

SYSTIMAX 360™ iPatch® Fiber MPO Upgrade Kit

General

iPatch® Upgrade Kits adapt previously installed **SYSTIMAX®** MPO fiber shelves to **iPatch** fiber shelves to enable **iPatch** system high performance patching solutions. Patchcords remain connected when installing kits, so network is not interrupted.

Note: To use the **SYSTIMAX iPatch** shelf in an existing **iPatch** System, the **imVision®** Controller must be running firmware version 10.3d or later. The System Manager software, used to manage the system, must be version 7.3.1 or later. We recommend that you upgrade the System Manager software before installing the shelf.

Ordering information is listed below:

Material ID	Part No.	Description
760169151	360G2-iP-32-MPO-SD-KIT-5PK	SYSTIMAX 360™ iPatch 32-MPO sliding shelf, 5 pack upgrade kit
760169169	360G2-iP-32-MPO-UHD-KIT-6PK	SYSTIMAX 360™ iPatch 32-MPO UHD shelf, 6 pack upgrade kit



SYSTIMAX 360™ iPatch® 32-MPO Upgrade Kit

Tools Required

- Flat blade screwdriver
- KS-22035-L2 spudger

Specifications

Fiber Optic Interface

Industry-standard MPO

Environmental Data

Temperature Range -40° F to 158° F (-40° C to 70° C) (storage)
 23° F to 122° F (-5° C to 50° C) (operational)

Humidity 95% non-condensing

Parts List

Verify parts against the parts list below:

Quantity		Description
360 iPatch Upgrade Kit, 32 MPO 1 kit 760169151	360 iPatch Upgrade Kit, UHD 32 MPO 1 kit 760169169	
2	2	iPatch MPO assembly
1	1	Backplane kit and cover
2	—	Backplane clip
—	1	MPO front kit with LED cable
8	8	Flat retainer clip
2	2	Panel bus jumper cable
2	2	Ribbon cable assembly
2	2	Cable retainer clip
1	1	Corrugated tubing
32	32	Dust cap
1	1	Instruction sheet
2	—	Flat Clip

The iPatch upgrade kit is ready to use on these G2, MP and HD shelves:

Material ID	Part No.	Description
760193771	360G2-1U-MOD-SD	360G2 1U sliding modular cassette shelf
760193854	360G2-2U-MOD-SD	360G2 2U sliding modular cassette shelf
760193904	360G2-1U-MOD-IS	360G2 1U internal sliding IP360 shelf
760193763	360G2-1U-MOD-FX	360G2 1U fixed modular cassette shelf
760193847	360G2-2U-MOD-FX	360G2 2U fixed modular cassette shelf
760193888	360G2-4U-MOD-FX-16	360G2 4U fixed modular cassette 16 slot shelf
760193755	360MP-1U	360 MP-1U panel
760193920	360MP-2U	360 MP-2U panel
760193862	360MP-4U	360 MP-4U panel
760173674	360G2-1U-MOD-UHD	360G2 1U modular cassette shelf, accepts 4 modules
760173682	360G2-2U-MOD-UHD	360G2 2U modular cassette shelf, accepts 12 modules
760173690	360G2-4U-MOD-UHD	360G2 4U modular cassette shelf, accepts 24 modules
760209940	HD-1U	High-density 1U sliding modular cassette shelf, accepts 4 modules
760209957	HD-2U	High-density 2U sliding modular cassette shelf, accepts 8 modules
760209965	HD-4U	High-density 4U sliding modular cassette shelf, accepts 16 modules
760227306	UD-2U	Ultra-density 2U sliding modular cassette shelf, accepts 12 InstaPATCH [®] 360 modules or MPO panels (up to 144 duplex LC ports or 96 MPO ports)
760227314	UD-4U	Ultra-density 4U sliding modular cassette shelf, accepts 24 InstaPATCH [®] 360 modules or MPO panels (up to 288 duplex LC ports or 192 MPO ports)

Important: Limits for iPatch shelf and panel connections:

- **iPatch** MPO fiber shelves are limited to a maximum number of rack units (RUs) and will not support a fully populated rack or cabinet. **iPatch** MPO fiber shelves support a total of 52 **iPatch** MPO kits (26 rows) per rack/cabinet, such as configured for (26) 1U shelves, (13) 2U shelves, (8) 2U UHD or UD shelves, (6) 4U shelves, (4) 4U UHD or UD shelves, or any combination thereof. Installed **imPower** power extender will support additional **iPatch** kits, up to two times the number of kits.
- **iPatch** MPO fiber shelves are limited to a maximum number of five (5) panels per panel bus male connector. Start a new panel bus chain with every sixth panel in the rack system.
- Do not mix MPO and LC **iPatch** kits in the same row of a rack.
- When mixing **iPatch** copper and fiber kits in a single rack, observe the following power worksheet formulas: Adding all kit types multiplied by factor should total $\leq 10,000$

imVision only**ImVision with imPower**

Number of iPatch kits	factor by	Number of iPatch kits	factor by
# of HD fiber modules	x 158	# of HD fiber modules	x 138
# of CU kits	x 222	# of CU kits	x 222
# of 1U G2 LC kits	x 222	# of 1U G2 LC kits	x 222
# of 96F LC or MPO kits	x 188	# of 96F LC or MPO kits	x 94
Maximum no. of kits in rack	$\leq 10,000$	Maximum no. of kits in rack	$\leq 10,000$



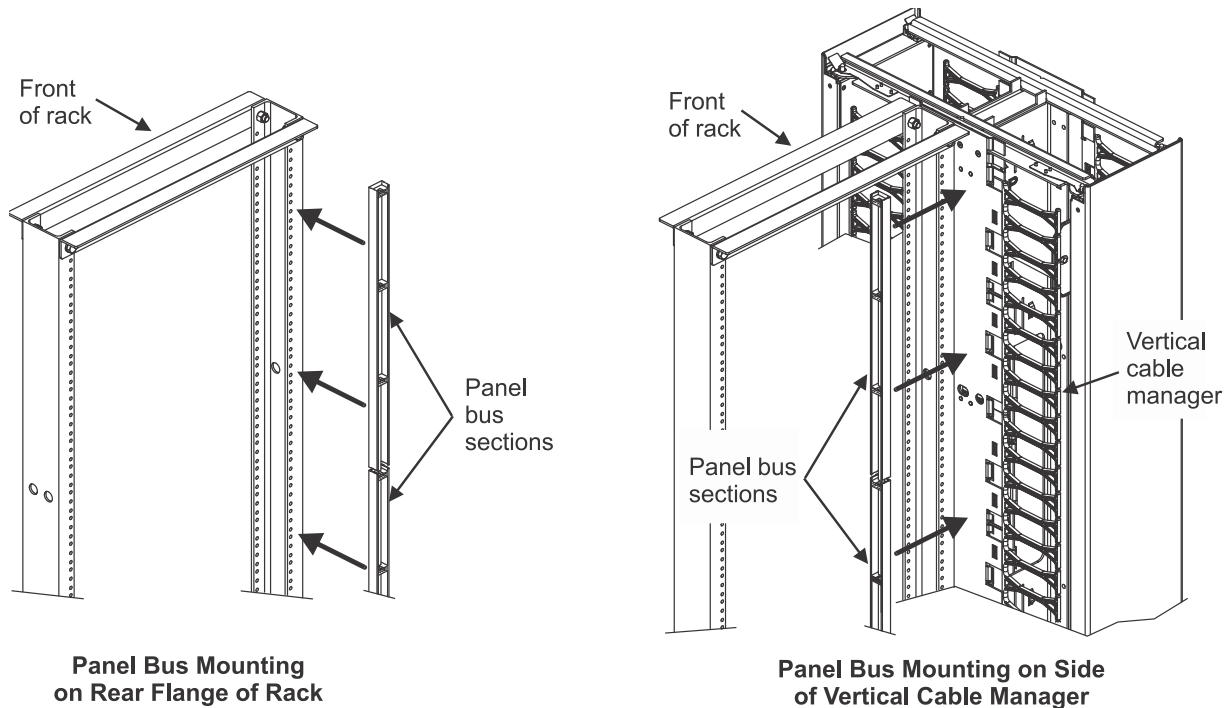
Important Safety Cautions

- To reduce the risk of fire, electric shock, and injury to persons, read, understand, and adhere to the following instructions as well as any warnings marked on the product.
- Remote risk of electric shock. Never install the product in wet locations or during lightning storms. Never touch uninsulated communication wires or terminals.
- Disconnected optical components may emit invisible optical radiation that can damage your eyes. Never look directly into an optical component that may have a laser coupled to it. Serious and permanent retinal damage is possible. If accidental exposure to laser radiation is suspected, consult a physician for an eye examination.
- Wear safety glasses to install the shelf. Although standard safety glasses provide no protection from potential optical radiation, they offer protection from accidental airborne hardware and cleaning solvents.

Precautions

- **CommScope**[®] fiber modules require virtually no maintenance to maintain their performance. They contain no user-serviceable components, and any damage to the anti-tamper label or removal of top cover or front adapter mounting panel will void the warranty.
- Fiber optic trunk cable and jumper performance is sensitive to bending, pulling, and crushing. Minimum bend radius must be maintained during installation per the manufacturer's specification. Appropriate pulling socks must be used during installation, and pulling forces shall not exceed manufacturer's recommendations. MPO terminated trunk cables may use ribbonized fiber optic cable, which has a preferential bend axis. Use caution to avoid kinking trunk cables.
- All wiring that connects to this equipment must meet applicable local and national building codes and network wiring standards for communication cable.
- Care should be taken not to compromise the stability of the rack by installation of this equipment.
- **iPatch** system components are for use in restricted access areas only.
- **SYSTIMAX 360 iPatch** shelves use infrared sensing technology and should be installed where they are not exposed to direct sunlight or other infrared sources.
- Fiber MPO adapters are equipped with protective dust caps installed in the front of all adapters.
- Prior to installation, clean the trunk cable and jumper connectors per the manufacturer's recommendations.

Step 1 – Mount the Panel Bus



1. A panel bus must be installed on each rack where you plan to upgrade shelves. The panel bus allows the **imVision**® controller and **iPatch** shelves to communicate. Also, the **imVision** controller supplies power to the **iPatch** shelves through the panel bus.

Note: It is recommended the panel bus assembly be mounted on either the outside of the rear flange on the equipment rack or, if panels/shelves will be used that may block access to it, on the side of the vertical cable manager next to the rack. The area where the panel bus will be mounted must be free of protrusions, such as threaded inserts, nuts, and bolts.

2. To mount the panel bus on a rack other than a 7-foot (2.1m) rack or on a rack with a hole pattern other than the universal hole pattern, contact your local account representative.
3. For detailed instructions to install the panel bus for the rack, see the **SYSTIMAX**® **imVision**® **Controller Installation Instructions** (860526839).

Step 2 – Install the imVision® Controller

1. An **imVision** controller must be installed on each rack where you plan to upgrade shelves. The **imVision** controller supervises the **iPatch** panels in the rack and communicates with the **iPatch** system. For upgrade applications, we recommend using a **imVision** controller.
2. For instructions to install and configure the controller, see the **SYSTIMAX**® **imVision**® **Controller Installation Instructions** (860526839).

Before upgrading the shelves in the rack, remove power from the **imVision** controller for the rack.

Step 3 – Upgrade Fiber Shelf with the iPatch MPO Upgrade Kit

Step 3a Install the iPatch MPO Upgrade Kit to convert **SYSTIMAX®** fiber shelves for use with the iPatch system and connect each panel to the panel bus.

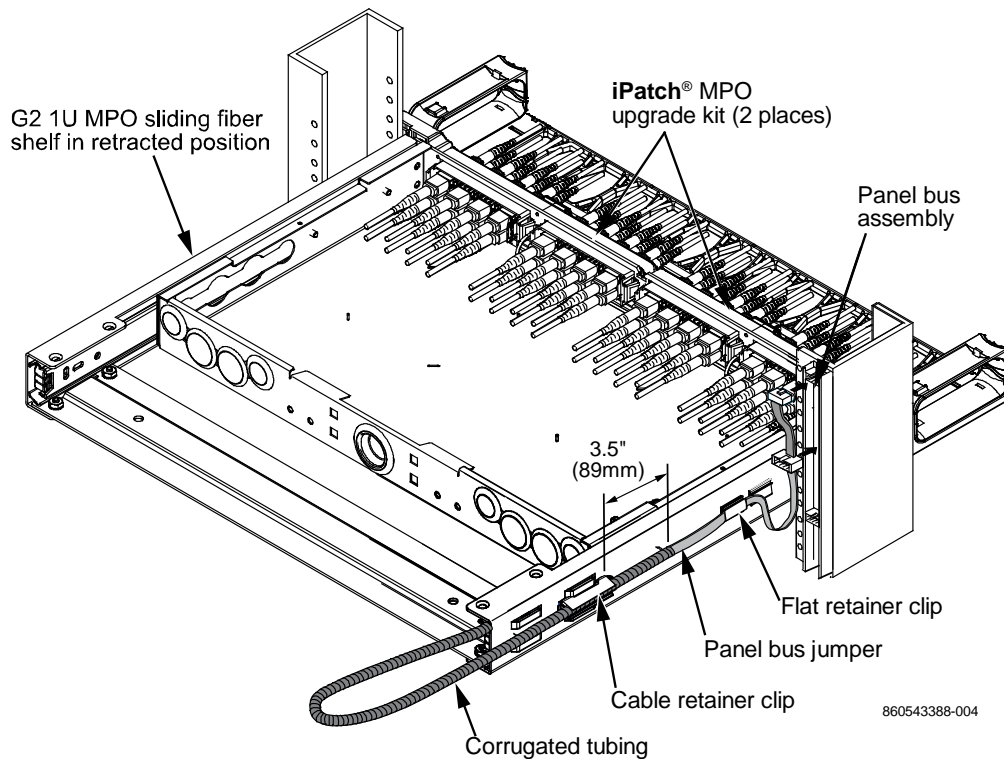
- General instructions are provided for installation on a sliding shelf.

Step 3b Instructions for routing upgrade kit ribbon cable to backplane kit.

Step 3c Instructions specific to each type of fiber shelf.

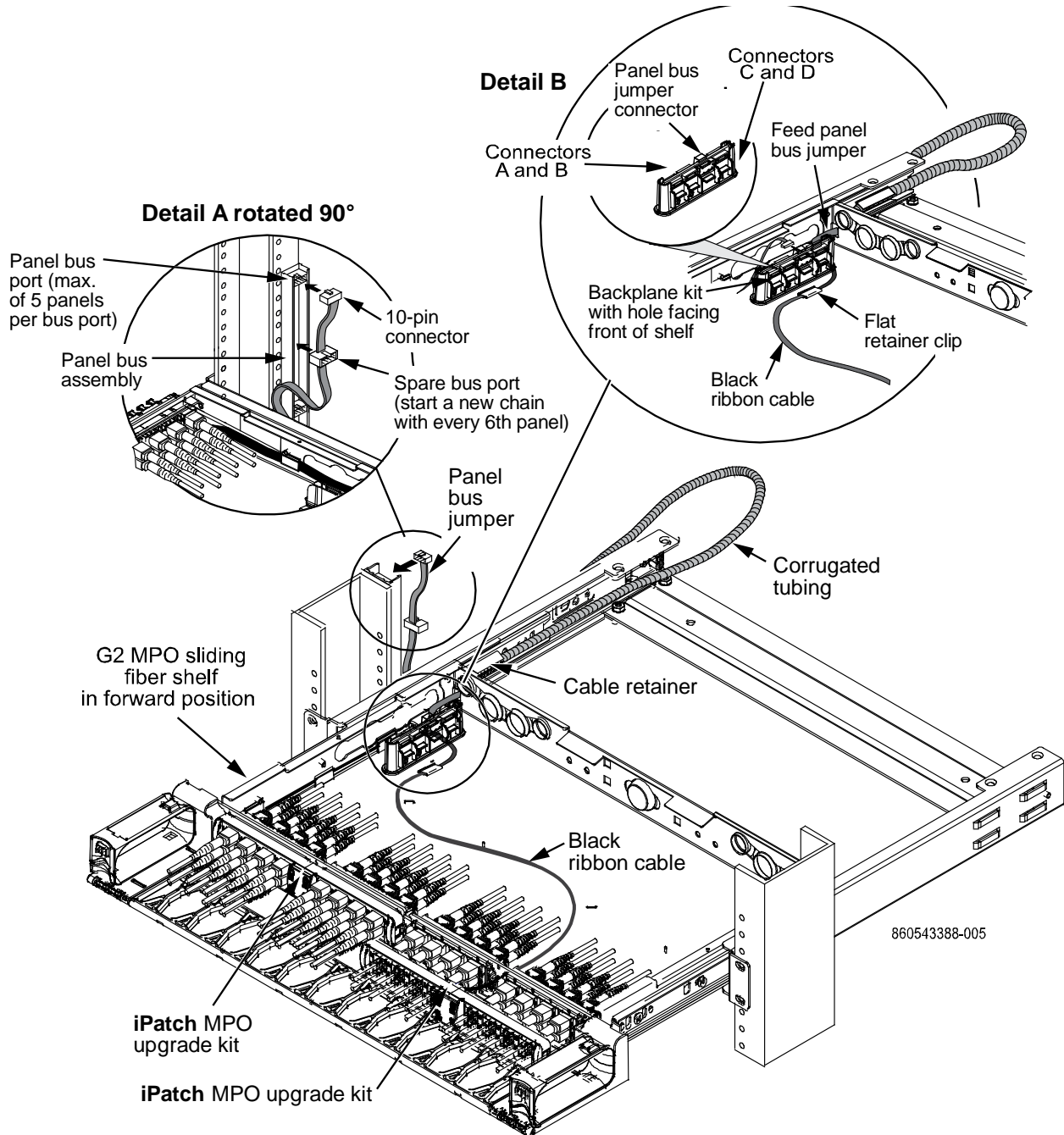
IMPORTANT: Please read Step 3 entirely before installing kit.

Step 3a – Sliding Shelf General Instructions



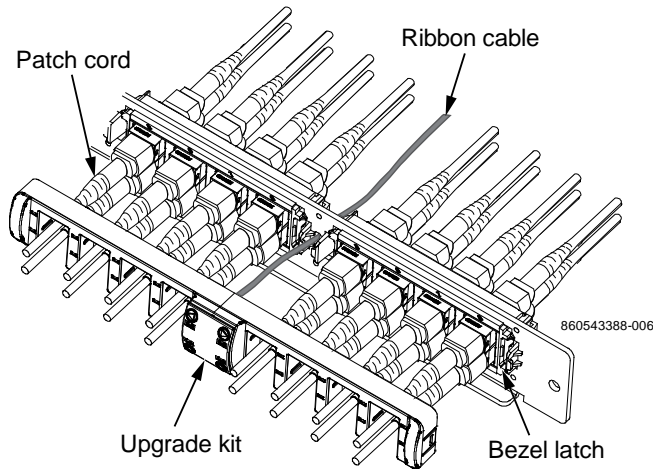
Note: Example shows a 1U sliding shelf.

1. If it has not already been removed, slide the cover off the shelf.
2. Facing equipment from rear of rack, attach one adhesive backed cable retainer clip to rear sliding rail on inside and mount a second cable retainer clip to the rear sliding rail on outside of shelf.
Note: Attach cable retainer clips on the same side of shelf as panel bus is installed on equipment rack.
3. Feed the panel bus jumper into the black corrugated tubing to protect the panel bus jumper when sliding shelf in and out. Route panel bus jumper with protective corrugated tubing around end of sliding rail to outside of rail as shown.
4. Snap the panel bus jumper with protective corrugated tubing into the cable retainer clip on the outside of rail.
5. Position the corrugated tubing so that about 3.5 inches (89mm) of tubing extends past the end of cable retainer.



6. Insert the panel bus jumper 10-pin connector into the nearest cable bus port on the panel bus as shown in Detail A.
7. Install spare port built into jumper cordage into panel bus frame by turning it at an angle, inserting into frame, and turning it back perpendicular to frame.
Note: The connector is keyed. The polarized tab on the jumper connector fits into the nearest port in the panel bus.
IMPORTANT: Make sure that the jumper connector is fully seated in the connector on the panel bus.
8. Feed the loose end of panel bus jumper into the back of the shelf through small opening at end of panel back, as shown in Detail B. Carefully route the jumper under any modules or fiber, leaving it loose to be connected later.

9. Facing equipment from front of rack, prepare to install iPatch MPO upgrade kit. Feed black ribbon cable from the rear of the upgrade kit through faceplate slot located between two MPO bezels as shown, ready to be connected later.
10. Slide MPO upgrade kit over bezel, gently pulling ribbon cable through the opening to prevent it from kinking. Route ribbon cable back under patch cords. Leave about 3 inches (76mm) of slack ribbon cable inside the panel. Securely mount upgrade kit onto bezel's latches by pushing on center and each side of the upgrade kit until it snaps in place.
11. Connect ribbon cables to each backplane kit before mounting it to shelf floor.



Note: See **Step 3b** for cable routing description, tables and drawings.

12. Attach the panel bus jumper previously routed into back of shelf to the panel bus jumper connector on the backplane kit, as shown, making sure the connector is fully seated.
13. Remove protective cover to expose adhesive on backplane kit. Mount the backplane kit to shelf floor at rear corner closest to the panel bus, or any available space.
14. Remove protective cover to expose adhesive on flat retainer clips and place on shelf floor as needed. Eight flat retainer clips are provided for each row of a shelf. Insert each ribbon cable into flat retainer clip to route any slack ribbon cables on shelf floor.
- Important:** Be careful not to bend or pull any existing fibers while routing the ribbon cables.
15. Insure the panel bus strip is installed to the rack or cabinet as described in Step 1. Replace shelf cover.

Step 3b – Routing Upgrade Kit to Backplane Kit

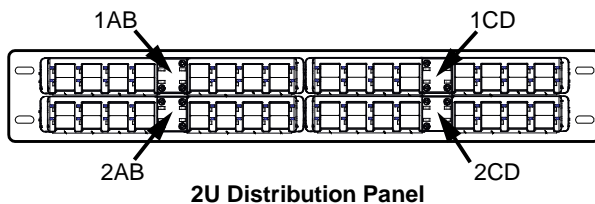
1. Connect upgrade kit ribbon cables to each backplane kit before mounting it to shelf floor. Use the termination table below to guide connections on a 2U distribution panel.

Important: The ribbon cable connector has a red dot on top of the connector. Always attach the connector with this red dot facing the top edge of kit.

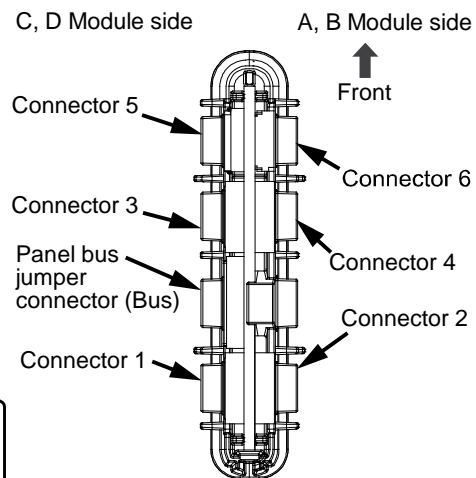
1U/ 2U Backplane Termination Table

Distribution Panel Row/ Column	BACKPLANE CONNECTOR			
	1	2	3	4
1AB		X		
1CD	X			
2AB				X
2CD			X	

Modules are 1A, 1B, 1C, 1D, 2A, 2B, 2C, 2D



Backplane Kit



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Step 3c – Instructions Specific to Each Type of Fiber Shelf

SYSTIMAX 360G2 1U/2U Sliding Shelf

UD 2U/4U Sliding Modular Shelf

HD 1U/2U/4U Sliding Modular Cassette Shelf

SYSTIMAX 360G2 1U and 2U Fixed Shelves

SYSTIMAX 360G2 1U Internal Sliding Shelf

SYSTIMAX 360G2 4U Fixed Shelf

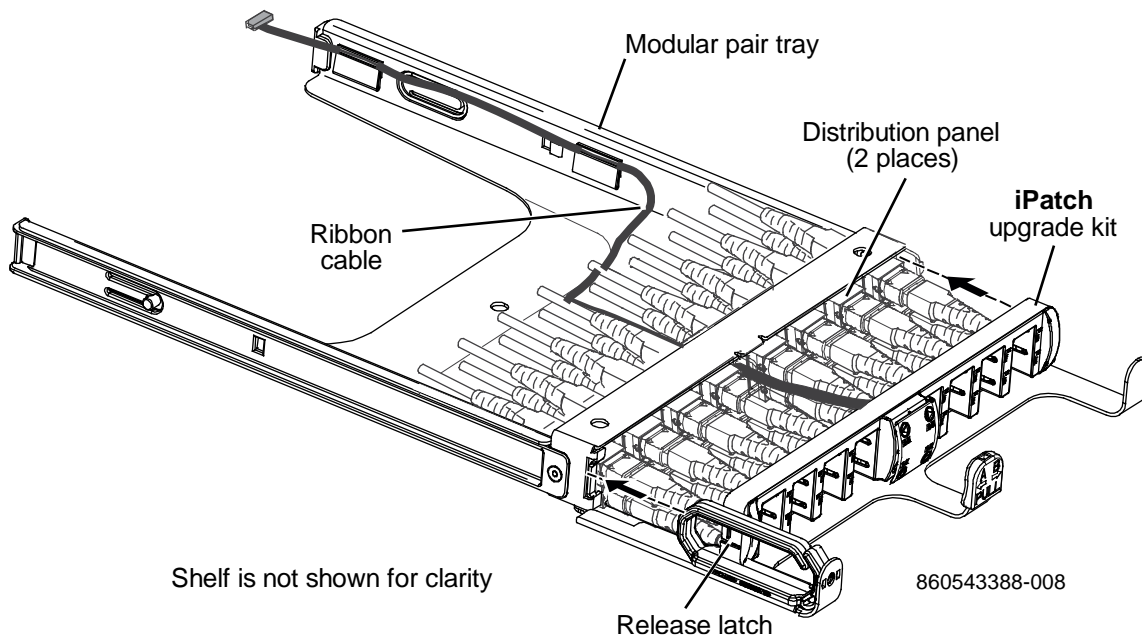
SYSTIMAX 360 1U/2U/4U Modular Shelf

SYSTIMAX 360G2 UHD 1U/2U/4U Modular Shelf

SYSTIMAX 360G2 1U/2U Sliding Shelf MPO Upgrade Kit Installation

1. From the front of the rack, slide shelf forward.
2. Remove front door by gently pressing both upper corners to release the latches. Then lift the door off the trough.
3. Remove top cover by sliding toward front of shelf.
4. Refer to General Instructions, **Steps 3a** and **3b**, for detailed installation procedure.
5. To replace the shelf's top cover, position between lower and upper sets of tabs on each side of shelf and slide into place.
6. Slide shelf to stored position.

UD 2U/4U Sliding Modular Cassette Shelf



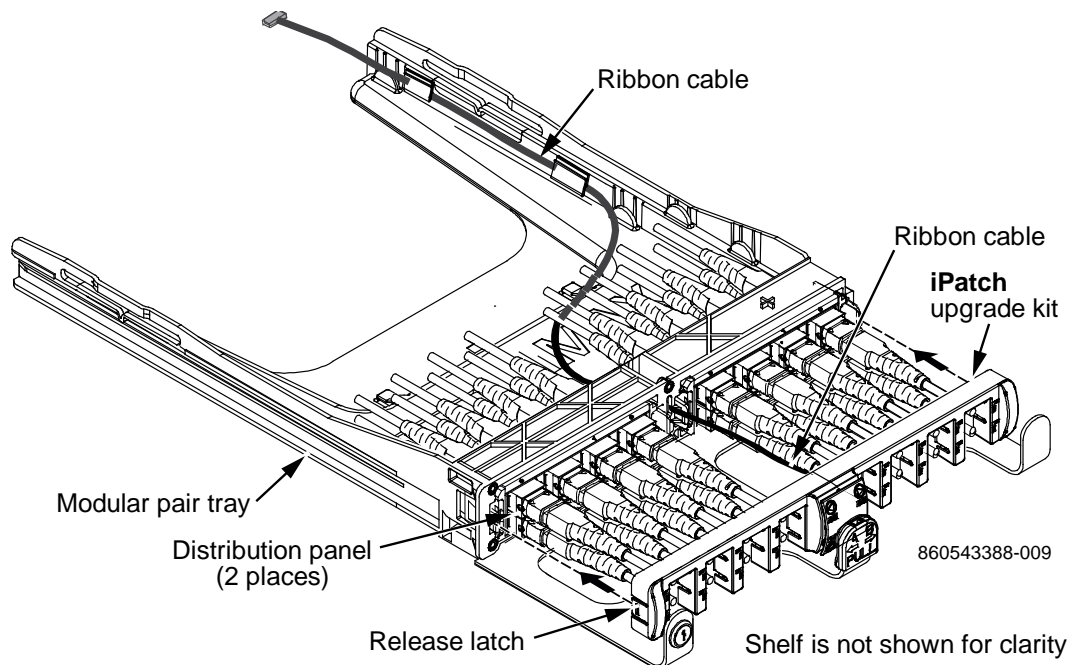
1. Slide modular pair tray forward for access. Trays slide to the front of the shelf separately until reaching stops that prevent them from sliding out.

2. Place the **iPatch** upgrade kit on the front of the tray, being careful to pull the ribbon cable through opening in the center of tray at the same time. Do not allow cable to be kinked or damaged. Cable will be pulled to back of shelf when connecting to backplane kit.

Note: Ensure that the ribbon cable is still firmly connected to the back of the **iPatch** upgrade kit. If the connector does need re-inserting, orient it so the red dot is facing the top edge of the kit for correct alignment with the connection on the back of the kit.

3. Once the **iPatch** upgrade kit is seated over the MPO distribution panel, push on center and both release latches at sides of the kit to engage the latches and secure kit.
4. Repeat for all modular pair trays.
5. Follow items 5 through 11 of the HD sliding modular cassette below.

HD 1U/2U/4U Sliding Modular Cassette Shelf

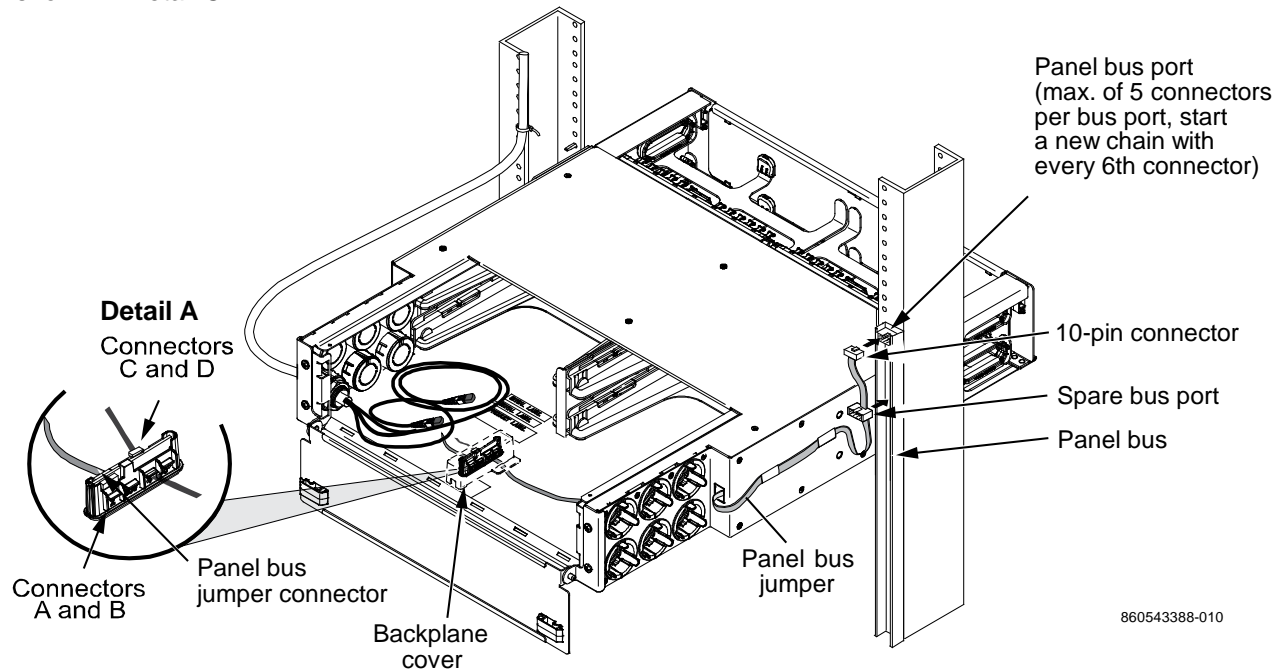


1. Slide modular pair tray forward for access. Trays slide to the front of the shelf separately until reaching stops that prevent them from sliding out.
2. Place the **iPatch** upgrade kit on the front of the tray, being careful to pull the ribbon cable through opening in the center of tray at the same time. Do not allow cable to be kinked or damaged. Cable will be pulled to back of shelf when connecting to backplane kit.

Note: Ensure that the ribbon cable is still firmly connected to the back of the **iPatch** upgrade kit. If the connector does need re-inserting, orient it so the red dot is facing the top edge of the kit for correct alignment with the connection on the back of the kit.

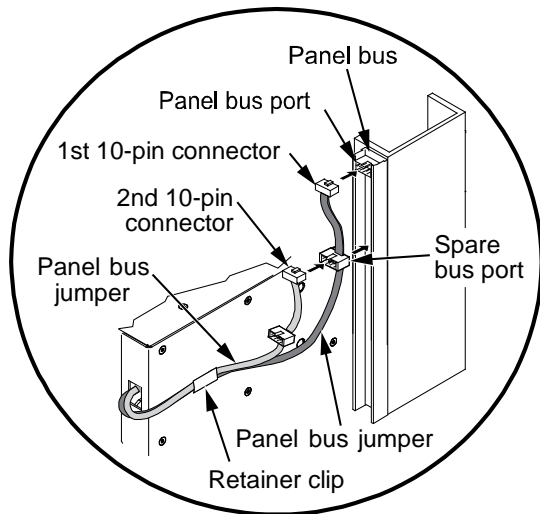
3. Once the **iPatch** upgrade kit is seated over the MPO distribution panel, push on center and both release latches at sides of the kit to engage the latches and secure kit.
4. Repeat for all modular pair trays.
5. Insert the panel bus jumper 5-pin connector into the shelf through opening in back of side wall, to be connected to backplane kit as shown in Detail **A**.

6. Connect the keyed female 10-pin connector on the panel bus jumper into the nearest cable bus port on panel bus as shown on the next page. Jumper is secured with flat retainer clips on outside of side wall. **Important:** Make sure the jumper connector is fully seated.
7. Install spare port built into jumper cordage into panel bus frame by turning it at an angle, inserting into frame, and turning it back perpendicular to frame.
8. 4U HD MPO fiber shelves use two panel bus jumpers to connect to the **iPatch** panel bus. The 2nd panel bus jumper's 10-pin connector plugs into the spare bus port on the 1st panel bus jumper, as shown in Detail B. Insert both connectors and 2nd jumper's spare bus port into panel bus frame as shown in Detail C.

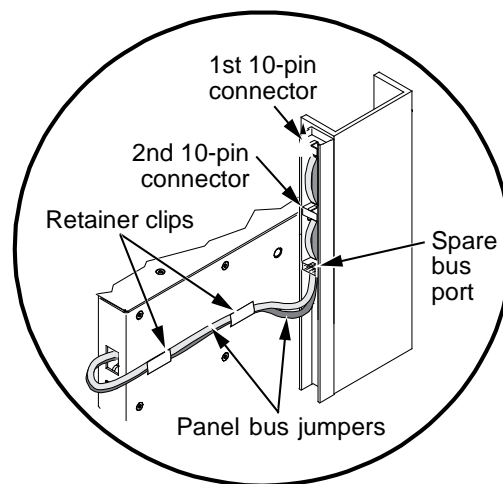


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Detail B – 4U only



Detail C – 4U only



9. Open rear door.
10. Reach in shelf from back to pull ribbon cables to back. Connect upgrade kit ribbon cables to backplane kit. Connect loose end of panel bus jumper to backplane kit while holding it close to opened back door.

Note: See Step 3b for panel bus jumper termination table and connection diagram.

11. Remove paper cover to expose adhesive on backplane kit. After making connections with ribbon cables and panel bus jumper, mount backplane to shelf floor in available space in back of shelf.

SYSTIMAX 360G2 1U and 2U Fixed Shelves and 1U Internal Sliding MPO Shelf

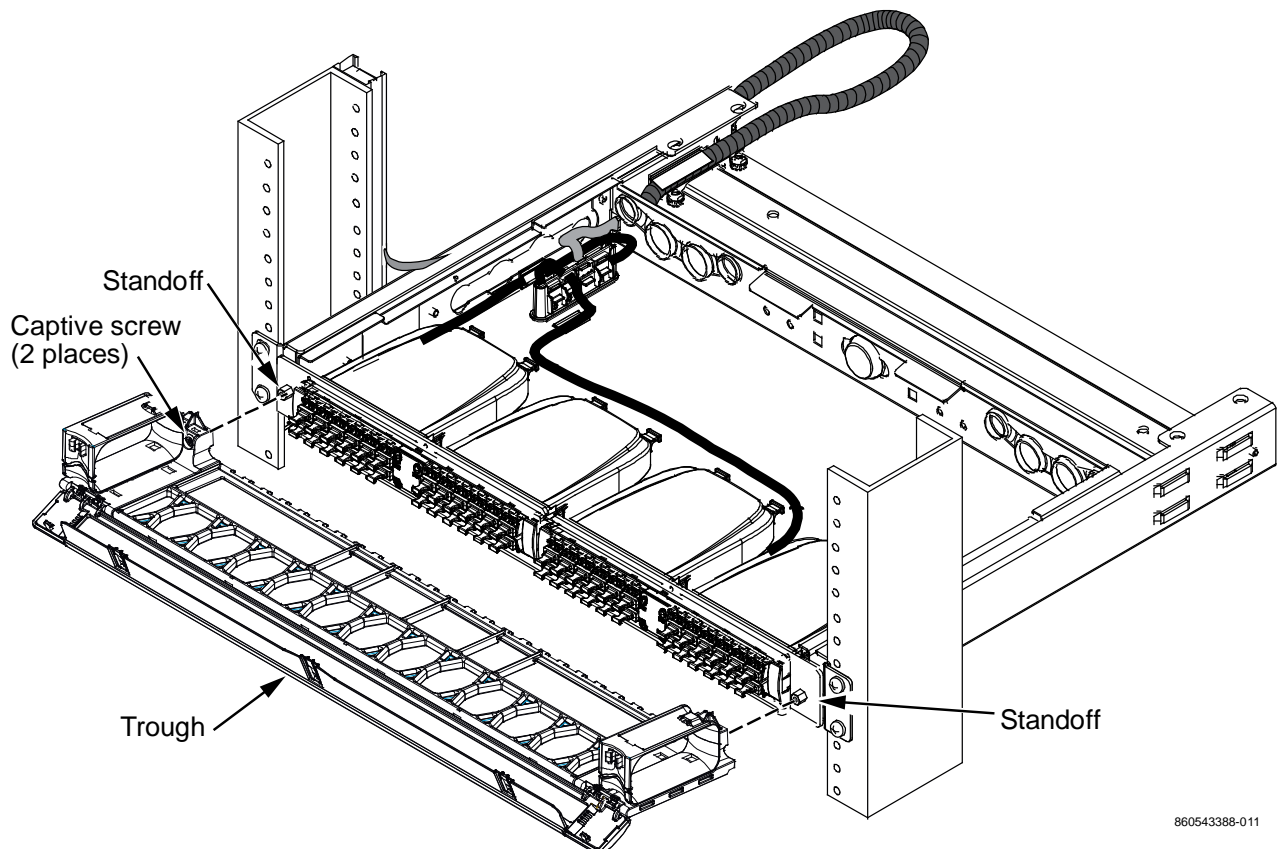
Remove Patch Cord Trough

1. From the rear of rack, remove any cable retainers and provide enough cable slack to move shelf forward.
2. From the front of the rack, remove front door.

Note: Open the door on the patch cord trough by gently pressing both upper corners to release the latches. Then lift the door off the trough.

3. Trough is positioned on shelf so that indentions behind captive screws rest on the standoffs.
4. Using a Phillips head screwdriver, loosen the captive screw on each end of trough to release it from shelf.

Note: If removing the trough on a sliding shelf, pull the shelf out enough to support the faceplate from behind before loosening the captive screws.

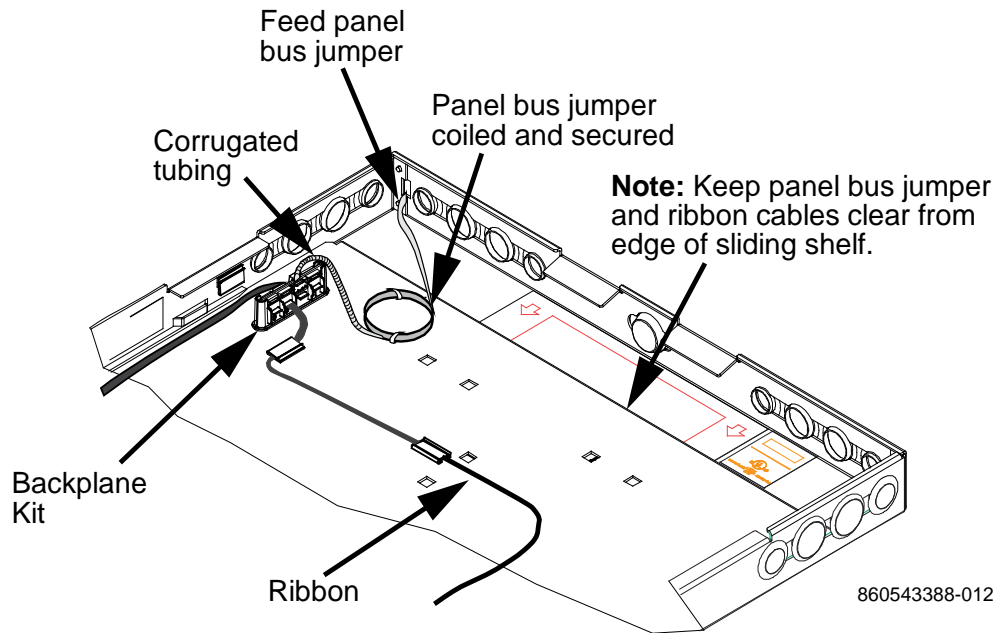


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5. Carefully remove shelf from rack and slide forward.
6. Remove top cover by sliding toward front of shelf.
7. Refer to General Instructions, **Steps 3a** and **3b**, for detailed installation procedure.

Note: Shelf has excess panel bus jumper coiled and secured into 3" (76mm) loops with cable ties on shelf floor.

- When working with 1U internal sliding shelf, cut corrugated tubing to fit over panel bus jumper inside of shelf to protect panel bus jumper from internal sliding shelf movement. Internal sliding shelf has excess panel bus jumper coiled and secured with cable ties on shelf floor, as shown on next page.

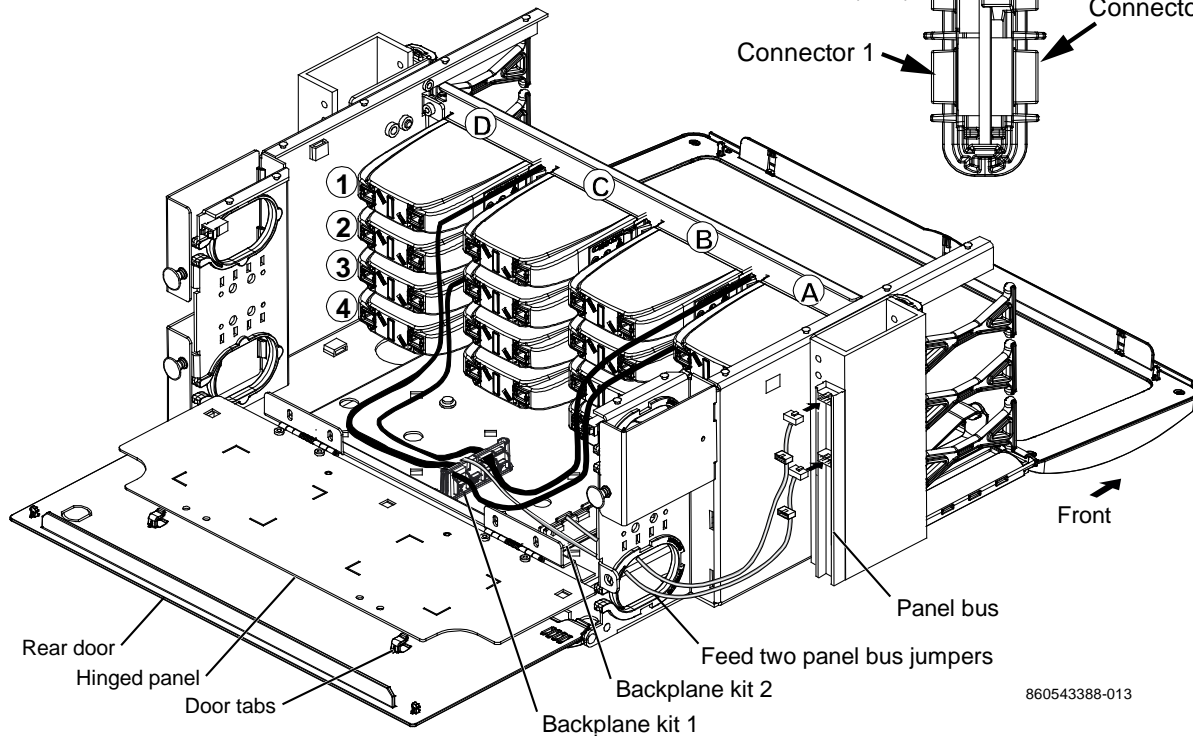
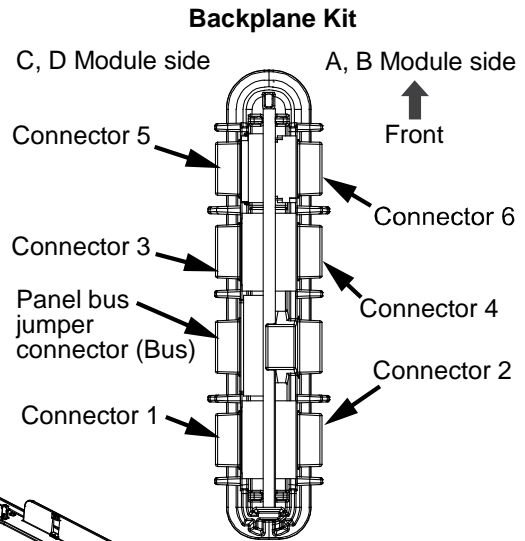


360G2 Internal Sliding Shelf

- Return shelf to rack.
- Replace cable trough using captive screws on each end of trough.
- Replace the shelf's top cover.

SYSTIMAX 360G2 4U Fixed Shelf MPO Upgrade Kit Installation

Distribution Panel Row/Column	BackPlane Connector 1					
	1	2	3	4	5	6
1AB		X				
1CD	X					
2AB				X		
2CD			X			
BackPlane Connector 2						
3AB		X				
3CD	X					
4AB				X		
4CD			X			



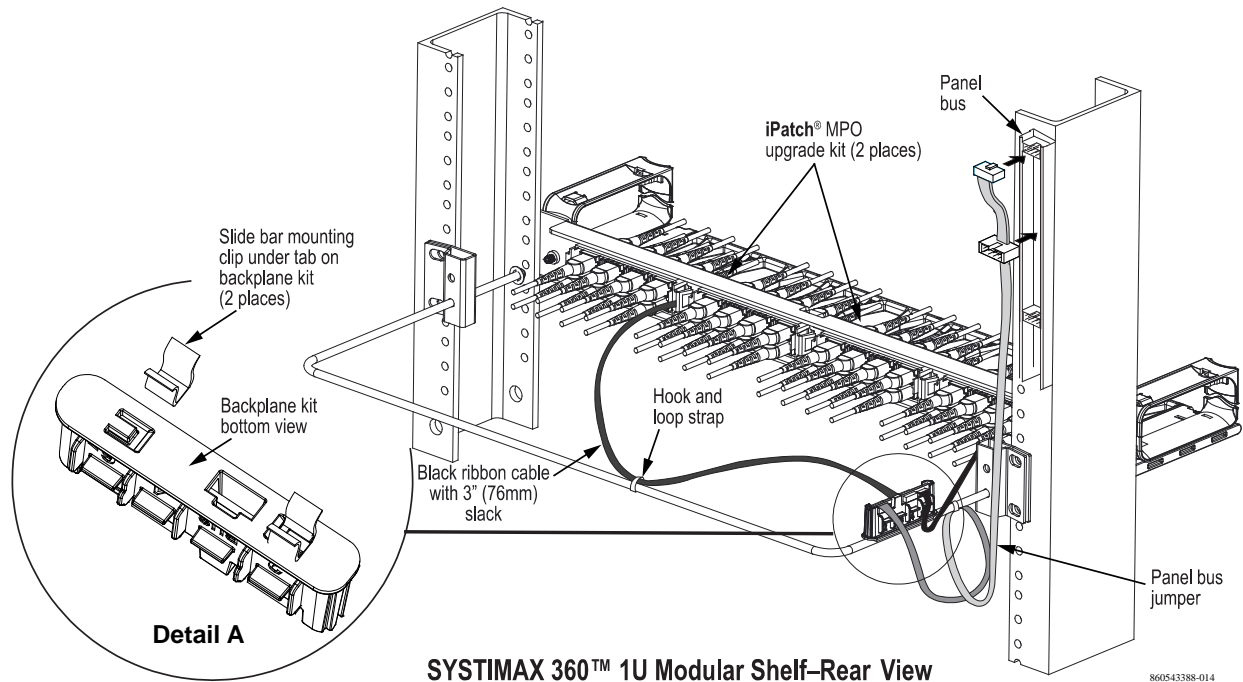
1. From the front of the rack, open front door.
2. See General Instructions, **Step 3a**, for detailed installation procedure.
3. From rear, open rear door and secure hinged panel to rear door using door's tabs.
4. Route ribbon cables through flat retainer clips and plug into backplane kit. Refer to cable routing table and drawings as shown on the next page.

Note: Accessories (module slots) are labeled from front as columns A, B, C, and D. Rows are labeled from top as 1, 2, 3, and 4.

Example: Ribbon cable from module 1 C-D plugs into backplane kit 2, connector C or D.

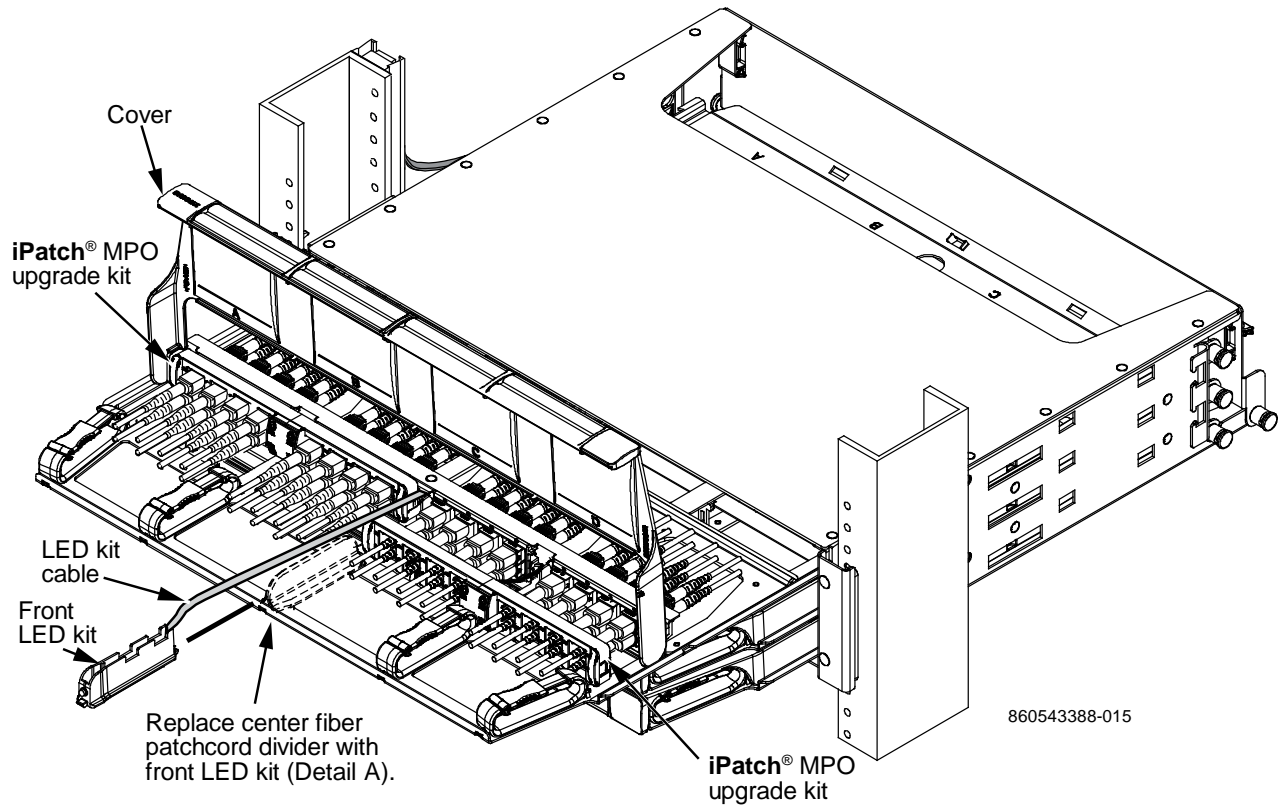
5. Remove protective cover to expose adhesive on backplane kit. Mount two backplane kits (one kit per 2 rows) to shelf floor at left rear corner as shown above.
6. Route both panel bus jumpers from the two backplane kits out to panel bus through side wall openings as shown.
7. Release hinged panel and close rear door. Close front door.

SYSTIMAX 360 1U/2U/4U Modular Shelf MPO Upgrade Kit Installation



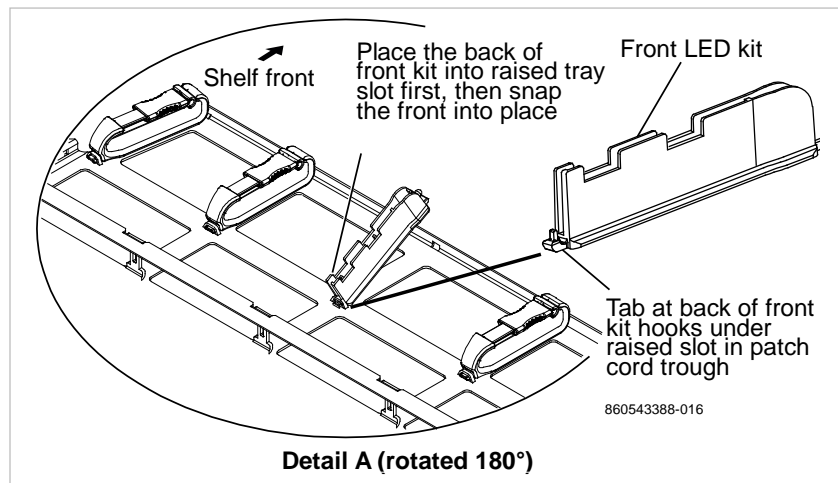
1. From the front of the rack, remove front door by gently pressing both upper corners to release the latches. Then lift the door off the trough.
2. Remove the adhesive tape from backplane kit bottom and slide two bar mounting clips onto the backplane kit as shown in Detail A.
3. Insert the panel bus jumper 10-pin connector into the nearest cable bus port on the panel bus as shown. Install spare port built into jumper cordage into panel bus frame by turning it at an angle, inserting into frame, and turning it back perpendicular to frame. The connector is keyed. The polarized tab on the jumper connector fits into the nearest port in the panel bus.
4. Excess panel bus jumper is coiled and secured with cable ties to cable management bar.
5. Facing equipment from rear of rack, prepare to install **iPatch** MPO upgrade kit by feeding ribbon cable through faceplate slot located between two MPO bezels, gently pulling the black ribbon cable through the opening to prevent it from kinking.
6. Slide MPO upgrade kit over bezel. Leave about 3 inches (76mm) of slack ribbon cable inside the panel. Securely mount upgrade kit onto bezel's latches by pushing on center and each side of the upgrade kit until it snaps in place as shown.
7. Route ribbon cables to backplane kit.
Note: See **Step 3b** for cable routing description, tables and drawings.
8. Attach the panel bus jumper to the top connector on the backplane kit, making sure the connector is fully seated.
9. From the rear of the rack, mount backplane kits (one kit per row) by snapping kit onto rear cable management bar at the rear right corner as shown.
Note: Mount with round hole in the backplane kit facing toward the front of the shelf.
10. Replace front door.

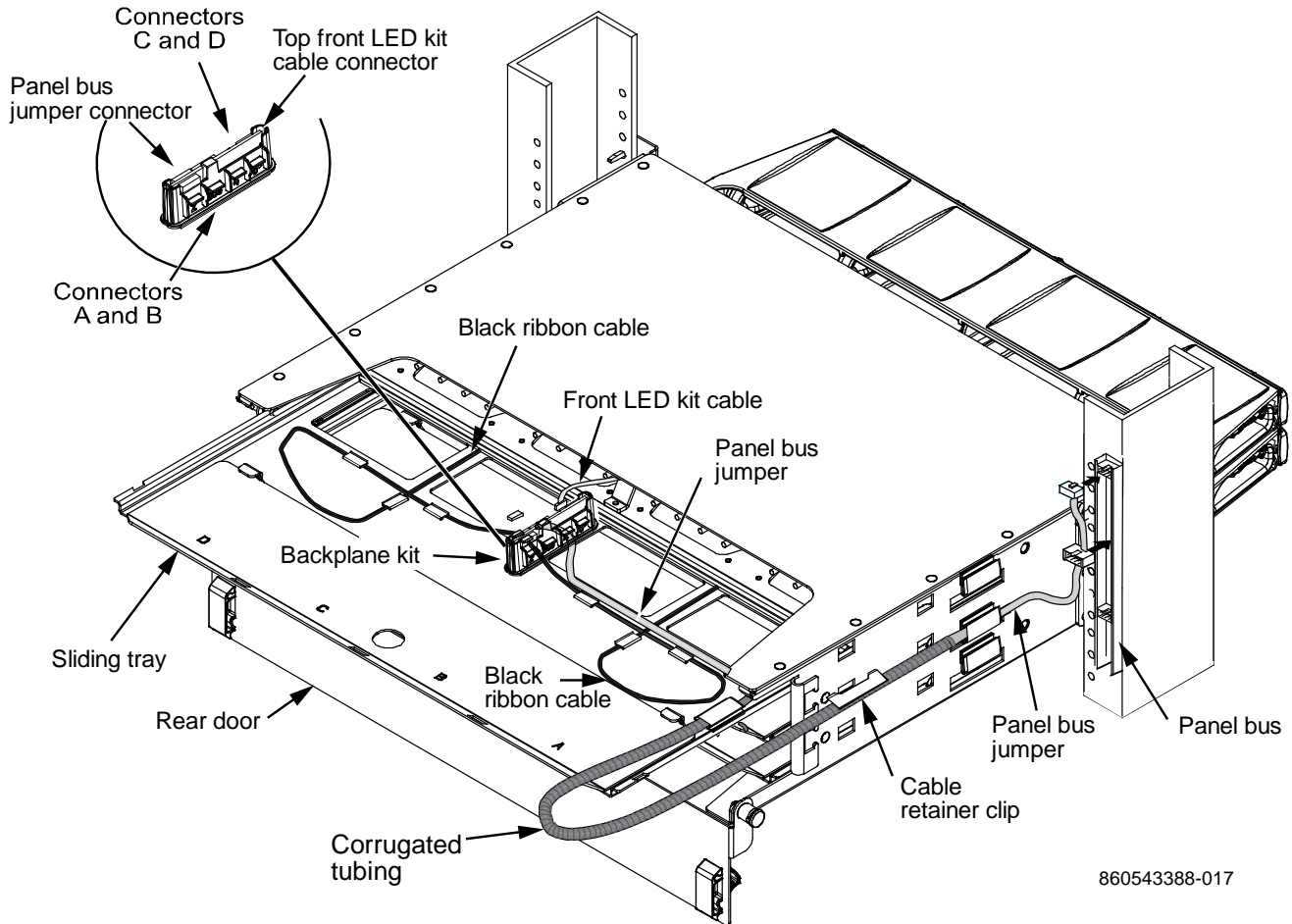
SYSTIMAX 360G2 UHD 1U/2U/4U Modular Shelf MPO Upgrade Kit Installation



SYSTIMAX 360™ UHD 2U Modular Shelf—Front View

1. From the front of the rack, pull a sliding tray shelf forward.
2. Lift the patch cover.
3. Prepare to install MPO upgrade kit by feeding black ribbon cable through faceplate slot located between two MPO bezels.
4. Slide MPO upgrade kit over bezels. Securely mount onto bezel's latches by pushing on center and each side of the upgrade kit until it snaps in place.
5. Replace center fiber patchcord divider with front LED kit as shown in Detail A. Use a small flat-blade screwdriver to pry the divider out and snap the front kit in place. Place the back of front kit (without LED) into tray slot first, then snap the front into place as shown. When placing the LED kit into the center divider slot, insert back of kit into back notch and then gently snap the front (with LED light) into place to avoid breaking the front tab on LED kit.
6. Slide the sliding tray to stored position.
7. Close the patch cover.





SYSTIMAX 360™ UHD 2U Modular Shelf—Rear View

8. From the rear of the rack, open rear door as shown.
9. Pull and turn the left spring plunger to the open position.
10. Pull a sliding tray rearward until it stops.
11. Mount flat retainer clips on shelf floor to support MPO upgrade kit ribbon cable routing to backplane kit.
12. Route front LED kit cable to backplane through front center faceplate slot. Plug front LED kit cable into backplane front LED kit connector as shown before it is mounted to shelf floor.
13. Connect ribbon cables to each backplane kit before mounting it to shelf floor.
Note: See **Step 3b** for cable routing description, tables and drawings.
14. Remove protective film on bottom of backplane kit and mount the backplane kit to shelf floor as shown.
CAUTION: Verify backplane is mounted forward of pivoting tray to not interfere with tray's upward movement.
15. Return sliding tray to stored position.
16. Mount cable retainer clips to rear left outside surface of shelf, one per row.
17. For sliding shelf, feed panel bus jumper into black corrugated tubing to protect the panel bus jumper when sliding shelf in and out.

18. Install corrugated tube by snapping onto cable retainers clips on side of shelf.
19. Plug each panel bus jumper onto backplane kit and other end to panel bus located on rack.

Note: The connector is keyed. The polarized tab on the jumper connector fits into the opening in the header connector on the panel bus.

Important: Make sure that the jumper connector is fully seated in the header connector on the panel bus.

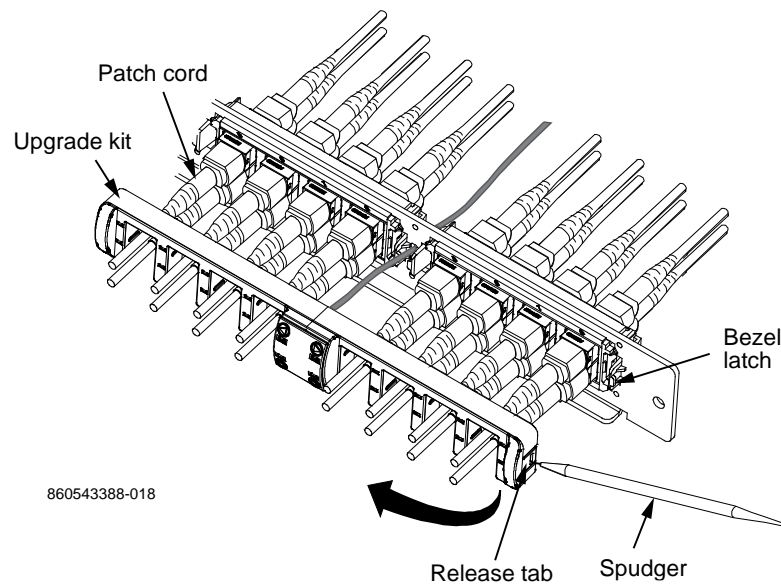
20. Slide shelf to stored position and close the patch cover.

Step 4 – Program the Order of Panels

1. After you have upgraded the shelves in the rack, you should restore power to the **imVision** controller for the rack and program the order of the panels.

Note: For instructions, see the **SYSTIMAX® imVision® Controller User Guide** (860547876).

Step 5 – MPO Upgrade Kit Removal



Removing Upgrade Kit on sliding shelves or trays

1. Slide tray or shelf forward.
2. Use spudger to pry release tab on one side of the MPO upgrade kit. Using wire tip on spudger, pull tab out to release kit from bezel latch as shown. Swing away carefully to disengage center and opposite side.
3. Pull MPO upgrade kit forward 2 inches and remove the ribbon cable.

Removing Upgrade Kit on fixed shelves or modular panels

1. Use spudger to pry release tab on one side of the MPO upgrade kit. Using wire tip on spudger, pull tab out to release kit from bezel latch. Swing away carefully to disengage center and opposite side.
2. Pull MPO upgrade kit forward 2 inches and remove the ribbon cable.

Removal of patchcords

1. Release the MPO connector by pulling on the connector body.
 - A spudger may be used for removal of patchcords.

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