

Power Systems

*Control panel for the 5105-22E,
9008-22L, 9009-22A, 9009-22G,
9223-22H, or 9223-22S*



Note

Before using this information and the product it supports, read the information in [“Safety notices” on page v](#), [“Notices” on page 73](#), the *IBM Systems Safety Notices* manual, G229-9054, and the *IBM Environmental Notices and User Guide*, Z125-5823.

This edition applies to IBM® Power Systems servers that contain the POWER9™ processor and to all associated models.

© **Copyright International Business Machines Corporation 2018, 2020.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Safety notices.....	V
Control panel.....	1
Removing or replacing the control panel.....	1
Preparing the system.....	2
Removing the control panel.....	10
Replacing the control panel.....	12
Preparing the system for operation.....	14
Removing or replacing the control panel display.....	19
Preparing the system.....	19
Removing the control panel display.....	21
Replacing the control panel display.....	23
Preparing the system for operation.....	25
Control panel cables.....	27
Removing or replacing the control panel cable.....	27
Preparing the system.....	27
Removing the control panel cable.....	33
Replacing the control panel cable.....	39
Preparing the system for operation.....	46
Removing or replacing the control panel display cable.....	51
Preparing the system.....	51
Removing the control panel display cable.....	57
Replacing the control panel display cable.....	62
Preparing the system for operation.....	68
Notices.....	73
Accessibility features for IBM Power Systems servers.....	74
Privacy policy considerations	75
Trademarks.....	75
Electronic emission notices.....	75
Class A Notices.....	75
Class B Notices.....	79
Terms and conditions.....	81

Safety notices

Safety notices may be printed throughout this guide:

- **DANGER** notices call attention to a situation that is potentially lethal or extremely hazardous to people.
- **CAUTION** notices call attention to a situation that is potentially hazardous to people because of some existing condition.
- **Attention** notices call attention to the possibility of damage to a program, device, system, or data.

World Trade safety information

Several countries require the safety information contained in product publications to be presented in their national languages. If this requirement applies to your country, safety information documentation is included in the publications package (such as in printed documentation, on DVD, or as part of the product) shipped with the product. The documentation contains the safety information in your national language with references to the U.S. English source. Before using a U.S. English publication to install, operate, or service this product, you must first become familiar with the related safety information documentation. You should also refer to the safety information documentation any time you do not clearly understand any safety information in the U.S. English publications.

Replacement or additional copies of safety information documentation can be obtained by calling the IBM Hotline at 1-800-300-8751.

German safety information

Das Produkt ist nicht für den Einsatz an Bildschirmarbeitsplätzen im Sinne § 2 der Bildschirmarbeitsverordnung geeignet.

Laser safety information

IBM servers can use I/O cards or features that are fiber-optic based and that utilize lasers or LEDs.

Laser compliance

IBM servers may be installed inside or outside of an IT equipment rack.



DANGER: When working on or around the system, observe the following precautions:

Electrical voltage and current from power, telephone, and communication cables are hazardous. To avoid a shock hazard:

- If IBM supplied the power cord(s), connect power to this unit only with the IBM provided power cord. Do not use the IBM provided power cord for any other product.
- Do not open or service any power supply assembly.
- Do not connect or disconnect any cables or perform installation, maintenance, or reconfiguration of this product during an electrical storm.
- The product might be equipped with multiple power cords. To remove all hazardous voltages, disconnect all power cords.
 - For AC power, disconnect all power cords from their AC power source.
 - For racks with a DC power distribution panel (PDP), disconnect the customer's DC power source to the PDP.
- When connecting power to the product ensure all power cables are properly connected.
 - For racks with AC power, connect all power cords to a properly wired and grounded electrical outlet. Ensure that the outlet supplies proper voltage and phase rotation according to the system rating plate.

- For racks with a DC power distribution panel (PDP), connect the customer's DC power source to the PDP. Ensure that the proper polarity is used when attaching the DC power and DC power return wiring.
- Connect any equipment that will be attached to this product to properly wired outlets.
- When possible, use one hand only to connect or disconnect signal cables.
- Never turn on any equipment when there is evidence of fire, water, or structural damage.
- Do not attempt to switch on power to the machine until all possible unsafe conditions are corrected.
- Assume that an electrical safety hazard is present. Perform all continuity, grounding, and power checks specified during the subsystem installation procedures to ensure that the machine meets safety requirements.
- Do not continue with the inspection if any unsafe conditions are present.
- Before you open the device covers, unless instructed otherwise in the installation and configuration procedures: Disconnect the attached AC power cords, turn off the applicable circuit breakers located in the rack power distribution panel (PDP), and disconnect any telecommunications systems, networks, and modems.



DANGER:

- Connect and disconnect cables as described in the following procedures when installing, moving, or opening covers on this product or attached devices.

To Disconnect:

1. Turn off everything (unless instructed otherwise).
2. For AC power, remove the power cords from the outlets.
3. For racks with a DC power distribution panel (PDP), turn off the circuit breakers located in the PDP and remove the power from the Customer's DC power source.
4. Remove the signal cables from the connectors.
5. Remove all cables from the devices.

To Connect:

1. Turn off everything (unless instructed otherwise).
2. Attach all cables to the devices.
3. Attach the signal cables to the connectors.
4. For AC power, attach the power cords to the outlets.
5. For racks with a DC power distribution panel (PDP), restore the power from the Customer's DC power source and turn on the circuit breakers located in the PDP.
6. Turn on the devices.

Sharp edges, corners and joints may be present in and around the system. Use care when handling equipment to avoid cuts, scrapes and pinching. (D005)

(R001 part 1 of 2):



DANGER: Observe the following precautions when working on or around your IT rack system:

- Heavy equipment—personal injury or equipment damage might result if mishandled.
- Always lower the leveling pads on the rack cabinet.
- Always install stabilizer brackets on the rack cabinet if provided, unless the earthquake option is to be installed..
- To avoid hazardous conditions due to uneven mechanical loading, always install the heaviest devices in the bottom of the rack cabinet. Always install servers and optional devices starting from the bottom of the rack cabinet.

- Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices. In addition, do not lean on rack mounted devices and do not use them to stabilize your body position (for example, when working from a ladder).



- Stability hazard:
 - The rack may tip over causing serious personal injury.
 - Before extending the rack to the installation position, read the installation instructions.
 - Do not put any load on the slide-rail mounted equipment mounted in the installation position.
 - Do not leave the slide-rail mounted equipment in the installation position.
- Each rack cabinet might have more than one power cord.
 - For AC powered racks, be sure to disconnect all power cords in the rack cabinet when directed to disconnect power during servicing.
 - For racks with a DC power distribution panel (PDP), turn off the circuit breaker that controls the power to the system unit(s), or disconnect the customer's DC power source, when directed to disconnect power during servicing.
- Connect all devices installed in a rack cabinet to power devices installed in the same rack cabinet. Do not plug a power cord from a device installed in one rack cabinet into a power device installed in a different rack cabinet.
- An electrical outlet that is not correctly wired could place hazardous voltage on the metal parts of the system or the devices that attach to the system. It is the responsibility of the customer to ensure that the outlet is correctly wired and grounded to prevent an electrical shock. (R001 part 1 of 2)

(R001 part 2 of 2):



CAUTION:

- Do not install a unit in a rack where the internal rack ambient temperatures will exceed the manufacturer's recommended ambient temperature for all your rack-mounted devices.
- Do not install a unit in a rack where the air flow is compromised. Ensure that air flow is not blocked or reduced on any side, front, or back of a unit used for air flow through the unit.
- Consideration should be given to the connection of the equipment to the supply circuit so that overloading of the circuits does not compromise the supply wiring or overcurrent protection. To provide the correct power connection to a rack, refer to the rating labels located on the equipment in the rack to determine the total power requirement of the supply circuit.
- *(For sliding drawers.)* Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack or if the rack is not bolted to the floor. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.



- (For fixed drawers.) This drawer is a fixed drawer and must not be moved for servicing unless specified by the manufacturer. Attempting to move the drawer partially or completely out of the rack might cause the rack to become unstable or cause the drawer to fall out of the rack. (R001 part 2 of 2)



CAUTION: Removing components from the upper positions in the rack cabinet improves rack stability during relocation. Follow these general guidelines whenever you relocate a populated rack cabinet within a room or building.

- Reduce the weight of the rack cabinet by removing equipment starting at the top of the rack cabinet. When possible, restore the rack cabinet to the configuration of the rack cabinet as you received it. If this configuration is not known, you must observe the following precautions:
 - Remove all devices in the 32U position and above.
 - Ensure that the heaviest devices are installed in the bottom of the rack cabinet.
 - Ensure that there are little-to-no empty U-levels between devices installed in the rack cabinet below the 32U level, unless the received configuration specifically allowed it.
- If the rack cabinet you are relocating is part of a suite of rack cabinets, detach the rack cabinet from the suite.
- If the rack cabinet you are relocating was supplied with removable outriggers they must be reinstalled before the cabinet is relocated.
- Inspect the route that you plan to take to eliminate potential hazards.
- Verify that the route that you choose can support the weight of the loaded rack cabinet. Refer to the documentation that comes with your rack cabinet for the weight of a loaded rack cabinet.
- Verify that all door openings are at least 760 x 2083 mm (30 x 82 in.).
- Ensure that all devices, shelves, drawers, doors, and cables are secure.
- Ensure that the four leveling pads are raised to their highest position.
- Ensure that there is no stabilizer bracket installed on the rack cabinet during movement.
- Do not use a ramp inclined at more than 10 degrees.
- When the rack cabinet is in the new location, complete the following steps:
 - Lower the four leveling pads.
 - Install stabilizer brackets on the rack cabinet or in an earthquake environment bolt the rack to the floor.
 - If you removed any devices from the rack cabinet, repopulate the rack cabinet from the lowest position to the highest position.
- If a long-distance relocation is required, restore the rack cabinet to the configuration of the rack cabinet as you received it. Pack the rack cabinet in the original packaging material, or equivalent. Also lower the leveling pads to raise the casters off of the pallet and bolt the rack cabinet to the pallet.

(R002)

(L001)



DANGER: Hazardous voltage, current, or energy levels are present inside any component that has this label attached. Do not open any cover or barrier that contains this label. (L001)

(L002)

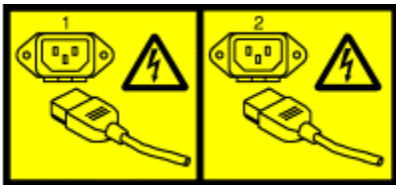


DANGER: Rack-mounted devices are not to be used as shelves or work spaces. Do not place objects on top of rack-mounted devices. In addition, do not lean on rack-mounted devices and do not use them to stabilize your body position (for example, when working from a ladder). Stability hazard:

- The rack may tip over causing serious personal injury.
- Before extending the rack to the installation position, read the installation instructions.
- Do not put any load on the slide-rail mounted equipment mounted in the installation position.
- Do not leave the slide-rail mounted equipment in the installation position.

(L002)

(L003)



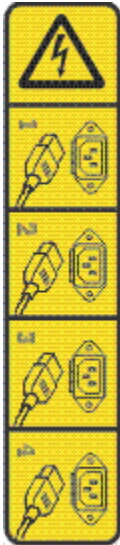
or



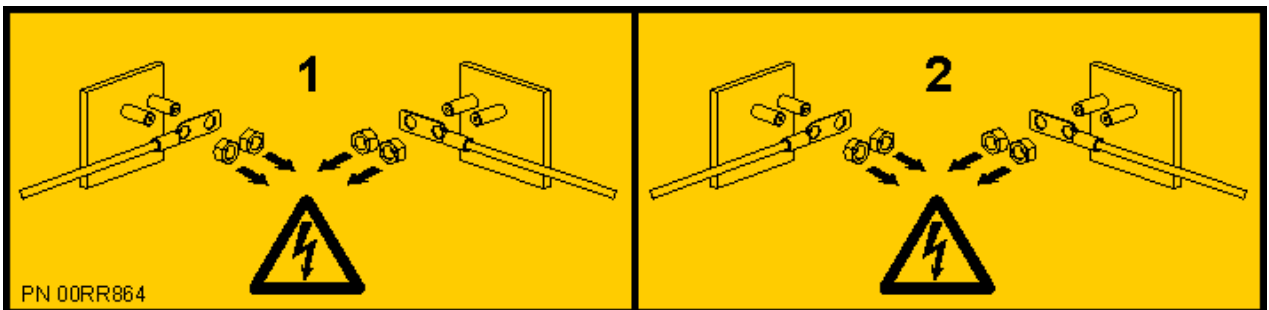
or



or



or



DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

(L007)



CAUTION: A hot surface nearby. (L007)

(L008)



CAUTION: Hazardous moving parts nearby. (L008)

All lasers are certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for class 1 laser products. Outside the U.S., they are certified to be in compliance with IEC 60825 as a class 1 laser product. Consult the label on each part for laser certification numbers and approval information.



CAUTION: This product might contain one or more of the following devices: CD-ROM drive, DVD-ROM drive, DVD-RAM drive, or laser module, which are Class 1 laser products. Note the following information:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of the controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

(C026)



CAUTION: Data processing environments can contain equipment transmitting on system links with laser modules that operate at greater than Class 1 power levels. For this reason, never look into the end of an optical fiber cable or open receptacle. Although shining light into one end and looking into the other end of a disconnected optical fiber to verify the continuity of optic fibers may not injure the eye, this procedure is potentially dangerous. Therefore, verifying the continuity of optical fibers by shining light into one end and looking at the other end is not recommended. To verify continuity of a fiber optic cable, use an optical light source and power meter. (C027)



CAUTION: This product contains a Class 1M laser. Do not view directly with optical instruments. (C028)



CAUTION: Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following information:

- Laser radiation when open.
- Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam. (C030)

(C030)



CAUTION: The battery contains lithium. To avoid possible explosion, do not burn or charge the battery.

Do Not:

- Throw or immerse into water
- Heat to more than 100 degrees C (212 degrees F)
- Repair or disassemble

Exchange only with the IBM-approved part. Recycle or discard the battery as instructed by local regulations. In the United States, IBM has a process for the collection of this battery. For information, call 1-800-426-4333. Have the IBM part number for the battery unit available when you call. (C003)



CAUTION: Regarding IBM provided VENDOR LIFT TOOL:

- Operation of LIFT TOOL by authorized personnel only.

- LIFT TOOL intended for use to assist, lift, install, remove units (load) up into rack elevations. It is not to be used loaded transporting over major ramps nor as a replacement for such designated tools like pallet jacks, walkies, fork trucks and such related relocation practices. When this is not practicable, specially trained persons or services must be used (for instance, riggers or movers).
- Read and completely understand the contents of LIFT TOOL operator's manual before using. Failure to read, understand, obey safety rules, and follow instructions may result in property damage and/or personal injury. If there are questions, contact the vendor's service and support. Local paper manual must remain with machine in provided storage sleeve area. Latest revision manual available on vendor's web site.
- Test verify stabilizer brake function before each use. Do not over-force moving or rolling the LIFT TOOL with stabilizer brake engaged.
- Do not raise, lower or slide platform load shelf unless stabilizer (brake pedal jack) is fully engaged. Keep stabilizer brake engaged when not in use or motion.
- Do not move LIFT TOOL while platform is raised, except for minor positioning.
- Do not exceed rated load capacity. See LOAD CAPACITY CHART regarding maximum loads at center versus edge of extended platform.
- Only raise load if properly centered on platform. Do not place more than 200 lb (91 kg) on edge of sliding platform shelf also considering the load's center of mass/gravity (CoG).
- Do not corner load the platforms, tilt riser, angled unit install wedge or other such accessory options. Secure such platforms -- riser tilt, wedge, etc options to main lift shelf or forks in all four (4x or all other provisioned mounting) locations with provided hardware only, prior to use. Load objects are designed to slide on/off smooth platforms without appreciable force, so take care not to push or lean. Keep riser tilt [adjustable angling platform] option flat at all times except for final minor angle adjustment when needed.
- Do not stand under overhanging load.
- Do not use on uneven surface, incline or decline (major ramps).
- Do not stack loads.
- Do not operate while under the influence of drugs or alcohol.
- Do not support ladder against LIFT TOOL (unless the specific allowance is provided for one following qualified procedures for working at elevations with this TOOL).
- Tipping hazard. Do not push or lean against load with raised platform.
- Do not use as a personnel lifting platform or step. No riders.
- Do not stand on any part of lift. Not a step.
- Do not climb on mast.
- Do not operate a damaged or malfunctioning LIFT TOOL machine.
- Crush and pinch point hazard below platform. Only lower load in areas clear of personnel and obstructions. Keep hands and feet clear during operation.
- No Forks. Never lift or move bare LIFT TOOL MACHINE with pallet truck, jack or fork lift.
- Mast extends higher than platform. Be aware of ceiling height, cable trays, sprinklers, lights, and other overhead objects.
- Do not leave LIFT TOOL machine unattended with an elevated load.
- Watch and keep hands, fingers, and clothing clear when equipment is in motion.
- Turn Winch with hand power only. If winch handle cannot be cranked easily with one hand, it is probably over-loaded. Do not continue to turn winch past top or bottom of platform travel. Excessive unwinding will detach handle and damage cable. Always hold handle when lowering, unwinding. Always assure self that winch is holding load before releasing winch handle.
- A winch accident could cause serious injury. Not for moving humans. Make certain clicking sound is heard as the equipment is being raised. Be sure winch is locked in position before releasing handle. Read instruction page before operating this winch. Never allow winch to unwind freely.

Freewheeling will cause uneven cable wrapping around winch drum, damage cable, and may cause serious injury.

- This TOOL must be maintained correctly for IBM Service personnel to use it. IBM shall inspect condition and verify maintenance history before operation. Personnel reserve the right not to use TOOL if inadequate. (C048)

Power and cabling information for NEBS (Network Equipment-Building System) GR-1089-CORE

The following comments apply to the IBM servers that have been designated as conforming to NEBS (Network Equipment-Building System) GR-1089-CORE:

The equipment is suitable for installation in the following:

- Network telecommunications facilities
- Locations where the NEC (National Electrical Code) applies

The intrabuilding ports of this equipment are suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding ports of this equipment *must not* be metalically connected to the interfaces that connect to the OSP (outside plant) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metalically to OSP wiring.

Note: All Ethernet cables must be shielded and grounded at both ends.

The ac-powered system does not require the use of an external surge protection device (SPD).

The dc-powered system employs an isolated DC return (DC-I) design. The DC battery return terminal *shall not* be connected to the chassis or frame ground.

The dc-powered system is intended to be installed in a common bonding network (CBN) as described in GR-1089-CORE.

Control panel and control panel display for the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing a control panel and control panel display for the 5105-22E, IBM Power® System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

Figure 1 on page 1 shows the control panel (A) and the control panel display (B).

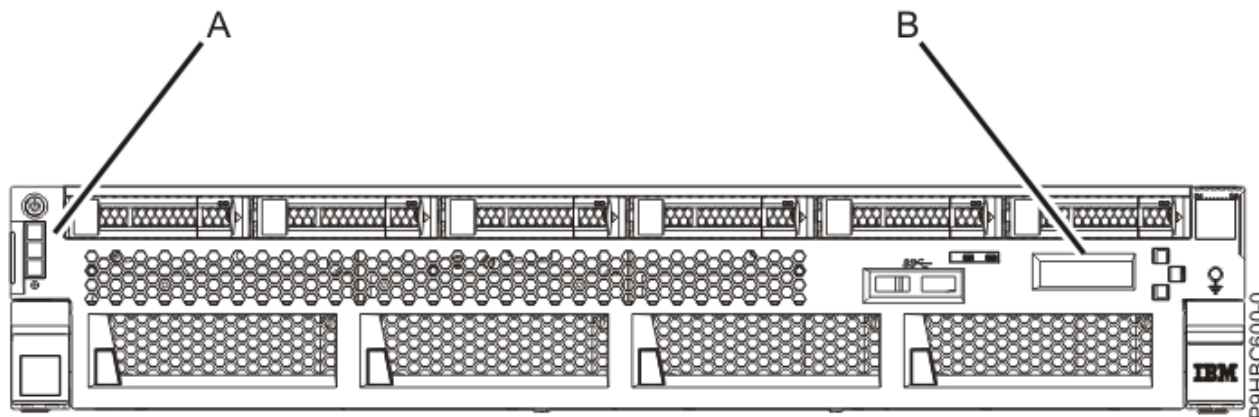


Figure 1. Control panels

You must have at least one control panel display.

- In the rack-mounted system, a control panel display is required in one of the systems in that rack.
- If multiple systems are installed in multiple racks, a minimum of one control panel display is required in each rack that contains the systems.

Removing and replacing the control panel in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing a control panel in the 5105-22E, IBM Power System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

About this task

Note: Removing or replacing this feature is a customer task. You can complete this task yourself, or contact a service provider to complete the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see [Repairing a part by using the HMC](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If you do not have an HMC, use the following procedures to remove and replace the control panel.

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system to remove and replace the control panel

To prepare the system to remove and replace a control panel, complete the steps in this procedure.

Procedure

1. Identify the part and the system that you are working on. For instructions, see [Identifying a part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm).
Use the blue identify LED on the enclosure to locate the system. Ensure that the serial number of the system matches the serial number to be serviced.
2. Stop the system. For instructions, see [Stopping a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm).
3. Label and disconnect the power cords from the system unit.
See [Figure 2 on page 3](#).

Notes:

- This system might be equipped with two or more power supplies. If the removing and replacing procedures require the system power to be turned off, ensure that all the power sources to the system are disconnected.
- The power cord **(B)** is fastened to the system with hook-and-loop fastener **(A)**. If you are placing the system in a service position after you disconnect the power cords, ensure that you unstrap the fastener.

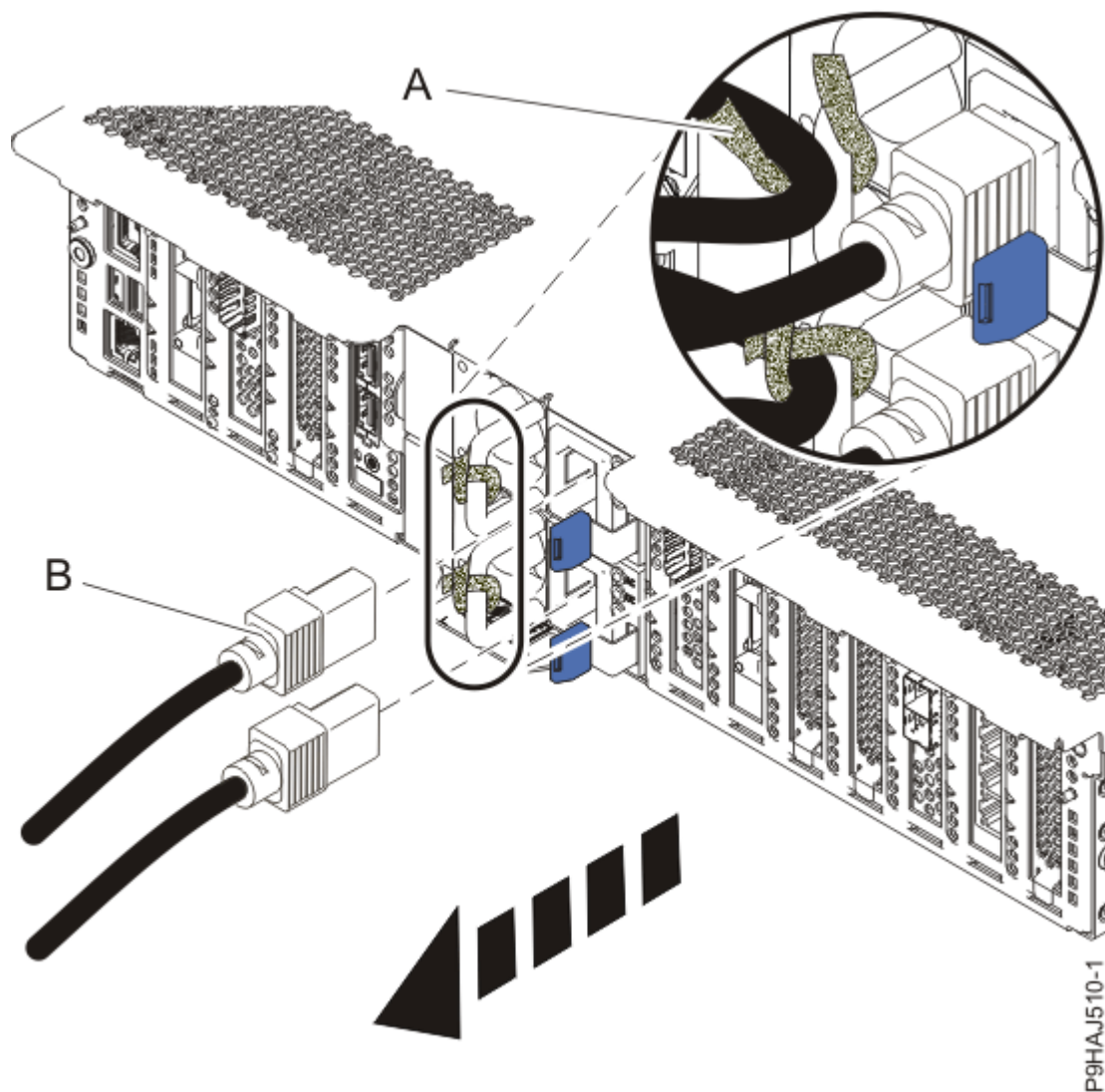
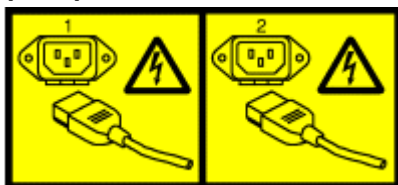


Figure 2. Removing the power cords

(L003)



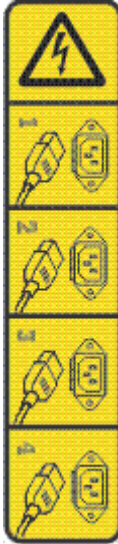
or



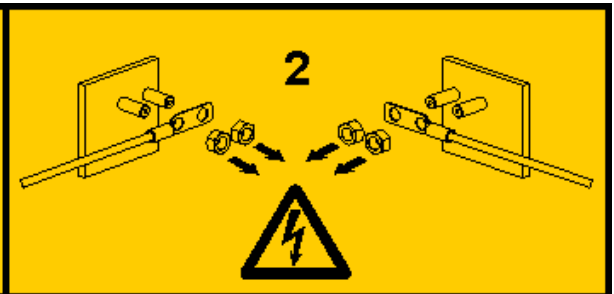
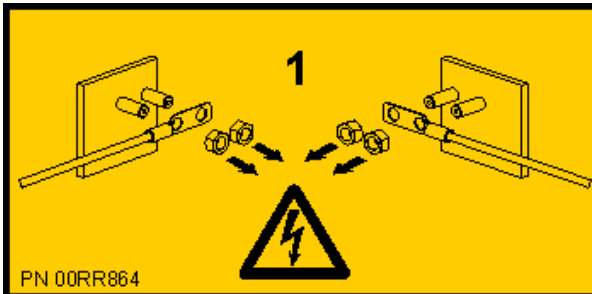
or



or



or



DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

4. Remove the front cover by pulling it away from the system.

The cover has indentations **(A)** where you can hold it more easily. See [Figure 3 on page 5](#).

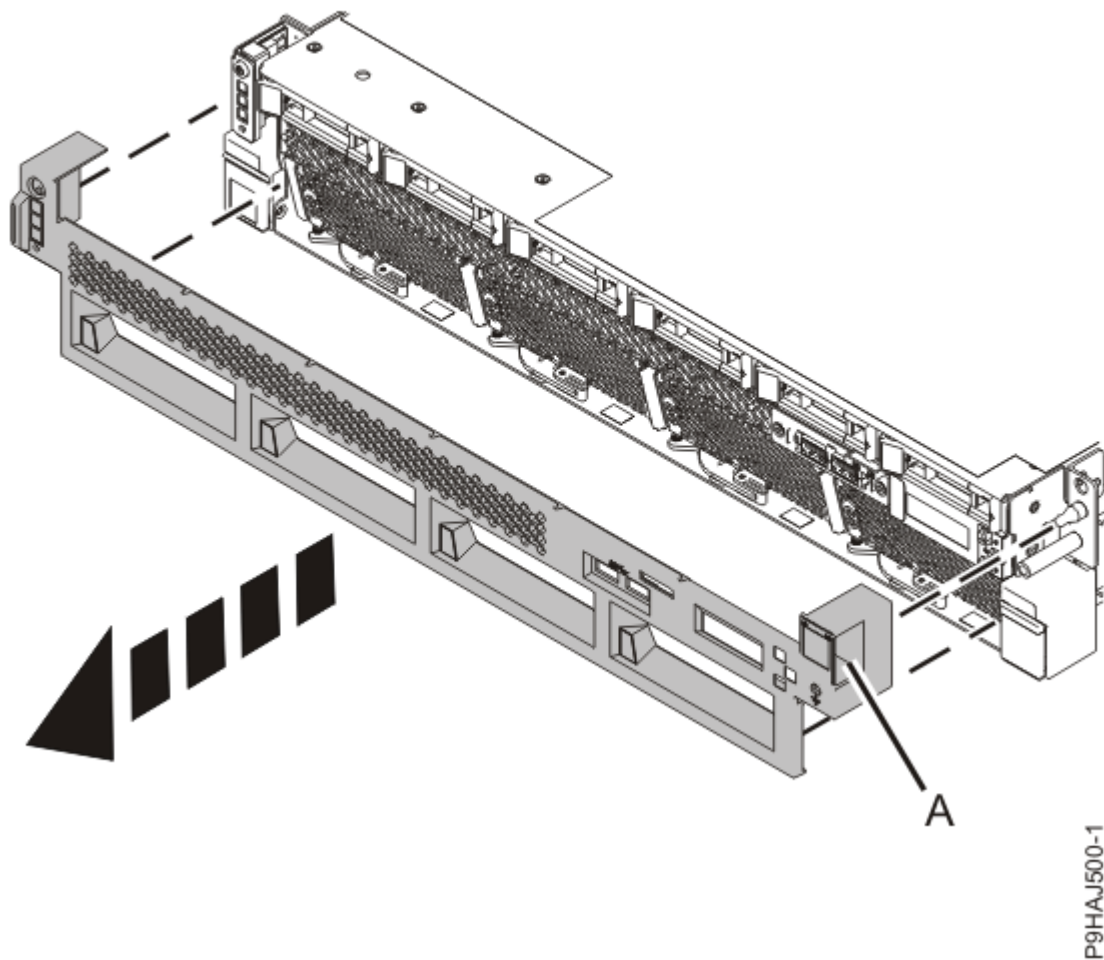


Figure 3. Removing the front covers

5. Open the side latches **(A)** and pull the latches to slide the system unit fully into the service position, until the slides click and hold the system unit securely. Ensure that the screws inside the latches are not secured to the rack.

Remove the hook-and-loop fasteners that secure the cable management arms. Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the system do not catch or bind as you pull the system unit into the service position.

Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.

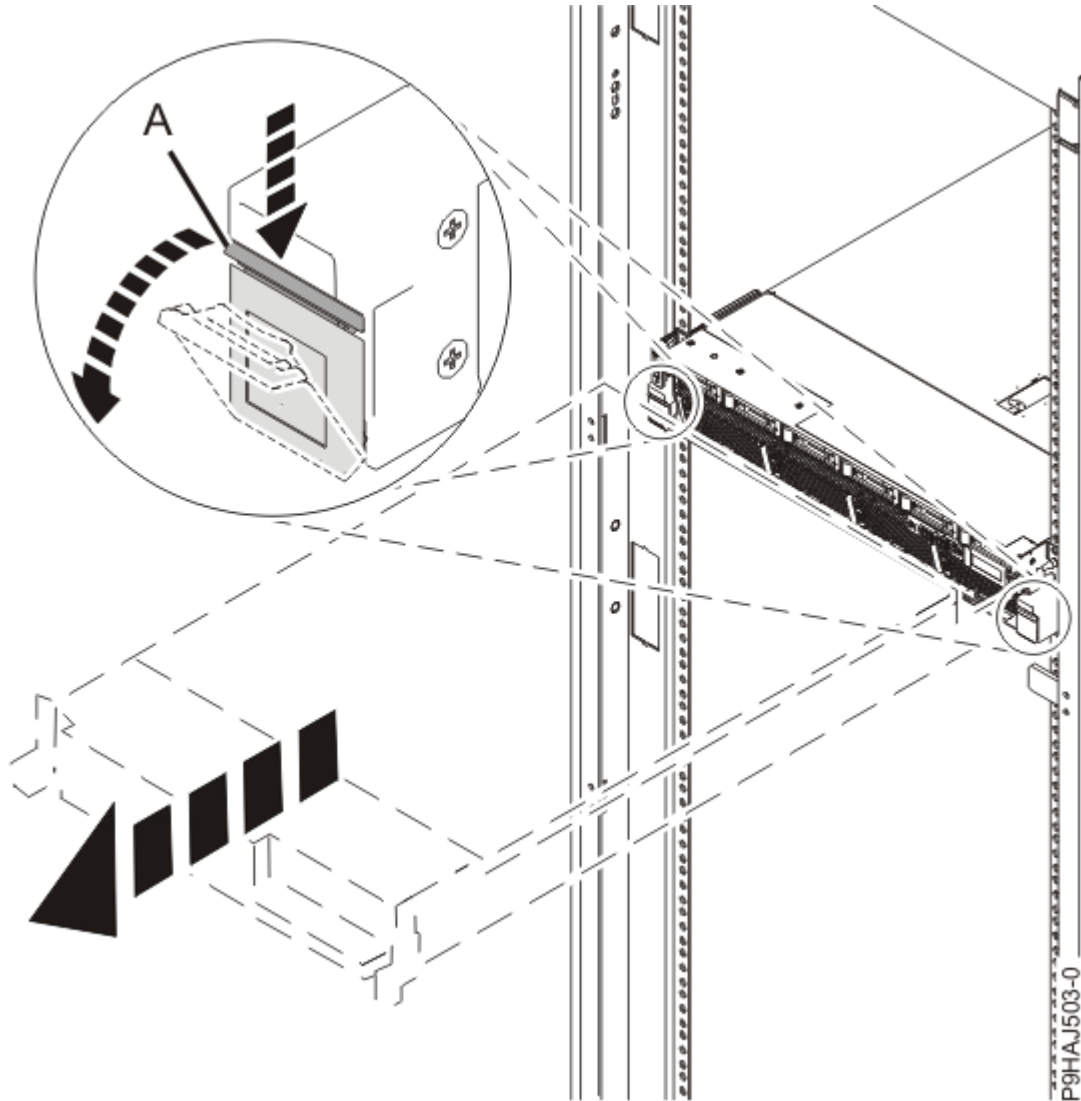


Figure 4. Releasing the side latches

6. Attach the electrostatic discharge (ESD) wrist strap. Your system has an ESD jack on the front and on the rear of the system as shown in the following figure. Plug the ESD wrist strap into the ESD jack.



Attention:

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.

- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

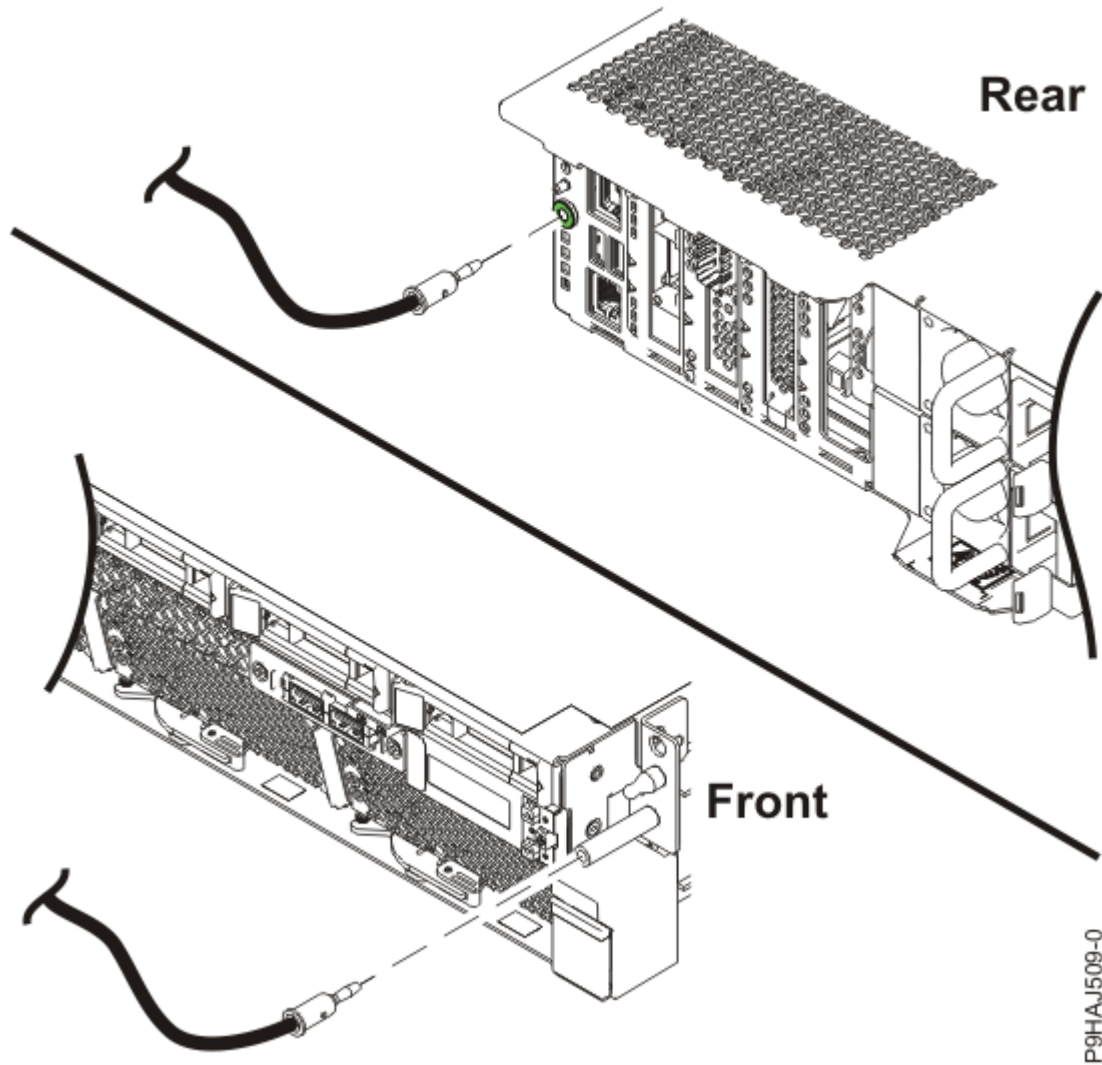
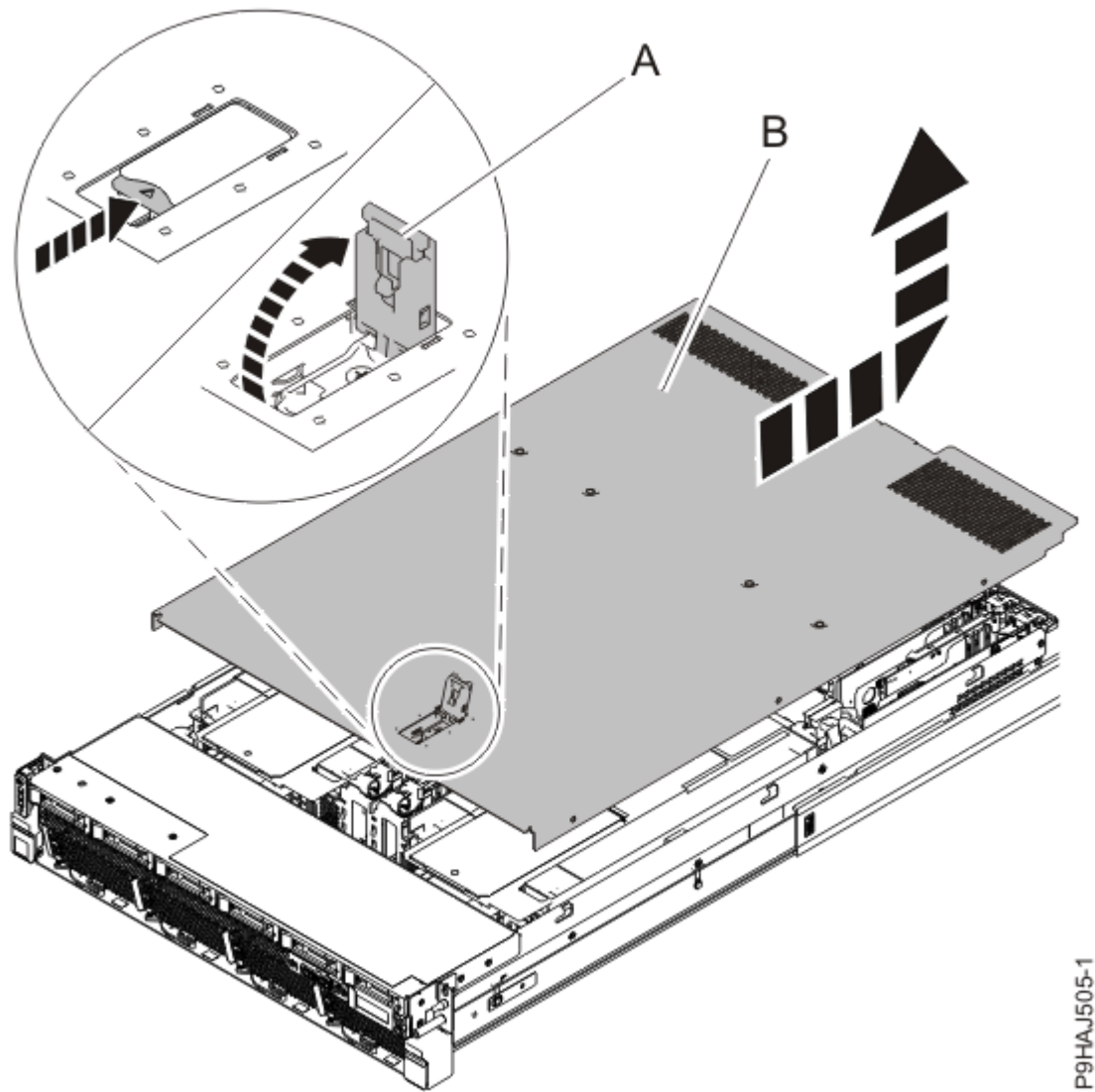


Figure 5. Location of the ESD plugs

7. Release the service access cover latch by pushing the release latch **(A)** in the direction shown.
8. Slide the cover **(B)** off the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.



Attention: Operating the system without the service access cover on for more than 10 minutes when the system power is turned on might damage the system components.

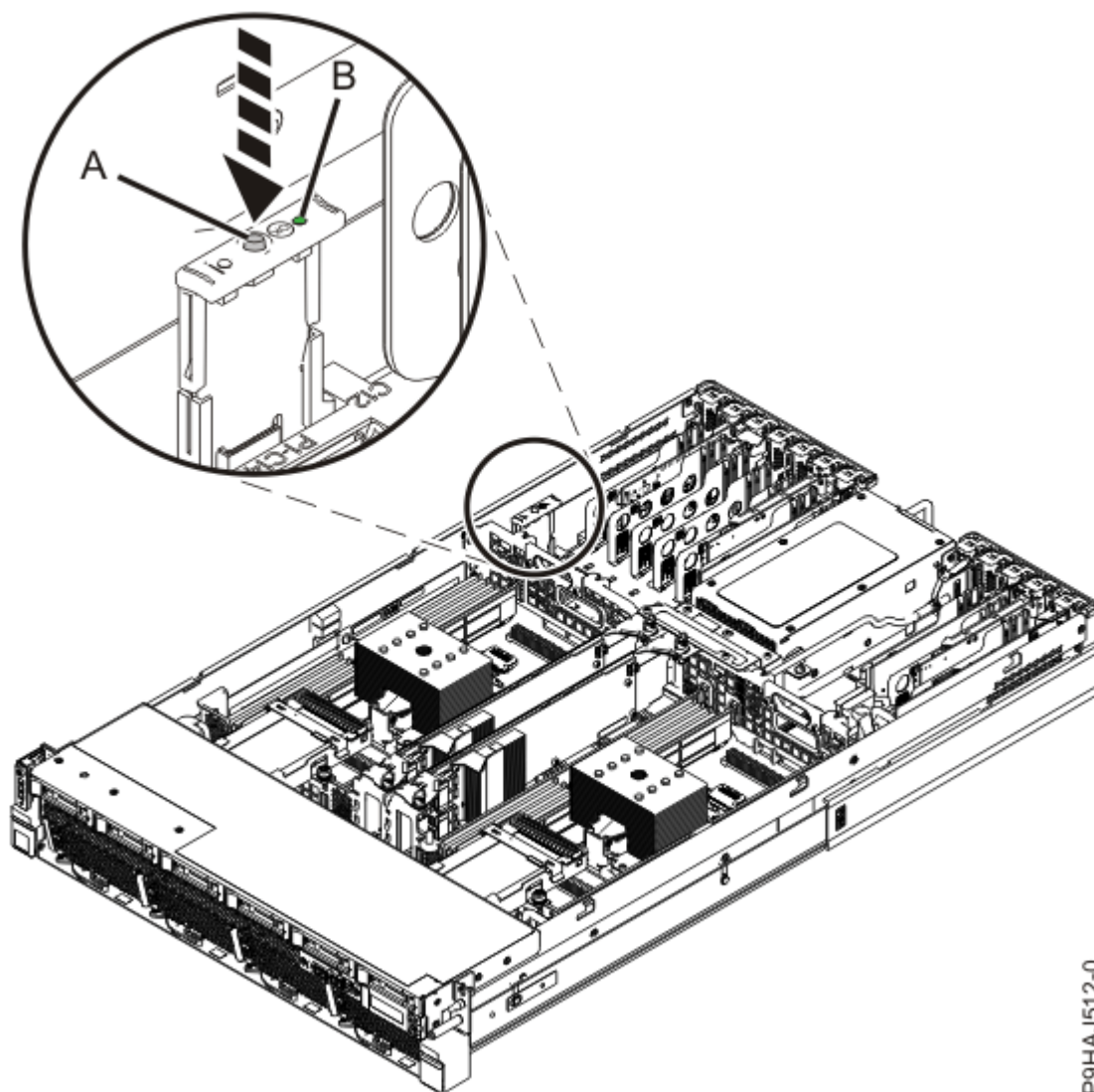


P9HAJ505-1

Figure 6. Removing the service access cover

9. To activate the identify LED for the faulty part, press and hold push-button **(A)** on the trusted platform module card as shown in the following figure.

Verify that the LED **(B)** is lit, which indicates that sufficient power exists for the identify LED. If the LED **(B)** is not lit, use the location code to find the physical location by using the service label.



P9HAJ512-0

Figure 7. Activating the identify LED

10. Look for the amber fault LED **(A)** to identify the failed control panel as shown in [Figure 8 on page 10](#).

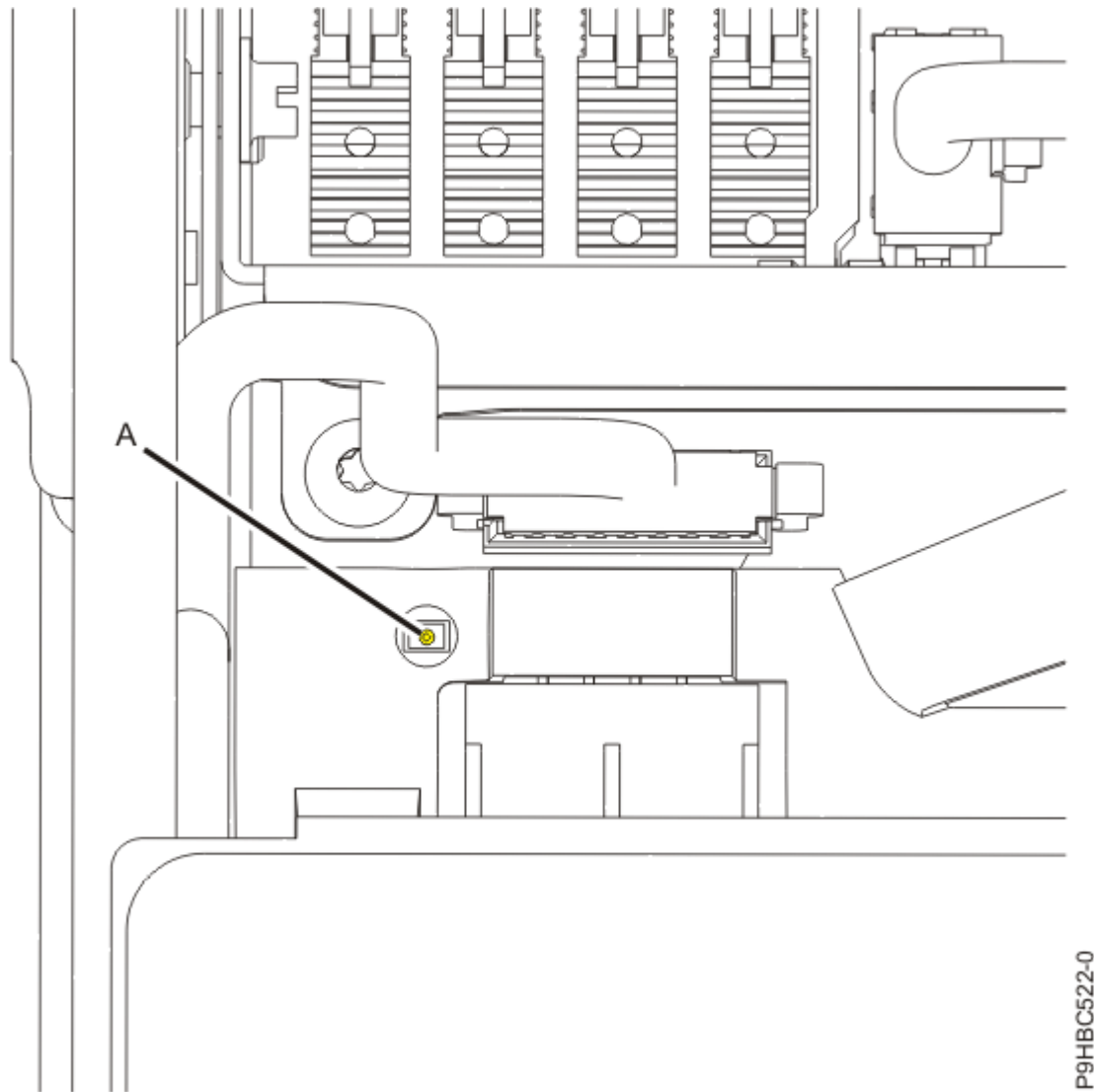


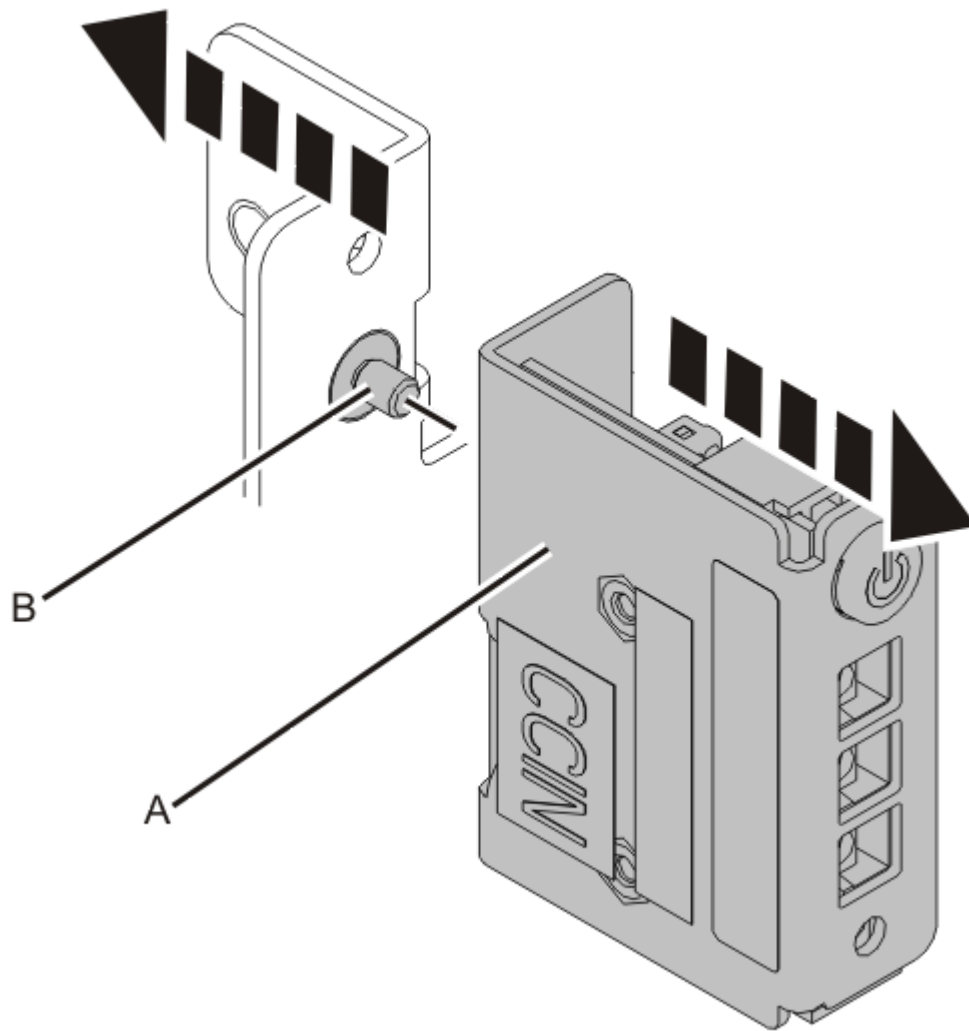
Figure 8. Location of the control panel LED

Removing the control panel from the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To remove a control panel, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Loosen the screw **(B)** that secures the control panel **(A)** to the bracket as shown in [Figure 9 on page 11](#).



P9HBC500-1

Figure 9. Removing the control panel from the bracket

3. Disconnect the control panel **(A)** from the cable **(B)** as shown in [Figure 10 on page 12](#).

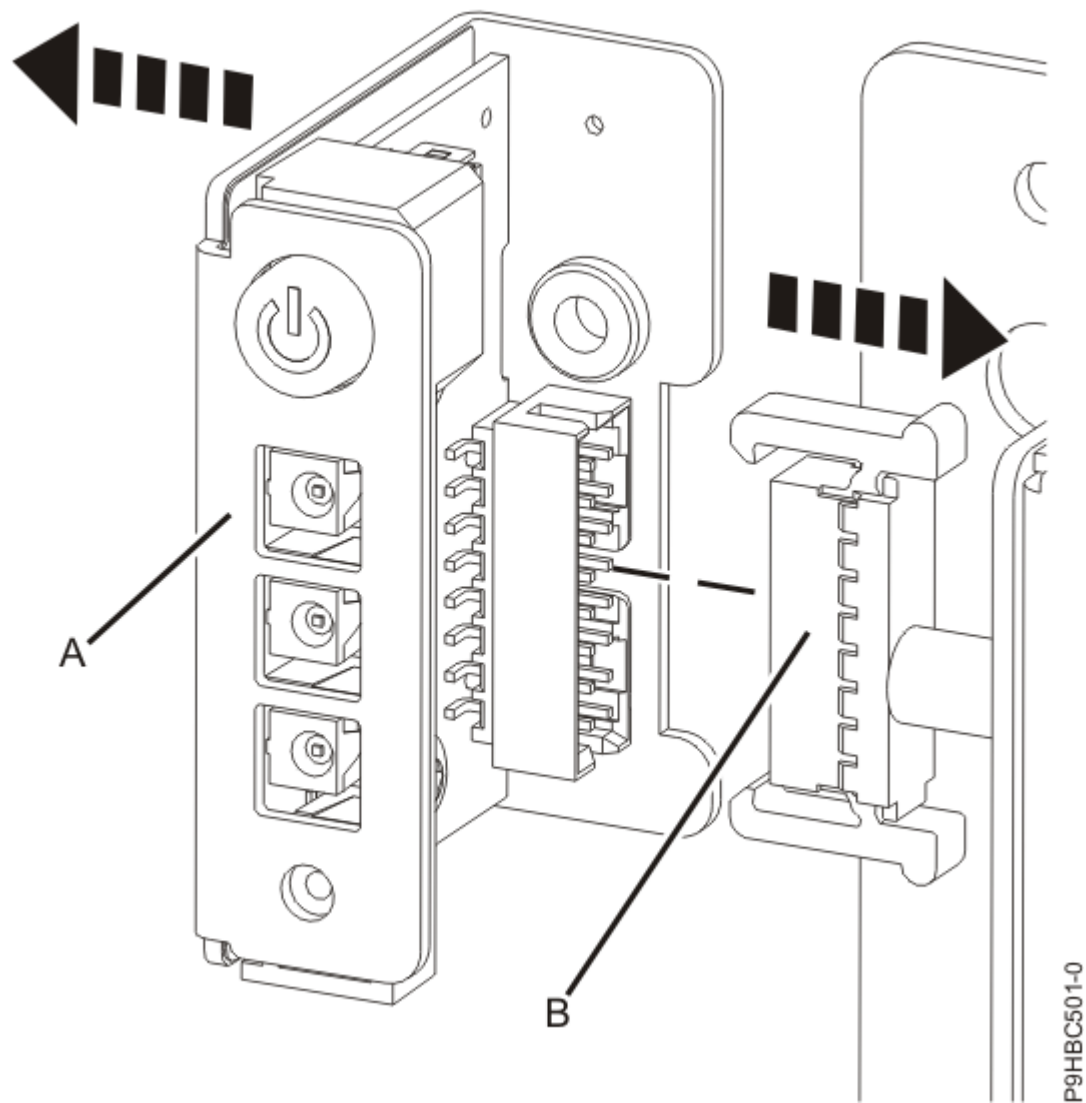


Figure 10. Disconnecting the control panel from the cable

Replacing the control panel in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To replace a control panel, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Connect the control panel (A) to the control panel cable (B) as shown in [Figure 11 on page 13](#).

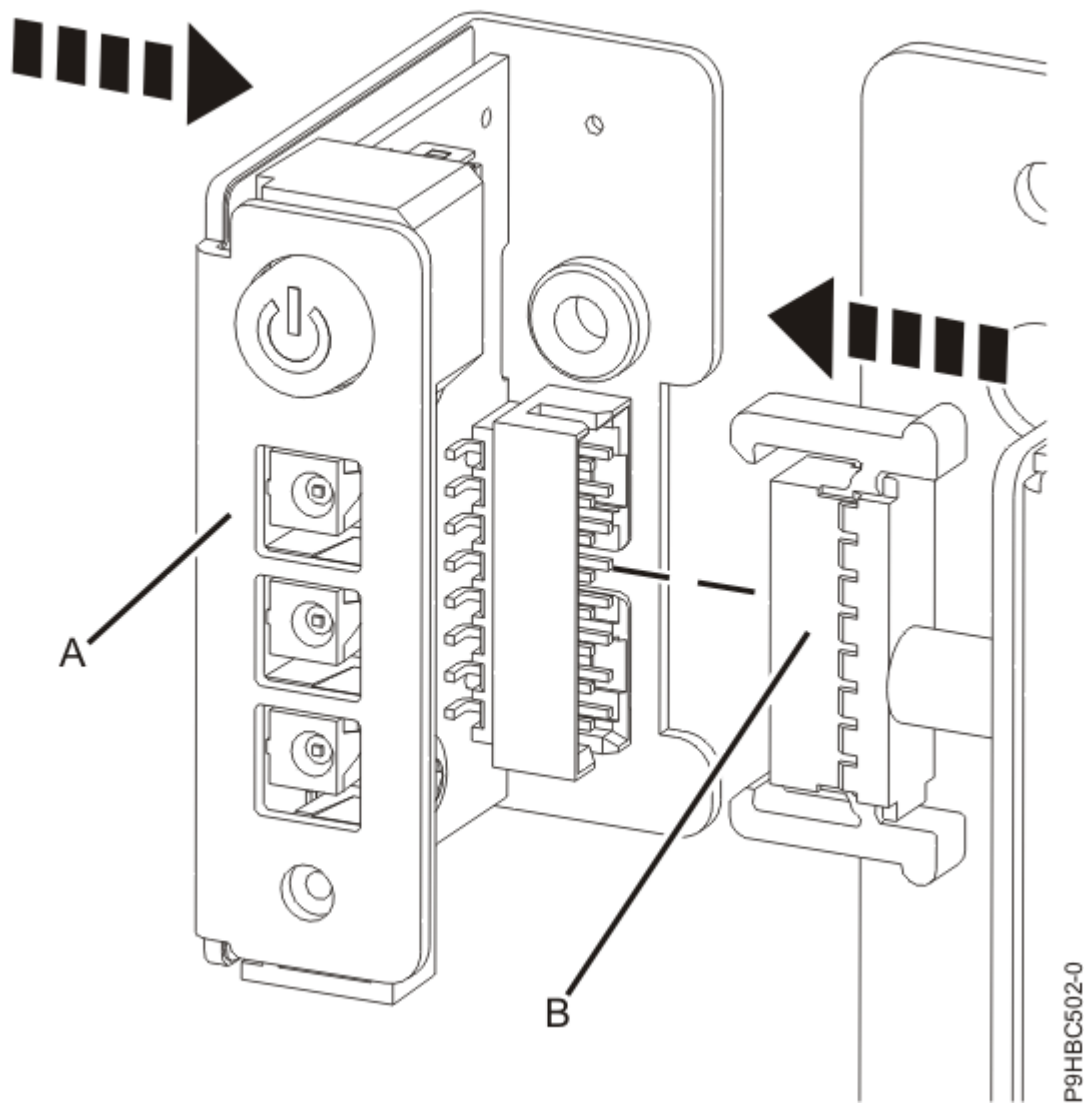


Figure 11. Connecting the control panel and cable

3. Attach the control panel **(A)** to the bracket with screw **(B)** as shown in [Figure 12 on page 14](#). Ensure that the control panel pins align with the bracket holes.

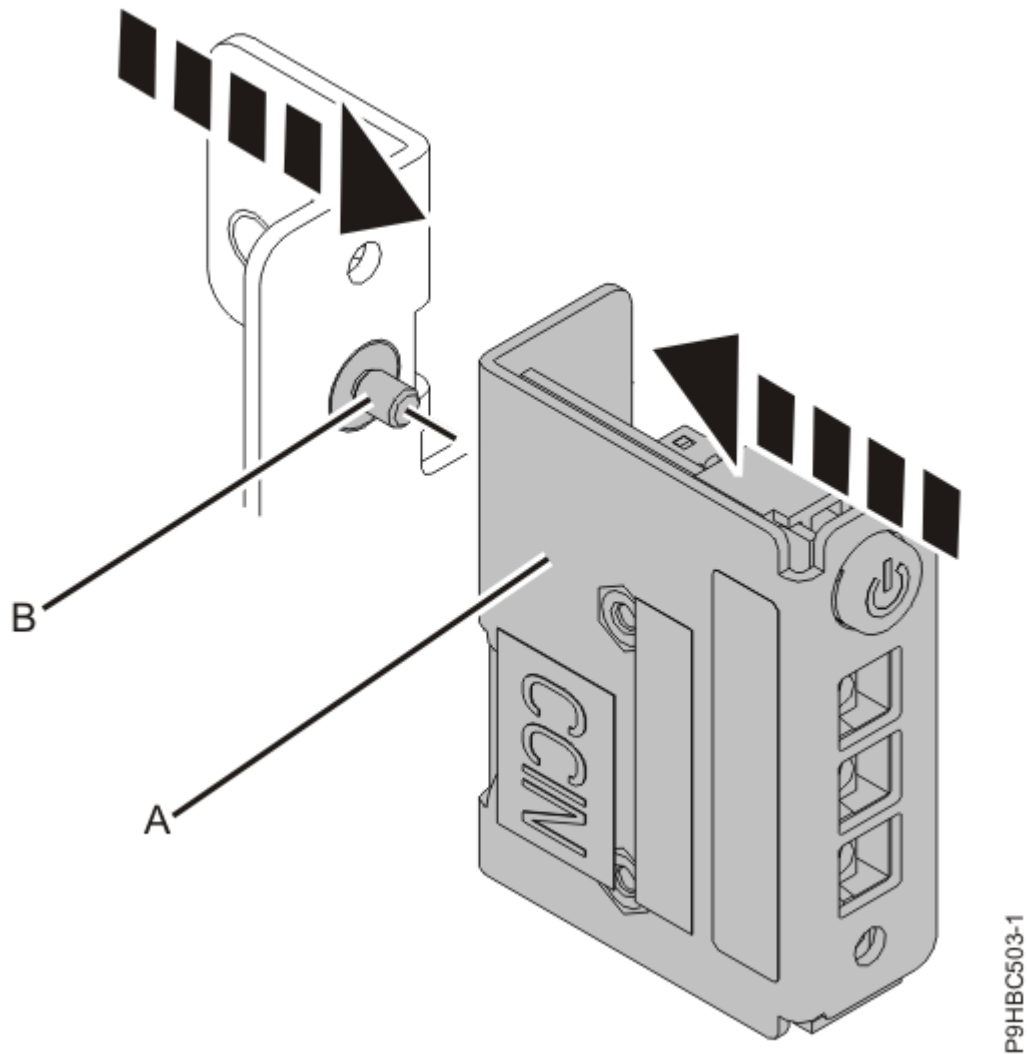


Figure 12. Replacing the control panel onto the bracket

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system for operation after removing and replacing the control panel

To prepare the system for operation after removing and replacing a control panel, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Slide the service access cover **(A)** onto the system unit.
3. Close the release latch **(B)** by pushing it in the direction shown.

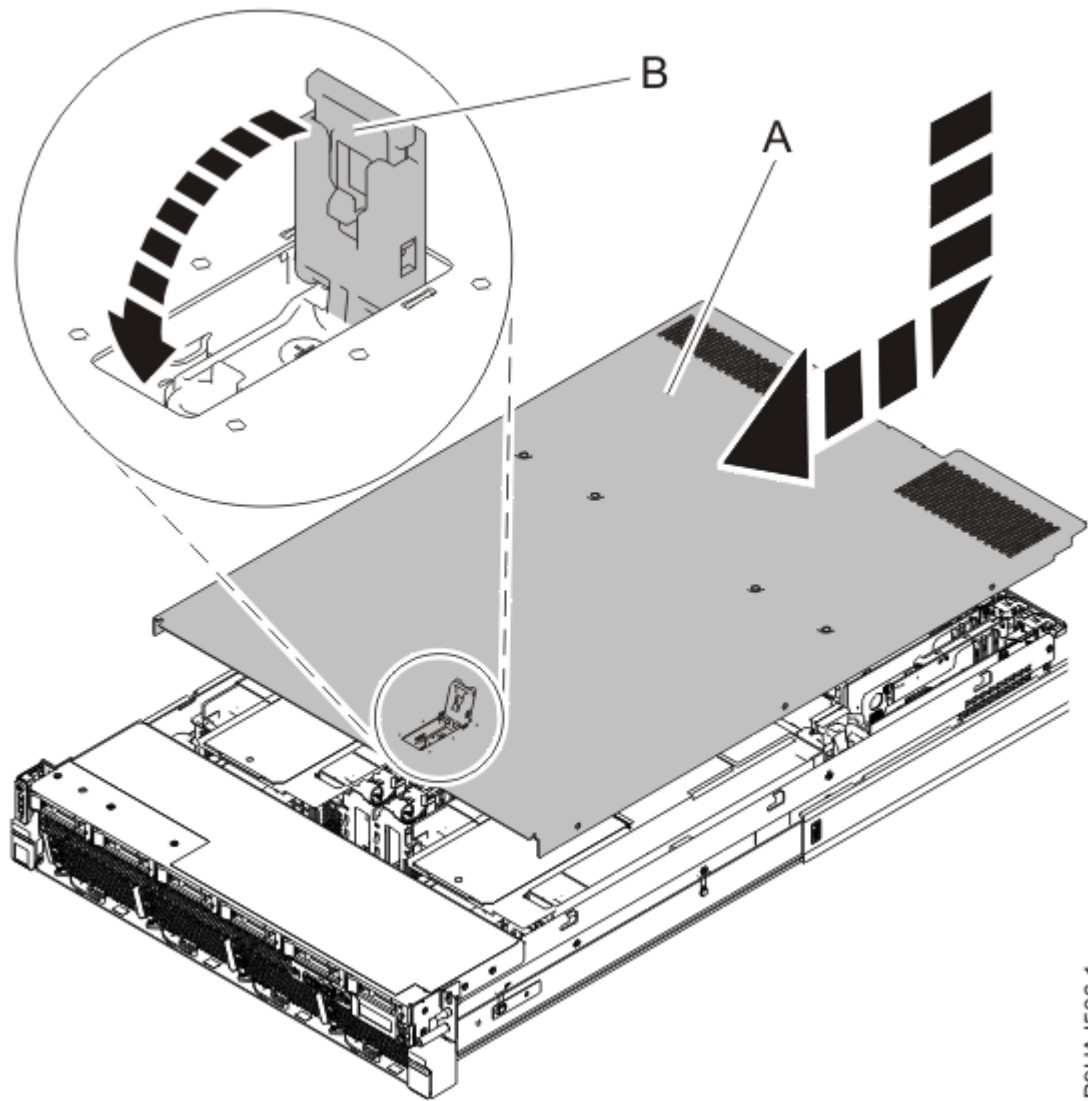


Figure 13. Installing the service access cover

4. Unlock the blue rail safety latches (**A**) by pushing them inward.

Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the unit do not catch or bind as you push the unit into the operating position.

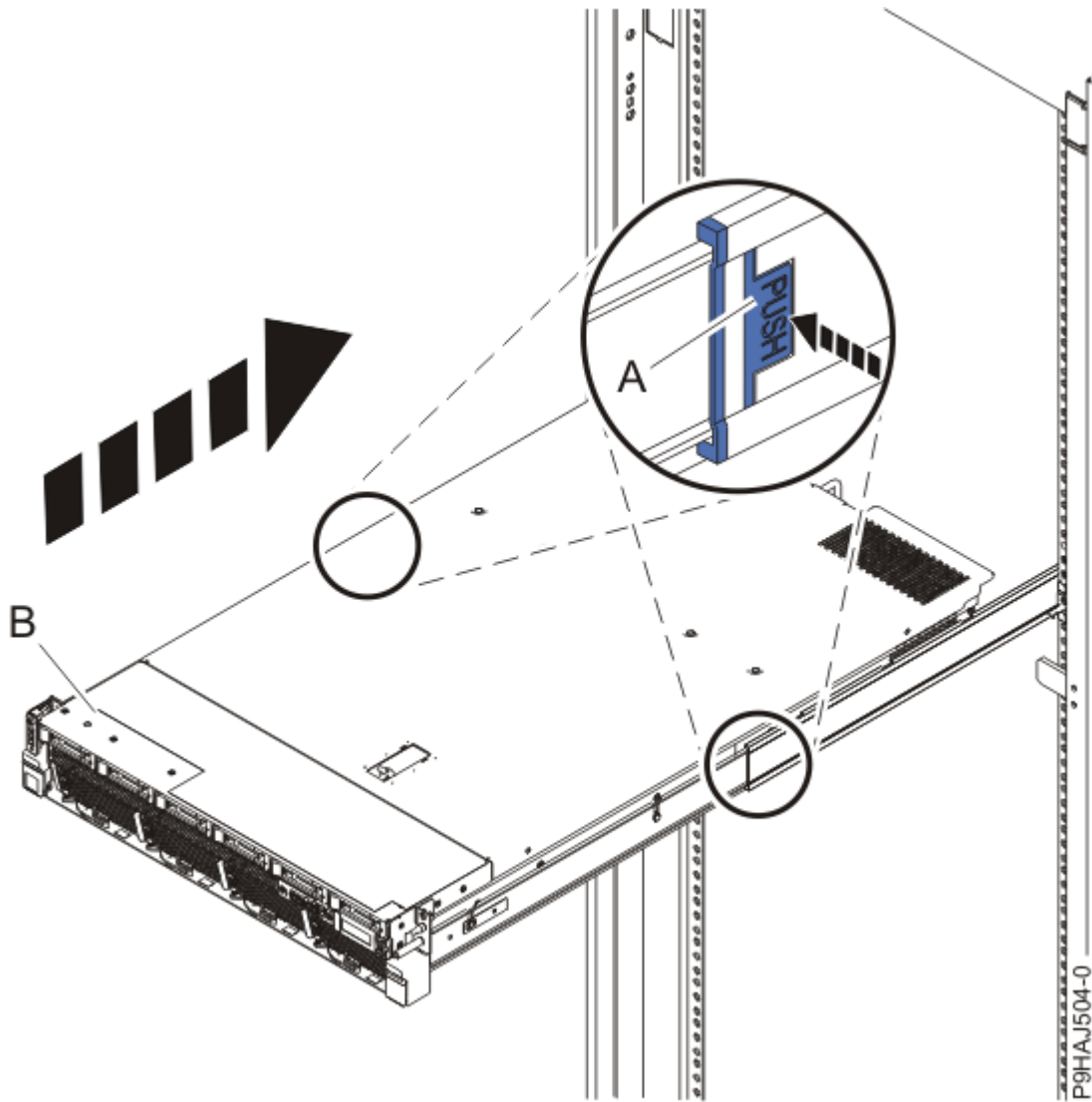


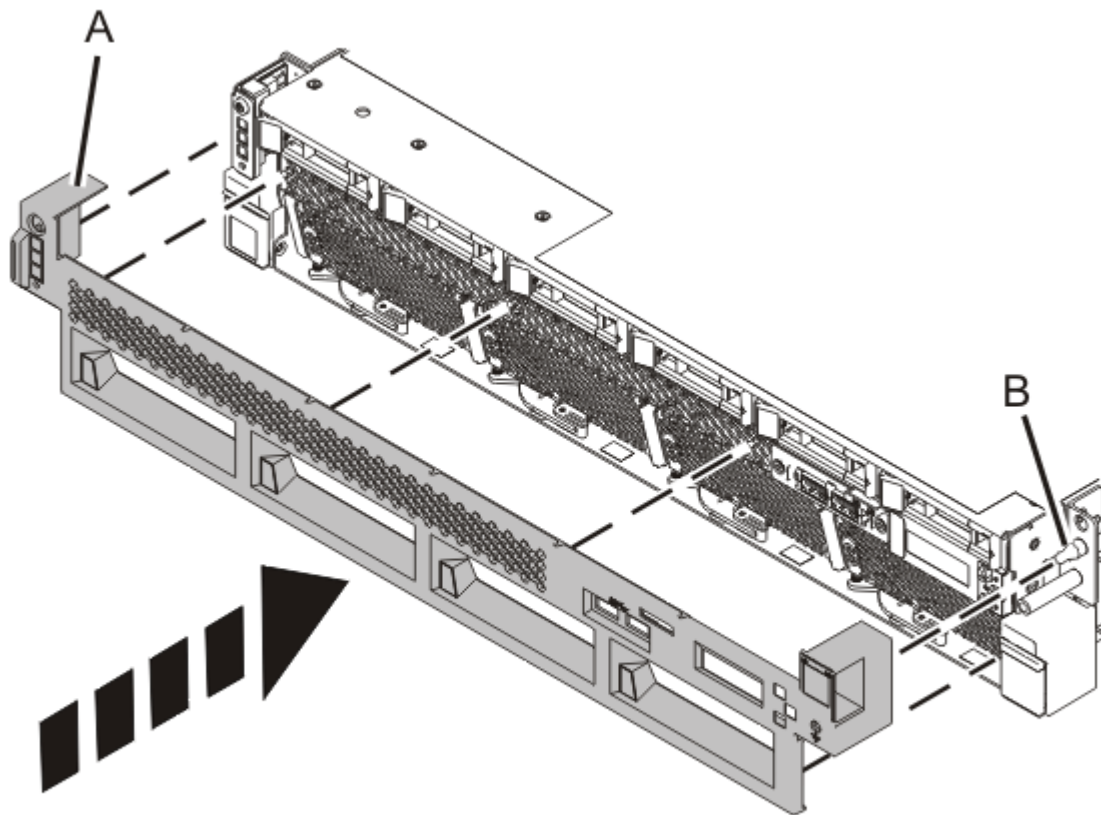
Figure 14. Placing the system into the operating position

5. Push the system unit **(B)** back into the rack until both release latches of the system unit lock into position.

Secure the cable management arm with hook-and-loop fasteners around the back side of the cable management arm, but not around the cables.

6. Gently push the cover **(A)** in until the cover snaps into place.

The cover has indentations where you can hold it more easily. Use the alignment pin **(B)** to secure the cover to the system as shown in [Figure 15 on page 17](#). Push along the grill area above the fans to secure the cover to the front.



P9HAJ501-2

Figure 15. Installing the front cover

7. Using your labels, reconnect the power cords **(A)** to the system unit.

Fasten the power cords to the system using the hook-and-loop fasteners **(B)** as shown in [Figure 16](#) on page 18.

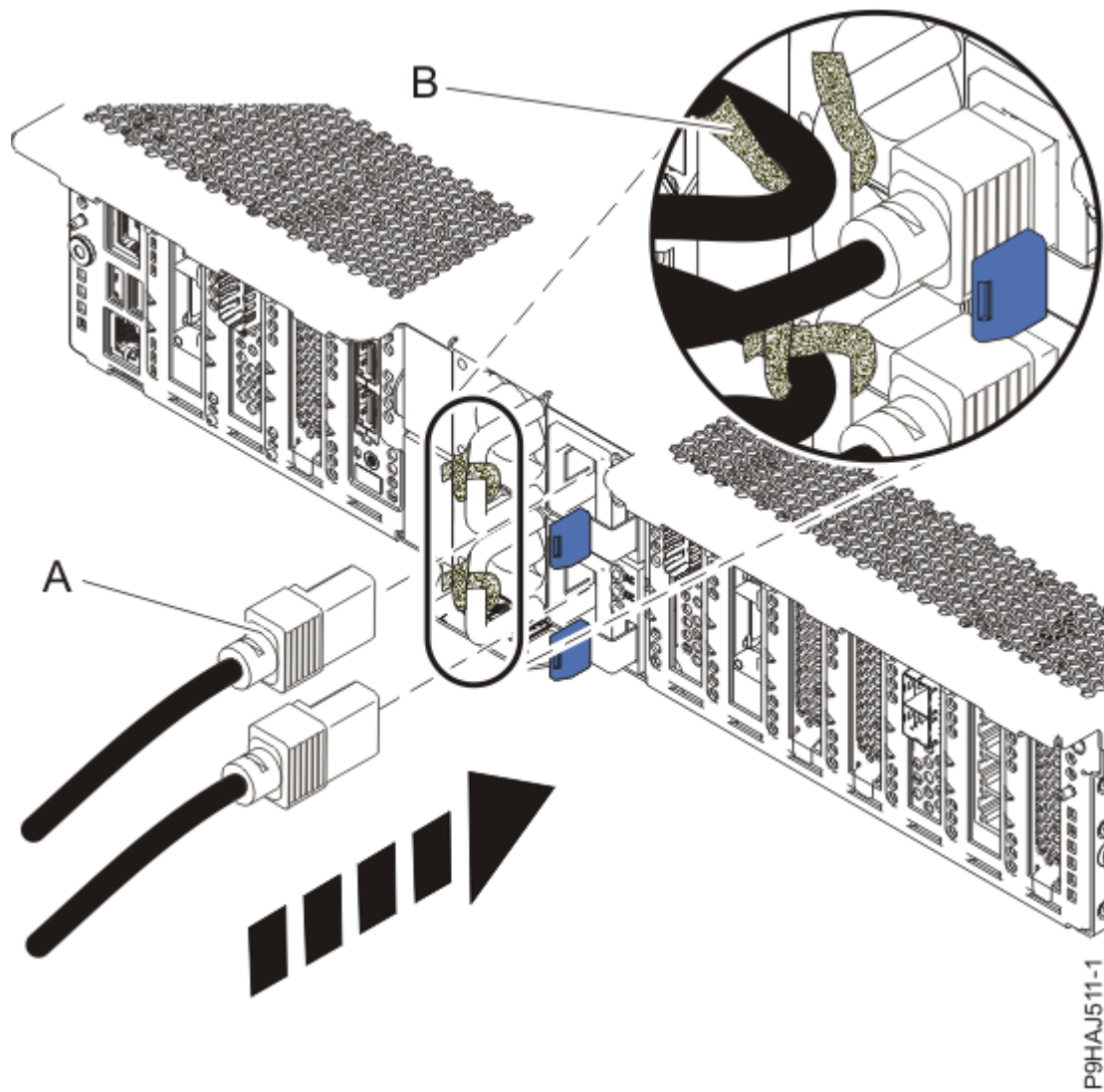


Figure 16. Connecting the power cords

8. Check that the power LED (**A**), as shown in the following figure, is flashing.

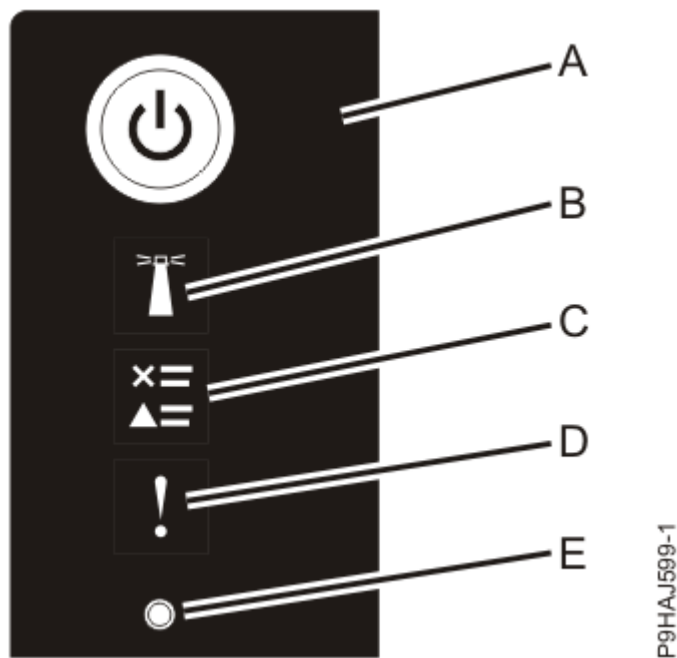


Figure 17. Control panel LEDs

9. Start the system. For instructions, see [Starting a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm).
10. Turn off the identify LED. For instructions, see [Deactivating an identify LED](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm).

Removing and replacing the control panel display in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing a control panel display in the 5105-22E, IBM Power System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

About this task

Note: Removing or replacing this feature is a customer task. You can complete this task yourself, or contact a service provider to complete the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see [Repairing a part by using the HMC](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If you do not have an HMC, use the following procedures to remove and replace the control panel display.

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system to remove and replace the control panel display

To prepare the system to remove and replace a control panel display, complete the steps in this procedure.

Procedure

1. Identify the part and the system that you are working on. For instructions, see [Identifying a part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm).

Use the blue identify LED on the enclosure to locate the system. Ensure that the serial number of the system matches the serial number to be serviced.

2. The control panel display can be replaced with the system powered on. If you choose to power off the system to complete the repair operation, complete the following steps:

- a) Stop the system. For instructions, see [Stopping a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm).

3. Remove the front cover by pulling it away from the system.

The cover has indentations **(A)** where you can hold it more easily. See [Figure 18 on page 20](#).

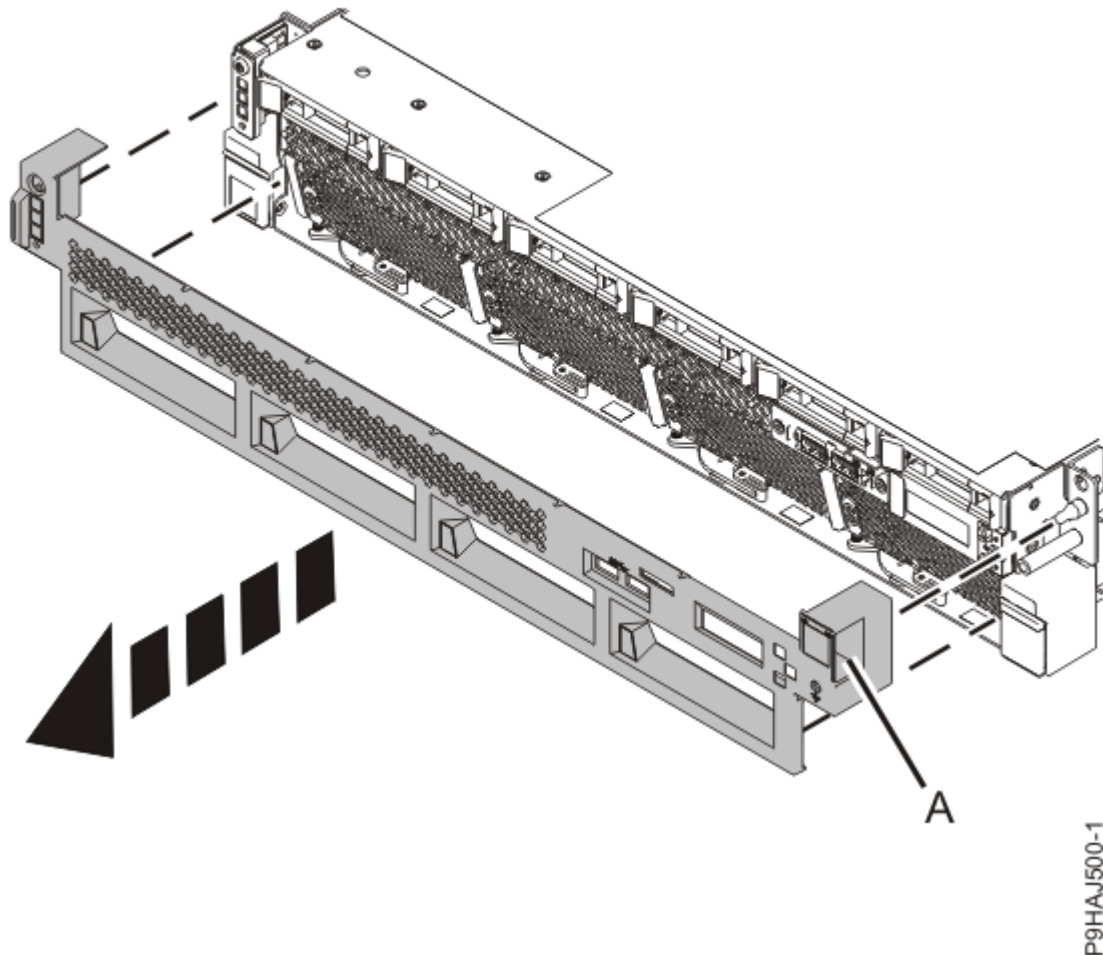


Figure 18. Removing the front covers

4. Attach the electrostatic discharge (ESD) wrist strap. Your system has an ESD jack on the front and on the rear of the system as shown in the following figure. Plug the ESD wrist strap into the ESD jack.



Attention:

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.

- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

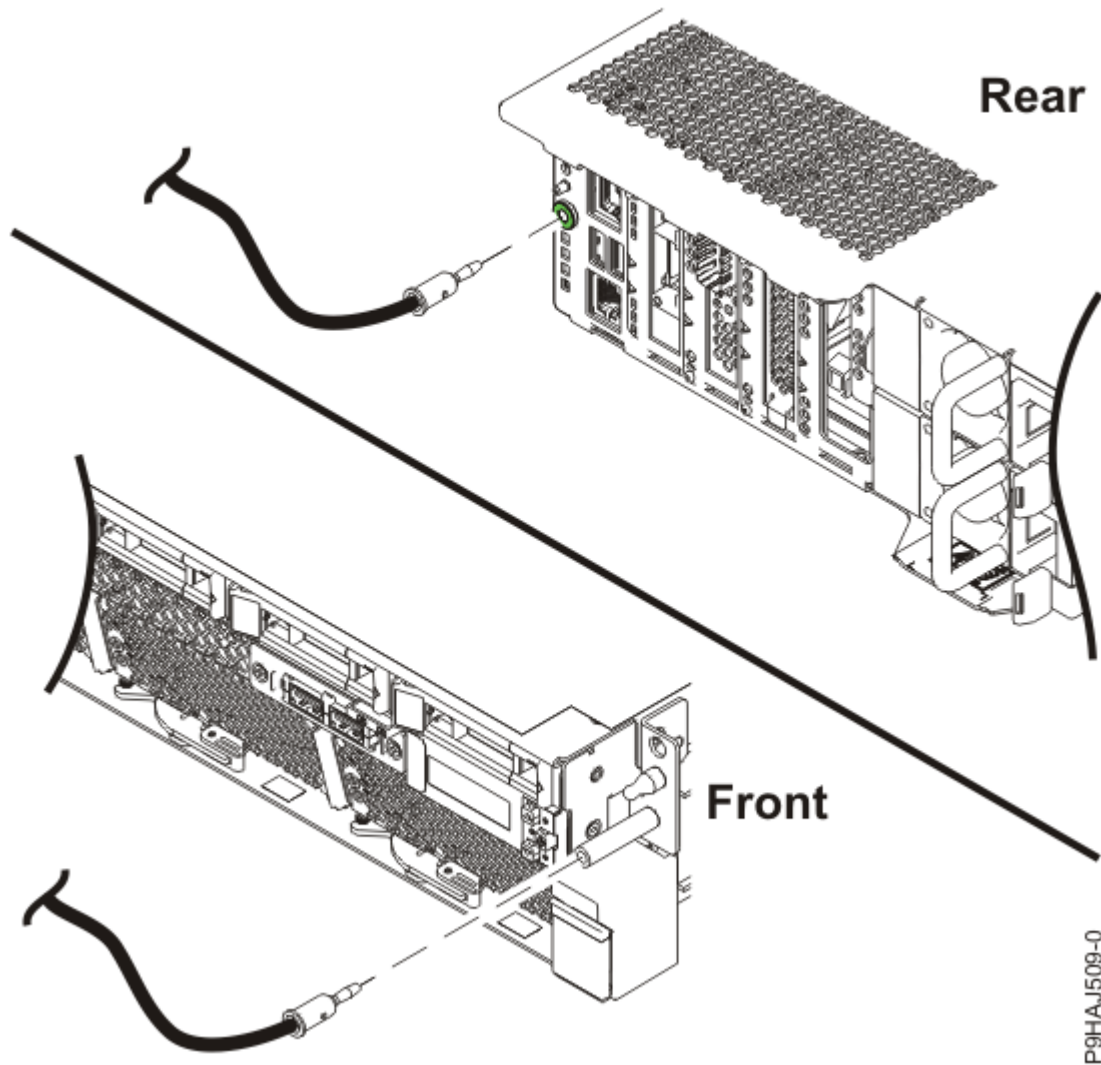


Figure 19. Location of the ESD plugs

Removing the control panel display from the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To remove a control panel display, complete the steps in this procedure.

About this task

You must have at least one control panel display.

- In the rack-mounted system, a control panel display is required in one of the systems in that rack.
- If multiple systems are installed in multiple racks, a minimum of one control panel display is required in each rack that contains the systems.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Remove the control panel display **(A)** by pulling the tab **(B)** as shown in [Figure 20 on page 22](#).

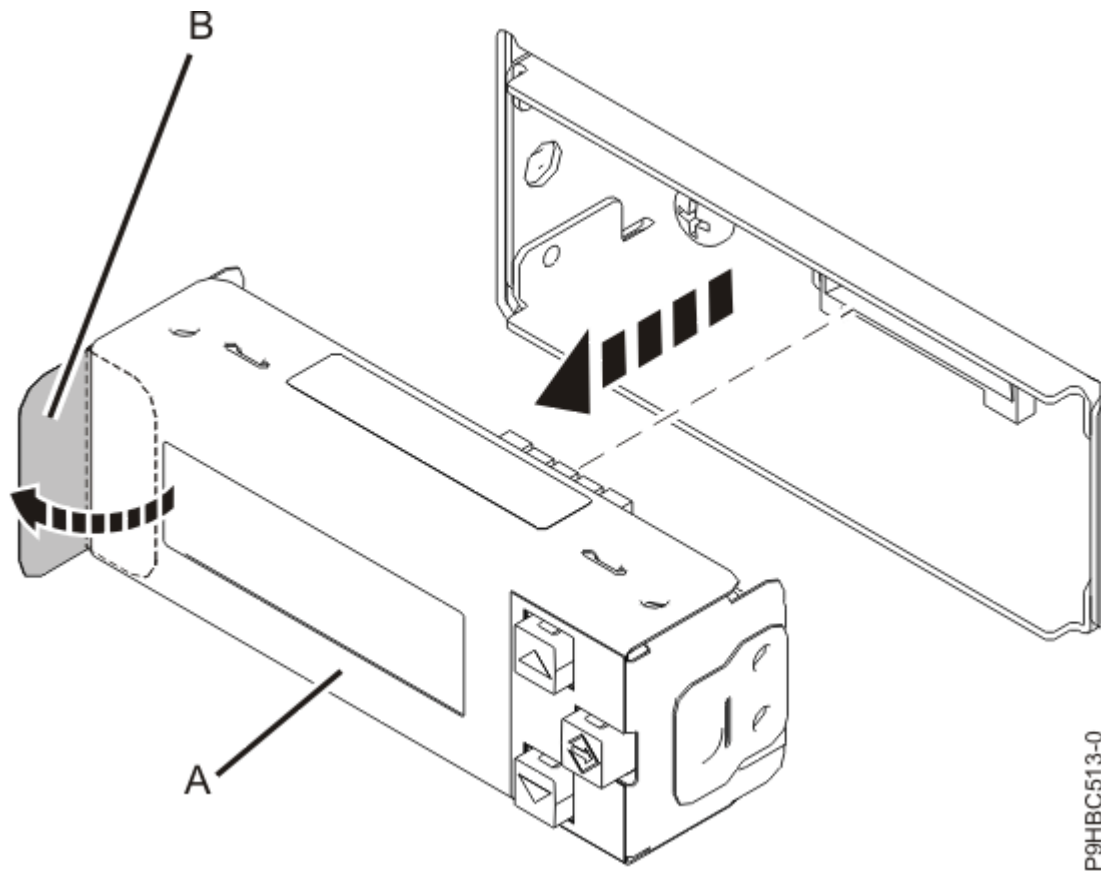


Figure 20. Removing the control panel display

3. If you are moving the control panel display to another system, replace the display with a filler as shown in [Figure 21](#) on page 23.

You can also place a plastic cover on the front cover, over the filler.

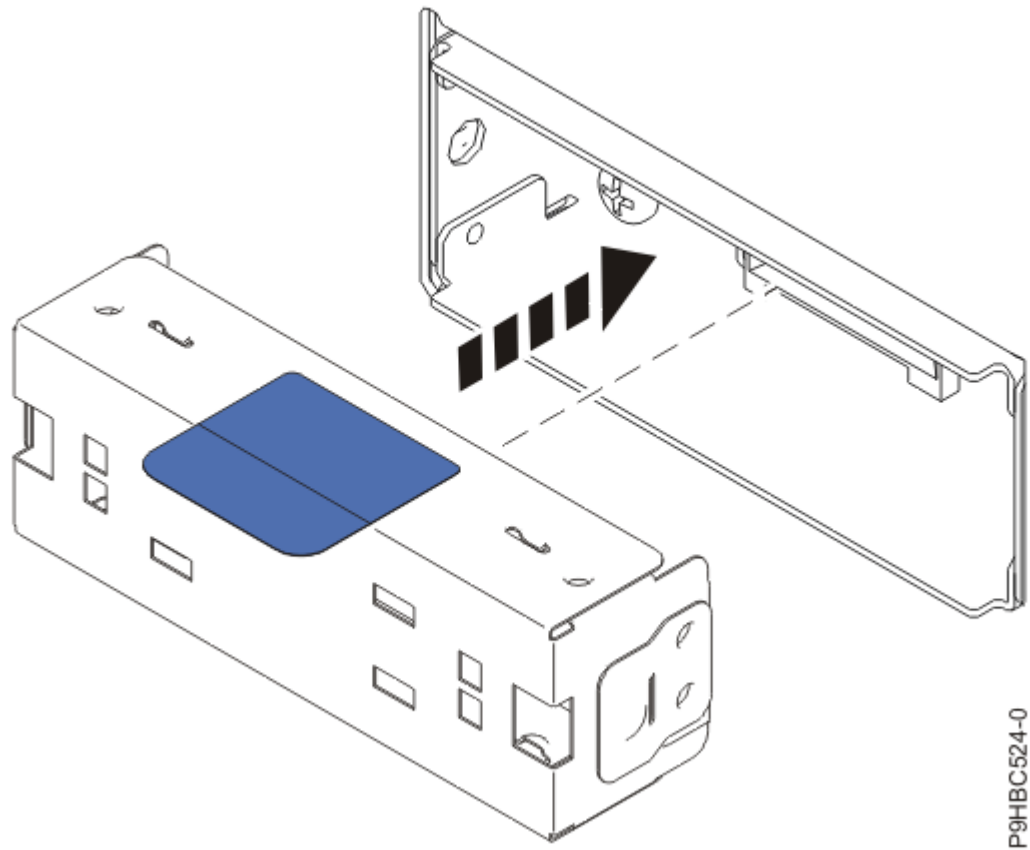


Figure 21. Inserting a display filler

Replacing the control panel display in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To replace a control panel display, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. If needed, remove the display filler **(A)** using tab **(B)** as shown in [Figure 22 on page 24](#).
If a plastic cover is in the front cover, remove the plastic cover to view the display.

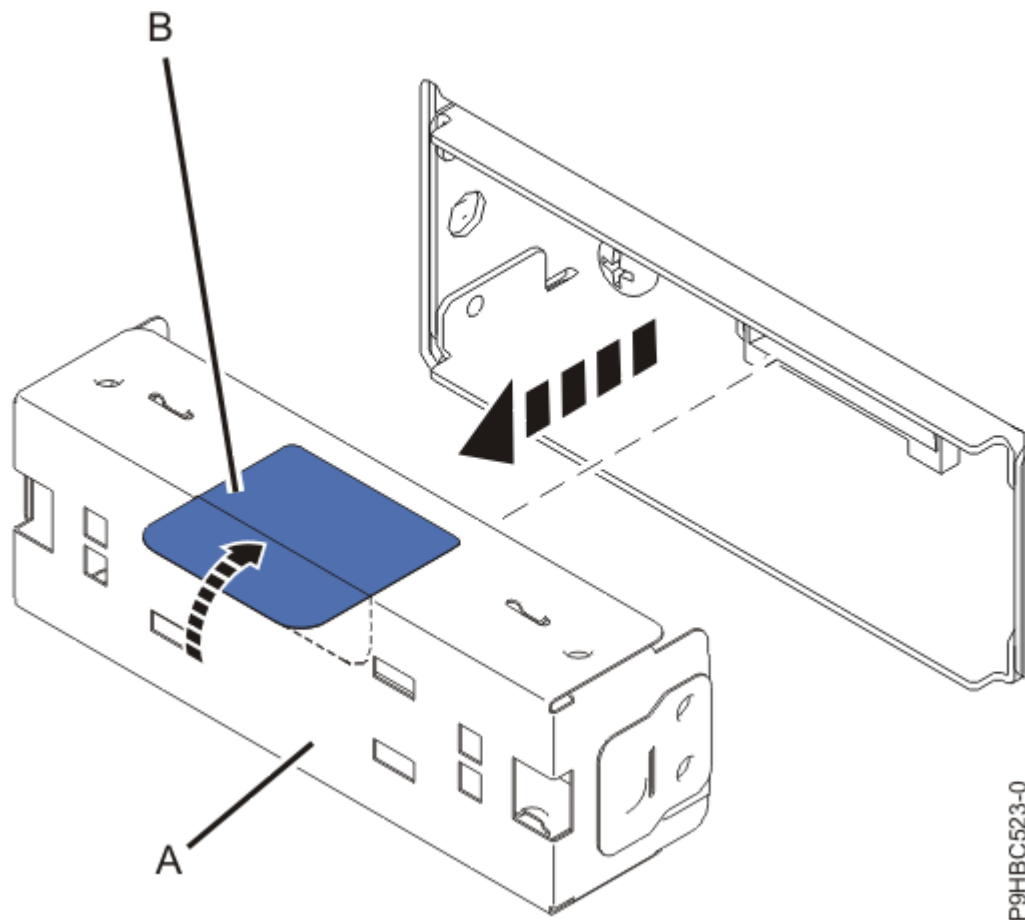


Figure 22. Removing a display filler

3. **Note:** Ensure that you wait at least 30 seconds after removing the old control panel display, then install the new display.

Insert the control panel display by pushing it into the housing as shown in [Figure 23 on page 25](#). It clicks into place.

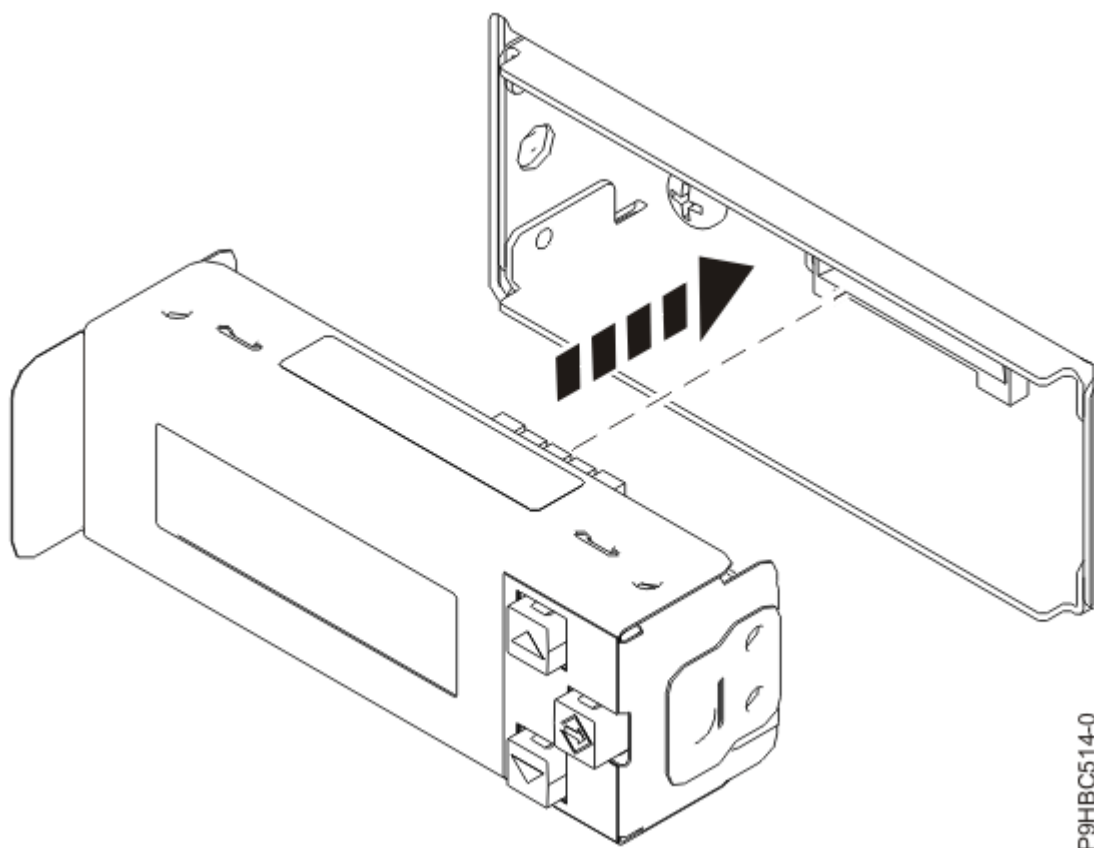


Figure 23. Inserting the control panel display

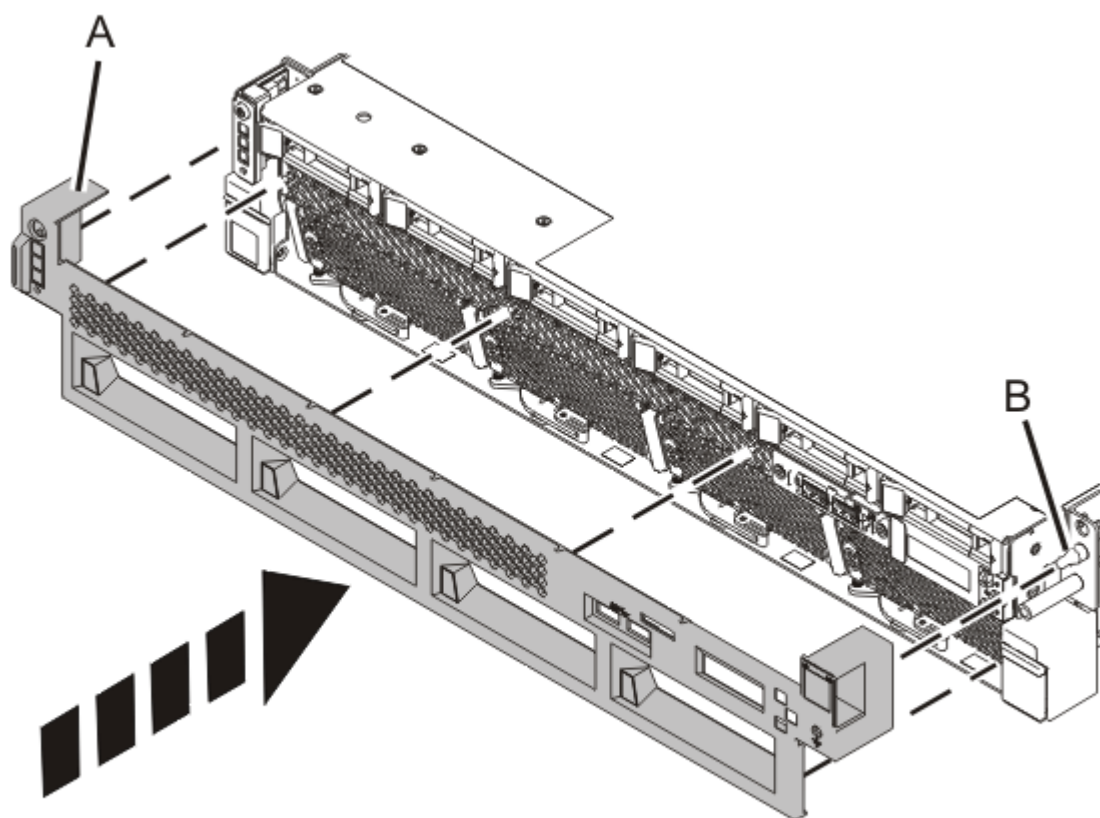
Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system for operation after removing and replacing the control panel display

To prepare the system for operation after removing and replacing a control panel display, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. If you removed the power cords, connect all power cords to the system that you are servicing.
3. If you needed to power off the server to complete the repair operation, start the system. For instructions, see [Starting a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm).
4. Turn off the identify LED. For instructions, see [Deactivating an identify LED](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm).
5. Verify whether the control panel display is operational by checking the progress codes.
6. Gently push the cover **(A)** in until the cover snaps into place.

The cover has indentations where you can hold it more easily. Use the alignment pin **(B)** to secure the cover to the system as shown in [Figure 24 on page 26](#). Push along the grill area above the fans to secure the cover to the front.



P9HAJ501-2

Figure 24. Installing the front cover

Control panel cables for the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing the control panel cables in the 5105-22E, IBM Power System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

Removing and replacing the control panel cable in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing a control panel display cable for the 5105-22E, IBM Power System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

About this task

Note: Removing or replacing this feature is a customer task. You can complete this task yourself, or contact a service provider to complete the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see [Repairing a part by using the HMC](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If you do not have an HMC, use the following procedures to remove and replace the control panel cable.

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system to remove and replace the control panel cable

To prepare the system to remove and replace a control panel cable, complete the steps in this procedure.

Procedure

1. Identify the part and the system that you are working on. For instructions, see [Identifying a part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm).
Use the blue identify LED on the enclosure to locate the system. Ensure that the serial number of the system matches the serial number to be serviced.
2. Use the blue LED to identify the server.
Ensure that the serial number of the system matches the serial number to be serviced.
3. Stop the system. For instructions, see [Stopping a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm).
4. Label and disconnect the power cords from the system unit.
See [Figure 25 on page 28](#).

Notes:

- This system might be equipped with two or more power supplies. If the removing and replacing procedures require the system power to be turned off, ensure that all the power sources to the system are disconnected.
- The power cord **(B)** is fastened to the system with hook-and-loop fastener **(A)**. If you are placing the system in a service position after you disconnect the power cords, ensure that you unstrap the fastener.

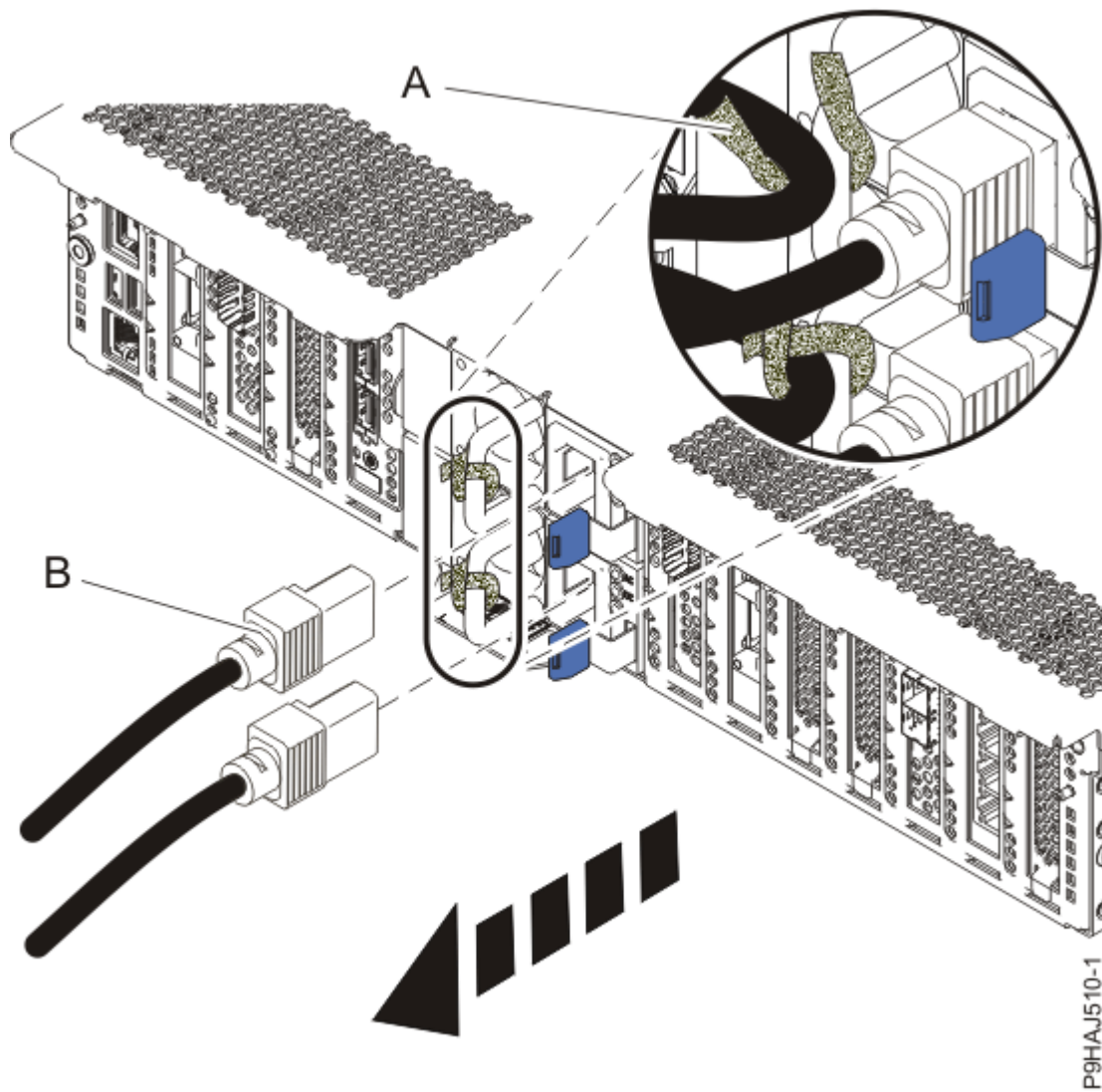
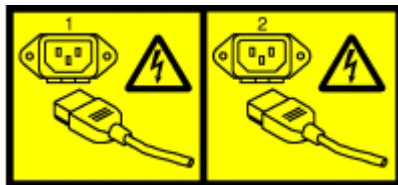


Figure 25. Removing the power cords

(L003)



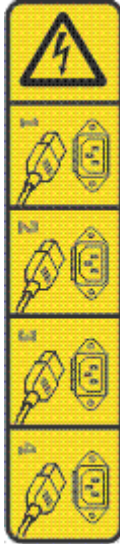
or



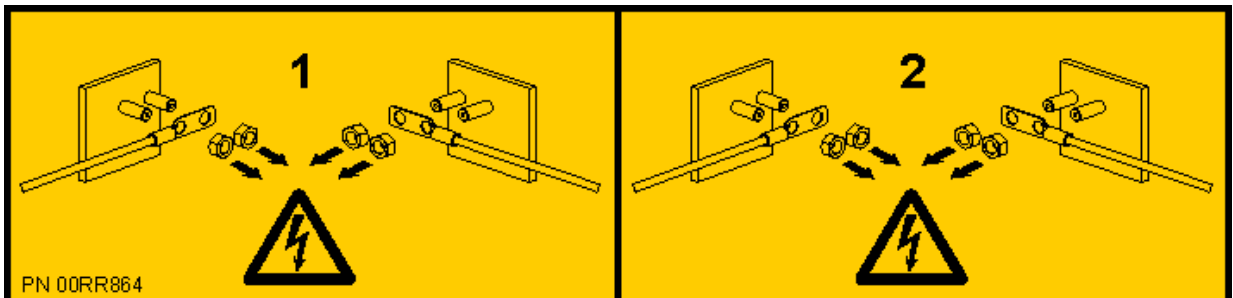
or



or



or



! DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

5. Remove the front cover by pulling it away from the system.

The cover has indentations **(A)** where you can hold it more easily. See [Figure 26 on page 30](#).

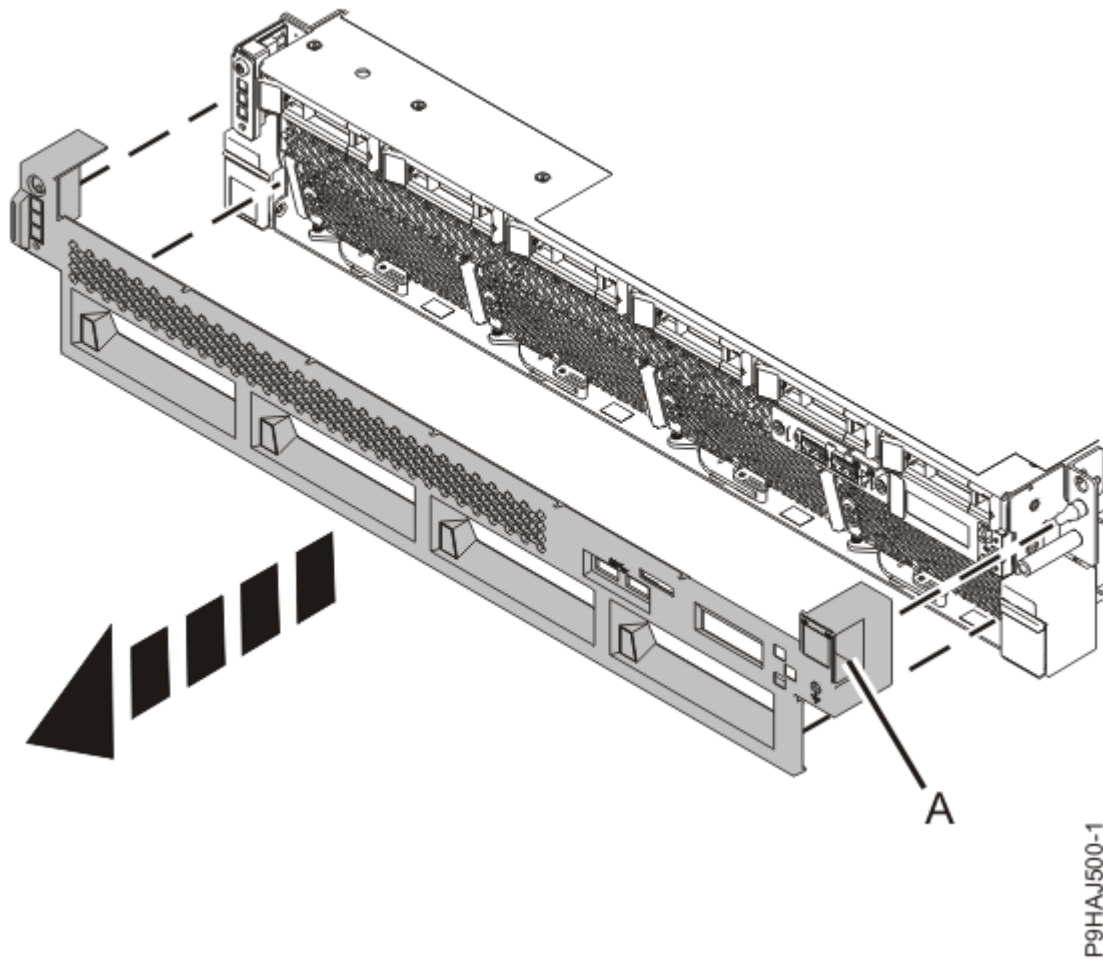


Figure 26. Removing the front covers

6. Open the side latches **(A)** and pull the latches to slide the system unit fully into the service position, until the slides click and hold the system unit securely. Ensure that the screws inside the latches are not secured to the rack.

Remove the hook-and-loop fasteners that secure the cable management arms. Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the system do not catch or bind as you pull the system unit into the service position.

Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.

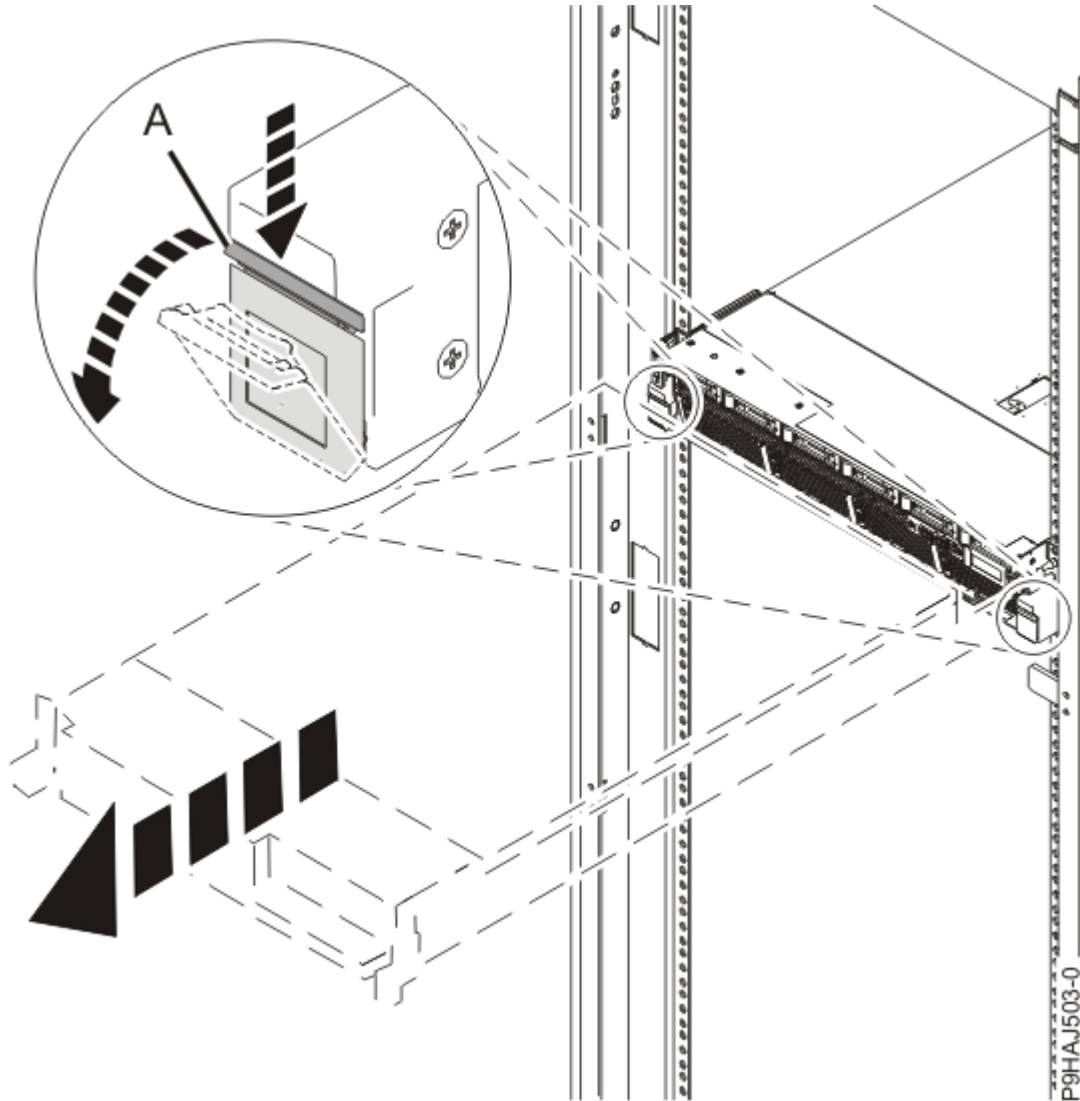


Figure 27. Releasing the side latches

7. Attach the electrostatic discharge (ESD) wrist strap. Your system has an ESD jack on the front and on the rear of the system as shown in the following figure. Plug the ESD wrist strap into the ESD jack.



Attention:

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.

- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

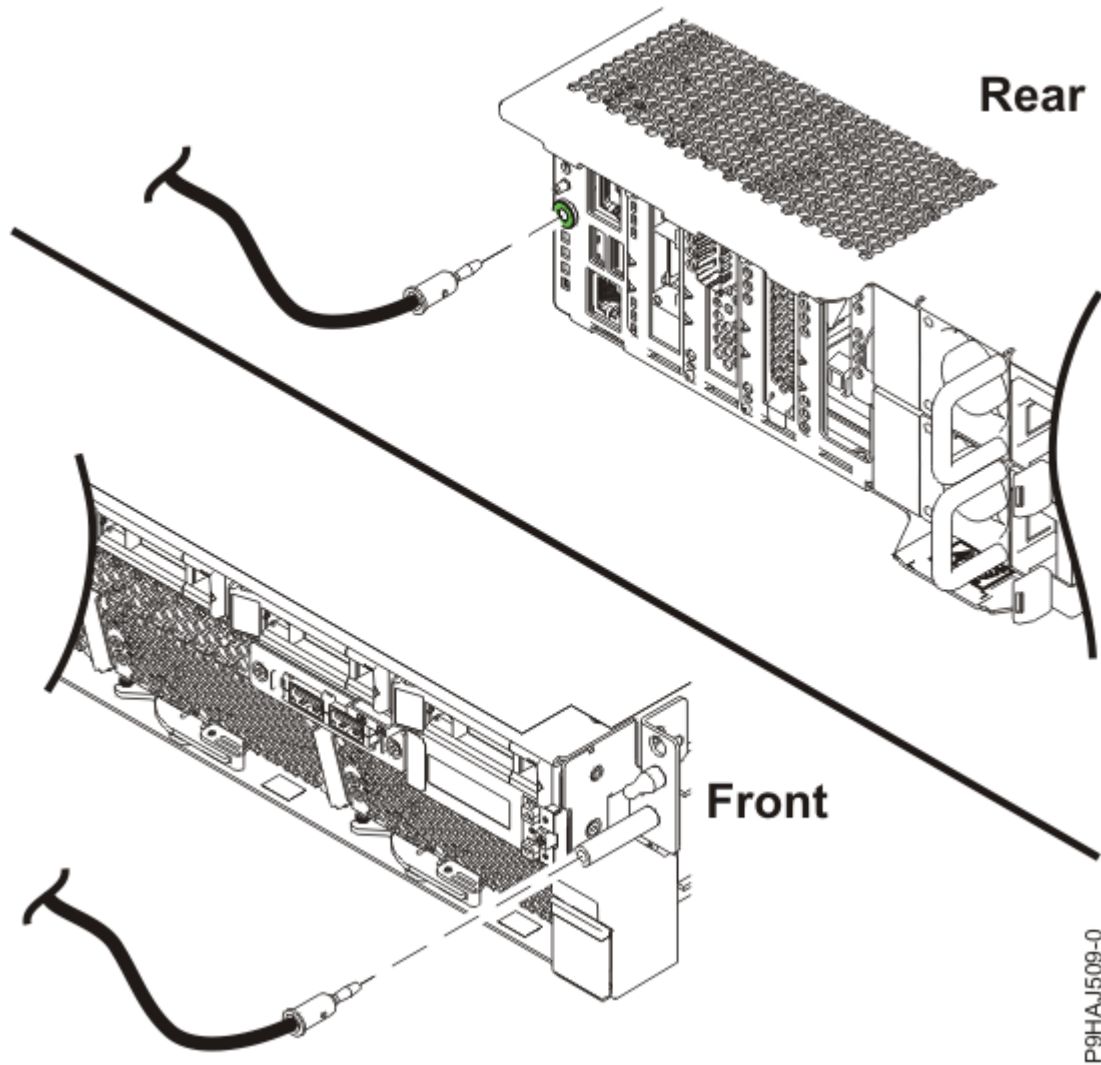
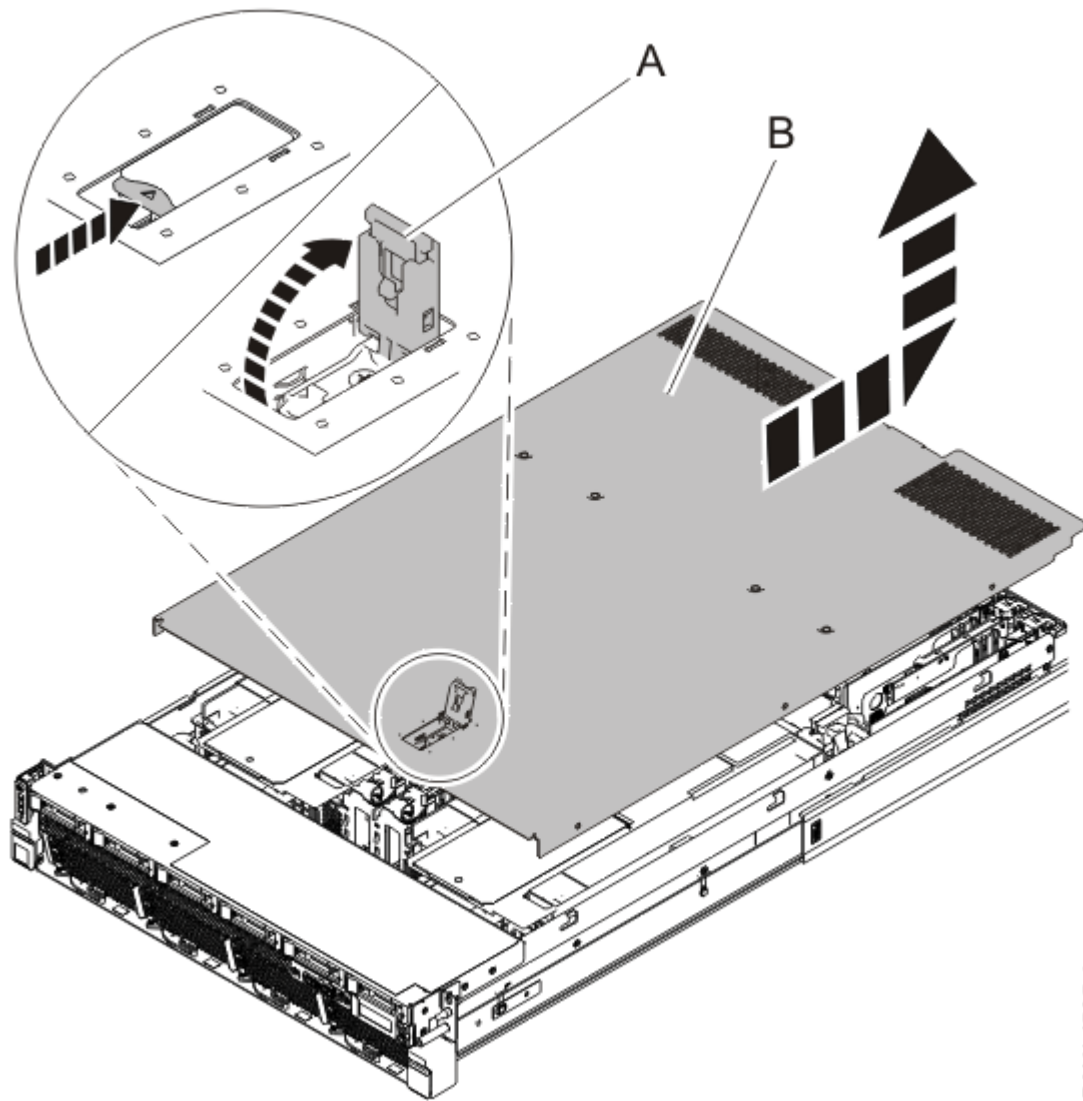


Figure 28. Location of the ESD plugs

8. Release the service access cover latch by pushing the release latch **(A)** in the direction shown.
9. Slide the cover **(B)** off the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.



Attention: Operating the system without the service access cover on for more than 10 minutes when the system power is turned on might damage the system components.



P9HAJ505-1

Figure 29. Removing the service access cover

Removing the control panel cable from the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

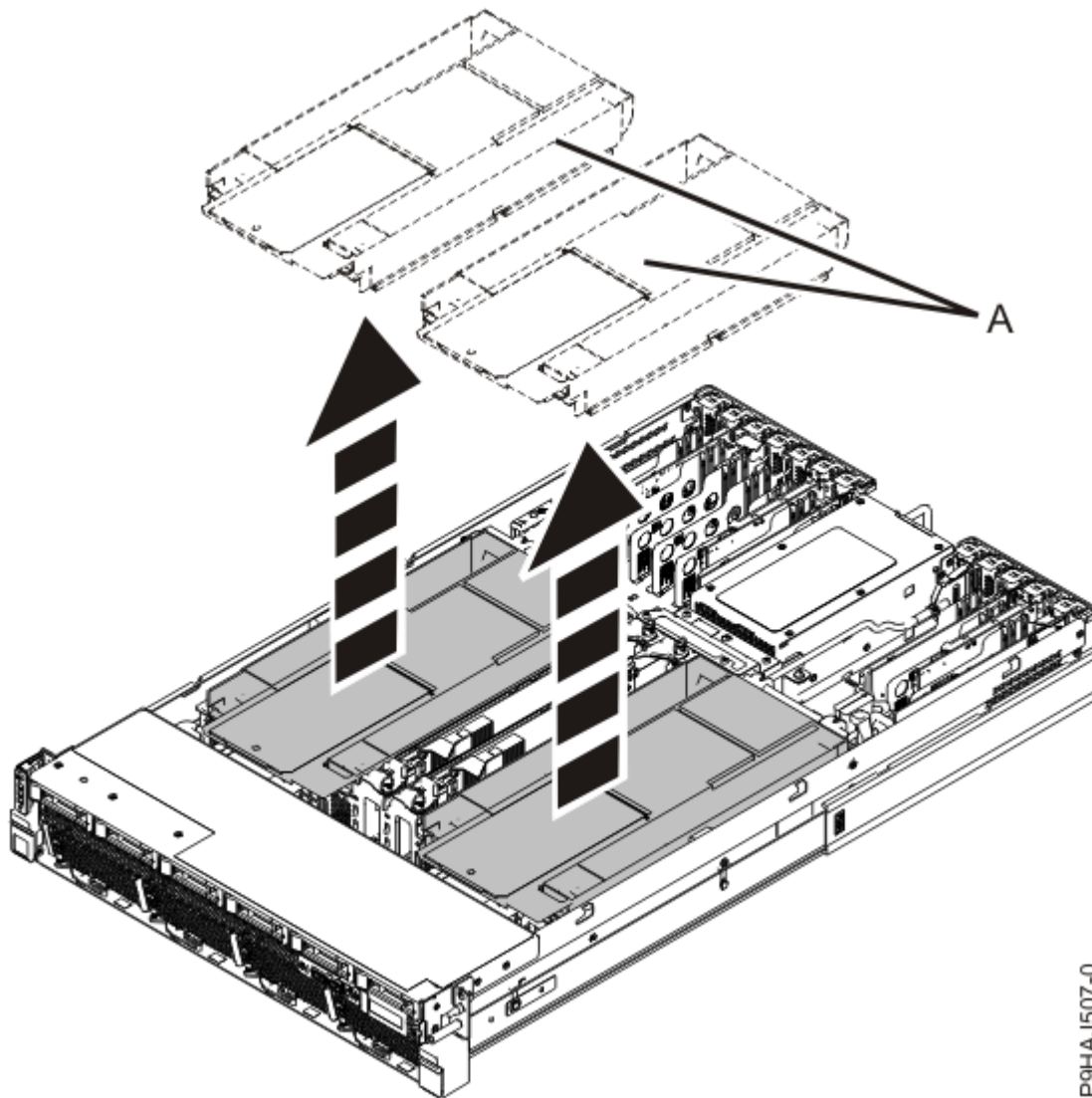
To remove a control panel cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Lift each air baffle **(A)** straight up.

See [Figure 30](#) on page 34.

Place air baffles upside down on a clean area. When you turn an air baffle over, hold the detachable drive cover to prevent it from coming loose.



P9HAJ507-0

Figure 30. Removing the air baffle

3. Unplug the control panel cable from the system backplane as shown in [Figure 31 on page 35](#).
As you face the chassis, the connector is in the left front corner. You can pull the cable from the system backplane by using the cable cover near the plug.

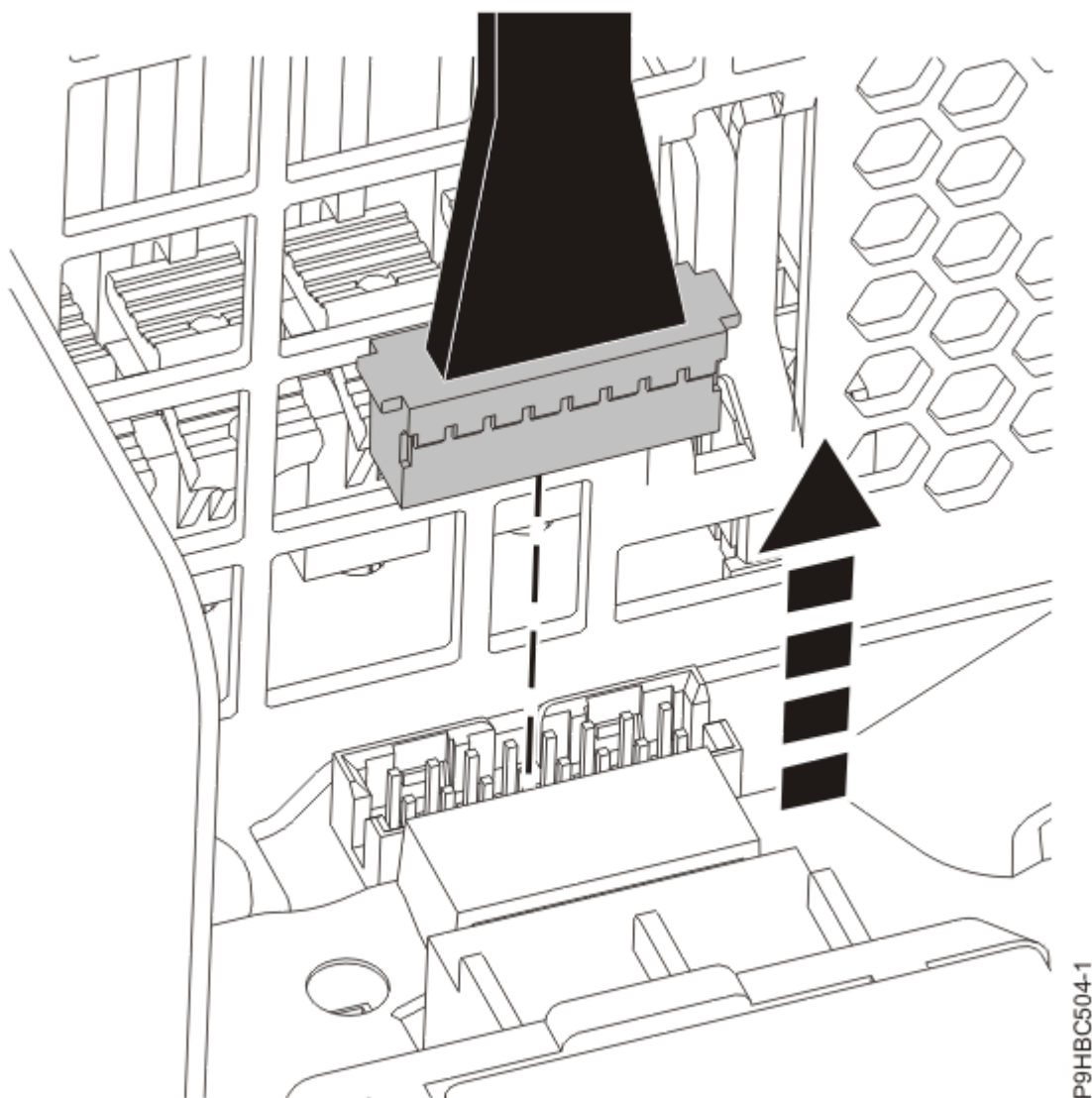


Figure 31. Disconnecting the control panel cable from the system backplane

4. Loosen the screw **(B)** that secures the control panel **(A)** to the bracket as shown in [Figure 32 on page 36](#).

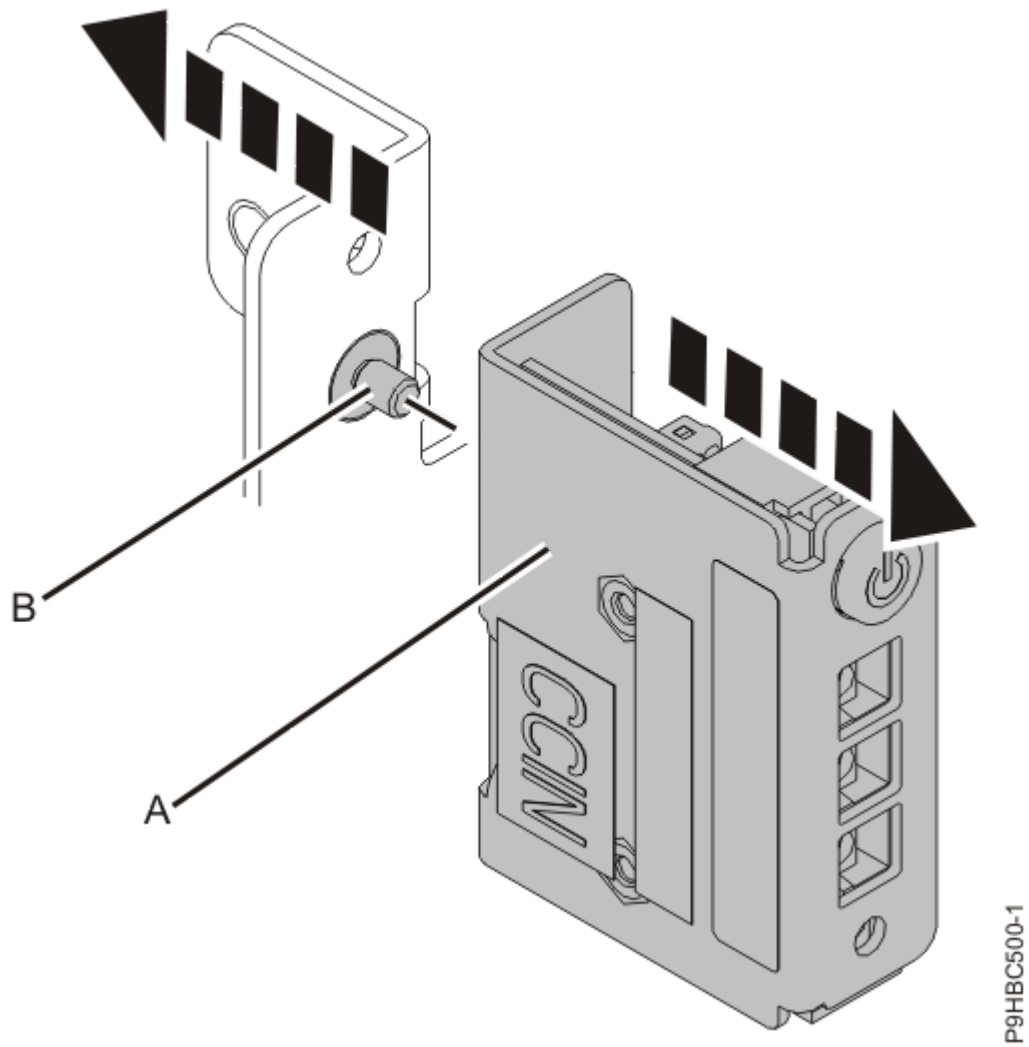


Figure 32. Removing the control panel from the bracket

5. Remove the screw **(A)** that secures the bracket **(B)** to the side of the system and remove the bracket as shown in [Figure 33 on page 37](#).

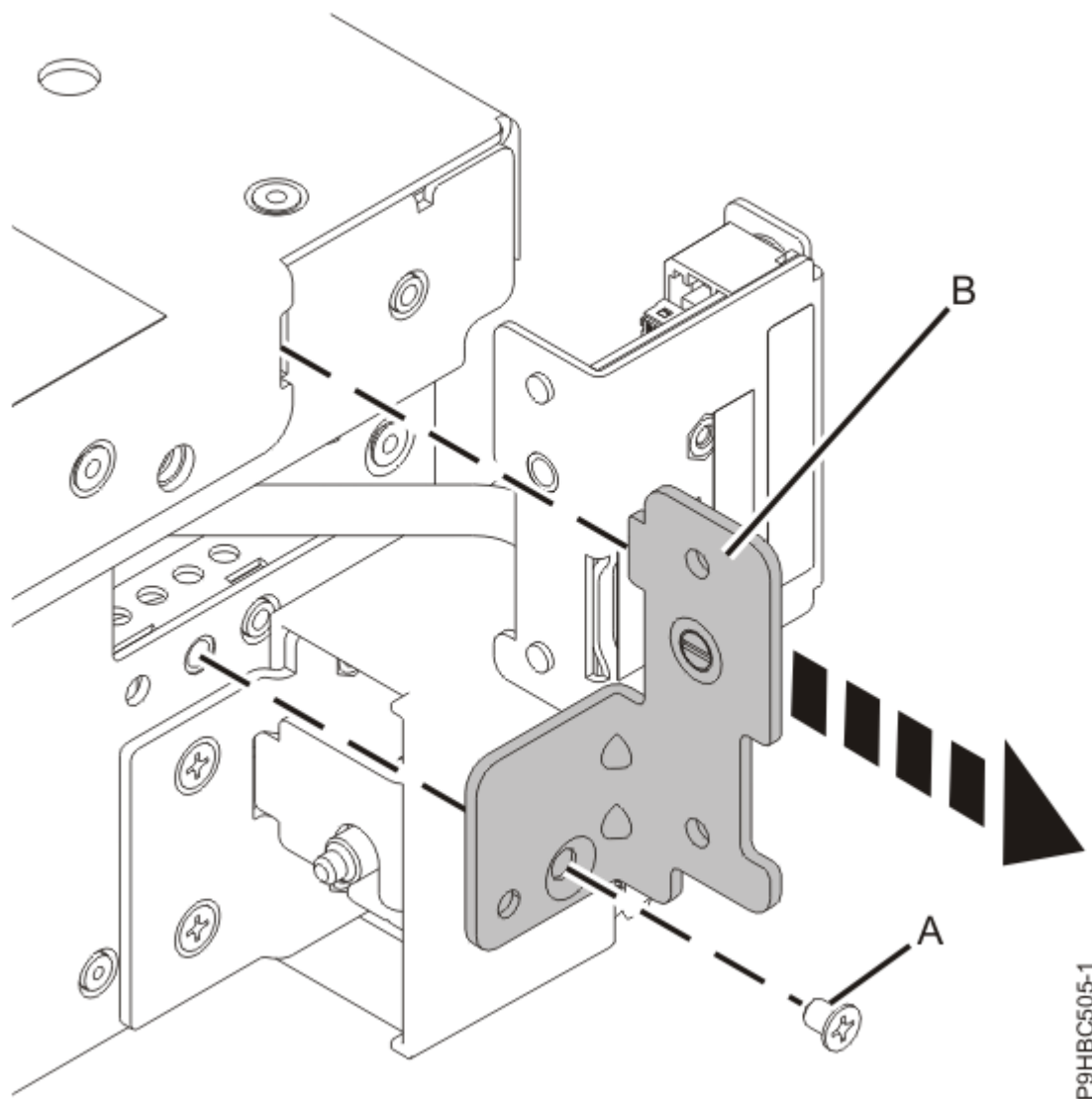
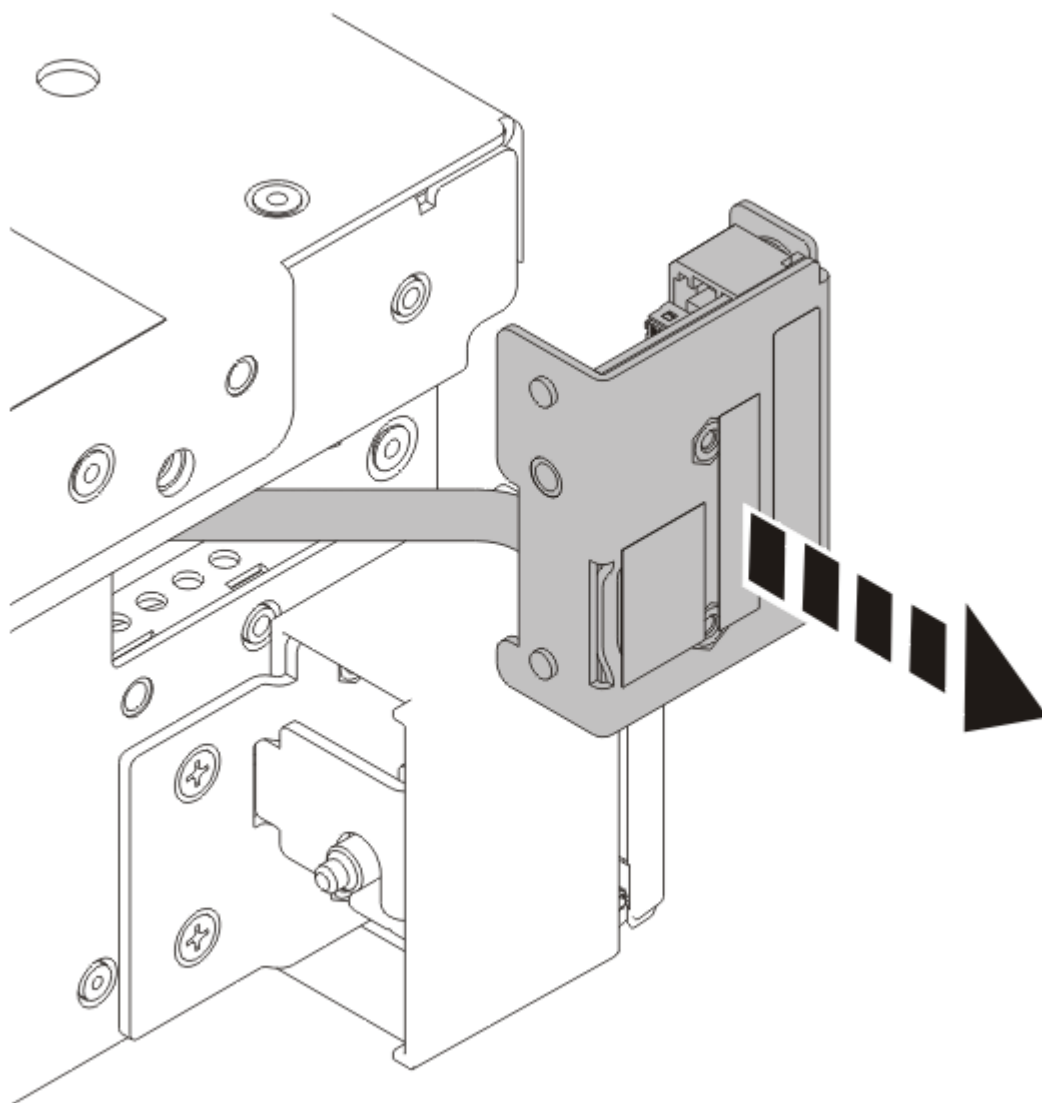


Figure 33. Removing the control panel bracket

6. Remove the control panel and cable from the system as shown in [Figure 34 on page 38](#).

Remove the cable towards the front of the system. Ensure that the cable does not catch on any components while you are removing it.



P9HBC506-0

Figure 34. Removing the control panel and cable

7. Disconnect the control panel **(A)** from the cable **(B)** as shown in [Figure 35 on page 39](#). Press the release latches on each side of the plug to remove the cable from the switch.

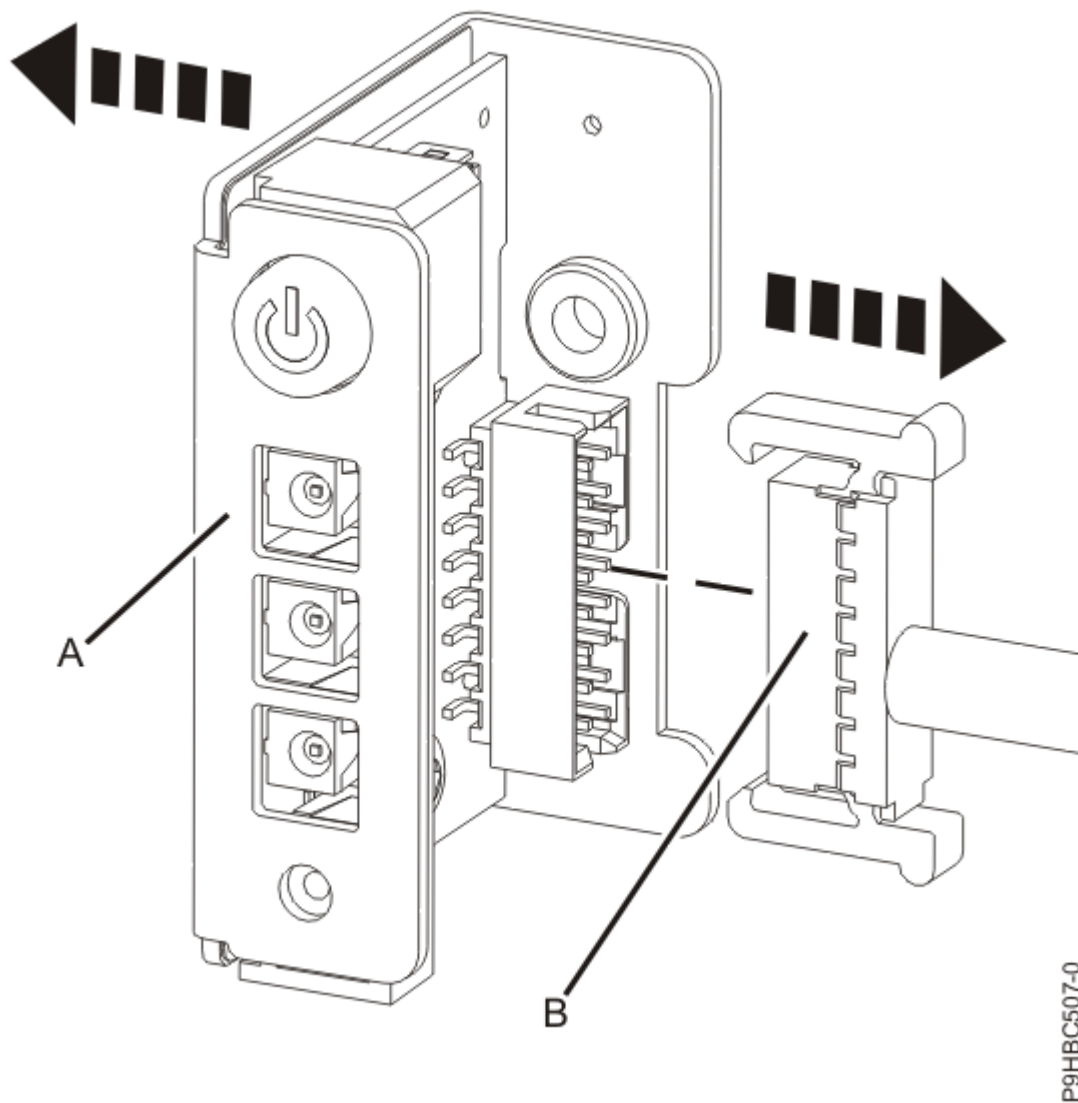


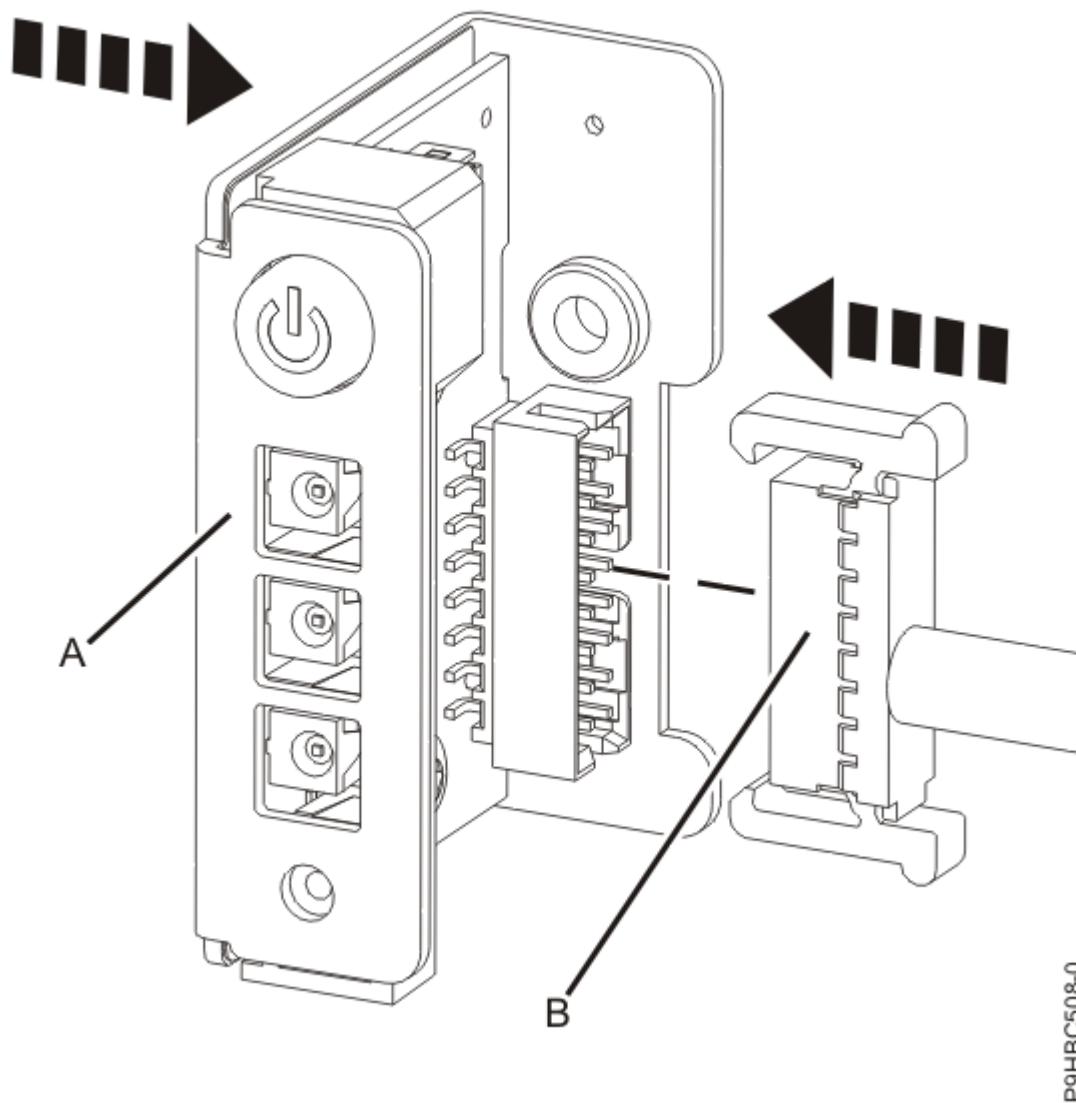
Figure 35. Disconnecting the control panel from the cable

Replacing the control panel cable in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To replace a control panel cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Connect the control panel **(A)** to the cable **(B)** as shown in [Figure 36 on page 40](#).
The latch side of the cable connects to the control panel.

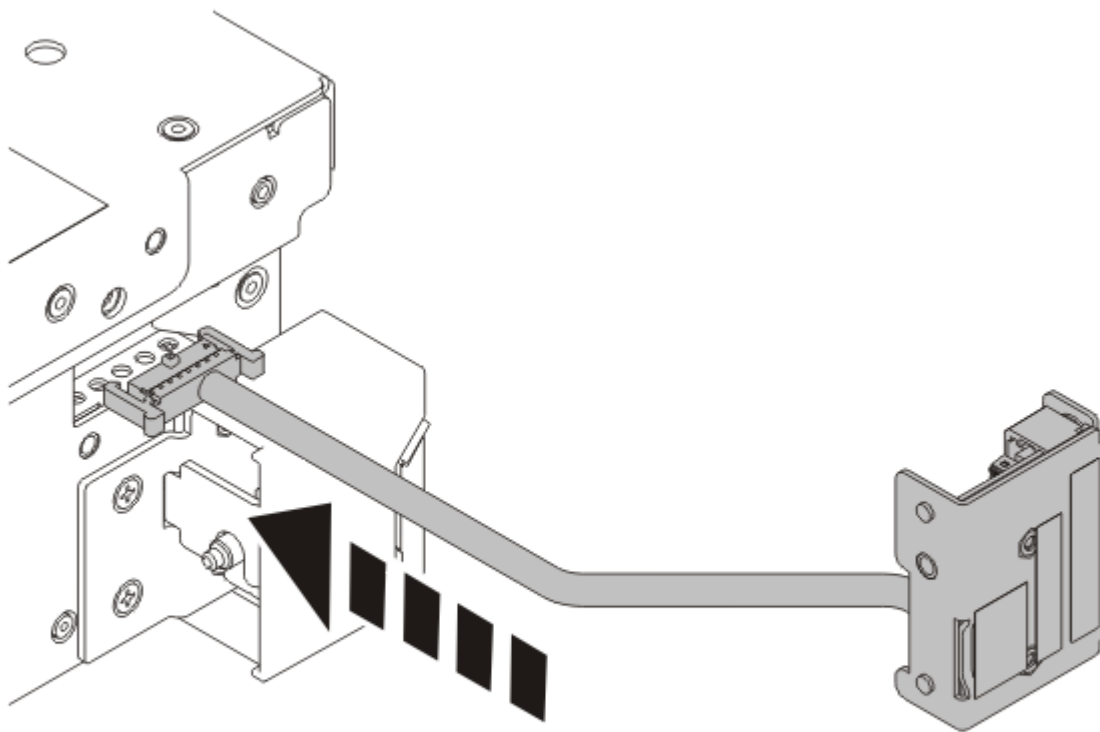


P9HBC508-0

Figure 36. Connecting the control panel to the cable

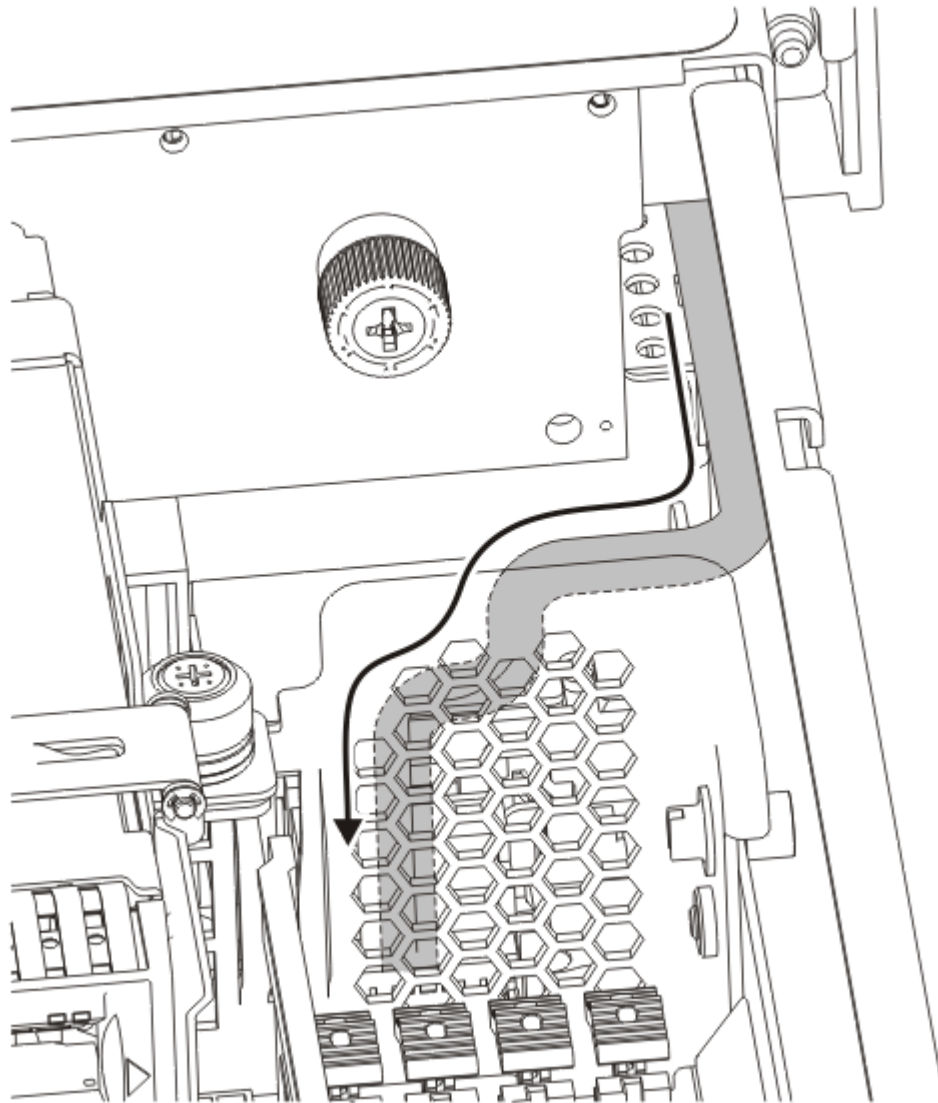
3. Insert the control panel cable into the system as shown in [Figure 37 on page 41](#) and [Figure 38 on page 42](#).

Pass the cable through the channel along the side of the chassis, being careful not to catch the cable on any components as you insert it.



P9HBC509-0

Figure 37. Inserting the control panel cable



P9HBC510-0

Figure 38. Control panel cable path

4. Attach the bracket **(B)** to the side of the system with screw **(A)** as shown in [Figure 39 on page 43](#). Ensure that the bracket pin aligns with the bracket hole.

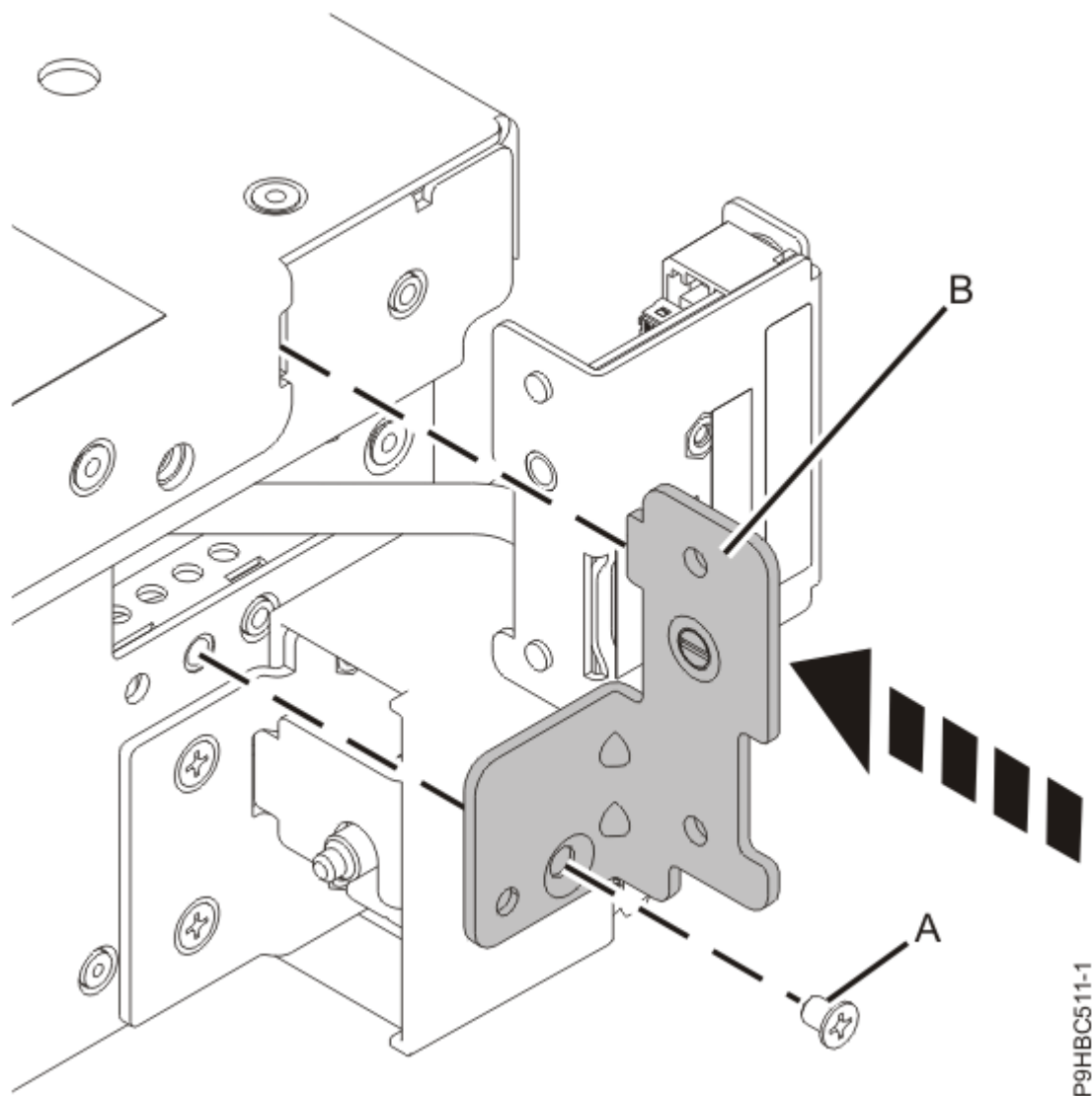


Figure 39. Replacing the control panel bracket

5. Attach the control panel **(A)** to the bracket with screw **(B)** as shown in [Figure 40 on page 44](#). Ensure that the control panel pins align with the bracket holes.

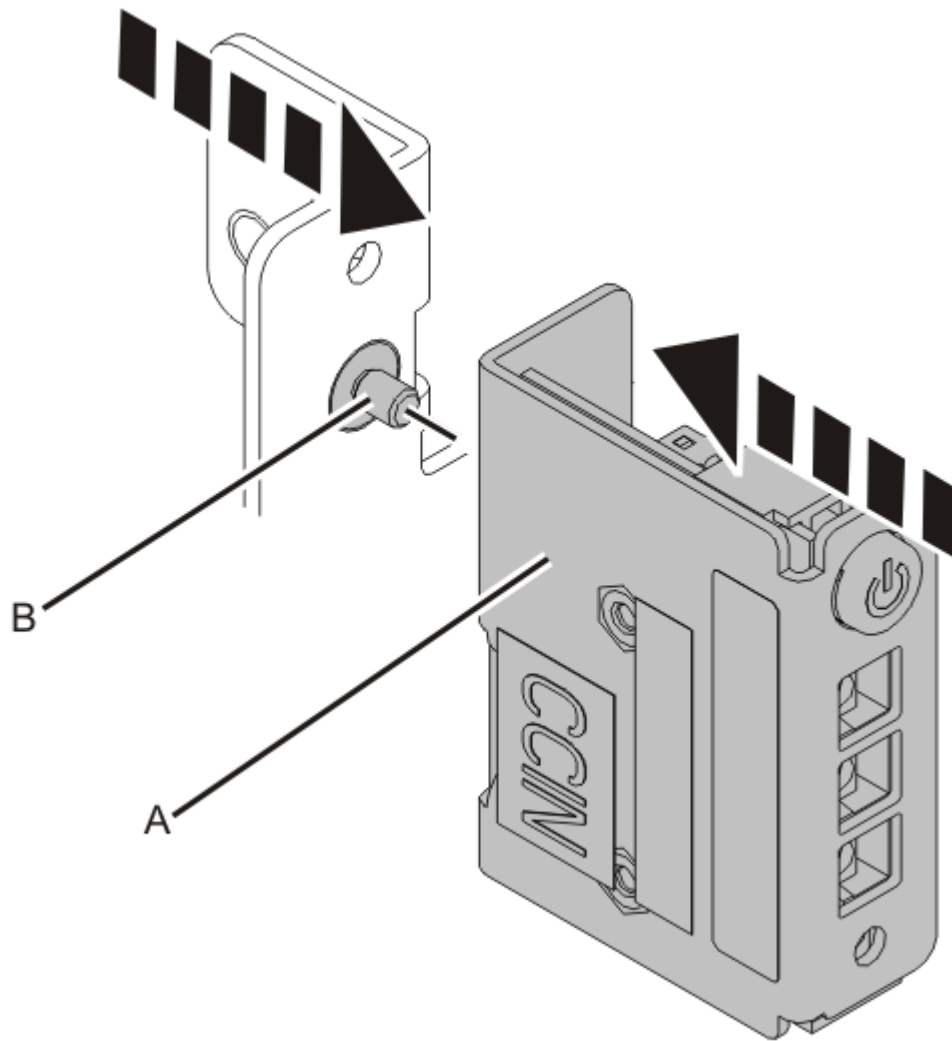


Figure 40. Replacing the control panel onto the bracket

6. Connect the control panel cable to the system backplane as shown in [Figure 41 on page 45](#).

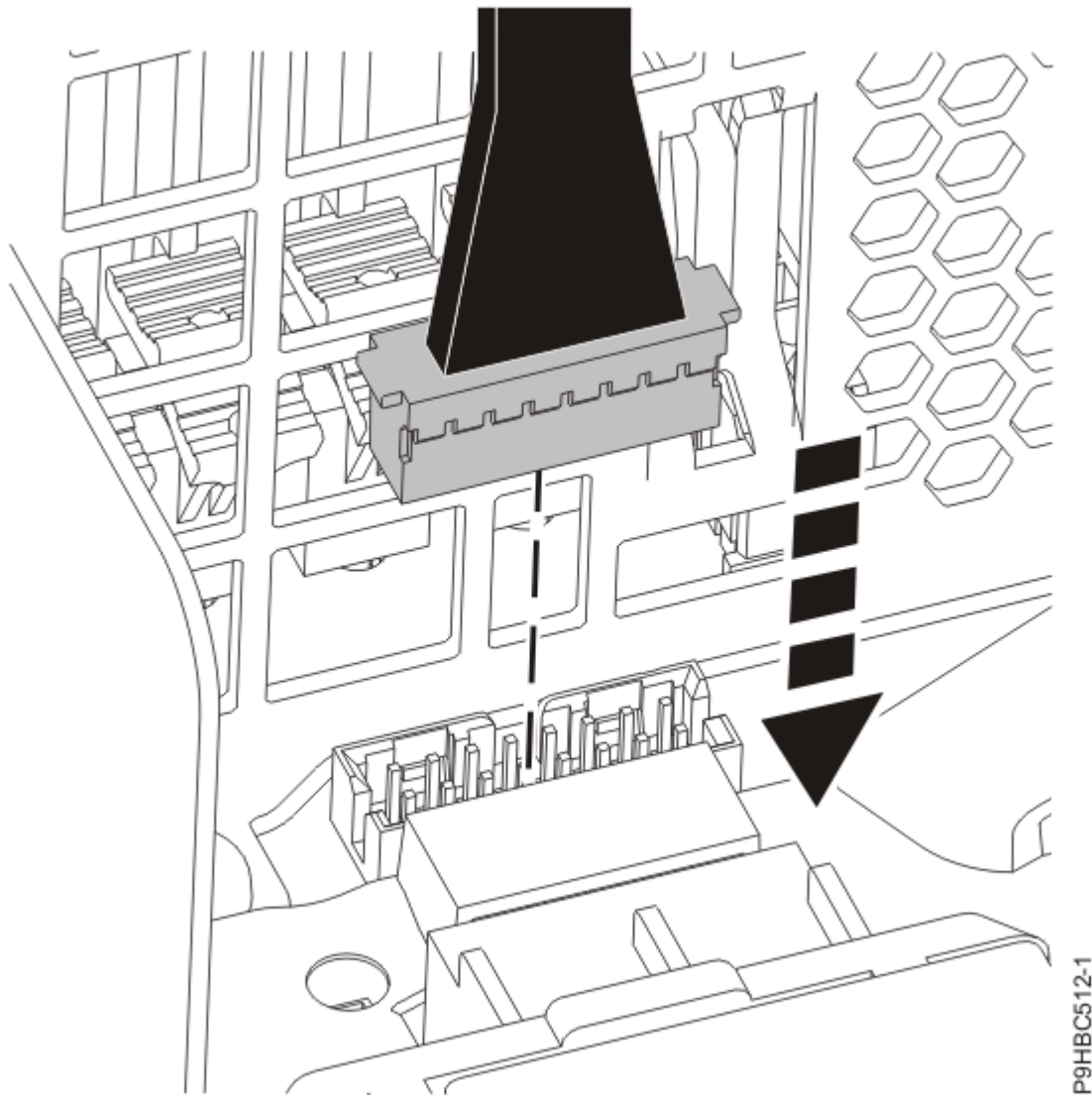


Figure 41. Connecting the control panel cable to the system backplane

7. Replace each air baffle **(A)** straight down into the chassis.

See Figure 42 on page 46. When an air baffle is upside-down, hold the detachable drive cover to prevent it from coming loose.

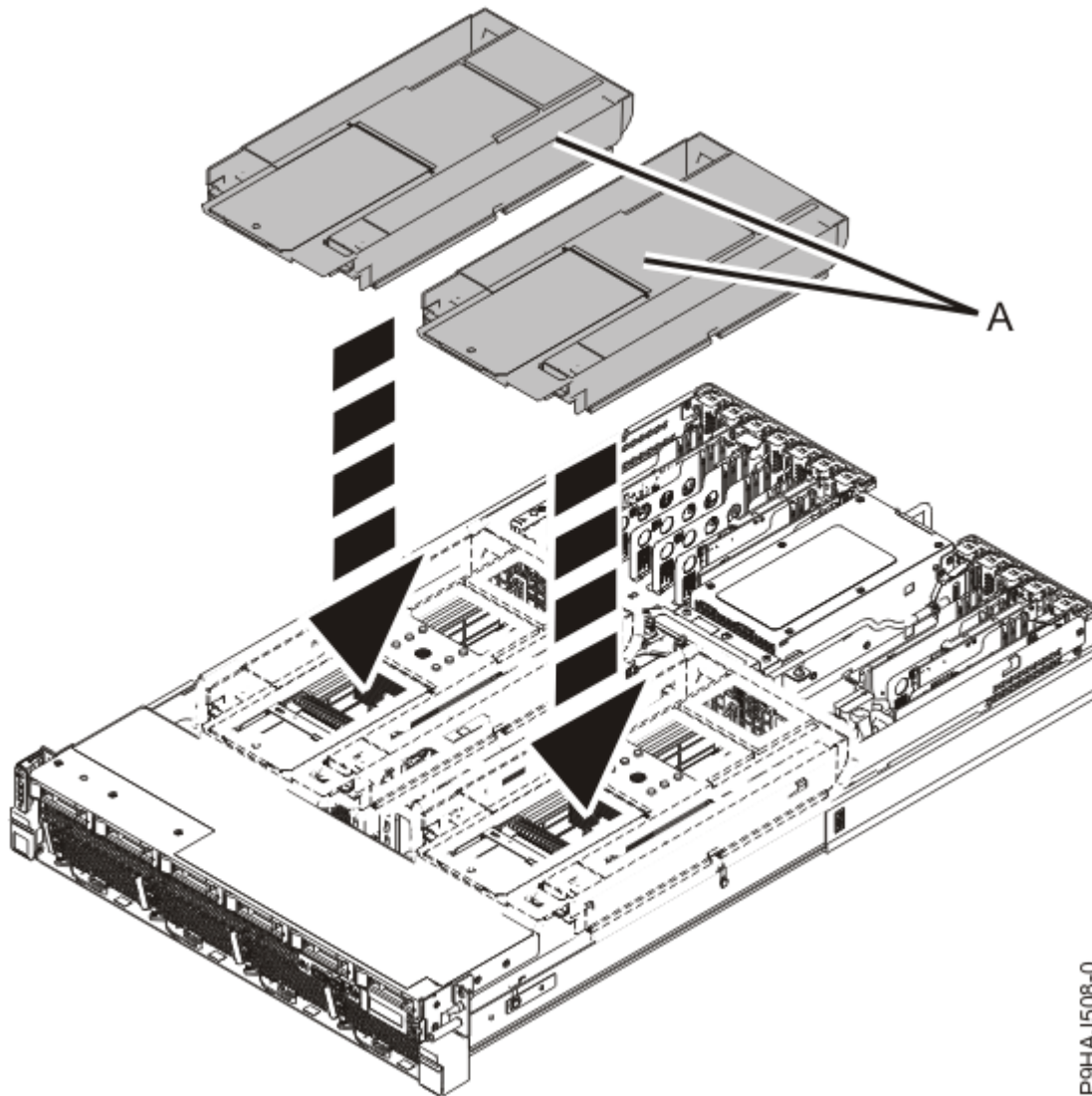


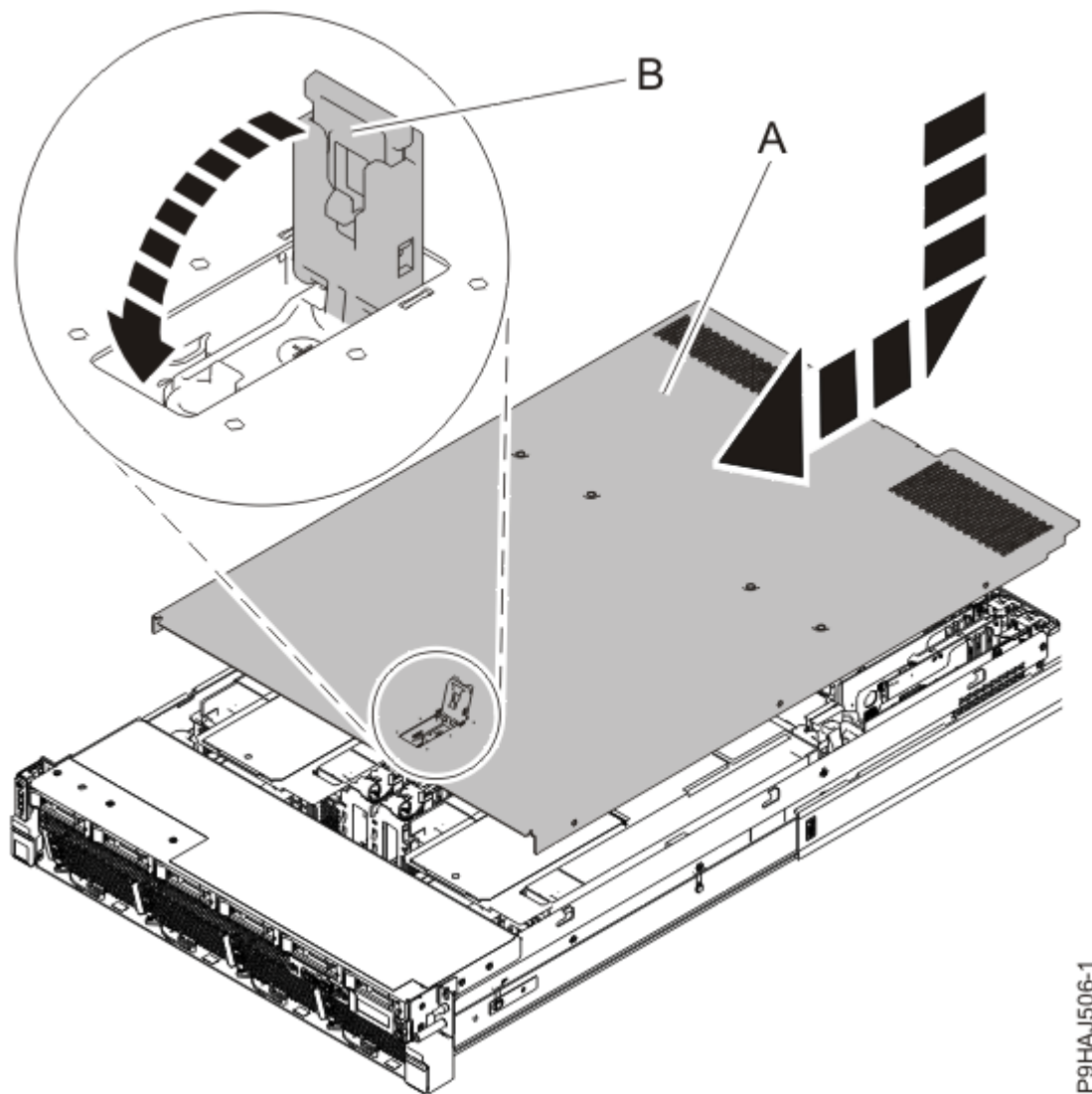
Figure 42. Replacing the air baffle

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system for operation after removing and replacing the control panel cable

To prepare the system for operation after removing and replacing a control panel cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Slide the service access cover **(A)** onto the system unit.
3. Close the release latch **(B)** by pushing it in the direction shown.



P9HAJ506-1

Figure 43. Installing the service access cover

4. Unlock the blue rail safety latches (**A**) by pushing them inward.

Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the unit do not catch or bind as you push the unit into the operating position.

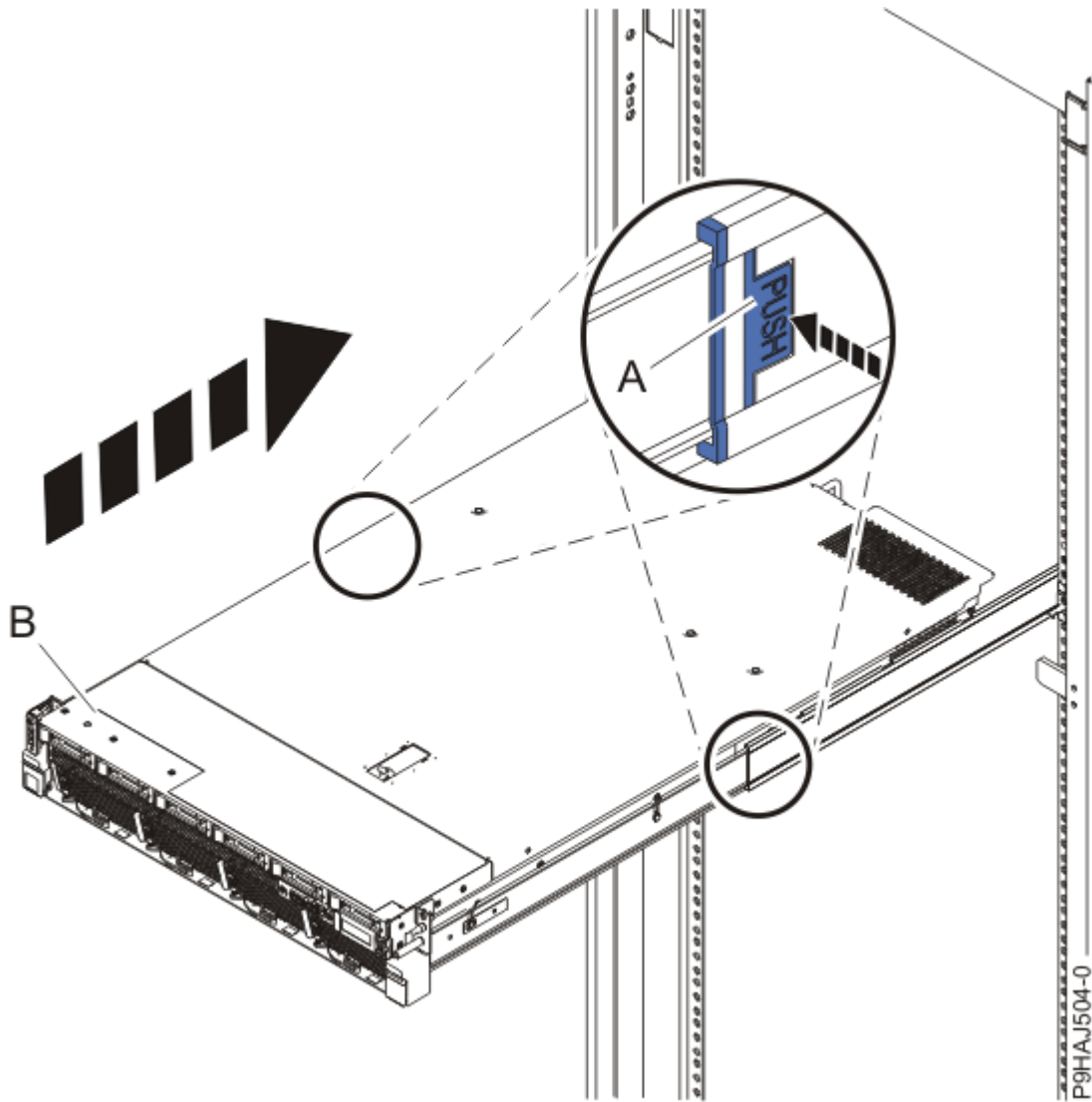


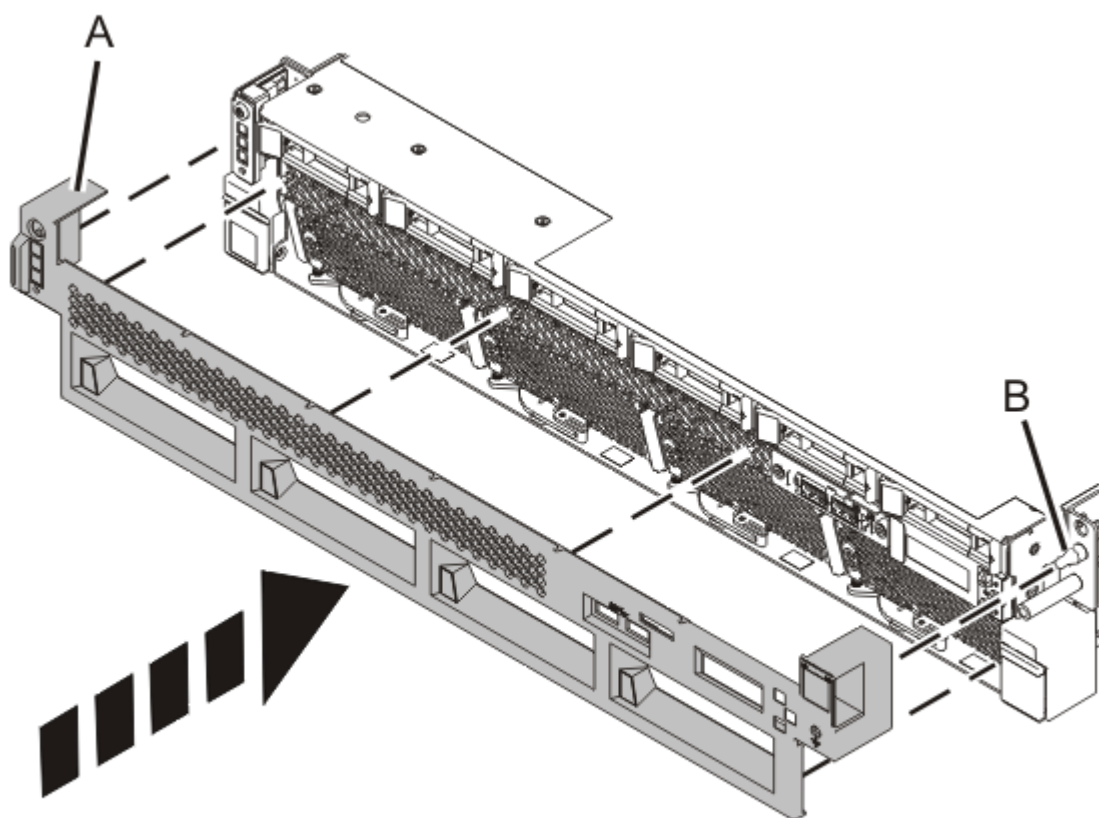
Figure 44. Placing the system into the operating position

5. Push the system unit **(B)** back into the rack until both release latches of the system unit lock into position.

Secure the cable management arm with hook-and-loop fasteners around the back side of the cable management arm, but not around the cables.

6. Gently push the cover **(A)** in until the cover snaps into place.

The cover has indentations where you can hold it more easily. Use the alignment pin **(B)** to secure the cover to the system as shown in [Figure 45 on page 49](#). Push along the grill area above the fans to secure the cover to the front.



P9HAJ501-2

Figure 45. Installing the front cover

7. Using your labels, reconnect the power cords **(A)** to the system unit.
Fasten the power cords to the system using the hook-and-loop fasteners **(B)** as shown in [Figure 46](#) on page 50.

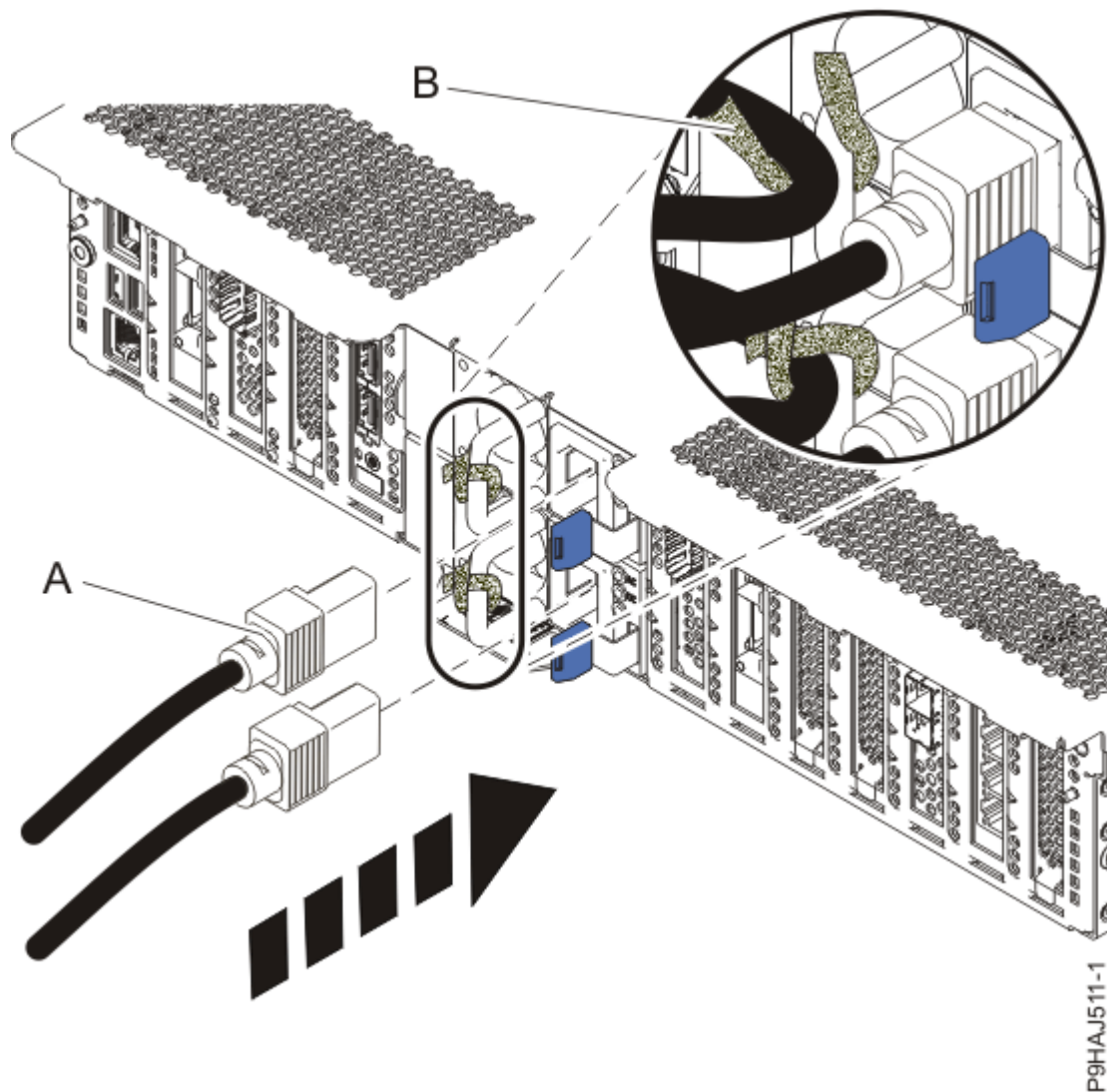


Figure 46. Connecting the power cords

8. Check that the power LED (**A**), as shown in the following figure, is flashing.

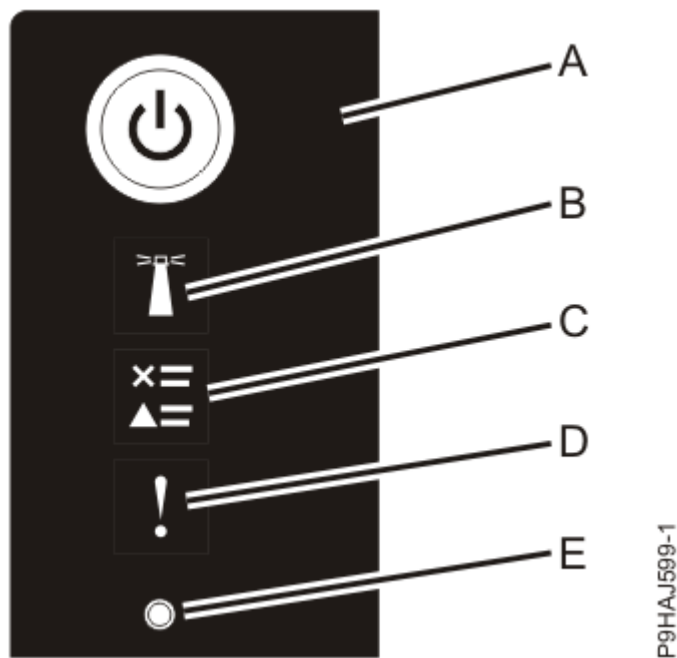


Figure 47. Control panel LEDs

9. Start the system. For instructions, see [Starting a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm).
10. Turn off the identify LED. For instructions, see [Deactivating an identify LED](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm).

Removing and replacing the control panel display cable in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S

Find information about removing and replacing a control panel display cable in the 5105-22E, IBM Power System L922 (9008-22L), IBM Power System S922 (9009-22A and 9009-22G), IBM Power System H922 (9223-22H), or IBM Power System H922S (9223-22S) server.

About this task

Note: Removing or replacing this feature is a customer task. You can complete this task yourself, or contact a service provider to complete the task for you. You might be charged a fee by the service provider for this service.

If your system is managed by the Hardware Management Console (HMC), use the HMC to repair a part in the system. For instructions, see [Repairing a part by using the HMC](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If you do not have an HMC, use the following procedures to remove and replace the control panel display cable.

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system to remove and replace the control panel display cable

To prepare the system to remove and replace a control panel display cable, complete the steps in this procedure.

Procedure

1. Identify the part and the system that you are working on. For instructions, see [Identifying a part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm).

Use the blue identify LED on the enclosure to locate the system. Ensure that the serial number of the system matches the serial number to be serviced.

2. Use the blue LED to identify the server.

Ensure that the serial number of the system matches the serial number to be serviced.

3. Stop the system. For instructions, see [Stopping a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm).

4. Label and disconnect the power cords from the system unit.

See [Figure 48](#) on page 52.

Notes:

- This system might be equipped with two or more power supplies. If the removing and replacing procedures require the system power to be turned off, ensure that all the power sources to the system are disconnected.
- The power cord **(B)** is fastened to the system with hook-and-loop fastener **(A)**. If you are placing the system in a service position after you disconnect the power cords, ensure that you unstrap the fastener.

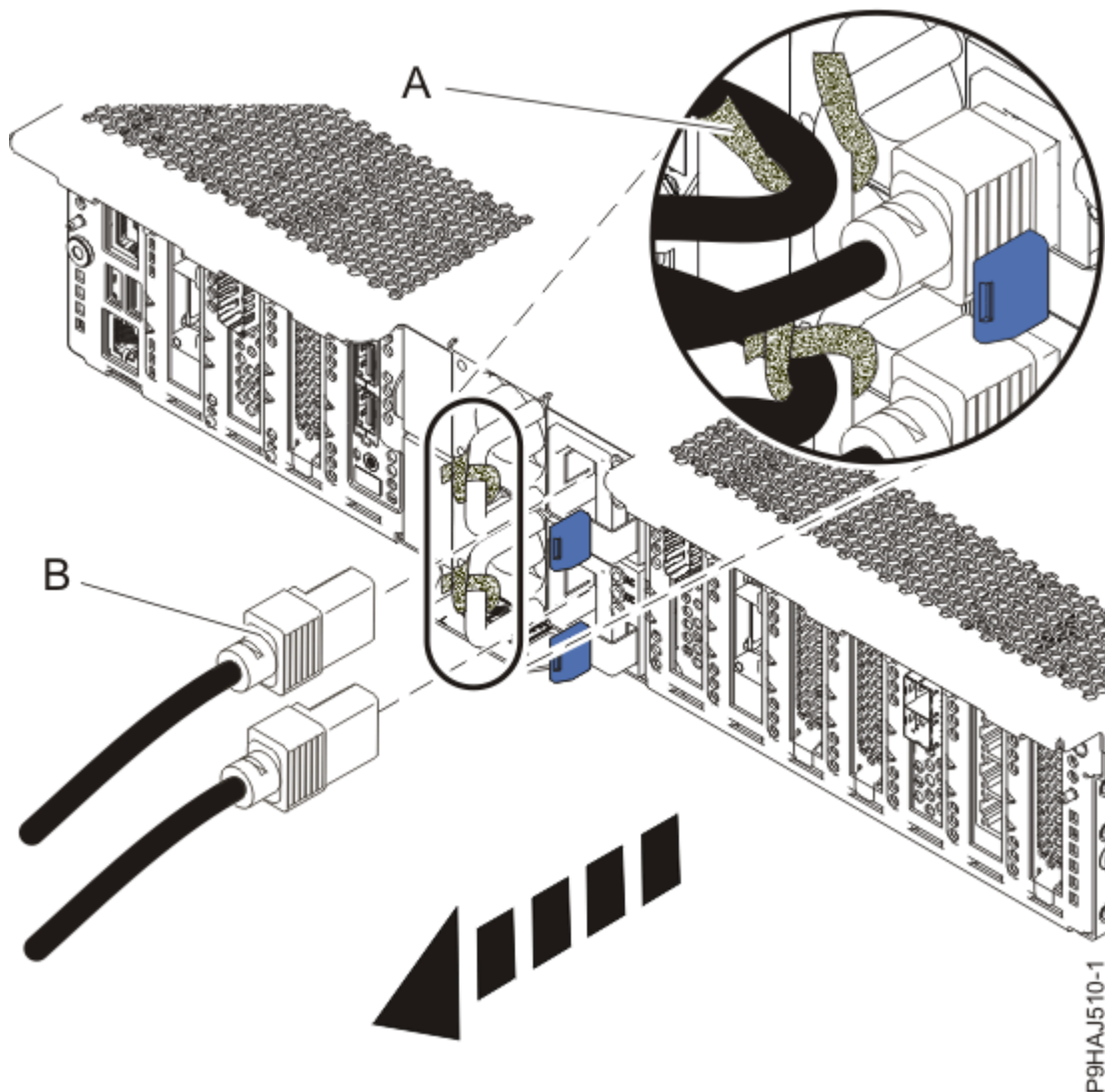
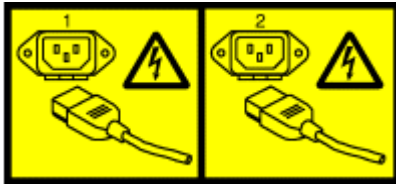


Figure 48. Removing the power cords

(L003)



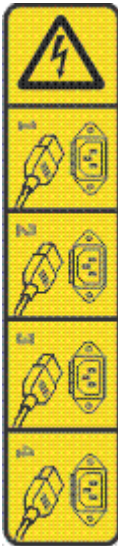
or



or

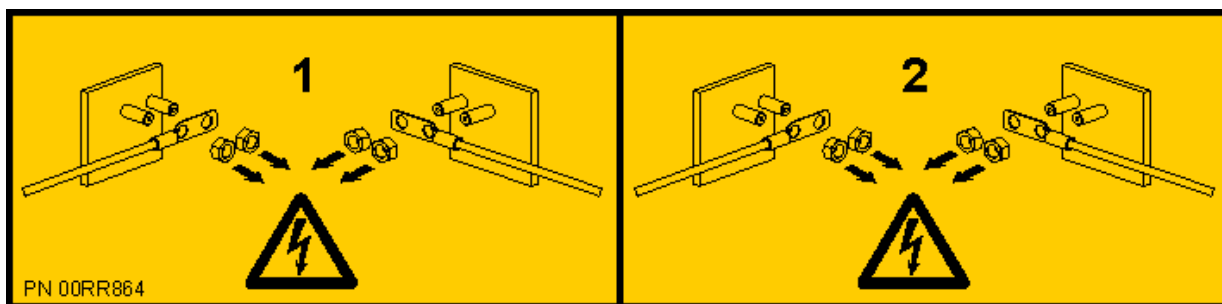


or



or





DANGER: Multiple power cords. The product might be equipped with multiple AC power cords or multiple DC power cables. To remove all hazardous voltages, disconnect all power cords and power cables. (L003)

5. Remove the front cover by pulling it away from the system.

The cover has indentations **(A)** where you can hold it more easily. See [Figure 49](#) on page 54.

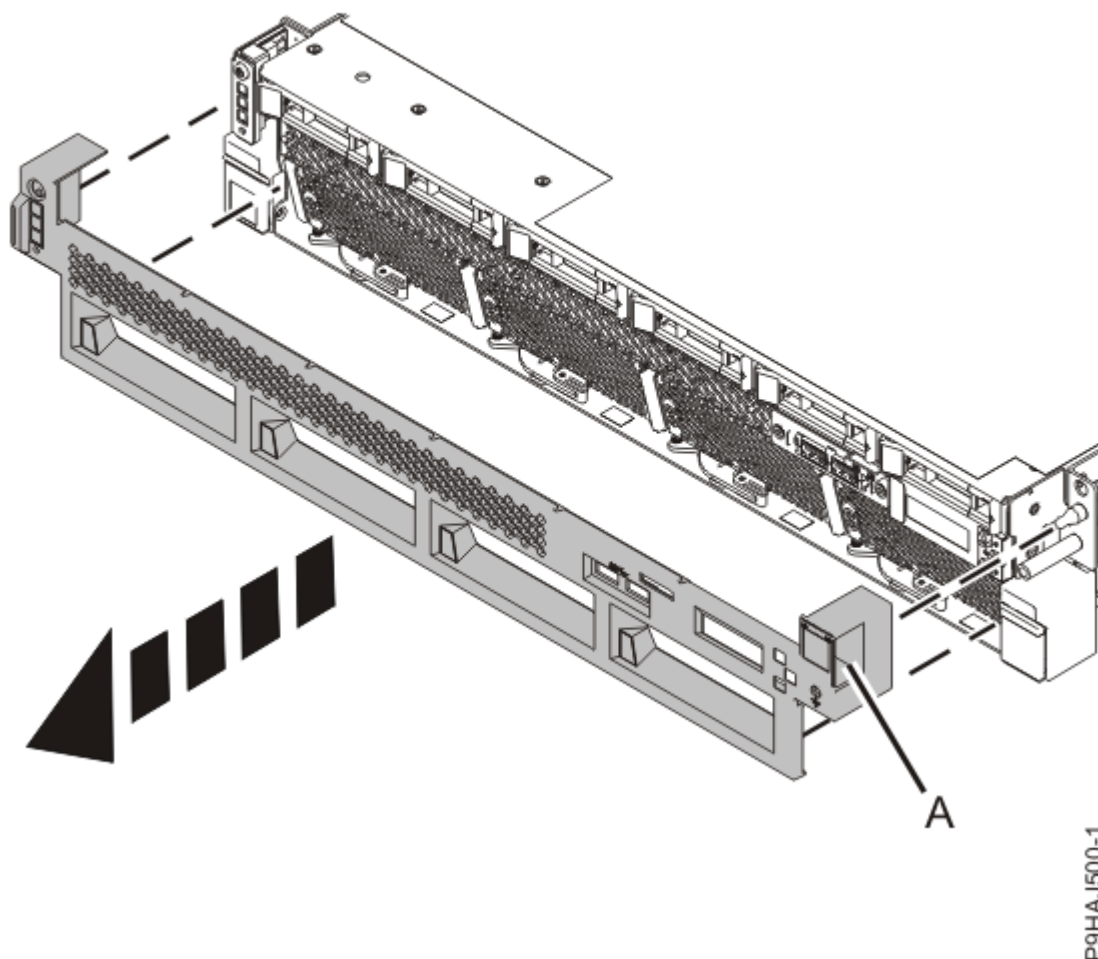


Figure 49. Removing the front covers

6. Open the side latches **(A)** and pull the latches to slide the system unit fully into the service position, until the slides click and hold the system unit securely. Ensure that the screws inside the latches are not secured to the rack.

Remove the hook-and-loop fasteners that secure the cable management arms. Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the system do not catch or bind as you pull the system unit into the service position.

Do not pull out or install any drawer or feature if the rack stabilizer brackets are not attached to the rack. Do not pull out more than one drawer at a time. The rack might become unstable if you pull out more than one drawer at a time.

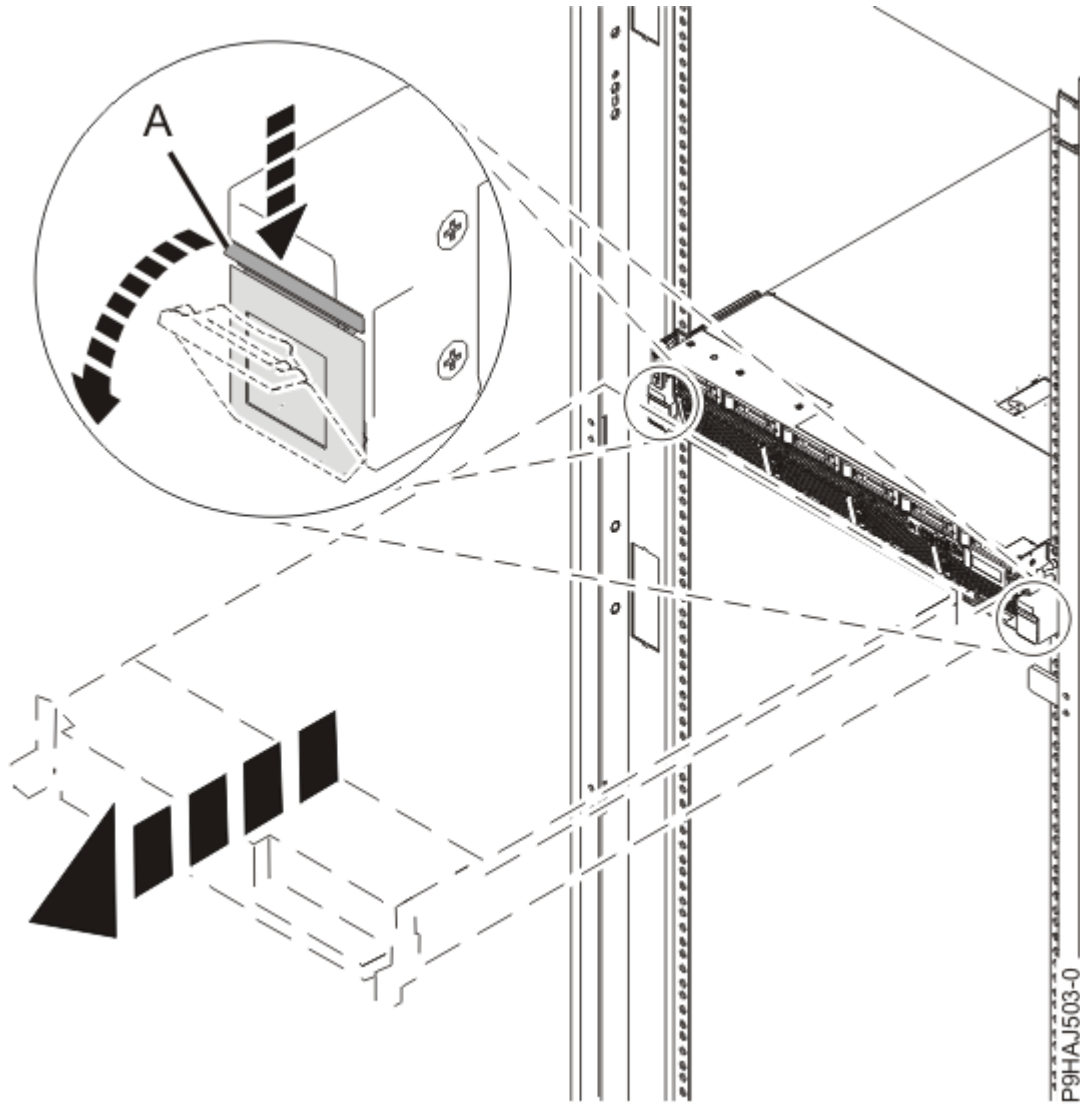


Figure 50. Releasing the side latches

7. Attach the electrostatic discharge (ESD) wrist strap. Your system has an ESD jack on the front and on the rear of the system as shown in the following figure. Plug the ESD wrist strap into the ESD jack.

**Attention:**

- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist strap is used for static control. It does not increase or decrease your risk of receiving electric shock when using or working on electrical equipment.
- If you do not have an ESD wrist strap, just prior to removing the product from ESD packaging and installing or replacing hardware, touch an unpainted metal surface of the system for a minimum of 5 seconds.

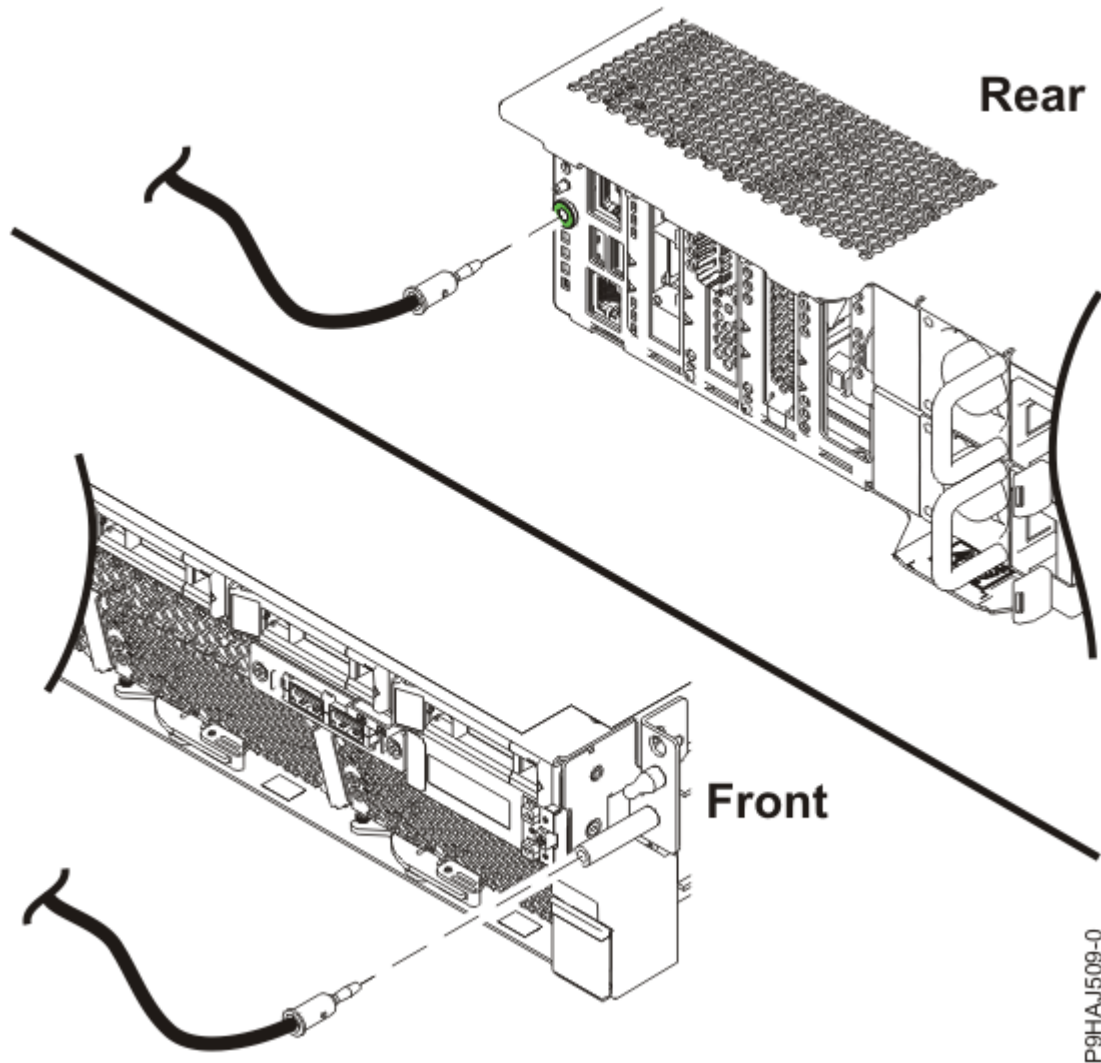


Figure 51. Location of the ESD plugs

8. Release the service access cover latch by pushing the release latch **(A)** in the direction shown.
9. Slide the cover **(B)** off the system unit. When the front of the service access cover clears the upper frame ledge, lift the cover up and off the system unit.



Attention: Operating the system without the service access cover on for more than 10 minutes when the system power is turned on might damage the system components.

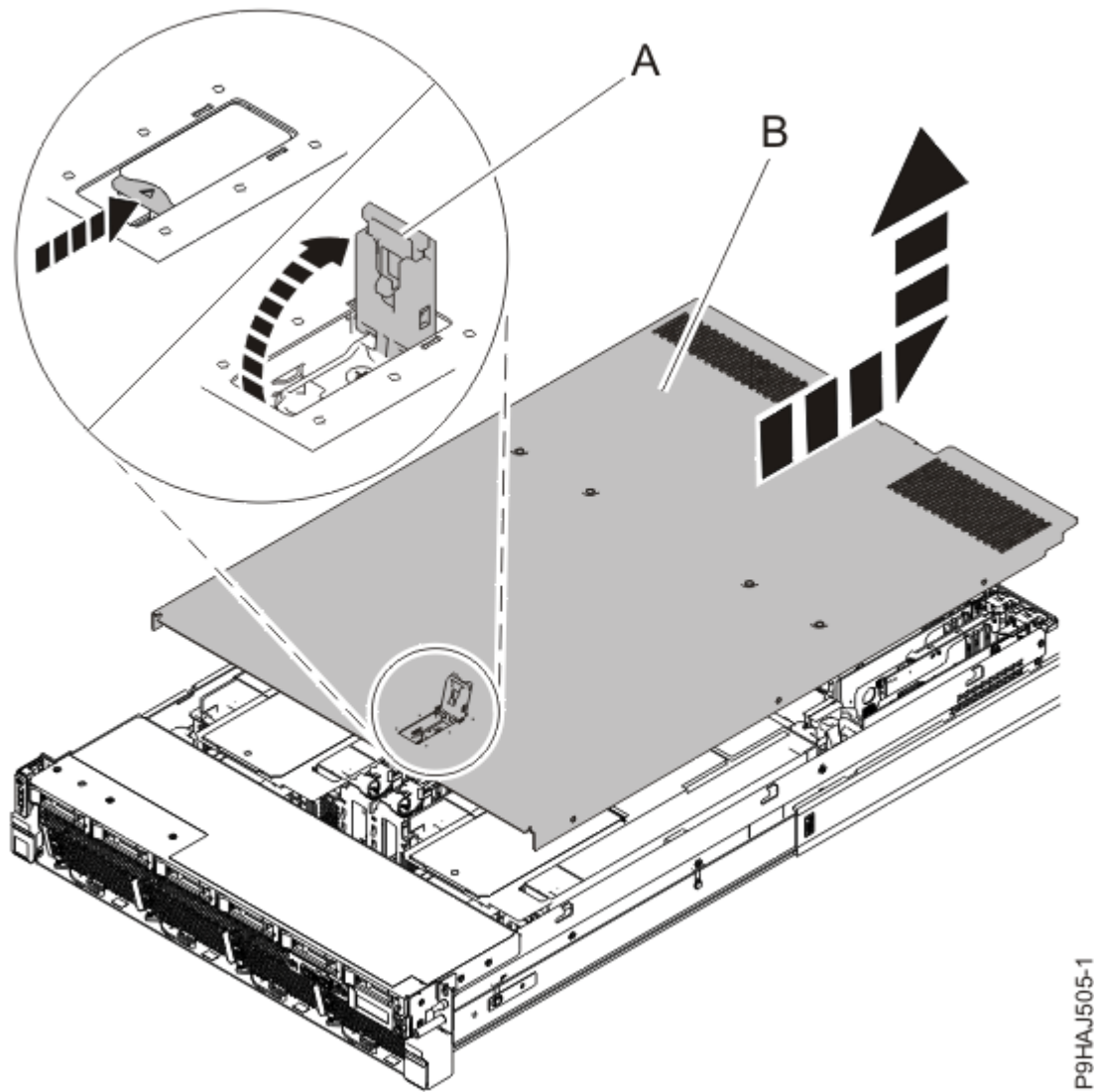


Figure 52. Removing the service access cover

P9HAJ505-1

Removing the control panel display cable from the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

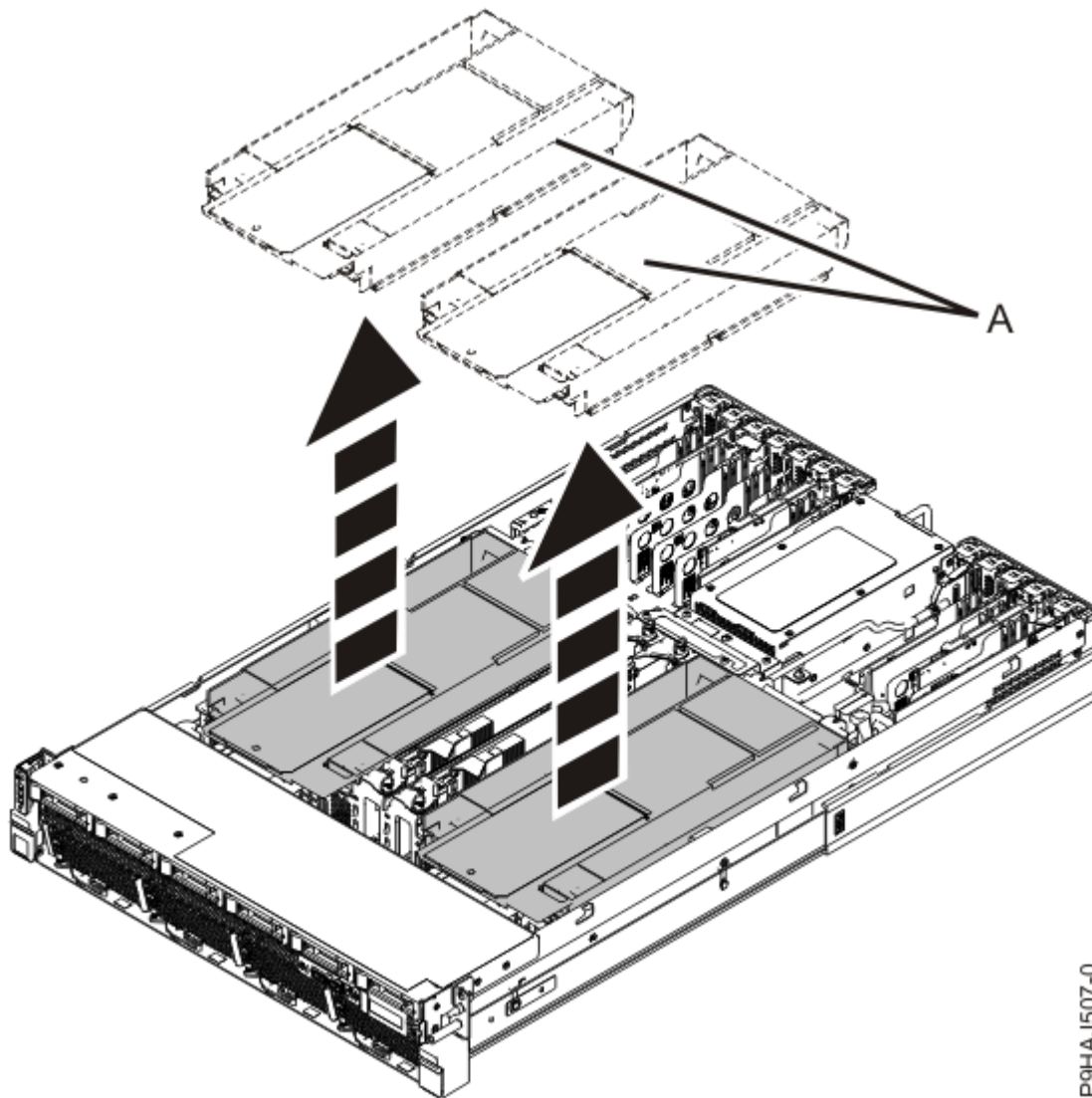
To remove a control panel display cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Lift each air baffle **(A)** straight up.

See [Figure 53](#) on page 58.

Place air baffles upside down on a clean area. When you turn an air baffle over, hold the detachable drive cover to prevent it from coming loose.



P9HAJ507-0

Figure 53. Removing the air baffle

3. Unplug the control panel display cable from the system backplane as shown in [Figure 54 on page 59](#).

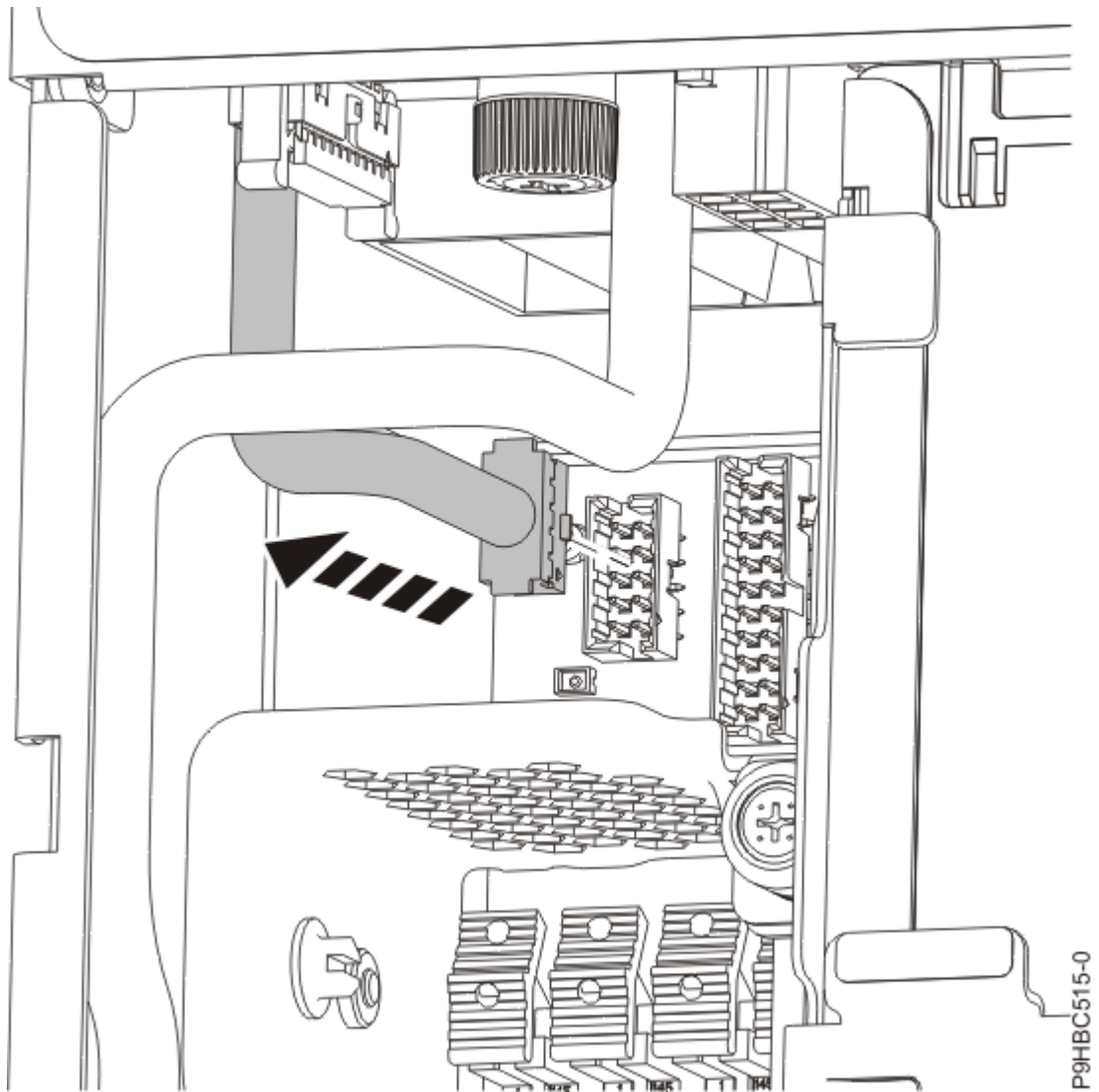


Figure 54. Disconnecting the control panel display cable from the system backplane

4. Remove the control panel display **(A)** by pulling the tab **(B)** as shown in [Figure 55](#) on page 60.

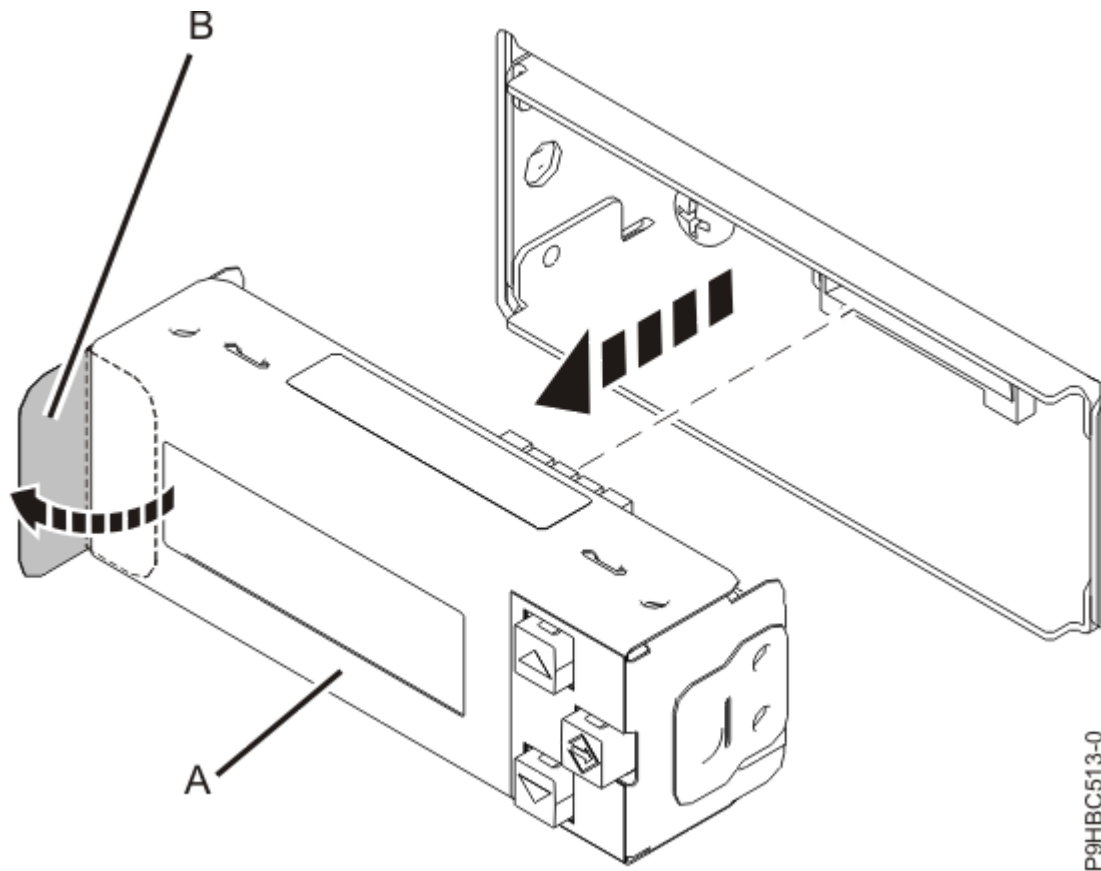
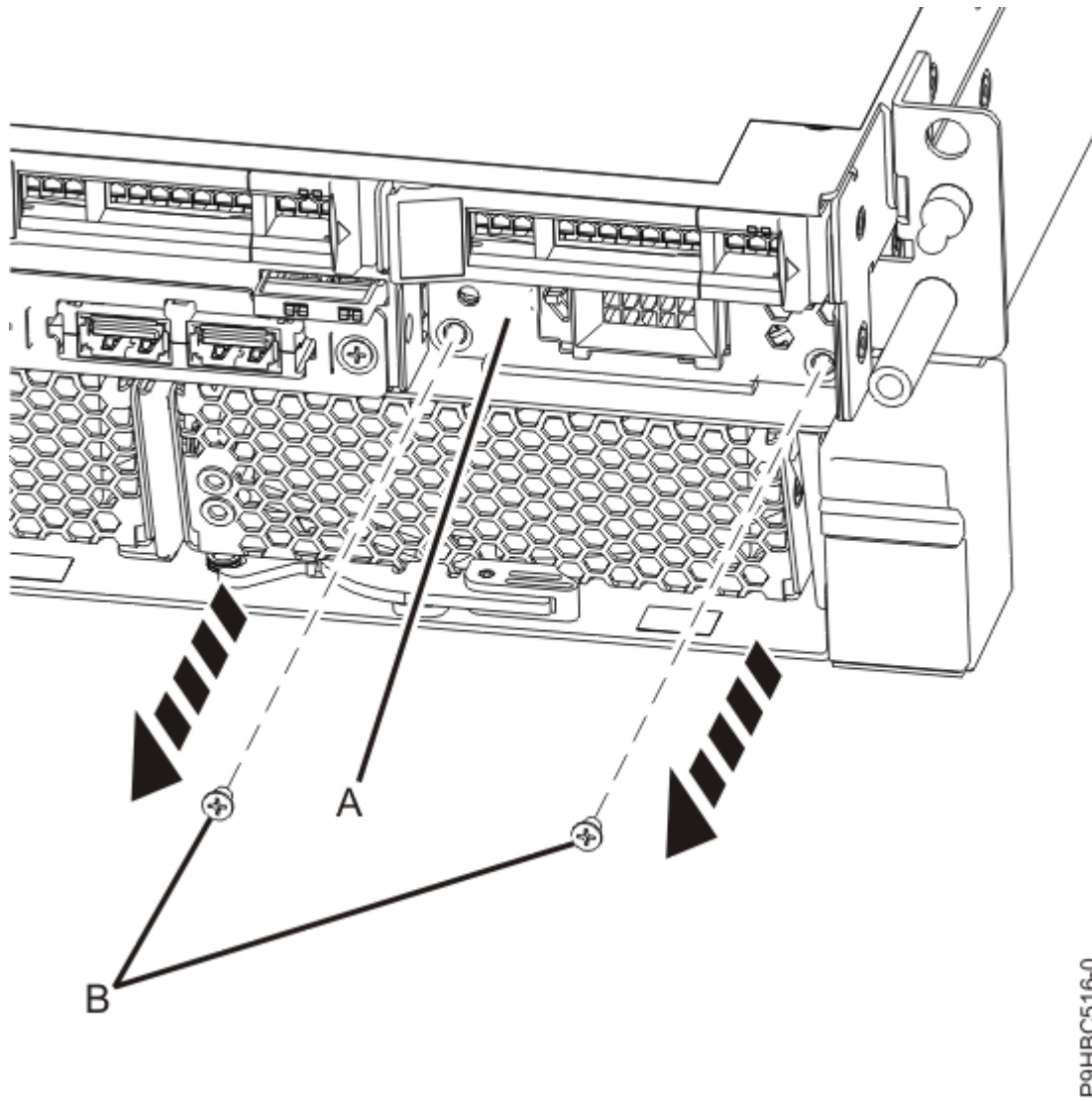


Figure 55. Removing the control panel display

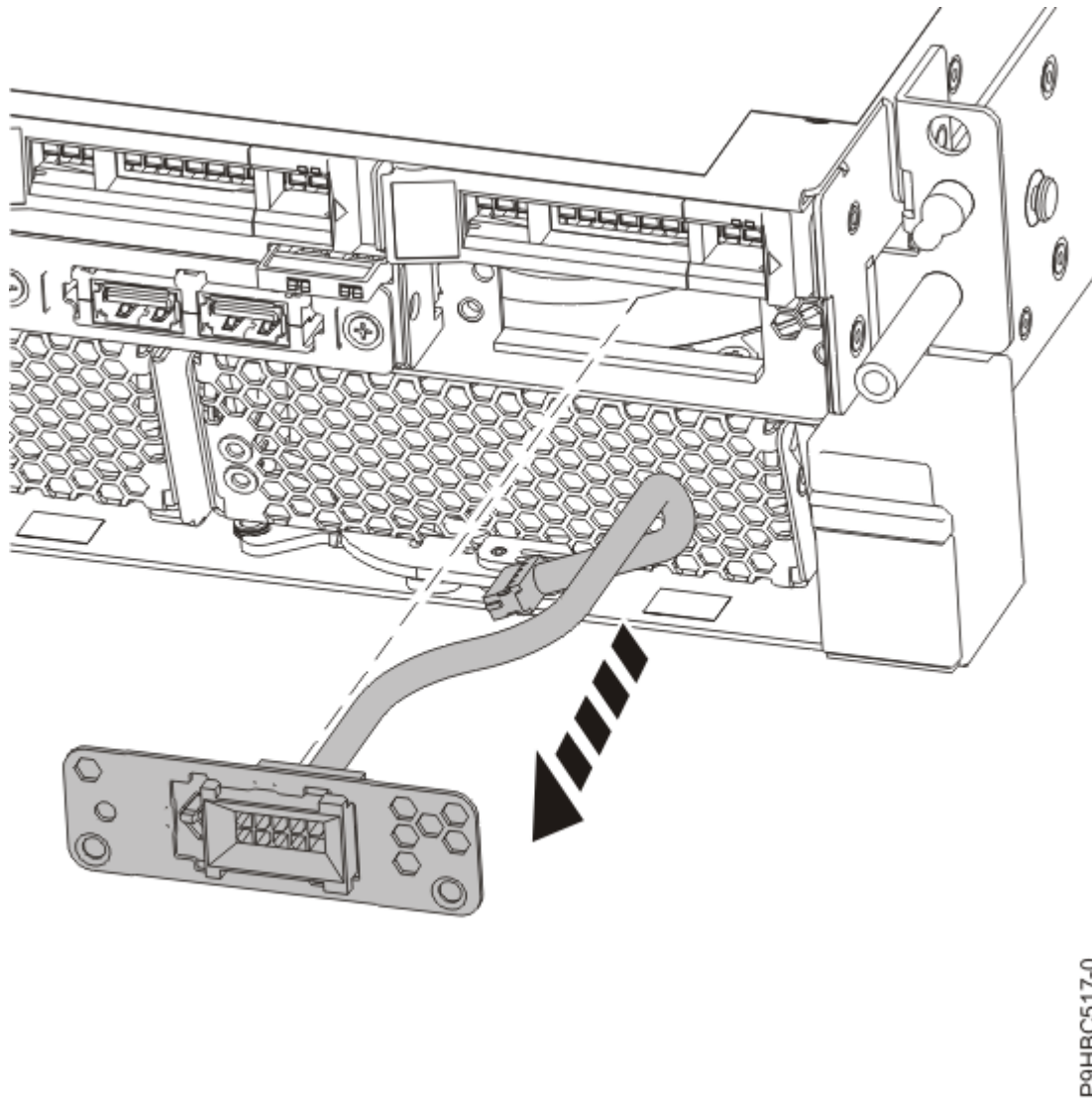
5. Remove the two screws **(B)** that secure the control panel display holder **(A)** to the chassis as shown in [Figure 56 on page 61](#).



P9HBC516-0

Figure 56. Removing the control panel display holder from the bracket

6. Remove the control panel display cable from the system as shown in [Figure 57 on page 62](#). Ensure that the cable does not catch on any components while you are removing it.



P9HBC517-0

Figure 57. Removing the control panel display cable

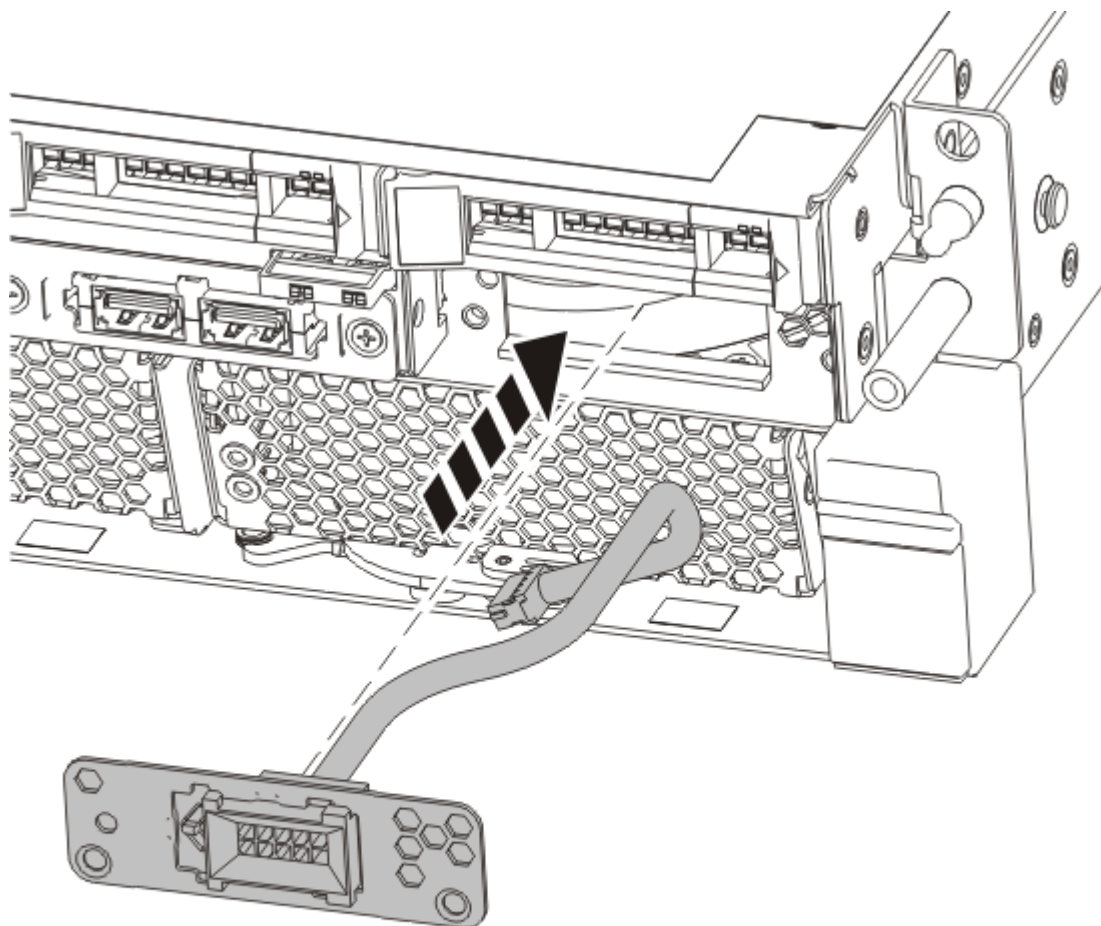
Replacing the control panel display cable in the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system

To replace a control panel display cable, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Insert the control panel display cable into the system as shown in [Figure 58 on page 63](#) and [Figure 59 on page 64](#).

Pass the cable through the channel along the side of the chassis, being careful not to catch the cable on any components as you insert it.



P9HBC518-0

Figure 58. Inserting the control panel display cable

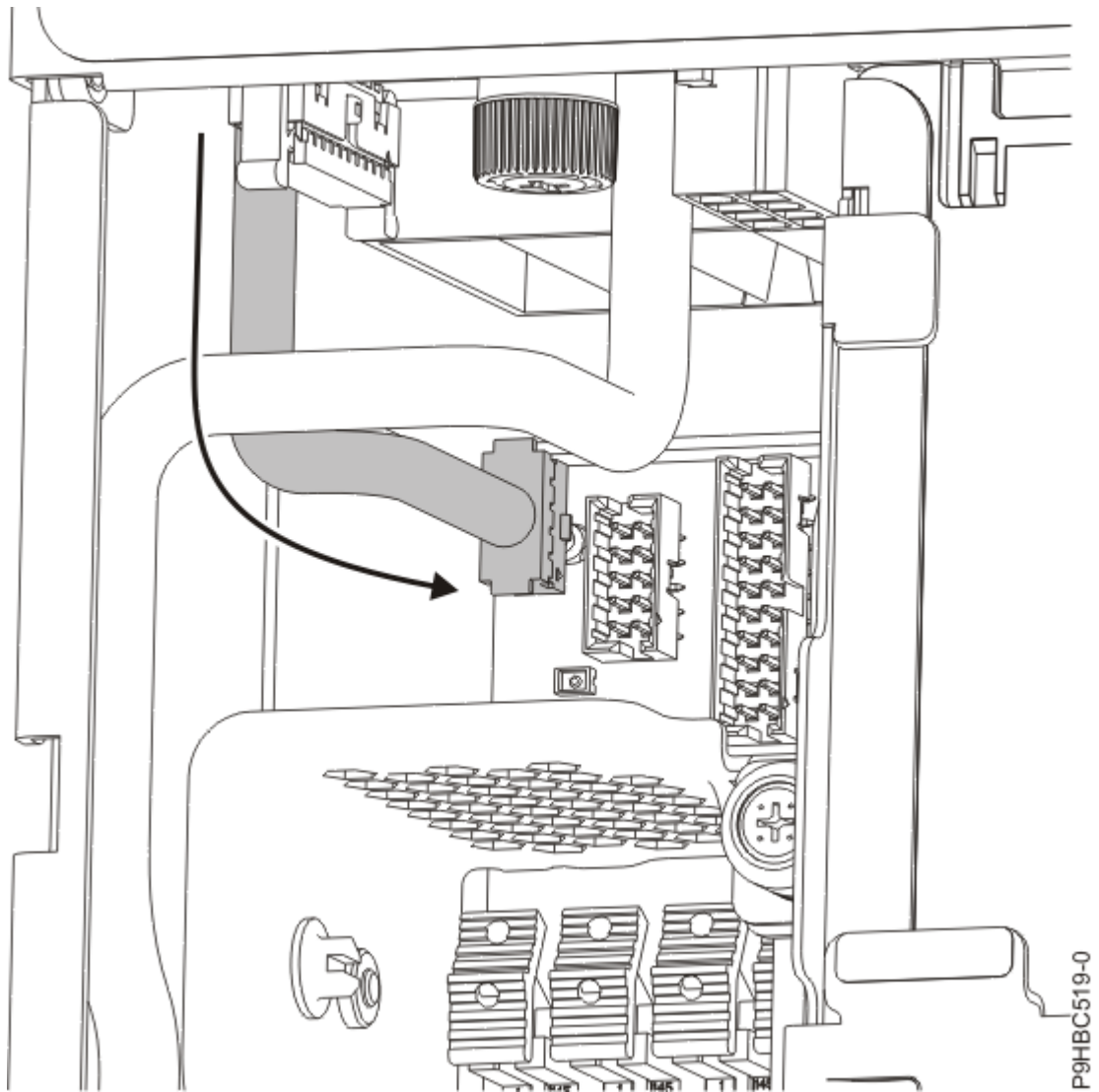
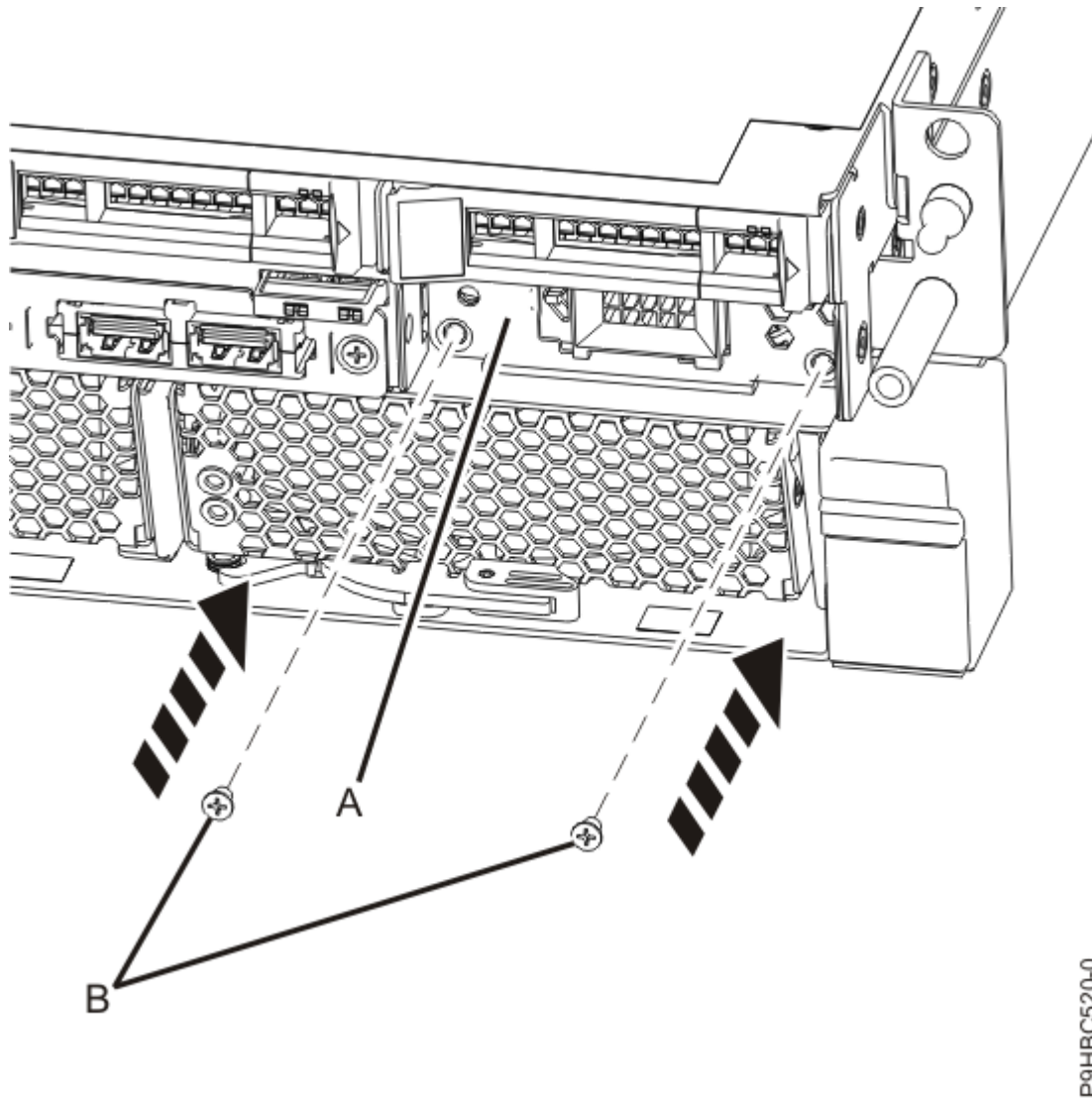


Figure 59. Control panel display cable path

3. Attach the control panel display holder **(A)** to the system with two screws **(B)** as shown in [Figure 60](#) on [page 65](#).



P9HBC520-0

Figure 60. Securing the control panel display cable to the system

4. Insert the control panel display by pushing it into the housing as shown in [Figure 61 on page 66](#). It clicks into place.

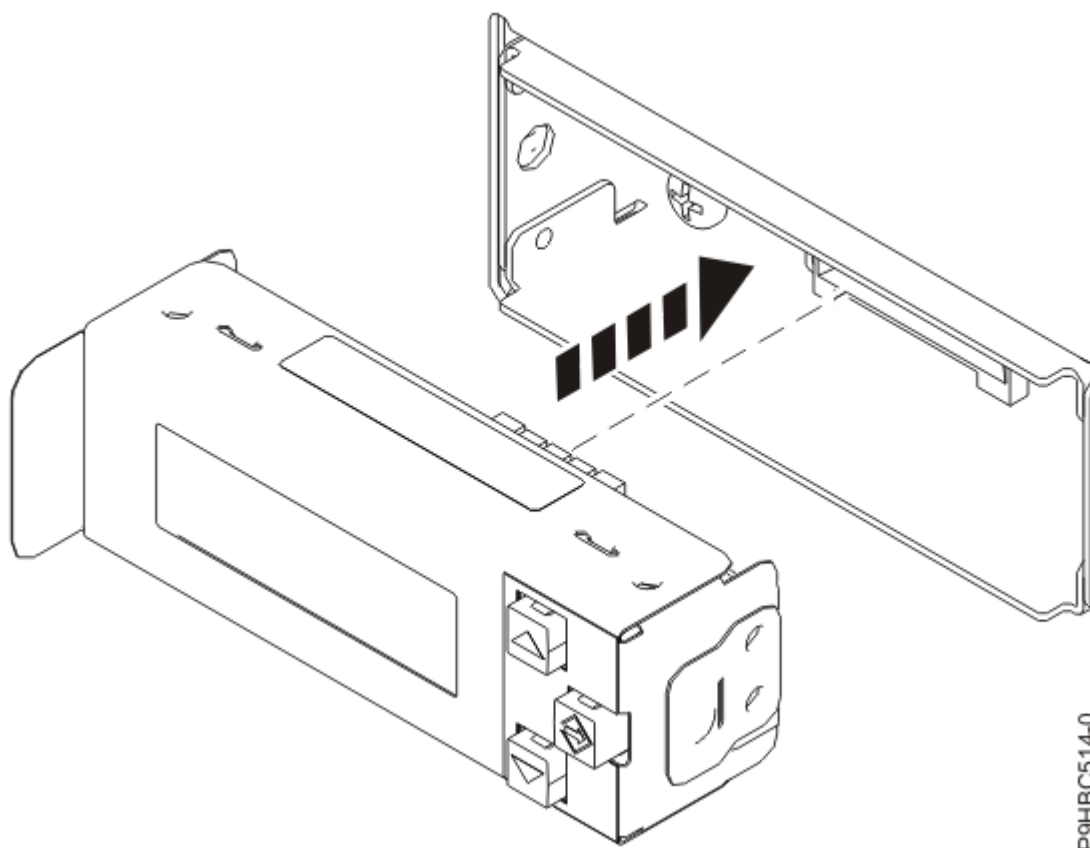


Figure 61. Inserting the control panel display

5. Connect the control panel display cable to the system backplane as shown in [Figure 62 on page 67](#).

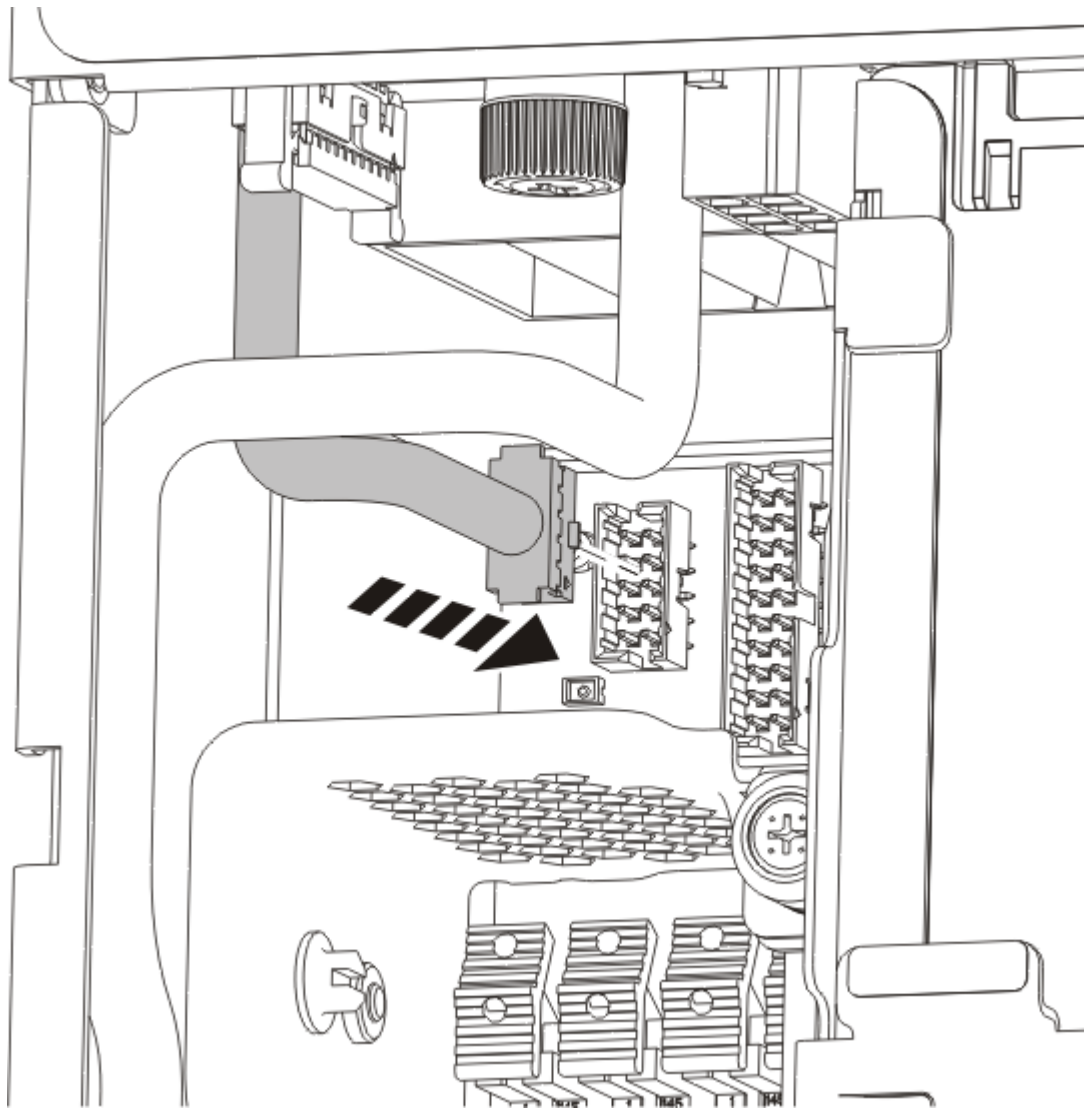
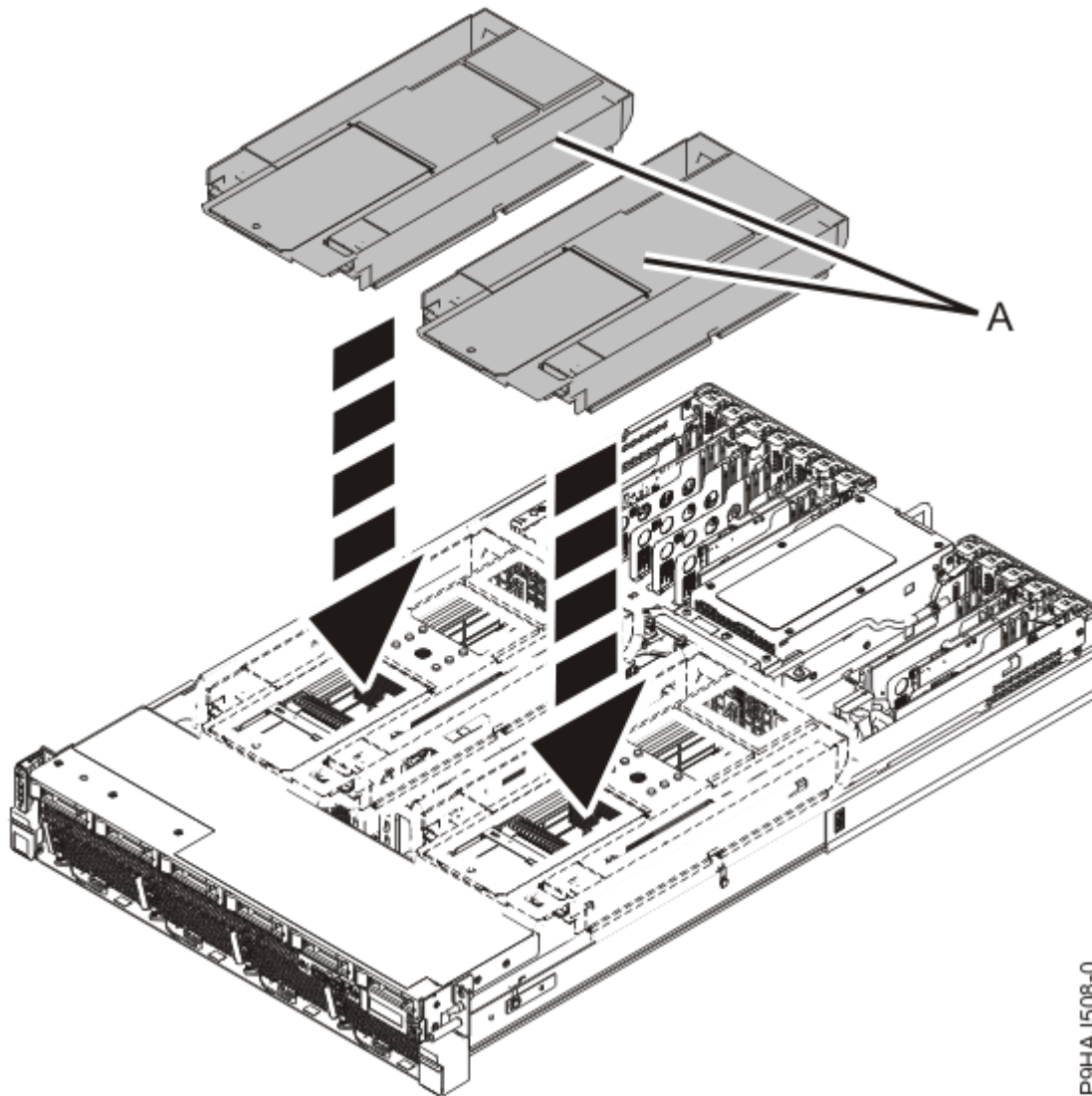


Figure 62. Connecting the control panel display cable to the system backplane

6. Replace each air baffle **(A)** straight down into the chassis.

See Figure 63 on page 68. When an air baffle is upside-down, hold the detachable drive cover to prevent it from coming loose.



P9HAJ508-0

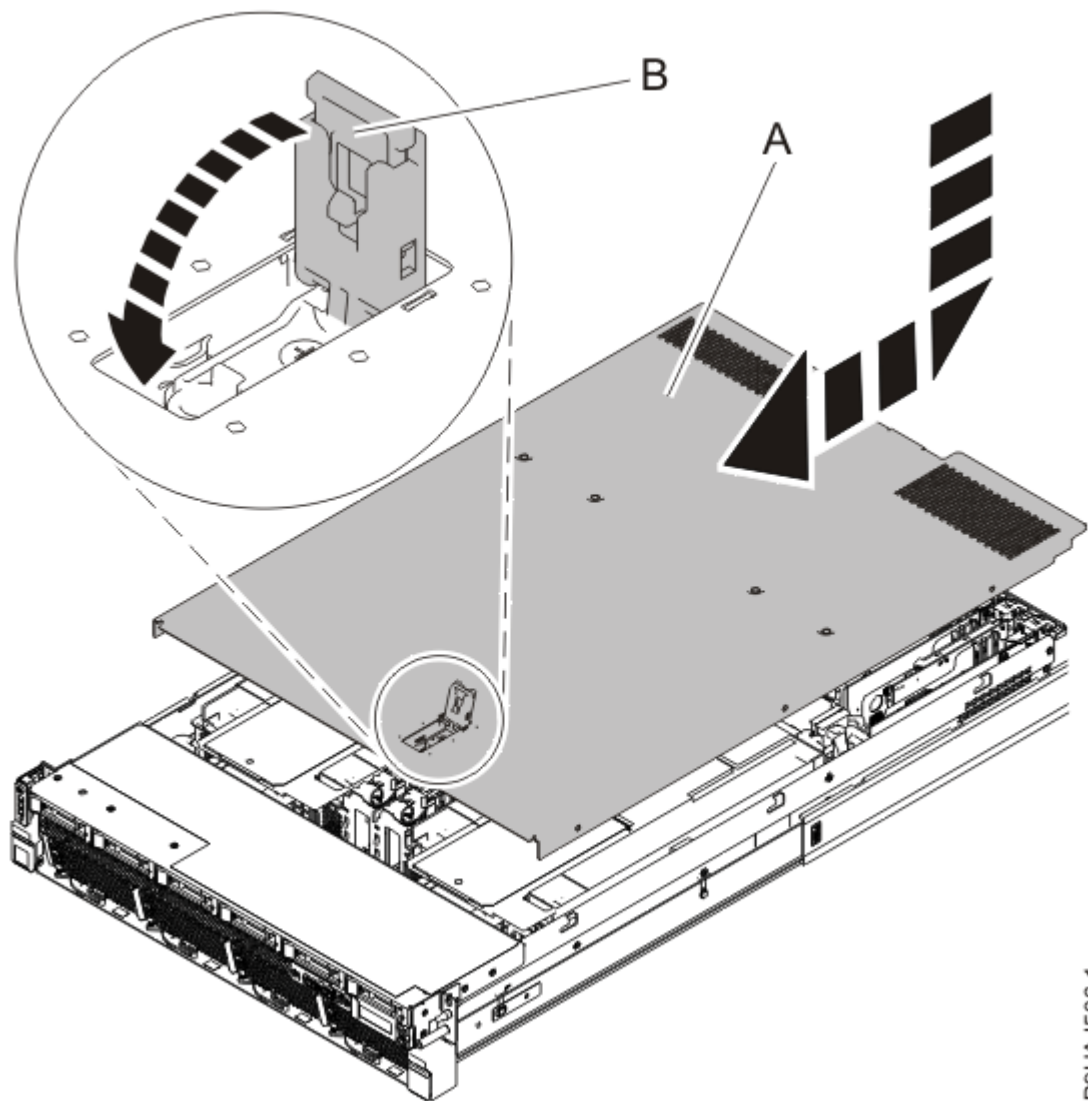
Figure 63. Replacing the air baffle

Preparing the 5105-22E, 9008-22L, 9009-22A, 9009-22G, 9223-22H, or 9223-22S system for operation after removing and replacing the control panel display cable

To prepare the system for operation after removing and replacing a control panel display, complete the steps in this procedure.

Procedure

1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Slide the service access cover **(A)** onto the system unit.
3. Close the release latch **(B)** by pushing it in the direction shown.



P9HAJ506-1

Figure 64. Installing the service access cover

4. Unlock the blue rail safety latches (**A**) by pushing them inward.

Ensure that the cable management arms can move freely. Ensure that the cables at the rear of the unit do not catch or bind as you push the unit into the operating position.

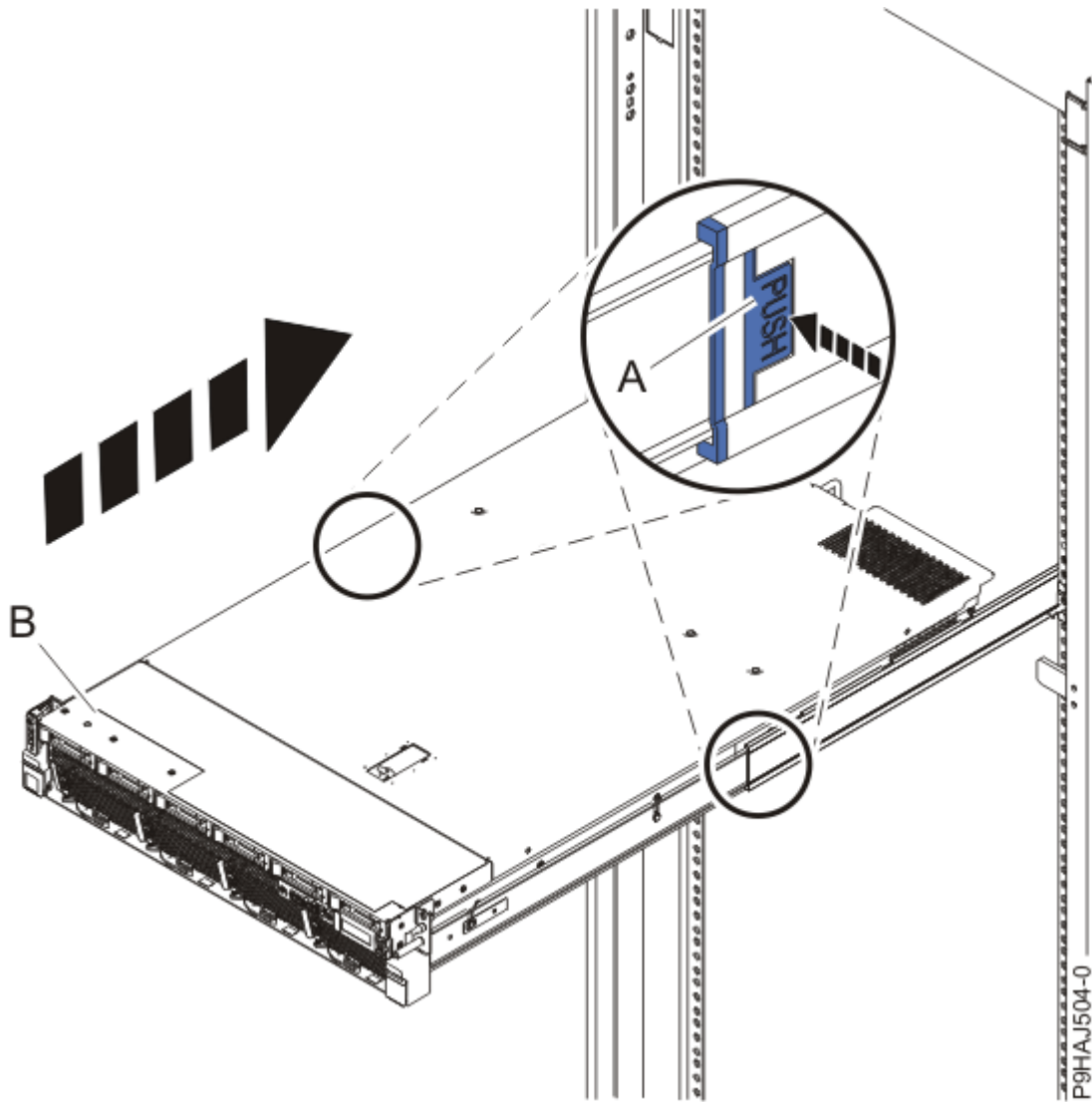


Figure 65. Placing the system into the operating position

5. Push the system unit **(B)** back into the rack until both release latches of the system unit lock into position.

Secure the cable management arm with hook-and-loop fasteners around the back side of the cable management arm, but not around the cables.

6. Gently push the cover **(A)** in until the cover snaps into place.

The cover has indentations where you can hold it more easily. Use the alignment pin **(B)** to secure the cover to the system as shown in [Figure 66 on page 71](#). Push along the grill area above the fans to secure the cover to the front.

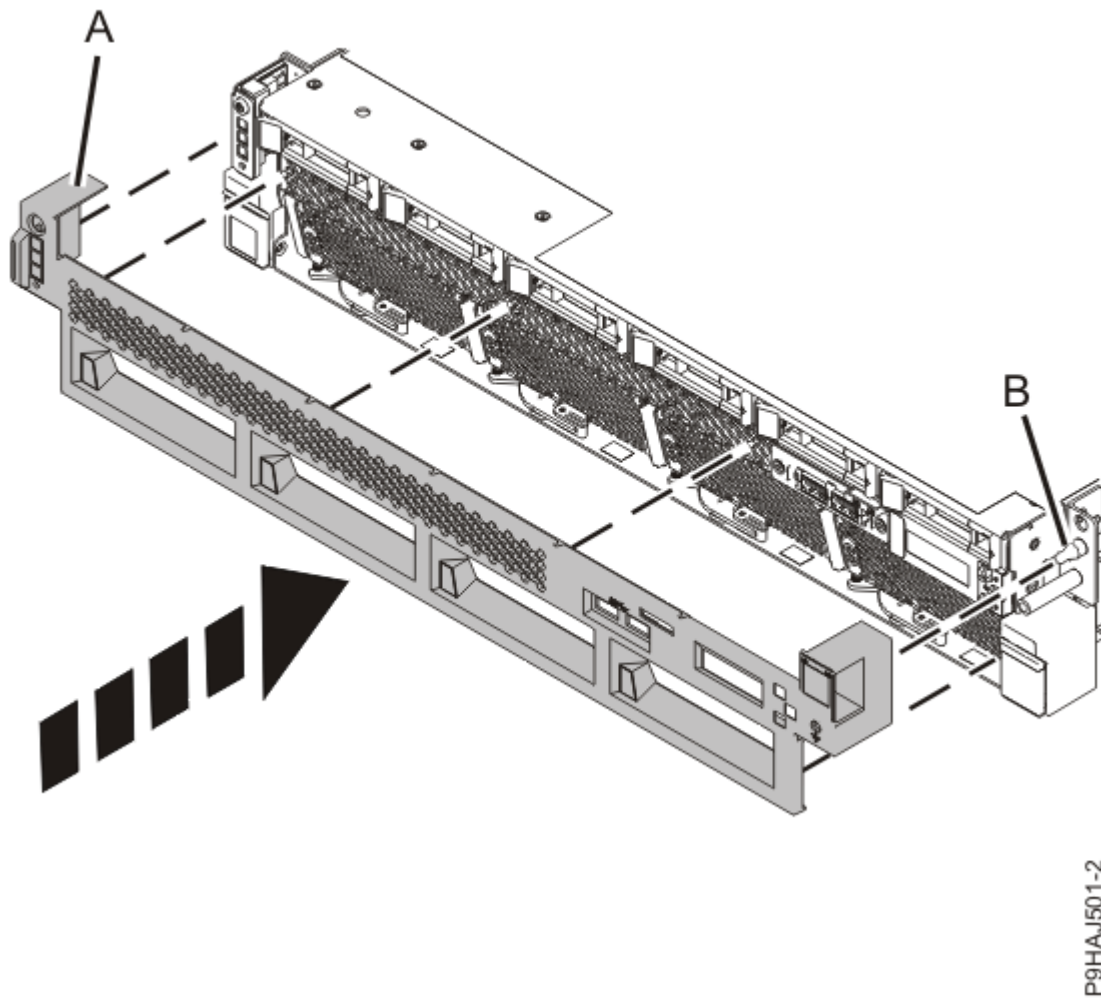


Figure 66. Installing the front cover

7. Using your labels, reconnect the power cords **(A)** to the system unit.

Fasten the power cords to the system using the hook-and-loop fasteners **(B)** as shown in [Figure 67](#) on page 72.

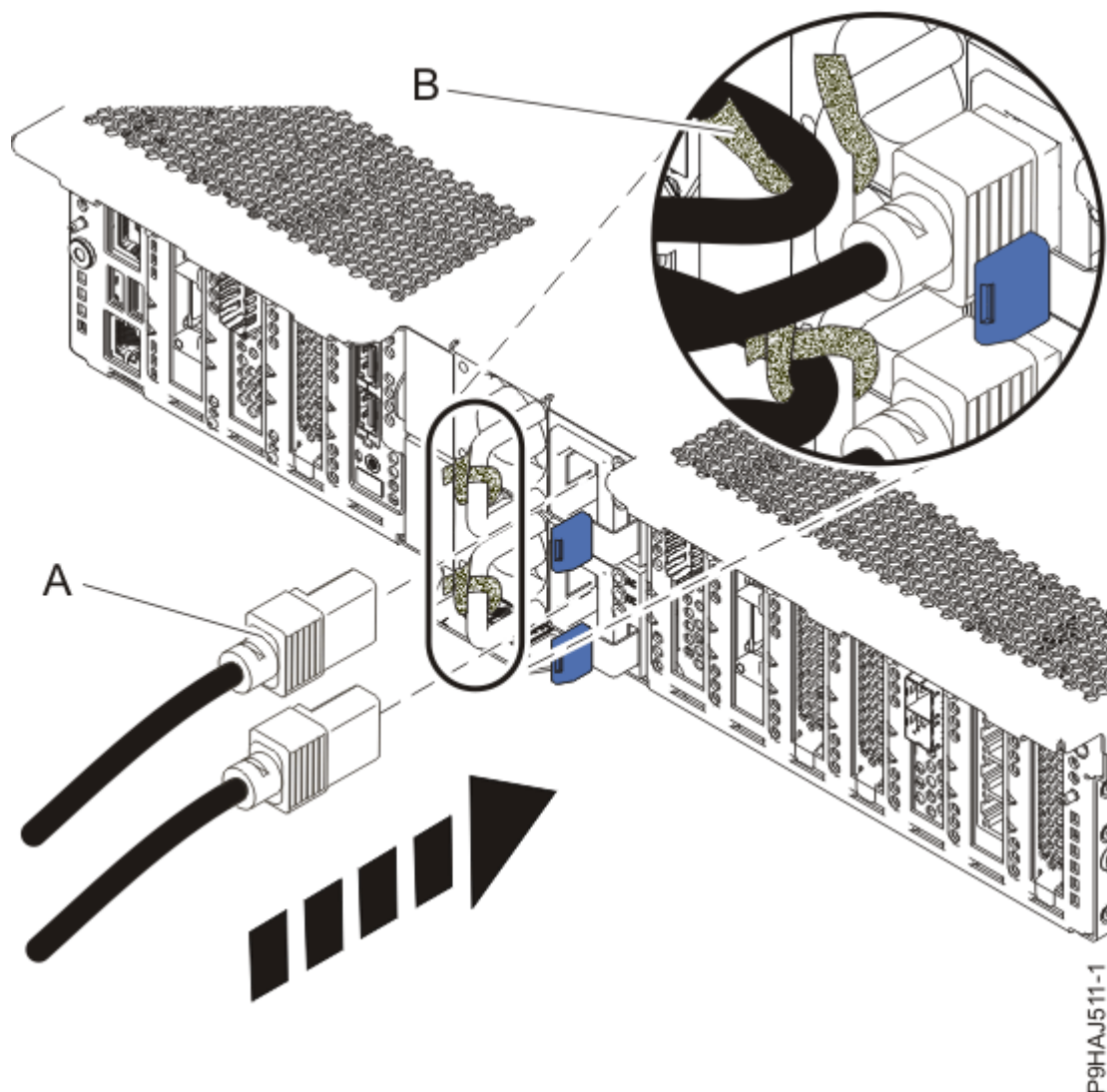


Figure 67. Connecting the power cords

8. Start the system. For instructions, see [Starting a system](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm).
9. Turn off the identify LED. For instructions, see [Deactivating an identify LED](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm).
10. Verify whether the control panel display is operational by checking the progress codes.

P9HAJ511-1

Notices

This information was developed for products and services offered in the US.

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

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

IBM Director of Licensing
IBM Corporation
North Castle Drive, MD-NC119
Armonk, NY 10504-1785
US

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

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

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you provide in any way it believes appropriate without incurring any obligation to you.

The performance data and client examples cited are presented for illustrative purposes only. Actual performance results may vary depending on specific configurations and operating conditions.

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

Statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

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

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

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

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

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

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

Homologation statement

This product may not be certified in your country for connection by any means whatsoever to interfaces of public telecommunications networks. Further certification may be required by law prior to making any such connection. Contact an IBM representative or reseller for any questions.

Accessibility features for IBM Power Systems servers

Accessibility features assist users who have a disability, such as restricted mobility or limited vision, to use information technology content successfully.

Overview

The IBM Power Systems servers include the following major accessibility features:

- Keyboard-only operation
- Operations that use a screen reader

The IBM Power Systems servers use the latest W3C Standard, WAI-ARIA 1.0 (www.w3.org/TR/wai-aria/), to ensure compliance with US Section 508 (www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) and Web Content Accessibility Guidelines (WCAG) 2.0 (www.w3.org/TR/WCAG20/). To take advantage of accessibility features, use the latest release of your screen reader and the latest web browser that is supported by the IBM Power Systems servers.

The IBM Power Systems servers online product documentation in IBM Knowledge Center is enabled for accessibility. The accessibility features of IBM Knowledge Center are described in the [Accessibility](http://www.ibm.com/support/knowledgecenter/doc/kc_help.html#accessibility) section of the IBM Knowledge Center help (www.ibm.com/support/knowledgecenter/doc/kc_help.html#accessibility).

Keyboard navigation

This product uses standard navigation keys.

Interface information

The IBM Power Systems servers user interfaces do not have content that flashes 2 - 55 times per second.

The IBM Power Systems servers web user interface relies on cascading style sheets to render content properly and to provide a usable experience. The application provides an equivalent way for low-vision users to use system display settings, including high-contrast mode. You can control font size by using the device or web browser settings.

The IBM Power Systems servers web user interface includes WAI-ARIA navigational landmarks that you can use to quickly navigate to functional areas in the application.

Vendor software

The IBM Power Systems servers include certain vendor software that is not covered under the IBM license agreement. IBM makes no representation about the accessibility features of these products. Contact the vendor for accessibility information about its products.

Related accessibility information

In addition to standard IBM help desk and support websites, IBM has a TTY telephone service for use by deaf or hard of hearing customers to access sales and support services:

TTY service
800-IBM-3383 (800-426-3383)
(within North America)

For more information about the commitment that IBM has to accessibility, see [IBM Accessibility \(www.ibm.com/able\)](http://www.ibm.com/able).

Privacy policy considerations

IBM Software products, including software as a service solutions, (“Software Offerings”) may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user, or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering’s use of cookies is set forth below.

This Software Offering does not use cookies or other technologies to collect personally identifiable information.

If the configurations deployed for this Software Offering provide you as the customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM’s Privacy Policy at <http://www.ibm.com/privacy> and IBM’s Online Privacy Statement at <http://www.ibm.com/privacy/details/us/en/> in the section entitled “Cookies, Web Beacons and Other Technologies”.

Trademarks

IBM, the IBM logo, and [ibm.com](http://www.ibm.com)® are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at [Copyright and trademark information](#).

Electronic emission notices

Class A Notices

The following Class A statements apply to the IBM servers that contain the POWER9 processor and its features unless designated as electromagnetic compatibility (EMC) Class B in the feature information.

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

Canada Notice

CAN ICES-3 (A)/NMB-3(A)

European Community and Morocco Notice

This product is in conformity with the protection requirements of Directive 2014/30/EU of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.

Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

Germany Notice

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

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022 / EN 55032 Klasse A ein.

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

EN 55032 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: Dieses ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funk-Störungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen zu ergreifen und dafür aufzukommen."

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) für Geräte der Klasse A

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

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:

International Business Machines Corp.

New Orchard Road

Armonk, New York 10504

Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:

IBM Deutschland GmbH

Technical Relations Europe, Abteilung M456

IBM-Allee 1, 71139 Ehningen, Germany

Tel: +49 (0) 800 225 5426

email: HalloIBM@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 / EN 55032 Klasse A.

Japan Electronics and Information Technology Industries Association (JEITA) Notice

(一社) 電子情報技術産業協会 高調波電流抑制対策実施
要領に基づく定格入力電力値: Knowledge Centerの各製品の
仕様ページ参照

This statement applies to products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement applies to products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 6 (単相、P F C回路付)
- 換算係数 : 0

This statement applies to products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 5 (3相、P F C回路付)
- 換算係数 : 0

Japan Voluntary Control Council for Interference (VCCI) Notice

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

VCCI-A

Korea Notice

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

People's Republic of China Notice

声 明

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

Russia Notice

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

Taiwan Notice

警告使用者：

此為甲類資訊技術設備，
於居住環境中使用時，可
能會造成射頻擾動，在此
種情況下，使用者會被要
求採取某些適當的對策。

IBM Taiwan Contact Information:

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

United States Federal Communications Commission (FCC) Notice

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

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

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

Responsible Party:
International Business Machines Corporation
New Orchard Road
Armonk, NY 10504
Contact for FCC compliance information only: fccinfo@us.ibm.com

Class B Notices

The following Class B statements apply to features designated as electromagnetic compatibility (EMC) Class B in the feature installation information.

When attaching a monitor to the equipment, you must use the designated monitor cable and any interference suppression devices supplied with the monitor.

Canada Notice

CAN ICES-3 (B)/NMB-3(B)

European Community and Morocco Notice

This product is in conformity with the protection requirements of Directive 2014/30/EU of the European Parliament and of the Council on the harmonization of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

German Notice

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

Dieses Produkt entspricht den Schutzanforderungen der EU-Richtlinie 2014/30/EU zur Angleichung der Rechtsvorschriften über die elektromagnetische Verträglichkeit in den EU-Mitgliedsstaaten und hält die Grenzwerte der EN 55022/ EN 55032 Klasse B ein.

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

Deutschland: Einhaltung des Gesetzes über die elektromagnetische Verträglichkeit von Geräten

Dieses Produkt entspricht dem "Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG)". Dies ist die Umsetzung der EU-Richtlinie 2014/30/EU in der Bundesrepublik Deutschland.

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) (bzw. der EMC Richtlinie 2014/30/EU) für Geräte der Klasse B

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

Verantwortlich für die Einhaltung der EMV Vorschriften ist der Hersteller:
International Business Machines Corp.
New Orchard Road
Armonk, New York 10504
Tel: 914-499-1900

Der verantwortliche Ansprechpartner des Herstellers in der EU ist:
IBM Deutschland GmbH
Technical Relations Europe, Abteilung M456
IBM-Allee 1, 71139 Ehningen, Germany

Tel: +49 (0) 800 225 5426
email: HalloIBM@de.ibm.com

Generelle Informationen:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55032 Klasse B

Japan Electronics and Information Technology Industries Association (JEITA) Notice

(一社) 電子情報技術産業協会 高調波電流抑制対策実施
要領に基づく定格入力電力値: Knowledge Centerの各製品の
仕様ページ参照

This statement applies to products less than or equal to 20 A per phase.

高調波電流規格 JIS C 61000-3-2 適合品

This statement applies to products greater than 20 A, single phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 6 (単相、P F C回路付)
- 換算係数 : 0

This statement applies to products greater than 20 A per phase, three-phase.

高調波電流規格 JIS C 61000-3-2 準用品

本装置は、「高圧又は特別高圧で受電する需要家の高調波抑制対策ガイドライン」対象機器（高調波発生機器）です。

- 回路分類 : 5 (3相、P F C回路付)
- 換算係数 : 0

Japan Voluntary Control Council for Interference (VCCI) Notice

この装置は、クラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをして下さい。

VCCI-B

Taiwan Notice

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

United States Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult an IBM-authorized dealer or service representative for help.

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

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Responsible Party:

International Business Machines Corporation
New Orchard Road
Armonk, New York 10504
Contact for FCC compliance information only: fccinfo@us.ibm.com

Terms and conditions

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

Applicability: These terms and conditions are in addition to any terms of use for the IBM website.

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

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

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

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

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

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

