

# RECOMMENDED Procedure

Sumitomo Electric Lightwave Corp.  
Phone: 919-541-8100  
Toll Free: 800-358-7378  
Web: www.sumitomoelectric.com

## SP-F02-003 Loose Tube Cable Mid-Span Access, Issue 4

Contents	Page
1.0 General.....	1
2.0 Safety Precautions .....	1
3.0 Reference Documents .....	1
4.0 Tools Required .....	1-2
5.0 Sheath Removal.....	2
6.0 Before Tube Preparation .....	2-4
7.0 Buffer Tube Entry .....	4-5

### 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-San access. The Reverse Oscillating Lay (ROL) stranding of the buffer tubes in Sumitomo's Loose Tube cables allow for this to be easily accomplished. This procedure describes the steps in performing a Mid-Span access in either an armored or plain polyethylene sheathed Loose Tube cable.

### 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 steel armor.

### 3.0 Reference Documents

SP-F02-001 *Sumitomo Loose Tube Cable Preparation*

SP-F02-002 *Sumitomo Armored Loose Tube Cable Preparation*

### 4.0 Tools Required

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

1. Tape Measure
2. Utility Knife
3. Scissors
4. Paper Towels
5. Marking Pen
6. Cable cleaner or solvent
7. Needle Nose Pliers

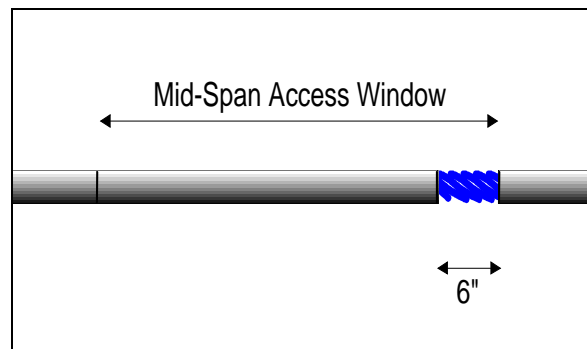
8. Buffer Tube Remover / Coaxial Cutter
9. Sumitomo BTS-TP1 Buffer Tube Access Tool
10. Thin Spatula
11. Gloves
12. Safety Glasses
13. Gauze Pads

## 5.0 Sheath Removal

5.1 Measure and mark the appropriate length of the window to be opened in the cable for the particular application, not to exceed 6ft. Environmental testing has shown that buffer tubes expressed more than 6ft. experience tube shrinkage that may cause attenuation increases at low temperatures.

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 ripcord or buffer tubes below.

5.3 Very carefully, using a utility knife or hook blade, make a longitudinal cut between the 6-inch cut and the other cut. Remove the PE jacket exposing the 6-inch window.



*Figure 1.*

5.4 Using a blunt edged object such as the needle nose pliers, grab the ripcord 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.

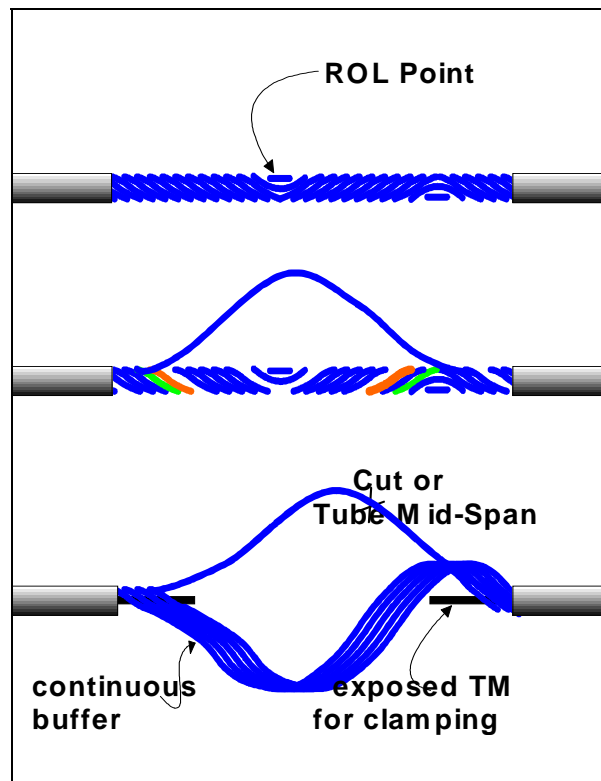
**NOTE:** For an armored sheath cable, repeat steps 5.02 through 5.04 on each sheath layer until the cable core is exposed.

5.5 Remove the water blocking tape from around the buffer tubes.

## 6.0 Buffer Tube Preparation

6.1 Cut the aramid yarn at one end of the window with electricians' scissors. Leave enough yarn length for anchoring the cable within the splice closure (typically 6 inches). Unwrap the aramid yarn from the cable core. Cut the excess yarn at the other end, again leaving enough yarn for the closure attachment.

6.2 Using the electricians' scissors, cut and remove any binders that are holding the buffer tubes.



*Figure 2.*

6.3 Locate an ROL point and the particular buffer tube that is to be accessed. Grab the tube at the ROL point and unwind it around the cable without cutting it or any other tubes.

6.5 Depending on the closure or application, the center strength member of the cable can be cut at this point to the required length.

## 7.0 Buffer Tube Entry

7.1 For accessing individual fibers in a buffer tube without cutting other fibers in that tube, a tube mid-span entry needs to be performed. Otherwise, cut the buffer tube and fibers with the electricians' scissors and use the standard procedure to remove the buffer tube from either end with the buffer tube removers.

7.2 To enter the buffer tube without cutting the fibers, a special tool for slitting the tube is necessary. Sumitomo recommends the use of the BTS-TP1 Buffer Tube Access Tool. Measure the buffer tube diameter to determine which size insert to use in the tool. For general reference, the table below can be used.

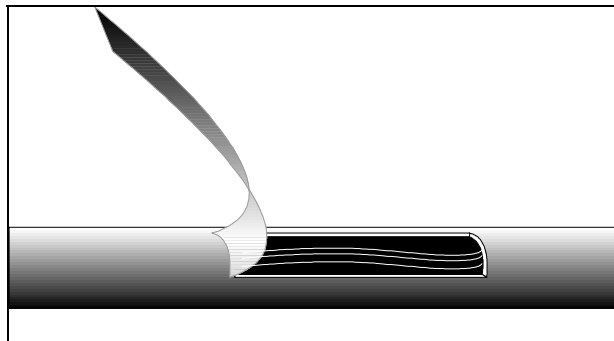
Sumitomo Cable Fiber Count	Sumitomo Buffer Tube Insert
2 - 36	1.8 mm
38-288	2.5 mm

*Table 1.*

**NOTE:** Sumitomo's BTS-TP1 Buffer Tube Access Tool uses a blade to take a slice out of the side of the buffer tube, exposing the uncut fibers.

7.3 Following procedures provided with the tool, open an access window in the side of the buffer tube. Make a window only as large as necessary for routing the fibers in the splice tray. Leave some buffer tube on the fibers for routing to purposes within the closure.

**HELPFUL HINTS:** Sumitomo recommends straightening out the buffer tube before using the buffer tube access tool.



*Figure 3.*

7.4 Using a thin spatula, pull the fibers out of the shaved buffer tube. Locate the fiber(s) of interest and cut if necessary.

**NOTE:** At this time, the shaved portion of the buffer tube can be cut away exposing all of the fibers or can be left to house the un-cut fibers.

7.5 The Mid-Span access procedure is complete. Follow closure assembly procedures or other procedures to finish installing the cable. Lay un-cut fiber in a splice tray and route the un-cut buffer tubes within the closure.