

RECOMMENDED Procedure

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SP-F02-006 LITEPIPE™ Mid-Span Sheath Cable Preparation, Issue 5

Contents	Page
1.0 General.....	1
2.0 Safety Precautions	1
3.0 Reference Documents	1
4.0 Tools Required	2
5.0 Sheath Removal.....	2-3
6.0 Central Buffer Tube Entry	3
7.0 Fiber Unit Identification and Routing	4

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.

Since LITEPIPE™ cables can contain loose fiber bundles or 12 fiber ribbons, this procedure provides instruction for both types of fiber units.

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-F02-004 *LITEPIPE™-ARMORLUX® Sheath Cable Preparation.*

SP-F02-005 *LITEPIPE™-ADS™ Sheath Cable Preparation.*

SP-F02-007 *Ribbon Access Procedures.*

SP-F02-012 *Tube Slitter Procedures.*

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 Sheath Removal

5.1 Measure and mark the appropriate length (typically 2 meters) of the window to be opened in the cable for the particular application.

5.2 With the utility knife, ring cut the jacket at both marks and once more approximately 6 inches from one of the marks. Take care in not cutting too deeply for this may damage either the ripcords or central buffer tube below.

5.3 By bending the cable, the location of the strength elements can be determined.

5.4 Using a sharp utility knife, shave off the jacket material over the strength elements between the 6-inch cut and the other cut. Using pliers, remove the remaining jacket between these two ring cuts.

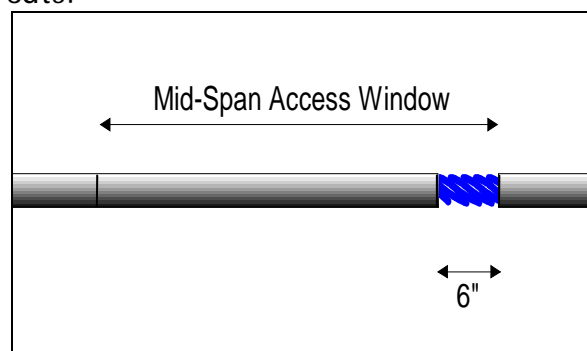


Figure 1.

5.5 Using a blunt edged object such as the needle nose pliers, grab each ripcord located along the strength element(s) and slit open the remainder of the jacket between the two marks. Sometimes providing a notch in the jacket edge with the utility knife will help the ripcord get started. Remove the jacket between the two ring cuts.

5.6 Cut the strength elements at both ends of the window with wire cutters. Leave enough wire/rod length for anchoring the cable within the splice closure (typically 6 inches).

5.7 FOR LITEPIPE™-ARMORLUX® CABLES ONLY: Gently bend back the wires on each end to expose the corrugated armor. Score the armor on each end with the utility knife and peel it off with needle nose pliers. Be sure to leave enough wire and armor on each end for grounding (refer to appropriate procedures for necessary lengths). Remove any excess cable flooding gel from the central buffer tube using the paper towels and cable cleaner solvent.

5.8 FOR LITEPIPE™-ADST™ CABLES ONLY: Cut the water blocking tape layer at both ends of the opened window and remove it.

6.0 Central Buffer Tube Entry

6.1 Choose the appropriate tube slitter according to Table 1.

Table 1. Tube Diameters and Slitters

Tube	Fiber Count	ID/OD (mm)	Tube Slitter
"N"	12 - 48	6.5/7.1	TS-1.5
"N"	60 - 96	6.5/8.0	TS-2
"O"	108 - 216	8.8/10.5	TS-3
"P"	240 - 432	12.6/14.6	TS-4
"P"	456 - 576	14.8/16.8	TS-4
"R"	612 - 864	16.9/18.9	TS-6

NOTE: Cable types shown in Table 1 depict standard designs. Check tube dimensions to ensure that the correct accessories are chosen.

6.2 Adjust the 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.

6.3 Make a longitudinal cut in the buffer tube with the slitter. Make sure to fully compress the slitter to ensure that a proper cut in the tube is made.

6.4 Carefully snip away both tube halves.

7.0 Fiber Unit Identification and Routing

7.1 Fiber Bundles

7.1.1 For LITEPIPE™ cables containing more than 6 fibers, the fibers will be grouped together by uniquely colored thread binders. For routing these fibers through closures, a unit splitter may be necessary. The unit splitter acts as an intersection where all the fibers coming from the cable's single tube are split up and placed into smaller tubes. See procedure SP-F03-001 for further details on installing unit splitters.

7.1.2 **IMPORTANT:** Before wiping the fibers to remove excess jelly, the fiber units need to be identified and separated. To do this, first have a second person hold the cable or clamp the cable to a workbench.

7.1.3 Carefully straighten out the fibers and locate one of the thread binders at the free end.

7.1.4 While keeping a small amount of tension on the fibers, pull on the thread binder until the fibers bound by that binder pull away from the other fibers. Carefully separate that fiber bundle from the others.

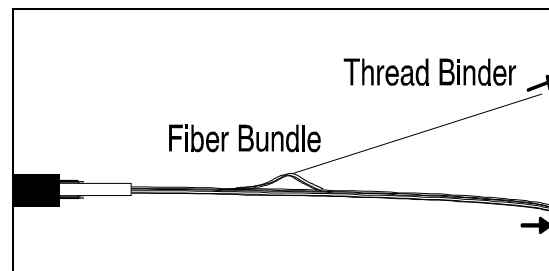


Figure 4.

NOTE: Typically a minimum of 1 meter of fiber needs to be exposed in order to separate the bundles.

7.1.5 Repeat step 7.1.4 until all fiber bundles have been separated.

7.2 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.