

IBM PC Server/Netfinity Racks

S83H-9585-03

**Type 9306**

**Models 001, 4QS, 4QX, 9QS,  
9QX, 9TS, 9TX, 200, 900**

**Hardware Maintenance Manual**

**September 1998**

**Use this manual with the  
IBM Servers  
Hardware Maintenance Manuals**

**We Want Your Comments!  
(Please see page 93)**



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**Note**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 92.

**Third Edition (September 1998)**

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## About This Supplement

This supplement contains diagnostic and service information for the IBM PC Server Rack Enclosure and the IBM Netfinity Rack enclosures:

The IBM PC Server Rack Enclosure models are:

- Type 9306 19-inch and 24-inch Models:
  - 4QS, 4QX, 9QS
  - 9QX, 9TS, 9TX

The IBM Netfinity Rack enclosure models are:

- Type 9306 Models 001, 200, 900

This supplement should be used with the related service information in the IBM *PC Servers Hardware Maintenance Manual* (part number 70H0751, form number S30H-2501-01).

### Important

This manual is intended for trained servicers who are familiar with IBM PC Server and IBM Netfinity Server products.

Before servicing an IBM product, be sure to review "Safety Information" on page 77.

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## Related Publications

The following publications are available for IBM products. For more information, contact IBM or an IBM Authorized Dealer.

For Information About	See Publication
PC Servers	IBM PC Servers Hardware Maintenance Manual (S30H-2501)
PS/2 Computers	IBM Personal System/2 Hardware Maintenance Manual (S52G-9971)
PS/ValuePoint Computers	IBM PS/ValuePoint Hardware Maintenance Service and Reference (S61G-1423)
Laptop, Notebook, Portable, and ThinkPad Computers (L40, CL57, N45, N51, P70/P75, ThinkPad 300, 350, 500, 510, 710T, Expansion Unit, Dock I, Dock II)	IBM Mobile Systems Hardware Maintenance Manual Volume 1 (S82G-1501)
ThinkPad Computers (ThinkPad 340, 355, 360, 370, 700, 701, 720, 750, 755)	IBM Mobile Systems Hardware Maintenance Manual Volume 2 (S82G-1502)
ThinkPad Computers (ThinkPad 365, 760)	IBM Mobile Systems Hardware Maintenance Manual Volume 3 (S82G-1503)
Monitors (Displays) (February 1993)	IBM PS/2 Display HMM Volume 1 (SA38-0053)
Monitors (December 1993)	IBM Color Monitor HMM Volume 2 (S71G-4197)
IBM Monitors (P Series) (February 1996)	IBM Monitor HMM Volume 3 (S52H-3679)
IBM 2248 Monitor (February 1996)	IBM Monitor HMM Volume 4 (S52H-3739)
Disk Array technology overview and using the IBM RAID Configuration Program	Configuring Your Disk Array booklet (S82G-1506)
Installation Planning for Personal System/2 computers	Personal System/2 Installation Planning and Beyond (G41G-2927)
Installation Planning for Advanced Personal System/2 Servers	Advanced PS/2 Servers Planning and Selection Guide (GG24-3927)

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## **IBM PC Server/Netfinity Rack Enclosures**

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Powering Off The Rack . . . . .	5

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## General Checkout

Use the following procedure for diagnosing keyboard, mouse, and video problems for the IBM PC Server Rack Enclosure and the IBM Netfinity Rack enclosure (Type 9306).

For power problems, see "Power Checkout" on page 4.

### Attention

- For Models 4QS, 4QX, 9QS, 9QX, 9TS, 9TX only:  
Ensure that the voltage selector switch on each server installed in the server rack is set to 230 V ac.
- For Models 200, 900 only:  
Ensure that the voltage selector switch on each server installed in the server rack is set to the proper voltage as supplied by the Power Distribution Unit, PDU.

**001**

- Ensure the external power cord is in good condition and properly connected to a known-good power source.
- Ensure the internal power cables are in good condition and properly connected. (The internal power cables connect between the power distribution unit and the servers installed in the server rack.)
- Ensure the following devices are powered on.
  1. Power distribution unit
  2. Server selector unit
  3. All system units
  4. Display

### ARE ALL THE ABOVE ITEMS/CONDITIONS OK?

Yes No

**002**

Correct the problem and verify that the server rack is operating correctly.

**003**

- Using the server selector keypad buttons, check the operation of the failing device for all of the servers that are installed in the rack.

### DID THE FAILURE OCCUR ON MORE THAN ONE SERVER?

Yes No

**004**

(Step **004** continues)

**004** (continued)

Go to the Hardware Maintenance manual for the server that was selected when the failure occurred. Disconnect the keyboard and mouse from the server selector unit and connect them directly to the failing server. Then, run the server diagnostic programs on the failing server.

If the problem still remains, disconnect the keyboard and mouse from the failing server and reconnect them to the server selector unit. Then, replace the server rack components in the following order until the problem goes away.

1. Device cable (connects between the server selector unit and the server that was selected when the failure occurred).
2. Server selector cable (connects between the server selector keypad and the server selector unit).
3. Server selector keypad.
4. Server selector unit.

**005**

Power-off the server rack and replace the server rack components in the following order until the problem goes away. See "Powering Off The Rack" on page 5.

1. Device extender cable (connects between the device and the server selector unit)
  2. Failing device
  3. Server selector cable (connects between the server selector keypad and the server selector unit)
  4. Server selector keypad
  5. Server selector unit
-

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## Power Checkout

Use the following procedure for diagnosing power problems for the IBM PC Server Rack Enclosure and IBM Netfinity Rack enclosure (Type 9306).

### Attention

- For Models 4QS, 4QX, 9QS, 9QX, 9TS, 9TX only:  
Ensure that the voltage selector switch on each server installed in the server rack is set to 230 V ac.
- For Models 200, 900 only:  
Ensure that the voltage selector switch on each server installed in the server rack is set to the proper voltage as supplied by the Power Distribution Unit, PDU.

**001**

- Ensure the external power cord is in good condition and properly connected to a known-good power source.
- Ensure the internal power cables are in good condition and properly connected. (The internal power cables connect between the power distribution unit and the servers installed in the server rack.)
- Ensure the following devices are powered on.
  1. Power distribution unit
  2. Server selector unit
  3. All system units
  4. Display

### ARE ALL THE ABOVE ITEMS/CONDITIONS OK?

Yes No

**002**

Correct the problem and verify correct operation of the server rack.

**003**

- Using the server selector keypad buttons, check for correct operation of all the servers installed in the rack.

### DID THE FAILURE OCCUR ON MORE THAN ONE SERVER?

Yes No

**004**

Go to the Hardware Maintenance manual for the server that was selected when the failure occurred and run the server diagnostic programs.

(Step **004** continues)

**004** (continued)

If the problem still remains, replace the power distribution unit.

**005**

Power-off the server rack and replace the server rack components in the following order until the problem goes away. See "Powering Off The Rack."

1. Power distribution unit fuse.
  2. Power distribution unit.
- 

## Powering Off The Rack

Before performing service on the rack, follow this procedure to prevent personal injury and to avoid damaging the rack and the installed servers.

To power-off the IBM PC Server/Netfinity Rack:

1. Shut down and power-off all installed servers.
2. Power-off the server selector unit.
3. If a UPS system is installed in the rack, power-off the UPS system.
4. Disconnect power from the IBM PC Server/Netfinity Rack.
  - If the rack is plugged into a wall-mounted power supply, disconnect the power cord plug from the wall socket.
  - If the power cord is wired directly into the installed location's power supply, open the rear door of the rack cabinet and disconnect the power plug from the base of the power distribution unit.



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## **Type 9306 Models 4QS, 4QX, 9QS, 9QX, 9TS, 9TX**

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### **Features**

The 9306 IBM PC Server Rack Enclosure, models 4QS, 9QS, 9TS come in three primary models.

- 19-inch Quad Primary Server Rack, Model 9QS
- 19-inch Tri Primary Server Rack, Model 9TS
- 24-inch Quad Primary Server Rack, Model 4QS

A Quad Primary Server Rack can house up to four IBM PC Servers. The Tri Primary Server Rack can house up to three IBM PC Servers.

Both Quad and Tri Primary Server Racks provide a built in server selector which connects to one set of console devices (monitor, keyboard, and mouse.) The server selector works independently from the server's operating systems, enabling the connected servers to run different operating systems.

These IBM 9306 PC Server Rack Enclosure models are shipped preassembled and pre-cabled.

### **IBM PC Server Expansion Rack Models**

Three optional IBM PC Server Rack Expansion models are available to expand the capacity of the IBM PC Server Rack Primary Enclosure. The optional IBM PC Server Rack Expansion models are:

- 19-inch Quad Expansion Rack, Model 9QX
- 19-inch Tri Expansion Rack, Model 9TX
- 24-inch Quad Expansion Rack, Model 4QX

The IBM PC Server Rack Expansion models allow the installation of up to four more servers using the Primary IBM PC Server Rack monitor, keyboard, and mouse.

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## Locations

This section contains the following:

- “Server Selector Console.”
- “Server Selector Unit” on page 9.
- “Power Distribution Unit” on page 11.
- “Cooling Fan” on page 12.
- “Sliding Trays” on page 13.
- “Sliding Rails” on page 15.
- “Keyboard Tray” on page 15.

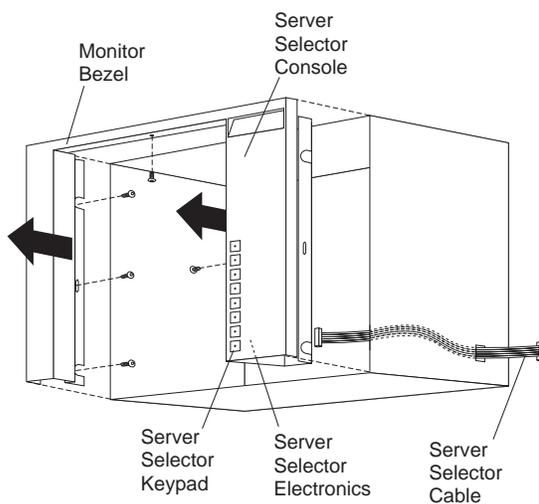
### Note

For instructions on how to power-off the rack, see “Powering Off The Rack” on page 5.

## Server Selector Console

To remove the Server Selector Console:

1. Power-off the rack.
2. Use an 1/8-inch allen wrench to remove screws.
3. Disconnect the server selector cable from the back of the server selector console.
4. Remove the server selector console from the cabinet.



## Server Selector Unit

The server selector unit is located in the upper rear of the rack cabinet. The server selector unit can only be accessed or removed from the rear of the IBM Netfinity Rack cabinet.

### Caution:

The server selector unit is heavy. You will need two people to safely remove the server selector unit.

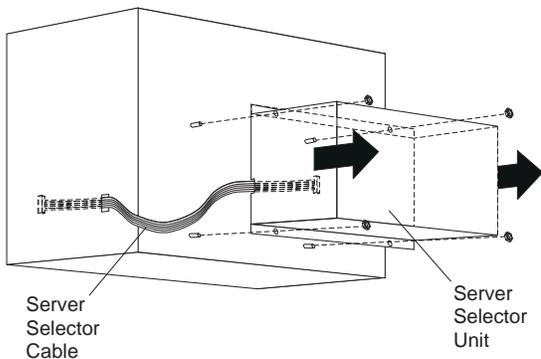
See "Safety Notice (Multi-Lingual Translations)" on page 86.

To remove the server selector unit:

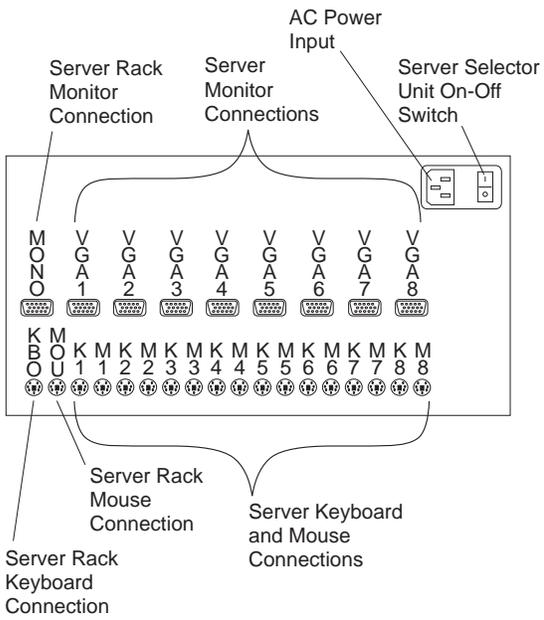
1. Power-off the rack.
2. Unplug the keyboard, mouse, video cables, and the power cord.
3. Remove the server selector console.
4. With one person bracing the server selector unit from below, have the second person use a 5/16-inch wrench to remove the four nuts that secure the server selector unit to the rack cabinet.
5. Remove the server selector unit from the cabinet.

### Note

When replacing the server selector unit, be sure that the Server Selector cable is fed through the indentation along the left side of the server selector unit.



## Connections



## Power Distribution Unit

### Note

To remove the power distribution unit, you might need to remove the right side cabinet panel, the server installed in sliding tray 2 (in the primary IBM PC Server Rack), or sliding tray 5 (in the IBM PC Server Expansion Rack).

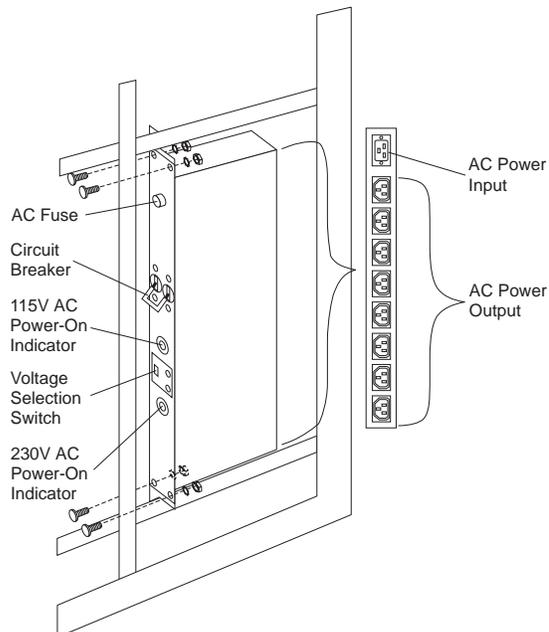
To remove the power distribution unit:

1. Power-off the rack.
2. Disconnect all power plugs from the power distribution unit.
3. Using a Phillips screwdriver, remove the four screws from the front of the power distribution unit.

### Note

These screws are held in place by nuts and washers. Hold the nut while you are unscrewing the screw to prevent the nut and washer from falling into the bottom of the cabinet.

4. Remove the power distribution unit from the cabinet.



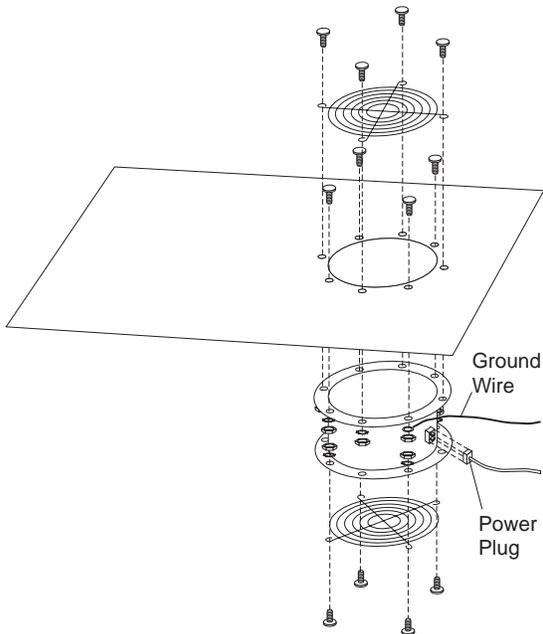
## Cooling Fan

To remove the cooling fan:

1. Power-off the rack.
2. Open the rear door of the rack cabinet.
3. Disconnect the power plug from the rear of the cooling fan.
4. Use a 5/16-inch wrench to remove the eight nuts that secure the cooling fan to the top of the rack cabinet.
5. Remove the cooling fan from the cabinet.

### Note

When installing the fan, make sure that the green and yellow ground wire is attached to one of the top fan mounting screws and that the strain-relieving clamp is attached to another. The power cable should be secured by the strain-relieving clamp.



## Sliding Trays

Models 4QS and 4QX come with either single latch slide rails or dual latch slide rails. Single latch slide rails have a front latch release on the right rail only. Dual latch slide rails have a front latch release on both rails. The slide rail FRU number for the 24-inch rack replaces the single latch slide rail with the dual latch slide rail.

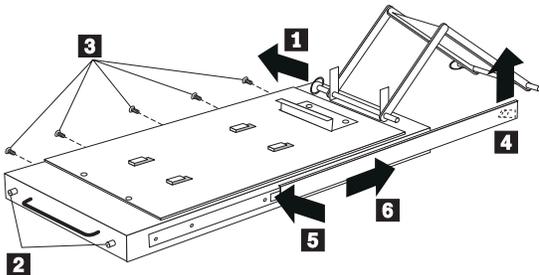
### Note

If a server is installed on a tray being removed, first remove the server.

### Single Latch Rail Tray:

To remove a sliding tray with single latch rails:

1. Power-off the rack.
2. Open the rear door of the rack cabinet and remove the pin **1** that secures the sliding tray to the cable management arm
3. Loosen the thumbscrews **2** on the sliding tray and fully extend the sliding tray.
4. Use a 3/32-inch allen wrench to remove the five screws **3** from the left side of the sliding tray.
5. Lift the rear locking tab **4** and push the sliding tray approximately two inches into the cabinet.
6. Release the forward locking tab **5**. Then, while holding the sliding tray in place, use your other hand to grasp the outside sliding rail **6** and push it into the rack cabinet until it disconnects from the sliding tray.



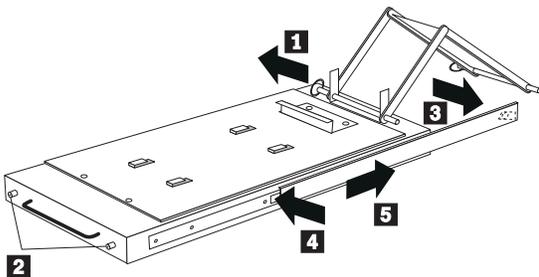
## Dual Latch Rail Tray:

To remove a sliding tray with dual latch rails:

1. Power-off the rack.
2. Open the rear door of the rack cabinet and remove the pin **1** that secures the sliding tray to the cable management arm.
3. Loosen the thumbscrews **2** on the sliding tray and fully extend the sliding tray.
4. Push in on the spring of the right rear locking tab **3** and push the sliding tray approximately two inches into the cabinet.
5. Release both left and right forward locking tabs **4**. Then, while holding the sliding tray in place, push **both** left and right outside sliding rails **5** into the rack cabinet until it disconnects from the sliding tray.

### Note

Left side view for **4** and **5** are not shown.



## Sliding Rails

This procedure is for single latch sliding rails and dual latch sliding rails.

For single latch sliding rails, the right rail is the one that has the front latch. The left rail does not have a front latch.

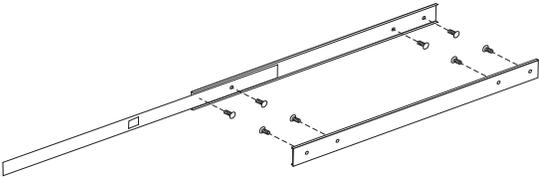
For dual latch sliding rails, the right rail is the one that has the **rear** latch. The left rail does not have a rear latch.

To remove the sliding rails:

1. Power-off the rack.
2. Remove the sliding tray that is attached to the sliding rails that you want to remove. See "Sliding Trays" on page 13.
3. Use a 3/32-inch allen wrench to remove the four screws that secure each of the sliding rails to the rack cabinet.

### Note

You will need to adjust the position of the sliding rail in order to line up the access holes over the locations of the screws.



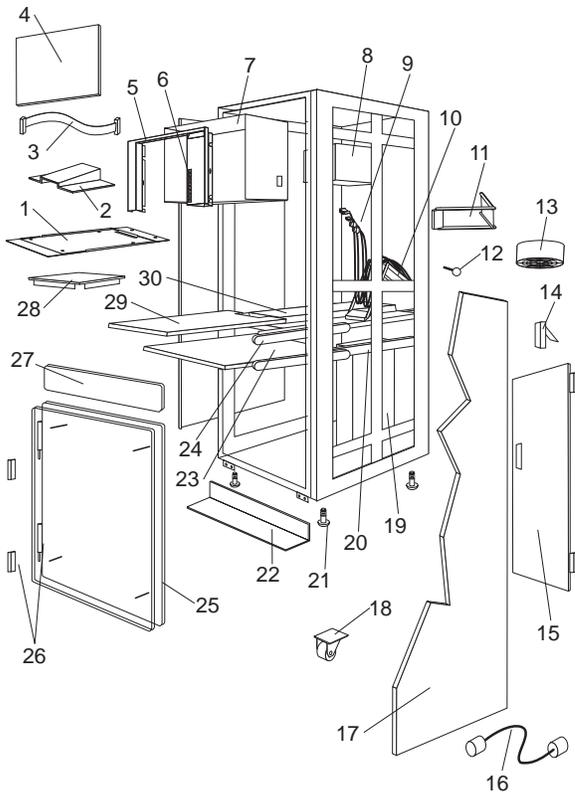
## Keyboard Tray

To remove the keyboard tray:

1. Power-off the rack.
2. Disconnect the keyboard and mouse cables from the keyboard and mouse extension cables.
3. Remove the keyboard and mouse from the keyboard tray.
4. Pull the keyboard tray straight out of the rack cabinet.

## Parts Listing (Type 9306 - 19-Inch)

Models 9QS, 9TS and 9QX, 9TX



## Type 9306 - 19-Inch Rack

Models 9QS, 9TS and 9QX, 9TX

Index	19-Inch Rack Enclosure (Type 9306)	FRU
1	Adapter Plate Options: PS/2 Server 85/95 Model 300 Model 500, 700	76H3733 76H3734 76H3735
2	Monitor Stand	07H0061
3	Server Selector Cable	07H0036
4	Blank Bezel (9QX, 9TX Expansion units only)	76H0379
5	Monitor Bezel with button label	76H0378
6	Server Selector Keypad	07H0097
7	Monitor Housing (19-Inch)	76H0377
8	Server Selector Unit Electronics See "Safety Notice (Multi-Lingual Translations)" on page 86 .	07H0034
9	Internal Cables (see Cable Kit Shelf Server)	07H0073
10	Cable Management Arm	76H0386
11	Cable Management Arm Single Server Tray	76H0387
12	Pin, Cable Management Arm	07H0089
13	Fan 220 V ac with Power Cord	07H0063
14	Latch, Rear Door	76H0376
15	Rear Door (19-Inch)	76H0373
15	Hinge Set for Rear Door	76H0389
16	External Power Cord: Australia Europe Israel Italy New Zealand South America, India U.K./Denmark USA External Power Cord Option - 6 Ft.	14F1559 14F1554 14F1561 14F1560 14F1558 14F1557 14F1555 14F1553 07H0094
17	Left/Right Side Panel	76H0374
18	Caster	76H3626
19	Power Distribution Unit 250 V Slow Blow Fuse	07H0424 0303549
20	Keyboard Slides, (one pair)	07H0038
21	Leveling Foot (Qty. 1)	76H0390
22	Stabilizing Bar	76H0375
23	Keyboard Tray, 19-Inch	76H0381
24	Slide Rails, Server Tray (one pair)	07H0083
24	Slide Rails, Dual Tray (one pair)	76H0383
25	19-inch Front Compartment Door (19-Inch by 26-Inch) Includes Hinge Set and Screws	76H0371
26	Door Hinge Set	76H0372
27	Door Valance (9QX, 9TX, Expansion units only)	76H0380
28	Mouse Table	07H0079
29	Dual Server Tray	76H0382
29	Dual Server Shelf	76H0385
30	Single Server Tray 19-Inch Single Slide Shelf for an Industry Standard 19-Inch Rack.	76H0384 76H3628

<b>Index</b>	<b>19-Inch Rack Enclosure (Type 9306)</b>	<b>FRU</b>
	Cable, SVGA-Video (15 Feet) Option	76H3736
	Monitor Power Cable (connects from monitor to Power Distribution Unit)	07H0075
	Rack Keyboard Cable (connects from Keyboard Drawer to Server Selector Unit)	07H0067
	Rack Mouse Cable (connects from Keyboard Drawer to Server Selector Unit)	07H0069
 <b>Rack Enclosure Kits (Type 9306)</b>		 <b>FRU</b>
	Bolt-Together Kit (19-Inch to 24-Inch, 24-Inch to 19-Inch)	76G3627
	<ul style="list-style-type: none"> <li>• 19-Inch Attachment Bracket (2 each)</li> <li>• Screw 1/4-20 x 1/2 Button Head Socket Cap Allen (8 each)</li> <li>• Screw 1/4-20 x 1-1/4 Socket Cap (4 each)</li> <li>• Flanged Nut 1/4-20 (12 each)</li> <li>• 24-Inch Attachment Bracket (4 each)</li> </ul>	
	Cable Kit Shelf Server (12 foot cables)	07H0073
	<ul style="list-style-type: none"> <li>• Monitor Cable</li> <li>• Keyboard Cable</li> <li>• Mouse Cable</li> <li>• Internal Power Cable</li> </ul>	
	Miscellaneous Parts Kit	07H0057
	<ul style="list-style-type: none"> <li>• Rack Nut/Holder 10-32 (8 each)</li> <li>• Keeper Nut 8-32 Zinc (8 each)</li> <li>• Keeper Nut 10-32 (6 each)</li> <li>• Screw 6-32 x 5/16 (2 each)</li> <li>• Screw 6-32 x 1/4 Button Head Socket Cap Allen (8 each)</li> <li>• Screw 10-32 x 3/8 Button Head Socket Cap (8 each)</li> <li>• Screw 6-32 x 3/8 Button Head Socket Cap (2 each)</li> <li>• Screw 1/4-20 x 1/2 Button Head Socket Cap (2 each)</li> <li>• Screw 8-32 x 1/4 Button Head Socket Cap Allen (4 each)</li> <li>• Screw 10-32 x 1/4 Button Head Socket Cap (2 each)</li> <li>• Screw 8-32 x 1/4 Button Head Socket Cap (8 each)</li> <li>• Pull-ring, 3-Inch (2 each)</li> <li>• Shoulder Screw 8-32 x 3/8 (2 each)</li> <li>• Standoff, .25 Hex, 6-32 FF, .5-Inch (2 each)</li> <li>• Screw 8-32 x 3/8 Button Head Socket cap (2 each)</li> <li>• Screw 10-24 x 1/4 Button Head Socket Allen (2 each)</li> <li>• Screw 10-24 x 5/16 Button head Socket Allen (2 each)</li> <li>• Keeper Nut 8-32 (2 each)</li> <li>• Nut 8-32 (2 each)</li> <li>• Captive Weld Nut (2 each)</li> <li>• Whiz-Lock Flange Nut 1/4-20 (2 each)</li> <li>• Keeper Nut 10-32 (2 each)</li> <li>• Bumpers (2 each)</li> <li>• Cable Ties (8 each)</li> </ul>	

**Rack Enclosure Kits (Type 9306)**

Server Tray Interlock Kit

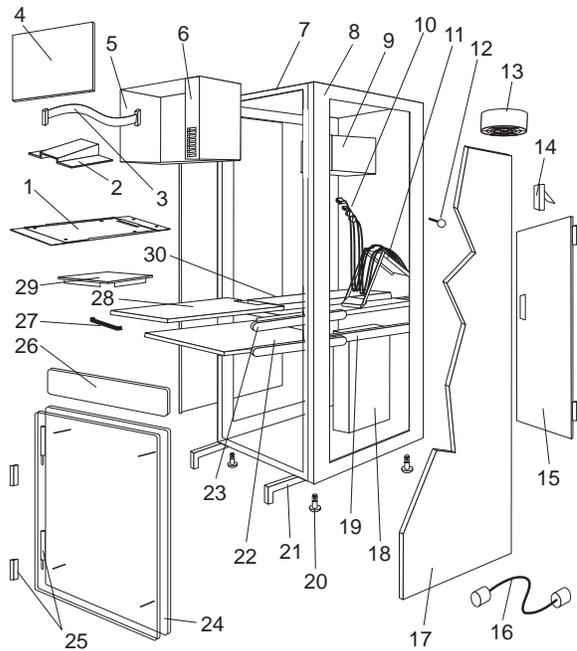
- Cam (1 each)
- Spring (1 each)

**FRU**

07H0091

## Parts Listing (Type 9306 - 24-Inch)

Models 4QS and 4QX



## Type 9306 - 24-Inch Rack

Models 4QS and 4QX

Index	24-Inch Rack Enclosure (Type 9306)	FRU
1	Adapter Plate Options: PS/2 Server 85/95 Model 300 Model 500, 700	76H3733 76H3734 76H3735
2	Monitor Stand	07H0061
3	Server Selector Cable	07H0036
4	Blank Bezel (4QX Only)	07H0066
5	Monitor Housing (24-Inch)	07H0065
6	Server Selector Keypad	07H0097
7	Rack Frame	N/A
8	Spacer (see Spacer Kit, Right Side on page 23)	07H0059
9	Server Selector Unit Electronics See "Safety Notice (Multi-Lingual Translations)" on page 86 .	07H0034
10	Internal Cables (see Cable Kit Top Shelf Server and Cable Kit Bottom Shelf Server)	
11	Cable Management Arm	07H0087
12	Pin, Cable Management Arm	07H0089
13	Fan 220 V ac with Power Cord	07H0063
14	Rear Door Latch/Lock with Key and Bracket	07H0055
15	Rear Door (24-Inch)	07H0047
16	External Power Cord: Australia Europe Israel Italy New Zealand South America, India U.K./Denmark USA External Power Cord Option - 6 Ft.	14F1559 14F1554 14F1561 14F1560 14F1558 14F1557 14F1555 14F1553 07H0094
17	Left/Right Side Panel	07H0049
18	Power Distribution Unit 250 V Slow Blow Fuse	07H0424 0303549
19	Keyboard Slides, 24-Inch (one pair)	07H0038
20	Leveling Feet (Qty. 4)	07H0053
21	Stabilizing Leg	07H0051
22	Keyboard Drawer, 24-Inch (with Slides and Brackets)	07H0077
23	Slide Rails, Server Tray (one pair)	07H0083
24	24-Inch Front Compartment Door (24-Inch by 26-Inch)	07H0058
25	Door Hinge Set	07H0045
26	Door Valance (4QX Only)	07H0068
27	Handle, Server/Keyboard Tray	07H0085
28	Server Tray	07H0081
29	Mouse Table	07H0079
30	Shelf, Server Tray, 24-Inch Cable, SVGA-Video (15 Feet) Monitor Power Cable (connects from monitor to Power Distribution Unit)	07H0093 76H3736 07H0075

<b>Index</b>	<b>24-Inch Rack Enclosure (Type 9306)</b>	<b>FRU</b>
	Rack Keyboard Cable (connects from Keyboard Drawer to Server Selector Unit)	07H0067
	Rack Mouse Cable (connects from Keyboard Drawer to Server Selector Unit)	07H0069
	<b>Rack Enclosure Kits 24-Inch (Type 9306)</b>	<b>FRU</b>
	Bolt-Together Kit (19-Inch to 24-Inch, 24-Inch to 19-Inch)	76H3627
	<ul style="list-style-type: none"> <li>• 19-Inch Attachment Bracket (2 each)</li> <li>• Screw 1/4-20 x 1/2 Button Head Socket Cap Allen (8 each)</li> <li>• Screw 1/4-20 x 1-1/4 Socket Cap (4 each)</li> <li>• Flanged Nut 1/4-20 (12 each)</li> <li>• 24-Inch Attachment Bracket (4 each)</li> </ul>	
	Cable Kit Shelf Server (12 foot cables)	07H0073
	<ul style="list-style-type: none"> <li>• Monitor Cable</li> <li>• Keyboard Cable</li> <li>• Mouse Cable</li> <li>• Internal Power Cable</li> </ul>	
	Miscellaneous Parts Kit	07H0057
	<ul style="list-style-type: none"> <li>• Rack Nut/Holder 10-32 (8 each)</li> <li>• Keeper Nut 8-32 Zinc (8 each)</li> <li>• Keeper Nut 10-32 (6 each)</li> <li>• Screw 6-32 x 5/16 (2 each)</li> <li>• Screw 6-32 x 1/4 Button Head Socket Cap Allen (8 each)</li> <li>• Screw 10-32 x 3/8 Button Head Socket Cap (8 each)</li> <li>• Screw 6-32 x 3/8 Button Head Socket Cap (2 each)</li> <li>• Screw 1/4-20 x 1/2 Button Head Socket Cap (2 each)</li> <li>• Screw 8-32 x 1/4 Button Head Socket Cap Allen (4 each)</li> <li>• Screw 10-32 x 1/4 Button Head Socket Cap (2 each)</li> <li>• Screw 8-32 x 1/4 Button Head Socket Cap (8 each)</li> <li>• Pull-ring, 3-Inch (2 each)</li> <li>• Shoulder Screw 8-32 x 3/8 (2 each)</li> <li>• Standoff, 25 Hex, 6-32 FF, .5-Inch (2 each)</li> <li>• Screw 8-32 x 3/8 Button Head Socket cap (2 each)</li> <li>• Screw 10-24 x 1/4 Button Head Socket Allen (2 each)</li> <li>• Screw 10-24 x 5/16 Button head Socket Allen (2 each)</li> <li>• Keeper Nut 8-32 (2 each)</li> <li>• Nut 8-32 (2 each)</li> <li>• Captive Weld Nut (2 each)</li> <li>• Whiz-Lock Flange Nut 1/4-20 (2 each)</li> <li>• Keeper Nut 10-32 (2 each)</li> <li>• Bumpers (2 each)</li> <li>• Cable Ties (8 each)</li> </ul>	
	Server Tray Interlock Kit	07H0091
	<ul style="list-style-type: none"> <li>• Cam (1 each)</li> <li>• Spring (1 each)</li> </ul>	

**Rack Enclosure Kits 24-Inch (Type 9306)**

Spacer Kit, Right Side

- Rack Joiner (8 each)
- Spacer, Top and Bottom, 34-Inch (1 each)
- Spacer, Body 70-Inch (2 each)
- Screw 10-32 x 3/8 Button Head Socket cap (8 each)
- Screw 1/4-20 x 1/2 Button Head Socket cap (8 each)
- Whiz-Lock Flange Nut 1/4-20 (8 each)
- Screw 6-32 x 3/8 Button Head Socket Cap (6 each)

**FRU**

07H0059



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## Type 9306 Model 001

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### Features

The IBM Netfinity NetBAY3 enclosure provides a convenient 3-U high storage cabinet for the installation of computer devices.

**Note**

Vertical measurements are given in rack units (U).  
One U is equal to 4.45 cm (1.75-inches).

Up to three NetBAY3 enclosures can be stacked under certain IBM Netfinity servers. Devices such as the IBM Netfinity EXP10, an uninterruptible power supply (UPS), or various telecommunications equipment can also be installed in a NetBAY3 enclosure.

---

### Locations

This section contains the following:

- Casters
- Foot Pads
- Front Cover
- Rear Panel
- Device side rails
- Stacking NetBAY3 enclosures

**Important**

The maximum server weight is 77 kg (170 lb.).

Refer to the latest IBM Netfinity and IBM PC Server Hardware Maintenance Manual when servicing the server.

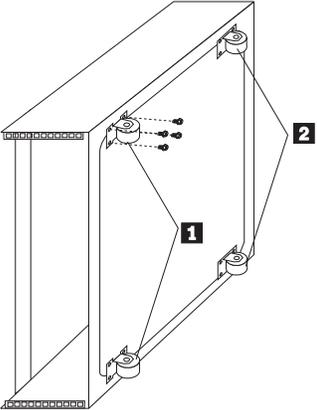
Assure all power and signal cables are routed properly and are not pinched.

Make sure NetBAY3 enclosures in a stack are securely fastened together.

Make sure empty NetBAY3 enclosures (no devices installed) have the rear cover securely attached.

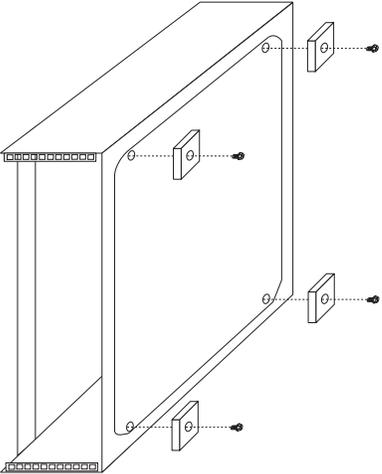
Servers are lifted onto and off of the NetBAY3 enclosure. Make sure you have help when lifting.

### Casters

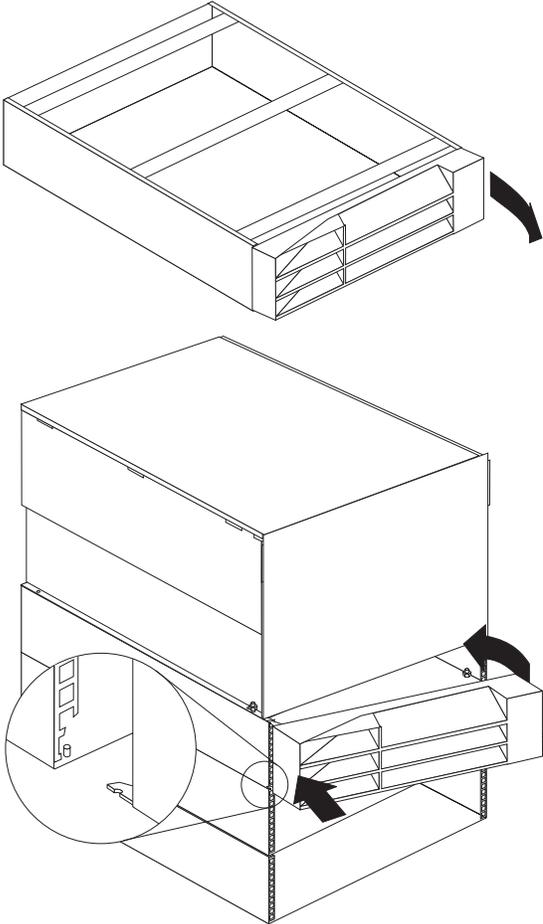


- Two fixed casters **1** at the front of the NetBAY3 enclosure.
- Two swivel casters **2** at the rear of the NetBAY3 enclosure.

### Foot Pads

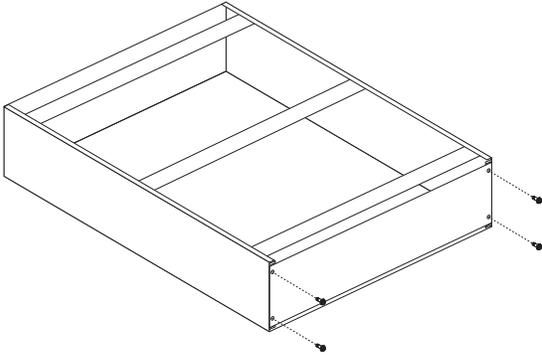


**Front Cover**

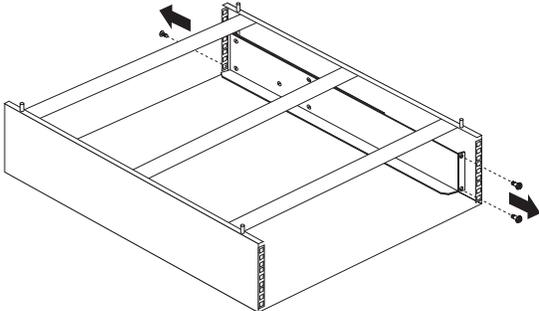


## Rear Panel

**Note**  
Make sure empty NetBAY3 enclosures (no devices installed) have the rear cover securely attached.

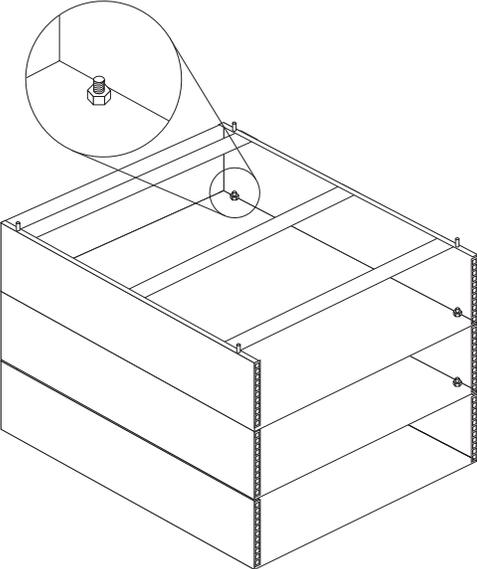


**Device Side Rails**



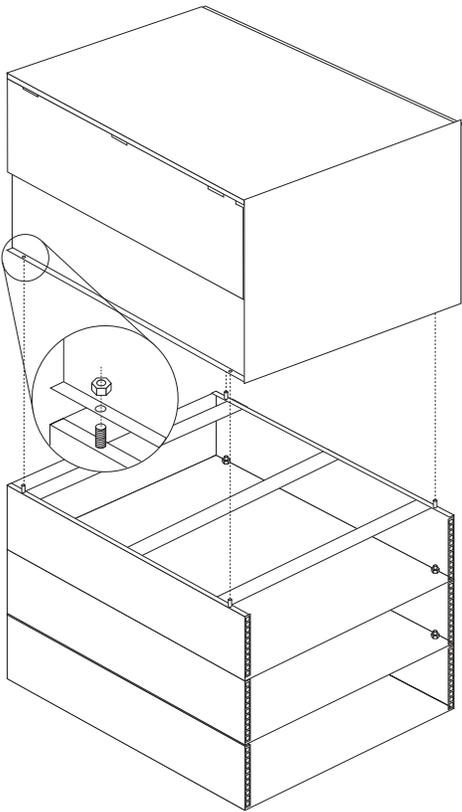
**Stacking NetBAY3 Enclosures**

**Note**  
Make sure NetBAY3 enclosures in a stack are securely fastened together.

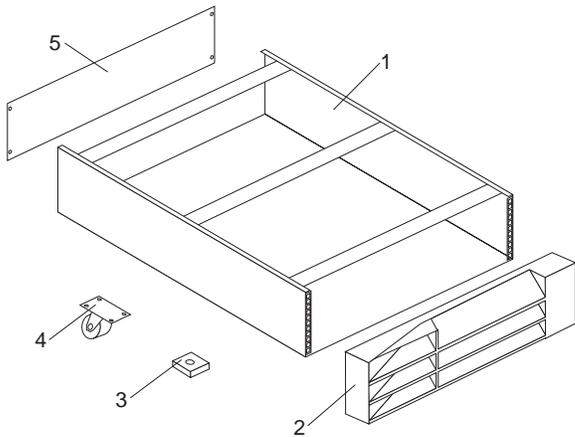


**Note**

The maximum server weight is 77 kg (170 lb.).



## Parts Listing (Type 9306 Model 001)



Index	NetBAY3 Enclosure (Type 9306 Model 001)	FRU
1	3-U Enclosure Frame	03K8797
2	Front Bezel Assembly with Lock and Keys	03K8798
3	Foot Pads Qty. 4	03K8800
4	Casters Fixed, Front, Qty. 2	12J3279
4	Casters Swivel, Rear, Qty. 2	12J3283
5	3-U Blank Panel	03K8799
	Miscellaneous Parts Kit - Includes:	03K9056
	• Screw, M16 (2)	
	• Cased Nut (2)	
	• M5 Nut (2)	
	• Tread Screw M6X16 (2)	



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## Type 9306 Model 200

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### Features

The IBM Netfinity NetBAY22, Type 9306, Model 200 Rack enclosure is a 22-U high (38.5-inch) industry-standard, 19-inch rack that houses and controls multiple IBM PC Servers/IBM Netfinity Servers and related equipment.

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### Locations

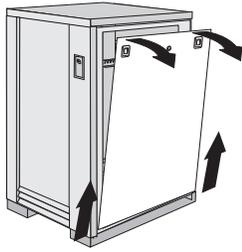
This section contains the following:

- "Side Panel" on page 34.
- "Selector Switch Locations" on page 35.
- "Power distribution Unit" on page 38.
- "Blank Bezel" on page 39.
- "Fixed Shelf" on page 39.
- "Keyboard Tray" on page 40.

**Note**

For instructions on how to power-off the rack, see "Powering Off The Rack" on page 5.

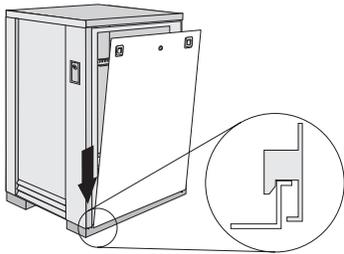
## Side Panel



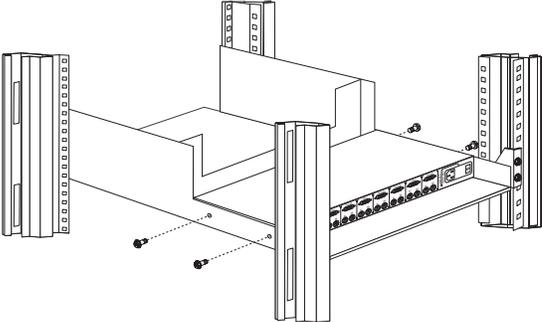
Locked



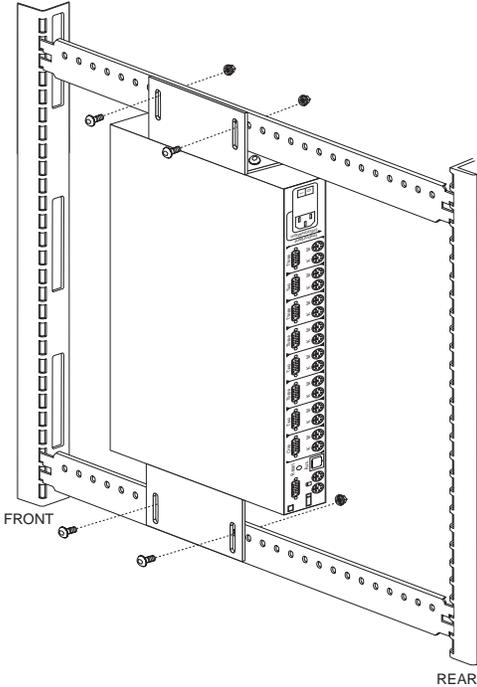
Unlocked



### Selector Switch Locations

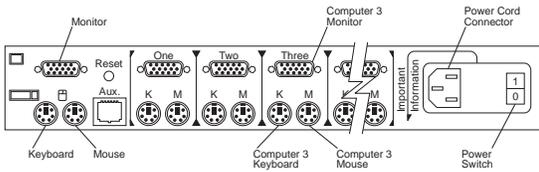


Selector Switch in monitor compartment

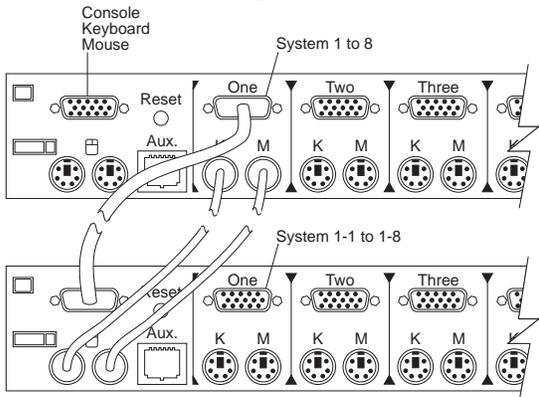


Selector Switch between side panels

## Selector Switch Cable Connections



## Tiered Switch Configuration



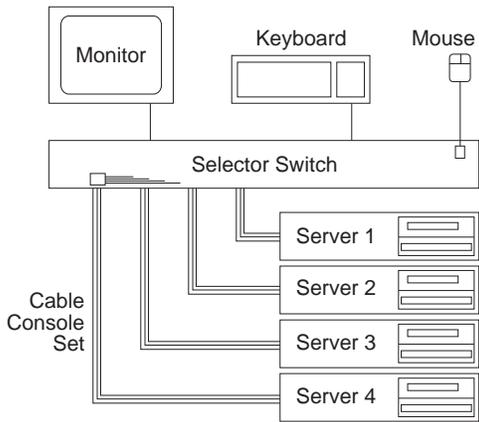
One eight-port primary selector switch can accommodate up to eight secondary selector switches which can then support up to 64 servers.

### Note

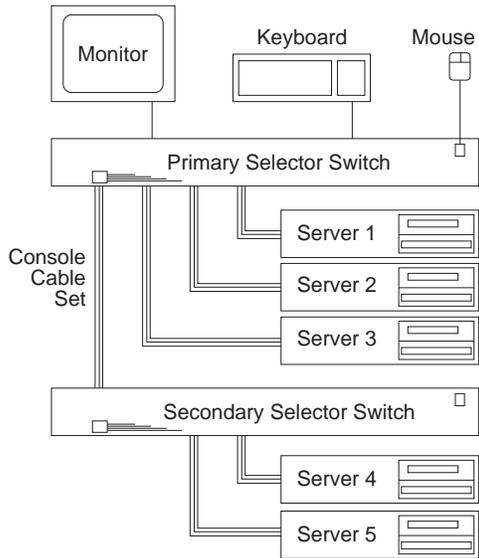
There are two types of selector switches available:

- 4 port
- 8 port

### Selector Switch Environment

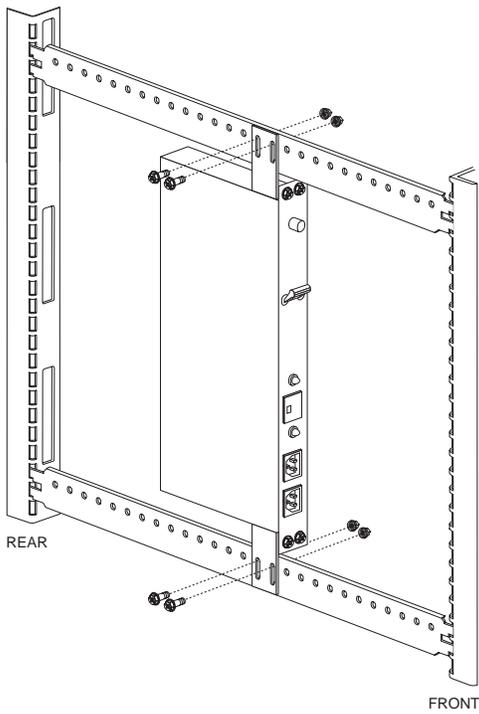


### Single Selector Switch

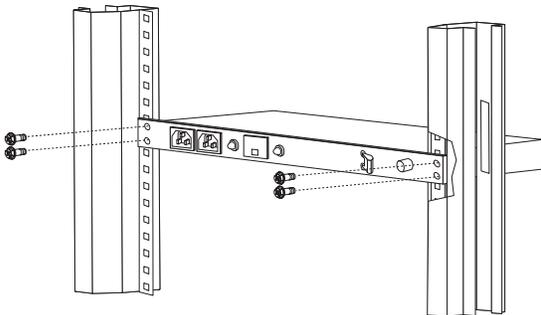


### Multiple Selector Switch

## Power distribution Unit



### Power Distribution vertical installation



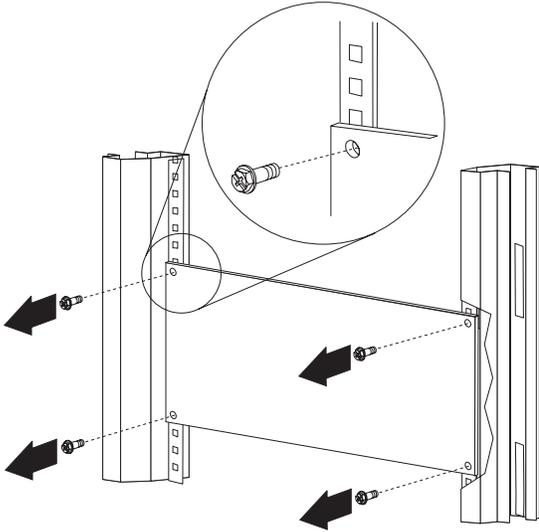
### Power Distribution horizontal installation

#### Note

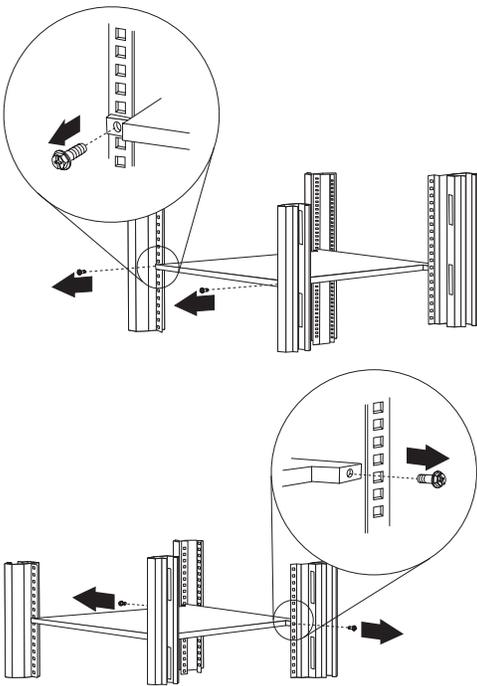
There are two types of Power distribution units available:

- High voltage
- Low voltage

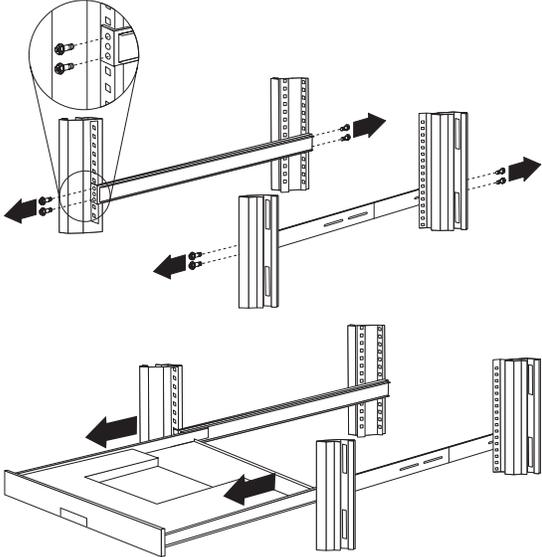
**Blank Bezel**



**Fixed Shelf**



# Keyboard Tray



To remove the tray from the side rails, pull up on the left rail tab and push down on the right rail tab.

## Starting the System

Start the system by:

1. Power-on the selector switch(s)
2. Power-on the monitor
3. Power-on the servers

### Note

The selector switch must be powered on first, then the servers. This is to assure that the device drivers for the servers send device settings to the selector switch.

When the selector switch is powered on, it:

- Identifies the mouse and keyboard and puts them into default status.
- Switches to port 1 by default, and displays the number '1' in the status flag field on the monitor.

## Configuring the Selector Switch

### Note

Some selector switch units have different functions and displays. Refer to the Apex PC Solutions® Outlook™ Concentrator User Guide. This guide is shipped with the Selector Switch Unit.

No configuration is necessary for normal switch operation.

Switch configuration can be performed to:

- Assign unique names to servers
- Display servers by their assigned port names and port numbers

## Switching Among Servers

To switch among servers:

- Press the **Print Screen** key
- Type the port number of the server to be switched
- Press **Enter**

### Note

One depression of the Print Screen key starts the switching process. To print a screen, depress the **Print Screen** key twice.

Port	Name
1	Magic +
2	Central0fc +
3	Sales-C +
4	Sales-B
5	Sales-A +
6	Downtown
7	Foreign +
8	
F1 Help            F2 Advanced	

Port	Name
Central0fc	2 +
Downtown	6
Foreign	7 +
Magic	1 +
Sales-A	5 +
Sales-B	4
Sales-C	3 +
	8
F1 Help            F2 Advanced	

- Using the Up Arrow (↑) and Down Arrow (↓), select the server you want to switch to, or press the numeric key that corresponds to the server's port number and then press Enter.

The symbols after the Port or Name columns on the menu show the status of the port as follows:

Type of Symbol	Symbol	Meaning
Plus	+	Server connected and running
Asterisk	*	Secondary selector switch connected and running

### Advanced Selector Switch functions

System configuration is performed through the keyboard and menus to include these Advanced selector switch functions:

- Scanning the servers

- Displaying server BIOS versions and settings
- Saving the Hardware Configuration
- Resetting the mouse and keyboard
- Setting a scan pattern
- Assigning unique names to the servers
- Listing servers by name or port number (Changing Menu Attributes)
- Changing the position and color of the operation menus and windows (Changing Flag Attributes)
- Assigning a specific monitor type to a certain port (server)

**Scanning the Servers:** To place the selector switch in scan mode:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Scan** and press **Enter**. The selector switch enters the scan mode and the display returns to the status flag. To cancel the operation, press Esc any time before you press Enter.
- To cancel the scan mode, press any key or move the mouse. The scan stops at the currently connected server.

## Displaying Version Information and Device

**Settings:** The selector switch BIOS version number along with keyboard and mouse information can be displayed for the currently selected server.

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Version** and press **Enter**.

```

Version
BIOS      X.XX
Hardware  X X
Port 1    Magic 1

Keyboard  Mouse
Enabled   Enabled
Rate 2C   Rate 100
LEDs 2    Res 2
Mode 2
Type 101  Type Gen

```

Keyboard information includes:  
 – Enabled or disabled

- Typematic rate
- LED settings
- Port mode
- Keyboard type.

Mouse information includes:

- Enabled or disabled
  - Sample rate
  - Resolution
  - Mouse type
- Press **Esc** to remove the Version menu.

**Saving Hardware Configuration:** Whenever servers are added to or removed from the configuration, or whenever there is a change in the mouse or monitor, save the hardware configuration setting by:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Snapshot** and press the **Enter** key. The hardware settings are saved to memory.

**Important**

If the settings are not saved and the selector switch power is lost, it might be necessary to restart each server in the configuration to reestablish keyboard and mouse communications.

**Resetting the Mouse and Keyboard:**

Resetting the mouse and keyboard restores the default setting for the selected server.

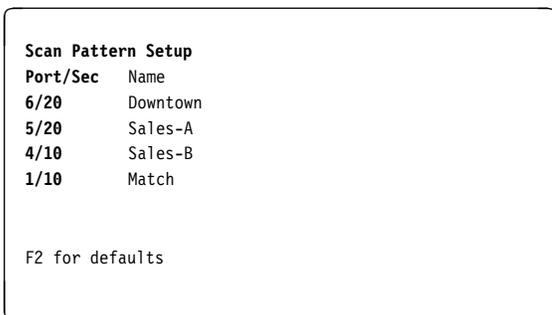
- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys,

move the highlighting to **Reset** and press the **Enter** key. The mouse and keyboard are now reset.

**Setting a Scan Pattern:** The selector switch has a standard scan routine for sequentially connecting each server to the monitor, keyboard, and mouse. The scan routine can be configured to scan all or any of the servers in a particular pattern. To create a scan pattern, do the following.

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlight to the **Setup Menu**.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Scan** and press the **Enter**

key. The Scan Pattern Setup menu appears with the first port position or server name highlighted. The following example screen displays when the port order mode is selected.



If Name order was selected, the Port and Name columns will be reversed.

- Using the keyboard keys, select the port number of the first server to be included in the scan. Note that the server name, if any is assigned, appears in the far right column on the menu.
- Press the Tab key or Right Arrow (→) key to move the highlighting to the Sec column. Then, use the keyboard keys to enter a time value, in seconds, for the length of time you want this server to be connected to the monitor and keyboard, before switching to the next server in the scan.
- Press the Down Arrow (↓) key to move the highlighting to the next port in the Port column and repeat step 5.

To delete unwanted ports from the scan list in the Scan Pattern Setup window, place the highlighting on the top-most port to be removed and press the **Delete** key (not the Del key on the numeric keypad).

- When you have finished setting the scan pattern, press the **Enter** key. Press Esc at any time before pressing Enter to retain the previous scan pattern.

**Note**

Pressing the F2 key will return all Port and Sec values to the factory defaults.

- To exit, press **Esc**

**Assigning Unique Names to Servers:** Unique names can be given to servers and secondary selector switches. To assign names:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu

screen. Press the Right Arrow (→) key to move the highlight to the **Setup Menu**.

- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Names** and press the **Enter** key. The Port Naming menu appears, as shown below.

Port Naming	
Port	Name
1	MAGIC
2	CENTRALOFC
3	SALES-C
4	SALES-B
5	SALES-A
6	DOWNTOWN
7	FOREIGN
8	

- Move the highlighting to the Port entry for which the server name is to be entered or changed. Type in the name of the server using up to 12 alphanumeric characters.

**Note**

Legal characters are A-Z, 0-9, and the dash character. Lowercase letters are converted to uppercase. Press the Backspace key to delete an incorrect entry.

- If necessary, repeat step 4 for each of the servers that are to be named.
- Press the **Enter** key to save the server names in nonvolatile RAM. Press Esc at any time before pressing Enter to cancel the operation.
- To exit, press **Esc**

**Changing Menu Attributes:** The menus displayed on the monitor can be altered in visual appearance to suit the particular use of the system. You can:

- Position the menu in a convenient location on the display.
- List servers by port or by name, whichever is desired, in the appropriate menus.
- Adjust character height.
- Change colors.
- Display the selection menu for a certain period.

To change the menu attributes, do the following:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the Setup list.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **OSCAR™** (On Screen Configuration and Activity Reporting) and press the **Enter** key. The following Attribute menu appears.

<b>OSCAR Attributes</b>	
<b>Resolution</b>	640
<b>Height</b>	16
<b>Horizontal</b>	12
<b>Vertical</b>	7
<b>Background</b>	1
<b>Highlight</b>	4
<b>Text</b>	7
<b>Delay Time</b>	0
<b>Order</b>	Port

- Highlight the settings you want to change and use the + or – keys to change the values. As you select different values, the effect of the changes is reflected immediately on the display.
- When all changes are completed, press the **Enter** key to save the changes to nonvolatile RAM. Press Esc at any time before pressing Enter to cancel the operation and retain the previous settings.

**Note**

It is possible, while changing the attributes, to garble the menu and windows, making it difficult to correct. If this occurs, reset the selector switch to its default values by pressing the following keys in this order:

1. Esc
2. Esc
3. Print Screen
4. F10
5. Y
6. Enter

Available menu attributes:

<b>Setting</b>	<b>Effect on Menu or Window Appearance</b>
<b>Resolution</b>	Affects the size of the menu and windows as they appear on the display. Choose from values of 320, 480, and 640. The lower the value, the larger the size.
<b>Height</b>	Affects the size of the text in the menu and windows. The larger the value, the larger the text.
<b>Horizontal/Vertical</b>	Determines the position of the menu or window on the screen.
<b>Background</b>	Determines the menu or window background color.
<b>Highlight</b>	Determines the menu or window highlight bar color.
<b>Text</b>	Determines the menu or window text color.
<b>Delay Time</b>	Sets the time in seconds that the OSCAR selection window is delayed before appearing after the Print Screen key is pressed. This delay may be increased so that the menu is not a distraction when performing simple server switching operations at the keyboard.
<b>Order</b>	Determines the order which the servers are listed, numerically by port or alphabetically by assigned name.

**Changing the Status Flag Attributes:** The status flag shows the currently connected server and can be set to appear on the screen whenever the system is operating. You can alter how and where the flag appears on the screen by changing one or more of the following attributes:

- Appearance on the screen: none, timed, or constant
- Position on the screen
- Color and opaqueness

To change the flag attributes, do the following:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the **Setup** menu.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlight to **Flag** and press the **Enter** key. The following menu appears.

Flag Attributes	
Enabled	Names On
Row	14
Column	1
Color	2
Text	0
Mode	Transparent

4. Highlight the setting to be changed and use the + and – keys to adjust the values. The following table describes each of the available menu attributes:

Setting	Values and Effect on Flag Appearance
<b>Enabled</b>	Flags Off = Flag does not appear Ports On = Flag shows the connected port number Names On = Flag shows the connected server by name Ports Timed = Port number displays for five seconds after connection Names Timed = Name displays for five seconds after connection
<b>Row</b>	Select values from 0–14 to position the flag vertically on the screen

<b>Column</b>	Select values from 0–25 to position the flag horizontally on the screen
<b>Color</b>	Select values from 0–7 for the flag color.
<b>Text</b>	Select values from 0–7 for the flag text color
<b>Mode</b>	Choose between Opaque and Transparent

5. Press the **Enter** key to save the settings. Press **Esc** at anytime before pressing Enter to cancel the operation and save the previous settings.
6. Press **Esc** to exit.

**Assigning Specific Device Types:** In situations where one or more servers need a special type of monitor device, it might be necessary to assign that device type to the port number associated with the server.

**Note**

When tiering, you must make the primary selector switch aware of the secondaries through the assignment.

Assign a device type as follows:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the Setup menu.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Devices** and press the **Enter** key. The following menu appears:

Device Settings	
Port	Monitor
1	SVGA
2	SVGA
3	8515
4	SVGA
5	Default
6	Default
7	Default
8	8port

4. To assign a monitor type, highlight the port you want and use the + or – keys to select the value that corresponds to the particular monitor.

To assign a secondary selector switch to a port, highlight the port and use the + or – keys to obtain the appropriate 8port value.

5. Press the **Enter** key to save the settings. Press **Esc** at any time before pressing Enter to cancel the operation.
6. Press **Esc** to remove the Advanced Menu from the screen.

## Resetting the Selector Switch

The selector switch can be reset by depressing the Reset button on the back panel of the selector switch.

### Note

Pressing the reset button might recover the device settings without having to power-off, then power-on all the servers.

## Making Connections Under Power

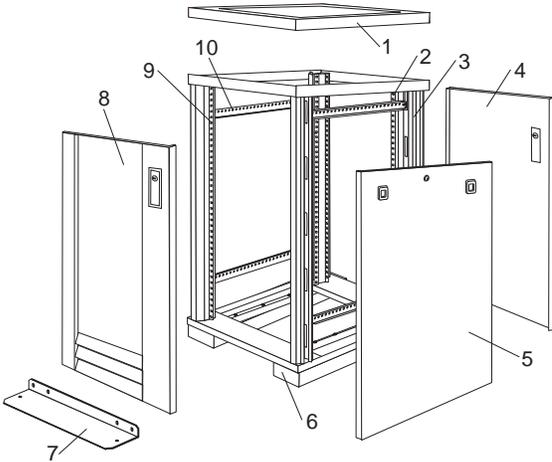
Additional servers, can be connected to the selector switch while the selector switch is running.

Failed devices such as a keyboard or mouse can be connected to a running selector switch.

### Note

When new devices are connected, the selector switch recognizes it and configures it to the settings of the currently selected server.

**Parts Listing (Type 9306 Model 200)**



Index	Rack Enclosure (Type 9306 Model 200)	FRU
1	Top Cover	28L0548
	including cover standoffs and screws	
2	Rear EIA Rail (1)	28L0547
	Includes mounting hardware	
3	Rack Frame	28L0550
	Caster (1)	12J4466
	Leveler (1)	76H4960
4	Rear Door Assembly	28L0545
	Including latch and lock	
5	Side Panel Assembly with Latches and Lock	28L0549
	Side Panel Latches	12J4468
	Side Panel Lock with Keys	76H4965
6	Caster Extension Plinth (1)	12J4482
7	Stabilizer	12J4485
8	Front Door Assembly	28L0544
	Including latch and lock	
9	Front EIA Rail (1)	28L0546
	Includes mounting hardware	
10	Side Brace (1)	12J4477
	Front/Rear Door Hinge with Pin (1)	76H4966
	Front/Rear Door Latch with Lock and Keys (1)	76H4967
	Front/Rear Door Striker Plate (1)	12J4465
	Includes mounting hardware	
	Front/Rear Door Hinge Pin (1)	12J4469
	Grommet, Cable Exit	28L0553
	Label, EIA Unit Numbers	28L0551
	Miscellaneous Parts Kit - Includes:	76H4950
	Caged Nut, M6 (6)	
	Screw, M6 Hex Head (6)	
	Screw, M6 Socket (5)	
	Washer, 10/32 flat (6)	
	Hex Nut, M6 (5)	
	Screw, M6X12 Button Head (5)	

	Rack Enclosure (Type 9306 Model 200) Options	FRU
	Monitor Housing	76H4947
	Filler Panels: 1U, 3U, and 5U	12J4473
	Keyboard Tray	76H4958
	Keyboard Slides (set) with Hardware	76H4961
	Fixed Shelf with Hardware	76H4963
	Single Slide Shelf	76H3628
	C13 - C14 Power Cable	07H0075
	C19 - C14 Power Cable	76H4964
	C13 - NEMA 5-15P Power Cable	76H4962
	C19 - NEMA 5-15P Power Cable	12J4479
	Video, Mouse, Keyboard Power Cable (12 feet)	07H0073
	Video, Mouse, Keyboard Power Cable (25 feet)	12J4484
	Mouse Extension Cable	07H0069
	Keyboard Extension Cable	07H0067
	Concentrator (4 port) with Hardware	28L0543
	Concentrator (8 port) with Hardware	76H4948
	Low Voltage Power Distribution Unit - 8 AC sockets; With Hardware	12J4472
	208 V Power Distribution Unit - 10 AC sockets; With Hardware	12J4483
	250 V Slow Blow Fuse	0303549



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## Type 9306 Model 900

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### Features

The IBM Netfinity Server 9306-900 Rack enclosure is an industry-standard, 19-inch rack that houses and controls multiple IBM PC Servers/IBM Netfinity Servers and related equipment.

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### Locations

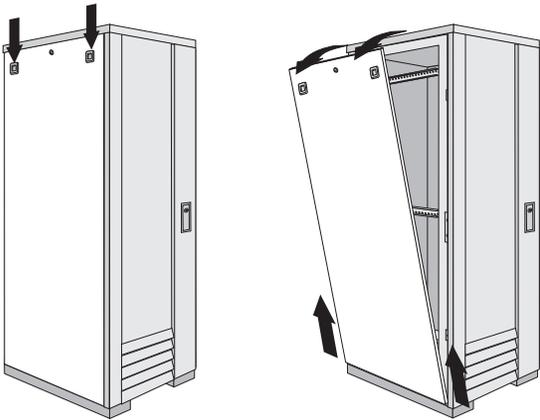
This section contains the following:

- "Side Panel" on page 56.
- "Selector Switch Locations" on page 57.
- "Power distribution Unit" on page 60.
- "Blank Bezel" on page 61.
- "Fixed Shelf" on page 61.
- "Keyboard Tray" on page 62.

**Note**

For instructions on how to power-off the rack, see "Powering Off The Rack" on page 5.

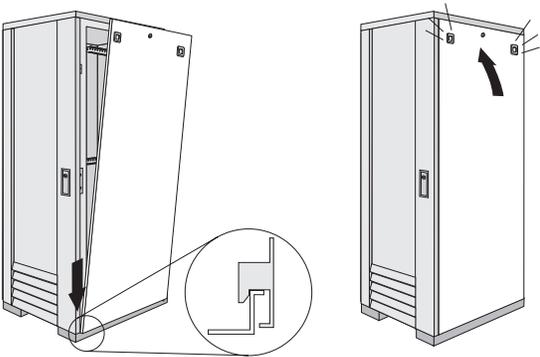
## Side Panel



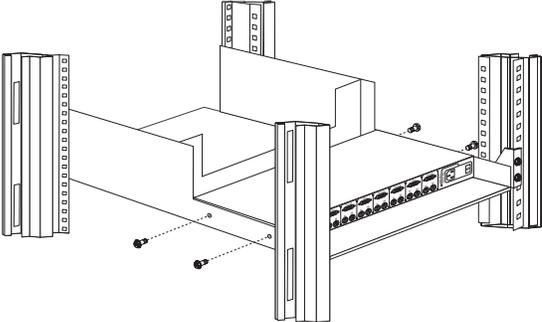
Locked



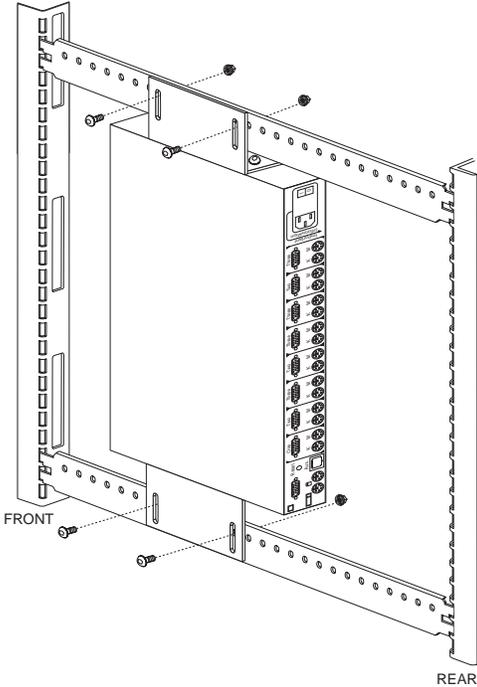
Unlocked



### Selector Switch Locations

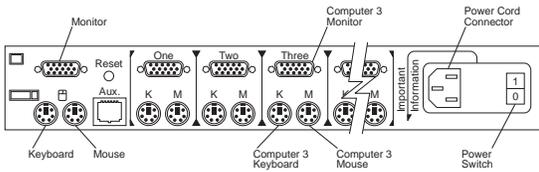


Selector Switch in monitor compartment

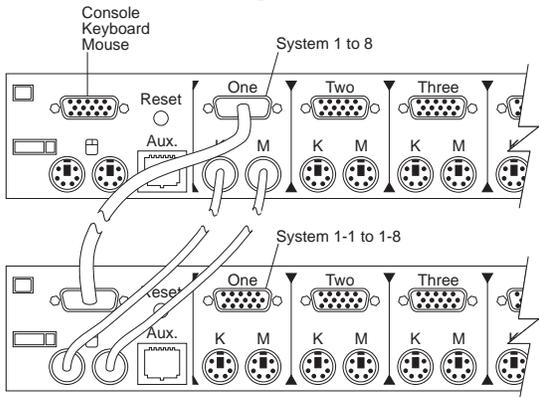


Selector Switch between side panels

## Selector Switch Cable Connections



## Tiered Switch Configuration



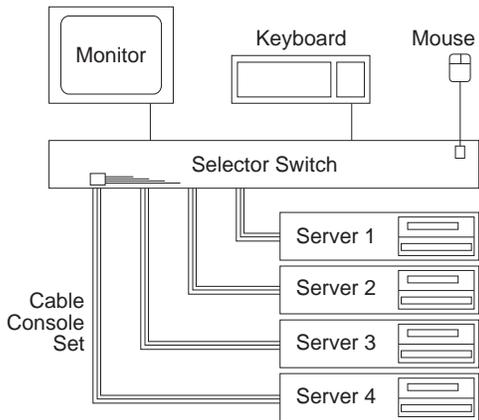
One eight-port primary selector switch can accommodate up to eight secondary selector switches which can then support up to 64 servers.

### Note

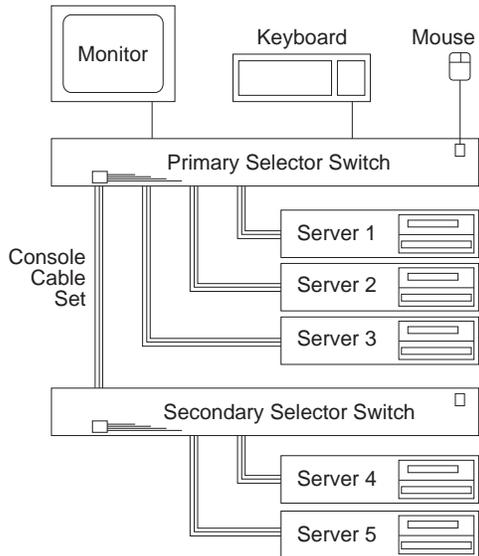
There are two types of selector switches:

- 4 port
- 8 port

## Selector Switch Environment

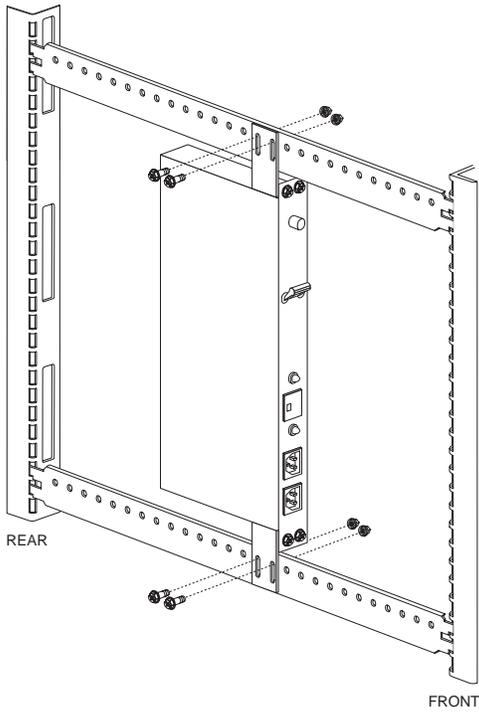


## Single Selector Switch

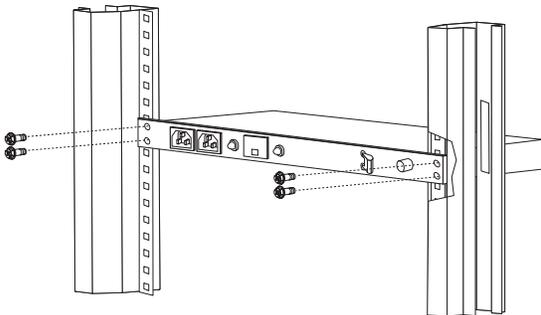


## Multiple Selector Switch

## Power distribution Unit



### Power Distribution vertical installation



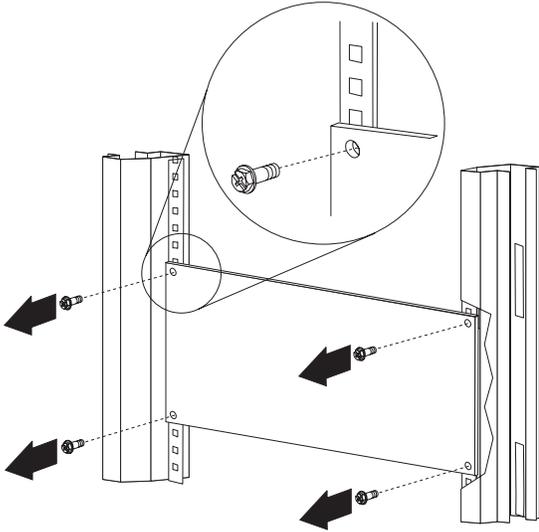
### Power Distribution horizontal installation

#### Note

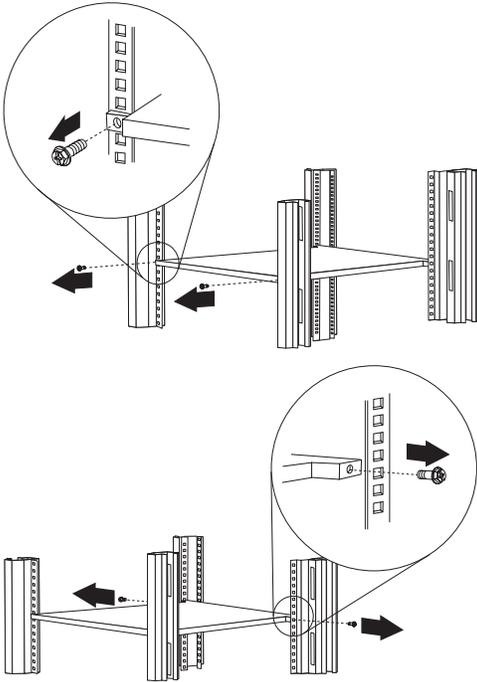
There are two types of Power distribution units available:

- High voltage
- Low voltage

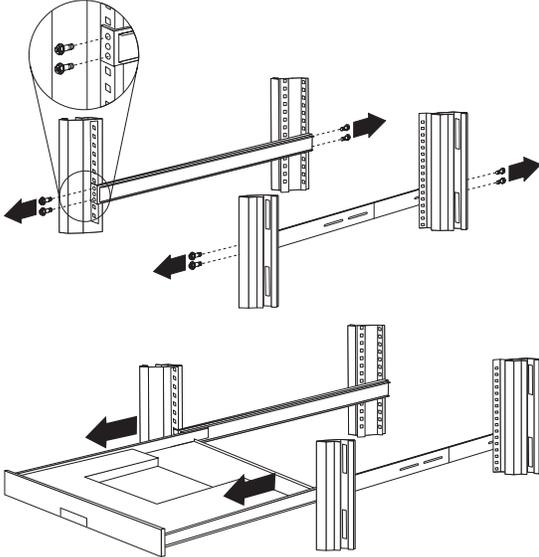
**Blank Bezel**



**Fixed Shelf**



# Keyboard Tray



To remove the tray from the side rails, pull up on the left rail tab and push down on the right rail tab.

## Starting the System

Start the system by:

1. Power-on the selector switch(s)
2. Power-on the monitor
3. Power-on the servers

### Note

The selector switch must be powered on first, then the servers. This is to assure that the device drivers for the servers send device settings to the selector switch.

When the selector switch is powered on, it:

- Identifies the mouse and keyboard and puts them into default status.
- Switches to port 1 by default, and displays the number '1' in the status flag field on the monitor.

## Configuring the Selector Switch

### Note

Some selector switch units have different functions and displays. Refer to the Apex PC Solutions® Outlook™ Concentrator User Guide. This guide is shipped with the Selector Switch Unit.

No configuration is necessary for normal switch operation.

Switch configuration can be performed to:

- Assign unique names to servers
- Display servers by their assigned port names and port numbers

## Switching Among Servers

To switch among servers:

- Press the **Print Screen** key
- Type the port number of the server to be switched
- Press **Enter**

### Note

One depression of the Print Screen key starts the switching process. To print a screen, depress the **Print Screen** key twice.

Port	Name
1	Magic +
2	Central0fc +
3	Sales-C +
4	Sales-B
5	Sales-A +
6	Downtown
7	Foreign +
8	
F1 Help          F2 Advanced	

Port	Name
Central0fc	2 +
Downtown	6
Foreign	7 +
Magic	1 +
Sales-A	5 +
Sales-B	4
Sales-C	3 +
	8
F1 Help          F2 Advanced	

- Using the Up Arrow (↑) and Down Arrow (↓), select the server you want to switch to, or press the numeric key that corresponds to the server's port number and then press Enter.

The symbols after the Port or Name columns on the menu show the status of the port as follows:

Type of Symbol	Symbol	Meaning
Plus	+	Server connected and running
Asterisk	*	Secondary selector switch connected and running

### Advanced Selector Switch functions

System configuration is performed through the keyboard and menus to include these Advanced selector switch functions:

- Scanning the servers

- Displaying server BIOS versions and settings
- Saving the Hardware Configuration
- Resetting the mouse and keyboard
- Setting a scan pattern
- Assigning unique names to the servers
- Listing servers by name or port number (Changing Menu Attributes)
- Changing the position and color of the operation menus and windows (Changing Flag Attributes)
- Assigning a specific monitor type to a certain port (server)

**Scanning the Servers:** To place the selector switch in scan mode:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Scan** and press **Enter**. The selector switch enters the scan mode and the display returns to the status flag. To cancel the operation, press Esc any time before you press Enter.
- To cancel the scan mode, press any key or move the mouse. The scan stops at the currently connected server.

## Displaying Version Information and Device

**Settings:** The selector switch BIOS version number along with keyboard and mouse information can be displayed for the currently selected server.

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Version** and press **Enter**.

```

Version
BIOS      X.XX
Hardware  X X
Port 1    Magic 1

Keyboard  Mouse
Enabled   Enabled
Rate 2C   Rate 100
LEDs 2    Res 2
Mode 2
Type 101  Type Gen

```

Keyboard information includes:

- Enabled or disabled

- Typematic rate
- LED settings
- Port mode
- Keyboard type.

Mouse information includes:

- Enabled or disabled
  - Sample rate
  - Resolution
  - Mouse type
- Press **Esc** to remove the Version menu.

**Saving Hardware Configuration:** Whenever servers are added to or removed from the configuration, or whenever there is a change in the mouse or monitor, save the hardware configuration setting by:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Snapshot** and press the **Enter** key. The hardware settings are saved to memory.

**Important**

If the settings are not saved and the selector switch power is lost, it might be necessary to restart each server in the configuration to reestablish keyboard and mouse communications.

**Resetting the Mouse and Keyboard:**

Resetting the mouse and keyboard restores the default setting for the selected server.

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen.
- Using the Up Arrow (↑) and Down Arrow (↓) keys,

move the highlighting to **Reset** and press the **Enter** key. The mouse and keyboard are now reset.

**Setting a Scan Pattern:** The selector switch has a standard scan routine for sequentially connecting each server to the monitor, keyboard, and mouse. The scan routine can be configured to scan all or any of the servers in a particular pattern. To create a scan pattern, do the following.

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlight to the **Setup Menu**.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Scan** and press the **Enter**

key. The Scan Pattern Setup menu appears with the first port position or server name highlighted. The following example screen displays when the port order mode is selected.

Scan Pattern Setup	
Port/Sec	Name
6/20	Downtown
5/20	Sales-A
4/10	Sales-B
1/10	Match

F2 for defaults

If Name order was selected, the Port and Name columns will be reversed.

- Using the keyboard keys, select the port number of the first server to be included in the scan. Note that the server name, if any is assigned, appears in the far right column on the menu.
- Press the Tab key or Right Arrow (→) key to move the highlighting to the Sec column. Then, use the keyboard keys to enter a time value, in seconds, for the length of time you want this server to be connected to the monitor and keyboard, before switching to the next server in the scan.
- Press the Down Arrow (↓) key to move the highlighting to the next port in the Port column and repeat step 5.

To delete unwanted ports from the scan list in the Scan Pattern Setup window, place the highlighting on the top-most port to be removed and press the **Delete** key (not the Del key on the numeric keypad).

- When you have finished setting the scan pattern, press the **Enter** key. Press Esc at any time before pressing Enter to retain the previous scan pattern.

**Note**

Pressing the F2 key will return all Port and Sec values to the factory defaults.

- To exit, press **Esc**

**Assigning Unique Names to Servers:** Unique names can be given to servers and secondary selector switches. To assign names:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu

screen. Press the Right Arrow (→) key to move the highlight to the **Setup Menu**.

- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Names** and press the **Enter** key. The Port Naming menu appears, as shown below.

**Port Naming**

Port	Name
1	MAGIC
2	CENTRALOFC
3	SALES-C
4	SALES-B
5	SALES-A
6	DOWNTOWN
7	FOREIGN
8	

- Move the highlighting to the Port entry for which the server name is to be entered or changed. Type in the name of the server using up to 12 alphanumeric characters.

**Note**

Legal characters are A-Z, 0-9, and the dash character. Lowercase letters are converted to uppercase. Press the Backspace key to delete an incorrect entry.

- If necessary, repeat step 4 for each of the servers that are to be named.
- Press the **Enter** key to save the server names in nonvolatile RAM. Press Esc at any time before pressing Enter to cancel the operation.
- To exit, press **Esc**

**Changing Menu Attributes:** The menus displayed on the monitor can be altered in visual appearance to suit the particular use of the system. You can:

- Position the menu in a convenient location on the display.
- List servers by port or by name, whichever is desired, in the appropriate menus.
- Adjust character height.
- Change colors.
- Display the selection menu for a certain period.

To change the menu attributes, do the following:

- Press the **Print Screen** key
- Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the Setup list.
- Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **OSCAR** (On Screen Configuration and Activity Reporting) and press the **Enter** key. The following Attribute menu appears.

<b>OSCAR Attributes</b>	
<b>Resolution</b>	640
<b>Height</b>	16
<b>Horizontal</b>	12
<b>Vertical</b>	7
<b>Background</b>	1
<b>Highlight</b>	4
<b>Text</b>	7
<b>Delay Time</b>	0
<b>Order</b>	Port

- Highlight the settings you want to change and use the + or – keys to change the values. As you select different values, the effect of the changes is reflected immediately on the display.
- When all changes are completed, press the **Enter** key to save the changes to nonvolatile RAM. Press Esc at any time before pressing Enter to cancel the operation and retain the previous settings.

**Note**

It is possible, while changing the attributes, to garble the menu and windows, making it difficult to correct. If this occurs, reset the selector switch to its default values by pressing the following keys in this order:

1. Esc
2. Esc
3. Print Screen
4. F10
5. Y
6. Enter

Available menu attributes:

<b>Setting</b>	<b>Effect on Menu or Window Appearance</b>
<b>Resolution</b>	Affects the size of the menu and windows as they appear on the display. Choose from values of 320, 480, and 640. The lower the value, the larger the size.
<b>Height</b>	Affects the size of the text in the menu and windows. The larger the value, the larger the text.
<b>Horizontal/Vertical</b>	Determines the position of the menu or window on the screen.
<b>Background</b>	Determines the menu or window background color.
<b>Highlight</b>	Determines the menu or window highlight bar color.
<b>Text</b>	Determines the menu or window text color.
<b>Delay Time</b>	Sets the time in seconds that the OSCAR selection window is delayed before appearing after the Print Screen key is pressed. This delay may be increased so that the menu is not a distraction when performing simple server switching operations at the keyboard.
<b>Order</b>	Determines the order which the servers are listed, numerically by port or alphabetically by assigned name.

**Changing the Status Flag Attributes:** The status flag shows the currently connected server and can be set to appear on the screen whenever the system is operating. You can alter how and where the flag appears on the screen by changing one or more of the following attributes:

- Appearance on the screen: none, timed, or constant
- Position on the screen
- Color and opaqueness

To change the flag attributes, do the following:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the **Setup** menu.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlight to **Flag** and press the **Enter** key. The following menu appears.

Flag Attributes	
Enabled	Names On
Row	14
Column	1
Color	2
Text	0
Mode	Transparent

4. Highlight the setting to be changed and use the + and – keys to adjust the values. The following table describes each of the available menu attributes:

Setting	Values and Effect on Flag Appearance
<b>Enabled</b>	Flags Off = Flag does not appear Ports On = Flag shows the connected port number Names On = Flag shows the connected server by name Ports Timed = Port number displays for five seconds after connection Names Timed = Name displays for five seconds after connection
<b>Row</b>	Select values from 0–14 to position the flag vertically on the screen

<b>Column</b>	Select values from 0–25 to position the flag horizontally on the screen
<b>Color</b>	Select values from 0–7 for the flag color.
<b>Text</b>	Select values from 0–7 for the flag text color
<b>Mode</b>	Choose between Opaque and Transparent

5. Press the **Enter** key to save the settings. Press **Esc** at anytime before pressing Enter to cancel the operation and save the previous settings.
6. Press **Esc** to exit.

**Assigning Specific Device Types:** In situations where one or more servers need a special type of monitor device, it might be necessary to assign that device type to the port number associated with the server.

**Note**

When tiering, you must make the primary selector switch aware of the secondaries through the assignment.

Assign a device type as follows:

1. Press the **Print Screen** key
2. Press the **F2** key to display the Advanced Menu screen. Press the Right Arrow (→) key to move the highlighting to the Setup menu.
3. Using the Up Arrow (↑) and Down Arrow (↓) keys, move the highlighting to **Devices** and press the **Enter** key. The following menu appears:

Device Settings	
Port	Monitor
1	SVGA
2	SVGA
3	8515
4	SVGA
5	Default
6	Default
7	Default
8	8port

4. To assign a monitor type, highlight the port you want and use the + or – keys to select the value that corresponds to the particular monitor.

To assign a secondary selector switch to a port, highlight the port and use the + or – keys to obtain the appropriate 8port value.

5. Press the **Enter** key to save the settings. Press **Esc** at any time before pressing Enter to cancel the operation.
6. Press **Esc** to remove the Advanced Menu from the screen.

## Resetting the Selector Switch

The selector switch can be reset by depressing the Reset button on the back panel of the selector switch.

### Note

Pressing the reset button might recover the device settings without having to power-off, then power-on all the servers.

## Making Connections Under Power

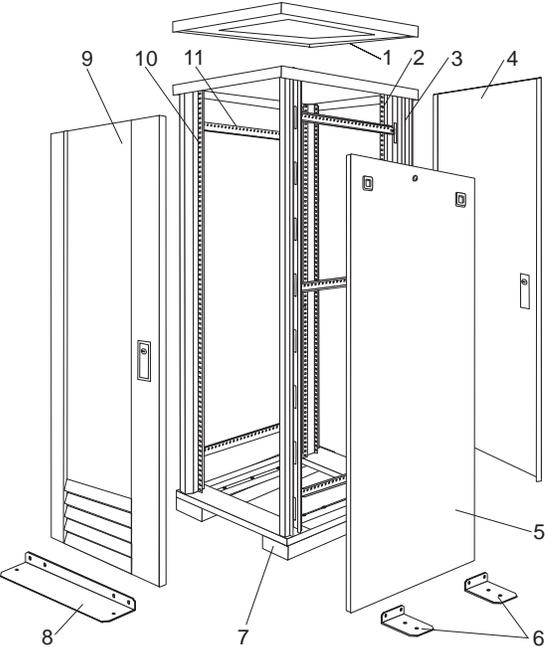
Additional servers, can be connected to the selector switch while the selector switch is running.

Failed devices such as a keyboard or mouse can be connected to a running selector switch.

### Note

When new devices are connected, the selector switch recognizes it and configures it to the settings of the currently selected server.

**Parts Listing (Type 9306 Model 900)**



<b>Index</b>	<b>Rack Enclosure (Type 9306 Model 900)</b>	<b>FRU</b>
1	Top Cover including cover standoffs and screws	12J4481
2	Rear EIA Rail (1) Includes mounting hardware	76H4956
3	Rack Frame Caster (1) Leveler (1)	76H4959 12J4466 76H4960
4	Rear Door Assembly Including latch and lock	12J4478
5	Side Panel Assembly (option) Including latches and lock	76H4949
6	Stabilizer Bar (1)	12J4467
7	Caster Extension Plinth (1)	12J4482
8	Front Stabilizer (1)	12J4485
9	Front Door Assembly Including latches and lock	76H4942
10	Front EIA Rail (1) Includes mounting hardware	76H4951
11	Side Brace (1) Front/Rear Door Hinge with Pin (1) Front/Rear Door Latch with Lock and Keys Front/Rear Door Striker Plate (1) Includes mounting hardware Front/Rear Door Hinge Pin (1) Label, EIA Unit Numbers Miscellaneous Parts Kit - Includes: Caged Nut, M6 (6) Screw, M6 Hex Head (6) Screw, M6 Socket (5) Washer, 10/32 flat (6) Hex Nut, M6 (5) Screw, M6X12 Button Head (5)	12J4477 76H4966 76H4967 12J4465 12J4469 12J4471 76H4950

<b>Rack Enclosure (Type 9306 Model 900) Options</b>	<b>FRU</b>
Monitor Housing	76H4947
Side Panel Lock with Keys	76H4965
Side Panel Latch	12J4468
Filler Panel (1U, 3U, and 5U)	12J4473
Keyboard Tray	76H4958
Keyboard Slides (set) with Hardware	76H4961
Fixed Shelf with Hardware	76H4963
Single Slide Shelf	76H3628
Rack to Rack Mounting Kit - Includes: Horizontal Trim (1) Vertical Trim (2) M6x16 Screws (12) M6 Cage Nuts (4) M6 Whiz nuts (10) Brackets, Rack Mounting (4)	12J4476
C13 - C14 Power Cable	07H0075
C19 - C14 Power Cable	76H4964
C13 - NEMA 5-15P Power Cable	76H4962
C19 - NEMA 5-15P Power Cable	12J4479
Video, Mouse, Keyboard Power Cable (12 feet)	07H0073
Video, Mouse, Keyboard Power Cable (25 feet)	12J4484
Mouse Extension Cable	07H0069

**Rack Enclosure (Type 9306 Model 900)****Options**

Keyboard Extension Cable	07H0067
Concentrator with Hardware (8 port)	76H4948
Concentrator with Hardware (4 port)	28L0543
Low Voltage Power Distribution Unit - 8 AC sockets; With Hardware	12J4472
208 V Power Distribution Unit - 10 AC sockets; With Hardware	12J4483
250 V Slow Blow Fuse	0303549

**FRU**

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## Related Service Information

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### Safety Information

The following section contains the safety information that you need to know before servicing an IBM PC Server/IBM Netfinity Server or IBM supporting equipment such as the Type 9306 IBM PC Server Rack Enclosure and Type 9306 IBM Netfinity Rack.



1. **DANGER**

- The maximum allowable weight for devices mounted on slides is 80 Kg (176 lbs). Do not install sliding devices exceeding this weight.
- The center of gravity for an extended unit cannot exceed 362 mm (14.25 in.) from the face of the rack. If an extended device exceeds this distance, the configured rack might be unstable.



2. **DANGER**

- Always install servers and power devices in the rack from the bottom to the top.
- Always install the heaviest equipment in the bottom of the rack.
- Always install the UPS (uninterruptible power supply) in the bottom of the rack.
- Always install the stabilizer bracket.
- Do not extend more than one sliding device at a time.



3. DANGER

Plug rack power cords into electrical outlets that are located near the rack and are easily accessible.



4. DANGER

Connect all devices installed in a rack to power devices installed in the same rack. Do not plug the power cord from a device installed in one rack into a power device installed in a different rack.



1. PERIGO

- O peso máximo permitido para dispositivos montados em trilhos é de 80 kg (176 lbs). Não instale dispositivos em trilhos que excedam este peso.
- O centro de gravidade para uma unidade estendida não pode exceder 362 mm (14.25 in.) da frente do rack. Se um dispositivo estendido exceder esta distância, o rack configurado pode se tornar instável.



2. PERIGO

- Instale sempre os servidores e dispositivos de alimentação no rack de baixo para cima.
- Sempre instale o equipamento mais pesado na parte inferior do rack.
- Sempre instale a fonte de alimentação contínua (UPS) na parte inferior do rack.
- Sempre instale o suporte do estabilizador.
- Não estenda mais de um dispositivo com trilho de uma vez.



3. PERIGO

Conecte os cabos de alimentação do rack em saídas elétricas localizadas perto do rack e de fácil acesso.



4. PERIGO

Conecte todos os dispositivos de um rack aos dispositivos de energia instalados no mesmo rack. Não conecte um cabo de alimentação de um dispositivo instalado em um rack a um dispositivo de energia instalado em um rack diferente.



1.

危险

- 在滑面上安装的设备其最大允许重量是80千克（176磅），超过该值的滑动设备不允许安装。
- 一个展开的零件其重心从机架表面上看不能超过362mm（14.25英寸）。展开的设备如果超过了该距离，已构架的机架将可能不稳定。



2.

危险

- 请务必在机架中自下而上安装服务器和电源设备。
- 请务必在机架底部安装最重的设备。
- 请务必在机架底部安装 UPS（不间断电源）。
- 请务必安装固定设备托架。
- 一次最多展开一个滑动设备。



3.

危险

将机架电源插头就近插入电源插座。



4.

危险

将机架内安装的所有设备都连接到同一机架中安装的电源设备。  
不要将电源插头从一个机架的安装设备插到其他机架中安装的电源设备。



1. DANGER

- Le poids maximal d'une unité montée sur glissières est de 80 kg ; n'installez pas d'unités dont le poids est supérieur.
- Le centre de gravité d'une unité tirée hors de son logement ne doit pas être éloigné de plus de 362 mm de la face avant de l'armoire. Sinon, l'armoire configurée risque de ne pas être stable.



2. DANGER

- Commencez toujours par installer les serveurs et les blocs d'alimentation dans la partie inférieure de l'armoire.
- Installez toujours les composants les plus lourds dans la partie inférieure de l'armoire.
- Installez toujours les blocs d'alimentation (UPS) dans la partie inférieure de l'armoire.
- Installez toujours les stabilisateurs.
- Certaines unités sont installées sur des tiroirs coulissants. N'ouvrez pas plusieurs de ces tiroirs à la fois.



3. DANGER

Branchez les cordons d'alimentation sur des socles de prises de courant proches de l'armoire et facilement accessibles.



#### 4. DANGER

Toutes les unités installées dans une armoire doivent être reliées à des unités d'alimentation situées dans la même armoire. Ne branchez jamais le cordon d'alimentation d'une unité installée dans une armoire sur une unité d'alimentation installée dans une autre armoire.



#### 1. VORSICHT

- Das zulässige Höchstgewicht für auf Schienen montierte Einheiten beträgt 80 kg. Keine Einheiten mit höheren Gewicht einbauen.
- Der Schwerpunkt einer ausgefahrenen Einheit darf nicht mehr als 362 mm von der Frontseite des Gehäuses entfernt liegen. Liegt der Schwerpunkt weiter entfernt, kann das konfigurierte Gehäuse instabil werden.



#### 2. VORSICHT

- Server und Netzeinheiten immer von unten nach oben im Gehäuse installieren.
- Die schwersten Einheiten unten installieren.
- Die USV (Unterbrechungsfreie Stromversorgung) immer unten installieren.
- Immer die Kippsicherung anbringen.
- Nie mehr als jeweils eine Einheitschassis herausziehen.



3. VORSICHT

Die Netzkabel des Gehäuses an Steckdosen anschließen, die sich in der Nähe des Gehäuses befinden und gut zugänglich sind.



4. VORSICHT

Alle in einem Gehäuse installierten Einheiten an Netzeinheiten in einem Gehäuse anschließen. Nicht das Netzkabel einer in einem Gehäuse befindlichen Einheit an eine Netzeinheit in einem anderen Gehäuse anschließen.



1. PERICOLO

- Il peso massimo consentito per i dispositivi montati su slitte è di 80 kg. Non installare dispositivi scorrevoli che hanno un peso superiore a quello sopra citato.
- Il centro di gravità di un'unità estratta non può superare i 362 mm dalla superficie del rack. In caso contrario, il rack configurato potrebbe essere instabile.



2. PERICOLO

- Installare sempre i serveri e gli alimentatori nel rack dal basso verso l'alto.
- Installare sempre il componente più pesante nella parte inferiore del rack.
- Installare sempre l'UPS (uninterruptible power supply) nella parte inferiore del rack.
- Installare sempre il supporto stabilizzatore.
- Non aprire più di un'unità scorrevole alla volta.



3. PERICOLO

Inserire i cavi di alimentazione del rack in prese elettriche situate vicino al rack e di facile accesso.



4. PERICOLO

Collegare tutte le unità installate nel rack ai dispositivi di alimentazione installati nello stesso rack. Non collegare il cavo di alimentazione di un'unità installata in un rack al dispositivo di alimentazione di un differente rack.



1.

위험

슬라이드에 장착할 수 있는 장치의 최대 가용 무게는 80 kg(176 lbs)입니다. 이 무게를 넘는 슬라이딩 장치들은 설치하지 마십시오.

확장된 단위에 대한 중력의 중심은 RACK의 앞면으로부터 362 mm(14.25 in)를 넘을 수 없습니다. 만약 확장 장치가 이 거리를 넘는다면, 배치된 RACK은 불안정하게 됩니다.



2.

위험

- 항상 랙의 바닥부터 위까지 서버와 전원 장치를 설치하십시오.
- 항상 랙의 바닥에 가장 무거운 장치를 설치하십시오.
- 항상 랙의 바닥에 UPS(무정전 전원 장치)를 설치하십시오.
- 항상 안정 브래킷을 설치하십시오.
- 한번에 두 개 이상의 슬라이딩 장치를 확장하지 마십시오.



3.

위험

RACK 근처에 있고 쉽게 접근할 수 있는 전기 아웃렛에 RACK의 전원 코드를 꽂으십시오.



4.

위험

동일 RACK에 전원 장치를 설치하기 위해서, RACK에 설치된 모든 장치들 연결하십시오.  
한 RACK에 설치된 장치의 전원 코드를 다른 RACK에 설치된 전원 장치에 꽂지마십시오.



1. PELIGRO

- **El peso máximo permitido para los dispositivos montados en correderas es de 80 Kg (176 lbs). No instale dispositivos deslizantes que excedan este peso.**
- **El centro de gravedad de una unidad extendida no puede exceder los 362 mm (14,25 pgda.) desde la parte frontal del bastidor. Si un dispositivo extendido excede esta distancia, el bastidor que lo contuviese podría ser poco estable.**



2. PELIGRO

- **Instale siempre los servidores y dispositivos de alimentación en el bastidor de abajo a arriba.**
- **Instale siempre el equipo más pesado en la parte baja del bastidor.**
- **Instale siempre los UPS (fuentes de alimentación ininterrumpible) en la parte baja del bastidor.**
- **Instale siempre la pestaña estabilizadora.**
- **No extienda más de un dispositivo deslizante a la vez.**



3. PELIGRO

**Enchufe los cables de alimentación del bastidor en tomas eléctricas que estén situadas cerca de éste y a las que se pueda acceder fácilmente.**



4. PELIGRO

**Conecte todos los dispositivos instalados en un bastidor a los dispositivos de alimentación instalados en dicho bastidor. No enchufe el cable de alimentación de un dispositivo instalado en un bastidor en un dispositivo de alimentación instalado en un bastidor diferente.**

## Safety Notice (Multi-Lingual Translations)

This safety notice for (Type 9306 models 4QS, 4QX, 9QS, 9QX, 9TS, 9TX) is provided in the following languages:

- English
- Brazilian
- Chinese
- French
- German
- Italian
- Spanish



### Caution:

The server selector unit is heavy. You will need two people to safely remove the server selector unit.

A unidade seletora do servidor é pesada. Você irá precisar de duas pessoas para remover com segurança esta unidade.

此伺服器選擇裝置非常的重。您將需要二個人小心地移動此伺服器選擇裝置。

Le bloc sélecteur est lourd. Faites-vous aider pour le retirer en toute

Die Server Selektor Einheit ist schwer. Um sie zu transportieren, sind mindestens zwei Personen erforderlich.

L'unità per la selezione dei server è pesante ed occorrono due persone per rimuoverla in maniera sicura.

La unidad de selector del servidor es pesada. Se necesitan dos personas para extraer la unidad de selector del servidor sin peligro.

## Safety Inspection Guide:

The intent of this inspection guide is to assist you in identifying potentially unsafe conditions on these products. Each machine, as it was designed and built, had required safety items installed to protect users and service personnel from injury. This guide addresses only those items. However, good judgment should be used to identify potential safety hazards due to attachment of non-IBM features or options not covered by this inspection guide.

If any unsafe conditions are present, you must determine how serious the apparent hazard could be and whether you can continue without first correcting the problem.

Consider these conditions and the safety hazards they present:

- Electrical hazards, especially primary power (primary voltage on the frame can cause serious or fatal electrical shock).
- Explosive hazards, such as a damaged CRT face or bulging capacitor
- Mechanical hazards, such as loose or missing hardware

The guide consists of a series of steps presented in a checklist. Begin the checks with the power-off, and the power cord disconnected.

Checklist:

1. Check exterior covers for damage (loose, broken, or sharp edges).
2. Power-off the computer. Disconnect the power cord.
3. Check the power cord for:
  - a. A third-wire ground connector in good condition. Use a meter to measure third-wire ground continuity for 0.1 ohm or less between the external ground pin and frame ground.
  - b. The power cord should be the appropriate type as specified in the parts listings.
  - c. Insulation must not be frayed or worn.
4. Remove the cover.
5. Check for any obvious non-IBM alterations. Use good judgment as to the safety of any non-IBM alterations.
6. Check inside the unit for any obvious unsafe conditions, such as metal filings, contamination, water or other liquids, or signs of fire or smoke damage.
7. Check for worn, frayed, or pinched cables.
8. Check that the power-supply cover fasteners (screws or rivets) have not been removed or tampered with.

## Handling Electrostatic Discharge-Sensitive Devices:

Any computer part containing transistors or integrated circuits (ICs) should be considered sensitive to electrostatic discharge (ESD). ESD damage can occur when there is a difference in charge between objects. Protect against ESD damage by equalizing the charge so that the machine, the part, the work mat, and the person handling the part are all at the same charge.

### Notes:

1. Use product-specific ESD procedures when they exceed the requirements noted here.
2. Make sure that the ESD protective devices you use have been certified (ISO 9000) as fully effective.

When handling ESD-sensitive parts:

- Keep the parts in protective packages until they are inserted into the product.
- Avoid contact with other people.
- Wear a grounded wrist strap against your skin to eliminate static on your body.
- Prevent the part from touching your clothing. Most clothing is insulative and retains a charge even when you are wearing a wrist strap.
- Use the black side of a grounded work mat to provide a static-free work surface. The mat is especially useful when handling ESD-sensitive devices.
- Select a grounding system, such as those listed below, to provide protection that meets the specific service requirement.

#### Note

The use of a grounding system is desirable but not required to protect against ESD damage.

- Attach the ESD ground clip to any frame ground, ground braid, or green-wire ground.
- Use an ESD common ground or reference point when working on a double-insulated or battery-operated system. You can use coax or connector-outside shells on these systems.
- Use the round ground-prong of the AC plug on AC-operated computers.

## Grounding Requirements:

Electrical grounding of the PC Server Rack and computers is required for operator safety and correct system function. Proper grounding of the electrical outlet can be verified by a certified electrician.

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## Problem Determination Tips

Due to the variety of hardware and software combinations that can be encountered, use the following information to assist you in problem determination. If possible, have this information available when requesting assistance from Service Support and Engineering functions.

- Machine type and model
- Processor or hard disk upgrades
- Failure symptom
  - Do diagnostics fail?
  - What, when, where, single, or multiple systems?
  - Is the failure repeatable?
  - Has this configuration ever worked?
  - If it has been working, what changes were made prior to it failing?
  - Is this the original reported failure?
- Reference/Diagnostics Diskette Version
  - Type and version level
- Hardware configuration
  - Print (print screen) configuration currently in use
  - BIOS level
- Operating system software
  - Type and version level

### Important

To eliminate confusion, identical systems are considered *identical* only if they:

1. Are the exact machine type and models
2. Have the same BIOS level
3. Have the same adapters/attachments in the same locations
4. Have the same address jumpers/terminators/cabling
5. Have the same software versions and levels
6. Have the same Reference/Diagnostics Diskette (version)
7. Have the same configuration options set in the system
8. Have the same setup for the operation system control files

Comparing the configuration and software set-up between “working and non-working” systems will often lead to problem resolution.

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## Phone Numbers, U.S. and Canada

### Note

EMEA customers should contact their Dealer or IBM Service organization.

Before you place a call to the Support Center, refer to "Problem Determination Tips" on page 89.

### Authorized Dealers or Servicers

Number	Information
919-517-0001	Bulletin Board Service - PC Company
800-528-7705	Bulletin Board Service - TSS Only
800-937-3737	IBM Business Partner Education
800-426-2472	IBM Customer Engineer Technical Support
800-IBM-DEAL	IBM Dealer Support Center
800-342-6672	IBM Direct Desktop Software Sales
303-924-4015	IBM Part Number ID and Look Up
800-426-7763	IBM PC HelpCenter
800-237-5511	IBM Software Defect Support (CSDs)
800-327-5711	IBM Software Ordering (Publications)
800-426-1484	IBM Supplies Technical Hotline
800-388-7080	IBM Warranty Parts Claims Center

### U.S. Customers and Helpware Subscribers

Number	Information
919-517-0001	Bulletin Board Service - PC Company
800-426-8322	Customer Education Business Unit
800-999-0052	Customized Operational Services
800-237-4824	EduQuest (Educational Computers)
800-964-8523	End User HelpDesk Support
800-742-2493	IBM Anti-Virus Services
800-447-4700	IBM Authorized Dealer Referrals
800-426-2468	IBM Dealer Referral
800-426-3333	IBM Information Referral Service
800-IBM-SERV	IBM Service
800-772-2227	IBM PC HelpCenter and HelpDesk
800-426-7282	IBM Technical Manuals
800-426-9402 (Ext. 150)	Multimedia Information Center
800-241-1620	Multimedia HelpCenter
800-342-6672	OS/2 Information Line
800-237-5511	OS/2 Support Services
800-284-5933	Prodigy
914-962-0310	Prodigy User Questions
800-547-1283	Technical Coordinator Program
	SystemXtra for Personal Systems
	LAN Automated Distribution/2
	OS/2 Bulletin Board
	OS/2 Application Assistance Center
800-551-2832	Technical Solutions Magazine

## IBM Canada Customer and Service Support

Number	Information
800-661-PSMT	Business Partner Marketing Support
905-316-5556	Business Partner Marketing Support - Toronto
514-938-6048	Business Partner Marketing Support - French
800-465-6600	Customer Relations
905-316-6666	Customer Relations - Toronto
800-465-6666	Customer Service Dispatch
800-263-2769	Customer Service Parts
800-465-2222	Customer Support Center (ISC)
416-443-5701	Customer Service Repair Centre
800-465-7999	HelpClub Registration
800-465-7999	IBM Direct
905-513-3367	IBM Certification Administrator
905-316-2683	IBM Certification Coordinator Mail to: 50 Acadia Drive Markham, Ontario L3R 0B3
800-465-3299	IBM HelpFax
905-316-3299	IBM HelpFax - Toronto
800-565-3344	IBM HelpPC
800-268-3100	IBM Information Network Support
800-268-3100	IBM Information Network Support - Toronto
800-387-8343	IBM PC Service Partners
800-663-7662	Lexmark Product Information
800-263-2769	Parts Orders, Exchange or Emergency
416-443-5808	Parts Regular Orders, Exchange (Fax)
416-443-5755	Parts Orders, Inquiries
514-938-3022	PC Co Bulletin Board - Montreal
905-316-4255	PC Co Bulletin Board - Toronto
604-664-6464	PC Co Bulletin Board - Vancouver
204-934-2735	PC Co Bulletin Board - Winnipeg
800-661-7768	PS Marketing Support (PSMT)
800-465-1234	Publications Ordering
905-316-4148	Service Management Support
905-316-4100	Service Management Support (Fax)
905-316-4150	Service Manager
905-316-4100	Service Manager (Fax)
905-316-4872	Service Quality Programs
905-316-4100	Service Quality Programs (Fax)
800-661-2131	Skill Dynamics (Education)
800-565-3344	PS/1 Warranty Customer Helpline
800-387-8483	PS/1 Warranty Service (DOAs)
416-443-5835	Warranty Claim Fulfillment (Fax)
905-316-2445	Warranty Claim Reimbursement
905-316-3515	Warranty Claim Reimbursement (Fax)
416-443-5778	Warranty Claim Parts Inquiry
800-505-1855	Warranty Provider Support Hotline
800-267-7472	Warranty Service, ThinkPad

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We want to know your opinion about this manual (part number 10L9941). Your input will help us to improve our publications.

Please photocopy this survey, complete it, and then fax it to **IBM HMM Survey at 919-543-8167 (USA)**.

Name \_\_\_\_\_

Phone Number \_\_\_\_\_

1. Do you like this manual?

\_\_\_\_\_ Yes      \_\_\_\_\_ No

\_\_\_\_\_  
\_\_\_\_\_

2. What would you like to see added, changed, or deleted in this manual?

\_\_\_\_\_  
\_\_\_\_\_

3. What is your service experience level?

\_\_\_\_\_ Less than five years

\_\_\_\_\_ More than five years

\_\_\_\_\_  
\_\_\_\_\_

4. Which computers do you service most?

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\_\_\_\_\_  
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**Thanks in advance for your response!**

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