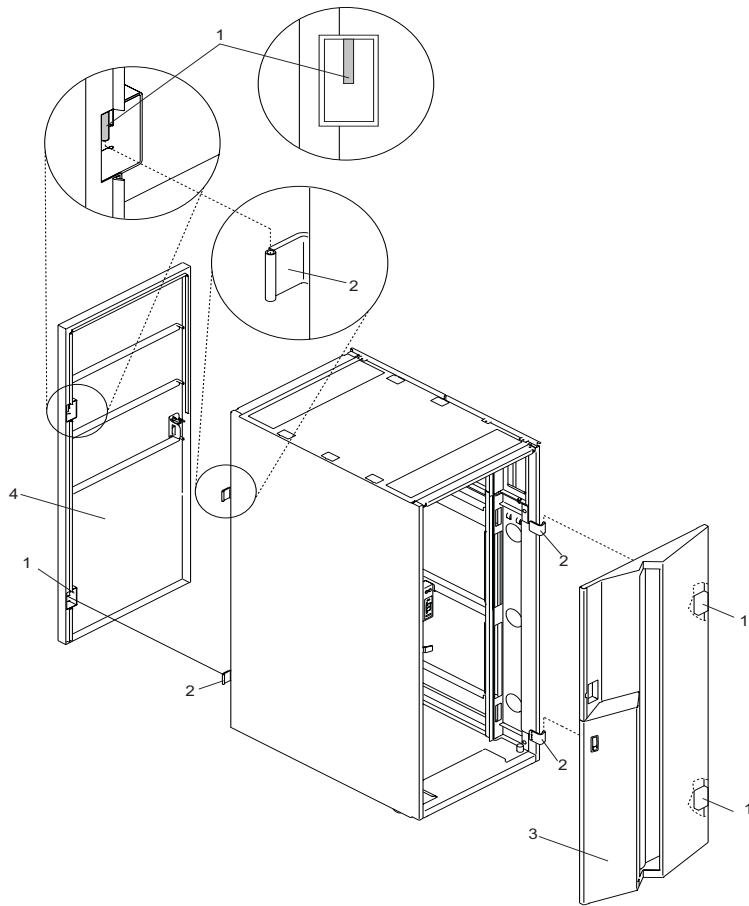
1	Hinge Pin (Typical Front and Rear Door)	**3**	Front Door
2	Rack Hinge (Typical Front and Rear Door)	**4**	Rear Door

Configure the Network

To configure the network, do the following:

- Log in to the Hardware Management Console for pSeries (HMC) using the user ID `hscroot` and password `abc123`.

    Note: User IDs and passwords are case-sensitive. Enter the user ID and password exactly as shown.

- Select the **System Configuration** Application in the Navigation area.
- Select **Customize Network Settings** in the Contents area.
- Type the appropriate network information in the **IP Address**, **Name Services**, and **Routing** tabs on the Network Configuration window.
- Select **OK**.

For more information on configuring the network, refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590.

Configure Inventory Scout Services

Inventory Scout Services is an AIX tool that surveys managed systems for hardware and software information.

To set up Inventory Scout Services for each system managed by the HMC, and for each logical partition running an instance of AIX, all partitions must be configured in order to conduct microcode surveys or collect Vital Product Data (VPD).

To set up Inventory Scout Services for each managed system and partition, you must be a member of one of the following roles:

- System Administrator
- Advanced Operator
- Service Representative

Refer to the *IBM Hardware Management Console for pSeries Operations Guide* for more information on the previous roles.

Note:

- The partition password requested in step 7 is actually the password for Inventory Scout (invscout) User ID password on the AIX images.
- The Inventory Scout listening port is set by starting the invscoutd daemon on the AIX images. This port will default to 808.
- If a system has been powered on using the Full System Partition power-on option, you must configure the Full System Partition to use Inventory Scout Services.

To set up Inventory Scout Services for each managed system and partition, do the following:

1. In the Navigation area, double-click the **Inventory Scout Services** icon.
2. In the Contents area, select **Inventory Scout Profile Configuration.**
3. From the list, select a managed system.
4. Select **Next**.
5. From the list, select the partition you want to configure.
6. Select **Next**.
7. The next window identifies the selected partition. Type the following:
   - Partition password
   - Inventory Scout listening port
   - IP address of the AIX partition

Click **Finish** if you have completed configuration of all partitions.

OR

Click **Back** to continue to configure additional partitions until all are configured.

Collect Vital Product Data Information

Use this task to collect the Vital Product Data (VPD) for the specified managed system into a file.

To collect the managed system's VPD, you must be a member of one of the following roles:
- System Administrator
- Advanced Operator
- Service Representative

To collect the managed systems VPD, do the following:
1. In the Navigation area, double-click the **Inventory Scout Services** icon.
2. In the Contents area, select **Collect VPD Information**.
3. From the list, select the name of the managed system for which you want to collect the Vital Product Data.
4. Select **Next**.
5. The wizard requests confirmation about the managed system, and then prompts you to insert a blank, DOS-formatted diskette into the HMC diskette drive.
6. Click **Finish**. This file is then copied to the diskette in the specified drive.

To conduct a microcode survey, please refer to the *Hardware Management Console for pSeries Operations Guide*.

Configure the Service Agent

Note: You must configure the network before you configure the Service Agent.
To start the Service Agent, click on the **Service Agent** icon on the HMC virtual terminal window.

If you are configuring Service Agent for the first time, select **Start Service Agent Processes** to start the service agent processes. Select **Service Agent UI**. You are prompted to type specific information or parameters pertinent to Service Agent .

To configure the Service Agent, do the following:

1. Read and accept the License Agreement.
2. Type the word

   password

   for the initial password prompt. The word password is the default password supplied by IBM.

   Note: User IDs and passwords are case-sensitive. Enter the user ID and password exactly as shown.

3. Type the information as follows:

   Customer Contact Name
   > The person that IBM can reach when an error is reported to IBM by the Service Agent.

   Customer Phone Number
   > The phone number associated with the person whose name is placed in the **Customer Contact Name** field.

   Customer Email
   > The e-mail address of the person whose name is placed in the **Customer Contact Name** field.

   Queue Country/Region
   > The country or region in which the HMC is located. Click the drop-down list to expand the country or region choices. Type the first letter of the desired country or region to move to the first occurrence of a country or region whose first letter matches your choice.

   Gateway Type
   > The machine type of the processor subsystem.

   Gateway Serial Number
   > The serial number of the processor substem that you designate to be the machine to send Service Agent information to IBM.

   Gateway Model Number
   > The model number of the processor subsystem that you designate to be the machine to send Service Agent information to IBM.

4. Select **Continue**. The Service Agent interface displays.

5. Select **Network**. Fill in the appropriate information.

   Note: Some of the fields are prefilled with information taken from the Service Agent initial configuration panel.

6. Select **OK**.

7. Expand the contents of the Gateway category by clicking the key next to your Gateway machine.

8. Select **Dialer**.

9. Select **Location**. Select the location phone number closest to your physical location. Several of the fields are then completed by Service Agent based on the location phone number you selected.

10. Select **Modem**. Select the modem that you will use for Service Agent communications. After your selection, several of the remaining fields are filled in by Service Agent.

11. Select **OK** to save the Dialer configuration.

12. Expand the contents of the Administration category by clicking the key to its left.

13. Select **Register**.

14. Select your Gateway machine by clicking it.

15. Select **Register**. The "Would you like to IGN now" window displays.

16. Select **Yes**. The Service Agent is now attempting to connect to the IBM Service Agent server, using the modem you have selected.

17. Select **CallLog**. Check the details pane to view the status of the just-attempted call. To determine the success or failure of the connection attempt, examine the Description column.

For more information on the Service Agent, refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590.

Running System Verification

Before you run system verification, the diagnostics must have been loaded. For information about how to load diagnostics, see Chapter 3, "Verifying the Hardware Operation" on page 31. While the power-on sequence is completing, the following events occur:

- The power LED on the media subsystem operator panel starts blinking at a fast rate.
- 9xxx checkpoints appear in the operator panel display.
- The power LED on the processor subsystem stops blinking and stays on.
- If a secondary I/O subsystem is present, its power LED comes on and stays on.
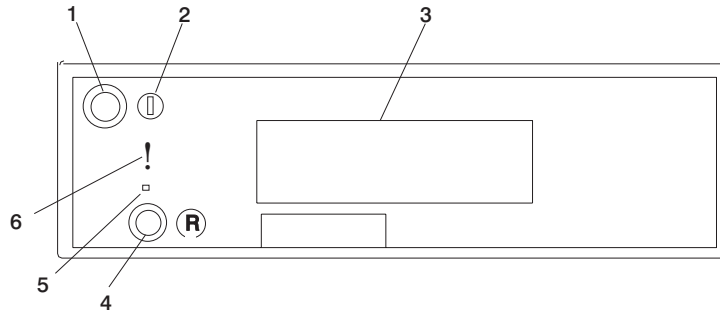
1	Power on/off button	**4**	Reset button
2	Power on/off LED	**5**	Service processor reset button (Service use only)
3	Operator panel display	**6**	Disturbance or system attention LED

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". To exit diagnostics, go to "Stopping the Diagnostics".

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".

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 pSeries 690 *Service Guide*.

Service Focal Point

Service representatives must use the HMC as the starting point for all service issues. The HMC groups various system management issues at one control point. From this control point, service representatives use the Service Focal Point application to determine an appropriate service strategy.

Traditional service strategies become more complicated in a partitioned environment. Each partition runs on its own, unaware that other partitions exist on the same system. If one partition reports an error for a shared resource such as a managed system power supply, other active partitions report the same error. Service focal point enables service representatives to avoid long lists of repetitive call-home information. Service Focal Point recognizes that these errors repeat, and filters them into one error code for the service representative to review.

Errors that require service are reported to the HMC as serviceable events. Because the HMC stores these serviceable events for 90 days and then discards them, it is important to have the partition and HMC date and time set correctly. For instance, if the

date on a partition's software is set 90 days behind the HMC's set time, the serviceable events reported from this partition are immediately discarded.

Getting Started

When you are setting up Service Focal Point, keep the following in mind:

- If the /**var** file system is full (either on the HMC or partitions), it can prevent Serviceable Events from being reported to the HMC.

- If the time configured on a partition is 90 days older than time configured on the HMC, Serviceable Events cannot be reported.

- Verify/configure the network - The network has to be configured prior to SFP working.

- Verify that the HMC hostnames are fully qualified. For example, **hostname** should show hmc1.mydomain.mycompany.com.

- Verify that the HMC and managed system are on the network and that DNS is working correctly. To do this, telnet to partitions from the HMC using the partitions' hostname.

1. Verify or configure the network, by doing the following:

   - Log in to the Hardware Management Console for pSeries (HMC) using the user ID

     hscroot

     and password

     abc123

     (if the password has been changed, obtain from Customer.)

     Attention: User IDs and passwords are case sensitive. Enter the user ID and password exactly as shown.

   - Select the **System Configuration** Application in the Navigation area.

   - Verify the appropriate network information in the **IP Address**, **Name Services**, and **Routing** tabs on the Network Configuration window.

   For Service Focal Point to be able to securely communicate with the partitions across the network, DNS or etc/hosts must consistently resolve the host names and IP addresses of the HMC and the partitions to their canonical Fully Qualified Domain Name (FQDN). Therefore, only fully qualified host names can be used in Service Focal Point remote communication. Fully qualified host names cannot be more than 100 bytes in length.

2. Test Connectivity

   - After insuring that the network is configured correctly, use the Test Connectivity function on the System Configuration Menu to test access to the network. The Test Connectivity issues a ping command to the selected IP address. Obtain the IP addresses of the Partition(s) from the customer and test the access.

3. Register Service Agent (if not already done) and generate a Test PMH - This must work correctly before continuing.

4. Test the AIX to SFP connection by doing the following:

> **Note:** Disable the Enable/Disable Call Home in SFP, as this will generate an event that will transfer to Service Agent and potentially create a PMH. Enable Extended Error Data Collection.

- Start concurrent diagnostics from the AIX partition.
- Invoke either Problem Determination or System Verification.
- Select only the Op Panel resource.
- Start the Op Panel test.
- Answer ″No″ when asked whether the entry was correct or not (this will generate an SRN).
- Select ″Yes″ when prompted to send to Service Focal Point (this should create an event that can be viewed from Service Focal Point).
- Run the same diagnostic multiple times to test the proper posting with timestamps and duplicate counts. The timestamps and duplicate counts should change.

There will only be posting of the event. Only Duplicate counts and timestamps will change. To generate more events, the open event must be changed to a closed status.

5. Test the AIX -> SFP-> SA path, by doing the following:

> **Note:** This should never be attempted without first having the Remote Support actively engaged in the problem, as this results in a PMH being generated with an error that will be tracked as a real problem.

- Insure that Call Home and Serviceable Events are enabled, the Service Agent delay has been changed to 1 minute in the Advanced Customization/Call Controller field, then do steps a-h under the AIX to Service Focal Point connection verification instructions.

There is a default delay of 15 minutes from the time a Call Home Candidate request is received by Service Focal Point to Service Agent to dialout. You can changed this delay in Service Agent advanced customization, Call Controller pulldown.

If the event does not post, then contact software support.

For more information on the Service Focal Point, refer to the *IBM Hardware Management Console for pSeries Operations Guide*, order number SA38-0590.

Complete System Records and Installation Procedure

Update the "System Records" in Appendix F, "System Records" on page 75 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.

Appendix A. Communications Statements

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

Federal Communications Commission (FCC) Statement

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Neither the provider nor the manufacturer is responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

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

European Union (EU) Statement

This product is in conformity with the protection requirements of EU Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. The manufacturer cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of option cards supplied by third parties. Consult with your dealer or sales representative for details on your specific hardware.

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.

International Electrotechnical Commission (IEC) Statement

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

United Kingdom Telecommunications Safety Requirements

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.

Avis de conformité aux normes du ministère des Communications du Canada

Cet appareil numérique de la classe A respecte toutes les exigences du Réglement sur le matériel brouilleur du Canada.

Canadian Department of Communications Compliance Statement

This Class A digital apparatus meets the requirements of the Canadian Interference–Causing Equipment Regulations.

VCCI Statement

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 IBM 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.

Appendix B. Environmental Notices

Product Recycling and Disposal

This unit contains materials 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 of, these materials must be removed and recycled or discarded according to applicable regulations. IBM offers product return programs in several countries, for country specific instructions please refer to the following web site:
http://www.ibm.com/ibm/environment/products/prp.phtml

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. In the United States, IBM has established a collection process for reuse, recycling, or proper disposal of used sealed lead acid, nickel cadmium and nickel metal hydride batteries and battery packs from IBM equipment. For information on proper disposal of the batteries in this product, please contact IBM at 1-800-426-4333. For information on disposal of sealed lead acid or nickel cadmium batteries outside the United States, contact your local waste disposal or recycling facility.

Environmental Design

The environmental efforts that have gone into the design of this system signify IBM's commitment to improve the quality of its products and processes. Some of these accomplishments include the elimination of the use of Class 1 ozone-depleting chemicals in the manufacturing process and reductions in manufacturing wastes. For more information, contact an IBM account representative.

Acoustical Noise Emissions

The equivalent continuous A-weighted sound pressure 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

Product Configuration	Acoustical Characteristic			
	Declared A-Weighted Sound Power Level, L_{WAd} (B)		Declared A-Weighted Sound Pressure Level, LpAm (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 the 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 Slimline 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.

Appendix C. Notices

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

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

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

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

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

Appendix D. Securing the Rack

This appendix contains information about installing the rack for the pSeries 690. For further information, refer to PN44P0159, installation instructions for RPQ's 8A1183, 8A1185, 8A1186 shown below:

- 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.
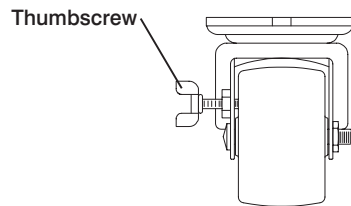
Installing the Frame Kit

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 54.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page 54.	11P3529	4	Hinge plate

| Item 8 in illustration on page 54.	11P3530	2	Latch plate
Item 6 in illustration on page 54.	11P3531	2	EQ support
Item 2 in illustration on page 54.	11P3532	2	Shipping bar (upper)
Item 7 in illustration on page 54.	76X4687	2	Latch bolt
Item 1 in illustration on page 54.	1624804	20	Screw (hex flange, 20mm, long)
Item 9 in illustration on page 54.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page 54.	1622307	8	Washer (M8, hinge)
Item 1 in illustration on page 56.	11P3528	2	Plate lock-down
Item 2 in illustration on page 56.	05N6345	4	Spacer
Item 4 in illustration on page 56.	05N6344	4	Bushing
Item 5 in illustration on page 56.	21L4309	4	Washer
Item 3 in illustration on page 56.	0130985	4	Washer
Item 6 in illustration on page 56.	05N6346	4	Bolt

11P4757 Frame tie-down Kit (Short - Raised Floor) (RPQ 8A1185)			
Item	**Part Number**	**Qty**	**Description**
Illustration on page 63.	44P0673	4	Turnbuckle Assembly (short)
Item 3 in illustration on page 54.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page 54.	11P3529	4	Hinge plate
Item 8 in illustration on page 54.	11P3530	2	Latch plate
Item 6 in illustration on page 54.	11P3531	2	EQ support
Item 2 in illustration on page 54.	11P3532	2	Shipping bar (upper)
Item 7 in illustration on page 54.	76X4687	2	Latch bolt
Item 1 in illustration on page 54.	1624804	20	Screw (hex flange, 20mm, long)

Item 9 in illustration on page 54.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page 54.	1622307	8	Washer (M-8, hinge)

11P4758 Frame tie-down Kit (Long - Raised Floor) (RPQ 8A1186)			
Item	Part Number	Qty	Description
Illustration on page 63.	44P0674	4	Turnbuckle Assembly (long)
Item 3 in illustration on page 54.	11P3527	2	Shipping bar (lower)
Item 5 in illustration on page 54.	11P3529	4	Hinge plate
Item 8 in illustration on page 54.	11P3530	2	Latch plate
Item 6 in illustration on page 54.	11P3531	2	EQ support
Item 2 in illustration on page 54.	11P3532	2	Shipping bar (upper)
Item 7 in illustration 54.	76X4687	2	Latch bolt
Item 1 in illustration on page 54.	1624804	20	Screw (hex flange, 20mm, long)
Item 9 in illustration on page 54.	1621546	8	Screw (hex, 25mm, long, hinge)
Item 10 in illustration on page 54.	1622307	8	Washer (M8, 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 54), install the top shipping bar (item 2 in illustration on page 54) at EIA unit location 32.

2. Using four M-8 screws (item 1 in illustration on page 54), install the bottom shipping bar (item 3 in illustration on page 54) at EIA unit location 18.

3. Repeat steps 1and 2 to install shipping bars in the rear of the rack.

4. Attach the front top hinge (item 5 in illustration on page 54) 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 54) and two washers (item 10 in illustration on page 54).

5. Attach the front bottom hinge (item 5 in illustration on page 54) 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 54) and two washers (item 10 in illustration on page 54).

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 54) with two M-8 (20 mm) screws (item 1 in illustration on page 54).

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 54) in both the front and rear of the rack.

10. Install the latch bolts (item 7 in illustration on page 54).
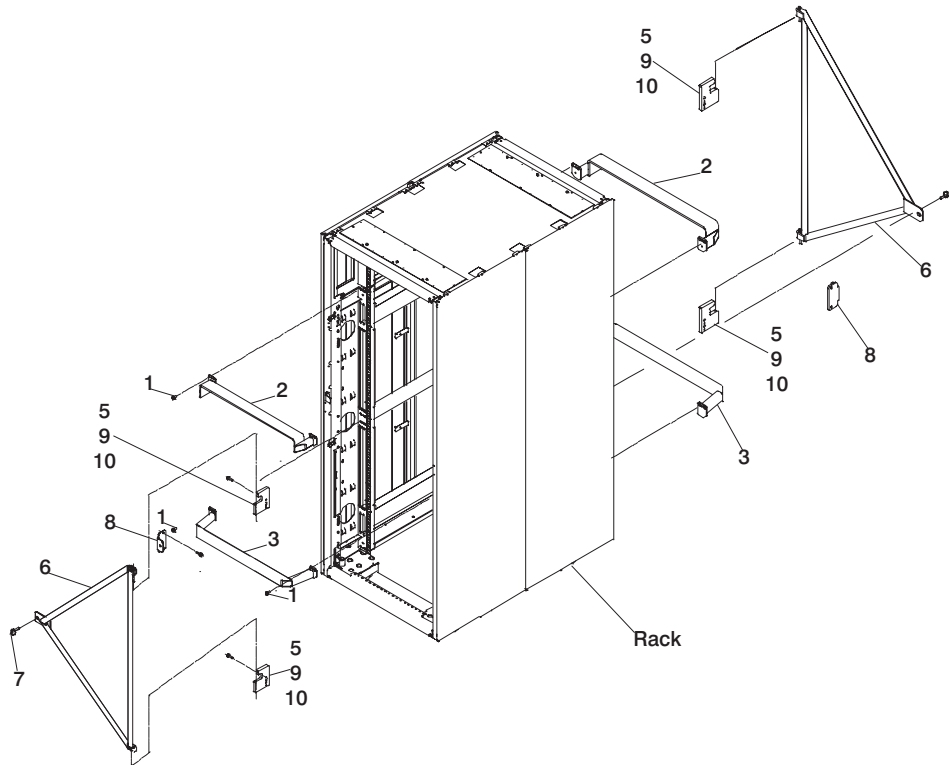
Determine Your Next Step

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 55.

- If the rack is being attached to a raised floor, proceed to "Attaching the Rack to a Short or Long Raised Floor" on page 59.

- If the rack is not being attached to the floor, proceed to "Step 3. Position and Level the PrimaryRack" on page 10.

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.
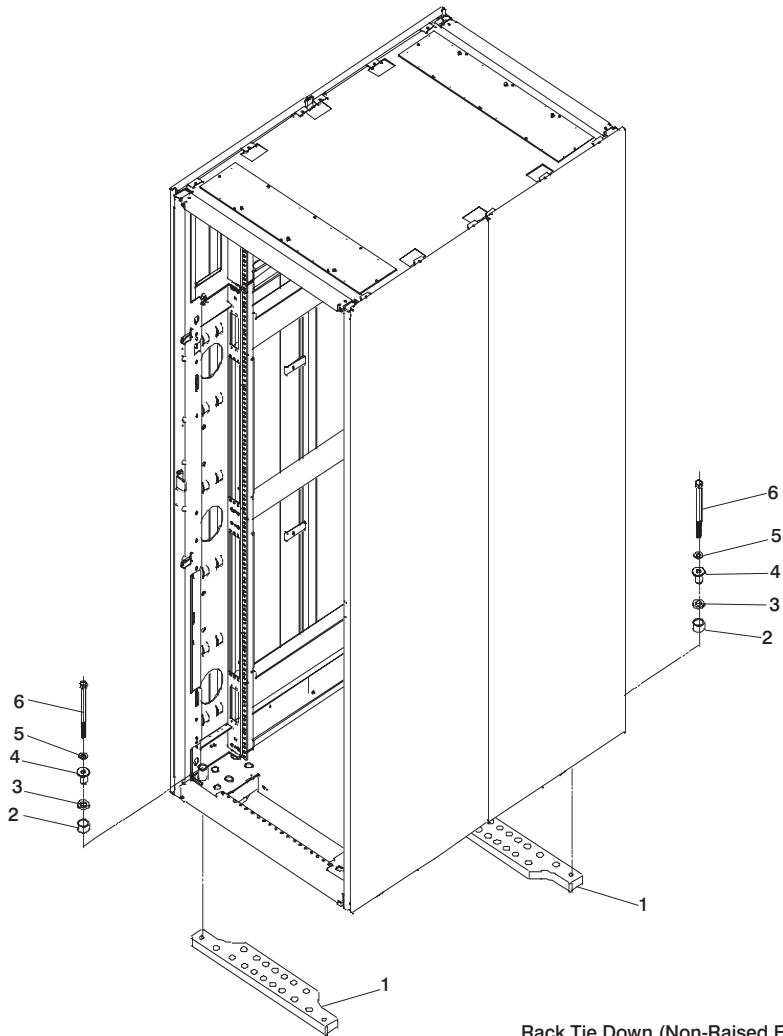
Rack Tie Down (Non-Raised Floor)

2. Place the mounting plates (item 1 in illustration on page 56), 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 56) through the plate assembly holes at the bottom of the rack. Install the bushings and washers (item 4 and 5 in illustration on page 56) to ensure bolt positioning.

   b. Position the mounting plates (item 1 in illustration on page 56) under the four rack-mounting bolts (item 6 in illustration on page 56) so that the mounting bolts are centered directly over the tapped holes.

   c. Turn the rack-mounting bolts (item 6 in illustration on page 56) 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:

709.8 mm REF

(32x) 21 mm REF

27.5 mm REF

(10x) 65.5 mm REF

Mounting Plate

Caster

Rear

Caster

1019 mm

(2X) 53.7 mm REF

1070 mm REF

Rack

Caster

Front

Caster

Mounting Plate

22.5 mm REF

(4x) ½ x 13 UNC REF

2.9 mm REF

20.1 mm

750 mm REF

(2x)

Mounting Plate
Bolt Locations
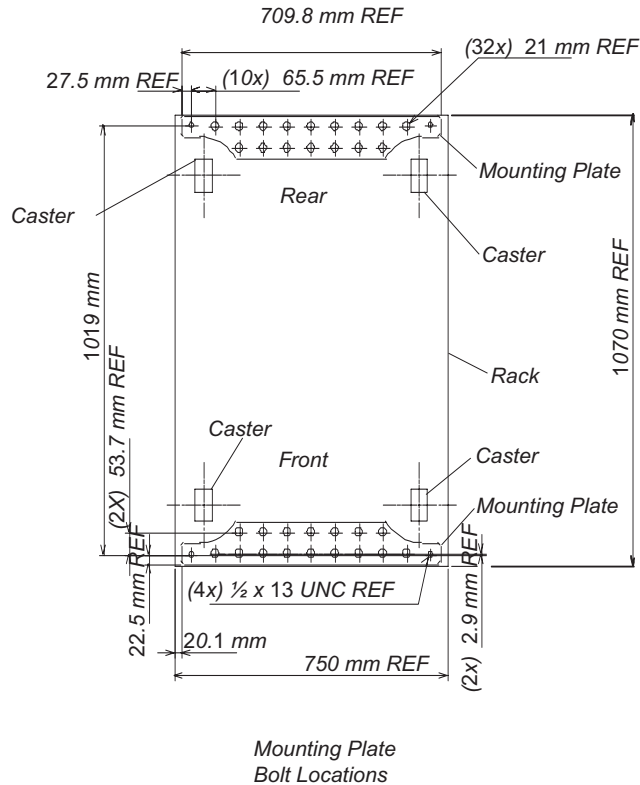
5. Remove the mounting bolts from the threaded holes.

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 56) 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 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, asteel beam or a steel channel adapter for mounting the subfloor eyebolts are 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 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 is height 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 provided in the *Site and Hardware Planning Information* , form number SA38-0508.

3. Plan for installing four eyebolts positioned to match the dimensions given in the following illustrations.
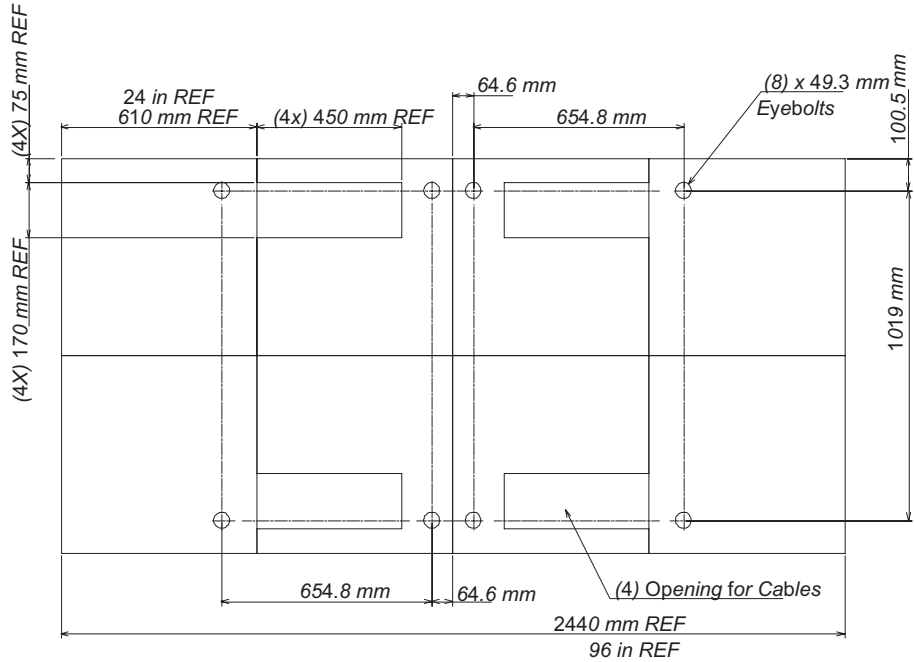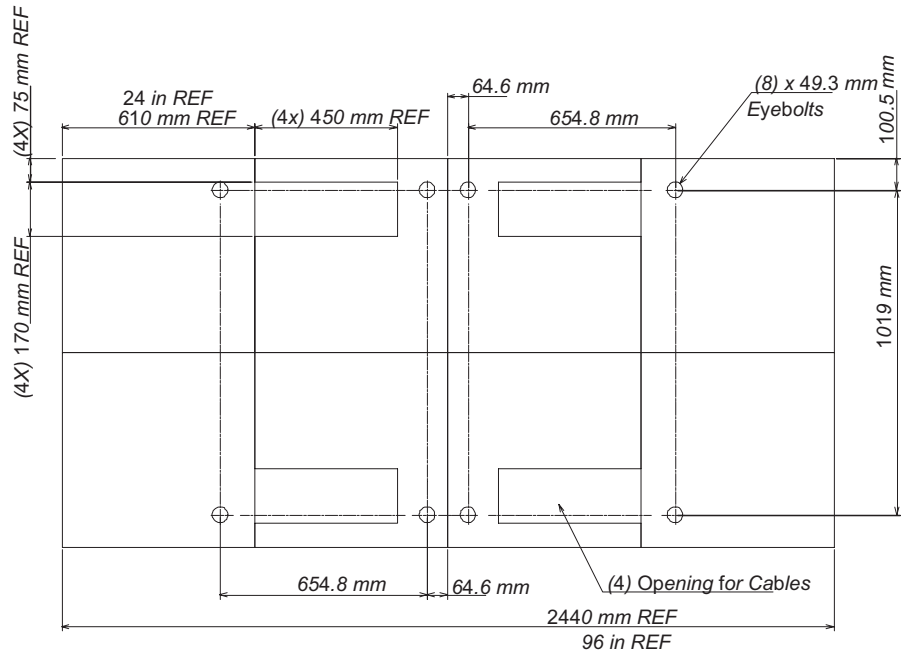

24 Inch *Floor Tile Layout*
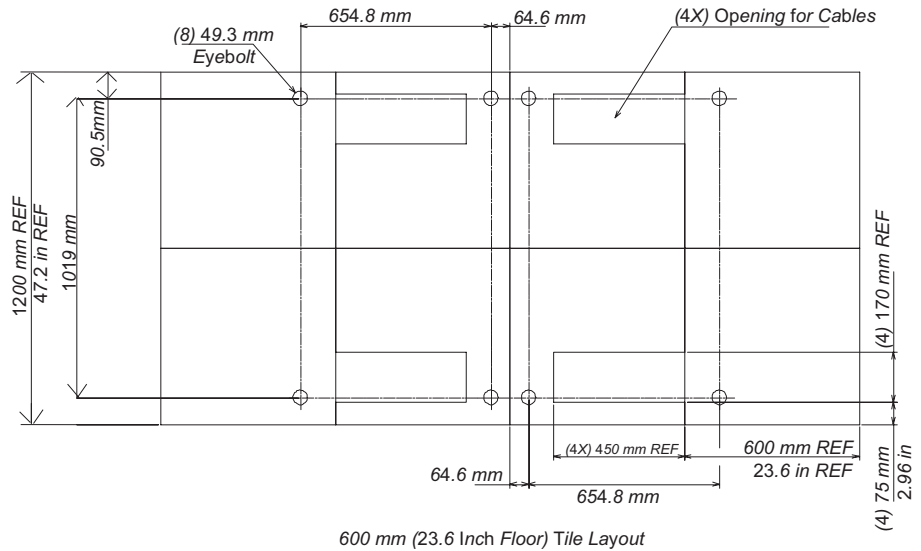
600 mm (23.6 Inch Floor) Tile Layout

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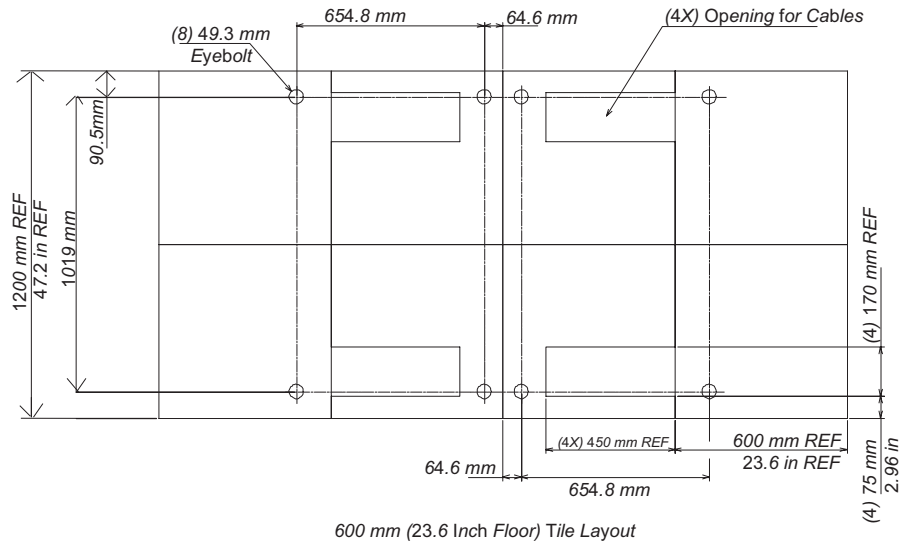
2. Power off the system and make sure all cables and connectors are disconnected and are not dangling around the frame. The frame should be free to roll.

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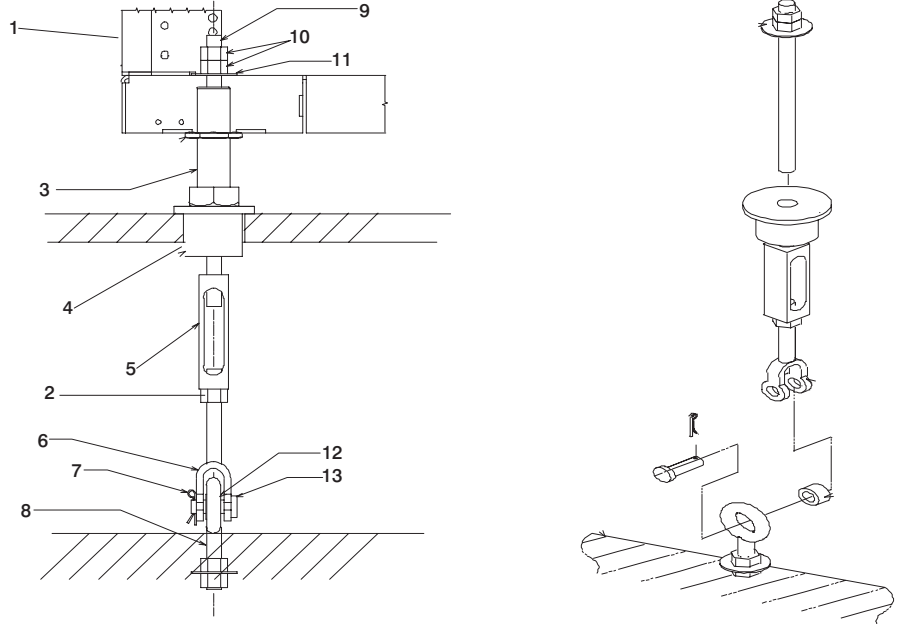
1	Frame	**8**	Floor Eyebolt (customer-supplied)
2	Jam Nut	**9**	Threaded Rod
3	Rack Leveler	**10**	Nut
4	Rubber Bushing	**11**	Washer
5	Turnbuckle (Short or Long)	**12**	Spacer
6	Lower Jaw	**13**	Shaft
7	Pin		

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 then level the rack using the four leveling feet by tightening the lock nuts.

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.

Appendix E. Installing Multiple pSeries 690s To One Hardware Management Console

This appendix details how to install multiple pSeries 690 servers to one Hardware Management Console (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 either of the ASYNC adapters follows.

Installing the 8-Port ASYNC Adapter

The 8-port serial adapter is an option for the HMC. The 8-port serial adapter software is installed in the HMC's base software image install. 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.

To configure the 8-port adapter in the system:

1. To allow access to the HMC Microcode Maintenance, obtain the password from software support and login as hscpe.
2. In the HMC Navigation area, click on **Problem Determination**.
3. In the Contents area, click on **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 login as root user with the root password.
7. 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 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:

   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

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

Connect the Serial Cables from the pSeries 690 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 about 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 HSC1 ports on the managed systems.

If you are using a second, redundant HMC, connect cables from all the pSeries 690 HMC1 ports to the 8-port cable on one HMC, and connect all the pSeries 690 HMC2 ports to the 8-port cable on the other HMC. The use of the second HMC system serial port is not recommended because this port is defaulted to be used for the modem, and requires a number of configuration steps to work with the pSeries 690.

Installing the 128-Port ASYNC Adapter

The 128-Port ASYNC adapter is an option for the HMC. It must be configured by the customer engineer when the HMC is installed. The 128-Port ASYNC adapter software is installed 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 has two 15 pin D-shell connectors on it. The connector that is closest to the edge connector that plugs into the HMC PC is line 1. The remote access nodes (RANs) are cabled in a daisy chain and are terminated using a line terminator. The following figure shows the adapter and the line connectors.
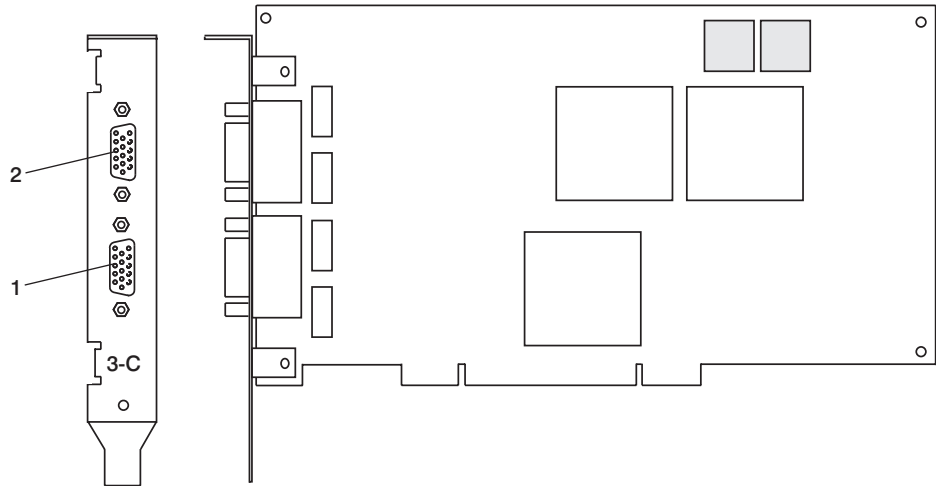
The following figure shows an example of a typical RAN configuration. RANs are connected to both line 1 and line 2 of the adapter in this example.
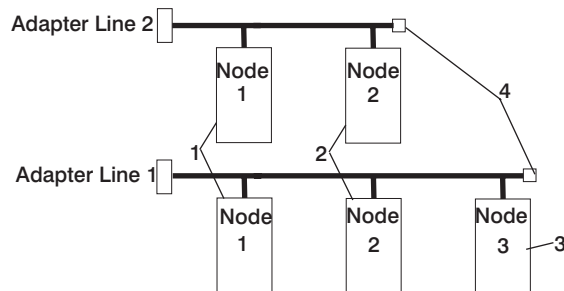
1	RAN Nodes	**3**	RAN Node
2	RAN Nodes	**4**	Terminators

- Up to eight RANS may be attached to one adapter total. If 4 are attached to line one, then only 4 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 on configuring and running diagnostics on the 128 Port ASYNC Adapter and associated RANs. To access the AIX Asynchronous Communications Guide, see the AIX Online documentation. 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 figure shows the front panel of a RAN.

CCITT	103	104	105	106	107	109	108	125
TD	RD	RTS	CTS	DSR	CD	DTR	RI	OFC	IFC

○ ○ ○ ○ ○ ○ ○ ○ ○ ○

0%   100%

A C ← →
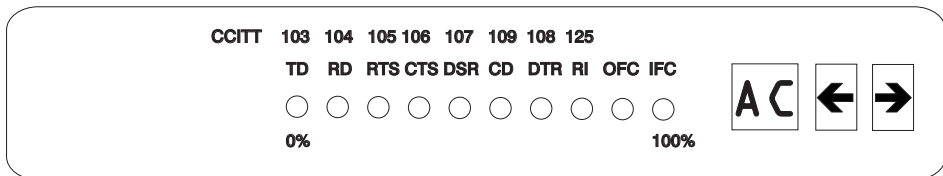
To set the RAN node number, do the following:

1. Turn the RAN on 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 should now read 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.

For additional information, see step 5 on page 25 for an illustration showing the location of the HMC connectors located on the primary I/O book. In this case, instead of using the native serial ports on the back of the HMC as shown following illustration, use the

ports on the 8-port expansion cable or a RAN if used.
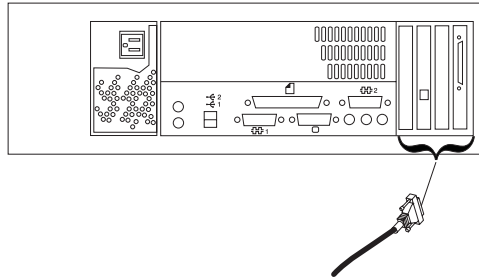
Configuring the 128-Port ASYNC Adapter

When a 128-Port ASYNC adapter is installed in the HMC and the HMC is first used, the adapter must be configured. To configure the 128-port ASYNC adapter in the HMC, two configuration utilities must be run (/usr/sbin/digiConf and /usr/sbin/cxconf). Log in as root user to run the utilities using the following procedures:

1. Obtain the root password from the customer.

2. To allow access to the HMC Microcode Maintenance as the **hscpe** user, contact software support and request the password.

3. In the HMC Navigation area, click on **Problem Determination**.

4. In the Contents area, click on **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 login as root user with the root password.

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 and/or 128 Port ASYNC adapters are installed in the HMC PC.

   b. Question: Board #1. What type of board is this? ('L' for list)
      Answer: Use board type 16 (IBM 128-Port ASYNC PCI)

   c. Question: How many ports does this digiBoard have?
      Possible values:
      1) 8
      2) 16
      3) 24
      4) 32
      5) 40
      6) 48
      7) 56
      8) 64
      9) 72
      10) 80

11) 88
12) 96
13) 104
14) 112
15) 120
16) 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 two. For example: 2 (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.

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 concentrators (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)
Note: The maximum number of ports here is 16. [16]
Answer: 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 9c 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.

Updating the Device Driver

To update the device driver for the 128-Port ASYNC adapter, perform the following:

1. Move the .rpm device package to the HMC.
2. At the command prompt, enter **rpm -i -force epca-1.51-2.i386.rpm**

   The device driver is installed as /lib/modules/2.4.9–12/misc/epca.o
   If lib/modules/2.4.9-12/kernel/drivers/char/epca.o exists, remove it.
3. Run the configuration utility, at the command prompt, enter **/usr/sbin/digiConf**.
4. Log in with the ID **hscpe** and open a command prompt window.

Connect the Serial Cables from the pSeries 690 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 pSeries 690 HMC1 ports to the RAN on one HMC, and connect all the pSeries 690 HMC2 ports to the RANs on the other HMC. The use of the second HMC system serial port is not recommended because this port is defaulted to be used for the modem, and requires a number of configuration steps to work with the pSeries 690.

Verify Installation is Complete by Using the HMC Interface

The HMC provides a predefined user called *hscroot*. The hscroot password is **abc123**. This hscroot user ID is a member of the System Administrator role. 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 pSeries 690, 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.

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

You might request that a special user ID be created for the Service Representative role to perform service functions.

After the installation is complete, thepSeries 690 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 management window looks similar to the following illustration:
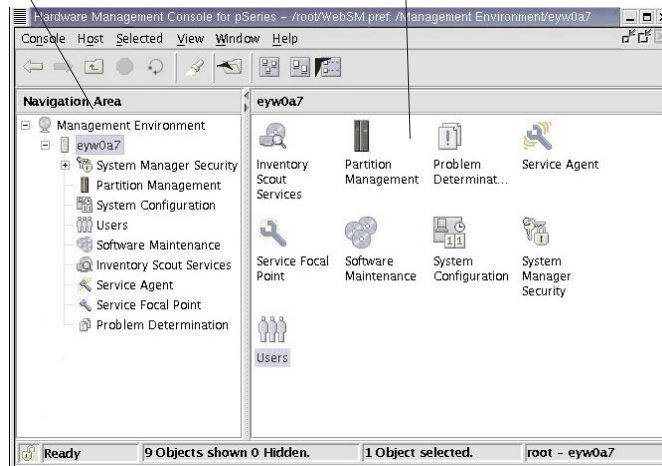
The panel on the left (the Navigation area) displays a hierarchy of icons that represent collections of systems, individual systems, managed resources, and tasks. Each Navigation area icon identifies an application. At the highest point, or *root* of the tree, is the Management Environment. The Management Environment contains one or more

host system applications that are 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 panel on the right (the Contents Area) 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
- Partition Management
- System Configuration
- Users
- Software Maintenance
- Inventory Scout Services
- Service Agent
- Service Focal Point
- Problem Determination

If the pSeries 690 is not displayed on the HMC interface, refer to the pSeries *690 Service Guide*, for additional information.

Verify that the installation is complete for each pSeries 690 that you have connected to the 8-port async adapter. When you are finished, go to Chapter 3, "Verifying the Hardware Operation" on page 31.

Appendix F. 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 Hardware Management Console (HMC).

1	Hardware Management Console	**5*,6***	Primary 7040 Model 61R Integrated Battery Feature (IBF) (Optional) for the Primary Power Subsystem.
			Redundant 7040 Model 61R Integrated Battery Feature (IBF) (Optional) is placed in the rear.
2	7040 Model 61RBulk Power Subsystem	**7**	7040 Model 61D I/O Subsystem
3	7040 Model 681 Processor Subsystem	**8**	7040 Model 61D I/O Subsystem (Optional)
4	7040 Model 681 Media Subsystem	**9**	7040 Model 61D I/O Subsystem (Optional)
		*	7040 Model 61D 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
pSeries 690	
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 - CPU, 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 pSeries 690.

U1.35-P1-X1 Unused	
U1.35-P1-X2	
U1.35-P1-X3	U1.35-P1-F1
U1.35-P1-X4	
U1.35-P1-V1	
U1.35-P1-V2	
U1.35-P1-V3	

FRONT panel codes:

U1.18-P1-M1, U1.18-P1-M2, U1.18-X4 / U1.18-F4, U1.18-P1-M3, U1.18-P1-M4

U1.18-P1-M5, U1.18-P1-M6, U1.18-X3 / U1.18-F3, U1.18-P1-M7, U1.18-P1-M8

U1.18-X1 / U1.18-F1   U1.18-X2 / U1.18-F2

U1.17

U1.15-P1-V2 or U1.13

U1.13-P1-V1 or U1.13

U1.9

U1.5

U1.1

FRONT

U1.35-P2-X1 Unused	
U1.35-P2-X2	
U1.35-P2-X3	U1.35-P2-F1
U1.35-P2-X4	
U1.35-P2-V1	
U1.35-P2-V2	
U1.35-P2-V3	

REAR panel codes:

Unused, U1.18-P1-V1, U1.18-P1-V4, U1.18-P1V7, U1.18-P1-H2

U1.18-P1-H3, U1.18-P1-V2, U1.18-P1-V5, Unused, U1.18-P1-H4

U1.18-P1-V3, U1.18-P1-V6

U1.17

U1.15-P2-V4 or U1.13

U1.13-P2-V3 or U1.13

U1.9

U1.5

U1.1

REAR

The following illustration shows the location codes for the secondary rack. These codes are used to identify the major functional units in the pSeries 690 systems.

U2.19	U2.19
U2.17-P1-V5	U2.17-P2-V6
U2.13	U2.13
U2.9	U2.9
U2.5	U2.5
U2.1	U2.1

FRONT   REAR

Physical Memory Card	Location available	Other Description 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
Memory	U1.18-P1-M3	Memory Book • 4 GB • 8 GB • 16 GB • 32 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
Memory	U1.18-P1-M7	Memory Book • 4 GB • 8 GB • 16 GB • 32 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	

Physical Memory Card	Location available	Other Description Information
Memory	U1.18-P1-M4	Memory Book • 4 GB • 8 GB • 16 GB • 32 GB
Memory	U1.18-P1-M8	Memory Book • 4 GB • 8 GB • 16 GB • 32 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
Memory	U1.18-P1-M5	Memory Book • 4 GB • 8 GB • 16 GB • 32 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 & A1 • RIO Connector B0 & 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

Physical Memory Card	Location available	Other Description Information
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

Verify that all hardware is present by doing the following:

- 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.
- 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 G. Subsystem Positioning and Cabling

This section shows subsystem positioning and cabling for the pSeries 690.

Operator Panel Cable and Diskette Drive Cable to the Media Subsystem (rear view)
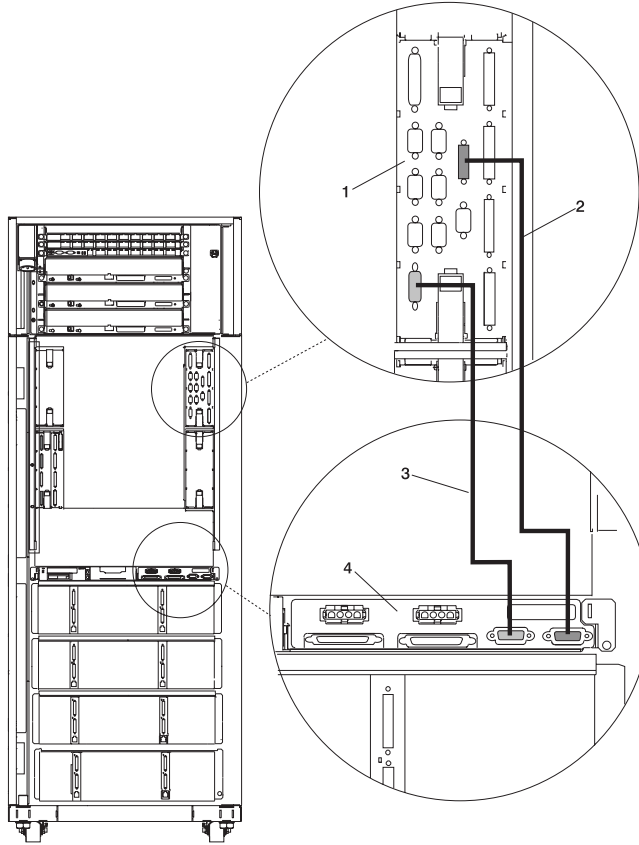
1	Primary I/O Book	**3**	Diskette Drive Data Cable
2	Cable Connecting the Operator Panel to the Media Subsystem	**4**	Media Subsystem

I/O Subsystem Positions, Fully Populated Primary and Secondary Rack (rear view without IBF)
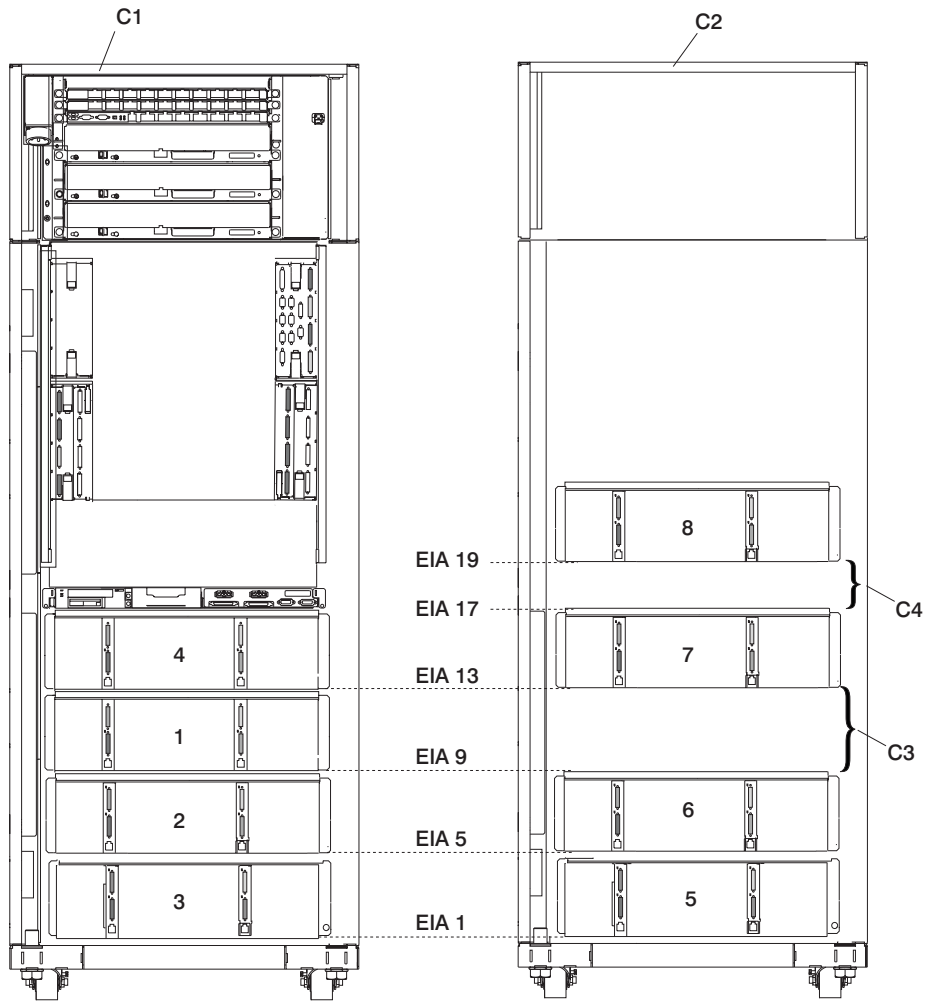
| C1	Primary Rack	3	Third I/O Subsystem
C2	Secondary Rack	4	Fourth I/O Subsystem
C3	Blank Space	5	Fifth I/O Subsystem
C4	Blank Space	6	Sixth I/O Subsystem
1	First I/O Subsystem	7	Seventh I/O Subsystem
2	Second I/O Subsystem	8	Eighth I/O Subsystem

I/O Subsystem Positions, Fully Populated Primary and Secondary Rack (rear view with IBFs)
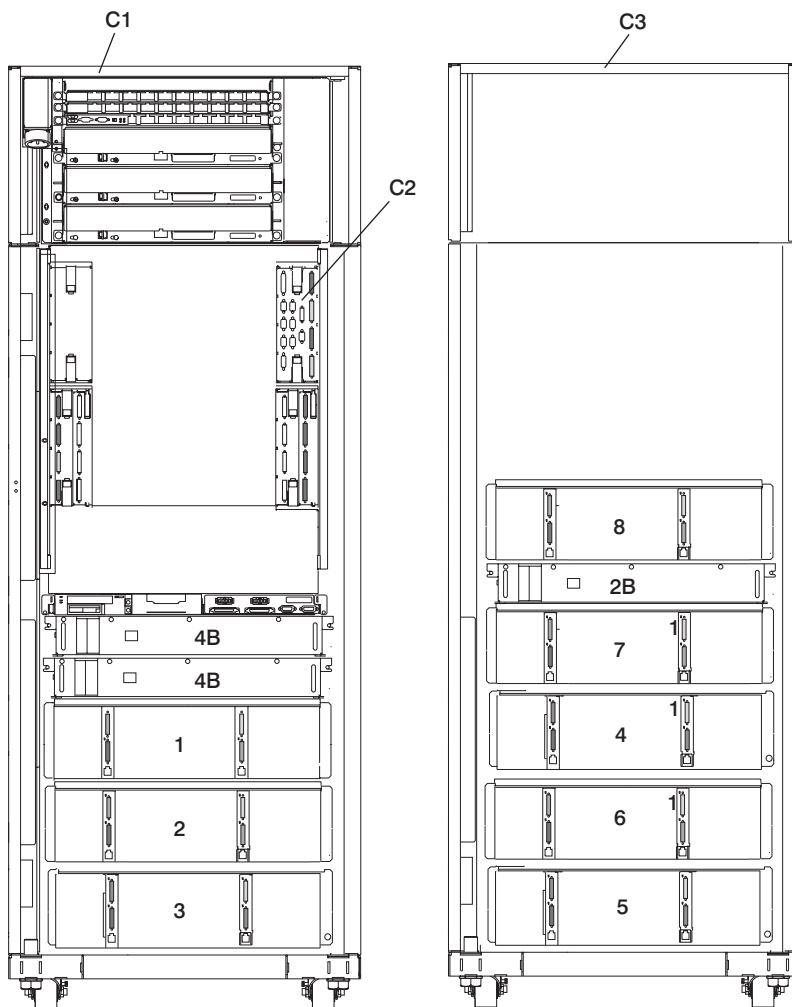
C1

C3

C2

4B

4B

1

2

3

8

2B

7

4

6

5

C1	Primary Rack	**4B**	Four IBFs (primary rack), Position 4
C2	Primary I/O Book (Book 0)	**5**	Fifth I/O Subsystem
C3	Secondary Rack	**6**	Sixth I/O Subsystem
1	First I/O Subsystem	**7**	Seventh I/O Subsystem
2	Second I/O Subsystem	**2B**	Two IBFs (secondary rack)
3	Third I/O Subsystem	**8**	Eighth I/O Subsystem
4	Fourth I/O Subsystem		

Placement of Subsystem 4 in a Two-Rack Configuration (rear view with IBF)

C1

C2

4B

4B

1

2

3

4

EIA 9

EIA 5

EIA 1
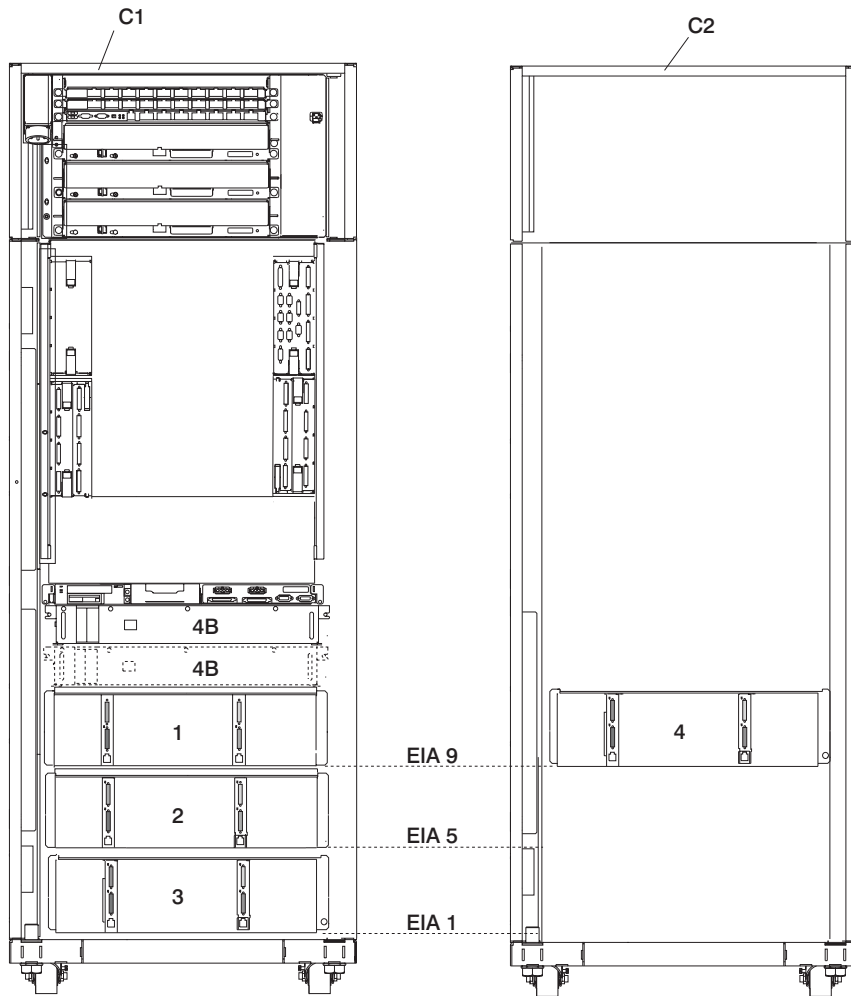
C1	Primary Rack	**3**	Third I/O Subsystem
C2	Secondary Rack	**4**	Fourth I/O Subsystem
1	First I/O Subsystem	**4B**	Four IBFs
2	Second I/O Subsystem		

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.

I/O Subsystems (1 Through 4 Without IBFs) RIO Cabling to I/O Books

1	Primary Rack	**5**	First I/O Subsystem
2	Primary I/O Book	**6**	Fourth I/O Subsystem
3	Third I/O Subsystem	**7**	Secondary I/O Book
4	Second I/O Subsystem		
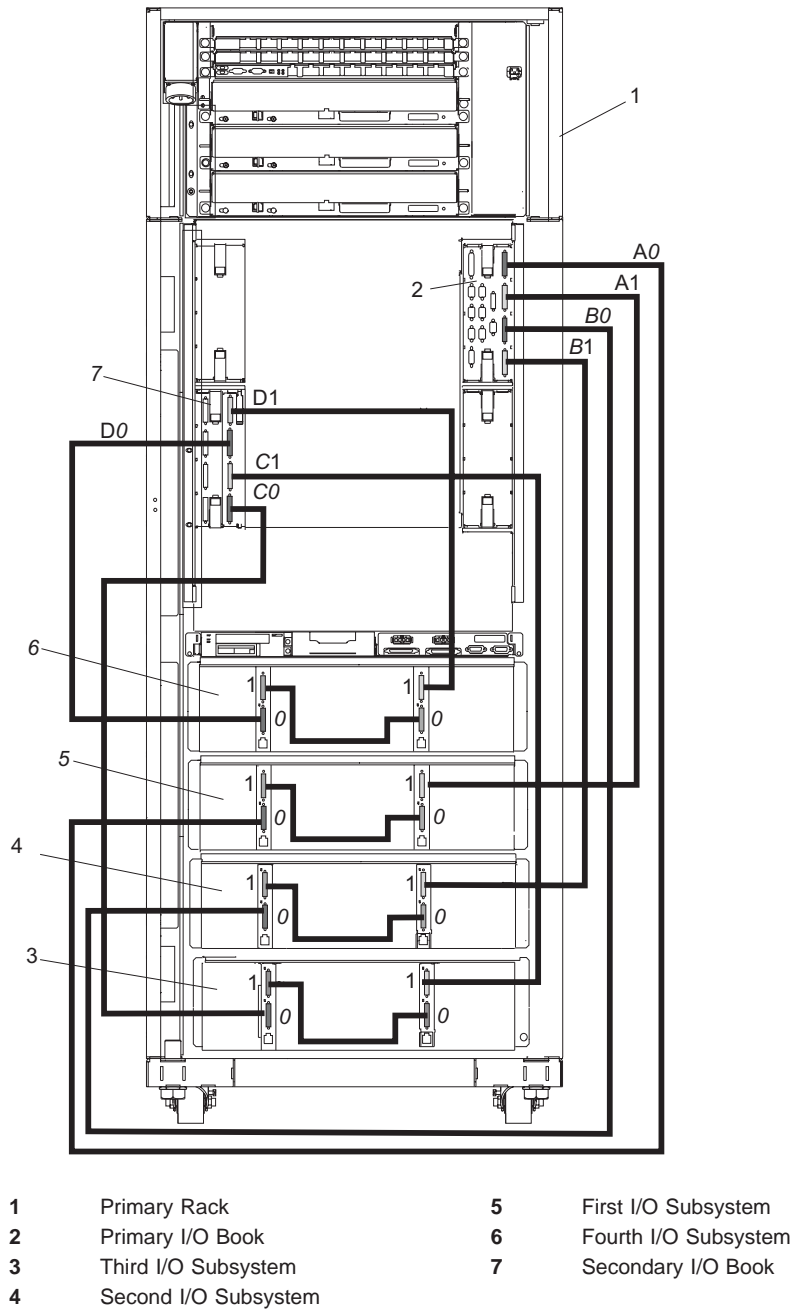
I/O Subsystems (5 and 6) RIO Cabling to the Secondary I/O Book

Shown Without IBFs

C1	Primary Rack	**5**	Fifth I/O Subsystem
C2	Secondary Rack	**6**	Sixth I/O Subsystem
C3	Secondary I/O Book		

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

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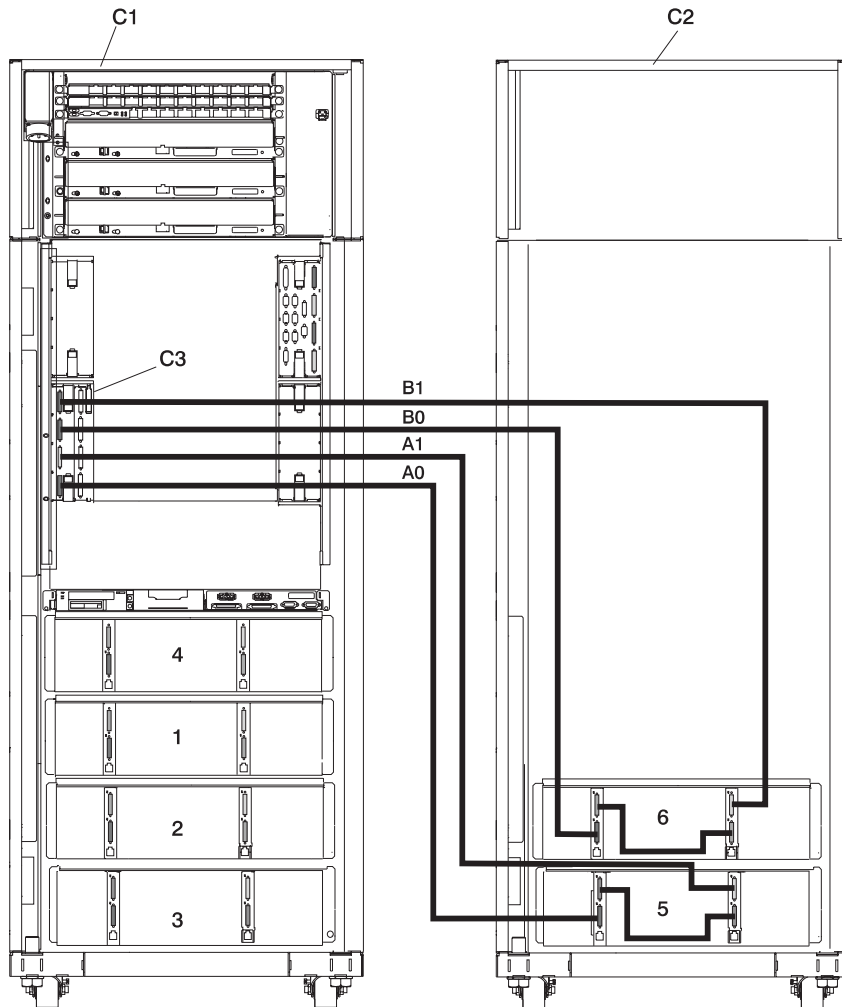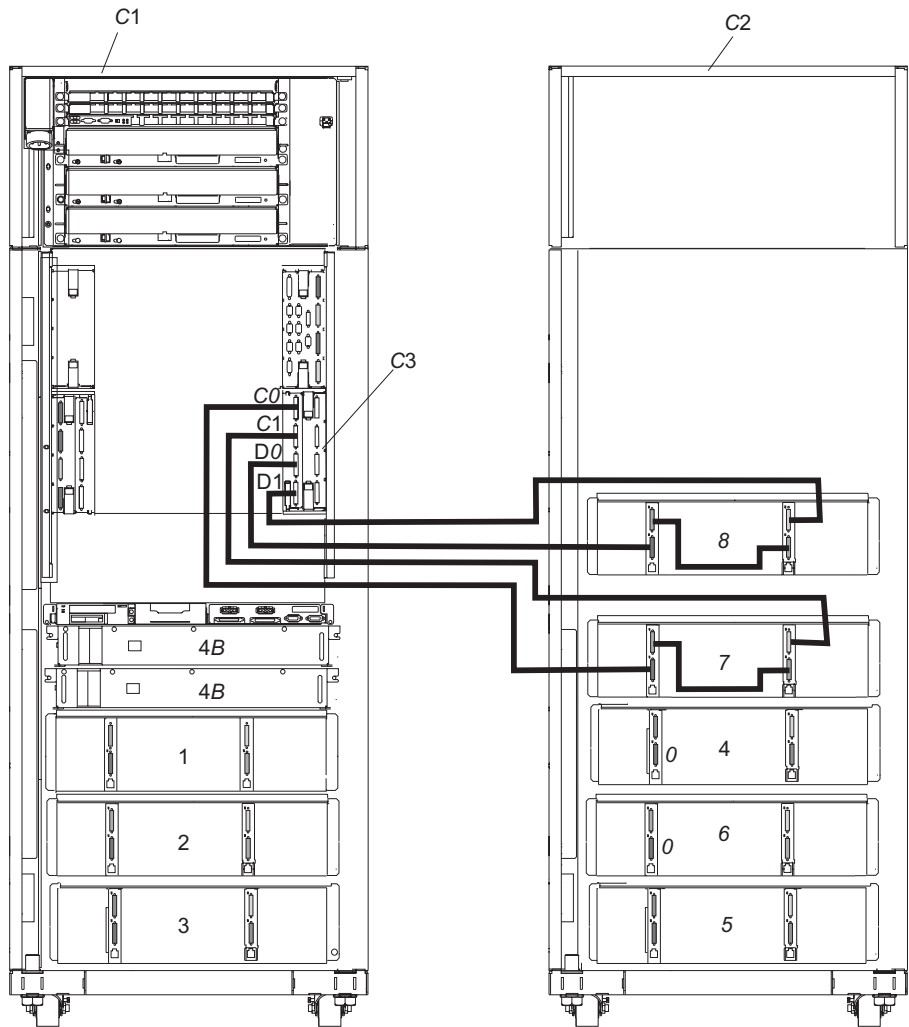
C1	Primary Rack	4	Fourth I/O Subsystem
C2	Secondary Rack	4B	Two IBFs (maximum), Position 4
C3	Third I/O Book (Book 3)	5	Fifth I/O Subsystem
1	First I/O Subsystem	6	Sixth I/O Subsystem
2	Second I/O Subsystem	7	Seventh I/O Subsystem
3	Third I/O Subsystem	8	Eighth I/O Subsystem

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

I/O Subsystem (1 through 3 with IBFs) RIO Cabling to I/O Books
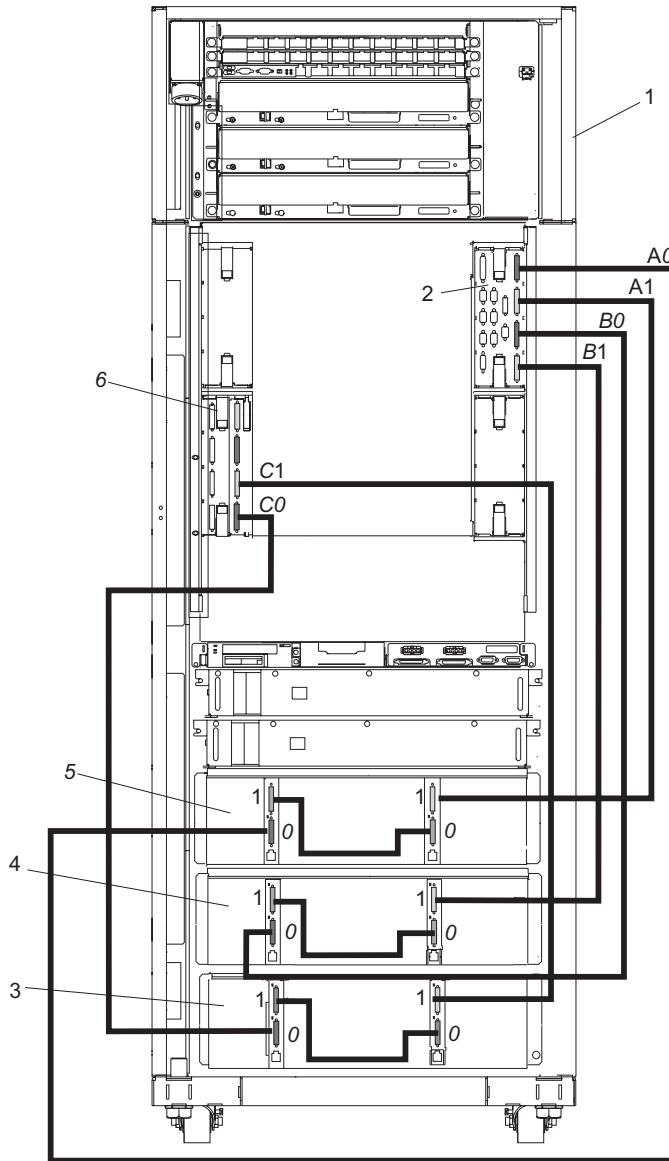
1	Primary Rack	**A0**	Connection to I/O Book (Book 0)
2	Primary I/O Book	**A1**	Connection to I/O Book (Book 0)
3	Third I/O Subsystem	**B0**	Connection to I/O Book (Book 0)
4	Second I/O Subsystem	**B1**	Connection to I/O Book (Book 0)
5	First I/O Subsystem	**C0**	Connection to I/O Book (Book 2)
6	Secondary I/O Book	**C1**	Connection to I/O Book (Book 2)

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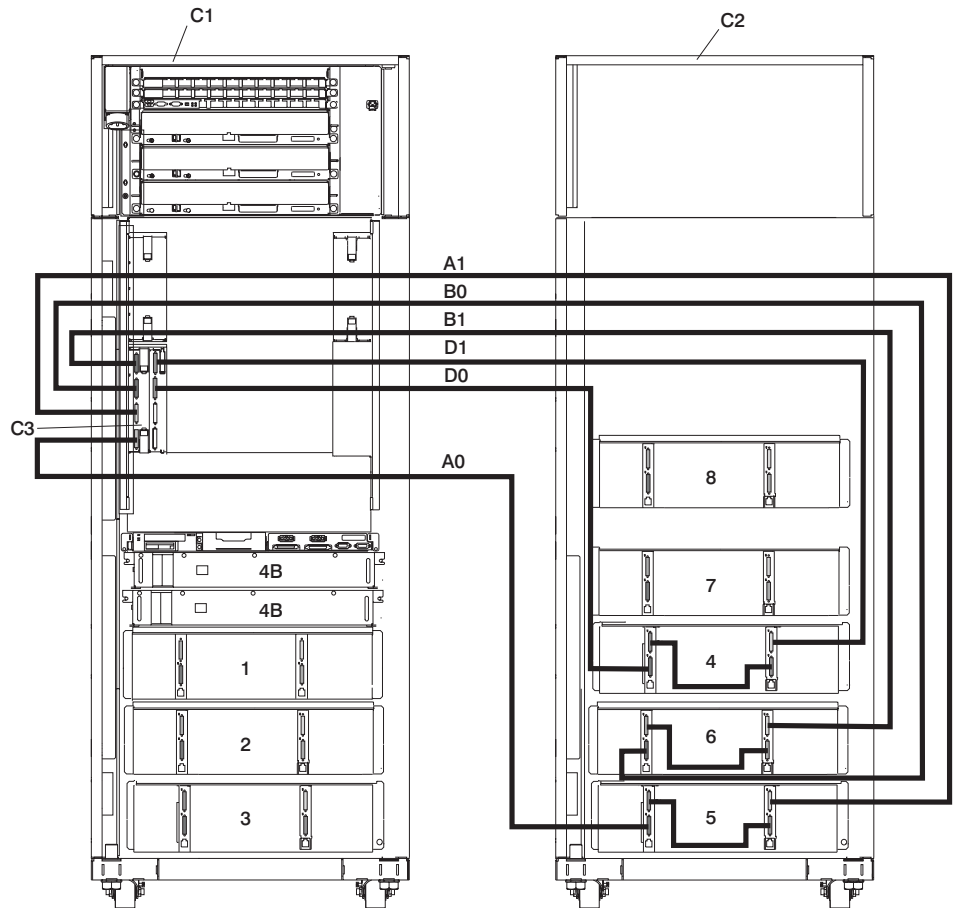
C1	Secondary Rack	**6**	Sixth I/O Subsystem
C2	Primary Rack	**7**	Seventh I/O Subsystem
C3	Secondary I/O Book in I/O Slot 3	**8**	Eighth I/O Subsystem
C4	Secondary I/O Book in Slot 2	**A0**	Connection to I/O Book (Book 2)
1	First I/O Subsystem	**A1**	Connection to I/O Book (Book 2)
2	Second I/O Subsystem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

I/O Subsystems (7 and 8) RIO Cabling to the Third I/O Book

Shown with IBFs
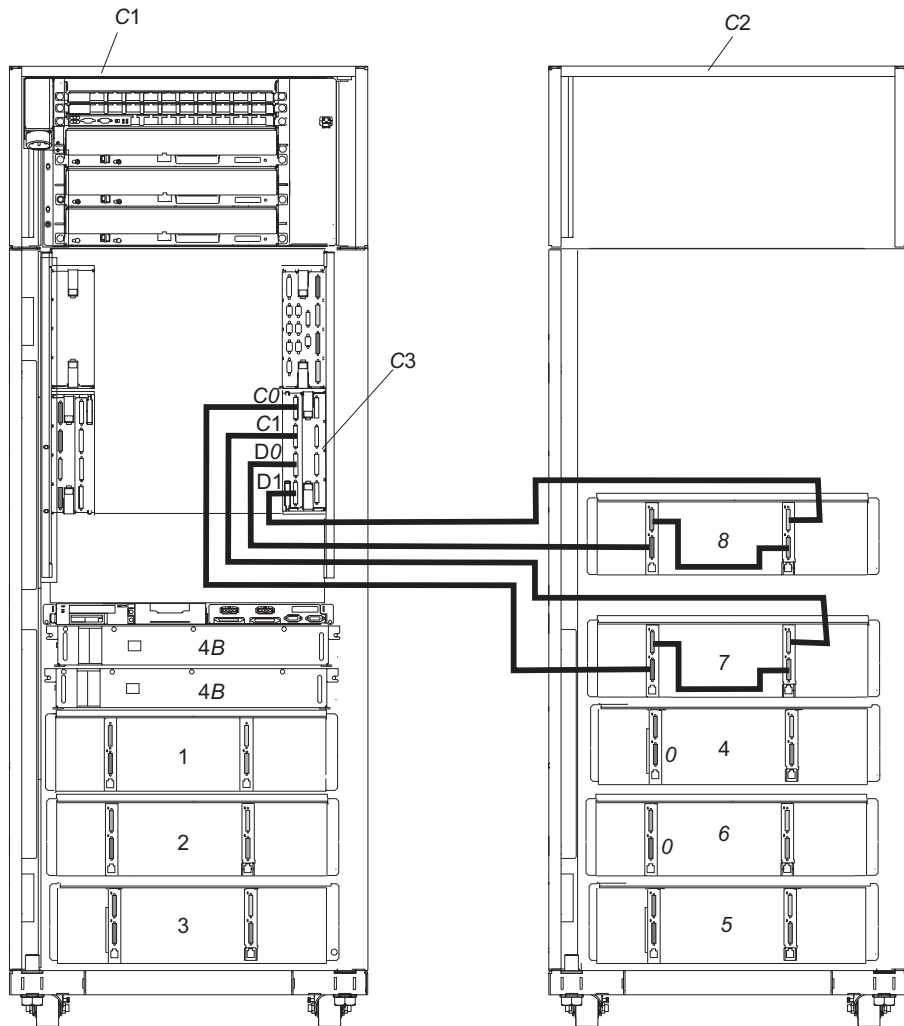
C1	Primary Rack	**5**	Fifth I/O Subsystem
C2	Secondary Rack	**6**	Sixth I/O Subsystem
C3	Third I/O Book (Book 3)	**7**	Seventh I/O Subsystem
1	First /O Subsystem	**8**	Eighth I/O Subsystem
2	Second Subsystem	**C0**	Connection to I/O Book (Book 3)
3	Third I/O Subsystem	**C1**	Connection to I/O Book (Book 3)
4	Fourth I/O Subsystem	**D0**	Connection to I/O Book (Book 3)
4B	Two IBFs (maximum), Position 4	**D1**	Connection to I/O Book (Book 3)

Power and SCSI Cables to the Media Subsystem
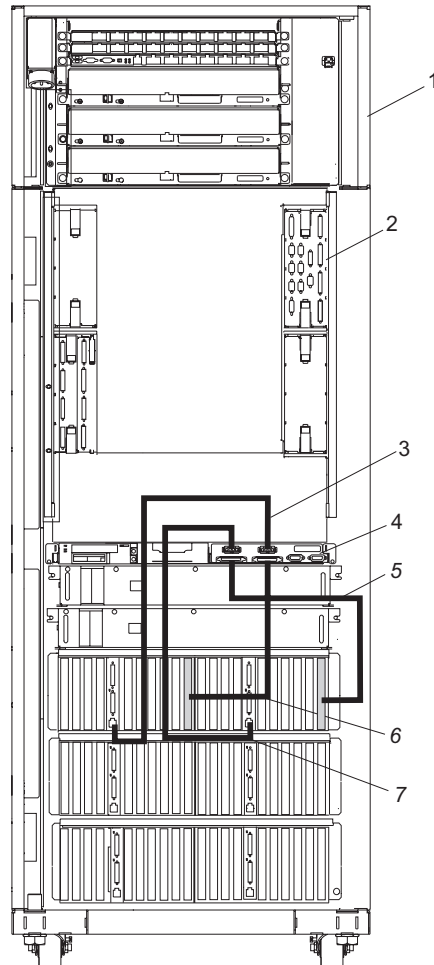
1	Primary Rack	**5**	SCSI Cable for Media Subsystem Rear Drives
2	Primary I/O Book	**6**	SCSI Cable for Media Subsystem Front Drives
3	Power Cable for Media Subsystem Front Drives	**7**	Power Cable for Media Subsystem Rear Drives
4	Rear of Media Subsystem		

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

To connect your HMC to the pSeries 690, 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 on 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.
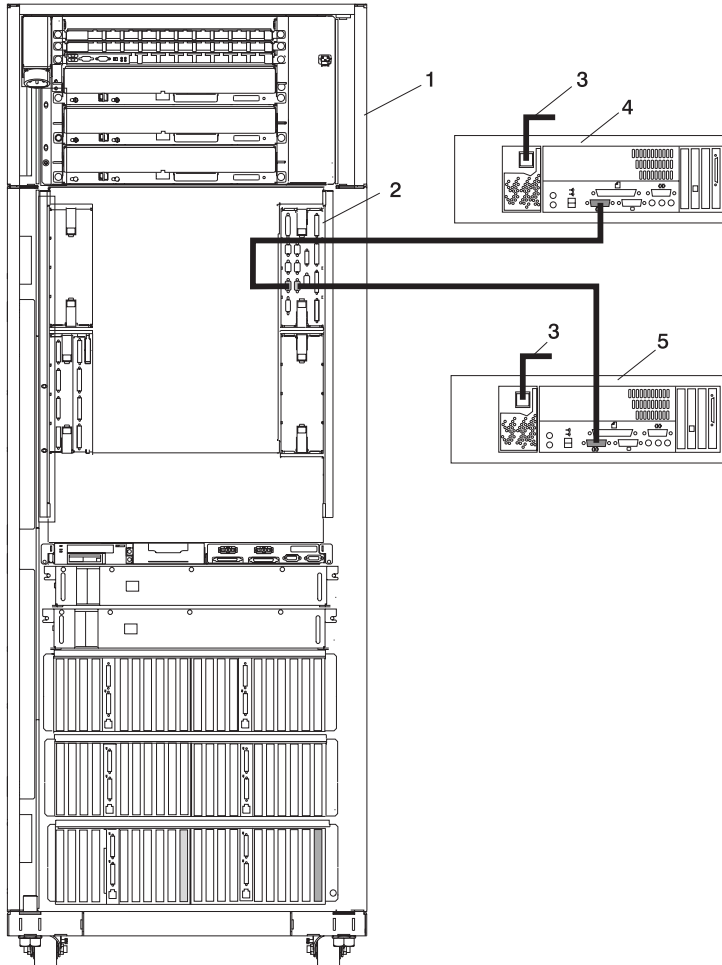
1	Primary Rack	**4**	Primary HMC Connected to HMC #1 in Primary I/O Book (HMC #1 may be labeled HSC #1)
2	Primary I/O Book	**5**	Optional Second HMC Connected to HMC #2 in Primary I/O Book (HMC #2 may be labeled HSC #2)
3	Power Plug to External Power Source (wall plug)		

Appendix H. Cabling Information

This appendix provides information on the location, and label colors of the pSeries 690 cables.

Power Cabling
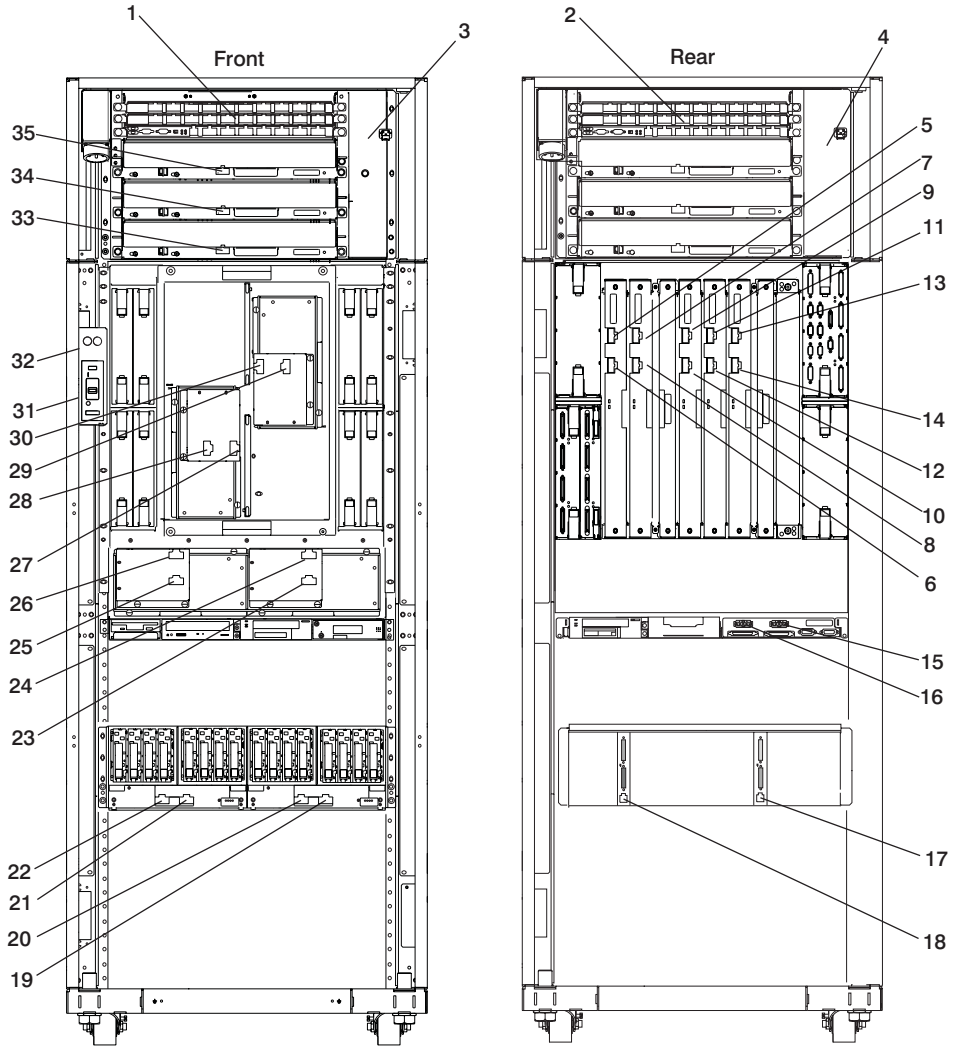
Index	Part Number	Units Per Assy	Description
1	NA		Bulk Power Distribution on the A side of the system (BPD A Side)
2	NA		Bulk Power Distribution on the B side of the system (BPD B Side)
3	NA	1	A35-BPC-P03 to Bulk Power Fan P1-F1, Cable attached to FAN (BPF-A)
4	NA	1	B35-BPC-P03 to Bulk Power Fan P2-F1, 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	NA		B35-BPDx-P0x to I/O Subsystem #x "RIO Cables and I/O Power Cables" on page 97
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-P00 B35-BPR-P00 to B13-IBF2-P00
35	11P2998	2	A35-BPR-P00 to A15-IBF1-P00 B35-BPR-P00 to B15-IBF1-P00

RIO Cables and I/O Power Cables

Index Number	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
	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)

Index Number	FRU Part Number	Units Per Assy	Description
	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. The cable ties may need to be loosened and cable slack pulled back up in order to be reconnected.

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

From	To (A=Primary) (Z=Secondary)	Description	Label Color
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

From	To (A=Primary) (Z=Secondary)	Description	Label Color
A35P-BPD2B-P09	Z19B-DCA2-P00	BPD2B to I/O Subsystem #8	Blue

Appendix I. 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 for pSeries (HMC).

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

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.

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

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 on the HMC.
3. Bring up 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:
   - Exit the service processor menus.
   - Disable 350V dc outputs from the BPA by placing the UEPO switch in the *off* position.

     Attention: Power is still present within the BPA with the UEPO *off*.
   - Place the UEPO switch in the *on* position.
   - Proceed to step 8.
8. Test both of the following:
   - Call-In, page "Testing Call-In" on page 102
   - Call-Out, page "Testing Call-Out" on page 103
9. Use the "Save or Restore Hardware Management Policies," in the "Introduction to Tasks and Service Aids" section of the *RS/6000 and @server Diagnostic Information for Multiple Bus Systems* to back up the service processor settings.

   Note: This is strongly recommended to protect the usefulness of the service processor and the availability of the server.

Your service processor is now ready for use.

Testing the Setup

This section contains sample testing procedures to help ensure your 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 103.

The server should be powered off as a result of the "Service Processor Setup Checklist" on page 101.

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, run 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 J. Removing and Installing the Rack Top Frame

Options for Performing this Procedure

Two 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), the removal of the side covers may be all that is required. For side cover removal, please see "Side Cover Removal" on page 108.

For additional information, refer to RPQ8A1173. For clearance procedures, go to "Removing the Rack Top Frame for Clearance Through Doorways" on page 108. For the reduced height procedure, go to "Preparing for Rack Top Frame Installation for pSeries 690 (Reduced Height Option) RPQ8A1173" on page 115.

Note: 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 in the following table:

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 and/or install the rack top frame:

- Ladder
- Step Ladder

Table 4. Hand Tools

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 (PN6422789)	Included in the tool kit and used for various fru's, such as the BPR, BPC, BPDs, and BPFs.

Removing the Covers

This procedures describes how to remove and replace the side covers of the pSeries 690
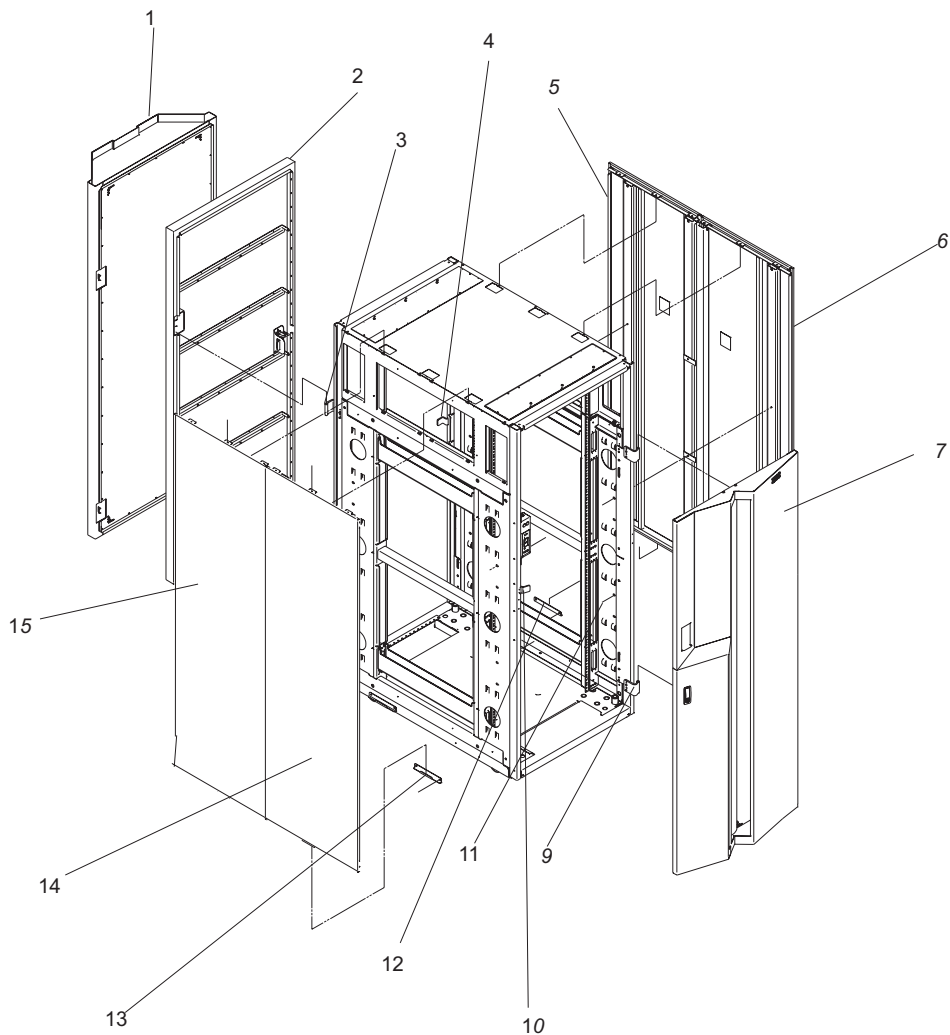
1	Rear Cover PN44P0127	**9**	PN11P3535 Hinge PN2665525 Screw
2	Rear Cover PN44P0107	**10**	PN11P1096 Front Latch PN54G2882 Screw
3	PN11P4106 Hinge PN2665525 Screw	**11**	PN77G0599 Screw PN1625437 Washer, Side Cover
4	PN44P0126 Rear Latch PN54G2882 Screw	**12**	PN05N6585 J Bracket PN2665528 Screw, Side Cover

5	PN44P0126 Right Cover PN54G2882 Screw	13	PN05N6585 J Bracket PN 2665528 Screw
6	PN11P3600 Left Cover PN44P0125 Screw	14	PN44P0126 Right Cover PN 54G2882 Screw
7	PN44P0105 Front Cover	15	PN44P0125 Left Cover PN 54G2882 Screw

Side Cover Removal

1. Always remove the right side cover first.
2. Remove the (2) Screws and washers inside the frame (P/N's 77G0599 and 1625437).
3. Remove the (3) Screws at the top of the frame (P/N's 54G2882). The use of a step ladder 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 hand cover - these need to clear before you can lift the cover from the frame. Tilting the top of the cover away from the frame after the feature tabs have cleared the left hand cover makes lifting the cover easier.
5. Follow steps 2 and 3 for removing the left hand 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

1. Use the jack screws to stabilize and lift the rack off the floor.
   a. Loosen the jam nut on each leveling foot by turning the nut counter-clockwise.
   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.
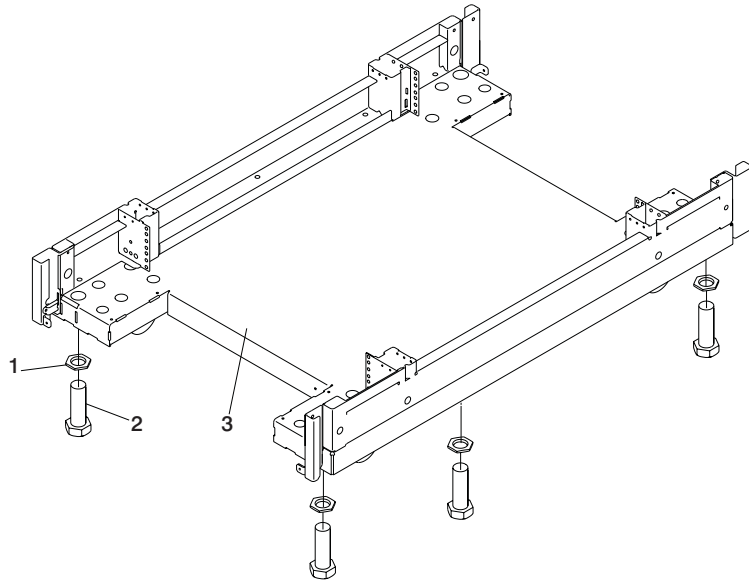
1 Jam Nut	**3**	Rack Base
2 Leveling Foot		

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. The pSeries 690 will not power on if these components are not reinstalled in their original location.

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

   a. Remove the BPRs (item 4 in previous illustration) as follows:
   __ Step 1) Make sure the ON/OFF switch is in the UNLOCK/OFF position.
      __ Step 2) Loosen the thumbscrew on each side of the BPR using the torque tool (PN6422789).
      __ Step 3) Rotate the release levers up on each side of the BPR. This will unseat the BPR.
      __ Step 4) Pull the BPR straight out from the Bulk Power Enclosure (BPE).
      __ Step 5) 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 previous illustration) as follows:
      __ Step 1) Loosen the thumbscrew on each side of the BPC using the torque tool (PN6422789).
      __ Step 2) Pull the BPC straight out from the Bulk Power Enclosure.
      __ Step 3) 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:
      __ Step 1) Loosen the thumbscrew on each side of the BPD using the torque tool (PN6422789).
      __ Step 2) Pull the BPD straight out from the Bulk Power Enclosure (BPE).
      __ Step 3) 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 110) as follows:

      Note: A grille covers the fan on the front the fan assembly.
      1) Locate the BPF to be replaced.
      2) Remove the fan cover plate (Item 6 in the illustration on page 110).
      3) Loosen the upper and lower fasteners using the torque tool (PN6422789).

           4) Pull the BPF straight out of the BPE.

           5) 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 illustration on 112) as follows:

    __ Step a. Remove the two screws at the top of each side panel.

    __ Step 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).

       • Unplug the cables.

       • Remove the top and bottom screws.

    b. Remove the rear top and bottom frame extender (item 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.
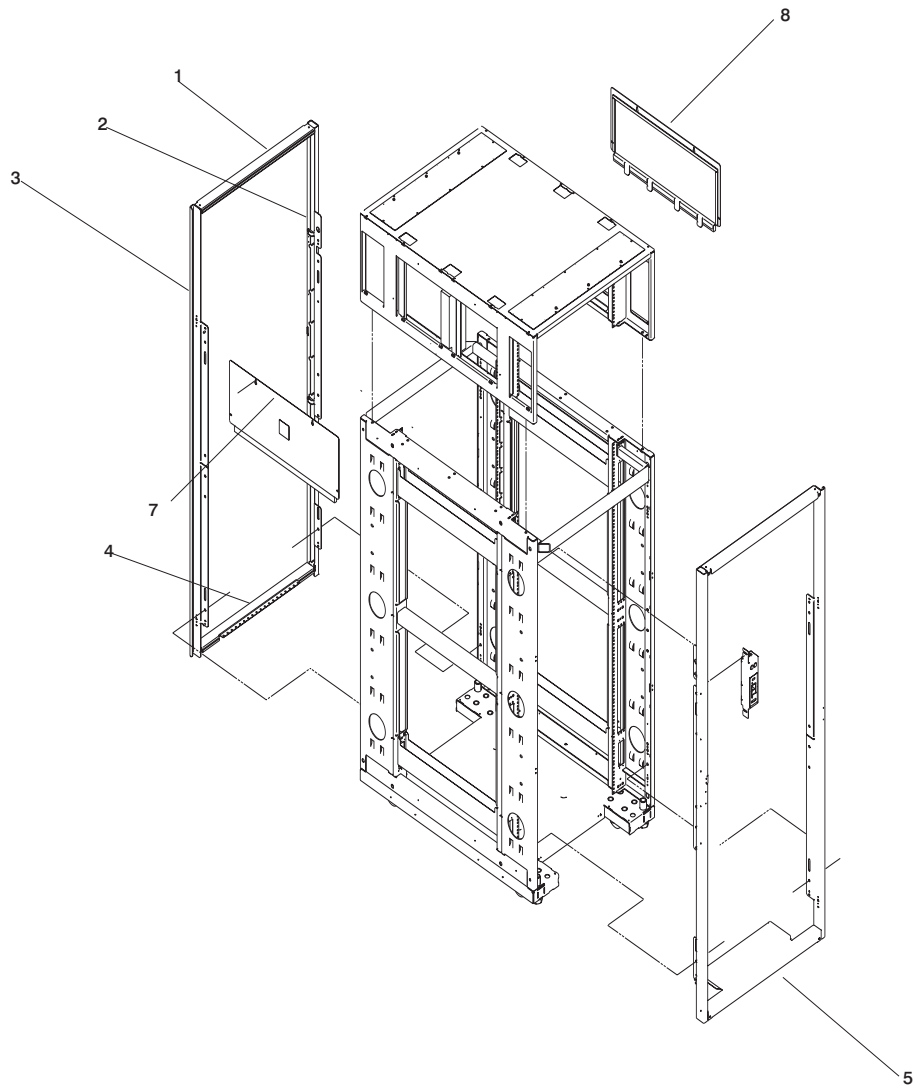
1	Top Extender	**5**	Front Extender
2	Left Extender	**6**	UEPO Switch
3	Right Extender	**7**	Rack Top Frame Left Side Cover
4	Rear Extender	**8**	Rack Top Frame Right Side Cover

6. Remove the BPEs (item 1 in the illustration on page 113).

   Note: Two people are required to remove the BPEs.
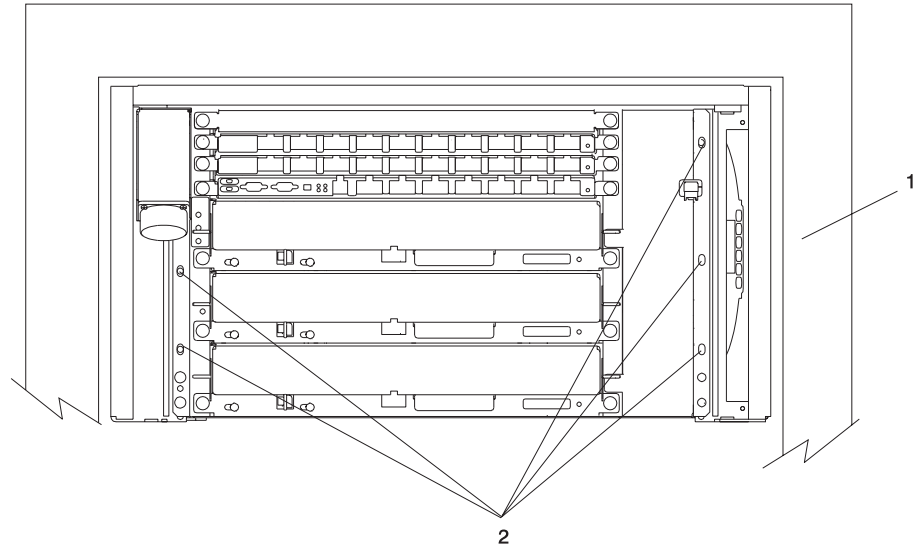
    1 Bulk Power Enclosure

    2 Hex Head Screw Locations

__ Step a.   Remove the five hex head screws from the front BPE.
__ Step b.   Remove the five hex head screws from the rear BPE.

Install (2) shipping brackets (P/N 11P2923) on both the front and rear of the frame using (8) M8X 16mm bolts (P/N 164803).

7. To reduce the weight to the maximum two-person limit, do the following:
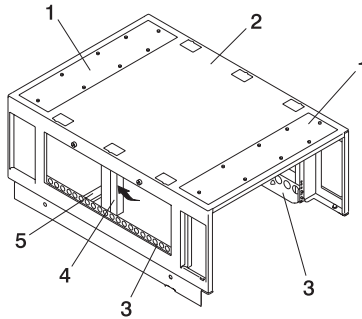
1	Front and Rear Rack Top Frame Top Panels	**4**	Foam and Metal Air Baffle
2	Rack Top Frame	**5**	Rack Top Frame Cross Brace
3	Left and Right BPE Rails		

__ Step 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 illustration in the illustration on page 114).

__ Step b. Carefully note the orientation and position of the foam and metal upright air baffle (item 4 in the illustration on page 114) 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 their original location. The foam baffle is a critical part for proper cooling of the BPEs.

__ Step c. Remove the single screw at each end of the cross brace (item 5 in the illustration on page 114). Remove the cross brace.

__ Step d. Remove the two screws at the front of the left BPE rail and remove the rail (item 3 in illustration on page 114).

__ Step e. Remove the two screws at the rear of the right BPE rail and remove the rail (item 3 in illustration on page 114).
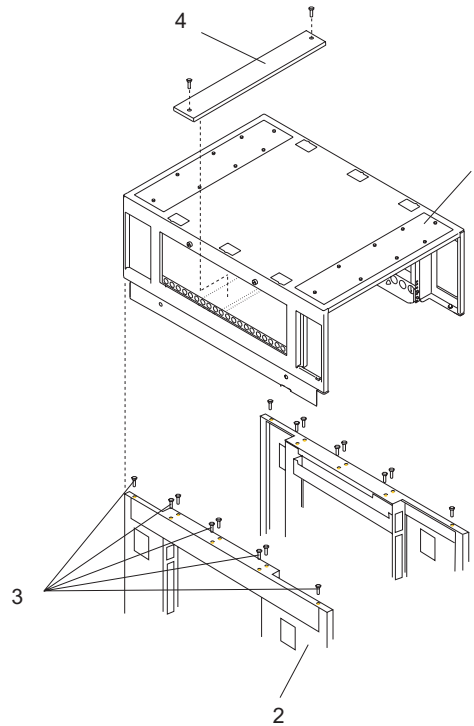
1 Rack Top Frame	**3**	Top Frame Bolts
2 Rack Chassis	**4**	Rack Top Frame Cross Brace

8. Remove the (16) M8 X 20mm bolts (P/N 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 pSeries 690 (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.
   __ Step a. Loosen the jam nut on each leveling foot by turning the nut counter-clockwise.
   __ Step b. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
   __ Step 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. The pSeries 690 will not power on if these components are not reinstalled in their original location.

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

   a. Remove the BPRs (item 4 in previous illustration) as follows:
      __ Step 1) Make sure the ON/OFF switch is in the UNLOCK/OFF position.
      __ Step 2) Loosen the thumbscrew on each side of the BPR using the torque tool (PN6422789).
      __ Step 3) Rotate the release levers up on each side of the BPR. This will unseat the BPR.
      __ Step 4) Pull the BPR straight out from the Bulk Power Enclosure (BPE).
      __ Step 5) 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 previous illustration) as follows:
      __ Step 1) Loosen the thumbscrew on each side of the BPC using the torque tool (PN6422789).
      __ Step 2) Pull the BPC straight out from the Bulk Power Enclosure.
      __ Step 3) 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:
      __ Step 1) Loosen the thumbscrew on each side of the BPD using the torque tool (PN6422789).
      __ Step 2) Pull the BPD straight out from the Bulk Power Enclosure (BPE).
      __ Step 3) 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 116) as follows:

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

      1) Locate the BPF to be replaced.
      2) Remove the fan cover plate (Item 6 in the illustration on page 116).

3) Loosen the upper and lower fasteners using the torque tool (PN6422789).

4) Pull the BPF straight out of the BPE.

5) 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 to the maximum two-person limit, do the following:
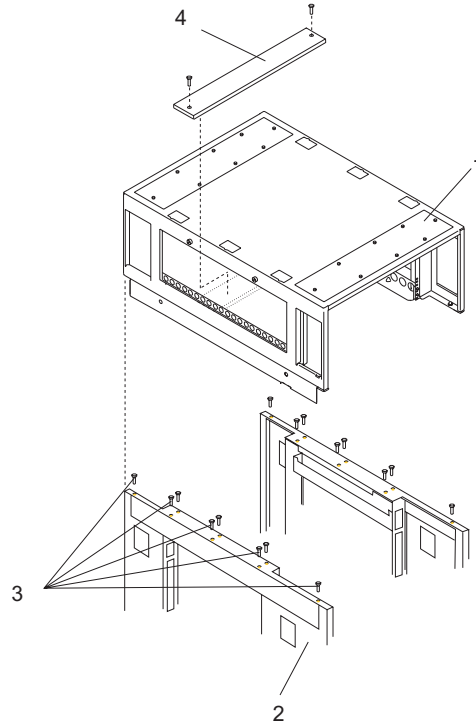
1	Front and Rear Rack Top Frame Top Panels	**4**	Foam and Metal Air Baffle
2	Rack Top Frame	**5**	Rack Top Frame Cross Brace
3	Left and Right BPE Rails		

__ Step a. Remove the two screws at the left and right of the top frame side covers (items 7 and 8 in the illustration on 112).
__ Step b. Lift off the covers.
__ Step 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 illustration in the illustration on page 117).
__ Step d. Carefully note the orientation and position of the foam and metal upright air baffle (item 4 in the illustration on page 117) 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 their original location. The foam baffle is a critical part for proper cooling of the BPEs.

__ Step e. Remove the single screw at each end of the cross brace (item 5 in the illustration on page 117). Remove the cross brace.
__ Step f. Remove the two screws at the front of the left BPE rail and remove the rail (item 3 in illustration on page 117).
__ Step g. Remove the two screws at the rear of the right BPE rail and remove the rail (item 3 in illustration on page 117).
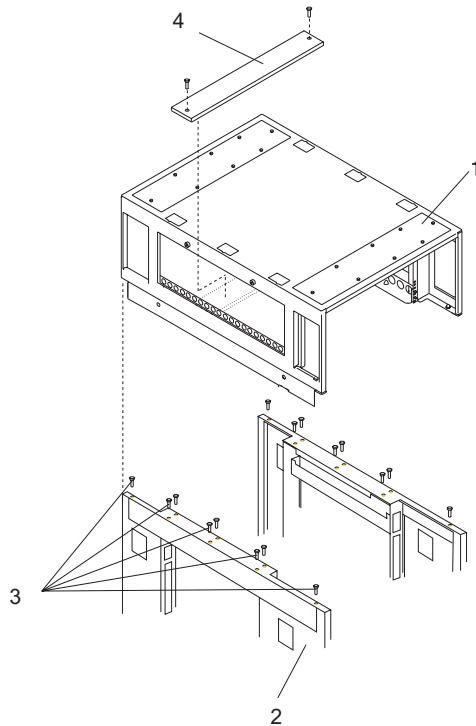
1 Rack Top Frame	**3**	Top Frame Bolts
2 Rack Chassis	**4**	Rack Top Frame Cross Brace

Proceed to "Installing the Rack Top Frame".

Installing the Rack Top Frame

1. If you have not done so, use the Jack screws to stabilize and lift the rack off the floor.
   __ Step a. Loosen the jam nut on each leveling foot by turning the nut counter-clockwise.
   __ Step b. Rotate each leveling foot downward until it contacts the surface on which the rack is placed.
   __ Step 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.
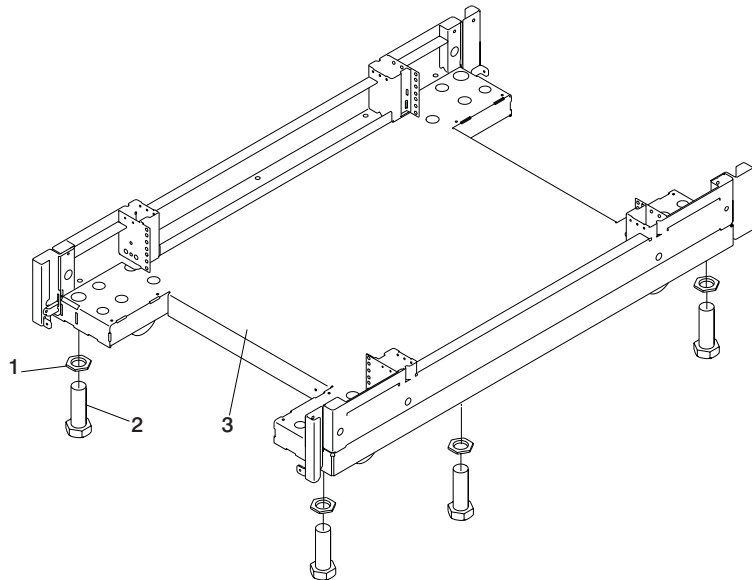
1 Jam Nut	**3**	Rack Base
2 Leveling Foot		

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 are facing 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 step ladder and ladder are provided with the

reduced height option (RPQ8A1173) ship group.
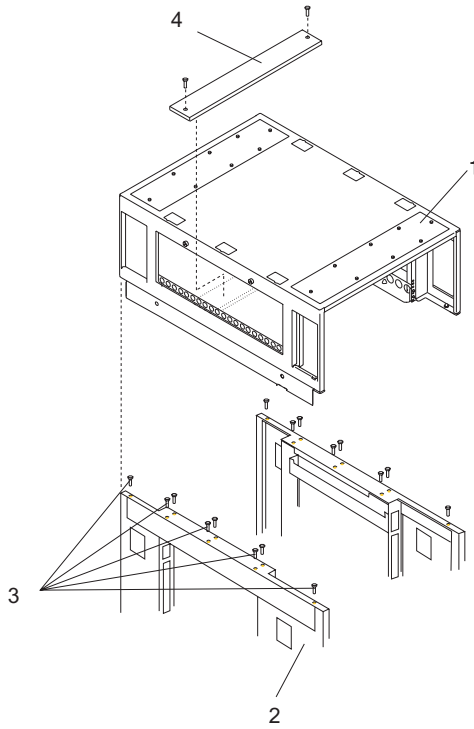
1	Rack Rack Top Frame	**3**	Top Frame Bolts
2	Rack Chassis	**4**	Rack Top Frame Cross Brace

__ Step a. Align the rack top frame with the four alignment guides on top of the rack.
__ Step b. Fasten the rack top frame to the rack, using (16) M8 X 20mm bolts (P/N 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 122) for the rack top frame.
4. Install the left and right BPE rails, (item 3 in the illustration on page 122).
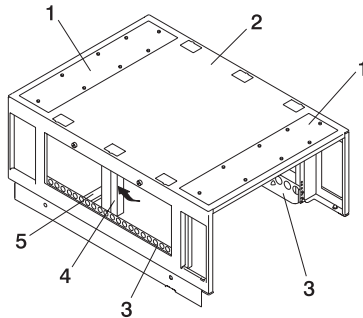
1	Front and Rear Rack Top Frame Top Panels	**4**	Foam and Metal Air Baffle
2	Rack Top Frame	**5**	Rack Top Frame Cross Brace
3	Left and Right BPE Rails		

5. Insert and align the foam air baffle (item 4 in the illustration on page 122) 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 120).
7. Install the front and rear BPEs (item 1 in the illustration on page 122).
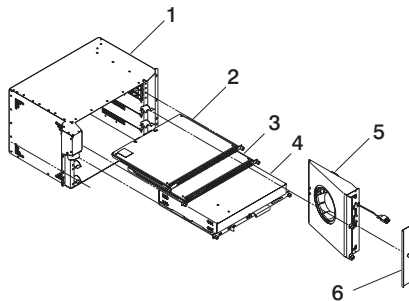
1	BPE	**4**	BPR
2	BPD	**5**	BPF
3	BPC	**6**	Fan Cover Plate

8. Install the BPRs (item 4 in illustration on page 122) as follows:
    __ Step a. Make sure the ON/OFF switch is in the UNLOCK/OFF position.
    __ Step b. Push the BPR straight into the Bulk Power Enclosure (BPE).
    __ Step c. Tighten the thumbscrew on each side of the BPR using the torque tool (PN6422789).
    __ Step d. Rotate the release levers down on each side of the BPR.
    __ Step 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:

  __ Step a. Push the BPC straight into the Bulk Power Enclosure (BPE).

  __ Step b. Tighten the thumbscrew on each side of the BPC using the torque tool (PN6422789).

  __ Step c. Repeat for the other BPCs. There are two BPCs, with one in front and one in back.

10. Install the BPDs as follows:

  __ Step a. Push the BPD straight into the Bulk Power Enclosure (BPE).

  __ Step b. Tighten the thumbscrew on each side of the BPD using the torque tool (PN6422789).

  __ Step 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 122) as follows:

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

  a. Locate the BPF to be installed.

  b. Install the fan cover plate (Item 6 in the illustration on page 122).

  c. Push the BPF straight out of the BPE.

  d. Tighten the upper and lower fasteners using the torque tool (PN6422789)..

  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 next illustration).
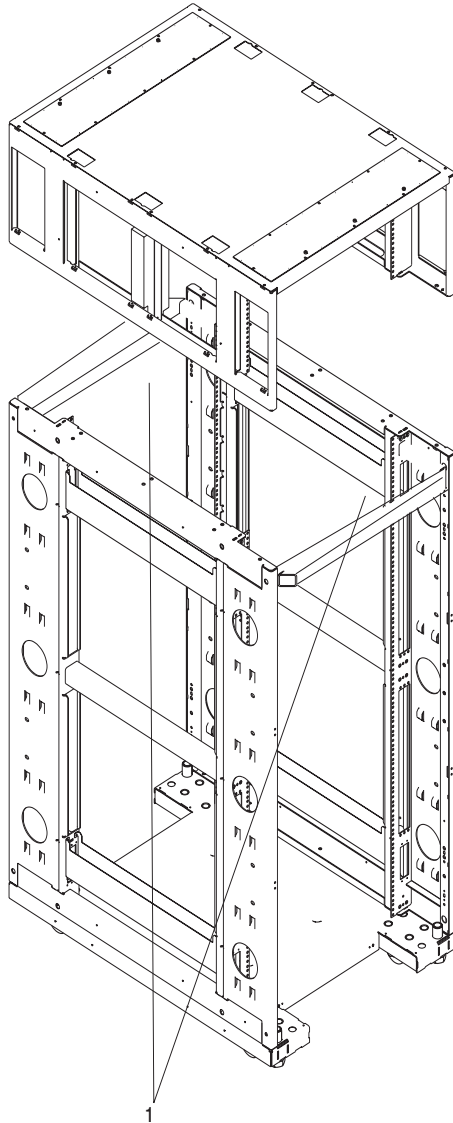
1 Shipping Bars

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 H, "Cabling Information" on page 95and Appendix G, "Subsystem Positioning and Cabling" on page 83.

16. Install the frame extenders.
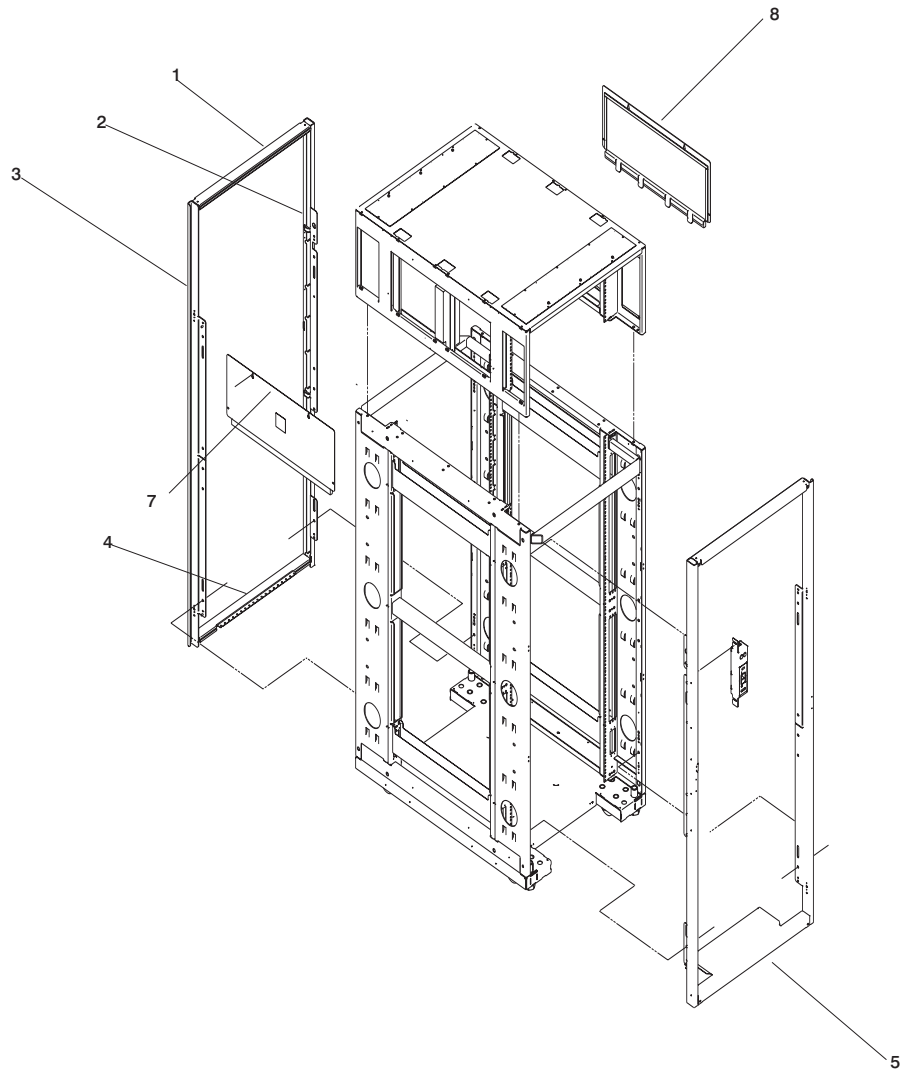
1	Top Extender	**5**	Front Extender
2	Left Extender	**6**	UEPO Switch
3	Right Extender	**7**	Left Side Cover
4	Rear Extender	**8**	Right Side Cover

17. Install the UEPO switch:
    - Install the top and bottom screws. Screws should be bottomed against the end of the slot prior to tightening.
    - Plug in the cables.
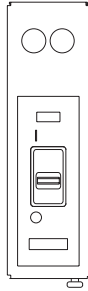
Cover Replacement

Refer to 107 while performing this task.

1. Examine the bottom of the frame side. There will be (2) ″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 about a 30 degree angle with the top away from the frame.
4. Install the top (3) screws (P/N 54G2882). The use of a step ladder is recommended for this procedure. Push against the top of the cover to compress the gasketing to allow alignment with the tapped holes in the top of the frame.
5. Install the (2) inside screws and washers (P/N's 77G0599 and 1625437).
6. Install the right side cover into the ″U″ bracket while holding it an angle away from the frame.
7. Since 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 bepositioned behind the left hand cover.

   Note: The covers should be flush in the middle with a small gap between them.
8. Repeat steps 4 and 5.

Index

Numerics

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pSeries 690 Installation Guide
Installation Guide

Publication No. SA38-0587-01

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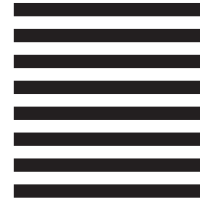
Fold and Tape   **Please do not staple**   Fold and Tape

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