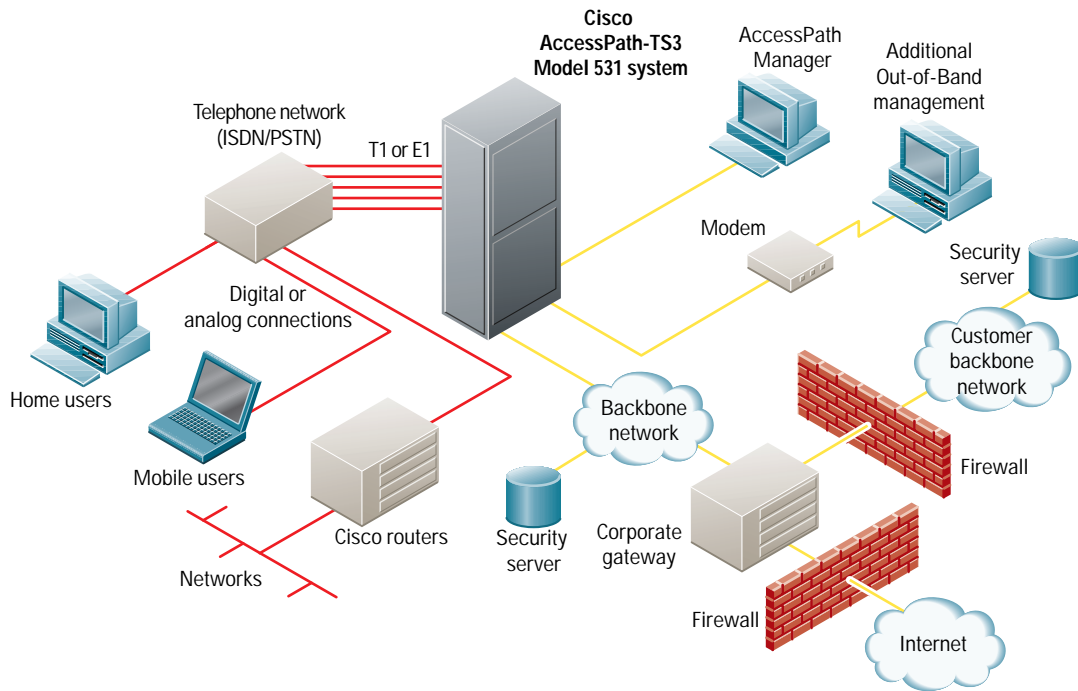


# Quick Start Guide

## CISCO ACCESSPATH-TS3 MODEL 531

### INTEGRATED ACCESS SYSTEM

### HARDWARE INSTALLATION



1

PREPARE YOUR INSTALLATION SITE

2

UNCRATE AND MOVE THE SYSTEM

3

INSTALL THE SYSTEM



## Installation Considerations

You must do three procedures when unpacking and installing your Cisco AccessPath-TS3 Model 531 Integrated Access System:

- 1 Unload the crate from its shipping vehicle.
- 2 Move the crate using a forklift or similar device to the unpacking site.
- 3 Move the unpacked system to the installation site.

Consider the following issues before you unpack and install your system:

- Select an unpacking location with adequate surrounding space for the unloading process (including space for ramp installation and use).
- Choose an installation site that will accommodate the Cisco AccessPath-TS3 system. When planning a High-End/Extended configuration, leave space for the second cabinet.
- Check to ensure that your site contains an adequate power infrastructure:
  - AC systems require seven dedicated 20A (100–127 VAC) or 10A (200–240 VAC) circuits per cabinet
  - DC systems require four dedicated 45A (–48 to –60 VDC) circuits per cabinet

## Manpower Requirements

Cisco recommends that five people be present whenever you move the Cisco AccessPath-TS3 Model 531 system cabinet. Plan adequate human resources to unload and install the system—the fully loaded system can weigh up to 1300 lbs (590 kg), and moving it carelessly can cause serious injuries.

## Recommended Bolt Kit

Cisco recommends that you use a bolt kit from HILTI. This kit has passed seismic testing when used with the Cisco AccessPath-TS3 Model 531 system. If you use a bolt kit from another vendor (or if you supply your own), it is your responsibility to confirm the fulfillment of seismic safety standards.

The recommended kit can be ordered from HILTI, and includes the following elements:

- 4 threaded rods or M12 studs, 110 mm (4.33 in.) in length.
- 4 M12 washers.
- 4 M12 torque nuts, the bottom portion of which is encased in plastic (the top portion is designed to shear away when you tighten the nut to 60 ft.-lb).

In addition, you will use the load plate that you saved when you unbolted the system from its shipping pallet.

## 1

# Prepare Your Installation Site (continued)

## Required Tools

Confirm that you have the following tools available:

- ESD-preventive wrist straps for each person
- Number 2 Phillips screwdriver
- 7/16-inch standard wrench, a socket wrench, and an open-end or box-end wrench (used to lower and raise caster assemblies)
- Allen wrench (to disassemble caster assembly after unit is moved to installation site)
- Standard tin snips (to cut metal banding)
- Tape measure (optional)
- Level (optional)

## Safety Information



**Warning** Before installing the Cisco AccessPath-TS3 system, refer to the warnings listed in the document *Regulatory Compliance and Safety Information for the Cisco AccessPath-TS3 Model 531 System*.

## Preparing Seismic Safety Bolting

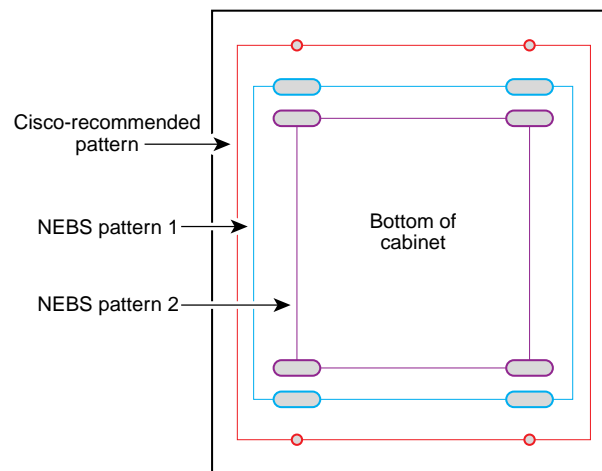
Cisco's seismic safety guidelines include bolting patterns that conform to Network Equipment Building Standards (NEBS) requirements.

To ensure seismic safety, you must anchor the cabinet to the floor as follows:

- Step 1** Drill four holes.
- Step 2** Insert casings (anchors) in the holes.
- Step 3** Secure the system to the anchors using threaded rods.

The illustration below shows the three possible bolt patterns:

- 1 Cisco-recommended pattern that simplifies installation and provides additional stability
- 2 NEBS patterns



*Note: If you use either NEBS pattern and your system configuration is Midrange or higher, you must remove the Switch Shelf before bolting the system down. Refer to the Cisco AccessPath Model 531 Hardware Upgrade and Configuration Guide for Switch Shelf removal and installation instructions.*

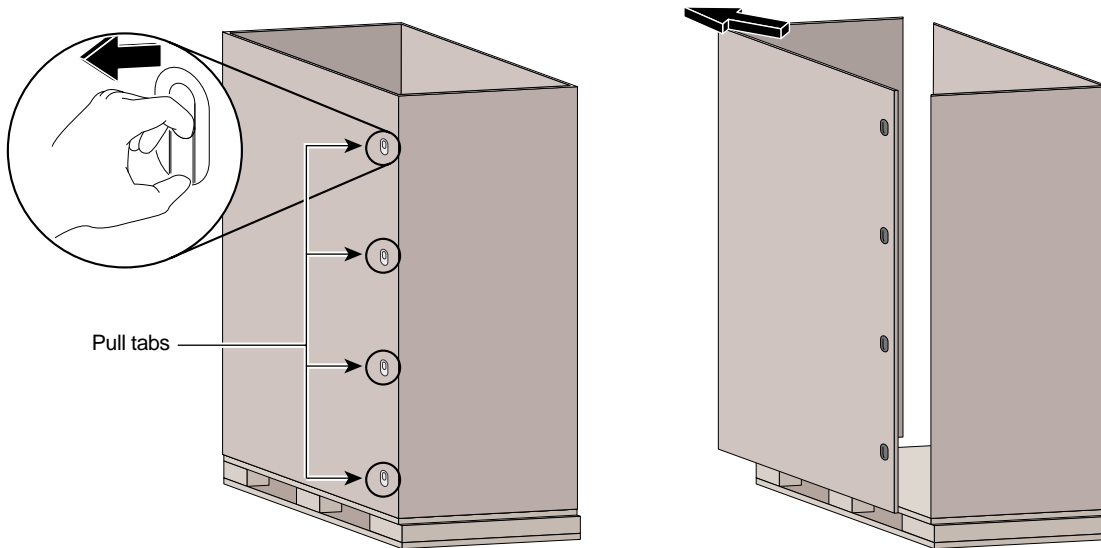
## 2 Uncrate and Move the System

### Remove the Cardboard

**Step 1** Locate the four pull tabs that connect the two main pieces the carton. (Refer to the illustration below.)

- 1 Place your index finger inside the top corner pull tab locking mechanism, and pull it toward you.
- 2 Remove the detachable lock and set it aside.
- 3 Repeat this process for the remaining three locks that secure this side.
- 4 Go to the other side of the unit and repeat Step 1.

**Step 2** Store the three cardboard pieces in a safe and dry place.



### Remove the Accessory Kits

One metal band binds these kits to the pallet as shown in the figure on page 4.

Do the following steps to remove the accessories kits from their shipping positions:

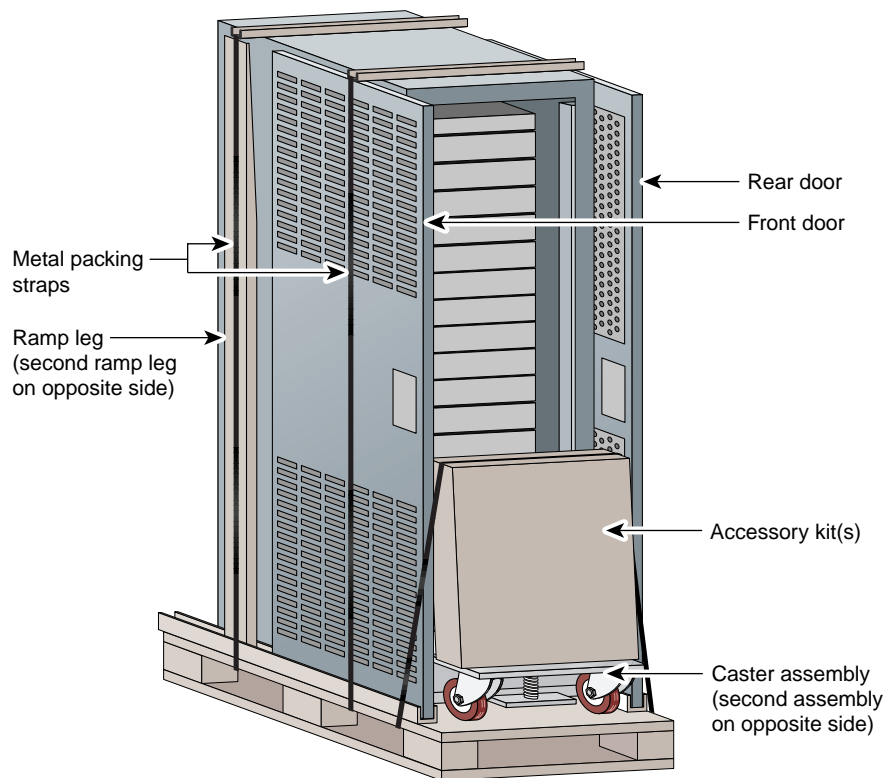
- Step 1** Use tin snips to cut the band.
- Step 2** Remove the band and lift the kits out of the cabinet.

## 2

## Uncrate and Move the System (continued)

System accessory kits include the following:

- Documentation kit
- AC modem kit—Optional (North America only)
- Expansion cable kit—Optional (to be used with High-End/Extended configurations)
- Backhaul port adapter kit—Optional
- DC inlet clamp kit—Optional (DC configurations only)



### Remove the Doors

Do the following steps to remove the doors from their shipping positions:

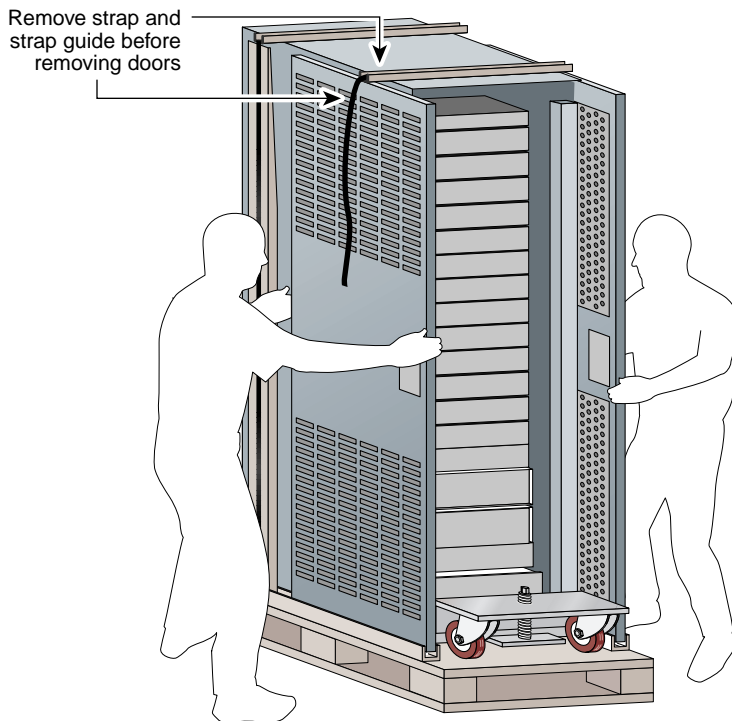
- Step 1** Locate the banding strap that secures the doors to the side of the cabinet.
- Step 2** While a second person holds the doors, use tin snips to cut the metal strap that binds the doors to the side of the cabinet. Discard the straps and strap guides.

## 2

# Uncrate and Move the System (continued)

- Step 3** Have a second person hold the doors while you grasp the edges of one door and lift it carefully out of its retaining u-stock. Assign a second person to hold the second door on the opposite side of the cabinet.
- Step 4** Set the door down in a stable position or carry it to the installation site. You will attach the doors to the cabinet at the end of the installation procedure.
- Step 5** Lift the second door out of its retaining material and place it with the first door.

*Note: The front door, which you will mount on the cabinet hinges nearest the signal cables, has louvers. The rear door is perforated.*



## Remove and Attach the Ramp

Do the following steps to prepare the ramp for use:

- Step 1** Someone must hold the ramp legs while you use tin snips to cut the metal straps that binds the ramp legs to the side of the cabinet. Discard the straps and strap guides.
- Step 2** Lift one of the ramp legs clear of the cabinet and carry it to the side of the pallet from which you will unload the system.

## 2

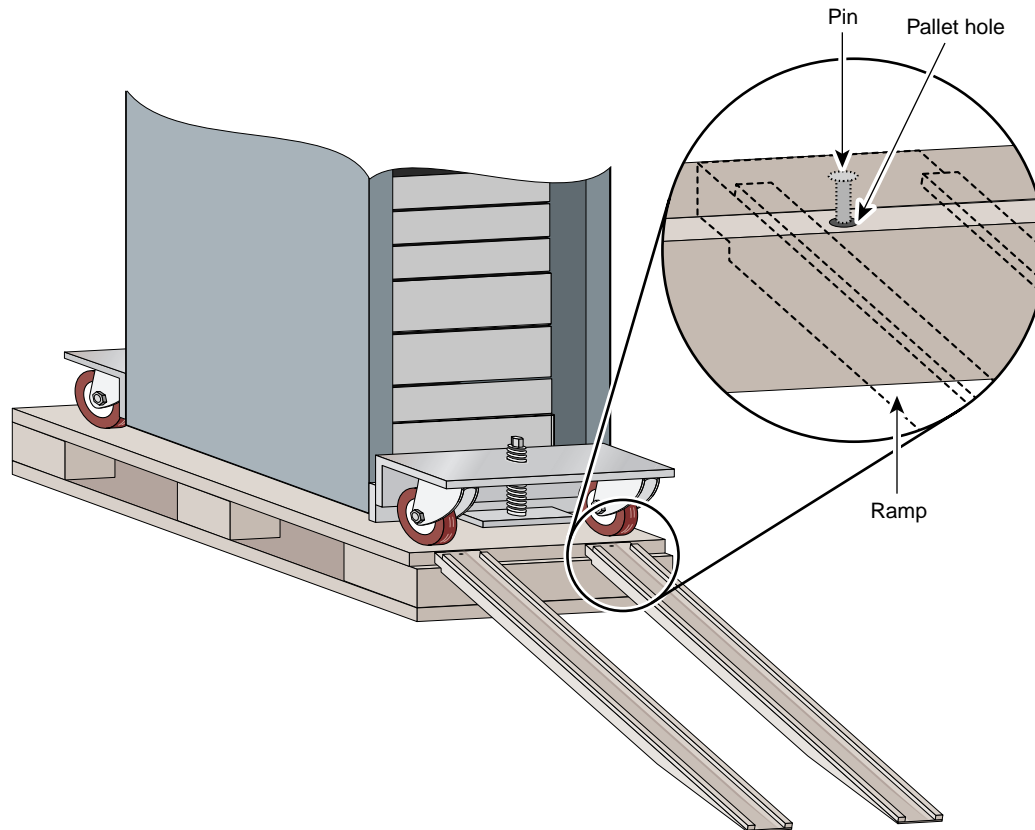
## Uncrate and Move the System (continued)

**Step 3** Align the ramp leg so that the hole at its end is directly over one of the pins on the edge of the pallet. Lower the ramp leg until the peg fits securely into the hole in the wood.

The first of the two ramp legs is now locked into position.

**Step 4** Repeat Step 2 and Step 3 with the second ramp leg, aligning it with the uncovered pin.

**Step 5** Confirm that the ramp's holes are securely locked around the pins.



## Unbolt the Cabinet

Do the following steps to unbolt the unit:

**Step 1** Using a 7/8-inch wrench, loosen one of the nuts that fasten the bolts to the cabinet. Remove the nuts and set them aside.

**Step 2** Remove and save the 2- x 3-inch (5.1- x 7.6-cm) load plates that sit beneath the nuts. (You will use these for seismic safety bolting.)



## 2

## Uncrate and Move the System (continued)

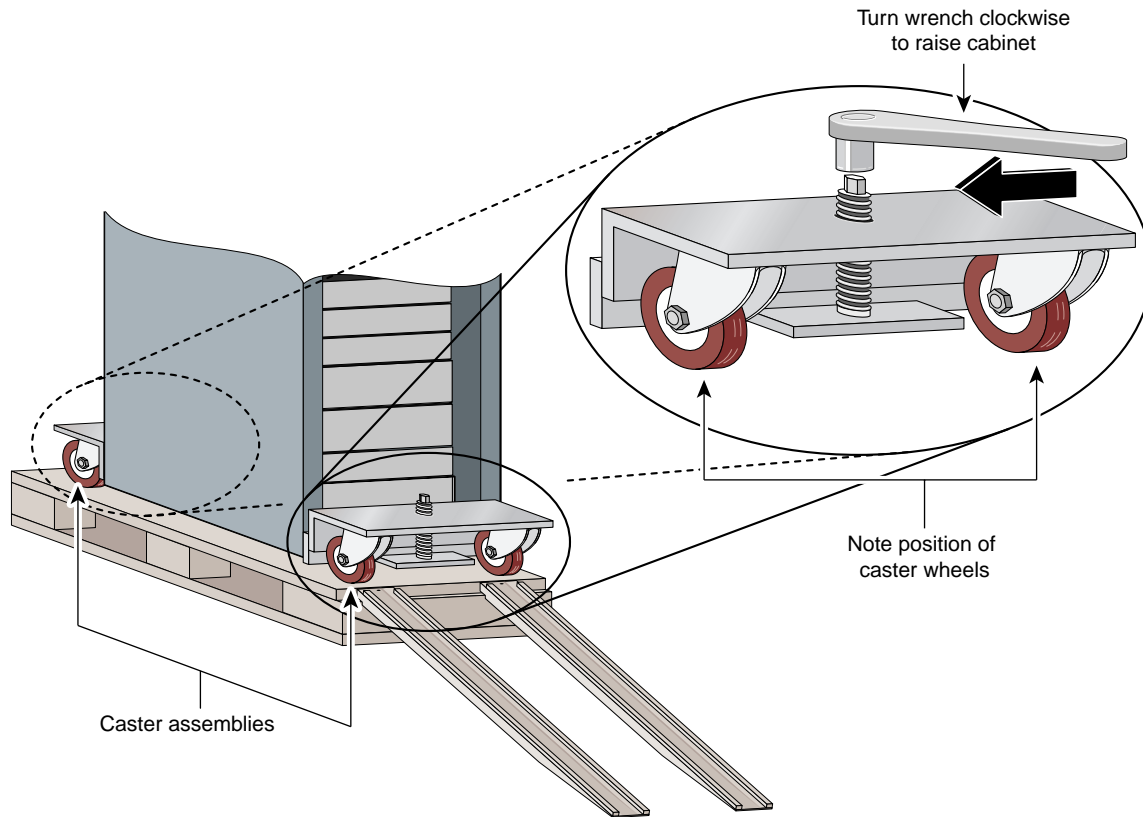
- Step 3** Push the loosened bolts through the pallet so they fall to the floor.
- Step 4** Make sure that all four bolts drop completely through the pallet to the floor and do not obstruct the casters or the cabinet.

### Move the Cabinet

Assign one person to control the front caster assembly and one person the back assembly. Now raise the system:

- Step 1** Attach a 7/16-inch wrench to the hex cap of the wormscrew in the center of the horizontal plate.
- Step 2** Turn the wrench clockwise to lower the casters and raise the cabinet.
- Step 3** Continue to lower the front and back casters in a coordinated fashion until all four wheels barely touch the pallet surface.
- Step 4** Align the front and back caster wheels using your hands until they are parallel with each other and face the attached ramp legs. Be sure that no one is turning the caster assembly as you align the wheels.
- Step 5** Raise the entire assembly 1.5 inches (3.8 centimeters) to ensure that the cabinet clears the ramp. Otherwise, the cabinet might catch on the ramp lip.

## 2 Uncrate and Move the System (continued)

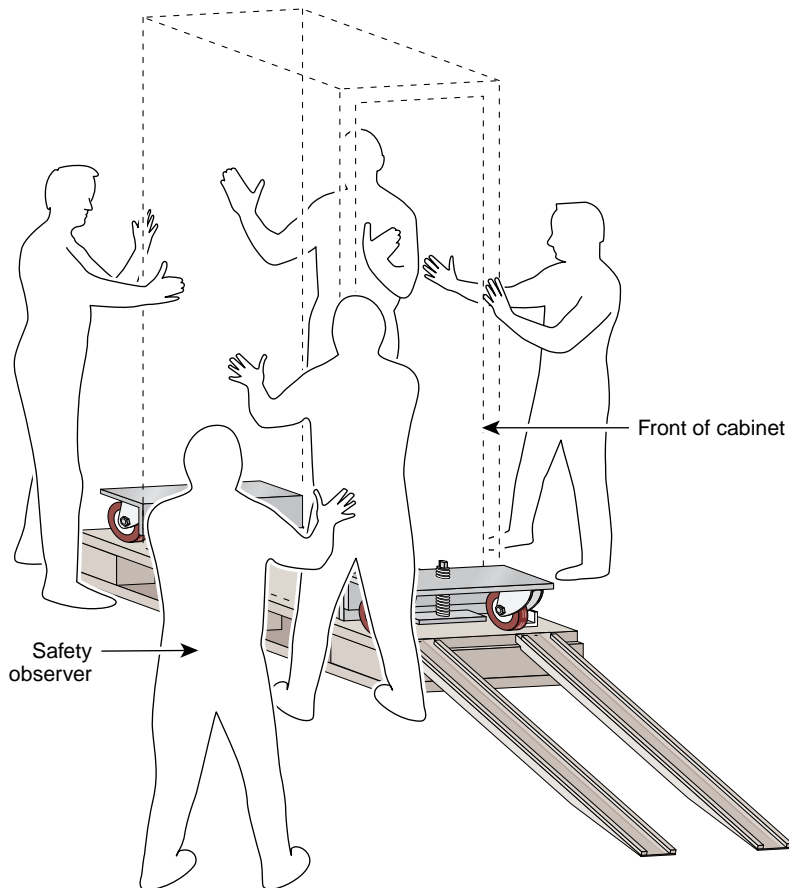


**Warning** We recommend that four people work together to roll the cabinet down the ramp and to the installation site. Using fewer than three people will substantially increase the risk to personnel and equipment.

## 2

# Uncrate and Move the System (continued)

**Step 6** Position yourself and the remaining personnel in the most efficient configuration. (Refer to the following figure.) A fifth person should be present as a safety observer. If, as recommended, you have assigned four people to move the system, position each at a corner of the cabinet. If only three people are available, place one in front and one on each side.



**Step 7** Roll the Cisco AccessPath-TS3 system down the ramp at a controlled but steady speed.

**Step 8** After all four casters have reached the floor, roll the cabinet to the installation site. Remove, or route the cabinet around, any protrusions or obstacles between the unload and the installation locations. Move the cabinet at a controlled but steady speed.

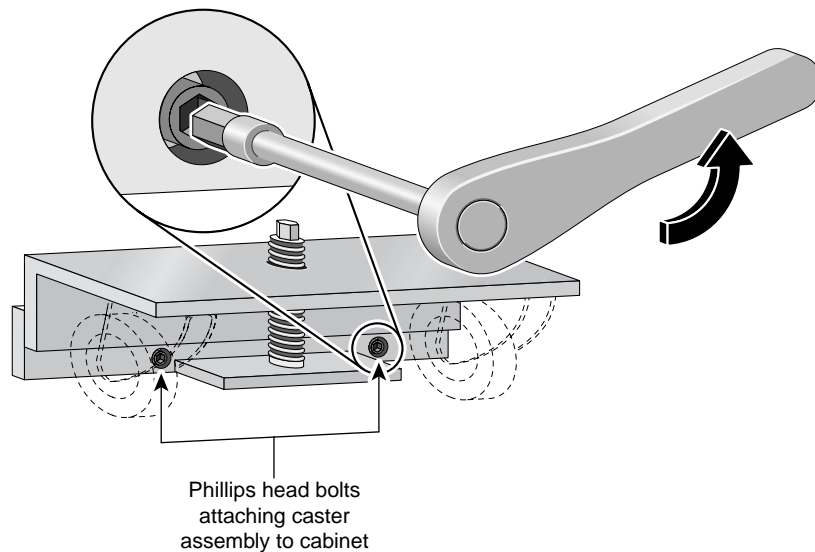
**Step 9** After you have reached the installation site, move the cabinet into position over the bolt holes. See the “Install the Cabinet” section in Chapter 3 of the *Cisco AccessPath-TS3 Model 531 Integrated Access System Hardware Installation Guide*.

## 3 Install the System

### Anchor the Cabinet

After moving the Cisco AccessPath-TS3 Model 531 system to the installation site, do the following steps to install your system:

- Step 1** Confirm that you have inserted the steel anchors into each seismic anchor hole.
- Step 2** Align the mounting holes in the cabinet with the holes in the floor.
- Step 3** Collect the four threaded rods that anchor the system to the floor. Place them all within reach. (Each comes with a washer and a nut used to secure the rod in the casing. A load plate, also required to secure the rod, ships with the system packaging.)
- Step 4** Locate the first mounting hole on the base of the cabinet. Hand-turn the threaded rod into the casing until it stops. Do not attempt to tighten the thread any further now; you will do that in a later step.



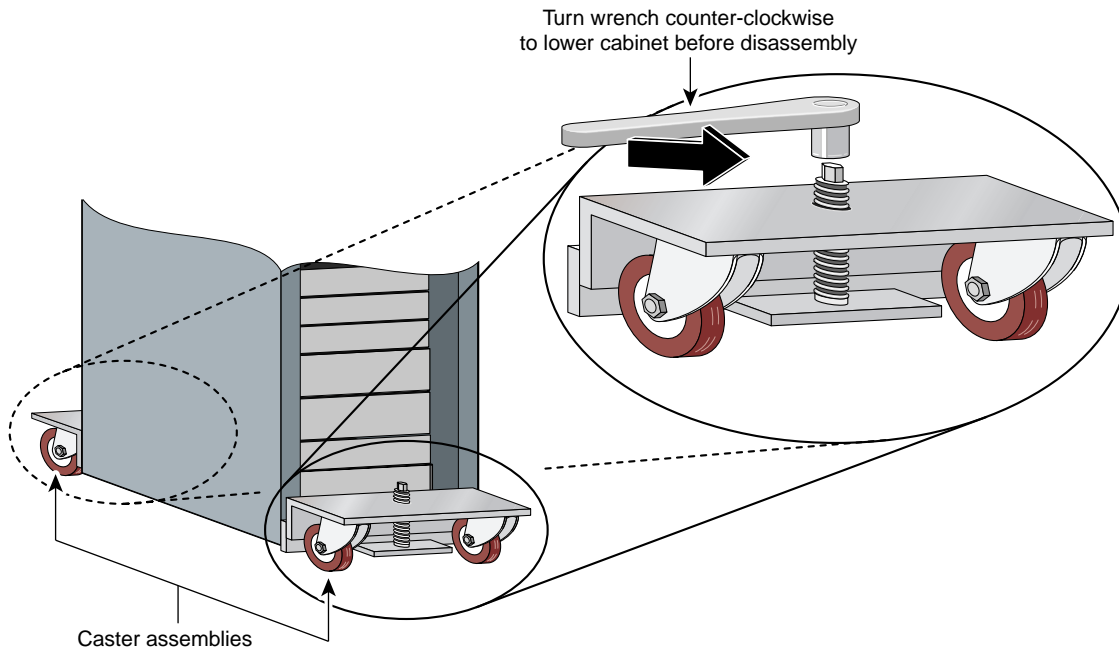
- Step 5** Repeat Step 4 for the remaining threaded rods.

*Note:* You will finish securing the rods to the floor after you lower the system and remove the caster assemblies.

### 3 Install the System (continued)

**Step 6** Raise the casters to lower the system completely to the floor (Refer to the illustration below.)

- 1 With one person stationed at each caster assembly, attach the appropriate wrench to the turning mechanism (wormscrew) on each caster plate.
- 2 Turn the wrench counter-clockwise until the cabinet is completely on the floor and the casters are completely clear of the floor.
- 3 When the system makes contact with the floor, confirm that both caster assemblies no longer touch the floor.



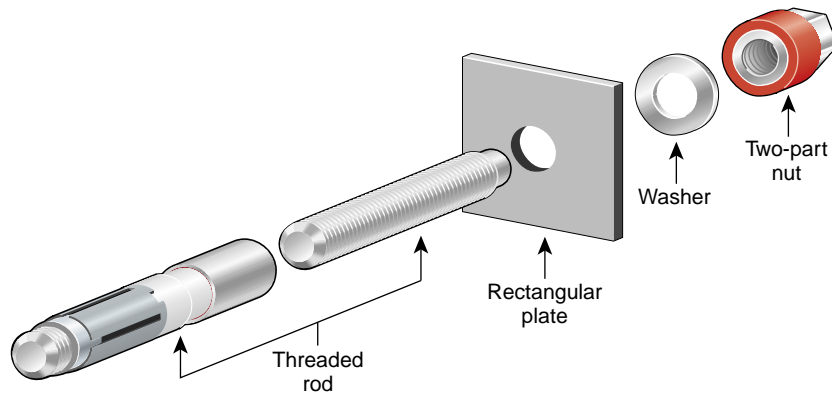
**Step 7** Detach the caster assembly:

- 1 Locate the two bolts that connect the first assembly.
- 2 Using an allen wrench, loosen the nut on the first bolt. Remove the bolt and set it aside.
- 3 Repeat this process for the second bolt on the first caster assembly.
- 4 Detach the rest of the assembly from the cabinet, and set all components in a safe place for future use.
- 5 Remove the studs in the cabinet.

**Step 8** Repeat Step 7 to disassemble the second caster assembly.

### 3 Install the System (continued)

*Note: The parts that make up each threaded rod assembly include the threaded rod, a rectangular plate with a hole in its center, a washer, and a two-part nut assembly (the top portion of which detaches when you tighten the rod into place).*



**Step 9** Tighten down each of the threaded rods using a torque wrench.

- 1 Place the metal load plate over the first threaded rod (already set in its anchor). Align the hole in the plate over the threads, and lower it until it is flush with the top of that section.
- 2 Place a washer over the rod and let it drop onto the plate.



**Caution** These nuts will shear when 60 ft-lbs are reached—you should use a box-end or 19-mm socket wrench to turn them.

- 3 Place the nut assembly onto the top of the threaded rod and tighten it down. Continue to tighten the nut with the torque wrench until the visible metal portion shears away (this will occur when the assembly is torqued to a tension of 60 ft-lbs).
- 4 Repeat Step 9 for each of the remaining three threaded rods until you have securely bolted the cabinet into the floor.

## 3

## Install the System (continued)

## Confirm Signal Cabling

Though the Cisco AccessPath-TS3 system is precabled, you must ensure that all connectors are securely seated.

## Confirm Signal Cabling within the Cabinets

Step	Device	Cable	Shelf Connection	Signal Harness Connection
1	Patch panels	72-1466-xx	J1–J4	J2 (Patch panel 1) J10 (Patch panel 2)
			J5–J7	J1 (Patch panel 1) J9 (Patch panel 2)
2	Access Server Shelves	72-1464-xx	PRI 0–PRI 3	Odd-numbered connectors, J13 through J39
		72-1463-xx	Console 0 Fast Ethernet 0 Ethernet 0	Even-numbered connectors, J14 through J40
4	Router Shelves	72-1462-xx	The 12 Ethernet switching ports in slots 5 and 6	J46 (Router Shelf 1) J42 (Router Shelf 2)
		72-1465-xx	Console 0 Ethernet 0	J44 (Router Shelf 1) J41 (Router Shelf 2)
		72-1487-xx <sup>1</sup>	The 12 Ethernet switching ports in slots 3 and 4	J56
		72-1489-xx	Router Shelf Fast Ethernet port 5/0 Router Shelf 1 Fast Ethernet port 3/0	Router Shelf port 0/0 <sup>1</sup> Router Shelf 1 port 0/0 <sup>2</sup>
		72-1490-xx <sup>2</sup>	Router Shelf 1 Fast Ethernet port 5/1	Router Shelf 2 Fast Ethernet port 5/1 <sup>3</sup>
		72-1457-xx	Ethernet 0–1	J48
5	System Controller	72-1461-xx	Async 0–7	J49
			Async 8–15	J50
5	System Controller	72-1461-xx	Async 16–23	J51
			Async 24–31	J52
6	Switch Shelf	72-1462-xx	The 24 Ethernet switching ports, Fast Ethernet 1–12 and 13–24	J56 J57
		72-1486-xx	Console Ethernet (Fast Ethernet ports 1 and 2)	J55

<sup>1</sup> This connection is made from one port to another on one Router Shelf. There is no connection to the signal harness.

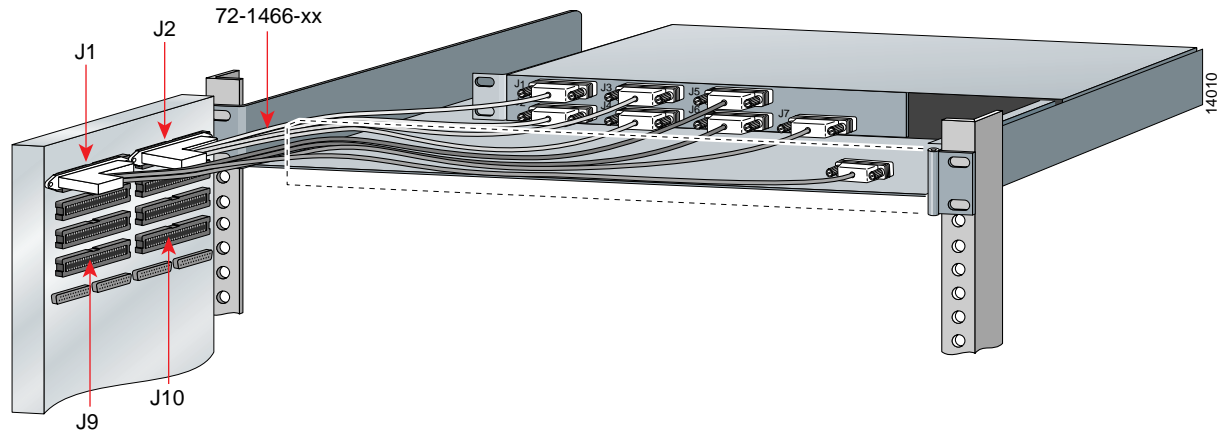
<sup>2</sup> Dual Router Shelf configurations only.

<sup>3</sup> This connection is made from one Router Shelf to the other in dual Router Shelf configurations. There is no connection to the signal harness.

### 3 Install the System (continued)

#### Confirm Patch Panel Cabling

All signal cabling configurations should look like this on patch panels:

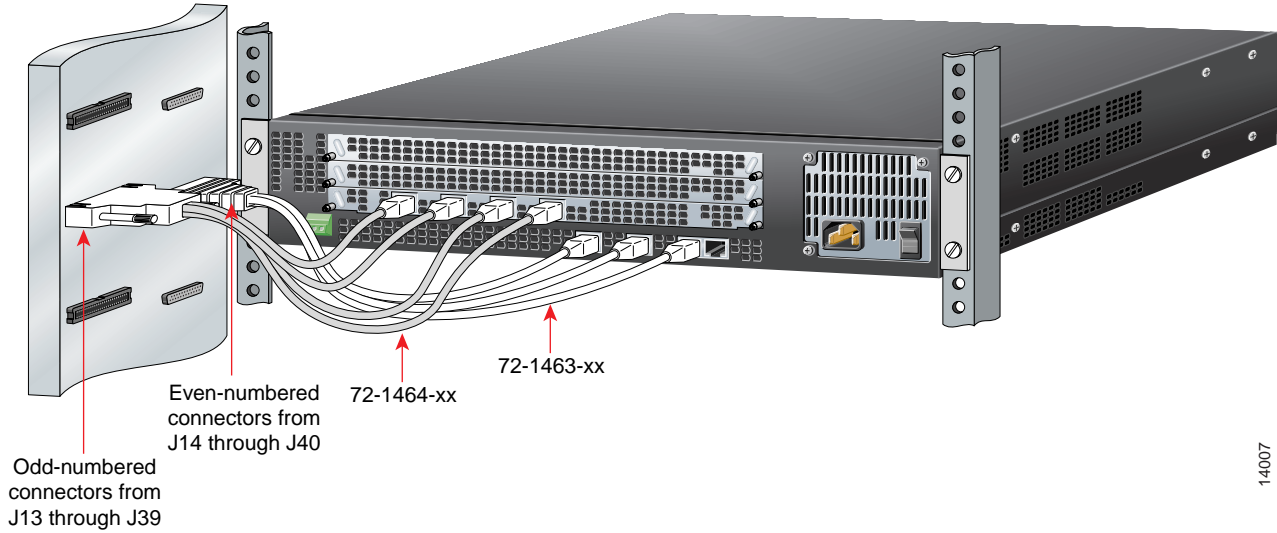




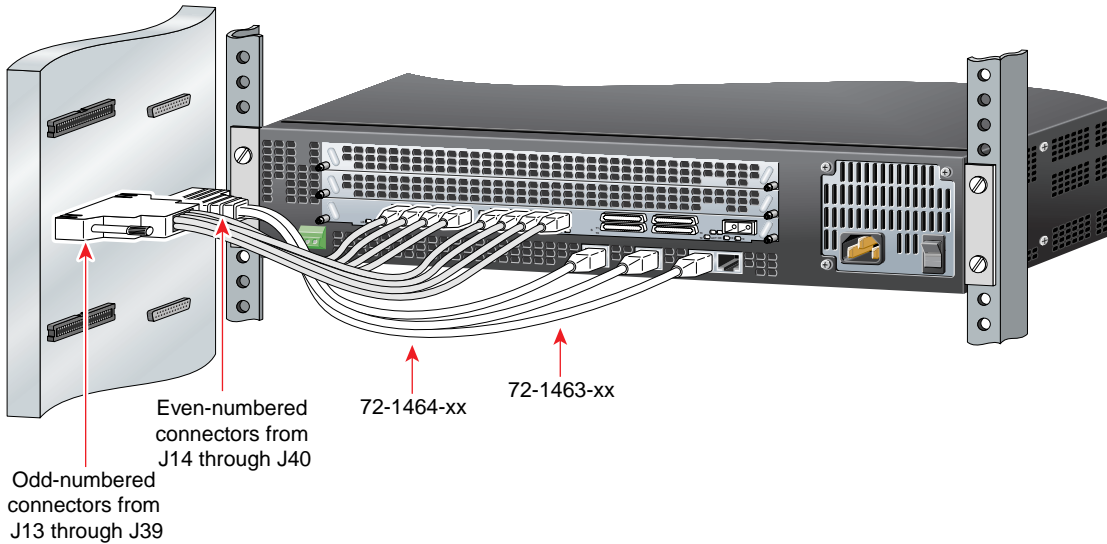
### 3 Install the System (continued)

#### Confirm Access Server Shelf Data Cabling Configuration

All signal cabling configurations should look like this on 4-PRI Access Server Shelves:



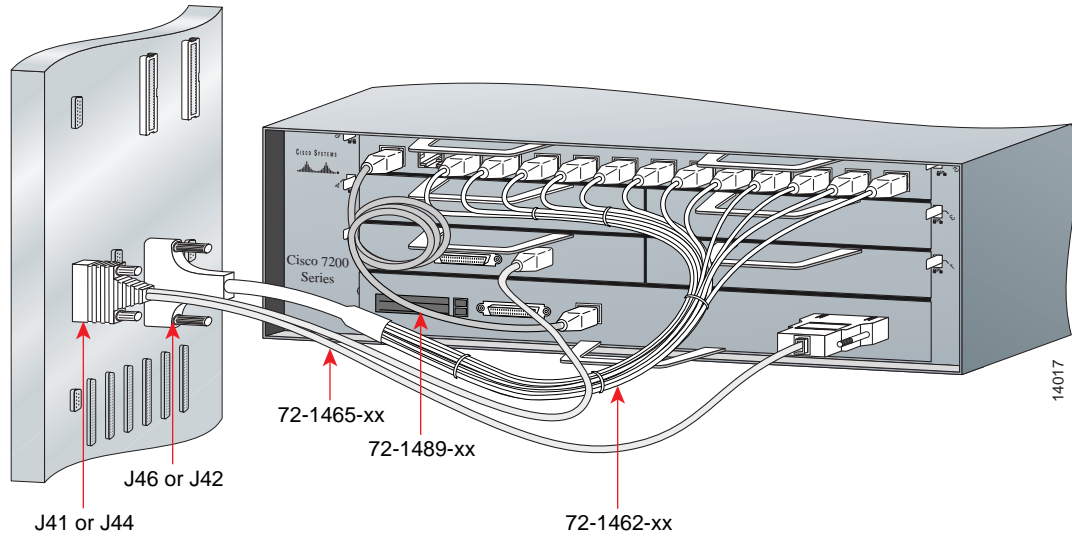
All signal cabling configurations should look like this on 8-PRI Access Server Shelves:



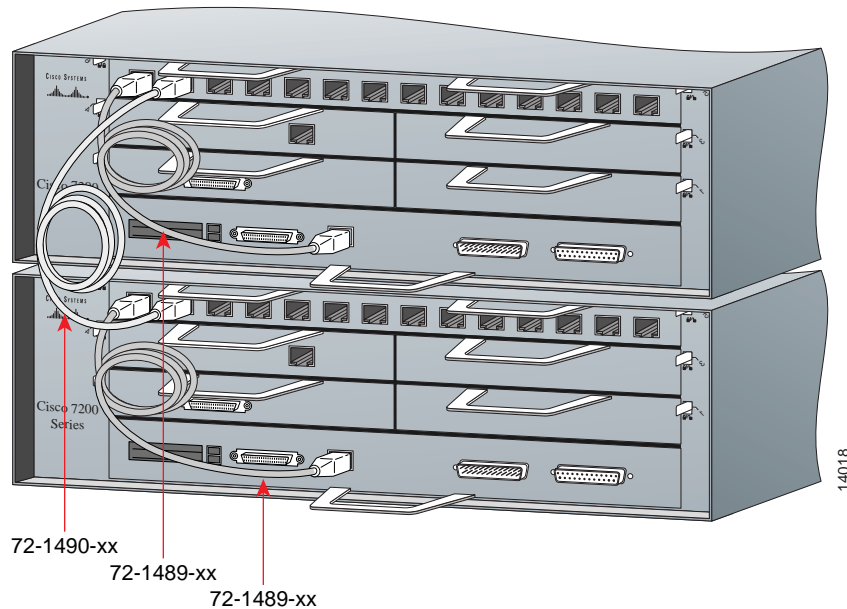
# 3 Install the System (continued)

## Confirm Router Shelf Cabling

All signal cabling configurations should look like this on Router Shelves:



High-End configurations must include the interconnect cables on Router Shelves:

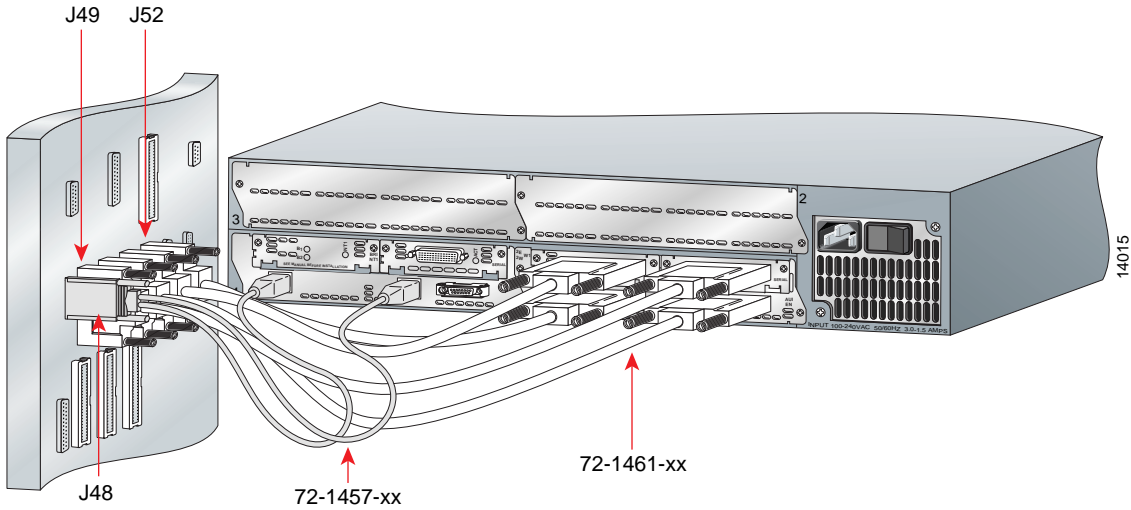


# 3

## Install the System (continued)

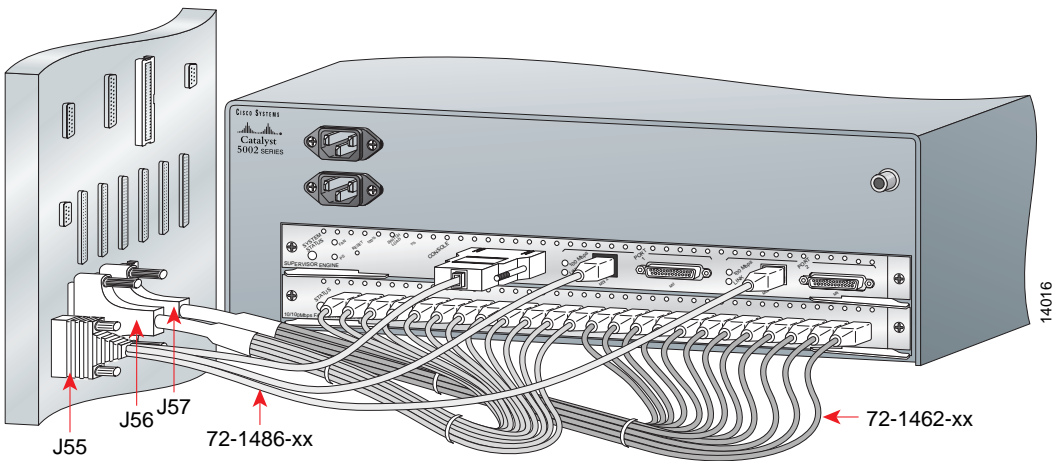
### Confirm System Controller Cabling

All signal cabling configurations should look like this on the System Controller:



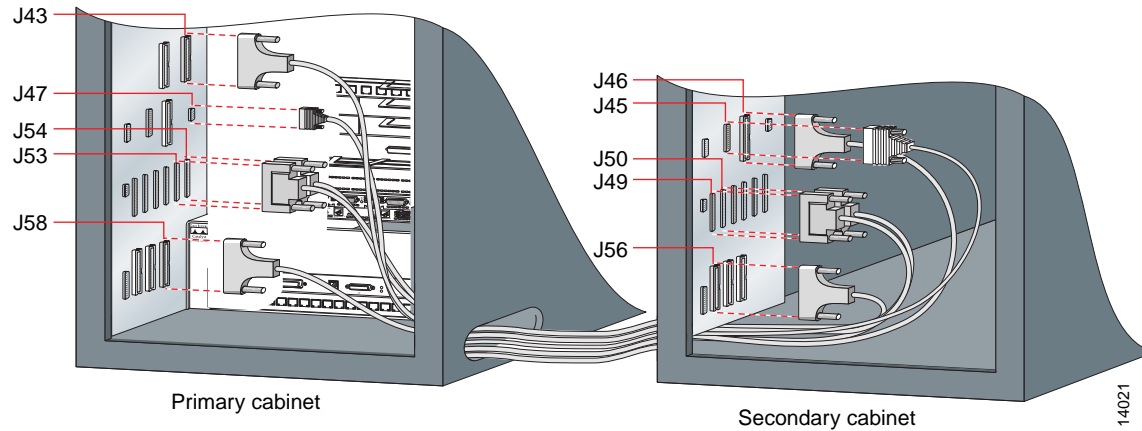
### Confirm Switch Shelf Cabling

All signal cabling configurations should look like this on the Switch Shelf:



### 3 Install the System (continued)

#### Connect Signal Cabling Between Cabinets (High-End/Extended Configuration Only)



On the High-End/Extended configuration, you must cable the devices in the secondary cabinet to those in the primary cabinet using five expansion cables. The maximum space between the cabinets is 30 feet (9.14 m).

Step	Connect Cable Part Number	From the Primary Cabinet Signal Harness Location	To the Secondary Cabinet Signal Harness Location
1	72-1459-xx	J43	J46
2	72-1458-xx	J47	J45
3	72-1460-xx	J53	J49
4	72-1460-xx	J54	J50
5	72-1459-xx	J58	J56

# 3

## Install the System (continued)

### Install the AC Out-of-Band Modem (North America Only)

Do the following steps to install the AC Out-of-Band (OOB) Modem:

**Step 1** Empty the modem accessory kit and confirm its contents. You should have the following items:

- Modem
- Modem adapter
- 18-inch velcro strap
- Power cable
- Power extension cable
- Signal cable

**Step 2** Attach the power cable to the supplied extension cord, which converts a 2-prong connector to a 3-prong connector that fits the power strip.

**Step 3** Insert the modem adapter (29-0881-xx) in the serial port at the back of the modem. Tighten the screws to secure the connection.

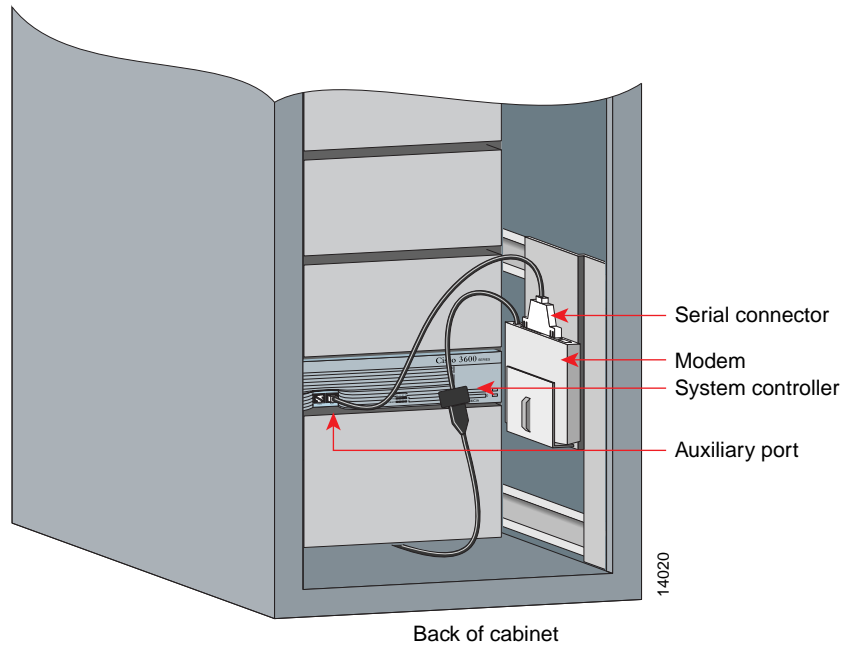
**Step 4** Take the modem, velcro strap, and related installation components to the back of your Cisco AccessPath-TS3 system.

**Step 5** Locate the modem bracket found in the right rear corner of the system when viewed from the back. This bracket, which forms a metal pouch for easy modem installation, is premounted against the wall of the system.

## 3

## Install the System (continued)

**Step 6** Position the modem above the metal pouch at the center of the bracket. Insert the modem so that the ports and modem adapter are at the top. (Refer to the illustration below.)



**Step 7** Take the velcro strap and loop it around the back of the modem and through the bridge lance that attaches to the outside of the installation pouch.

**Step 8** Wrap the velcro tightly and press the strips together, securing the modem in the metal installation pouch.

**Step 9** Attach the power cord to the modem port located at the top left edge of the installed modem. (If you have not connected the modem power cord to the supplied extension cord, do so now.)

- 1 Grasp the extension cord with the 3-prong connector, and route it from the modem to the AC power strip connector labeled OOB-Modem.
- 2 Route the extension cord directly beneath the Switch Shelf, pushing the cord through as far as it will reach.
- 3 Walk to the front of the system and pick up the power cord (it should extend through the opening beneath the Switch Shelf).
- 4 Plug the extension cord into the connector labeled OOB-Modem.

## 3 Install the System (continued)

**Step 10** Attach the modem serial connector to the System Controller:

- 1 If you have not already done so, attach the serial adapter (29-0881-xx) to the center of the modem port array. Use the thin, flat, RJ-45-to-RJ-45 rolled cable (72-0876-xx) with an RJ-45-to-DB-25 adapter.
- 2 Locate the auxiliary port that is accessible from your location at the rear of the System Controller, and plug the other RJ-45 end into it.

**Step 11** Connect your external phone line. Insert one end of the line connector (RJ-45) into the line port and the second connector end into a wall jack.

**Step 12** Turn the modem ON. You have now established OOB management to your system.

### Connect Power

To connect power to your system, you must first confirm that your site meets the power requirements, which help guarantee power redundancy to the Router Shelf and the Switch Shelf:

- AC systems require seven dedicated 20A (100 to 127 VAC) or 10A (200 to 240 VAC) circuits per cabinet
- DC systems require four dedicated 45A (-48 to -60 VDC) circuits per cabinet

### Connect AC Power

For a Cisco AccessPath-TS3 Model 531 system equipped for AC power, the power is supplied to the various shelves through a power strip located on the right side of the system, inside the front door.

**Step 1** Make sure that all of the shelves are turned OFF.

**Step 2** Confirm that the AC power connections are firm between the shelves and the power strip. Check the connections in this order:

- 1 Access Server Shelves
- 2 Router Shelf or Shelves (depending on configuration)
- 3 System Controller
- 4 Switch Shelf (depending on configuration)
- 5 Out-of-Band Modem (optional)

**Step 3** Plug any unconnected power cords that come from the Cisco AccessPath-TS3 system into the power strip at the appropriate location.

# 3

## Install the System (continued)

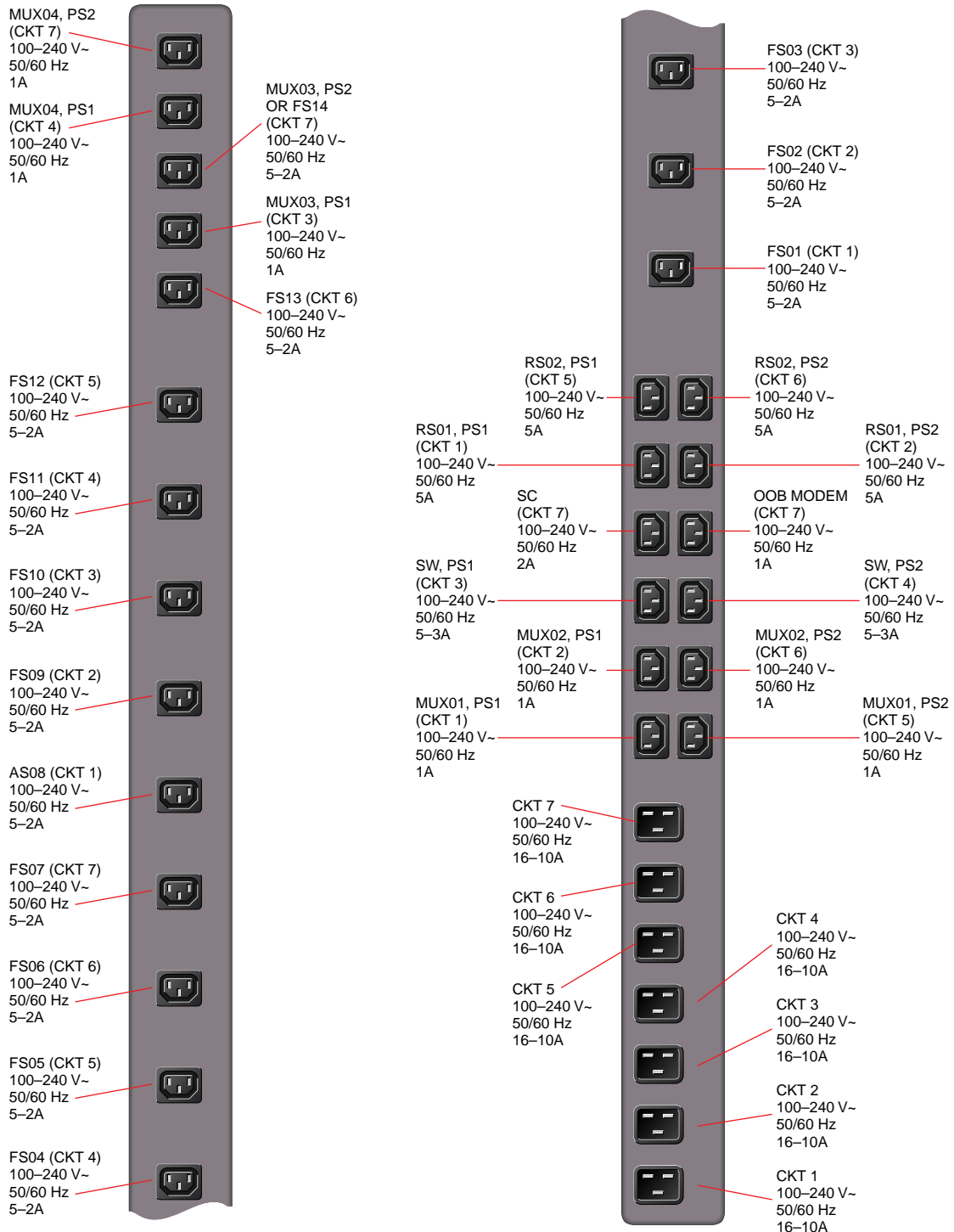
- Step 4** Connect each of the AC power input cables that bring power into the system power strip to a separate grounded power source. (This will require seven dedicated 20A (100 to 127 VAC) or 10A (100 to 240 VAC) circuits per cabinet.)
- Step 5** Turn each of the shelves ON, one at a time.



# 3

## Install the System (continued)

### AC Power Strip



## 3 Install the System (continued)

### Connect DC Power

For a Cisco AccessPath-TS3 Model 531 system equipped for DC power, the power is supplied to the various shelves through a DC busbar. This busbar comes with the system and is installed in the system cabinet.

**Step 1** Confirm, in the following order, that every shelf in the Cisco AccessPath-TS3 system remains connected to earth ground and to the DC busbar:

- 1 Access Server Shelves
- 2 Router Shelf or Shelves (depending on configuration)
- 3 System Controller
- 4 Switch Shelf (depending on configuration)

**Step 2** If you need to connect any of the shelves to the DC busbar, do so:

- 1 Connect the DC busbar to the shelf's power supply: red wire to positive (+), black wire to negative (-).
- 2 Connect the shelf to the DC busbar using the connector.

**Step 3** Connect the main earthing wire to either set of double grounding studs using a 2 to 6 AWG copper-stranded wire crimped to a double lug of the appropriate size. (These studs are located at the top and bottom of the rear of the system.)

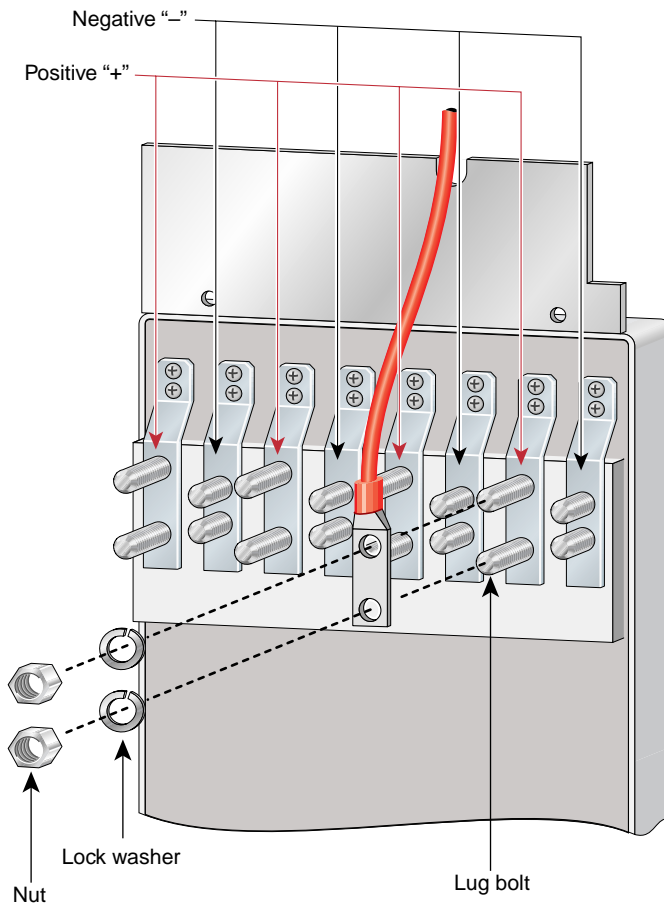
**Step 4** Remove the DC busbar inlet panel. Connect DC power to the DC busbar. This will require four dedicated 45A (-48 to -60 VDC) circuits per Cisco AccessPath-TS3 system cabinet.

## 3

## Install the System (continued)

Refer to the wiring method shown in the illustration below, then, with the DC power source turned OFF, connect a 2 to 6 AWG copper-stranded wire to the DC busbar using the provided double lugs and following these guidelines:

- Use red or white insulated wire for the positive (+) feeds and black insulated wire for the negative (-) feeds.
- Use the larger lugs for the positive(+) feeds and the smaller lugs for the negative(-) feeds.
- Wire all 4 positive (+) feeds first and then the negative (-) feeds.
- Use 3/8 inch bolts for positive (+) connections and 5/16 inch bolts for negative (-) connections.
- Connect positive (+) wires to positive (+) bolts and negative (-) wires to negative (-) bolts.
- Do not tighten the nuts down all the way.



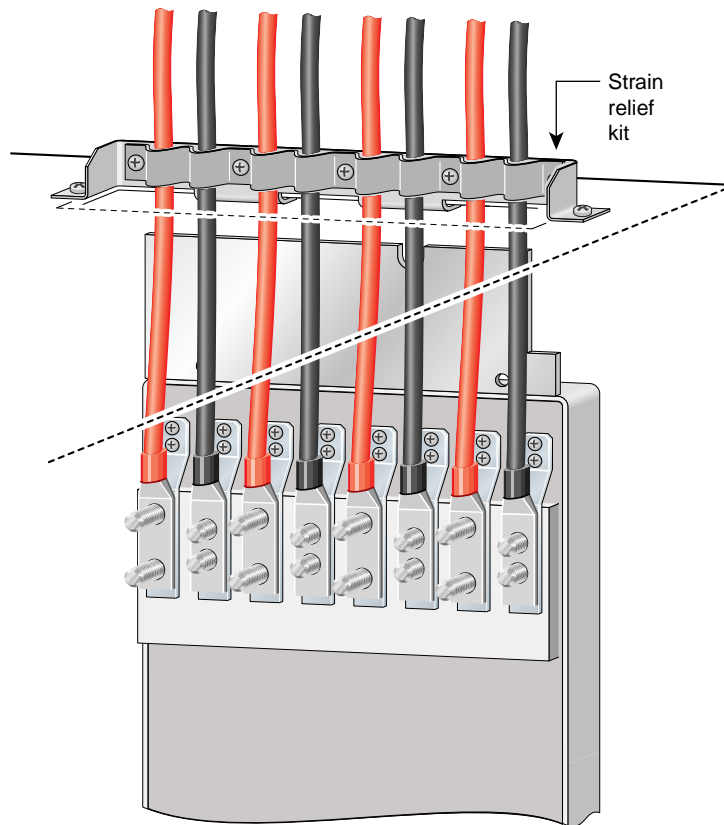
### 3 Install the System (continued)

**Step 5** Install the strain relief kit at the top of the cabinet:

- 1 Screw the flat portion of the strain relief kit to the top of the cabinet.
- 2 Place the rounded portion of the DC strain relief kit around the DC power feeds at the top of the system.
- 3 Screw the two pieces of the kit together until they grip the power feeds. Do not tighten these screws down now; you will do so in Step 7.

**Step 6** Tighten the nuts that connect the DC power feeds to the inlet.

**Step 7** Tighten the five screws on the strain relief kit so that they firmly grip the DC power feeds.



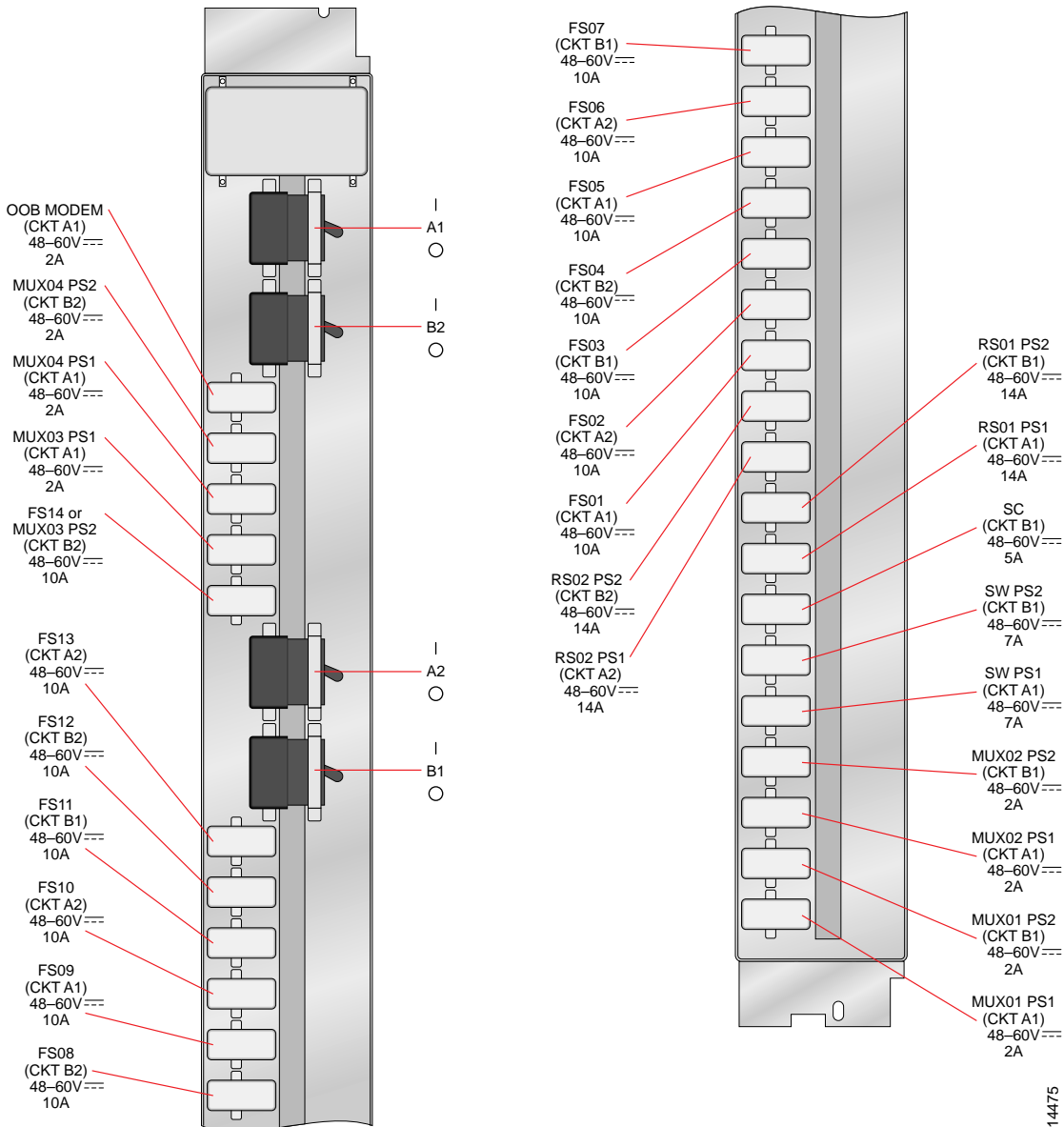
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# 3

## Install the System (continued)

- Step 8** Replace the DC inlet panel.
- Step 9** Make sure that all of the shelves are turned OFF.
- Step 10** Turn ON power at the DC power source.
- Step 11** Turn each of the shelves ON, one at a time.

### DC Busbar



## 3 Install the System (continued)

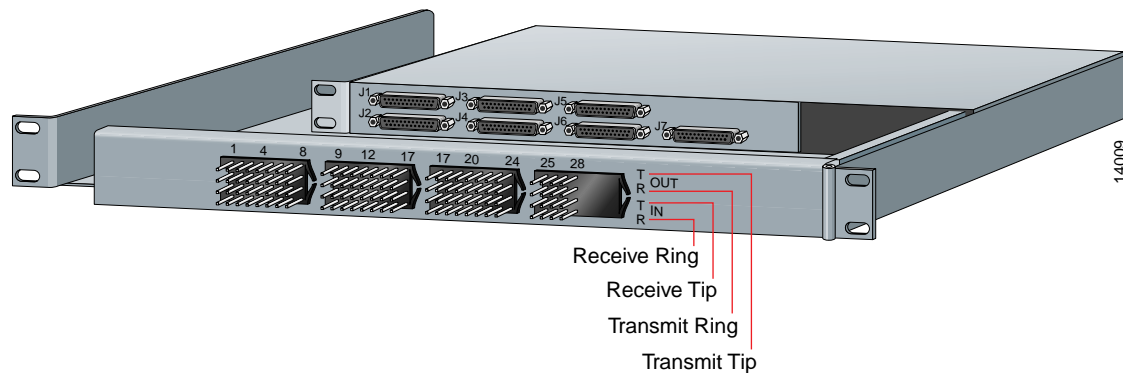
### Connect to a T1/E1 Network

You connect to a T1 or E1 network using patch panels, which have either RJ-48C connectors or posts for wire-wrap connections. Regardless of connection type, the port mapping is the same.

#### Using a Wire-Wrap Tool

Do the following steps to connect to the patch panel wire-wrap connections:

- Step 1** Unscrew and remove the metal cover that protects the wire-wrap posts.
- Step 2** Refer to the callouts in the illustration below, then use a wire-wrap tool to connect to the Receive Tip, Receive Ring, Transmit Tip, and Transmit Ring for up to 28 connections per patch panel.



- Step 3** Replace the patch panel cover, routing the cables out the right side.

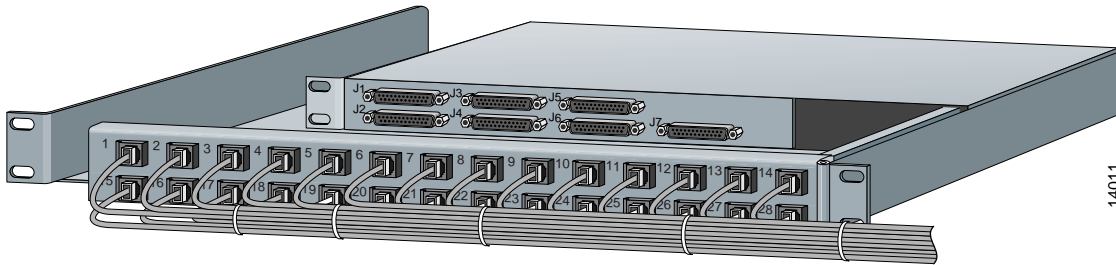
#### Using RJ-48C Connectors

Do the following steps to connect your T1 or E1 network to the patch panel using RJ-48C connections:

- Step 1** Plug in RJ-48C connectors for up to 28 connections per patch panel.
- Step 2** Route the T1/E1 cables to the right and tie-wrap them so that they do not obstruct other shelves.

## 3 Install the System (continued)

### Connect to the Network Backbone



Connect to your network backbone through port adapters on the Router Shelf as follows:

- Midrange, High-End, and High-End/Extended configurations—Port adapter slots 2 and 3 are reserved for connection to your LAN or WAN.

Depending on whether you will be connecting to a LAN or a WAN, your backhaul port adapters should be installed as follows:

- Connecting the Cisco AccessPath-TS3 system to a LAN—Install LAN port adapters, such as Fast Ethernet port adapters, in the available backhaul port adapter slots using the documentation that shipped with your port adapters.
- Connecting the Cisco AccessPath-TS3 system to a WAN—Install WAN port adapters, such as High-Speed Serial Interface (HSSI) or Fast Serial port adapters, in the available backhaul port adapter slots using the documentation that shipped with your port adapters.

After installing the correct port adapters, be sure to configure them properly. Refer to the documentation that shipped with your port adapter.

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