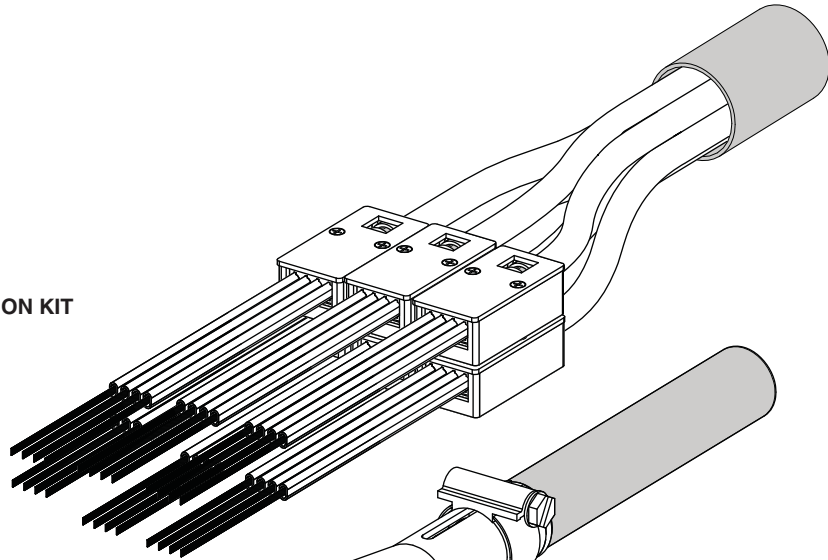
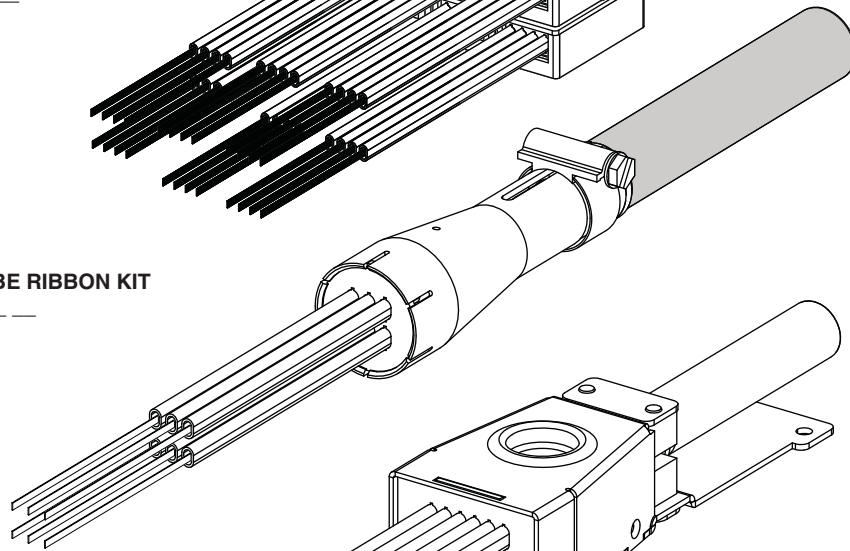


## Ribbon Breakout Kit

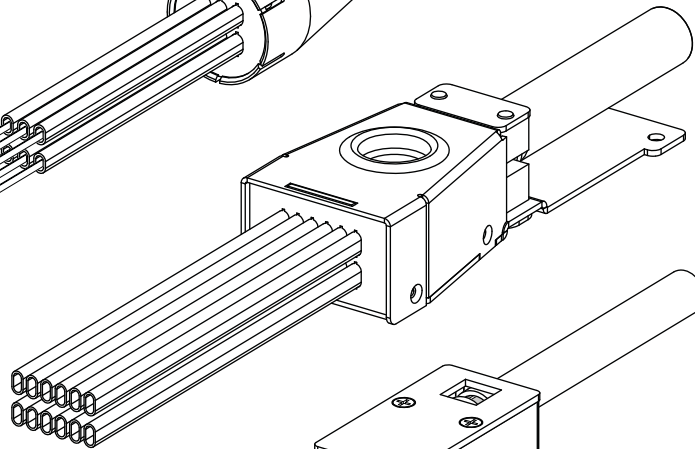
LOOSE BUFFER TUBE RIBBON KIT  
BLK-RLBT-\_\_\_\_\_  
(SEE PAGE 3)



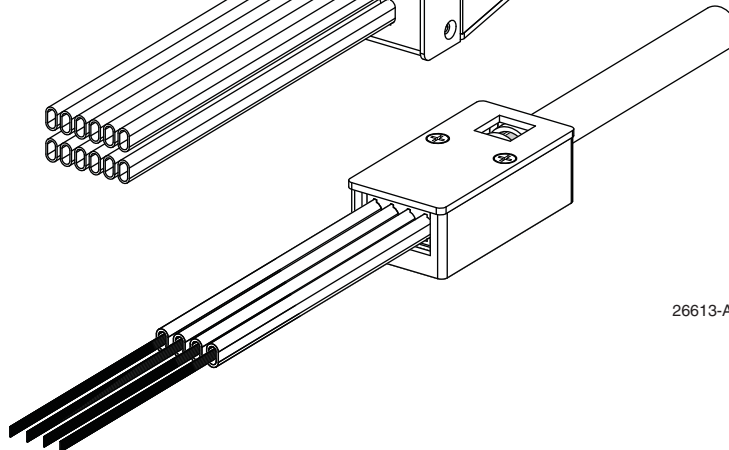
CENTRAL OVAL TUBE RIBBON KIT  
BLK-RCT-\_\_\_\_\_  
(SEE PAGE 14)



RIBBON CENTRAL TUBE KIT  
BLK-RCT-\_\_\_\_\_  
(SEE PAGE 24)



RIBBON IFC CABLE KIT  
BLK-RIFC-\_\_\_\_\_  
(SEE PAGE 35)



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## INTRODUCTION

This manual contains installation instructions for the following fiber ribbon breakout kits: Loose Buffer Tube Ribbon Kit (BLK-RLBT), Central Oval Tube Ribbon Kit (BLK-RCT), Ribbon Central Tube Kit (BLK-RCT), and the Ribbon IFC Cable Kit (BLK-RIFC).

## Revision History

ISSUE	DATE	REASON FOR CHANGE
1	5/2004	Original.
2	5/2011	Change name of kit from Blocking Kit to Breakout Kit and rebrand with new logo.
3	8/2015	Updated for new kit designs.
4	July 2016	Rebranded for CommScope.
E	June 2019	Catalog scheme updated in Figure 1; technical assistance information updated.

## Trademark Information

CommScope, CommScope (logo), Quareo, NG4access, and QNG4 are trademarks.

## Admonishments

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment. An admonishment identifies a possible hazard and then explains what may happen if the hazard is not avoided. The admonishments — in the form of Dangers, Warnings, and Cautions — must be followed at all times.



**Danger:** *Danger is used to indicate the presence of a hazard that will cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*



**Warning:** *Warning is used to indicate the presence of a hazard that can cause severe personal injury, death, or substantial property damage if the hazard is not avoided.*



**Caution:** *Caution is used to indicate the presence of a hazard that will or can cause minor personal injury or property damage if the hazard is not avoided.*

# 1 LOOSE BUFFER TUBE KIT (BLK-RLBT) INSTALLATION

Figure 1 shows the Loose Buffer Tube Ribbon Kit (BLK-RLBT) catalog scheme.

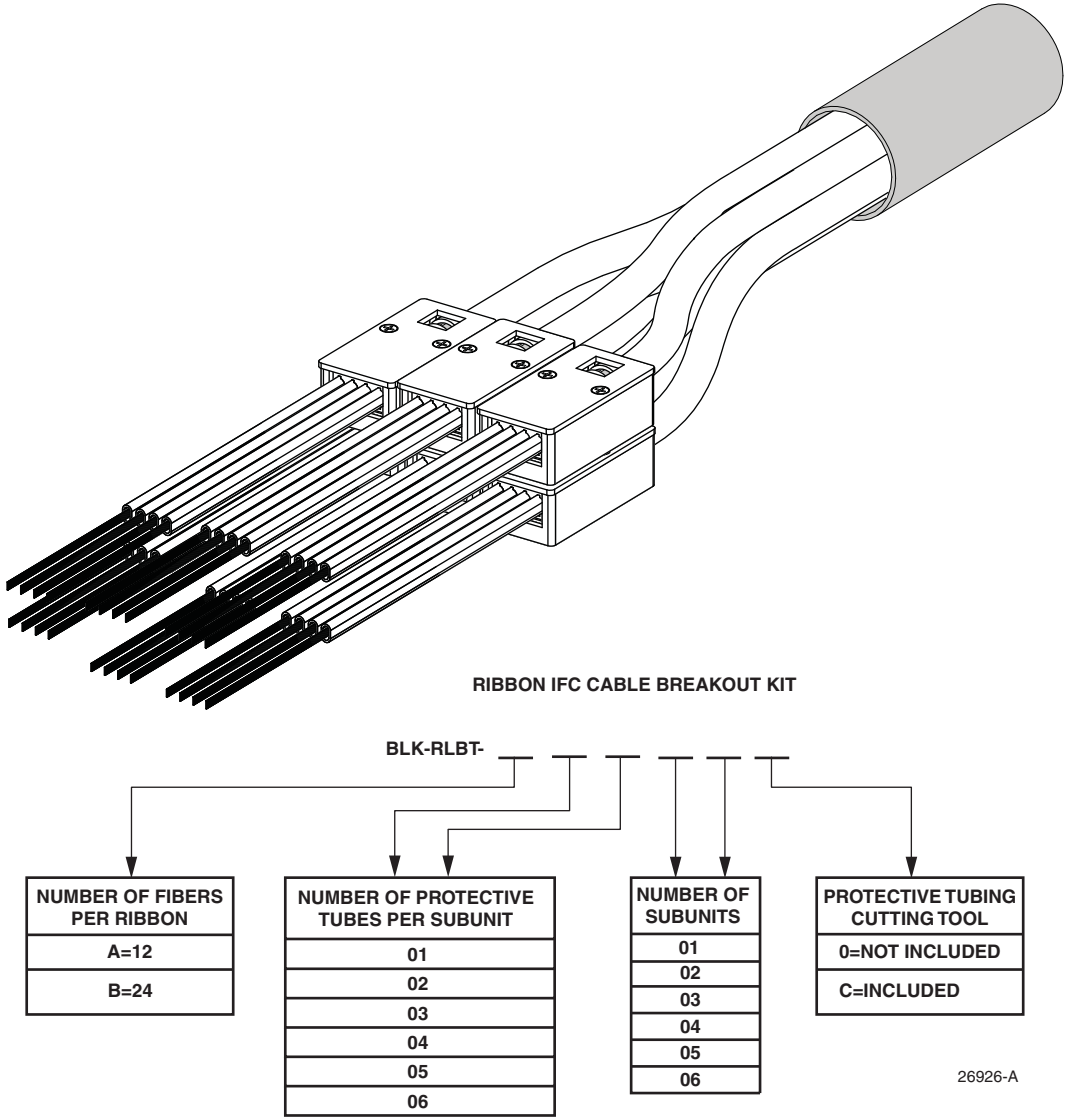


Figure 1. Catalog Scheme for NGF Ribbon IFC Blocking Kit

The following components are needed to install the kit as described in the method below.

1. (1) BLK-RLBT-\_\_\_\_\_
2. (1) Customer site cable (not provided)
3. 3/16-inch diameter heat shrink about 3/4 inch long (provided)
4. Talc powder (not provided)
5. Compressed air (not provided)

Use the following procedure to install the kit, referring to [Figure 2](#).

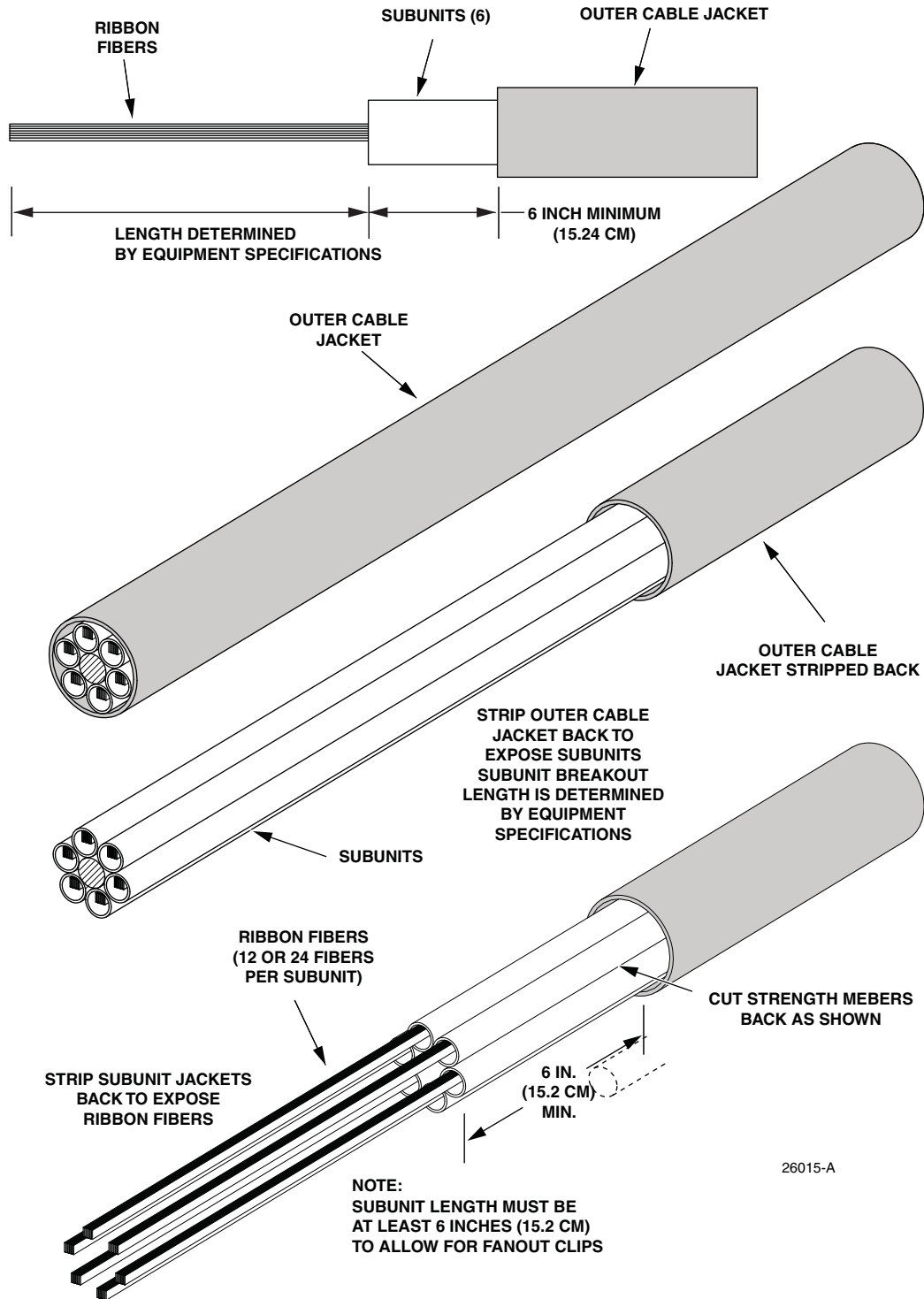
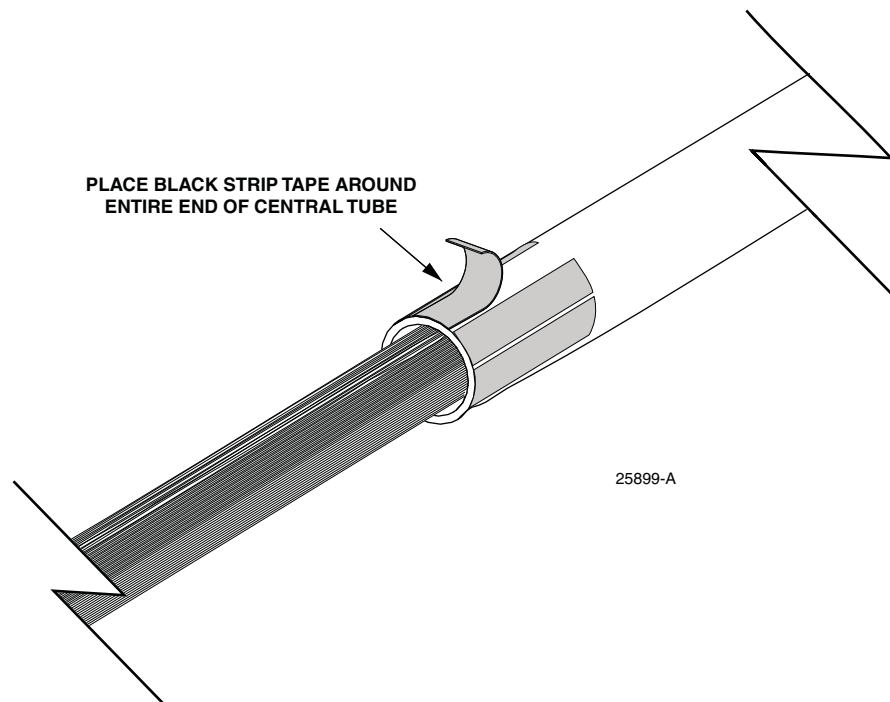


Figure 2. Stripping Outer Jacket and Subunit Jackets

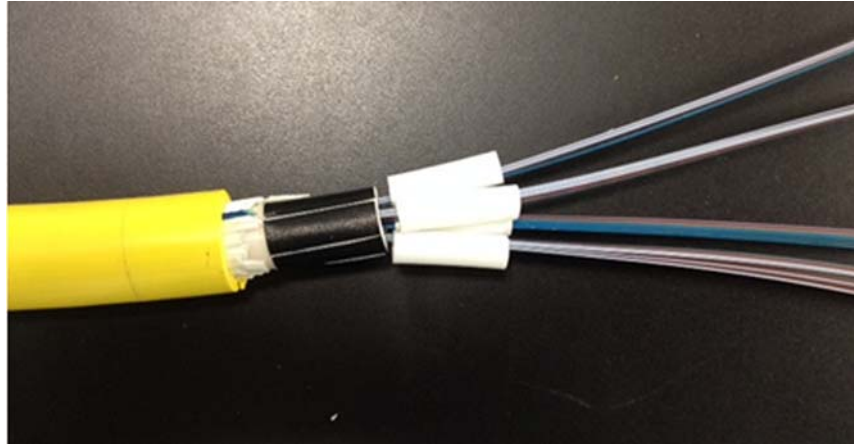
1. Strip the outer cable jacket to expose the inner subunits (Figure 2).
  - ▶ **Note:** Subunit and ribbon fiber lengths are determined by equipment specifications. A maximum of 5 meters (16.4 feet) of bare fiber can be fed through an oval tube.
2. Strip subunit jackets to expose ribbon fiber (Figure 2).
  - ▶ **Note:** Cut strength member as shown.
3. Place adhesive strip tape (provided) around entire end of each subunit (Figure 3).
  - ▶ **Note:** One subunit shown for clarity.



**Figure 3. Place Tape on End of Central Tube**

4. Divide the ribbons exiting the cable into groups based on the ribbons per Table 1 and the kit being used. The ribbons will be distributed in the clear oval tubes of the blocking kit. Slide a 3/4-inch long section of 3/16-inch diameter non-adhesive heat shrink tubing over each group of ribbons as shown in Figure 4.
  - ▶ **Note:** The heat shrink provided is to be used when an FST-DRS\* splice wheel is being used and more than two ribbons are stacked in a tube. The heat shrink is optional when less than 3 stacked ribbons are in a tube and the tube is wrapped around an FST-DRS\* series splice wheel.

- ▶ **Note:** Slide the tubing all the way to the central tube of the high-fiber-count cable as shown in [Figure 4](#), but do not shrink the tubing. Do not exceed ribbons per tube for kit used per [Table 1. Ribbons Per Tube Matrix](#).



**Figure 4. Installing Heat Shrink Tubing**

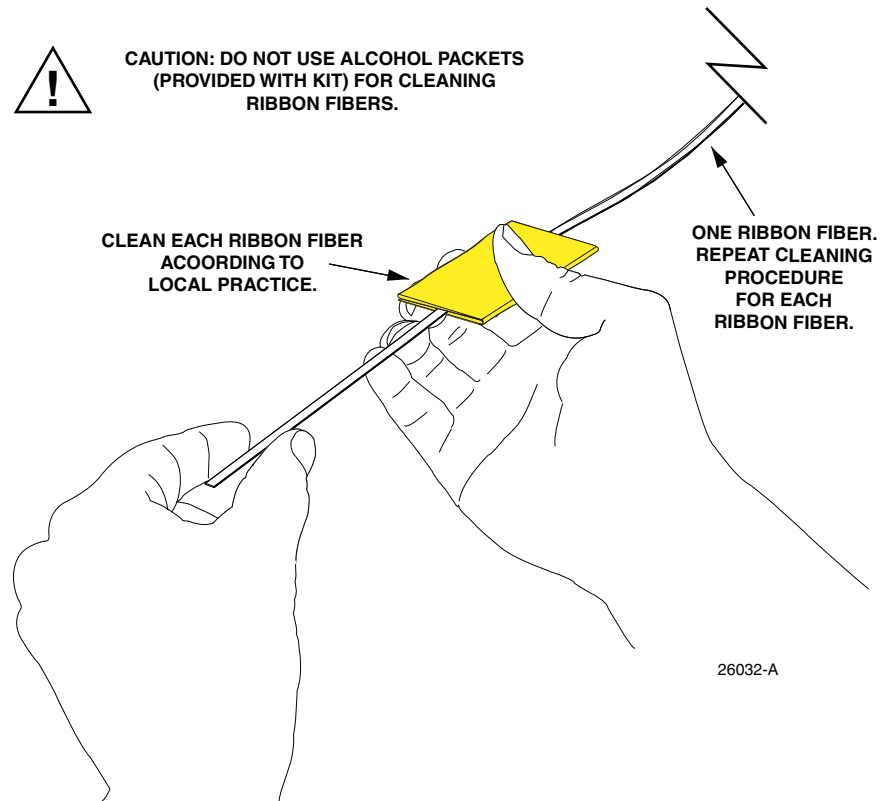
**Table 1. Ribbons Per Tube Matrix**

BLOCKING KIT	NUMBER OF TUBES	MAXIMUM RIBBONS PER TUBE
BLK-RCT-A*	1 to 9	4
BLK-RCT-A*	12 to 18	4
BLK-RCT-A*	24	3
BLK-RCT-A*	36	2
BLK-RCT-B*	2 to 6	2
BLK-RCT-B*	12 to 36	2
BLK-RIFC-A*	1 to 9	4
BLK-RIFC-B*	6 to 9	2
BLK-RIBT-A*	1 to 6	4

- Clean the moisture blocking gel off each ribbon fiber according to local practice (Figure 5).



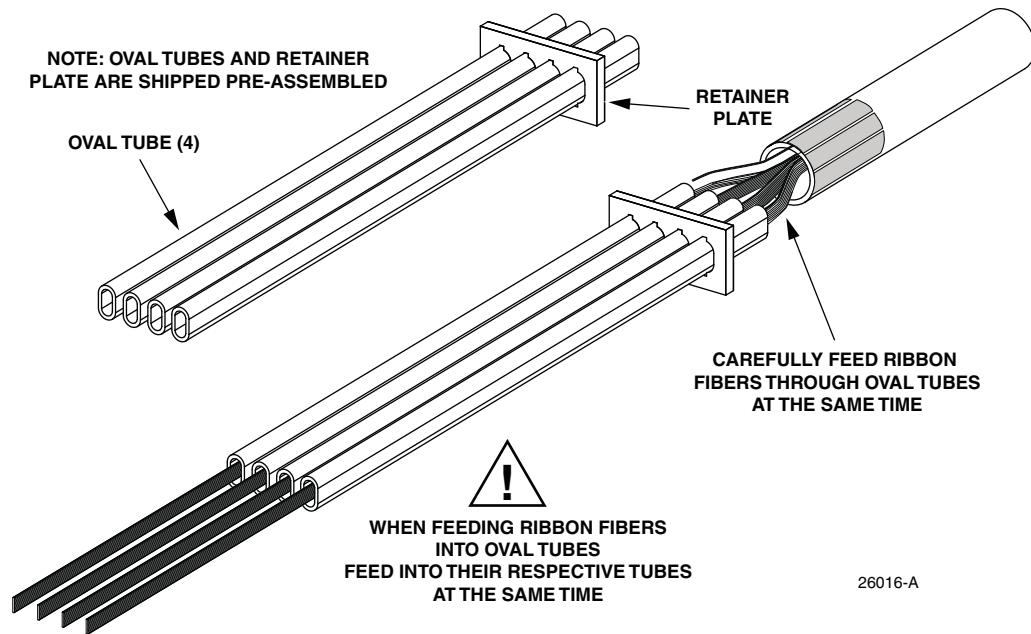
**Caution:** Do not use alcohol packets (provided) for cleaning ribbon fibers.



**Figure 5. Cleaning Ribbon Fibers**

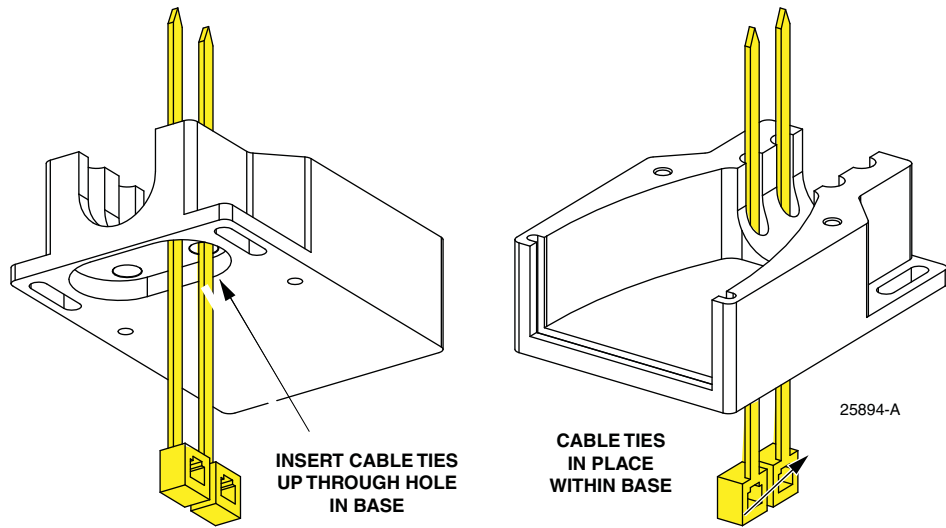
- The clear oval tubes are shipped pre-assembled into the metal support plate as shown in Figure 6. Remove the packaging and un-coil. Use compressed air to blow talc powder into each tube, which will aid in the installation of the ribbon and prevent handling of the ribbons during use.

► **Note:** The oval tubes and retainer plate are shipped pre-assembled as shown in Figure 6.



**Figure 6. Inserting Ribbon Fibers into Oval Tubes**

7. Insert cable ties (2) up through the holes in bottom of the base (Figure 7).



**Figure 7. Inserting Cable Tie into Base**



8. Align face plate with face plate pocket in base and place subunit assembly into base (Figure 8). Adjust central tube either forward or backward to align with back of the base as shown.

► **Note:** Subunit assembly includes subunit, ribbon fibers, face plate, and oval tubes.

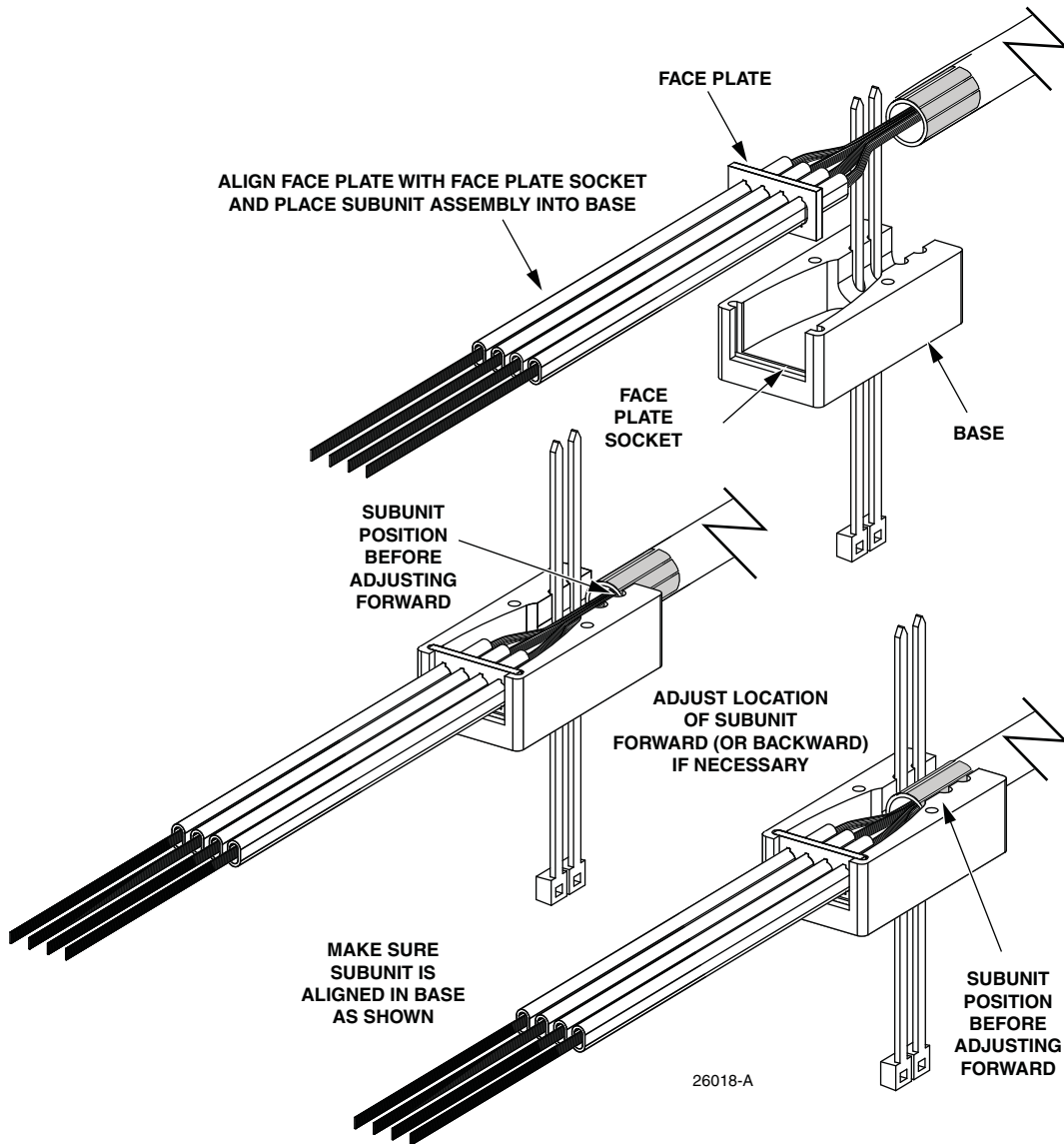
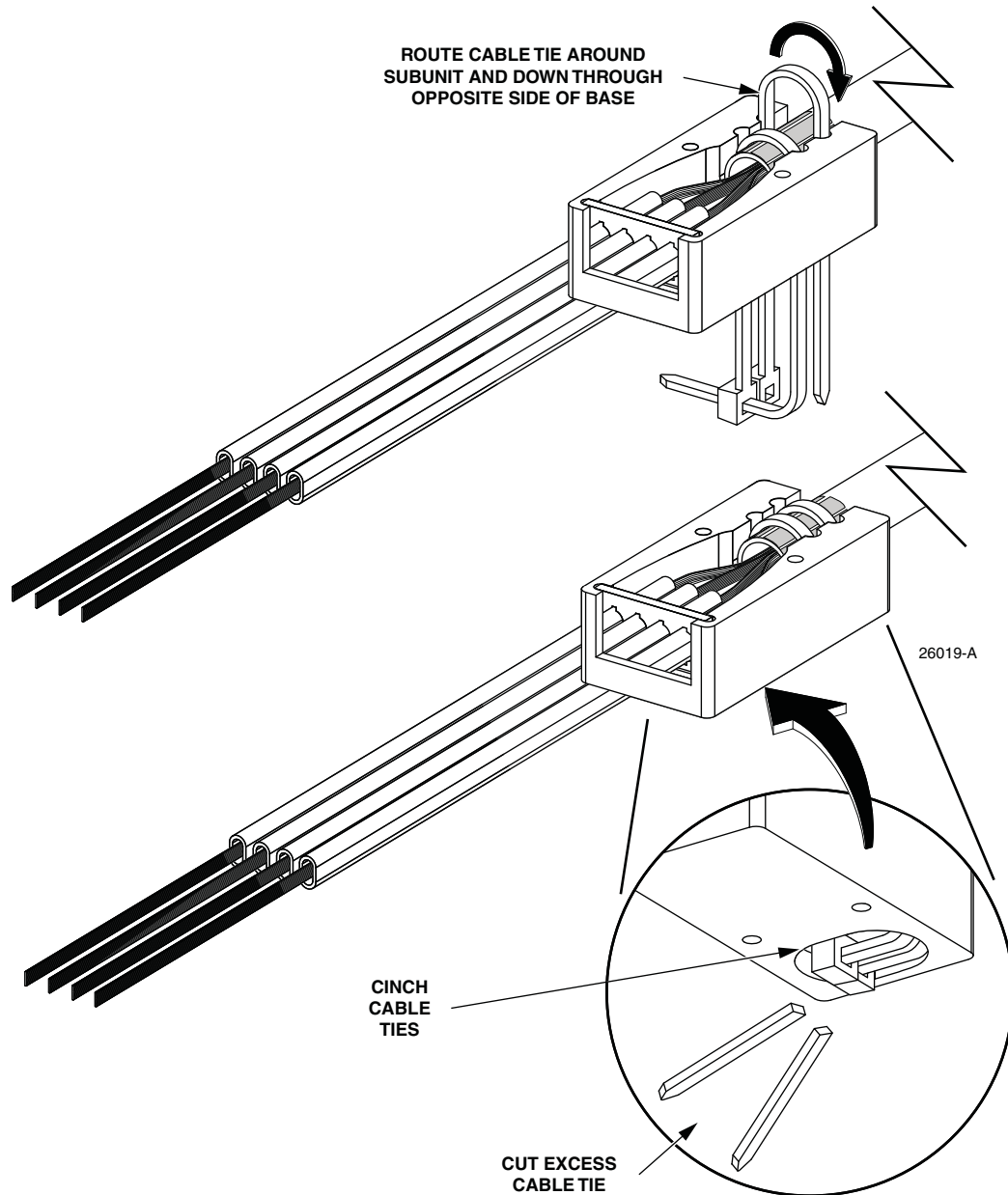


Figure 8. Placing Central Tube Assembly into Fanout Base

9. Route the cable tie around the central tube and down through the other side of the base  
Cinch the cable tie and cut off excess portion. Refer to [Figure 9](#).

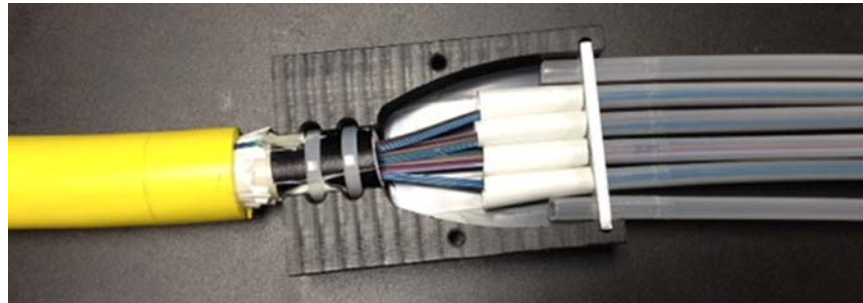


**Figure 9. Securing Cable Using Cable Ties**

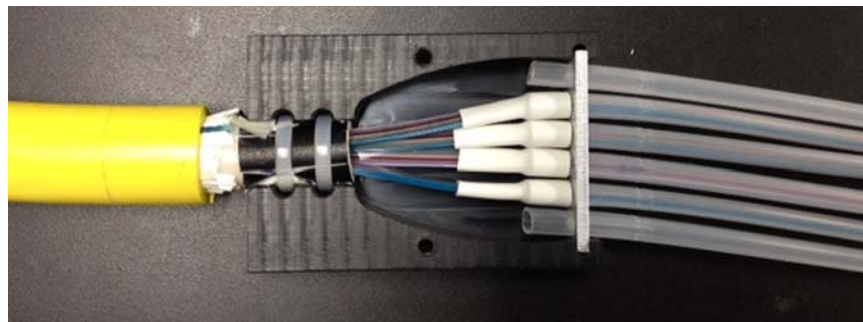
- Align each heat shrink tube so that 1/4-inch covers the exposed clear tube and 1/2-inch covers the ribbons ([Figure 10](#)). Shrink the tubing using low heat ([Figure 11](#)).



**Warning:** High heat will melt the clear tubing. Start with heat at the lowest setting and then progressively increase to achieve desired results.



**Figure 10. Locating Heat Shrink (6-Tube Kit Shown)**



**Figure 11. Heat Shrink Final State (6-Tube Kit Shown)**

11. Secure cover onto base using two screws (Figure 12).

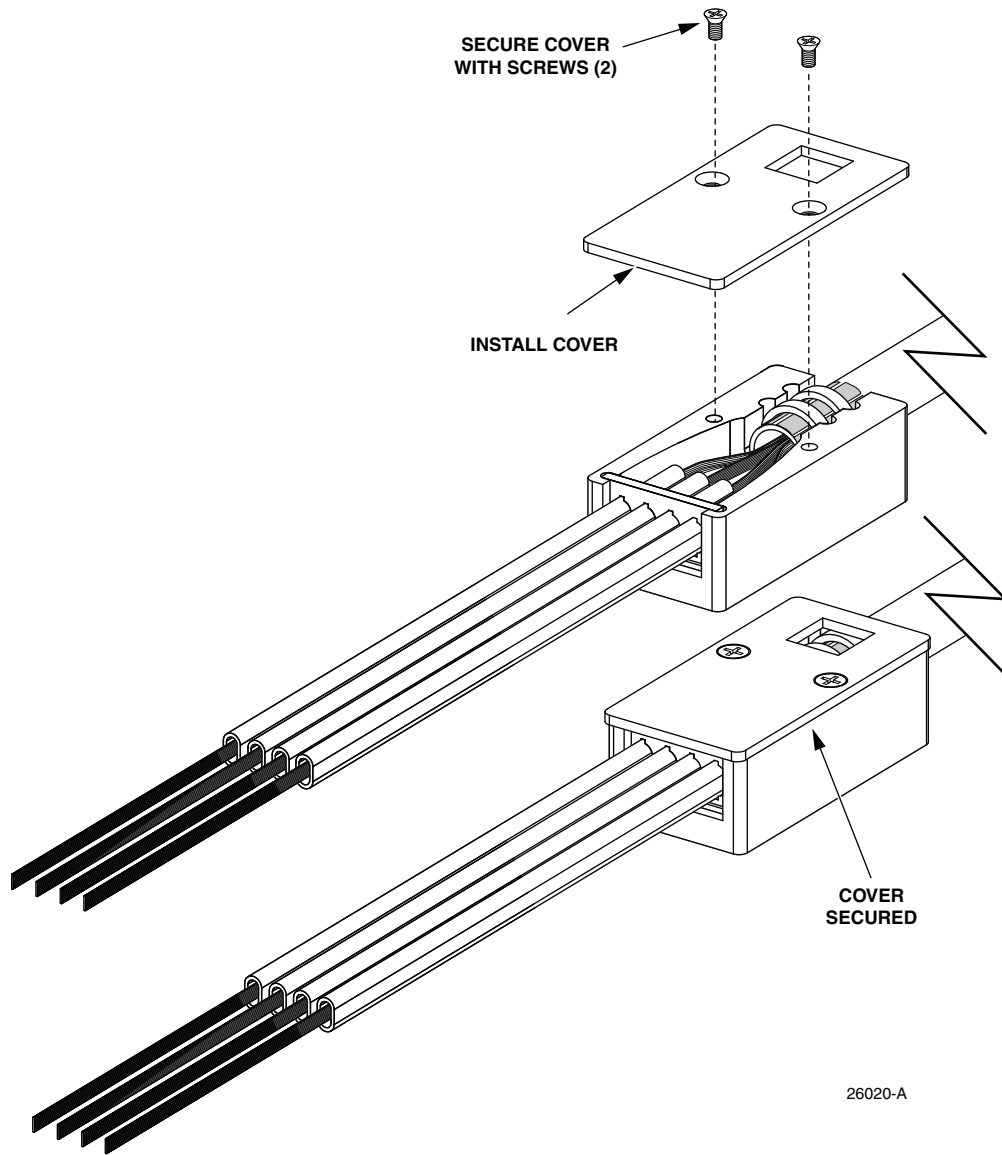


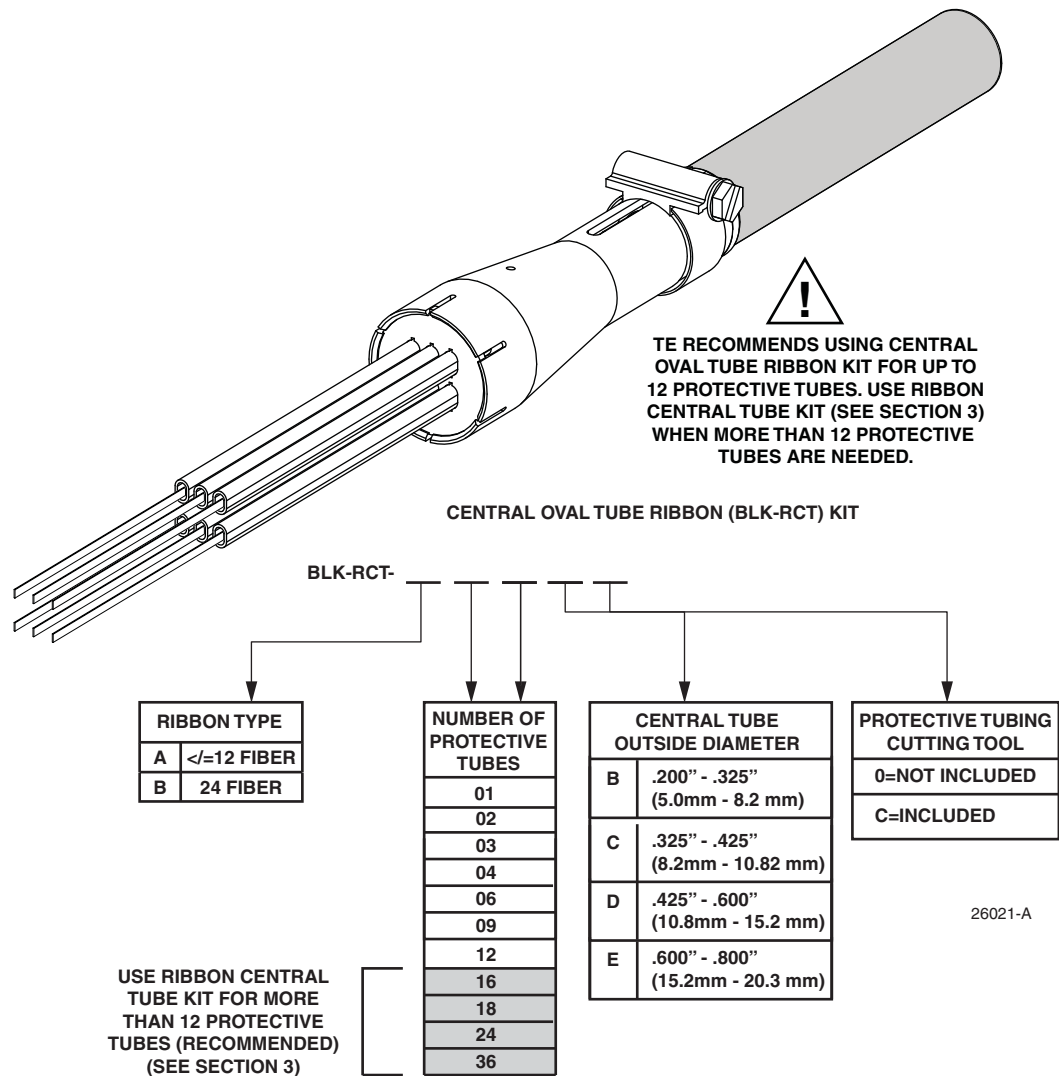
Figure 12. Installing the Cover

► **Note:** When using and FST-DRS\* series splice wheel, and stacking more than two ribbons, there is a chance that the ribbon on the inner diameter can experience loss. This is due to the shorter distance traveled by the inner ribbon for every revolution the tubing is wrapped around the splice wheel. To eliminate or reduce the possibility of loss caused by the shorter distance traveled it is important to alternate which ribbon is on the inner track when wrapping the tubing on the splice wheel.

12. To reduce the possible negative impact caused by the inner ribbon traveling a shorter distance hold the splice wheel fully extended from the cabinet with the cabinet on your right. Rotate the splice wheel so that the edge closest to you goes up and away from you. Flip the splice wheel four times so the tubes are twisted 720 degrees. The purpose is to alternate the ribbon on the inner track 360 degrees for every time the tube is wrapped around the splice wheel. As you wrap the tubes onto the splice wheel do not remove the twist and be careful to maintain a single 360 degree twist per 1 revolution of the tubes around the splice wheel.
  - ▶ **Note:** When rolling the tubes up on the FST-DRS\* series splice wheel installers should provide some vibration after every half revolution of wrapping to assist in the movement of the excess ribbon length to the splice wheel and away from the break out area. Installers can achieve this by putting the splice wheel in the center of one hand and using the other hand to provide a small shock on the splice wheel via a clapping motion eight to ten times. Wrap no more than 46 inches of tubing around the FST-DRS\* series splice wheel if more than 2 ribbons (12 or 24) are in a tube.
13. Wrap the tubing around the splice wheel no more than twice and stow the splice wheel in the appropriate position. If loss is seen unwrap the splice wheel, untwist the tubes, and twist them in the opposite direction. This will eliminate the issue.

## 2 CENTRAL OVAL TUBE KIT (BLK-RCT) INSTALLATION

Figure 13 shows the catalog scheme for the Central Oval Tube Ribbon Kit (BLK-RCT). CommScope recommends using the Central Oval Tube Ribbon Kit for kits up to 12 protective tubes. For kits greater than 12 protective tubes, use the larger Ribbon Central Tube Kit (BLK-RCT). See Section 3 on Page 24.



**Figure 13. Central Oval Tube Ribbon Kit Catalog Scheme**

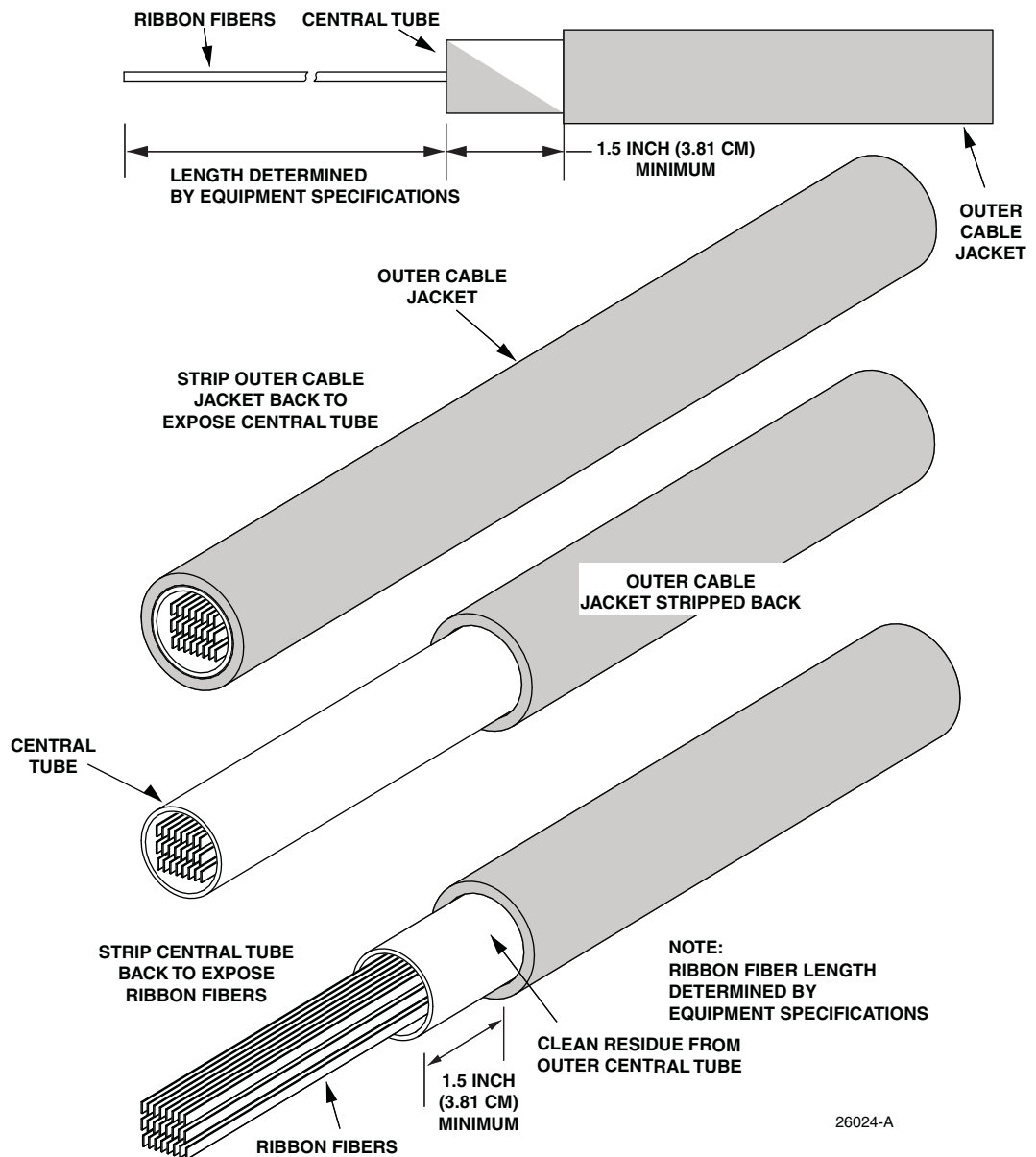
The following components are needed to install the kit as described in the method below.

1. (1) BLK-RCT-\_\_\_ \_\_\_ \_\_\_ blocking kit
2. (1) Customer site cable (not provided)
3. 1 inch long heat shrink (provided)

4. Talc powder (not provided)
5. Compressed air (not provided)

Use the following procedure to install the kit.

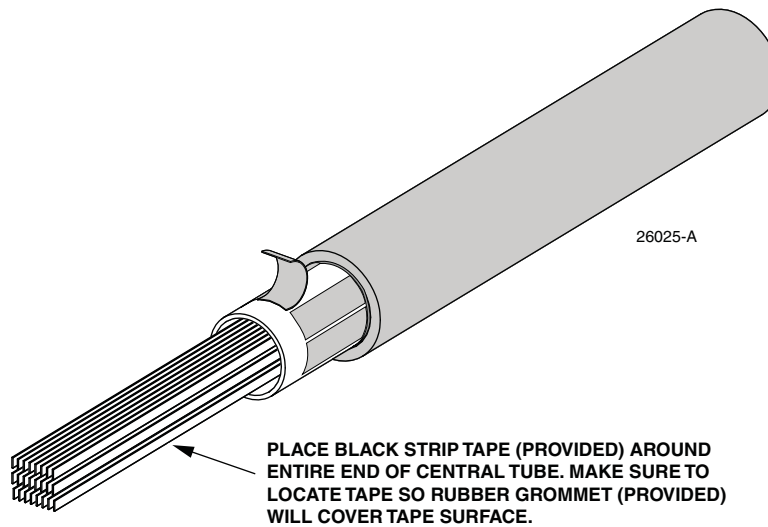
1. Strip outer cable jacket to expose inner central tube (Figure 14). Trim strength members flush with outer cable jacket. Clean residue from outside of central tube to prevent slippage when block is attached.



**Figure 14. Cable Preparation**

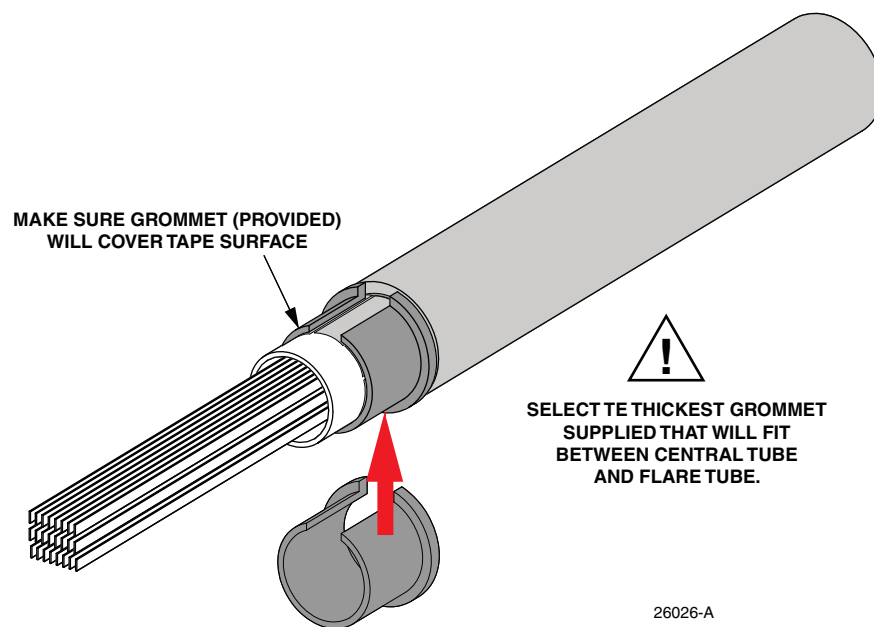
2. Strip central tube back 1.5-inches (min) to expose bare ribbons. (Ribbon fiber length determined by equipment specifications.)

- ▶ **Note:** A maximum of 5 meters (16.4 feet) of bare fiber can be fed through an oval tube.
- 3. Place black strip tape (provided) around the entire end of the central tube (See [Figure 15](#)). Make sure to position tape so rubber grommet will cover tape.



**Figure 15. Placing Adhesive Tape Around End of Central Tube**

- 4. Select the thickest rubber grommet (supplied) that will fit between central tube and flare tube ([Figure 16](#)). Position over central tube making sure to cover tape surface.
- ▶ **Note:** This snug fit is critical when attaching flare tube to central tube.

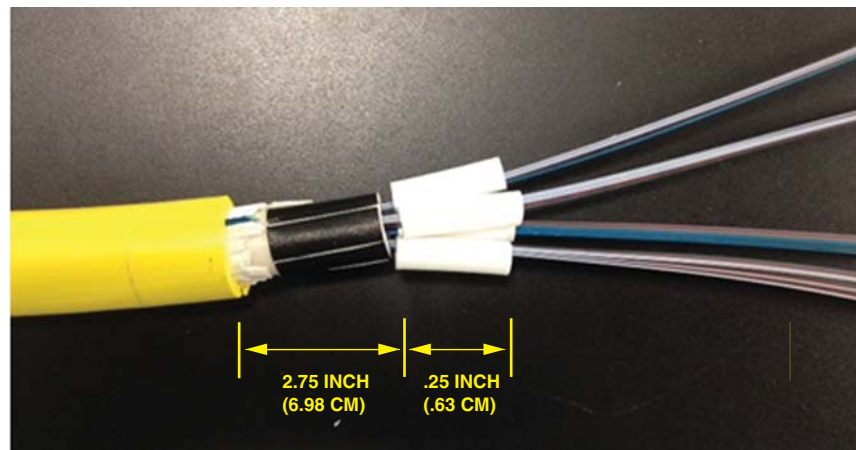


**Figure 16. Installing Rubber Grommet**



5. Divide the ribbons exiting the cable into groups so as not to exceed the number of ribbons given in [Table 2. Ribbons Per Tube Matrix](#) and the kit being used. Slide the 1-inch long section non-adhesive heat shrink tubing over each group of ribbons. Slide the tubing all of the way to the central tube of the high-fiber-count cable. Shrink the tubing using low heat. Ensure that the tubing is no more than 3 inches from the end of the cable jacket and but more than 2-3/4 inches from the cable jacket. See [Figure 17](#).

► **Note:** The heat shrink provided is to be used when an FST-DRS\* splice wheel is being used and more than two ribbons are stacked in a tube. The heat shrink is optional when less than 3 stacked ribbons are in a tube and the tube is wrapped around an FST-DRS\* series splice wheel.



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**Figure 17. Installing Heat Shrink Tubing**

**Table 2. Ribbons Per Tube Matrix**

BLOCKING KIT	NUMBER OF TUBES	MAXIMUM RIBBONS PER TUBE
BLK-RCT-A*	1 to 9	4
BLK-RCT-A*	12 to 18	4
BLK-RCT-A*	24	3
BLK-RCT-A*	36	2
BLK-RCT-B*	2 to 6	2
BLK-RCT-B*	12 to 36	2
BLK-RIFC-A*	1 to 9	4
BLK-RIFC-B*	6 to 9	2
BLK-RIBT-A*	1 to 6	4

- Carefully insert central tube into flare tube (provided). Align grommet opening with slot in end of flare tube (Figure 18).

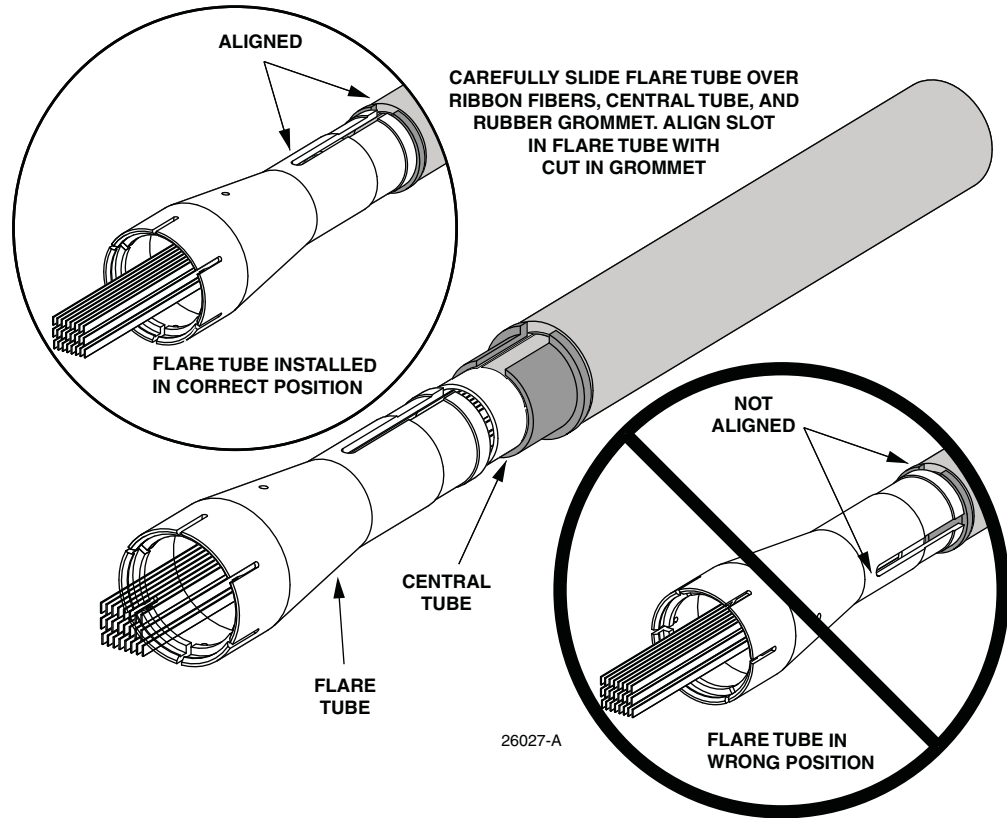


Figure 18. Installing Flare Tube

- 7. Place hose clamp (provided) over flare tube and tighten with screwdriver (Figure 19). Do not over tighten.

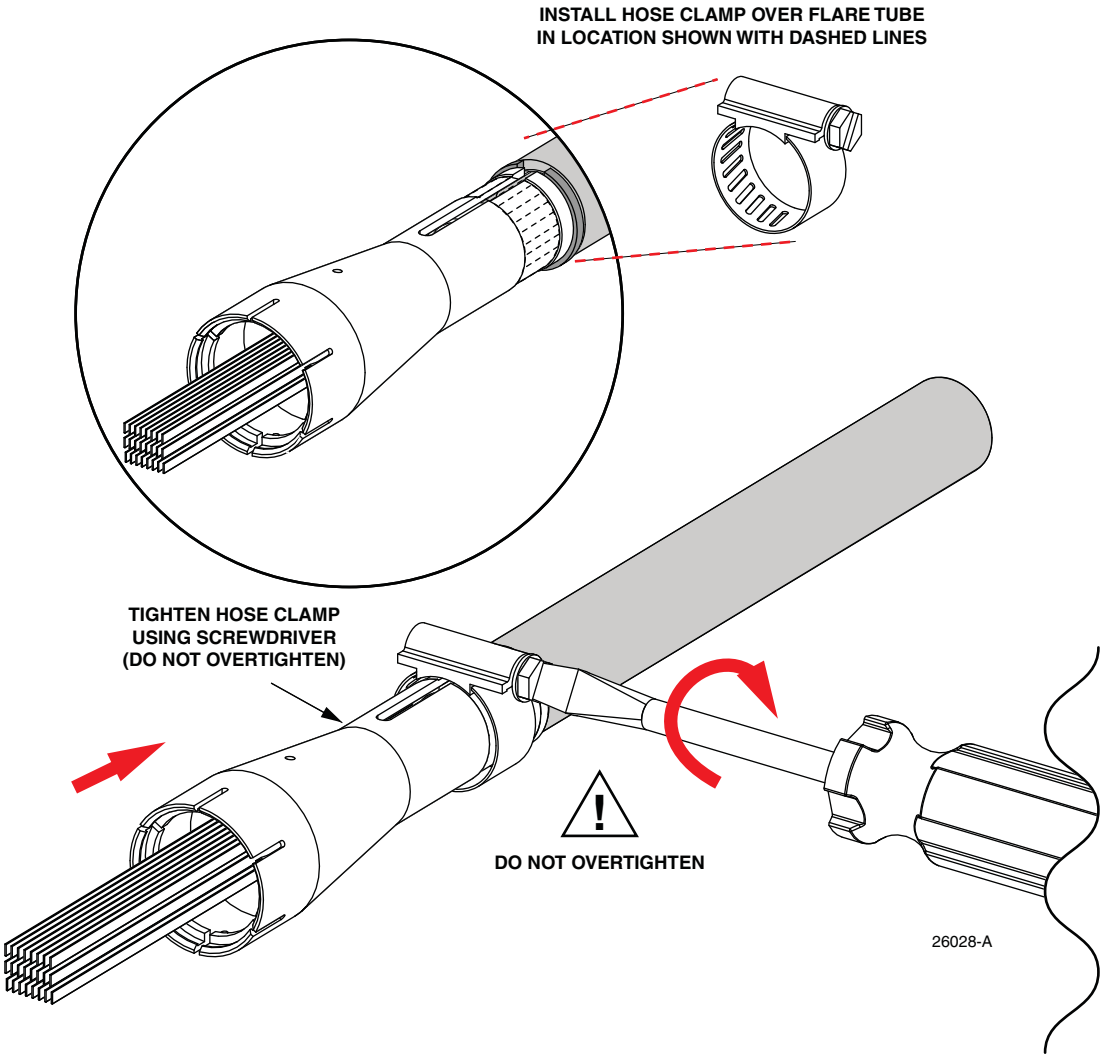
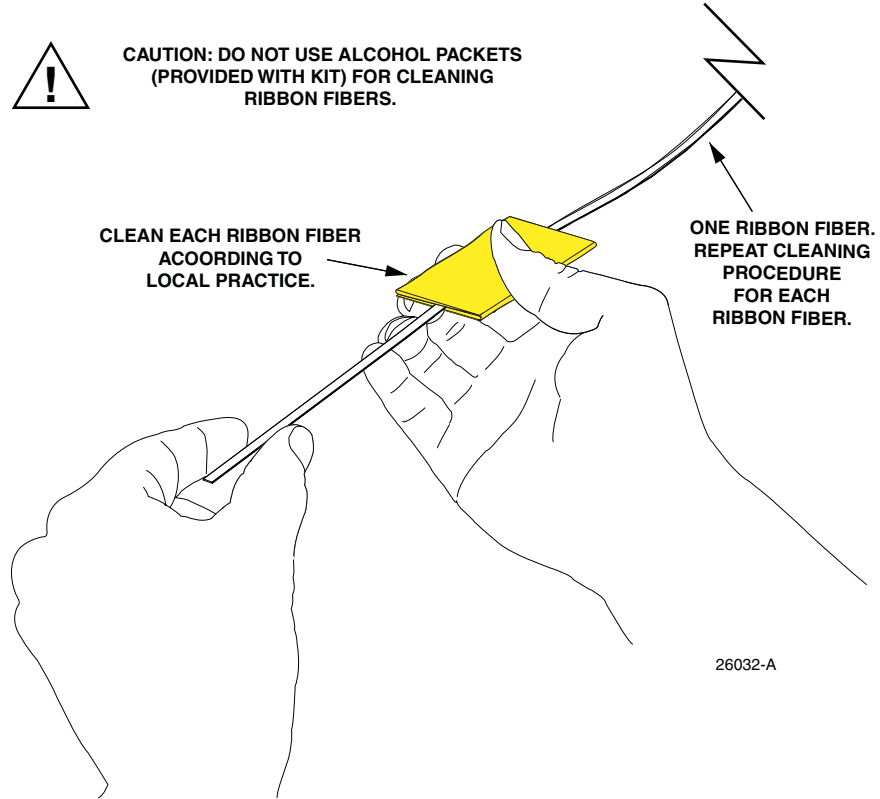


Figure 19. Placing Hose Clamp Over Flare Tube

8. Clean the moisture blocking gel off each ribbon fiber according to local practice.



**Caution:** *Do not use alcohol packets (provided) for cleaning ribbon fibers.*



**Figure 20. Cleaning Ribbon Fibers**

9. Carefully feed ribbon fibers through oval tubes (Figure 21).

**Caution:** Care must be taken to ensure ribbon fibers are not twisted or bent.

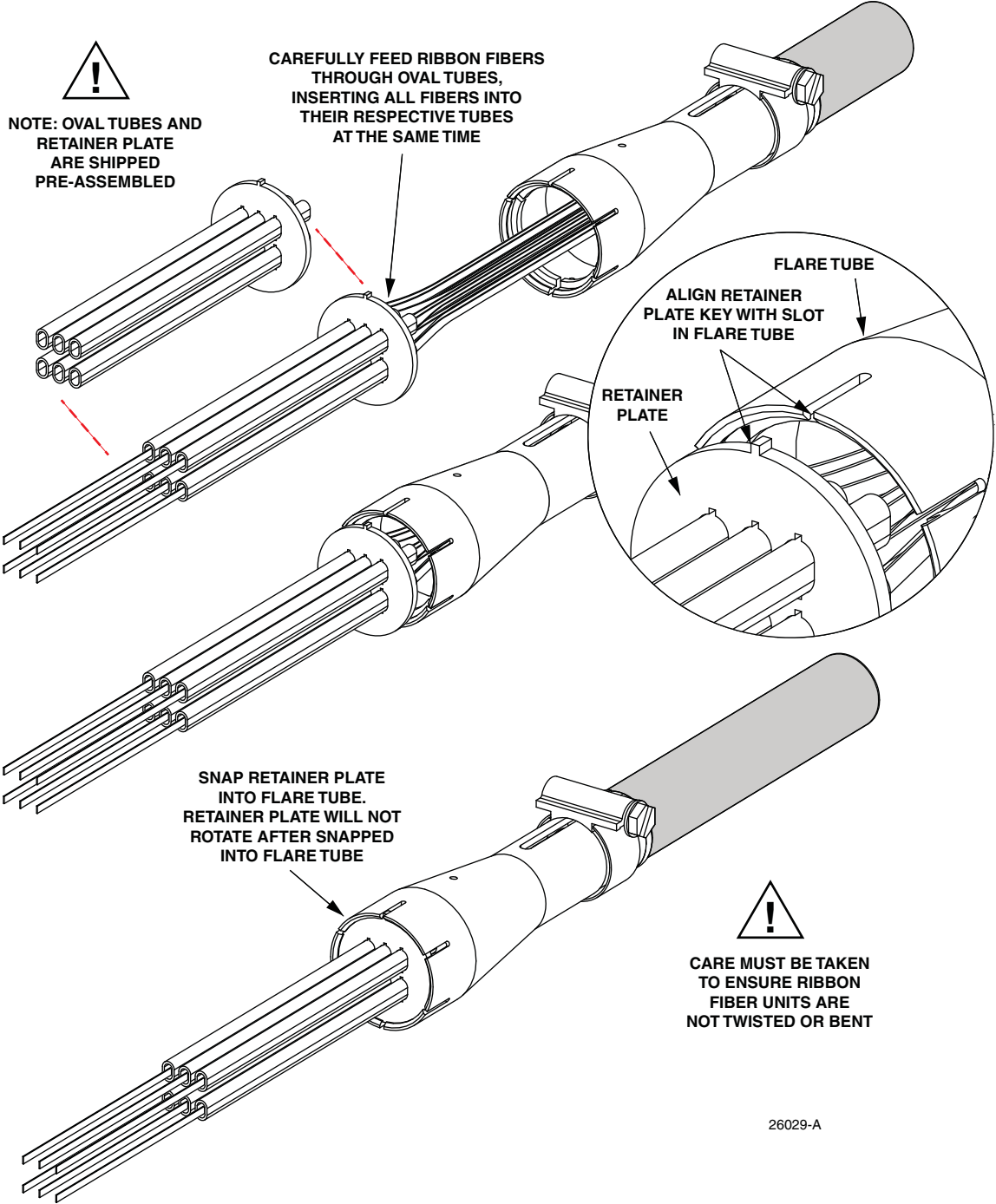
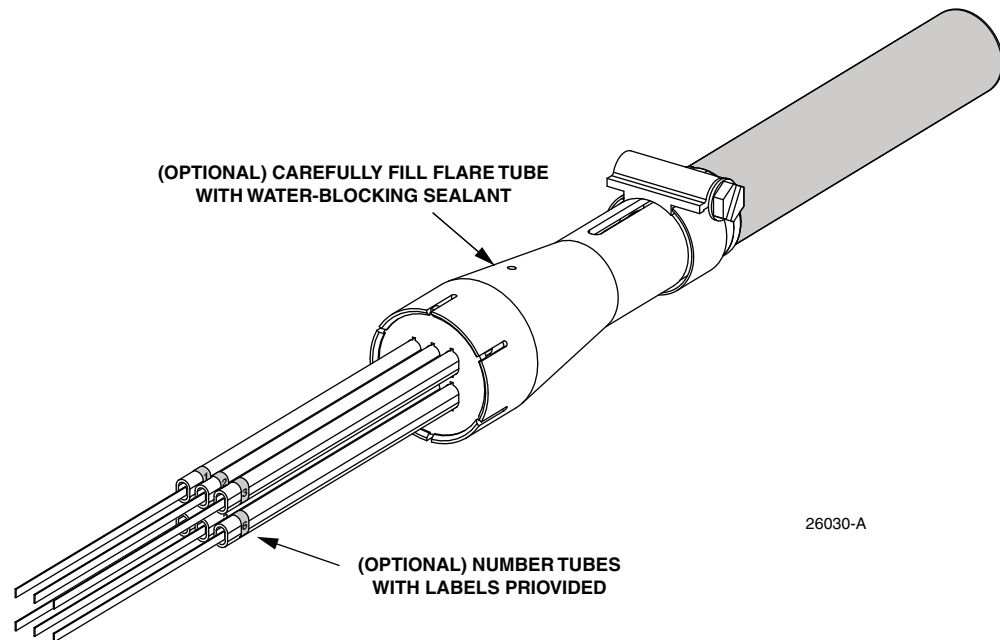


Figure 21. Feeding Ribbon Fibers into Oval Tubes, Snap Retainer Plate into Flare Tube

10. Align retainer plate key with flare tube slot and snap into place as also shown in [Figure 21 on Page 21](#).
  - ▶ **Note:** Feed ribbons into each tube at the same time.
  - ▶ **Note:** The oval tubes and retainer plate are shipped pre-assembled as shown.
11. **(OPTIONAL)** Fill flare tube with water-blocking sealant ([Figure 22](#)). Use numbered labels (provided) and mark ends of oval tubes, for reference.



**Figure 22. (Optional) Filling Flare Tube with Water-Blocking Sealant, and Number Tube Ends**

- ▶ **Note:** When using an FST-DRS\* series splice wheel, and stacking more than two ribbons, there is a chance that the ribbon on the inner diameter can experience loss. This is due to the shorter distance traveled by the inner ribbon for every revolution the tubing is wrapped around the splice wheel. To eliminate or reduce the possibility of loss caused by the shorter distance traveled it is important to alternate which ribbon is on the inner track when wrapping the tubing on the splice wheel.

12. To reduce the possible negative impact caused by the inner ribbon traveling a shorter distance hold the splice wheel fully extended from the cabinet with the cabinet on your right. Rotate the splice wheel so that the edge closest to you goes up and away from you. Flip the splice wheel four times so the tubes are twisted 720 degrees. The purpose is to alternate the ribbon on the inner track 360 degrees for every time the tube is wrapped around the splice wheel. As you wrap the tubes onto the splice wheel do not remove the twist and be careful to maintain a single 360 degree twist per 1 revolution of the tubes around the splice wheel.
  - ▶ **Note:** When rolling the tubes up on the FST-DRS\* series splice wheel installers should provide some vibration after every half revolution of wrapping to assist in the movement of the excess ribbon length to the splice wheel and away from the break out area. Installers can achieve this by putting the splice wheel in the center of one hand and using the other hand to provide a small shock on the splice wheel via a clapping motion eight to ten times. Wrap no more than 46 inches of tubing around the FST-DRS\* series splice wheel if more than 2 ribbons (12 or 24) are in a tube.
13. Wrap the tubing around the splice wheel no more than twice and stow the splice wheel in the appropriate position. If loss is seen unwrap the splice wheel, untwist the tubes, and twist them in the opposite direction. This will eliminate the issue.

### 3 RIBBON CENTRAL TUBE KIT (BLK-RCT) INSTALLATION

Figure 23 shows the catalog scheme for the Ribbon Central Tube Kit. CommScope recommends using the Ribbon Central Tube Kit for kits with more than 12-protective tubes. For kits less than 12 protective tubes, use the Central Oval Tube Ribbon Kit (BLK-RCT). See Section 2 on Page 14.

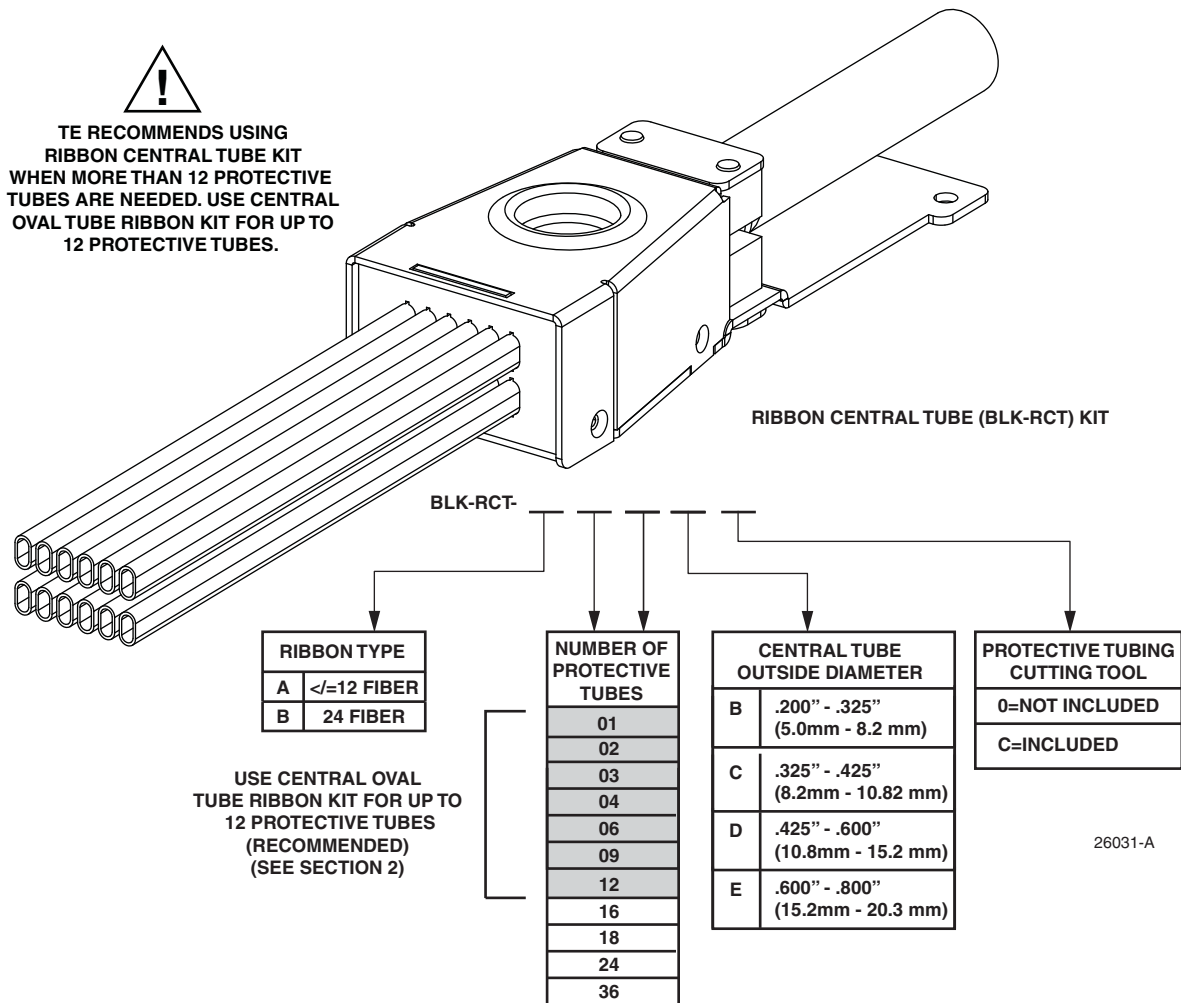


Figure 23. Catalog Scheme for Ribbon Central Tube Kit

The following components are needed to install the kit as described in the method below.

1. (1) BLK-RLBT-\_\_\_\_\_
2. (1) Customer site cable (not provided)
3. 2.5-inch heat shrink tube (provided) about 1- inch heat shrink tube (provided)
4. Talc powder (not provided)
5. Compressed air (not provided)



Use the following procedure to install the kit, referring to [Figure 24](#).

1. Slide a 2.5-inch-long section of 1-1/4" diameter non-adhesive heat shrink tubing over the end of the cable and beyond the cut-back length (the point from which the cable jacketing and central tube will be removed). Position the heat shrink out of the way – it will be used in a later step. *Do not shrink the tubing yet.*

► **Note:** The heat shrink provided is to be used when an FST-DRS\* splice wheel is being used and more than two ribbons are stacked in a tube. The heat shrink is optional when less than 3 stacked ribbons are in a tube and the tube is wrapped around an FST-DRS\* series splice wheel.

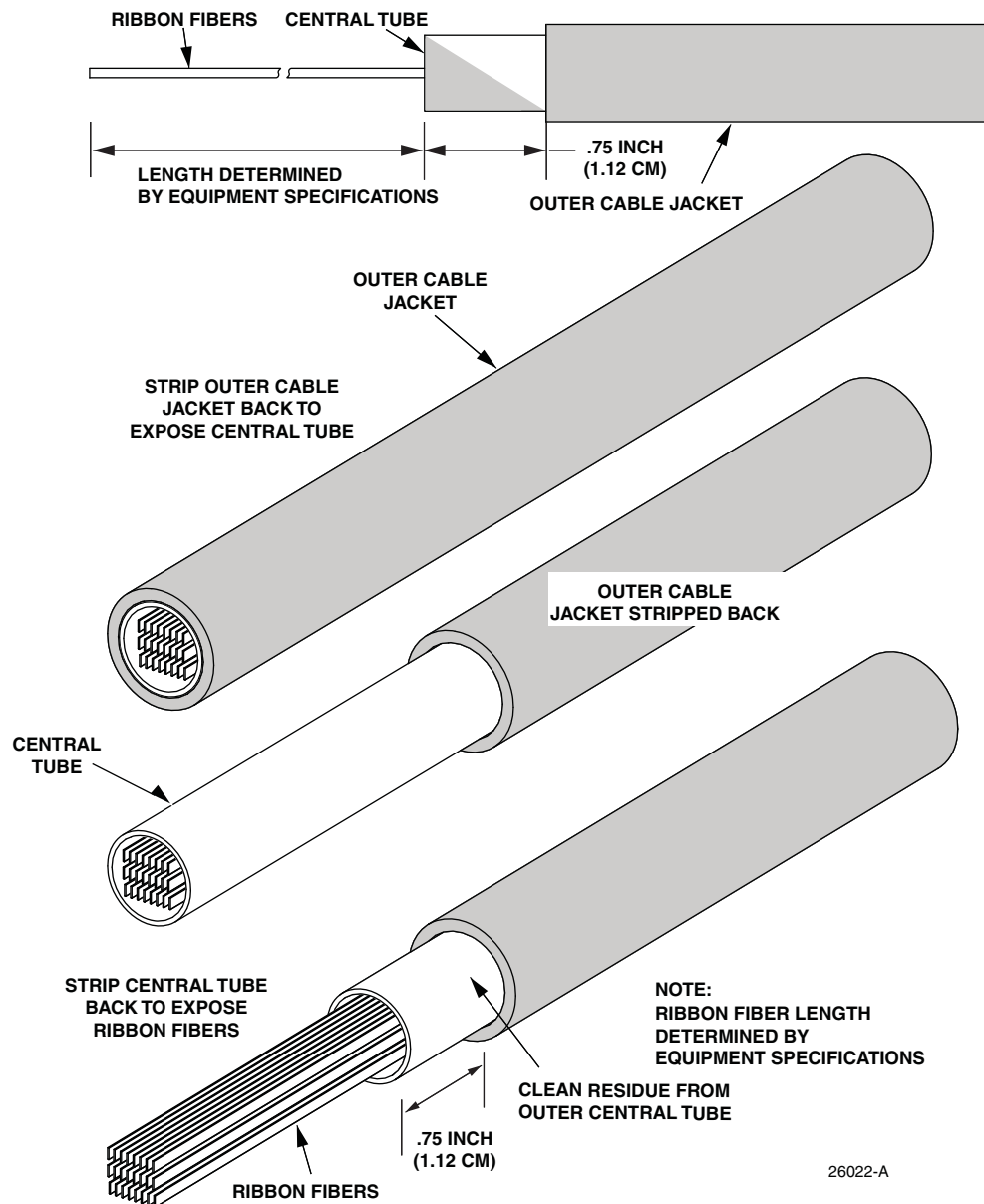
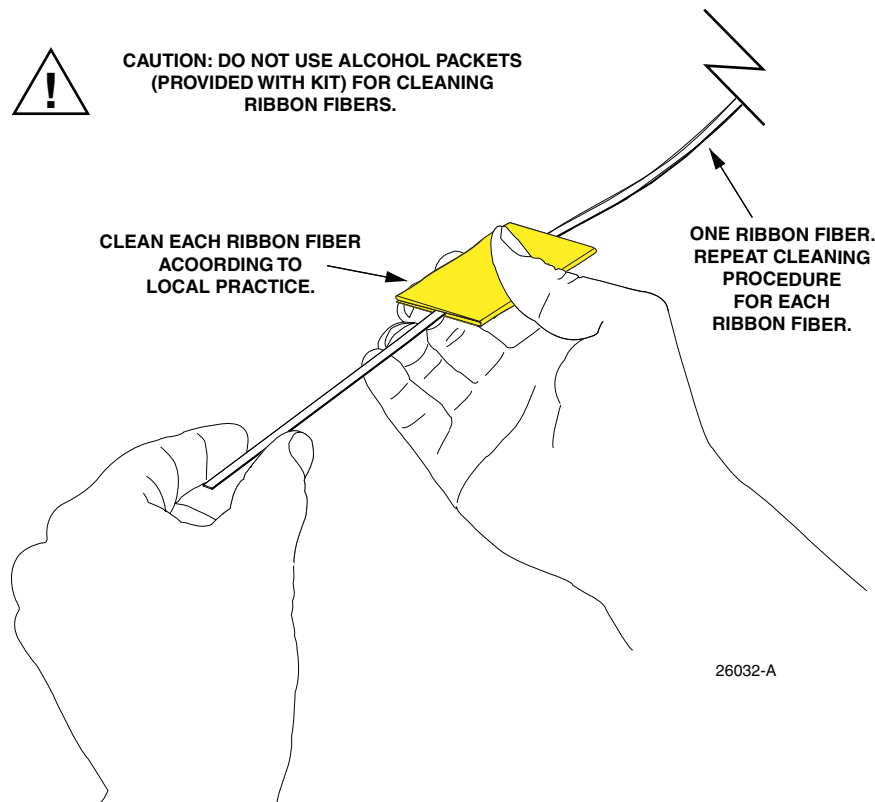


Figure 24. Cable Preparation

2. Determine the amount of ribbon to be exposed at the end of the cable based on the equipment specifications.
3. Strip back the outer cable jacket by the amount determined in step 1 plus approximately 0.75 inches, exposing the inner central tube as shown in [Figure 24](#). Clean any residue from the outside of the central tube to prevent slippage when block is attached.
4. Strip the central tube back, leaving approximately 0.75 inches of the tubing exposed from beneath the end of the cable jacketing
5. Clean any blocking gel from the ribbons and then break them into 12 fiber ribbons where applicable ([Figure 25](#)).



**Caution:** Do not use alcohol packets (provided) for cleaning ribbon fibers.



**Figure 25. Cleaning Ribbon Fibers**

6. Divide the ribbons exiting the cable into groups based on [Table 3. Ribbons Per Tube Matrix](#) into the clear oval tubes. Slide a 1"-long section of 3/16" diameter non-adhesive heat shrink tubing over each group of four. Slide the tubing all the way to the central tube of the high-fiber-count cable. *Do not shrink the tubing yet.* See [Figure 26](#).

► **Note:** The heat shrink provided is to be used when an FST-DRS\* splice wheel is being used and more than two ribbons are stacked in a tube. The heat shrink is optional when less than 3 stacked ribbons are in a tube and the tube is wrapped around an FST-DRS\* series splice wheel.

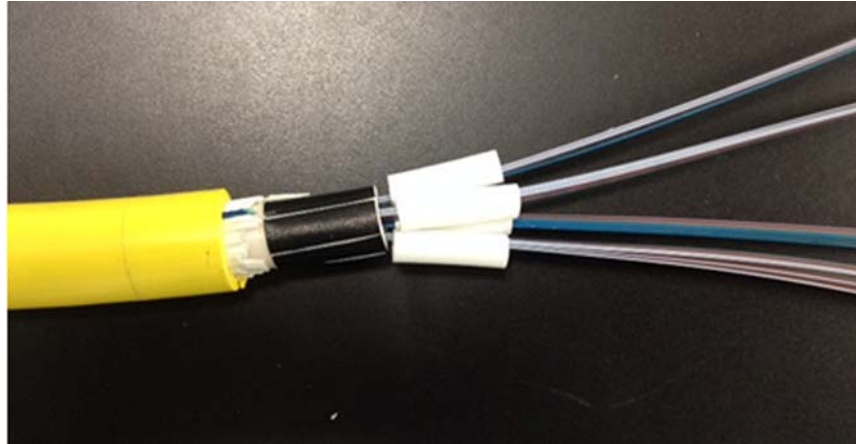
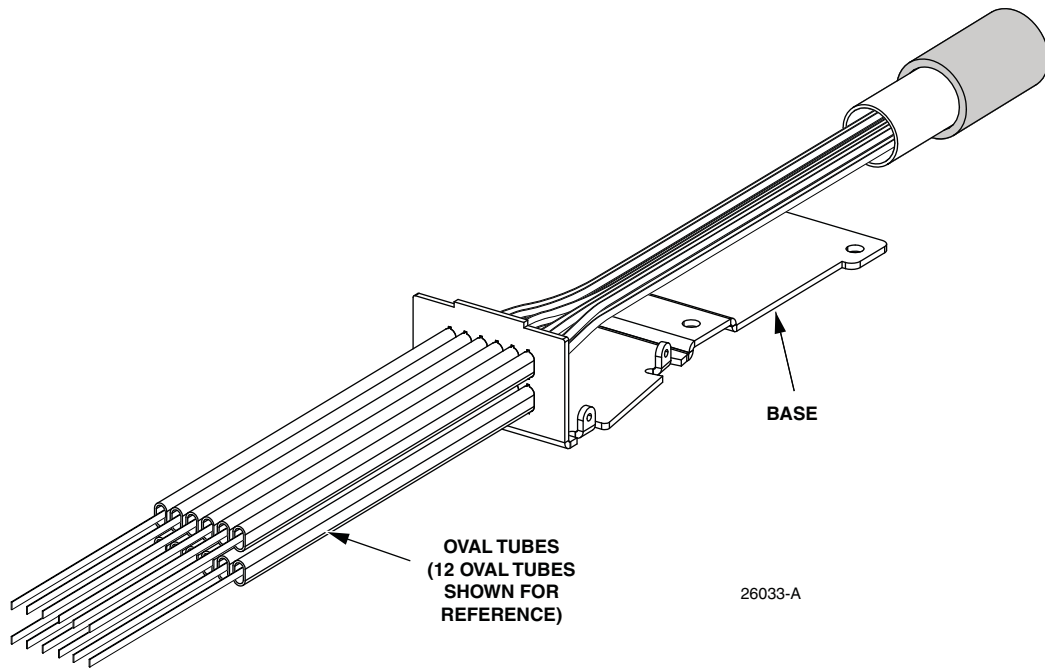


Figure 26. Installing Heat Shrink Tubing

Table 3. Ribbons Per Tube Matrix

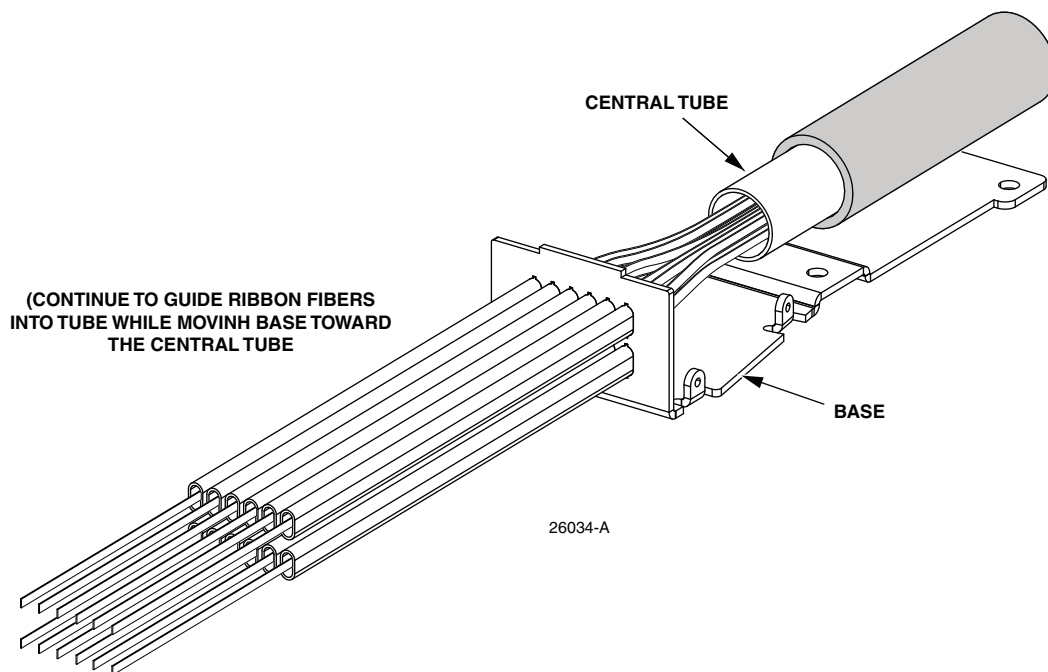
BLOCKING KIT	NUMBER OF TUBES	MAXIMUM RIBBONS PER TUBE
BLK-RCT-A*	1 to 9	4
BLK-RCT-A*	12 to 18	4
BLK-RCT-A*	24	3
BLK-RCT-A*	36	2
BLK-RCT-B*	2 to 6	2
BLK-RCT-B*	12 to 36	2
BLK-RIFC-A*	1 to 9	4
BLK-RIFC-B*	6 to 9	2
BLK-RIBT-A*	1 to 6	4

7. The clear oval tubes are shipped pre-assembled into the metal support plate as shown in [Figure 27](#). Carefully feed each group of ribbons into the appropriate clear oval tube of the breakout kit. Talc powder can be used to aide installation of the ribbons, but is not required.



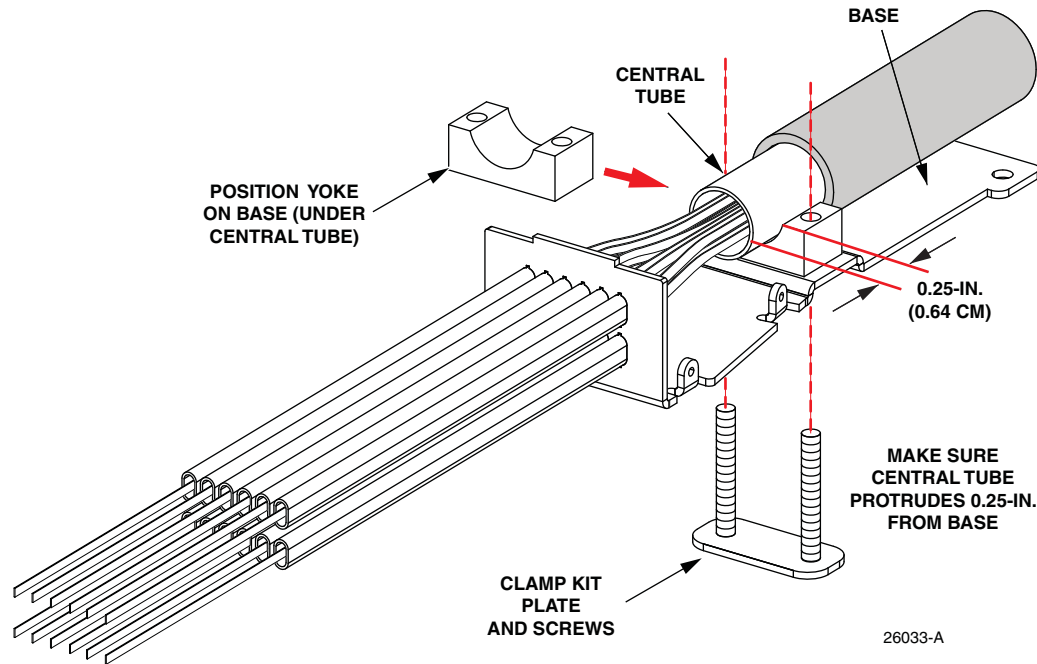
**Figure 27. Installing Ribbon into the Tubing (864F Kit will use 18 Tubes)**

8. Continue to carefully guide ribbon fiber into oval tubing while moving base toward the central tube (Figure 28).



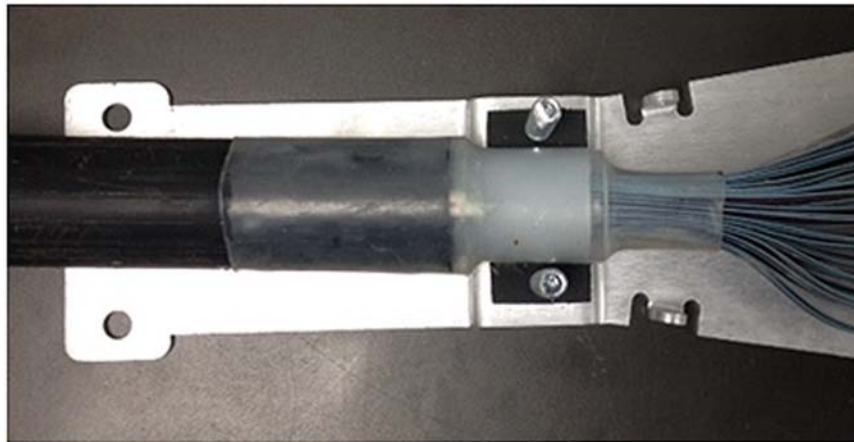
**Figure 28. Installing Ribbon into the Tubing (continued)**

9. Once the base is positioned approximately where shown in [Figure 28](#), align the (larger) heat shrink such that 1.5 inches extends past the end of the central tube. *Do not shrink the tubing yet.*
10. Position clamp kit yoke around central tube on base. Make sure central tube protrudes 0.25-inches (0.64 cm) beyond yoke. Insert clamp kit plate and screws (one piece) up through holes in base and yoke ([Figure 29](#)). Heat shrink is not shown for clarity.



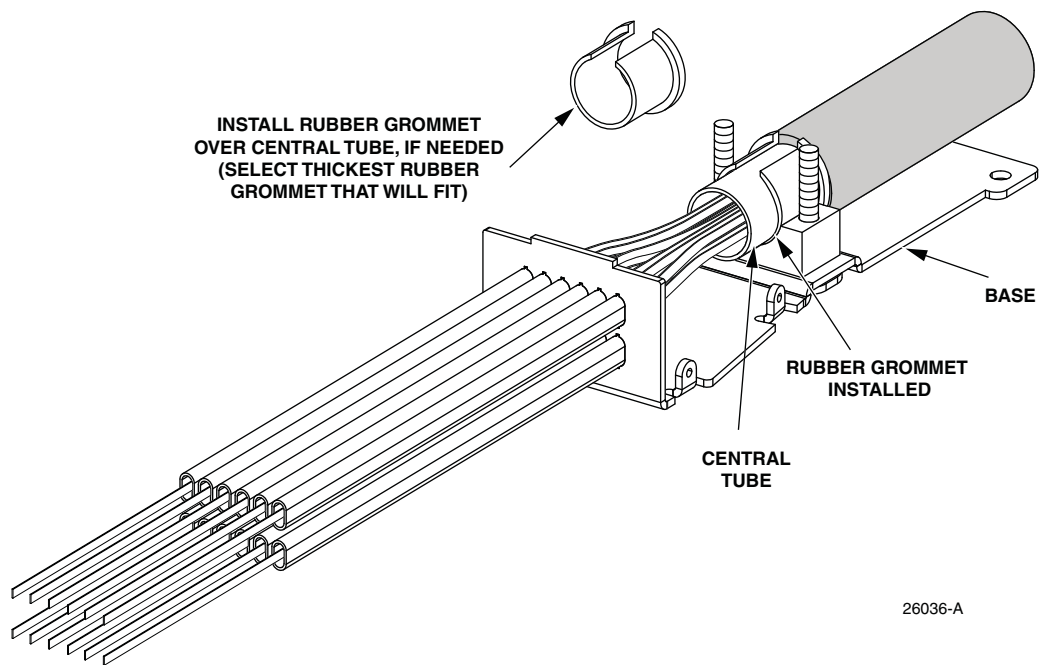
**Figure 29. Installing the Cable Clamp Yoke and Screws**

11. Shrink the large cable heat shrink tubing fully. Use low heat so that when the tube is fully shrunk the shortest distance between the heat shrink and central tube is 1 inch past the end of the central tube. ([Figure 30](#)). **WARNING:** *High heat may melt other blocking kit components. Start with heat at the lowest setting and then progressively increase to achieve desired results.*



**Figure 30. Heat Shrink Application**

12. Install rubber grommet around central tube, if needed (Figure 31). Note, select thickest rubber grommet that will fit between central tube and yoke. Heat shrink is not shown for clarity.



**Figure 31. Installing the Cable Clamp Grommet**

13. Install clamp kit yoke and top plate and tighten down with hex nuts (2). (Figure 32)

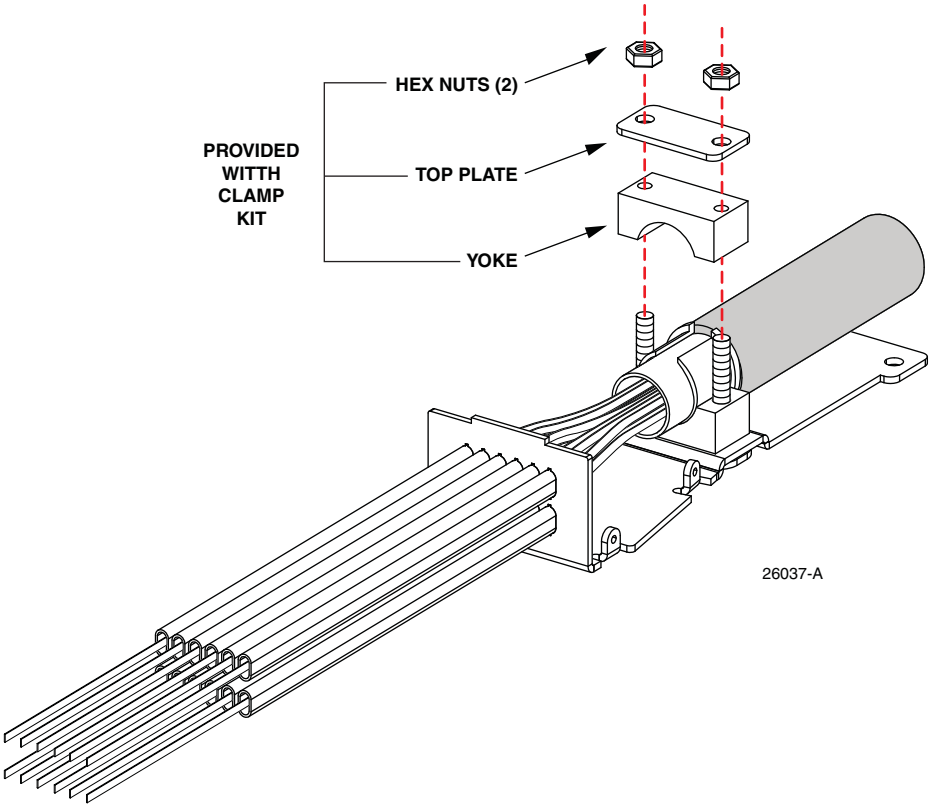


Figure 32. Installing Upper Cable Clamp Yoke, Top Plate and Hex Nuts

14. Figure 33 shows the cable clamp installed.

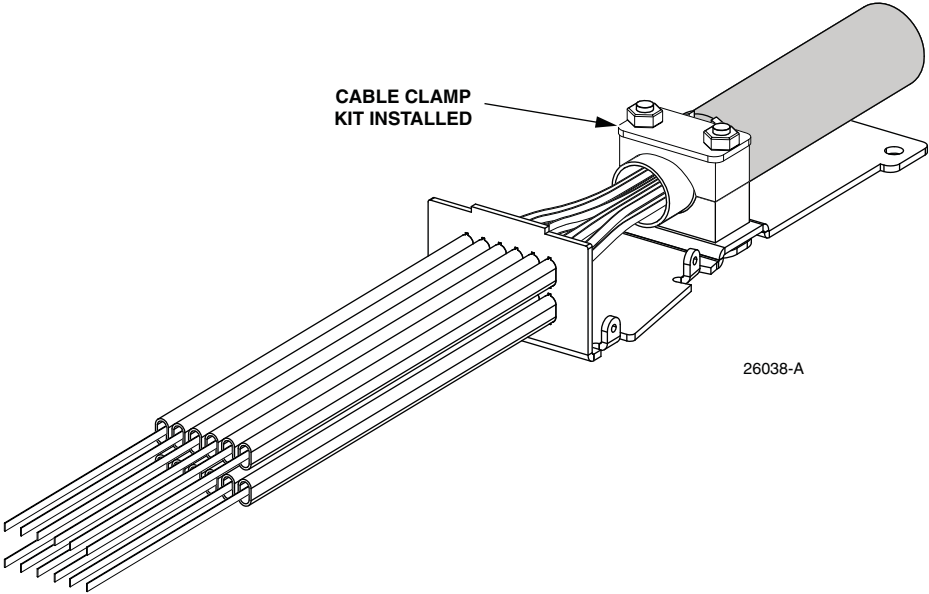
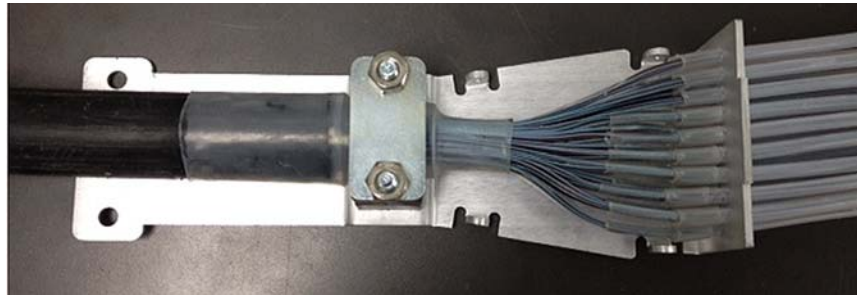


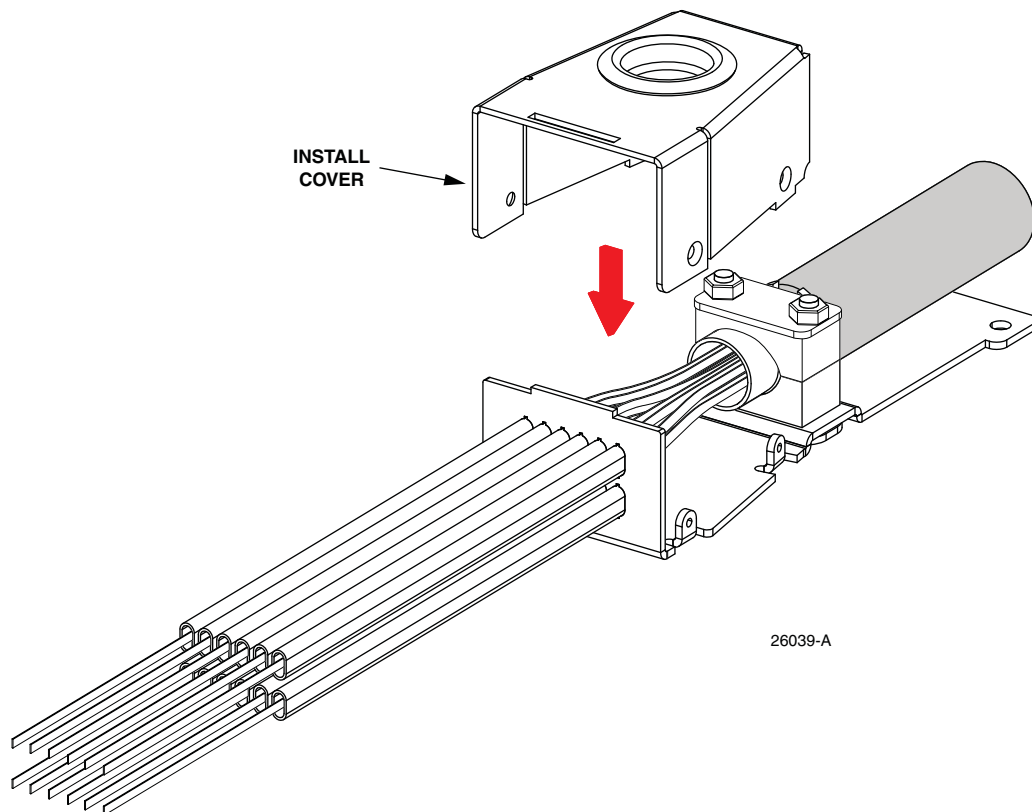
Figure 33. Cable Clamp Installed

15. With the cable clamp installed and the cable and ribbons properly located, align each heat shrink tube so the end of the heat shrink is 1.25 inches from the bracket end face after being shrunk. Shrink heat shrink tubing fully using very low heat (Figure 34). **WARNING: High heat will melt the clear tubing. Start with heat at the lowest setting and then progressively increase to achieve desired results.** Position heat gun to ensure that the heat shrink on the bottom row shrinks fully.



**Figure 34. Location and Heating of the Heat Shrink**

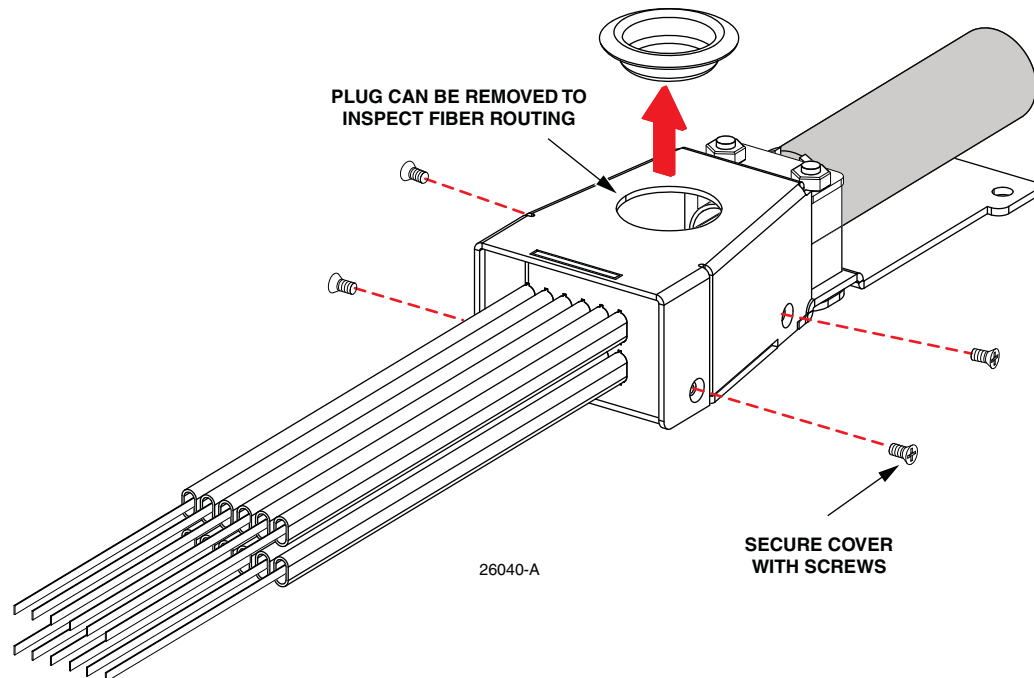
16. Place cover over ribbon fibers, making sure fibers are not twisted or bent (Figure 35).



**Figure 35. Cover Installation**



17. Secure cover to base using four screws (provided). (Optional) Carefully fill blocking kit with water blocking gel and re-install hole plug (Figure 36). (Optional) Number tubes with labels (provided)



**Figure 36. Installing Water Blocking Gel into Hole in Cover**

- **Note:** When using an FST-DRS\* series splice wheel, and stacking more than two ribbons, there is a chance that the ribbon on the inner diameter can experience loss. This is due to the shorter distance traveled by the inner ribbon for every revolution the tubing is wrapped around the splice wheel. To eliminate or reduce the possibility of loss caused by the shorter distance traveled it is important to alternate which ribbon is on the inner track when wrapping the tubing on the splice wheel.
18. To reduce the possible negative impact caused by the inner ribbon traveling a shorter distance hold the splice wheel fully extended from the cabinet with the cabinet on your right. Rotate the splice wheel so that the edge closest to you goes up and away from you. Flip the splice wheel four times so the tubes are twisted 720 degrees. The purpose is to alternate the ribbon on the inner track 360 degrees for every time the tube is wrapped around the splice wheel. As you wrap the tubes onto the splice wheel do not remove the twist and be careful to maintain a single 360 degree twist per 1 revolution of the tubes around the splice wheel.
- **Note:** For best performance, allow room for fiber movement within the splice wheel, where applicable.

- ▶ **Note:** When rolling the tubes up on the FST-DRS\* series splice wheel installers should provide some vibration after every half revolution of wrapping to assist in the movement of the excess ribbon length to the splice wheel and away from the break out area. Installers can achieve this by putting the splice wheel in the center of one hand and using the other hand to provide a small shock on the splice wheel via a clapping motion eight to ten times. Wrap no more than 46 inches of tubing around the FST-DRS\* series splice wheel if more than 2 ribbons (12 or 24) are in a tube.
19. Wrap the tubing around the splice wheel no more than twice and stow the splice wheel in the appropriate position. If loss is seen unwrap the splice wheel, untwist the tubes, and twist them in the opposite direction. This will eliminate the issue.

## 4 RIBBON IFC CABLE KIT (BLK-RIFC) INSTALLATION

Figure 37 shows the catalog scheme for the Ribbon IFC Cable Kit.

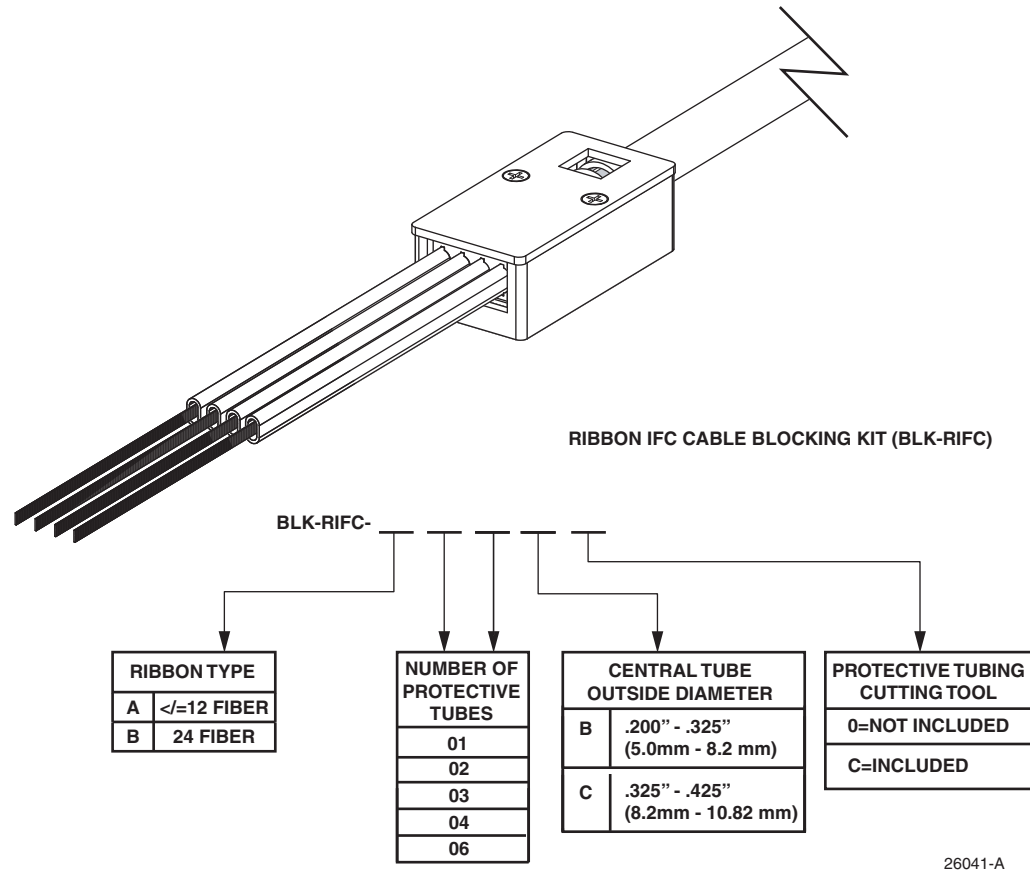


Figure 37. Catalog Scheme for Ribbon IFC Cable Kit

The following components are needed to install the kit as described in the method below.

1. (1) BLK-RIFC-\_\_\_\_\_
2. (1) Customer site cable (not provided)
3. 3/16-inch diameter heat shrink about 3/4 inch long (provided)
4. Talc powder (not provided)
5. Compressed air (not provided)

Use the following procedure to install the kit.

1. Strip outer cable jacket to expose inner central tube (Figure 38). Clean residue from outside of central tube to prevent slippage when block is attached.

- Strip central tube back 0.75 to 1.00-inches (min) to expose bare ribbons. (Ribbon fiber length determined by equipment specifications.)

► **Note:** A maximum of 5 meters (16.4 feet) of bare fiber can be fed through an oval tube.

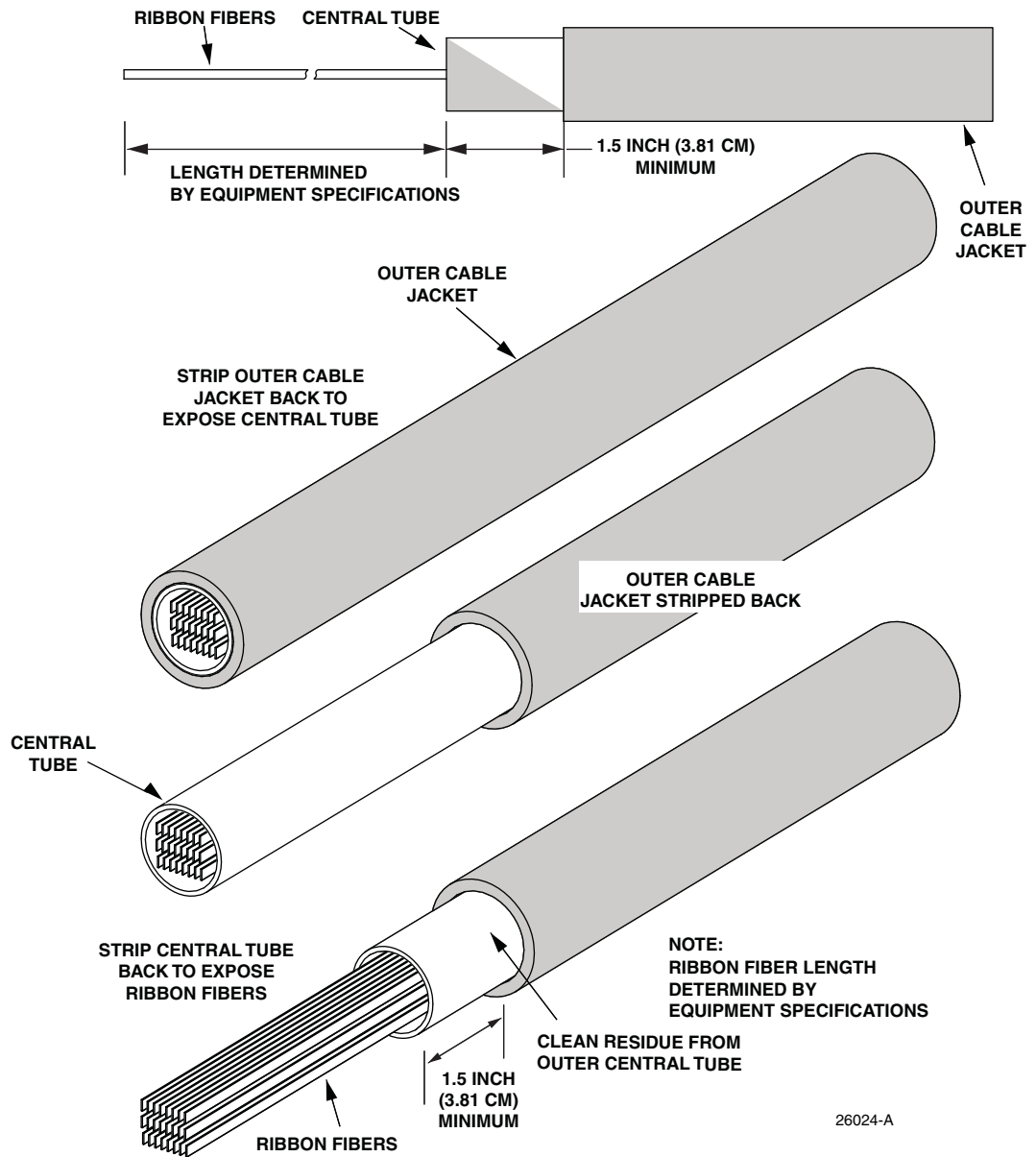
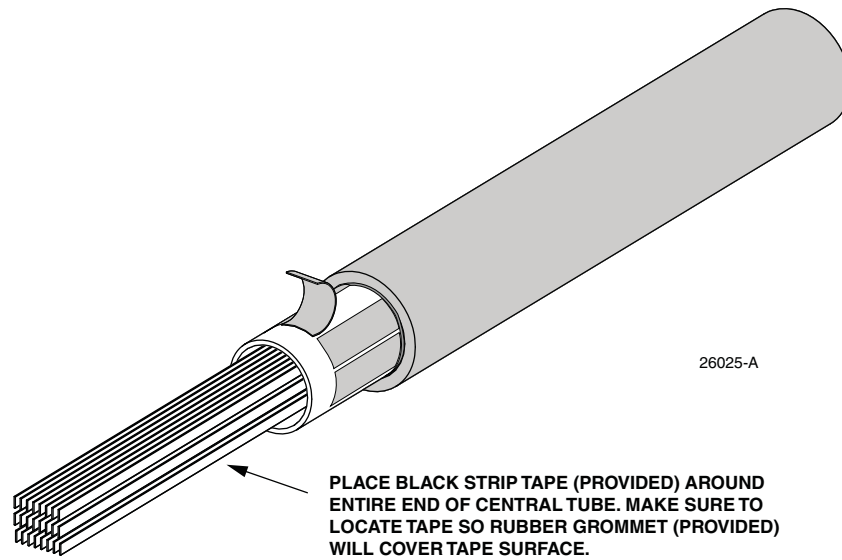


Figure 38. Stripping Outer Jacket and Subunit Jacket

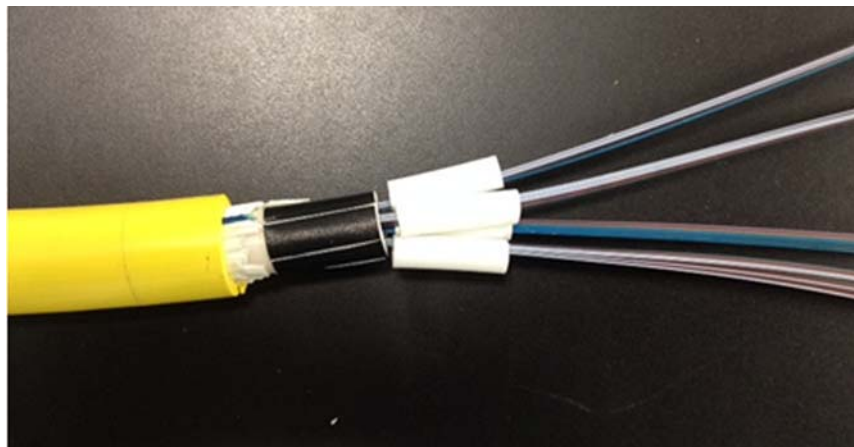
- Place black strip tape (provided) around entire end of central tube (Figure 39).

► **Note:** Locate tape so cable ties will cover tape surface when attached to the base.



**Figure 39. Placing Tape on End of Central Tube**

4. Divide the ribbons exiting the cable into groups based on the ribbons per [Table 4. Ribbons Per Tube Matrix](#) and the kit being used. The ribbons will be distributed in the clear oval tubes of the blocking kit. Slide a 3/4-inch long section of 3/16-inch diameter non-adhesive heat shrink tubing over each group of ribbons as shown in [Figure 40](#).
  - ▶ **Note:** Slide the tubing all the way to the central tube of the high-fiber-count cable as shown in [Figure 40](#), but do not shrink the tubing. Do not exceed ribbons per tube for kit used per [Table 4. Ribbons Per Tube Matrix](#).
  - ▶ **Note:** The heat shrink provided is to be used when an FST-DRS\* splice wheel is being used and more than two ribbons are stacked in a tube. The heat shrink is optional when less than 3 stacked ribbons are in a tube and the tube is wrapped around an FST-DRS\* series splice wheel.



**Figure 40. Installing Heat Shrink Tubing**

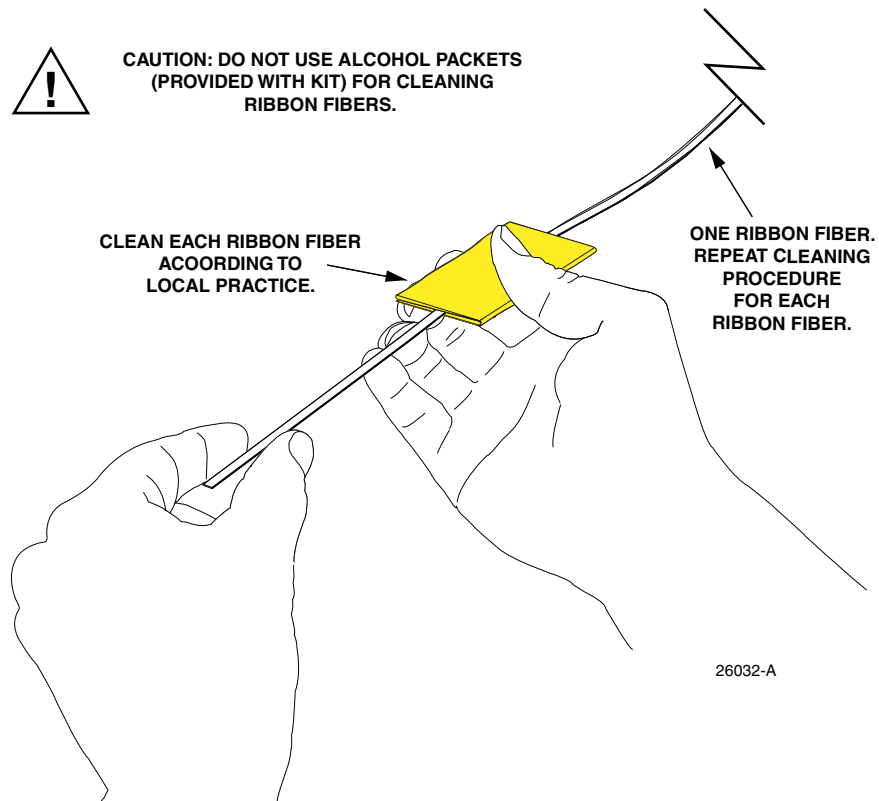
**Table 4. Ribbons Per Tube Matrix**

BLOCKING KIT	NUMBER OF TUBES	MAXIMUM RIBBONS PER TUBE
BLK-RCT-A*	1 to 9	4
BLK-RCT-A*	12 to 18	4
BLK-RCT-A*	24	3
BLK-RCT-A*	36	2
BLK-RCT-B*	2 to 6	2
BLK-RCT-B*	12 to 36	2
BLK-RIFC-A*	1 to 9	4
BLK-RIFC-B*	6 to 9	2
BLK-RIBT-A*	1 to 6	4

5. Clean each ribbon fiber according to local practice (Figure 41).



**Caution:** Do not use alcohol packets (provided) for cleaning ribbon fibers.



**Figure 41. Cleaning Ribbon Fibers**

- 6. The clear oval tubes are shipped pre-assembled into the metal support plate as shown in Figure 42. Remove the packaging and un-coil. Use compressed air to blow talc powder into each tube, which will aid in the installation of the ribbon and prevent handling of the ribbons during use. Carefully feed ribbon fibers through oval tubes as shown.

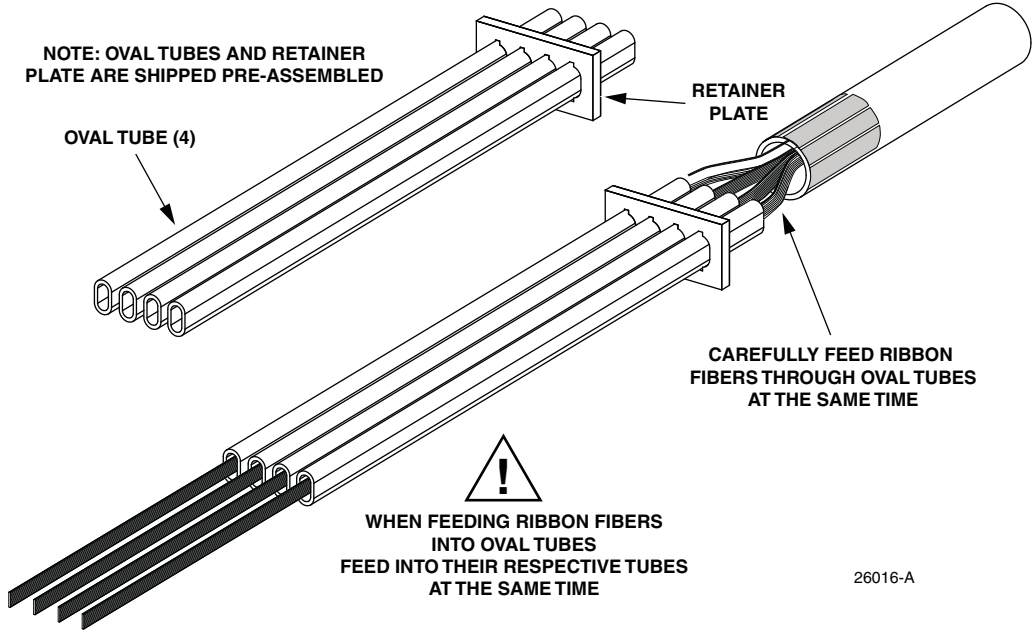


Figure 42. Inserting Ribbon Fibers into Oval Tubes

- 7. Insert cable ties (2) up through the holes in bottom of the base (Figure 43).

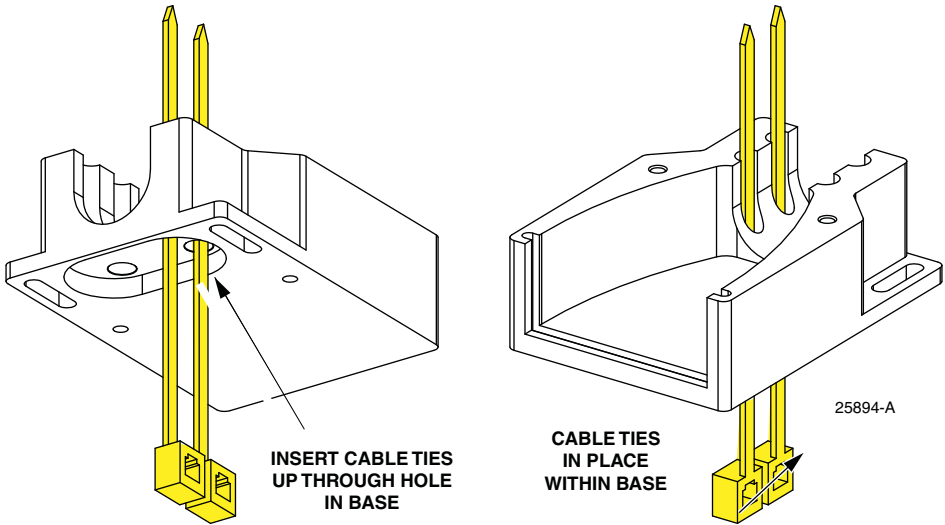
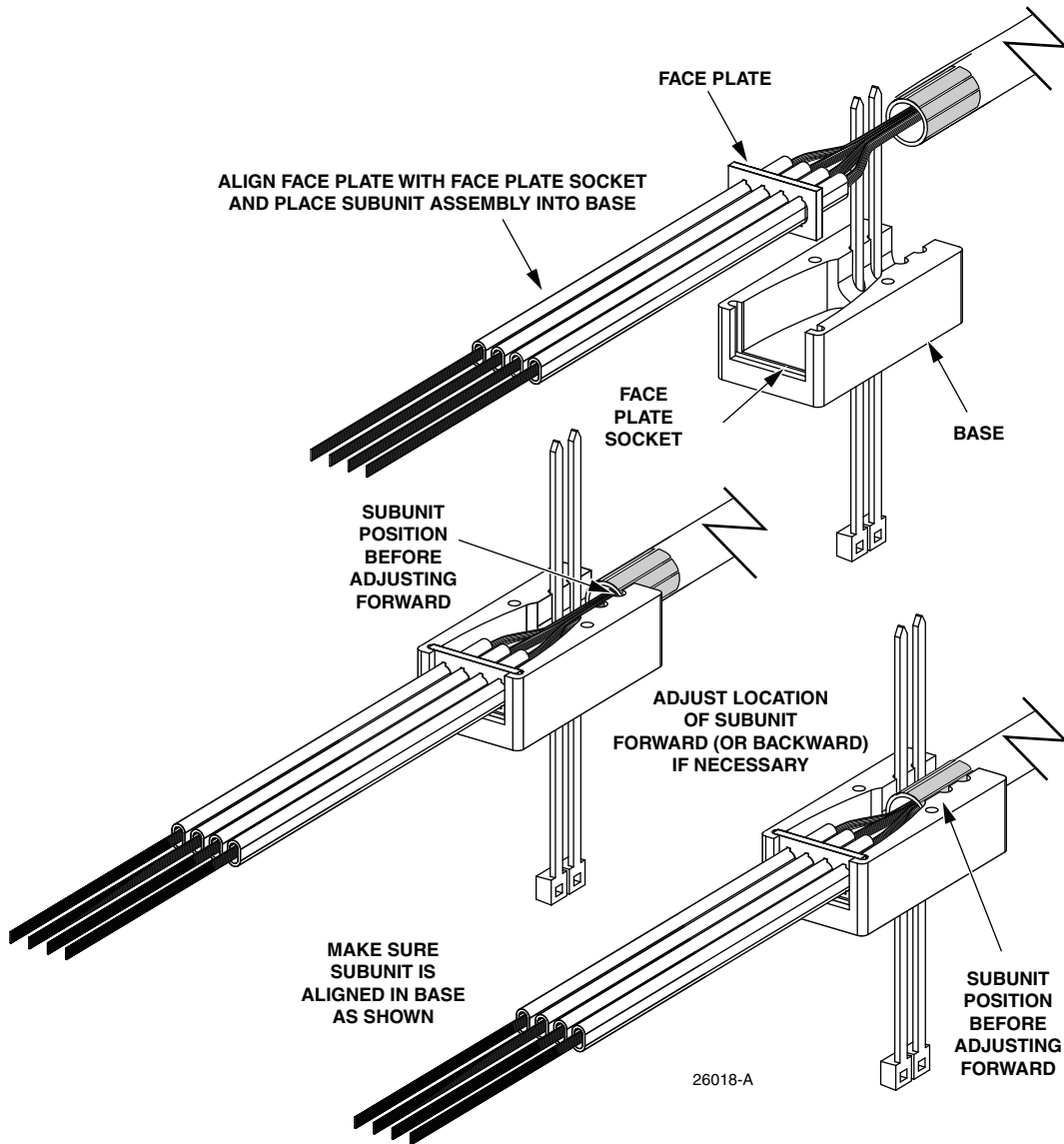


Figure 43. Inserting Cable Tie into Base

8. Align face plate with face plate pocket in base and place subunit assembly into base (Figure 44). Adjust central tube either forward or backward to align with back of the base as shown.

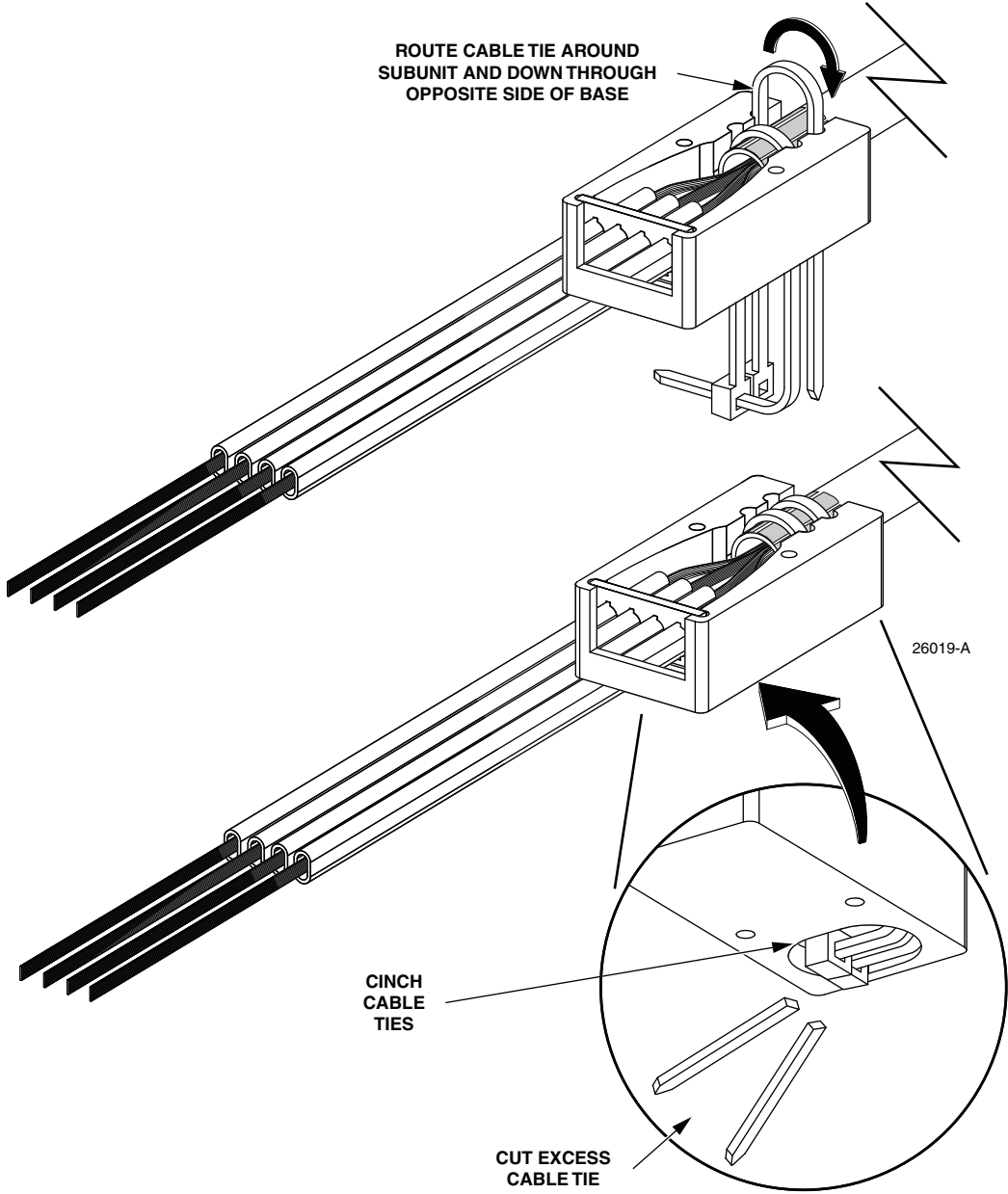
▶ **Note:** Central tube assembly includes subunit, ribbon fibers, face plate, and oval tubes.



**Figure 44. Placing Central Tube Assembly into Fanout Base**



- 9. Route the cable tie around the central tube and down through the other side of the base  
Cinch the cable tie and cut off excess portion. Refer to [Figure 45](#).

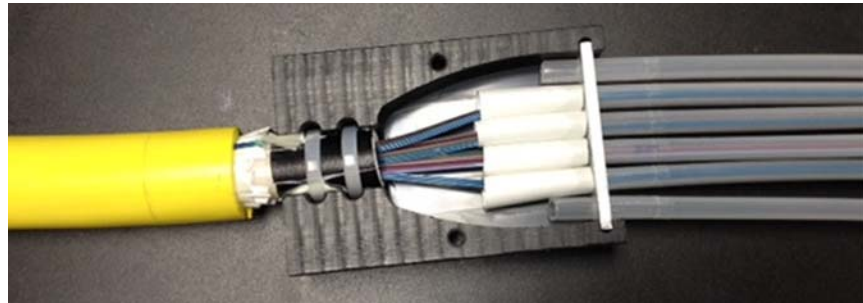


**Figure 45. Securing Cable Using Cable Ties**

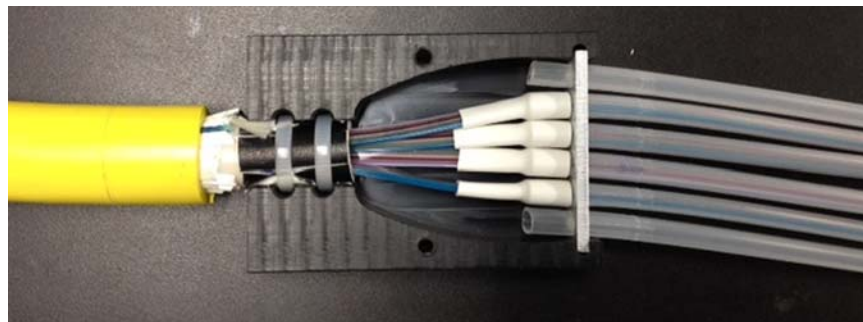
- Align each heat shrink tube so that 1/4-inch covers the exposed clear tube and 1/2-inch covers the ribbons (Figure 46). Shrink the tubing using low heat (Figure 47).



**Warning:** High heat will melt the clear tubing. Start with heat at the lowest setting and then progressively increase to achieve desired results.



**Figure 46. Locating Heat Shrink (6-Tube Kit Shown)**



**Figure 47. Heat Shrink Final State (6-Tube Kit Shown)**

11. Secure cover onto base using two screws (Figure 48).

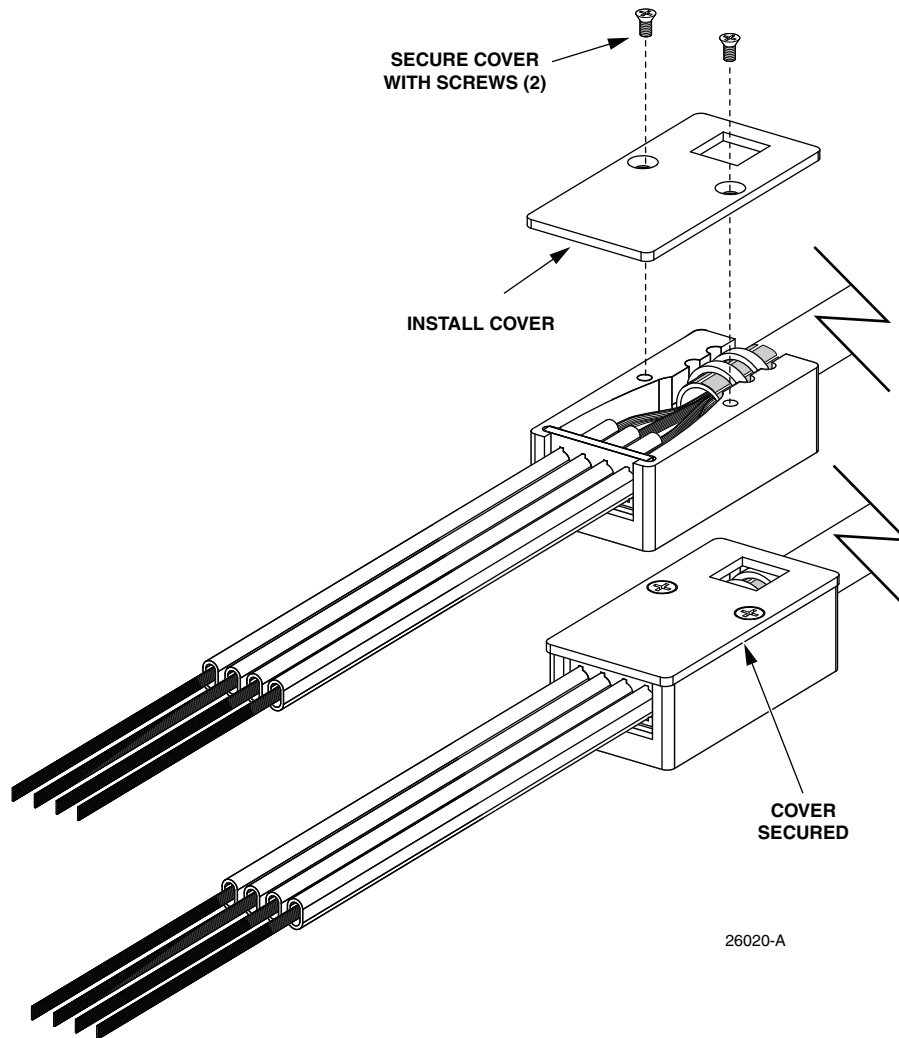


Figure 48. Installing the Cover

- **Note:** When using and FST-DRS\*FST-DRS\* series splice wheel, and stacking more than two ribbons, there is a chance that the ribbon on the inner diameter can experience loss. This is due to the shorter distance traveled by the inner ribbon for every revolution the tubing is wrapped around the splice wheel. To eliminate or reduce the possibility of loss caused by the shorter distance traveled it is important to alternate which ribbon is on the inner track when wrapping the tubing on the splice wheel.

12. To reduce the possible negative impact caused by the inner ribbon traveling a shorter distance hold the splice wheel fully extended from the cabinet with the cabinet on your right. Rotate the splice wheel so that the edge closest to you goes up and away from you. Flip the splice wheel four times so the tubes are twisted 720 degrees. The purpose is to alternate the ribbon on the inner track 360 degrees for every time the tube is wrapped around the splice wheel. As you wrap the tubes onto the splice wheel do not remove the twist and be careful to maintain a single 360 degree twist per 1 revolution of the tubes around the splice wheel.
  - ▶ **Note:** When rolling the tubes up on the FST-DRS\* series splice wheel installers should provide some vibration after every half revolution of wrapping to assist in the movement of the excess ribbon length to the splice wheel and away from the break out area. Installers can achieve this by putting the splice wheel in the center of one hand and using the other hand to provide a small shock on the splice wheel via a clapping motion eight to ten times. Wrap no more than 46 inches of tubing around the FST-DRS\* series splice wheel if more than 2 ribbons (12 or 24) are in a tube.
13. Wrap the tubing around the splice wheel no more than twice and stow the splice wheel in the appropriate position. If loss is see unwrap the splice wheel, untwist the tubes, and twist them in the opposite direction. This will eliminate the issue.

## 5 TECHNICAL ASSISTANCE

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