CORNING

Centrix™ System Pigtailed Housing with Pigtailed Cassette Installation

P/N 003-949
Issue 7

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003-948	Centrix System Housing Installation
003-950	Centrix System Frame Installation
003-951	Centrix System Stubbed Housing Installation
003-959	Centrix System Pigtailed Cassette installation with WDMs and PON Devices
003-960	Centrix System Jumper Routing Guidelines
003-961	Centrix System Accessories Installation

Table of Contents

1. General

It is assumed that the Centrix™ System housings have already been installed into the frame in accordance with the instructions provided with each housing.

2. Carton Contents

- Centrix System pigtailed housing

3. Tools and Materials Required

- Screwdriver
- Centrix System pigtailed cassettes (purchased separately)

4. Installation

⚠	**CAUTION:** Recommend the use of safety glasses (spectacles) conforming to ANSI Z87, for eye protection from accidental injury when handling chemicals, cables, or working with fiber. Pieces of glass fiber are very sharp and have the potential to damage the eye.

⚠	**CAUTION:** The wearing of cut-resistant safety gloves to protect your hands from accidental injury when using sharp-bladed tools and armored cable is strongly recommended. Use extreme care when working with severed armor. There will be a sharp edge where armor is cut. To minimize the chance of injury from the cut armor, cover the exposed edge with a wrap of electrical tape. To minimize the chance of injury from sharp-bladed tools, always cut away from yourself and others. Dispose of used blades and armor scrap properly.

⚠	**CAUTION:** Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.

4.1 Prepare Distribution Cable (900 micron and ribbon) 4-, 6-, 8-, and 12-fiber for Cable Strain-Relief

NOTE: *To ease installation of cable in the rear cable access frame, the rear troughs can be removed as shown in Figure 1.*

a. Pull out the plungers on each side of the trough.

b. Lift the trough's hanging tabs up and pull the trough toward you.

c. Remove the trough and set it aside.

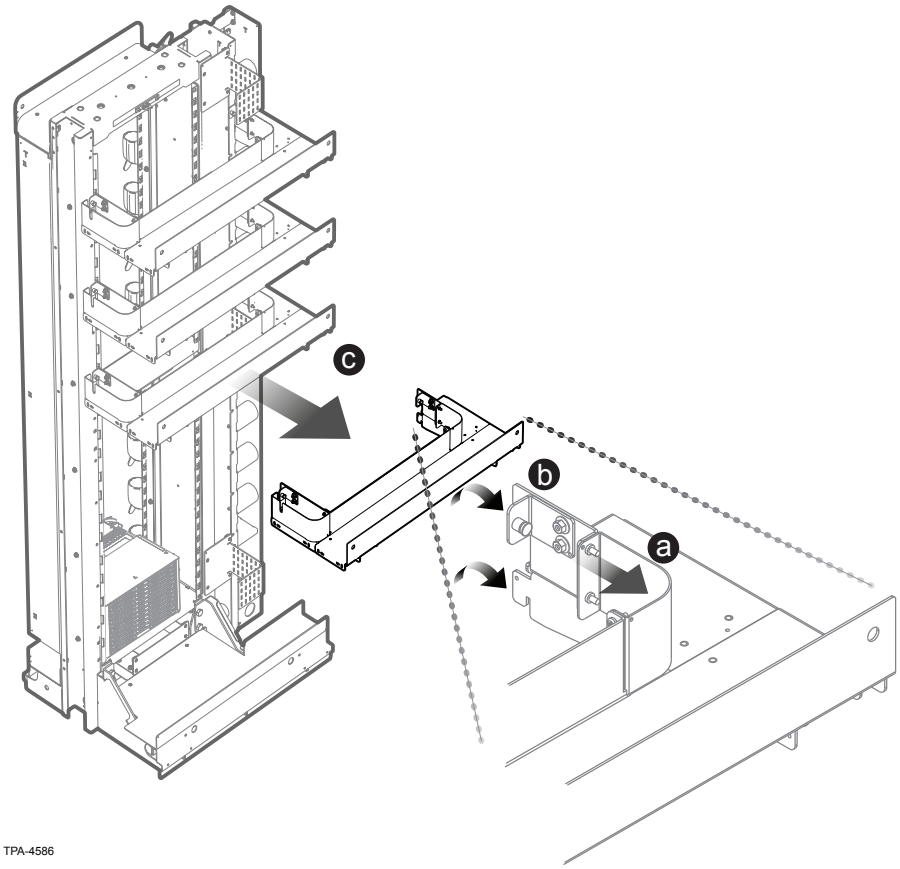


Figure 1

Step 1: Measure from bottom of housing in which the cassette to be terminated is located. Cut cable per the strip length measurement in Figure 2.

Strip Lengths for Centrix™ System Housings

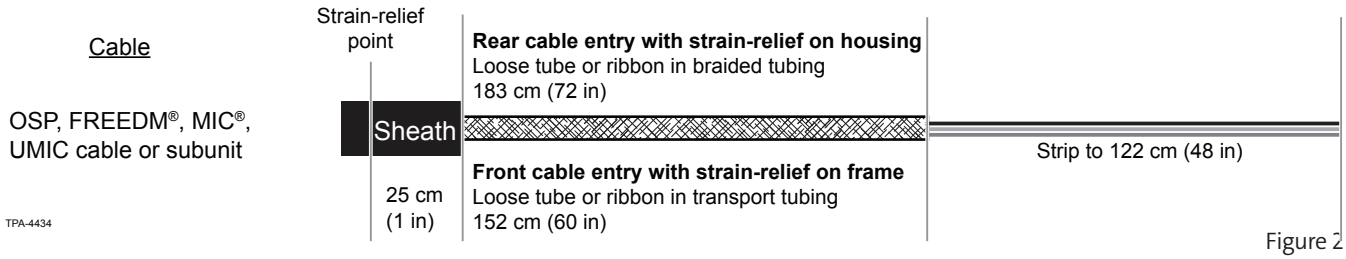


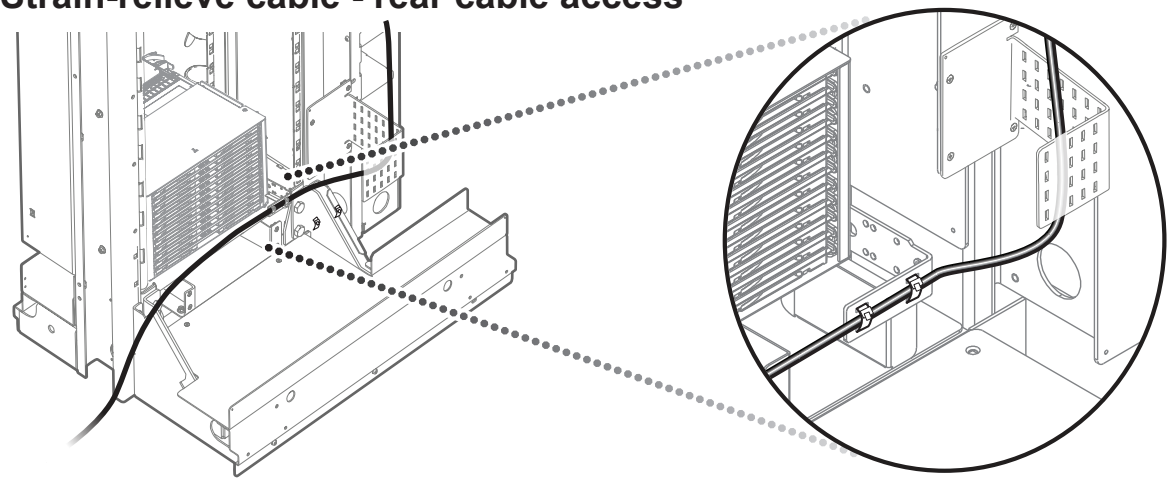
Figure 2

Step 2: Strain-relieve cable as shown in Figure 3 for the appropriate frame - rear or front cable access. An optional universal cable clamp (UCC) (purchased separately - UCC-001) may be used to manage large cables.

NOTE: *One strain-relief bracket is included with each housing. If additional strain-relief brackets are needed, order:*

- Rear cable access frame strain-relief bracket kit: CTX-KIT-SR-SA-UCC
- Front cable access frame strain-relief bracket kit: CTX-KIT-SR-FA-UCC

Strain-relieve cable - rear cable access



Strain-relieve cable - front cable access

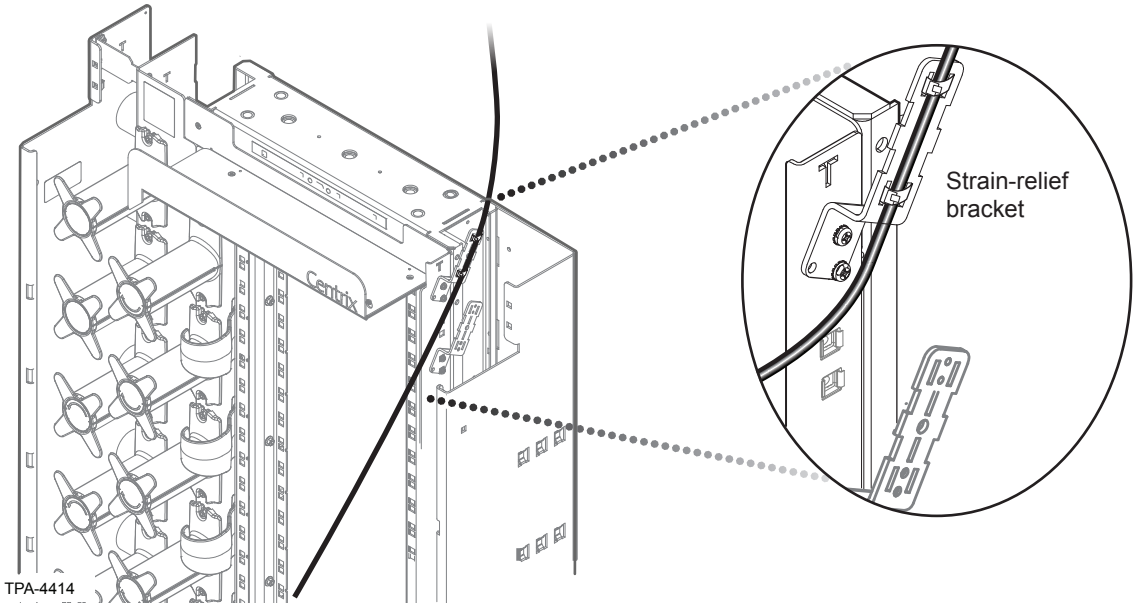
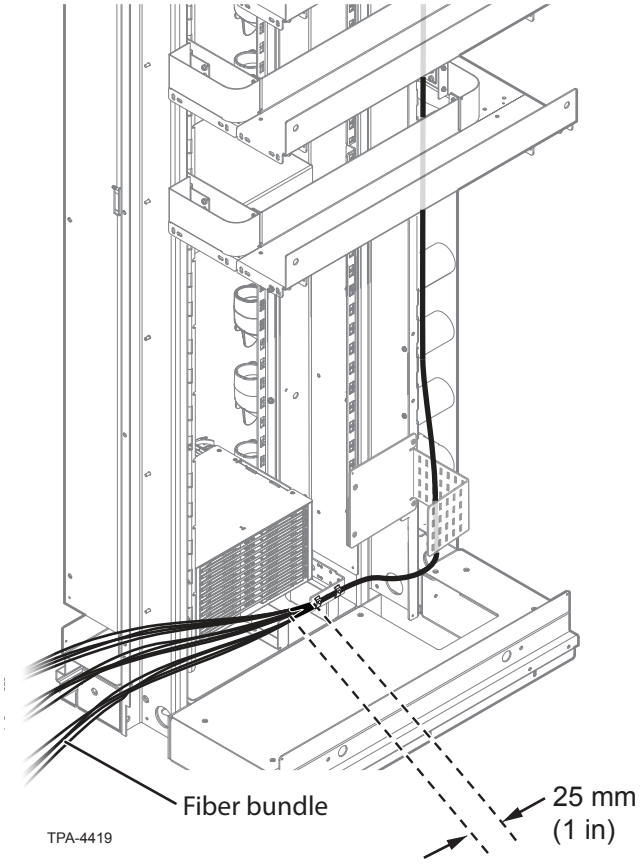


Figure 3

Rear cable access



Front cable access

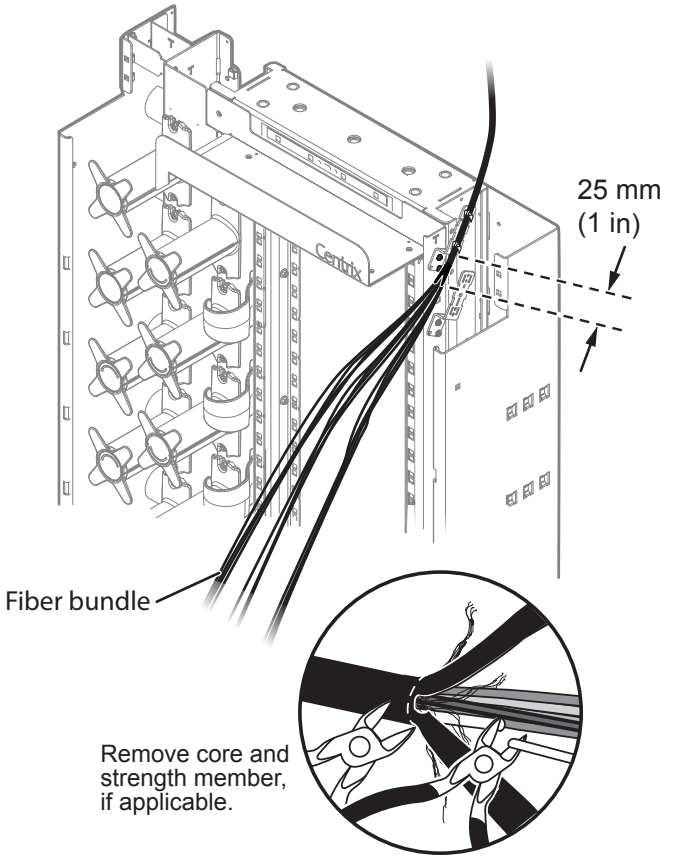


Figure 4

Step 3: Cut away sheath to 25 mm (1 in) past the strain-relief point at the housing (Figure 4).

Step 4: Remove core wrap and strength member, where applicable.

Step 5: Divide fibers into groups as detailed in Table 1 to feed the cassettes, depending on the number of connectors in the cassette.

Fiber Count per Cable	Connectors per Cassette	Numbers of Ribbons per Transport/Braided Tubing*	Numbers of Loose Tubes per Transport/Braided Tubing*	Number of Cables per Housing
144	12	1	1	1
	24	2	2	2
	36	3		3
216	36	3		2
288	12	1	1	0.5
	24	2	2	1
432	12	1	1	0.3
	24	2	2	0.6
	36	3		1

Table 1. Cable Specifications

*It is recommended to use 24 single fibers (without buffer tubes) per transport/braided tube, up to a maximum of three ribbons (36 fibers) in one braided tube.

NOTE: *Remove all sheathing to the strain-relief location on the housing. Replace the inner sheathing with transport/braided tubing. This applies only to unstubbed cassettes and provides room to dress fibers back into the cassettes once the frame is fully loaded.*

Step 6: Determine length of tubing by measuring from the cassette to the end of the cable sheath.

Step 7: Slit sheath 2 cm (0.75 in) from the end of the sheath. If using transport tubing for fiber protection, skip to Section 4.1.2.

4.1.1 Braided Tubing Application

This section applies only to the use of braided tubing for fiber protection.

Step 1: Attach plastic rod supplied with tubing to the end of the fiber bundle (Figure 5).

Figure 5

Step 2: Push the braided tube over the rod (Figure 6). Refer to the table below to determine the appropriate braided tubing to use.

Number of 900 micron Fibers	Use
12	Black braided tubing
24	Black braided tubing

Figure 6

Step 3: Hold the tube as shown in Figure 7 with the plastic rod inserted in the end of the tubing.

- Compress the tube to expand its diameter.
- Move the compressed length up the plastic rod and over the fiber bundle.
- Repeat this procedure until the rod appears through the end of the braided tubing (Figure 7).

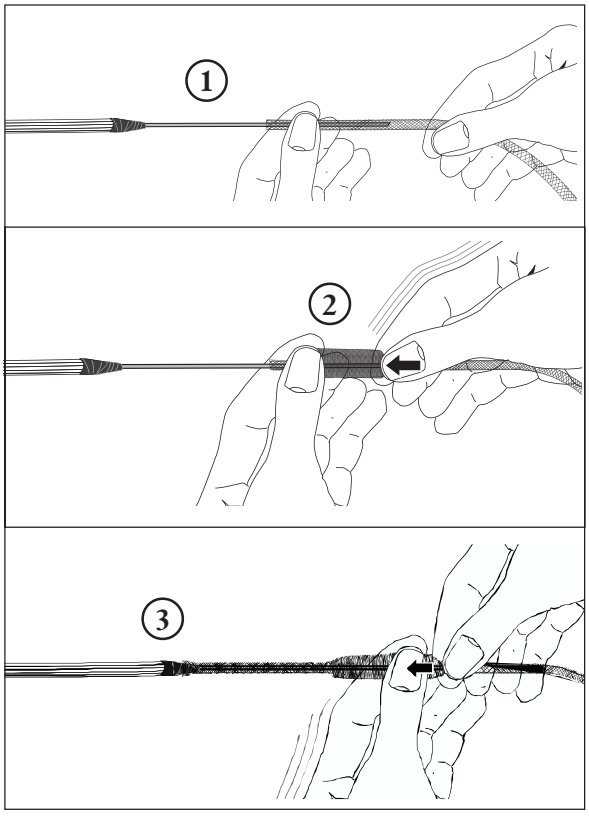


Figure 7

Step 4: Push the tube up to the cable sheath (Figure 8).

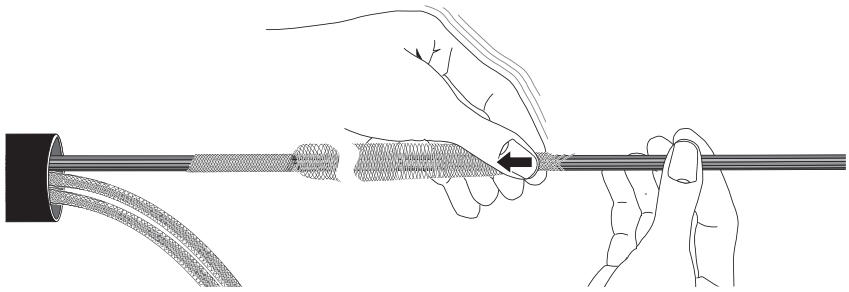


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Figure 8

Step 5: Insert braided tubes under slit in sheath (Figure 9).

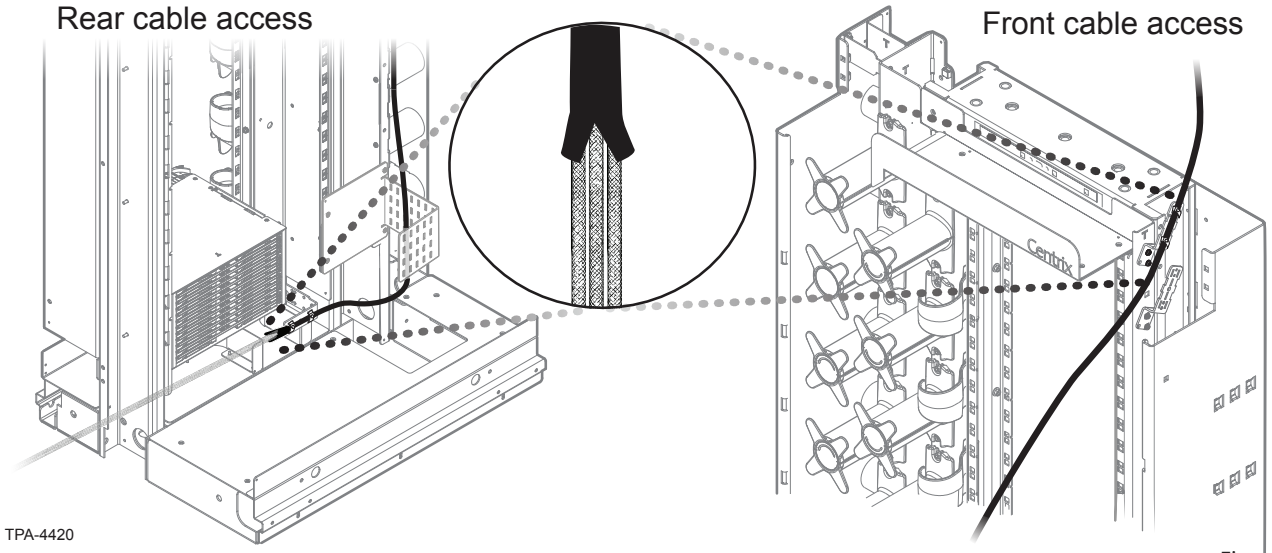

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Figure 9

Step 6: Tape joint and cover with heat-shrink tubing (Figure 10).

IMPORTANT: *Taping to 25 mm (1 in) is important to protect braided tubing from heat. DO NOT heat the braided tube to avoid damage to the tubing.*

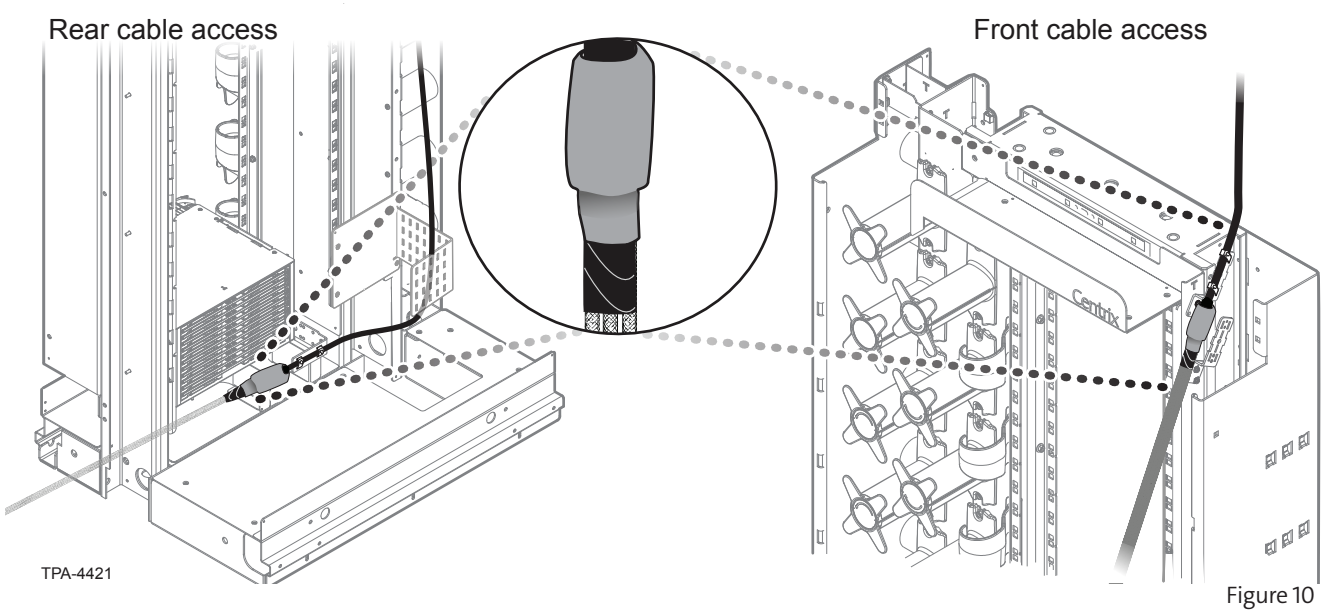

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Figure 10

Step 7: Gently remove the extra slack in the braided tubing by sliding your hand down the braided tube (Figure 11). Do NOT pull on braided tubing!

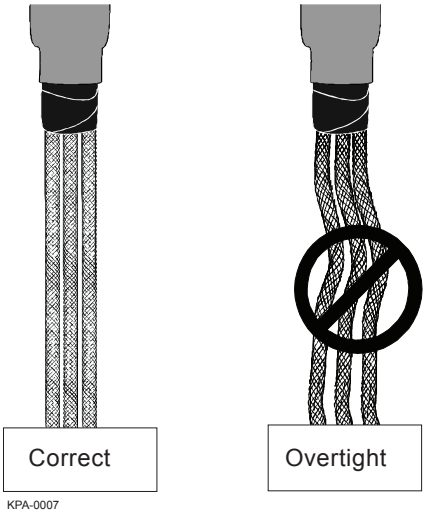

Figure 11

Step 8: Remove plastic rod (Figure 12) and reuse, if necessary.

Step 9: Tape braided tubing end.

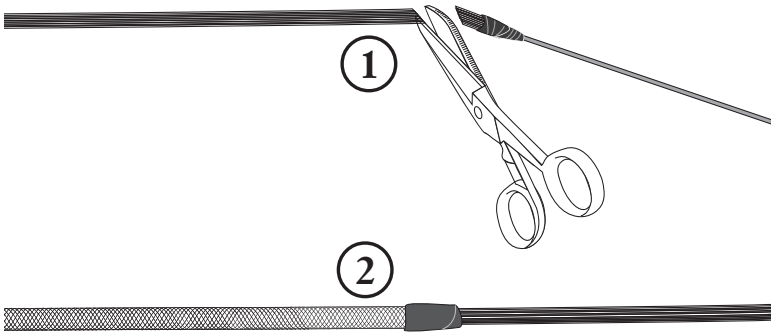

Figure 12

4.1.2 Transport Tubing Application

Step 2: Insert transport tubes under slit in sheath (Figure 13).

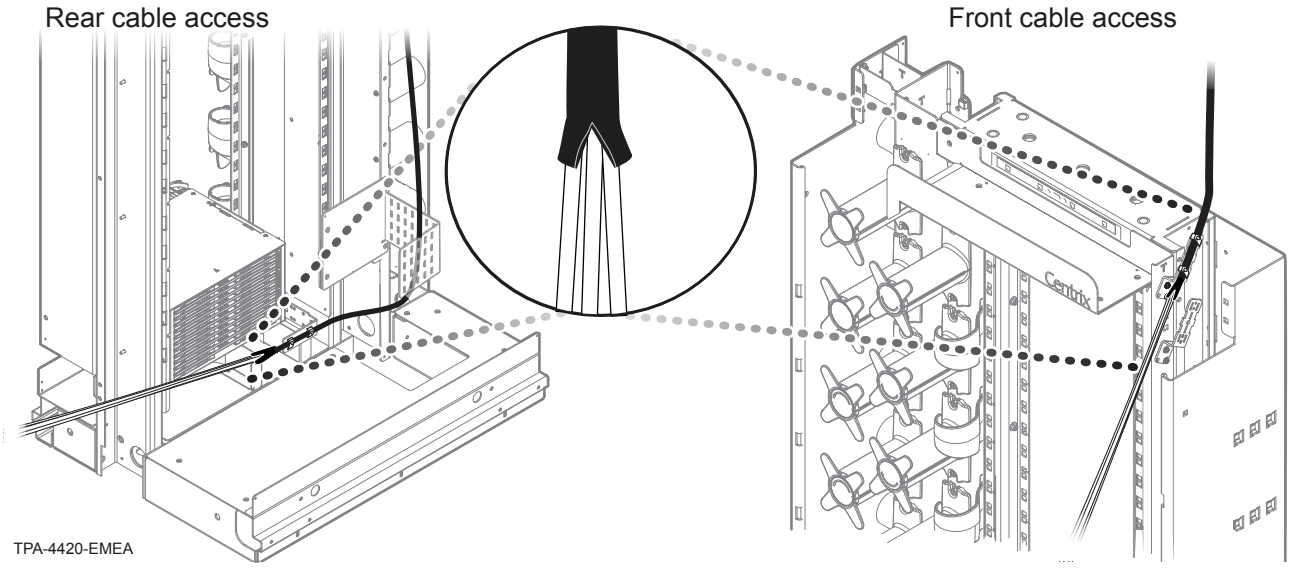

Figure 13

Step 3: Tape joint and cover with heat-shrink tubing (Figure 14).

IMPORTANT: *Taping to 25 mm (1 in) is important to protect transport tubing from heat. DO NOT heat the transport tube to avoid damage to the tubing.*

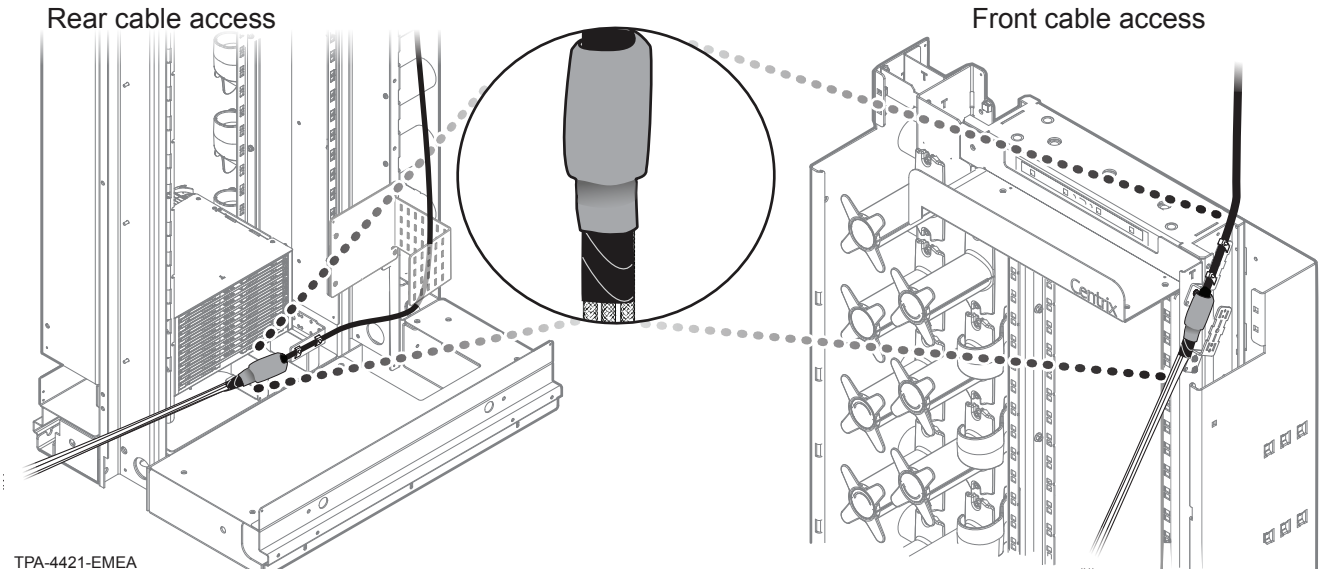

Figure 14

4.2 Organize Distribution Cables

As distribution cables exit the frame, organize them on the brackets or lances appropriate for the cable entry location.

- For top cable entry, organize cable at one of the brackets/lances near the top of the frame.
- For bottom cable entry, organize cable at one of the brackets/lances near the bottom of the frame.

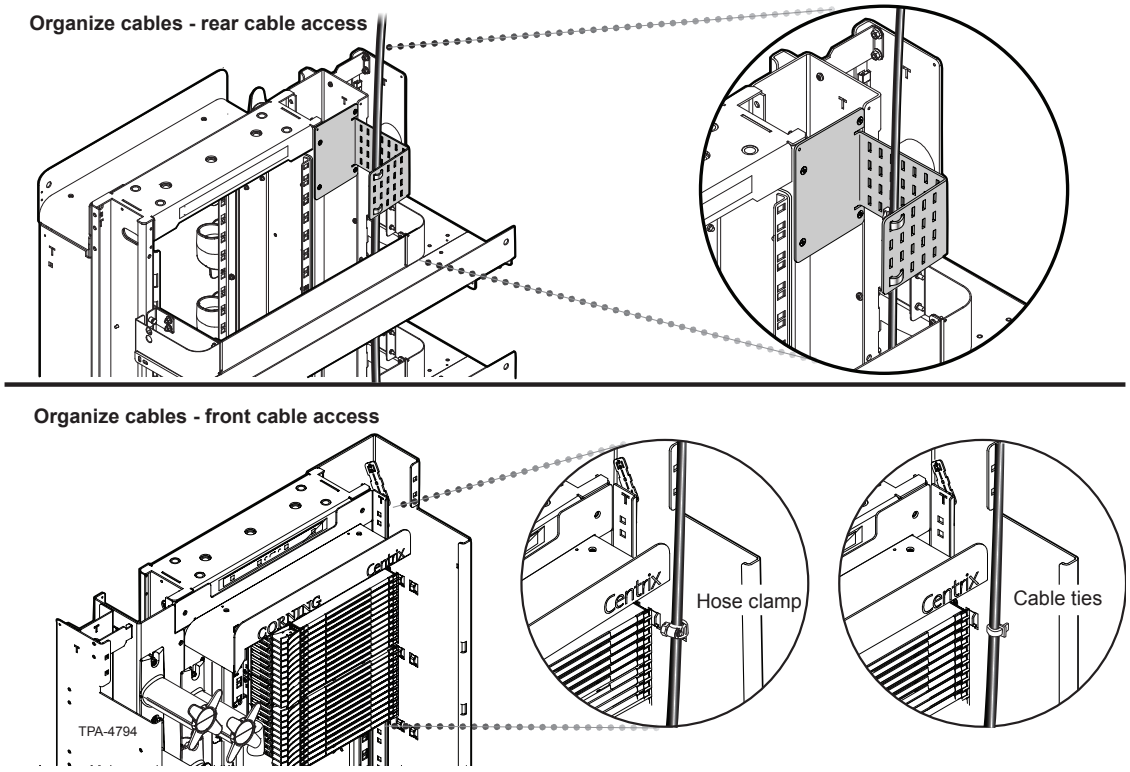

Figure 15

5. Connect Fiber (Loose Tube or Ribbon) in the Rear Cable Access Frame

Step 1: If the cassette is installed in the housing, press the latch on the right side of the housing next to the cassette to be removed (Figure 16). Then pull the cassette out of the housing.

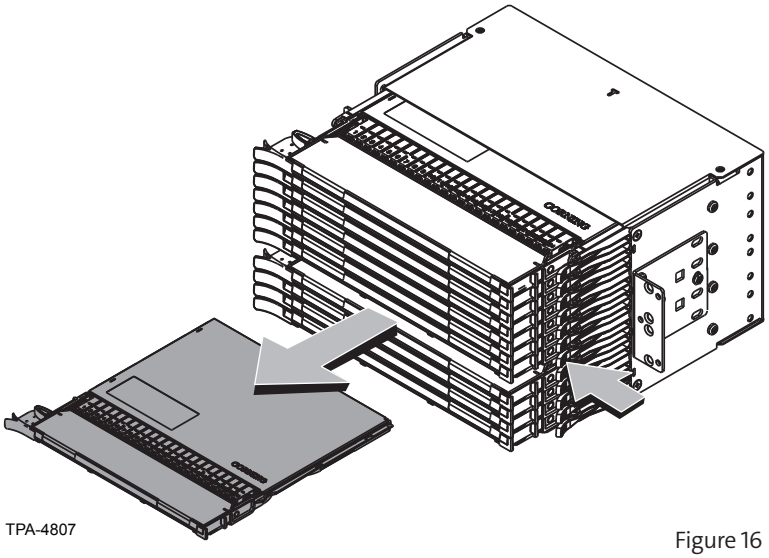

Figure 16

Step 2: Place the cassette on a work surface.

NOTE: *To facilitate splicing and testing, Corning offers a work shelf (CTX-WORKSHELF) shown in Figure 17.*

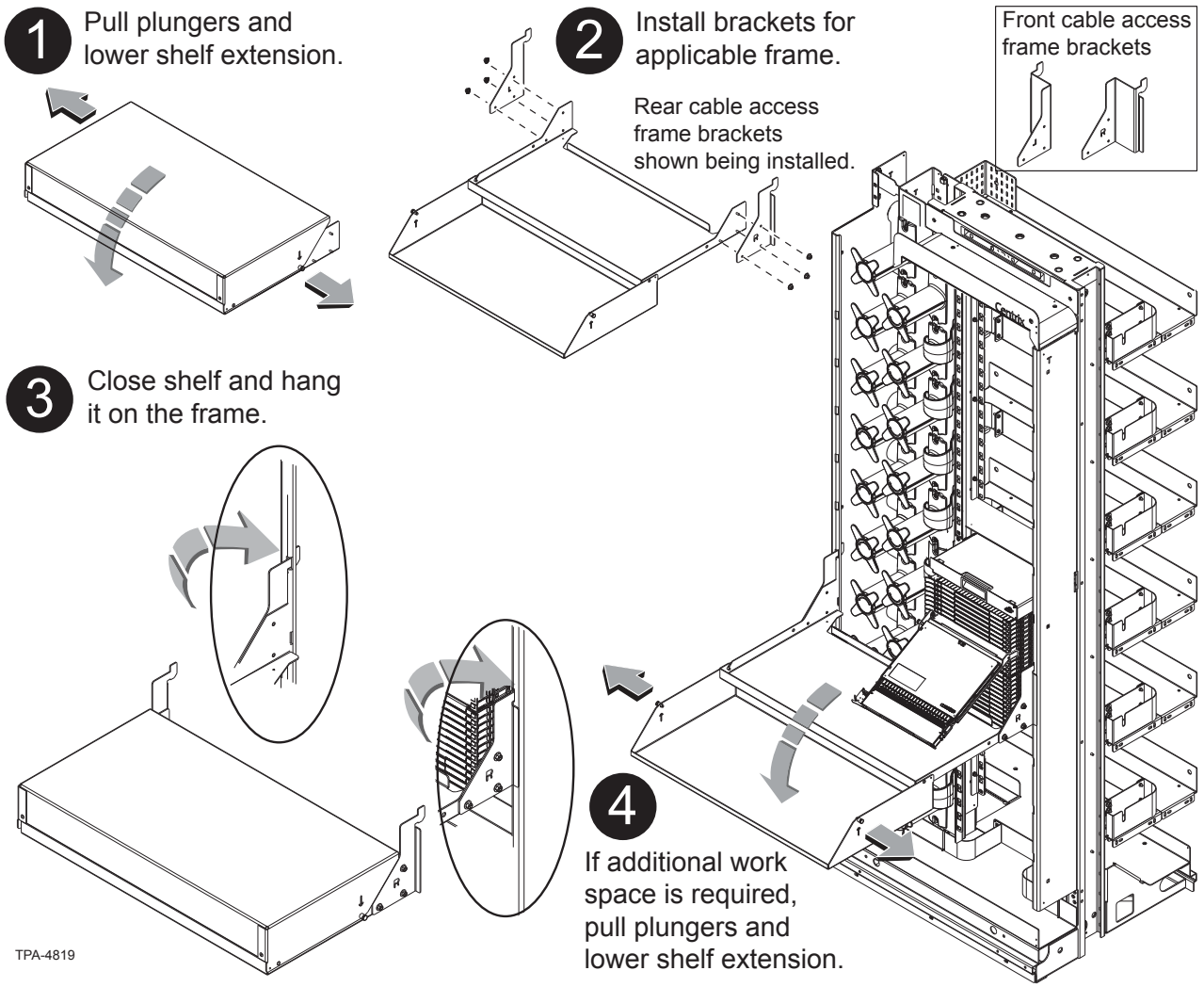

Figure 17

NOTE: *The cassette service bracket (CTX-SERVICE-BKT), shown in Figure 18, facilitates fiber routing and splicing. Refer to SRP 003-961 for instructions on their use.*

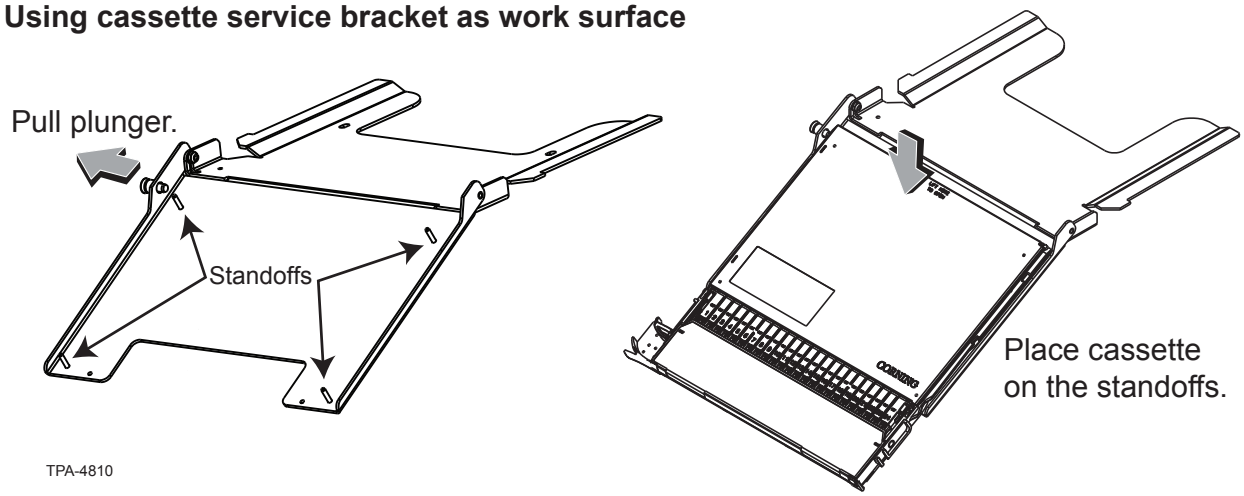

Figure 18

Step 3: If using the service bracket, place the cassette on it as shown in Figure 18. Then insert the service bracket into the slot vacated by the cassette being work on (Figure 19). Open the cover of the cassette and remove it, if desired, by bowing the hinged edge of the cover to release the hinge pins.

Step 4: Pull the input fibers from the rear of the housing through the slot where the cassette will be installed.

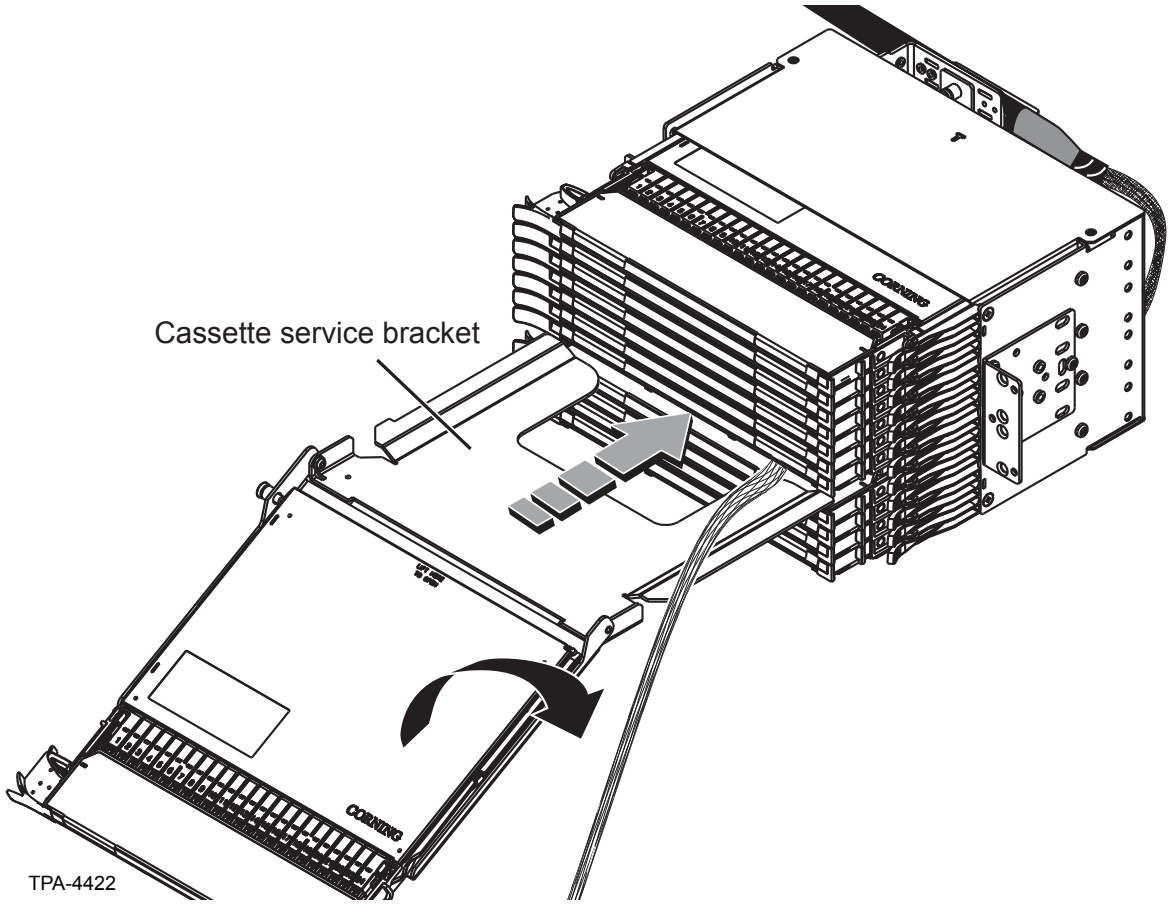

Figure 19

Step 5: Secure the end of the transport/braided tube holding the input ribbon or loose tube fibers in the strain-relief holder (Figure 20). Press the strain-relief tab closed to secure the fibers.

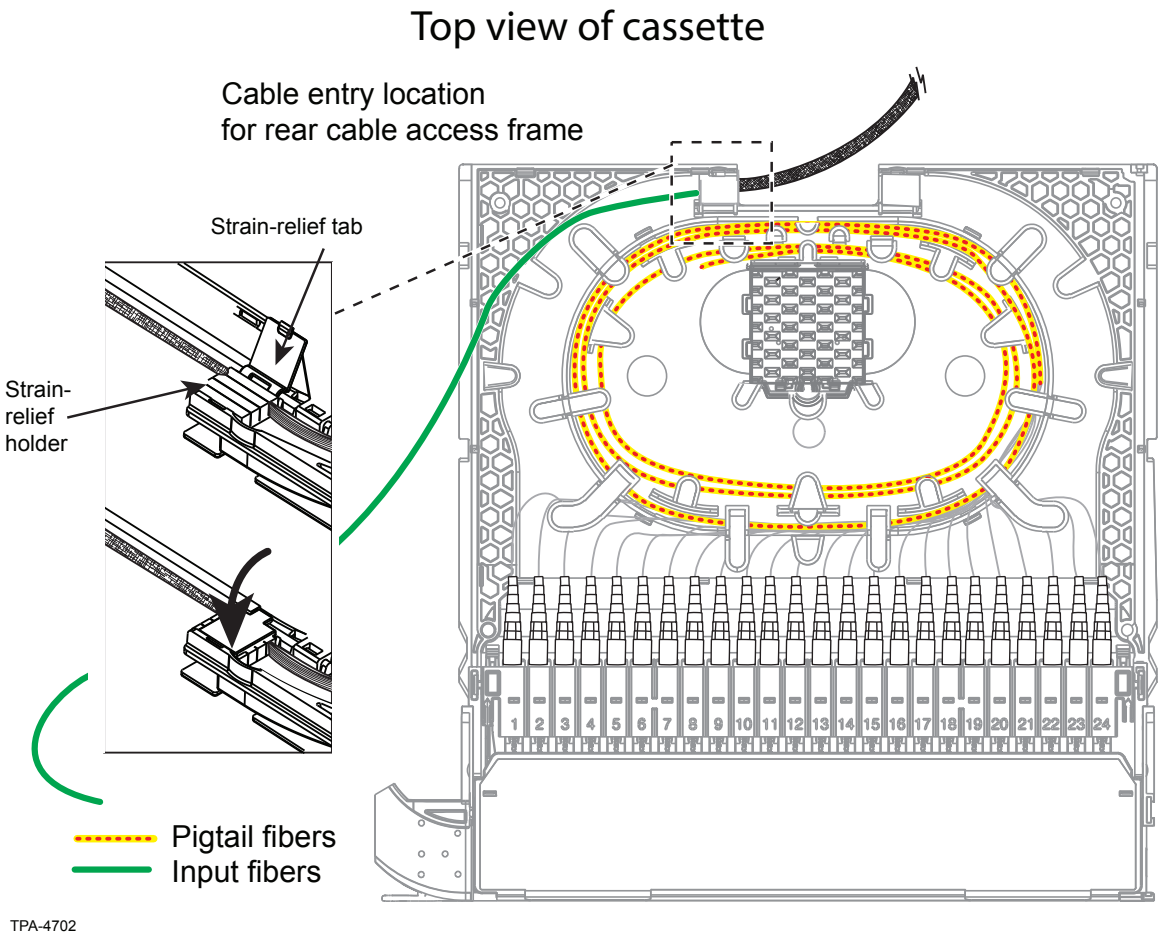

Figure 20

NOTE: *When placing spliced fibers in the splice organizer, it may be necessary to lift the organizer and rotate it 90 degrees from its factory-installed orientation (Figure 21).*

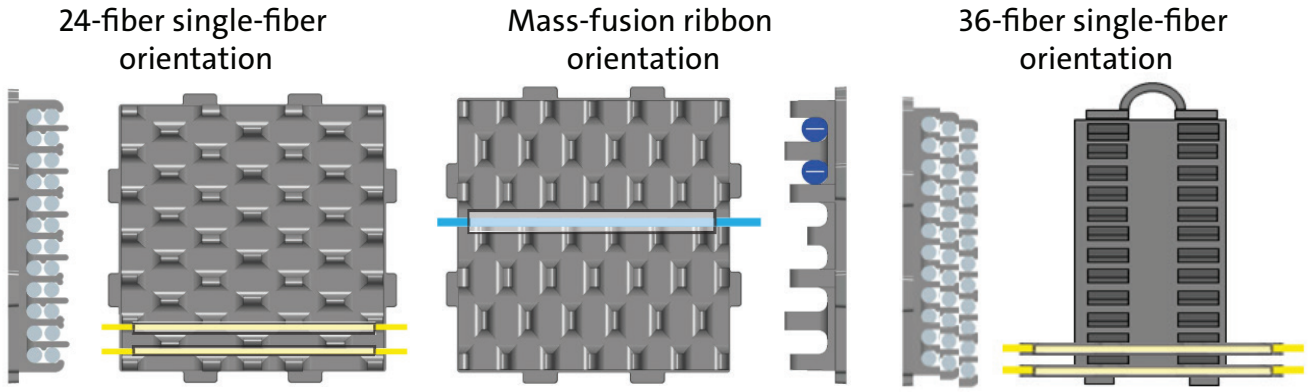

Figure 21

Step 6: Uncoil two loops of pigtail ribbon or fibers from inside the cassette (Figure 22).Do NOT lift the plastic shield or remove fibers from beneath it.

Step 7: Bring all input ribbon or fibers as a group into the internal fiber routing area in front of the pigtail fibers.

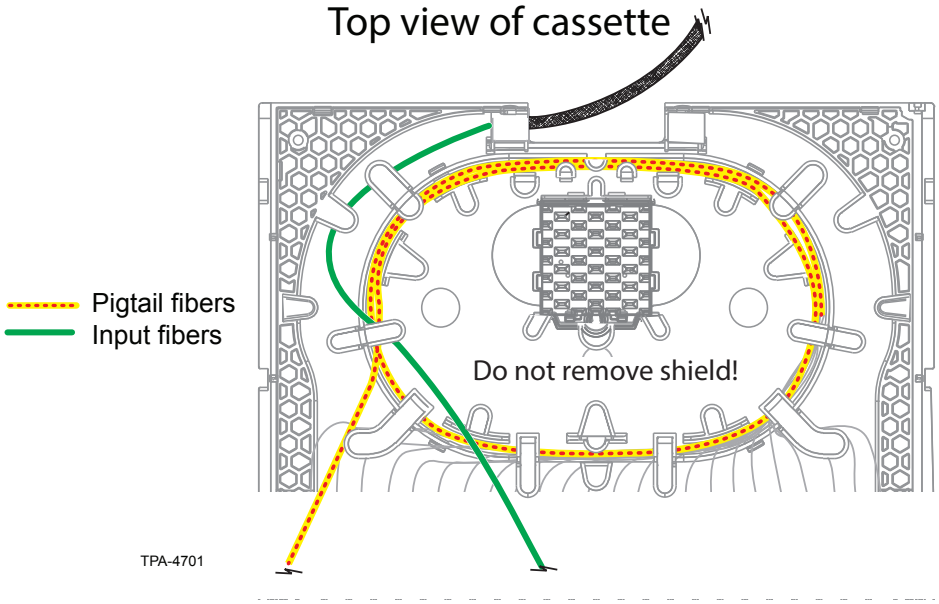

Figure 22

Step 8: Gather the input and pigtail fibers with all the input fibers to the inside of the pigtail fibers.

Step 9: Tape the fibers together at least once as routed to maintain organization of the fibers.

NOTE: *If fibers are ribbon, maintain the same color orientation for input and pigtail fibers, preferably with blue on top.*

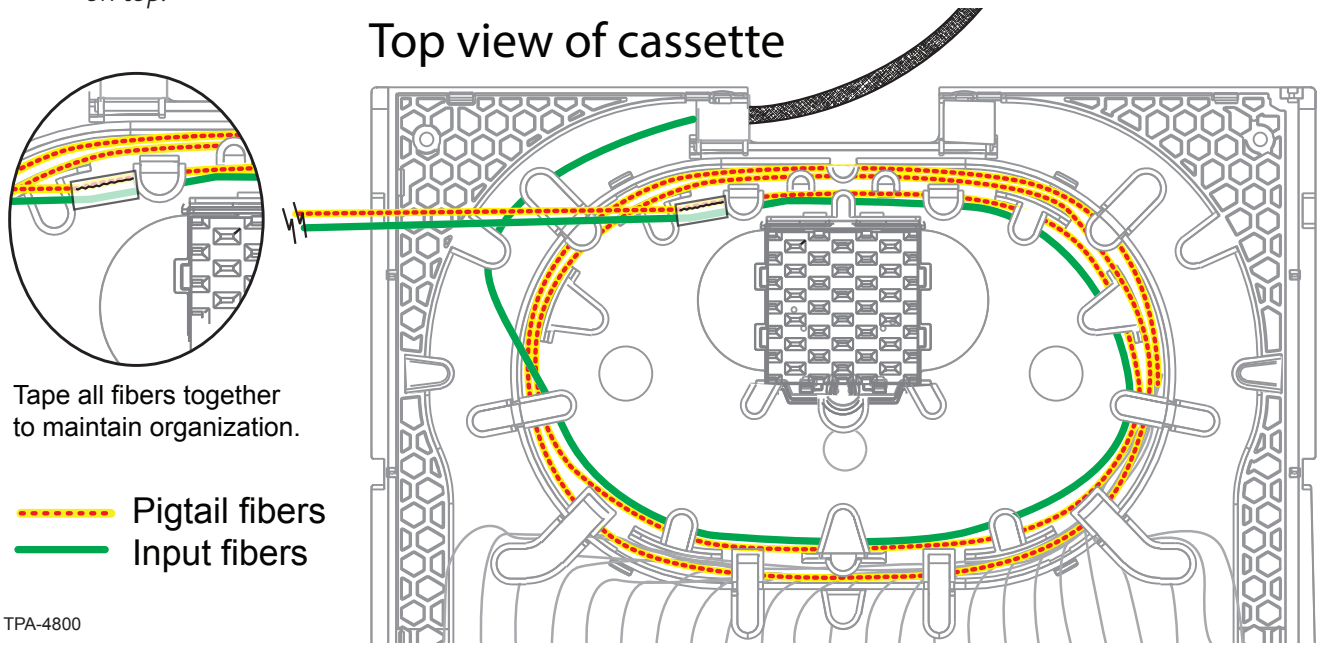

Figure 23

Step 10: Continue routing input fibers and pigtails as a unit inside the fiber routing area.

Step 11: Bring input fibers into the splice organizer on one side of the organizer (Figure 24).

Step 12: Continue routing pigtail fibers to the other side of the splice organizer.

Step 13: Line up the fibers being sure to maintain the color orientation.

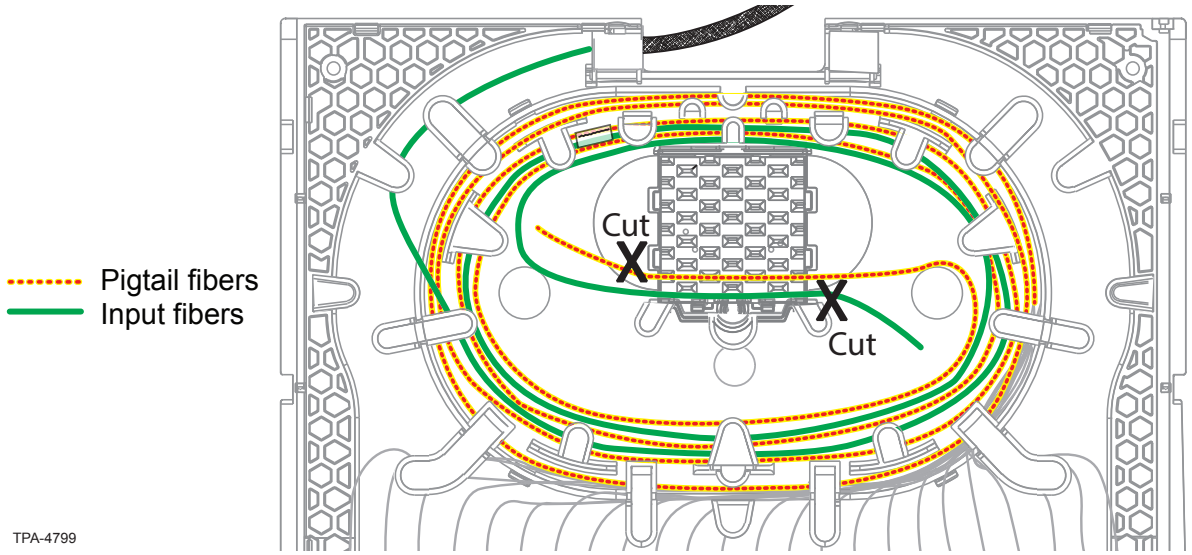

Figure 24

Step 14: Cut the ribbons/fibers at the outer edge of the splice organizer (Figure 24).

Step 15: Slide a splice protector onto either the input fibers or onto the pigtail fibers. Tape fibers at splice point to prevent fiber twisting when moving fibers to splice equipment.

Step 16: Bring the first input ribbon/fiber and the pigtail fiber to the splicer and splice per standard practices.

NOTE: *It will be necessary to delaminate the pigtail ribbon if splicing to loose tube fibers.*

Step 17: Replace ribbon/fiber in the cassette as previously routed before splicing.

Step 18: Store the splice in the organizer.

Step 19: Repeat from Step 16 for additional ribbons/fibers.

Step 20: Replace cassette cover, if previously removed.

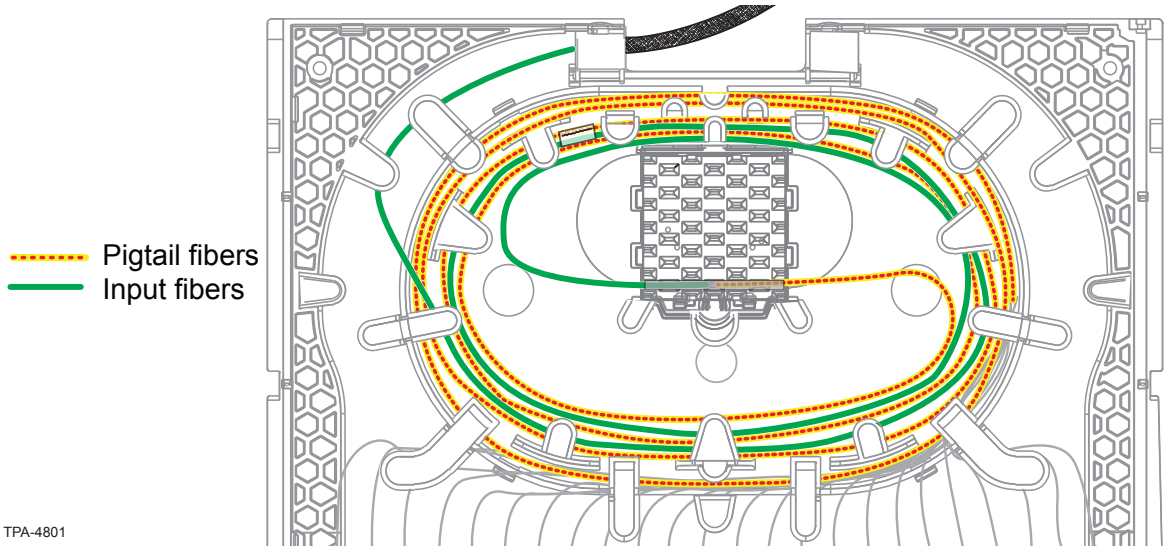

Figure 25

Step 21: Close the front cassette cover. Ensure that the snap features click when closing to securely latch the cover.

Step 22: Affix the designation label to the handle (Figure 26), if it is not already attached.

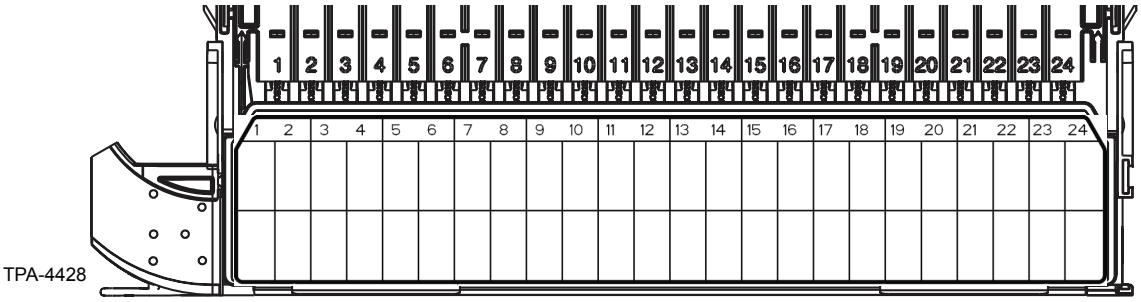

Figure 26

Step 23: If using the cassette service bracket, pull the plunger on the side and lift the cassette off the service bracket (Figure 27).

Step 24: Turn cassette over and move it to a work surface or the work shelf shown in Figure 17.

Step 25: Open the slack storage covers (Figure 28) on the bottom of the cassette.

Step 26: Place the transport/braided tubing around the perimeter of the cassette underneath the restraint tabs.

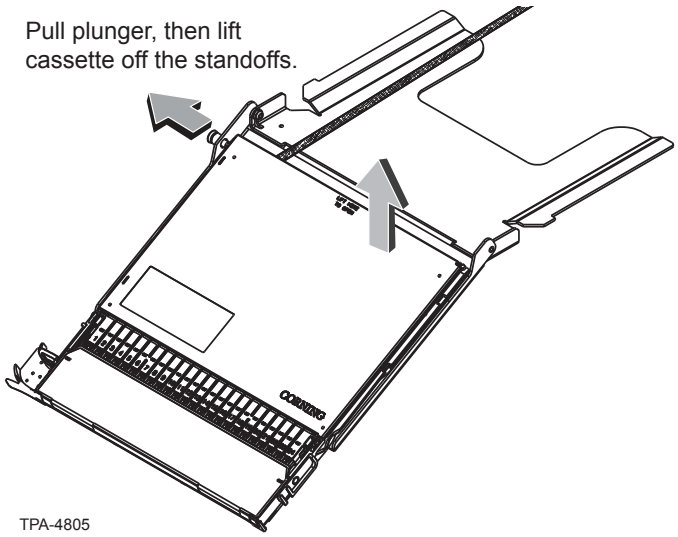

Figure 27

Bottom view of cassette

Rear cable access frame feeder cable routing

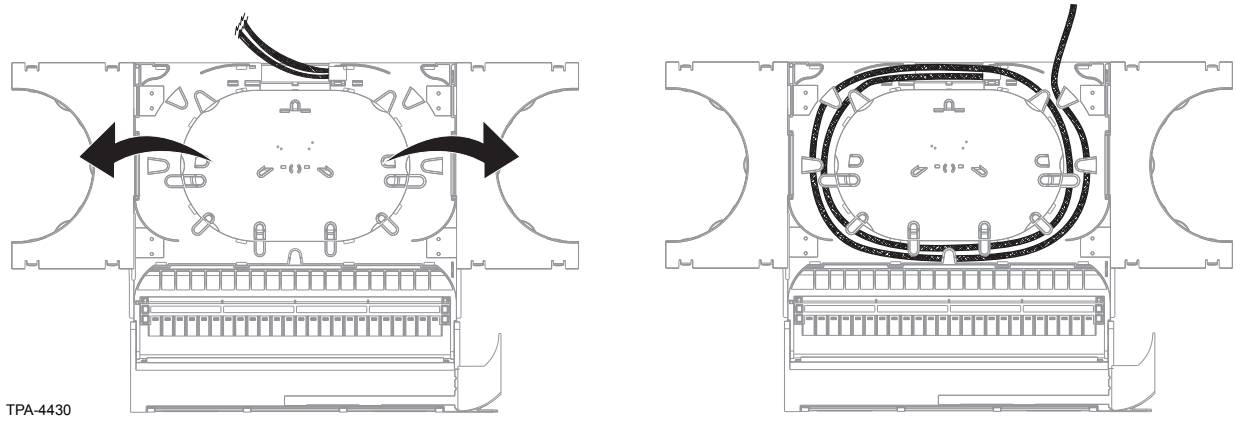

Figure 28

Step 27: Close the slack storage covers. Turn cassette over again.

Step 28: If the service bracket was used, remove it from the slot where the cassette will be inserted. Fold the service bracket (Step 29) and store it in the service shelf in the center of the Centrix™ System frame.

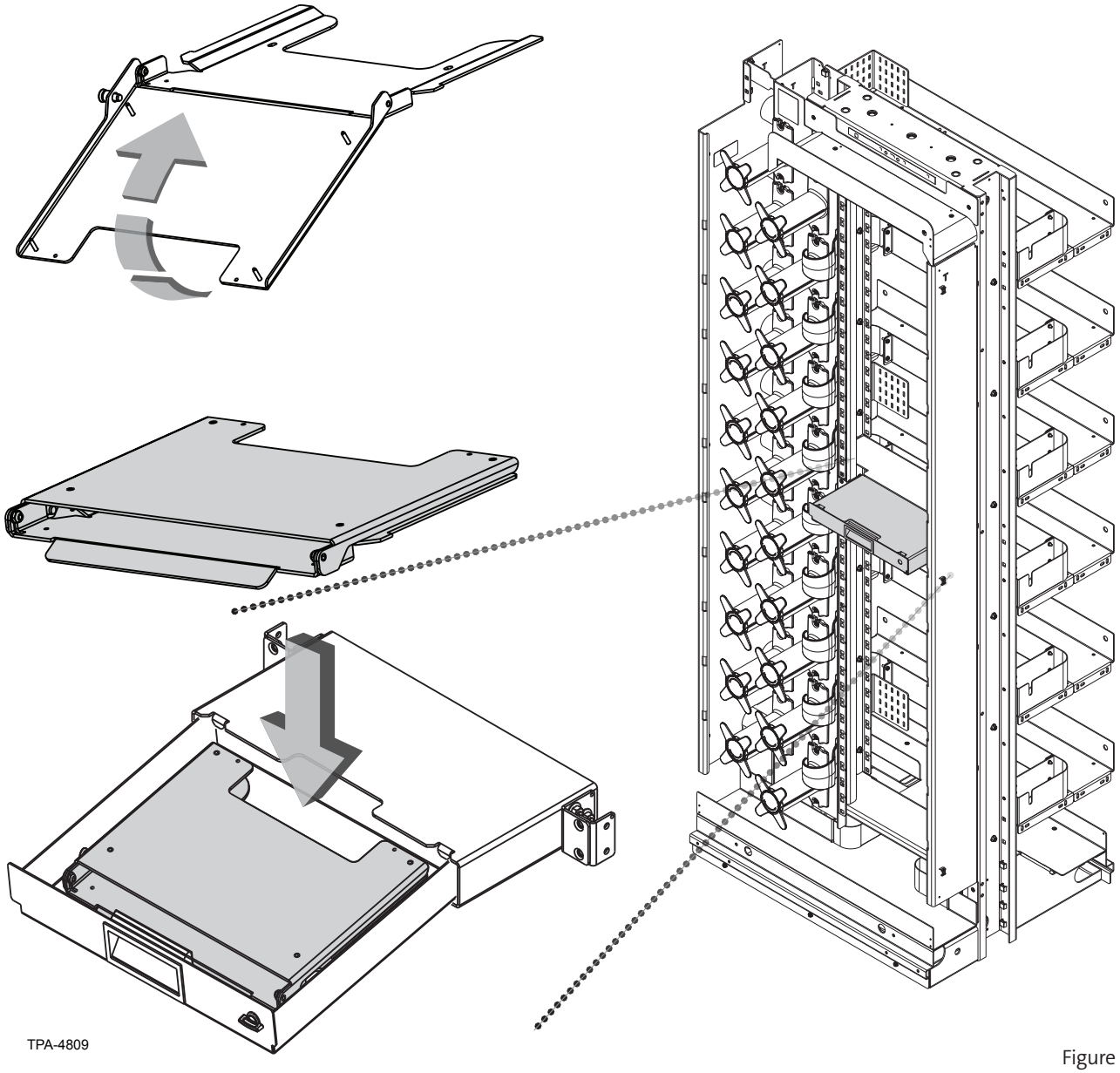

Figure 29

Step 29: If the work shelf was used, remove it by reversing Steps 3 and 4 in Figure 17. Store the work shelf.

Step 30: Insert cassette into the housing, starting at the top of the housing (Figure 30).

Step 31: Continue loading cassettes until the housing is full.

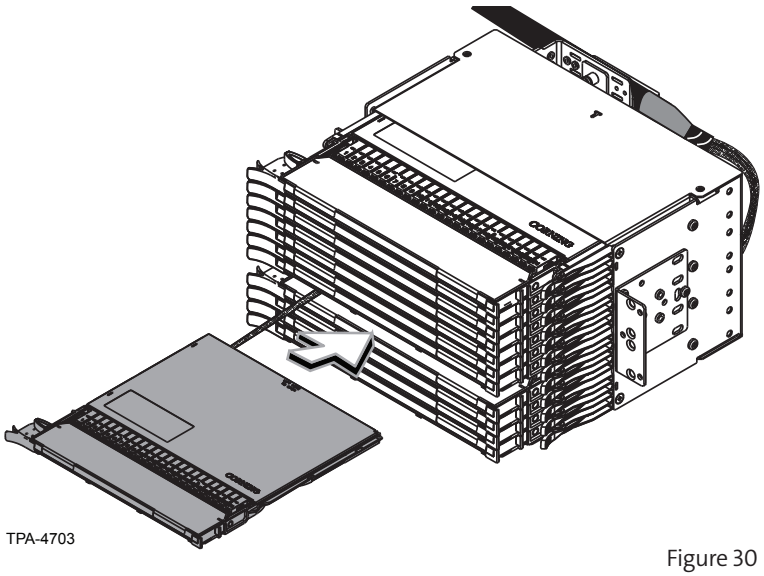

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Figure 30

Step 32: Reinstall rear troughs if they were previously removed.

a. Pull out the plungers on each side of the trough.

b. Lift the trough's hanging tabs up and slide the tabs into the slots in the frame.

c. Ensure the plungers engage in the holes to secure the trough.

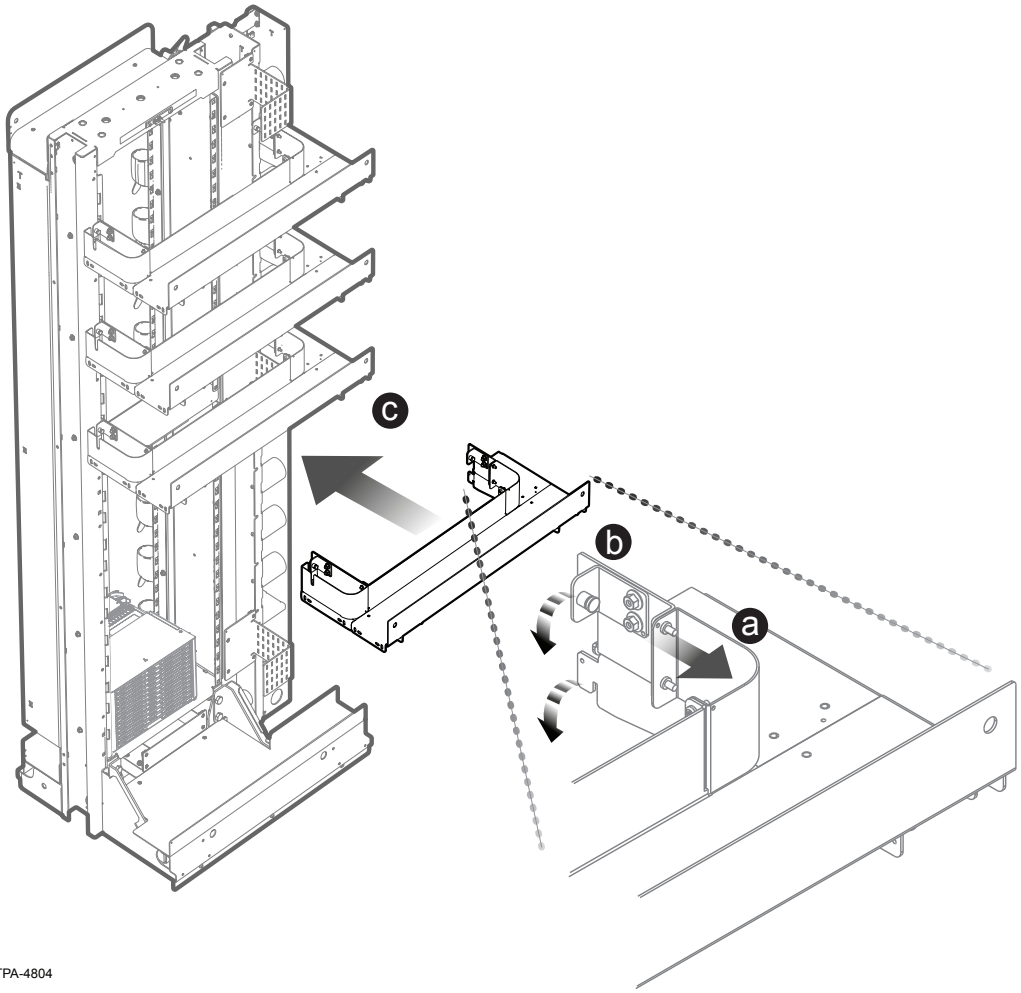

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Figure 31

6. Connect Fiber in the Front Cable Access Frame

6.1 Splice Loose Tube Fibers

Step 1: If the cassette is installed in the housing, press the latch on the right side of the housing next to the cassette to be removed (Figure 32). Then pull the cassette out of the housing.

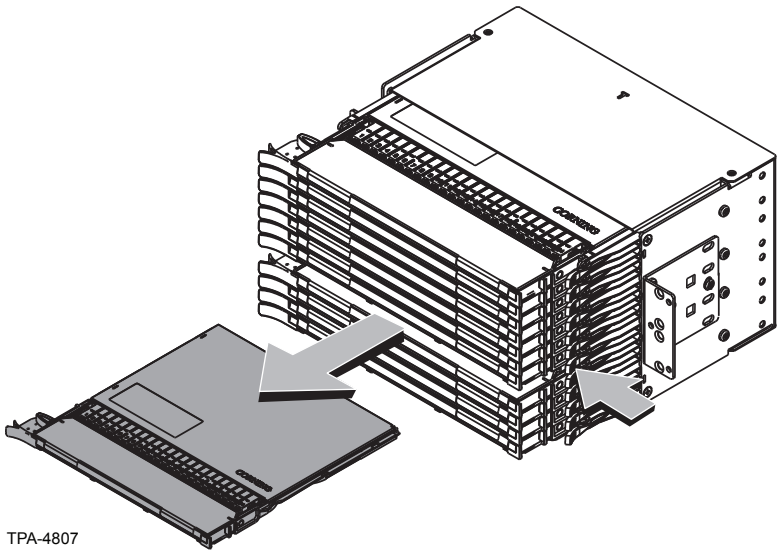

Figure 32

Step 2: Turn cassette over to access the bottom and move it to a work surface or work shelf.

NOTE: *To facilitate splicing and testing, Corning offers a work shelf (CTX-WORKSHELF) shown in Figure 33.*

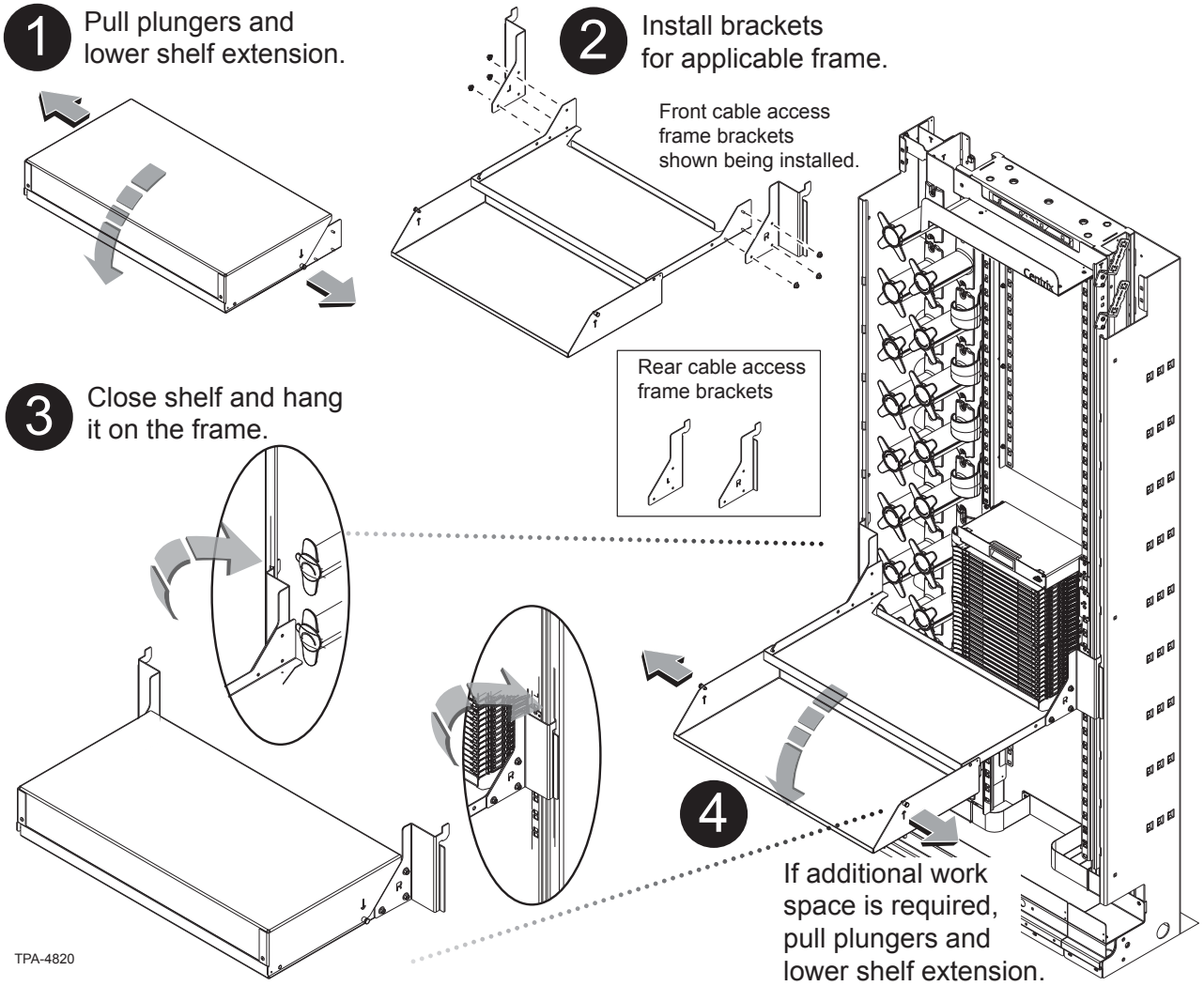

Figure 33

Step 3: Open the hinged covers (Figure 34). Bring the input fibers into the side of the cassette and out the rear in preparation for splicing on the front side. Close the hinged covers on back.

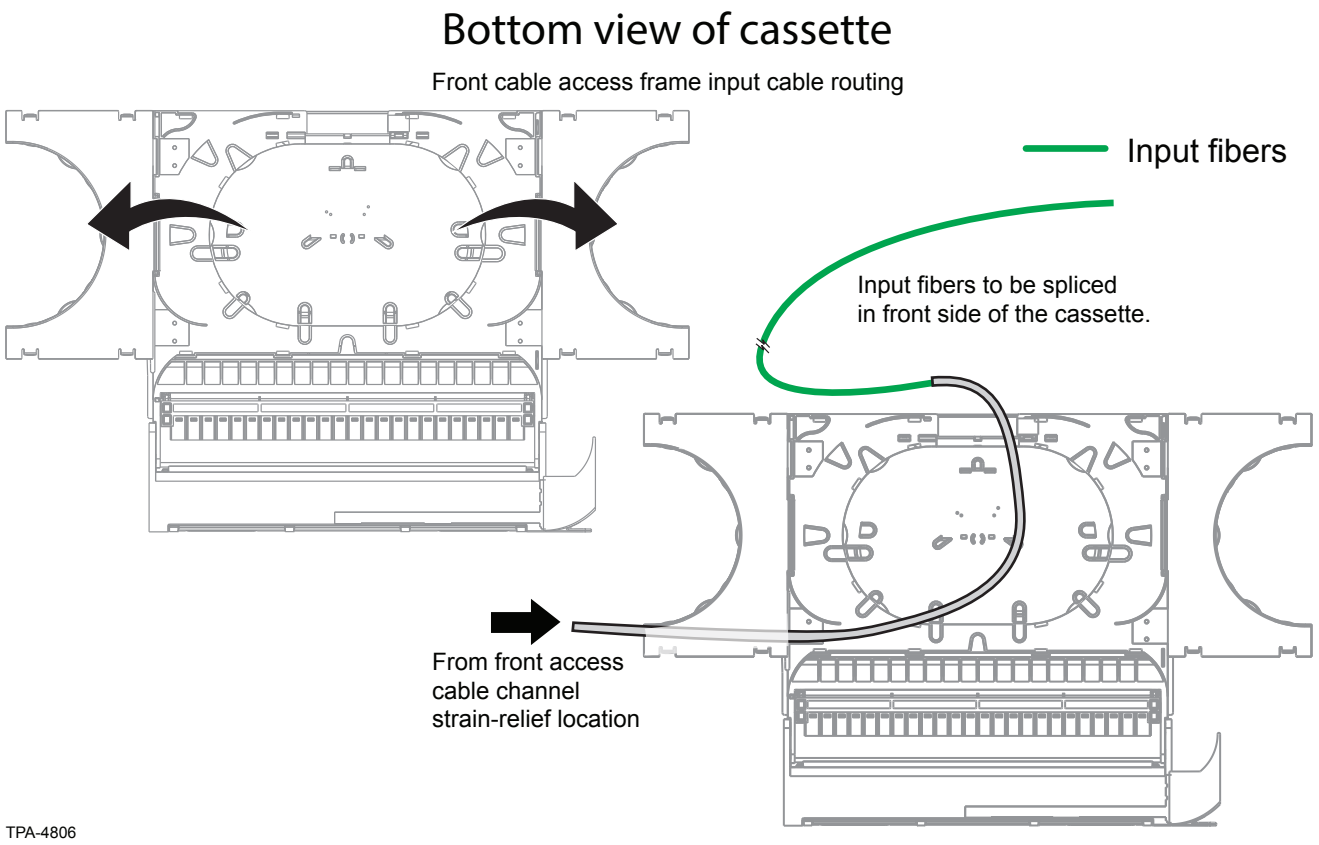

Figure 34

NOTE: *The cassette service bracket (CTX-SERVICE-BKT), shown in Figure 35, facilitates fiber routing and splicing. Refer to SRP 003-961 for instructions on their use.*

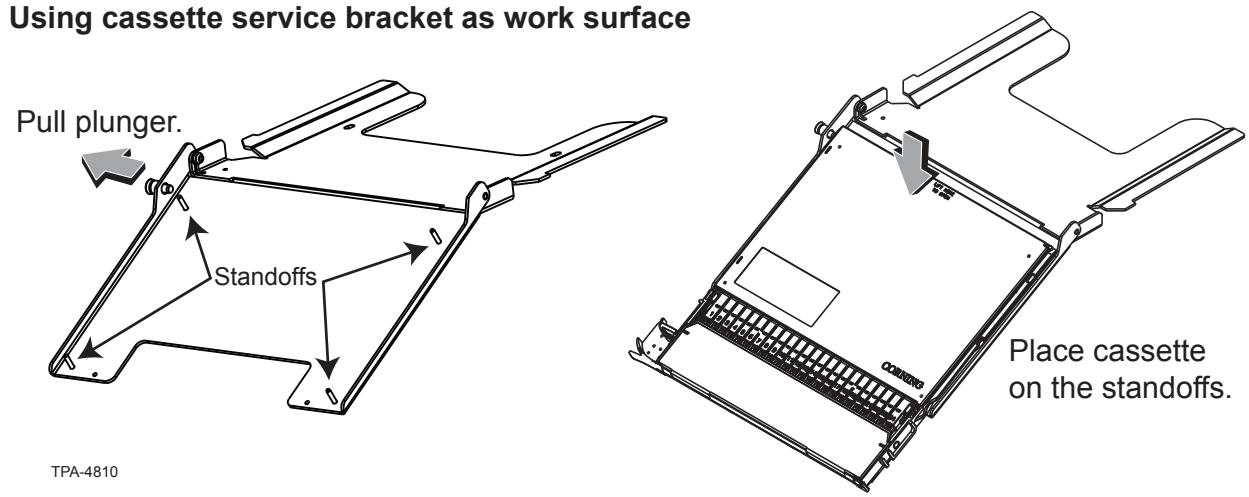

Figure 35

Step 4: If using the service bracket, place the cassette on it as shown in Figure 35. Then insert the service bracket into the slot vacated by the cassette being work on (Figure 36). Open the cover of the cassette and remove it, if desired, by bowing the hinged edge of the cover to release the hinge pins.

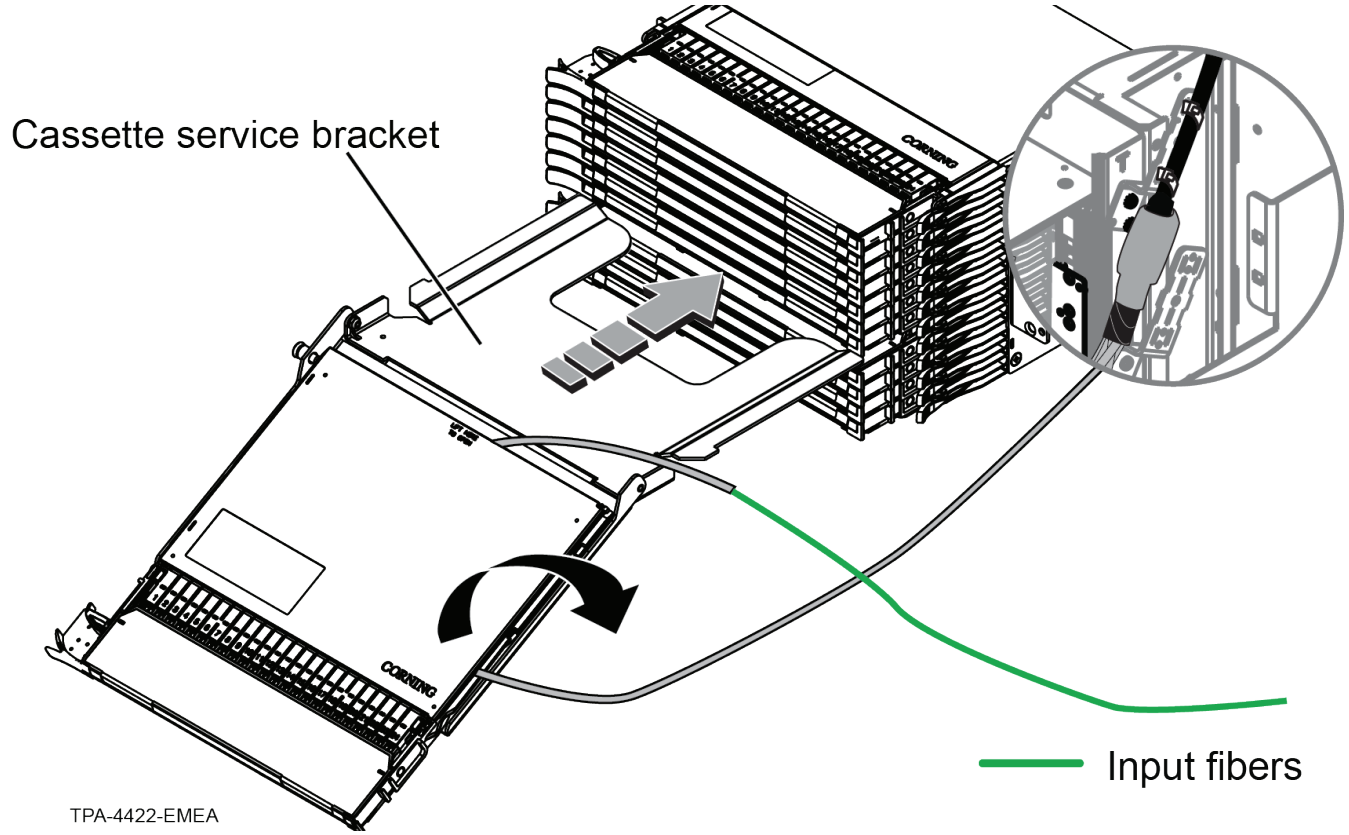

Figure 36

Step 5: Secure the end of the transport tube holding the input fibers in the strain-relief holder (Figure 37). Press the strain-relief tab closed to secure the fibers.

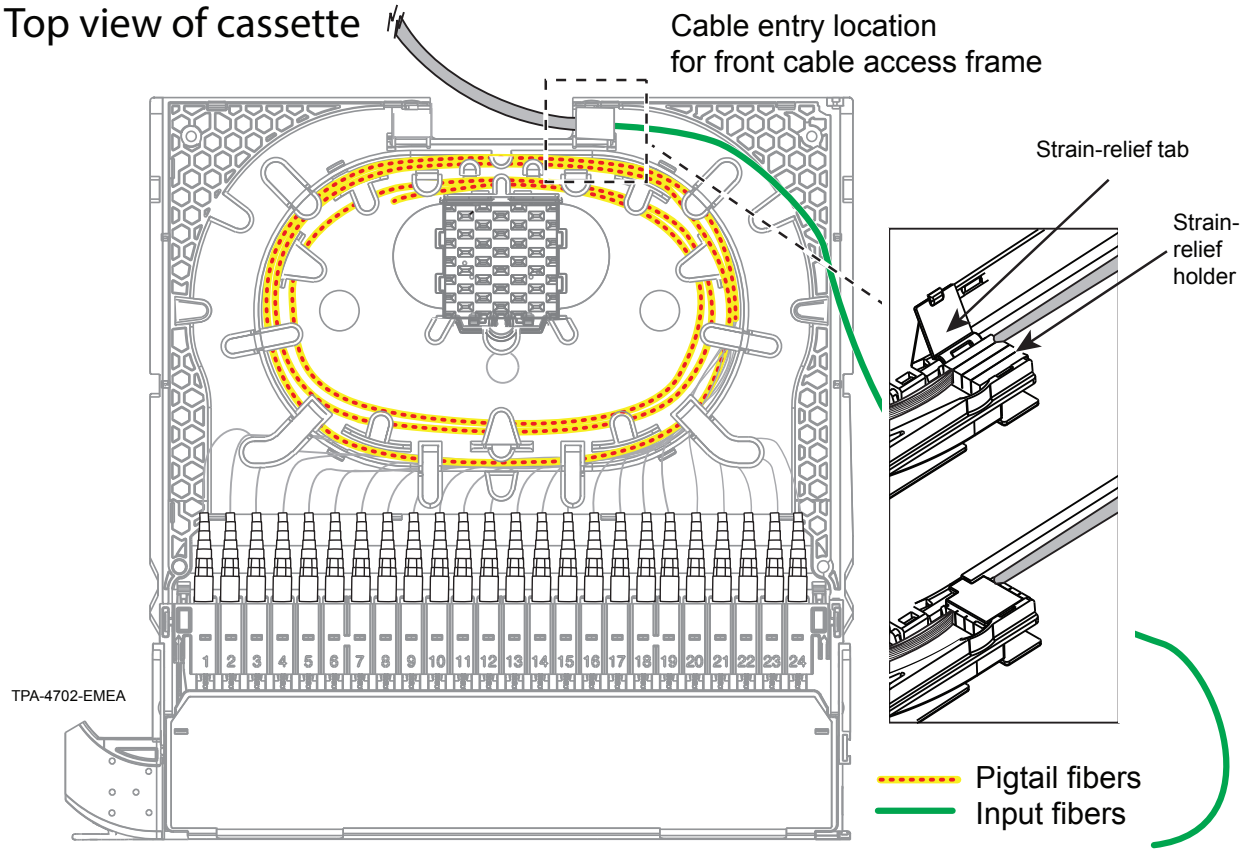

Figure 37

NOTE: *When placing spliced fibers in the splice organizer, it may be necessary to lift the organizer and rotate it 90 degrees from its factory-installed orientation (Figure 38).*

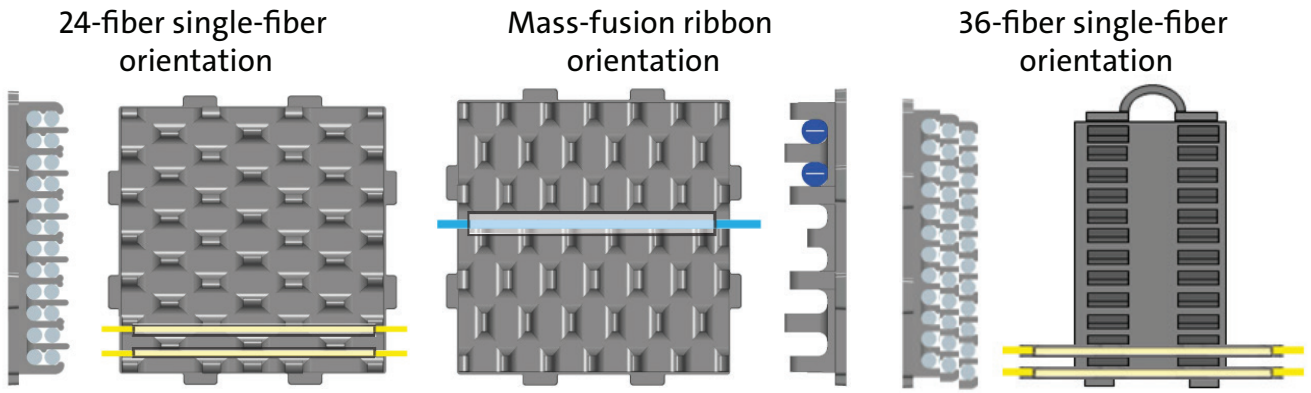

Figure 38

Step 6: Reroute last loop of the pigtail fiber to the outer path before bringing it back to the splice organizer. Cut the fibers at the outer edge of the splice organizer (Figure 39).

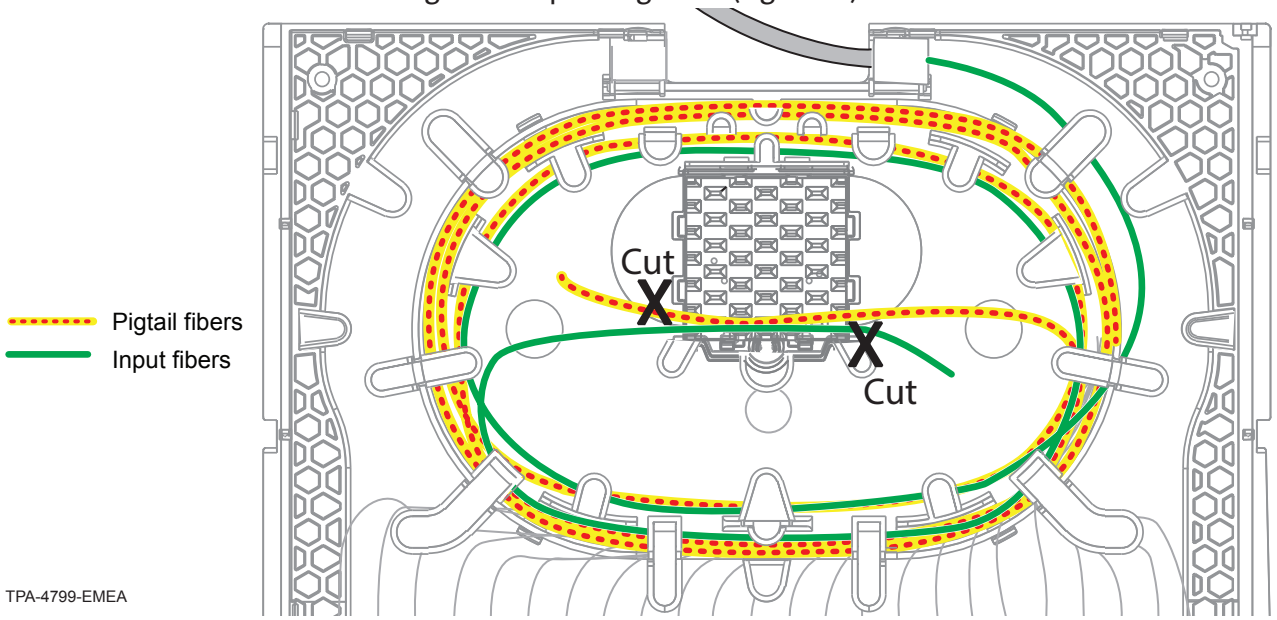

Figure 39

Step 7: Slide a splice protector onto either the input fibers or onto the pigtail fibers.

Step 8: Bring the input fibers and the pigtail fibers to the splicer and splice per standard practices.

Step 9: Replace fibers in the cassette as previously routed before splicing (Figure 40).

Step 10: Store the splice in the organizer.

Step 11: Repeat from Step 7 for each input fiber.

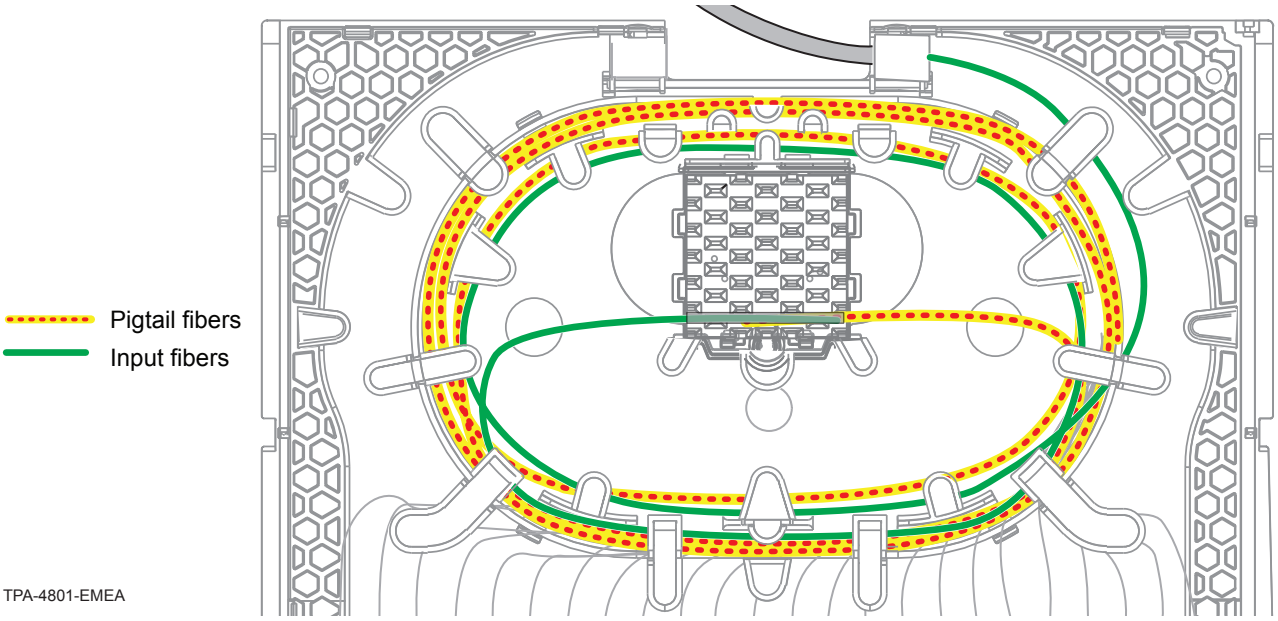

Figure 40

Step 12: Close the front cassette cover. Ensure that the snap features click when closing to securely latch the cover.

Step 13: Affix the designation label to the handle (Figure 41), if necessary.

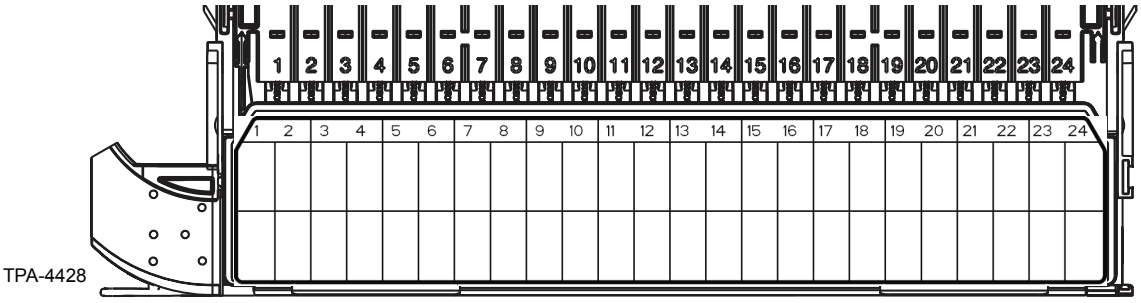

Figure 41

Step 14: If using the cassette service bracket, pull the plunger on the side and lift the cassette off the service bracket (Figure 42).

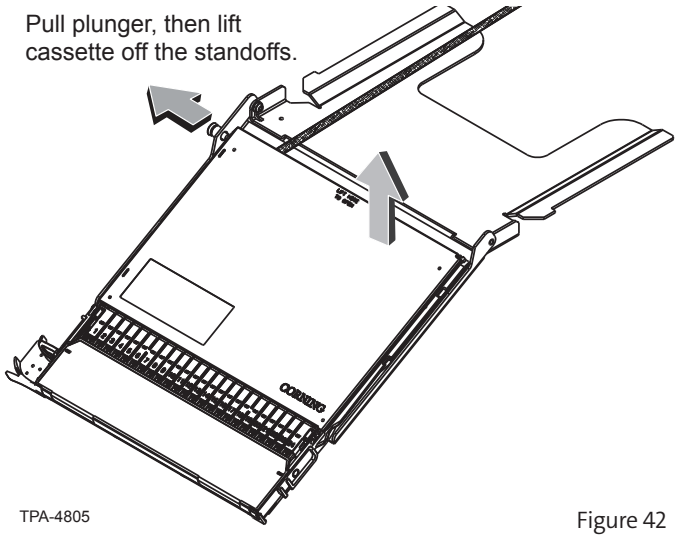

Figure 42

Step 15: Remove the service bracket from the slot where the cassette will be inserted. Fold the service bracket (Figure 43) and store it in the service shelf in the center of the Centrix™ System frame.

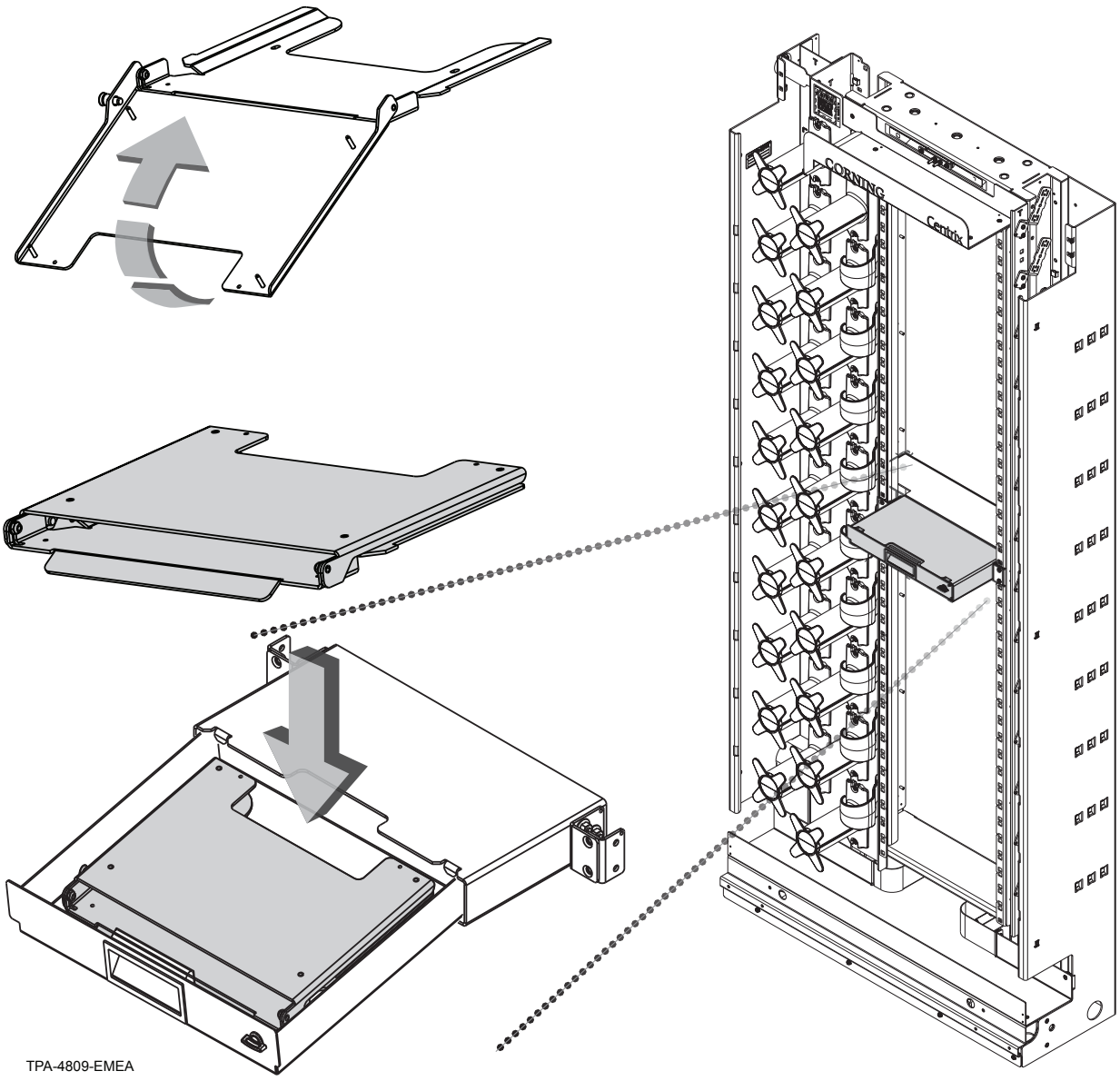

Figure 43

Step 16: Turn cassette over and move it to a work surface or the work shelf shown in Figure 33. Open the slack storage covers (Figure 44) on the bottom of the cassette.

Step 17: Place the transport tubing around the perimeter of the cassette underneath the restraint tabs.

Bottom view of cassette

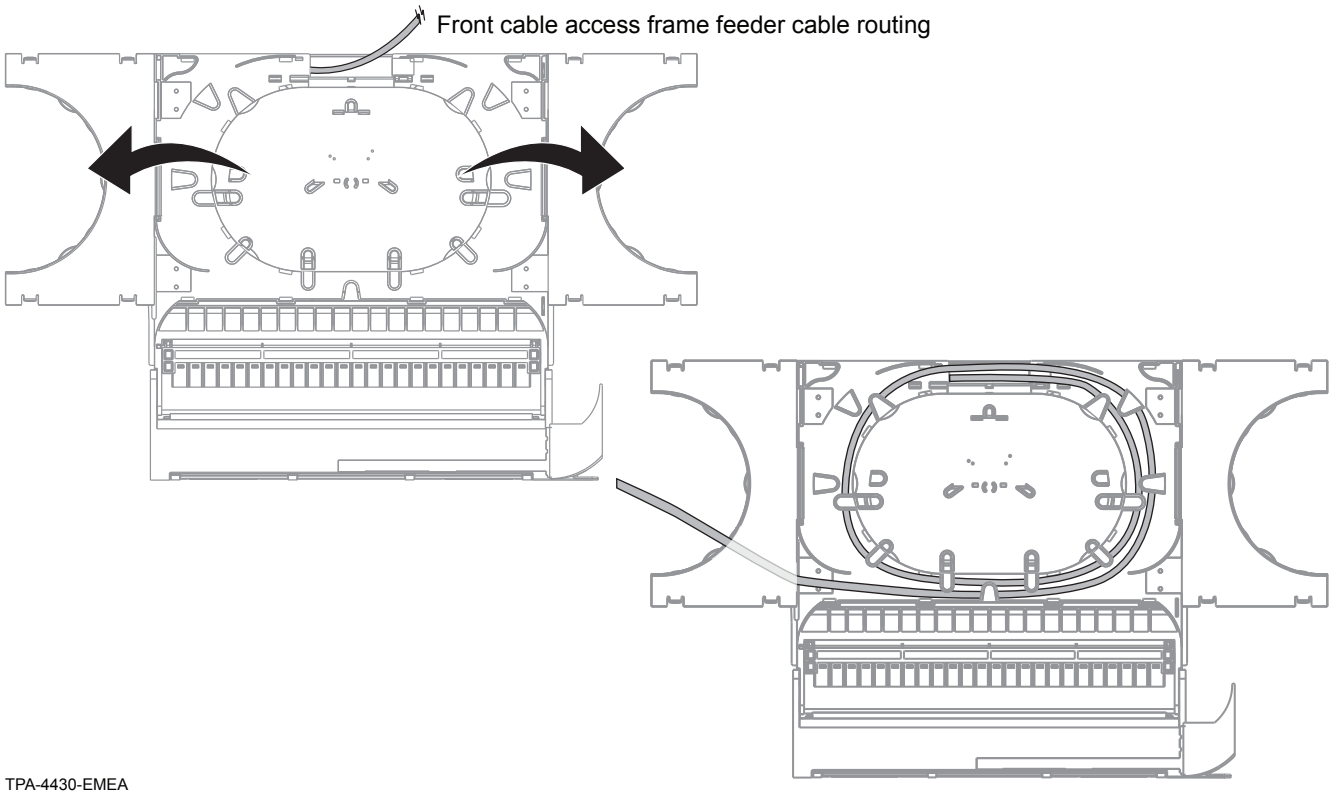

Figure 44

Step 18: Close the slack storage covers. Turn cassette over again.

Step 19: Insert cassette into the housing, starting at the top of the housing (Figure 45).

Step 20: Continue loading cassettes until the housing is full.

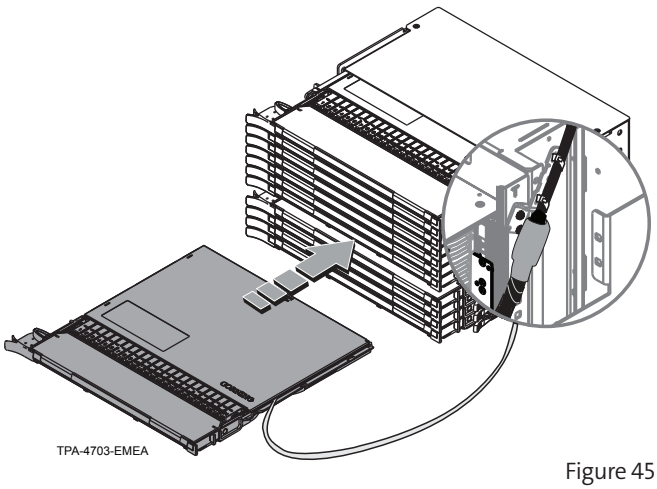

Figure 45

NOTE: *To manage an orderly arrangement of fiber from the strain-relief location, it may be necessary to gently push the transport tube back into the bottom of the cassette. Ensure that the tube and fibers are not kinked.*

6.2 Splice Ribbon Fibers

Step 1: If the cassette is installed in the housing, press the latch on the right side of the housing next to the cassette to be removed (Figure 46). Then pull the cassette out of the housing.

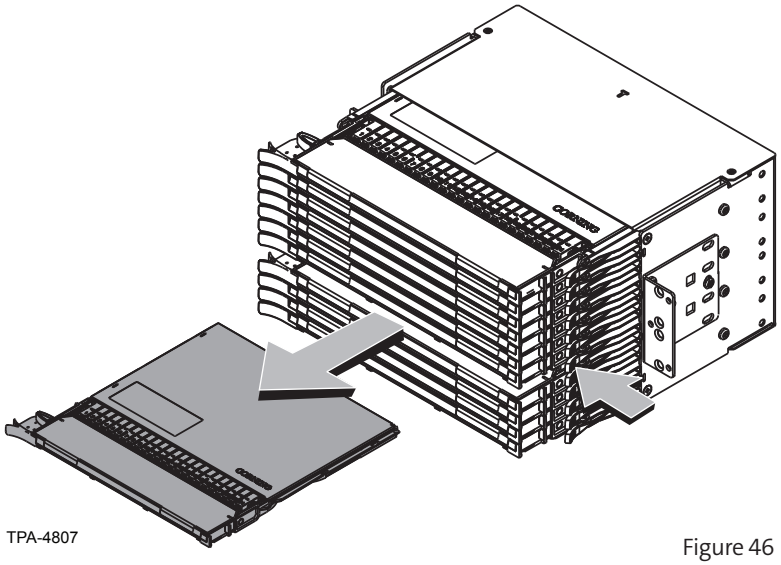

Figure 46

Step 2: Turn cassette over to access the bottom and move it to a work surface or work shelf.

NOTE: *To facilitate splicing and testing, Corning offers a work shelf (CTX-WORKSHELF) shown in Figure 47.*

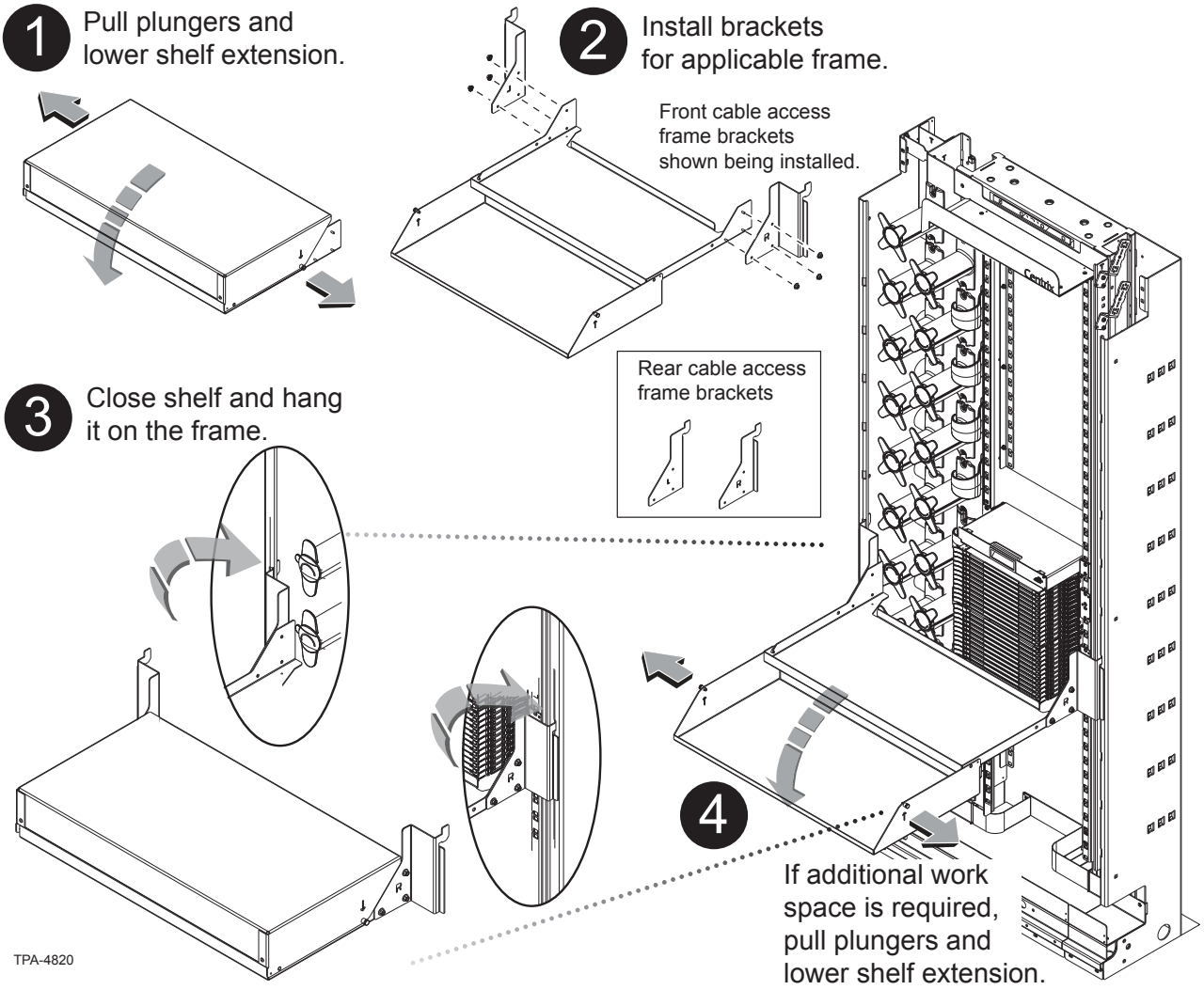

Figure 47

Step 3: Open the hinged covers (Figure 48). Bring the input fibers into the side of the cassette and out the rear in preparation for splicing on the front side. Close the hinged covers on back.

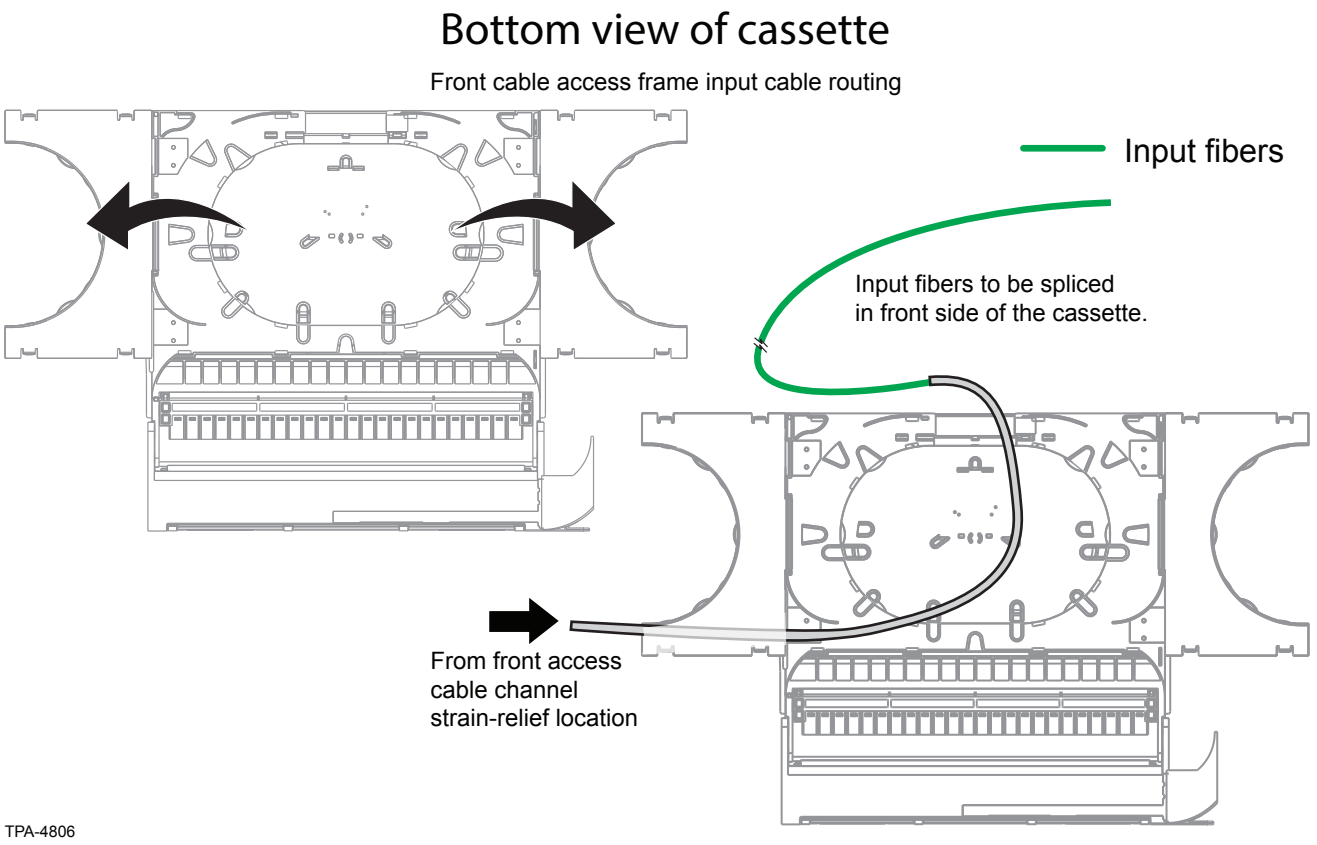

Figure 48

Step 4: Turn the cassette over to the front side.

Step 5: Place the cassette on a work surface. To facilitate splicing and testing, Corning offers a work shelf (CTX-WORKSHELF) and a cassette service bracket (CTX-SERVICE-BKT), shown in Figure 49. Refer to SRP 003-961 for instructions on their use.

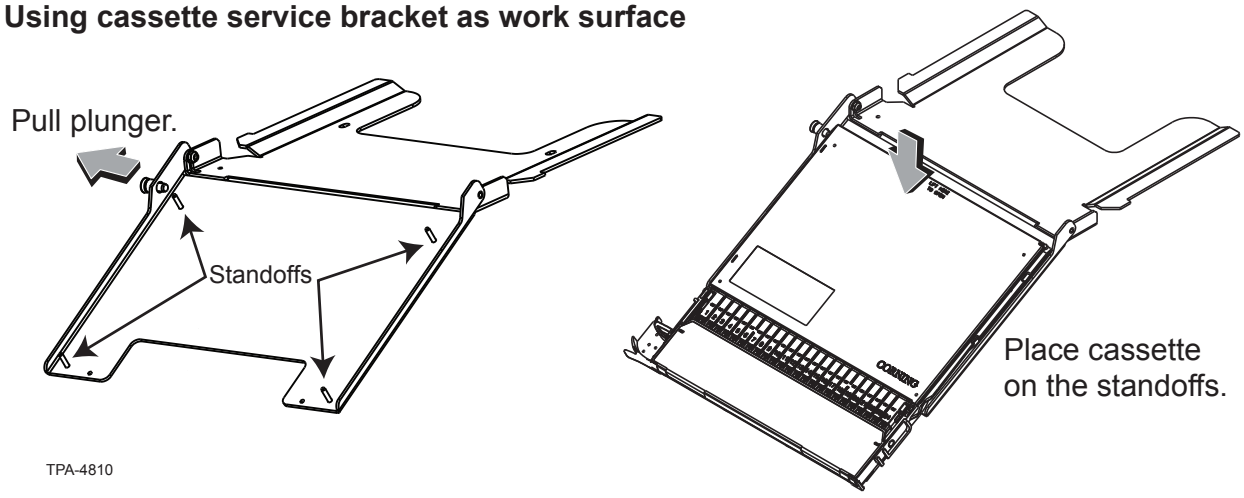

Figure 49

Step 6: If using the service bracket, insert it into the slot vacated by the cassette being work on (Figure 50). Open the cover of the cassette and remove it, if desired, by bowing the hinged edge of the cover to release the hinge pins.

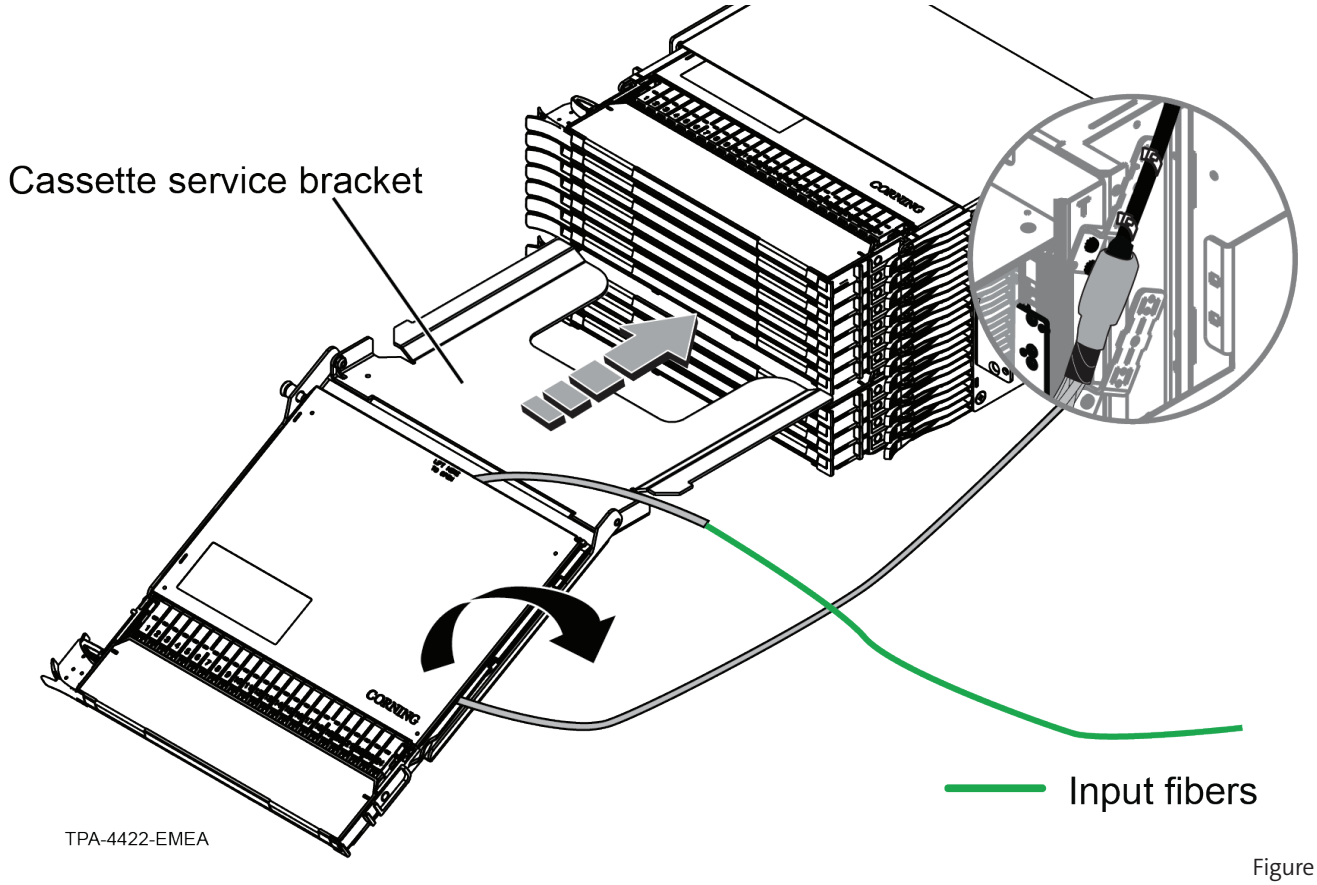

Figure 50

NOTE: *Cassettes may be ordered with SC or LC adapters. LC adapters are available in two configurations, as shown in Figure 51.*

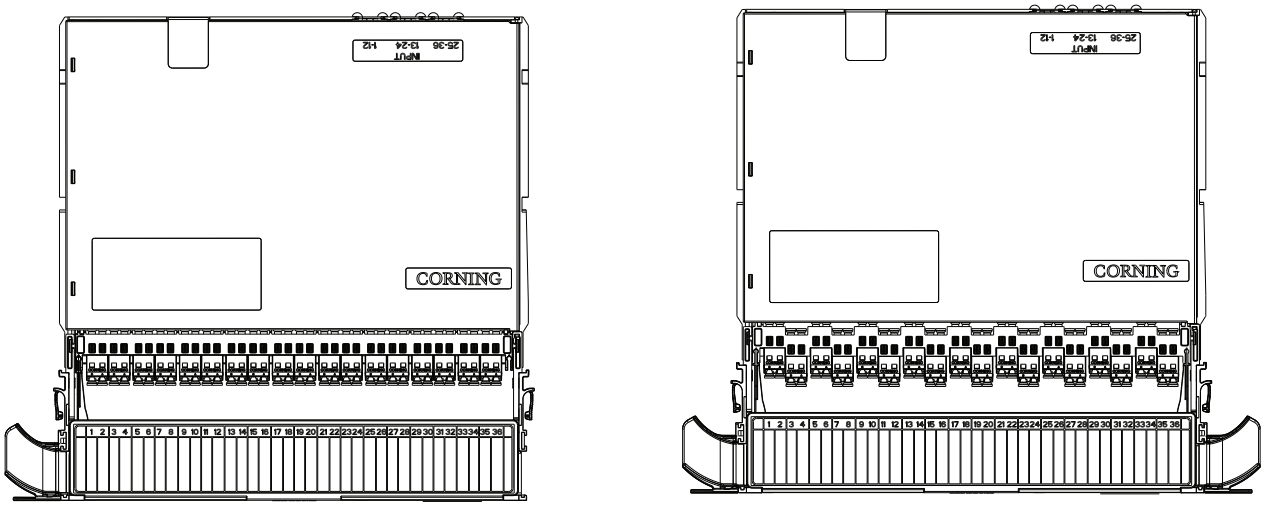

Figure 51

Step 7: Secure the end of the transport tube holding the input fibers in the strain-relief holder (Figure 52). Press the strain-relief tab closed to secure the fibers.

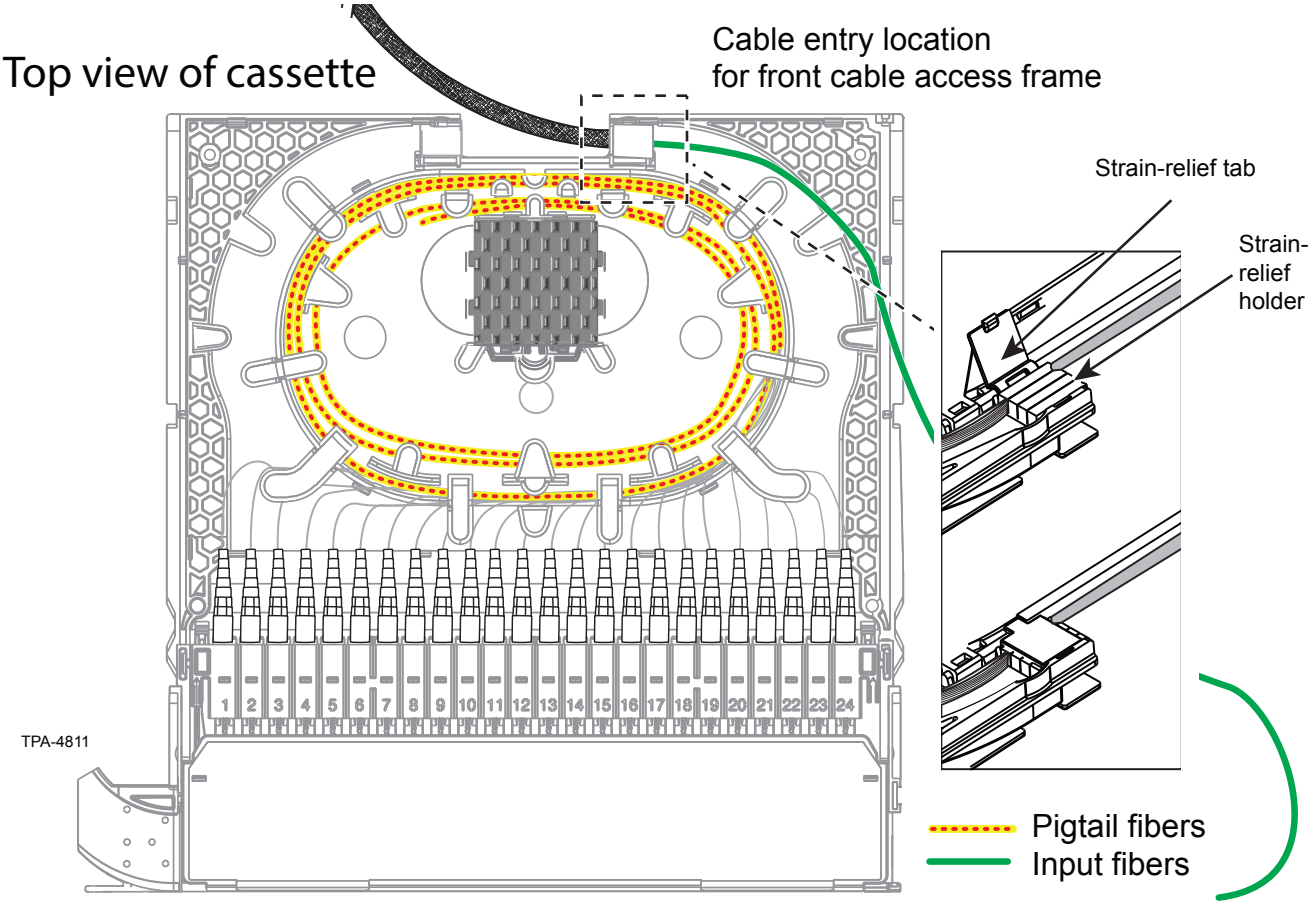

Figure 52

NOTE: *When placing spliced fibers in the splice organizer, it may be necessary to lift the organizer and rotate it 90 degrees from its factory-installed orientation (Figure 53).*

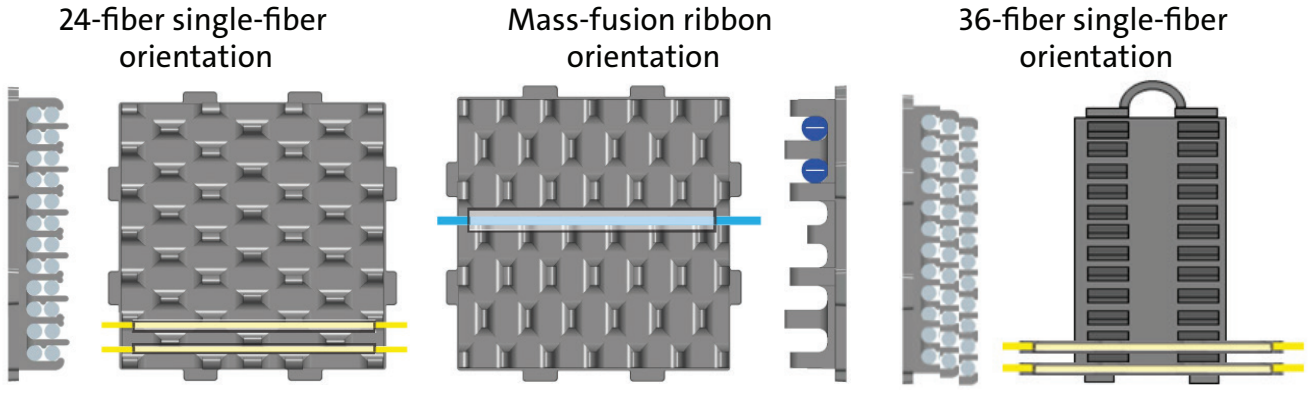

Figure 53

Step 8: Uncoil two loops of pigtail fibers from inside the cassette (Figure 54).Do NOT lift the plastic shield or remove fibers from beneath it.

Step 9: Bring all input fibers as a group into the internal fiber routing area in front of the pigtail fibers.

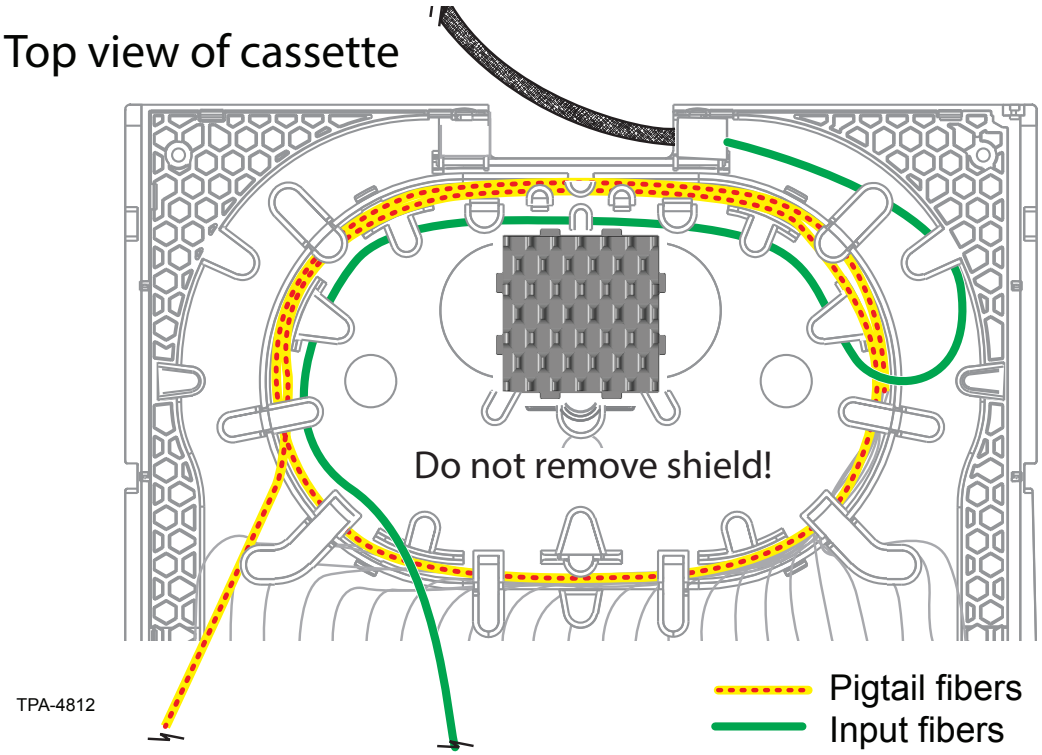

Figure 54

Step 10: Gather the input and pigtail fibers with all the input fibers to the inside of the pigtail fibers.

Step 11: Tape the fibers together at least once as routed to maintain organization of the fibers.

NOTE: *If fibers are ribbon, maintain the same color orientation for input and pigtail fibers, preferably with blue on top.*

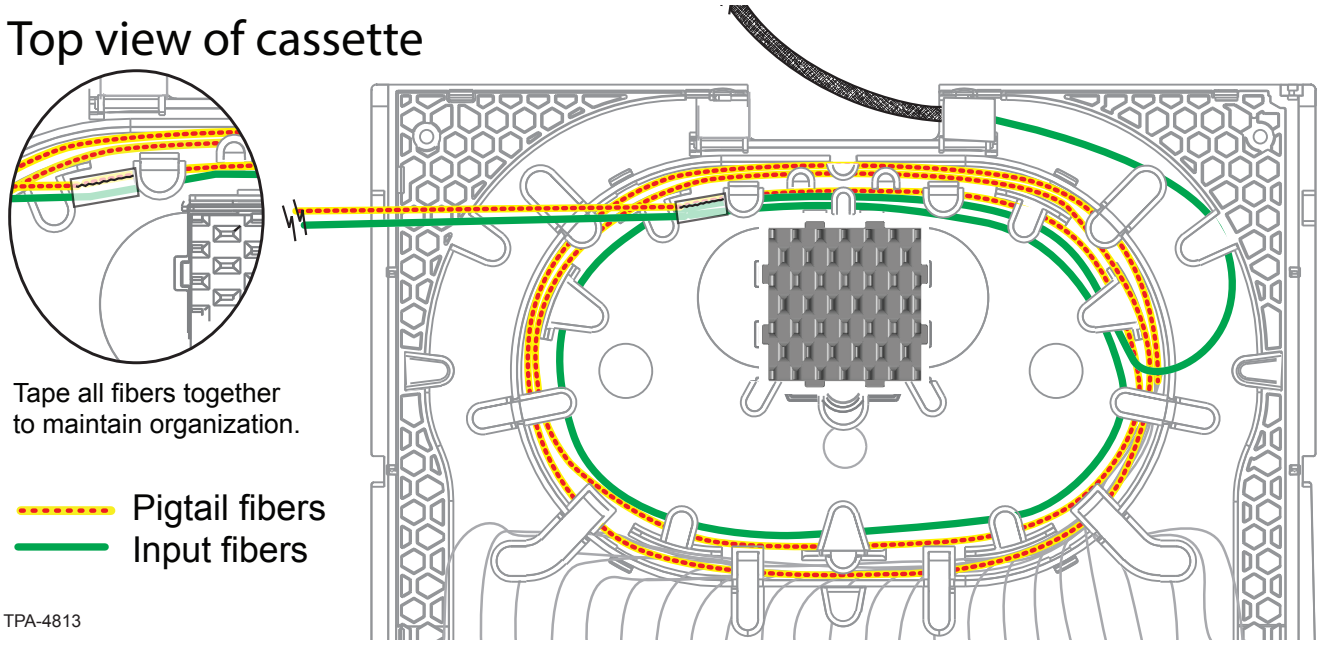

Figure 55

Step 12: Continue routing input fibers and pigtails as a unit inside the fiber routing area.

Step 13: Bring input fibers into the splice organizer on one side of the organizer (Figure 56).

Step 14: Continue routing pigtail fibers to the other side of the splice organizer.

Step 15: Line up the fibers being sure to maintain the color orientation.

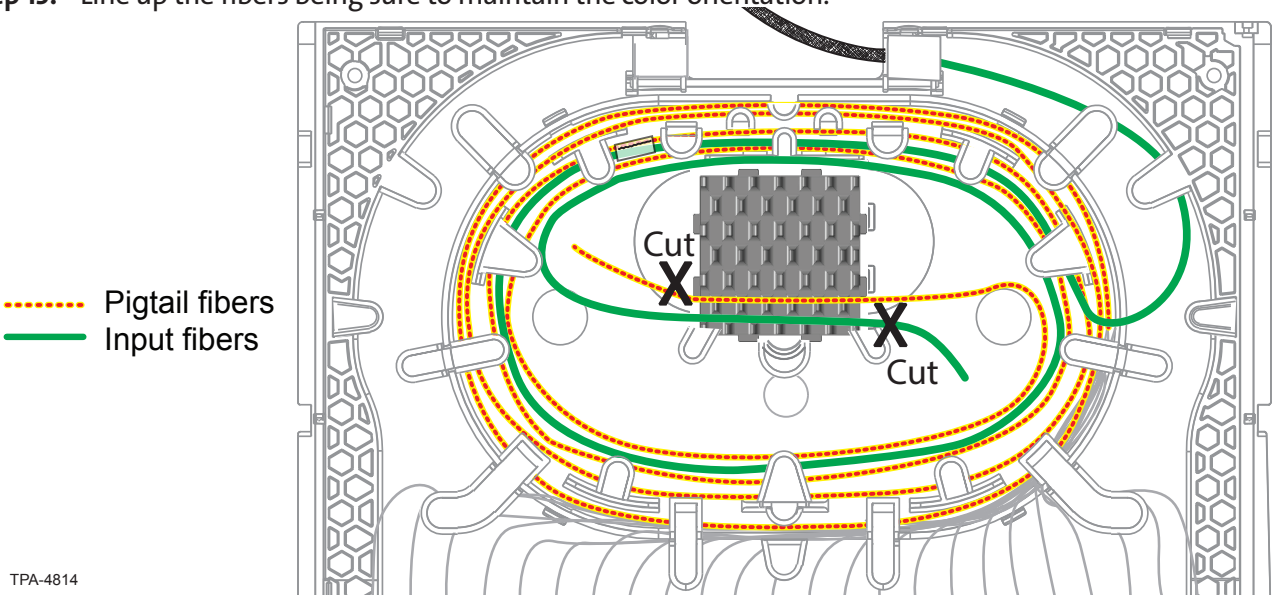

Figure 56

Step 16: Cut the ribbon fibers at the outer edge of the splice organizer (Figure 56).

Step 17: Slide a splice protector onto either the input fibers or onto the pigtail fibers. Tape fibers at splice point to prevent fiber twisting when moving fibers to splice equipment.

Step 18: Bring the first input fiber and the pigtail fiber to the splicer and splice per standard practices.

Step 19: Replace ribbon fibers in the cassette as previously routed before splicing.

Step 20: Store the splice in the organizer.

Step 21: Repeat from Step 18 for additional input fibers.

Step 22: Replace cassette cover, if previously removed.

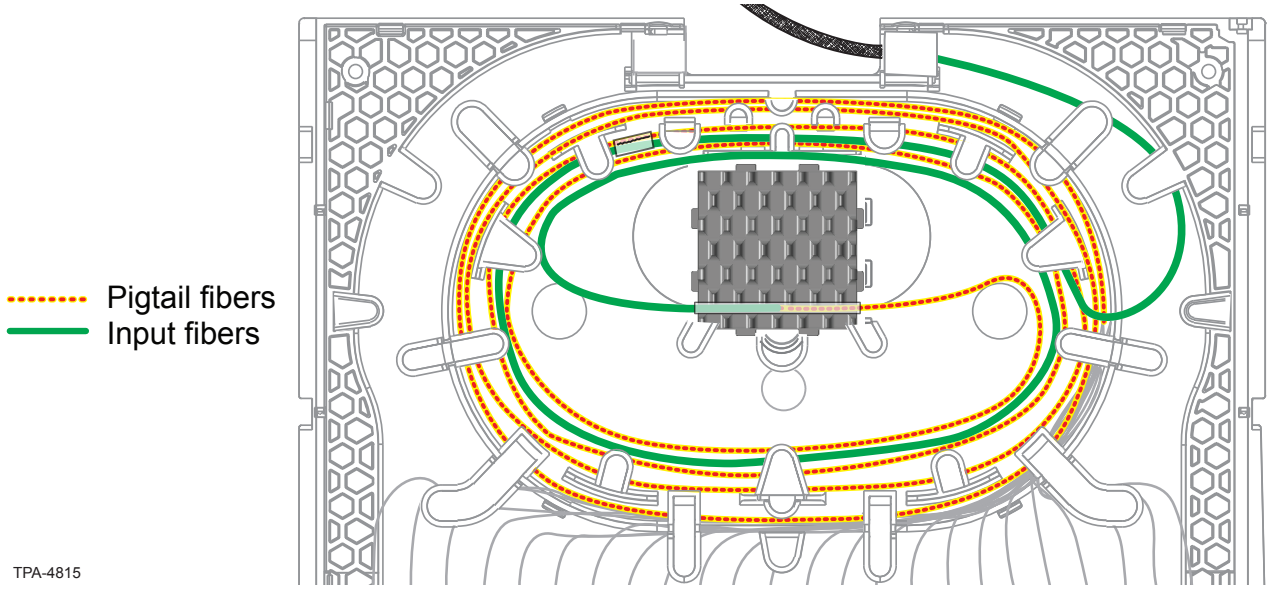

Figure 57

Step 23: Close the front cassette cover. Ensure that the snap features click when closing to securely latch the cover.

Step 24: Affix the designation label to the handle (Figure 58), if necessary.

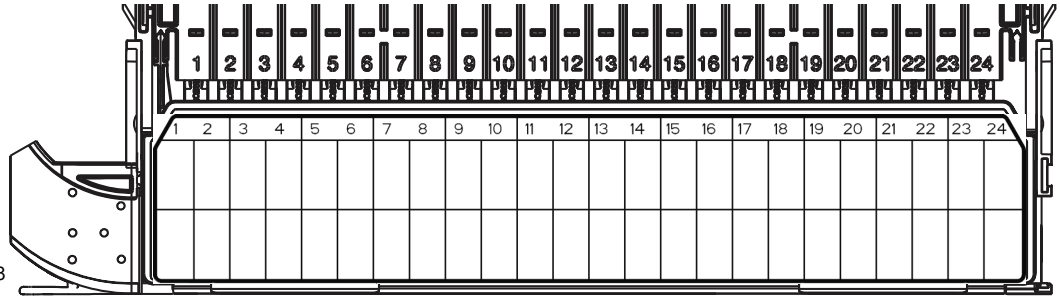

Figure 58

Step 25: If using the cassette service bracket, pull the plunger on the side and lift the cassette off the service bracket (Figure 59).

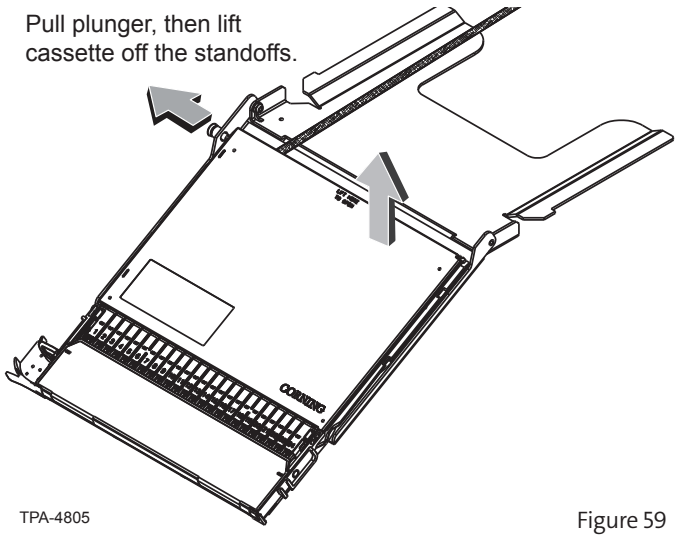

Figure 59

Step 26: Remove the service bracket from the slot where the cassette will be inserted. Fold the service bracket (Figure 60) and store it in the service shelf in the center of the Centrix™ System frame.

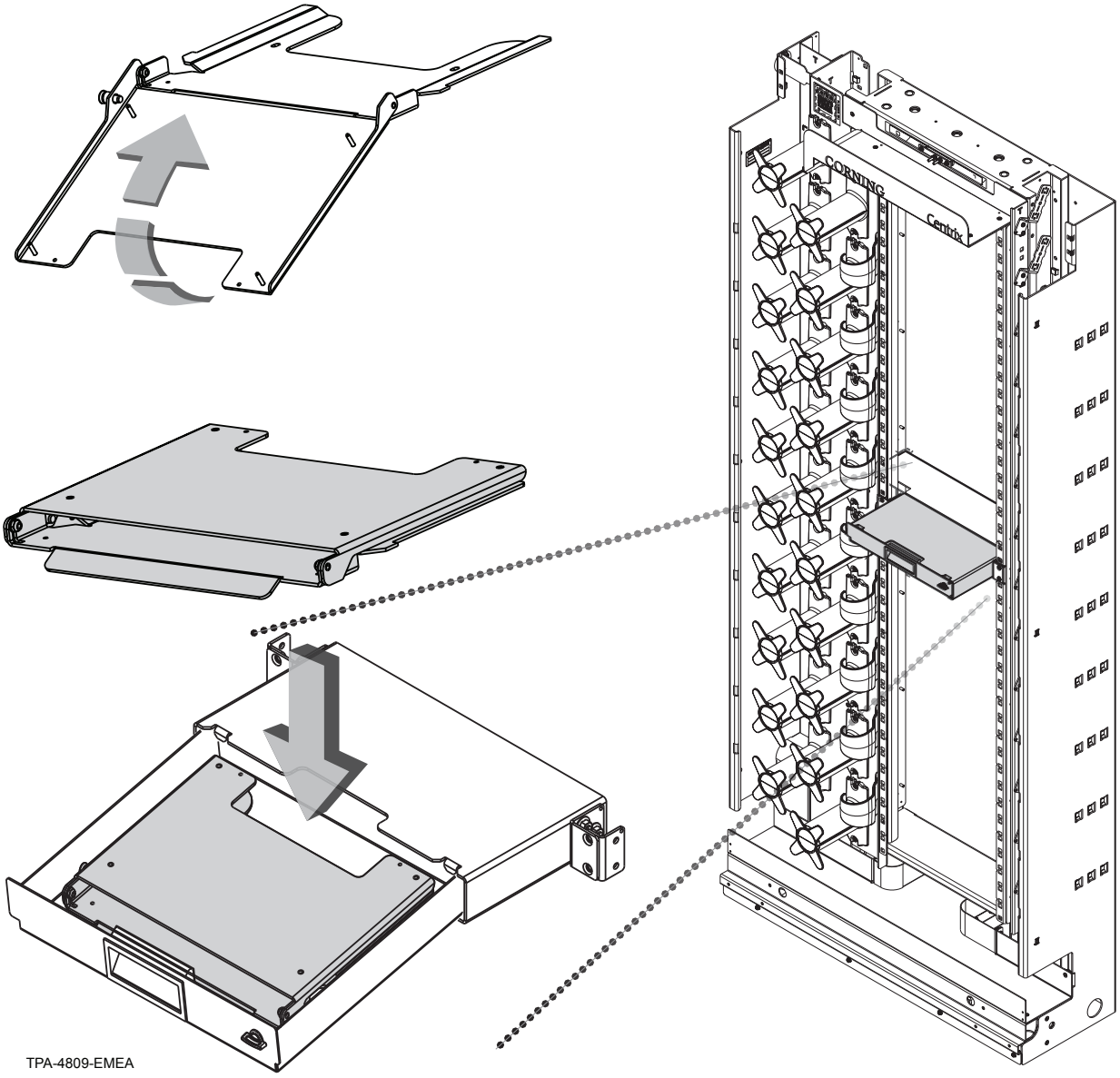

Figure 60

Step 27: Turn cassette over and move it to a work surface or the work shelf shown in Figure 60.

Step 28: Open the slack storage covers (Figure 61) on the bottom of the cassette.

Step 29: Place the transport tubing around the perimeter of the cassette underneath the restraint tabs.

Bottom view of cassette

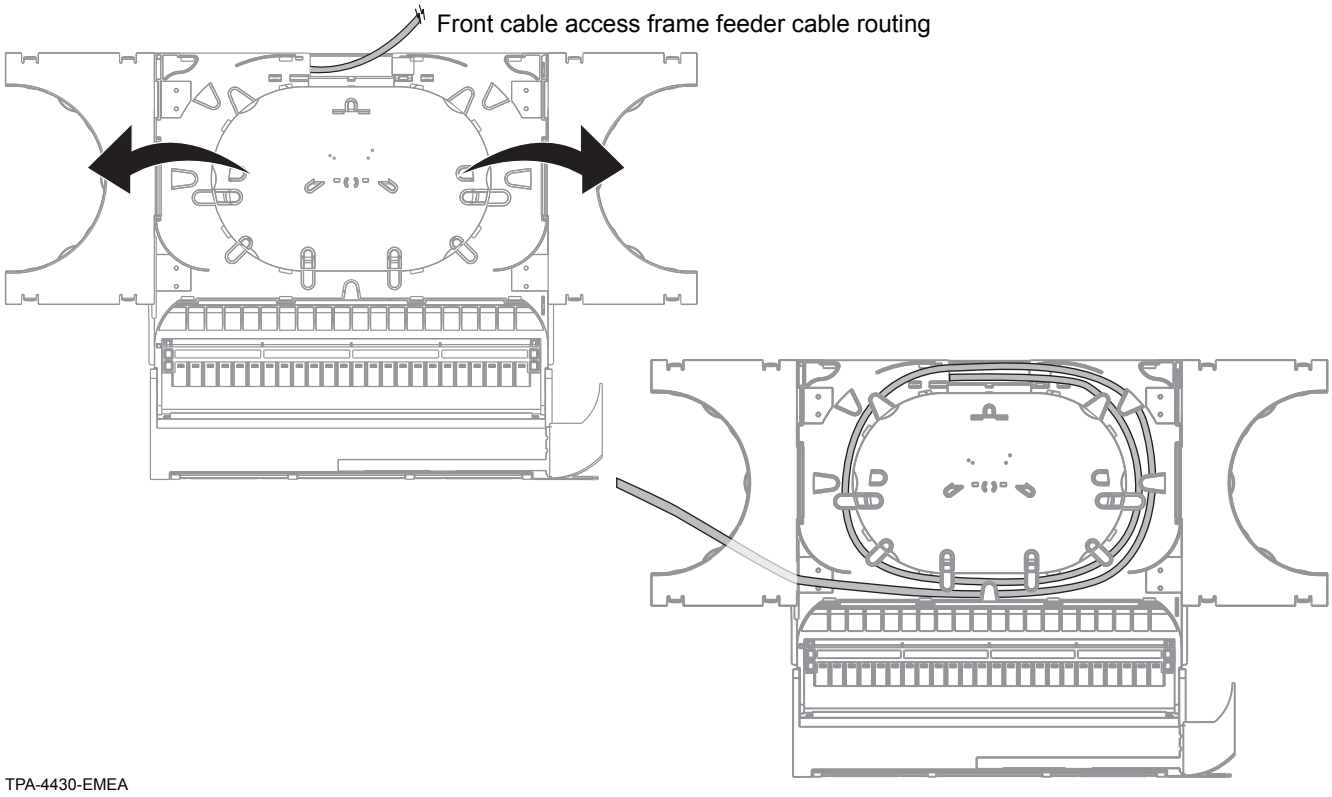

Figure 61

Step 30: Close the slack storage covers. Turn cassette over again.

Step 31: Insert cassette into the housing, starting at the top of the housing (Figure 62).

Step 32: Continue loading cassettes until the housing is full.

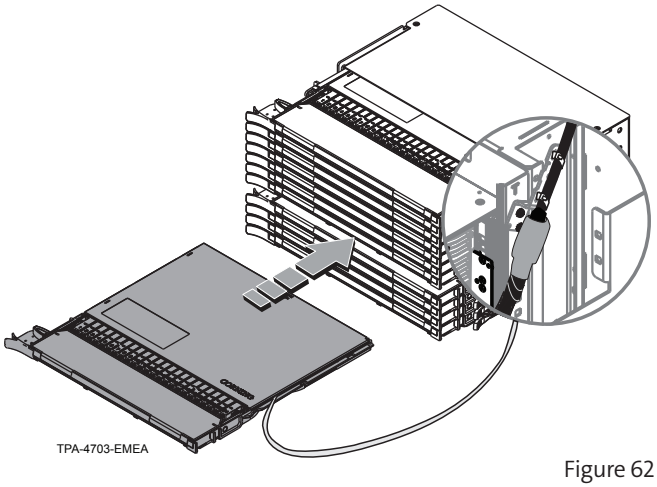

Figure 62

NOTE: *To manage an orderly arrangement of fiber from the strain-relief location, it may be necessary to gently push the braided tube back into the bottom of the cassette. Ensure that the tube and fibers are not kinked.*

7. Manage Cable Slack

Arrange transport/buffer tubing slack as shown for rear or front cable access (Figure 63).

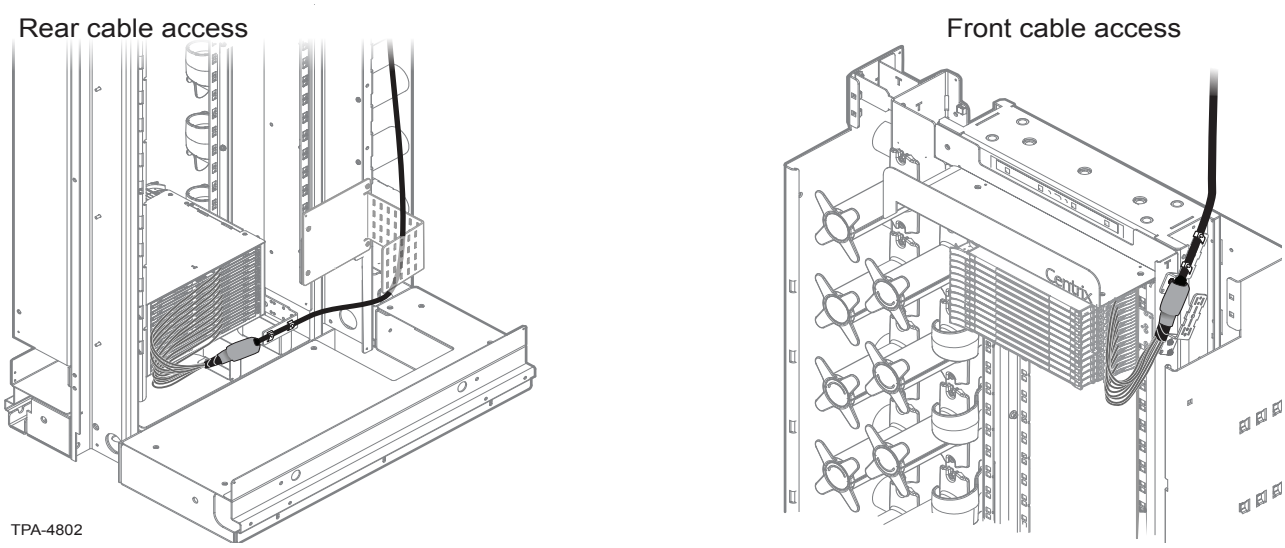

Figure 63

8. Maintenance

⚠	**CAUTION:** Fiber optic cable is sensitive to excessive pulling, bending and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.

If the fiber load is so heavy that the cassette cannot be pulled out to the detent position without putting strain on the jumper cord, take the following steps to relieve the tension.

Step 1: Trace the jumper cord from the cassette being serviced back to the routing guide over which it is routed.

Step 2: Separate the cord from the other fibers by lifting it above the others at the routing guide.

Step 3: Drop the cord in front of the routing guide.

Step 4: Pull the module forward to the detent position or completely remove the cassette for servicing.

Step 5: Once servicing is complete, reinstall the cassette into the housing or push it back into place. Place the cord over the routing guide.

9. Connector Care and Cleaning

	**WARNING: Never look directly into the end of a fiber that may be carrying laser light.** Laser light can be invisible and can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.
	**WARNING:** Isopropyl alcohol is flammable with a flashpoint at 54ºF. It can cause irritation to eyes on contact. In case of contact, flush eyes with water for at least 15 minutes. Inhalation of vapors irritates the respiratory tract. Exposure to high concentrations has a narcotic effect, producing symptoms of dizziness, drowsiness, headache, staggering, unconsciousness and possibly death.

- Always keep dust caps on connectors and adapters when not in use.
- Ensure dust caps are clean before reuse.
- Use optical cleaning materials as standardized by your company.
- Clean the connector before every mating, especially for test equipment patch cords (jumpers).
- A minimum level of cleaning is listed below. Local procedures may require more rigorous cleaning methods.

Step 1: Remove plugs from the connector adapter.

Step 2: Wipe the connector ferrule twice with a lint-free wiping material moistened with isopropyl alcohol. Then wipe across the end of the ferrule.

Step 3: Repeat previous step with a dry wipe.

9.1 Clean Jumpers

Step 1: Press latch on right side of cassette and pull cassette out to detent position (Figure 64).

Step 2: Press buttons on each side of the cassette and lower the handle.

Step 3: Open the handle cover (Figure 64 right).

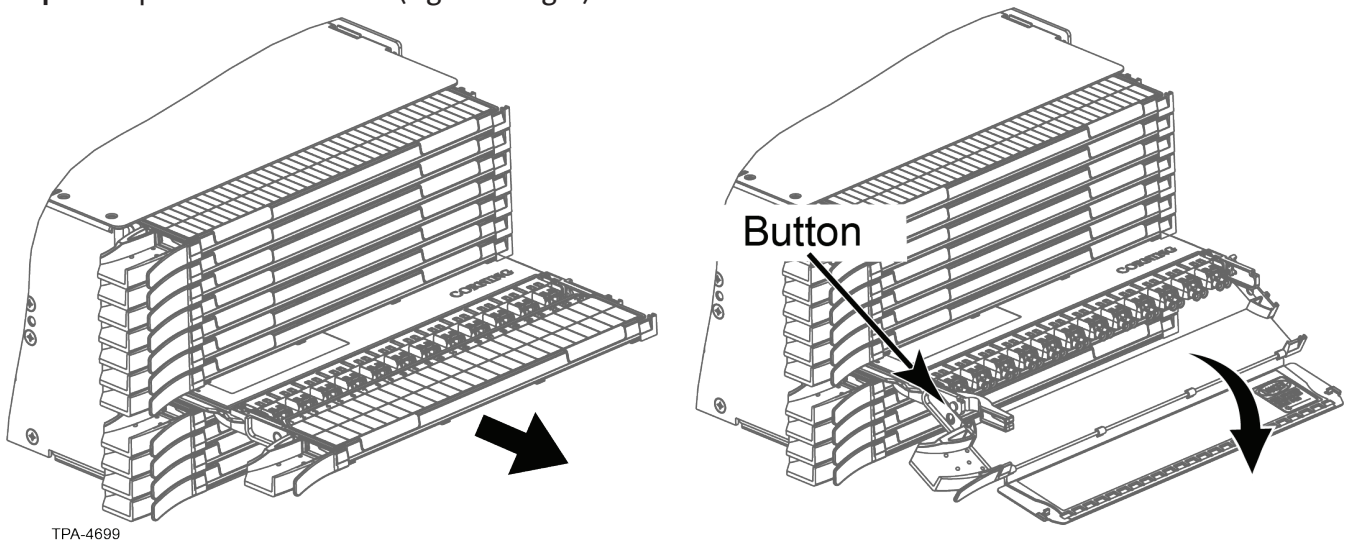

Figure 64

Step 4: Disconnect jumpers as required. Clean adapters and connectors per standard company practices or as described in Section 9. Reconnect jumpers (Figure 65 left).

Step 5: Raise handle. Dress jumper cords to the side of the cassette (Figure 65 right).

Step 6: Close handle cover.

Step 7: Push cassette back into the housing and dress jumper cords in frame as described in the installation instruction provided with the housing.

IMPORTANT: *Guide fibers while inserting cassette to avoid pinching fibers.*

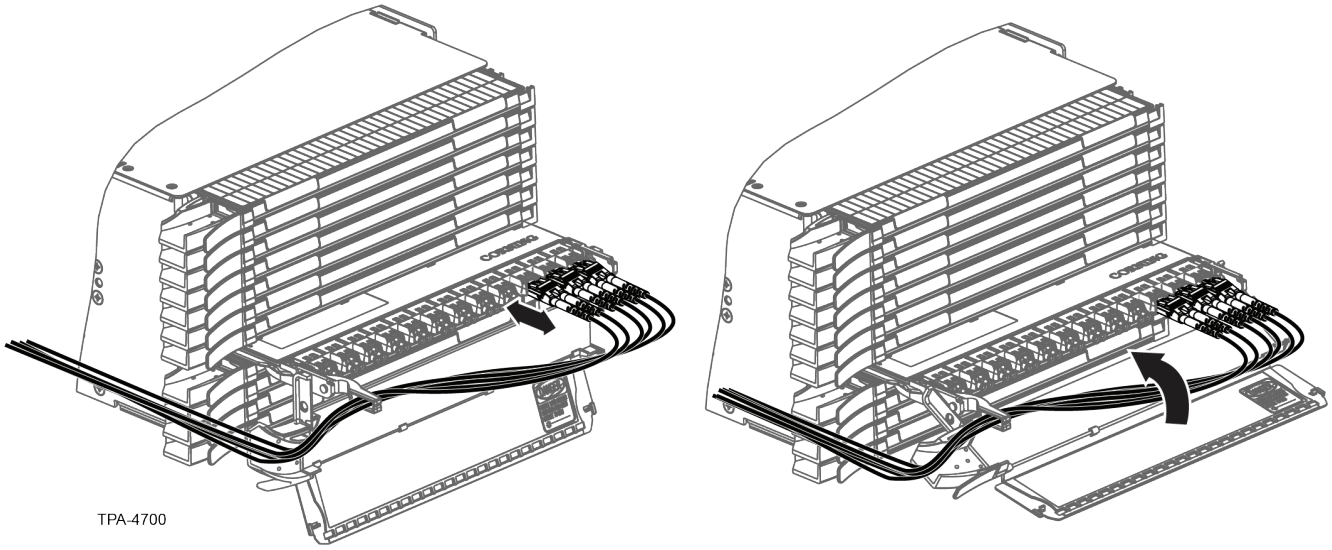

Figure 65

9.2 Clean Pigtails

Step 1: Press the latch on the right side of the cassette and pull the cassette completely out of the housing (Figure 66) to access the pigtails.

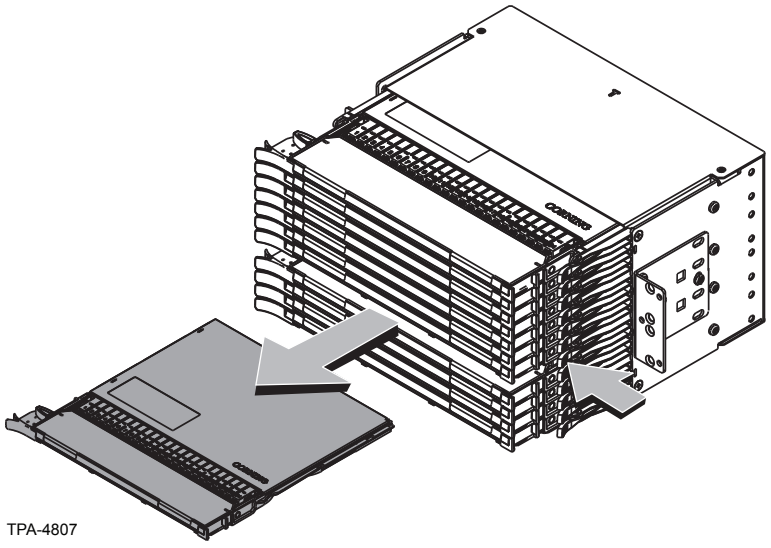

Figure 66

Step 2: Open the plastic cover over the splice compartment.

Step 3: Press buttons on each side of the cassette and lower the handle as shown in Figure 64.

Step 4: Press down on the front of the adapter panel to tilt the panel down (Figure 67), allowing better access to the pigtail connectors in the rear of the adapter panel.

NOTE: *Take care when tilting the adapter panel down not to kink or damage the pigtail fibers.*

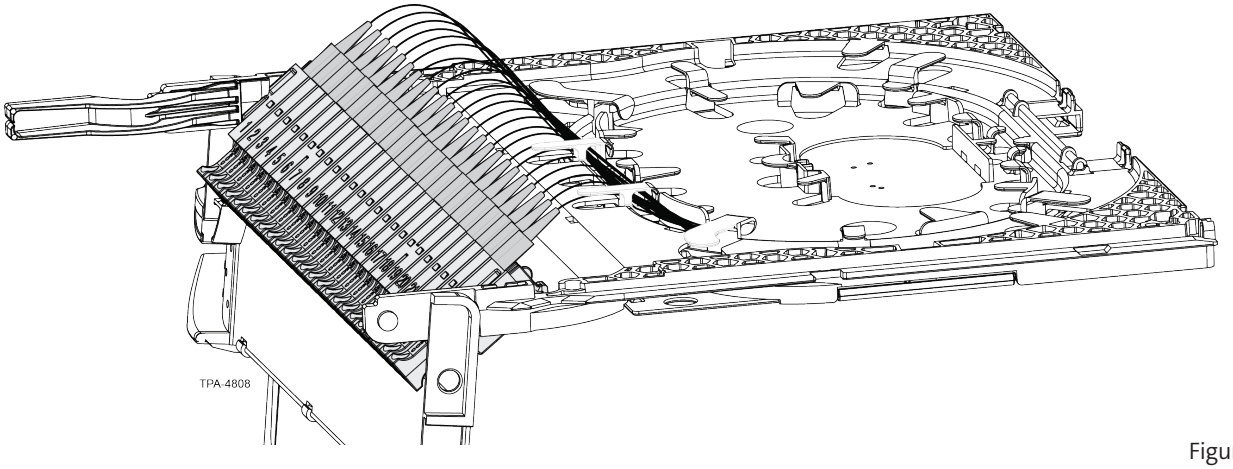

Figure 67

Step 5: Remove each connector in turn (Figure 68) and clean the connector end face and the adapter, if necessary, per standard company practices or as described in Section 9.

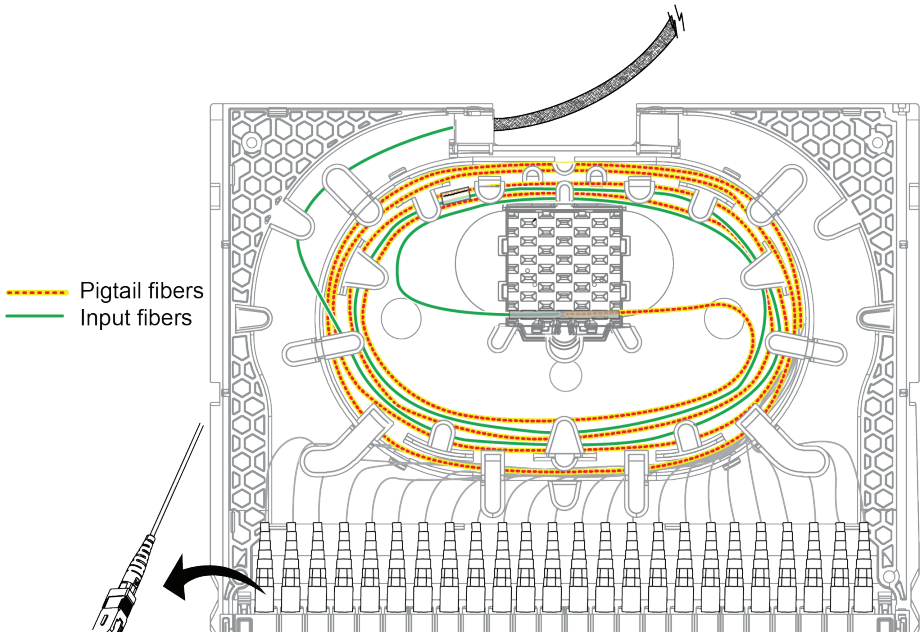

Figure 68

Corning Optical Communications LLC • PO Box 489 • Hickory, NC 28603-0489 USA
800-743-2675 • FAX: 828-325-5060 • International: +1-828-901-5000 • www.corning.com/opcomm