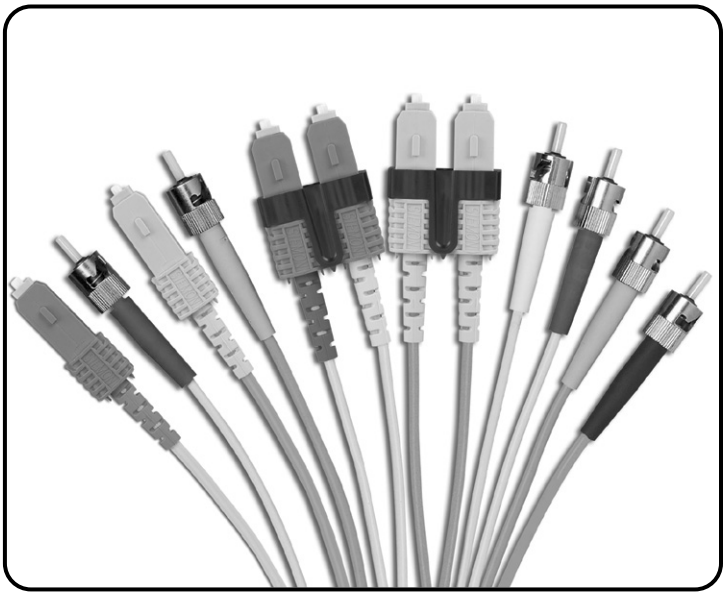
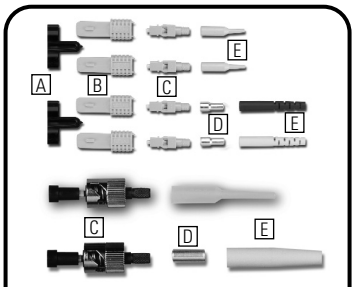
SC/ST Multimode & Singlemode Connector Termination Instructions



A Put on safety glasses and prepare the work area for termination. This involves removing and organizing all the necessary tools from the Fiber Termination Kit (P/N: FTERM-L2), and the Consumables Kit (P/N: FT-CKIT-L2).

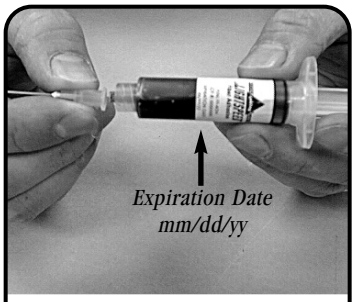
Note: To utilize the Alcohol Dispenser, fill it with 99% reagent grade isopropyl alcohol (not included).



B **COMPONENTS:**

A. Duplex Clip (SC only)
B. Connector Housing (SC only)
C. Connector body
D. Crimp Sleeve
E. Strain Relief Boot

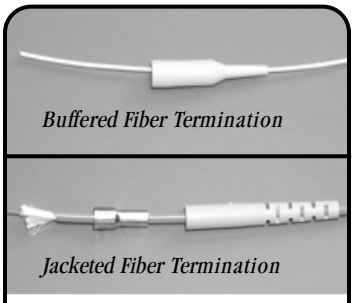
Note: Enhanced SC connectors shown throughout except where indicated.



1 Remove cap from the **LightSpeed**® adhesive syringe by unthreading it. *Install the metal syringe tip provided by threading it onto cartridge until it locks.

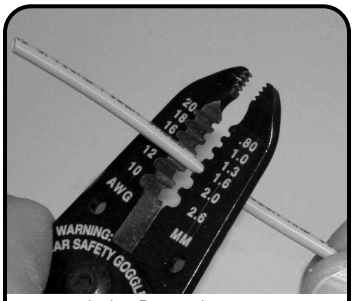
Note: Save the syringe cap to enable re-capping when a partially used syringe is returned to the case for later use.

**Tip: Use the nose of the jacket stripper for unthreading syringe caps.*

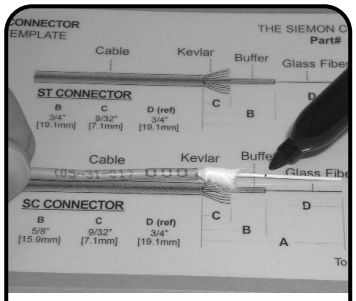


2 Slide the strain relief boot (and crimp sleeve for jacketed fiber) over the fiber in the proper orientation as shown.

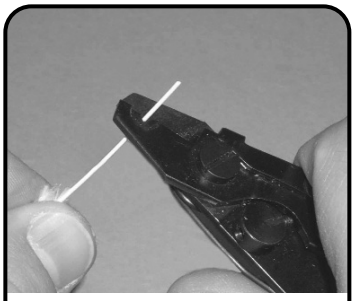
Note: One end of the SC crimp sleeve is stepped-down. Orient the crimp sleeve such that the smaller end is installed onto the cable first. One end of the ST crimp sleeve is flared out. Install the un-flared end onto the cable first.



3 *Jacket Removal:*
For Jacketed Terminations: Using the jacket stripper tool, strip off the outer jacket at the 'A' length indicated on the template card. Use the 1.6mm opening for 3.0mm fiber. Also trim the Kevlar to the 'C' length using the electrician style scissors.
For Buffered Only Terminations: Follow recommended cable slack guidelines to determine amount of jacket removal if applicable.



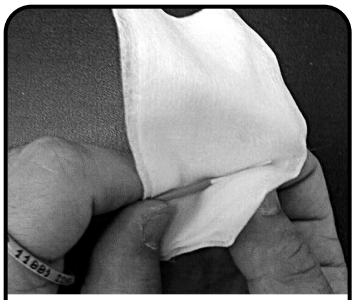
4 Using the marker pen and template card provided, measure and mark the buffer strip length as shown on the template.



5 Using the buffer strippers, strip off the buffer in at least two pieces.

Note 1: Attempting to strip the entire length of buffer in one swipe will typically result in breakage.

Note 2: Be sure the tool blade area is free of buffer debris.



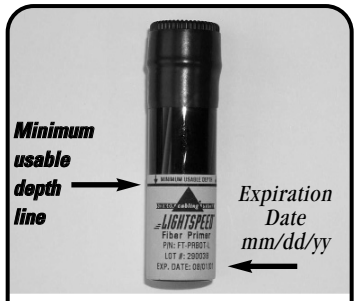
6 Using a dry, lint-free wipe, remove any remnants of the protective coating on the fiber after stripping the buffer.

Note: It is important to ensure that all remnants of the coating are removed or the fiber will not fit into the connector.

DO NOT touch fiber after cleaning.

7 Insert primer bottle into the stand. Dip the entire exposed fiber into the *LightSpeed*® primer and place in a protected area to avoid damage.

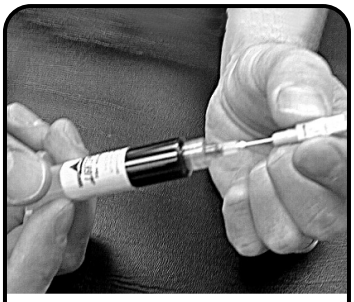
Note: It is important that the entire exposed fiber be coated with the primer including some portion of the buffer coating. For jacketed terminations, do not be concerned with keeping the kevlar strands out of the primer solution.



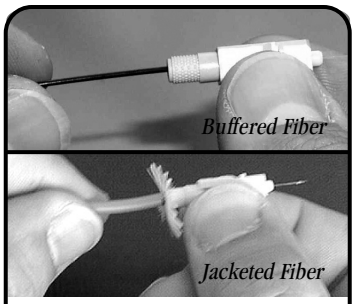
8 ***Important!!***
To avoid possible fiber breakage, do not insert the fiber so far that it contacts the bottom of the primer bottle!! The primer bottle label indicates the minimum usable depth.

Note: Cap the bottle when not in use to avoid contamination. Store both primer and adhesive between 40° F (4.4° C) and 100° F (38° C).

SC/ST Multimode & Singlemode Connector Termination Instructions

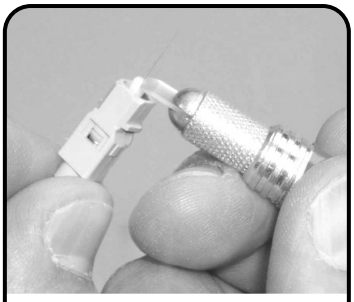


9 Remove dust cap from the connector and insert the adhesive syringe tip into connector housing until it seats firmly inside. Inject the LightSpeed® adhesive until a small dot of the adhesive appears at the ferrule tip. Also inject a small amount of adhesive into the back end of the connector. This ensures bonding of the buffer to the connector, strengthening the termination. Be careful not to overfill to prevent a backflow of adhesive.



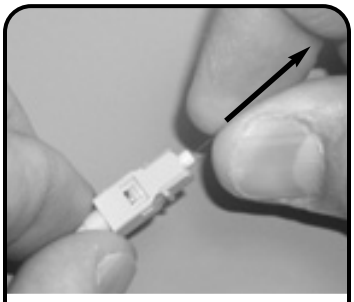
10 Insert the fiber into the connector until the buffer bottoms out inside the housing. Allow at least 30 seconds cure time before proceeding. Tip: Rotate the connector during insertion to assist in guiding the fiber into the ferrule. For jacketed fiber, allow the kevlar to fan out around the connector barrel.

Note: Once primer coated fiber touches the adhesive it will start curing instantly. Fiber insertion will become increasingly more difficult if not fully inserted within 10 to 15 seconds.



11 Hold the flat surface of the fiber scribe tool flat against the ferrule tip with the beveled edge facing up. Carefully score the fiber close to the intersection of the ferrule tip and fiber. Score on one side of fiber only.

Note: Do not use excessive pressure when scoring to prevent fiber breakage and uneven fractures. If breakage occurs, keep track of fiber piece (see note 2 in next step). Clean the adhesive off blade.

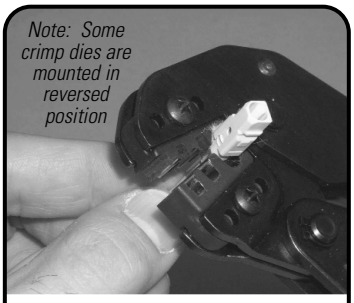


12 Remove the excess fiber with a straight, non-twisting pull and deposit in a safe place (i.e. onto a piece of tape or in the debris container).

Note 1: If fiber does not readily pull off, repeat previous step – scoring on opposite side of fiber.

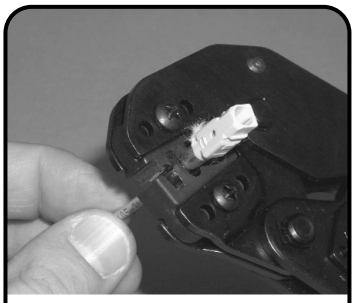
Note 2: Fiber pieces are difficult to see. If not properly disposed, glass fibers may cause serious injury.

Note 3: Be careful not to bump or brush end-face before polishing.



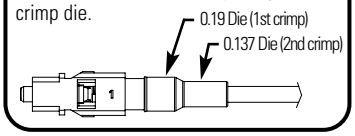
13 *Jacketed Fiber Only, SC Connector*

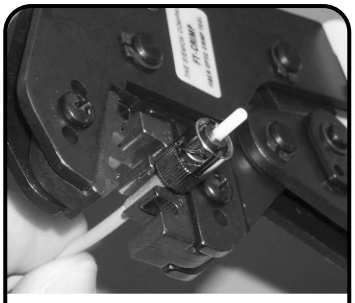
Slide the crimp sleeve up over the kevlar so that it is seated against the shoulder of the connector housing, being sure that it does not move prior to being crimped. Position the crimp tool at the end of the crimp sleeve (large end) using the larger or 0.19 inch opening in the crimp die. Crimp the sleeve by closing the crimp tool completely and releasing.



14 *Jacketed Fiber Only, SC Connector*

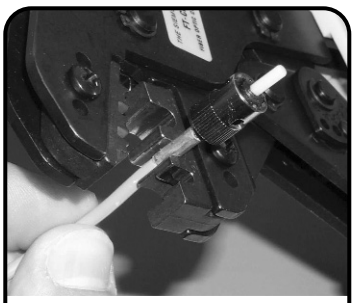
A second crimp is required to secure the jacket. Crimp this time onto the stepped-down portion of the crimp sleeve using the smaller or 0.137 inch opening in the crimp die.





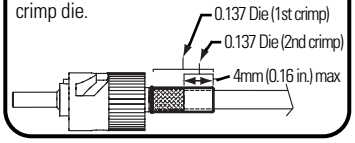
15 *Jacketed Fiber Only, ST Connector*

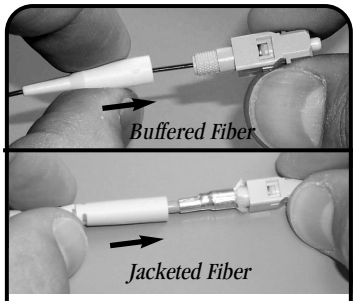
Slide the crimp sleeve up over the kevlar so that it is seated against the shoulder of the connector housing, being sure that it does not move prior to being crimped. Position the crimp tool at the end of the crimp sleeve (flared end). Crimp the sleeve using the 0.137 in. opening by closing the crimp tool completely and releasing.



16 *Jacketed Fiber Only, ST Connector*

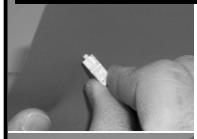
A second crimp is required to secure the jacket. Crimp onto the rear portion of the crimp sleeve (approximately 4mm [0.16 in.]) using the same (0.137 in.) opening in the crimp die.





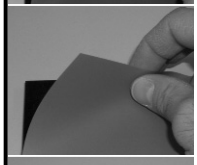
17 Slide the boot up into place onto the crimp sleeve (jacketed fiber) or connector housing barrel (buffered fiber).

4-STEP POLISH QUICK REFERENCE GUIDE

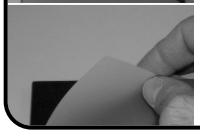


Film #1 (12 mic. Air-polish):
Film Color = Gray
Pressure = Light
Cycles = Conditional

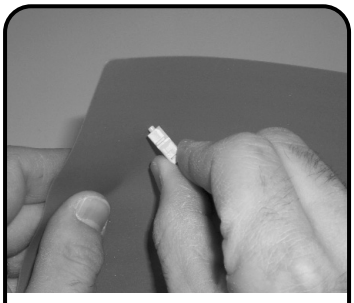
Film #2 (3 mic. Wet Pad-polish):
Film Color = Pink
Pressure = Medium
Cycles = 25 to 30



Film #3 (1 mic. Wet Pad-polish):
Film Color = Purple
Pressure = Medium
Cycles = 30 to 35

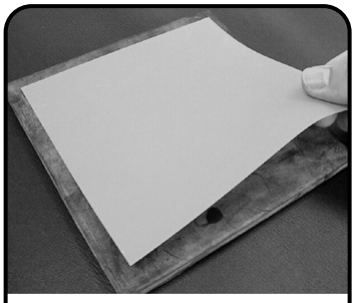


Film #4 (Finish Film Wet Pad-polish):
Film Color = White
Pressure = Light
Cycles = 20 to 30



18 **#1 Film (Gray):**
"Air polish" by holding the connector in one hand and the film in the other. Gently brush the dull side of the polishing film in a "figure 8" fashion with the ferrule tip to wear the small fiber protrusion into a smoother, more polishable tip. Continue until the tip is almost flush with the ferrule.

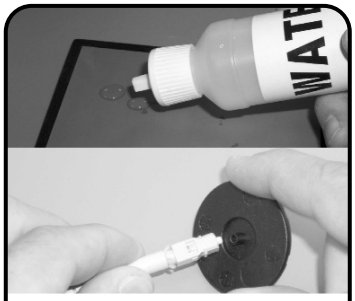
Note: If using Siemon's Automated Fiber Polisher (p/n: FPOL), refer to polishing instructions included with that unit. The FPOL is for use in multimode applications only.



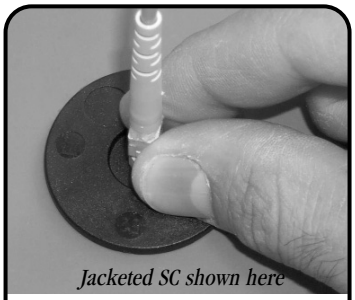
19 **#2 Film (Pink):**
Place the polishing pad onto a flat surface with the rubber side facing up. Place the #2 film onto the polishing pad with the glossy side of film down.

Note: Prior to polishing, clean pad surface with alcohol soaked wipe to provide for a smooth polishing surface. This will also allow the polishing paper to stick in place. (Ensure no air is trapped between pad and film). Also clean surface of polishing puck.

SC/ST Multimode & Singlemode Connector Termination Instructions



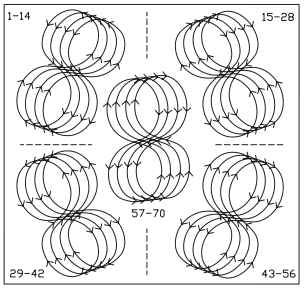
20 Add a minimum of 3 or 4 drops of distilled/deionized water onto polishing film. Carefully insert the connector ferrule into the ST/SC compatible polishing puck and gently place on pad. Avoid bumping ferrule tip on puck or crushing exposed fiber onto pad.



21a Gently grip the connector and apply medium pressure and polish in a 50-75mm [2-3 in.] "figure 8" pattern for 25 to 30 revolutions.

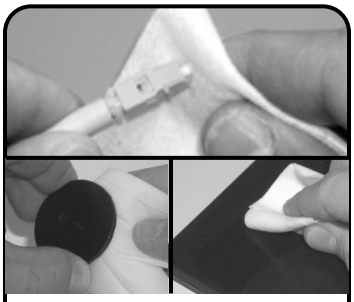
Important: Do not over-polish and do not use excessive pressure.

See Step 21b for efficient use of polishing film.



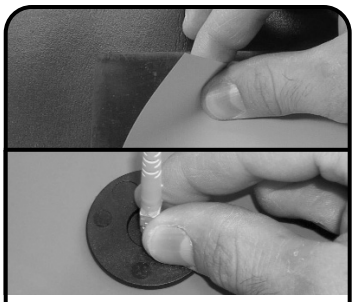
21b Applicable to films 2 & 3 only.

Note: To optimize optical performance of the connectors while maximizing polishing film life, use separate sections of the film per 14 connectors. Using five sections of the film assures a life of at least 70 connectors per film. Variables such as amount of adhesive on tip, size of "figure 8", and polishing pressure can also affect film life.



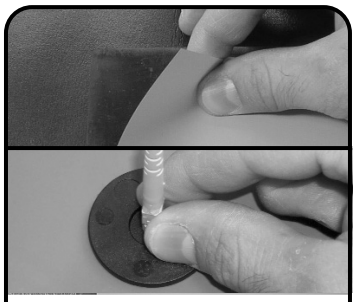
22 **IMPORTANT:**

Remove the connector from the polishing puck and clean the ferrule and puck using a lint-free wipe moistened with 99% reagent grade isopropyl alcohol or alcohol-soaked pads. **It is also important to thoroughly rinse surface of film with distilled/deionized water prior to storing to assure ideal conditions for next connector.**



23 **#3 Film (Purple):**

Replace the #2 film with the purple #3 film and repeat steps 20-22.



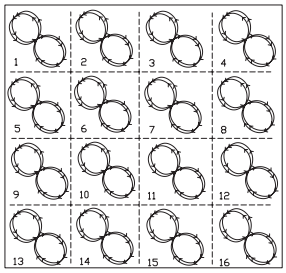
24a **#4 Finishing Film (White):**

Required for Singlemode and recommended for multimode especially 50/125 laser optimized applications.

Replace the #3 film with the white #4 finishing film and repeat steps 20 – 22* but use light pressure for 25-to-35 cycles.

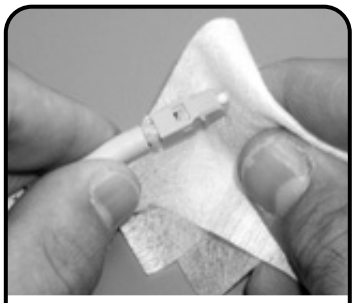
**Use step 24b in place of 21b for efficient use of the finishing film.*

See 24b before proceeding.



24b **#4 Finishing Film (White):**

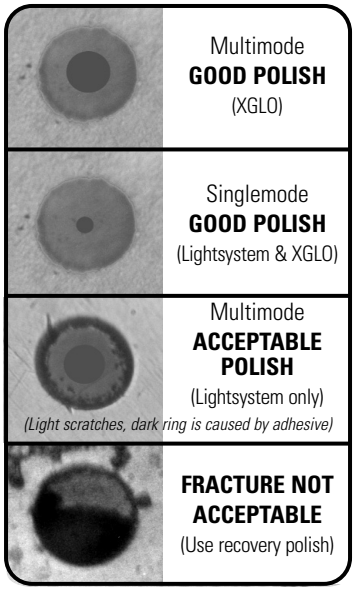
Use one section of the film per connectors. Be sure to limit the size of the "Figure 8's" to 1.5 inches in height. The same section of this film is not reusable as with the #2 & 3 films.



25 Prior to viewing endface of connector with microscope clean with a dry lint-free wipe.

26 View the polished ferrule surface in the microscope to ensure there are no scratches, voids or chips in the fiber. For proper use of microscope, reference the instructions included with the scope. If polish is acceptable, place dust cap on connector.

Note: A damaged fiber will result in a high-loss component because it will scatter the light transmission. It is also recommended to check insertion loss and/or back reflection with a power meter and light source.



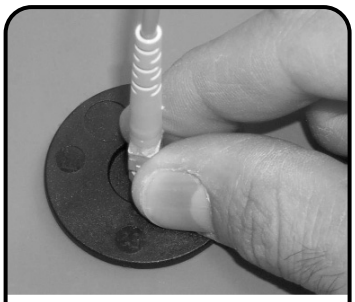
Multimode
GOOD POLISH
(XGLO)

Singlemode
GOOD POLISH
(Lightsystem & XGLO)

Multimode
ACCEPTABLE POLISH
(Lightsystem only)

(Light scratches, dark ring is caused by adhesive)

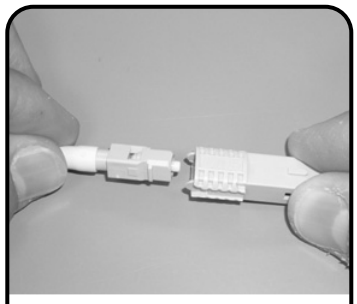
FRACTURE NOT ACCEPTABLE
(Use recovery polish)



27 **Recovery Polish (if required)**

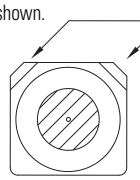
Scratch Recovery: Repeat steps 23 and 24 (#3 film and #4 film).

Fracture Recovery: This procedure requires the 6 micron recovery film (p/n: FT-PF6) sold separately. Using the 6 micron recovery film, repeat steps 20-22 using medium to hard pressure then start over from step 19 with #2 film.

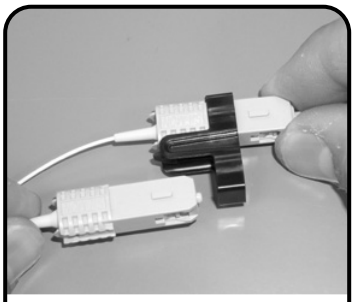


28 **SC Only:**

Snap the SC connector fully into the housing. Orient the chamfered corners of the connector relative to the key on the housing as shown.

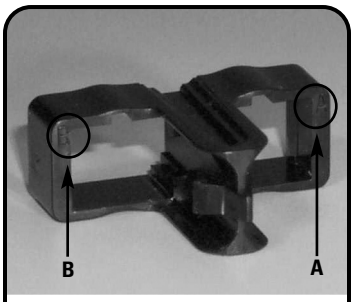


SC/ST Multimode & Singlemode Connector Termination Instructions

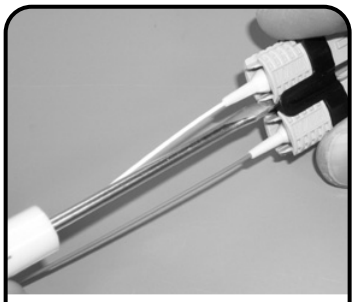


29 Join two simplex SC housings to create a duplex connector by snapping together with black duplex clip.

Note: Although buffered style is shown, duplex assembly is identical for jacketed termination as well.

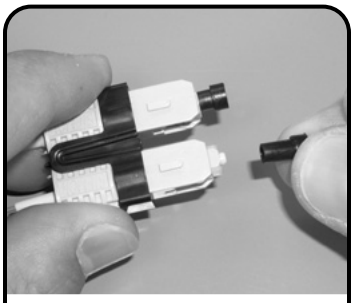


30 Use the "A" & "B" designation markings on the duplexing clip to identify proper polarity.



31 SC duplex connectors can be uncoupled with a small screwdriver inserted as shown or by simply squeezing the front of the duplex assembly together.

Note: Although buffered style is shown, duplex assembly is identical for jacketed termination as well.



32 Replace dust caps onto the connector ferrules while connectors are not in use.

WARNING:

Optical transmitters and fiber optic test equipment used in the telecommunications industry uses invisible infrared energy. At sufficient power, this may cause eye or skin damage.

If you work with fiber optic products, including test equipment, consider the following:

1. Do not look into fibers or connectors. They may be 'live'.
2. Know what is happening with the fiber under test at the far end!
3. When connecting a light source, try to make it the last element you connect!
4. Whenever possible, switch off and disconnect your light source(s) before breaking any fiber connections.
5. Always consider the hazard to other people:
   a. Use warning signs, etc.
   b. Keep caps on unconnected fibers whenever possible.
   c. If using "live" optical beams, keep them low and facing away from personnel.
6. Don't view optical outputs with a microscope, use a TV camera/monitor.
7. Elect a safety officer to:
   a. Train staff
   b. Maintain records of equipment classification, calibrations and safety checks.
8. Be careful of cut fibers. Remember they are sharp and difficult to see!

POSSIBLE VARIABLES FOR POOR ATTENUATION OR RETURN LOSS READINGS

1. Fractured/broken fibers:
   - Dull cleaver
   - Dried adhesive on cleaver blade
   - Twisted or uneven pulling when removing stub
   - Bumped or brushed end-face of fiber before polishing
   - Too much pressure during initial pad polish or air polish
2. Adhesive/primer not curing:
   - Date code expired or exposed to extreme temperatures
   - Contaminated primer/adhesive
   - Not enough primer or adhesive
   - Did not allow enough cure time
   - Movement during cure time
   - Excessive buffer length pushing out adhesive during insertion
3. Excessive or insufficient polishing
4. Dirty pad, puck, paper, or end-face of connector

Note: Instructional video for this product is also available at www.siemon.com

Global Headquarters
Watertown, Connecticut USA
Tel: (1) 866-548-5814

For a complete listing of our global offices visit our web site

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