

SYSTIMAX® Solutions

Installation Procedures for Pre-Radiused LC Fiber Optic Connectors

Epoxy and EZ Method

(Multimode and Singlemode)

Behind-The-Wall (BTW) and Jumper LC Connectors

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Installation Procedures for Pre-Radiused LC Behind-The-Wall (BTW) and Jumper LC Fiber Optic Connectors

Epoxy and EZ Method Singlemode and Multimode Versions

1 General

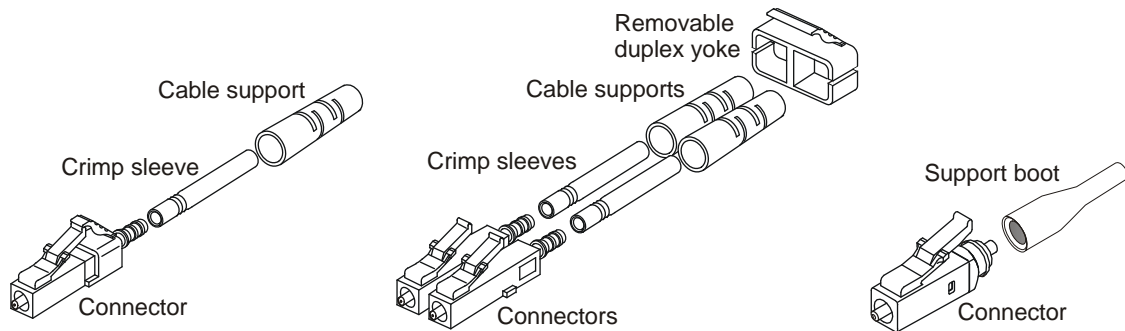
1.1 Connector Description

The LC Behind-The-Wall (BTW) connector is used to terminate outside plant (OSP) cables as well as building cables. The LC Fiber Optic Simplex/Duplex Jumper Connectors can be used to terminate simplex or duplex 1.6/2.0mm cordage. Both are intended for use in central offices, local area networks (LANs), premises distribution systems such as **SYSTIMAX**[®] structured cabling systems, computer backplane connections, computer peripheral interconnections, device terminations, and other applications where quality, small-size, high-density, low-loss, and a low-cost infrastructure are required.

The installation procedures in this document are intended for the termination of the Pre-Radiused LC Connectors listed below. The “R” in the connector code designates the connector as having a radiused end face.

Connector Code	Fiber Type	Jacket Size	Material ID
MFC-LCR-09-BG	MM Simplex	0.9 mm	760034181
MFC-LCR-09-BG-100-BULK-PACK	MM Simplex, 100 Bulk Pack	0.9 mm	760091546
SFC-LCR-09-BL	SM Simplex	0.9 mm	760034199
SFC-LCR-09-BL-100-BULK-PACK	SM Simplex, 100 Bulk Pack	0.9 mm	760031401
MFC-LCR-16-BG	MM Simplex	1.6 / 2.0 mm	760034140
MFC-LCR-16-BG-100-BULK-PACK	MM Simplex, 100 Bulk Pack	1.6 / 2.0 mm	760091553
MDC-LCR-16-BG	MM Duplex	1.6 / 2.0 mm	760034157
MDC-LCR-16-BG-100-BULK-PACK	MM Duplex, 100 Bulk Pack	1.6 / 2.0 mm	760034165
SFC-LCR-16-BL	SM Simplex	1.6 / 2.0 mm	760034173
SFC-LCR-16-BL-100-BULK-PACK	SM Simplex, 100 Bulk Pack	1.6 / 2.0 mm	760091561
SDC-LCR-16-BL	SM Simplex	1.6 / 2.0 mm	760091439
SDC-LCR-16-BL-100-BULK-PACK	SM Simplex, 100 Bulk Pack	1.6 / 2.0 mm	760091447
MFC-LCR-30-BG	MM Simplex	3.0 mm	760111476
MFC-LCR-30-BG-100-BULK-PACK	MM Simplex, 100 Bulk Pack	3.0 mm	760111484
SFC-LCR-30-BL	SM Simplex	3.0 mm	760111492
SFC-LCR-30-BL-100-BULK-PACK	SM Simplex, 100 Bulk Pack	3.0 mm	760111500
MDC-LCR-30-BG	MM Duplex	3.0 mm	760111518
MDC-LCR-30-BG-100-BULK-PACK	MM Duplex, 100 Bulk Pack	3.0 mm	760111526
SDC-LCR-30-BL	SM Duplex	3.0 mm	760111534
SDC-LCR-30-BL-100-BULK-PACK	SM Duplex, 100 Bulk Pack	3.0 mm	760111542

 **WARNING:** These procedures are not intended for use on flat-tipped LC Connectors.



LC Simplex Jumper Components*

LC Duplex Jumper Components

LC BTW Components

* Available one per package for simplex cord and two per package for singlemode duplex cord.

Note: In addition to the BTW connector for 0.9mm buffered fiber, a simplex and duplex LC jumper connector is offered for 1.6mm **MiniCord**[®] jumper termination. Installation of the jumper connector is also covered in this document. The jumper connector can be used in the assembly of various lengths of patch cords.

The optical performance of field-installed connectors and passive links should be verified using the procedures outlined in **SYSTIMAX**[®] *Structured Connectivity Solutions Field Testing Guidelines for Fiber Optic Cabling Systems*. Allowable link losses should be determined using the *Fiber Link-Loss Calculator*.

Both documents can be accessed through the BusinessPartner website at <http://www.mycommscope.com/>.

1.2 Consumables Kits for Pre-Radiused LC Connectors

Kit Type (Note)	Kit Number	Material ID	Kit Includes
Multimode	Kit-C-Univ-M-100	760 066 720	Polishing paper, and other materials required to assemble 100 multimode LC connectors.
Singlemode	Kit-C-Univ-S-100	760 066 738	Polishing paper, and other materials required to assemble 100 singlemode LC connectors.
Direct termination of OSP cables	D-181755	700 006 117	Buffer tubing and cable end prep materials for approximately 100 OSP fibers.
Repair Kit	Kit-C-250M-R-1000	700 218 076	25 sheets of Type F polishing paper

Note: Kits **do not** contain connectors, adhesive, primer, isopropyl alcohol, or non-ozone depleting canned air.

1.3 Tool Kit Required for Epoxy or EZ Method

Choose one of the following tool kits:

Kit Type	Kit Number	Material ID	Kit Includes
EZ Tool Kit	1032H*	700 005 838	Tools for BTW LC , SC , and STII
Epoxy EZ Tool Kit	1032B5	700 006 026	Tools for BTW, LC, SC, ST, Oven (110 volt)
Epoxy EZ Tool Kit	1032B6	700 005 960	Tools for BTW, LC, SC, ST, Oven (220 volt)
Jumper LC Upgrade Kit	D-182959	700 005 853	Tools for LC Jumper terminations, used in conjunction with 1032B kits.

*The 1032H (Minitool) Kit is used for EZ termination only since it does not include a curing oven.

1.4 Ordering Information

Section 10 contains ordering information for adhesive and epoxy.

1.5 How to Contact Us

- To find out more about **CommScope**[®] products, visit us on the web at <http://www.commscope.com/> .
- For technical assistance regarding **SYSTIMAX**[®] products:
 - Within the United States, contact your local account representative or technical support at 1-800-344-0223. Outside the United States, contact your local account representative or Authorized Business Partner.
 - Within the United States, report any missing/damaged parts or any other issues to **CommScope** Customer Claims at 1-866-539-2795. Outside the United States, contact your local account representative or Authorized Business Partner.

2 Safety Precautions

- Safety glasses should be worn at all times while performing these assembly instructions.
- Avoid skin contact with the adhesive and the primer.
- Optical fibers may emit radiation if the far end is connected with a working laser or light-emitting diode (LED). Never view the fiber end of a cable or plug with an optical instrument until absolute verification is established that the fiber is disconnected from any laser or LED source.

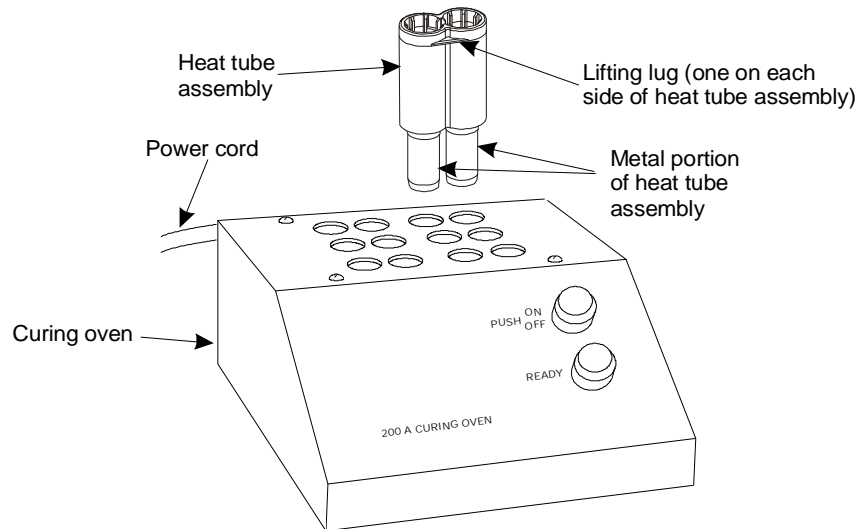
3 Assembly Instructions for Epoxy Method

Note: For EZ method, see **Section 4**.

3.1 Set Up Curing Oven

1. Place oven on a level surface and away from combustibles.
2. Connect the power cord to a power source (120 V 60 Hz AC for the 200A oven and 220 V 50 Hz AC for the 200A1 international oven).
3. Locate the six heat tube assemblies (700002330) supplied with the D-182959 Upgrade Kit (700005853).
4. Insert the heat tube assemblies into the heater ports.
Note: Be certain that the metal portion of each heat tube assembly is fully inserted into the heater ports.
5. Push the **ON/OFF** switch to the **ON** position (lamp in switch illuminates).
Note: A **READY** lamp will illuminate when the oven reaches its operating temperature of 266°F (130°C).

CAUTION: After the oven reaches its operating temperature, the metal portion of the heat tube assembly will be extremely **HOT** at 266°F (130°C). Allow the oven and heat tube assemblies to cool before handling and storing.



3.2 Buffer and Cordage Preparation

The epoxy method can be used to terminate LC connectors onto 900µm buffered (BTW), or 1.6/2.0/3.0mm cordage (jumper). This section describes both types of terminations.

3.2.1 Buffer Preparation

1. Remove cable sheath and outer jacket.

CAUTION: Be careful not to cut into fibers while removing cable sheath and outer jacket.

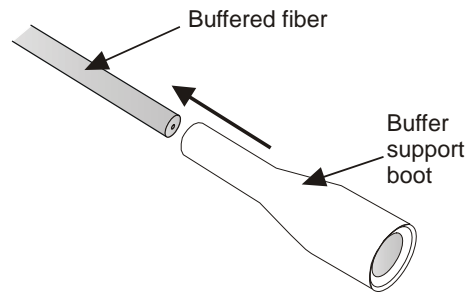
Note: For **CommScope** cable, use sheath removal tool R-4366.

Note: Be certain to expose enough buffered fiber to:

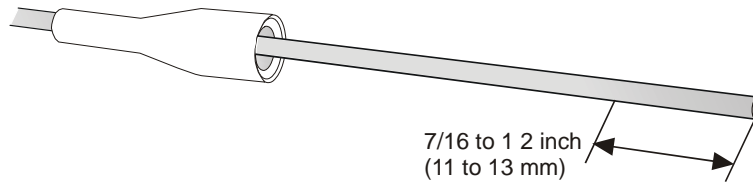
- Allow access to the curing oven and other connector preparation functions
- Prevent stress on fibers during connector preparation
- Provide adequate fiber length for placement in associated equipment cabinet.

Note: Typical working length for buffered fibers is 24 to 36 inches (0.6 to 0.9 meters).

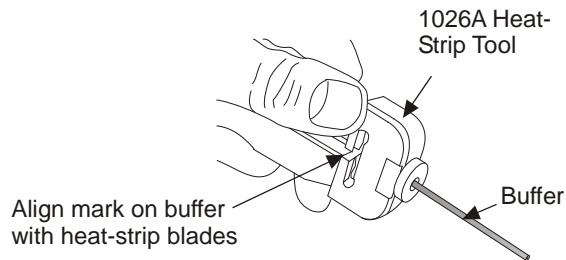
2. Install buffer support boot by slipping the small end of boot onto the buffered fiber.



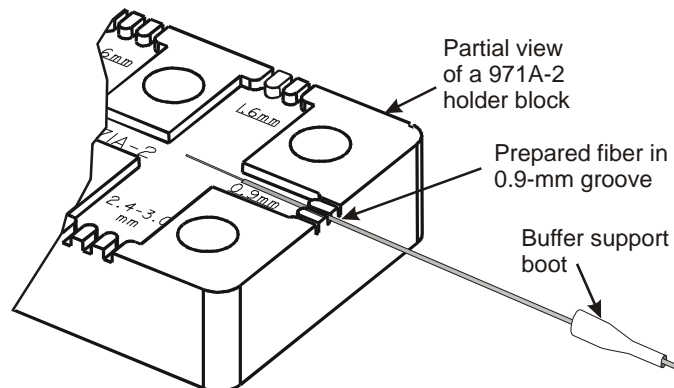
3. Measure and mark the buffered fiber 7/16 to 1/2 inch (11 to 13mm) from the end by using the scale or template provided in the tool kit.



4. Locate Micro-Strip or Heat-Strip Tool provided in the tool kit.
Note: Refer to 1026A Heat-Strip Tool operating instructions for setup.
5. Strip 7/16 to 1/2 inch (11 to 13mm) of the buffered fiber.



6. Clean stripped fiber by saturating a wipe with isopropyl alcohol (>91% 2-propanol + water) and wiping the fiber from the edge of the buffer toward the end of the fiber.
Note: If residue remains on the fiber, use a clean wipe saturated with isopropyl alcohol to wipe the fiber again.
7. Place prepared buffer into the grooves of the 971A-2 holder block to avoid breaking or contamination of the fiber (holder blocks are provided in the D-182959 Upgrade Kit).

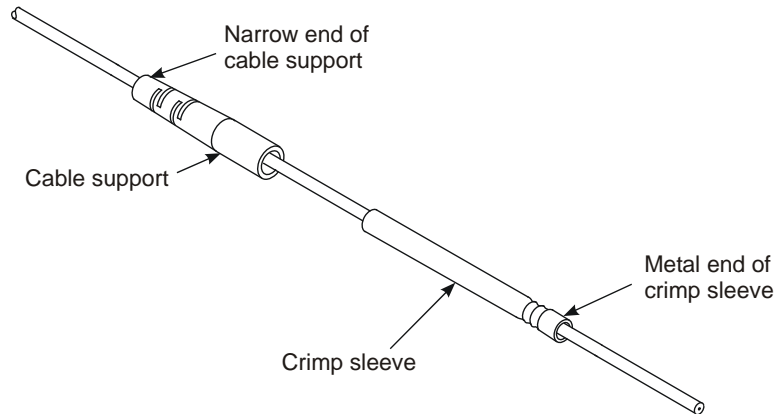


3.2.2 Cordage Preparation (1.6mm, 2.0mm, and 3.0mm Cordage)

3.2.2.1 Assemble Connector Components

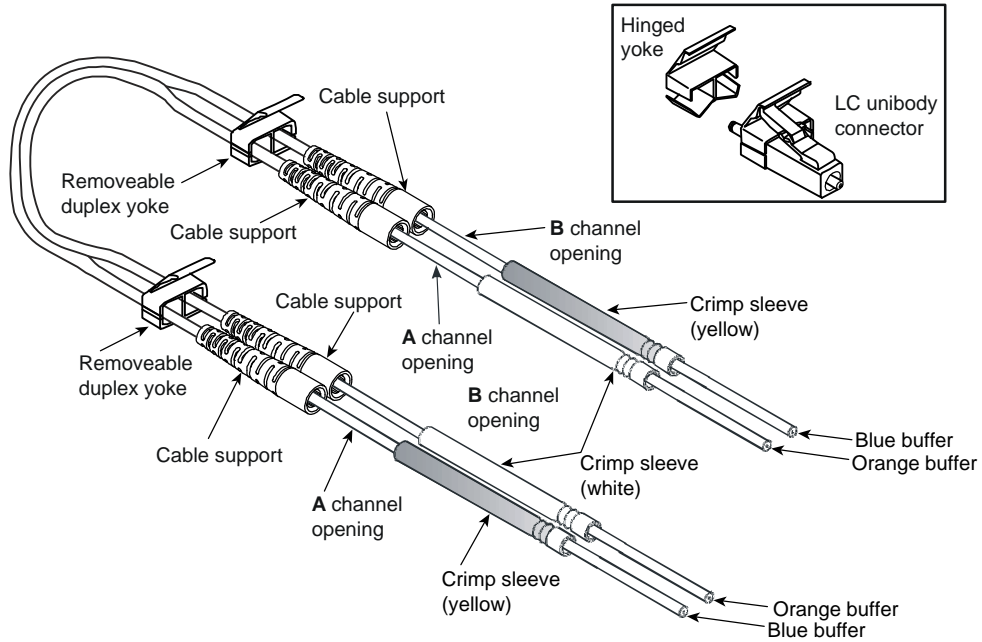
Simplex Applications on a Simplex Cord

1. Thread a cable support onto the simplex cord, narrow end first.
2. Thread a crimp sleeve onto the cord. The metal end of the crimp sleeve should be oriented toward the end of the cord.
3. Repeat Steps 1 and 2 for the other end of the cord.



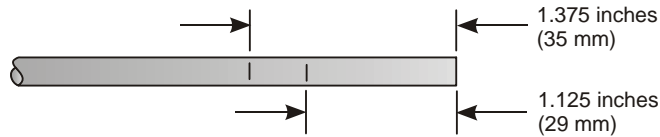
Duplex Applications on a Duplex Cord with Replaceable Duplex Yoke

1. Split the jacket on the duplex cord into two separate cords at least 9 inches (230mm) from the end.
2. Determine the buffer color of each cord by looking at the end of the cordage. The duplex cord should have a blue buffer and an orange buffer.
3. Locate the **B** channel opening on the duplex yoke.
4. At the first end, thread the cord with the blue buffer through the **B** channel opening.
5. Locate the **A** channel opening on the duplex yoke.
6. Thread the cord with the orange buffer through the **A** channel opening.
Note: Alternatively, if a hinged duplex yoke (see picture on next page) is supplied, it may be placed on the duplex cordage at this time, in the orientation described in this section and/or installed after the connectors have been terminated (see **Section 5**).
7. Thread a cable support onto each cord, narrow end first.
8. Place a yellow crimp sleeve on the cord with the blue buffer and a white crimp sleeve on the cord with the orange buffer. The metal end of the crimp sleeves should be oriented toward the end of the cord.
9. On the opposite end of the duplex cord, split the jacket into two separate cords at least 9 inches (230mm) from the end.
10. Determine which cord has the blue buffer and which cord has the orange buffer.
11. Locate the **A** channel opening on the duplex yoke.
12. Thread the cord with the blue buffer through the **A** channel opening.
13. Locate the **B** channel opening on the duplex yoke.
14. Thread the cord with the orange buffer through the **B** channel opening.
15. Thread a cable support onto each cord, narrow end first.
16. Place a yellow crimp sleeve on the cord with the blue buffer and a white crimp sleeve on the cord with the orange buffer. The metal end of the crimp sleeves should be oriented toward the end of the cord.

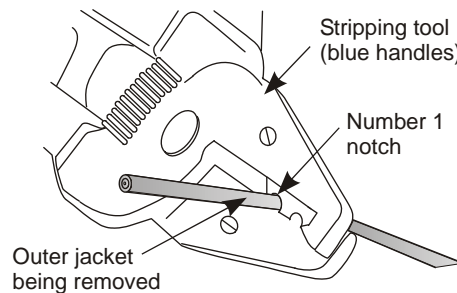


3.2.2.2 Remove Outer Jacket and Trim Strengthening Yarn

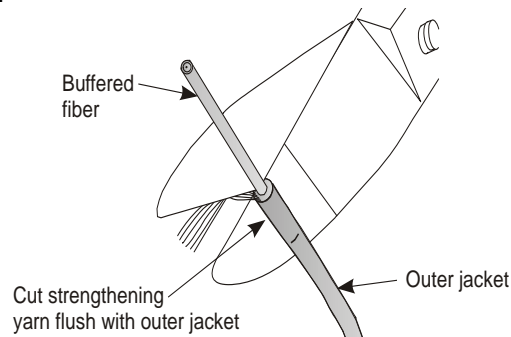
1. Locate the template and pen provided in the D-182959 Upgrade Kit.
2. Measure and mark outer jacket at 1.125 inches (29mm) and at 1.375 inches (35mm) from the end.



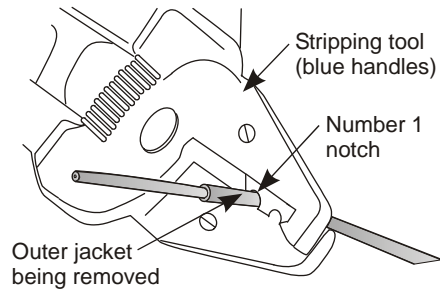
3. Use the 700A stripping tool to remove outer jacket at the 1.125 inches (29mm) mark.



4. Lightly twist the strengthening yarn into one bundle and use scissors to cut yarn flush with the end of the outer jacket.



5. Use the 700A stripping tool to remove outer jacket at the 1.375 inches (35mm) mark. This will expose 0.25 inch (6mm) of yarn.



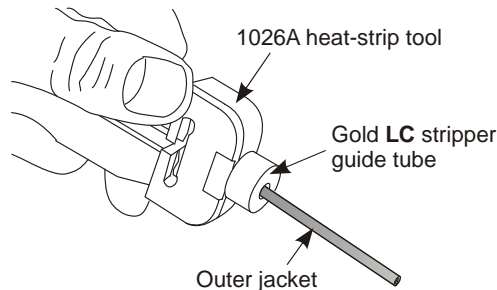
6. Flare the shortened strengthening yarn evenly around the cable. The brush from the 1026A stripper tool can be used.

3.2.2.3 Remove Buffer and Fiber Coating

Note: Refer to 1026A Heat-Strip Tool operating instructions for heat-strip tool setup. The Heat-Strip Tool is used mainly for nylon and **Hytrel**[®] buffered fiber.

1. Locate the Micro-Strip or Heat-Strip Tool.
2. Locate the gold LC stripper guide tube (D-182959 Upgrade Kit).
3. Fully insert the tube into the tool.
4. Insert buffered fiber into the guide tube until the jacket and strengthening yarn hit the appropriate stop inside the guide tube.

Note: Do not force the cord into the guide tube. If the buffer does not go through the guide tube easily, trim 0.03125 inch (0.8mm) from end of buffer. The end of the buffer occasionally becomes flattened when the cord is initially cut. The buffered fiber should protrude approximately 0.55 inch (14mm) into the guide tube.

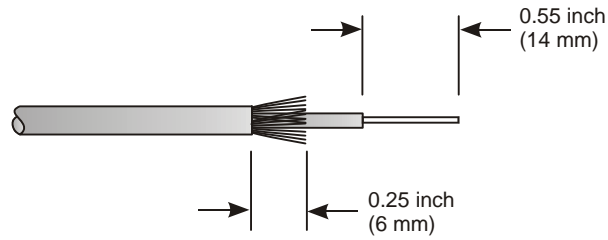


CAUTION: Proper stripping lengths and procedures are required for best connector pull-proof performance.

5. When stripping nylon or Hytrel buffered fiber, close the handles of the tool and wait 6 to 10 seconds for the softening of the buffer to occur.
6. Wrap the cord around your index finger and pull the fiber from the tool with one smooth and straight motion.

Note: Wrapping the cord around your index finger may prevent the buffered fiber from slipping out of the jacket during the stripping operation.

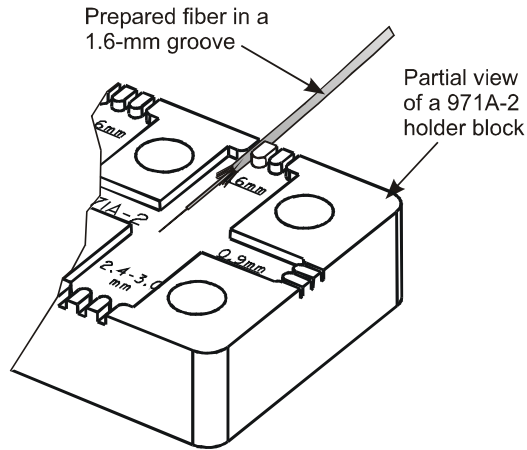
CAUTION: The buffer must not be allowed to move within the cord while stripping. Do not strip additional buffer length if buffer pulls from cordage. Buffer will normally push back into cord during connector plug assembly.



3.2.2.4 Clean Stripped Fiber

1. Saturate a wipe with isopropyl alcohol (>91% 2-propanol + water).
2. Start at the coating end and wipe toward the fiber end.
3. Place the prepared cord into the grooves of the 971A-2 holder block to avoid breaking or contamination of the fiber (holder blocks are provided in the D-182959 Upgrade Kit).

Note: If residue remains on the fiber, use a clean wipe saturated with isopropyl alcohol to wipe the fiber again.

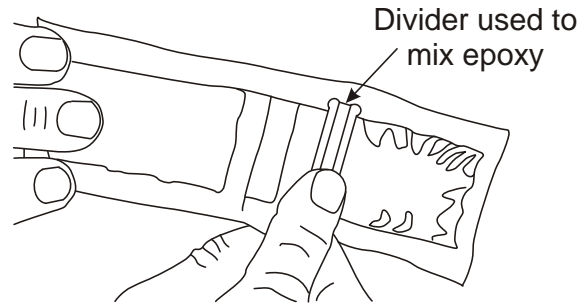


3.3 Epoxy Preparation

The supplied epoxy comes in a two-part package. A divider separates the resin from the hardener. The divider must be removed to allow the epoxy to be mixed. The epoxy is then loaded into a syringe.

! **CAUTION:** Avoid contact of epoxy with skin.

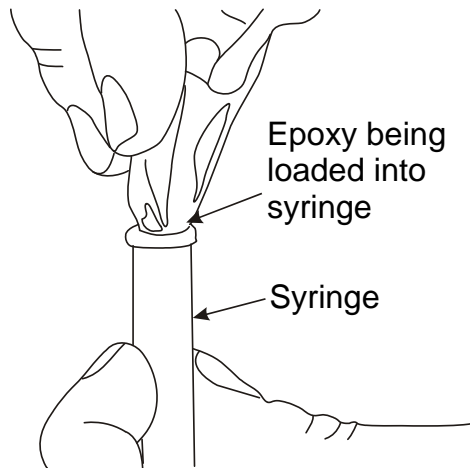
1. Remove the divider between the resin and the hardener.
2. Mix the epoxy using the divider.



Note: The epoxy must be thoroughly mixed until both parts are blended into a smooth uniform color.

3. Locate the syringe in the multimode LC Consumable Kit or Singlemode LC Consumable Kit.
4. Place the syringe tip on the syringe and twist to lock in place.
5. Remove the plunger from the syringe.
6. Fold the epoxy package in half and cut off one of the package corners.
7. Squeeze the mixed epoxy into the syringe.

Note: A 3/4-inch (19mm) length of epoxy will be enough for about 50 connectors.



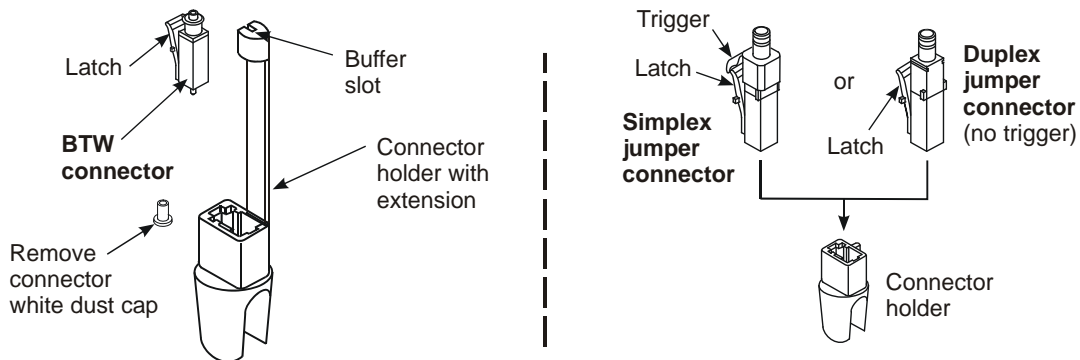
8. Replace the plunger into the syringe.
9. Remove air pockets from the syringe by holding the syringe tip upward and ejecting epoxy until the air pockets are removed.

3.4 Connector Installation

Connectors are provided in packages that must be ordered by product codes (see **Section 1.1** for LC Connector Product Codes). Each connector is fitted with a white dust cap to protect the connector tip from damage and contamination. During the connector installation process, a holder with extension (provided in the 1032H Kit and the D-182959 Upgrade Kits) is used to protect the fiber protruding from the connector tip and to aid in the handling of the small connectors. The slot in the extension holds the buffer in the correct position until the epoxy sets.

3.4.1 Prepare the Connector

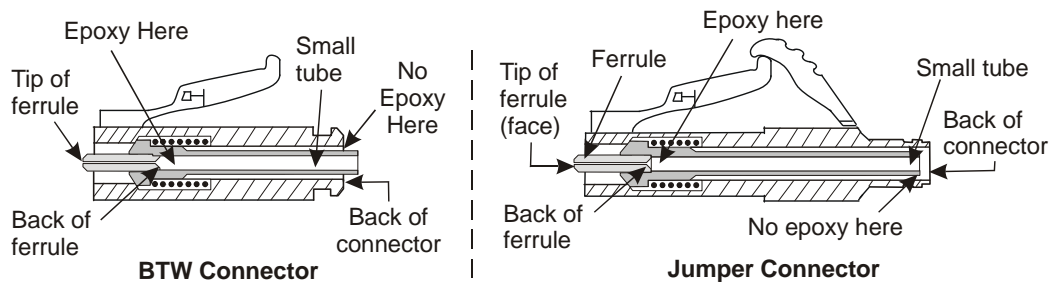
1. Locate the connector to be installed and remove the white dust cap.
2. Hold the connector towards the light and check to make sure the hole and the tip are clear.
3. If necessary, clear the hole using the music wire (furnished).
When terminating to 900µm buffer, locate a connector holder with extension and snap the BTW LC into the holder.
4. When terminating 1.6/2.0/3.0mm cordage, locate an LC holder (w/o extension) and snap the jumper LC into the holder.



3.4.2 Apply Epoxy

Epoxy is injected into two areas of the connector: (1) inside of the ferrule and (2) at the back of the ferrule. The syringe is first used to inject epoxy into the ferrule. This epoxy bonds the stripped fiber to the ferrule. Before removing the syringe from the connector, epoxy must next be deposited at the back of the ferrule. This epoxy bonds the buffer at the back of the ferrule.

Note: **DO NOT** apply an excessive amount of epoxy to either the ferrule or at the back of the ferrule, as per figures below.



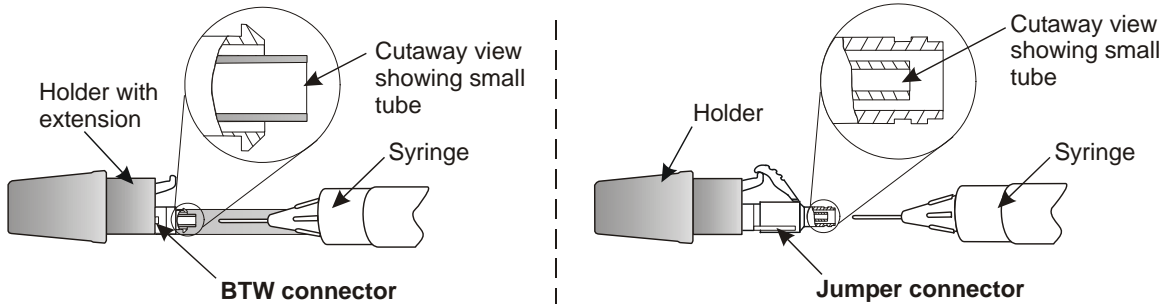
1. Locate the small tube inside the back of the connector.
2. Carefully insert the tip of the syringe into the small tube until it bottoms.

CAUTION: In the following step, do not apply excess epoxy to the tip of the ferrule.

3. Inject epoxy into the ferrule by slowly pressing the syringe plunger until the epoxy **just** appears at the connector tip (face of the ferrule).

- Deposit epoxy at the back of the ferrule by pulling the tip of the syringe back slightly and momentarily injecting a small amount of epoxy at the back of the ferrule.

CAUTION: When removing syringe from the connector in the following step, do not allow epoxy on syringe tip to contaminate the small tube or the back of the connector.



- Release pressure on plunger, wait a moment, and then remove the syringe from the connector.

3.4.3 Insert Fiber, BTW LC and Jumper LC

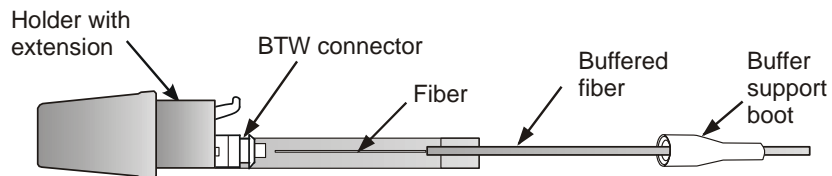
3.4.3.1 Insert Fiber, BTW LC

- Remove prepared fiber from holder block.
- Insert the exposed fiber into the small tube inside the connector and carefully feel for the opening in the ferrule.

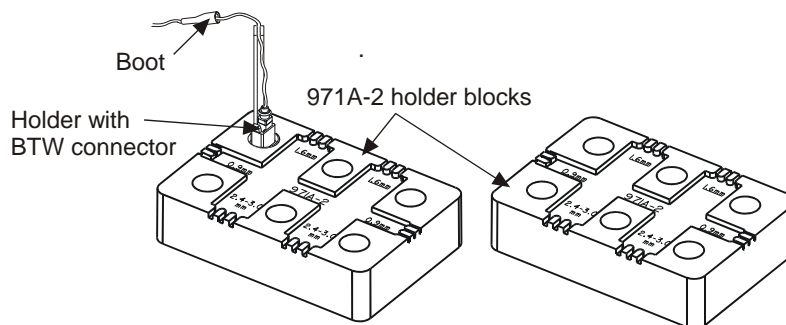
Note: Rotating the fiber or the connector assembly may help to locate the opening.

CAUTION: Only perform the following step once.

- When the fiber is seated, pull it back slightly and watch for fiber movement at the tip of the connector to make sure the fiber is not broken.
- Reposition the fiber back into the connector.
- Ensure that the buffer support boot is pushed back on cable.



- Push buffer in slot at end of holder extension.
- Store up to 12 BTW connectors in the 971A-2 holder blocks.



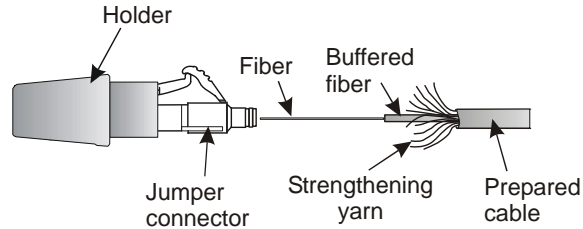
3.4.3.2 Insert Fiber, Jumper LC

1. Remove prepared fiber from holder block.
2. Insert the exposed fiber into the small tube inside the connector and carefully feel for the opening in the ferrule.

Note: Rotating the fiber or the connector assembly may help to locate the opening.

⚠ CAUTION: Only perform the following step once.

3. When the fiber is seated, pull it back slightly and watch for fiber movement at the tip of the connector to make sure the fiber is not broken.
4. Reposition the fiber back into the connector.

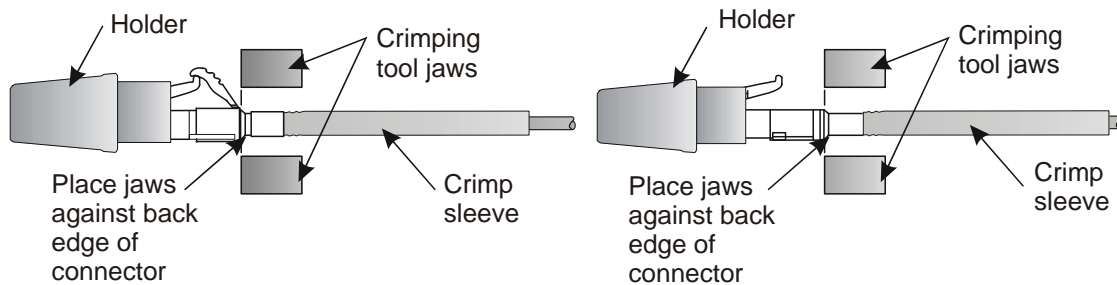


3.4.4 Install Crimp Sleeve–Jumper LC Only (1.6mm, 2.0mm, and 3.0mm Cordage)

5. Slip the cable crimp sleeve assembly over the back of the connector while capturing the strengthening yarn.
6. Using the 1510LC crimping tool (supplied in the D-182959 kit), place the square edge of the connector against one edge of the crimp jaw with the crimp sleeve assembly lying through the crimp jaws.

⚠ CAUTION: Crimping the crimp sleeve more than once can weaken the connector.
CRIMP ONLY ONCE.

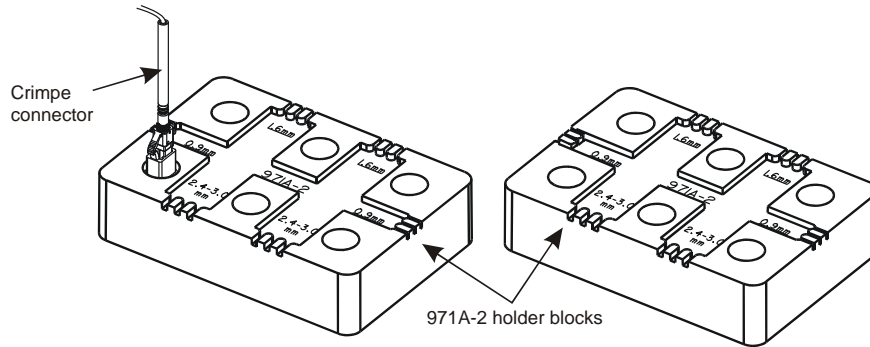
7. Apply pressure until crimping tool completely closes and automatically opens.



Simplex Jumper Connector

Duplex Jumper Connector

4. **For 3.0mm cordage**, the crimp can on the crimp sleeve assembly is longer than the standard 1.6mm cordage crimp sleeve. **An additional crimp is required along the length of the crimp sleeve.**
5. Store crimped connector vertically in the holder block until up to 12 simplex or 6 duplex connectors have been crimped.



3.4.5 Cure Connector Assemblies

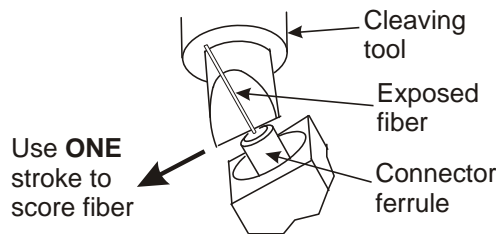
1. When the desired number of connectors has been prepared, place the holder block next to the preheated oven.
2. Place prepared connector assemblies into the heat tubes in the oven ports.
3. Ensure that the connector assemblies are sitting at the bottom of the oven ports.
4. Remove the assemblies from the oven and heat tubes after they have cured for 10 minutes.

3.4.6 Cool Connector Assemblies and Attach Buffer Support Boot

1. Place cured assemblies back into the holder block to cool.
2. Select a connector assembly and remove the fiber buffer from the holder slot.
3. Push the cable support boot onto the connector.
4. Repeat Steps 2 and 3 for each connector assembly.

3.4.7 Score the Fiber

1. Remove the connector from the connector holder.
2. Obtain the 975A cleaving/scoring tool. Then, place the cleaving/scoring tool against the ferrule and exposed fiber.
Note: Score the fiber as close to the ferrule as possible while at the same time being careful not to break the fiber.
3. Using one stroke of the cleaving/scoring tool, gently score the exposed fiber.
4. Remove the exposed fiber by gently pulling straight away from the cable.
Note: If fiber did not readily pull off, score fiber again on opposite side and gently pull fiber.
5. Dispose of the fiber scraps in a safe manner.
Note: The adhesive surface on a piece of tape is a convenient place to hold fiber pieces until disposal.



3.4.8 Polish Connector End—Multimode and Singlemode

Proceed to **Section 5**.

4 Assembly Instructions for EZ Method

4.1 Fiber Preparation

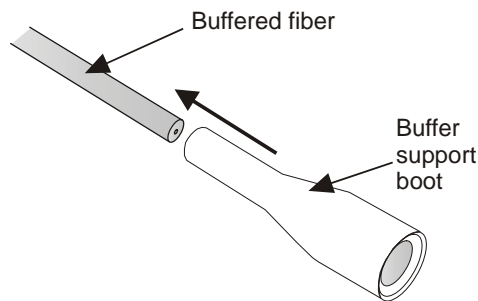
1. Remove cable sheath and outer jacket.

CAUTION: Be careful not to cut into fibers while removing cable sheath and outer jacket.

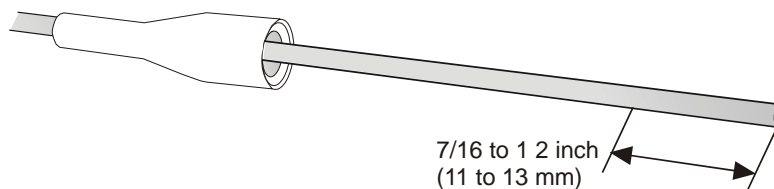
Note: Be certain to expose enough buffered fiber to:

- Allow access to the curing oven and other connector preparation functions
- Prevent stress on fibers during connector preparation
- Provide adequate fiber length for placement in associated equipment cabinet.

Note: Typical working length for buffered fibers is 24 to 36 inches (0.6 to 0.9 meters).



2. Install buffer support boot by slipping the small end of boot onto the buffered fiber.
3. Measure and mark the buffered fiber 7/16 to 1/2 inch (11 to 13mm) from the end by using the scale or template provided in the tool kit.



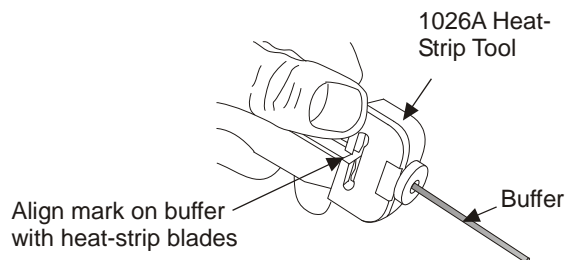
4. Locate the Micro-Strip or Heat-Strip Tool provided in the Tool Kit.

Note: Refer to 1026A Heat-Strip Tool operating instructions for setup.

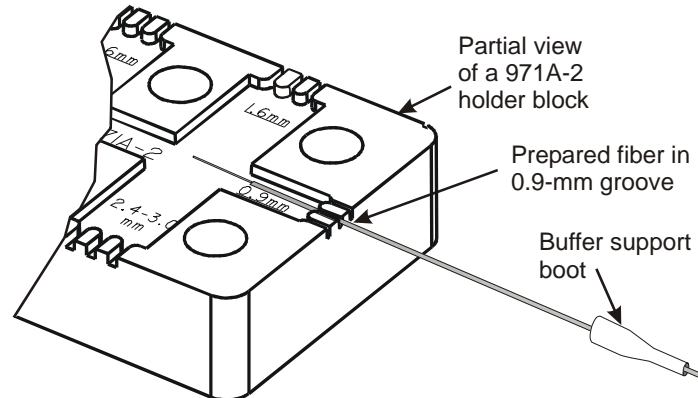
5. Strip 7/16 to 1/2 inch (11 to 13mm) of the buffered fiber.

Note: If residue remains on the fiber, use a clean wipe saturated with isopropyl alcohol to wipe the fiber again.

6. Clean stripped fiber by saturating a wipe with isopropyl alcohol (>91% 2-propanol + water) and wiping the fiber from the edge of the buffer toward the end of the fiber.



- Place prepared buffer into the grooves of the 971A-2 holder block to avoid breaking or contamination of the fiber (holder blocks are provided in the D-182959 Upgrade Kit).



4.2 Prepare Adhesive

⚠ WARNING: Avoid contact of adhesive with skin.

Note: Refer to **Table A** for recommended adhesive temperatures.

Table A. Recommended Usage Temperatures for Adhesive

Condition	Temperature
Storage	-5°C to 30°C (23°F to 86°F)
Installation	0°C to 38°C (32°F to 100°F)
Operating	-40°C to 75°C (-40°F to 167°F)

- Shake the bottle of adhesive vigorously.
- Remove the cap from the bottle.
Note: If bottle has not been opened, use a straight pin to make a hole in the tip of nozzle.
- Remove plunger from syringe and twist a syringe tip onto the end of syringe.
- Squeeze bottle to squirt adhesive into syringe.
- Place plunger into syringe and expel air from syringe.
Note: Alternately, simply twist a syringe tip onto the nozzle of the adhesive bottle, making sure it fits snugly.

4.3 Prepare Primer

⚠ WARNING: Avoid contact of primer with skin.

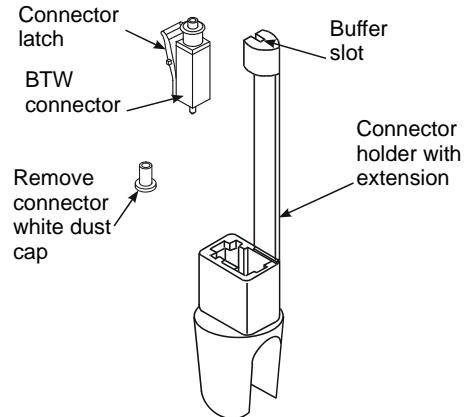
- Place the 1-inch long (25mm) syringe tip onto the syringe and twist to lock in place.
 - Shake the bottle of primer vigorously.
 - Remove plunger from syringe.
 - Squeeze primer bottle to squirt adhesive into syringe.
 - Place plunger into syringe to expel excess air.
Note: Alternatively, simply twist a syringe tip onto the nozzle of the primer bottle, making sure it fits snugly.
- Note:** Once the installation procedure has been completed, any extra primer in the syringe may be placed back into the original bottle; however, the syringe tip should be thrown away to avoid getting adhesive, which may be on the tip, mixed in with the primer.

4.4 Connector Installation

Connectors are provided in packages that must be ordered by product codes (see **Section 1.1** for LC Connector Product Codes). Each connector is fitted with a white dust cap to protect the connector tip from damage and contamination. During the connector installation process a holder with extension is used to protect the fiber protruding from the connector tip and to aid in the handling of the small connectors. The slot in the extension holds the buffer in the correct position until the adhesive sets.

4.4.1 Apply Primer to the Connector Tip

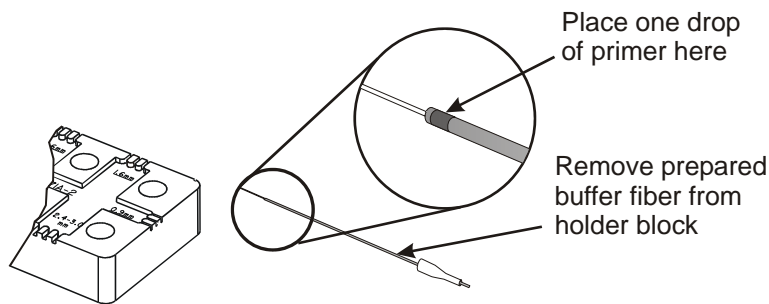
1. Locate connector and connector holder with extension (700 005 135).
2. Remove the white dust cap from tip of connector.
3. Place two texwipes on the work table, one on top of the other, and place a drop of primer on the texwipes.
4. Wipe the tip of the ferrule through the drop of primer on the texwipes, one time.
5. Snap connector into the connector holder.



4.4.2 Apply Primer to Buffer

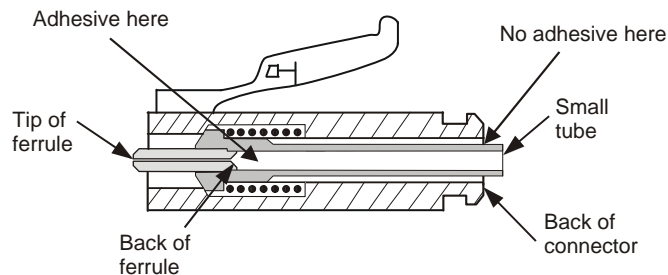
⚠ CAUTION: DO NOT get primer on the fiber or the holder block.

1. Remove the prepared buffer fiber from the holder block.
2. Carefully place one drop of primer onto buffer, just back from where the buffer was stripped (do not put primer on the bare fiber).
3. Replace prepared buffered fiber in holder block.



4.4.3 Apply Adhesive to Connector

1. Locate the small tube at the back of the connector.
2. Carefully insert syringe tip (with attached adhesive bottle) into the small tube until tip bottoms at the back of the ferrule.

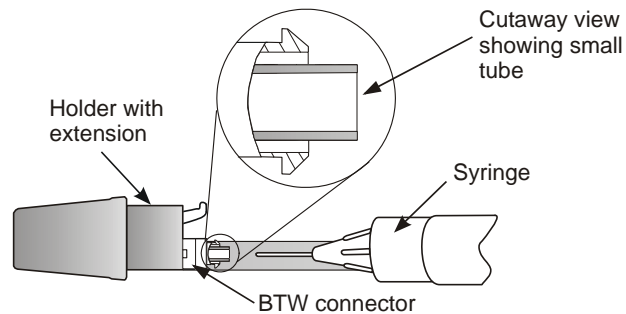


⚠ CAUTION: In the following step, do not apply excess adhesive to connector tip of ferrule. The adhesive is a low viscosity fluid and if applied in excess will flow to the ferrule's chamfer and sidewalls. Excess adhesive on the ferrule chamfer and sidewalls should be removed with the edge of a wipe.

3. Inject adhesive into the ferrule by slowly pressing and squeezing the adhesive bottle until the adhesive exits the connector tip.
4. Deposit adhesive at the back of the ferrule by pulling the syringe tip back slightly and momentarily injecting a small amount of adhesive at the back of the ferrule.

⚠ CAUTION: When removing syringe tip from the connector in the following step, do not allow adhesive on syringe tip to contaminate the small tube or the back of the connector.

5. Release pressure on bottle, wait a moment, and then remove syringe tip from the connector.



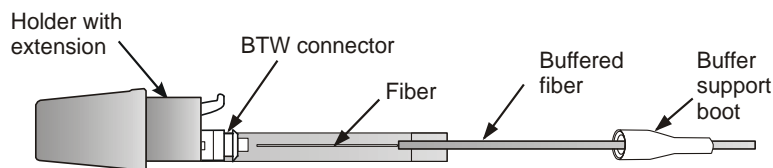
4.4.4 Insert Fiber into Connector

1. Remove prepared fiber from holder block.
2. Insert the exposed fiber into the small tube inside the connector and carefully feel for the opening in the ferrule.

Note: Rotating the fiber or the connector assembly may help to locate the opening.

⚠ CAUTION: Only perform the following step once.

3. When the fiber is seated, pull it back slightly and watch for fiber movement at the tip of the ferrule to make sure the fiber is not broken.
4. Reposition the fiber back into the connector.
5. Ensure the buffer support boot is pushed well away from the holder extension slot and back onto buffered fiber.
6. Push buffer in slot at end of holder extension.
7. Place the connector holder into holder block. This will prevent adhesive from flowing onto the ferrule chamfer and sidewall surfaces.



4.4.5 Cure Adhesive and Attach Buffer Support Boot

1. Allow adhesive to cure for 1 minute.

Note: Excessive adhesive on the ferrule will not cure and must be cleaned off after polishing.

2. Remove the connector from connector holder.

⚠ CAUTION: In the following step, exercise care not to break the exposed fiber.

3. Use the edge of a wipe to clean any uncured adhesive from around the fiber where it protrudes from the ferrule tip.
4. Push the cable support boot onto the connector.

Note: Exercise care not to break the exposed fiber.

4.4.6 Score the Fiber

1. Obtain the 975A cleaving/scoring tool. Then, place the scoring edge of the cleaving/scoring tool against the ferrule and exposed fiber.

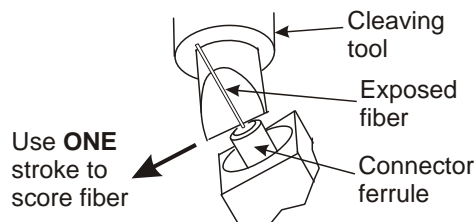
Note: Score the fiber as close to the ferrule as possible while at the same time being careful not to break the fiber.

2. Using one stroke of the cleaving/scoring tool, gently score the exposed fiber.
3. Remove the exposed fiber by gently pulling straight away from the cable or by pushing against the free end of the exposed fiber until the fiber pops off.

Note: If fiber did not readily pull off, score fiber again on opposite side and gently pull fiber.

4. Dispose of the fiber scraps in a safe manner.

Note: The adhesive surface on a piece of tape is a convenient place to hold fiber pieces until disposal.



5 Polishing Instructions

5.1 Polish Connector End—Multimode and Singlemode

⚠ WARNING: These procedures are not intended for use on flat-tipped LC Connectors.

⚠ CAUTION: Contaminants on polishing materials can cause scratches on the end face of the fiber/ferrule. Throughout the entire polishing process, keep work area and all polishing materials clean. Clean polishing papers between each step using a wipe moistened with alcohol.

⚠ CAUTION: Uncured adhesive on ferrule cylindrical surface can cause problems during mating/demating of connectors. Clean all ferrule surfaces using a wipe moistened with alcohol.

Note: **Table B** (multimode) and **Table C** (singlemode) provide quick overviews for polishing.

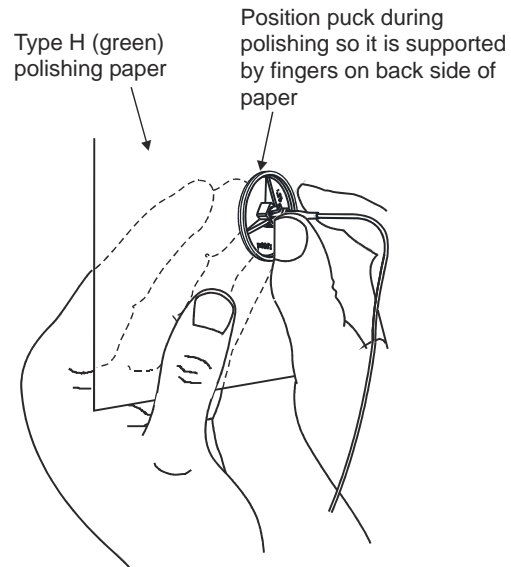
Note: Cut one sheet of type H polishing paper (green, mylar-backed) into four pieces.

5.1.1 Step 1. Remove Fiber Stub

- a. In one hand, hold one of the cut pieces of type H polishing paper (green, dull side facing the connector).
- b. In the other hand, hold the connector in the polishing puck.

Note: When performing the following step, support the polishing puck with the fingers on back side of paper. Be careful not to break the fiber stub.

- c. Air polish using light figure-8 motions about 1 inch (25mm) in diameter; carefully polish off fiber stub. Gently begin light figure-8 strokes to allow polishing paper to polish down the fiber stub without snagging or breaking the stub. Polish approximately 20 strokes.



5.1.2 Step 2. Remove Excess Adhesive

- a. Use canned air to clean the back and front of one sheet of type H polishing paper (green).
- Note:** Each sheet of polishing paper is cut to fit squarely on the polishing plate.
- b. Saturate a wipe with isopropyl alcohol (>91% 2-propanol + water).
- c. Obtain a glass plate and a polishing tool (T2000A or T2001A) from the tool kit.
- d. Clean the connector ferrule, glass plate, and polishing tool with the saturated wipe between polishing steps.

- e. Use canned air to blow dry the connector ferrule, glass plate, and the polishing tool.
- f. Insert the LC connector into the T2000A or T2001A polishing tool.
- g. Place one sheet of type H (6"x 6") polishing paper (green), dull side up, over the plate.
- h. Gently place the polishing tool and connector onto the polishing paper.

Note: In the following step, you should **not** feel any drag between the fiber and the paper. Start with light pressure and use figure-8 strokes that are approximately 2 inches (51 mm) high and 1 inch (25mm) wide. The figure-8 strokes must be well rounded to ensure complete removal of the adhesive from the end of the ferrule.

- i. Polish **MM** and **SM Connectors**:

- **MM Connectors** – Gently polish the connector for 12-15 large figure-8 strokes to remove all epoxy/adhesive from the ferrule end face. For a more uniform polish, rotate the connector and puck 90 degrees every ten strokes.
- **SM Connectors** – Using firm pressure, polish the connector with 8-10 large figure-8 strokes to remove all epoxy/adhesive from the ferrule end face.

⚠ DANGER: *Optical fibers may emit radiation if the far end is connected with a working laser or light-emitting diode (LED). Never view the fiber end of a cable or plug with the naked eye or any optical instrument until absolute verification is established that the fiber is disconnected from any laser or LED source.*

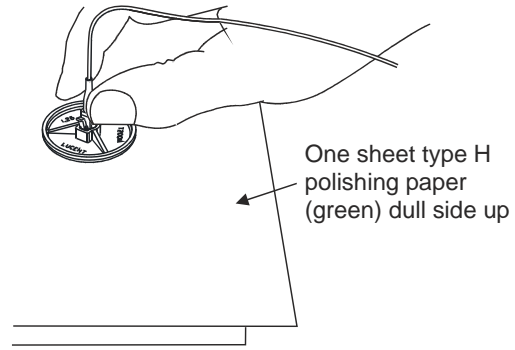
- j. Using a 7X magnifier or LC microscope supplied in the 1032B5/B6 or 1032H Kit, check the tip of the ferrule. No excess adhesive should surround the fiber, ferrule chamfer, and cylindrical surfaces.

Note: If excess adhesive is found, continue to use type H polishing paper (green) to remove the excess. Inspect after every 5 polishing strokes.

Note: To be certain that the ferrule is free of any uncured adhesive, clean the connector tip, chamfer, and cylindrical surfaces with a moistened wipe.

Note: This concludes the polishing procedure for multimode connectors.

Section 5.1.3 is to be performed on singlemode connectors only.



5.1.3 Step 3. Singlemode — Improve Return Loss

- Place one sheet of type E (white) polishing paper over the type H paper (green), dull side up.
- Remove the connector from the polishing tool.
- Place a small amount of distilled water on the type E paper and distribute the water over the polishing area using several figure-8 strokes with the empty polishing tool.
- Place the connector back into the LC polishing tool.
- Polish the connector using 6-8 well-rounded, figure-8 strokes.

Note: To be certain that the ferrule is free of any uncured adhesive, clean the connector tip, chamfer, and cylindrical surfaces with a moistened wipe.

Note: This concludes the polishing procedure for singlemode connectors.

Table B. Overview—Polishing Multimode

Step	Polishing Materials	No. of Figure-8 Strokes	Notes
1	Type H (green, mylar backed)	20, then as required	Air polish with polishing puck to remove fiber stub.
2	1 sheet (green) type H over polishing plate	12-15, then as required	Dry polish to remove cured adhesive.
Repair polish, only if needed	2 sheets type F (yellow) over Type H (green) polishing paper	10 strokes, then as required to remove flaw (25 strokes max)	Wet type F paper with distilled water.

Table C. Overview—Polishing Singlemode

Step	Polishing Materials	No. of Figure-8 Strokes	Notes
1	Type H (green, mylar backed)	20, then as required	Air polish with polishing puck to remove fiber stub.
2	1 sheet (green) type H over polishing plate	8-10, then as required	Dry polish to remove cured adhesive.
3	1 sheet (white) type E over H polishing paper on plate	6	Wet type E paper with distilled water for final polish.
Repair polish, only if needed	2 sheets type F (yellow) over Type H (green) polishing paper	10 strokes, then as required to remove flaw (25 strokes max)	Wet type F paper with distilled water. After flaw is removed, repeat Step 3.

5.2 Repair Polishing (Only If Needed)

1. Place two sheets of type F paper (yellow, from kit 700 218 076), one on top of the other, over Type H polishing paper, dull side up, placed on the glass plate.
2. Wet the polishing surface with distilled water. Distribute the water over the polishing area using several figure-8 strokes with an empty polishing tool.
3. Install the connector into the polishing tool.
4. Using firm pressure, polish the connector using 10 well-rounded figure-8 strokes, to attempt to remove the flaw. If the flaw is not removed, continue to polish, but do not exceed 25 repair strokes total, to avoid over polishing the ferrule. If an unacceptable flaw is still present after 25 strokes, the connector should be replaced/reterminated.

Note: This concludes the repair procedure for multimode fibers.

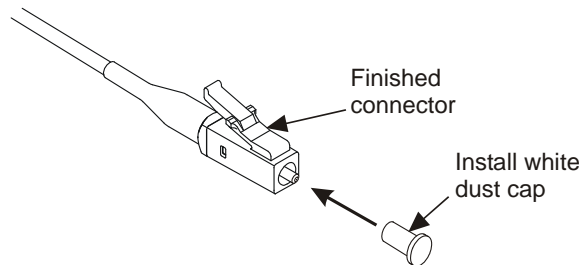
Note: To be certain that the ferrule is free of any uncured adhesive, clean the connector tip, chamfer, and cylindrical surfaces with a moistened wipe.

5. For singlemode fibers only, repeat **Section 5.1.3** in **Section 5.1**.

5.3 Final Assembly

Once the polishing is finished and the end finish is acceptable, cover the end of the connector with a white dust cap.

Note: To be certain that the ferrule is free of any uncured adhesive, clean the connector tip, chamfer, and cylindrical surfaces with a moistened wipe.



6 Assembly on Nonbuffered Fiber

Note: Use the appropriate procedures for preparing outside plant (OSP) cable. See **636-299-110-5** for more information on grounding, blocking, and buffering fiber optic cable.

1. Follow the instructions in the D-181755 Kit for direct termination.
Note: To prevent cutting the fiber by mistake, do not attempt to remove the fiber coating until a buffer tube has been placed over the bare fiber.
Note: The fiber should extend 5/8 inch (15.9mm) beyond the end of the buffer tube.
2. Clean blade area on mechanical stripper and adjust the stop to remove 5/8 inch (15.9mm) of coating from the fiber.
3. Insert the fiber through the guide tube until the fiber butts against the stop.
4. Close the tool handles and gently pull the fiber from the tool to strip the coating.
5. Complete the connector assembly on nonbuffered fiber by using **Section 4** (EZ Method).

7 Fiber Inspection

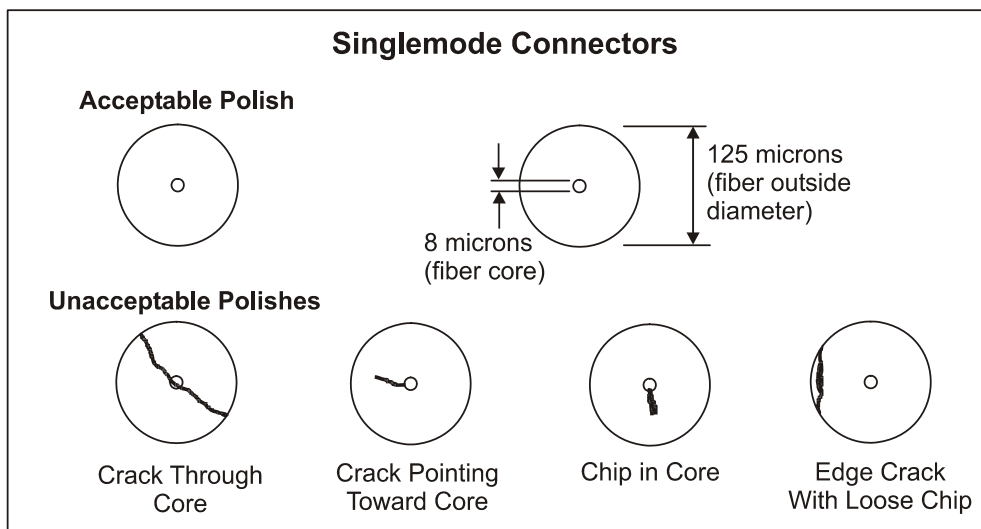
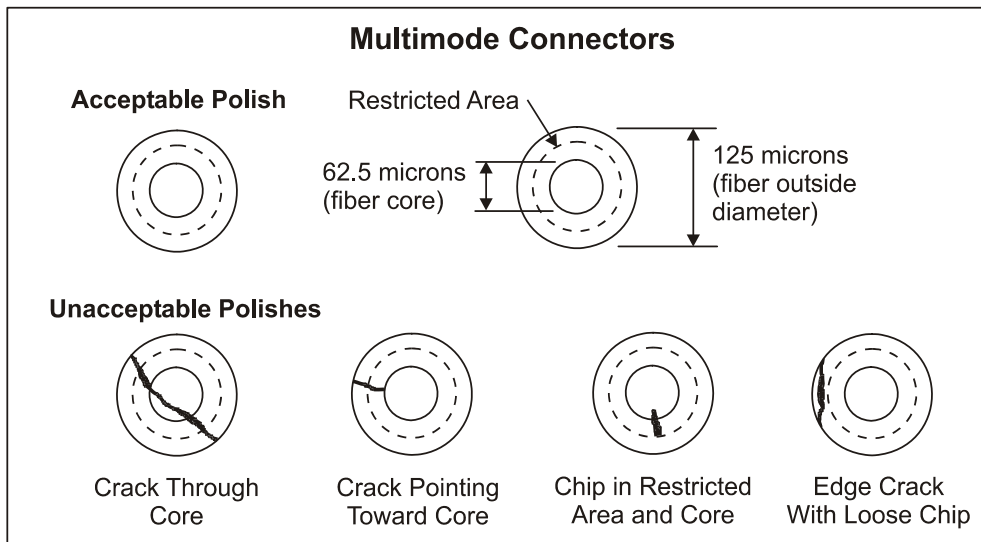
⚠ DANGER: *Optical fibers may emit radiation if the far end is connected with a working laser or light-emitting diode (LED). Never view the fiber end of a cable or plug with the naked eye or any optical instrument until absolute verification is established that the fiber is disconnected from any laser or LED source.*

Note: The fiber end face should be clean and contaminant free.

1. Dampen a wipe with fiber cleaning solution or isopropyl alcohol (>91% 2-propanol + water).
2. Clean all surfaces of the ferrule with the dampened wipe, followed by a dry wipe.
3. Locate the LC microscope supplied in the 1032B5/B6 or 1032H Kit.
4. Insert the ferrule end of the connector into the microscope adapter (center hole).

⚠ DANGER: *A high-intensity light may be used at the other end of the fiber to illuminate fiber core.*

5. Open the microscope barrels to illuminate the connector tip and use the side wheel to focus.



8 Cleaning Instructions

8.1 LC Connector

1. Dampen a wipe with isopropyl alcohol (>91% 2-propanol + water).
2. Clean all surfaces of the ferrule with the dampened wipe, followed by a dry wipe.
3. Always inspect after cleaning and before installation.

⚠ CAUTION: The adhesive used in this process is a low viscosity fluid and can migrate to the ferrule sidewalls if not cleaned. Functionality and signal performance will be affected if the connector tip is not thoroughly cleaned. Discard cleaning sticks after each use.

8.2 LC Adapter

1. If access to the adapter is only available from one side, use a dry adapter cleaning stick (or LC adapter brush) to clean the inside of adapter.
2. If access is available from both sides of the adapter, clean the adapter with an adapter cleaning stick (or an LC adapter brush) moistened with alcohol followed by a dry adapter cleaning stick (or LC adapter brush). Inspect connector end face.

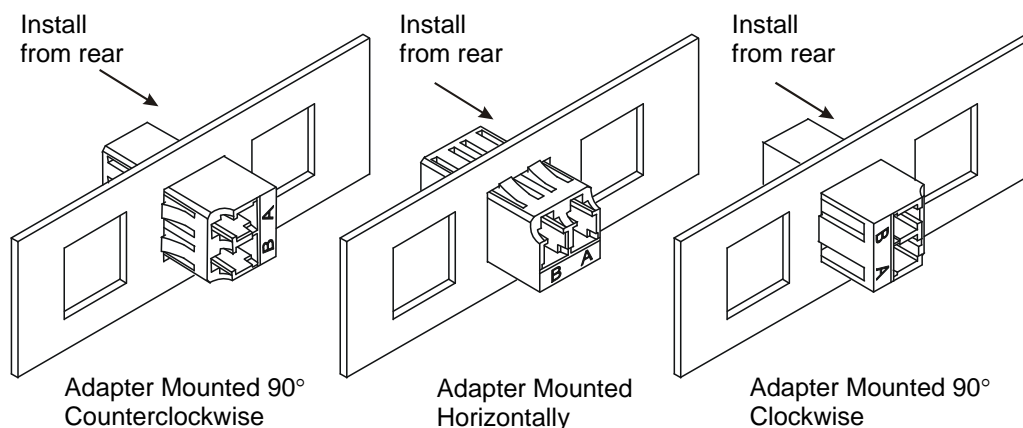
⚠ CAUTION: Do not try to clean the inner adapter sleeve with a standard pipe cleaner. The inner diameter of the sleeve is too small.

9 Adapter–Mounting and Orientation

⚠ CAUTION: The adapter should never be installed from the front of a panel or outlet.

1. Locate the panel or outlet where the adapter is to be mounted.
2. Install the adapter **from the rear** of the panel or outlet.

Note: The position markings (B and A) are for transmit-to-receive polarity guidance. It is possible to mount the adapter in any of four possible orientations (three are illustrated below) to achieve correct polarity and position of the signal within a panel. Refer to the document **SYSTIMAX SCS Duplex Fiber Polarity Guidelines for LC and SC Connectors** for further information. Depending on the particular panel or outlet, some orientations may offer improved finger access to the connectors for insertion and removal in dense applications.



10 Ordering Information

10.1 Epoxy

The approved epoxies for use with the **SYSTIMAX**[®] epoxy field installations can be obtained from the following distributors;

Product: EPO-TEK 353ND
USA

Epoxy Technologies, Inc.
14 Fortune Drive
Billerica, MA 01821
Tel. 1-800-227-2201

Asia, (Japan)
Daizo Corporation
Tel. 81-3-3246-2251
Fax 81-3-3246-2271

Europe, (France)
Poltec PI, S.A.
Tel. 33 1 48 10 39 30
Fax 33 1 48 10 08 03

Product: Tra-Bond F123MV
USA

Tra-Con, Inc.
45 Wiggans Avenue
Bedford, MA 01730
Tel. 1-800-872-2661

Asia, (Singapore)
Tra-Con Singapore
Tel. 65-29-93-071

10.2 Adhesive

For the EZ installation procedures, the following adhesives are required:

- 648 Retaining Compound (10ml) #21443
- 7090 Solventless Primer (1 oz. Bottle) # 19368
- 495 Superbonder (3 gram tube) #49504 (required on 0.9mm installations)

The approved adhesives can be obtained from **SYSTIMAX** or any Loctite Distributor. To order from **SYSTIMAX**, request Material ID 760000810 EZ Adhesives. To find the Loctite Distributor nearest you either

– Log onto their Website www.loctite.com

OR

– call 1-800-323-5106

10.3 Obtain Locally

- Distilled water.
- Isopropyl alcohol (>91% 2-propanol + water).
- Canned air (non-ozone depleting).]