

# RECOMMENDED Procedure

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## SP-F02-006 LITEPIPE™ Armorlux® & ADS™ Ribbon Cable Mid-Span Preparation, Issue 7

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### 1.0 General

For some applications, being able to access a fiber from the middle of a cable without disturbing the other fibers is necessary. This technique is called Mid-Span access. The central buffer tube construction of Sumitomo's LITEPIPE™ cables allows for this to be easily accomplished. This procedure describes the steps in performing a Mid-Span access in either an armored (ARMORLUX®) or all-dielectric (ADS™) sheath LITEPIPE™ cables.

### 2.0 Safety Precautions

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

**2.2** To protect the hands, gloves are recommended when handling the steel armor.

### 3.0 Reference Documents

**SP-F01-001** *Cable Placing*

**SP-FO1-008** *Methods to Figure-8 and Coil Cables*

### 4.0 Tools Required

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

1. Tape Measure
2. Utility Knife
3. Wire Cutters
4. Paper Towels
5. Marking Pen
6. Cable Cleaner or Solvent

7. Buffer Tube Remover / Coaxial Cutter
8. Needle Nose Pliers
9. Tube Slitter
10. Gloves
11. Safety Glasses
12. Gauze Pads

## 5.0 Cable Preparation

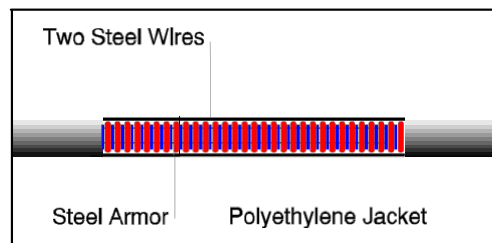
### 5.1 Armored Sheath Removal

**5.1.1** Measure and mark the appropriate length of cable to be cleaned back for the particular application (splicing: typically 8 feet, pulling eyes: 6 inches).

**5.1.2** With the utility knife, ring cut the jacket once at the mark and again approximately 12 inches towards the cable end.

**5.1.3** By bending the cable, the location of the two steel wires can be determined.

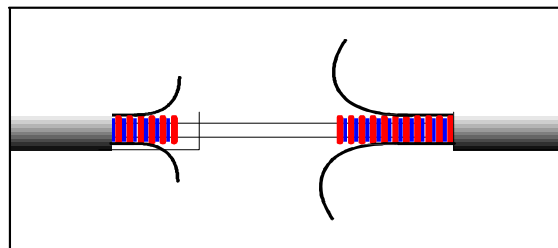
**5.1.4** Using a sharp utility knife, shave off the jacket material over the two wires between the two ring cuts. Using pliers, remove the remaining jacket between the two ring cuts.



*Figure 1*

**5.1.5** Midway along the exposed area, cut both steel wires with wire cutters. Be sure to leave enough wire on the inside end for grounding or pulling eye attachment (refer to appropriate procedures for necessary lengths). Bend back the wires to expose the corrugated armor.

**5.1.6** Open a window in the steel armor by scoring the armor with the utility and peeling it off with needle nose pliers. This will expose the ripcord underneath the armor.



*Figure 2*

**NOTE:** For most pulling eye installations, the armor, tube and fibers can be cut away

leaving only the two steel wires for attachment. Follow procedures for pulling eye attachments.

**5.1.7** Scrape off the plastic coating on the steel armor with a utility knife. This will allow for proper grounding connections.

**5.1.8** If local grounding practices require, make a small cut in the armor adjacent to the ripcord and slit approximately 1 to 1.5 inches of the armor to provide a grounding access.

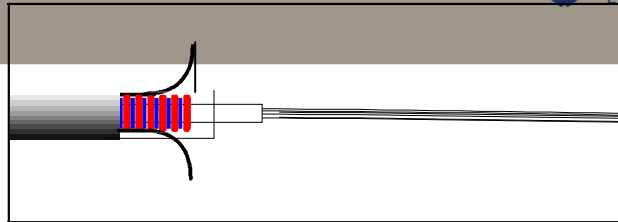
**5.1.9** Cut away the excess ripcord.

**5.1.10** Find the appropriate tube size according to Table 1. Please refer to Sumitomo instructions for UCTS tool for blade depth settings. **Note: These are approximate blade depth settings. Perform a test cut before proceeding.** Score the tube 1” away from the end of the cable armor, cutting approximately 3/4 of the way through the plastic. Avoid cutting completely through the plastic as this may damage the fibers. Bend the tube gently at the score to cleanly separate the tube.

Fiber Count	ID/OD (mm)	Tube Slitter
12 – 48	5.8/7.1	UCTS-001 Dial Setting 1.87 Small Slitting Channel
60 – 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
240 – 432	12.6/14.6	UCTS-001 Dial Setting 0.25 Large Slitting Channel
456 – 576	14.8/16.8	UCTS-001 Dial Setting 0.80 Large Slitting Channel
612 – 864	16.5/18.5	UCTS-001 Dial Setting 1.25 Large Slitting Channel

**Table 1**

**5.1.11** While holding the ribbon stack carefully slide the tube, rods and jacket off to expose the optical fibers.



*Figure 3*

**5.1.12** Then place 1 inch or more of B-Sealant into the center tube for both cable ends within the closure.

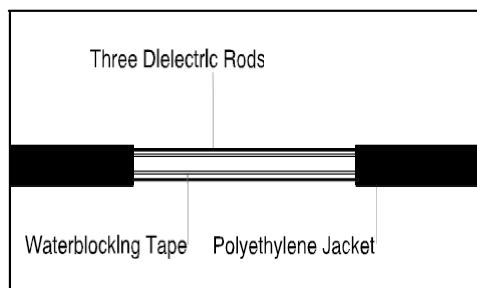
## **5.2 All-Dielectric Sheath Removal**

**5.2.1** Measure and mark the appropriate length of cable to be cleaned back for the particular application (splicing - typically 8 feet).

**5.2.2** With the utility knife, ring cut the jacket once at the mark and again approximately 12 inches towards the cable end.

**5.2.3** By bending the cable, the location of the two sets of dielectric strength rods can be determined.

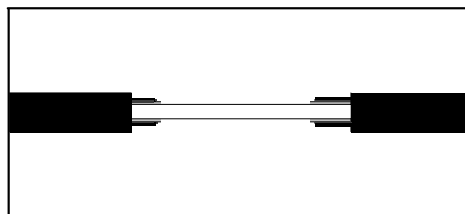
**5.2.4** Using a sharp utility knife, shave off the jacket material over the dielectric strength rods between the two ring cuts. Using pliers, remove the remaining jacket between the two ring cuts.



*Figure 4*

**5.2.5** Midway along the exposed area cut all dielectric strength rods with wire cutters. Be sure to leave enough rod length for attachment in the closure (refer to appropriate closure procedures for the necessary lengths). The water blocking tape will be exposed.

**5.2.6** Cut the water blocking tape layer at both ends of the opened window and remove it to expose the tube underneath.



*Figure 5*

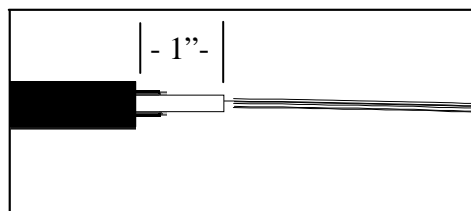
**5.2.7** Since this cable construction contains no metallic elements, grounding is not necessary.

**5.2.8** Find the appropriate tube size according to Table 2. Please refer to Sumitomo instructions for UCTS tool for blade depth settings. **Note: These are approximate blade depth settings. Perform a test cut before proceeding.** Score the tube, cutting approximately 3/4 of the way through the plastic. Avoid cutting completely through the plastic as this may damage the fibers. Bend the tube gently at the score to cleanly separate the tube.

Fiber Count	ID/OD (mm)	Tube Slitter
12 - 48	5.8/7.1	UCTS-001 Dial Setting 1.87 Small Slitting Channel
60 - 96	6.5/8.0	UCTS-001 Dial Setting 2.05 Small Slitting Channel
108 - 144	7.4/8.7	UCTS-001 Dial Setting 2.25 Small Slitting Channel
156 - 216	8.9/10.5	UCTS-001 Dial Setting 2.25 Small Slitting Channel
240 - 288	10.5/12.5	UCTS-001 Dial Setting 0.00 Large Slitting Channel
312 - 432	12.6/14.6	UCTS-001 Dial Setting 0.25 Large Slitting Channel
468 - 864	16.5/18.5	UCTS-001 Dial Setting 1.25 Large Slitting Channel

**Table 2**

**5.2.9** While holding the ribbon stack carefully slide the tube, rods and jacket off to expose the optical fibers.



**Figure 6**

**5.2.10** Then place 1 inch or more of B-Sealant into the center tube for both cable ends within the closure.

## 6.0 Fiber Ribbons

Each ribbon contains individual fibers that are held together by a matrix encapsulant. Multiple ribbons are stacked adjacent to one another within the LITEPIPE™ 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 Ribbon Cleaning

**6.1.1** 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.

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

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

**6.1.4** Any residual filling compound should then be removed using dry lint free wipes or cloth. The use of D-Gel® 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.

**6.1.5** 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.