

## Power Systems

*RDX docking stations, power cable, and  
removable disk drives for the 9009-41A,  
9009-41G, 9009-42A, 9009-42G,  
9223-42H, or 9223-42S*



**Note**

Before using this information and the product it supports, read the information in [“Safety notices” on page v](#), [“Notices” on page 87](#), 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.

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# Safety notices

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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.
- When performing a machine inspection: 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 attempt to switch power to the machine until all possible unsafe conditions are corrected. 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.
- 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:

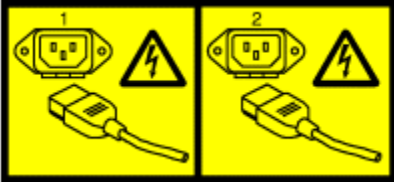
- The rack may tip over causing serious personal injury.
- Before extending the rack to the installation position, read the installation instructions.



- 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

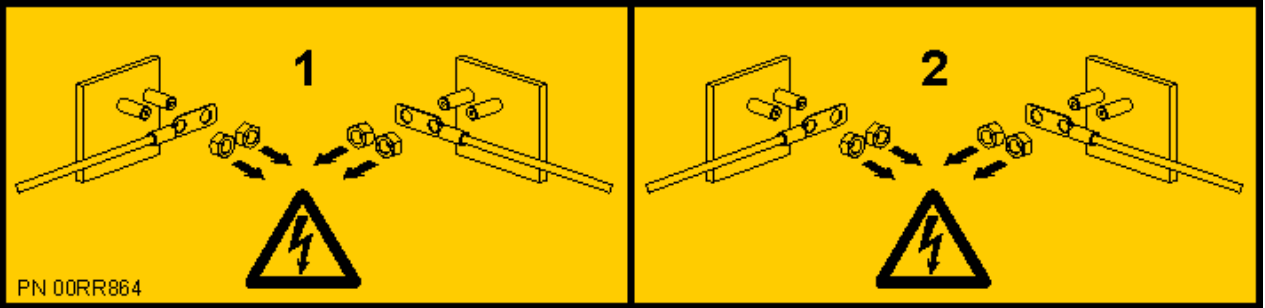



or



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 metallically 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 metallically 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.



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# RDX docking stations, removable disk drives, and power cable

Find information about removing and replacing internal RDX docking stations, removable disk drives, and the power cable in the IBM Power® System S914 (9009-41A and 9009-41G), IBM Power System S924 (9009-42A and 9009-42G), IBM Power System H924 (9223-42H), or IBM Power System H924S (9223-42S) system.

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## Installing an external RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

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Find information about installing an external RDX docking station.

### About this task

Keep in mind the following guidelines when you install the external RDX docking station:

- A rack shelf is not included with the external RDX docking station, feature code (FC) EUA4.
- The docking station can be rested on a flat surface in a rack or on a table top next to a rack.
- Ensure that the device is on a flat surface, is right side up, and is not likely to be bumped, dropped, or otherwise damaged or jolted.
- If the docking station is placed by itself on a rack shelf, it has space on the sides of the device. No filler panels are provided with the docking station.
- If the docking station is placed on a rack shelf, ensure that the docking station has sufficient air flow. Also, ensure that it does not affect the air flow of the other systems in the rack.
- Do not block the fan on the rear of the docking station.
- The external RDX disk drive can be installed while the system is powered on and needs to be configured following the installation.

To install the external RDX docking station, complete the following steps:

### Procedure

1. Attach the electrostatic discharge (ESD) wrist strap.

The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.



#### 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. If at any point in this service process you move away from the system, it is important to again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.
2. Place the external RDX docking station on a flat surface. Use the previous guidelines when selecting a location.

3. Attach one end of the external USB cable (**F**) to the rear of the external RDX docking station.

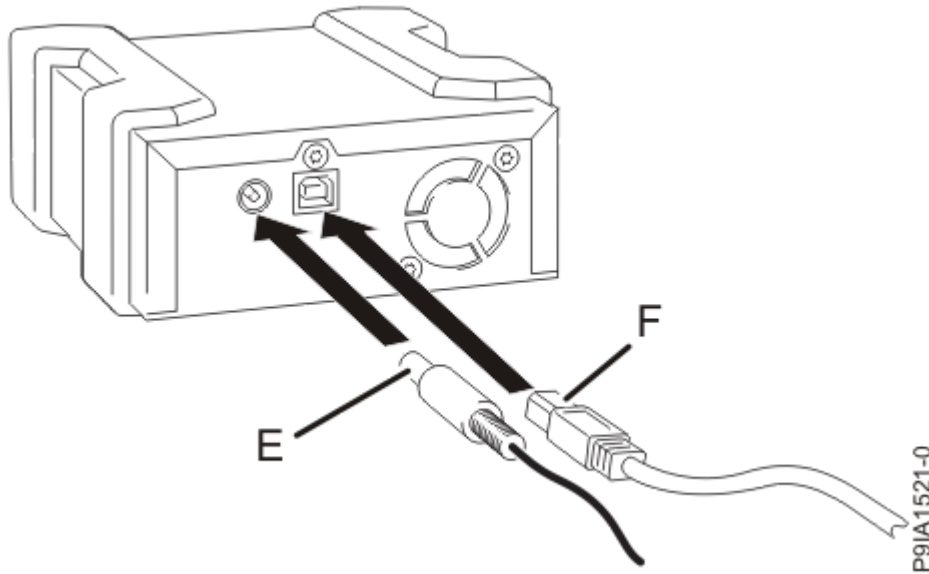


Figure 1. Attaching the external USB and power supply cables

4. Attach the other end of the external USB cable (**F**) to an external, integrated USB port or to the USB ports on a four-port USB PCIe (Peripheral Component Interconnect Express) adapter.
5. Attach the power supply cord (**E**) to the rear of the external RDX docking station and plug it into a power source. In addition to the external power supply cord, you can also use universal adapters as needed.
6. After the external RDX docking station is powered on, insert the disk drive into it.

**Note:** A green indicator light appears when the disk drive is placed into the dock correctly.

7. Configure the removable disk drive by performing the following steps:
  - a) For the AIX® operating system, log in as root user.
  - b) At the command line, type `c fgmgr` and press Enter.
  - c) To verify that the system recognizes the device, enter `lsdev -Cc usbms`.

**Note:** The Linux® operating system automatically configures the drive as a disk drive that has a name in the format `sdx`, for example, `sda`, `sdb`, and `sdc`. To verify that the system recognizes the device, enter `lsusb`. To find the device that is associated with the USB disk drive, enter `ls SCSI`.

8. Verify the installed part.
  - If you replaced the part because of a service action, verify the installed part. For instructions, see [Verifying a repair](http://www.ibm.com/support/knowledgecenter/POWER9/p9ect/pxect_verifyrepair.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9ect/pxect\_verifyrepair.htm).
  - If you installed the part for any other reason, verify the installed part. For instructions, see [Verifying the installed part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/pxhaj_hsmverify.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/pxhaj\_hsmverify.htm).

## Installing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

Find information about installing an internal RDX docking station.

### About this task

**Note:** Installing 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj\\_hmc\\_repair.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If your system is not managed by an HMC, complete the steps in the following procedures to install an internal RDX docking station.

## Preparing the system to install an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To prepare the system to install an internal RDX docking station, 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm\)](http://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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm\)](http://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 4](#) or [Figure 3 on page 5](#).

### 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.

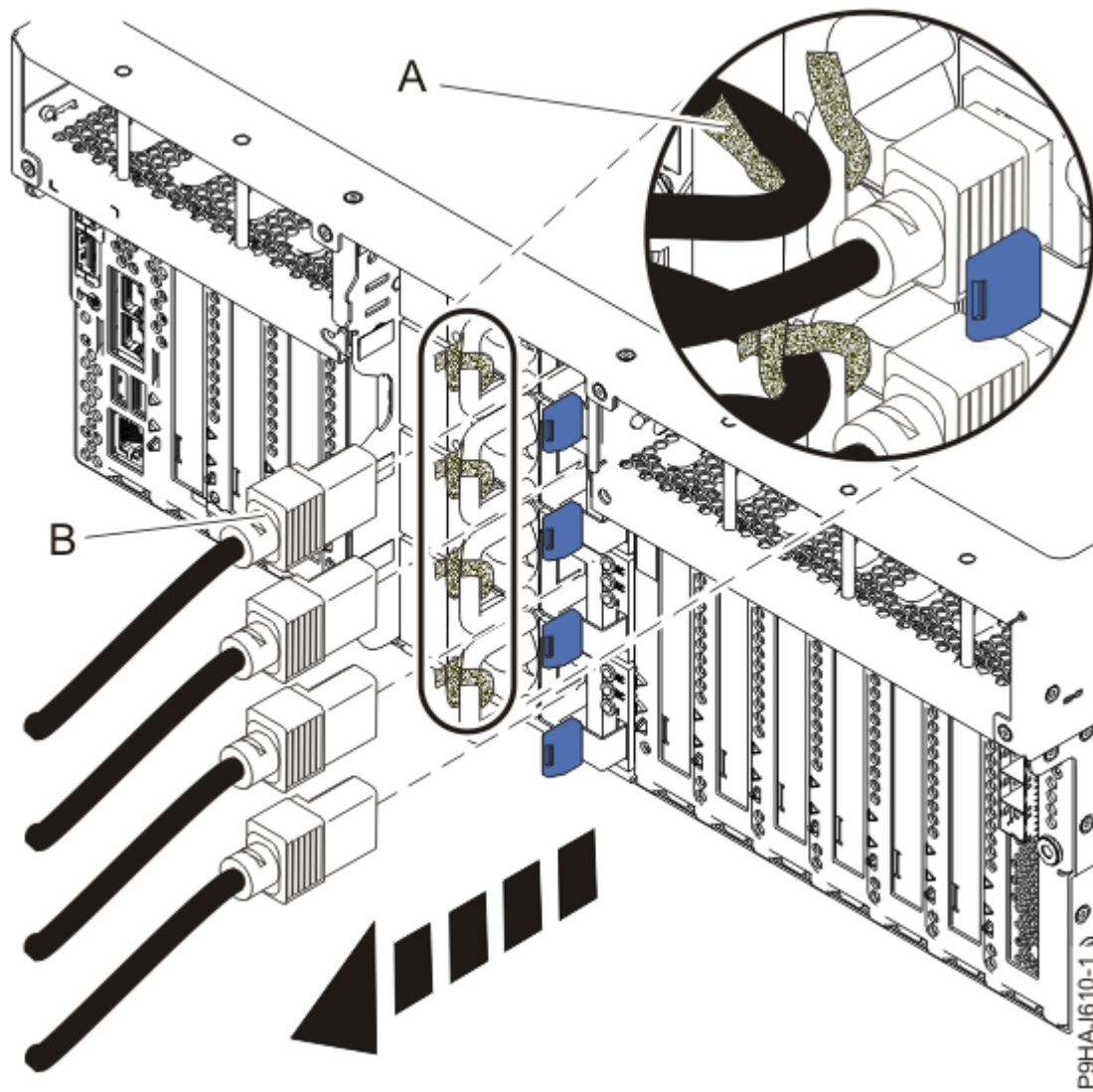


Figure 2. Removing the power cords from a rack-mounted server

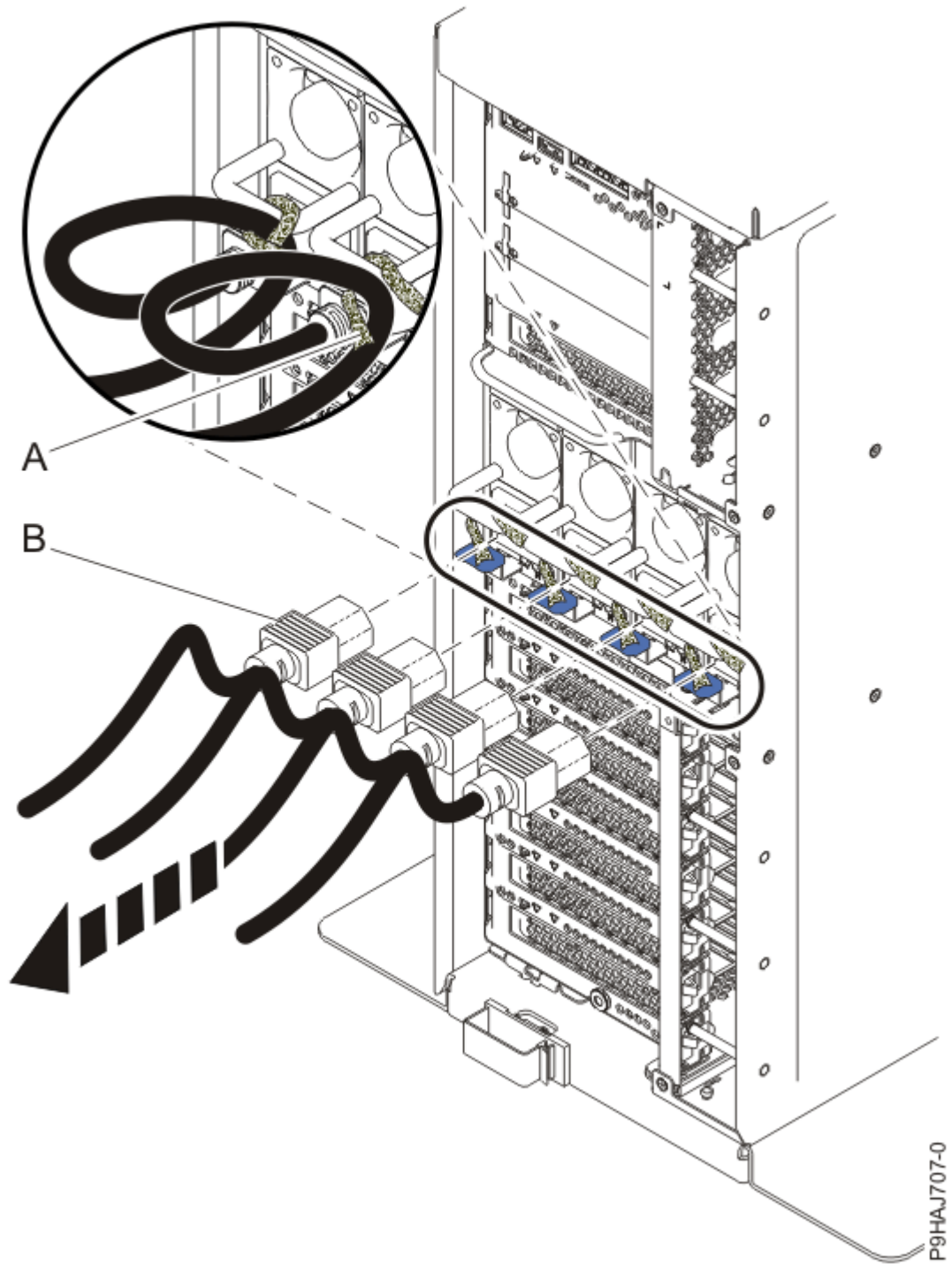
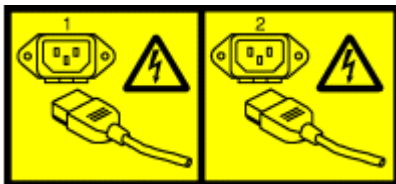


Figure 3. Removing the power cords from a stand-alone server

(L003)



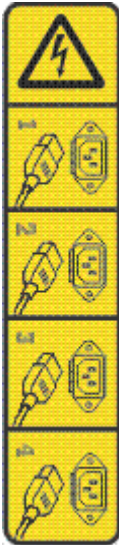
or



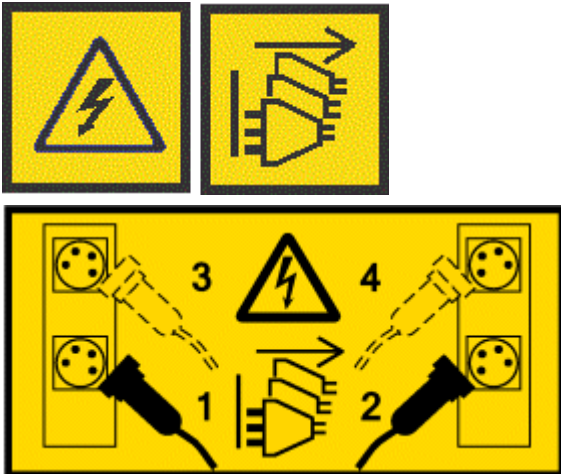
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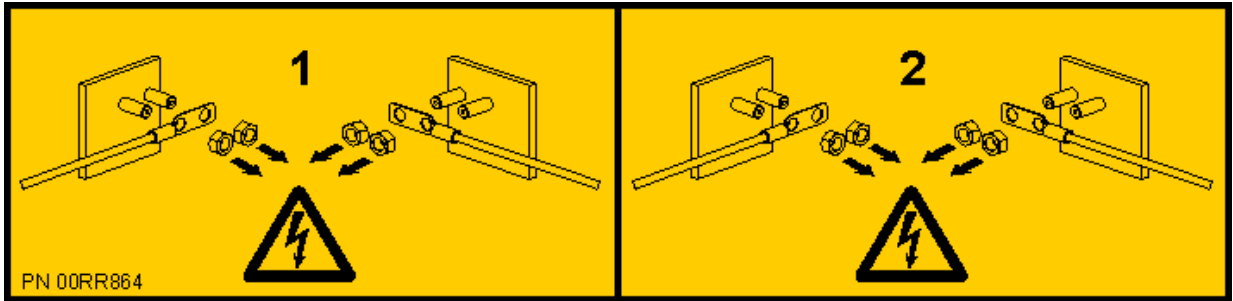


or



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. For a rack-mounted system, 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.

See the following figure.

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.



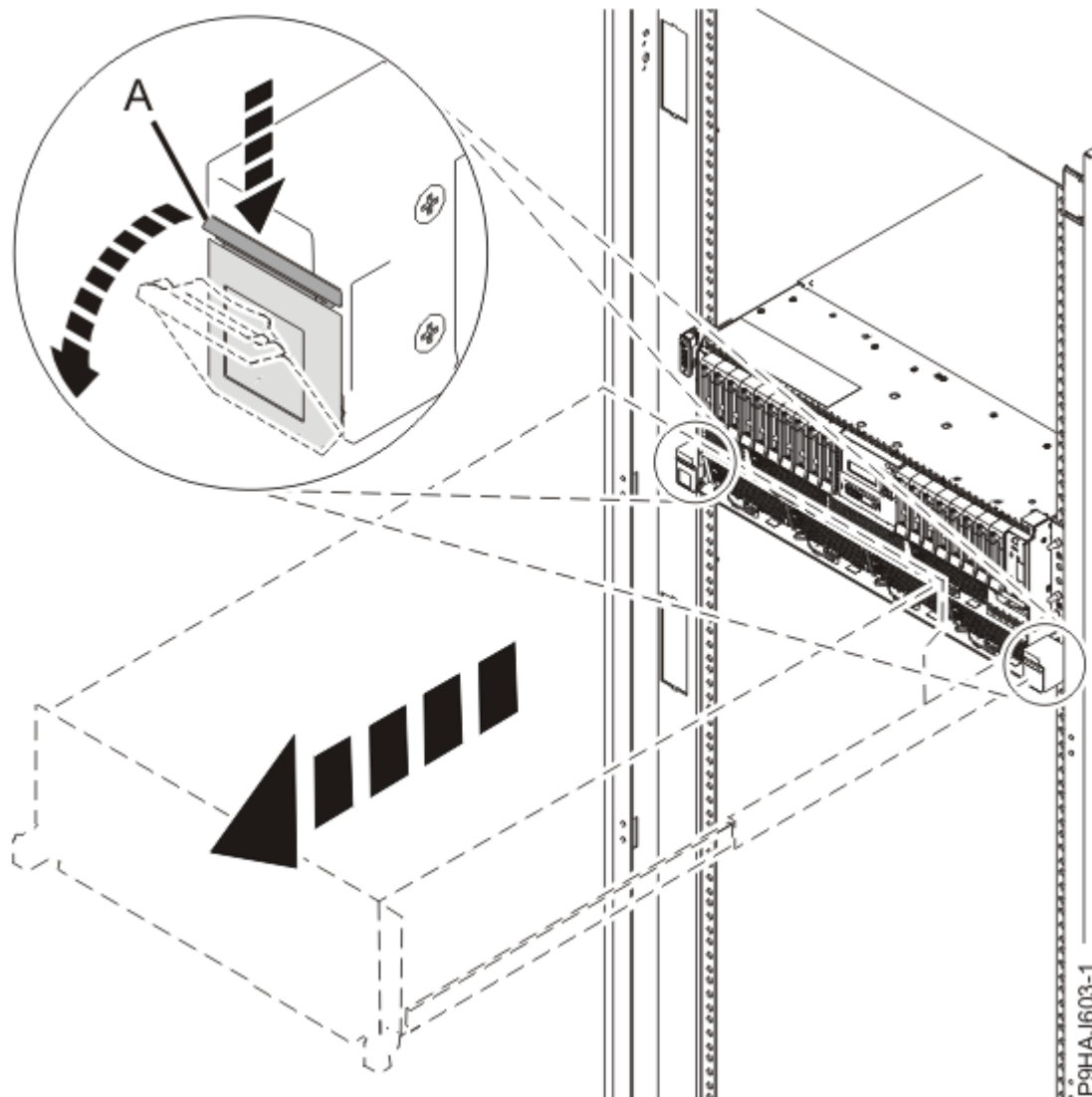


Figure 4. Releasing the side latches

5. Attach the electrostatic discharge (ESD) wrist strap.

The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.




**Attention:**

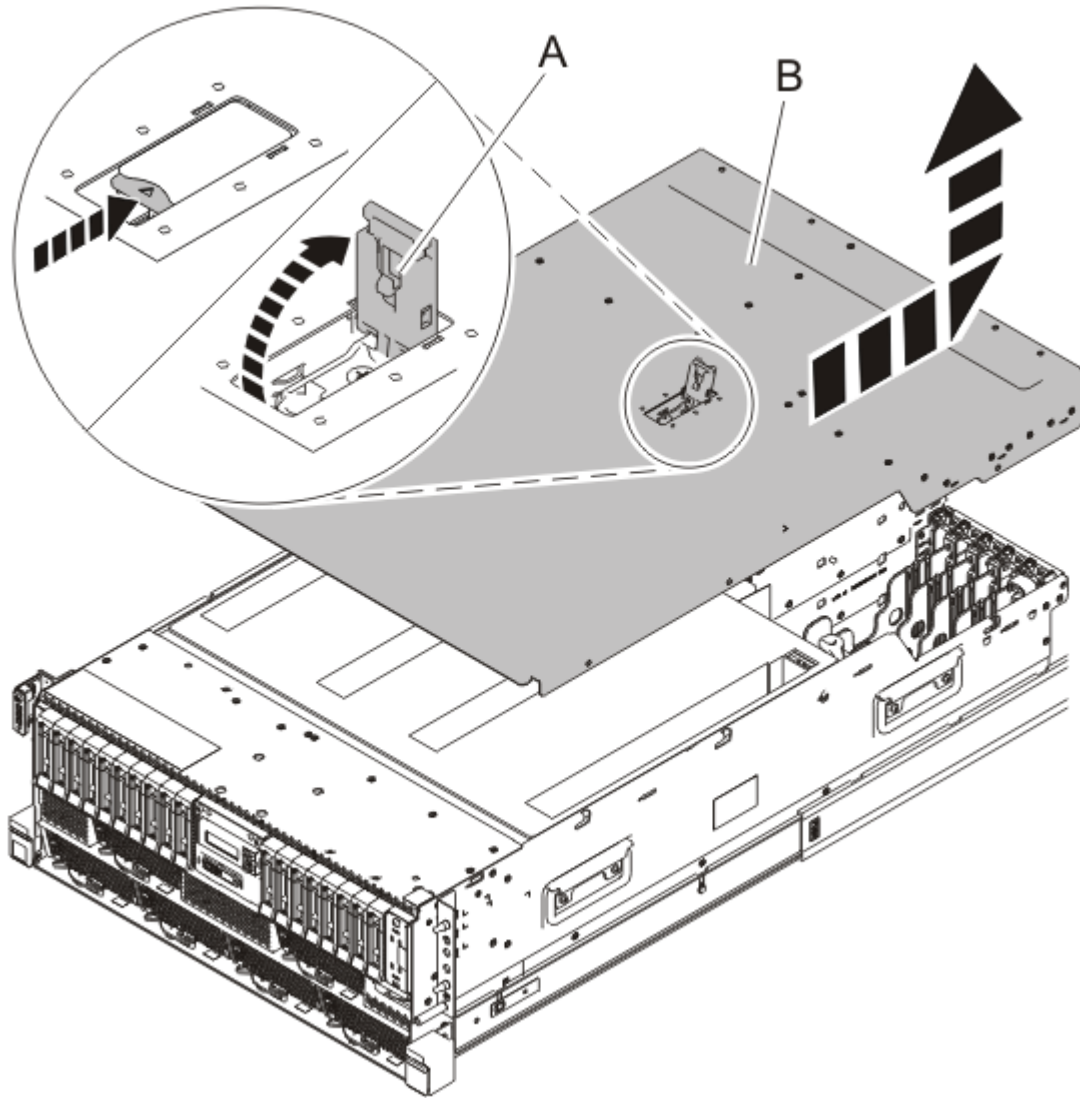
- Attach an electrostatic discharge (ESD) wrist strap to the front ESD jack, to the rear ESD jack, or to an unpainted metal surface of your hardware to prevent the electrostatic discharge from damaging your hardware.
- When you use an ESD wrist strap, follow all electrical safety procedures. An ESD wrist 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. If at any point in this service process you move away from the system, it is important to again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.

6. Remove the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 5 on page 9](#).

 **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.


- a. Release the service cover latch by pushing the release latch **(A)** in the direction shown.
- b. 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.



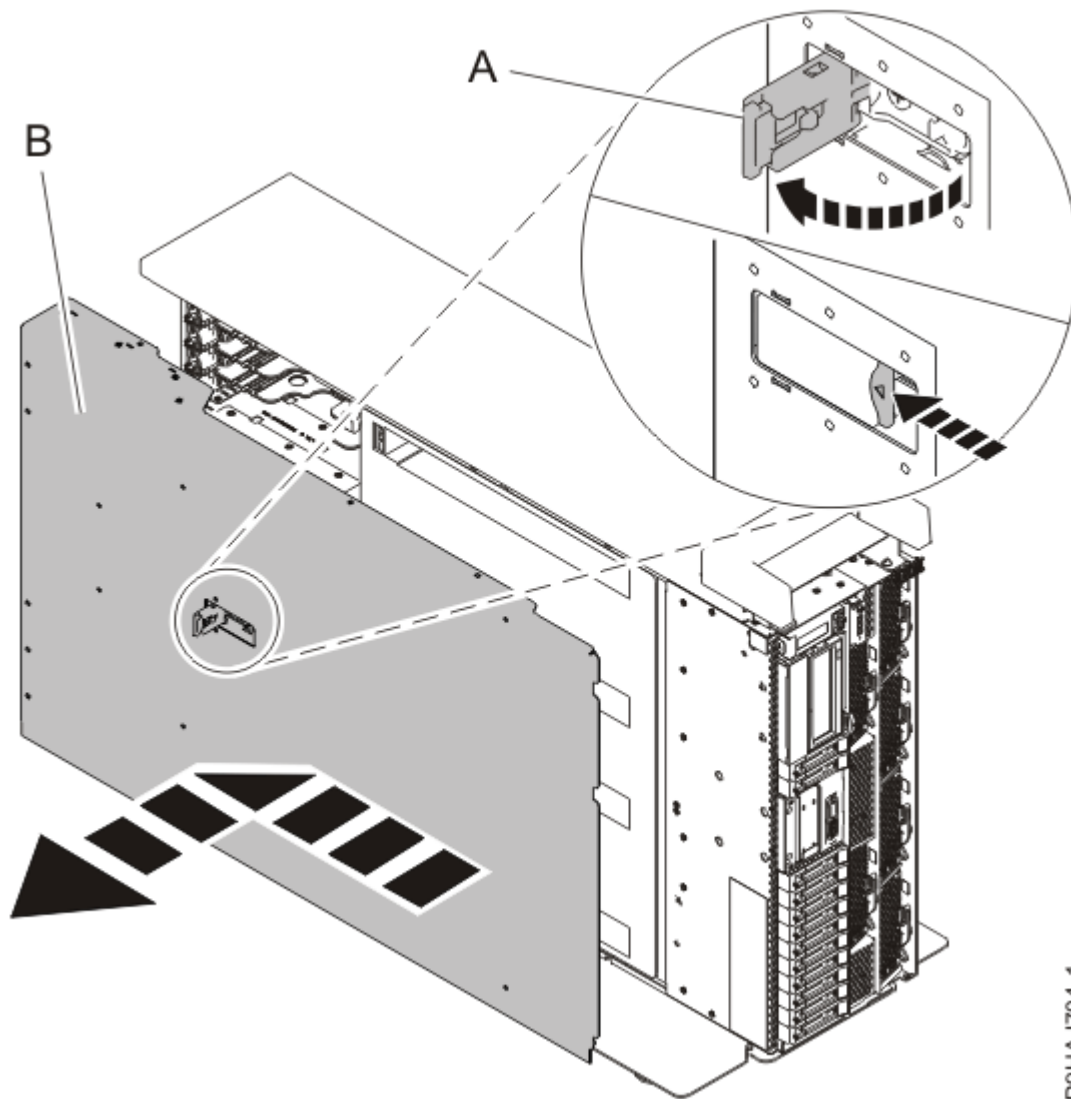
P9HAJ605-2

Figure 5. Removing the service access cover from a rack-mounted system

For a stand-alone system, complete the following steps. Refer to [Figure 6 on page 10](#).

 **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.

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



P9HAJ704-1

Figure 6. Removing the service access cover

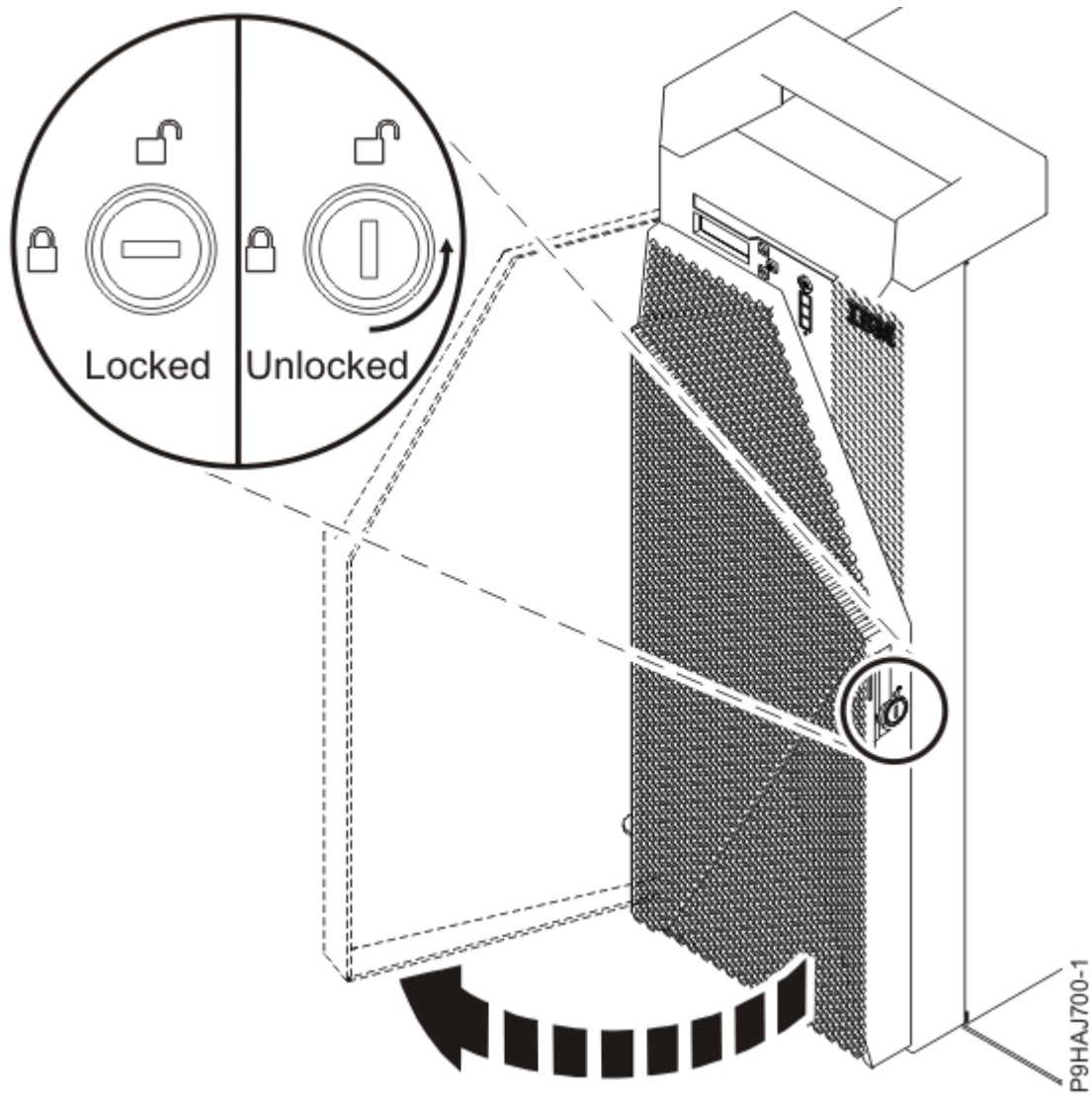
## Installing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To install an internal RDX docking station, complete the steps in this procedure.

### Procedure

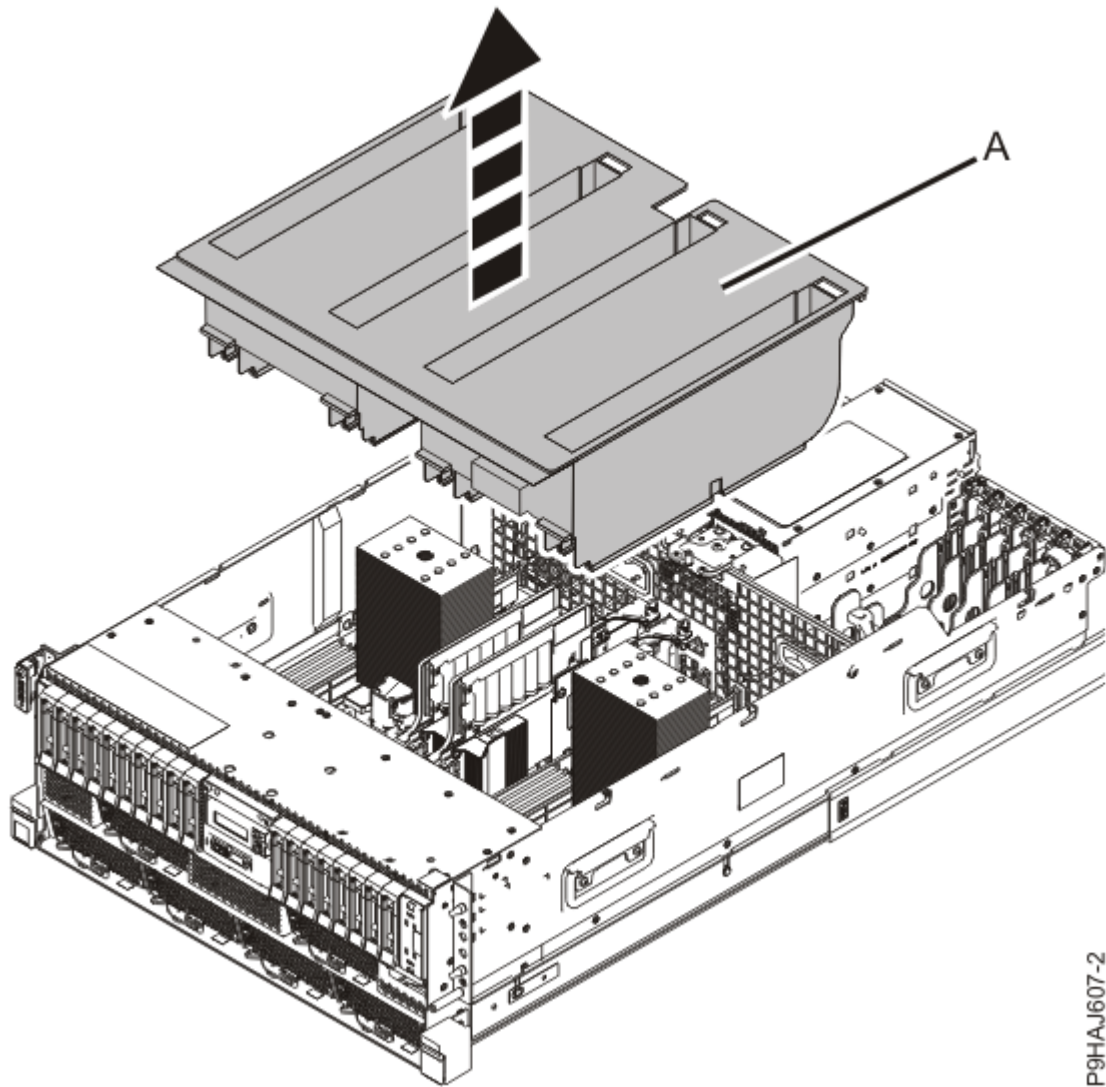
1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. For a stand-alone system, open the front door by inserting the front door key into the lock as shown below. Twist the key to the left (counterclockwise) to unlock the door. Horizontal is locked; vertical is unlocked.





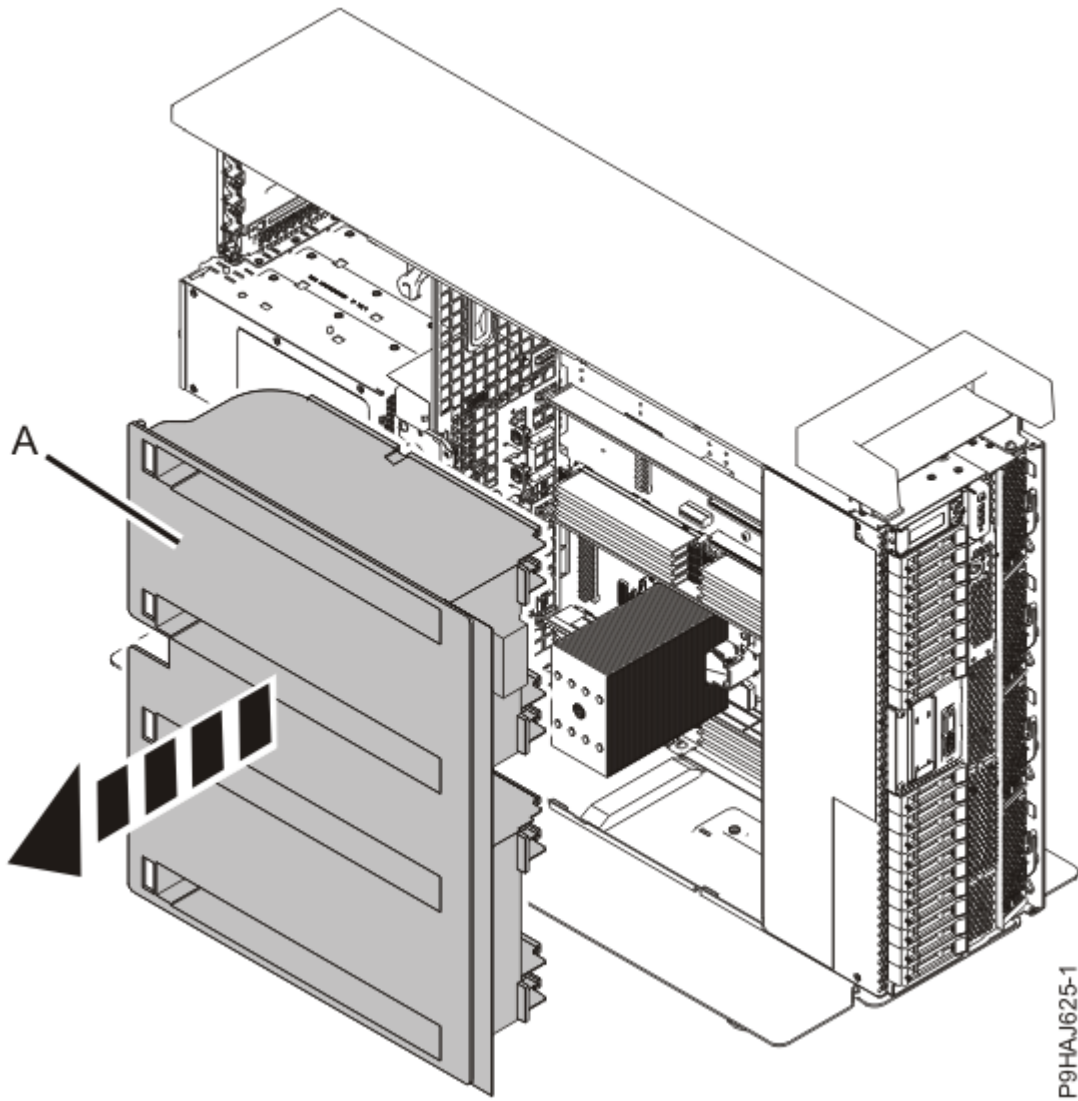
*Figure 7. Unlocking the front door*

3. For a rack-mounted system, lift the air baffle **(A)** straight up as shown in [Figure 8 on page 12](#). For a stand-alone system, remove the air baffle **(A)** straight out as shown in [Figure 9 on page 13](#). Place the air baffle upside down on a clean area.

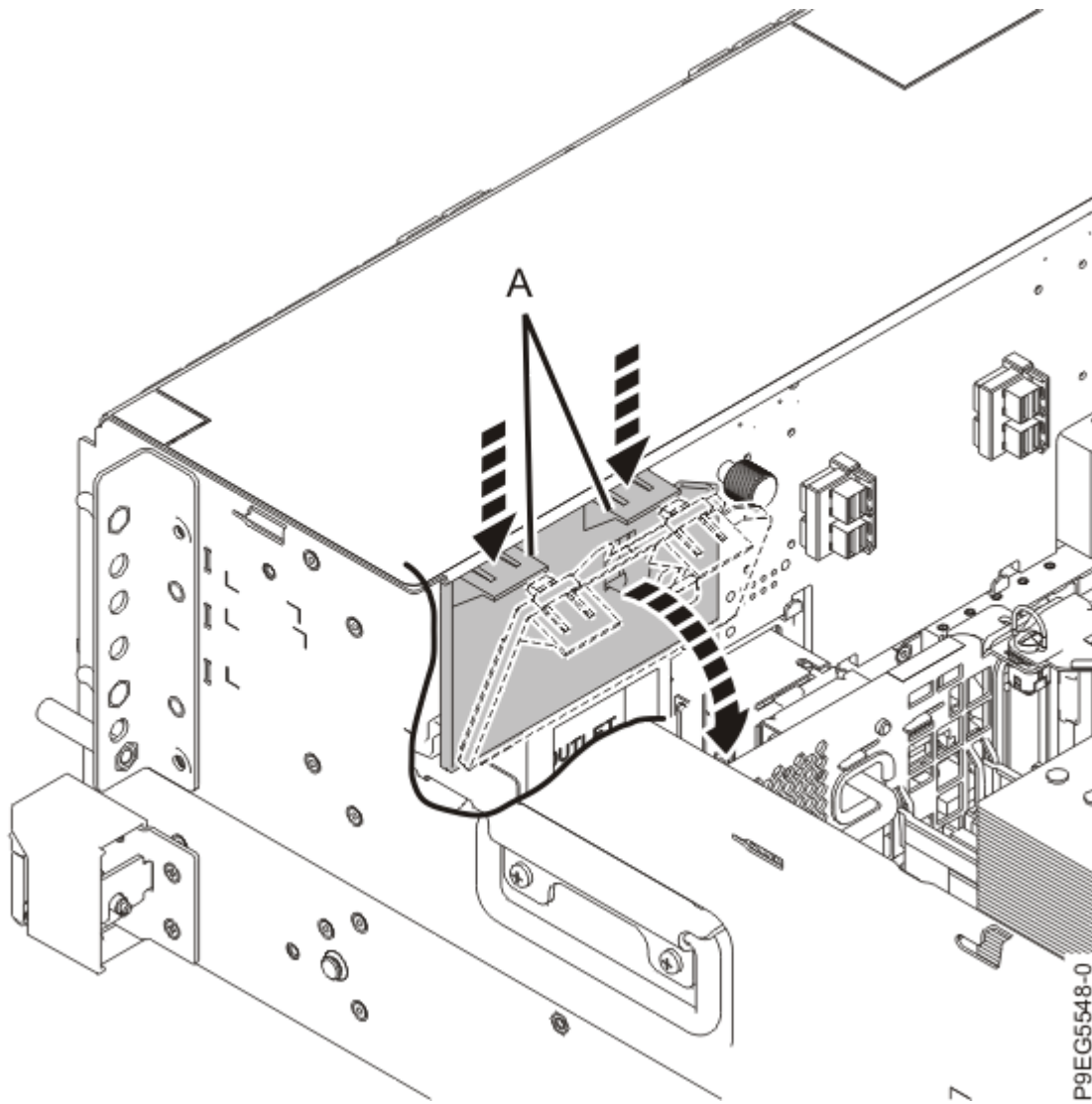


P9HAJ607-2

Figure 8. Removing the air baffle from a rack-mounted system

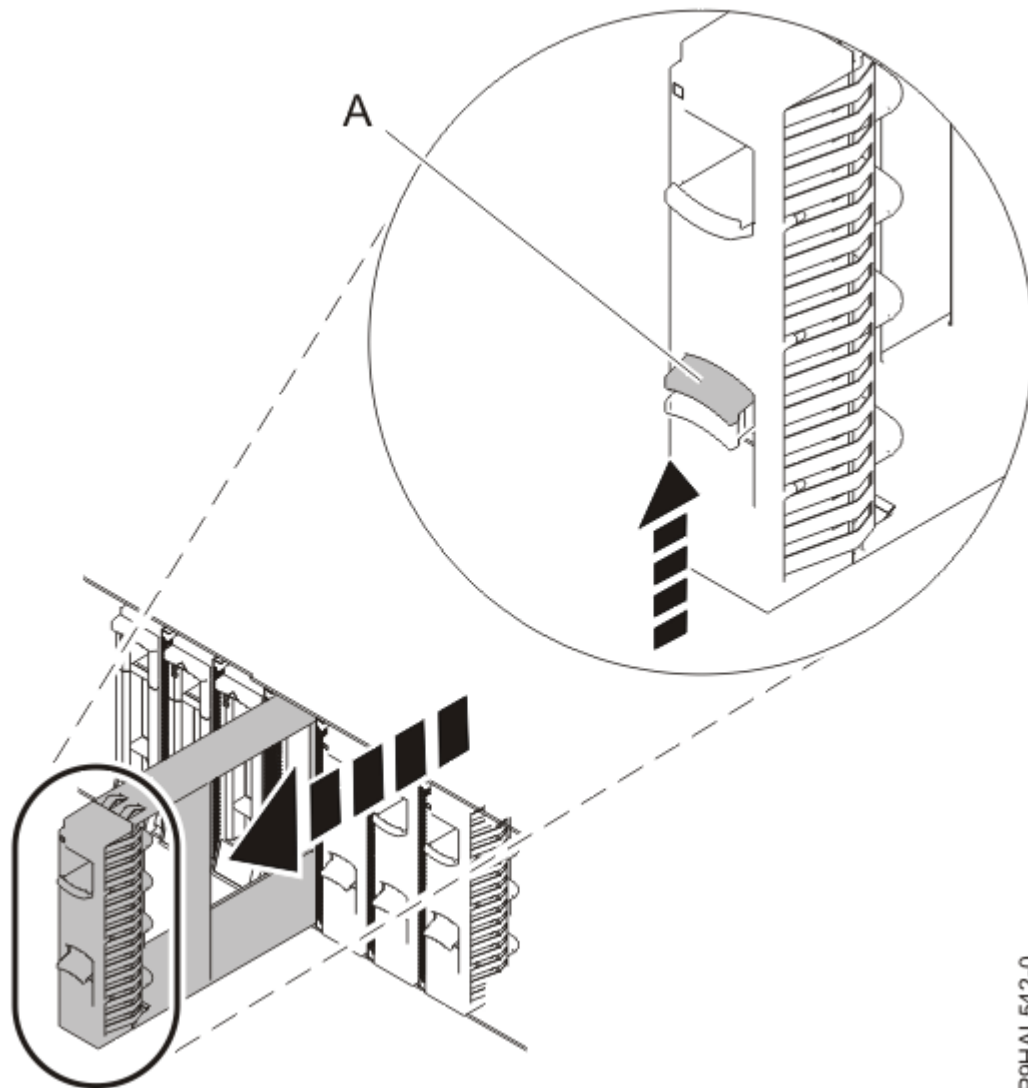


*Figure 9. Removing the air baffle from a stand-alone system*  
4. Remove the rear filler as shown in [Figure 10 on page 14](#).



*Figure 10. Removing the internal RDX docking station rear filler*

5. Remove the direct-access storage device (DASD) fillers as shown in [Figure 11 on page 15](#).



P9HAL542-0

*Figure 11. Removing the DASD fillers*

6. Slide the internal RDX docking station sleeve **(A)** into the system and secure it using a Phillips screwdriver and two M 3.5 x 10 MPC **(B)** screws as shown in [Figure 12 on page 16](#) or [Figure 13 on page 17](#).

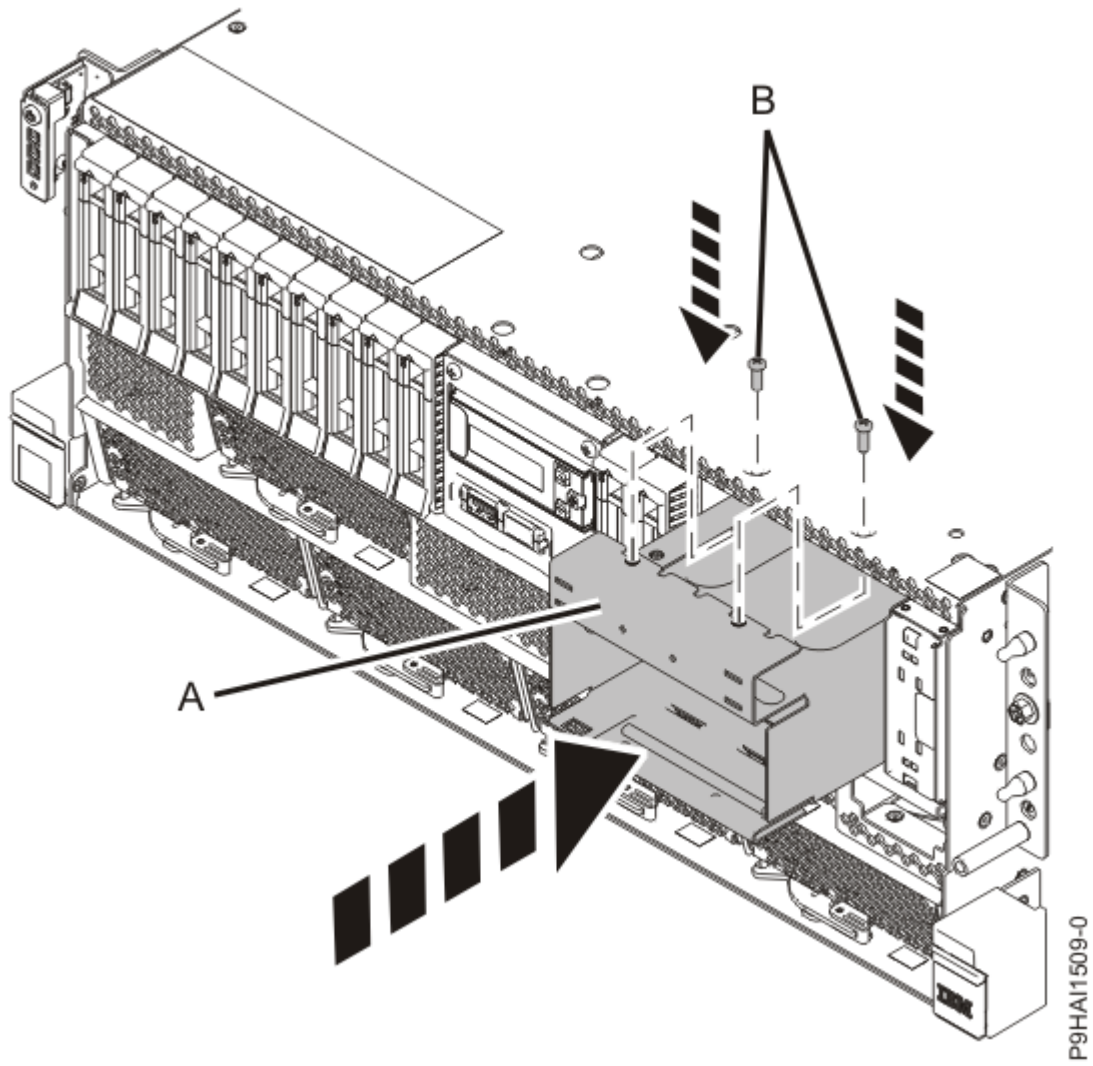
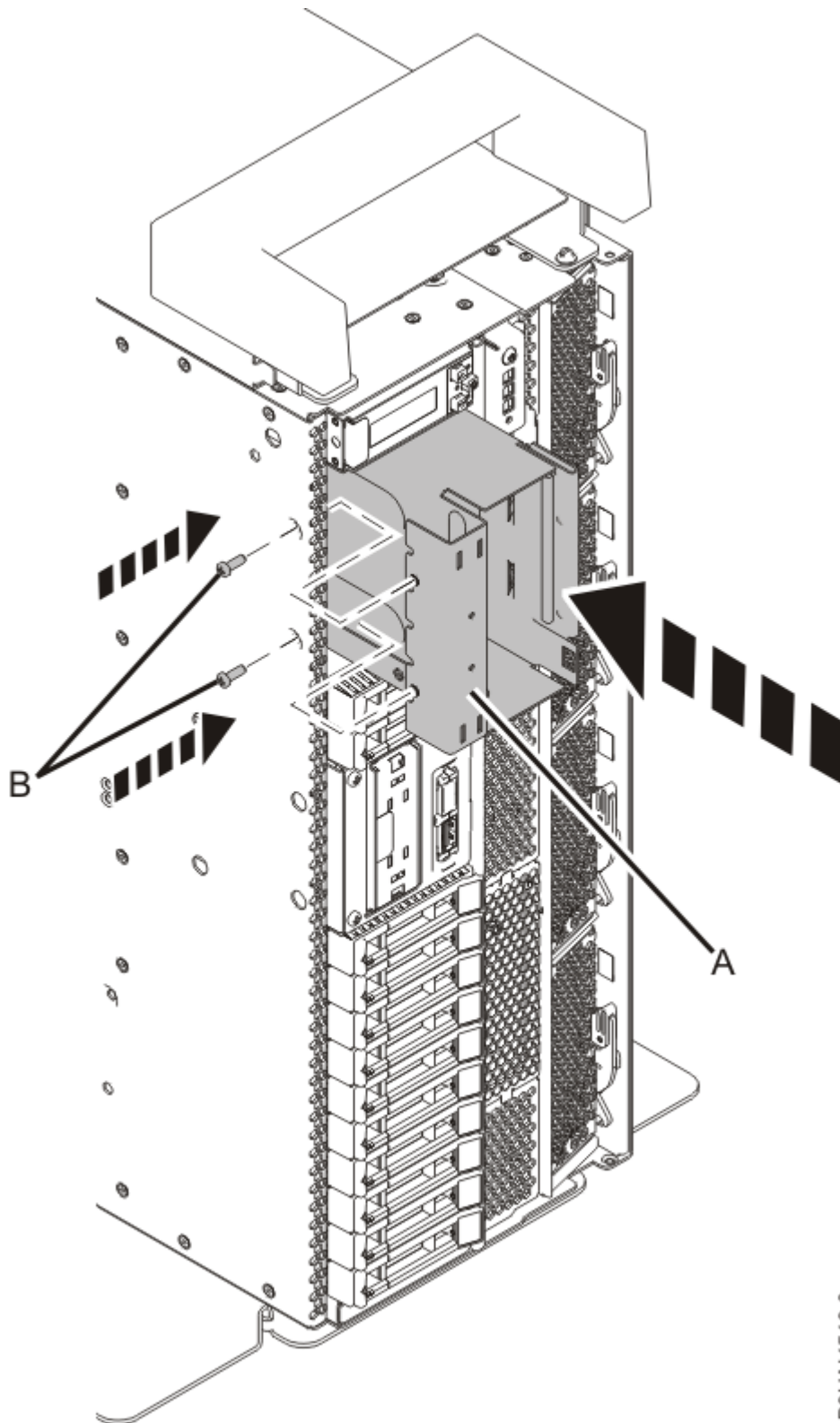


Figure 12. Installing the internal RDX docking station sleeve into a rack-mounted system

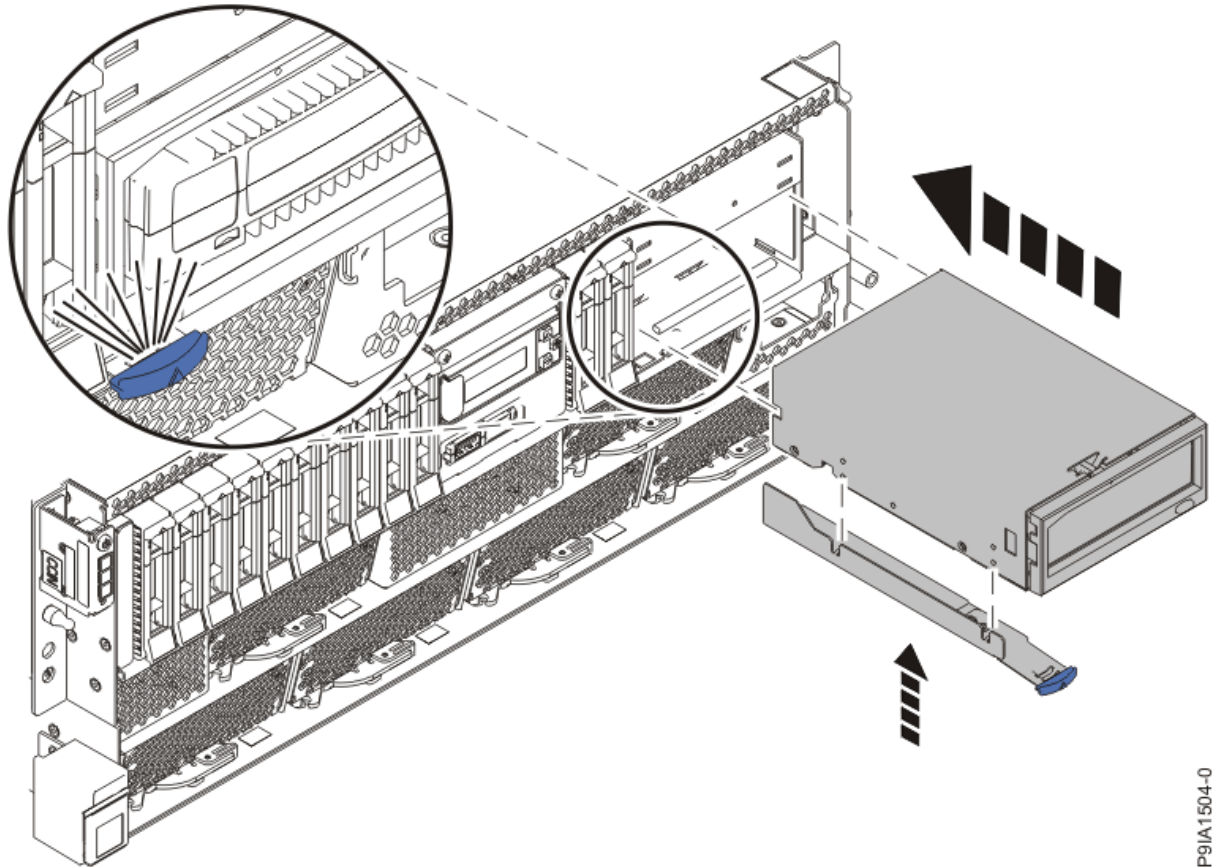


P9HAI1519-0

*Figure 13. Installing the internal RDX docking station sleeve into a stand-alone system*

7. Remove the internal RDX docking station from the static-protective package.
8. Locate the RDX Air Block, part number 01GY504 in the FRU kit. Remove the adhesive protective cover and apply the Air Block to the rear of the internal RDX docking station.
9. Align the internal RDX latch with the holes on the bottom of the internal RDX docking station.
10. Hold the internal RDX latch in place while sliding the internal RDX docking station into the system.

11. Slide the internal RDX docking station into the system until it locks into place as shown in [Figure 14](#) on page 18 or [Figure 15](#) on page 19.



*Figure 14. Replacing the internal RDX docking station from a rack-mounted system*

P91A1504-0



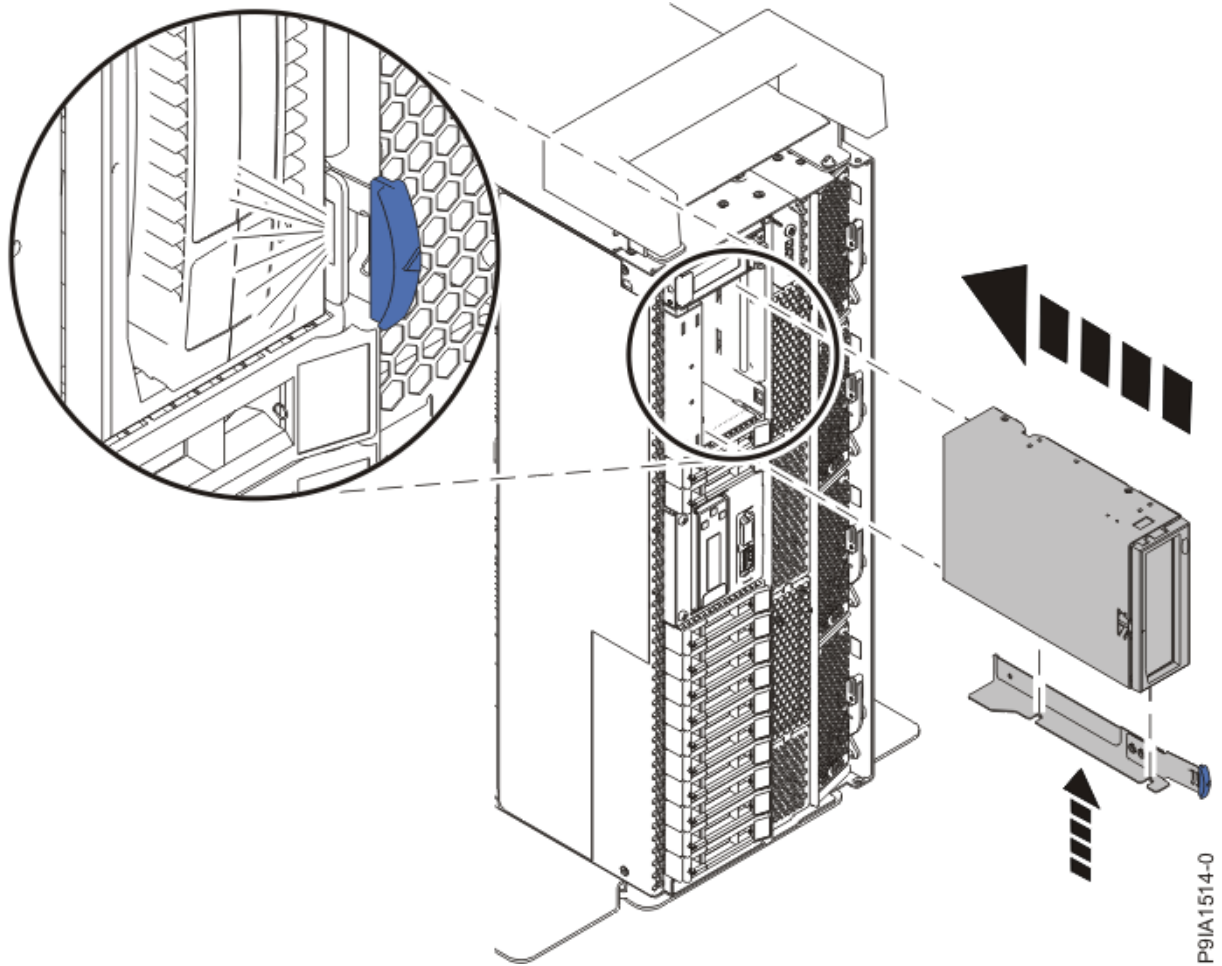
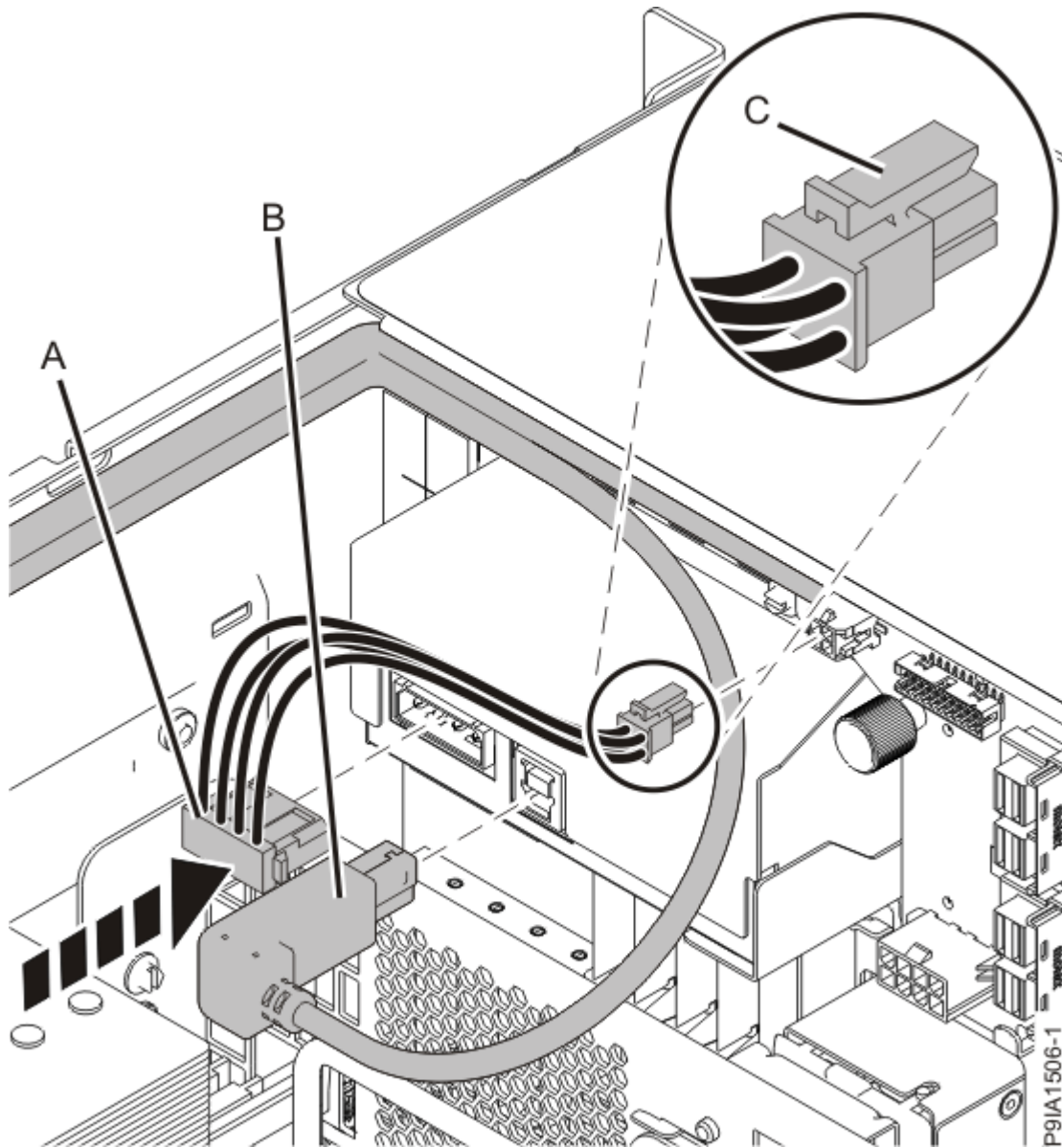


Figure 15. Replacing the internal RDX docking station in a stand-alone system

12. Connect the internal RDX docking station USB cable (**B**) to the rear of the new internal RDX docking station. Proceed to connect the internal RDX docking station power cable (**A**) to the rear of the new internal RDX docking station as shown in Figure 16 on page 20.

Ensure that the latch (**C**) on the RDX power cable is oriented upwards for a rack-mounted system; and to the outside for a stand-alone system.

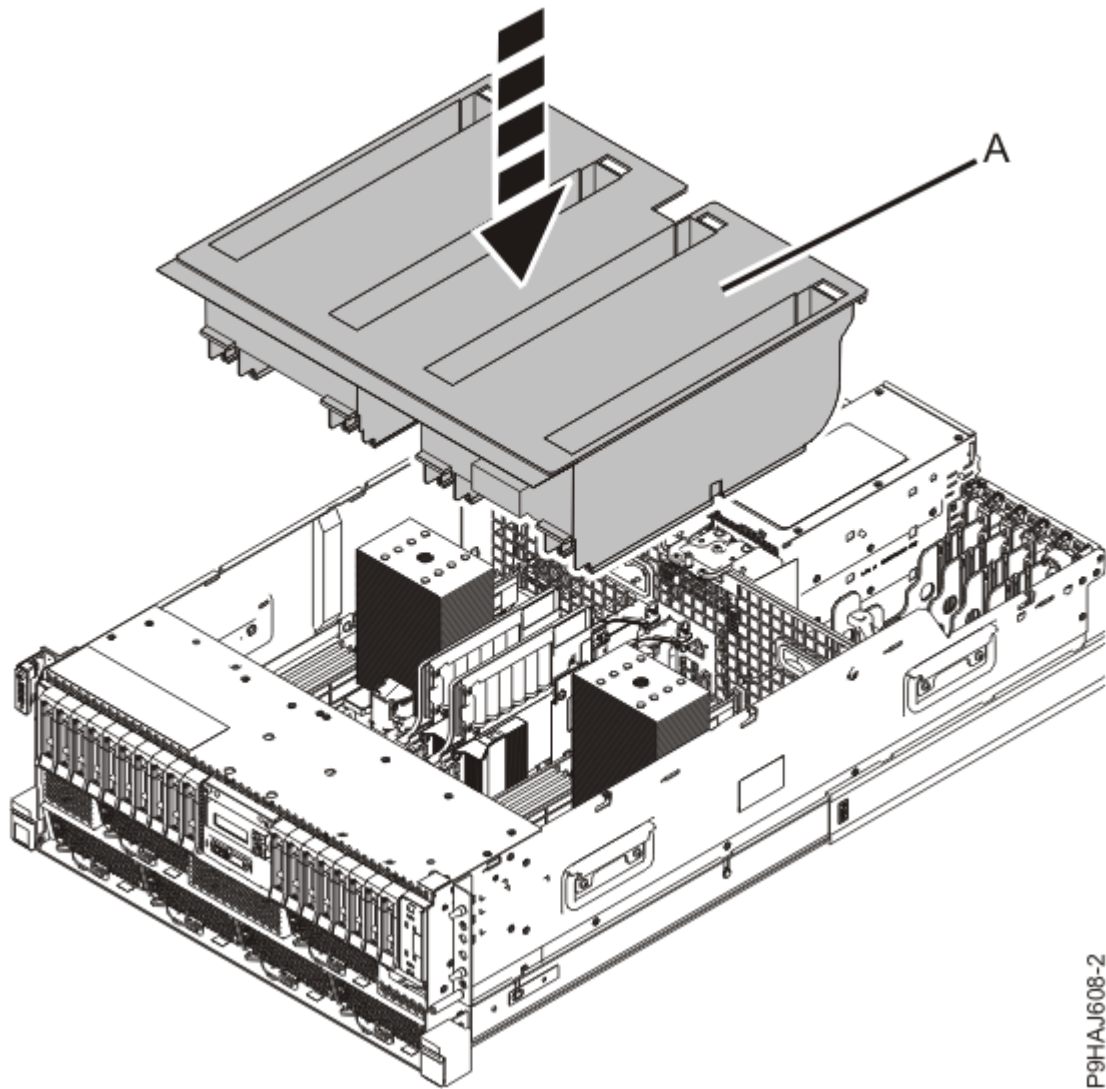


*Figure 16. Connecting the internal RDX docking station power and USB cables*

13. For a rack-mounted system, replace the air baffle **(A)** straight down into the chassis as shown in [Figure 17](#) on page 21.

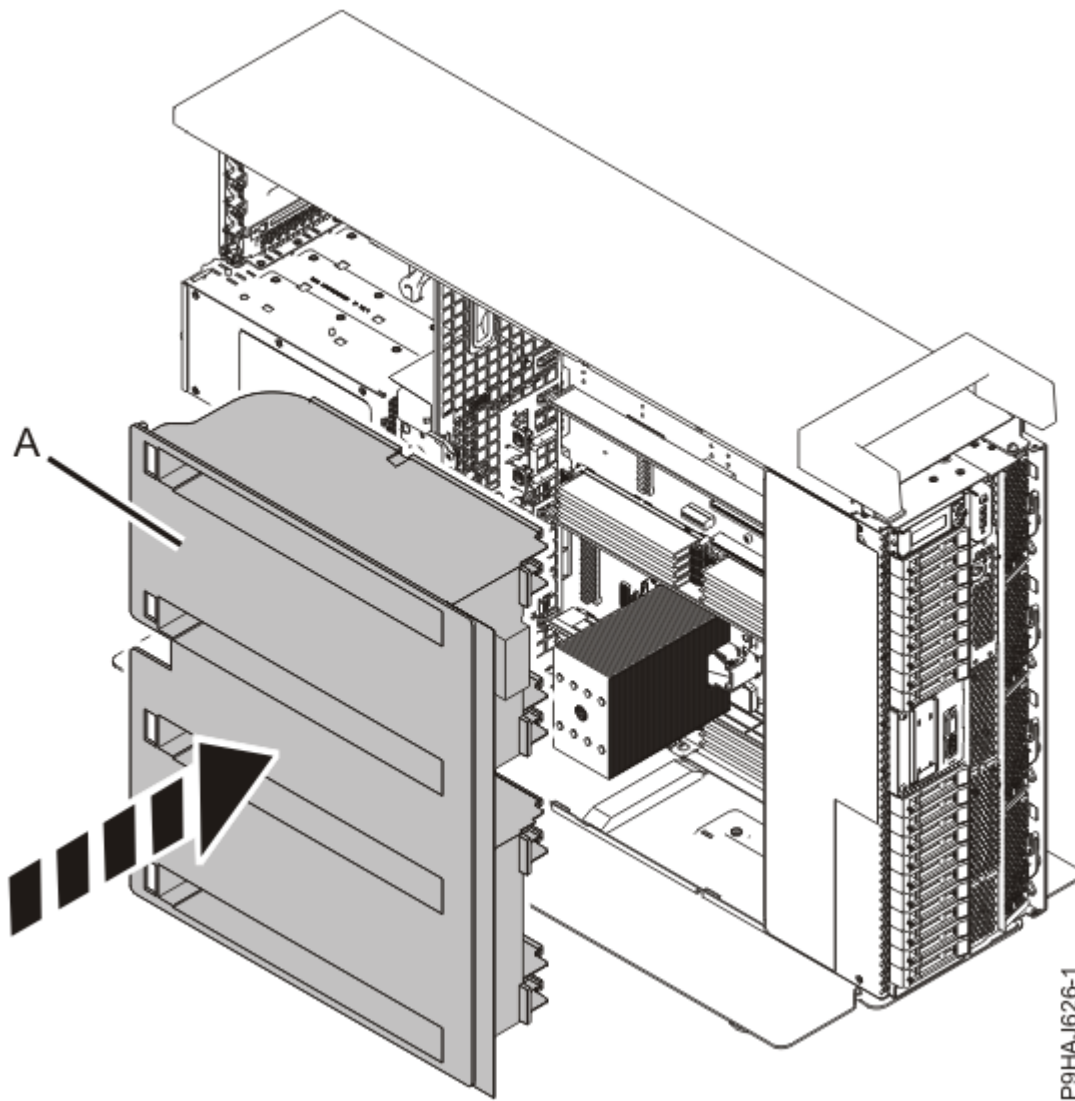
For a stand-alone system, replace the air baffle **(A)** straight into the side of the chassis as shown in [Figure 18](#) on page 22.

Ensure that the front flap tucks under the front chassis.



P9HAJ608-2

Figure 17. Replacing the air baffle in a rack-mounted system



*Figure 18. Replacing the air baffle in a stand-alone system*

14. For a stand-alone system, close the front door. Insert the front door key into the lock as shown in [Figure 19](#) on page 23. Twist the key to the right (clockwise) to lock the door. Horizontal is locked; vertical is unlocked.

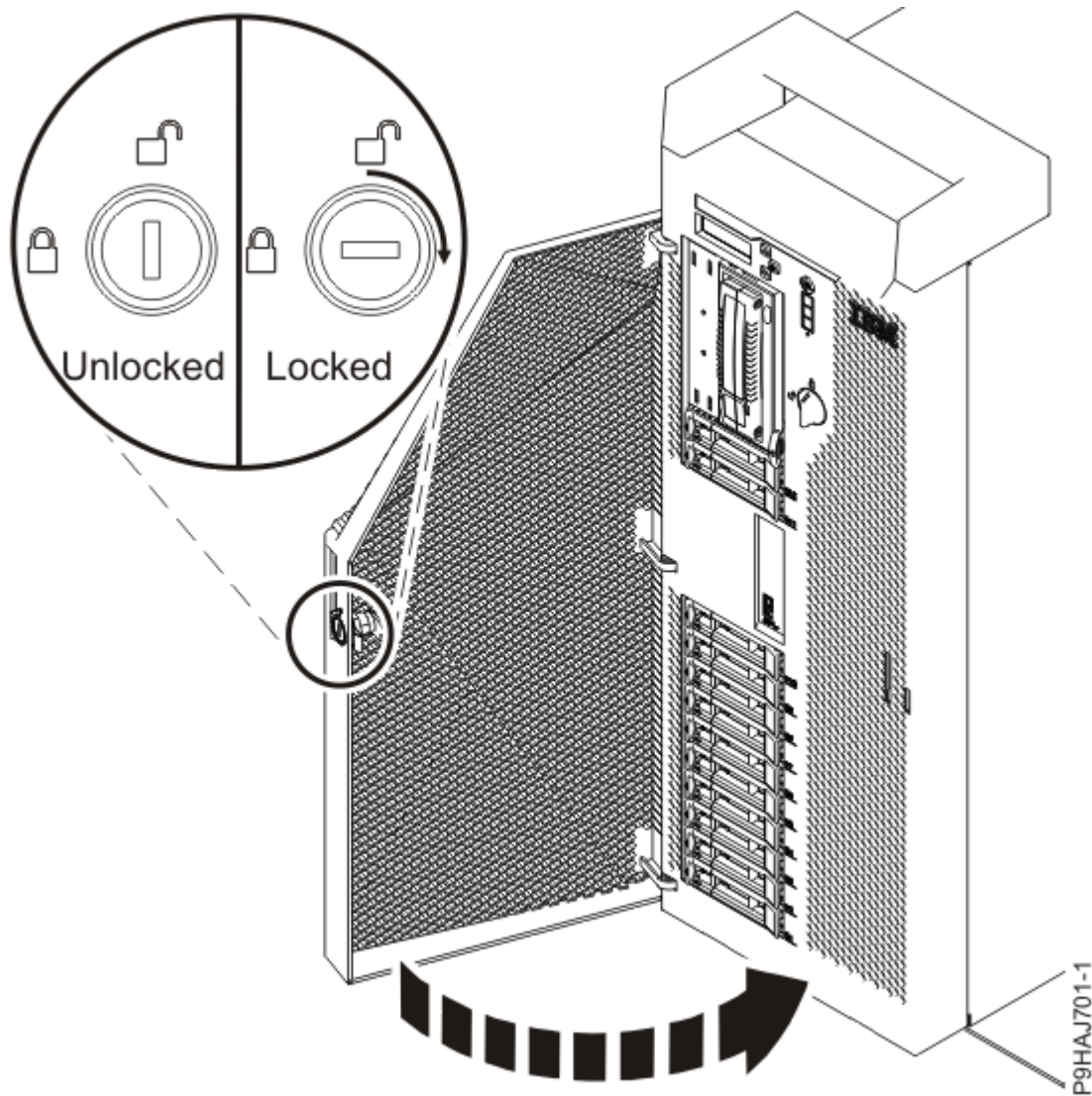


Figure 19. Locking the front door

## Preparing the system for operation after installing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

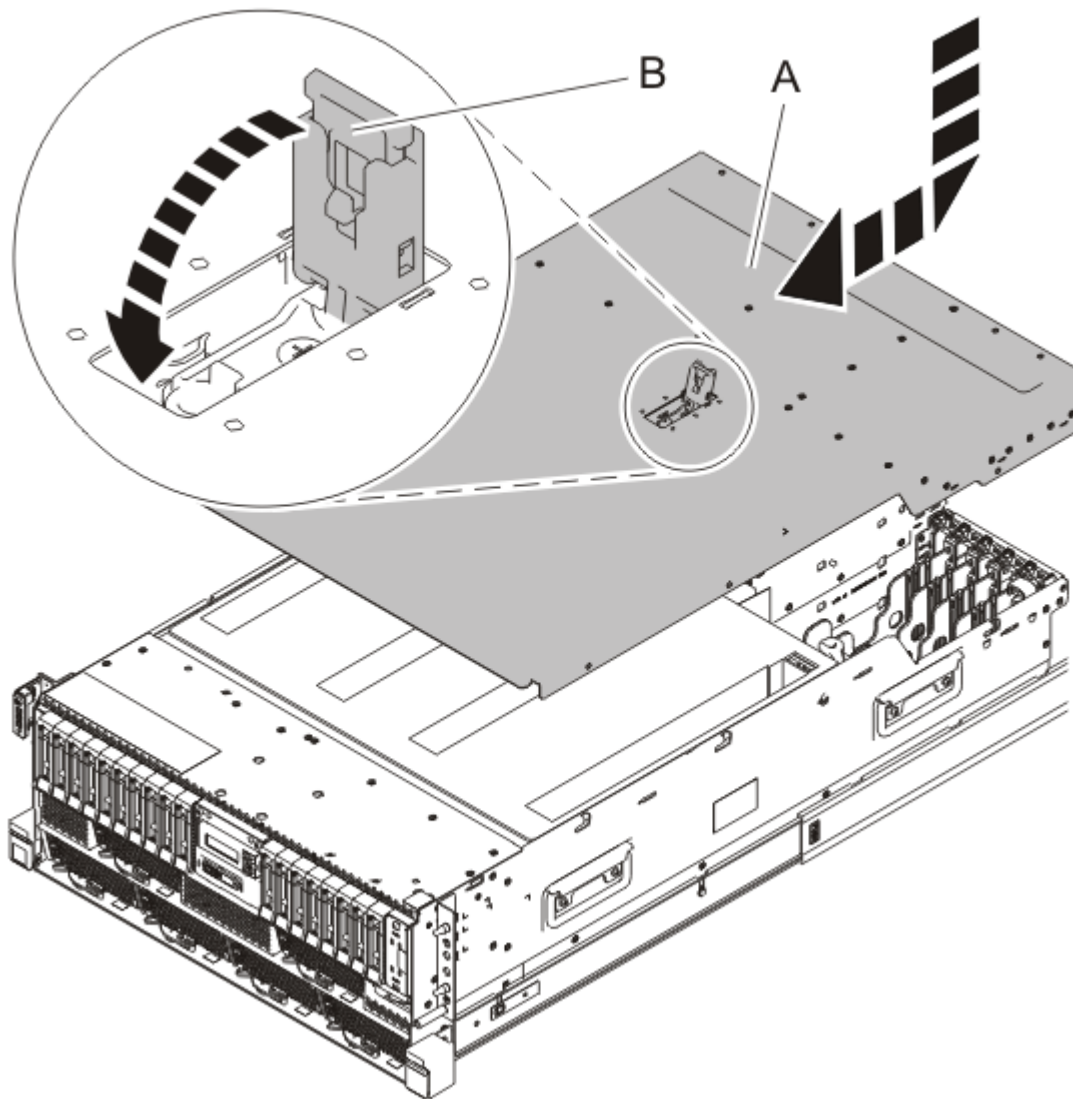
To prepare the system for operation after installing an internal RDX docking station, complete the steps in this procedure.

### 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. Replace the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 20](#) on page 24.

- a. Slide the cover **(A)** onto the system unit.
- b. Close the release latch **(B)** by pushing it in the direction shown.

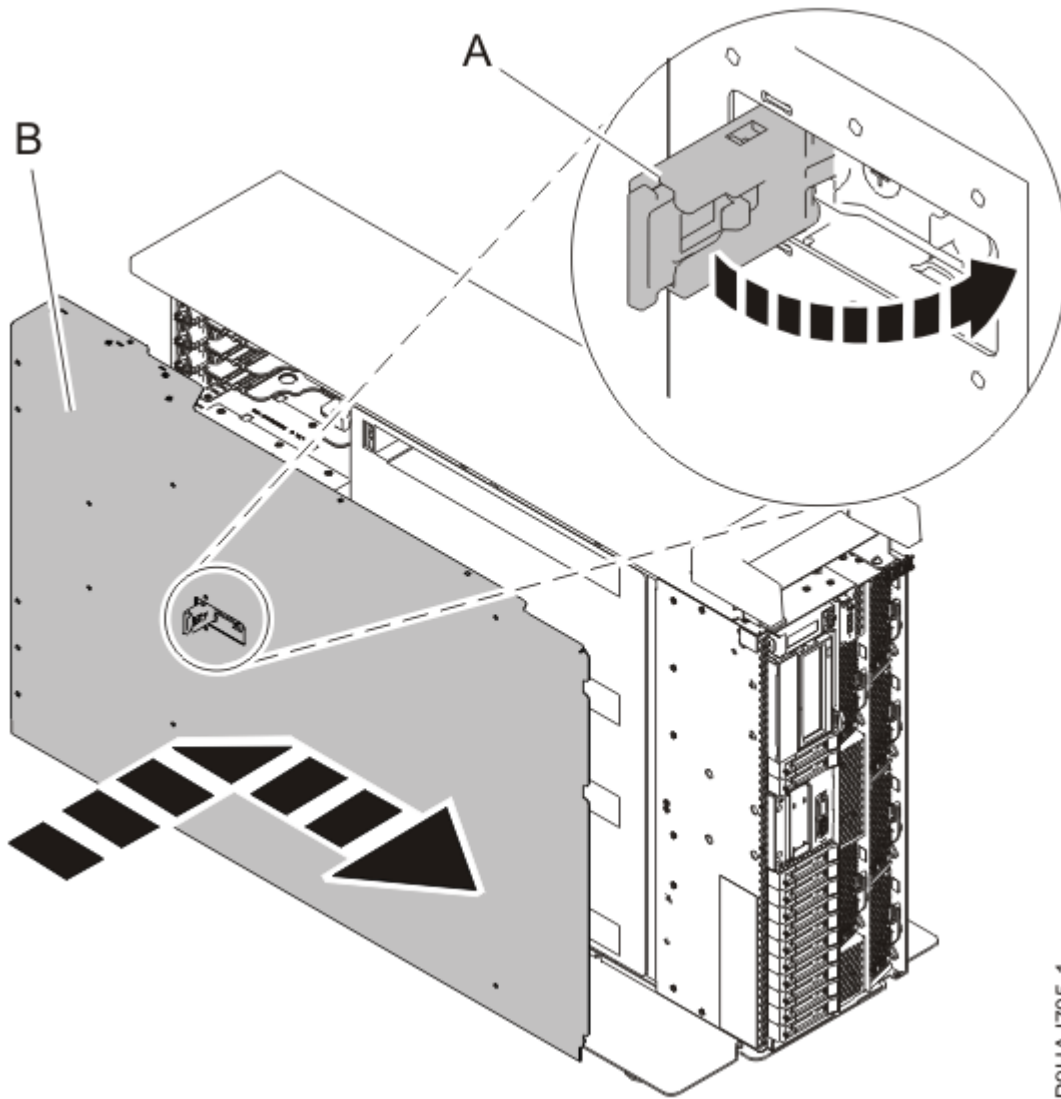


P9HAJ606-2

*Figure 20. Installing the service access cover*

For a stand-alone system, complete the following steps. Refer to [Figure 21 on page 25](#).

- a. Slide the cover (**B**) on to the system unit as shown.
- b. Close the latch release (**A**) by pushing it in the direction shown.

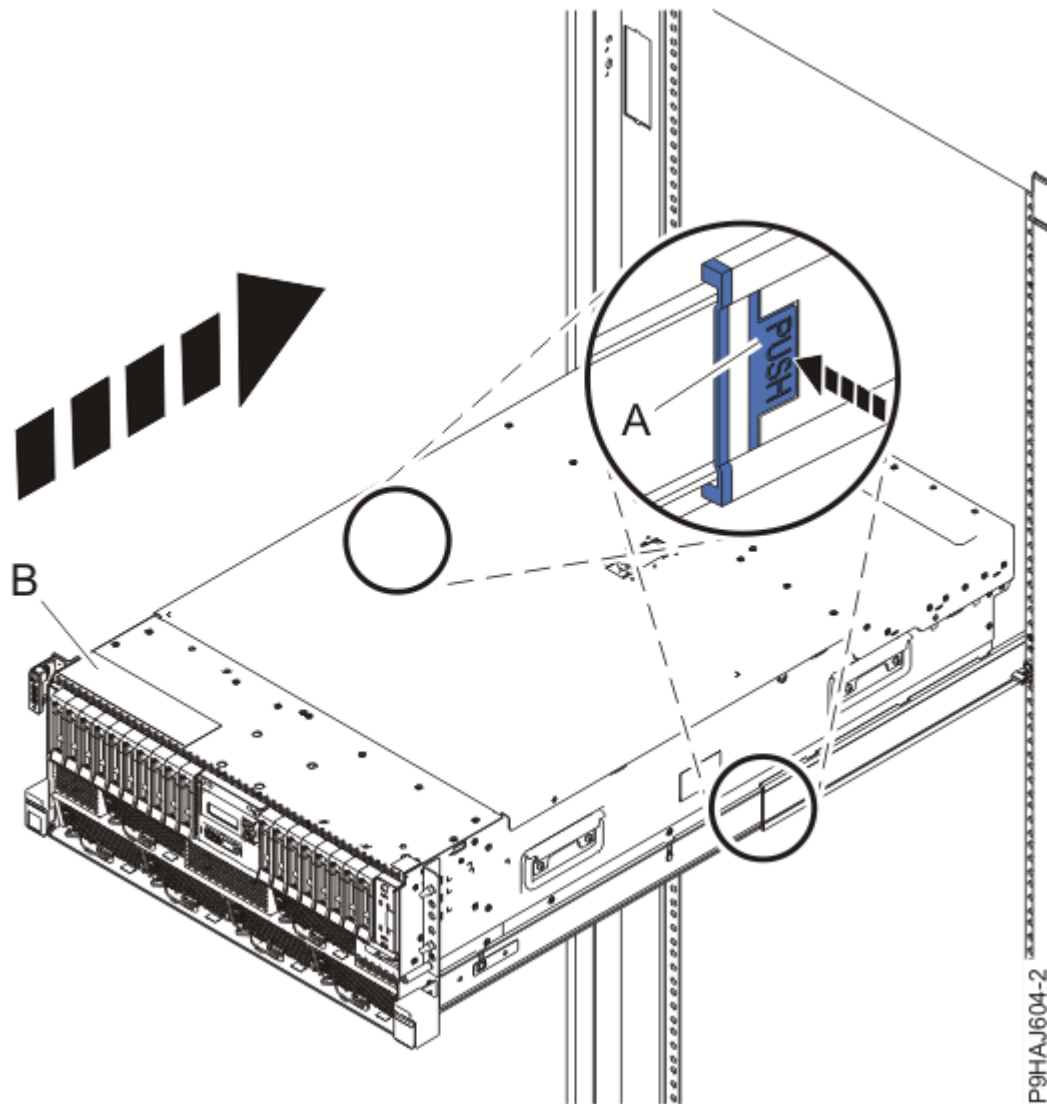


P9HAJ705-1

*Figure 21. Installing the service access cover*

3. For a rack-mounted system, unlock the blue rail safety latches (**A**) as shown in [Figure 22 on page 26](#) 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 22. Placing the system into the operating position*

4. For a rack-mounted system, push the system unit (**B**) as shown in the previous figure back into the rack until both release latches lock the system 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.

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

Fasten the power cords (**A**) to the system using the hook-and-loop fasteners (**B**) as shown in [Figure 23](#) on page 27 or [Figure 24](#) on page 28.



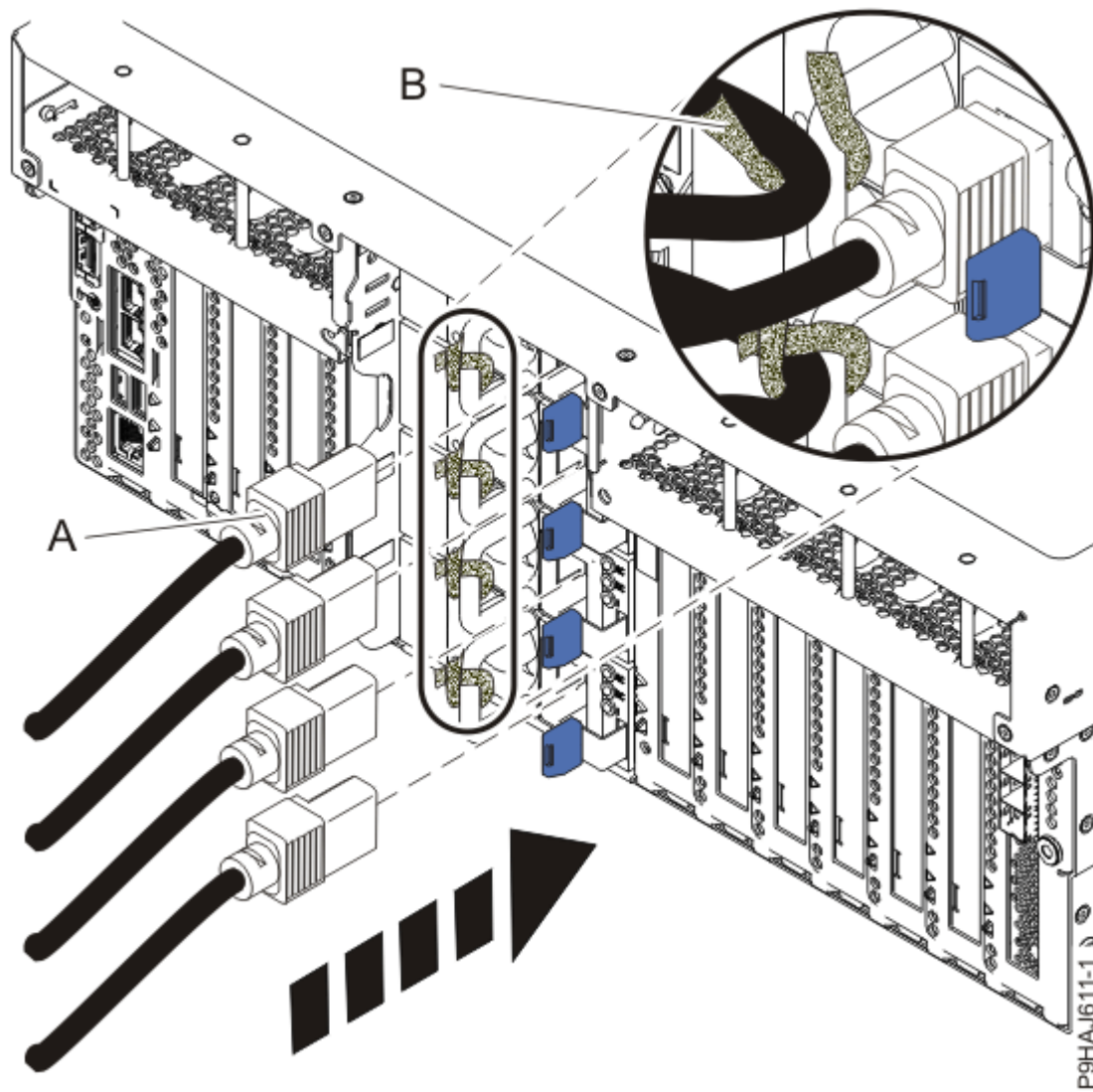
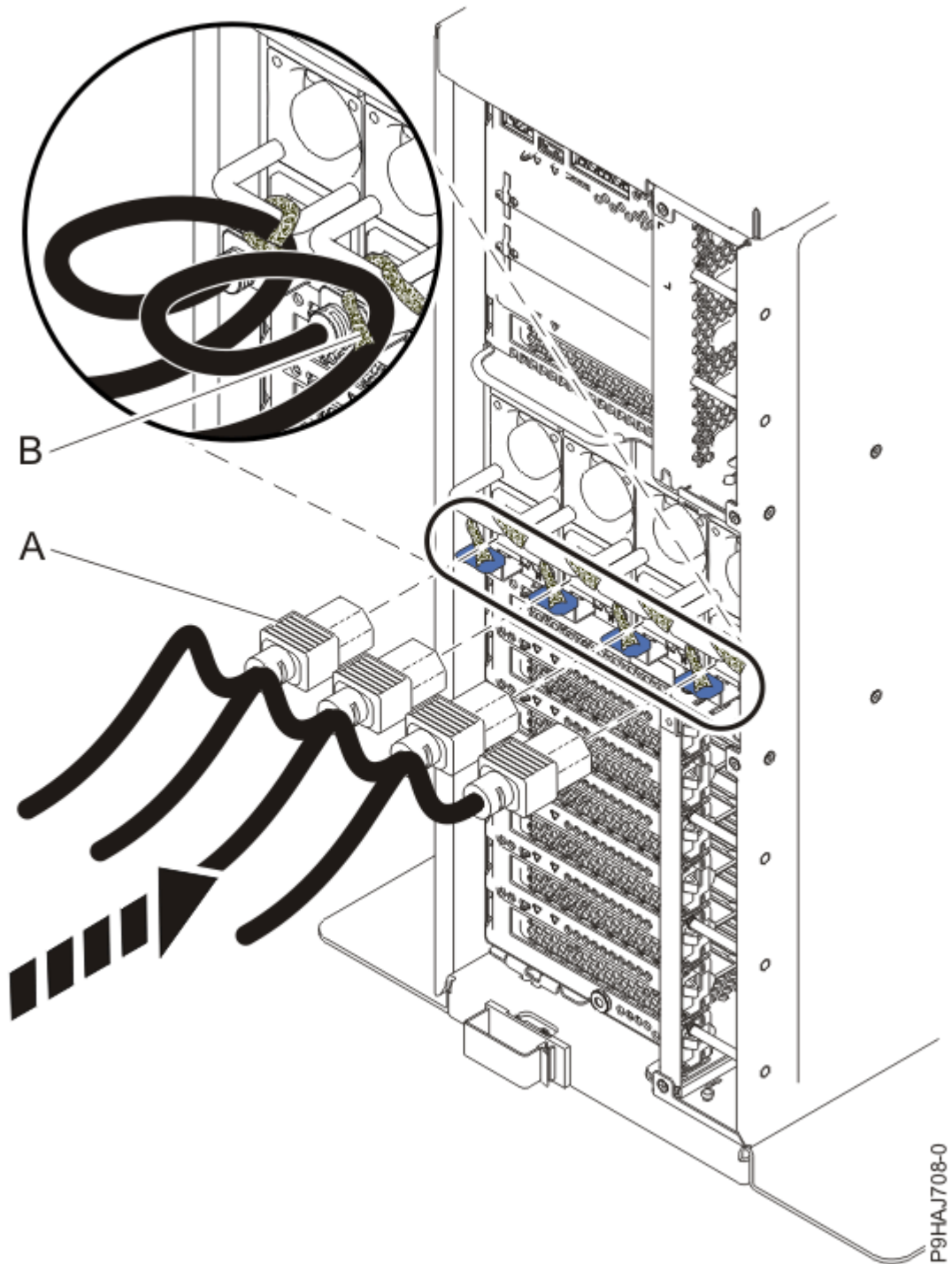


Figure 23. Connecting the power cords to a rack-mounted system



*Figure 24. Connecting the power cords to a stand-alone system*

6. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm)).
7. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm)).

## Removing and replacing an internal RDX docking station, power cable, and removable disk drive in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

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Find information about removing and replacing an internal RDX docking station, power cable, and removable disk drive.

### About this task

**Note:** Installing 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 your system is not managed by an HMC, complete the steps in the following procedures to remove and replace an internal RDX docking station, power cable, and removable disk drive.

## Removing and replacing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

Find information about removing and replacing an internal RDX docking station.

### About this task

**Note:** Installing 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 your system is not managed by an HMC, complete the steps in the following procedures to remove and replace an internal RDX docking station.

## Preparing the system to remove and replace an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To prepare the system to remove and replace an internal RDX docking station, 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 25 on page 30](#) or [Figure 26 on page 31](#).

#### 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.

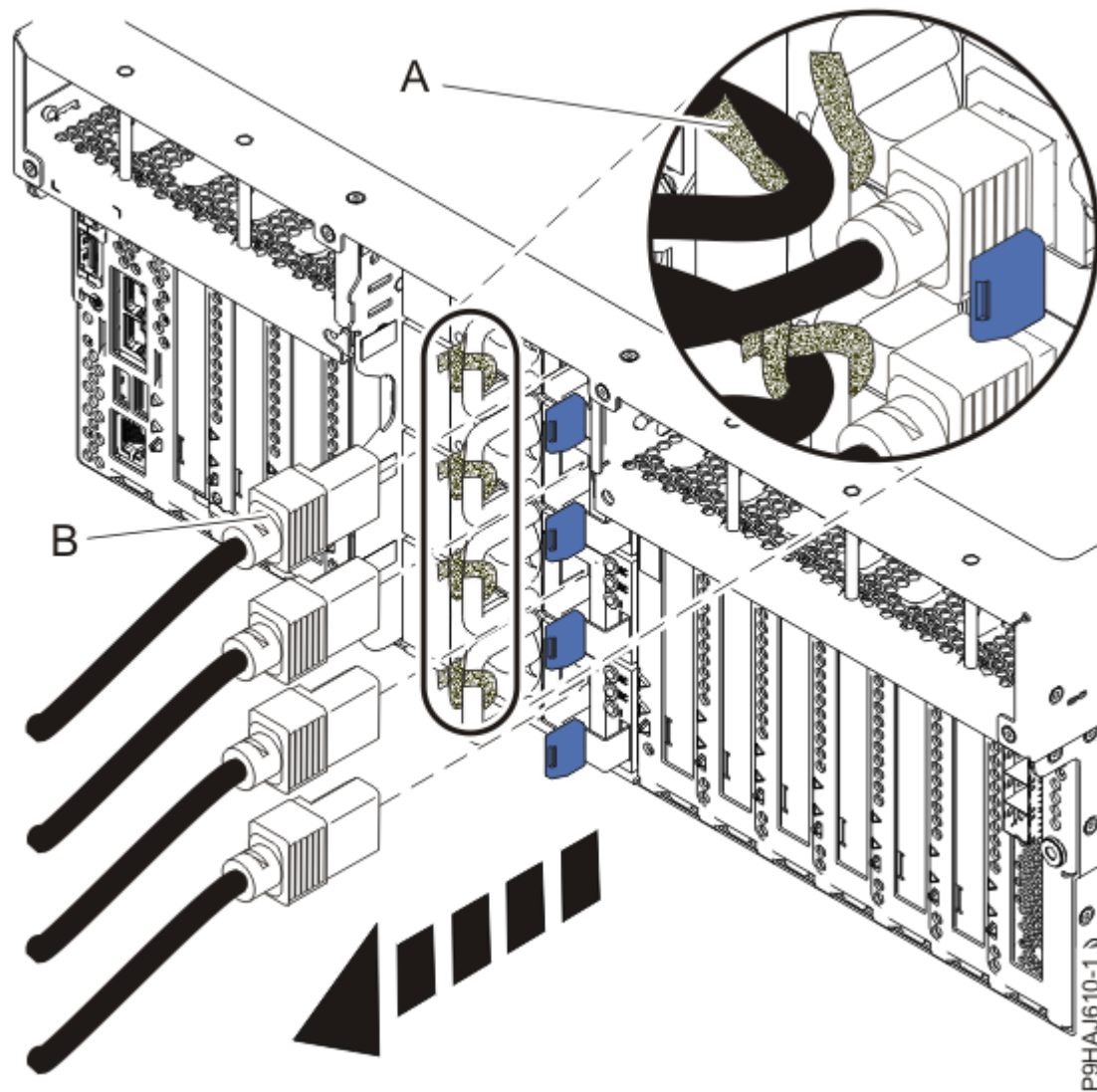


Figure 25. Removing the power cords from a rack-mounted server

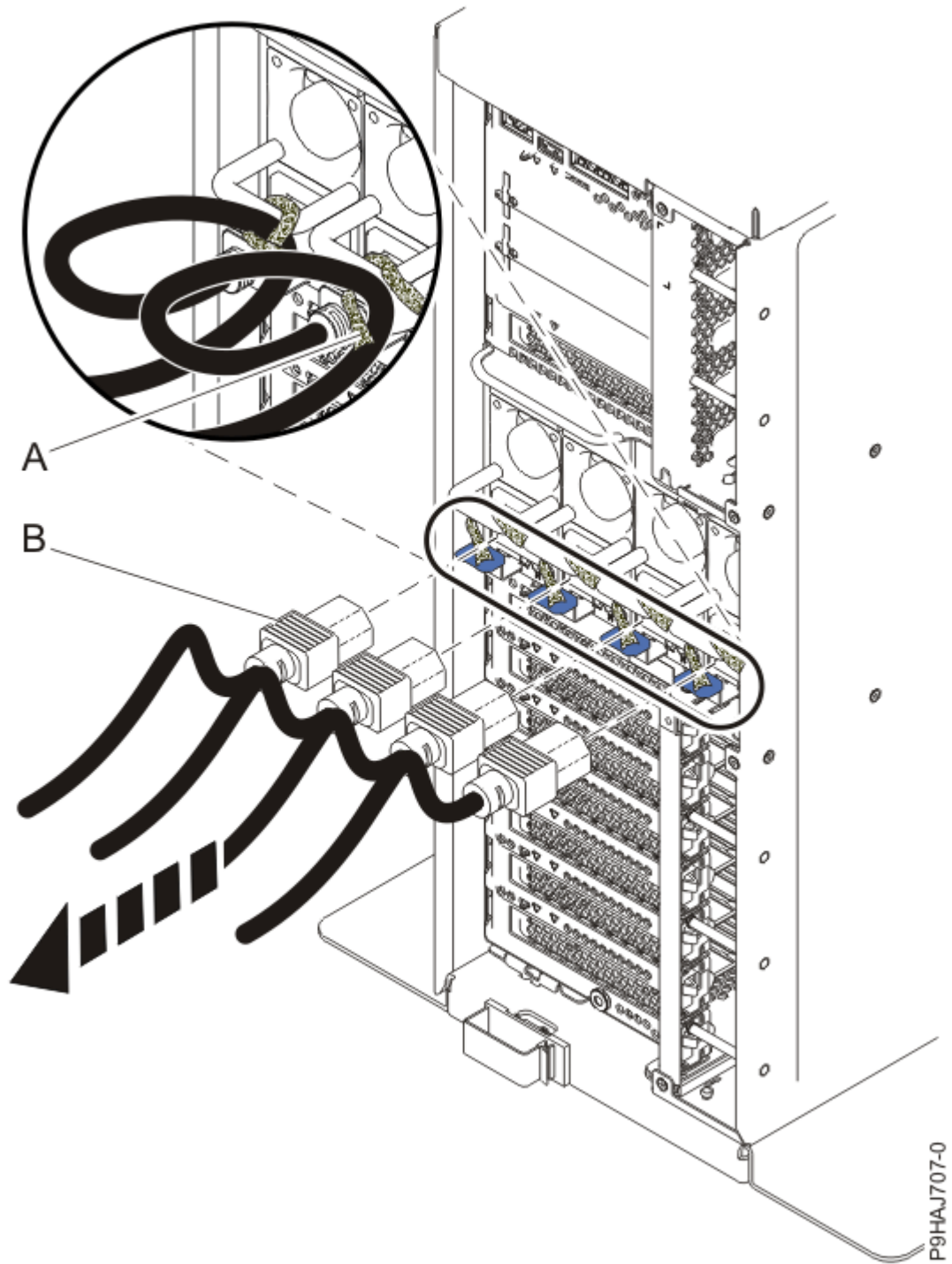
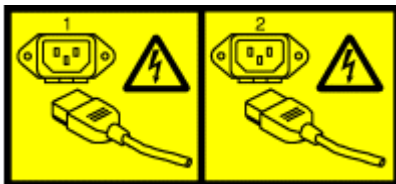


Figure 26. Removing the power cords from a stand-alone server

(L003)



or



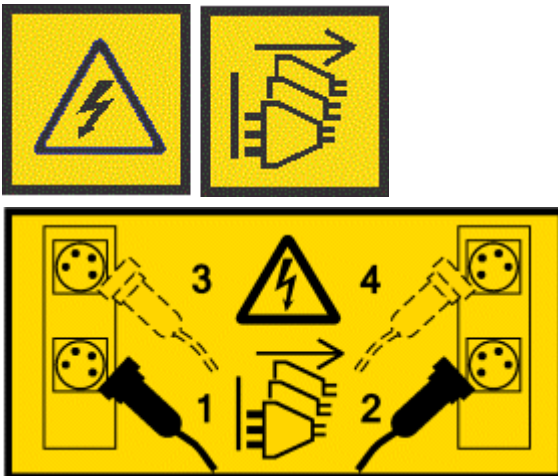
or

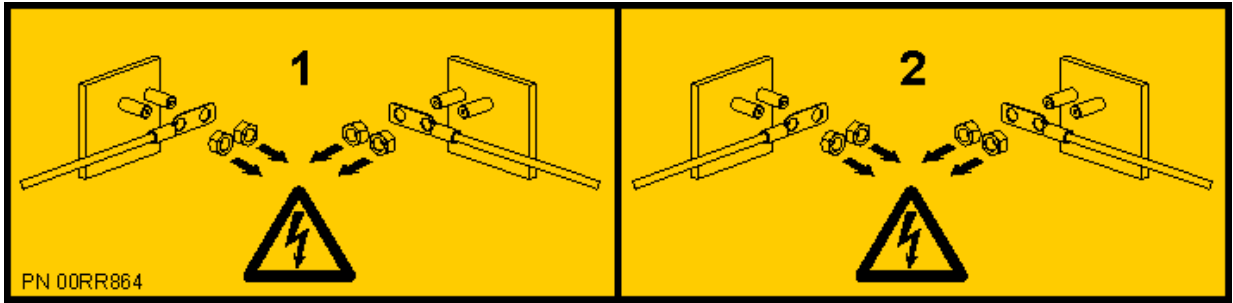


or



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. For a rack-mounted system, 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.

See the following figure.

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.



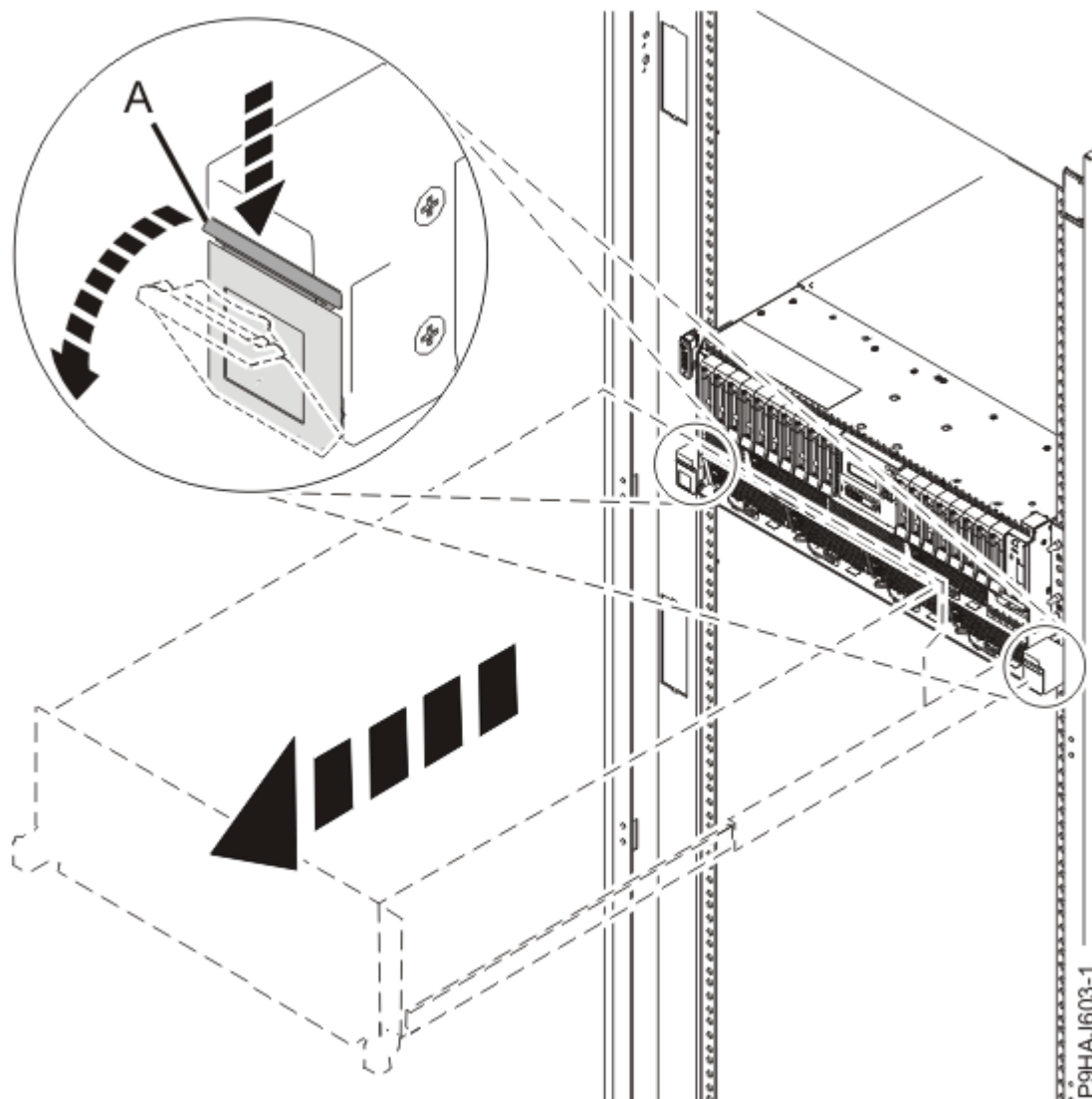


Figure 27. Releasing the side latches

5. Attach the electrostatic discharge (ESD) wrist strap.

The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.




**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. If at any point in this service process you move away from the system, it is important to again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.

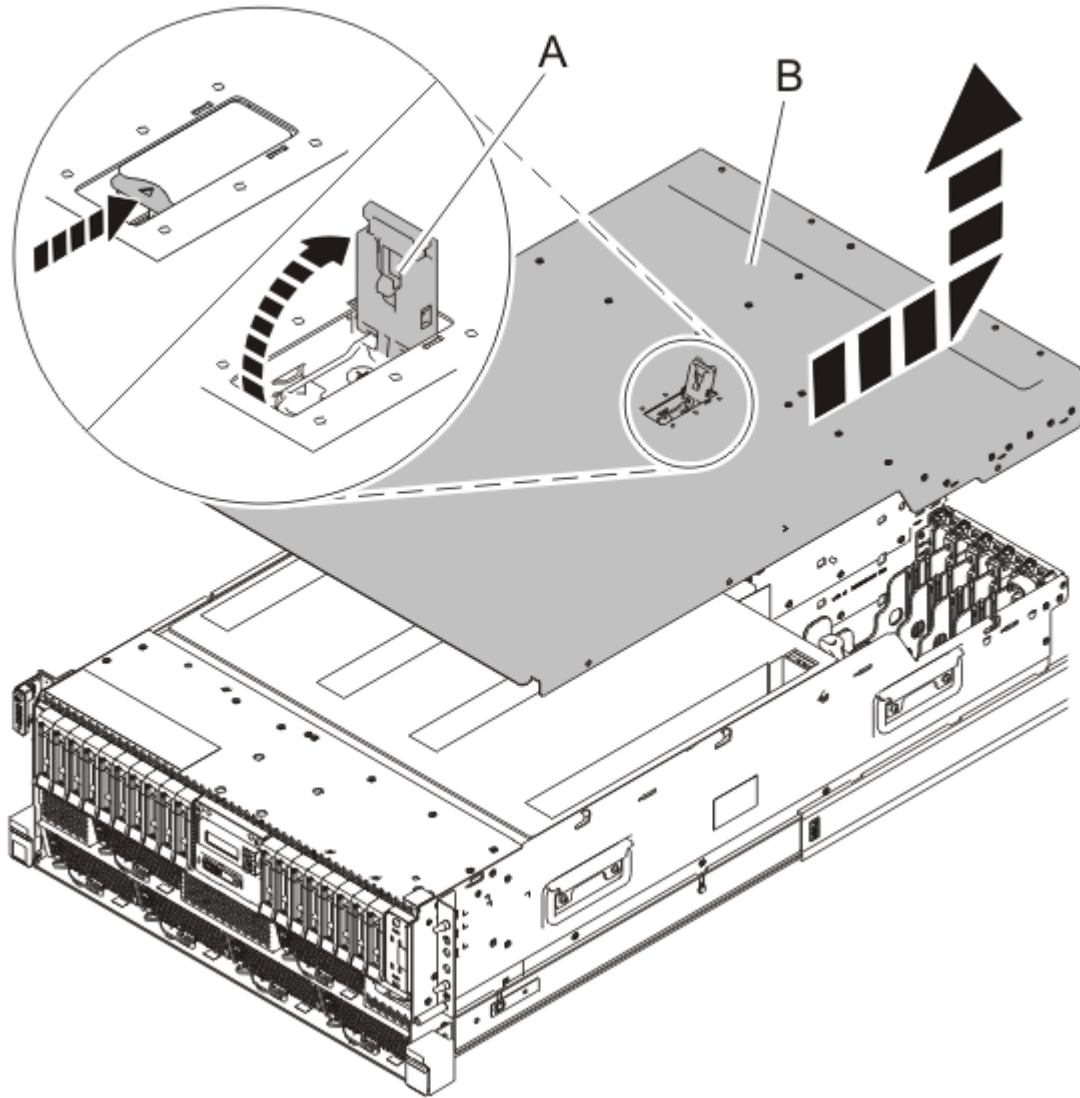
6. Remove the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 28](#) on page 35.



 **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.


- a. Release the service cover latch by pushing the release latch **(A)** in the direction shown.
- b. 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.



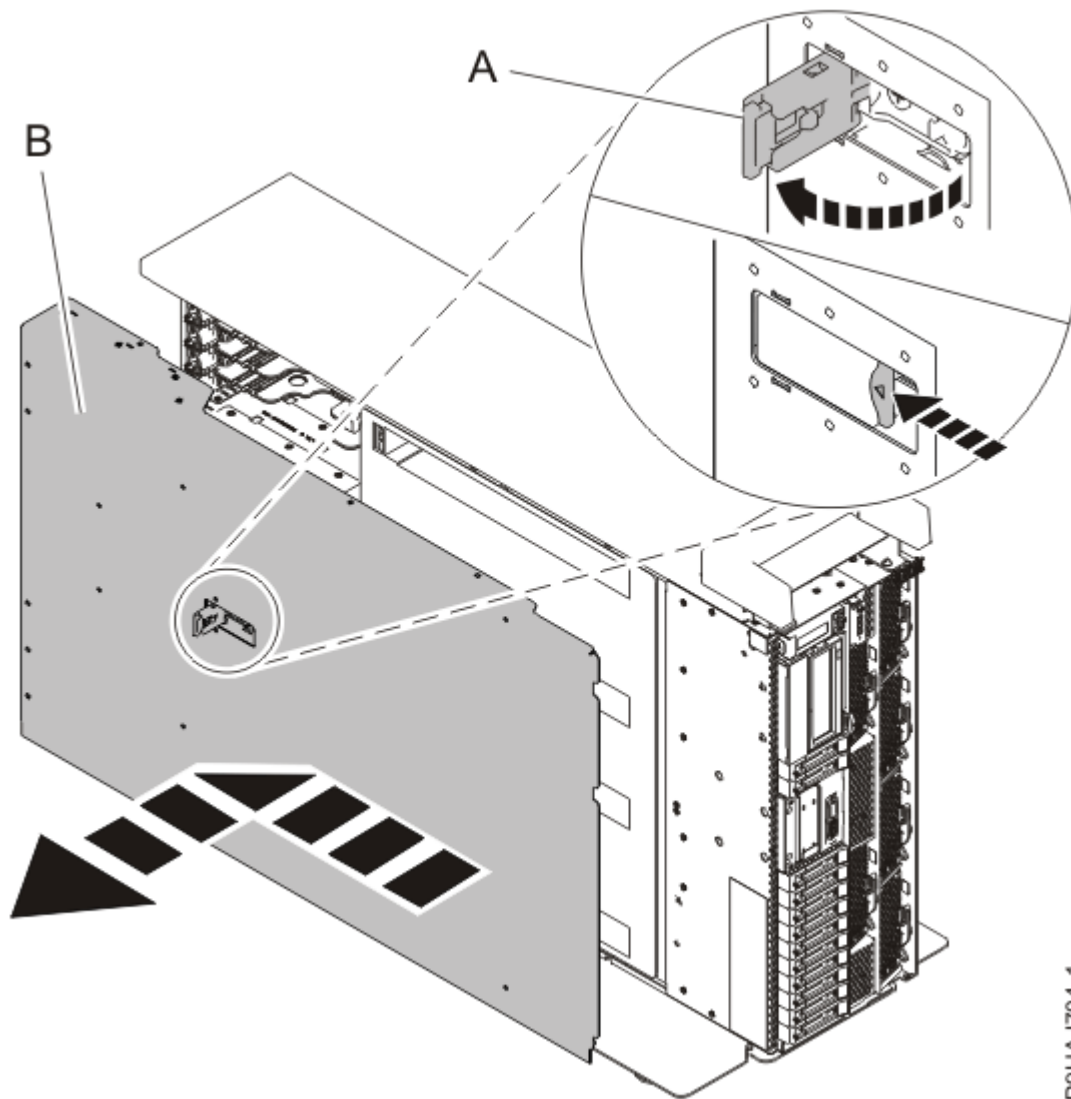
P9HAJ605-2

Figure 28. Removing the service access cover from a rack-mounted system

For a stand-alone system, complete the following steps. Refer to [Figure 29](#) on page 36.

 **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.

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



P9HAJ704-1

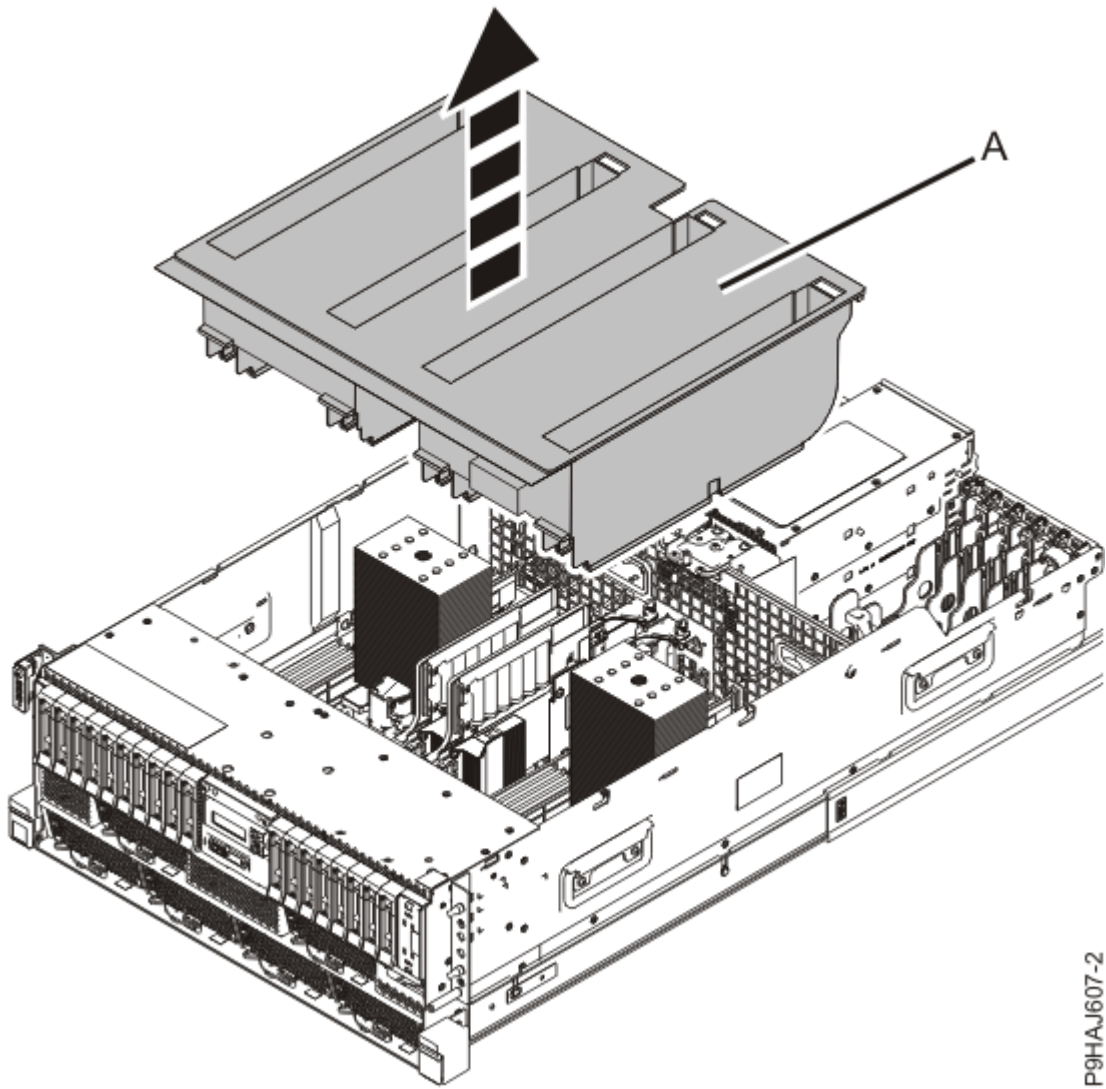
Figure 29. Removing the service access cover

### Removing an internal RDX docking station from the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To remove an internal RDX docking station from the system, complete the steps in this procedure.

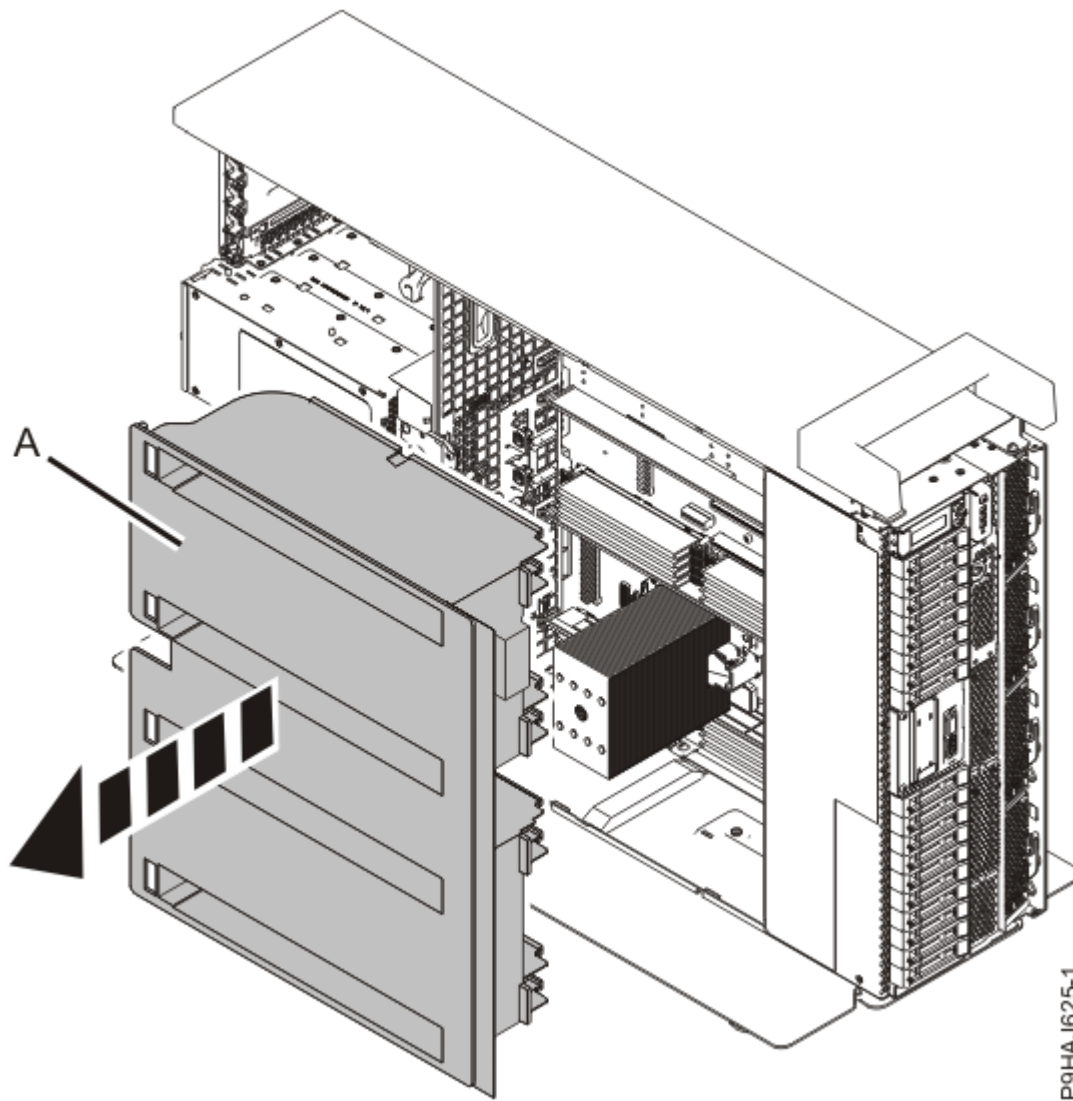
#### Procedure

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. For a rack-mounted system, lift the air baffle (A) straight up as shown in [Figure 30 on page 37](#).  
For a stand-alone system, remove the air baffle (A) straight out as shown in [Figure 31 on page 38](#).  
Place the air baffle upside down on a clean area.



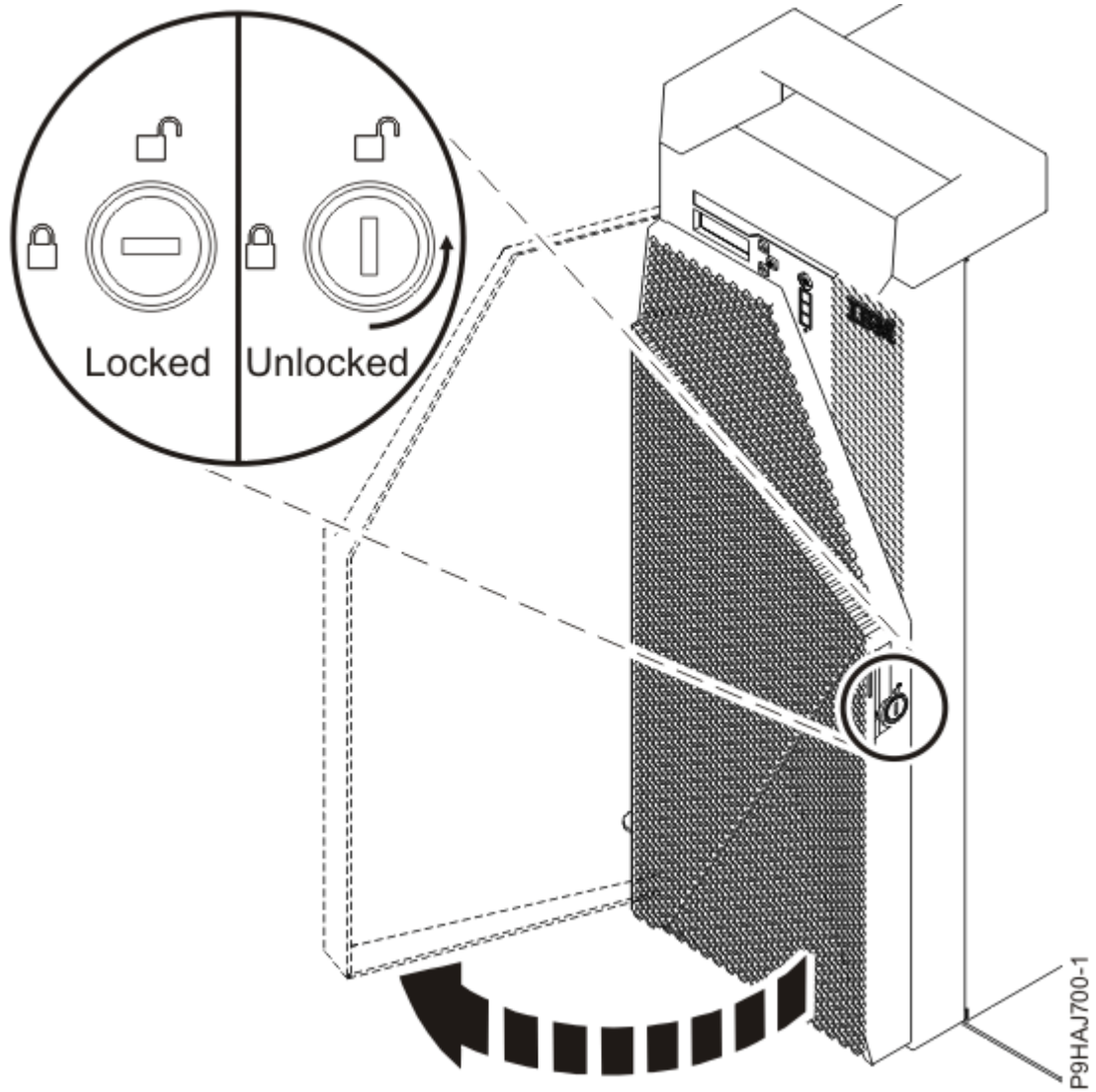
P9HAJ607-2

Figure 30. Removing the air baffle from a rack-mounted system



*Figure 31. Removing the air baffle from a stand-alone system*

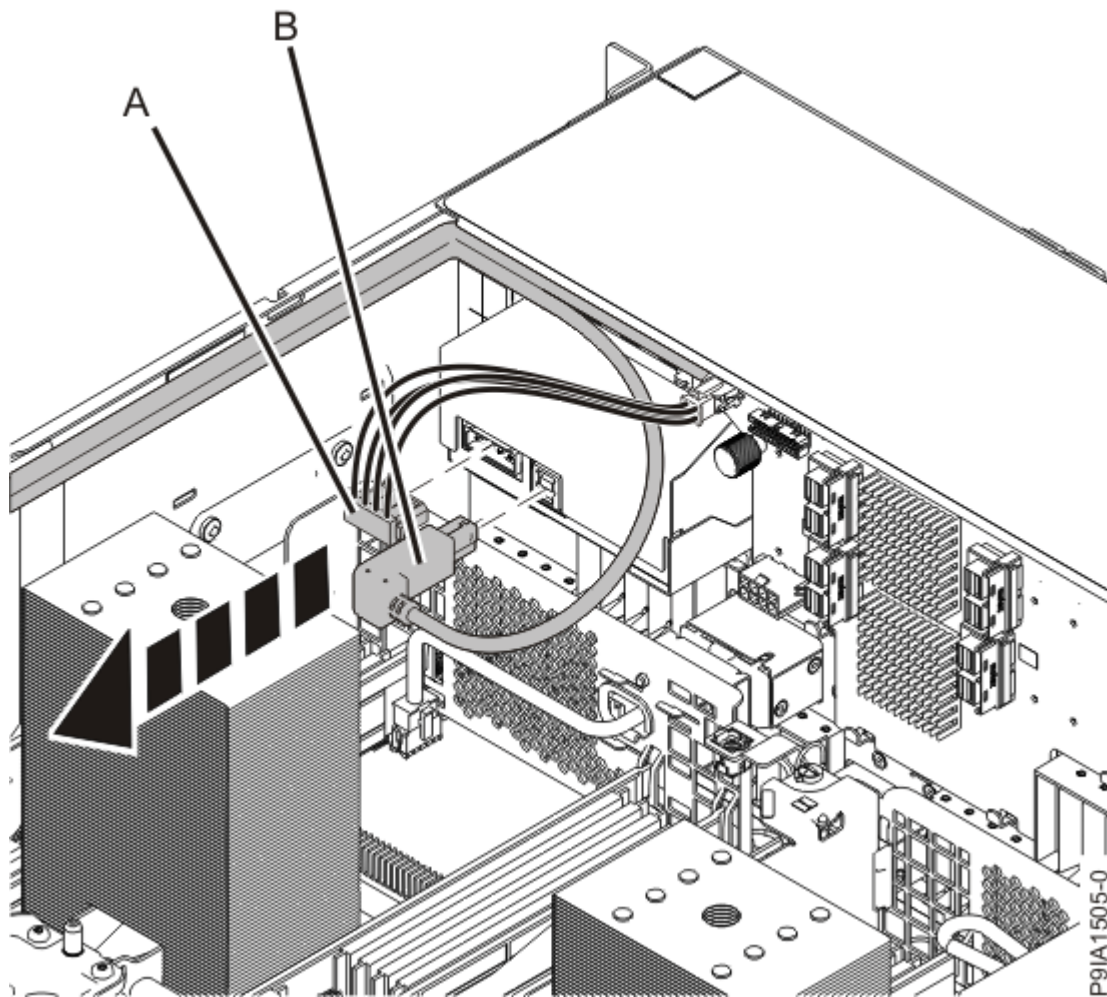
3. For a stand-alone system, open the front door by inserting the front door key into the lock as shown. Twist the key to the left (counterclockwise) to unlock the door. Horizontal is locked; vertical is unlocked.



*Figure 32. Unlocking the front door*

4. Disconnect the internal RDX docking station power and USB cable.

- a) Disconnect the internal RDX docking station power cable (**A**) from the rear of the docking station as shown in [Figure 33 on page 40](#).
- b) Disconnect the internal RDX docking station USB cable (**B**) from the rear of the docking station as shown in [Figure 33 on page 40](#).



*Figure 33. Disconnecting the internal RDX docking station power and USB cables*

5. Remove the internal RDX docking station.

- a) Push the blue tab on the internal RDX docking station latch upwards to release the internal RDX docking station as shown in [Figure 34 on page 41](#).
- b) Gently slide the internal RDX docking station and its latch out from the system. Remove the internal RDX docking station latch from the docking station in the direction of the arrow shown.

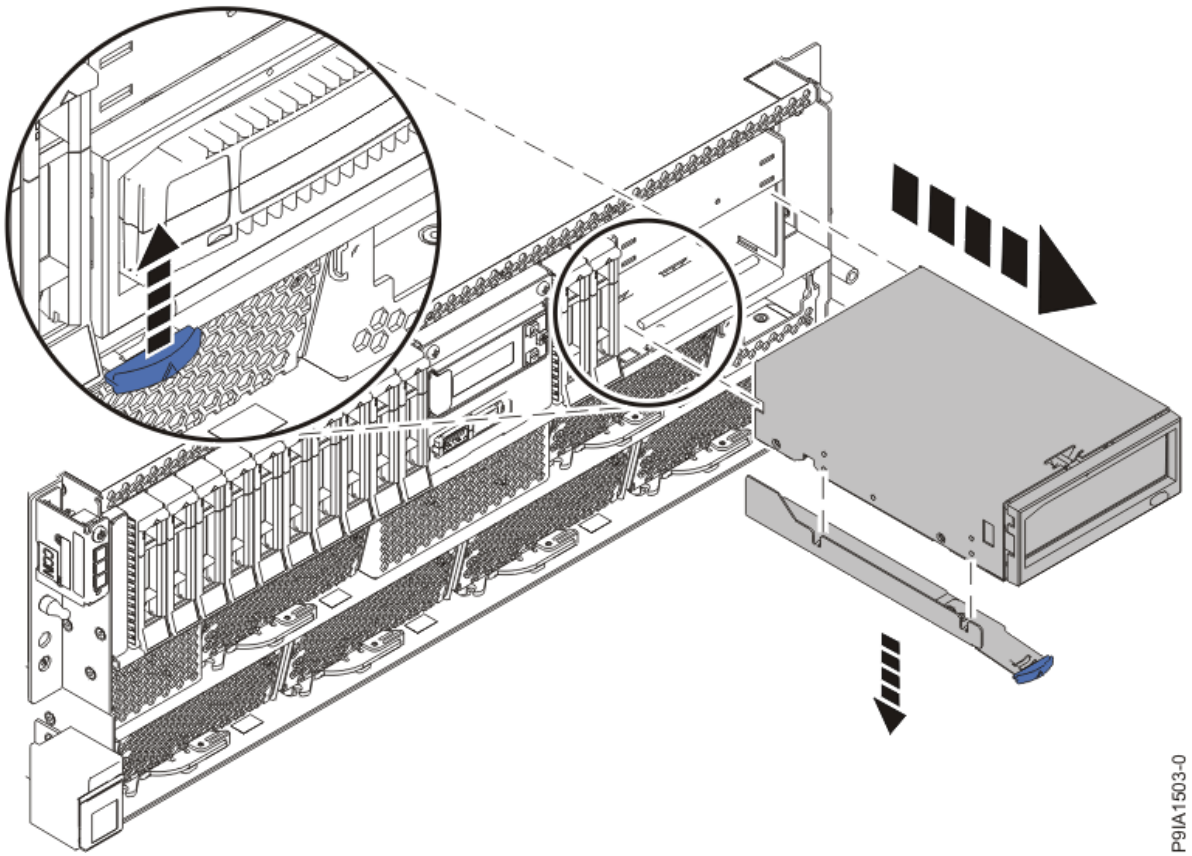


Figure 34. Removing the internal RDX docking station from a rack-mounted system

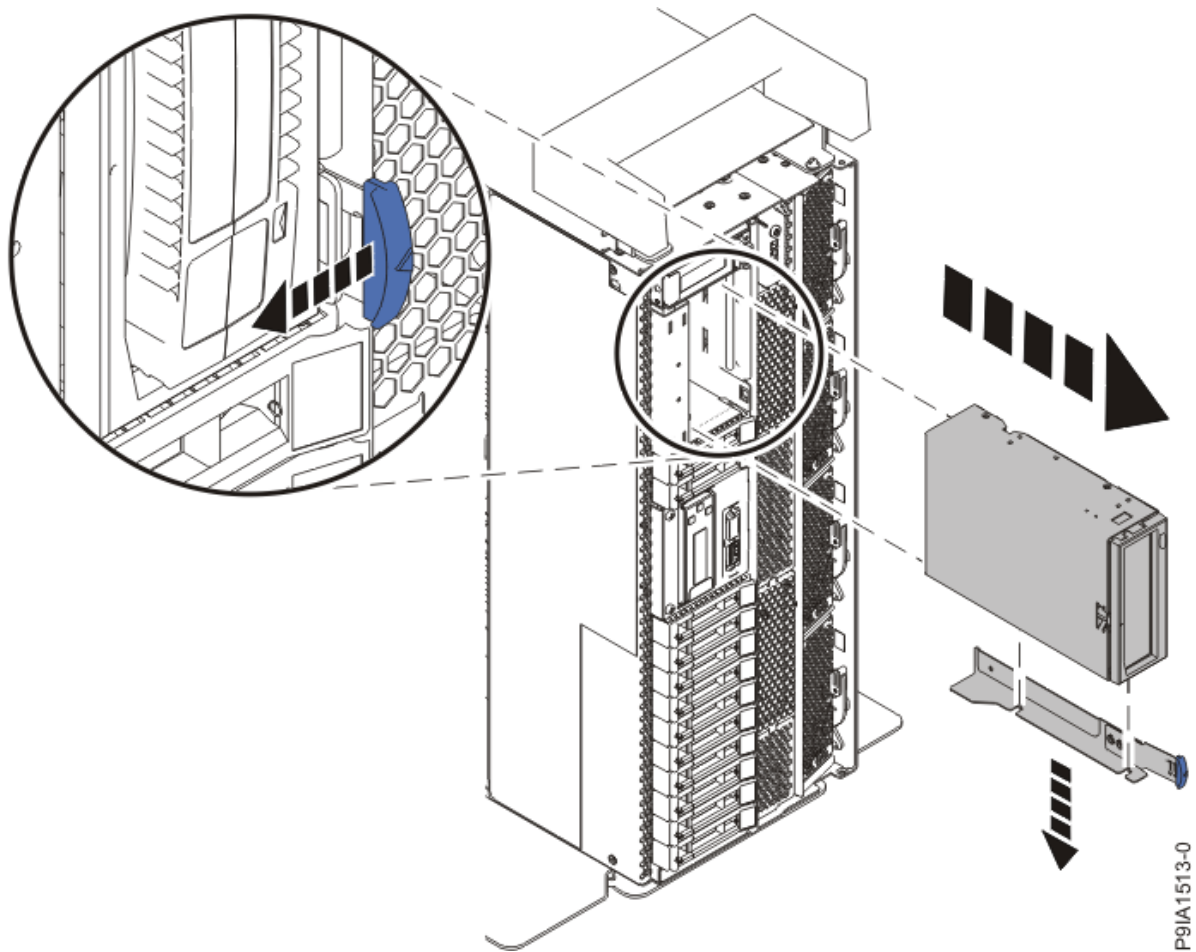


Figure 35. Removing the internal RDX docking station from a stand-alone system

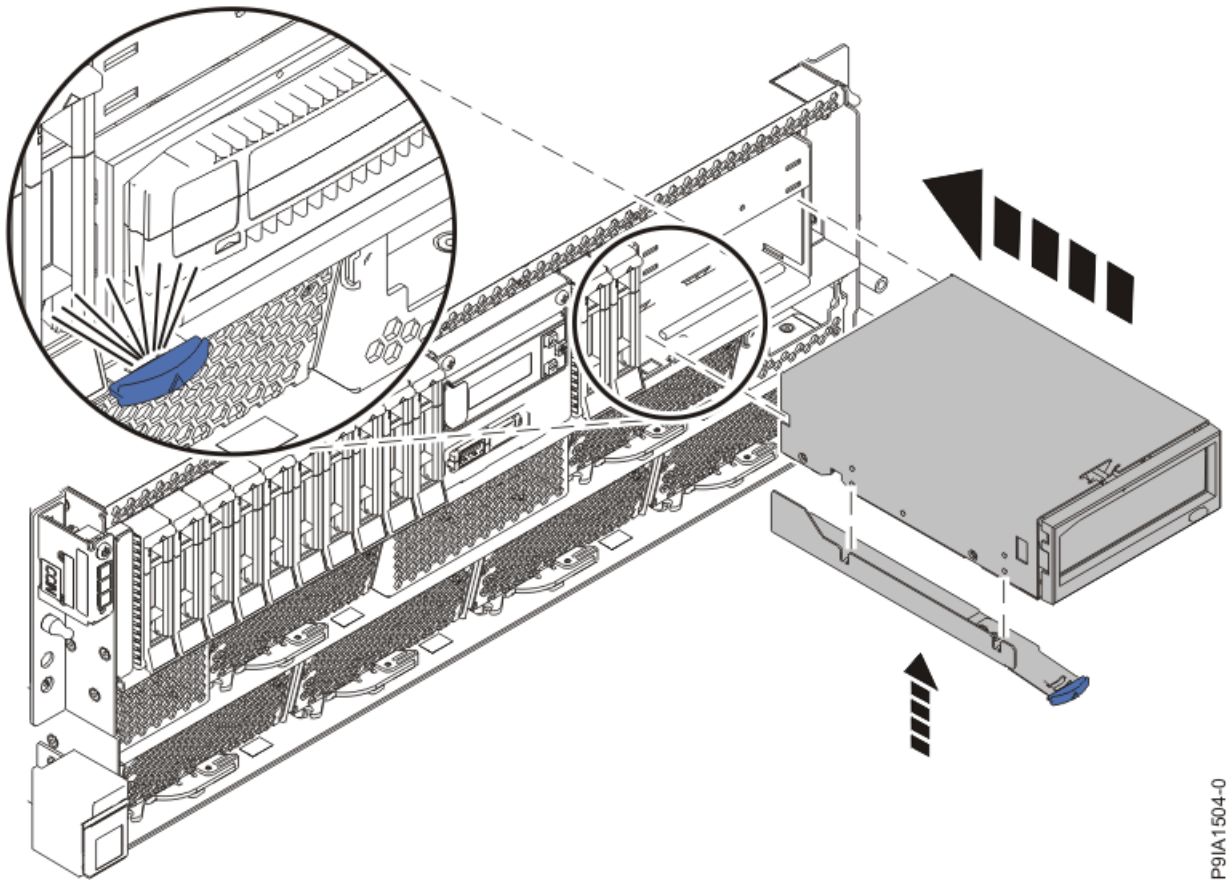
## Replacing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To replace an internal RDX docking station, complete the steps in this procedure.

### Procedure

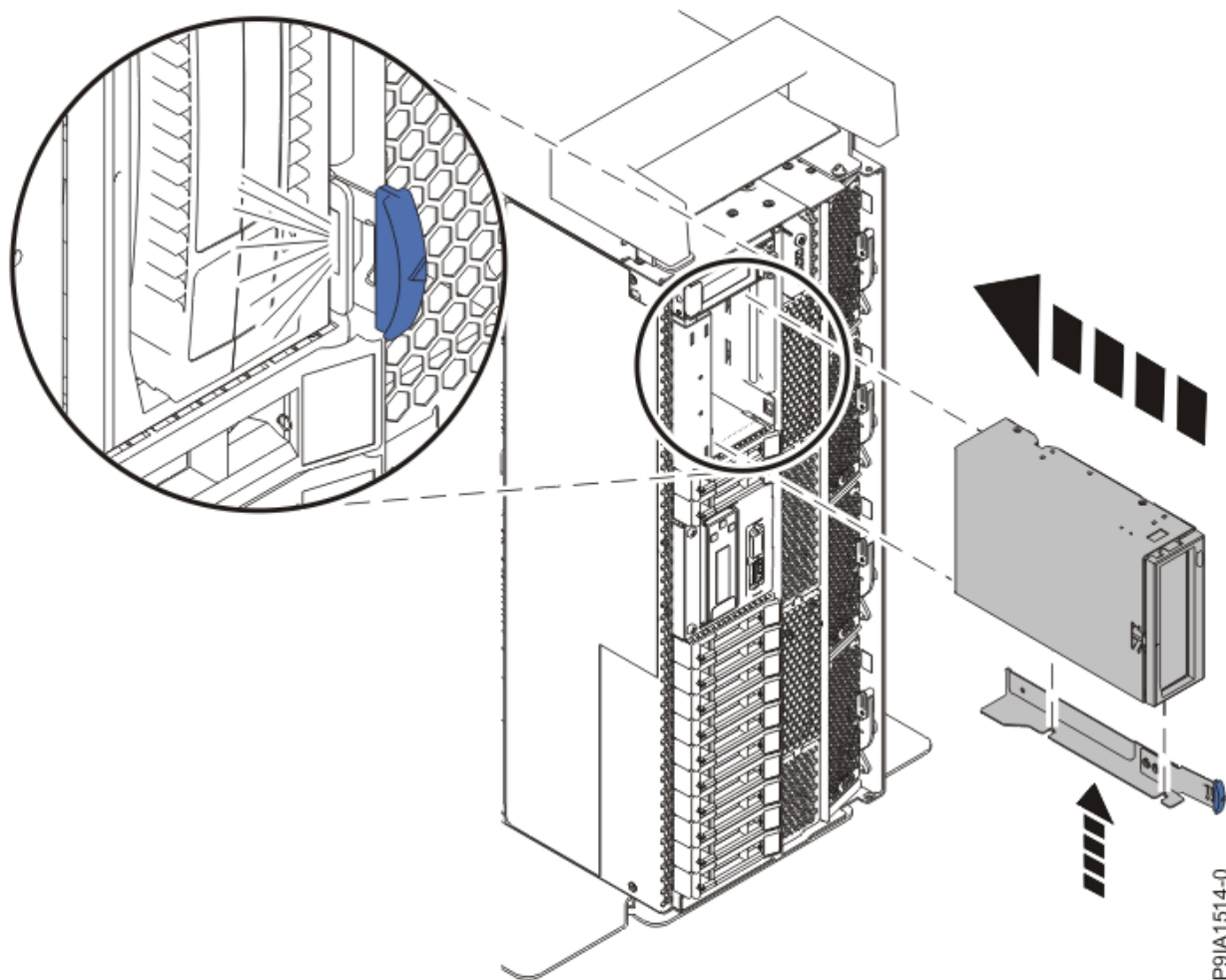
1. Ensure that you have the electrostatic discharge (ESD) wrist strap on and that the ESD clip is plugged into a ground jack or connected to an unpainted metal surface. If not, do so now.
2. Remove the internal RDX docking station from the static-protective package.
3. Locate the RDX Air Block, part number 01GY504 in the FRU kit. Remove the adhesive protective cover and apply the Air Block to the rear of the internal RDX docking station.
4. Align the internal RDX latch with the holes on the bottom of the internal RDX docking station.
5. Hold the internal RDX latch in place while sliding the internal RDX docking station into the system.
6. Slide the internal RDX docking station into the system until it locks into place as shown in [Figure 36](#) on [page 43](#).





P91A1504-0

Figure 36. Replacing the internal RDX docking station in a rack-mounted system



*Figure 37. Replacing the internal RDX docking station in a stand-alone system*

7. Connect the internal RDX docking station USB cable **(B)** to the rear of the new internal RDX docking station. Connect the internal RDX docking station power cable **(A)** to the rear of the new internal RDX docking station as shown in [Figure 38](#) on page 45.

If you reconnect the RDX power cable to the disk drive backplane, ensure that the latch **(C)** on the RDX power cable is oriented upwards for a rack-mounted system; and to the outside for a stand-alone system.

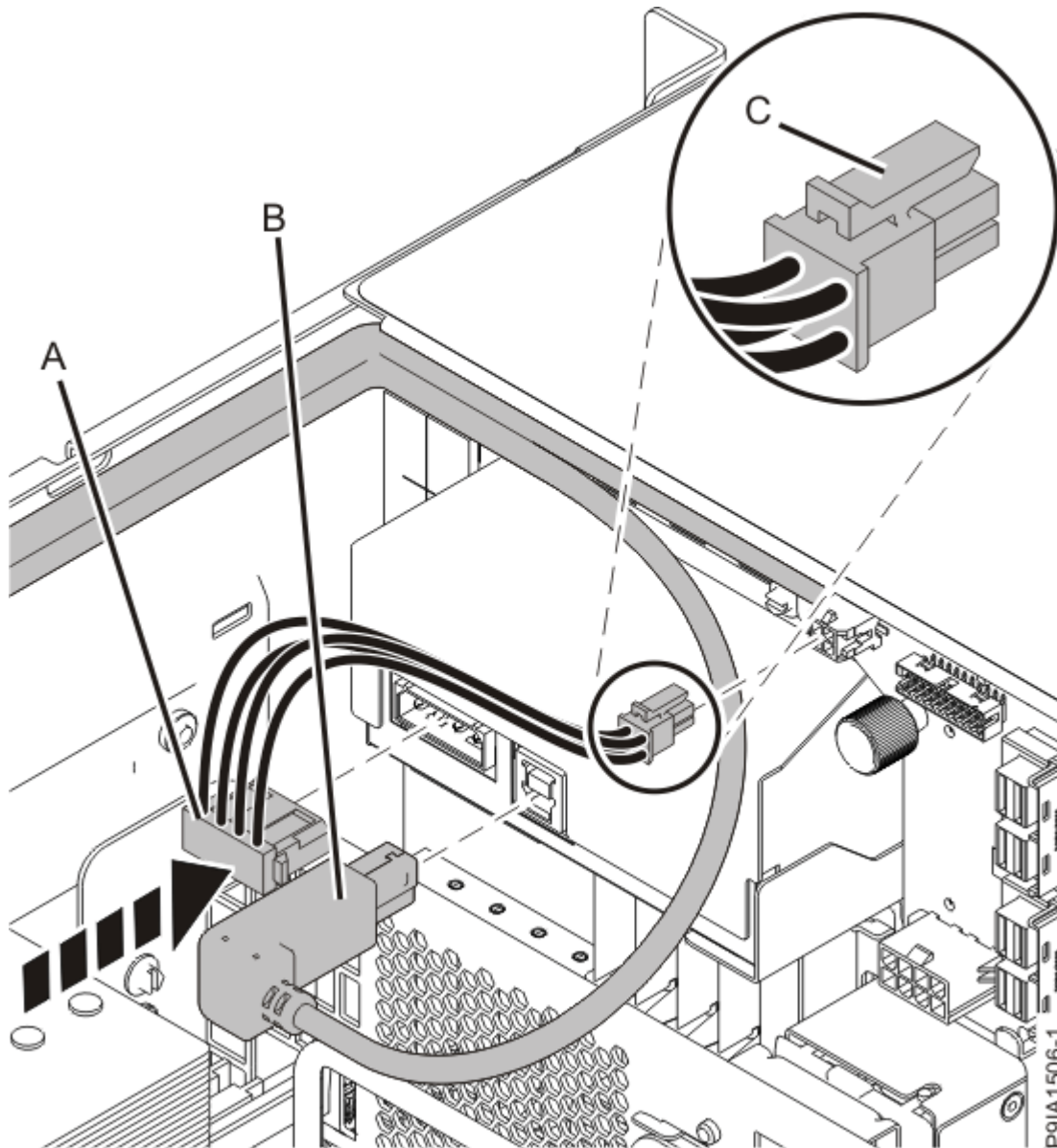
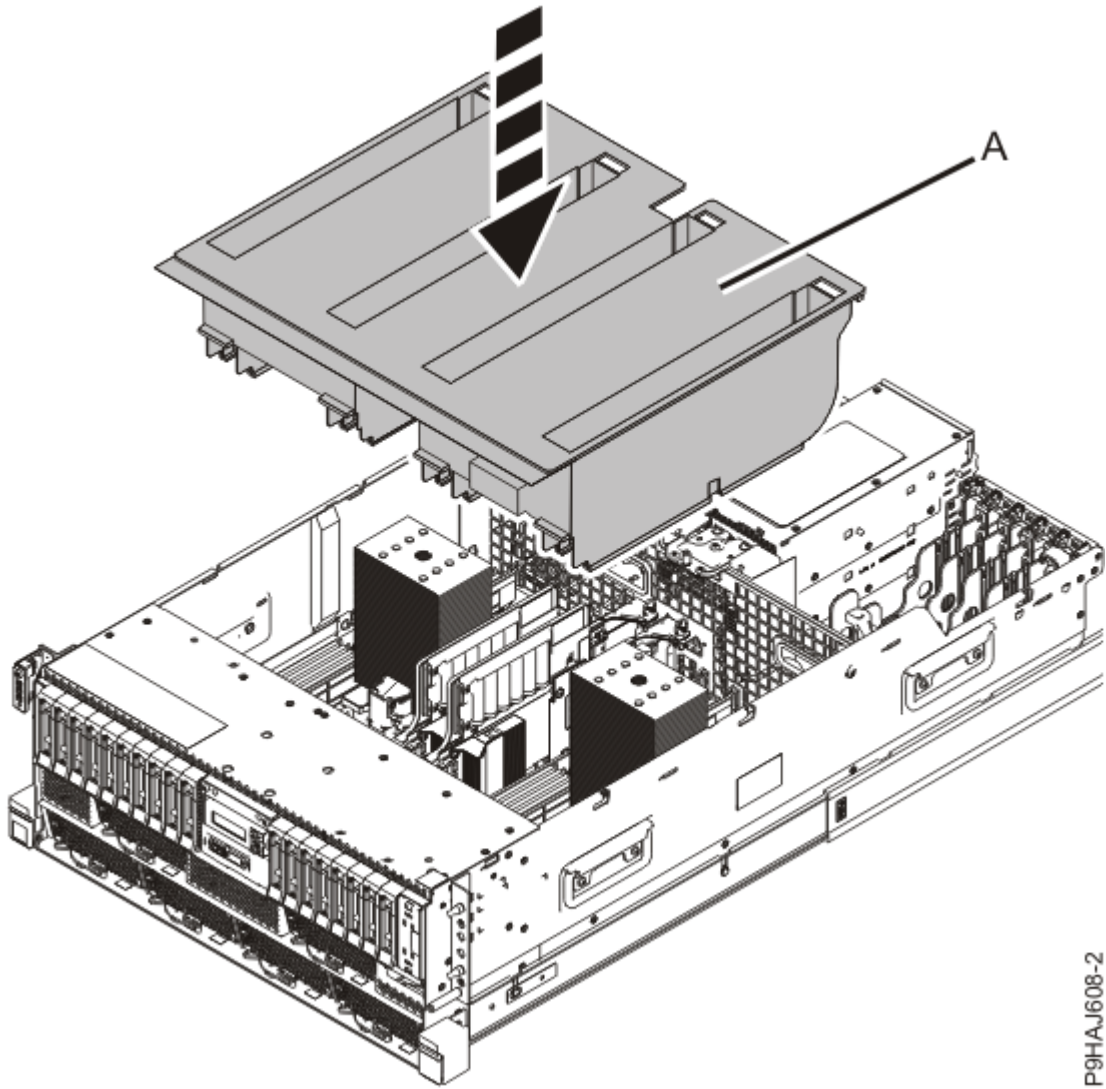


Figure 38. Connecting the internal RDX docking station power and USB cables

8. For a rack-mounted system, replace the air baffle **(A)** straight down into the chassis as shown in [Figure 39](#) on page 46.

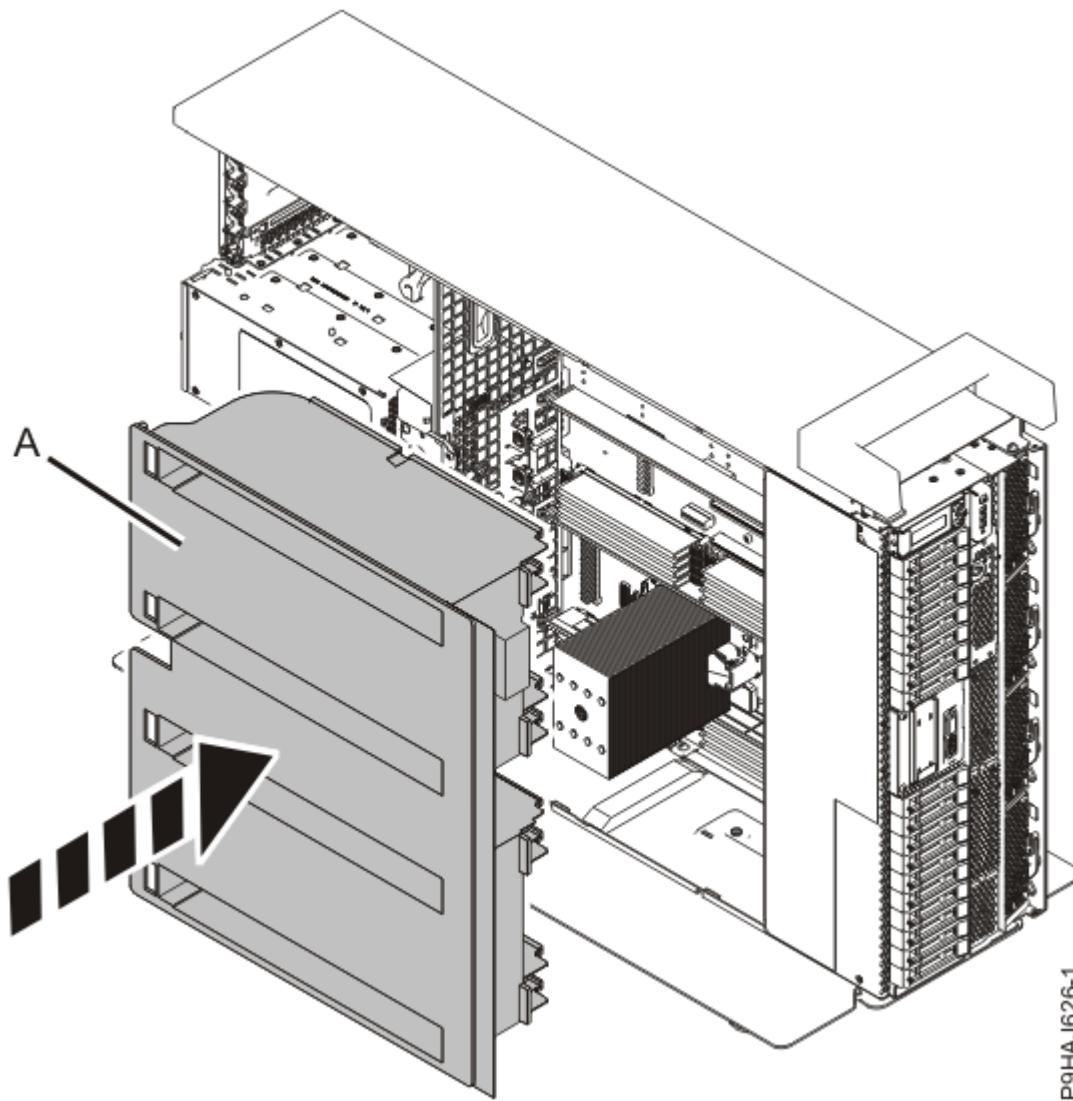
For a stand-alone system, replace the air baffle **(A)** straight into the side of the chassis as shown in [Figure 40](#) on page 47.

Ensure that the front flap tucks under the front chassis.



P9HAJ608-2

Figure 39. Replacing the air baffle in a rack-mounted system



*Figure 40. Replacing the air baffle in a stand-alone system*

9. For a stand-alone system, close the front door. Insert the front door key into the lock as shown in [Figure 41](#) on page 48. Twist the key to the right (clockwise) to lock the door. Horizontal is locked; vertical is unlocked.

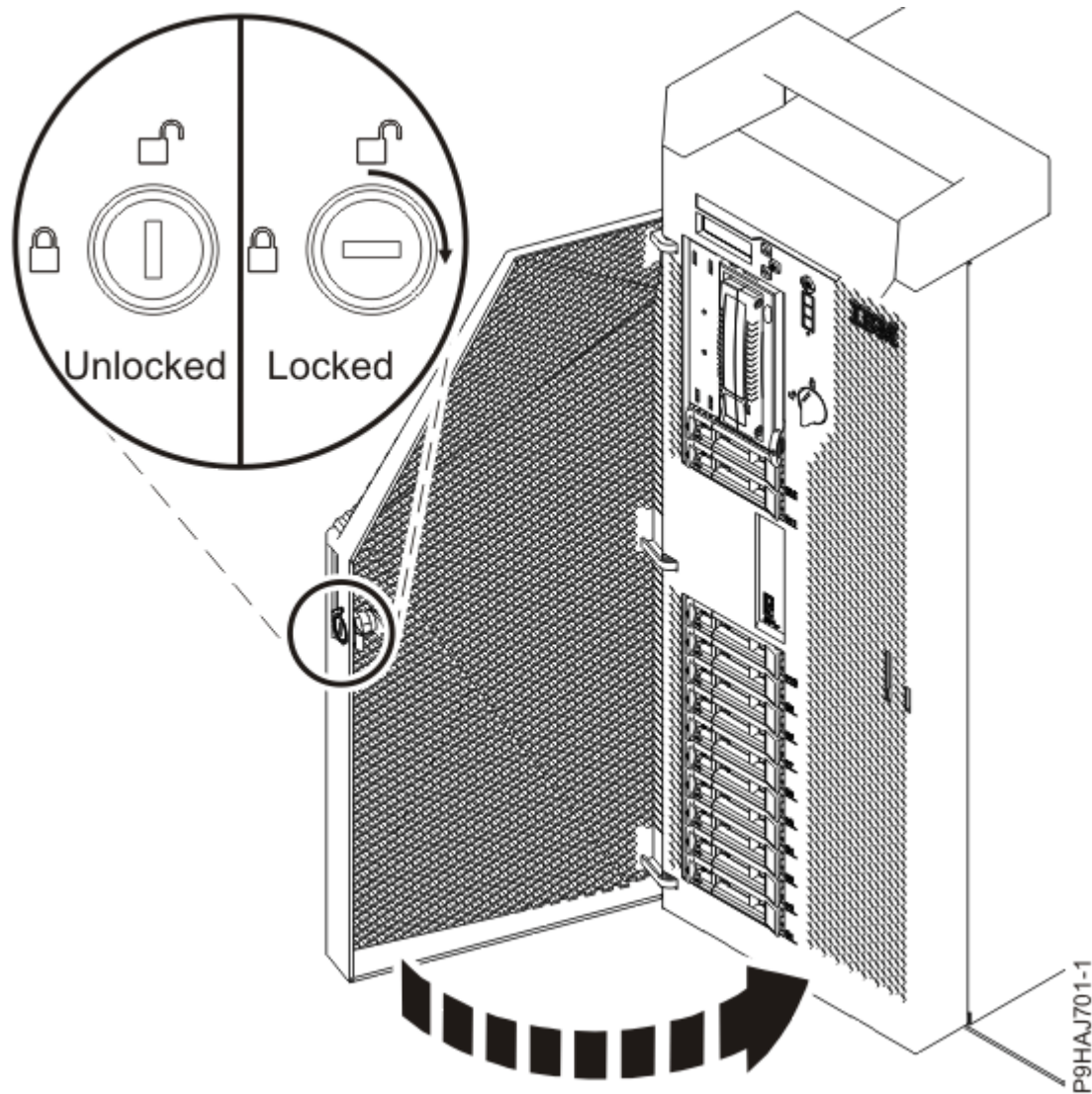


Figure 41. Locking the front door

### Preparing the system for operation after removing and replacing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

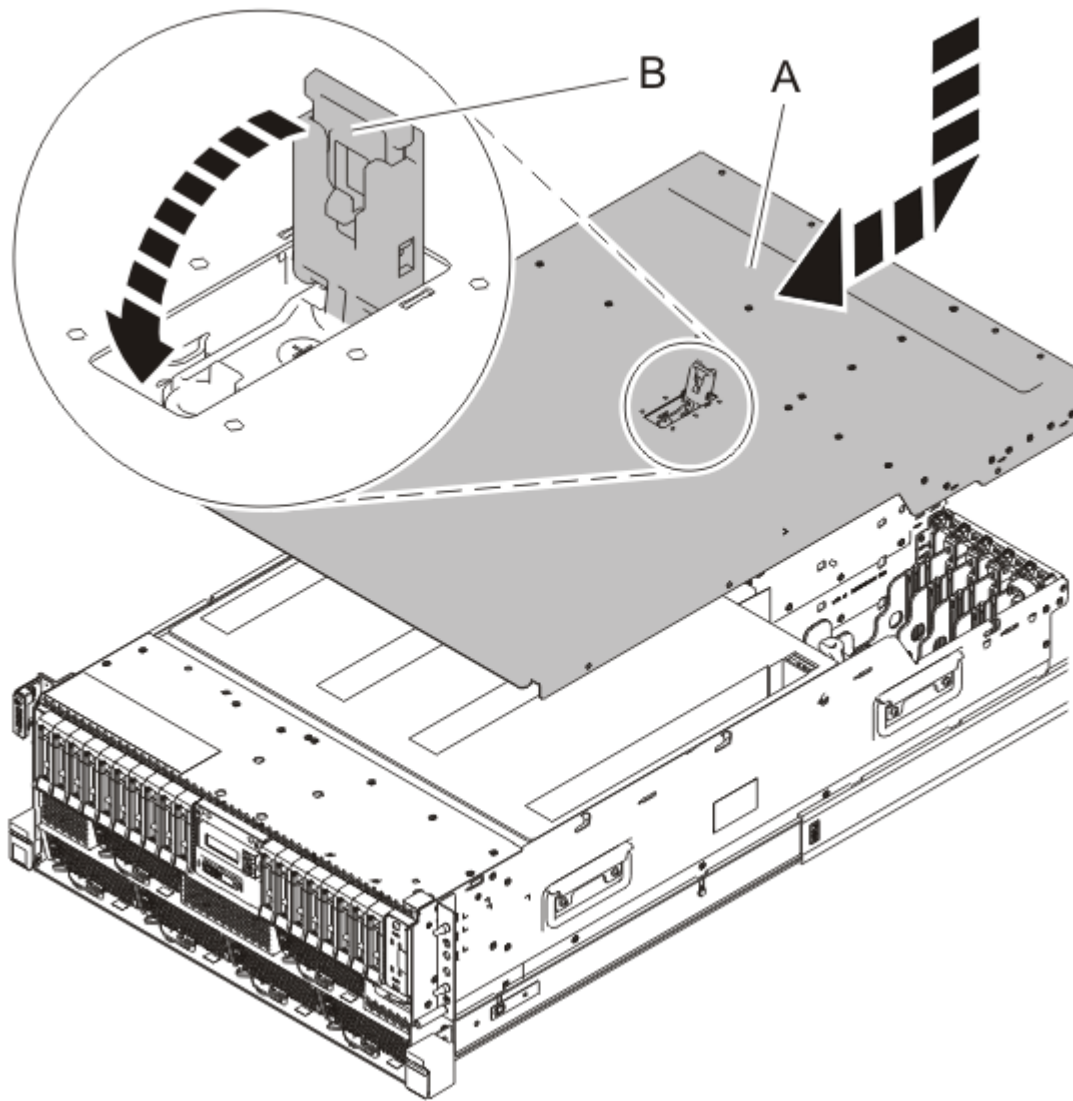
To prepare the system for operation after removing and replacing an internal RDX docking station, complete the steps in this procedure.

#### 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. Replace the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 42](#) on page 49.

- a. Slide the cover **(A)** onto the system unit.
- b. Close the release latch **(B)** by pushing it in the direction shown.

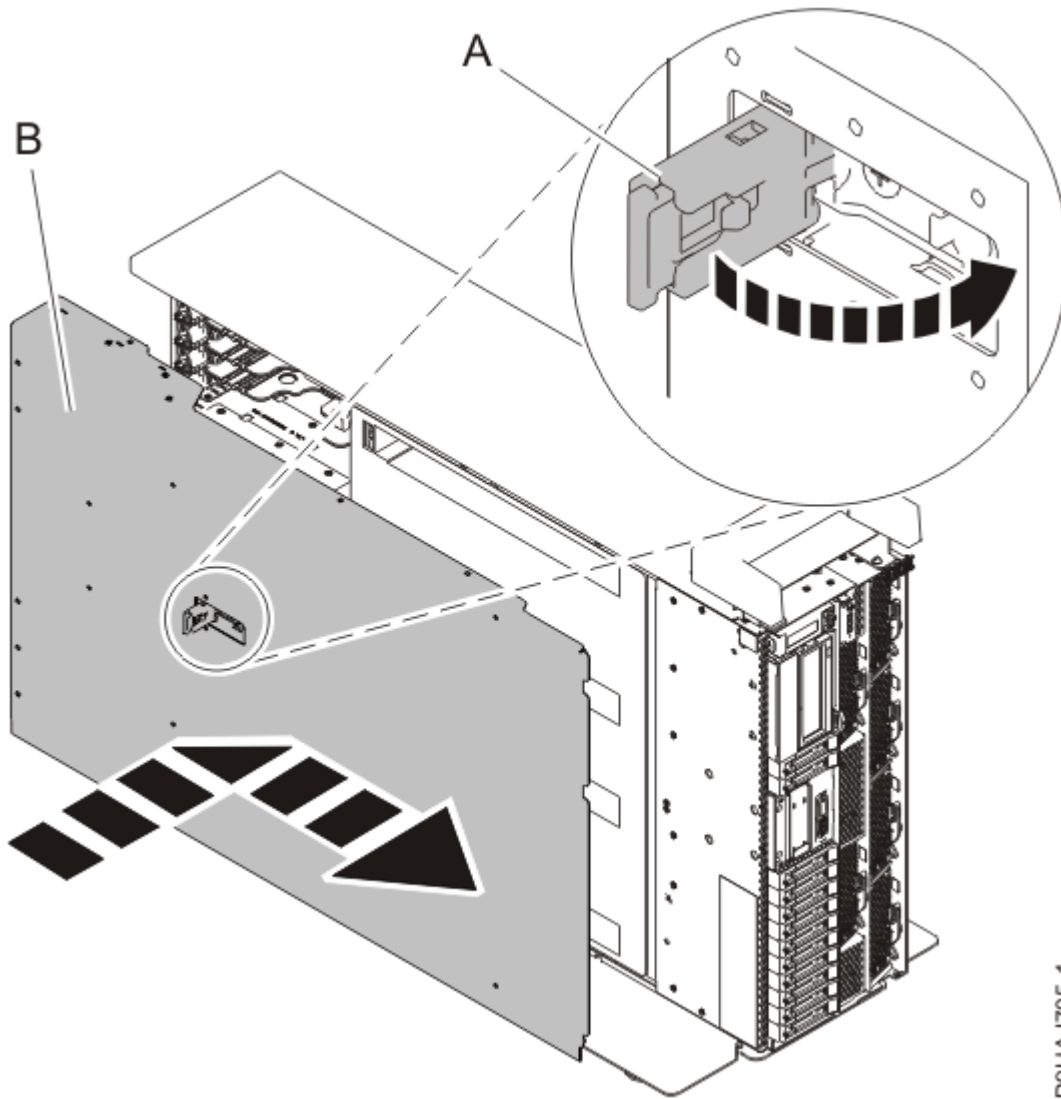


P9HAJ606-2

*Figure 42. Installing the service access cover*

For a stand-alone system, complete the following steps. Refer to [Figure 43 on page 50](#).

- a. Slide the cover (**B**) on to the system unit as shown.
- b. Close the latch release (**A**) by pushing it in the direction shown.



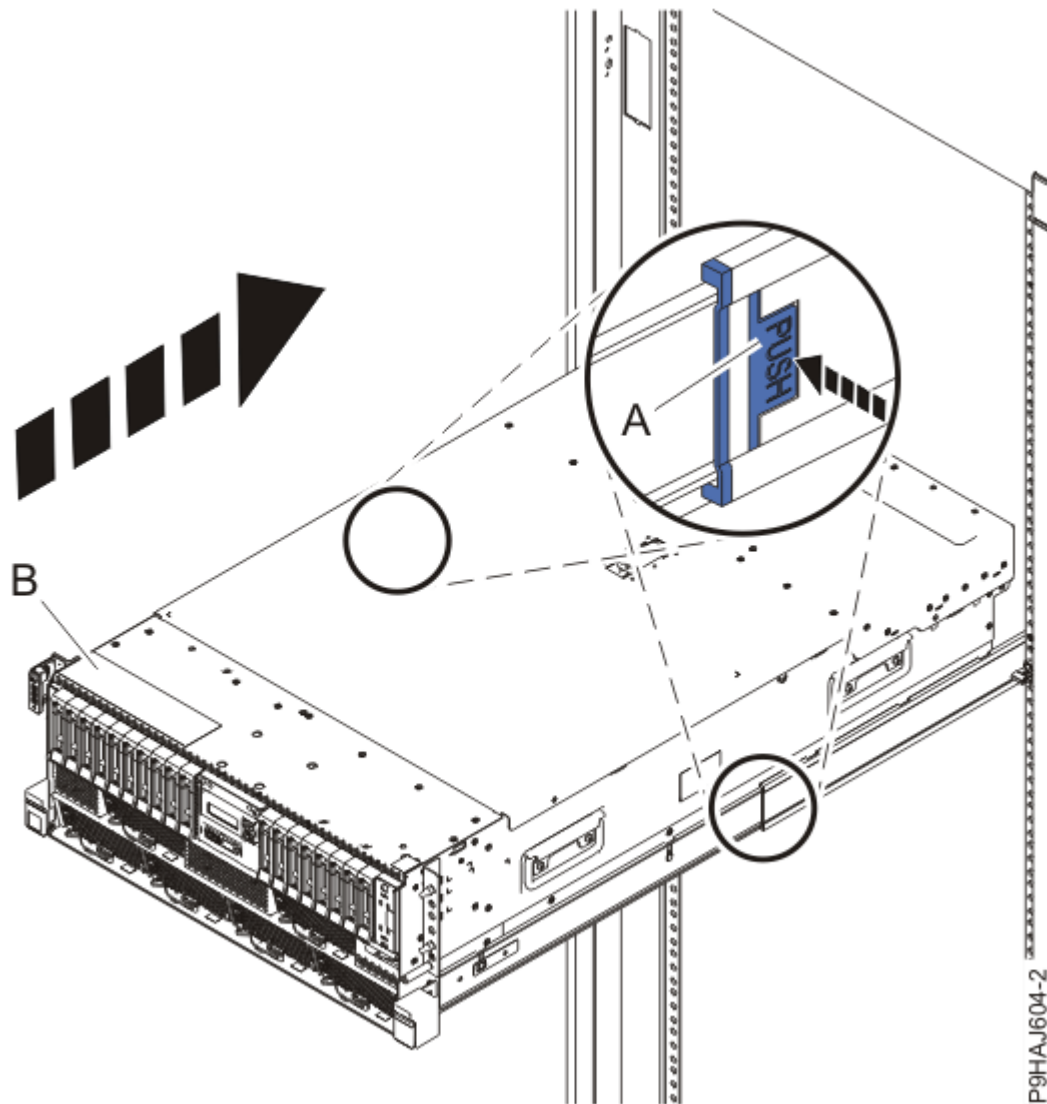
P9HAJ705-1

*Figure 43. Installing the service access cover*

3. For a rack-mounted system, unlock the blue rail safety latches (**A**) as shown in [Figure 44 on page 51](#) 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*

4. For a rack-mounted system, push the system unit (**B**) as shown in the previous figure back into the rack until both release latches lock the system 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.

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

Fasten the power cords (**A**) to the system using the hook-and-loop fasteners (**B**) as shown in [Figure 45 on page 52](#) or [Figure 46 on page 53](#).

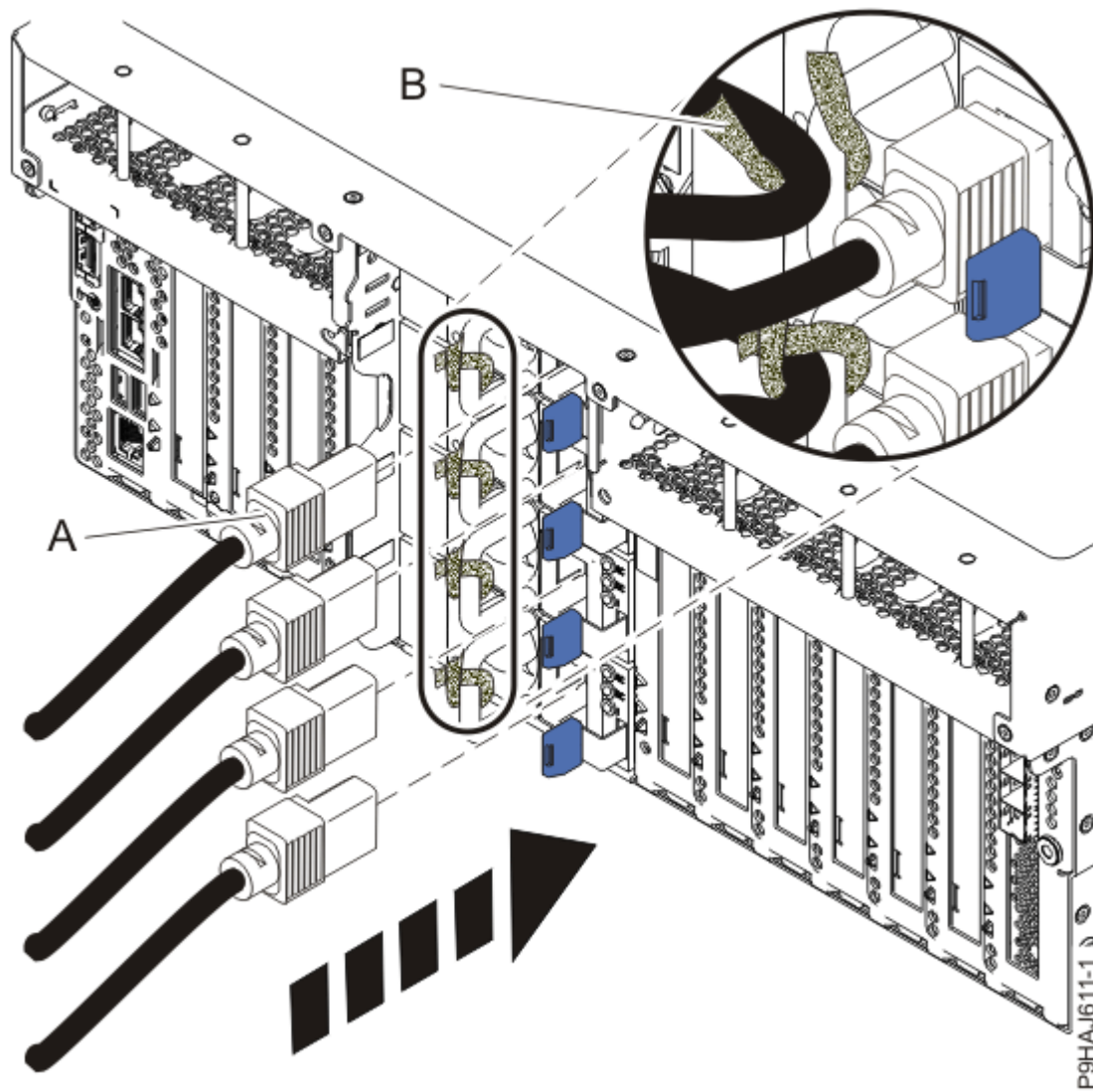


Figure 45. Connecting the power cords to a rack-mounted system

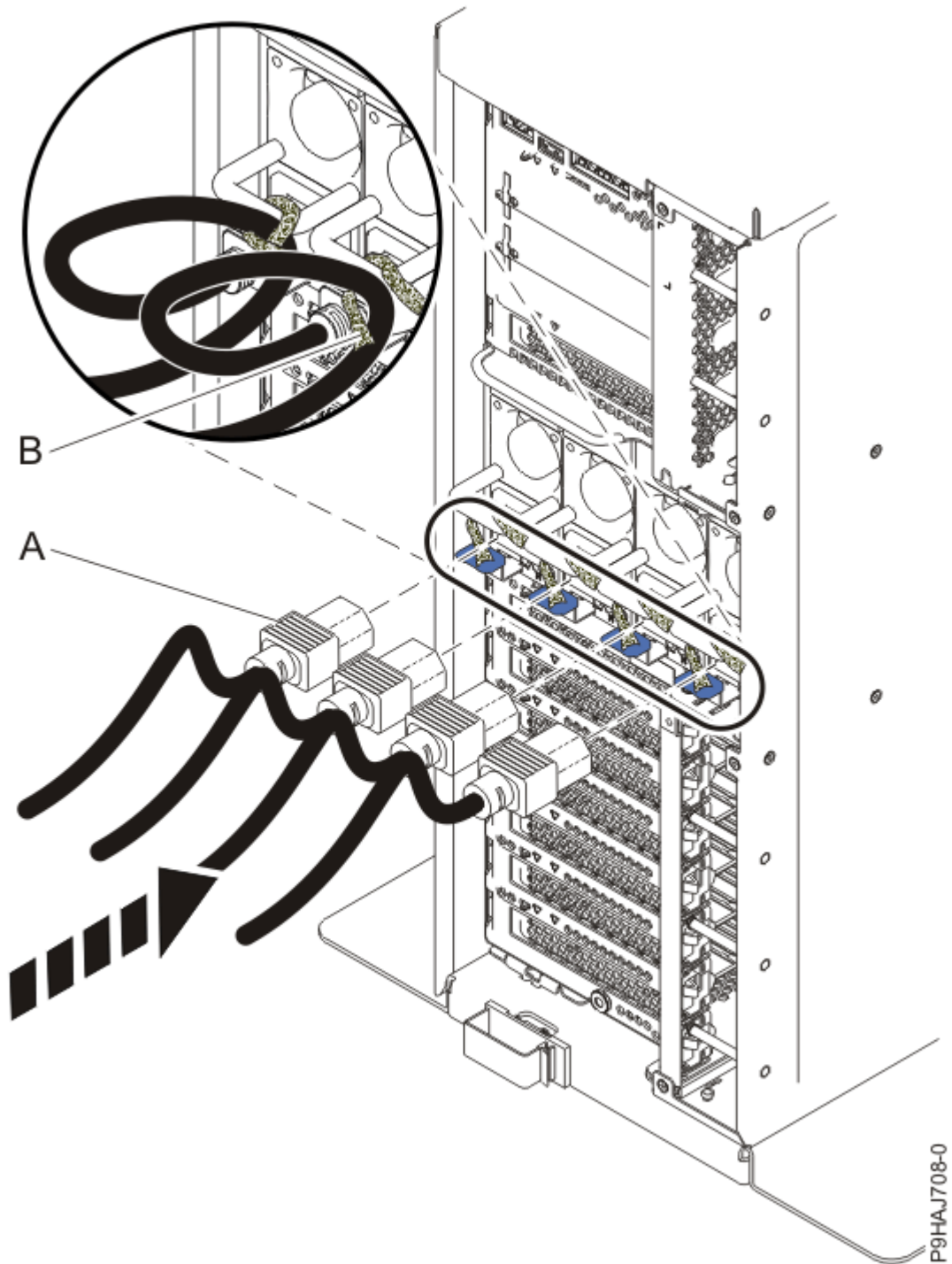


Figure 46. Connecting the power cords to a stand-alone system

6. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm)).
7. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm)).

## Removing and replacing an internal RDX power cable in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

Find information about removing and replacing an internal RDX power cable.

### About this task

**Note:** Installing 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj\\_hmc\\_repair.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If your system is not managed by an HMC, complete the steps in the following procedures to remove and replace an internal RDX power cable in the system.

### Preparing the system to remove and replace an internal RDX power cable in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To prepare the system to remove and replace an internal RDX power 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm\)](http://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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustopsys.htm).

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

See [Figure 47 on page 55](#) or [Figure 48 on page 56](#).

#### 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.

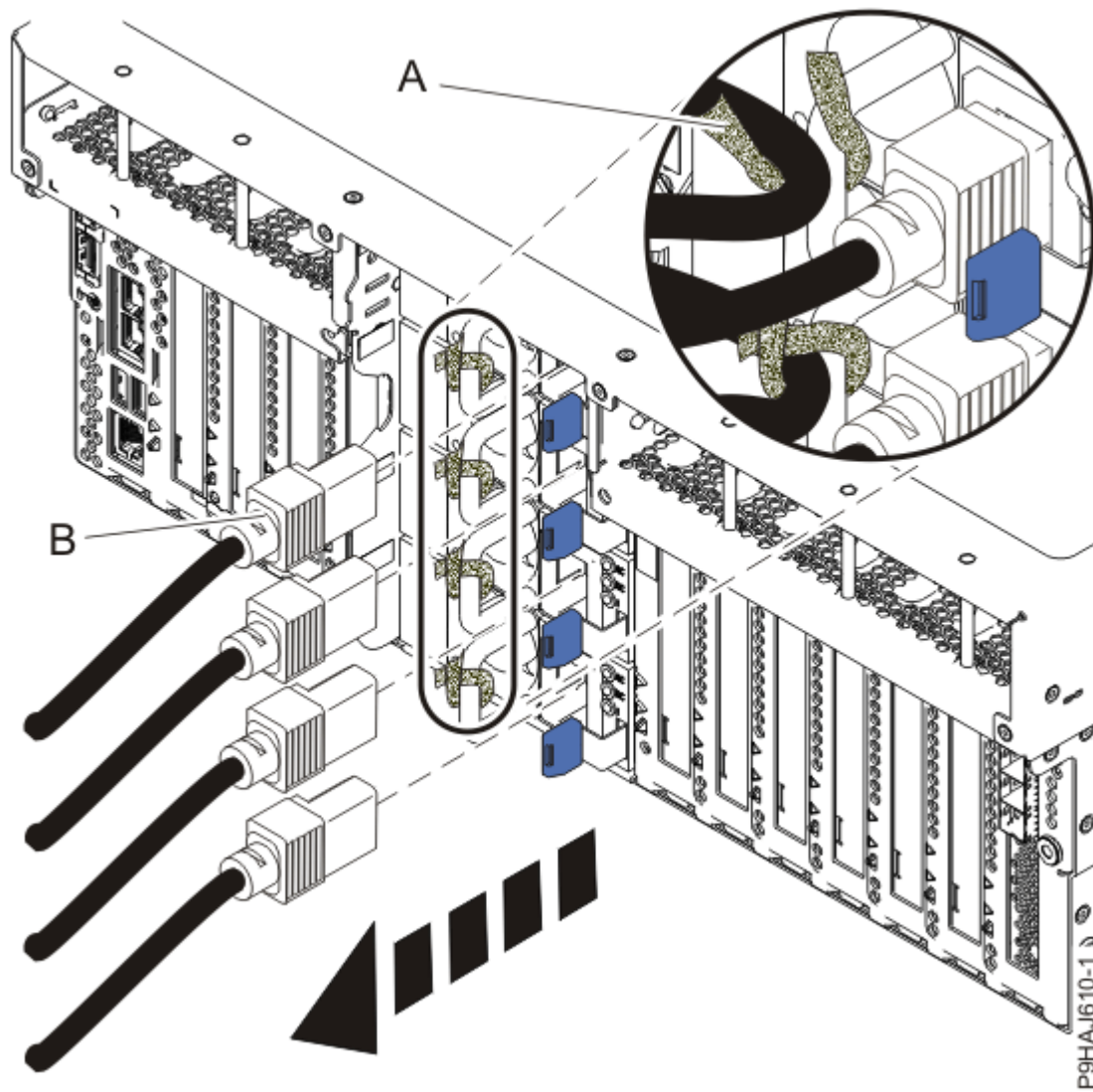


Figure 47. Removing the power cords from a rack-mounted server

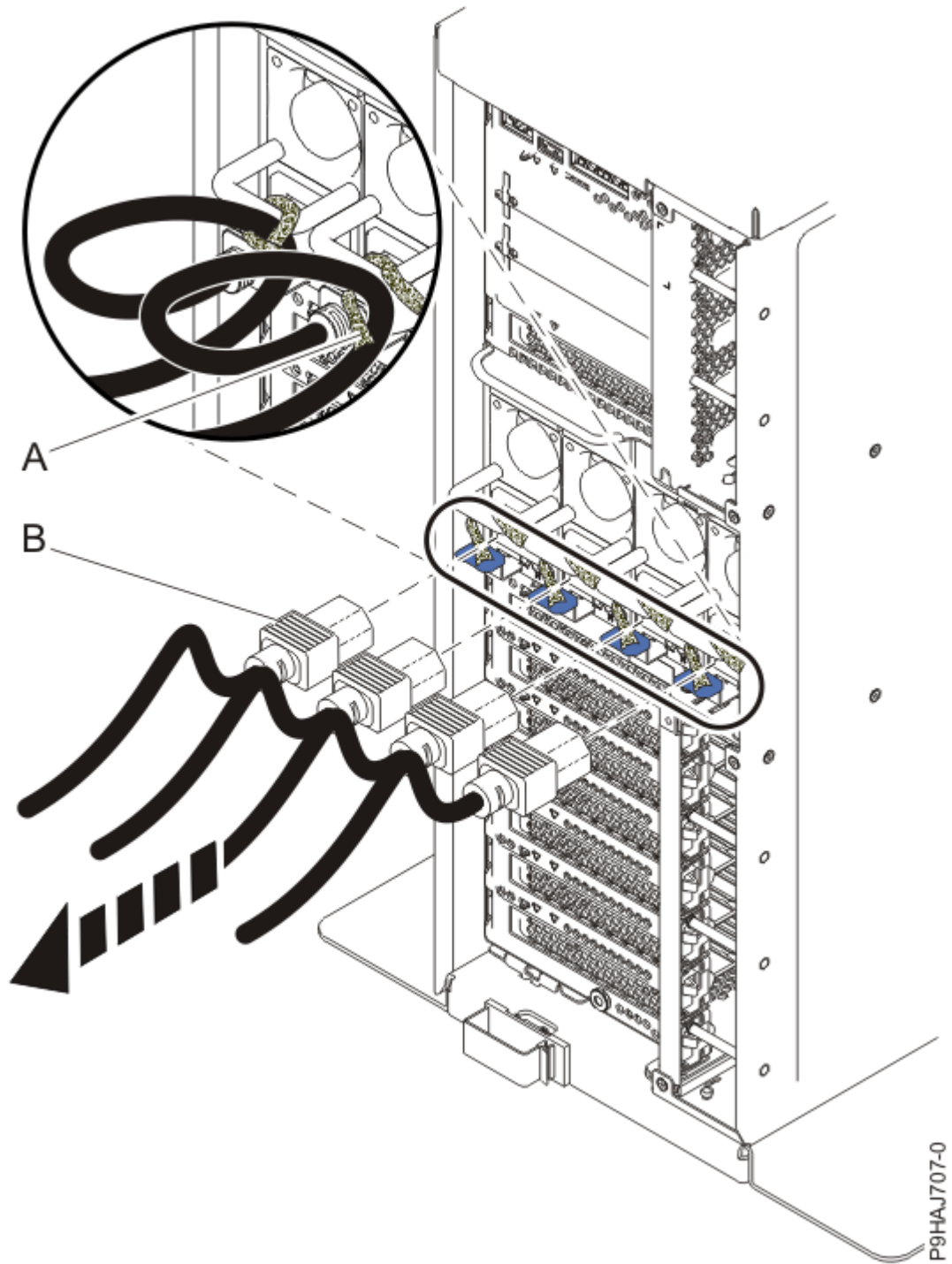
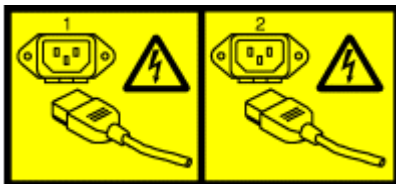


Figure 48. Removing the power cords from a stand-alone server

(L003)



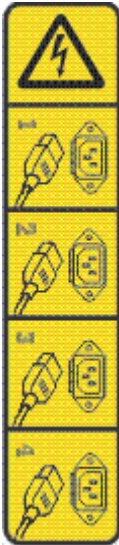
or



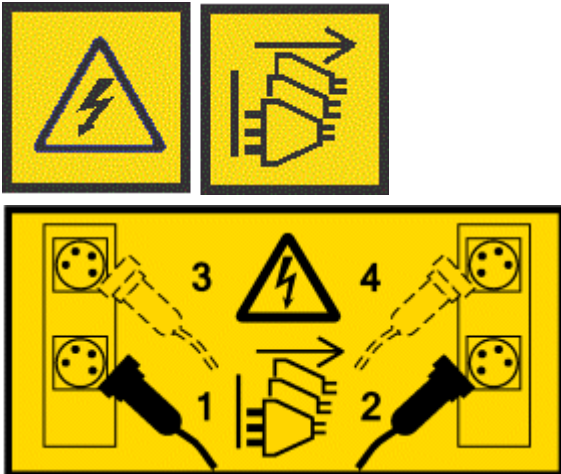
or

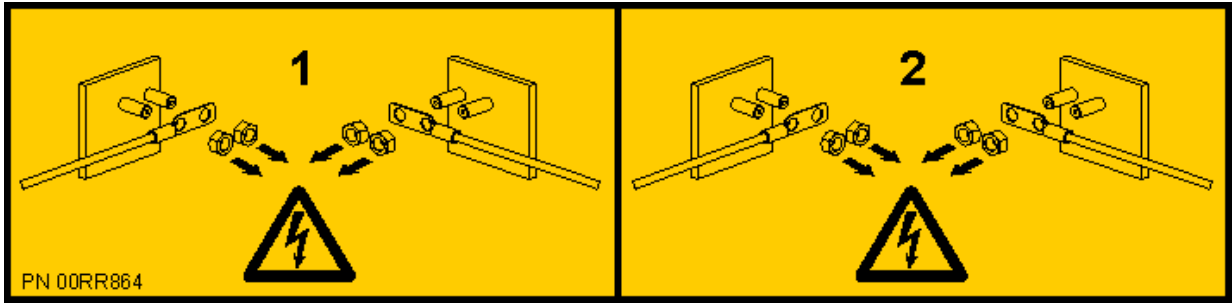


or



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. Attach the electrostatic discharge (ESD) wrist strap.

The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.



**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. If at any point in this service process you move away from the system, it is important to again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.

5. For a rack-mounted system, 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.

See the following figure.

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.



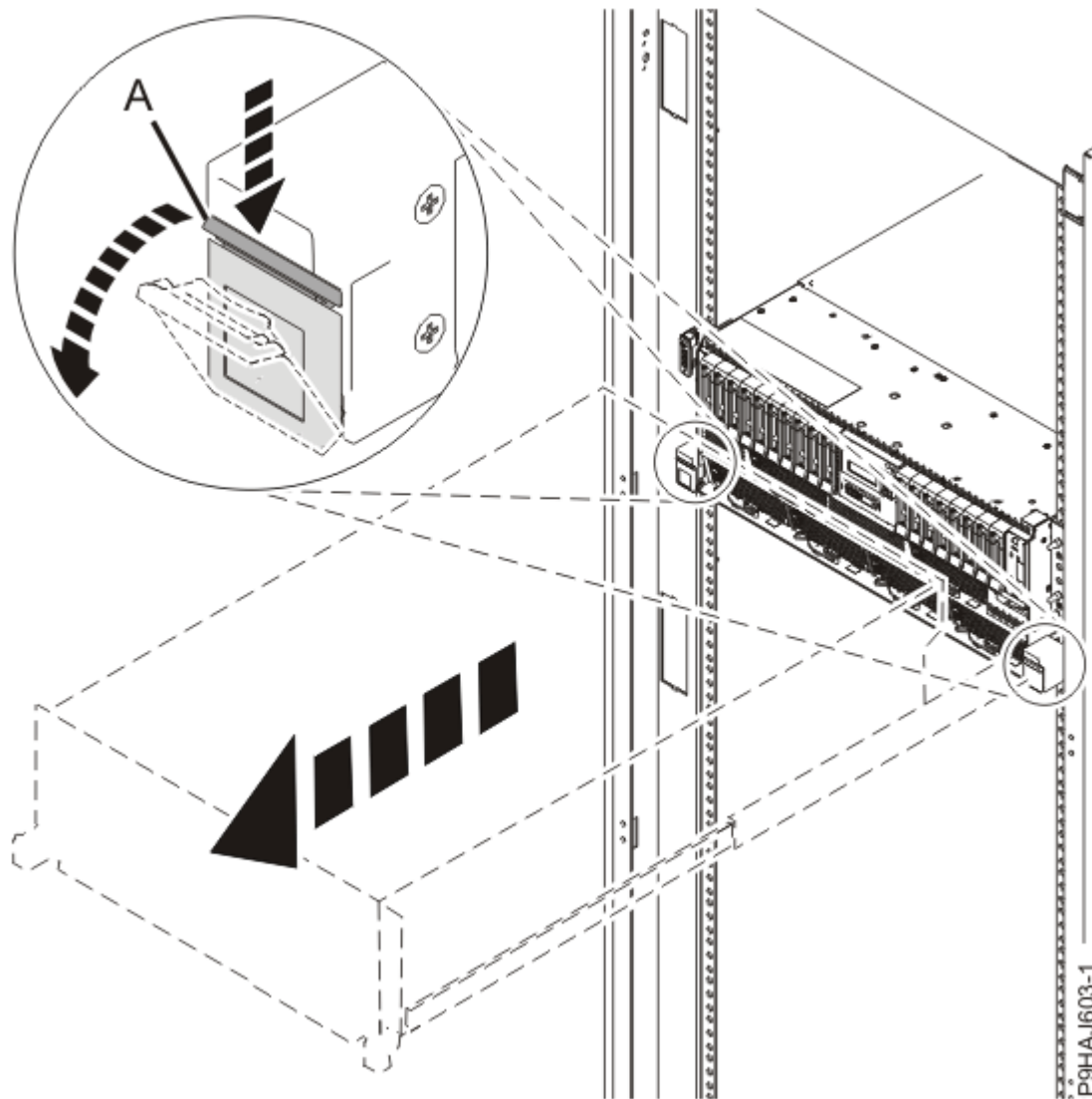



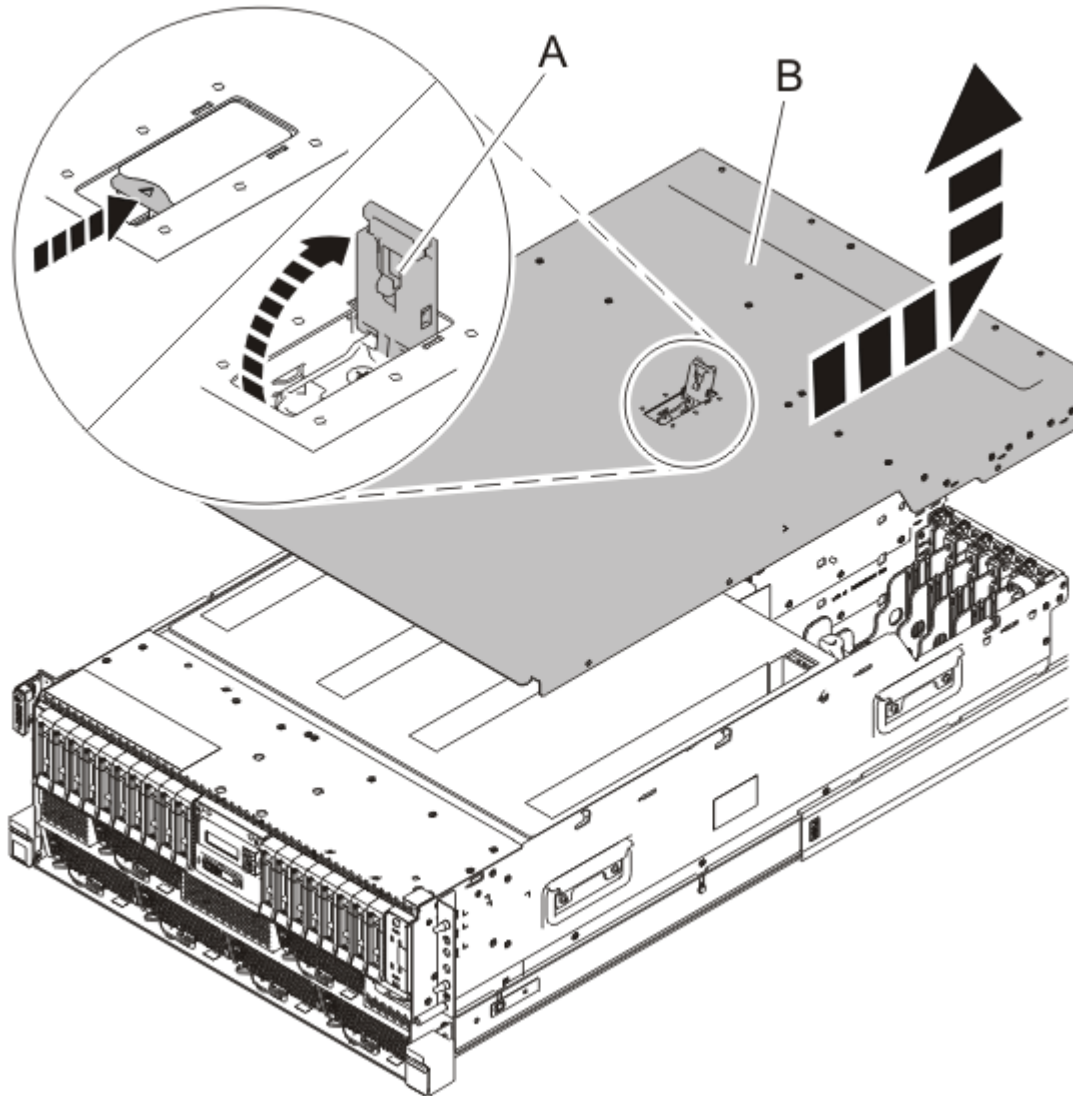
Figure 49. Releasing the side latches

6. Remove the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 50 on page 60](#).

 **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.


- a. Release the service cover latch by pushing the release latch **(A)** in the direction shown.
- b. 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.



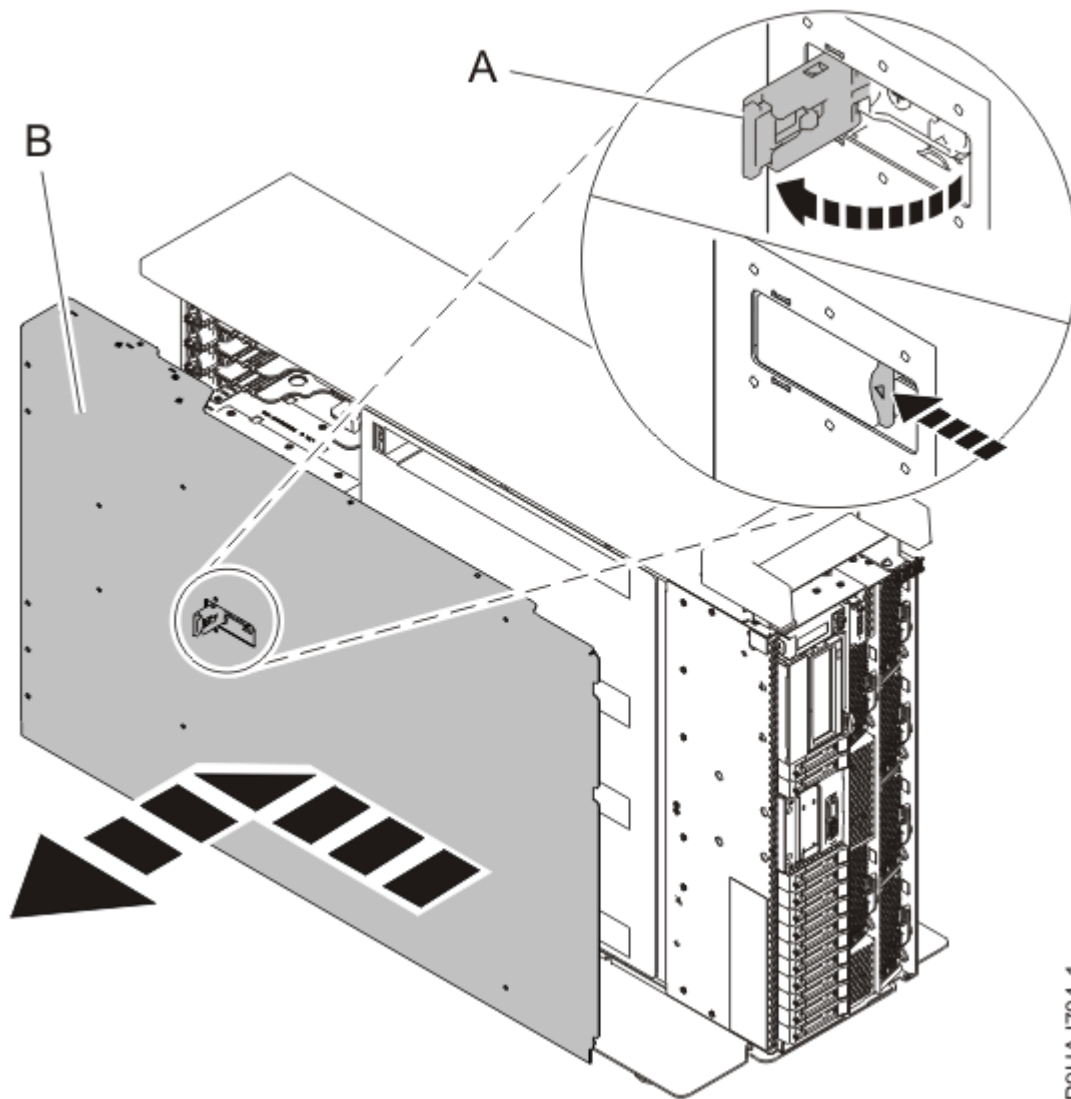
P9HAJ605-2

*Figure 50. Removing the service access cover from a rack-mounted system*

For a stand-alone system, complete the following steps. Refer to [Figure 51](#) on page 61.

 **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.

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



P9HAJ704-1

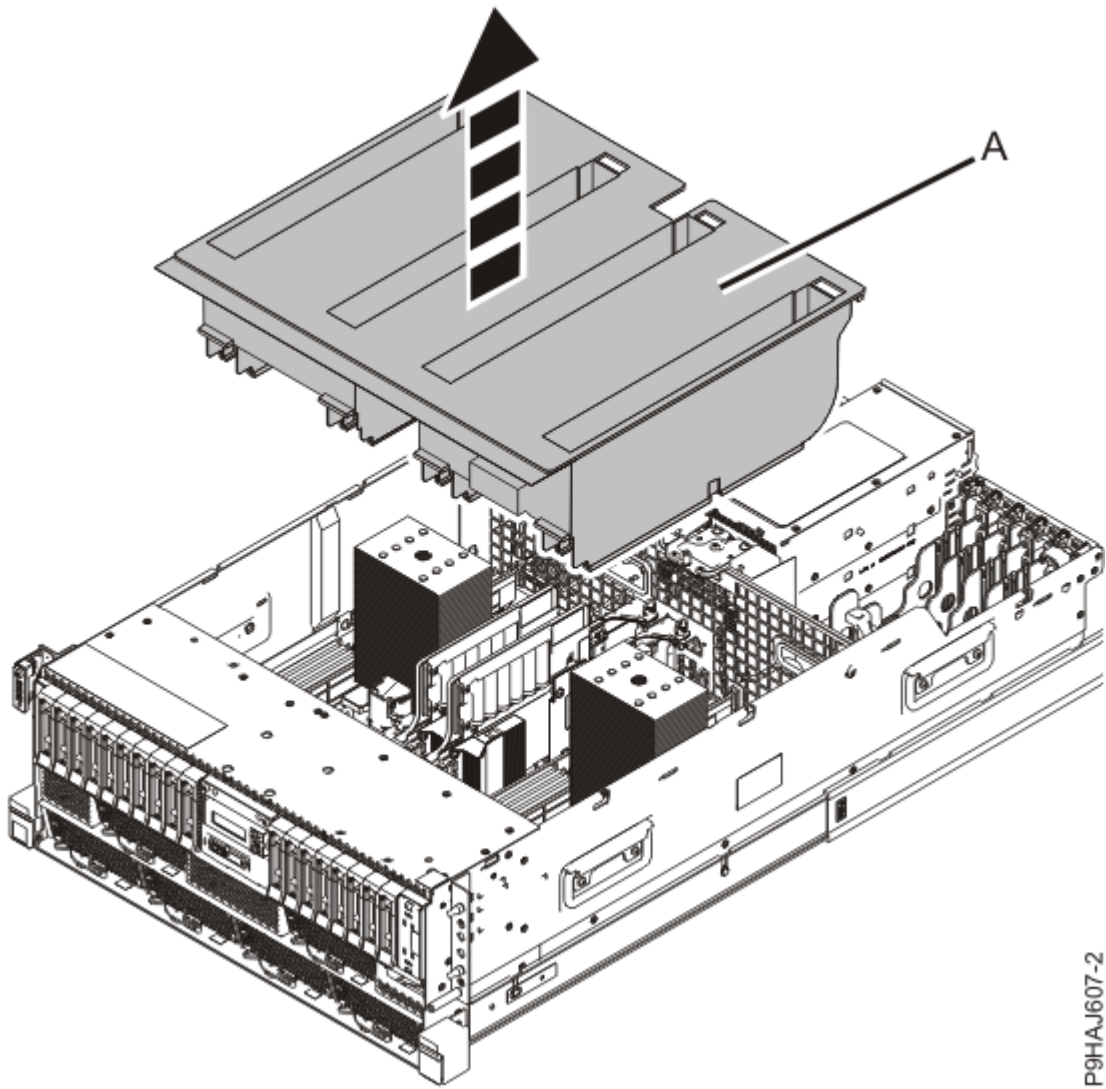
Figure 51. Removing the service access cover

## Removing an internal RDX power cable from the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To remove an internal RDX power cable, complete the steps in this procedure.

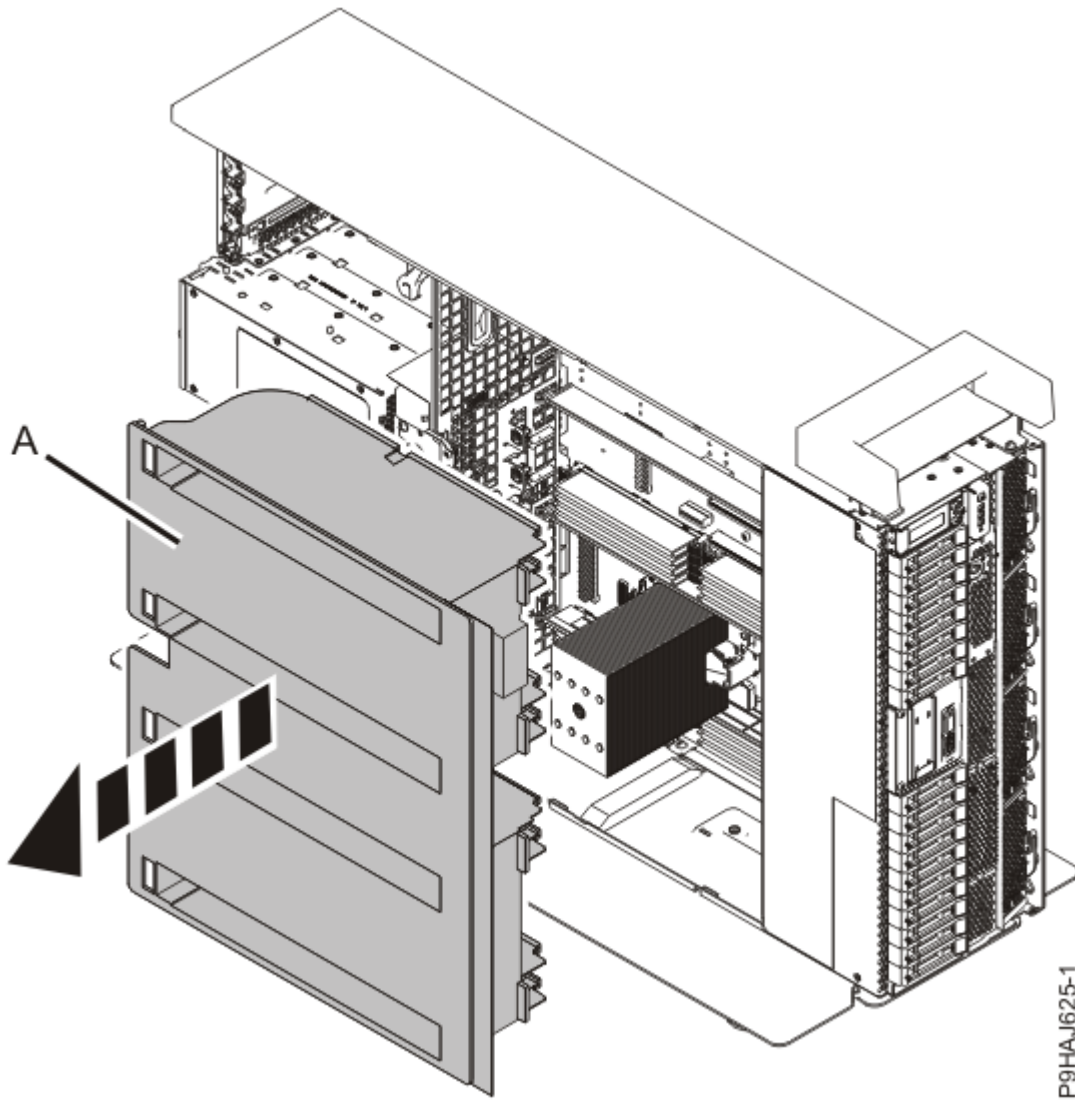
### Procedure

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. For a rack-mounted system, lift the air baffle **(A)** straight up as shown in [Figure 52 on page 62](#).  
For a stand-alone system, remove the air baffle **(A)** straight out as shown in [Figure 53 on page 63](#).  
Place the air baffle upside down on a clean area.



P9HAJ607-2

Figure 52. Removing the air baffle from a rack-mounted system



*Figure 53. Removing the air baffle from a stand-alone system*

3. Disconnect the internal RDX power cable **(B)** from the disk drive backplane. Disconnect the other end of the internal RDX power cable **(A)** from the internal RDX docking station as shown in [Figure 54](#) on [page 64](#).

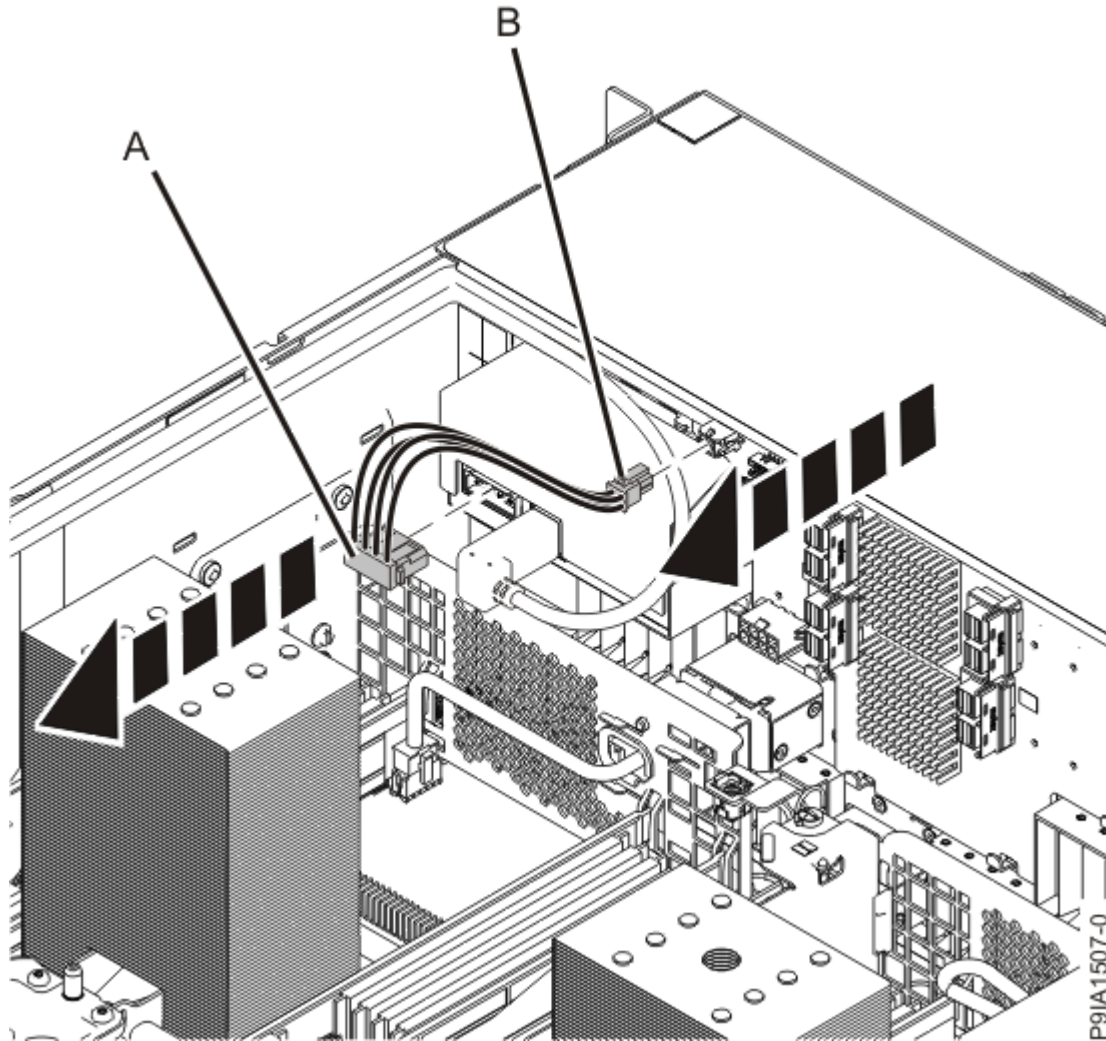


Figure 54. Disconnecting the internal RDX power cable

## Replacing an internal RDX power cable in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To replace an internal RDX power 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 internal RDX power cable **(B)** to the disk drive backplane. Ensure that the latch **(C)** on the RDX power cable is oriented upwards for a rack-mounted system; and to the outside for a stand-alone system. Connect the other end of the internal RDX power cable to the internal RDX docking station **(A)** until it clicks into place as shown in [Figure 55](#) on page 65.

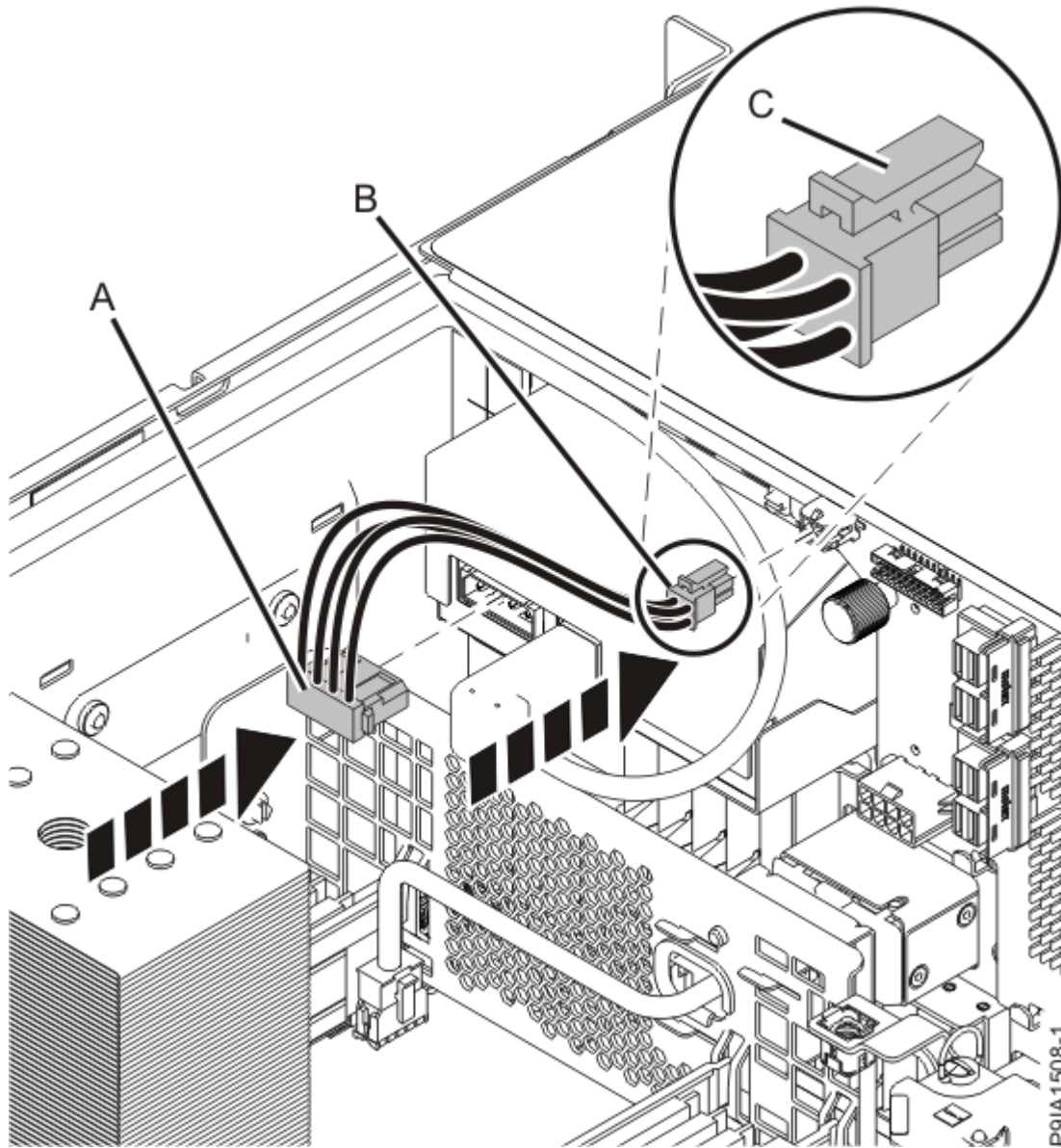
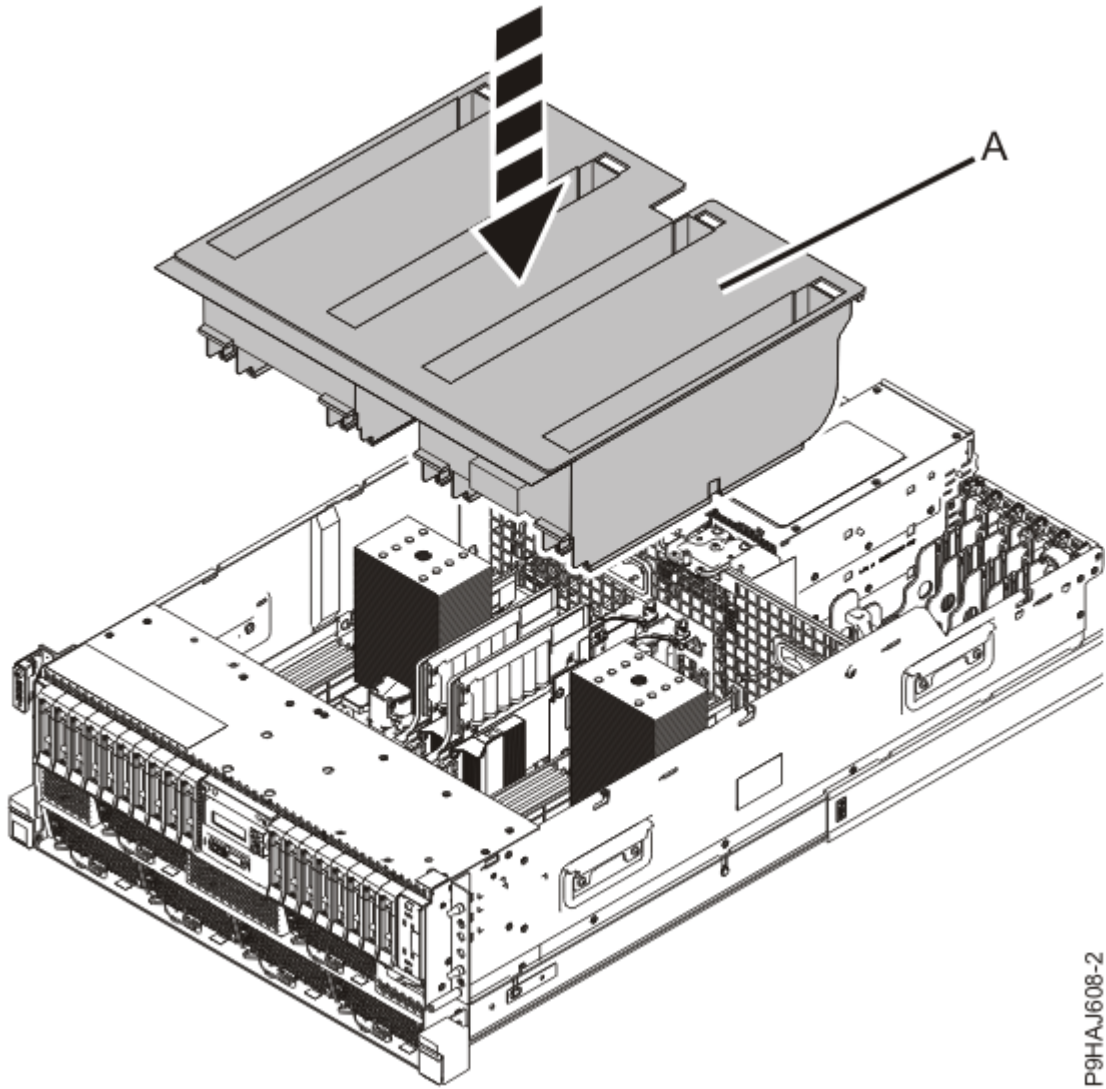


Figure 55. Connecting the internal RDX power cable

3. For a rack-mounted system, replace the air baffle **(A)** straight down into the chassis as shown in [Figure 56](#) on page 66.

For a stand-alone system, replace the air baffle **(A)** straight into the side of the chassis as shown in [Figure 57](#) on page 67.

Ensure that the front flap tucks under the front chassis.



P9HAJ608-2

Figure 56. Replacing the air baffle in a rack-mounted system



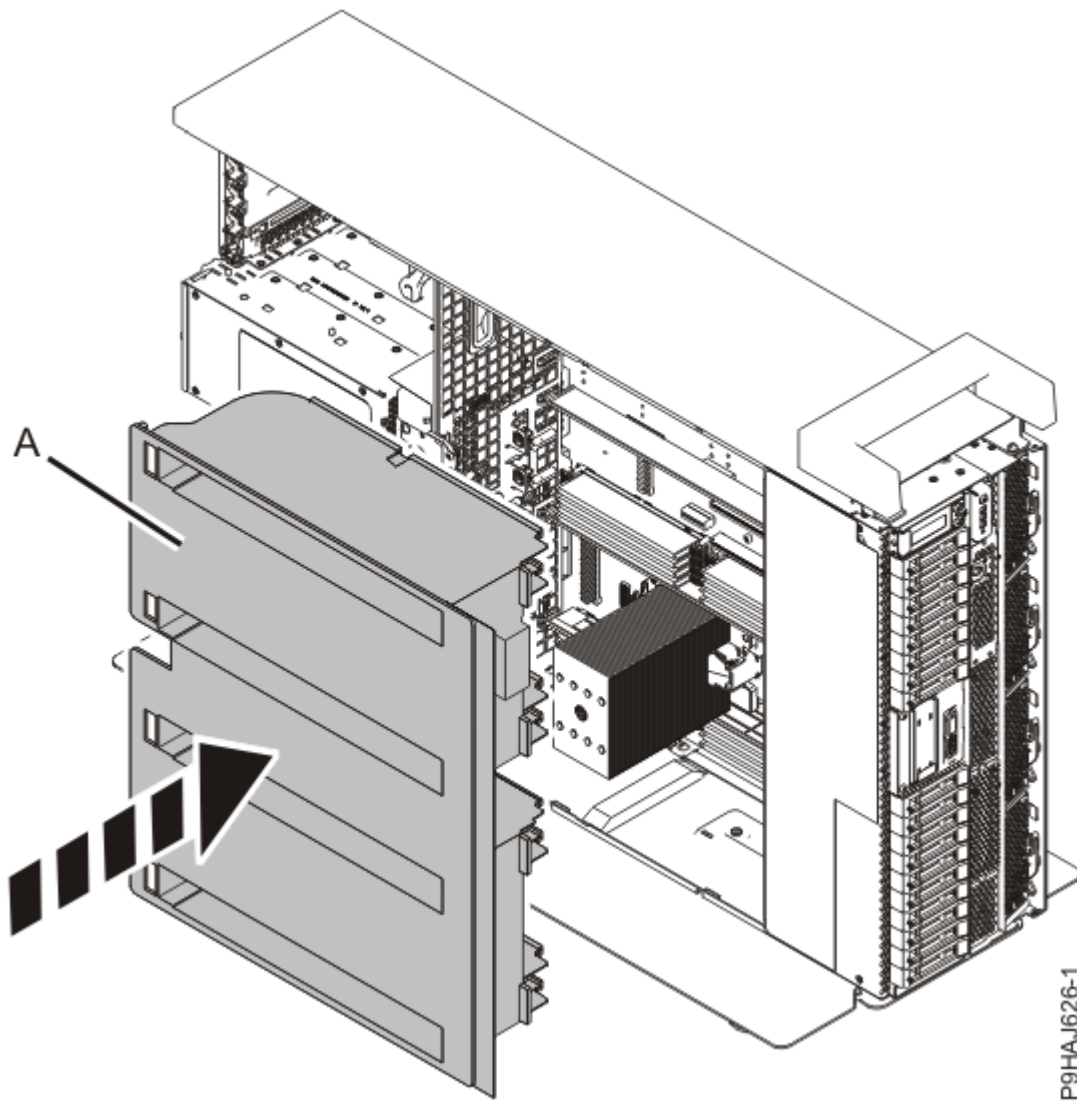


Figure 57. Replacing the air baffle in a stand-alone system

## Preparing the system for operation after removing and replacing an internal RDX power cable in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

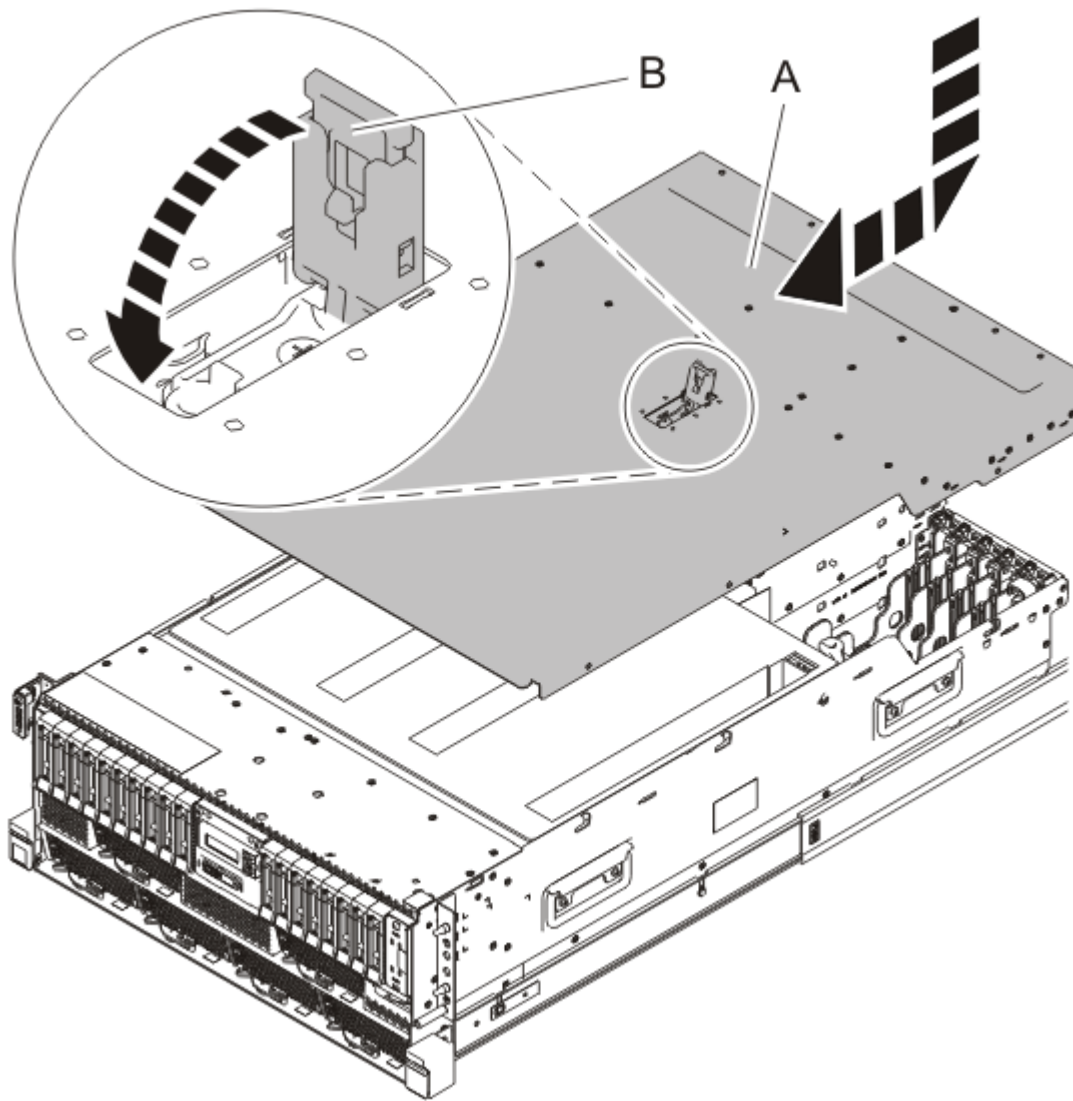
To prepare the system for operation after removing and replacing an internal RDX power cable, complete the steps in this procedure.

### 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. Replace the service access cover.

For a rack-mounted system, complete the following steps. Refer to [Figure 58](#) on page 68.

- a. Slide the cover **(A)** onto the system unit.
- b. Close the release latch **(B)** by pushing it in the direction shown.

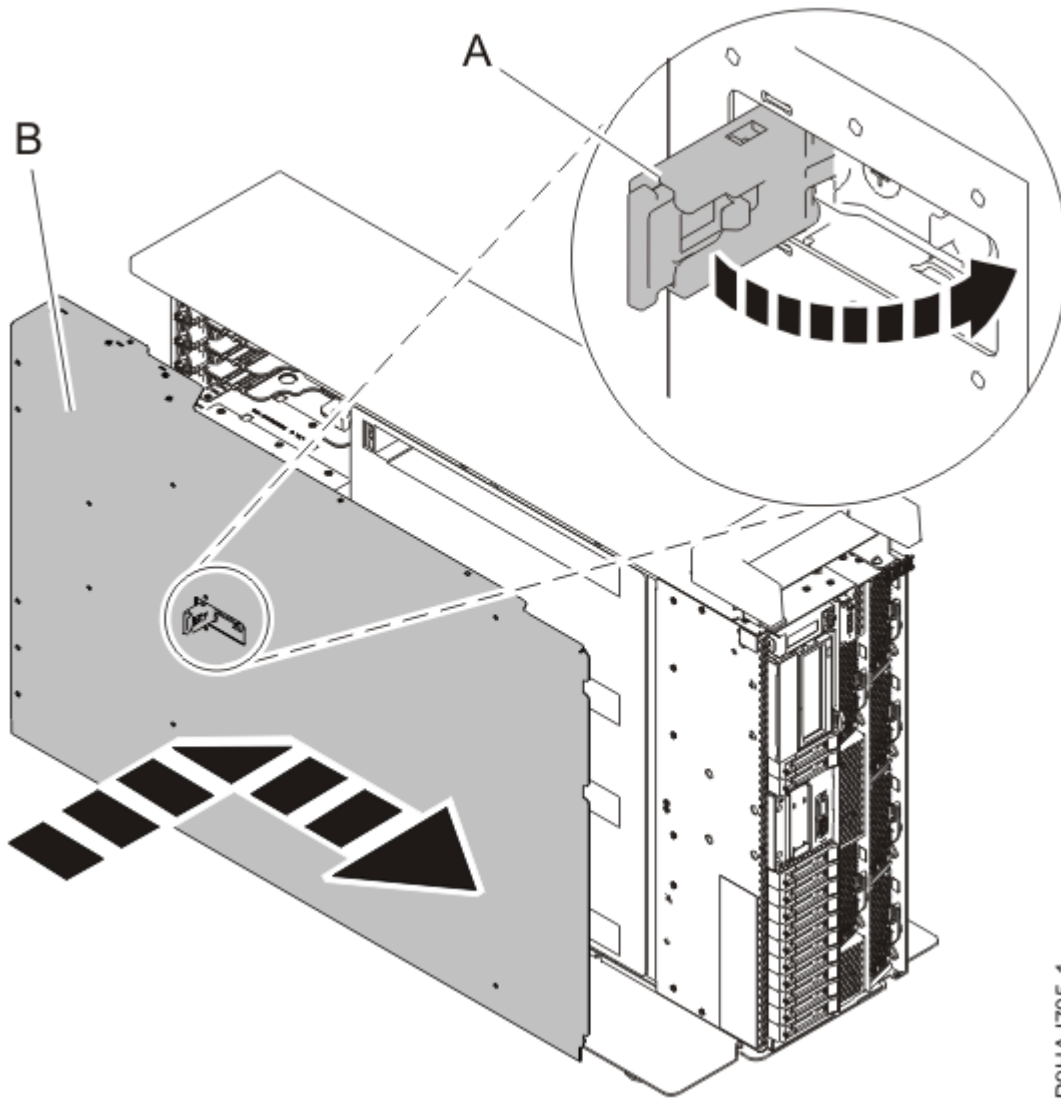


P9HAJ606-2

*Figure 58. Installing the service access cover*

For a stand-alone system, complete the following steps. Refer to [Figure 59 on page 69](#).

- a. Slide the cover (**B**) on to the system unit as shown.
- b. Close the latch release (**A**) by pushing it in the direction shown.

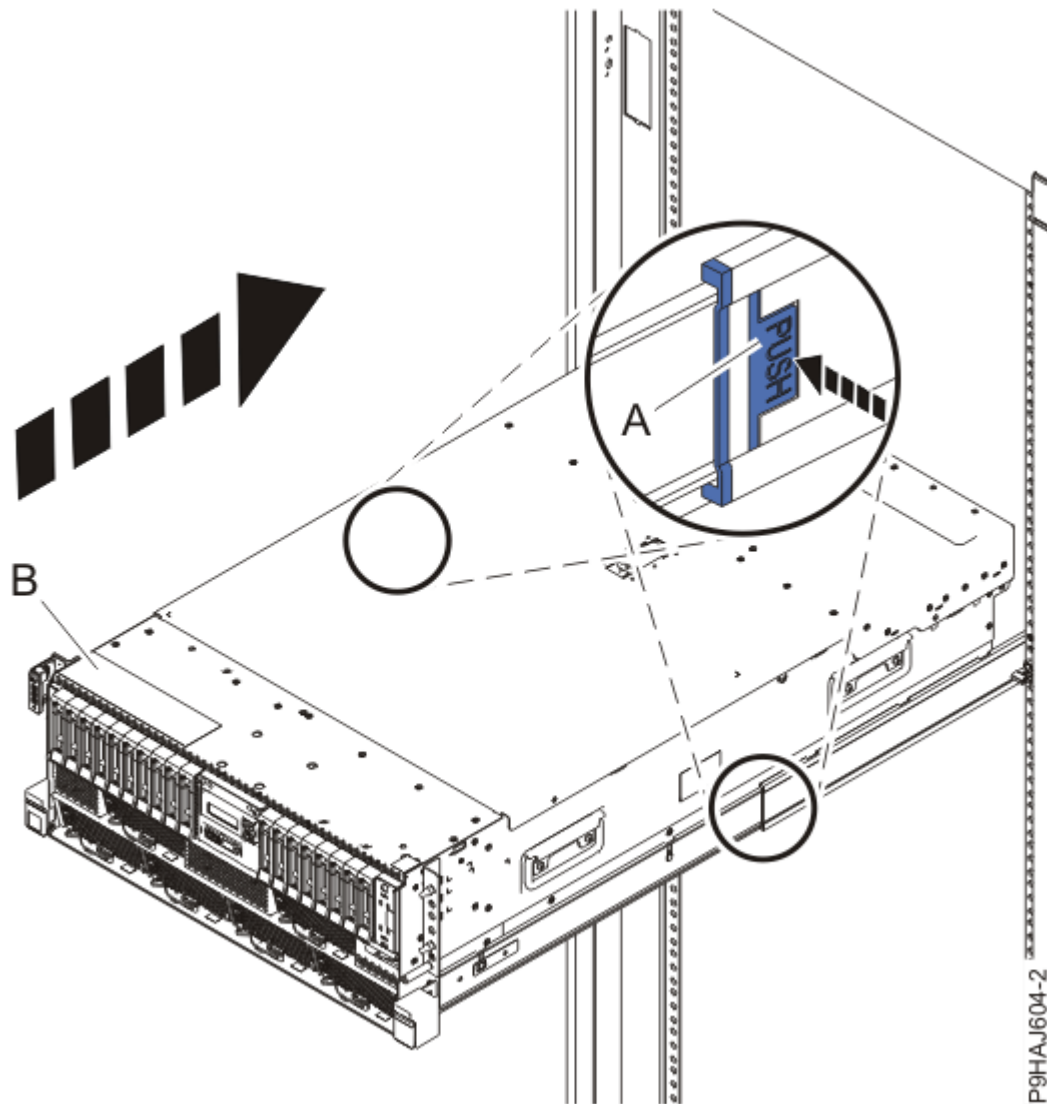


P9HAJ705-1

*Figure 59. Installing the service access cover*

3. For a rack-mounted system, unlock the blue rail safety latches (**A**) as shown in [Figure 60 on page 70](#) 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 60. Placing the system into the operating position*

4. For a rack-mounted system, push the system unit (**B**) as shown in the previous figure back into the rack until both release latches lock the system 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.

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

Fasten the power cords (**A**) to the system using the hook-and-loop fasteners (**B**) as shown in [Figure 61 on page 71](#) or [Figure 62 on page 72](#).

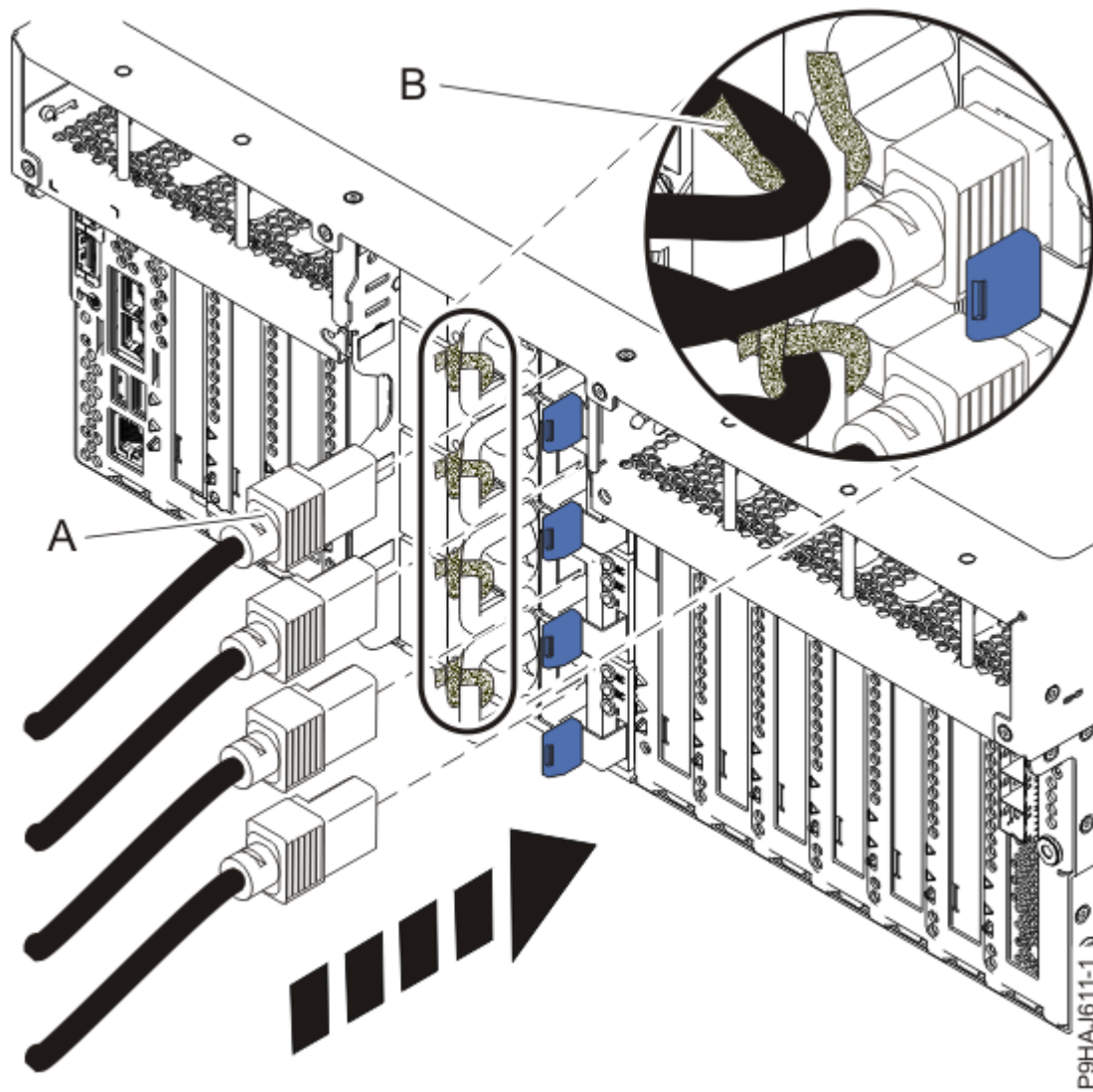


Figure 61. Connecting the power cords to a rack-mounted system

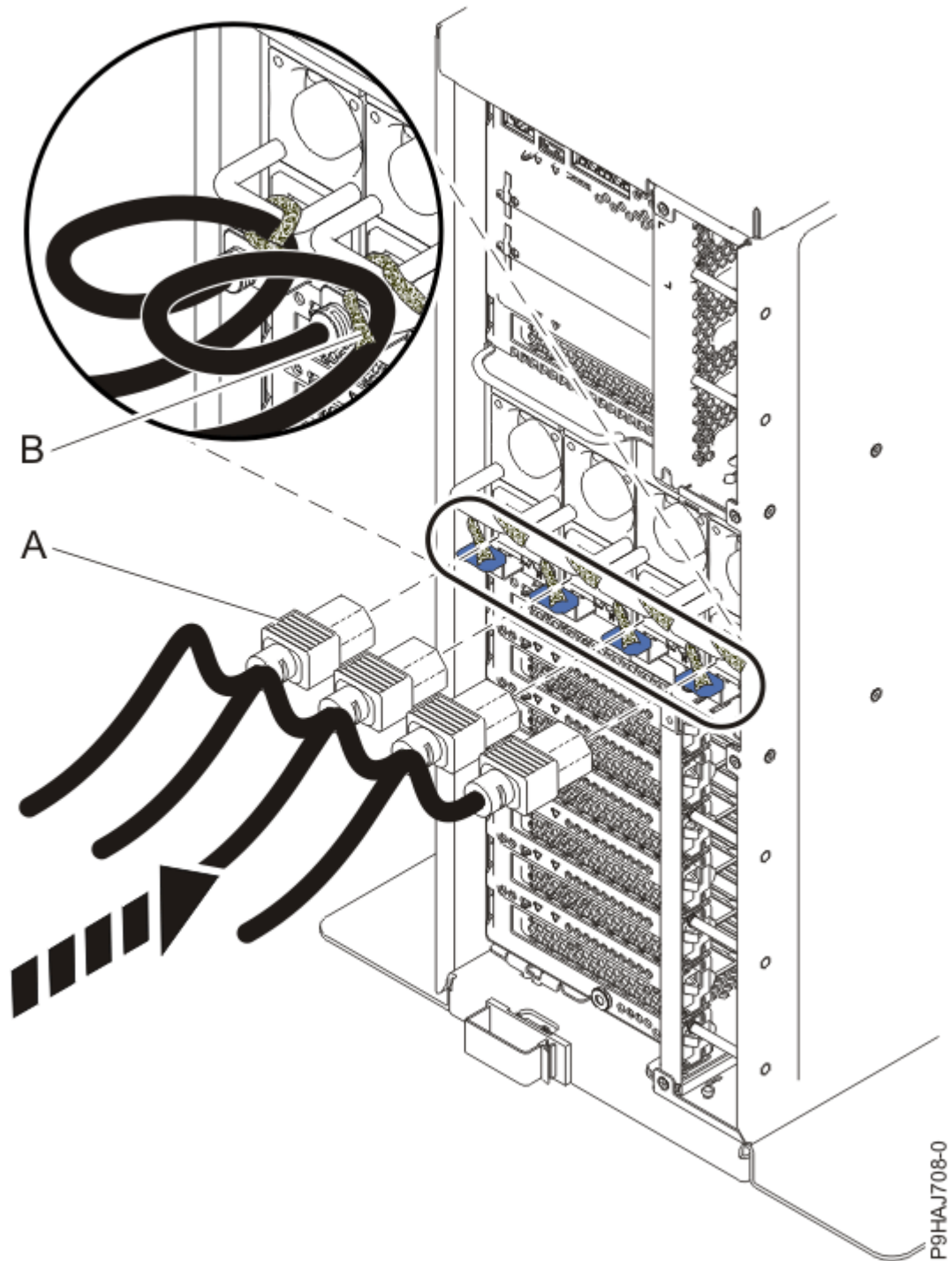


Figure 62. Connecting the power cords to a stand-alone system

6. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/crustartsys.htm)).
7. 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](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_turn_off_identify_led.htm)).

# Removing and replacing an internal RDX removable disk drive in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

Find information about removing and replacing an internal RDX removable disk drive.

## About this task

**Note:** Installing 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj\\_hmc\\_repair.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/p9haj_hmc_repair.htm).

If your system is not managed by an HMC, complete the steps in the following procedures to remove and replace an internal RDX removable disk drive in the system.

## Preparing the system to remove and replace the internal RDX removable disk drive in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To prepare the system to remove and replace the internal RDX removable disk drive, 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 \(www.ibm.com/support/knowledgecenter/POWER9/p9haj/sal.htm\)](http://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. Review the RDX removable disk drive location. The RDX removable disk drive is located in the front of the system.

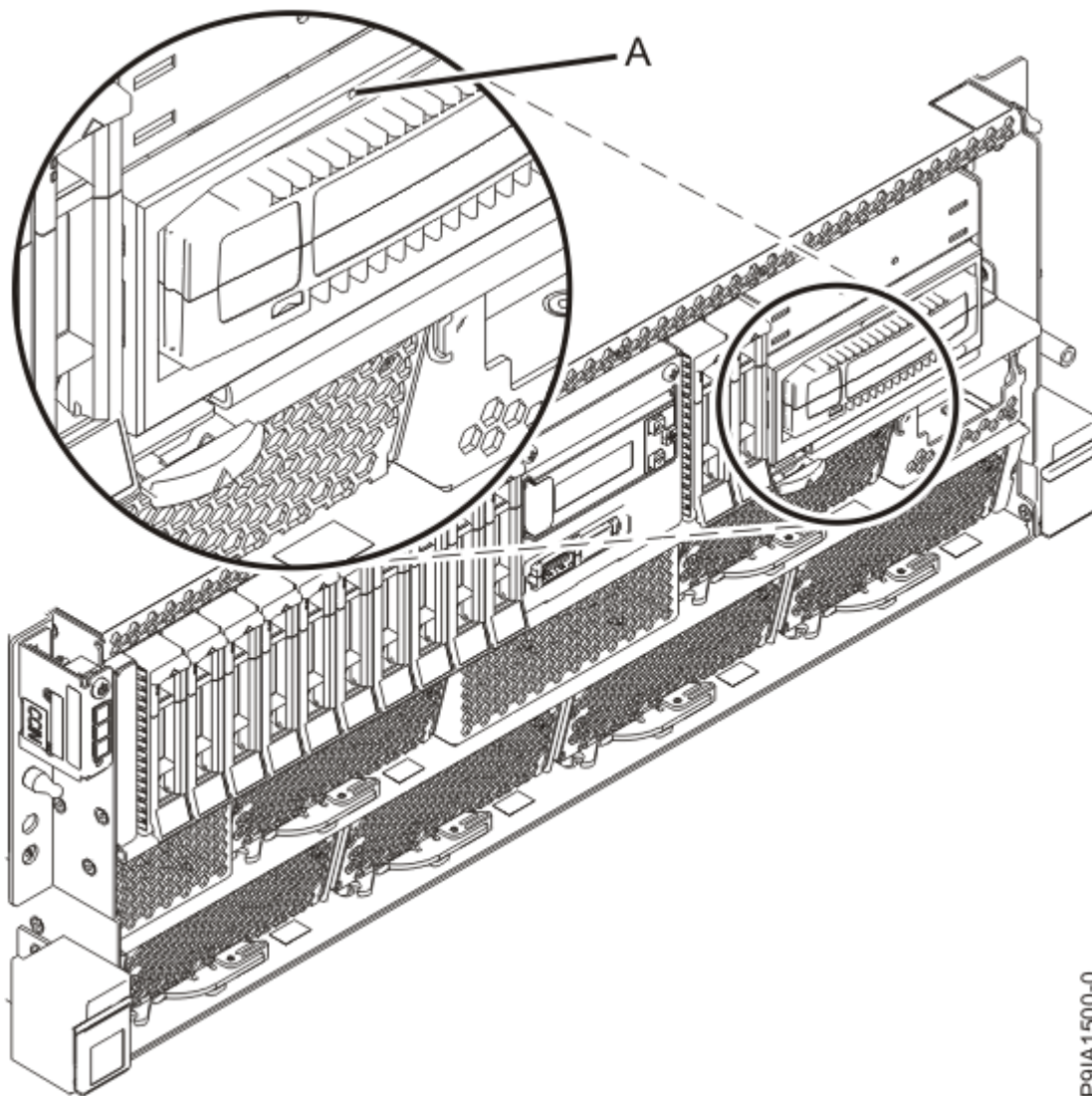


Figure 63. Location of the RDX removable disk drive

3. Ensure that the RDX removable disk drive is not being used for a backup or restore operation.
4. Attach the electrostatic discharge (ESD) wrist strap.

The ESD wrist strap must be connected to an unpainted metal surface until the service procedure is completed, and if applicable, until the service access cover is replaced.

**⚠ 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. If at any point in this service process you move away from the system, it is important to again discharge yourself by touching an unpainted metal surface for at least 5 seconds before you continue with the service process.
5. Remove the replacement RDX removable disk drive from the static-protective package and place it on an ESD mat.

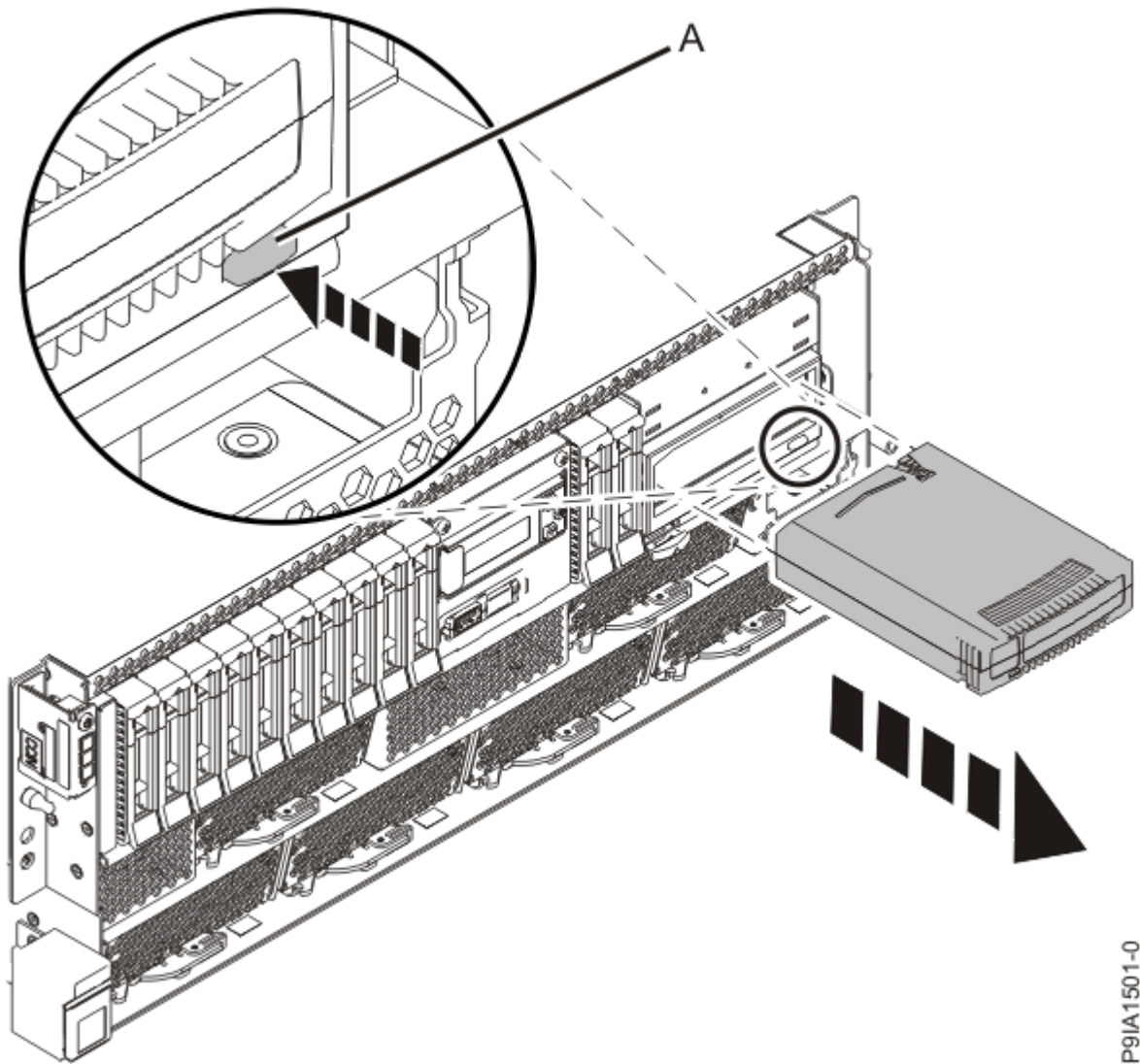


## Removing the internal RDX removable disk drive from the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To remove the internal RDX removable disk drive, 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. On the system, verify that the LED of the internal RDX removable disk drive is on.
3. Press the internal RDX disk drive eject button that is shown in [Figure 64](#) on page 75.



P9JA1501-0

*Figure 64. Front view of an internal RDX docking station and the removable disk drive*

4. Wait for the eject button to stop flashing green and for the removable disk drive to be ejected.
5. Remove the RDX removable disk drive.

**Note:** If the RDX removable disk drive is stuck and does not eject, insert a large straightened paper clip (or similar object) into the emergency eject hole.

## Replacing the internal RDX removable disk drive in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To replace the internal RDX removable disk drive, 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 internal RDX removable disk drive into the docking station as shown in [Figure 65](#) on page [76](#).

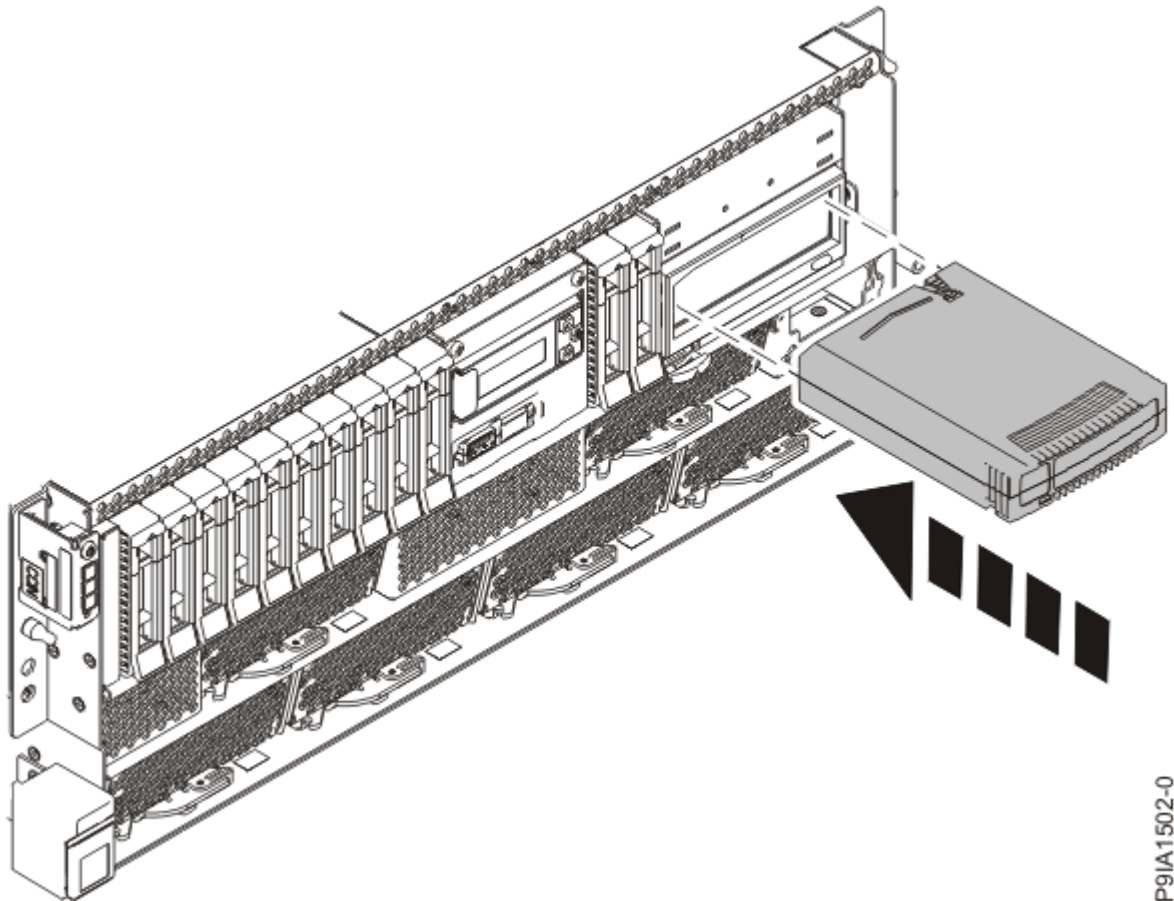


Figure 65. Replacing the internal RDX removable disk drive

## Preparing the system for operation after removing and replacing an internal RDX removable disk drive in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S

To prepare the system for operation, 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. Verify the installed part.
  - If you replaced the part because of a service action, verify the installed part. For instructions, see [Verifying a repair \(www.ibm.com/support/knowledgecenter/POWER9/p9ect/pxect\\_verifyrepair.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9ect/pxect_verifyrepair.htm).

- If you installed the part for any other reason, verify the installed part. For instructions, see [Verifying the installed part](http://www.ibm.com/support/knowledgecenter/POWER9/p9haj/pxhaj_hsmverify.htm) (www.ibm.com/support/knowledgecenter/POWER9/p9haj/pxhaj\_hsmverify.htm).
3. 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).

## Managing RDX docking stations and removable disk drives

Find information about how to use and manage RDX docking stations and removable disk drives.

### Internal RDX docking stations and removable disk drives

Find information about the internal RDX docking station and its supported disk drives.

#### Description

The internal RDX docking station is available as an internal device. The disk drive is a back-up and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array. [Figure 66 on page 77](#) shows the front view of the internal RDX docking station cartridge.

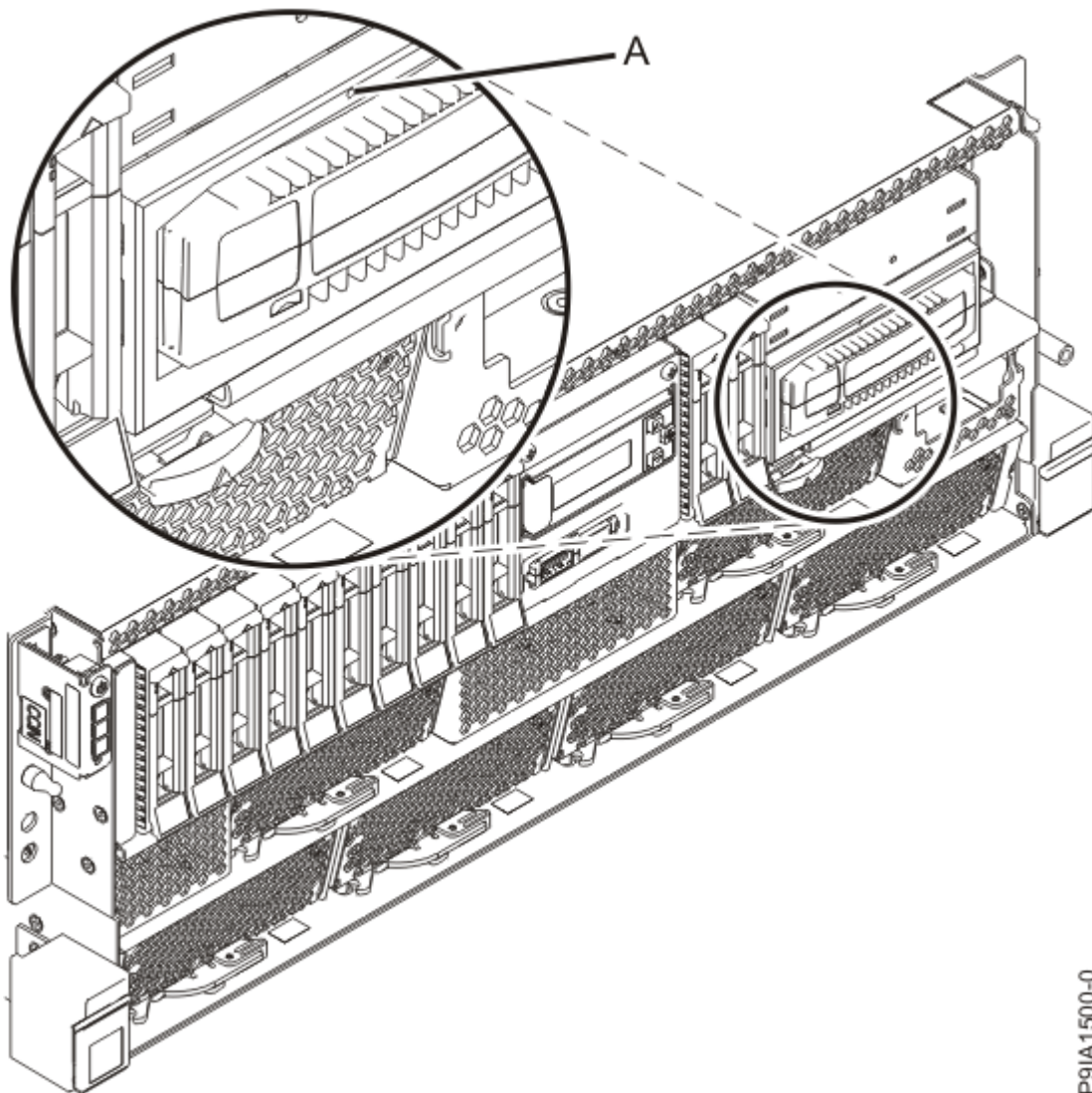


Figure 66. Front view of an internal RDX docking station and the removable disk drive

## Feature codes and part numbers

The internal RDX docking station includes a USB cable that is used to connect to an internal USB port. [Table 1 on page 78](#) provides the part numbers for the internal RDX docking station. [Table 2 on page 78](#) provides the part numbers of its supported disk drives.

The internal RDX docking station provides the following parts:

| <i>Table 1. Internal RDX docking station parts</i> |  |
|--|--|
| FRU Part number                                    | Description  |
| 46C2443 or<br>46C2444                              | Internal RDX 3.5" USB 3.0 docking station (FC EU00)                |
| 02CL764  | Y-cable with USB type A connector and USB type B connector for RDX |
| 01GY348  | RDX power cable  |

The supported disk drives in the internal RDX docking station are listed in the following table:

| <i>Table 2. Internal RDX docking station removable disk drives</i> |             |                             |
|--|-------------|-----------------------------|
| Feature code   | Part number | Description                 |
| 1107   | 46C5379     | 500 GB Removable disk drive |
| EU01   | 46C2335     | 1 TB Removable disk drive   |
| EU2T   | 46C2975     | 2 TB Removable disk drive   |

## Purchasing extra removable disk drives

For best results, use only the removable disk drives that are listed in [Table 2 on page 78](#).

The removable disk drives are a supply item that can be ordered as a feature code. To order in the United States and Canada, call 1-888-IBM-MEDIA. To order drives in other locations, contact your local provider of IBM storage products.

IBM service representatives will not be dispatched to service or replace the removable disk drives.

## Storing removable disk drives

Store removable disk drives in their protective containers, on a flat surface with the top side up. The storage area must be clean and dry, must have normal room temperature, and must be away from any magnetic fields. For best storage life, use the removable disk drives every six months.

## Supported USB adapters and cables



**Attention:** The internal RDX docking station supports the USB cable that is provided as part of the feature code. The docking station does not support attachment by using other USB cables, USB hubs, add-on USB cables, or USB cable extenders.

The internal docking station must be connected to the internal, integrated USB port on the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S system.

## Specifications

### Interface

USB 3.0

### Mksysb

Yes

## Bootable

Yes (IBM i requires a hardware management console)

## Environmental

| <i>Table 3. Operating conditions</i> |  |  |
|--------------------------------------|--|--|
| <b>USB Removable Disk Drive</b>      | <b>Operating conditions</b>                    | <b>Non-operating conditions</b>                  |
| Temperature                          | 5°C - 55°C                                     | -40°C - 65°C                                     |
| Relative humidity                    | 8% - 90% non-condensing                        | 5% - 95% non-condensing                          |
| Maximum wet bulb temperature         | 29.4°C non-condensing                          | 40°C non-condensing                              |
| Maximum temperature gradient         | 20°C per hour                                  | 20°C per hour                                    |
| Altitude                             | -300 meters (-984.25 ft) to 3048 m (10,000 ft) | -300 meters (-984.25 ft) to 12,192 m (40,000 ft) |

## Operating system or partition requirements

If you are installing a new feature, ensure that you have the software that is required to support the new feature and that you determine whether there are any prerequisites for this feature and attaching devices. For information about the prerequisites, see the [Power Systems Prerequisite website \(https://www14.software.ibm.com/support/customer-care/iprt/home\)](https://www14.software.ibm.com/support/customer-care/iprt/home).

The media device is supported on the following versions of the operating systems:

- AIX
  - AIX 7.1, or later.
  - AIX 6.1
- Linux
  - Red Hat® Enterprise Linux Version 6, or later.
  - SUSE Linux Enterprise Server 11, Service Pack 3, or later, with current maintenance updates available from SUSE.
- IBM i
  - IBM i Version 7.3, or later
  - IBM i Version 7.2
  - IBM i Version 7.1

## Using the internal RDX removable disk drive for backup and restore

The disk drive is a back-up and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array.

**Note:** If power is lost during a backup to the disk, the data can be compromised. Verify the data or rerun the backup.

## Using the disk drive with the AIX operating system

The AIX operating system names the drives as drive `usbmsx`, for example, `usbms1`, and `usbms2`. The AIX operating system can also use the device as a raw device, for example, `rusbms1` and `rusbms2`.

The AIX operating system uses the removable disk drive differently depending on the program that is being used. The AIX command `mksysb`, builds a list of files to backup, creates a universal disk format (UDF) file system, and puts a boot image and the root volume group on the removable disk drive. When the `mksysb` process is complete, the removable disk drive can be used to boot the system. If you mount

the removable disk drive, you can display and copy files to and from the UDF file system on the removable disk drive.

The AIX commands, **tar**, **backup**, **restore**, **dd**, and **cpio** can write to the removable disk drive as a raw device or non-raw device. You might get improved performance by using the device as a raw device.

See the AIX documentation for additional information.

## Using the disk drive with the IBM i operating system

The IBM i operating system configures the drive as a removable media drive with a name in the format RMSxx, for example, RMS01.

The drive and cartridge are used with optical commands and utilities (for example, WRKOPTVOL and INZOPT), and reports media in the Optical File System (QOPT).

See the IBM i operating system documentation for information about using the IBM i commands: **copy** and **backup**.

## Using the disk drive with the Linux operating system

The Linux operating system configures the drive as a disk drive with a name in the format sdx, for example, sda, sdb, and sdc.

See the Linux documentation for information about using the Linux commands: **copy** and **backup**.

## Setting the write-protect switch

The removable disk drives have a red, write-protect tab that is located on the back of the drive. To write-protect a drive, slide the write-protect tab toward the lock symbol. To disengage write protection, slide the tab to the unlock symbol.

## Using the emergency eject function

To normally eject a removable disk drive, press the eject button, wait for the eject button to stop flashing green and for the removable disk drive to be ejected. If a drive is stuck and does not eject, the drive and the dock need service. Complete the following steps to eject the cartridge:

1. Prepare the system for servicing by following the instructions at: “Preparing the system to remove and replace an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S” on page 29 ([http://www.ibm.com/support/knowledgecenter/POWER9/p9ia1/p9ia1\\_914\\_924\\_prereq.htm](http://www.ibm.com/support/knowledgecenter/POWER9/p9ia1/p9ia1_914_924_prereq.htm)).
2. Insert a large straightened paper clip (or similar object) into the emergency eject hole.  
**Note:** Do not insert the object in the hole at an angle. Keep the object straight and apply some force to eject the drive.
3. When the drive has been ejected by the docking station, grasp the exposed sides of the drive and pull the drive straight out.
4. Prepare the system for operation by following the instructions at: “Preparing the system for operation after removing and replacing an internal RDX docking station in the 9009-41A, 9009-41G, 9009-42A, 9009-42G, 9223-42H, or 9223-42S” on page 48 ([http://www.ibm.com/support/knowledgecenter/POWER9/p9ia1/p9ia1\\_914\\_924\\_postreq.htm](http://www.ibm.com/support/knowledgecenter/POWER9/p9ia1/p9ia1_914_924_postreq.htm)).

## Status lights

Find information about the power indicator and drive indicator status lights on the internal RDX docking station.

### Power indicator

The eject button is illuminated by a power indicator light. The following table describes the operation of the power indicator.

| <i>Table 4. Power indicator</i> |                |   |
|---------------------------------|----------------|---|
| <b>Indicator status</b>         | <b>Meaning</b> | <b>Description</b>  |
| Off                             | No power       | Docking station does not have power supply.   |
| Steady green                    | Ready          | Power is on and the docking station is working correctly.   |
| Flashing green                  | Ejecting       | Cartridge is ejecting.  |
| Flashing amber                  | Fault          | Docking station has detected a fault condition with the docking station.<br><br><b>Note:</b> An internal RDX docking station fault does not cause the enclosure fault LED to turn on. |

### **Removable disk drive indicator**

The disk drive has an indicator light that displays the status of the drive. The following table describes the operation of the drive indicator.

| <i>Table 5. Removable disk drive indicator</i> |                |  |
|--|----------------|--|
| <b>Indicator status</b>                        | <b>Meaning</b> | <b>Description</b>   |
| Off  | Not ready      | Drive is not inserted correctly or the docking station has no power supply.  |
| Steady green                                   | Ready          | Drive is ready.  |
| Flashing green                                 | Activity       | Drive is reading, writing, or seeking.   |
| Flashing amber                                 | Fault          | Docking station has detected a fault condition with the cartridge.<br><br><b>Note:</b> An internal RDX docking station removable disk drive fault does not cause the enclosure fault LED to turn on. |

## **External RDX docking stations and removable disk drives**

Find information about external USB docking stations and their supported disk drives.

### **Description**

The external RDX docking station (FC EUA4) consists of a docking station, which holds a removable disk drive. The external RDX docking station is available as an external device. The disk drive is a backup and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array. [Figure 67 on page 82](#) and [Figure 68 on page 82](#) show the front and rear views of the external USB docking station.

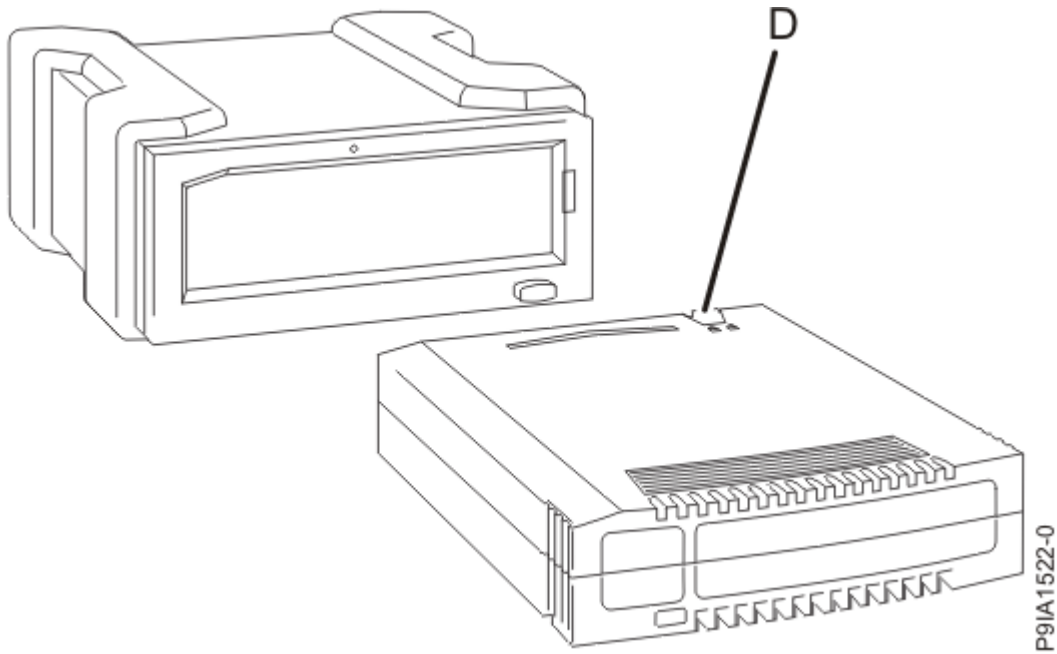


Figure 67. Front view of an external USB docking station and the removable disk drive cartridge

**D**  
Write-protect switch

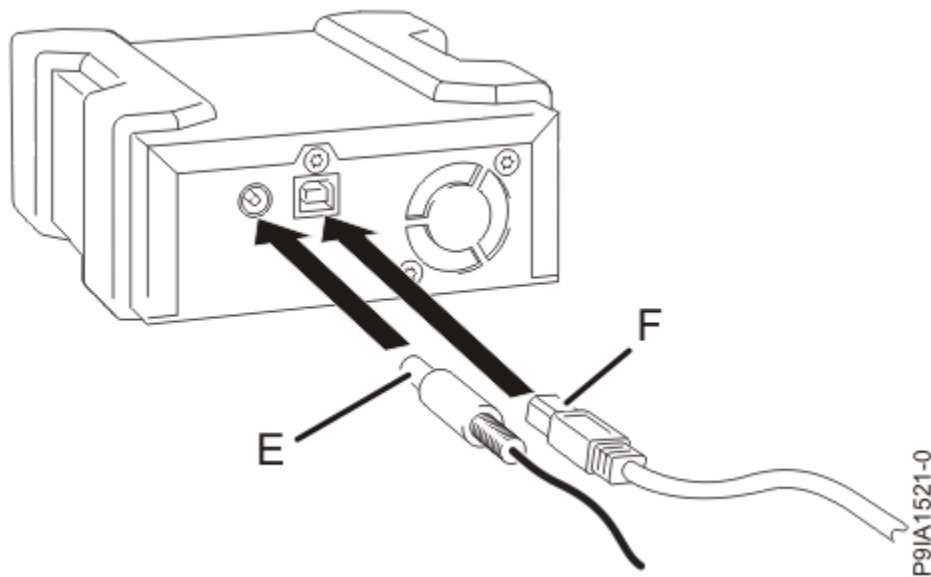


Figure 68. Rear view of an external RDX docking station and its cables

**E**  
Power cable

**F**  
USB cable

### Feature codes and part numbers

The external USB docking stations use an external USB cable to connect to an external USB port. These docking stations include a USB cable, an external power supply, and a power cord. [Table 6 on page 83](#) provides the part numbers. [Table 7 on page 83](#) provides the part numbers of the supported disk drives.



| FRU part number    | Description   |
|--------------------|---|
| 01GY550 or 01GY551 | External RDX USB 3.0 Dock (FC EUA4)   |
| 01GY552 or 01GY553 | External power supply with power cord and universal plugs for all supported geographies (FC EUA4) |
| 05H5081 or 05H5080 | External USB 3.0 cable (2.7 meters (8 ft 10 in))  |
| 39M5516            | Power cord (1 meter (3.28 ft)) that connects the power supply to the rack power distribution unit |

The supported disk drives in the external RDX docking station (FC EUA4) are listed in the following table:

| Feature code | Part number | Description                           |
|--------------|-------------|---------------------------------------|
| 1107         | 46C5379     | 500 GB Removable disk drive (FC EUA4) |
| EU01         | 46C2335     | 1 TB Removable disk drive (FC EUA4)   |
| EU2T         | 46C2975     | 2 TB Removable disk drive (FC EUA4)   |

## Purchasing extra removable disk drives

For best results, use only the removable disk drives that are listed in [Table 7 on page 83](#).

The removable disk drives are a supply item that can be ordered as a feature code. To order in the United States and Canada, call 1-888-IBM-MEDIA. To order drives in other locations, contact your local provider of IBM storage products or see the [IBM data storage \(HTTP://WWW.IBM.com/it-infrastructure/storage\)](http://www.ibm.com/it-infrastructure/storage) website.

IBM service representatives will not be dispatched to service or replace the removable disk drives.

## Storing removable disk drives

Store removable disk drives in their protective containers, on a flat surface with the top side up. The storage area must be clean and dry, must have normal room temperature, and must be away from any magnetic fields. For best storage life, use the removable disk drives every six months.

## Supported USB adapters and cables



**Attention:** The docking station supports the USB cable that is provided as part of the feature code. The docking station does not support attachment by using other USB cables, USB hubs, add-on USB cables, or USB cable extenders.

The external docking station can be connected to the external, integrated USB ports on POWER9 processor-based systems or can be connected to the USB ports on the PCIe2 LP 4-Port USB 3.0 adapter (FC EC45) or PCIe2 4-Port USB 3.0 adapter (FC EC46). For more information on these adapters and search on your feature code (FC). The FC in this file is a link to more information. See [PCIe adapter information by feature code \(http://www.ibm.com/support/knowledgecenter/POWER9/p9hcd/p9hcd\\_pcibyfeature.htm\)](http://www.ibm.com/support/knowledgecenter/POWER9/p9hcd/p9hcd_pcibyfeature.htm)

## Specifications

### Interface

USB 3.0

**Mksysb**

Yes

**Bootable**

Yes

**Environmental**

| <i>Table 8. Operating conditions</i> |  |  |
|--------------------------------------|--|--|
| <b>USB Removable Disk Drive</b>      | <b>Operating conditions</b>                    | <b>Non-operating conditions</b>                  |
| Temperature                          | 5°C - 55°C                                     | -40°C - 65°C                                     |
| Relative humidity                    | 8% - 90% non-condensing                        | 5% - 95% non-condensing                          |
| Maximum wet bulb temperature         | 29.4°C non-condensing                          | 40°C non-condensing                              |
| Maximum temperature gradient         | 20°C per hour                                  | 20°C per hour                                    |
| Altitude                             | -300 meters (-984.25 ft) to 3048 m (10,000 ft) | -300 meters (-984.25 ft) to 12,192 m (40,000 ft) |

**Using the external RDX removable disk drive for backup and restore**

The external RDX removable disk drive is a back up and restore device that can be used as an alternative to tape drives. The removable disk drive is not a replacement for regular disk drives and cannot be used as part of a disk array.

**Note:** If power is lost during a backup to the disk, the data can be compromised. Verify the data or rerun the backup.

**Using the disk drive with the AIX operating system**

The AIX operating system names the drives as drive usbmsx, for example, usbms1, and usbms2. The AIX operating system can also use the device as a raw device, for example, rusbms1 and rusbms2.

The AIX operating system uses the removable disk drive differently depending on the program that is being used. The AIX command **mksysb**, builds a list of files to backup, creates a universal disk format (UDF) file system, and puts a boot image and the root volume group on the removable disk drive. When the **mksysb** process is complete, the removable disk drive can be used to boot the system. If you mount the removable disk drive, you can display and copy files to and from the UDF file system on the removable disk drive.

The AIX commands, **tar**, **backup**, **restore**, **dd**, and **cpio** can write to the removable disk drive as a raw device or non-raw device. You might get improved performance by using the device as a raw device.

See the AIX documentation for additional information.

**Using the disk drive with the IBM i operating system**

The IBM i operating system configures the drive as a removable media drive with a name in the format RMSxx, for example, RMS01.

The drive and cartridge are used with optical commands and utilities (for example, WRKOPTVOL and INZOPT), and reports media in the Optical File System (QOPT).

See the IBM i operating system documentation for information about using the IBM i commands: **copy** and **backup**.

**Using the disk drive with the Linux operating system**

The Linux operating system configures the drive as a disk drive with a name in the format sdx, for example, sda, sdb, and sdc.

See the Linux documentation for information about using the Linux commands: **copy** and **backup**.

## Setting the write-protect switch

The removable disk drives have a red, write-protect tab that is located on the rear of the disk drive. To write-protect a drive, slide the write-protect tab toward the lock symbol. To disengage write protection, slide the tab to the unlock symbol.

## Using the emergency eject function

To eject a removable disk drive, press the eject button. If a drive is stuck, complete the following steps:

1. Unplug the power cable from the device.
2. Insert a large straightened paper clip (or similar object) into the emergency eject hole.



**Attention:** Do not insert the object in the hole at an angle. Keep the object straight and apply some force to eject the drive.

3. When the drive has been ejected by the docking station, grasp the exposed sides of the drive and pull the drive straight out.
4. Reconnect the power cable for the docking station.
5. Restart your system to reset the docking station.

## Status lights

Find information about the power indicator and drive indicator status lights on the external USB removable disk drive.

### Power indicator

The eject button is illuminated by a power indicator light. The following table describes the operation of the power indicator.

| Indicator status | Meaning  | Description  |
|------------------|----------|--|
| Off              | No power | <ul style="list-style-type: none"><li>• FC EUA4: USB cable is not connected. The power supply may or may not be connected.</li></ul>   |
| Steady green     | Ready    | <ul style="list-style-type: none"><li>• FC EUA4: USB cable is connected. The power supply may or may not be connected. If the power supply is connected, the docking station will work correctly. If the power supply is not connected, the docking station will not work correctly.</li></ul> |
| Flashing green   | Ejecting | Cartridge is ejecting.   |
| Flashing amber   | Fault    | Docking station has detected a fault condition with the docking station.   |

### External RDX removable disk drive indicator

The disk drive has an indicator light that displays the status of the drive. The following table describes the operation of the drive indicator.

*Table 10. External USB removable disk drive indicator*

| <b>Indicator status</b> | <b>Meaning</b> | <b>Description</b>  |
|-------------------------|----------------|---|
| Off                     | Not ready      | Drive is not inserted correctly or the docking station has no power supply. |
| Steady green            | Ready          | Drive is ready.   |
| Flashing green          | Activity       | Drive is reading, writing, or seeking.                                      |
| Flashing amber          | Fault          | Docking station has detected a fault condition with the cartridge.          |

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## Accessibility features for IBM Power Systems servers

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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](http://www.w3.org/TR/wai-aria/) ([www.w3.org/TR/wai-aria/](http://www.w3.org/TR/wai-aria/)), to ensure compliance with [US Section 508](http://www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards) ([www.access-board.gov/guidelines-and-standards/communications-and-it/about-the-section-508-standards/section-508-standards](http://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](http://www.w3.org/TR/WCAG20/) ([www.w3.org/TR/WCAG20/](http://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](http://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).

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## Electronic emission notices

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### 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**

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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.

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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

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- 回路分類 : 6 (単相、PFC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、PFC回路付)
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VCCI-A

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## 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。  
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干扰采取切实可行的措施。

## Russia Notice

**ВНИМАНИЕ!** Настоящее изделие относится к классу А.  
В жилых помещениях оно может создавать  
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## Taiwan Notice

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於居住環境中使用時，可  
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### 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.

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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.

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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:  
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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  
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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

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- 回路分類：6（単相、PFC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

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- 回路分類：5（3相、PFC回路付）
- 換算係数：0

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VCCI-B

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## United States Federal Communications Commission (FCC) Notice

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- 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  
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Contact for FCC compliance information only: [fccinfo@us.ibm.com](mailto:fccinfo@us.ibm.com)

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