

## SUMITOMO RECOMMENDED PROCEDURE

### SRP SP-F02-035

#### Pliable Ribbon Indoor Riser Cable Preparation

<u>PARA.</u>	<u>CONTENTS</u>
1.0	General
2.0	Safety Precautions
3.0	Reference Documents
4.0	Tools Required
5.0	Sheath Removal
6.0	Fiber Unit Identification



**SUMITOMO ELECTRIC LIGHTWAVE CORP.**

201 South Rogers Lane, Suite 100, Raleigh, NC 27610

(919) 541-8100 or 1-800-358-7378

[www.sumitomoelectric.com.com](http://www.sumitomoelectric.com.com)

SEL is a Member of the Sumitomo Electric Industries, Ltd. Group

*Sumitomo Electric Lightwave reserves the right to improve or modify these specifications without notice.*

## 1.0 General

This procedure describes the standard techniques for preparing Pliable Ribbon - Indoor Riser fiber optic cable for placing and use in splice or termination shelves. This product utilizes the tube, a single central polyvinyl chloride buffer tube designed to accommodate up to 144 pliable 12 fiber ribbons. Two layers of dielectric strength elements are stranded around the central tube to provide tensile strength. All of this is covered by a polyvinyl chloride jacket.

## 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 fiberglass strength elements.

## 3.0 Reference Documents

**SP-F01-002** Installing Cable Pulling Grip

**SP-F01-002A** Grip Addendum for Ribbon Cables

**SP-F02-045** FreeForm Ribbon Matrix Removal Procedure

## 4.0 Tools Required

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

1. Tape Measure
2. Utility Knife
3. Electrician's Scissors
4. Marking Pen
5. Pliers
6. Gloves
7. Safety Glasses
8. UCTS-001 Universal Central Tube Slitter
9. Ripley's RCS-114 or RCS-158 Cable Stripper

## 5.0 Sheath Removal

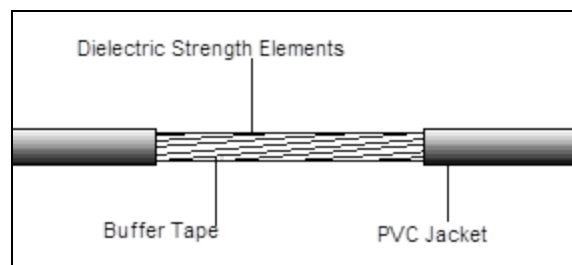
### 5.1 End Access

This procedure involves opening a window in the sheath at the desired distance from the cable end, exposing the central tube, ring cutting the central tube and then sliding the tube, strength elements and jacket off to expose the optical fiber ribbons. Refer to step by step instructions below.

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

5.1.2 Using the Ripley's RCS-114 or RCS-158 Cable Stripper, ring cut the jacket once at the mark and again approximately 12 inches towards the cable end.

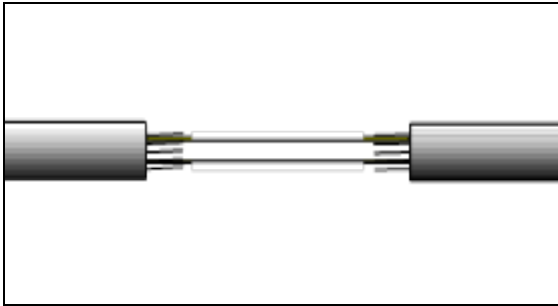
5.1.3 Using the Ripley's RCS-114 or RCS-158 Cable Stripper, make two longitudinal cuts along the sheath 180° apart between the two ring cuts. Using pliers, remove the two jacket halves between the ring cuts.



**Figure 1**

5.1.4 Midway along the exposed area, cut all of the dielectric strength elements with electrician's scissors. If required, be sure to leave enough rigid FRP tape length on the inside end for fixing in a closure or termination box (refer to appropriate procedures for necessary lengths).

5.1.5 Cut the buffer tape layer at both ends of the opened window and remove it to expose the tube underneath.

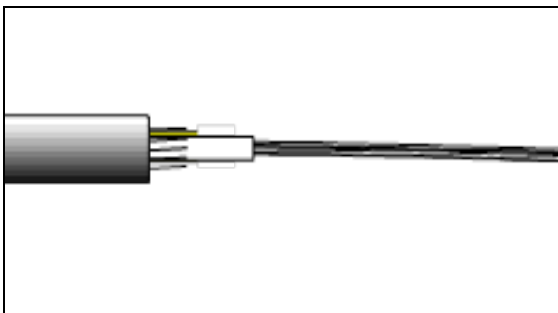


**Figure 2**

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

5.1.7 Using a standard buffer tube remover, coaxial cutter or UCTS-001 tool, ring cut the central tube leaving the appropriate length at the cable end (typically 2-4 inches). Score the tube, cutting ~3/4 of the way through the plastic. Avoid cutting completely through the plastic as this may damage the optical fiber ribbons. Bend the tube gently at the score to cleanly separate the tube.

5.1.8 Carefully slide the tube, strength elements and jacket off to expose the optical fiber ribbons.



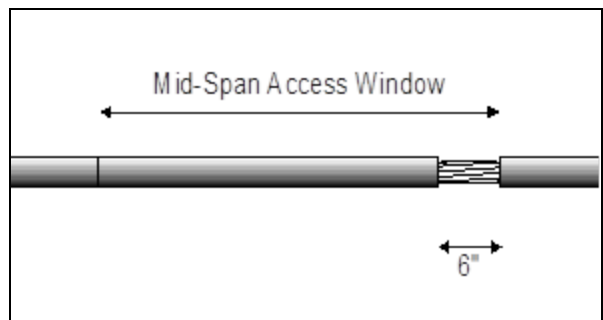
**Figure 3**

## 5.2 Mid-Span Access

5.2.1 Measure and mark the appropriate length (typically 8 feet) of the window to be opened in the cable for the particular application.

5.2.2 Using the Ripley's RCS-114 or RCS-158 Cable Stripper, 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.

5.2.3 Using the Ripley's RCS-114 or RCS-158 Cable Stripper, make two longitudinal cuts along the sheath 180° apart between the 6 inch cut and the other cut. Using pliers, remove the two jacket halves between these ring cuts.



**Figure 4**

5.2.4 Using a blunt edged object such as the pliers, grab each ripcord located along the strength elements and slit open the remainder of the jacket between the two marks.

**NOTE:** 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.

5.2.5 Cut the strength elements at both ends of the window with the electrician's scissors. If necessary, leave enough rigid FRP tape length for anchoring the cable within a splice closure or termination box (typically 6 inches).

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

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

Fiber Count	ID/OD (mm)	Tube Slitter
288	8.5/10.3	UCTS-001 Dial Setting 2.25 Small Slitting Channel
576	12.8/14.8	UCTS-001 Dial Setting 0.25 Large Slitting Channel
1728	16.6/18.6	UCTS-001 Dial Setting 1.25 Large Slitting Channel

**Table 1**

5.2. 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.

5.2.9 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.

5.2.10 Carefully snip away both tube halves. An additional ring cut with the buffer tube remover can be made to obtain a smoother end.

5.2.11 The 12 fiber ribbons are now exposed and ready for mass splicing.

## 6.0 Fiber Unit Identification

6.1 Each ribbon contains individually color coded fibers that are held together by a pliable matrix encapsulate. Each ribbon has a unique marking code to provide unit identification.

<b>FIBER COLOR CODE</b>	
FIBER #	COLOR
1	Blue
2	Orange
3	Green
4	Brown
5	Slate
6	White
7	Red
8	Black
9	Yellow
10	Violet
11	Rose
12	Aqua

6.2 To access individual fibers within a ribbon, please refer to Sumitomo Recommended Procedure SP-F02-045 FreeForm Ribbon Matrix Removal Procedure

See ribbon marking codes in **Tables 2 - 5** on pages 5 – 9.

<b>RIBBON MARKING - 72F BOUND UNITS</b>		
<b>RIBBON #</b>	<b>BUNDLE</b>	<b>MARKING</b>
1	Blue Binder	1 bar
2	Blue Binder	2 bars
3	Blue Binder	3 bars
4	Blue Binder	4 bars
5	Blue Binder	1 Short Block
6	Blue Binder	1 Short Block + 1 bar
7	Blue Binder	1 Short Block + 2 bars
8	Blue Binder	1 Short Block + 3 bars
9	Blue Binder	1 Short Block + 4 bars
10	Blue Binder	1 Long Block
11	Blue Binder	1 Long Block + 1 bar
12	Blue Binder	1 Long Block + 2 bars
13	Blue Binder	1 Long Block + 3 bars
14	Blue Binder	1 Long Block + 4 bars
15	Blue Binder	1 Long Block + 1 Short Block
16	Blue Binder	1 Long Block + 1 Short Block + 1 bar
17	Blue Binder	1 Long Block + 1 Short Block + 2 bars
18	Blue Binder	1 Long Block + 1 Short Block + 3 bars
19	Blue Binder	1 Long Block + 1 Short Block + 4 bars
20	Blue Binder	2 Long Blocks
21	Blue Binder	2 Long Blocks + 1 bar
22	Blue Binder	2 Long Blocks + 2 bars
23	Blue Binder	2 Long Blocks + 3 bars
24	Blue Binder	2 Long Blocks + 4 bars
25	Blue Binder	2 Long Blocks + 1 Short Block
26	Blue Binder	2 Long Blocks + 1 Short Block + 1 bar
27	Blue Binder	2 Long Blocks + 1 Short Block + 2 bars
28	Blue Binder	2 Long Blocks + 1 Short Block + 3 bars
29	Blue Binder	2 Long Blocks + 1 Short Block + 4 bars
30	Blue Binder	3 Long Blocks
31	Blue Binder	3 Long Blocks + 1 bar
32	Blue Binder	3 Long Blocks + 2 bars
33	Blue Binder	3 Long Blocks + 3 bars
34	Blue Binder	3 Long Blocks + 4 bars
35	Blue Binder	3 Long Blocks + 1 Short Block
36	Blue Binder	3 Long Blocks + 1 Short Block + 1 bar

Table 2

<b>RIBBON MARKING - 72F BOUND UNITS</b>		
<b>RIBBON #</b>	<b>BUNDLE</b>	<b>MARKING</b>
37	Blue Binder	3 Long Blocks + 1 Short Block + 2 bars
38	Blue Binder	3 Long Blocks + 1 Short Block + 3 bars
39	Blue Binder	3 Long Blocks + 1 Short Block + 4 bars
40	Blue Binder	4 Long Blocks
41	Blue Binder	4 Long Blocks + 1 bar
42	Blue Binder	4 Long Blocks + 2 bars
43	Blue Binder	4 Long Blocks + 3 bars
44	Blue Binder	4 Long Blocks + 4 bars
45	Blue Binder	4 Long Blocks + 1 Short Block
46	Blue Binder	4 Long Blocks + 1 Short Block + 1 bar
47	Blue Binder	4 Long Blocks + 1 Short Block + 2 bars
48	Blue Binder	4 Long Blocks + 1 Short Block + 3 bars
49	Blue Binder	4 Long Blocks + 1 Short Block + 4 bars
50	Blue Binder	1 Double Long Block
51	Blue Binder	1 Double Long Block + 1 bar
52	Blue Binder	1 Double Long Block + 2 bars
53	Blue Binder	1 Double Long Block + 3 bars
54	Blue Binder	1 Double Long Block + 4 bars
55	Blue Binder	1 Double Long Block + 1 Short Block
56	Blue Binder	1 Double Long Block + 1 Short Block + 1 bar
57	Blue Binder	1 Double Long Block + 1 Short Block + 2 bars
58	Blue Binder	1 Double Long Block + 1 Short Block + 3 bars
59	Blue Binder	1 Double Long Block + 1 Short Block + 4 bars
60	Blue Binder	1 Double Long Block + 1 Long Block
61	Blue Binder	1 Double Long Block + 1 Long Block + 1 bar
62	Blue Binder	1 Double Long Block + 1 Long Block + 2 bars
63	Blue Binder	1 Double Long Block + 1 Long Block + 3 bars
64	Blue Binder	1 Double Long Block + 1 Long Block + 4 bars
65	Blue Binder	1 Double Long Block + 1 Long Block + 1 Short Block
66	Blue Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 1 bar
67	Blue Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 2 bars
68	Blue Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 3 bars
69	Blue Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 4 bars
70	Blue Binder	1 Double Long Block + 2 Long Blocks
71	Blue Binder	1 Double Long Block + 2 Long Blocks + 1 bar
72	Blue Binder	1 Double Long Block + 2 Long Blocks + 2 bars

Table 3

<b>RIBBON MARKING - 72F BOUND UNITS</b>		
<b>RIBBON #</b>	<b>BUNDLE</b>	<b>MARKING</b>
73	Red Binder	1 bar
74	Red Binder	2 bars
75	Red Binder	3 bars
76	Red Binder	4 bars
77	Red Binder	1 Short Block
78	Red Binder	1 Short Block + 1 bar
79	Red Binder	1 Short Block + 2 bars
80	Red Binder	1 Short Block + 3 bars
81	Red Binder	1 Short Block + 4 bars
82	Red Binder	1 Long Block
83	Red Binder	1 Long Block + 1 bar
84	Red Binder	1 Long Block + 2 bars
85	Red Binder	1 Long Block + 3 bars
86	Red Binder	1 Long Block + 4 bars
87	Red Binder	1 Long Block + 1 Short Block
88	Red Binder	1 Long Block + 1 Short Block + 1 bar
89	Red Binder	1 Long Block + 1 Short Block + 2 bars
90	Red Binder	1 Long Block + 1 Short Block + 3 bars
91	Red Binder	1 Long Block + 1 Short Block + 4 bars
92	Red Binder	2 Long Blocks
93	Red Binder	2 Long Blocks + 1 bar
94	Red Binder	2 Long Blocks + 2 bars
95	Red Binder	2 Long Blocks + 3 bars
96	Red Binder	2 Long Blocks + 4 bars
97	Red Binder	2 Long Blocks + 1 Short Block
98	Red Binder	2 Long Blocks + 1 Short Block + 1 bar
99	Red Binder	2 Long Blocks + 1 Short Block + 2 bars
100	Red Binder	2 Long Blocks + 1 Short Block + 3 bars
101	Red Binder	2 Long Blocks + 1 Short Block + 4 bars
102	Red Binder	3 Long Blocks
103	Red Binder	3 Long Blocks + 1 bar
104	Red Binder	3 Long Blocks + 2 bars
105	Red Binder	3 Long Blocks + 3 bars
106	Red Binder	3 Long Blocks + 4 bars
107	Red Binder	3 Long Blocks + 1 Short Block
108	Red Binder	3 Long Blocks + 1 Short Block + 1 bar





Table 4

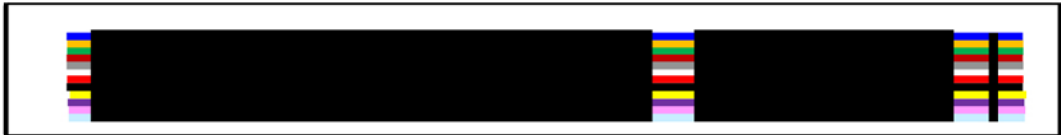
<b>RIBBON MARKING - 72F BOUND UNITS</b>		
<b>RIB #</b>	<b>BUNDLE</b>	<b>MARKING</b>
109	Red Binder	3 Long Blocks + 1 Short Block + 2 bars
110	Red Binder	3 Long Blocks + 1 Short Block + 3 bars
111	Red Binder	3 Long Blocks + 1 Short Block + 4 bars
112	Red Binder	4 Long Blocks
113	Red Binder	4 Long Blocks + 1 bar
114	Red Binder	4 Long Blocks + 2 bars
115	Red Binder	4 Long Blocks + 3 bars
116	Red Binder	4 Long Blocks + 4 bars
117	Red Binder	4 Long Blocks + 1 Short Block
118	Red Binder	4 Long Blocks + 1 Short Block + 1 bar
119	Red Binder	4 Long Blocks + 1 Short Block + 2 bars
120	Red Binder	4 Long Blocks + 1 Short Block + 3 bars
121	Red Binder	4 Long Blocks + 1 Short Block + 4 bars
122	Red Binder	1 Double Long Block
123	Red Binder	1 Double Long Block + 1 bar
124	Red Binder	1 Double Long Block + 2 bars
125	Red Binder	1 Double Long Block + 3 bars
126	Red Binder	1 Double Long Block + 4 bars
127	Red Binder	1 Double Long Block + 1 Short Block
128	Red Binder	1 Double Long Block + 1 Short Block + 1 bar
129	Red Binder	1 Double Long Block + 1 Short Block + 2 bars
130	Red Binder	1 Double Long Block + 1 Short Block + 3 bars
131	Red Binder	1 Double Long Block + 1 Short Block + 4 bars
132	Red Binder	1 Double Long Block + 1 Long Block
133	Red Binder	1 Double Long Block + 1 Long Block + 1 bar
134	Red Binder	1 Double Long Block + 1 Long Block + 2 bars
135	Red Binder	1 Double Long Block + 1 Long Block + 3 bars
136	Red Binder	1 Double Long Block + 1 Long Block + 4 bars
137	Red Binder	1 Double Long Block + 1 Long Block + 1 Short Block
138	Red Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 1 bar
139	Red Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 2 bars
140	Red Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 3 bars
141	Red Binder	1 Double Long Block + 1 Long Block + 1 Short Block + 4 bars
142	Red Binder	1 Double Long Block + 2 Long Blocks
143	Red Binder	1 Double Long Block + 2 Long Blocks + 1 bar
144	Red Binder	1 Double Long Block + 2 Long Blocks + 2 bars

Table 5



*Marking Pattern*

<i>1</i>	<i>5</i>	<i>10</i>	<i>50</i>
 <i>Bar</i>	 <i>"Short" Block</i>	 <i>"Long Block"</i>	 <i>"Double Long Block"</i>



The Above Designates Ribbon #61 (1 Double Long Block, 1 Long Block, 1 Bar)