

CORNING

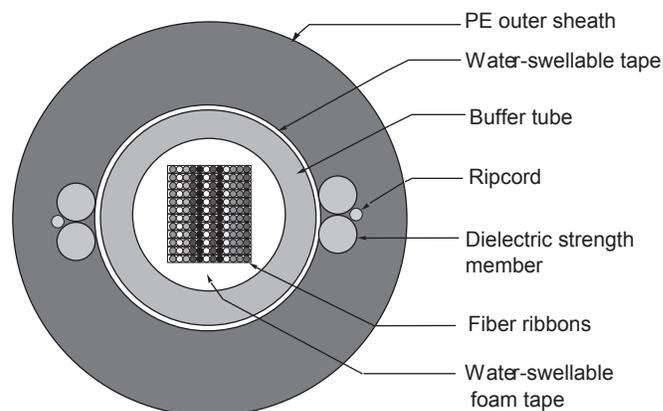
Sheath Removal and Mid-Span Access of Dielectric SST-UltraRibbon™ Gel-Free Cable

P/N 004-276-AEN
Issue 1

1. General

This document describes installation and handling practices for dielectric versions of Corning Optical Communications SST-UltraRibbon™ gel-free cable. Both cable-end and mid-span access procedures are outlined in this document.

The cable illustrated in this procedure is a non-armored cable manufactured with a central tube. Four glass-reinforced plastic (GRP) rods provide tensile strength for the cable (Figure 1).



HPA-0964
SST-UltraRibbon™ Gel-Free Cable – Dielectric Version

Figure 1

2. Precautions

2.1 Cable and Buffer Tube Handling Precautions

 **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.

2.2 Laser Handling Precautions

 **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.

2.3 Safety Glasses

 **CAUTION:** Corning recommends the use of safety glasses (spectacles) 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.

2.4 Safety Gloves

 **CAUTION:** The wearing of cut-resistant safety gloves to protect your hands from accidental injury is strongly recommended when using sharp-bladed tools.

3. Tools and Materials

The following tools and materials are required for the cable stripping sections of this procedure:

- Utility knife with hook-blade (Corning part number 100299-01)
- Scissors (100294-01)
- Vinyl tape (100278-01)
- Cable tie tool and cable ties
- Pliers
- Diagonal cutting pliers (Side cutters) (100300-01)
- Paper towels or cloth
- Tape measure (100305-01)
- Permanent marking pen (2102003-01)
- Ideal® model 45-164 (1/4 to 9/16 in O.D.) coaxial cable stripper
- Small slotted screwdriver (100332-01)
- Cable sheath knife
- Number markers
- Needle nose pliers
- Friction tape
- Universal Access Tool III (UAT-III) and its instruction manual, SRP-004-074
- Ribbon Splitting Tool (RST-000) and its instruction manual, SRP-004-098

4. Cable End Installation

4.1 Cable End Sheath Removal

Step 1: Determine the proper sheath removal length for the hardware being used. Mark a point at this distance from the end of the cable with a wrap of tape (Figure 2)).

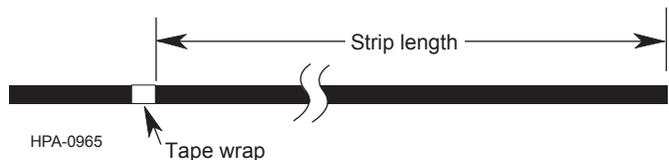


Figure 2

Step 2: Starting at the end of the cable, use the cable sheath knife to shave off 15 cm (6 in) of the outer sheath directly over the rods. Shave the sheath until the GRP rods and the ripcord on each side of the cable are visible (Figure 3).

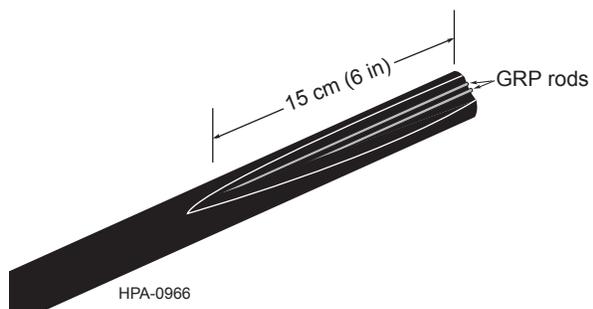


Figure 3

Step 3: Separate the end of the rip cords from the cable.

Step 4: Using the shaft of a screwdriver wrapped in friction tape as a handle, pull one ripcord at a time through the sheath to the wrap of tape (Figure 4).

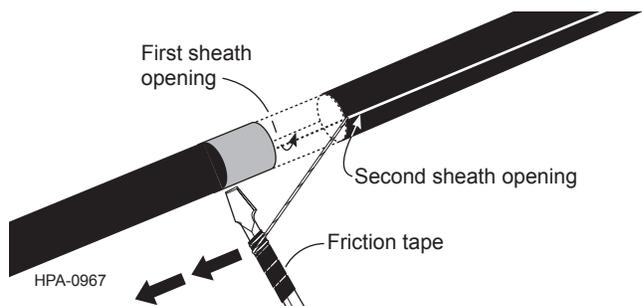


Figure 4

Step 5: Cut the ripcords flush at the tape wrap with scissors.

Step 6: Taking care not to cut through the GRP rods, use the hook blade knife to make a shallow ring cut through the black outer sheath at the tape mark (Figure 5).

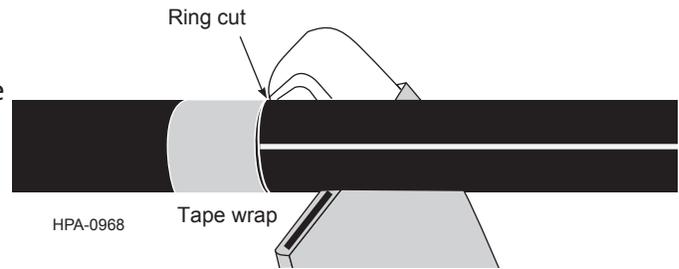


Figure 5

Step 7: Starting at the end of the cable, peel back both sections of split sheath to expose the central tube, water-swappable tape and GRP rods (Figure 6).

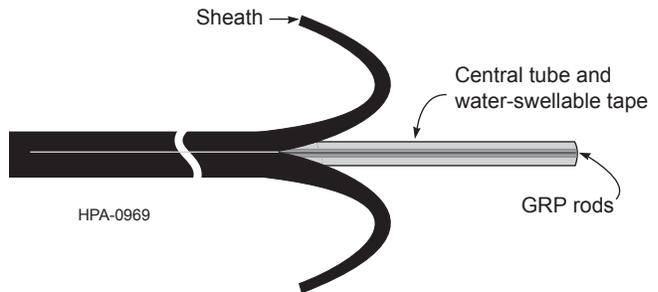


Figure 6

Step 8: At the ring cut, carefully flex the sections of sheath and remove them. Side cutters may be helpful in removal (Figure 7).

Step 9: Pull the GRP rods out and away from the central tube.

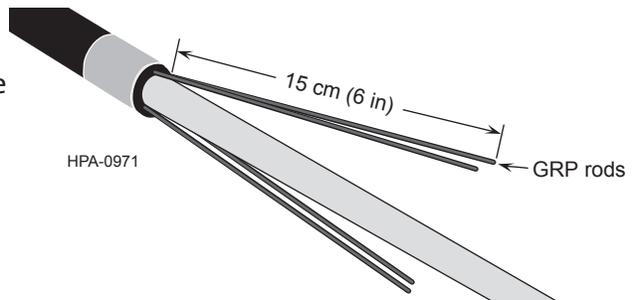


Figure 7

Step 10: Using side cutters, cut the four (4) GRP rods approximately 15 cm (6 in) from the tape wrap (Figure 8).

ALWAYS WEAR SAFETY GLASSES WHEN CUTTING THE GRP RODS.



Figure 8

Step 11: Using scissors, cut the water-swappable tape flush with the end of the sheath and the tape wrap (Figure 9).

Step 12: Remove the tape wrap from the cable sheath.

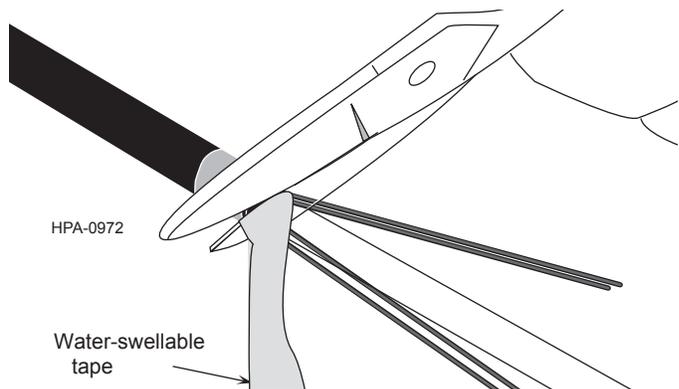


Figure 9

4.2 Accessing Cable End Fibers

Step 1: Before using the stripper, make sure that it is properly adjusted. Use a small slotted screwdriver to adjust one of the blades on the side of the central tube cutter so that it seats against the lower jaw but does not force the jaw open (Figure 10).

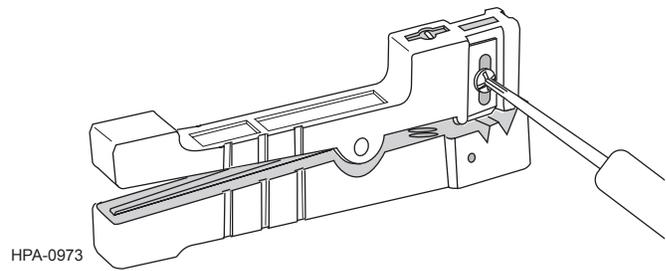


Figure 10

Step 2: Use an Ideal® model 45-164 coaxial cable stripper to remove the needed strip length of central tube in 60 cm (24 in) increments. Scoring the circumference of the tube will enable you to make a clean break in the tube with minimal risk to the fibers inside.

Leave the blades on the front and other side of the tool fully retracted so that they do not extend into the grooves of the lower jaw.

Step 3: Use the last 5 to 7.5 cm (2 to 3 in) at the end of the cable to determine the sharpness of the stripper's blade and how many turns of the tool will be required to score the tube. To minimize damage to the fibers inside the tube, always use the tool to score the tube, not ring cut it.

To score a central tube:

- Open the tool by squeezing its handles together and place the stripper's blade on the central tube at the desired scoring point.
- Hold the central tube steady with one hand to prevent it from twisting.
- Use your other hand to rotate the tool around the tube two to three complete turns to score it (Figure 11). Remove the tool from the central tube.

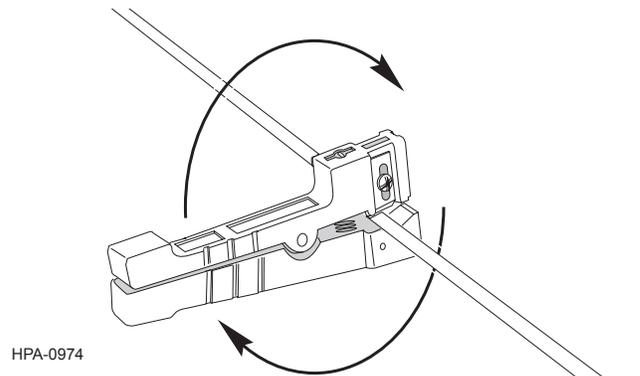


Figure 11

If the stripper completely cuts through the tube during this trial step, move the tool to a new trial area at the end of the central tube and repeat Steps a through c with fewer rotations in Step c. If the blade cuts completely through the tube, damage to the fibers inside can result.

- Carefully flex the tube to break it at the score point. The break should be clean and free of rough edges (Figure 12).

If the break is not clean, repeat the trial at a new location at the end of the tube with an additional rotation or two.

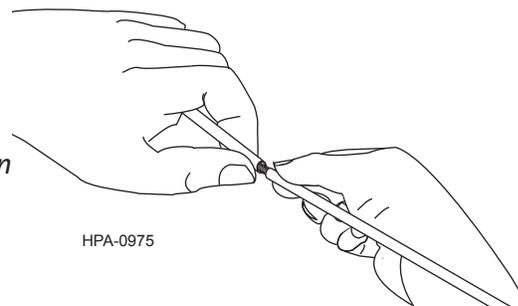


Figure 12

- Slide the severed tube off the fibers. USE CARE TO AVOID DAMAGING THE FIBERS.
- Repeat these steps until the desired length of central tube is removed, leaving at least 2.5 cm (1 in) of exposed central tube beyond the end of the sheath (Figure 13). *The length of exposed central tube may vary depending on the hardware being used.*

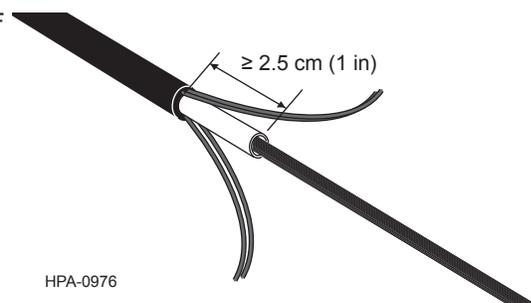


Figure 13

Step 4: Carefully separate the water-swappable tape from the ribbons (Figure 14).

Step 5: Use scissors to carefully cut the tape at the buffer tube, making sure not to cut any ribbons.

Step 6: If necessary, wipe the ribbons with a dry, lint free cloth or tissue (Figure 15).

Step 7: Route and secure the cable to the hardware being installed.

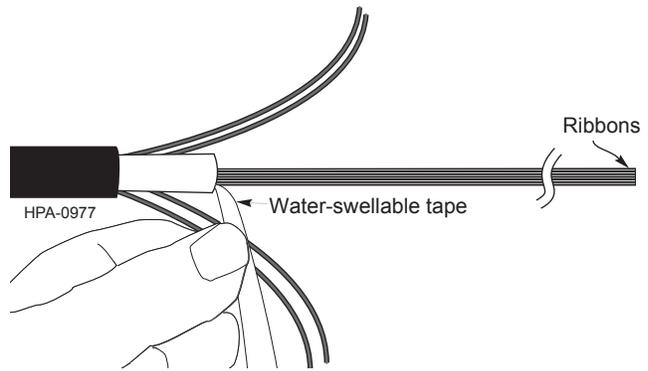


Figure 14

4.3 Accessing Cable End Ribbon Fibers

Step 1: Secure the ribbons within the hardware in accordance with the hardware manufacturer's instructions.

Step 2: If appropriate for your installation, divide the ribbon(s) using the RST-000 tool as described in SRP-004-098, Corning Cable Systems Ribbon Splitting Tool (RST-000) Instructions (Figure 16).

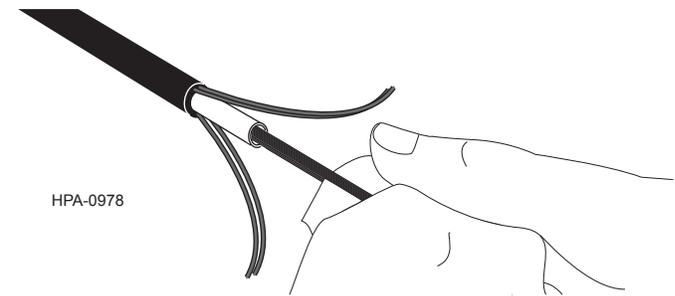


Figure 15

Step 3: To access to individual fibers in a ribbon, refer to Section 8 in SRP-004-098.

Step 4: Splice the fibers according to the system design plan.

Step 5: Follow the closure or hardware manufacturer's instructions for central tube mounting and routing. Complete the hardware or closure assembly according to its manufacturer's instructions.

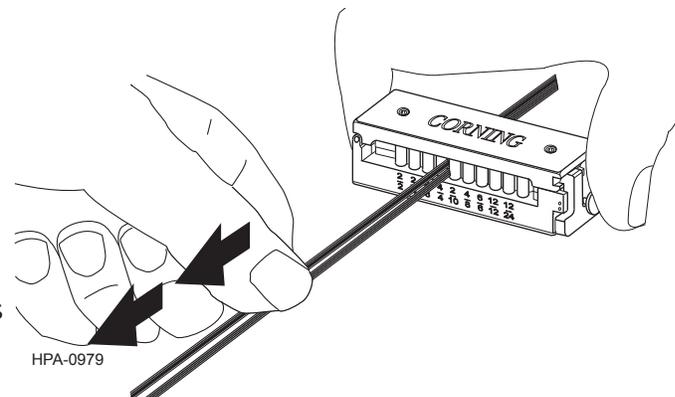


Figure 16

5. Mid-Span Cable Installation

5.1 Accessing Mid-Span Cable

This mid-span access procedure is dependent upon sufficient slack cable for access. The minimum amount of cable slack is determined as follows:

- Slack = 60 cm X cable diameter + 105 cm (42 in):
for example, for a 1.25 cm (0.5 in) OD cable,
60 X 1.25 = 75 cm + 105 cm = 180 cm (72 in) of slack
- Add additional slack as necessary to reach the splicing workstation from a pole or manhole.

IMPORTANT: Please read and understand this procedure before attempting to access a central tube.

Step 1: Prepare the tie-in (drop) cable according to its manufacturer's instructions. Set the cable aside in a secure place.

Step 2: Determine the amount of slack needed. Place a wrap of tape at each end of the cable sheath that is to be removed (Figure 17).

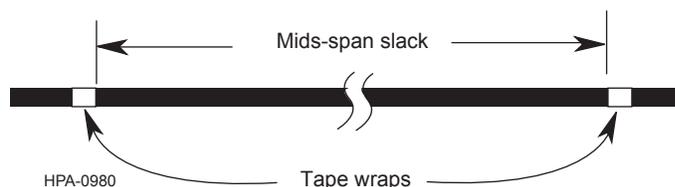


Figure 17

Step 3: Starting at either inside tape mark, locate and expose the rods and ripcords as follows:

- a. Using the cable sheath knife, shave off a small section of cable sheath to locate the rods. If the rods are not visible after a few passes of the knife, stop immediately.
- b. Shave another section of cable about 1 cm (on either side of the initial pass. Repeat until the rods have been located.
- c. Shave 25 cm (10 in) of the outer sheath directly over the GRP rods (Figure 18).
- d. Repeat Steps a and b to expose the other rods and ripcord on the opposite side (180 degrees) from the cable section to be accessed.

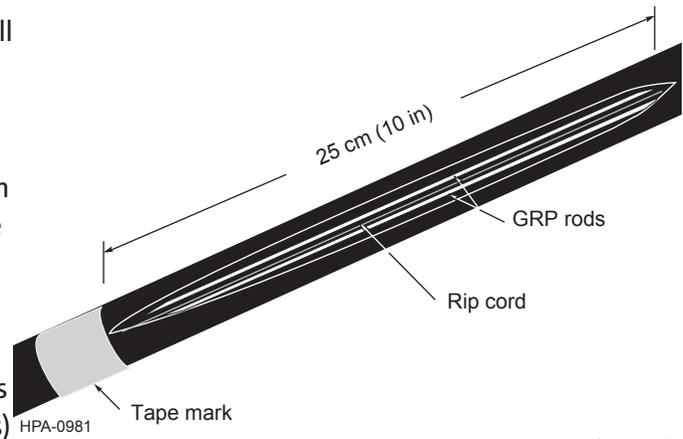


Figure 18

Step 4: Locate the ripcords. Cut the ripcords near the tape mark with scissors (Figure 19).

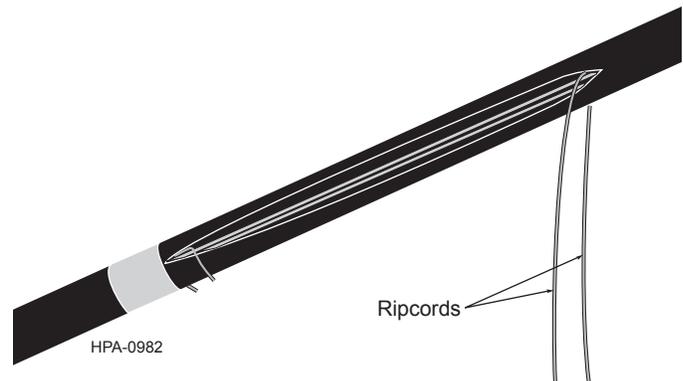


Figure 19

Step 5: Using the shaft of a screwdriver wrapped in friction tape as a handle, pull one ripcord at a time through the sheath to the opposite wrap of tape (Figure 20).

Step 6: Cut the ripcords flush at the tape wraps with scissors.

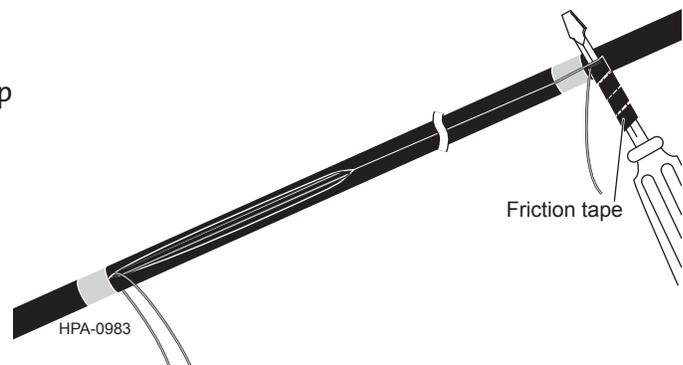


Figure 20

Step 7: At a point approximately 15 cm (6 in) from the tape wrap, use the hook blade knife to score a ring cut around the black outer sheath. Do not cut completely through the sheath (Figure 21).

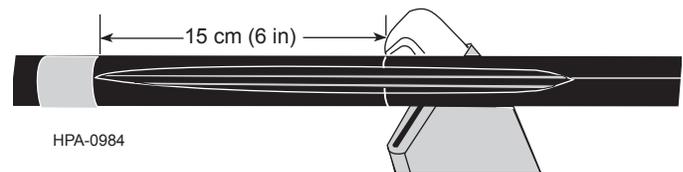


Figure 21

Step 8: 6.9 Using needle nose pliers, peel off both sections of the split sheath to the tape mark to expose a 15 cm (6 in) section of central tube. Use side cutters to remove the sheath sections flush with the tape wrap (Figure 22).

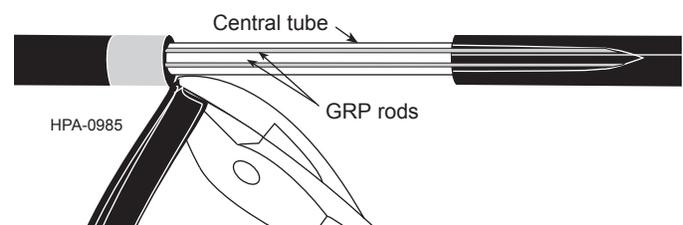


Figure 22

Step 9: Use side cutters to cut the GRP rods 15 cm (6 in) from the tape wrap (Figure 23).

Step 10: Using needle nose pliers, peel off both sections of split sheath to the opposite tape wrap. Use side cutters to remove the sheath sections flush with the tape wrap.

Step 11: Use the side cutters to cut the GRP rods 15 cm (6 in) from the other tape wrap (Figure 24).

Step 12: The Universal Access Tool III is designed to access the fibers of a single-tube cable in a mid-span location where slack is present (Figure 25). Use the UAT-III to remove the buffer tube as described in the manual provided with the tool, SRP-004-074, Universal Access Tool III Operating Instructions.

Step 13: Place a mark 15 cm (6 in) from the end of each side of the exposed section of central tube with a permanent marking pen (Figure 26). These mark locations will vary depending on the hardware being utilized.

NOTE: Depending upon the type of closure being used, assembly may be easier if you install cable mounting hardware and sealants at this time.

Step 14: Follow the UAT instructions to access the ribbons. After using a UAT III, the final result will look like Figure 27.

Step 15: To remove the water-swappable tape from the ribbons:

- Find the overlap opening for the water-swappable tape.
- Carefully separate the water-swappable tape from the ribbons.
- Use scissors to carefully cut the tape at the buffer tube ends, making sure not to cut any ribbons (Figure 28).
- If necessary, wipe the ribbons with a dry, lint free cloth or tissue.

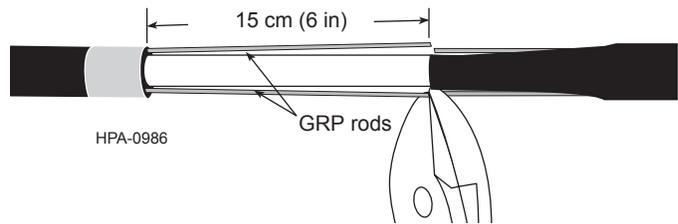


Figure 23

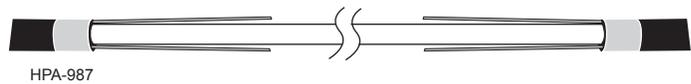


Figure 24

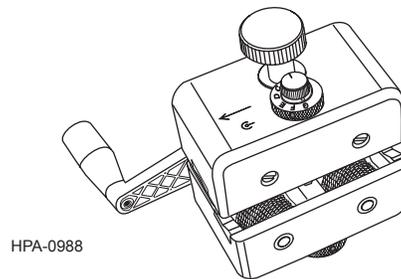


Figure 25

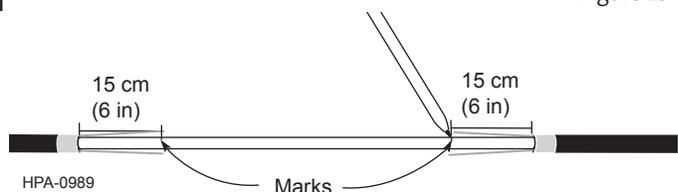


Figure 26

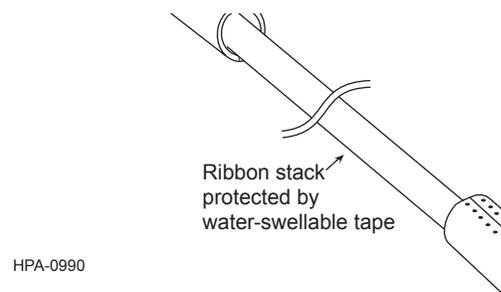


Figure 27

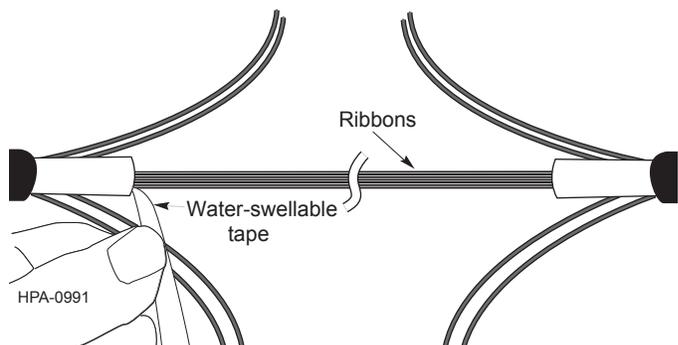


Figure 28

5.2 Accessing Ribbon Fibers in a Mid-Span Application

- Step 1:** If appropriate for your installation, divide the ribbon(s) using the Ribbon Splitting Tool (RST-000) (Figure 29).
- Step 2:** If an entire ribbon or section of divided ribbon can be cut at the mid-span point, refer to Section 7 in SRP-004-098, Ribbon Splitting Tool (RST-000) Instructions. If individual fibers are to be accessed at the mid-span-point, follow Section 8 of SRP-004-098.

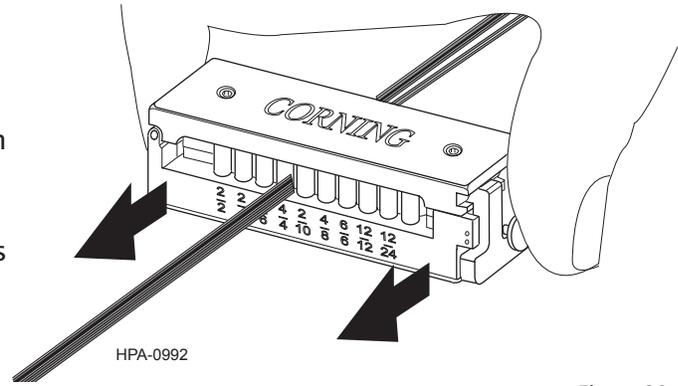


Figure 29

- Step 3:** Determine the end of the accessed fiber(s) to be cut by checking the system design splice plan and the feet/ meter marks printed on the cable sheath before cutting any fibers. As shown in Figure 30, typically you will cut the fiber ribbon at the end opposite the desired point of origin

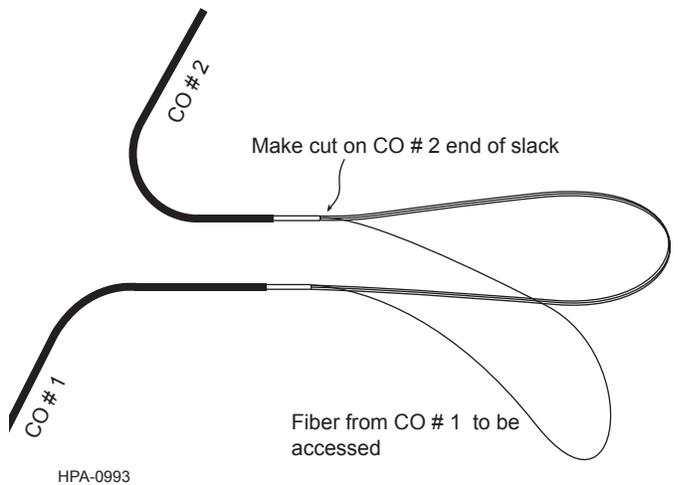


Figure 30

- Step 4:** Using scissors, cut the fiber(s) to be accessed as close as possible to the appropriate end of the central tube (Figure 31). USE EXTREME CARE TO CUT ONLY THE FIBER(S) TO BE ACCESSED.

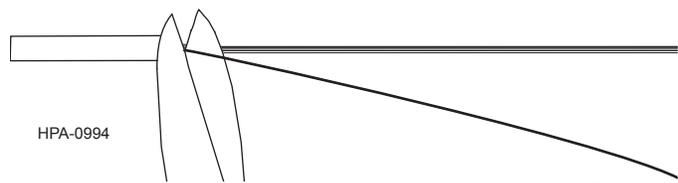


Figure 31

- Step 5:** Follow the closure or hardware manufacturer's instructions for central tube mounting and routing.
- Step 6:** Splice the fibers according to the system design plan.
- Step 7:** Complete the hardware or closure assembly according to its manufacturer's instructions.