

# CORNING

## MiniXtend®, MiniXtend® HD, and MiniXtend® XD Cable with Binderless\* FastAccess® Technology Jacket and Buffer Tube Removal Procedures

P/N 004-273-AEN, Issue 10

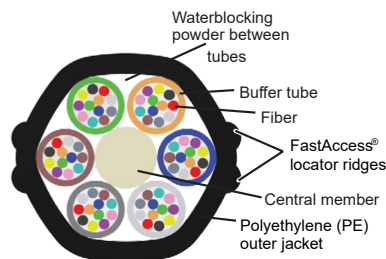
### 1. General

This document provides recommended jacket and buffer tube removal procedures for MiniXtend®, MiniXtend® HD and MiniXtend® XD cable with Binderless\* FastAccess® Technology.

Figure 1

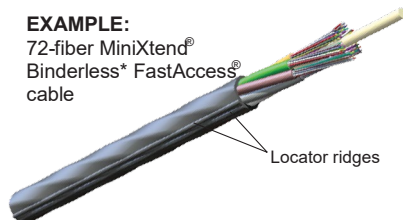
#### MiniXtend® Binderless\* FastAccess® cable

Nominal OD 5.4 mm (0.21 in)



#### EXAMPLE:

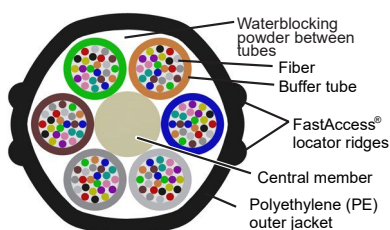
72-fiber MiniXtend® Binderless\* FastAccess® cable



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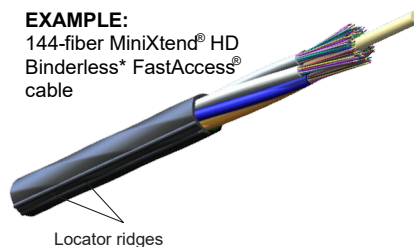
#### MiniXtend® HD Binderless\* FastAccess® cable

Nominal O.D. 6.3 mm (0.25 in)



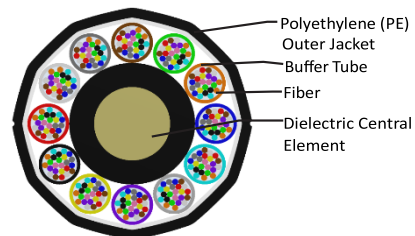
#### EXAMPLE:

144-fiber MiniXtend® HD Binderless\* FastAccess® cable



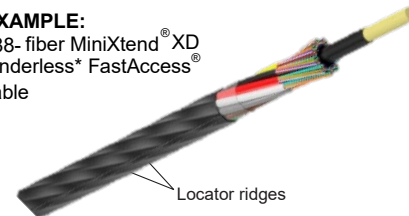
#### MiniXtend® XD Binderless\* FastAccess® cable

Nominal O.D. 8.2 mm (0.32 in)



#### EXAMPLE:

288-fiber MiniXtend® XD Binderless\* FastAccess® cable





\*Corning's proprietary Binderless FastAccess® technology refers to the combination of a Corning FastAccess technology jacket with an innovative technology used to bind cable construction through the manufacturing process, eliminating the use of binder yarns and waterblocking tapes.

Nominal Outer Diameter							
	Fiber Count						
	12-72	96	144	192	216	288	432
<b>MiniXtend Binderless FastAccess Cable</b>	5.4 mm (.21 in)	6.3 mm (.25 in)	8.1 mm (.32 in)				
<b>MiniXtend HD Binderless FastAccess Cable</b> 12F/1.13mm buffer tube for fiber counts 12-72 24 fibers/1.7mm buffer tube for fiber counts 144-288	4.5 mm (.18 in)		6.3 mm (.25 in)	7.5 mm (.30 in)	8.0 mm (.31 in)	9.7 mm (.38 in)	
<b>MiniXtend HD Binderless FastAccess Cable</b> 36 fibers/1.95 mm buffer tube						8.1 mm (.32 in)	10.8 mm (.43 in)
<b>MiniXtend XD Binderless FastAccess Cable</b> 24 fibers/1.4 mm buffer tube				6.2 mm (.24 in)	7.0 mm (.28 in)	8.2 mm (.32 in)	


<b>Fiber coloring</b>
1-12: blue, orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua
13-24 (all with one black ring mark): blue, orange, green, brown, slate, white, red, natural, yellow, violet, rose, aqua
25-36 (all with two black ring marks): blue, orange, green, brown, slate, white, red, natural, yellow, violet, rose, aqua
<b>Buffer tube color coding</b>
blue, orange, green, brown, slate, white, red, black, yellow, violet, rose, aqua
<b>Outer jacket material</b>
Polyethylene (PE)

## 2. Precautions

### 2.1 Cable Handling Precautions


	<b>CAUTION:</b> Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing. Do not bend the cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink. Doing so may cause damage that can alter the transmission characteristics of the cable; the cable may have to be replaced.
	<b>CAUTION:</b> This cable is intended to be jetted or blown into a microduct. If pulled ensure breakaway swivel is used that is attached with a basket grip to the central strength member (GRP). Adhere to the minimum bend radius of the cable; do not exceed the cable's specified maximum allowed installation tension.

### 2.2 Laser Handling Precautions


	<b>WARNING:</b> Never look directly into the end of a fiber that may be carrying laser light. Laser light can be invisible and can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious
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	damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.
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## 2.3 Safety Glasses

	<b>CAUTION:</b> Recommend the use of safety glasses (spectacles) conforming to ANSI Z87, for eye protection from accidental injury when handling chemicals, cables, or fiber. Pieces of glass fiber are very sharp and have the potential to damage the eye.
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## 2.4 Safety Gloves

	<b>CAUTION:</b> The wearing of cut-resistant safety gloves to protect your hands from accidental injury when using sharp-bladed tools and armored cable is strongly recommended. Use extreme care when working with severed armor. There will be a sharp edge where armor is cut. To minimize the chance of injury from the cut armor, cover the exposed edge with a wrap of electrical tape. To minimize the chance of injury from sharp-bladed tools, always cut away from yourself and others. Dispose of used blades and armor scrap properly.
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## 3. Tools and Materials

Tools for end- and mid-span cable access are available from two different companies: Ripley and Jonard. These companies also offer buffer tube access tools. The list of tools is provided in this section.

### Ripley Tools:

Ripley Part Number	Tool Name	Function
Tools by Ripley for MiniXtend® Cable with Binderless* FastAccess® 12-144 F and MiniXtend® HD Cable with Binderless* FastAccess® 144-432 F		
MB01-7000	MSAT® 16	Buffer tube removal – mid-span, long cut
80990	FTS-005	Buffer tube removal – ring cut for end of tube
MB01-7500 (1 pair of blades) MB01-7501 (5 pack)	MSAT® 16 replacement blade	Replacement blades
MB02-7001	MiniXtend® access tool	Midspan and end access & outer jacket removal - ring and long cuts, use 0.6mm insert
MB02-7500	Replacement Blades Kit for MB02 - 7001	Replacement Blades for MB02-7001

**NOTE:** For more information or to locate the nearest authorized Ripley® distributor, please visit [www.ripley-tools.com](http://www.ripley-tools.com) or call 1 (800) 528-8665 to speak to a customer service representative.

## Jonard Tools:

Jonard Part Number	Tool Name	Function
Tools by Jonard for MiniXtend® HD Cable with Binderless* FastAccess® 12F/buffer tube 12-72 F cables		
MS-316	MS-316	Mid-span and end outer jacket removal–ring and long cuts
MS-316RB	MS-316 Replacement blades	Replacement blades for MS-316
Tools by Jonard for MiniXtend® Cable with Binderless* FastAccess® 12F/tube 12-144 F cables and MiniXtend® HD Cable with Binderless FastAccess® 24F/ buffer tube 144-288 F cables		
MS-326	MS-326	Mid-span and end outer jacket removal – ring and long cuts
MSB-5010	MS-326 Replacement blades	Replacement blades for MS-326
MS-6	MS-6	Buffer tube removal – mid-span, long cut
MSB-1533	MS-6 Replacement blades	Replacement blades for MS-6
MS-306	MS-306	Buffer tube removal – ring and long cuts
MS-306RB	MS-306RB Replacement blades	Replacement blades for MS-306
Tools by Jonard for MiniXtend Cable with Binderless* FastAccess with 36 F/tube 288 F and 432 F cables:		
MS-336	MS-336	Mid-span and end outer jacket removal – ring and long cuts
MS-336RB	MS-336RB	Replacement Blades for MS-336
MS-6	MS-6	Buffer tube removal – mid-span, long cut
MSB-1533	MS-6 Replacement blades	Replacement blades for MS-6 tool
MS-306	MS-306	Buffer tube removal - ring and long cuts
MS-306RB	MS-306RB Replacement blades	Replacement blades for MS-306

**NOTE:** For more information or to locate the nearest authorized Jonard Tools distributor, please visit their website [www.jonard.com](http://www.jonard.com)

### 3.1 Cable Jacket Removal

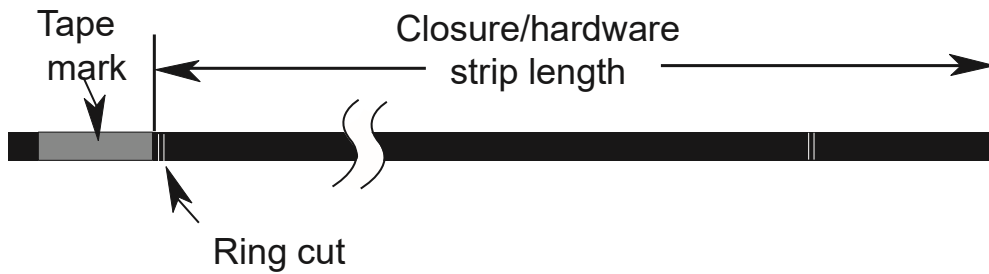
Other commonly used and available tools and materials include:

- Sharpie Pen (silver)
- Can of compressed air (to clean tools)
- Small scissors and snips
- Ruler
- Electrical tape

## 4. Cable End Access

### 4.1 Jacket Removal

**Step 1:** Based on the closure/hardware documentation being used, measure and use a wrap of vinyl tape to mark the required jacket removal length (Figure 2).



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*Not to scale*

Figure 2

#### 4.1.1 Using Standard Tools:

**Step 1:** Use needle-nose pliers or side-cutters to start tear (Figure 3).

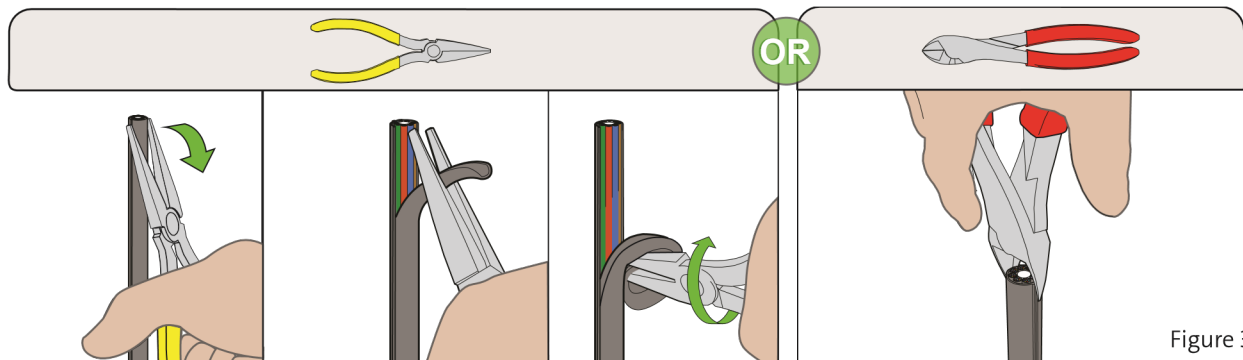


Figure 3

Figure 4

**Step 2:** With your fingers (Figure 4A), needle-nose pliers (4B), or sheath knife (4C), begin to peel back the split pieces of outer jacket at the end of the cable (Figure 4).

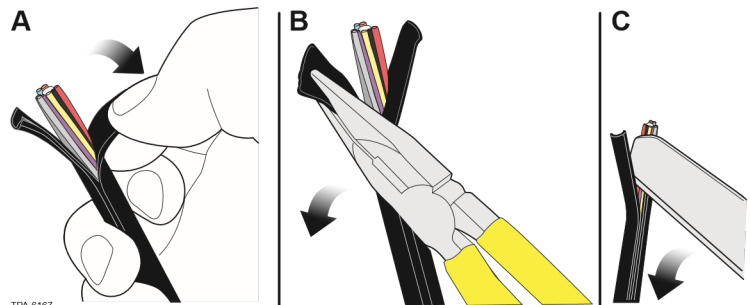


Figure 4

**Step 3:** Continue to remove the jacket by pulling both sides down to the tape mark and remove the jacket with side-cutters or small snips (Figure 5).

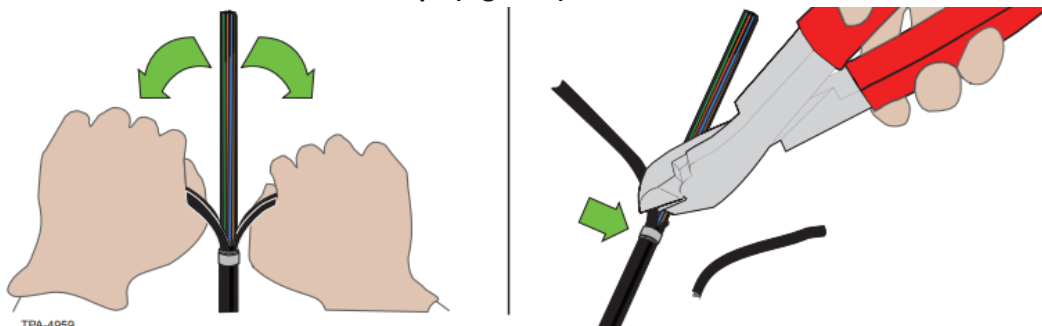


Figure 5

- Step 4:** Unwind and separate the buffer tubes from the central member. Cut the central member to the appropriate length for strain-relief in the hardware (Figure 6).
- Step 5:** For cable strain-relief hardware which clamps onto the jacket, place three layers of vinyl tape over the area where clamps make contact with the jacket.
- Step 6:** Load the cable in the respective hardware/closure.

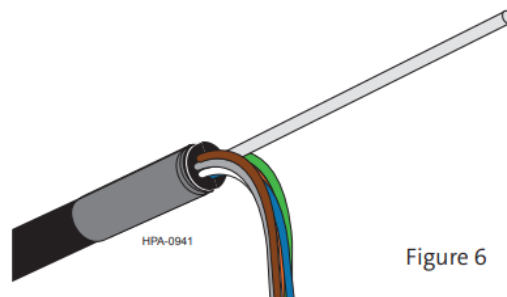


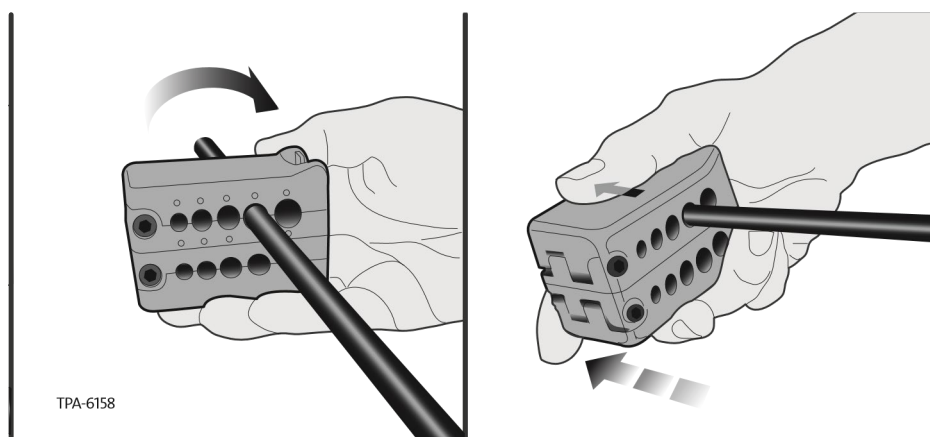
Figure 6

#### 4.1.2 Jacket Removal Using Jonard MS-316 Tool, MS-326 Tool, or MS-336 Tool (For 288 F and 432 F cables with 36 F/tube)

**NOTE:** See Jonard Tools Table in Section 3 to verify which tool is compatible with the cable being accessed.

**NOTE:** The Jonard MS-316, MS-326 tool, and MS-336 tool are pre-calibrated for ring cut (circumferential cut) and slit cut (longitudinal cut) on the top and bottom of each entry. There is no need to adjust the blades.

- Step 1:** Open the ring side of the tool and rotate 360 degrees.
- Step 2:** To perform a longitudinal cut, open the slit side of the tool and place the cable in the hole suitable for the outside diameter of the cable. Align the blade to the FastAccess® technology ridges.
- Step 3:** Pull the tool in the direction of the arrow on top of the tool.
- Step 4:** Open the tool. Remove the cable and pull the jacket apart (Figure 7).



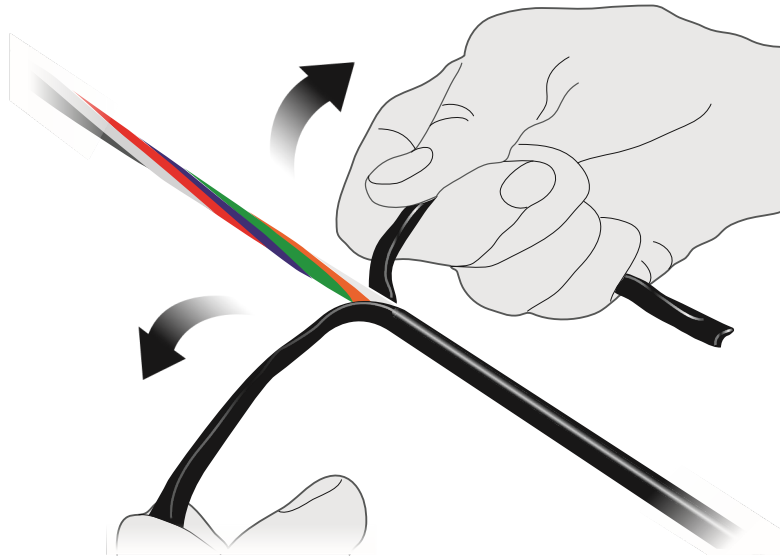


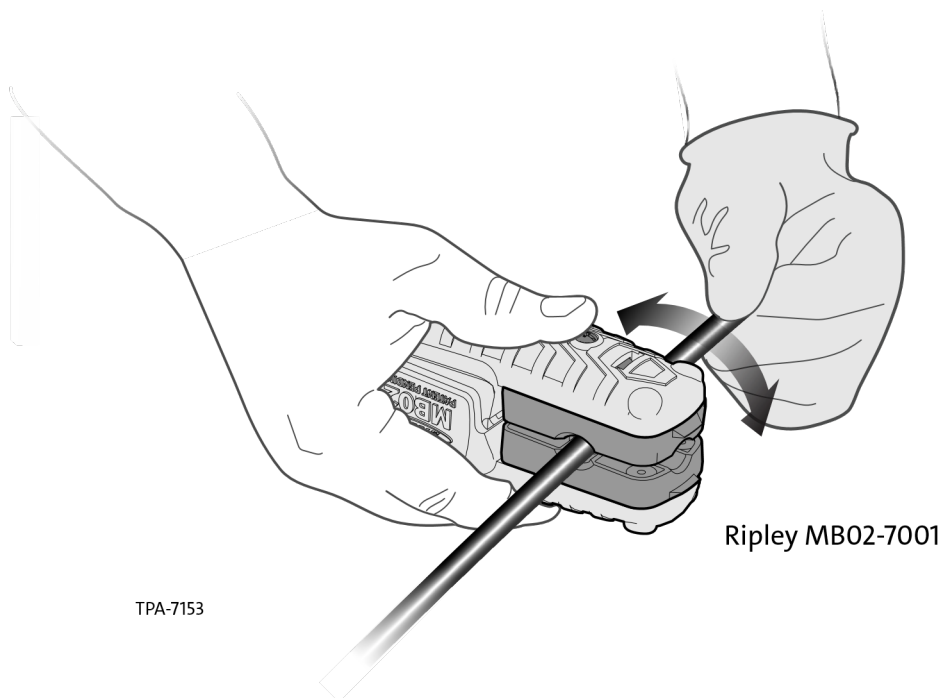
Figure 7

#### 4.1.3 Jacket Removal Using Ripley MB02-7001 Tool or MB02-7005

**NOTE:** See Ripley Tool Table in Section 3 for information regarding which insert to use for the cable being accessed.

**NOTE:** The Ripley MB02-7001 and MB02-7005 tools are pre-calibrated for ring cut (circumferential cut) and slit cut (longitudinal cut) on top and bottom of each entry.

**Step 1:** Position the tool on the cable to perform a ring cut and rotate 360 degrees (Figure 8).

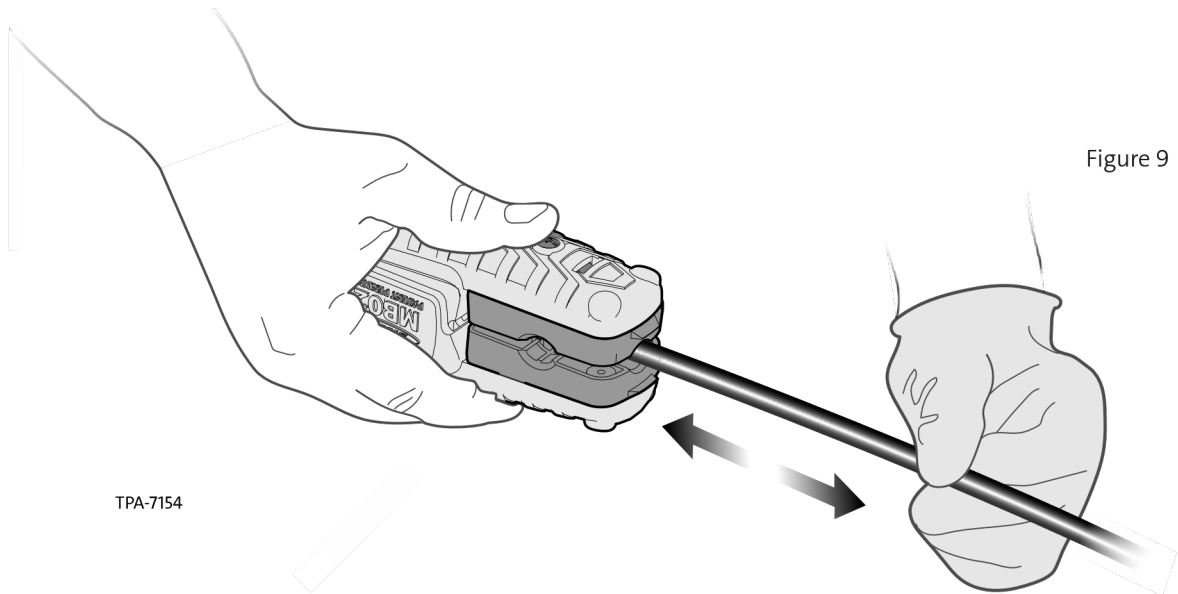


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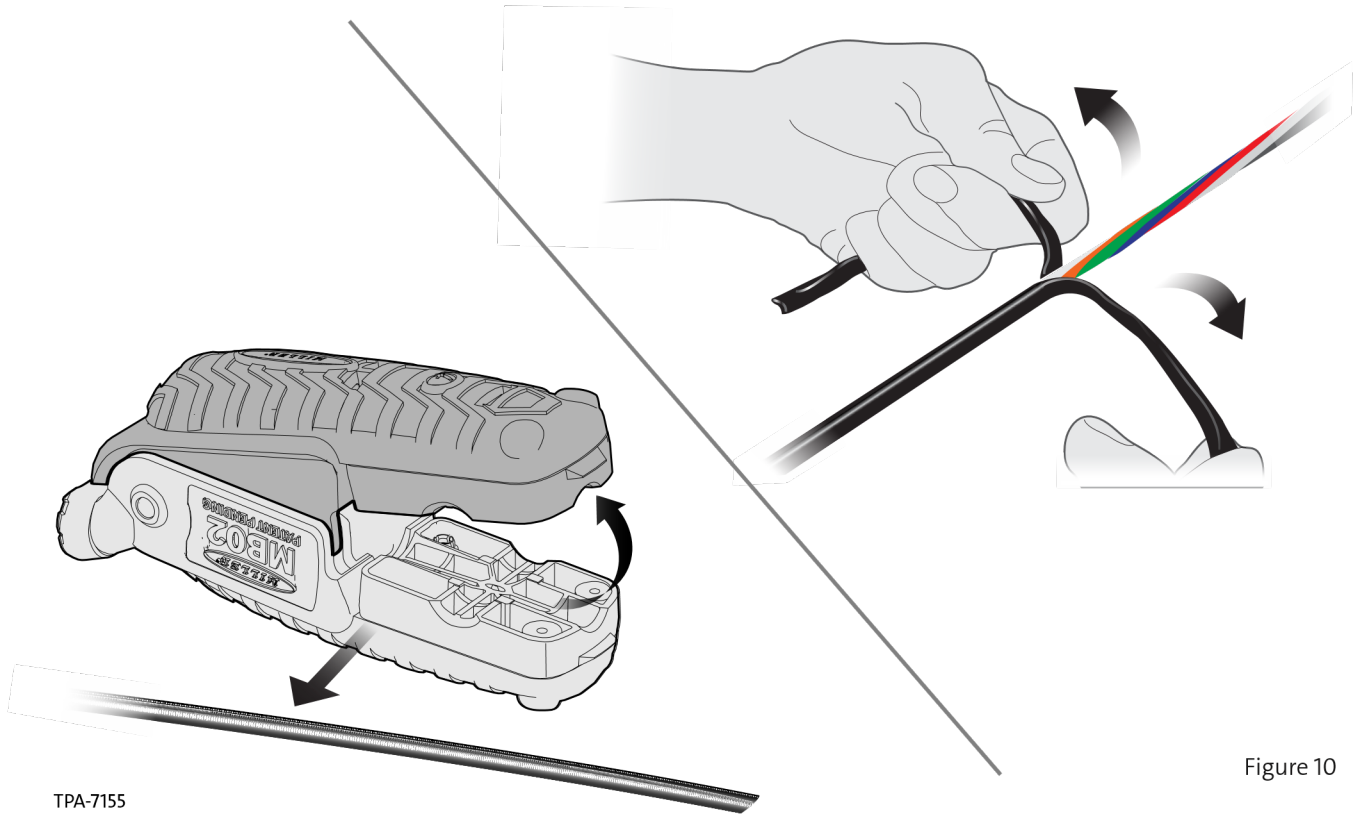
Figure 8

**Step 2:** To perform a longitudinal cut, open the slit side of the tool and place the cable in the slot. Align the blade to the FastAccess® technology ridges.

**Step 3:** Pull the tool in either direction (Figure 9).



**Step 4: Open the tool. Remove the cable and pull the jacket apart (Figure 10).**



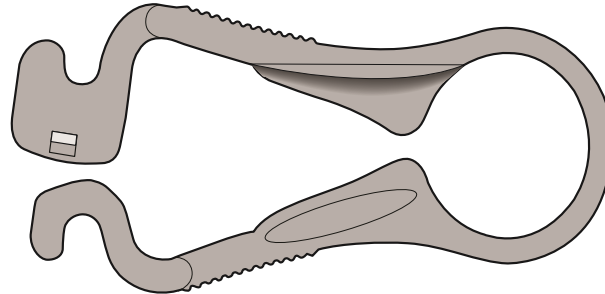


## 4.2 Buffer Tube Removal: Ripley FTS-005 or Jonard MS-306 – Ring Cuts

**NOTE:** If you are unfamiliar with using the Ripley FTS-005 tool (Figure 11) to score buffer tubes, Corning recommends practicing Step 4.2 on a small length of scrap tubing to develop the correct technique.

**Step 1:** Insert the buffer tube into the 1.0 mm opening of the Ripley FTS-005 tool (Figure 9) approximately 45 cm (18 in) from the end of the tube as shown in Figure 12.

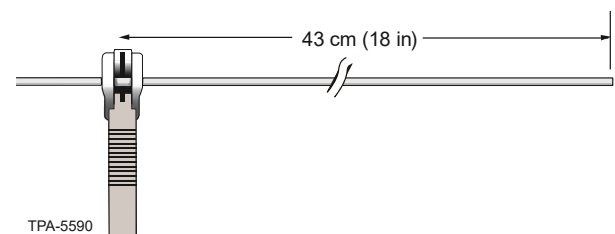
**NOTE:** The Jonard MS-306 can also be used to perform buffer tube ring cuts by inserting buffer tube in correct slot and rotating one revolution. Then remove and snap off tube (same procedure).



TPA-5589

Figure 11

**Step 2:** Rotate the FTS-005 tool one revolution (360 degrees), then remove tool.



TPA-5590

Figure 12

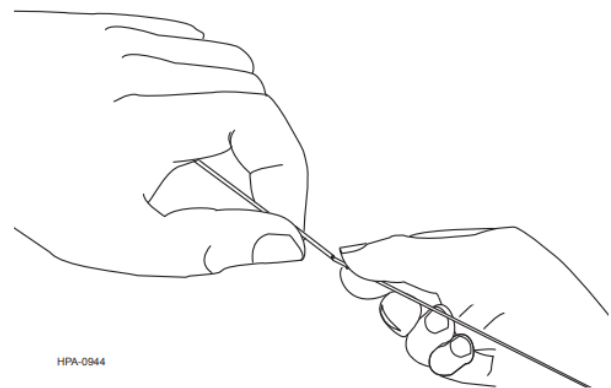


**CAUTION:** Do NOT use the tool to slide the tube from the fibers. This process can damage and break the fibers.

**Step 3:** Snap the buffer tube at the score mark by hand and carefully slide the severed section of buffer tube off the fibers (Figure 13).

**Step 4:** Repeat Steps 1 through 3 to expose the appropriate length of fiber for the splice tray.

**Step 5:** Clean the fibers with tissue and prepare them for splicing.



HPA-0944

Figure 13

**NOTE:** If you need to remove lengths longer than 18 inches, you can opt to make cuts in 18-inch increments or perform a long cut on the buffer tube using one of these tools: Ripley MSAT®-16, Jonard MS-6, or MS-306.

## 5. Mid-span Jacket Access

### 5.1 Mid-span Jacket Removal Using Ripley MB02-7001 Tool

**NOTE:** See Ripley Tool Table in Section 3 for information regarding which insert to use for the cable being accessed

**Step 1:** Identify the location to access the jacket for mid-span cable entry and mark each end with a wrap of tape. Typical access length is 15 ft (Figure 14).

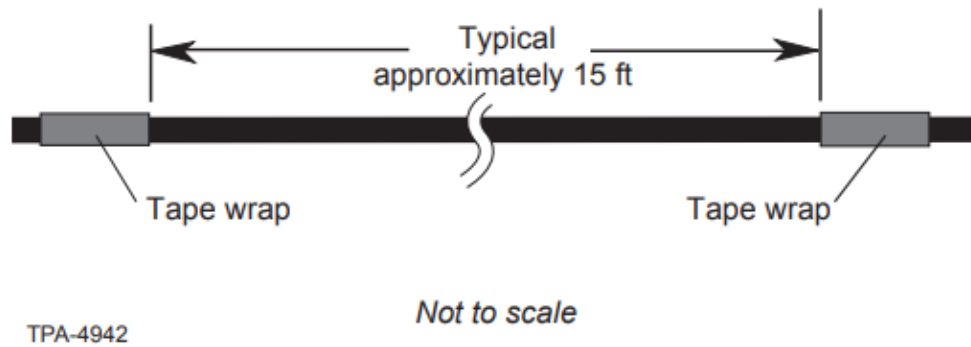


Figure 14

**Step 2:** Place the cable in the ring cut position of the tool, make two revolutions on both ends of the wrapped tape.

**Step 3:** Place tool on the ring cut end of the cable in the position for long cuts and align with fast access ridges (Figure 15).

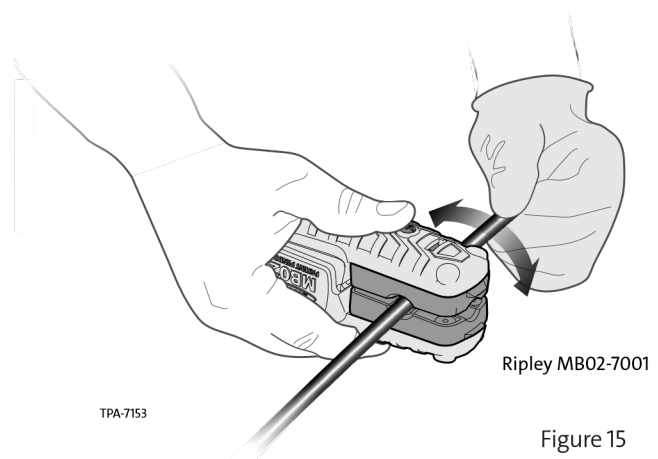


Figure 15

**Step 4:** Press down on the tool and grasp it to maintain pressure. Slide the tool 2-3 inches for a longitudinal score in the direction of the jacket removal. This will make a long cut on both sides of the cable (Figure 16).

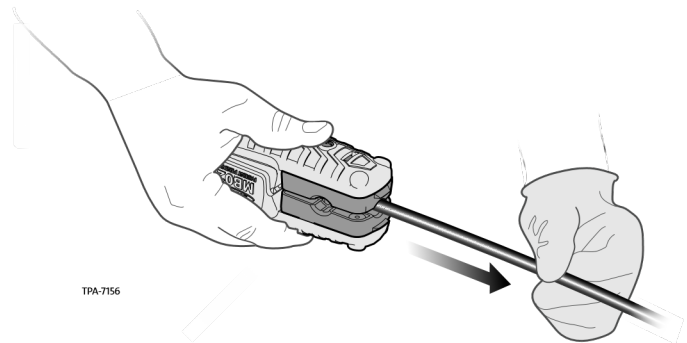


Figure 16

**NOTE:** An option is to make one ring cut in center and remove jacket exposing tubes for 7.5 ft on each side of ring cut, and then trim off jacket.

**Step 5:** After the last long cut, either use fingers, needle-nose pliers or sheath knife to pull jacket away from cable. See Figure 4 and 5 on page 5.

**Step 6:** Then continue to remove the jacket by pulling both sides to the second ring cut (Figure 17).

**NOTE:** If tear is misaligned, use small cutters to realign with lobes, (ridges on jacket).

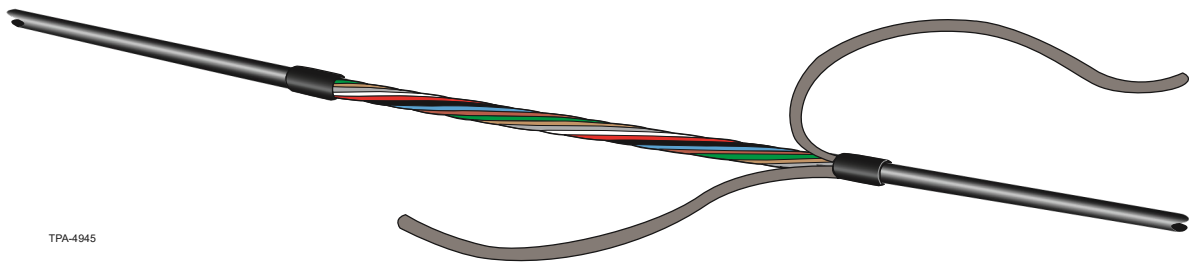


Figure 17

**Step 7:** Separate the buffer tubes from the central member. Cut the central member at each end of the midspan (near the tape marks) to the appropriate length for strain-relief. If you will be installing cable strain-relief hardware that clamps into the jacket, place three layers of vinyl tape over the area where the clamps will make contact with the jacket (Figure 18).

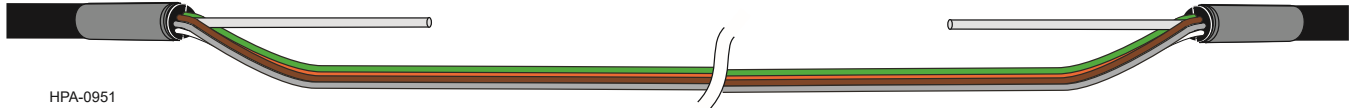


Figure 18

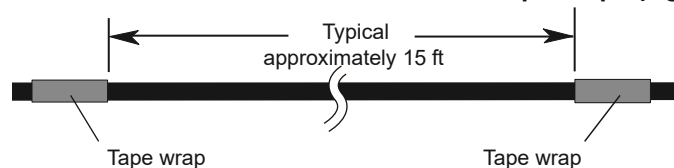
**Step 8:** Load the cable in the respective hardware/closure using care not to damage the buffer tubes.

## 5.2 Mid-span Jacket Removal Using Jonard MS-316, MS-326 Tool, or MS-336 Tool (for 288 F and 432 F Cables with 36 F/Tube)

**NOTE:** See *Jonard Tools Table* in Section 3 for tool and cable compatibility.

**NOTE:** The Jonard MS-316, MS-326 tool, and MS-336 tool are pre-calibrated for ring cut (circumferential cut) and slit cut (longitudinal cut) on the top and bottom of each entry. There is no need to adjust the blades.

**Step 1:** Identify the location to access and mark each end with a wrap of tape (Figure 19).



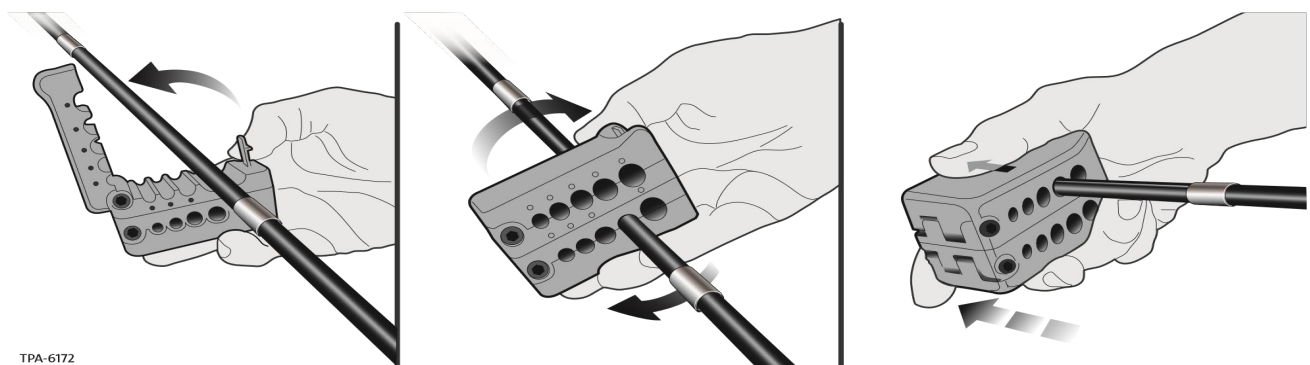
Not to scale

TPA-4942

Figure 19

**Step 2:** Using the Jonard MS-326 or MS-336 tool, select the correct ring cut groove that matches to the outside diameter of the cable.

**Step 3:** Place the cable close to the tape wrap inside the tool and close it (Figure 20).



TPA-6172

Figure 20

**Step 4:** Rotate the tool for two revolutions around the cable, then open the tool to remove the cable.

**Step 5:** Repeat a ring cut on the other end of the wrap of tape.

**Step 6:** Remove the cable and place it in the correct groove for the longitudinal cut. Use the longitudinal groove on the tool to make a 1-in cut.

**Step 7:** Flex the cable and pull apart the jacket along the slitting line to peel jacket from cable (Figure 21). Use fingers, needle nose pliers, or sheath knife to pull jacket away from cable. See Figures 4 and 5 on pages 5 and 6.

**NOTE:** *If tear is misaligned, use small cutters to realign with lobes (Ridges on jacket).*

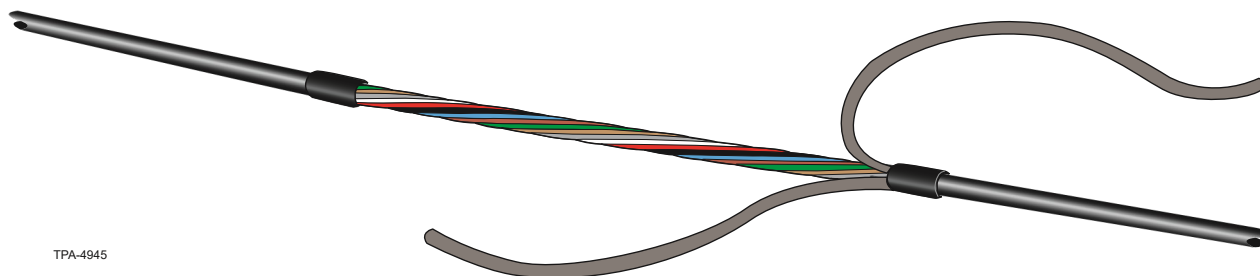


Figure 21

**Step 8:** Separate the buffer tubes from the central member. Cut the central member at each end of the midspan (near the tape marks) to the appropriate length for strain-relief. If you will be installing cable strain-relief hardware that clamps into the jacket, place three layers of vinyl tape over the area where the clamps will make contact with the jacket (Figure 22).

**Step 9:** Load the cable in the respective hardware/closure using care not to damage the buffer tubes.

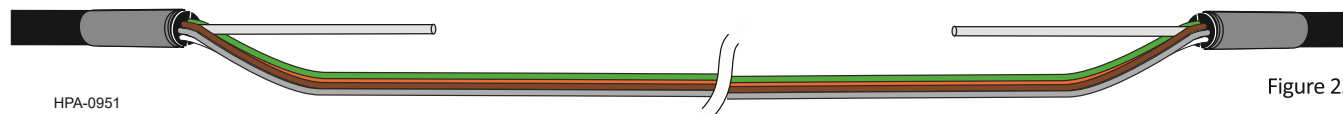


Figure 22

## 6. Mid-span Buffer Tube Access Using Jonard MS-6 Tool or MS-306 Tool

### 6.1 JONARD

**NOTE:** *The Jonard MS-6 and MS-306 tools are pre-calibrated to slit cut (longitudinal cut) on the top or bottom of each entry. There is no need to adjust the blades.*

**Step 1:** Insert the buffer tube into the correct groove for the buffer tube outside diameter (Figure 23).

**Step 2:** Pull the tool in the direction of the arrow on top of the tool.

**Step 3:** After the tool splits the buffer tube, use scissors to carefully cut the tube without damaging the fibers.

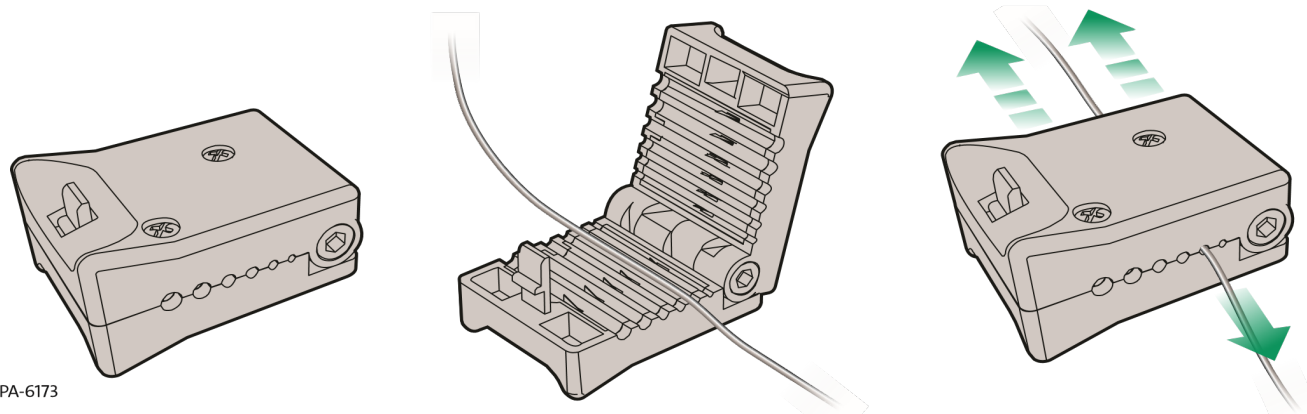


Figure 23

## 6.2 Ripley — Mid-span Buffer Tube Access Using Ripley MSAT® 16 Tool:

**NOTE:** *Ripley MSAT® 16 is adjustable tool that shaves the top of the tube for access to the fibers.*

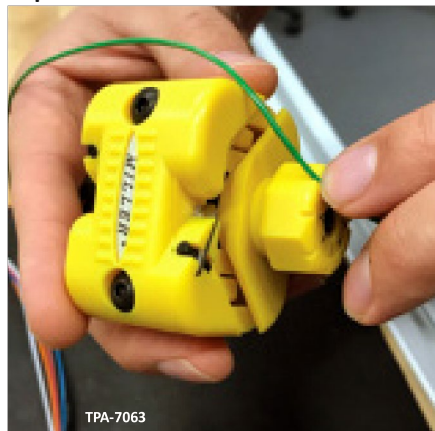
**Step 1:** Use the sizing guide card or sizing gauge on the knob to determine the correct setting for the tool.

**Step 2:** Turn the knob to the correct setting.

**Step 3:** Load the tube into the tool.

**Step 4:** Squeeze and pull the tool down the tube. It is best to pull the tube at an angle away from the tool.

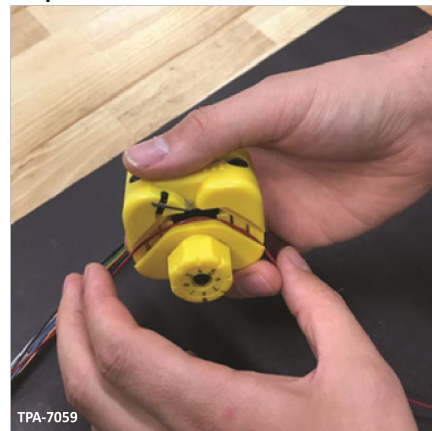
Step 1



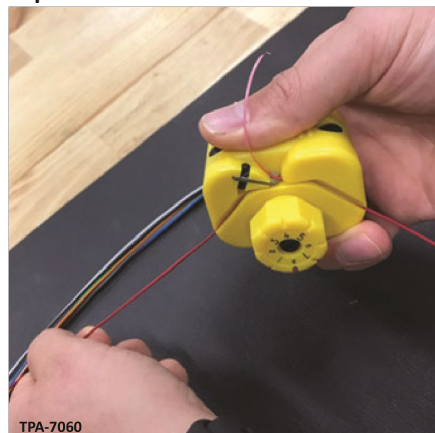
Step 2



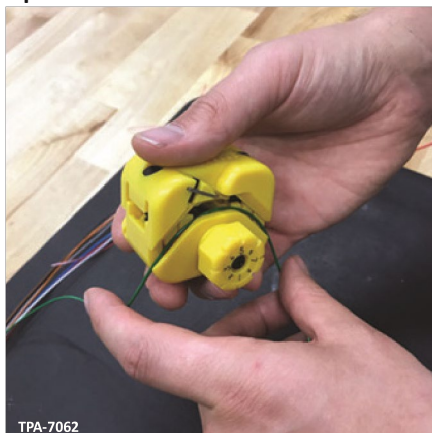
Step 3



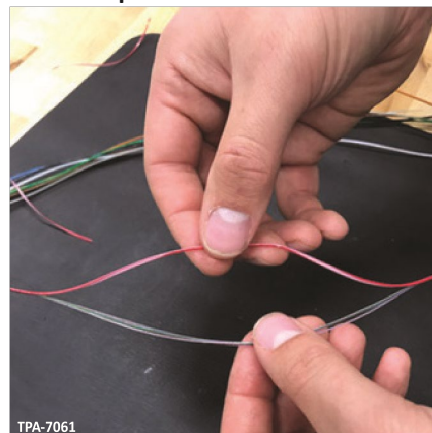
Step 4



Open Tool



Remove Split tube



## MSAT 16 Sizing Guide:

Tube Ø (mm)	Setting
1.13	2
1.4	4
1.7	6
1.95	8
2.5	12
3.0	16

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