

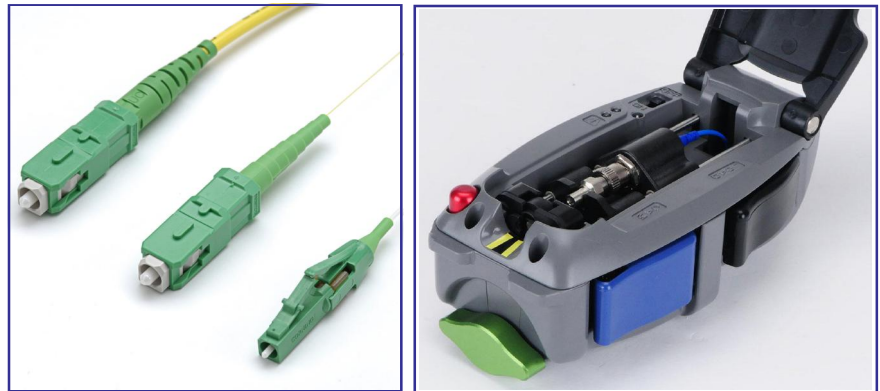
CORNING

Evolant<sup>®</sup>  
Solutions

# Installation Guide for the TKT-OPTISNAP-Cx Tool Kit

[www.corning.com/opcomm](http://www.corning.com/opcomm)

006-402  
Issue 3



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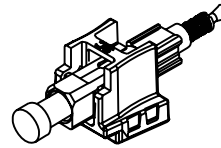
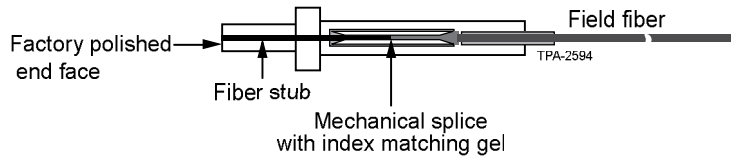
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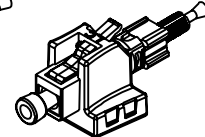
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## Introduction

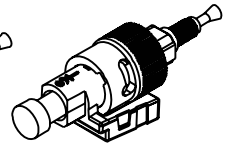
This manual describes how to install Corning Optical Communications single-mode SC, LC and ST<sup>®</sup> Compatible OptiSnap<sup>®</sup> connectors.



TPA-2758 SC



LC



ST compatible

Please become familiar with the entire manual before beginning OptiSnap installations.

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## Safety Precautions

### Optical Fiber Precautions



**WARNING:** Cleaved or broken glass fibers are very sharp and can pierce the skin or damage the eyes easily. Do not let pieces of fiber stick to your clothing or drop in the work area where they can cause injury later. Use tweezers to pick up cleaved or broken pieces of fiber and place them on a loop of tape kept for that purpose alone. **Good housekeeping is very important.**

### Chemical Precautions



**CAUTION:** Fiber Optic Cleaning Fluid can cause irritation to eyes on contact. In case of eye contact, immediately flush eyes with water for at least 15 minutes. Inhaling fumes may be harmful. Use with adequate ventilation. In case of ingestion, consult a physician.

### Laser Handling Precautions



**WARNING: 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 damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.

### Safety Glasses Precautions



**CAUTION:** Recommend the use of safety glasses (spectacles) conforming to ANSI Z87, for eye protection from accidental injury when handling chemicals, cables or working with fiber. Pieces of glass fiber are very sharp and have the potential to damage the eye.

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**Laser Safety**

The OptiSnap® Installation tool conforms to the requirements contained in IEC 60825-1:1993 plus Amendments 1:1997 and 2:2001.  $P_{max} < 1.0 \text{ mW}$ ,  $\lambda=635\text{nm}$

LASER LIGHT

DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS (MAGNIFIERS).

CLASS 1M LASER PRODUCT



**CAUTION:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

**Cable Handling Precautions**

**NOTE:** 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.

For additional safety information, please visit [www.corning.com/cablesystems/safety](http://www.corning.com/cablesystems/safety).

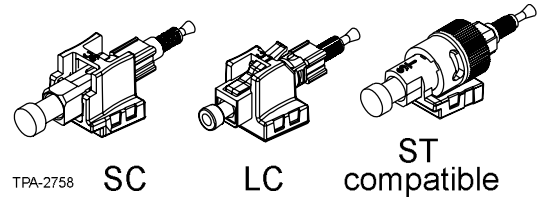


# 1. GETTING STARTED

## 1.1. General

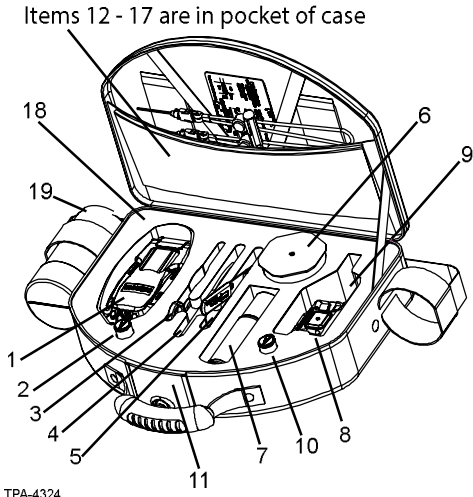
This section provides an overview of the items found in the OptiSnap® Tool kit.

Please become familiar with the appropriate sections of this manual before starting to install a connector.



## 1.2. OptiSnap Tool Kit Contents

This table describes the contents of the Corning Optical Communications OptiSnap Tool Kit:



TPA-4324

Location	Description	Part Number
1	OptiSnap® Installation Tool	TL-OSE
2	Ferrule Adapter / Vial Assembly, 1.25 mm	VFL-A125**
3	Scissors - 5-inch Electrician w/notches	
4	Marker - Retractable Black Sharpie®	
5	Miller® Tool, 34-ide	TL-3HM
6	Wipes - Micro Care, Fiber	FCC-WMPES
7	Cleaning Fluid - Micro Care, Fiber Optic	FCC-CLEANER-FIBER
8	FBC-009 Cleaver	FBC-009*
	FBC-014 Cleaver	FBC-014*
	FBC-016 Cleaver	FBC-016*
9	Track Assembly, Fiber Handler, FBC-007	HAN-TRACK***
10	DS Fiber Handler / Vial Assembly, OSNP	HAN-OSNP***
11	Crimp Tool	
12	Cleaning Sticks - 2.5mm Connector, 10/pk	CLEAN-STICKS-250
13	Cleaning Sticks - 1.25mm 10/pk	CLEAN-STICKS-125
14	Gauge Card, OptiSnap Strip Length	
15	Screwdriver - 2-inch slotted	
16	Lanyard, Connector Installation Tools (2)	
17	Visual Instruction OptiSnap Tool Kit	CRR-164-AEN***
18	Case Gray w/Eva Foam Insert, PFC/CF	
19	Trash Container	
Not Shown	Ferrule Adapter, 2.5mm (Ships in Installation Tool)	VFL-A250**
Not Shown	Installation Guide for the TKT-OPTISNAP-CF Tool Kit	006-402

\* The FBC009 flat cleaver, recommended for all fiber types, is provided with p/n TKT-OPTISNAP-CF.  
 The FBC014 angle cleaver, recommended for 250 micron fiber ONLY, is provided with p/n TKT-OPTISNAP-CA.  
 The FBC016 angle cleaver, recommended for 900 micron ClearCurve® fiber ONLY, is provided with p/n TKT-OPTISNAP-CC.  
 \*\* Order both Ferrule Adapters by referencing VFL-AKIT.  
 \*\*\* Only with p/n TKT-OPTISNAP-CF

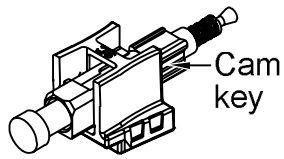
### 1.3. Compatible Connectors and Ordering Information

	Part Number	Connectors
SC	OSNP-SCU-900	SC Single-mode, Ultra PC
	OSNP-SCU-250	SC Single-mode, 250 micron, Ultra PC
	OSNP-SCA-900	SC Single-mode, APC
	OSNP-SCA-250	SC Single-mode, 250 micron, APC
ST <sup>®</sup> Compatible	OSNP-STU-900	ST Single-mode, Ultra PC
LC	OSNP-LCU-900	LC Single-mode, Ultra PC

**NOTE:** To order an organizer pack containing 25 connectors, add -Z to the desired part number above (e.g., OSNP-SCU-900-Z).

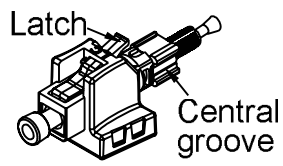
### 1.3.1 Components

Each OptiSnap® connector package contains the parts shown in this section of the manual.

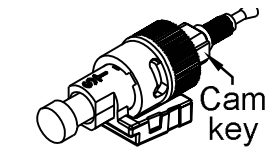


TPA-5116

SC



LC



ST  
compatible

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## 2. OVERVIEW OF INSTALLATION TOOLS

This chapter provides an overview of the tools required for installing SC, LC and ST® Compatible OptiSnap® connectors.

### 2.1. OptiSnap Installation Tool

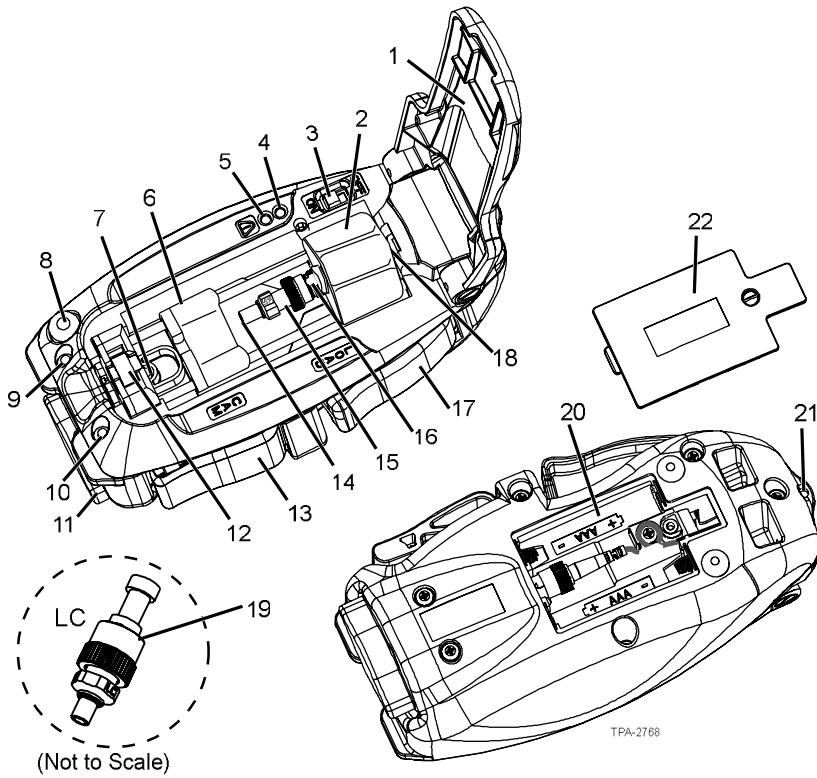
#### 2.1.1 General

This section describes the components of the OptiSnap Installation Tool.

**NOTE:** With the exception of the Ferrule Adapter, this tool operates independent of the connector or fiber type. SC and ST compatible connectors require use of the 2.5 mm adapter (identified by the SC or ST etch) and LC connectors require the 1.25 mm adapter (identified by the LC etch). When using the OptiSnap installation tool in bright sunlight, Corning recommends that the installer keep the connector lead-in area shaded and facing away from any reflective surfaces. This practice will help to ensure the most accurate activation of the CTS system.

Please read through this entire chapter before using the installation tool to install OptiSnap connectors. Refer to Chapters 3 and 6 for complete installation tool operating instructions.

### 2.1.2 Features and Components



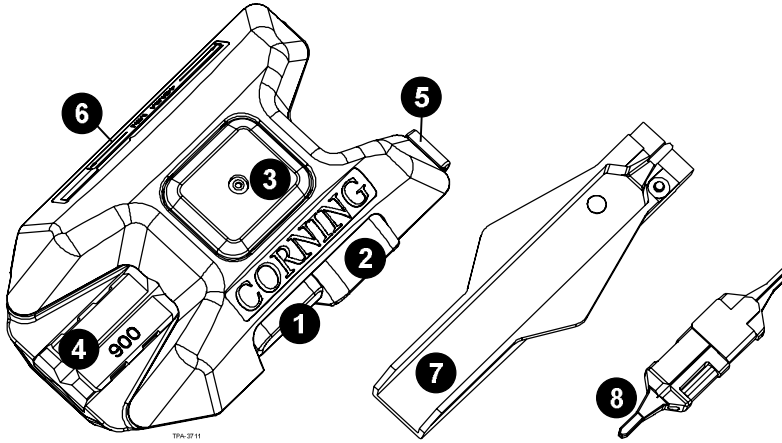
Number	Components
1	Cover
2	VFL Coupler
3	Power Switch
4	Power Light
5	Error Light
6	Connector Cradle
7	Photo Detector
8	Reset Button (Red)
9	Red Termination Light
10	Green Termination Light
11	Crimp Knob (Green)
12	Wrench
13	CAM Button (Blue)
14	Laser Aperture
15	2.50mm Ferrule Adapter (ships in the tool)
16	Ferrule Adapter Port
17	LOAD Button (Black)
18	Jumper
19	1.25mm Ferrule Adapter (ships in the toolkit)
20	Battery Compartment
21	Lanyard Attachment
22	Battery Cover

## 2.2. FBC-009, FBC-014, and FBC-016 Cleavers

### 2.2.1 General

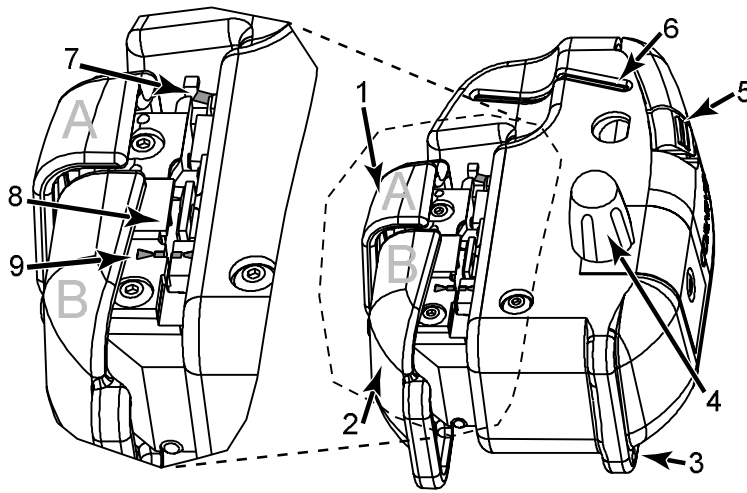
This section describes the components of the FBC-009 (TKT-OPTISNAP-CF) flat cleaver and FBC-014 (TKT-OPTISNAP-CA) and FBC-016 (TKT-OPTISNAP-CC) angle cleavers. Please read through this entire chapter, the Fiber Preparation chapter and the Fiber Cleaving chapter before using the cleaver. Refer to Chapter 5 for complete operating instructions and precautions for all cleavers.

### 2.2.2 Features and Components of FBC-009 Flat Cleaver



Number	Components
1	Keep Button (Black)
2	Scrap Button (Red)
3	Cleave Button (Blue)
4	Fiber Handler - 900 / 2.9 (black)
5	Latch
6	Strip Length Guide
7	Track
8	Double-sided Handler (orange) - Fan / 250

2.2.3 Features and Components of FBC-014 and FBC-016 Angle Cleavers



Number	Components
1	Button A
2	Button B
3	Lanyard Hole
4	Blade Knob
5	Scrap Bin
6	Scrap Fiber Slot
7	V-Groove
8	Blade
9	Alignment Mark



### 3. TOOL AND CONNECTOR PREPARATION

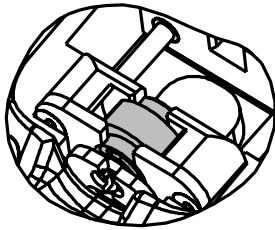
#### 3.1. Tool Preparation

Tool is designed to be held in the left hand while working.

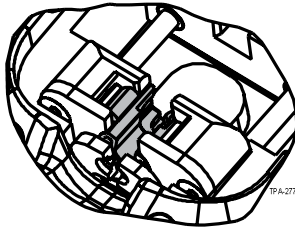
##### 3.1.1 Open the Cover

**Step 1:** Components must be in the starting position.

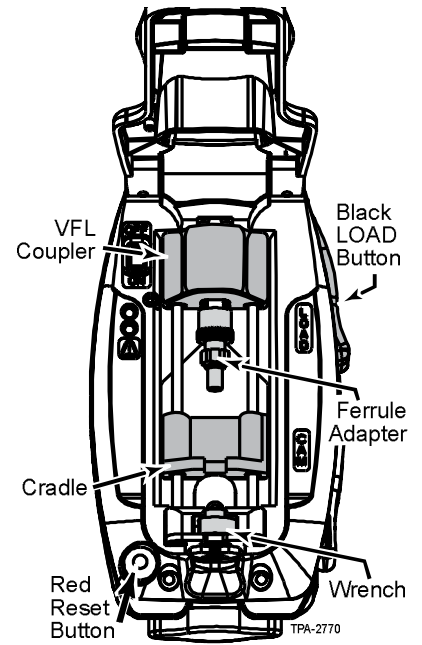
- Slide the VFL Coupler back toward the cover hinge until it locks.
- Verify the Black LOAD Button is released and the Connector Cradle is against its travel stop.
- Depress the Red Reset Button to return the Wrench to the start position.



Start Position - Wrench Closed

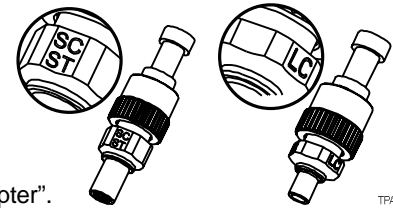


Finished Position - Wrench Open - Press Red Reset Button to Return to Start Position



**Step 2:** Ensure that the correct Ferrule Adapter is installed.

- 2.5 mm for SC and ST® compatible connectors (see SC ST etch)
- 1.25 mm for LC connectors (see LC etch)
- To change the adapter, refer to the Section 7.1.2 “Replacing the Ferrule Adapter”.

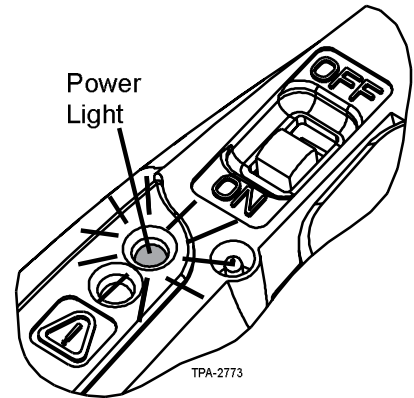


### 3.1.2 Switch Power On

**Step 1:** Locate power switch, which is located under the cover in the upper left corner of the tool.

**Step 2:** Move the switch to the ON position. Once the tool is on, the green Power Light will glow.

- If the Power Light flashes or does not glow, the batteries need to be replaced.
- Refer to Section 7.1.1, “Changing the Batteries” on page 43 for battery replacement instructions.



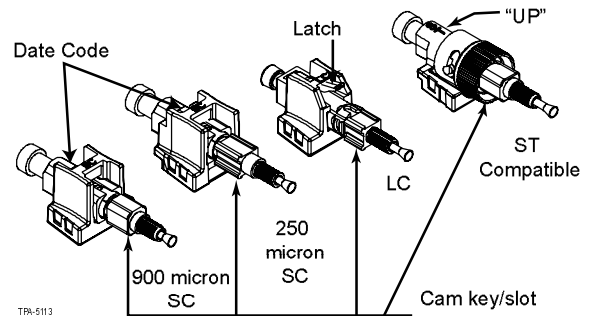
## 3.2. Connector Preparation

### 3.2.1 Verify Cam Position

Because the connector cam may rotate slightly during shipment, verify that the connector cam is in the open position. The cam is open when the cam key is 90 degrees from:

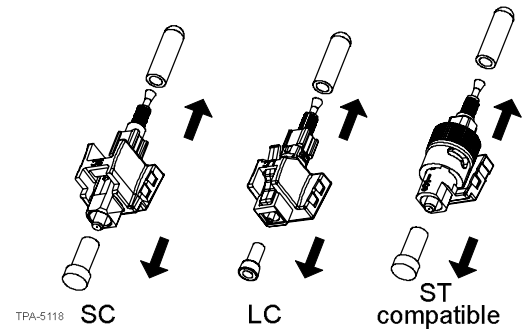
- SC connectors - the date code when it is facing up
- LC connectors - the latch when it is facing up
- ST® compatible connectors - the “UP” label molded on the Black LOAD adapter

**NOTE:** If the cam is not in the open position, the connector will not fit correctly into the installation tool.



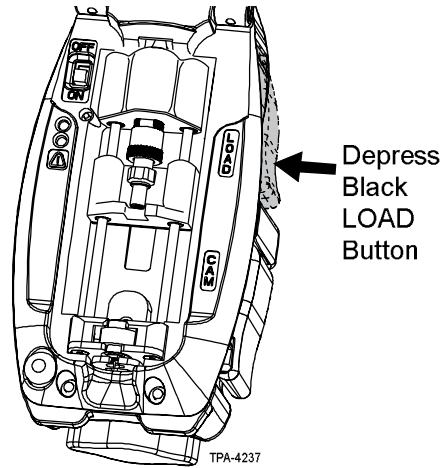
### 3.2.2 Prepare Connector for Loading

- Step 1:** Remove the rear black dust cap.
- Step 2:** Remove the clear ferrule dust cap and visually inspect the connector for damage.
- Step 3:** Leave the connector handlers on the connectors until after termination.



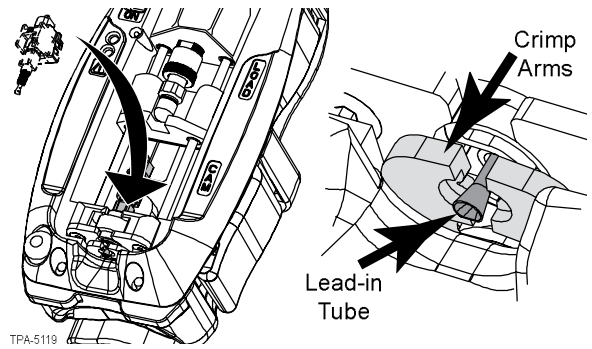
### 3.3. Connector Loading

- Step 1:** Fully depress the Black LOAD Button to move the Connector Cradle away from the Wrench. Do not release.

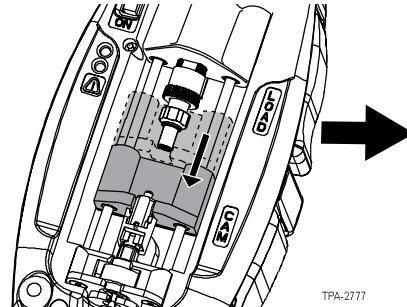


**Step 2:** With the connector oriented up (as shown in 3.2.1), load the connector into the tool by inserting it, lead-in tube first, into the Wrench.

**NOTE:** Ensure that the cam is completely seated in the Wrench and the lead-in tube protrudes through the crimp arms. The flare of the lead-in tube should be visible beyond the crimp arms.



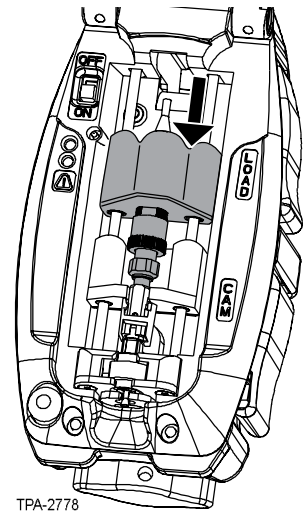
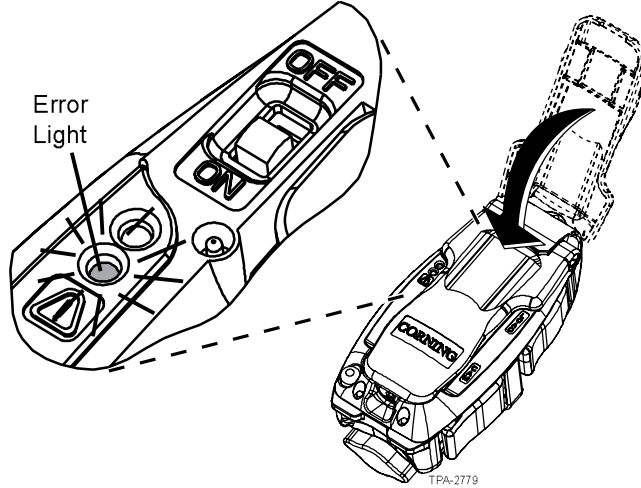
**Step 3:** Slowly release the Black LOAD button while guiding the connector into the Connector Cradle. Ensure the connector is firmly seated in the Cradle.



**Step 4:** Slide the VFL Coupler down until the Ferrule Adapter is fully seated on the connector (shown to the right).

**Step 5:** Close the cover and check for the Amber Error Light (shown below).

- If the Amber Error Light flashes, refer to Section 7 “Maintenance and Troubleshooting”.
- If green light only, continue to Step 6.



**Step 6:** Set the installation tool aside and prepare the field fiber for termination. Proceed to Section 4 “Fiber Preparation”.

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## 4. FIBER PREPARATION

### 4.1. General

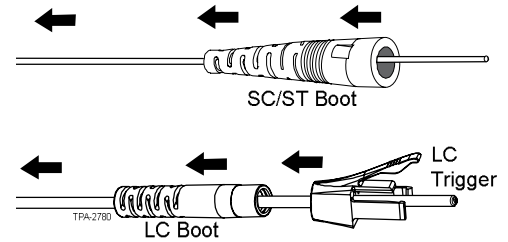
This chapter explains how to prepare the fiber for termination with Corning Optical Communications OptiSnap® connectors. The fiber preparation steps are identical for each type of fiber/cable, regardless of connector type.

### 4.2. All Fiber/Cable Types

#### 4.2.1 Install Boot

Slide the appropriate boot onto the fiber/cable.

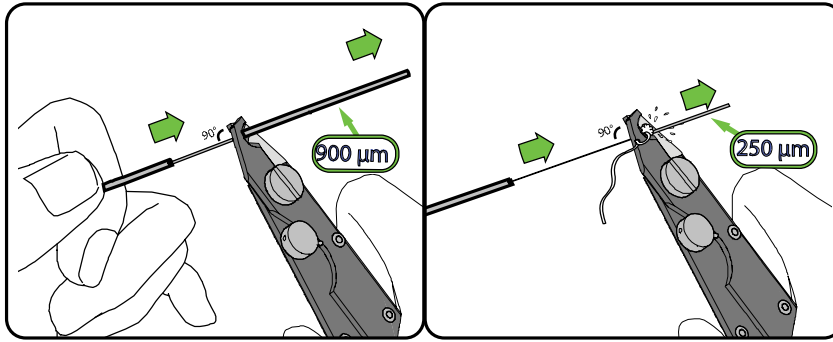
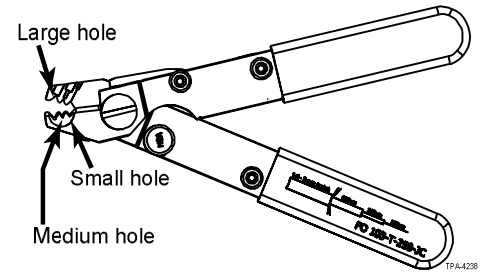
- Use the 900 micron boot for 900 micron tight-buffered fiber, fan-out tubing and 250 micron Direct Termination applications.
- Use the 1.6, 2.0 or 2.9 mm cable boot for jacketed cable applications.
- For 4.8 mm jacketed cable applications (and cable greater than 2.9 mm), remove 24 in of jacket and yarn, or more, based on routing requirements. Use 900 micron boot on exposed 900 micron tight-buffered fiber.
- For LC connectors, also slide the trigger onto the fiber/cable after installing the boot.



## 4.2.2 Fiber Stripping

To expose bare glass, remove the 40 mm section of buffer and coating in two steps using a Three-hole stripping tool.

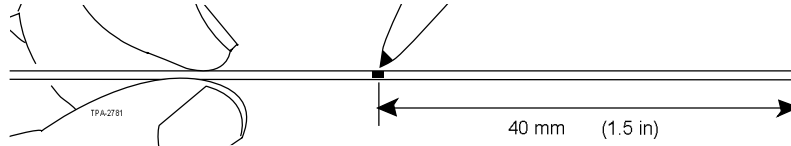
- a. For the 900 micron buffer, use the medium hole.
- b. For the 250 micron coating, use the small hole.





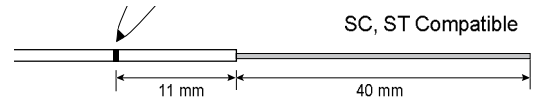
**4.3. 900 micron Tight-buffered Fibers—Only Compatible with OSNP-xxx-900 Connectors**

**Step 1:** Using the Strip Length Gauge and permanent marker, measure and mark 40 mm from the end of the buffered fiber.

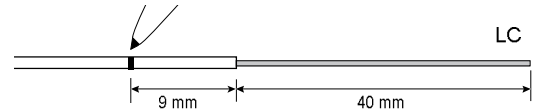


**Step 2:** Use the medium hole of a three-hole stripping tool to remove 40 mm of 900 micron buffer and the small hole to remove 40 mm of 250 micron coating.

**Step 3:** For SC and ST® compatible connectors, measure and place a visual mark on the buffer an additional 11 mm back from the end of the buffer. For LC connectors, measure and mark the buffer 9 mm back.



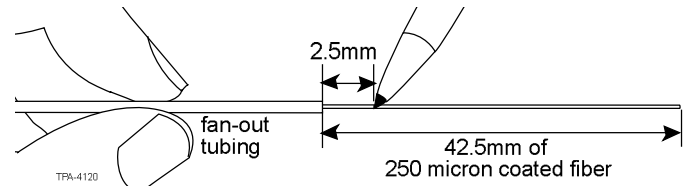
**Step 4:** Clean the bare fiber with two passes of a Fiber Wipe® dampened with Fiber Optic Cleaning Fluid. Do not touch the bare fiber after cleaning it. Do not remove the visual mark.



**Step 5:** Proceed to Chapter 5.1.2 “Fiber Cleaving”.

#### 4.4. Indoor Fan-out Tubing Applications—Only Compatible with OSNP-xxx-900 Connectors

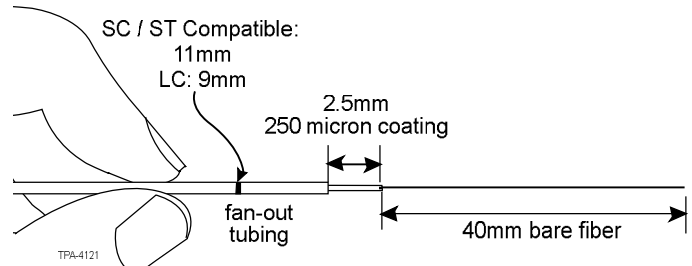
**Step 1:** Remove the 900 micron tubing with the medium hole on a three-hole stripping tool so that 42.5 mm of fiber protrudes from the 900 micron tubing.



**Step 2:** Measure and mark the 250 micron coated fiber 2.5 mm from the end of the fan-out tubing.

**Step 3:** Measure and mark the fan-out tube.

- SC and ST® compatible connectors: 11 mm back from the end of the 900 micron tubing.
- LC connectors: 9 mm back from the end of the 900 micron tubing.



**Step 4:** Remove the 250 micron coating to the 2.5 mm mark using the small hole on a three-hole stripping tool. It is important to leave 2.5 mm of 250 micron fiber extending beyond the leading edge of the fan-out tubing to allow the fibers to touch before the fan-out tubing bottoms out inside the connector and to ensure a good cleave.

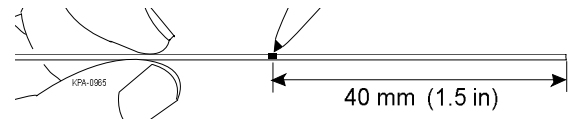
**Step 5:** Clean the bare fiber with two passes of a Fiber Wipe dampened with Fiber Optic Cleaning Fluid. Do not touch the bare fiber after cleaning it. Do not remove the visual mark.

**Step 6:** Proceed to Section 5.1.5. Use the track and optional blue\* handler.

\* An additional handler must be ordered separately using part number HAN-UNI.

#### 4.5. 250 micron Direct Terminations—Only Compatible with OSNP-xxx-250 Connectors

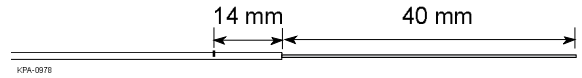
**Step 1:** For direct termination on 250 micron fiber, slide on the piece of furcation tubing provided with the connector, until it is out of the way. The furcation tubing adds extra protection during termination and is optional



**Step 2:** Measure and mark 40 mm from the end of the 250 micron coated fiber.

**Step 3:** Remove the 250 micron coating from the 40 mm mark using the small hole on a Three-Hole Buffer Stripping Tool.

**Step 4:** Measure and place a visual mark on the coating an additional 14 mm back from the end of the 250 micron coating.



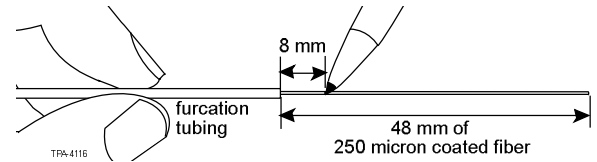
**Step 5:** Clean the bare fiber with two passes of a Fiber Wipe® dampened with Fiber Optic Cleaning Fluid. Do not touch the bare fiber after cleaning it. Do not remove the visual mark.

**Step 6:** Proceed to Section 5.1.4.

#### 4.6. Outdoor Furcation—Only Compatible with OSNP-xxx-250 Connectors

**Step 1:** Remove the furcation tubing with the medium hole on a three-hole stripping tool so that 48 mm of the 250 micron fiber protrudes from the furcation tubing.

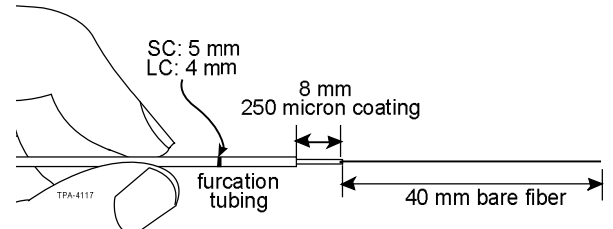
**Step 2:** Measure and mark the 250 micron coated fiber 8mm from the end of the furcation tubing.



**Step 3:** Remove the 250 micron coating from the 8 mm mark using the small hole on the three-hole stripping tool. It is important to leave 8 mm of 250 micron coating extending beyond the furcation tubing to ensure proper connector strain-relief.

**Step 4:** Measure and mark the furcation tubing as shown for each connector type.

- SC connectors: 5 mm back from the end of the furcation tubing.
- LC connectors: 4 mm back from the end of the furcation tubing.

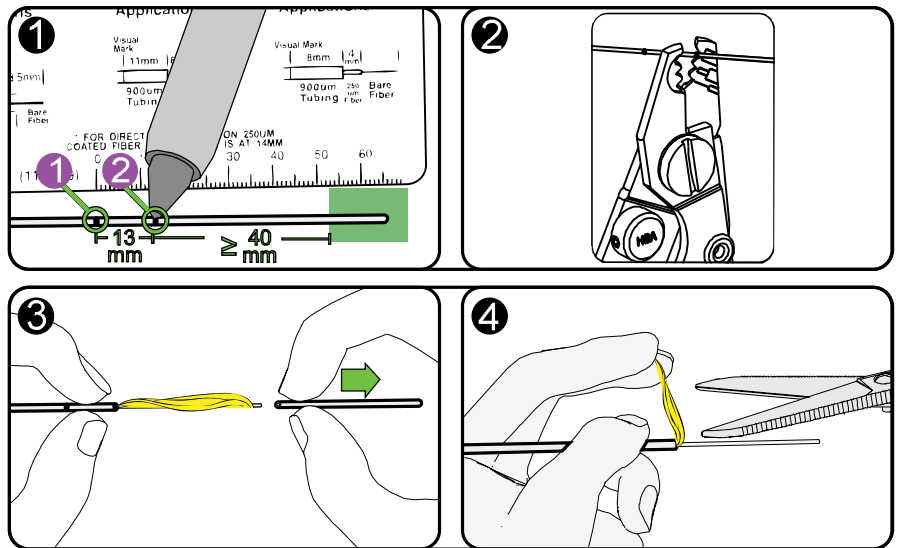


**Step 5:** Clean the bare fiber with two passes of a Fiber Wipe® dampened with Fiber Optic Cleaning Fluid. Do not touch the bare fiber after cleaning it. Do not remove the visual mark.

**Step 6:** Proceed to Section 5.1.4.

**4.7. Jacketed Cable—Only Compatible with OSNP-xxx-900 Connectors**

**NOTE:** Take your time to do the following four steps correctly. Excessive yarn length will have to be trimmed later. Yarn too short may result in weak strain-relief for the connector.



**Step 1:** Ensure greater than 53 mm of jacket and mark the 0 and 13 mm points.

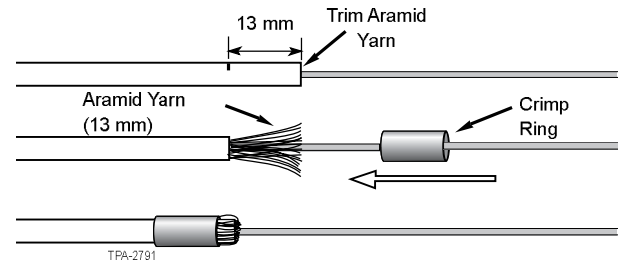
**Step 2:** Use the large hole of a three-hole stripping tool and fully close the tool on the jacket one time.

**Step 3:** Strip off the 40 mm section of outer jacket with your fingers.

**NOTE:** When using this tool to strip jacket, do NOT attempt to slide severed jacket off the fibers with the sliding motion commonly used to strip copper wire with this tool. Doing so may break the fibers.

**Step 4:** Use scissors to trim the aramid yarn flush with the end of the outer jacket.

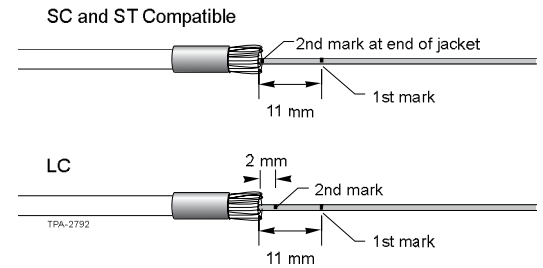
- Step 5:** Strip off the 13 mm section of outer jacket, exposing 13 mm of aramid yarn using the large hole of a three-hole stripping tool and your fingers.
- Step 6:** Fold the aramid yarn back over the cable jacket and slide the crimp ring about 5 mm down the yarn to hold it out of the way.



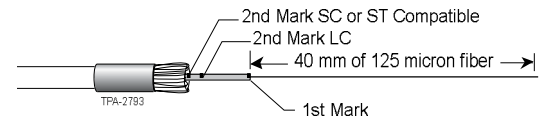
**Step 7:** Mark the 900 micron buffer:

- For SC and ST® compatible connectors, mark the 900 micron buffer 11 mm from the end of the cable jacket and at the edge of the cable jacket.
- For LC connectors, mark the 900 micron buffer 11 mm and 2 mm from the edge of the cable jacket.

**NOTE:** The second mark is a visual aid to indicate when the field fiber contacts the fiber stub.



**Step 8:** Use the medium hole on a three-hole stripping tool to remove the 40 mm of 900 micron buffer and the small hole to remove 40 mm of 250 micron coating in two steps.



**Step 9:** Clean the bare fiber with two passes of a Fiber Wipe® dampened with Fiber Optic Cleaning Fluid. Do not touch the bare fiber after cleaning it. Do not remove the visual mark.

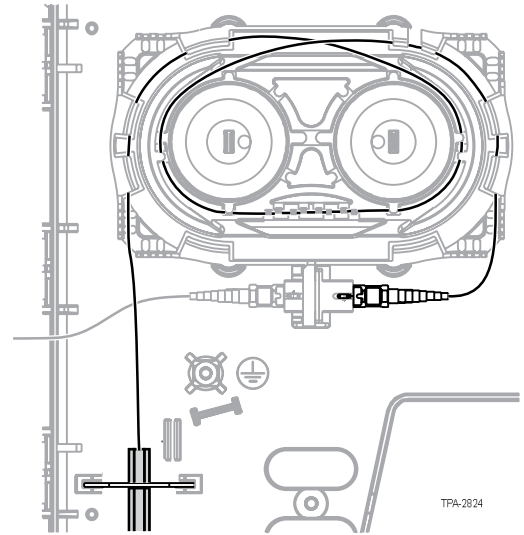
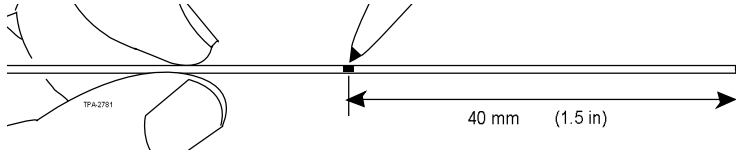
**Step 10:** Proceed to Section 5.1.3.

**4.8. Jacketed Cable—4.8mm or cables greater than 2.9mm**

**NOTE:** 4.8 mm cable should be strain-relieved to hardware before proceeding.

**Step 1:** For 4.8 mm jacketed cable applications (and cable greater than 2.9 mm), remove 24 in of jacket and yarn, or more, based on routing requirements. Use the 900 micron boot on exposed 900 micron tight-buffered fiber.

**Step 2:** Follow instructions for the 900 micron tight-buffered fibers found in Section 4.3 “900 micron Tight-buffered Fibers—Only Compatible with OSNP-xxx-900 Connectors”.





## 5. FIBER CLEAVING

### 5.1. Using the FBC-009 Flat Cleaver

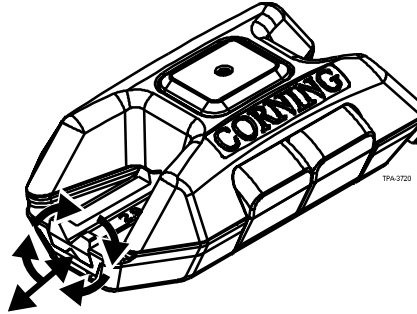
#### 5.1.1 General

This section describes the operation of the FBC-009 Flat Cleaver in OptiSnap® connector installations. This procedure assumes that the fiber has been stripped and cleaned according to the appropriate fiber stripping procedure.

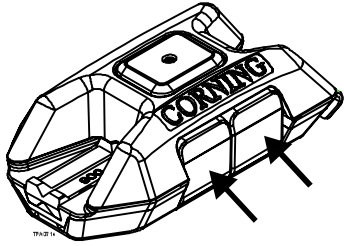
- The FBC-009 Cleaver is suitable for single-fiber, single-mode and multimode 250 micron or 900 micron coated fiber.

#### 5.1.2 Cleaving Procedure for 900 Micron Fiber - Only Compatible with OSNP-xxx-900 Connectors

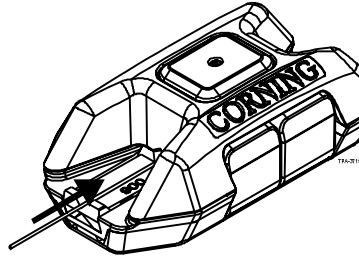
- Step 1:** Verify black plastic fiber handler is installed with the 900 mark facing upward. It may be necessary to remove the handler, flip it over, and reinstall it.



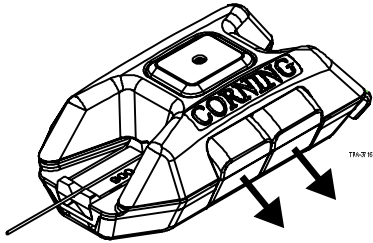
**Step 2:** Depress Black and Red buttons. Do not release.



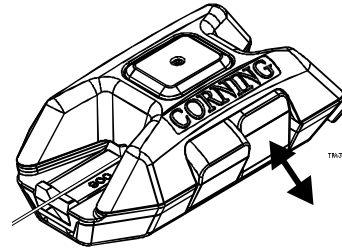
**Step 3:** Insert fiber until it stops.



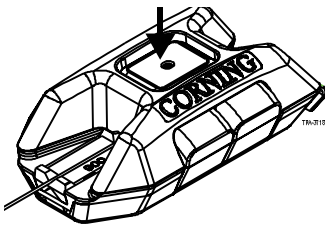
**Step 4:** Maintain slight inward pressure and gently release buttons.



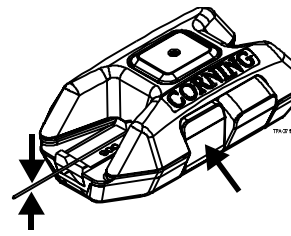
**Step 5:** Cycle Red button once.



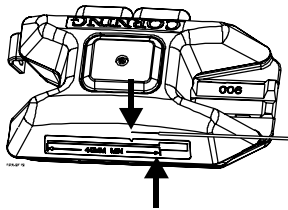
**Step 6:** Fully depress Blue button.



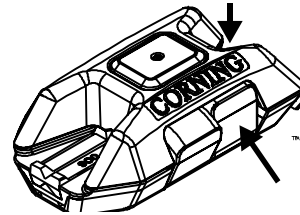
**Step 7:** Hold fiber and press Black button to remove.



**Step 8:** Check cleave length against guide to verify 10 mm of bare fiber.



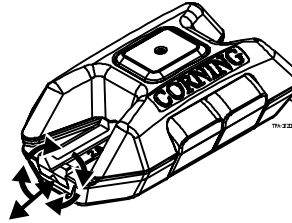
**Step 9:** Hold scrap fiber and press Red button to remove.



### 5.1.3 Cleaving Jacketed Fiber

**Step 1:** Verify Black plastic fiber handler is installed with 2.9 marking facing upward. It may be necessary to remove the handler, flip it over, and reinstall it.

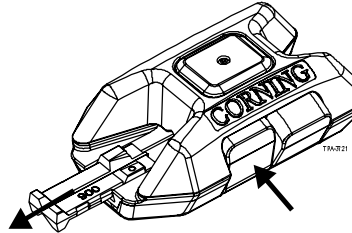
**Step 2:** Follow Steps 2 through 9 for cleaving 900 micron fiber.



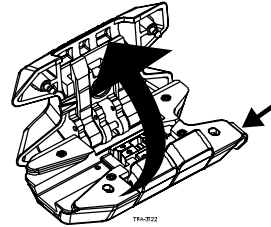
### 5.1.4 Cleaving for 250 micron and OptiSnap® Furcation Applications—Only Compatible with OSNP-xxx-250 Connectors

**Step 1:** Install handler track into cleaver.

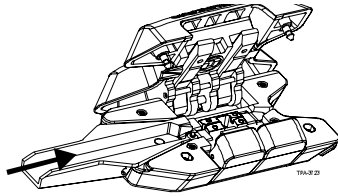
a. Depress black button and remove 900/2.9 handler.



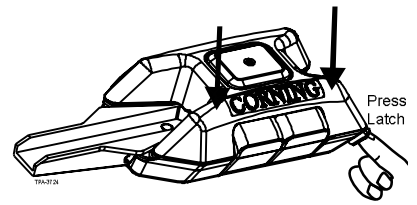
b. Depress latch and lift cover.



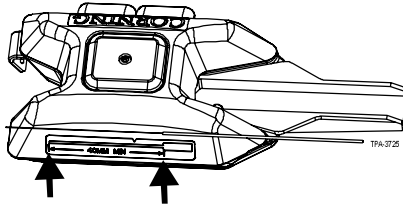
c. Insert handler track.



d. Depress latch while pressing the cover firmly to close.



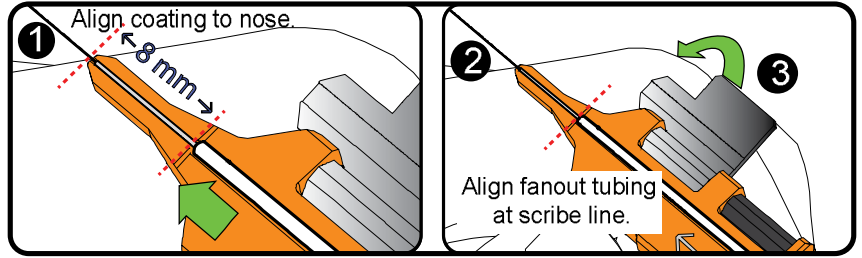
**Step 2:** Strip fiber and check length against guide.



**Step 3:** Load fiber into fiber handler.

For furcation when using a 250 micron OptiSnap® connector (-250 connector part numbers), load fiber into silver side of the orange double-sided handler.

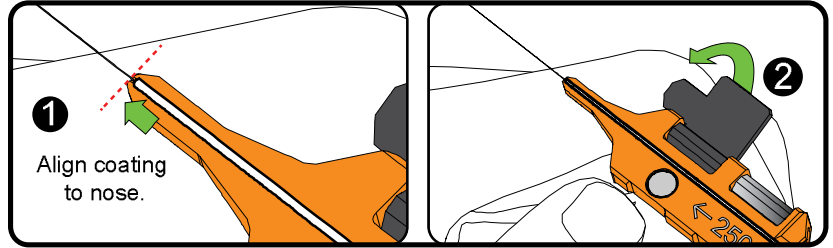
OptiSnap 250 Micron Fanout Application (silver side)



TPA-4161-VIZ

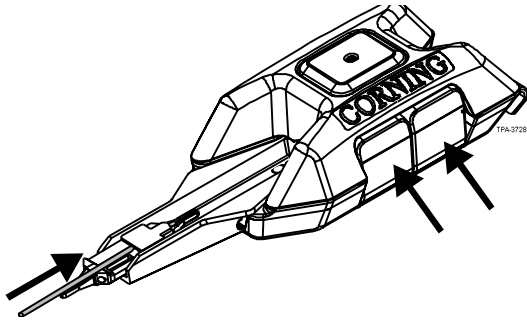
For 250 micron bare fiber installation only using 250 micron OptiSnap connector (-250 connector part numbers), load fiber into black side of the orange double-sided handler.

OptiSnap 250 Micron Application (black side)

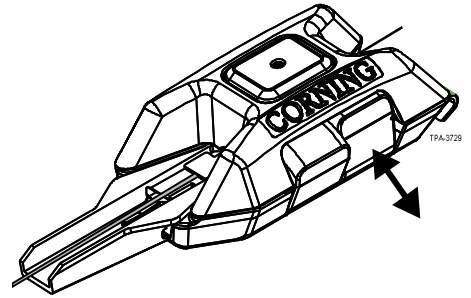


TPA-4163-VIZ

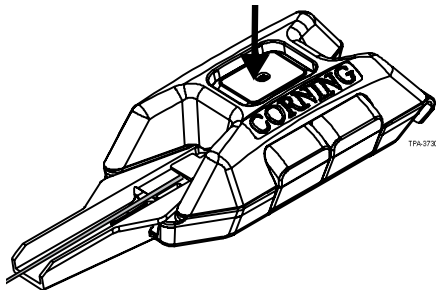
**Step 4:** Depress Red and Black buttons and load handler with fiber into cleaver until it stops. Release buttons.



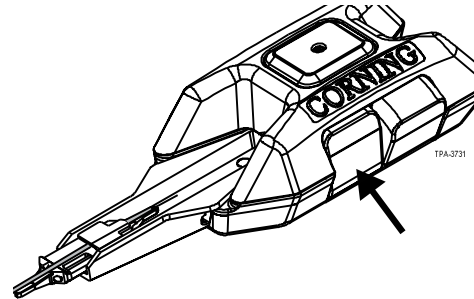
**Step 5:** Cycle Red button once.



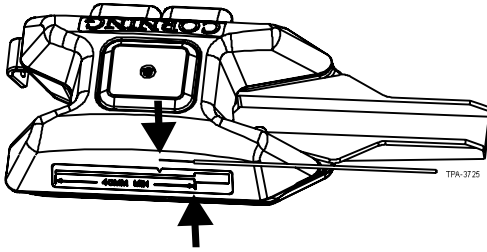
**Step 6:** Press Blue button.



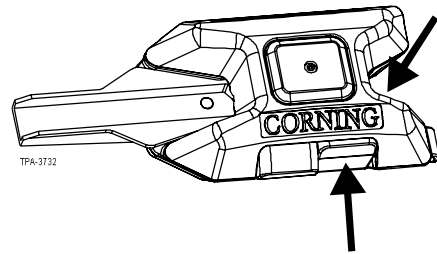
**Step 7:** Press Black button and slide handler out of the cleaver.



**Step 8:** Remove fiber from handler and check bare fiber length against guide.



**Step 9:** Hold scrap fiber and press Red button to remove.

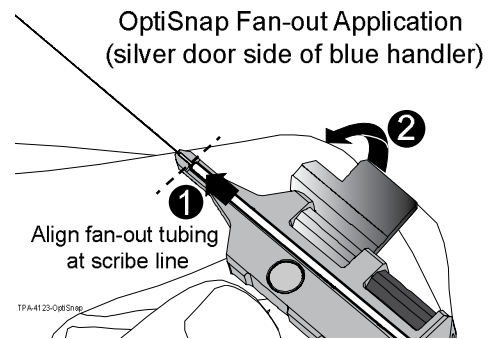


**5.1.5 Cleaving for 900 micron OptiSnap® Furcation—Only Compatible with OptiSnap-xxx-900 Connectors**

Follow Steps 1 through 9 of Section 5.1.4 “Cleaving for 250 micron and OptiSnap® Furcation Applications—Only Compatible with OSNP-xxx-250 Connectors”, except in Step 3 to load fiber into fiber handler, where you should follow this guidance:

**For furcation using 900 micron OptiSnap connectors (-900 connector part numbers),** load fiber into silver side of the blue\* double-sided handler.

\*An additional handler must be ordered separately using part number HAN-UNI.





## 5.2. Using the FBC-014 and FBC-016 Angle Cleavers

### 5.2.1 General

This section describes the operation of the FBC-014 and FBC-016 Optical Fiber Cleavers in OptiSnap® connector installations. This procedure assumes that the fiber has been stripped and cleaned according to the appropriate fiber stripping procedure.

- The FBC-014 Cleaver is suitable for single-fiber, single-mode fiber with 250 micron coated fiber.
- The FBC-016 Cleaver is suitable for single-fiber, single-mode fiber with 900 micron ClearCurve® fiber.

### 5.2.2 Cleaving Procedure for 250 Micron Coated and 900 Micron ClearCurve Fiber

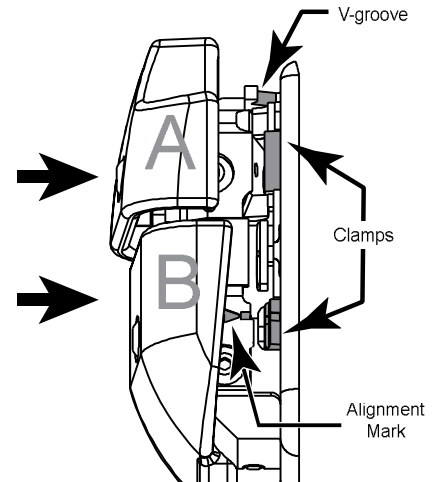
**Step 1:** Ensure that both clamps are clean and free of fiber. Refer to Section 7 “Maintenance and Troubleshooting” for instructions on cleaning the clamps.

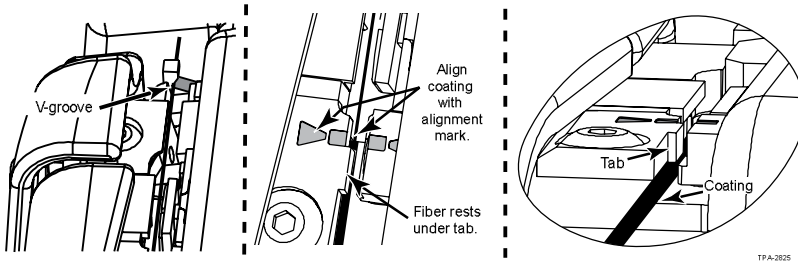
**Step 2:** Depress buttons A and B at the same time to open the clamps.

**Step 3:** Place the fiber in the slot so the:

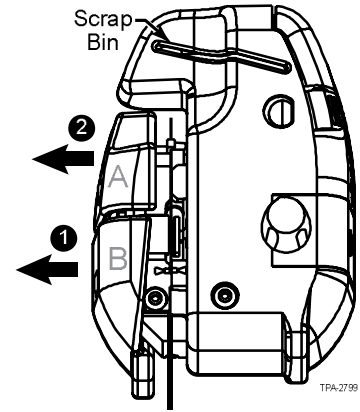
- Bare fiber is in the V-groove,
- Buffer or coating is aligned with the alignment mark, and
- Fiber rests under the tab.

**NOTE:** When terminating with fan-out tubing, align the 250 micron coated fiber with the alignment mark.





TPA-2825

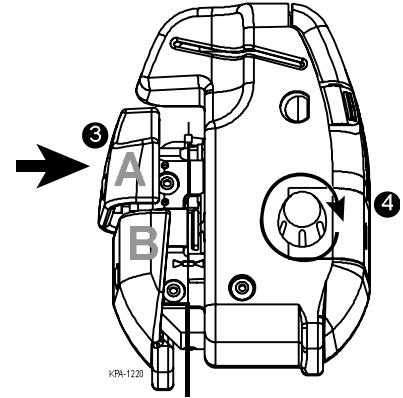


TPA-2799

**Step 4:** Fully release Button B, then release Button A. Ensure that both the bare and coated fiber are secured by the clamps.

**Step 5:** Cycle Button A again.

**Step 6:** Slowly turn the knob 360 degrees to cleave the fiber.

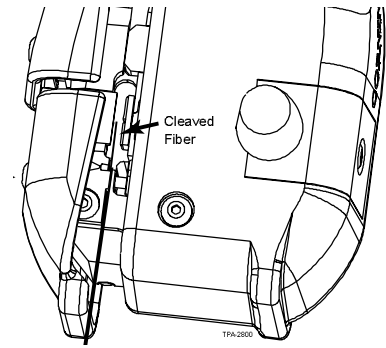


KPA-1220

**Step 7:** Depress Button A, remove the scrap fiber, and place it in the scrap fiber bin.

**Step 8:** While holding onto the fiber, depress Button B and remove the cleaved fiber.

**NOTE:** Once the fiber is cleaved, do not clean the fiber or allow it to contact anything. If the cleaved fiber does contact something, repeat fiber preparation and re-cleave.



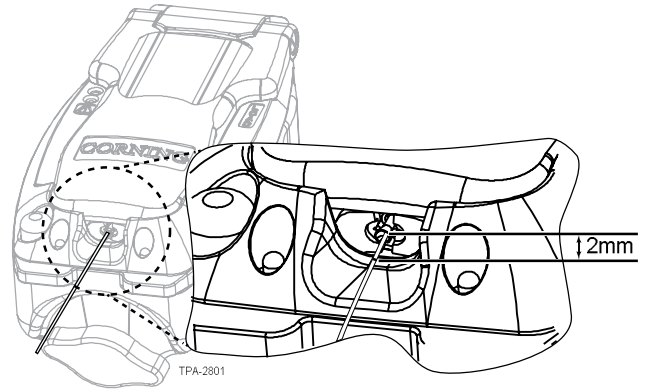
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## 6. CONNECTOR TERMINATION

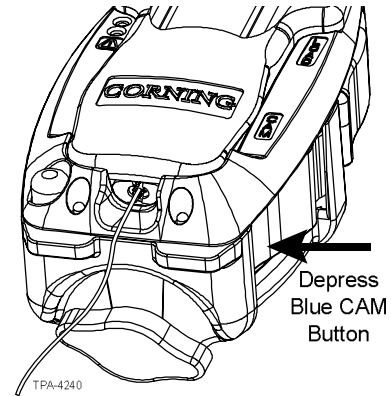
### 6.1. Termination Process

**NOTE:** Section 6.3.1 “Jacketed Cables” should have been completed and the green power light illuminated. THE COVER MUST BE CLOSED FOR THE SYSTEM TO FUNCTION.

**Step 1:** Insert a cleaved fiber into the back of the lead-in tube. Insert the fiber until you feel it firmly stop and the visual mark on the fiber is within 2 mm of the lead-in tube.



**Step 2:** Apply inward pressure to create a slight bend in the fiber. Hold inward pressure to maintain the slight bend in the fiber while depressing the Blue CAM button until it locks.



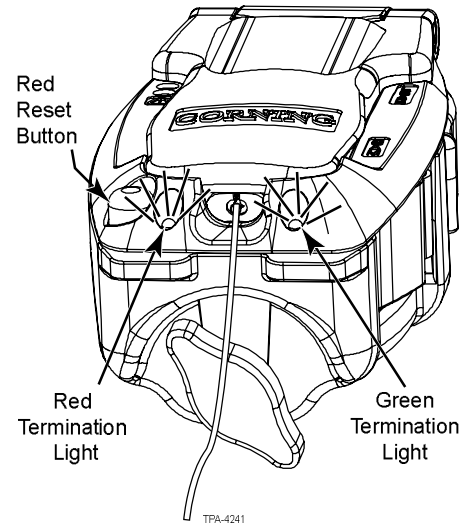
**Step 3:** Check the termination lights.

- If the green termination light is illuminated, the termination was successful. Proceed to Step 4.

**NOTE:** The green termination light only indicates proper mating of the field fiber within the connector. This is not a substitute for system testing.

Do NOT press the Red Reset Button until the connector is removed from the tool.

- The red termination light indicates improper mating of the field fiber within the connector.
  - a. Press the Red Reset Button and remove the fiber. Repeat the termination process at Step 1.
  - b. If the red light illuminates again, repeat step (a).
  - c. If the red light continues to illuminate after two termination attempts, press the Red Reset Button and remove the fiber. Repeat steps to re-cleave the fiber starting at the appropriate fiber preparation step in Section 6.3.1 "Jacketed Cables".
  - d. If unable to achieve a successful termination, refer to Section 7 "Maintenance and Troubleshooting" in this manual.



**Step 4:** Release fiber and turn the Green Crimp Knob 180 degrees in either direction.

- There may be a slight resistance while turning the knob; this is normal.
- Turning the Green Crimp Knob crimps the lead-in tube onto the fiber, thus locking the connector to the fiber.

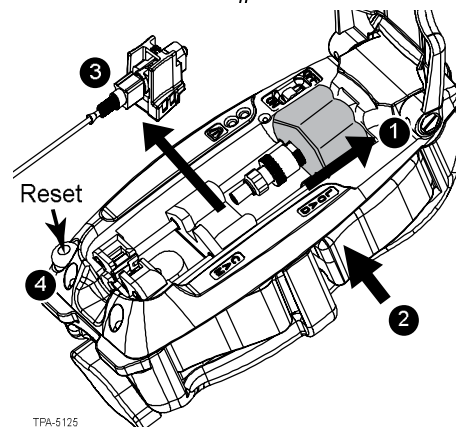
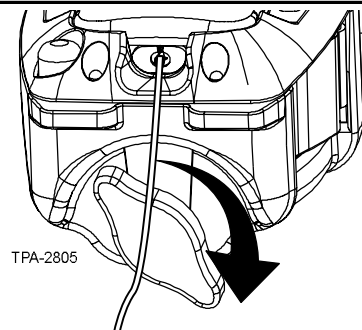
**NOTE:** Do NOT press the Red Reset Button until the connector is removed from the tool.

**Step 5:** Open the cover and gently slide the VFL Coupler back into its starting position (1) while holding the connector and cradle in place with your index finger.

**Step 6:** Depress the Black LOAD Button to remove the connector (2). Lift straight up on the connector and reinstall the clear ferrule dust cap (3).

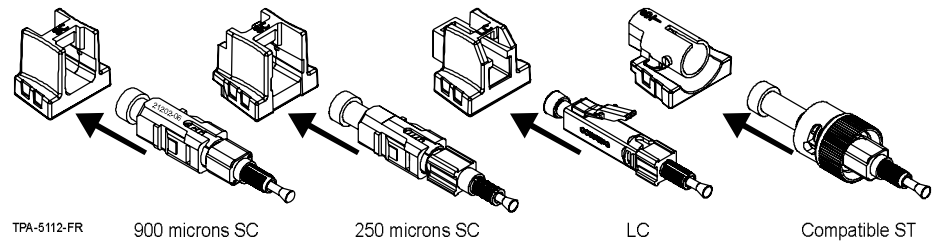
**Step 7:** Press the Red Reset Button to make the tool ready for the next connector (4). If the cover is closed at this point without a connector loaded, the Amber Error Light will flash. This is an indication that there is no connector in the tool. Once a connector is correctly loaded and the cover closed, the light will stop flashing.

**Step 8:** When finished installing connectors, press the Red Reset Button, slide the Power Switch to the OFF position, ensure VFL Coupler is in the starting position, close the cover and return the tool to the tool kit.

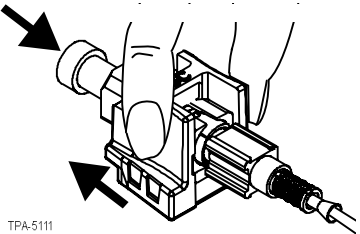
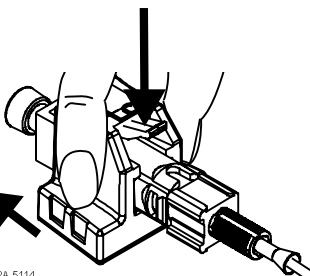
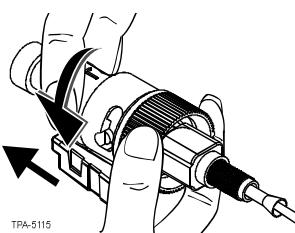


## 6.2. Removing Handlers

Once the termination process is complete, replace the dust cap over the ferrule before removing the handler. Then remove the handler from the connector.



To remove the handlers:

SC Connectors	LC Connectors	ST Compatible Connectors
<p>While holding the handler, apply gentle force on the dust cap to push the connector out of the handler.</p>  <p>TPA-5111</p>	<p>Depress latch and slide handler off the front of the connector.</p>  <p>TPA-5114</p>	<p>While holding connector, push handler in and turn counter-clockwise. Pull the handler off the front of the connector. If dust cap comes off during removal of the handler, replace the dust cap.</p>  <p>TPA-5115</p>



### 6.3. Completing the Connector Assembly

Complete the connector assembly process by following the appropriate steps below for your connector type.

**NOTE:** If not using on Jacketed Cables, skip Section 6.3.1 and proceed to the section for your connector type.

#### 6.3.1 Jacketed Cables

**Step 1:** Ensure the ferrule dust cap is installed.

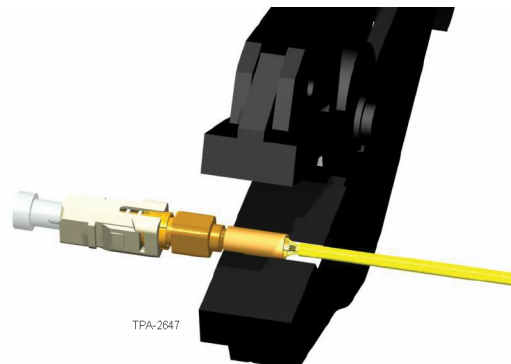
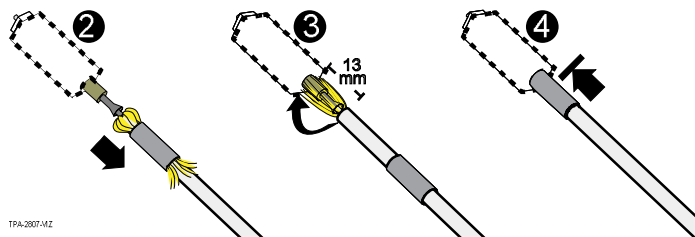
**Step 2:** Hold the cable and slide the crimp ring back along the cable jacket to free the aramid yarn.

**Step 3:** Flare the yarn around the connector. The ends of the yarn should just touch the back of the square cam. Ensure the aramid yarn is evenly distributed around the circumference of the connector body. If the yarn is too long, trim it now.

**Step 4:** Hold the connector and push the crimp ring over the aramid yarn and against the back of the connector's cam.

**Step 5:** Place the connector crimp ring into the opening of the crimp tool jaws.

**NOTE:** Use only the crimp tool supplied with the OptiSnap® tool kit (p/n 3201007-01). Other similar-appearing crimp tools (such as tools with part numbers 3201001-01 and 3201002-01) will over-crimp causing increased attenuation.



**Step 6:** Squeeze the handles shut until they automatically release, indicating completion of the crimp. Remove the connector and cable from the tool.

**Step 7:** Proceed to the description for your connector type below to complete the connector assembly.

**NOTE:** FIBER ROUTING: When routing jacketed fiber with an OptiSnap® connector, take care to ensure that the cable does not apply excessive force to the back of the connector.

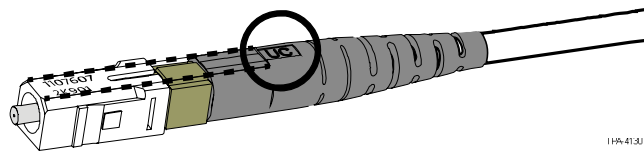
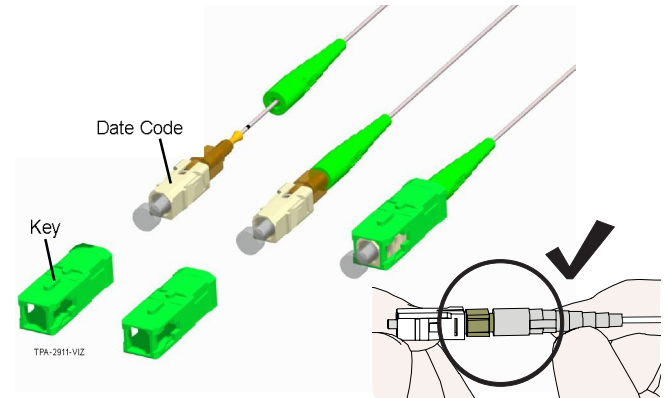
### 6.3.2 SC Connectors

**Step 1:** Clean connector end face with wipe and cleaning fluid. Ensure the clear ferrule dust cap is installed.

**Step 2:** Slide the boot up the back of the connector until it reaches the cam.

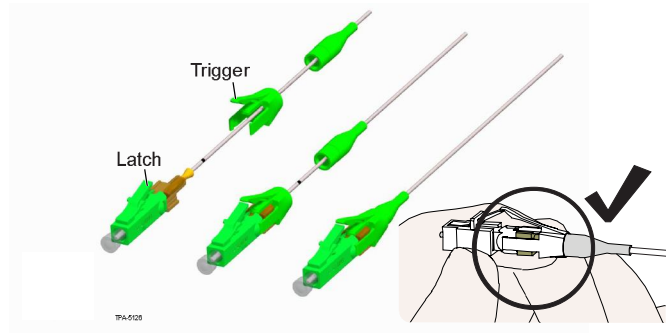
**Step 3:** Install the outer shroud by lining up the date code with the key-side of the outer shroud. Using the boot, push the OptiSnap assembly into the outer shroud until it snaps into place.

**IMPORTANT:** For installation on jacketed cable, verify UC engraving on the boot is aligned with the beveled edges of the connector.



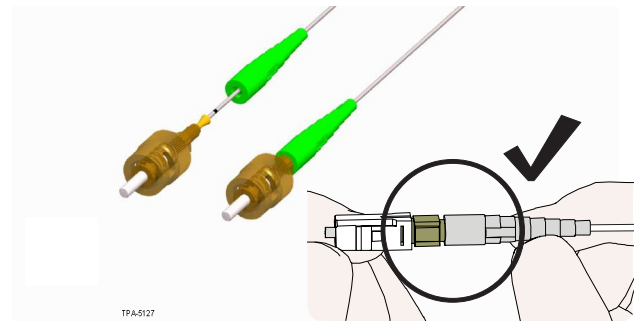
### 6.3.3 LC Connectors

- Step 1:** Clean connector end face with wipe and cleaning fluid. Ensure the clear ferrule dust cap is installed.
- Step 2:** Slide the trigger up to the back of the connector and latch its arms into the windows of the housing.
- Step 3:** While holding the connector by the front dust cap, slide the correct boot up the back of the connector and through the trigger until it stops.



### 6.3.4 ST<sup>®</sup> Compatible Connectors

- Step 2:** Clean connector end face with wipe and cleaning fluid. Ensure the clear ferrule dust cap is installed.
- Step 3:** Slide the boot up the back of the connector until it reaches the cam.



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## 7. MAINTENANCE AND TROUBLESHOOTING

This section provides maintenance and troubleshooting information for the OptiSnap® Installation Tool, FBC-009, -014, -016 Cleavers and OptiSnap connectors.

### 7.1. Installation Tool

#### 7.1.1 Changing the Batteries

**Step 1:** Verify the tool is turned off.

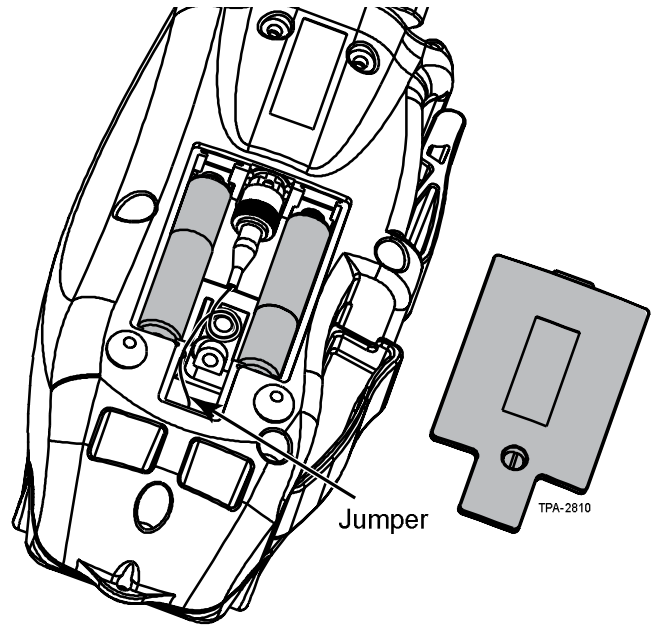
**Step 2:** Locate the battery cover on the bottom of the tool.

**Step 3:** Remove the battery cover using the micro flat-head screwdriver provided in the tool kit.

**NOTE:** Be careful not to disturb the jumper.

**Step 4:** Replace the two AAA batteries following the polarity indicators.

**Step 5:** Replace the battery cover and tighten the screw, being careful not to overtighten.



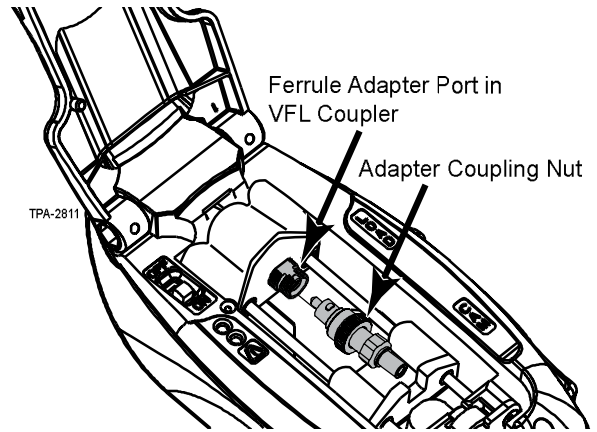
### 7.1.2 Replacing the Ferrule Adapter

**Step 1:** Verify the tool is turned off.

**Step 2:** Unscrew the Adapter Coupling Nut from the Ferrule Adapter Port.

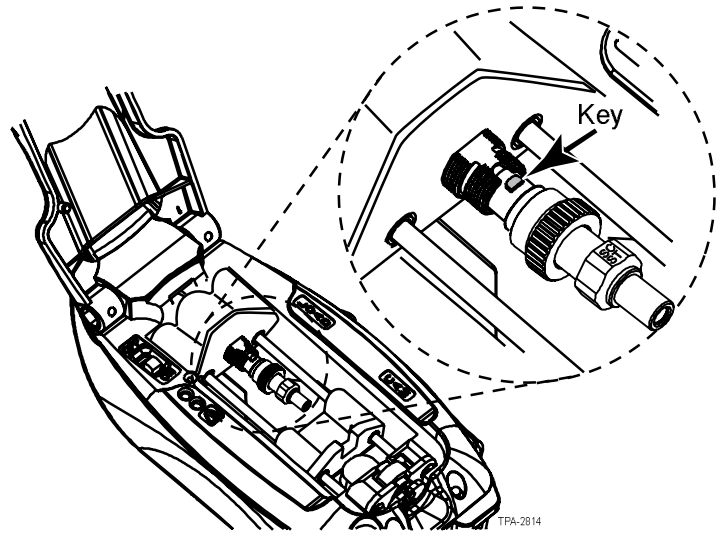
- Remove the adapter by pulling it straight out.
- Install the clear ferrule dust cap from the replacement adapter and then place in the vial.

**Step 3:** Clean the ferrule on the ferrule adapter per the instructions given in Section 7.1.3.



**Step 4:** Install the new Ferrule Adapter onto the Ferrule Adapter Port in the VFL Coupler.

**Step 5:** Be sure the key on the Ferrule Adapter is aligned with the keyway on the Ferrule Adapter Port, and then tighten firmly.



### 7.1.3 Cleaning the Ferrule Adapter

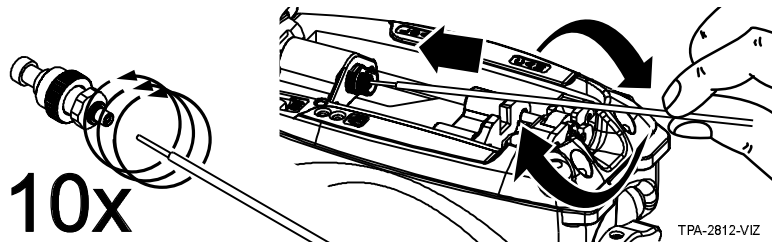
**NOTE:** It is recommended to clean the Ferrule Adapter after every 100 connector installations. Use the adapter cleaning sticks provided in the tool kit.

**Step 1:** Select the correct size stick:

1.25 mm adapter - Small green stick

2.5 mm adapter - Large blue stick

- Step 2:** Insert the stick into the adapter opening and rotate the tip clockwise 10 revolutions.
- Step 3:** Apply varying pressures to create a gentle pumping action.
- Step 4:** Dispose of each cleaning stick after one use.
- Step 5:** Select the large stick and clean the VFL coupler per steps 2 through 4.
- Step 6:** Clean adapter end face with wipe and cleaning fluid and reinstall.

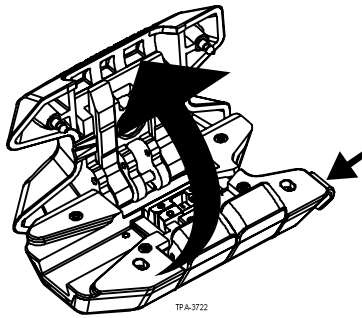




## 7.2. Maintaining the FBC-009 Flat Cleaver

### 7.2.1 Opening Cleaver for Cleaning or Maintenance

Depress latch and lift cover.

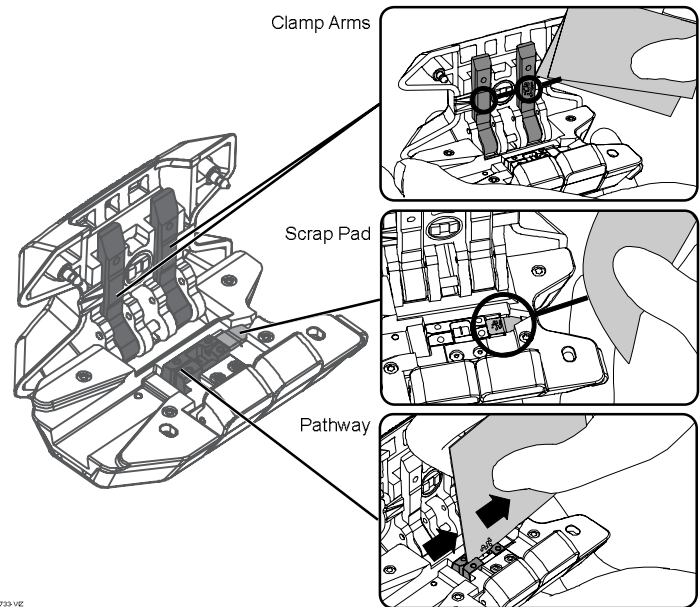


### 7.2.2 Cleaning

Cleaning is required once every 75 cleaves.

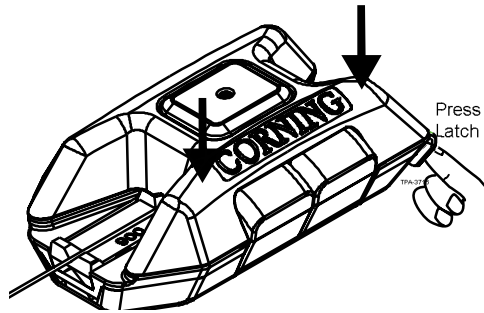
Wipe three places with fiber wipes and cleaning fluid. Aggressively clean scrap pad if experiencing fiber breaks.

Make sure there is no debris in the pathway.



### 7.2.3 Closing Cleaver after Cleaning or Maintenance

Depress latch while pressing the cover firmly to close.



### 7.2.4 Replacing Blade

Contact your Corning Cable Systems customer service representative to order a blade replacement kit. Replacement blades can be ordered from Corning Cable Systems.

- Blade Assembly: p/n FBC-14-15-16-BLADE.
- See Installation guide 006-374 that comes with the blade assembly to change the blade.

### 7.3. Maintaining the FBC-014 or FBC-016 Angle Cleavers

The FBC-014 and FBC-016 Angle Cleavers require little maintenance; however, keeping the clamps and blade clean and periodically replacing the blade will ensure good cleaves.

#### 7.3.1 Cleaning the Clamps

**Step 1:** Fold one of the provided Fiber Wipes® in half.

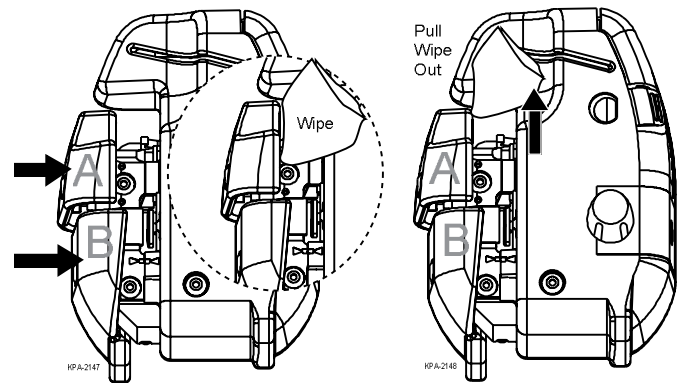
**Step 2:** Press the button of the first clamp to be cleaned.

**Step 3:** Insert the wipe in the clamp and release the button.

**Step 4:** Gently pull the wipe out.

**Step 5:** Repeat for the second clamp.

**Step 6:** Dispose of the used wipe after use. Do not use wipe more than once.



#### 7.3.2 Changing the Blade Assembly

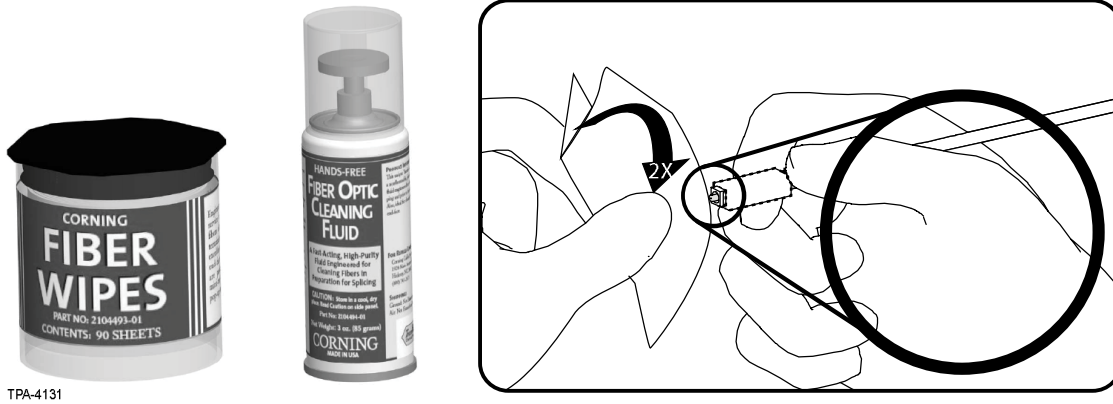
Contact your Corning customer care representative to order a blade replacement kit. Replacement blades can be ordered from Corning Optical Communications.

- Blade Assembly: p/n FBC-14-15-16-BLADE.
- See Installation guide 006-374 that comes with the blade assembly to change the blade.

## 7.4. Connector Cleaning

Clean OptiSnap® connectors with Fiber Wipes® and Fiber Optic Cleaning Fluid. Corning recommends using this cleaning procedure every time a connector is unmated or the connector is excessively dirty.

- Step 1:** Take a Fiber Wipe and fold once to make a square.
- Step 2:** Place the wipe on saturator top of the Fiber Optic Cleaning Fluid and press two to three times to wet the wipe.
- Step 3:** Wipe the connector end face with the wet wipe to remove dirt and debris. Wipe again with a dry wipe.
- Step 4:** If the connector is satisfactorily clean, immediately mate it in the appropriate adapter or sleeve, or replace the dust cap over the end face.



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## 7.5. Troubleshooting

This section provides solutions to common problems. Consult the table below before sending the tool in for repair.

Problem	Possible Causes	Solutions (Actions)
Green Power Light flashes or does not come on.	Batteries need to be replaced.	Replace batteries following the instructions in Section 7.1.1 "Changing the Batteries".
Connector will not load easily.	<ol style="list-style-type: none"> <li>1. Wrench is not in starting position.</li> <li>2. Connector is not in correct orientation.</li> <li>3. Connector cam is not in open position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove connector, and press Red Reset Button and try loading connector again.</li> <li>2. Verify the connector is loaded in the "UP" orientation with the crimp tube extending through the wrench, see Sections 3.2 through 3.3.</li> <li>3. Check to see that the connector cam is in the open position, see Section 3.2.1.</li> </ol>
Amber Error Light flashes  NOTE: The cover must be open to complete each action. After each action, close the cover to see if Error Light has cleared.	<ol style="list-style-type: none"> <li>1. Ferrule adapter is not fully seated on connector.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure that the:                             <ul style="list-style-type: none"> <li>• Proper Ferrule Adapter is installed in the tool.</li> <li>• Ferrule Adapter is fully seated on the OptiSnap® connector.</li> <li>• Ferrule dust cap is removed from the connector.</li> </ul> </li> </ol>

Problem	Possible Causes	Solutions (Actions)
<p>Amber Error Light flashes (continued)</p> <p>NOTE: The cover must be open to complete each action. After each action, close the cover to see if Error Light has cleared.</p>	<ol style="list-style-type: none"> <li>2. Connector loaded incorrectly.</li> <li>3. Ferrule Adapter or connector may be dirty.</li> <li>4. Ferrule Adapter is not properly secured to the Ferrule Adapter Port.</li> <li>5. The photo detector is dirty.</li> <li>6. Weak batteries.</li> <li>7. Ferrule Adapter is broken.</li> </ol>	<ol style="list-style-type: none"> <li>2. Verify the connector is loaded in the "UP" orientation with crimp tube extending through the wrench, see Sections 3.2 through 3.3</li> <li>3. Clean the adapter and connector following the instructions in Sections 7.1.3 and 7.4, respectively.</li> <li>4. Ensure the Ferrule Adapter key is in the VFL Coupler slot and the coupling nut is tight..</li> <li>5. Clean the photo detector using a dry wipe.</li> <li>6. Replace the batteries. See Section 7.1.1 "Changing the Batteries"</li> <li>7. Look inside the Ferrule Adapter for noticeable chips in the leading edge of the ceramic sleeve. Replace Ferrule Adapter.</li> </ol>
<p>Cleaving Issues</p>	<ol style="list-style-type: none"> <li>1. Red Button was not cycled after fiber was inserted and clamped.</li> <li>2. Did not remove 250 micron coating.</li> <li>3. Not using Track and Handler</li> <li>4. Debris in the clamp arms or fiber pathway.</li> </ol>	<ol style="list-style-type: none"> <li>1. Always cycle Red Button prior to cleaving to release stress.</li> <li>2. Properly strip fiber according to the fiber type process in Section 4.</li> <li>3. Use Track and appropriate handler when terminating fiber on 250 micron Fan Out, see Section 4.</li> <li>4. Clean the clamps per the instructions in Section 7.2.2, "Cleaning" on page 47.</li> </ol>

Problem	Possible Causes	Solutions (Actions)
Cleaving Issues (continued).	5. Debris on scrap pad. 6. Blade is worn or damaged.	5. Aggressively clean scrap pad. 6. Replace the blade per the instructions in Section 7.2.4 "Replacing Blade."
Unable to achieve a 2012, 2015 successful termination. (Green termination light will not illuminate.)	1. Cover not closed. 2. Error light not cleared. 3. Fiber is not inserted correctly into the connector. 4. Improper fiber preparation. 5. Cleave issue. 6. Lack of positive inward pressure on field fiber during camming process.	1. Ensure that you have closed the cover before inserting the fiber. 2. See Problem "Amber Error Light Flashes" above. 3. While holding onto the fiber, press the Red Reset Button and try re-seating the fiber. 4. Ensure that the appropriate sections in Sections 4 and 5 were followed. If unsure, press the Red Reset Button, remove the fiber, and start again at Chapter 4. 5. Refer to the "Cleaving Issues" troubleshooting problem above. 6. Refer to Section 6.1 step 2.

If unable to successfully troubleshoot the installation tool using the table above, call Corning Optical Communications Technical Support at 1-800-743-2671.

**7.6. Testing OptiSnap® Connectors**

If you have questions about proper testing and required equipment, etc., call Corning Optical Communications Technical Support at 1-800-743-2671.

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