

RECOMMENDED Procedure

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SP-F02-013 End Access and Mid-Span Access of Hostile Environment Cable, Issue 3

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1.0 General

This procedure describes the steps in accessing the optical fiber ribbons in Sumitomo Hostile Environment cables.

2.0 Safety Precautions

The use of safety equipment is strongly recommended during the cable preparation procedure. This includes the use of protective clothing and eyewear.

3.0 Tools Required

The following tools and materials are required to complete this procedure.

1. Tape Measure
2. Utility/Sheath Knife
3. Splicer's Knife
4. Tube Ring Cutter (Sumitomo P/N BTR-3)
5. Isopropyl Alcohol or Cable Cleaner
6. Paper Towels or Rags
7. Lineman's Scissors
8. Tube Slitter Tool (Sumitomo P/N TS-3 or TS-4)
9. Gloves
10. Safety Glasses
11. Needle Nose Pliers

4.0 Outer Sheath Removal

4.1 End Entry

Measure the required amount of cable to be stripped (typically 6 - 8 feet) and ring cut the outer sheath with the utility knife or sheath knife. Bend the sheath gently at the cut to separate the copper armor.

CAUTION: Be sure to cut through the outer sheath and score the armor layer, but do not cut the inner sheath.

Repeat the procedure approximately 4 inches (10 cm) from the cable end. Cut the outer sheath length wise with the utility knife and remove to expose the copper armor.

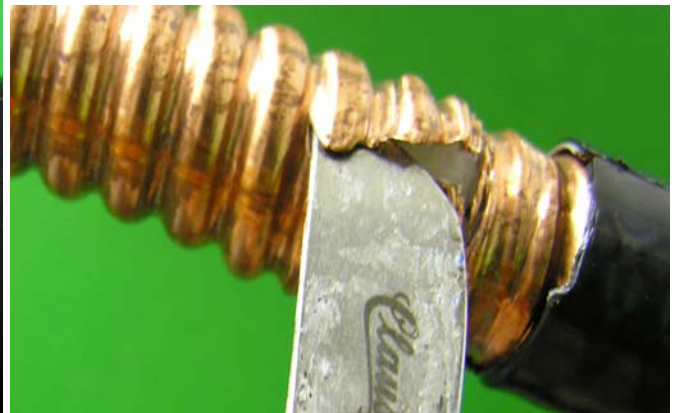
Remove Copper Armor

To remove the copper armor insert the splicer's knife into the ring cut in the armor as shown below. When choosing a point for the splicer's knife be sure that the rip cord is away for the blade. Once the cut is started turn the splicer's knife completely perpendicular to the cable to protect the tube below the copper armor from damage.

Tap the back of the knife with a hammer or what you have available. A lot of force is not required. Once the cut reaches the end of the cable remove the copper sheath with a pair of pliers to avoid injury.



Placement of the blade to begin the cut.



Positioning of the blade to finish the cut.

Wrap the ripcord around the needle nose pliers and pull back 6 - 8 feet to the ring cut. Remove the split sheath and armor from the cable by holding the cable straight and pulling on the sheath and armor so that it peels back.

NOTE: The aramid fiber rip cord is susceptible to breaking if pulled perpendicular against the sharp edge of the needle nose pliers. If possible, wrap the cord 2-3 times around the pliers and pull against the rounded edge. Also, making a notch in the armor with a sheath knife to start the ripcord tear is recommended.

The water blocking tape can also be removed at this time.

4.2 Mid-Span Entry

Measure and mark the appropriate length of the window to be opened in the cable for the particular application.

With the utility knife, ring cut the jacket at both marks and once more approximately 6 inches from one of the marks. Bend the sheath gently at the cuts to separate the copper armor.

Using a utility knife or hook blade, make a longitudinal cut between the 6 inch cut and the other cut. Remove the jacket and the copper armor exposing the 6 inch window of inner sheath as shown below in Figure 1. Use the same copper removal method as described above.

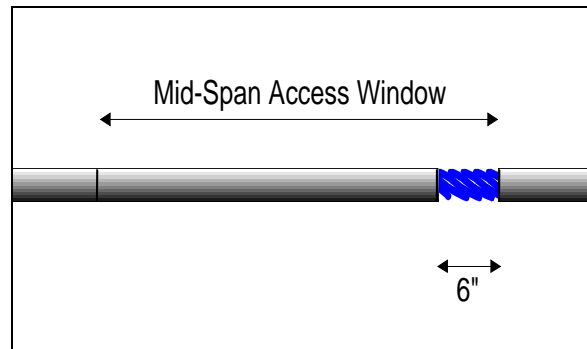


Figure 1.

Wrap the ripcord around the needle nose pliers and pull back to the ring cut. Remove the split sheath and armor from the cable by holding the cable straight and pulling on the sheath and armor so that it peels back.

NOTE: The aramid fiber rip cord is susceptible to breaking if pulled perpendicular against the sharp edge of the needle nose pliers. If possible, wrap the cord 2-3 times around the pliers and pull against the rounded edge. Also, making a notch in the armor with a sheath knife to start the ripcord tear is recommended.

4.3 Bonding and Grounding

Cut and peel back enough outer jacket from the copper sheath on all ends to expose the bare copper for grounding lug attachment. Follow local grounding requirements and specific closure procedures.

5.0 Inner Sheath Removal

5.1 End Entry

Ring cut the clear inner sheath with the utility knife approximately 4 inches (10 cm) from the cable end. Be careful not to score entirely through the jacket so as to cut the ripcords. Using a utility knife or hook blade, make a longitudinal cut between the ring cut and the cable end. Pull the inner sheath from the cable end exposing the inner sheath ripcord.

Wrap the ripcord around the needle nose pliers and pull back to the prescribed distance from the cable butt. Again, notching the inner jacket to start the ripcord tear is recommended.

Remove the split inner sheath. Helically wrapped strength elements can then be pulled back and cut to the required length for splice closure termination. If unknown, cut them to 12 inches in length. The water blocking tape can also be cut and removed.

5.2 Mid-Span Entry

With the utility knife, ring cut the jacket at both ends of the window and once more approximately 6 inches from one of the ends.

Using a utility knife or hook blade, make a longitudinal cut between the 6 inch cut and the other cut. Remove the inner jacket exposing the inner ripcords.

Wrap the ripcord around the needle nose pliers and pull back to the ring cut. Again, notching the inner jacket to start the ripcord tear is recommended. Remove the split inner sheath to expose the helically wrapped strength elements as shown in Figure 2. The strength elements can then be pulled back and cut to length for closure termination as shown in Figure 3. The water blocking tape can also be cut and removed.

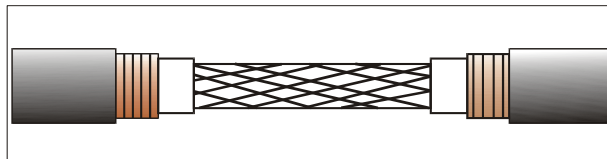


Figure 2.

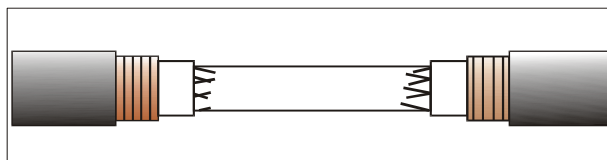


Figure 3.

6.0 Central Buffer Tube Entry

6.1 End Entry

Carefully ring cut the central buffer tube with the BTR-3 tube ring cutter. The cutter blade should cut almost but not entirely through the tube. The location of the ring cut will depend on the length of exposed tube desired in the particular splice closure.

Gently bend the tube at the ring cut. The tube will fracture and separate.

The central buffer tube can now be pulled from the end of the cable, exposing the optical fiber ribbons as shown in Figure 4.

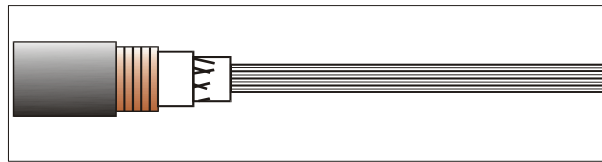


Figure 4.

The ribbons can be cleaned with D-Gel[®], isopropyl alcohol, or other commercially approved cable cleaning solvent and a clean rag.

Each ribbon contains individual fibers that are held together by a matrix encapsulant. Multiple ribbons are stacked adjacent to each other within the central buffer tube. Individual ribbons can be easily removed from the stack and handled. Each ribbon has a unique marking code to provide unit identification.

6.2 MidSpan Entry

Choose the appropriate tube slitter according to Table 1.

Table 1. Tube Diameters and Slitters

Fiber Count	ID/OD (mm)	Tube Slitter
12 - 96	6.5/8.0	TS-2
108 - 216	8.8/10.5	TS-3
288 - 432	12.6/14.6	TS-4

Adjust the tube slitter's blade depth with the supplied gauge tool. If the blades fully penetrate the tube wall, there is a chance of damaging the fibers. The gauge tool sets the blades' depth for the exact wall thickness. Follow the tool's supplied documentation for detailed instructions on the proper tool usage.

Firmly pull the slitter in the direction of the "PULL" arrow to make a longitudinal cut in the central buffer tube for the desired length. Make sure to fully compress the slitter to ensure that a proper cut is made in the tube.

IMPORTANT: Make sure that when placing the buffer tube in slitter tool, the “PULL” arrow (marked on side of slitter tool) is pointing in the direction you will be slitting the tube.

Carefully, score and snip away both tube halves with the tube ring cutter, and clean the ribbons as necessary with cable cleaner or isopropyl alcohol and a clean rag.