
TeraFrame[®]

**N-Series TeraFrame[®]
Network Cabinet for the
Cisco Nexus 7018 Switch
(Nx5) User's Manual**



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OVERVIEW

This manual provides the information necessary to receive, unpack, and assemble the N-Series TeraFrame[®] Network Cabinet for the Cisco Nexus 7018 Switch (the Nx5 cabinet) and some TeraFrame accessories and options.

To easily navigate within this PDF document, use the bookmarks located to the left of the screen, or click on the section titles located on the contents page. Additionally, Adobe Acrobat features a search tool for searching by keyword or part number.

Because of the dynamic nature and continued enhancement of CPI products, the illustrations and descriptions in this manual may differ from the various products you receive.

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INTENDED USE OF THE NX5 CABINET

Keep a printed copy of the Preface of this User's Manual in or near the cabinet.

- Install the cabinet only in a restricted service environment, such as a data center. Use indoors only, in environmentally controlled areas; do not use outdoors, in harsh environments, or in air-handling spaces.
- Use the cabinet for information technology and telecommunications equipment.
- Allow only qualified service personnel to use the cabinet.
- Use casters only for moving empty cabinets to their final location. The cabinets must be anchored to the floor to ensure stability.
- The static load-bearing capacity of the Nx5 cabinet on leveler feet is 2500 lb (1134 kg).
- The ambient temperature operating range for the Nx5 cabinet and installed cabinet accessories is 0° to 60°C (32° to 140°F).

ORGANIZATION OF THIS MANUAL

This manual is organized as follows:

Chapter 1 – Getting started

- Cabinet features
- Included components
- Accessories and options
- Tools needed for assembly and installation

Chapter 2 – Installing the cabinet

- Unpacking the cabinet
- Moving the cabinet
- Attaching the cabinet to the floor
- Baying cabinets
- Bonding and grounding the cabinet
- Removing and installing the cabinet doors
- Using the door locks
- Removing and installing side panels
- Cable access through the top panel

Chapter 3 – Installing equipment

- Securing equipment to mounting rails
- Adding/adjusting thermal management accessories
- Adding/adjusting cable management accessories

CONVENTIONS USED IN THIS MANUAL

This manual provides general safety guidelines to be observed when planning for, installing, and operating your Nx5 cabinet.

Special messages used throughout this manual are explained below:



WARNING: Text highlighted in this manner indicates that failure to follow directions in the warning could result in bodily harm or loss of life. Obey all safety messages that follow this symbol to avoid possible injury or death.



CAUTION: Text highlighted in this manner indicates that failure to follow instructions could result in damage to equipment or data.

IMPORTANT: Text set off in this manner presents clarifying information or specific instructions.

NOTE: Text set off in this manner presents commentary, sidelights, or interesting points of information.

SAFETY INFORMATION

Keep a printed copy of the Preface of this User's Manual, especially the following safety information, in or near the cabinet.



WARNINGS

- Improper use of this product may lead to serious injury or death. Read and understand all instructions for proper installation and use of this product.
- Be sure to use sufficient personnel to safely remove the cabinet from the pallet.
- Do not attempt to move large cabinets by yourself. Obtain adequate assistance to stabilize the cabinet during movement or hire professional equipment riggers.
- Move cabinets on installed casters with extreme care. Sudden stops, excessive force, and uneven surfaces may cause the cabinet to overturn. Never push on the sides.
- Unload equipment from the cabinet before moving it.
- A standalone cabinet should be level, stable, and anchored to the floor. Two or more cabinets can be bayed together (coupled) to enhance their stability. Each cabinet should be anchored to the floor.
- Before loading equipment in the cabinet, be sure to adjust and lock the leveling feet to level the cabinet. Do not use casters to stabilize the cabinet; always anchor the leveling feet or the cabinet frame to the floor.
- Always load heavy equipment, such as a UPS, at the bottom of the cabinet first, and add lighter equipment on higher levels.
- There is a safety risk when equipment is mounted on a shelf installed more than 30 inches above the floor in a cabinet without doors and/or side panels. The equipment may accidentally slide or be accidentally pushed off the shelf and fall on personnel. When equipment is mounted on a shelf in this condition, securely fasten the equipment to the shelf or cabinet frame. The following accessories may be used to secure certain equipment on shelves: Monitor tie-down kit (P/N 11725-X01), Seismic equipment tie-down bracket (P/N 14061-X19), or Equipment tie-down bracket (P/N 16356-X19).

- The Nx5 cabinet can support many system configurations. The amount of force required to tip or make the cabinet unstable differs with each configuration. Be sure to read and follow your equipment manufacturer's specific assembly, installation, and safety instructions.
- When servicing slide-mounted equipment such as servers:
 - Secure all equipment in position, other than the unit being serviced, to prevent it from sliding out and destabilizing the cabinet.
 - Extend only one unit at a time. Extending multiple units may cause the cabinet to tip over.
 - Extend the unit slowly. Rapid deployment of the unit could cause the cabinet to tip over.
- For protection of the equipment and personnel, ground each cabinet individually to the Telecommunication Ground Circuit (TGC) or signal reference grid.



CAUTIONS

- Doors must remain supported during repositioning so that the hinge components are not damaged. Use blocks or have an assistant support the edge of the door opposite the hinges. Do not allow the top hinge to support the entire weight of the door during repositioning.
- Before swinging the front door, confirm that both top and bottom hinge pins are in the correct cavities of the door frame member. Swinging the door while the hinges are positioned in the wrong cavity may damage the door and/or the hinge.
- Keep the rear door closed while removing the hinge pins. An open door will fall off the cabinet when the pins are removed. When remounting the door, be sure to reinsert the hinge pins. If the hinge pins are not reinserted, the door could fall off the next time it is opened.
- For optimal load bearing capacity, move the mounting rails back no more than 10 inches (250 millimeters) from the front or rear of the cabinet.

WARRANTY

Chatsworth Products, Inc. (CPI) guarantees manufactured products and each part or component thereof against all defects in material and/or workmanship. CPI agrees to remedy any manufacturing defect either through replacement or repair at no charge, provided that the defective unit is returned, transportation prepaid, to the CPI factory. The warranty extends for a period of one year from the date of installation or initial use, provided that this period shall not exceed 18 months from the original date of shipment from the factory.

Any product that has been repaired or replaced shall be similarly warranted on its repair or replacement for the remaining product warranty period or 90 days from the date of repair or replacement, whichever expires last.

This warranty does not extend to products that have been subjected to neglect, accident or improper use, nor to units that have been altered by non-CPI personnel.

No warranties other than those set forth in this section are given or implied with respect to the products furnished. CPI shall, in no event, be liable for consequential damages, for loss, damage or expense directly or indirectly arising from the use of the products, for any inability to use materials or from any other cause.

SERVICE AND SUPPORT

For answers to your questions, please email Technical Support at techsupport@chatsworth.com, or call toll-free at **800-834-4969** (US. & Canada) Monday to Friday, 5 a.m. to 5 p.m., Pacific Time.

CHAPTER 1 – GETTING STARTED

Chapter 1 provides an overview of the N-Series TeraFrame® Network Cabinet for the Cisco Nexus 7018 Switch (the Nx5 cabinet), lists the key site considerations for installing the cabinet and lists the tools required to install the cabinet.

1.1 INTRODUCTION

The N-Series TeraFrame® Network Cabinet for the Cisco Nexus 7018 Switch (the Nx5 cabinet) is a unique equipment storage system designed specifically to deploy the Cisco Nexus 7018 switch in a hot aisle/cold aisle data center environment.

1.1.1 Features of the Nx5 cabinet

- An integrated Network Switch Exhaust Duct converts side-to-side airflow through the switch into front-to-rear airflow through the cabinet allowing deployment in hot aisle/cold aisle environments
- Offset, removable doors and side panels provide extra interior space around equipment for enhanced airflow, additional cable management space and easy access to equipment
- Large, brush-sealed openings on the top of the cabinet allow large quantities of cables to enter or exit the cabinet
- T-shaped cable guides along both sides of the cabinet organize cables as they connect to the switch
- The included Front-To-Back Manager Kit provides a pathway for cables along the side of the cabinet
- Double (vertically split) perforated doors support front-to-rear airflow through the cabinet and minimize aisle width requirements
- Tamper-resistant front door hinges and swing handles provide added security for equipment

1.1.2 Included with the Nx5 cabinet

The Nx5 cabinet includes the following components:

- Four-post frame with four vertical EIA-310-D standard equipment mounting rails – two front and two back; equipment mounting rails have square punched holes for cage nuts or tapped (threaded) holes for #12-24 combo-head screws
- L-shaped switch support brackets, 1 pair, installed at the 1U location
- Network Switch Exhaust Duct for the Cisco Nexus 7018 Switch and diffuser, installed on the left side of the cabinet from the 1U to 25U location
- Visor, installed on the right side of the cabinet , at the 25 U location
- T-shaped cable management fingers, installed on the front right and left sides of the cabinet frame
- Front-to-Rear Cable Manager Kit, installed on the right side of the cabinet above the visor
- Four-piece top panel with large brush-sealed cable ports along each side
- Double (vertically split) front and rear perforated metal doors with two-point latches and keyed or combination/keyed locks
- Dual (two-piece) side panels, easy to remove, lockable (*optional, the cabinet can be ordered with one, two or no side panels*)
- Door keys, two sets, that fit all cabinet locks (doors and side panels)
- Common parts kit
 - 4 leveling feet
 - 4 floor anchor brackets (used to secure leveling feet to the floor)
 - 1 grounding block
 - 1 baying kit (used to bay two Nx5 cabinets)
 - 1 package of equipment mounting hardware (50 each #12-24 screws with tapped rails or 25 cage nuts and M6 screws with square punched rails)

NOTE: Depending on your specifications, additional components (shelves, cable managers, casters, etc.) may be pre-installed in/on the cabinet.

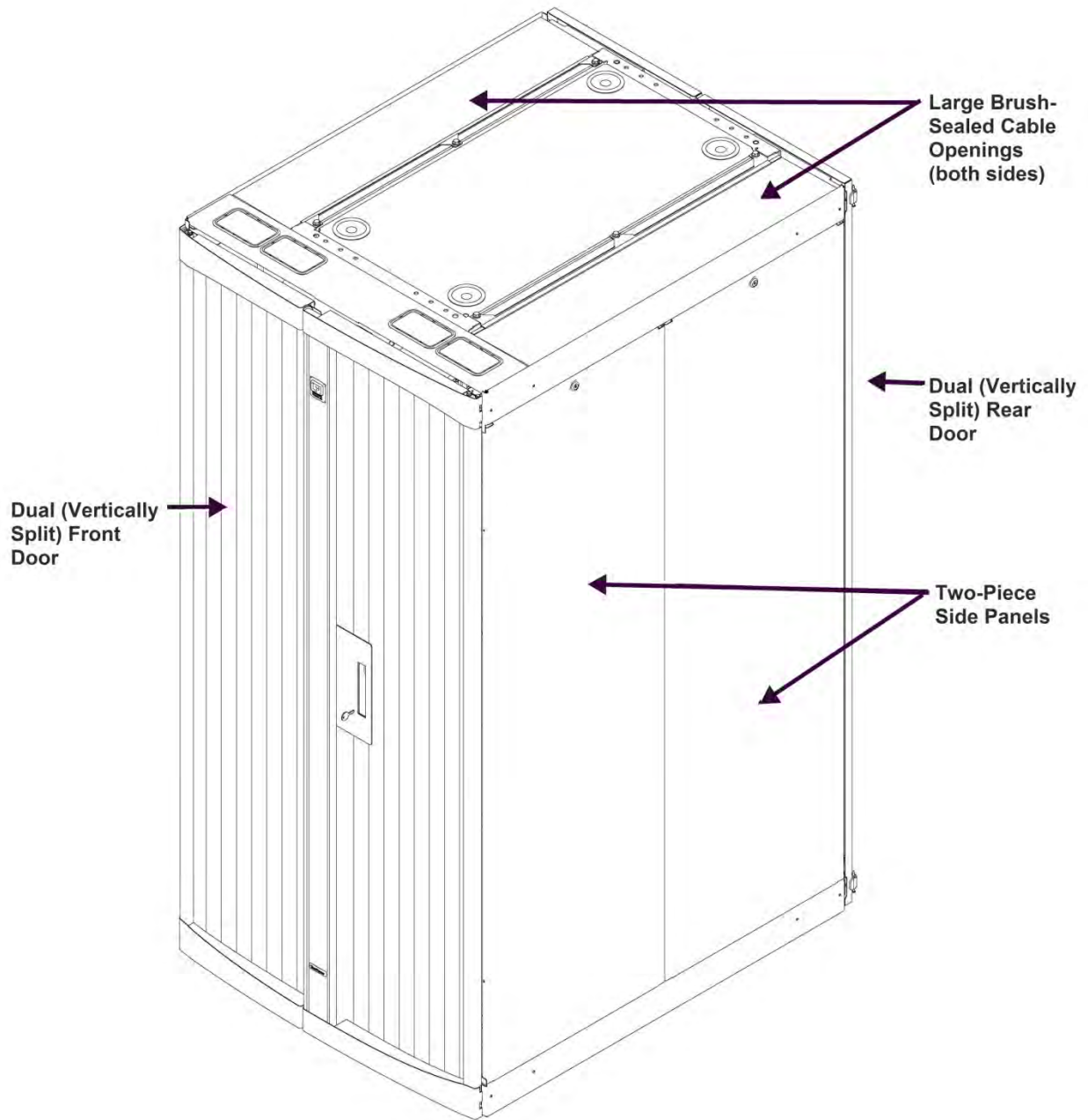


Figure 1.1.2a The Nx5 cabinet with top panel, side panels and doors installed

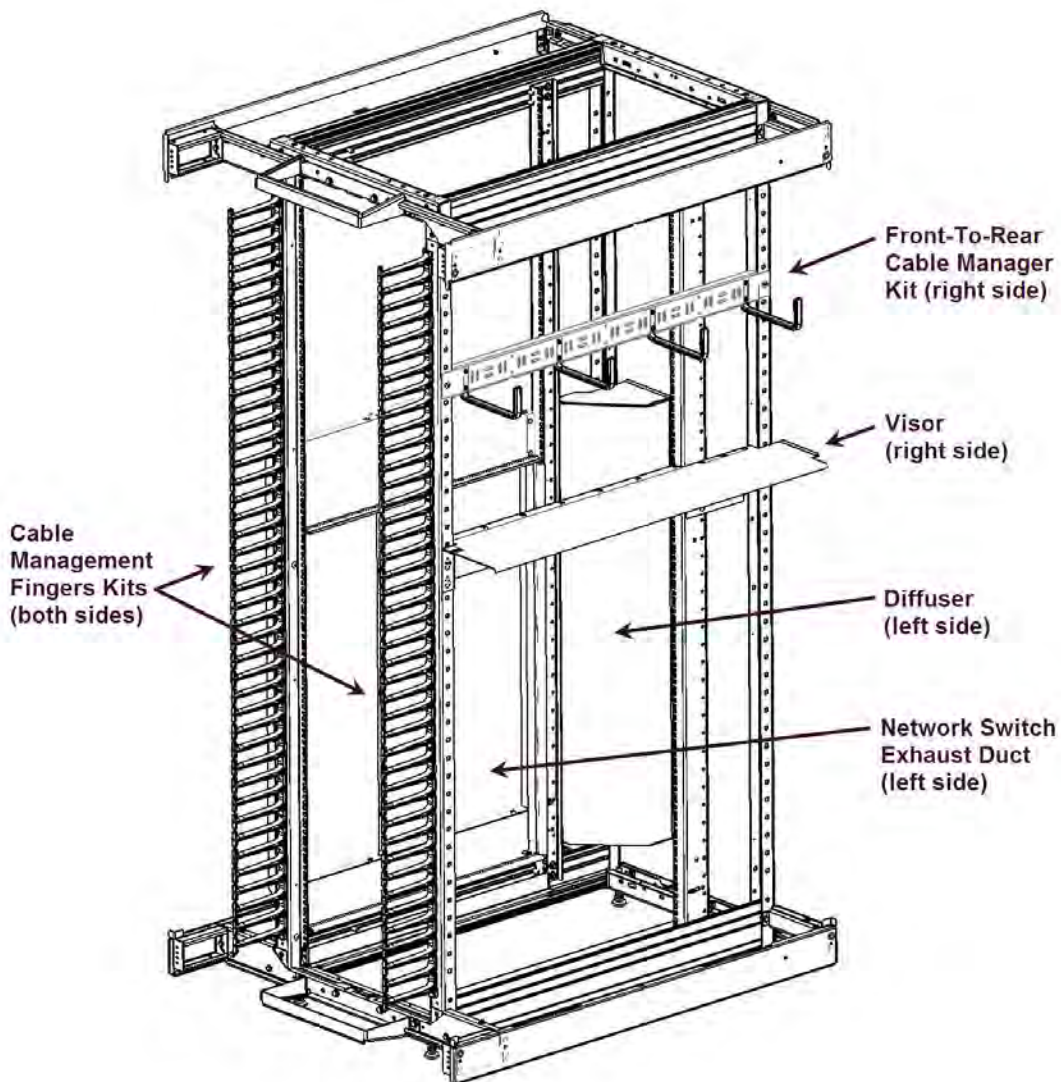


Figure 1.1.2b The Nx5 cabinet with top panel, side panels and doors removed

1.1.3 Accessories and options for the Nx5 cabinet

A full range of accessories are available for your Nx5 cabinet. For more information, please contact your authorized CPI Distributor or CPI Customer Service Representative, or go to www.chatsworth.com/ciscoteraframe.

1.2 BEFORE YOU BEGIN

Before you begin installing the Nx5 cabinet, review the planned location for the cabinet and verify that there is sufficient floor loading capacity and space for the cabinet, that there is a clear pathway and sufficient hallway width and door height to move the cabinet, and that you have all tools necessary to install the cabinet.

1.2.1 Allotting floor space for the cabinet

The Nx5 cabinet has six possible sizes depending on the selected configuration. The table below lists overall dimensions of the six configurations by part number.

Overall Dimensions Of The NX5 Cabinet						
Part Number	Height		Width		Depth	
	in	mm	in	mm	in	mm
NC5R-xxxx-xxx	78.3	1989	40.0	1016	49.1	1247
NC5T-xxxx-xxx	78.3	1989	40.0	1016	50.1	1272
NC5U-xxxx-xxx	78.3	1989	40.0	1016	51.1	1297
NF5R-xxxx-xxx	83.5	2122	40.0	1016	49.1	1247
NF5T-xxxx-xxx	83.5	2122	40.0	1016	50.1	1272
NF5U-xxxx-xxx	83.5	2122	40.0	1016	51.1	1297

Note that the cabinet is wider and deeper than the typical server cabinet. Leveling feet add approximately 1 inch (25 mm) of height to the cabinet. The Caster Kit (P/N 155537-001) adds approximately 2.8 inches (71 mm) of height to the cabinet.

Allocate sufficient floor space to store the cabinet. Refer to TIA/EIA-942 standards for minimum spacing in the front and back for access, ventilation, and door swing.

1.2.2 Floor loading and cabinet load bearing capacity

The static load-bearing capacity of the Nx5 cabinet on leveler feet is 2500 lb (1134 kg). Verify that the floor is rated to support the load of the cabinet and installed equipment.

NOTE: Casters are used only to move empty cabinets to their final location, where they must be bolted to the floor to ensure stability.

1.2.3 Coordinating floor tile cuts for cable access

Plan the floor layout before installing N-Series TeraFrame® Network Cabinet for the Cisco Nexus 7018 Switch, so that cable openings in the access floor will be correctly aligned. Position the cabinet on the access floor with the cold aisles in front. If both power and data cables are under the floor, it is advisable to provide separate ingress for the two types of cables. Floor tile cuts must be completed before installing the cabinet.

- Use Koldlok Raised Floor Grommets (www.chatsworth.com/koldlok) to seal the openings in the floor.
- Use OnTrac™ Wire Mesh Cable Tray System (www.chatsworth.com/ontrac) to create cable pathways under the access floor.

1.2.4 Tools required to install the Nx5 cabinet and accessories

- Flat screwdriver
- Large Phillips screwdriver
- Small Phillips screwdriver
- 3/8-in socket
- 8mm wrench
- 10mm socket wrench
- 12mm socket wrench
- 13mm socket and open end wrench
- 16mm open end wrench
- 5mm hex key (Allen wrench)
- Pliers (to install cage nuts)
- Hand-held tool to insert cable fingers

CHAPTER 2 – INSTALLING THE CABINET

Chapter 2 lists the steps required to install the cabinet including unpacking the cabinet, securing the cabinet to the floor, baying cabinets and adding/removing doors and side panels.

2.1 UNPACK THE CABINET

The Nx5 cabinet is delivered on a pallet and is protected by a cardboard cover and stretch wrap.

2.1.1 Removing the packaging material

1. Check the packaging for damage. If serious damage is observed which could indicate damage to the cabinet, immediately contact your distributor.
2. Remove the outer packing material which includes stretch wrap that secures corrugated cardboard around the cabinet and an inner plastic bag that covers the cabinet. Remove the packaging carefully to avoid damage to the cabinet.
3. Check the cabinet for damage. If any equipment damage is observed, immediately contact your distributor.
4. Check the contents against the packing list (in a plastic envelope fastened to the outside packaging) and the list in section 1.1.2 to verify receipt of all components.

2.1.2 Removing the cabinet from the pallet



WARNING: Be sure to use sufficient personnel to safely remove the cabinet from the pallet.

NOTE: To lighten the load to be moved, remove the doors and side panels before lifting the cabinet from the pallet. See sections 2.7 and 2.8 for instructions on removing doors and side panels.

1. Open the front and back doors to access bolts in each corner of the frame that hold the cabinet to the shipping pallet.
2. Remove the bolts (using a 3/8-in socket) and wood shims from under the front and rear cabinet frame.
3. Remove the cabinet from the pallet.

2.2 MOVING THE CABINET

Use the Caster Kit (P/N 15537-001) to move the cabinet into place. The caster kit can be ordered pre-installed on the cabinet or as a separate accessory. Installation instructions are included with the caster kit.

NOTE: Casters are intended for moving empty cabinets to their final location, where they must be bolted to the floor to ensure stability. Casters add approximately 2.8 inches (71 mm) of height to the Nx5 cabinet. Be sure that the leveling feet are adjusted upward so that they will not drag against the floor when the cabinet is rolled.



WARNING: Move cabinets on installed casters with extreme care. Sudden stops, excessive force, and uneven surfaces may cause the cabinet to overturn. Never push on the sides.

To reduce the risk of personal injury or damage to the equipment, do not attempt to move large cabinets by yourself. Obtain adequate assistance to stabilize the cabinet during movement or hire professional equipment riggers.

Before loading equipment in the cabinet, be sure to adjust and lock the leveling feet to level the cabinet. Do not use casters to stabilize the cabinet; always bolt the leveling feet or the cabinet frame to the floor. Always load heavy equipment at the bottom of the cabinet first, and add lighter equipment to higher levels.

2.3 SECURING THE CABINET TO THE FLOOR

Nx5 cabinets, whether standalone or bayed with other cabinets, must always be anchored to the floor. You can anchor the leveling feet using the included floor anchor brackets or anchor the frame without leveling feet directly to the floor. Use appropriate installation hardware, ordered separately.

2.3.1 Slab floor installation

Because the Nx5 cabinet is available in three depths, the position of anchoring holes will vary depending on the size of the cabinet frame.

1. Position the cabinet at its permanent location and mark the locations of anchor hardware.
 - If using floor anchor brackets to secure leveling feet, position the brackets inside the frame as shown in Figure 2.3.1a below.
 - If attaching the frame directly to the floor (without leveling feet), use the holes in the frame shown in Figure 2.3.1c below.
2. Move the cabinet and drill anchor holes.
3. Install the floor anchors.
4. Reposition the cabinet.
5. Adjust the height of the leveling feet to level the cabinet. Lock the leveling feet in place.

6. If using the floor anchor brackets with the leveling feet,
 - Install the floor anchor brackets from inside the framework, capturing each of the four leveling feet.

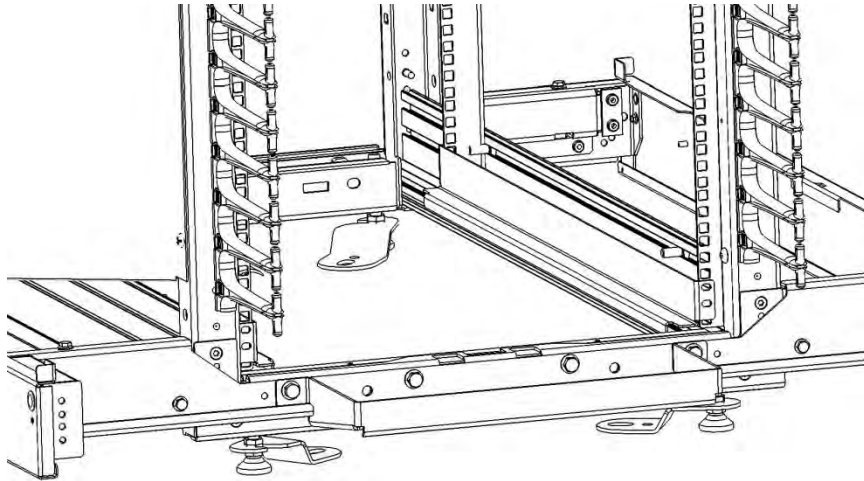


Fig. 2.3.1a Position floor anchor brackets inside the cabinet frame

- Then, attach the floor anchor brackets to the floor with appropriate hardware for your type of floor and secure the brackets to the leveling feet

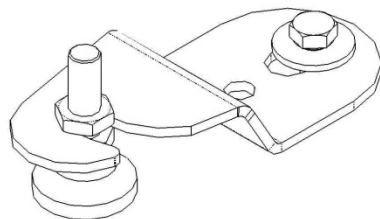


Fig. 2.3.1b Floor anchor bracket and leveling foot

7. If attaching the cabinet directly to the floor, remove the leveling feet and use four bolts to attach the cabinet frame directly to the floor.

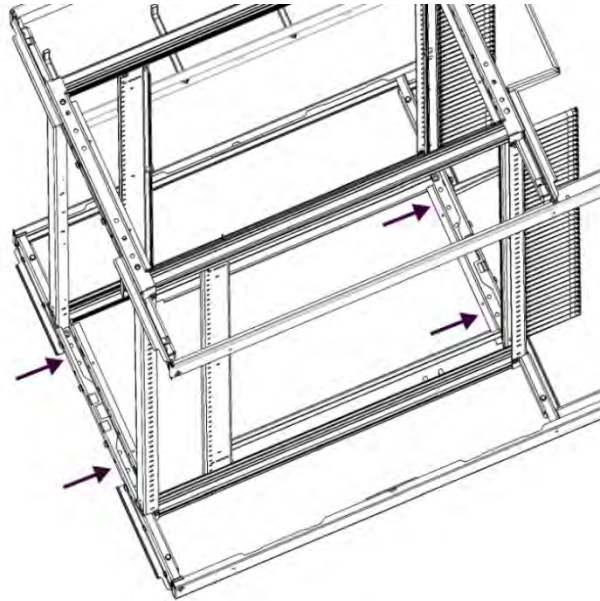


Fig. 2.3.1c Frame bolt-down hole locations

2.3.2 Access floor installation

In an access floor installation, ensure that the floor is strong enough to support the fully populated cabinet. Add subfloor bracing to provide the proper support for equipment.



Fig. 2.3.2 Subfloor bracing

2.4 BAYING CABINETS

The Nx5 cabinet includes a Baying Kit (P/N 15480-001) that can be used to bay two Nx5 cabinets that are the same height and depth.



WARNING: To reduce the risk of personal injury or damage to the equipment, do not attempt to move large cabinets by yourself. Obtain adequate assistance to stabilize the cabinet during movement or hire professional equipment riggers.

Parts list

- 4 each M6 x 16 mm screws
- 4 each 6 mm nuts

2.4.1 Installing the baying kit

1. Position two Nx5 cabinets side by side. The cabinets must be the same height and depth. Cabinets can be bayed with or without side panels installed.
2. Position the cabinets so that the standoff brackets in each corner are aligned.
3. Insert hardware through holes in the brackets (and side panels), check the alignment of the cabinets and then tighten the hardware using the 10 mm socket and wrench.

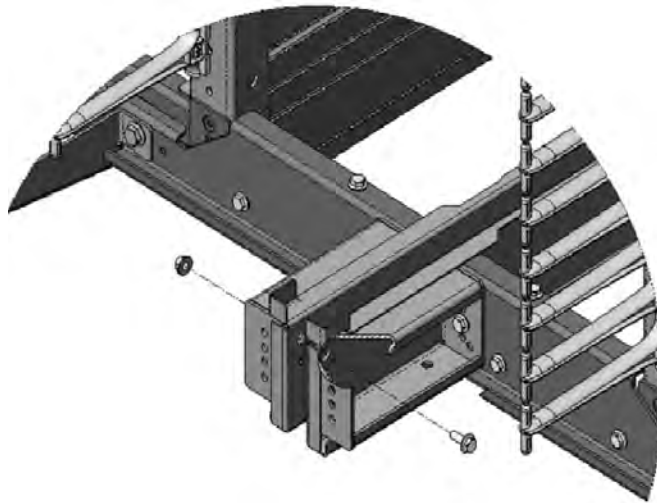


Fig. 2.4.1 Attaching the baying kit (side panels removed for clarity)

2.5 BONDING AND GROUNDING THE CABINET

To help prevent transient voltage from damaging sensitive electronic equipment, bond the Nx5 cabinet to the telecommunications ground. A ground terminal block (grounding lug) (P/N 40167-001) is included with the Nx5 cabinet.

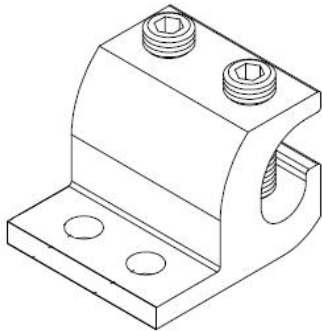


Fig. 2.5 Ground terminal block

Mount the terminal block to an unpainted, tapped and drilled on the bottom front or rear of the cabinet frame.

NOTE: Equipment mounting rails are plated rather than painted to facilitate ground connections to equipment chassis.

Follow TIA/EIA-607 standards to complete the bonding and grounding process.



WARNING: For protection of the equipment and personnel, ground each cabinet individually to a bus bar or signal reference grid.

2.6 ATTACHING CABLE RUNWAY TO THE TOP OF THE CABINET

Use cable runway to create overhead cable pathways to route patch cords between cabinets.

2.6.1 Installing the Cable Runway Elevation Kit

Attach cable runway to the top of the Nx5 cabinet using the Cable Runway Elevation Kit (P/N 10506-716).

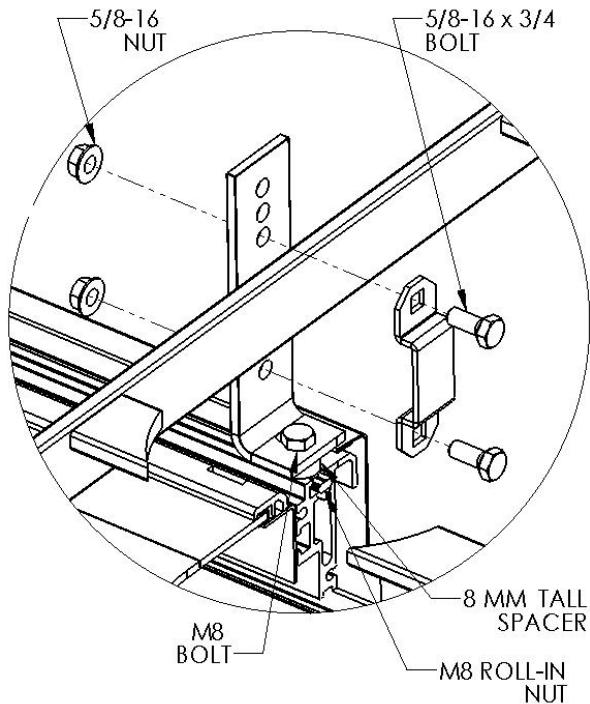


Fig. 2.6.1 Cable Runway Elevation Kit

2.6.2 Aligning radius drops with top cable access

Cable Runway Radius Drops (P/N 12100-xxx or 12101-xxx) allow you to maintain proper bend radius to prevent cable tears, tangles, and stretching. Add a radius drop wherever cable enters or exits the pathway to maintain a gradual bend in the cable, which helps maintain signal quality on the cables.

- Use the Stringer Radius Drop (P/N 12101-series) to drop off of the side of cable runway
- Use the Cross-Member Radius Drop (P/N 12100-series) to drop off the end or middle of the cable runway

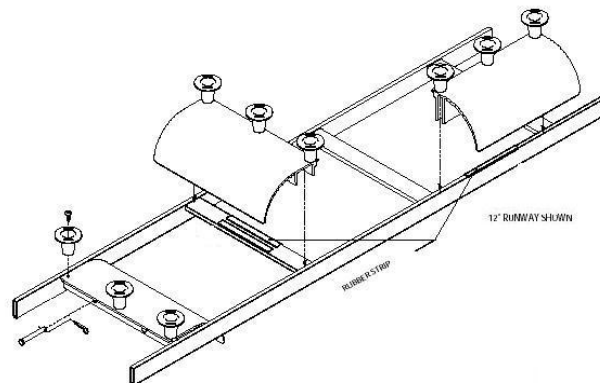


Fig. 2.6.2 Cable Runway Radius Drops (Cross-Member, Stringer)

2.7 REMOVING AND INSTALLING THE CABINET DOORS

The cabinet doors can be removed to provide complete access to equipment inside the cabinet.

2.7.1 Removing the front door



CAUTION: The front door must remain supported during repositioning so that the hinge components are not damaged. Use blocks or have an assistant support the edge of the door opposite the hinges. Do not allow the top hinge to support the entire weight of the door during repositioning.

1. Open the door to a 90-degree angle.
2. Lift the lower hinge pin until you feel it click into position. A pin retainer keeps the hinge pins from being completely removed.

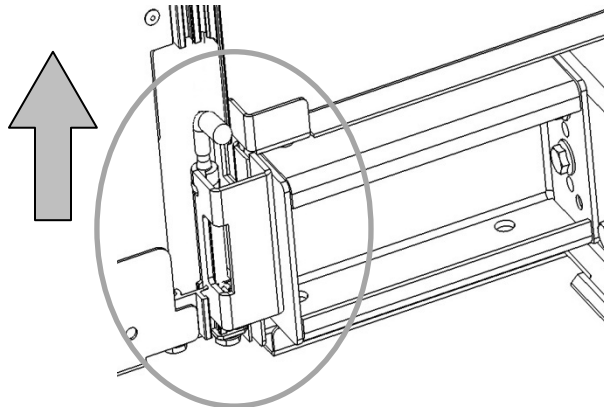


Fig. 2.7.1a Lower door hinge pin

3. Pull the door away from the lower hinge, and lift the door up and off the upper hinge pin.

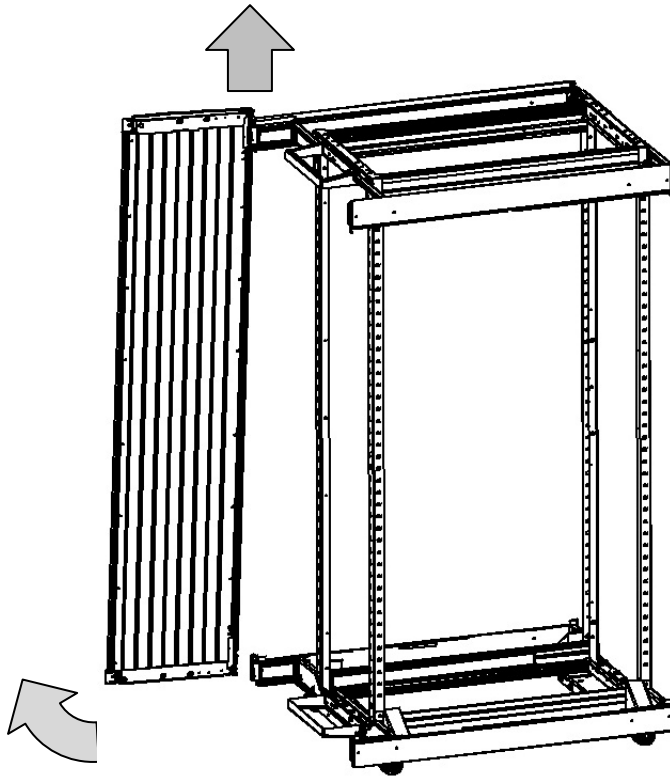


Fig. 2.7.1b Removing the front door

4. Repeat steps 1 through 3 to remove the other half of the door.

2.7.2 Installing the front door



CAUTION: The front door must remain supported during assembly so that the hinge components are not damaged. Use blocks or have an assistant support the edge of the door opposite the hinges. Do not allow the top hinge to support the entire weight of the door during assembly.

1. Configure the upper and lower hinge pins in their upper-most positions. As the upper and lower hinges are assembled opposite each other, the upper hinge pin will be extended, while the lower hinge pin will be recessed.
2. Orient the front door perpendicular to the cabinet, with the lower part of the door tilted sideways slightly away from the cabinet.

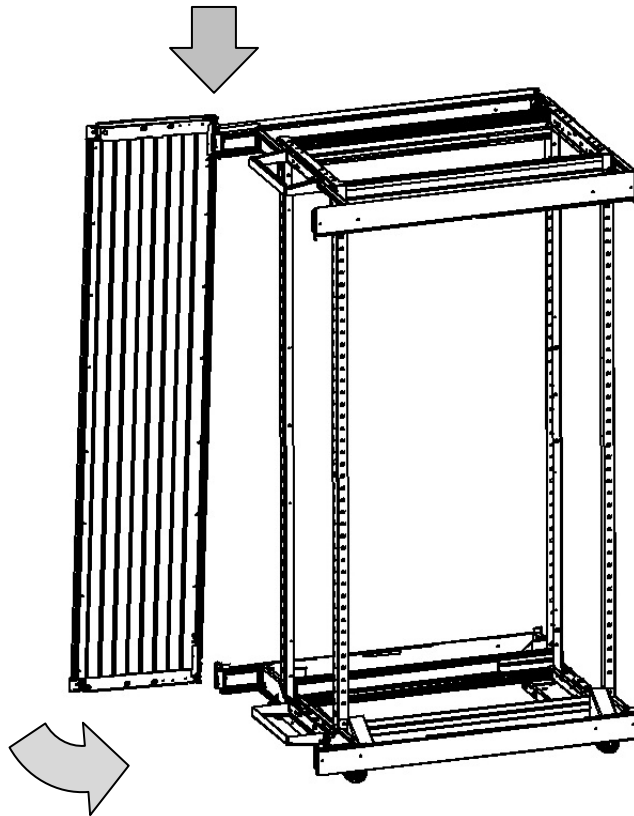


Fig. 2.7.2a Installing the front door

3. Carefully lower the door onto the upper hinge pin. Be sure that the hinge pins align correctly with the hinge pivot axis cavity in the door frame.

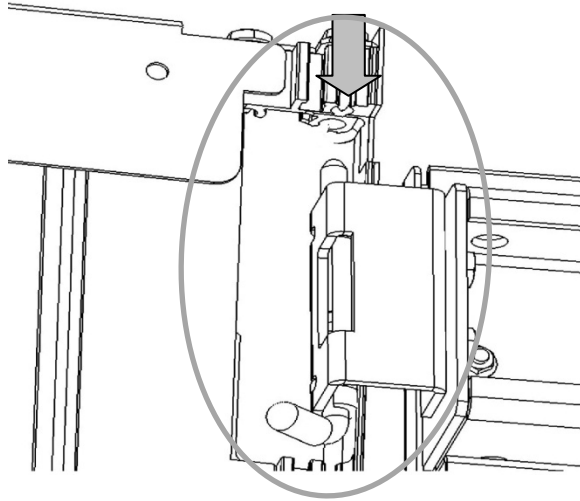


Fig. 2.7.2b Hinge pivot axis cavity

4. Bring the door frame vertical and align the lower hinge pin with the hinge axis in the door extrusion. Engage the lower hinge pin in the door by pushing it downwards.

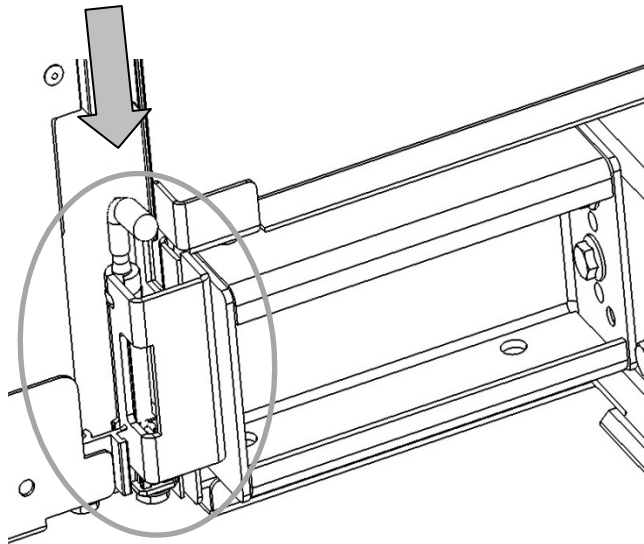


Fig. 2.7.2c Engage the lower hinge pin



CAUTION: Before swinging the door, confirm that both top and bottom hinge pins are in the correct cavities of the door frame member. Swinging the door while the hinges are positioned in the wrong cavity may damage the door and/or the hinge.

5. Repeat steps 1 through 4 to install the other half of the door.

2.7.3 Removing and Installing the rear door



CAUTION: Keep the rear door closed while removing the hinge pins. An open door will fall off the cabinet when the pins are removed. When remounting the door, be SURE to reinsert the hinge pins. If the hinge pins are not reinserted, the door could fall off the next time it is opened.

1. With the door closed, remove the hinge pins by pushing the pin up from the bottom as far as it will go with a tool such as a small screwdriver. Grasp the pin head and pull the pin out the rest of the way.
2. Open the door while holding it firmly with a hand on each side. With the door at the 90-degree position, pull the door off the hinges perpendicular to the cabinet.

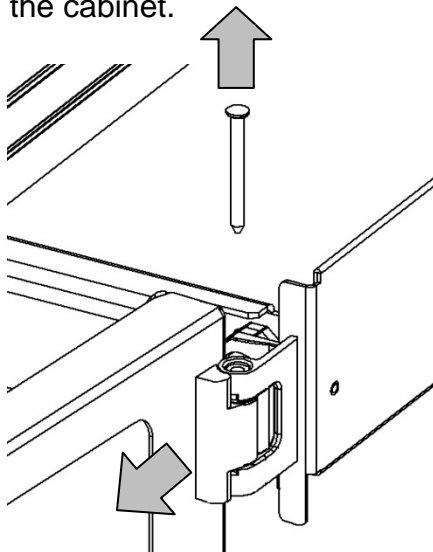


Fig. 2.7.3 Removing the hinge pin and door

3. To remount the doors, reverse the process: Slide the door onto the hinges, close the door, and be sure to insert the hinge pins.

2.7.4 Door locks

Two styles of door lock are available: Keyed locks and Combination locks.

2.7.4.1. Keyed lock

To open the door:

1. Unlock the lock with the key.
2. Pull the lock handle out, rotate it, and open the door.

To close the door:

1. With the handle in the open position, close the door.
2. Rotate the handle and push it in.
3. Lock with the key.

2.7.4.2 Combination lock

The combination lock is opened with a three-digit code, entered by turning three dials built into the swing handle.

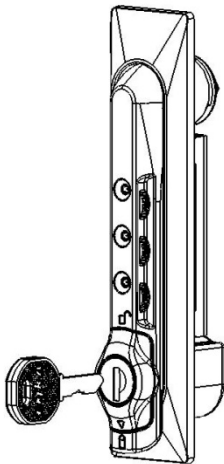


Fig. 2.7.4.2a Combination lock

The lock can also be opened with a key.

The combination can be changed if you know the existing combination.

The lock is set at the factory with the combination “000”.

To open the door when your cabinet is first received:

1. Dial in the factory-set combination “000”.
2. Turn the wing knob 180 degrees counterclockwise until the arrow points up (unlocked sign). Lift the handle and turn.

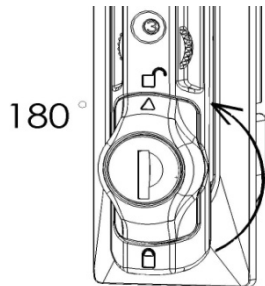


Fig. 2.7.4.2b Unlocking the lock

3. To relock, return the handle to the closed position, turn the wing knob 180 degrees clockwise to lock, and then scramble the combination.

To change the combination, the existing code must be known.
The factory-set combination is “000”.

1. Be sure that the key lock is in the locked position (arrow on the wing knob points down).
2. Dial in the existing combination.
NOTE: If the combination is unknown, you can use the key to unlock the door and gain access to the cabinet, but you cannot reset the combination.
3. Turn the wing knob 180 degrees + 15 degrees counterclockwise.

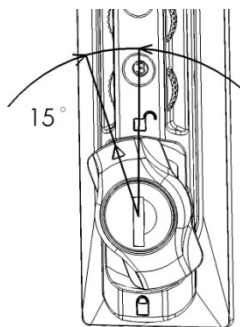


Fig. 2.7.4.2c Resetting the combination

4. Set the new combination numbers.

5. Turn the wing knob 15 degrees clockwise. The new combination is now set.
6. Turn the wing knob 180 degrees clockwise to lock, and then scramble the combination numbers.

2.8 REMOVING/INSTALLING THE SIDE PANELS

Side panels are factory-installed when ordered with the Nx5 cabinet. The side panels can be removed and reinstalled on fully populated cabinets.

The Nx5 cabinet has dual side panels – two side panels per side – to reduce the weight and bulk of the side panels and make side panel removal easier. Each panel is supported on the top and bottom by a skirt which is connected at the corners of the cabinet frame. There is also a center support, which provides support where the two panels meet.



WARNING: Be sure to use sufficient personnel to safely remove and replace the side panels.

1. To remove, unlock the side panel lock (turn the key clockwise), tilt the panel away from the frame, and lift the panel off the bottom frame (skirt).

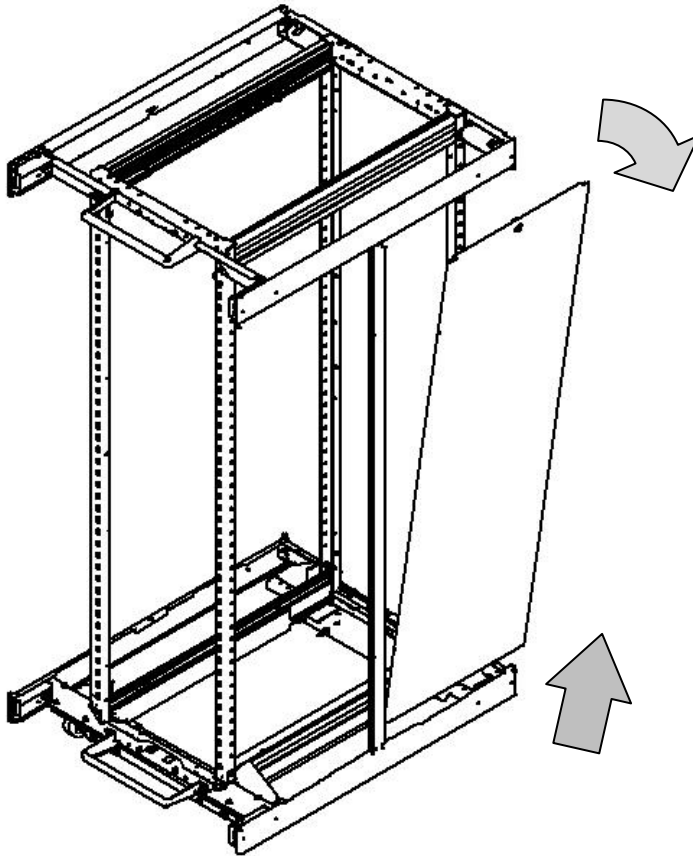


Fig. 2.8 Removing the side panel

2. To install, tilt the top of the panel 10 degrees away from the cabinet and guide the flange at the bottom of the panel over the edge of the frame. Rotate the panel toward the cabinet until flush with the outer frame. Turn the key counter-clockwise to lock into position.

2.9 CABLE ACCESS THROUGH THE TOP PANEL

The Nx5 cabinet has a four-piece top panel consisting of a solid center panel with four round grommets, a narrow front panel with four rectangular cable ports and two large brush-sealed side panels. All panels attach to the cabinet frame with hardware and can be easily removed.

2.9.1 Using the cable access ports in the center panel

The center panel has four 2.7" (71mm) diameter, grommet-protected holes; one per corner. To use the cable access port, remove the grommet, place it on a hard surface that can act as a cutting board, and use a utility knife to cut slits in the grommet diaphragm appropriate sized for the volume of cable. Then, replace the grommet on the top panel.

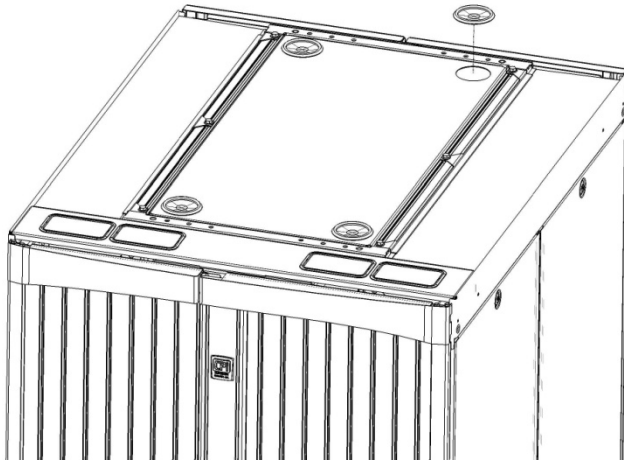


Fig. 2.9.1a Grommet removed from top panel

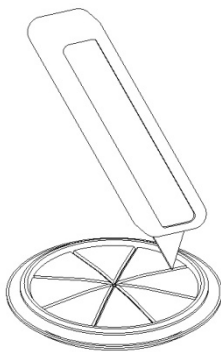


Fig 2.9.1b Cutting the grommet

2.9.2 Using the cable access ports in the front panel

The front panel is solid with four plastic 3.1 inch x 5.3 inch (79 mm x 135 mm) cable access ports – two per corner. To use one of these rectangular cable ports remove the port cover and pass cable through the opening.

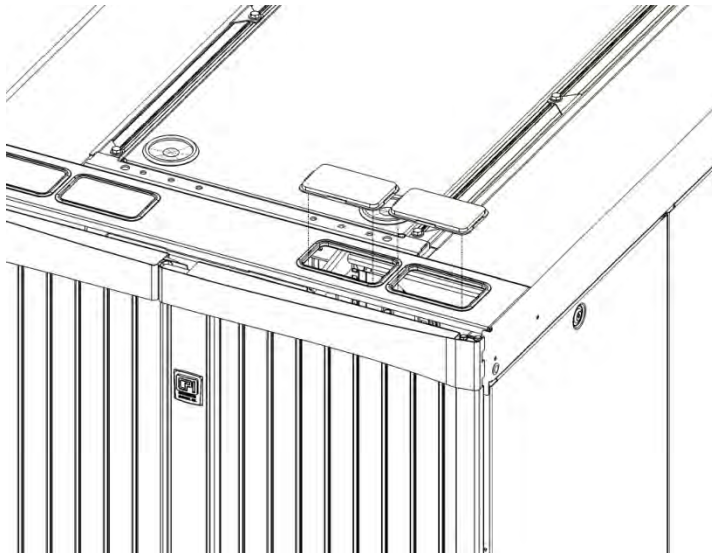


Fig. 2.9.2 Removing the cable access port covers from the top panel

2.9.3 Using the brush sealed cable openings on the sides of the top panel

The sides of the top panel have 7 inch (178 mm) wide brush sealed cable access ports. To use the ports, simply pass cable through the opening and arrange the brushes evenly around the cable.

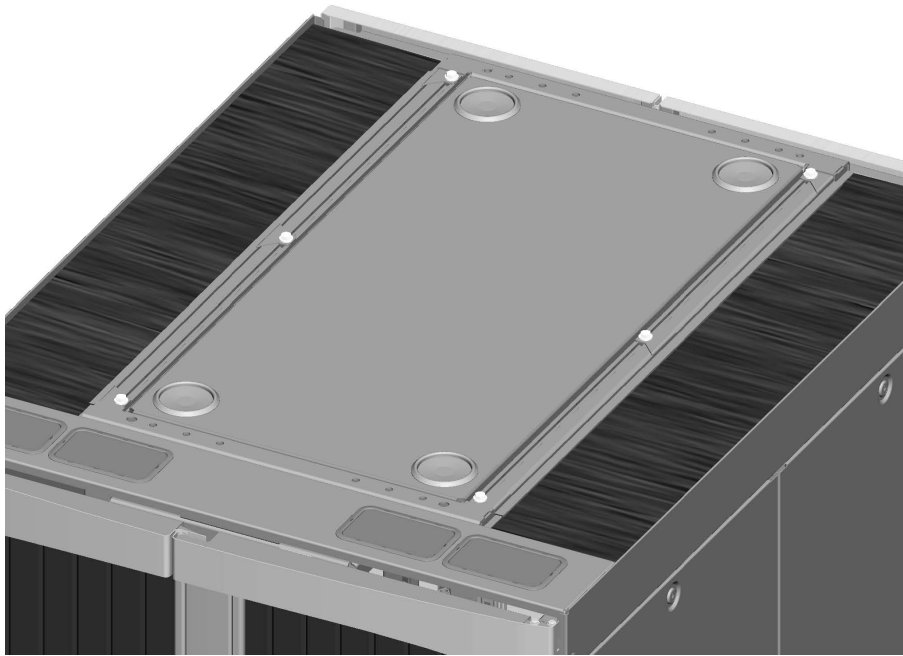


Fig. 2.9.3 Brush sealed cable openings on the top of the cabinet

CHAPTER 3 – INSTALLING EQUIPMENT

Chapter 3 lists the steps required to install equipment in the cabinet including steps for moving the included Network Switch Exhaust Duct, diffuser and visor. Several key accessories are also listed.

3.1 SECURING EQUIPMENT TO THE EQUIPMENT MOUNTING RAILS

The Nx5 cabinet supports 19" wide rack-mount equipment that conforms to the EIA-310-D standard for Universal hole spacing. Most equipment attaches directly to the equipment mounting rails; however, some manufacturers may provide brackets or slide assemblies that require additional installation.



WARNING: The N-Series TeraFrame Cabinet can support many system configurations. The amount of force required to tip or make the cabinet unstable differs with each configuration. Be sure to read and follow your equipment manufacturer's specific assembly, installation, and safety instructions.

3.1.1 Equipment mounting rails

The Nx5 cabinet includes four vertical equipment mounting rails, two in the front and two in the back. The rails are factory installed and fixed 29.8 inches (756 mm) apart.

3.1.2 Equipment mounting hardware

Equipment mounting rails may be square punched to accept cage nuts or tapped (threaded) to accept #12-24 screws. Cabinets with square punched rails include 25 each cage nuts and M6 screws. Cabinets with tapped rails include 50 each #12-24 screws. Additional hardware is available for purchase under the following part numbers:

EQUIPMENT MOUNTING HARDWARE FOR TAPPED RAILS (SOLD SEPARATELY)				
PART NO.	NOMINAL SIZE	PACKAGE OF	FINISH	SHIPPING WEIGHT
40605-001	12-24	50	ZINC	1 lb
40605-005	12-24	50	BLACK	1 lb

EQUIPMENT MOUNTING HARDWARE FOR SQUARE PUNCHED RAILS (SOLD SEPARATELY)				
PART NO.	NOMINAL SIZE	PACKAGE OF	FINISH	SHIPPING WEIGHT
12637-001	M-6	25	GOLD OVER ZINC	1 lb
12638-001	10-32	25	ZINC	1 lb
12639-001	12-24	25	BLACK	1 lb

3.1.3 Positioning equipment by U marks

Each rack-mount space (U) in the rack is marked by a line and numbered on the equipment mounting rails to simplify installation of components, thus saving time and minimizing errors. Align equipment with the U marks on each side of the frame before securing the equipment.

3.1.4 Switch support bracket

The cabinet includes a switch support bracket pre-installed at the 1U location to support the Cisco Nexus 7018 switch. The switch support bracket is used instead of the bracket included with the switch. It aligns the switch with the Network Switch Exhaust Duct and positions the switch in the bottom 25U of the cabinet.

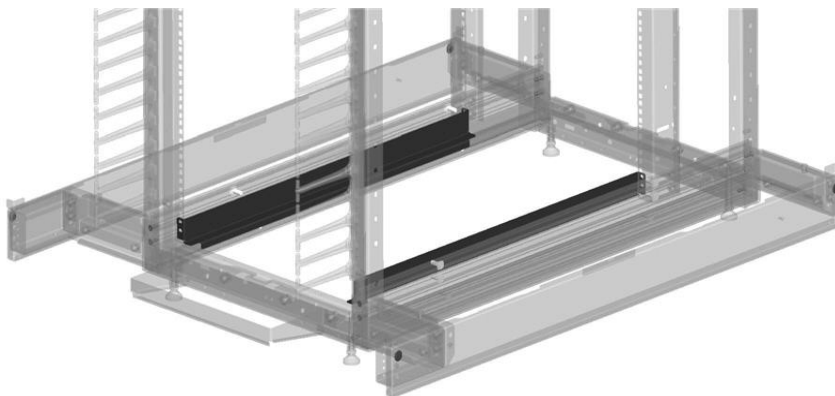


Fig. 3.1.4 Switch Support Bracket

3.2 ADDING/ADJUSTING THERMAL MANAGEMENT ACCESSORIES

Thermal management accessories for the Nx5 cabinet include the Network Switch Exhaust Duct with diffuser and the visor. Cabinet side panels can be installed to prevent hot air from escaping the side of the cabinet or from entering adjacent cabinets in a multi-cabinet bay.

3.2.1 The Network Switch Exhaust Duct

The Nx5 cabinet includes a Network Switch Exhaust Duct for the Cisco Nexus 7018 switch. The duct is factory installed on the left side of the cabinet to support the switch when mounted in the bottom 25U of the cabinet.

The duct captures and guides hot exhaust air from the side of the switch to the rear door. The duct includes a diffuser on the back side to increase the size of the opening that allows hot exhaust air to escape the rear of the cabinet. There is also a visor on the right side of the cabinet that helps prevent re-circulation of hot exhaust air from the rear of the cabinet to the intake side of the switch.

See Figure 3.2.1 on the next page.

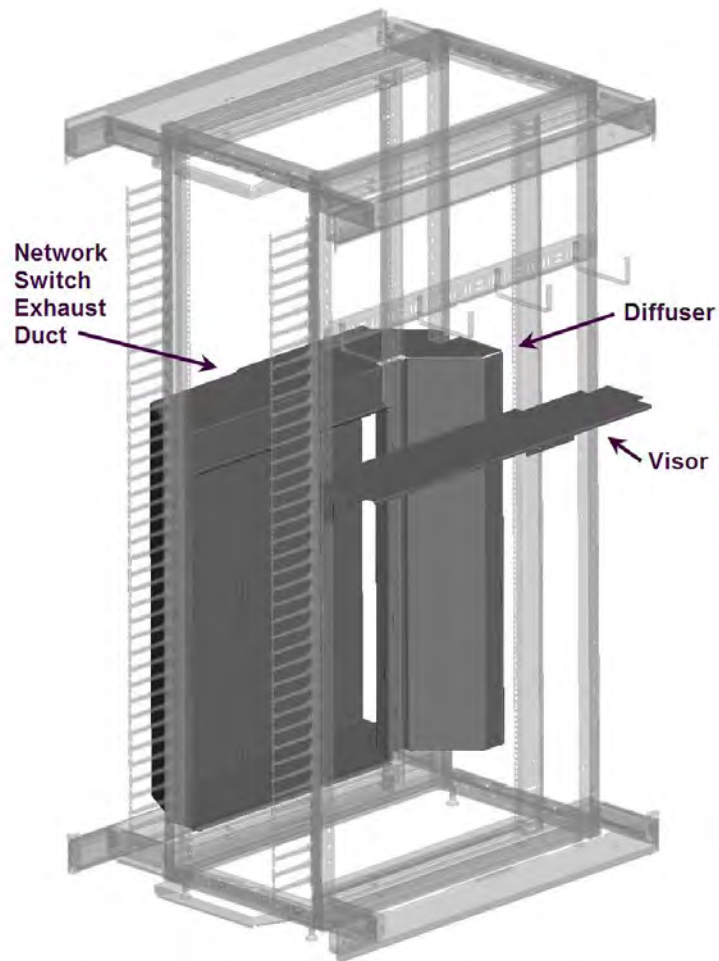


Fig. 3.2.1 Network Switch Exhaust Duct, Diffuser and Visor

The duct, diffuser, visor and switch support bracket can be repositioned if the switch is attached at a different U location.

3.2.1.1 Removing the Diffuser

The diffuser attaches to the side of the Network Switch Exhaust Duct and the cabinet's rear corner post with four screws. To remove the diffuser, loosen the screws that attach the diffuser to the duct, and then remove the screws that secure the diffuser to the side of the cabinet.

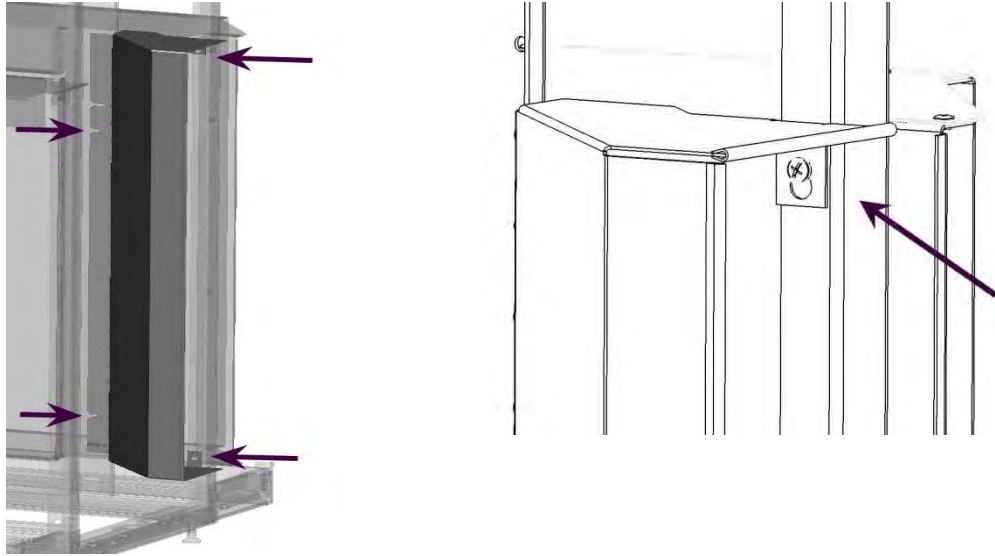


Fig. 3.2.1.1 Removing the Diffuser

Note: The diffuser should not be omitted from the cabinet. Thermal performance will be reduced if the diffuser is omitted and the switch may overheat.

3.2.1.2 Moving the Network Switch Exhaust Duct

The network switch exhaust duct attaches to the side of the cabinet. The cabinet's corner posts have square-punched holes that accept cage nuts. The duct is attached to the side of the cabinet using cage nut hardware. To reposition the duct, remove the screws that attach the duct to the side of the cabinet, remove the cage nuts, reposition the cage nuts at a different U location and reinstall the duct.

Note: If the Network Switch Exhaust Duct is moved from the bottom 25U location, you will not be able to use the vertical fiber management accessories on the cabinet.

3.2.1.3 Moving the Visor

The visor attaches to the side of the cabinet and the rear equipment mounting rail with four screws. The cabinet's corner posts have square-punched holes that accept cage nuts. The visor is attached to the side of the cabinet using cage nut hardware and bolts to the rear equipment mounting rail. To reposition the visor, remove the screws that attach the visor to the side of the cabinet and mounting rail, remove the cage nuts, reposition the cage nuts at a different U location and reinstall the visor. The visor should align with the top of the duct.

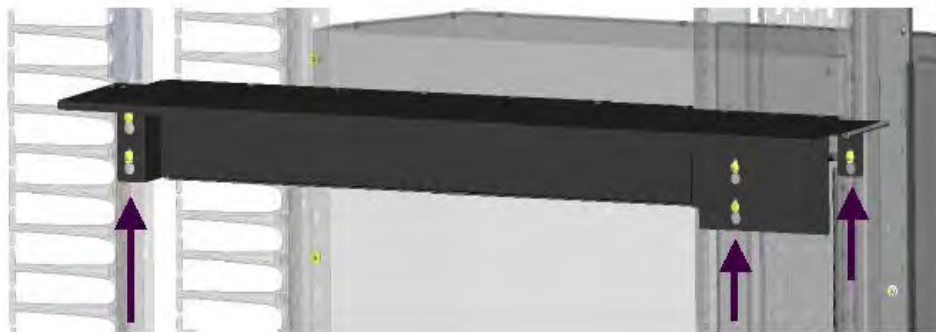


Fig. 3.2.1.3 Removing the Visor

Note: If the visor is moved from the 25U location, you will not be able to use the vertical fiber management accessories on the cabinet.

3.3 ADDING/ADJUSTING CABLE MANAGEMENT ACCESSORIES

Cable management accessories for the Nx5 cabinet include the Cable Management Fingers Kit, the Front-To-Rear Cable Manager Kit, the Horizontal Furcation Bracket and the Universal Accessory Rail Kit.

3.3.1 The Cable Management Fingers Kit

The Nx5 cabinet includes two Cable Management Fingers Kits. The kits are factory installed on the right and left sides of the cabinet on the cabinet's corner posts and organize cables by rack-mount space as they enter or exit equipment.

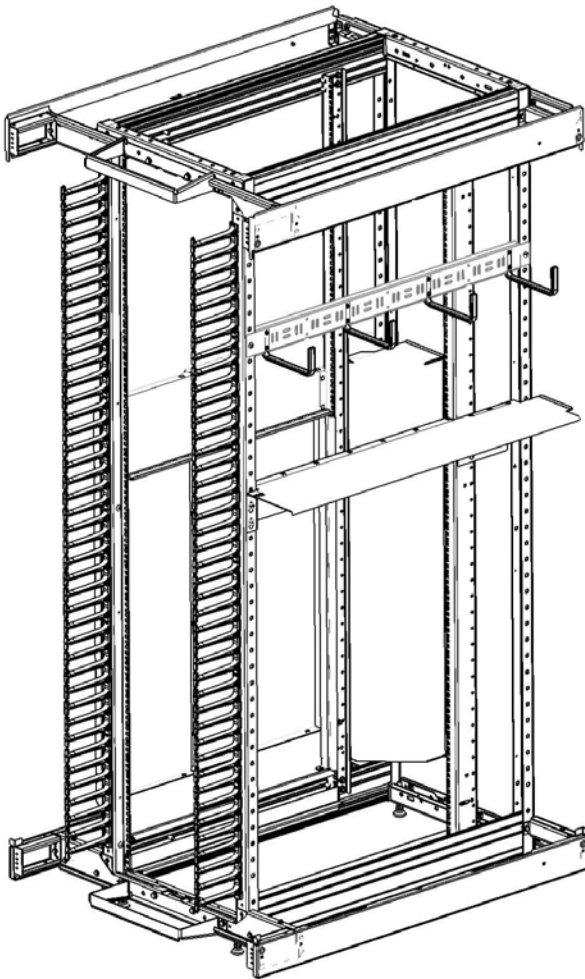


Fig. 3.3.1 Cable Management Fingers Kit

3.3.2 The Front-To-Rear Cable Manager Kit

The Nx5 cabinet includes a Front-To-Rear Cable Manager Kit (P/N 15529-C0X). The kit is factory installed on the left side of the cabinet above the visor and creates a front-to-rear pathway for patch cords and cables.

The Front-To-Rear Cable Manager Kit attaches to the side of the cabinet. The cabinet's corner posts have square-punched holes that accept cage nuts. The kit is attached to the side of the cabinet using cage nut hardware. To reposition the kit, removed the screws that attached the kit to the side of the cabinet, remove the cage nuts, reposition the cage nuts at a different U location and reinstall the kit.

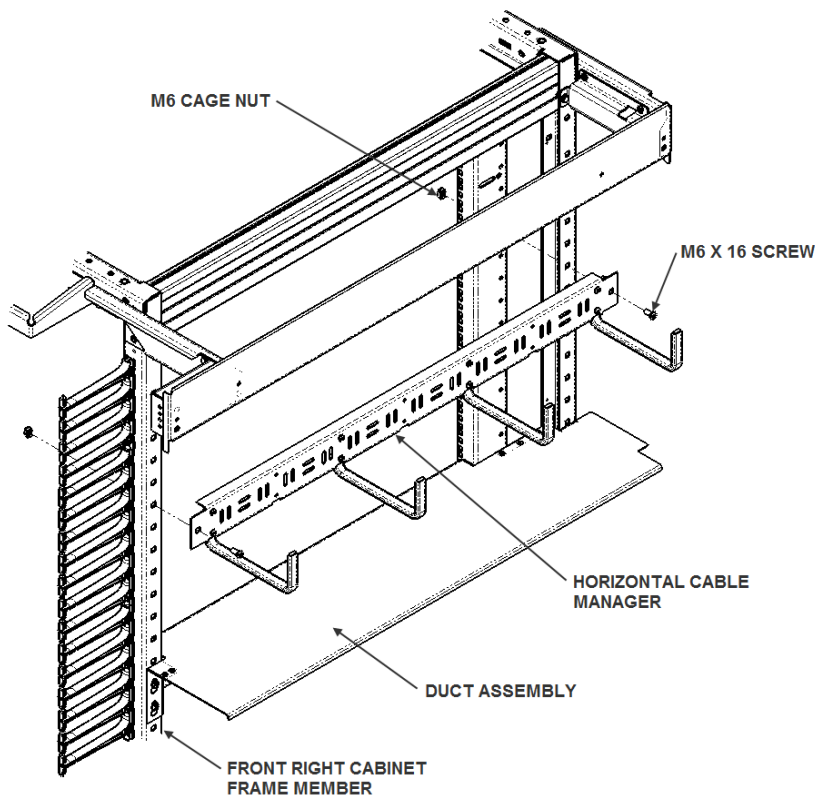


Fig. 3.3.2 Front-To-Rear Cable Manager Kit

NOTE: Additional kits can be ordered as accessories. Any combination of up to three Front-To-Rear Cable Manager Kits and Horizontal Furcation Bracket Kits can be attached on each side of the cabinet.

3.3.3 The Horizontal Furcation Bracket Kit

Use the Horizontal Furcation Bracket Kit (P/N 15483-C0X, ordered separately) to secure cables along the sides of the cabinet. The furcation plug on Corning Cable Systems Plug & Play Universal Systems trunk cables will attach to the bracket. The bracket can also be used as a lacing bar.

The Horizontal Furcation Bracket Kit attaches to the side of the cabinet. The cabinet's corner posts have square-punched holes that accept cage nuts. The kit is attached to the side of the cabinet using cage nut hardware. To reposition the kit, removed the screws that attached the kit to the side of the cabinet, remove the cage nuts, reposition the cage nuts at a different U location and reinstall the kit.

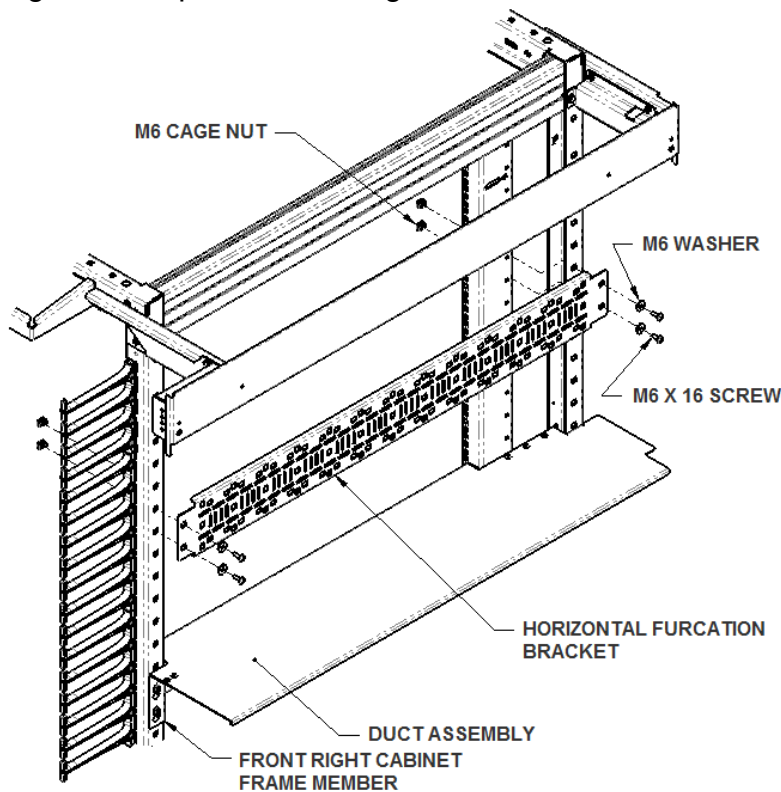


Fig. 3.3.3 Horizontal Furcation Bracket Kit

NOTE: Additional kits can be ordered as accessories. Any combination of up to three Front-To-Rear Cable Manager Kits and Horizontal Furcation Bracket Kits can be attached on each side of the cabinet.

3.3.4 The Universal Accessory Rail Kit

Use the Universal Accessory Rail Kit (P/N 15482-C0X, ordered separately) to attach Swivel Cable Spools (P/N 34716-C0X) and Fiber Module Adapters (P/N 34713-C01) to the front right or left side of the cabinet. The Swivel Cable Spools create a vertical cable pathway in the front corner of the cabinet. The Fiber Module Adapters support 4U pre-terminated fiber modules in the zero-U space along the side of the cabinet. The Universal Accessory Rail Kit can also be used as a lacing bar to secure cables to the cabinet's corner posts.

The Universal Accessory Rail Kit attaches to the side of the cabinet. The cabinet's corner posts have square-punched holes that accept cage nuts. The kit is attached to the side of the cabinet using cage nut hardware. The kit is sized to fit the space between the top of the duct or visor and the top of the cabinet and cannot be repositioned.

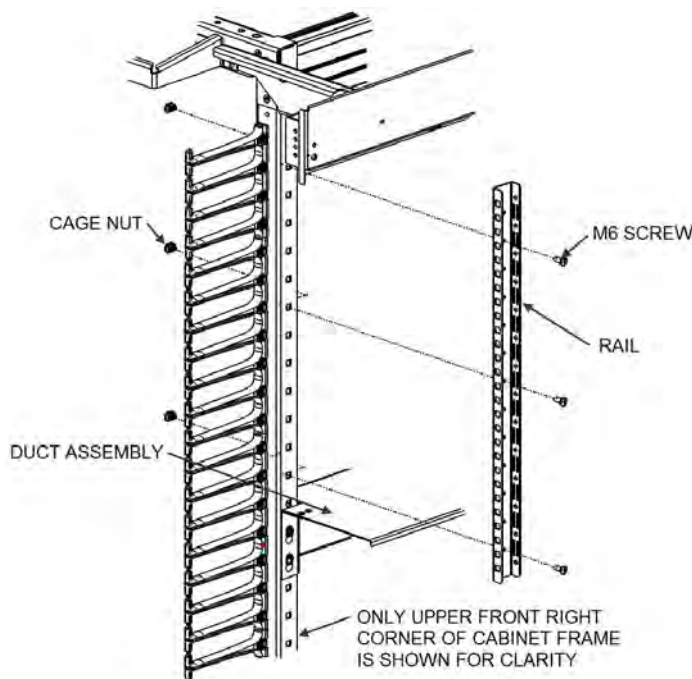


Fig. 3.3.4 Universal Accessory Rail Kit