

# RECOMMENDED Procedure

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## SP-F02-013 End Access and Mid-Span Access of Hostile Environment Cable Using ACS - Armored Cable Slitter Tool, Issue 5

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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.

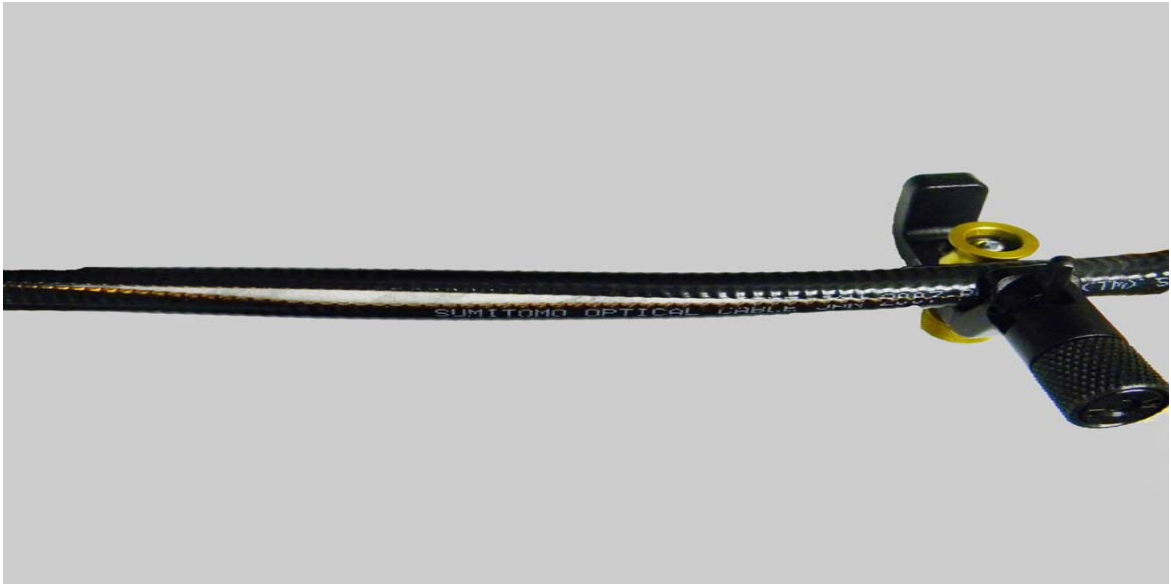
1. Tape Measure
2. Utility/Sheath Knife
3. Splicer's Knife
4. Tube Ring Cutter (Sumitomo P/N# BTR-3)
5. Isopropyl Alcohol or Cable Cleaner
6. Paper Towels or Cloth
7. Lineman's Scissors
8. Tube Slitter Tool (Sumitomo P/N# UCTS-001)
9. ACS - Armored Cable Slitter (Sumitomo P/N# ACS-001)
10. Gloves
11. Safety Glasses
12. Needle Nose Pliers

### 4.0 Outer Sheath and Armor Removal

#### 4.1 End Entry

Measure the required amount of cable to be stripped (typically 6 - 8 feet) and mark the outer sheath. Use the Armored Sheath Slitter tool (Sumitomo P/N# ACS-001) to cut from the mark

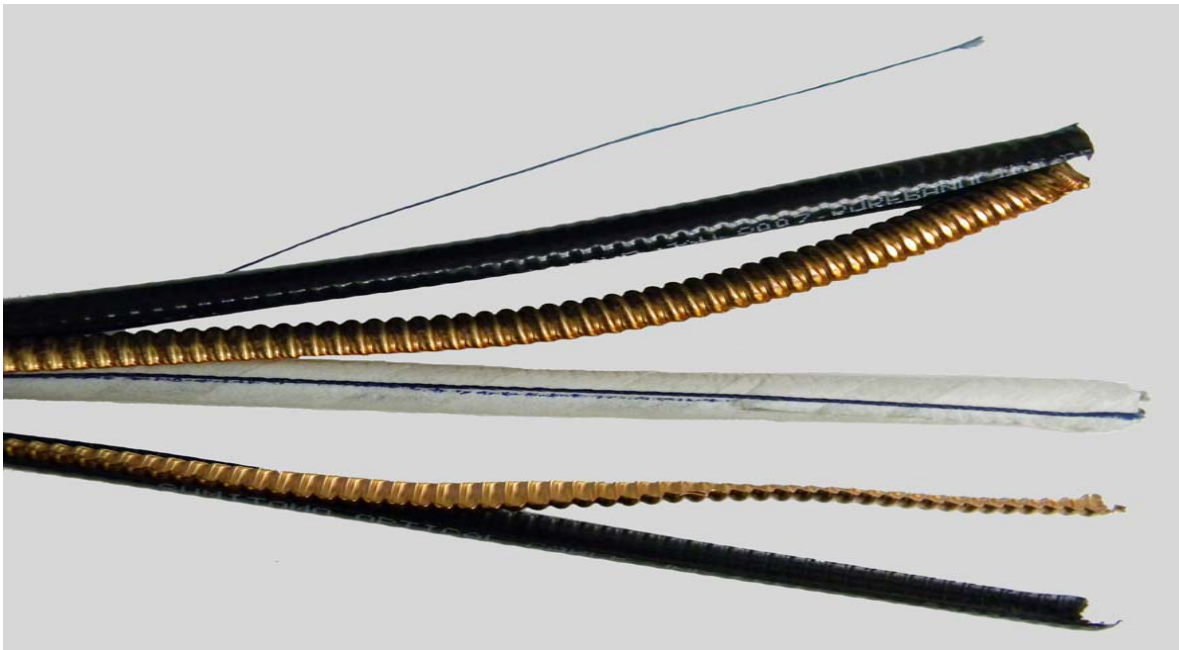
longitudinal to the end of the cable. With the proper blade depth this will cut both the sheath and armored copper. (See Fig 1)



*Fig. 1*

**CAUTION:** Be sure to cut through the outer sheath and armor layer, but do not cut the inner sheath. Make sure blade depth is correct.

Repeat the procedure approximately 180 degrees on the cable from the cable mark. Cut the outer sheath and copper armor longitudinal with the ACS - Armored Cable Slitter tool (Sumitomo P/N# ACS-001) and remove to expose the internal cable jacket. (See Fig. 2)



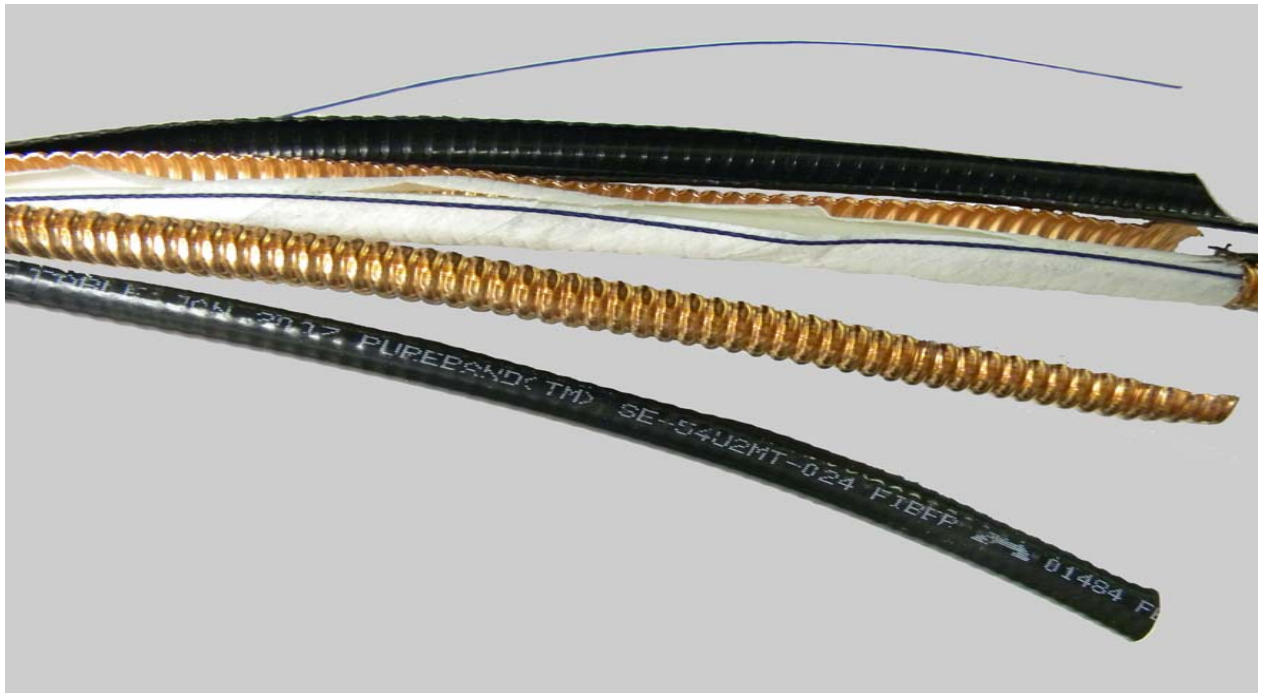
*Fig. 2*

## 4.2 Mid-Span Entry

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

With the ACS - Armored Cable Slitter tool (Sumitomo P/N# ACS-001) cut the jacket and copper armor longitudinal from mark to mark using correct blade depth, then move the tool 180 °and repeat. Bend the sheath gently at the cuts to separate the sheath and copper armor.

Use a utility knife and diagonal cutters to remove the jacket and the copper armor exposing the inner sheath. (See Fig. 3)



*Fig. 3*

## 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 a 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.

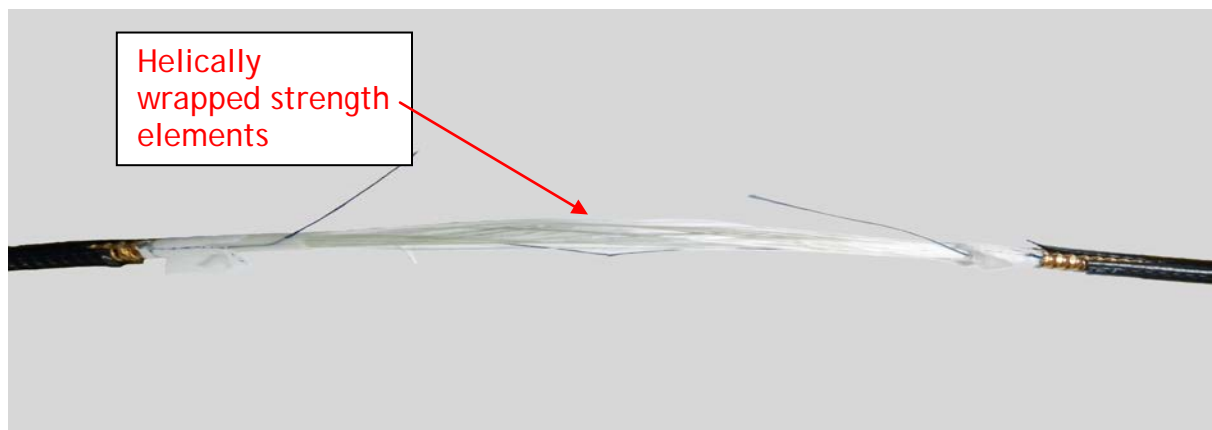
Remove the split inner sheath. Helically wrapped strength elements can then be pulled back and cut to the required length for splice closure termination. If unknown, cut them to 12 inches in length. The water blocking tape can also be cut and removed.

## 5.2 Mid-Span Entry

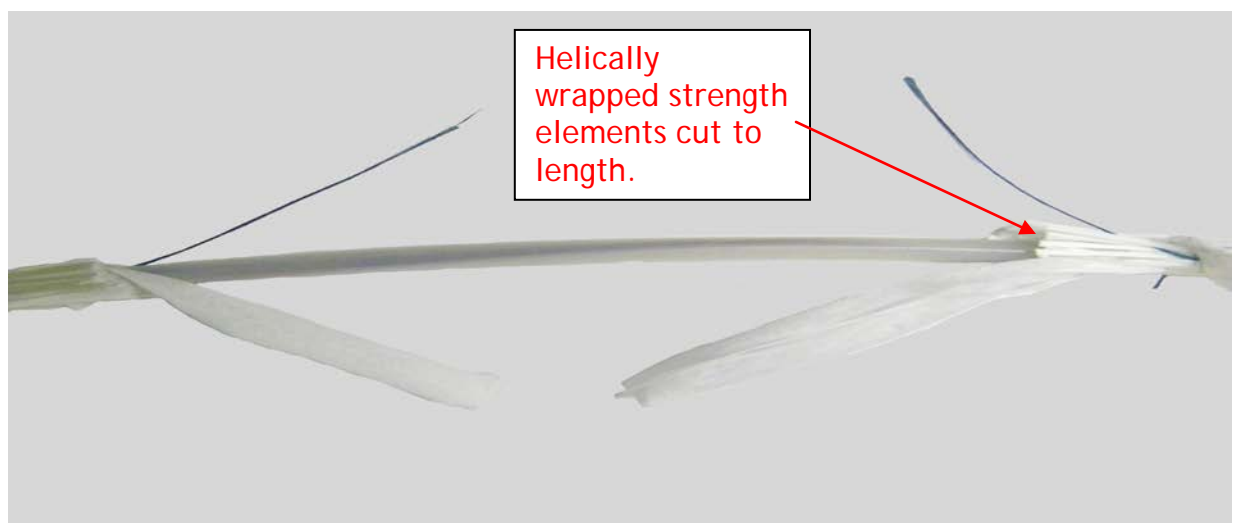
With the utility knife, ring cut the jacket at both ends of the window and once more approximately 6 inches from one of the ends.

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 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-3or TS tool. 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<sup>®</sup>, isopropyl alcohol, or other commercially approved cable cleaning solvent and a clean lint free cloth.

Each ribbon contains individual fibers that are held together by a matrix encapsulate. 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.

#### 6.1.1 Ribbon Cleaning

**6.1.1.1** At no time during the cleaning operation should the ribbon be bent beyond its minimum bending radius. Do not wrap the ribbon around your finger.

6.1.1.2 Remove the bulk of the filling compound by carefully wiping each ribbon individually with a dry lint free wipe or cloth.

6.1.1.3 Soak a lint free wipe or cloth with filling compound remover and then carefully wipe each ribbon twice using medium pressure.

6.1.1.4 Any residual filling compound should then be removed using dry lint free wipes or cloth. The use of D-Gel<sup>®</sup> cable cleaning solvent or isopropyl alcohol to remove filling compound is recommended. Always be sure to remove any leftover solvent from the ribbons with a dry lint free wipe or cloth.

6.1.1.5 Allowing ribbons to remain in contact with solvents for an extended time could potentially cause damage to the ribbon matrix or fiber coating

**NOTE:** Vigorous cleaning of the ribbon stack or multiple ribbons at the same time can create excessive twisting or crushing forces which can potentially damage the ribbon structure. Detailed cleaning should be performed on individual ribbons.

## 6.2 Mid-Span Entry

Choose appropriate UCTS-001 blade setting based on tube size below according to Table 1.

*Table 1 Tube Diameters and Slitters*

Fiber Count	ID/OD (mm)	Tube Slitter
12 - 96	6.5/8.0	UCTS-001 Dial Setting 2.05 Small Slitting Channel
108 - 216	8.9/10.5	UCTS-001 Dial Setting 2.25 Small Slitting Channel
288 - 432	12.6/14.6	UCTS-001 Dial Setting 0.25 Large Slitting Channel

Adjust slitter's blade depth with supplied instructions. If the blades fully penetrate the tube wall, there is a chance of damaging the ribbon fibers. The correct dial gauge sets the blades' depth for the exact wall thickness.

**NOTE:** Always reset blade depth back to "0" setting when changing tube sizes. Always make a test cut before proceeding.

Make a longitudinal cut in buffer tube with slitter. Make sure to hold steady pressure on the UCTS tool to ensure that the tube is properly cut.

Carefully, snip away both tube halves. An additional ring cut with the UCTS tool can be made to obtain a smooth end. Clean the ribbons as necessary with D-Gel<sup>®</sup> cable cleaner or isopropyl alcohol and a clean lint free cloth.