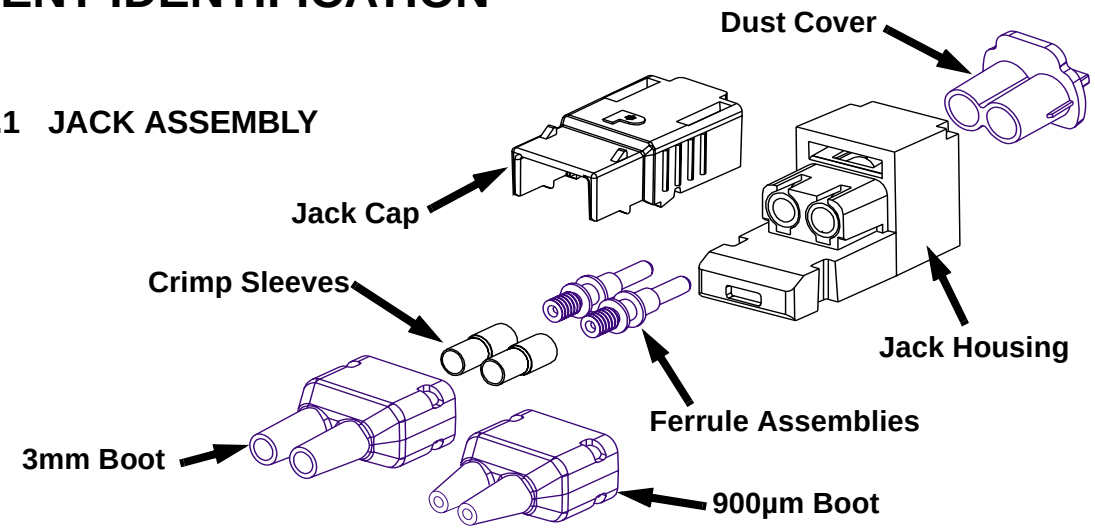
Single-Mode OPTI-JACK™ Optical Fiber Connector

Part Numbers: FJJGS9C, FJPGS9C

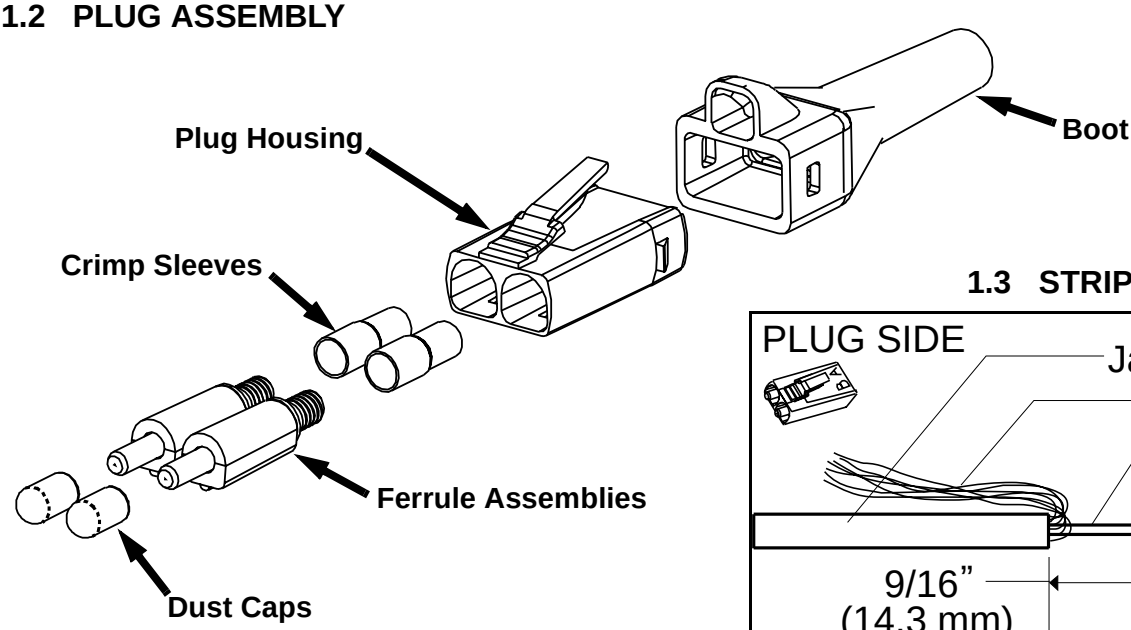
INSTALLATION INSTRUCTIONS

1. COMPONENT IDENTIFICATION

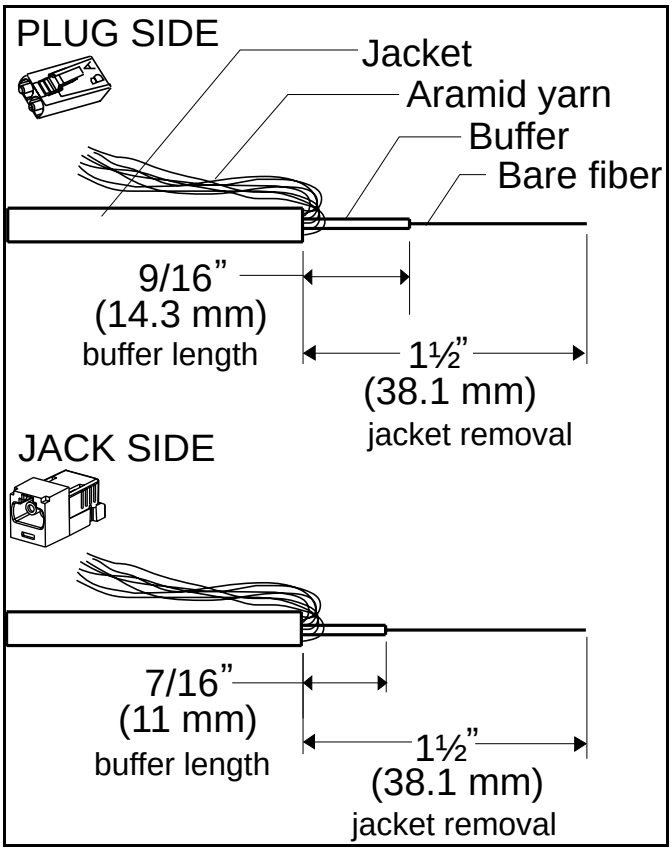
1.1 JACK ASSEMBLY



1.2 PLUG ASSEMBLY

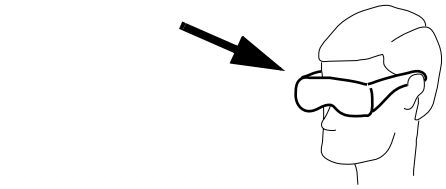


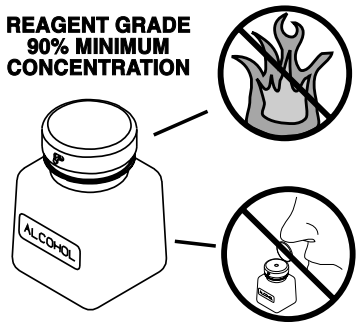
1.3 STRIPPING TEMPLATE

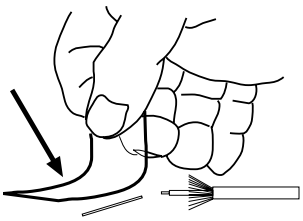


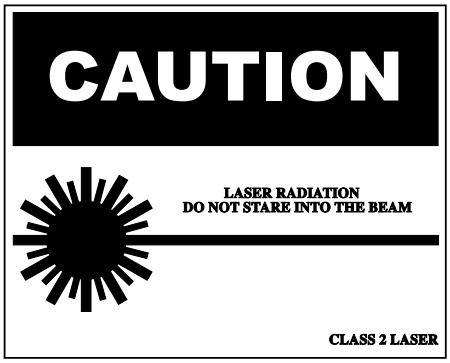
In addition to the Panduit #FJKITG Termination Kit, the following items are recommended for proper termination:

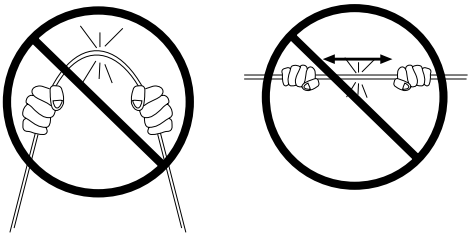
1. Slurry (FPSL)
2. 1µm Diamond grit polishing paper (FPF1)
3. Polishing cloth (FPCL)
4. Polishing puck (FJPKGU)

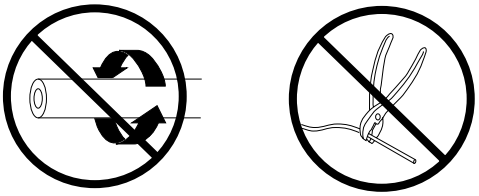












2. PRECAUTIONS

2.1 SAFETY GLASSES

WARNING: It is strongly recommended that safety glasses be worn when handling the adhesive used with the connector or when handling bare optical fiber. The bare fiber is very sharp and can easily damage the eye.

2.2 ISOPROPYL ALCOHOL

WARNING: Isopropyl alcohol is flammable. Contact with the alcohol can cause irritation to the eyes. In case of contact with the eyes, flush with water for at least 15 minutes. Always use isopropyl alcohol with proper levels of ventilation. In case of ingestion, consult a physician immediately.

2.3 DISPOSAL OF BARE FIBERS

WARNING: Pick up and discard all pieces of bare fiber with sticky tabs. Do not let cut pieces of fiber stick to clothing or drop in the work area where they are hard to see and can cause injury.

2.4 RECOMMENDED ADHESIVE AND PRIMER

WARNING: The recommended adhesive (Panduit Part #FJPXY) may contain maleic acid and methacrylic ester. In case of eye contact, flush with water for 15 minutes and get medical attention. Wash after skin contact. Request M.S.D.S. for further safeguards.

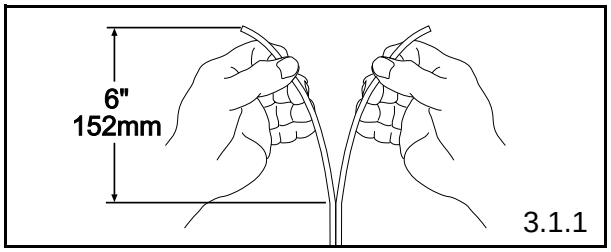
WARNING: The recommended primer (Panduit Part #FJPMR) may contain acetone. The primer is harmful if inhaled or swallowed. In case of contact with eyes or skin, flush with water. Get medical attention in case of ingestion or contact with eyes. Do not induce vomiting.

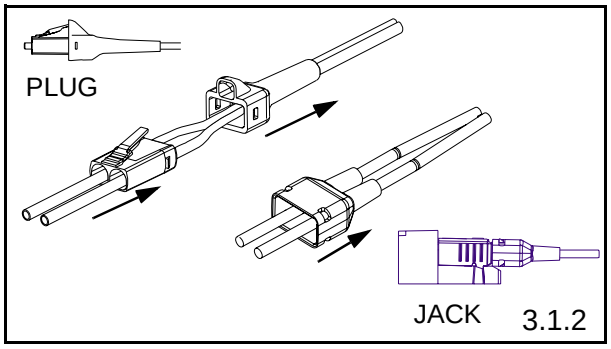
2.5 LASER LIGHT PROTECTION

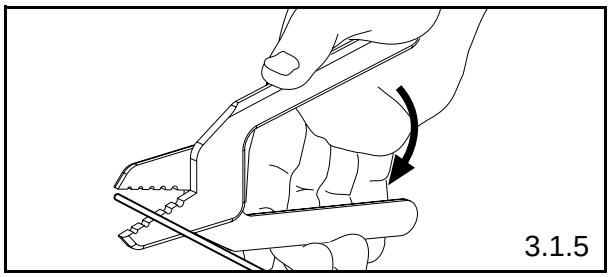
WARNING: Laser light is invisible. The invisible light is powerful enough to damage your eyes. Serious damage to the retina of the eye is possible. Never look into the end of a fiber which may have a laser coupled into it. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.

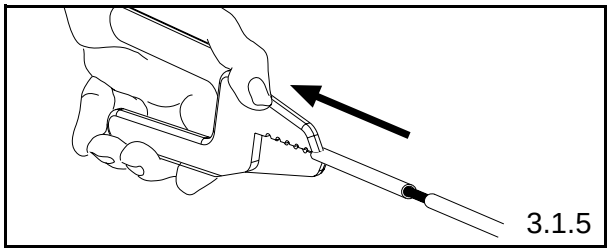
2.6 CABLE HANDLING

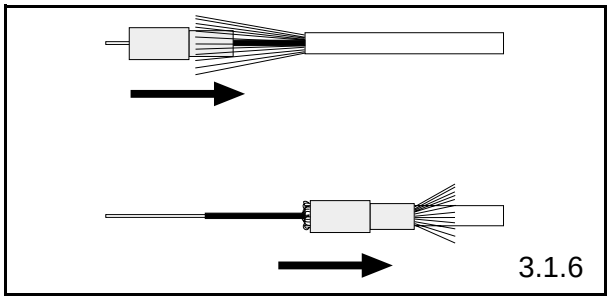
WARNING: Fiber optic cable can be damaged by excessive pulling, twisting, crushing or bending stresses. Consult the appropriate specification sheets as provided by your cable vendor. Any damage may result in decreased optical performance.

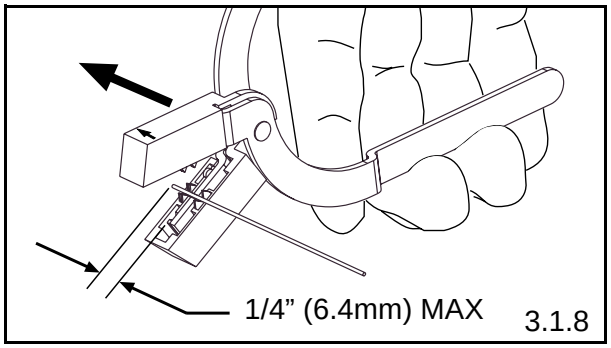












3. FIBER PREPARATION

3.1 JACKET/BUFFER STRIPPING

3.1.1 If using a duplex cable, split the two fibers approximately 6" (152mm) back from the ends of the fibers.

3.1.2 Insert the fiber end through the small end of the boot, and slide the boot back out of the way.

3.1.3 Jack: Skip to step 3.1.5.

3.1.4 Plug: Insert one fiber through each of the two holes at the rear of the plug housing. Maintain proper orientation of the fibers by referring to the 'A' and 'B' marks behind the latch on the plug housing.

3.1.5 With the cable jacket stripper provided, strip off approximately 1.5" (38.1 mm) for the plug and 1.25" (31.7mm) for the jack of the jacket. For 3.0 mm jacketed fiber, use the third hole (marked "1.3 MM" or #16 AWG) from the tip of the jacket stripper. Refer to the stripping template provided. To reduce wear on the jacket stripper blades, do not slide the blades along the aramid yarn. Instead, use the tool to cut through the jacket, then grip the jacket with the teeth on the tips of the blades to pull it off.

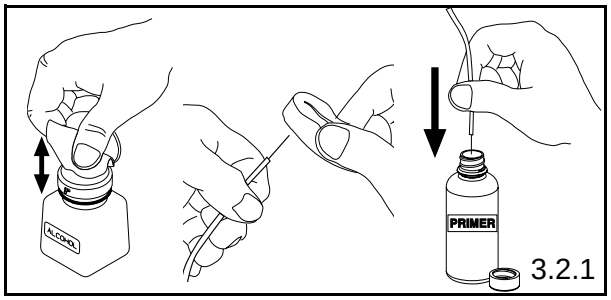
3.1.6 Insert each fiber through a crimp sleeve, with the smaller end of the crimp sleeve going on first. Use the crimp sleeve to fold the aramid yarn back over the jacket, holding it out of the way.

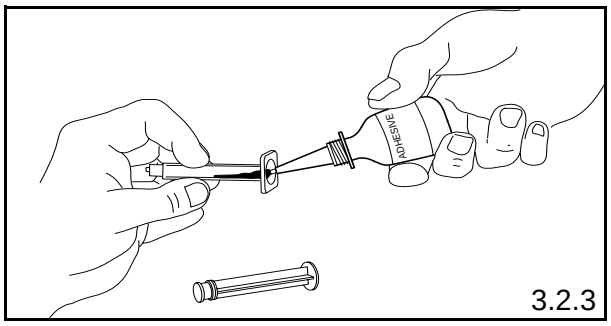
3.1.7 Use the marking pen and stripping template provided to mark each buffer 9/16" (14.3mm) for the plug and 5/16" (7.9mm) for the jack from the jacket strip length.

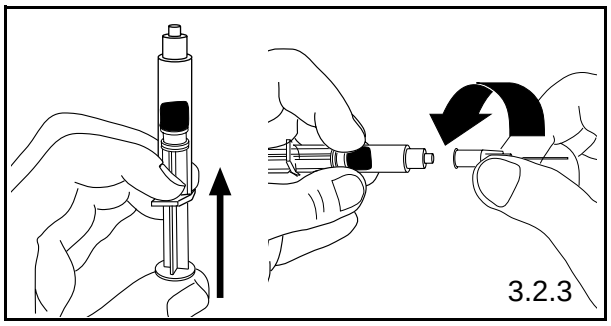
3.1.8 With the buffer stripper provided, strip the buffer to the mark.

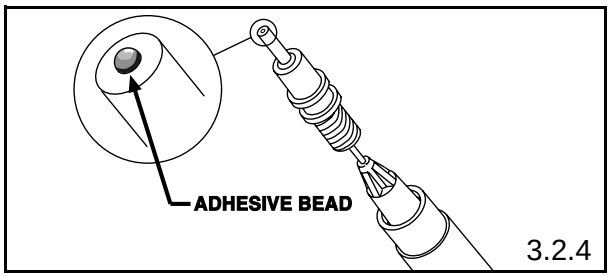
3.1.9 Repeat for the second fiber.

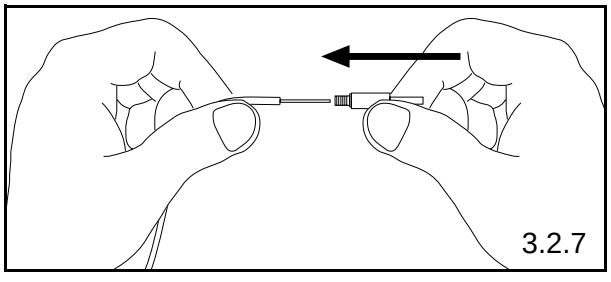
- **BUFFER STRIPPER GUIDELINES:**
- **It is best to remove no more than 1/4" (6.4mm) of buffer at a time to avoid breaking the fiber.**
- **Hold the buffer stripper such that the arrow on the tool points in the direction of buffer removal.**
- **Noting the location of the tool's blades, position the fiber in the tool's V-notches. Squeeze the handles firmly, and pull tool in the direction of the arrow on the tool.**
- **To clean the buffer stripper blades, hold the handles open, pull the casings back away from the blades, and let them snap back against the blades.**

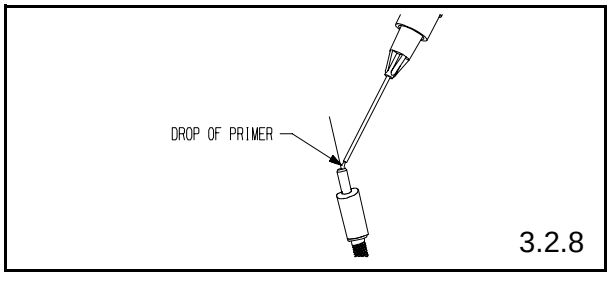












3.2 FERRULE ATTACHMENT

3.2.1 Clean each bare fiber using an alcohol (90% minimum concentration) soaked lint-free wipe. The fibers should be free of all coating and residue.

3.2.2 Dip the bare fiber and 1/8” (3.2 mm) of the buffer in the primer. Set fiber aside such that it will not collect debris while completing the next 4 steps.

3.2.3 Remove the plunger from a syringe. Squeeze about 0.5 cc of the adhesive into the back of the syringe barrel. Insert the plunger. Point opening upward, and squeeze any air out of the barrel. Attach needle to syringe. Adhesive that is stored in a syringe may start to harden within 24 hours. Adhesive that is stored in its original bottle is good up to the date printed on the bottle. **Note: If a heat cured epoxy is used rather than the recommended adhesive, do not expose the connector to temperatures in excess of 90° C (194°F).**

3.2.4 Insert the tip of the needle into the ferrule assembly until the needle bottoms against the rear of the ferrule.

3.2.5 While pressing the needle firmly against the rear of the ferrule, gently squeeze the syringe plunger to dispense adhesive into the ferrule until you see a small bead of adhesive form on the front tip of the ferrule.

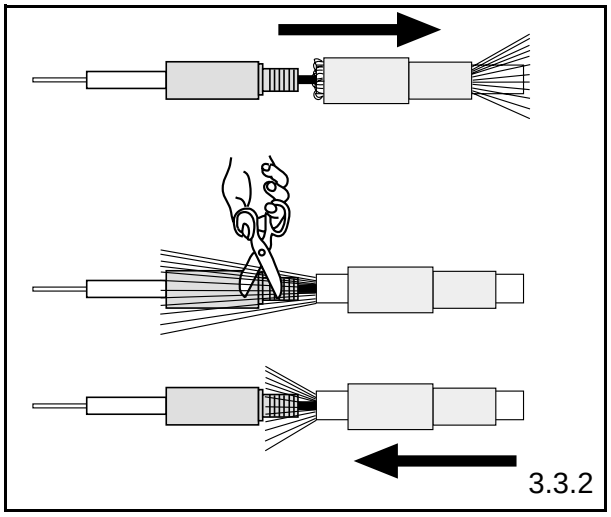
3.2.6 Maintain light pressure on the plunger as you pull the needle out of the ferrule assembly. This will leave a small amount of adhesive just behind the ferrule

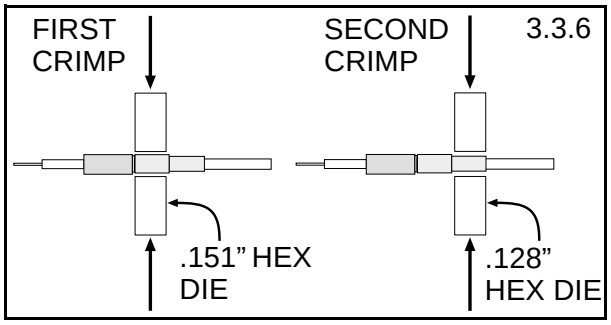
3.2.7 Carefully but quickly insert the bare fiber through the ferrule in a smooth forward motion. If the fiber does not pass through, pull back slowly and try again with a smooth forward motion. The fiber is fully inserted when the buffer bottoms against the rear of the ferrule. The adhesive will begin to set within seconds. **If adhesive oozes out the back of the assembly, you have injected too much. It is critical to the function of the connector that you wipe away all excess adhesive.**

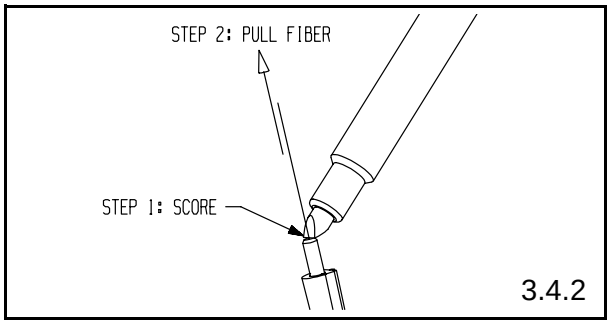
3.2.8 To speed hardening of the adhesive, apply a small drop of primer to the adhesive bead on the ferrule tip. Do not allow the primer to come in contact with the plastic housing of the ferrule assembly. It may be helpful to fill a second syringe with primer for this purpose. Do this by drawing primer up into the syringe barrel rather than pouring it in through the back.

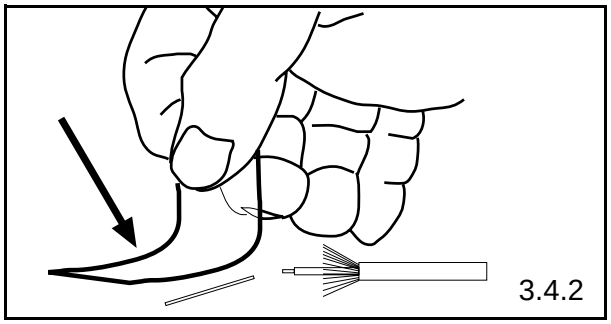
3.2.9 Repeat for the second fiber.

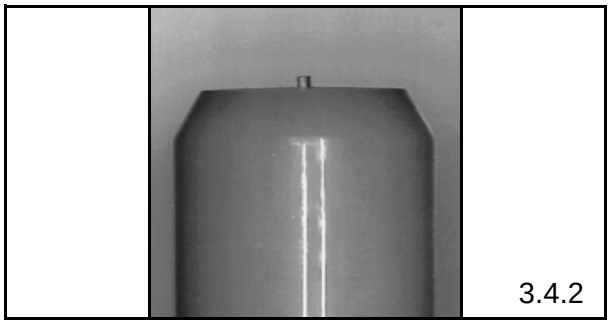
3.2.10 Allow one minute for the adhesive to harden.











3.3 CRIMPING

3.3.1 Be careful not to break the bare fibers protruding from the ferrules during this step. If adhesive has had time to harden, you may wish to cleave the bare fiber(see section 3.4) before returning to this section.

3.3.2 While the adhesive is hardening, slide the crimp sleeve back, freeing the aramid yarn. The fiber jacket should nearly touch the rear of the ferrule assembly. ***Do not press the cable jacket forward to touch the rear of the backbone. There should be a gap between the jacket and backbone.***

3.3.3 With the special scissors provided, cut the aramid yarn even with the flange on the backbone about 1/4" (6.4mm) from the jacket strip length. It is better to have the aramid yarn a little too long rather than too short.

3.3.4 Flare the aramid yarn evenly around the ribbed area of the ferrule assembly.

3.3.5 Slide the crimp sleeve over the backbone, trapping the aramid yarn between the crimp sleeve and the ribbed area of the backbone.

3.3.6 Making sure the crimp sleeve is seated against the flange of the backbone, crimp the large end of the crimp sleeve using the .151" hex of the crimp tool provided in the toolkit.

3.3.7 Using the .128" hex of the crimp tool, crimp the small end of the crimp sleeve over the fiber jacket.

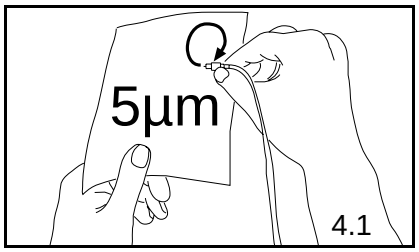
3.3.8 Repeat for the other ferrule assembly.

3.4 CLEAVING

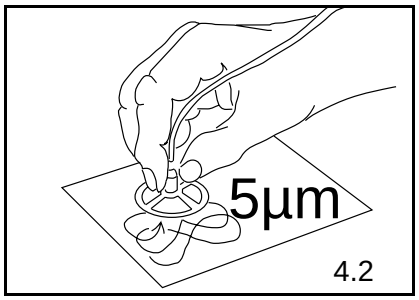
3.4.1 Absorb any primer and unhardened adhesive from the ferrule tip by gently dabbing it with the corner of a lint-free wipe. Be careful not to break the fiber.

3.4.2 Next, take the cleave tool provided and gently make one small score mark across the bare fiber just above the endface of the ferrule. Pull the fiber away from the ferrule and discard it on one of the sticky tabs provided. A short stub of fiber protruding from the tip of the ferrule should be visible when viewed through the pull-out lens on the microscope provided in the toolkit.

3.4.3 Repeat for the second ferrule assembly.



4.1



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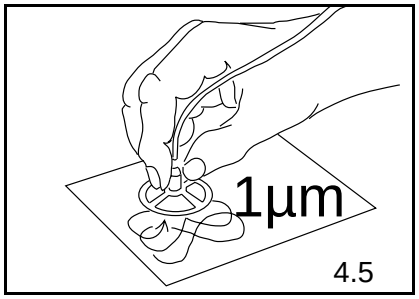
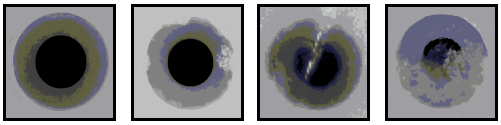


4.5

Ferrule Tip After 1µm Polish



A B C D

A= Ideal. No blemishes on core or cladding.

B= Good. Cladding is chipped, but core is not.

C= Poor. Scratch across core. Try repolishing or else reterminate.

D= Unacceptable. Fiber has shattered. Reterminate.

4.6

4. POLISHING

Carefully read this entire section before proceeding.

4.1 Hold a piece of the 5 micron polishing paper in the air and gently rub the fiber stub against it in a circular motion until the height of the fiber stub is equal to or slightly less than its diameter.

4.2 Place a sheet of the 5 micron polishing paper on the soft side of the polishing pad. Set the polishing puck on the polishing paper.

4.3 Insert the ferrule into the polishing puck and gently begin to polish the fiber endface by making figure eight motions with the polishing puck upon the polishing paper. Apply very light pressure on the ferrule for the first figure eights to avoid breaking the fragile fiber stub. Gradually increase pressure until the fiber stub no longer leaves a streak on the polishing paper (about 10 figure eights). At this point, the adhesive will be gone and the ferrule tip will be shiny. Observe the guidelines below.

4.4 After polishing to a glossy finish, clean the ferrule tip and bottom of the polishing puck with an alcohol soaked wipe.

4.5 Replace the 5 micron paper with a sheet of 1 micron diamond polishing paper. Place several drops of distilled water on the diamond polishing paper. Polish the fiber endface with the polishing puck using medium pressure for approximately 20 figure eights.

4.6 Clean the ferrule tip and polishing puck with an alcohol soaked wipe. Inspect the fiber end face using a microscope. If scratches remain (view C), repeat steps 4.5 and 4.6.

4.7 Replace the 1 micron paper with a polishing cloth by peeling the backing off of the cloth and sticking the cloth onto the polishing pad. Place several drops of slurry on the polishing cloth and spread it evenly across the polishing surface with the puck . Polish the fiber endface with the polishing puck for 5 to 10 figure eights using medium pressure.

4.8 Clean the ferrule and polishing puck with an alcohol soaked wipe and canned air.

4.9 Inspect the connector by holding one end of the cable assembly to an incandescent light source and observing whether the light is visible at the other end.

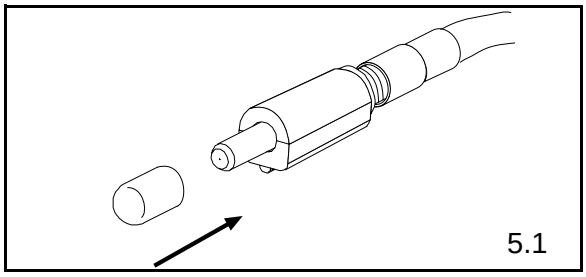
4.10 ***Warning: Never look into the end of a fiber which may have a laser coupled into it!***

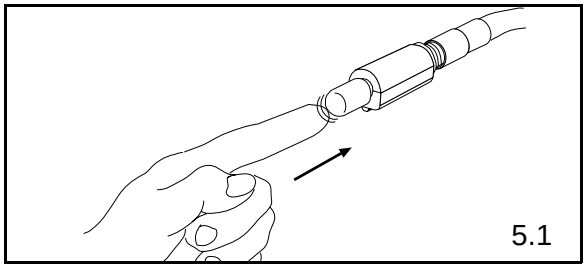
4.11 Clean the dust cap with canned air. Clean and cap the ferrule end. Each time a mating takes place, clean the ferrule end face thoroughly with an alcohol soaked wipe and canned air.

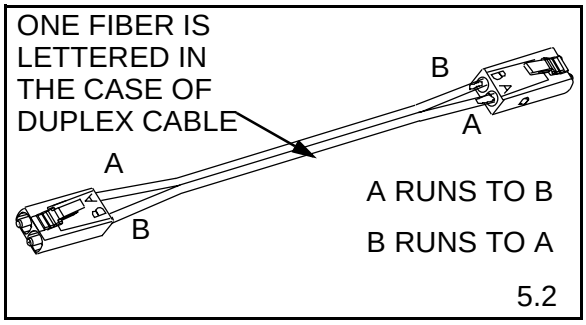
4.12 Clean the polishing puck and pad of all slurry. If the slurry has hardened, wash with water.

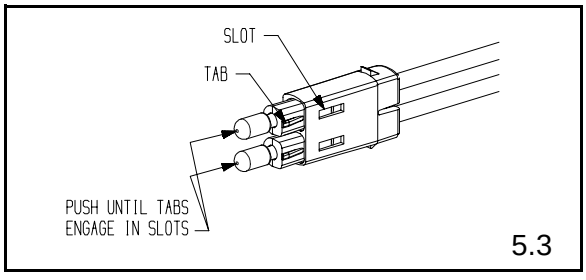
POLISHING GUIDELINES

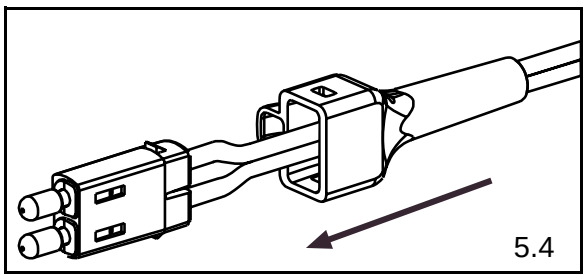
- Keep the puck flat against the polishing paper.
- Figure eights should be about 3” tall and 1.5” wide.
- Always polish on a clean area of the polishing paper, with figure eights traversing the paper as shown in Figure 4.5.
- One sheet of 5 micron polishing paper will polish 2-4 ferrules.
- One sheet of 1 micron diamond polishing paper will polish 4-8 ferrules.
- Clean the polishing puck and pad with a clean wipe moistened with alcohol after each step.
- Polishing cloth may be reused for polishing numerous ferrules as long as the slurry is not allowed to dry on the cloth.
- Do not try to remoisten dried slurry.
- DO NOT OVERPOLISH.











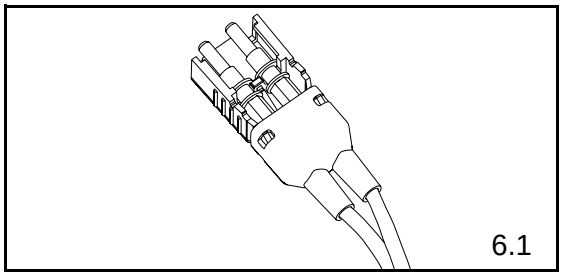
5. PLUG TERMINATION

5.1 Immediately after polishing, place the black dust caps over the ends of the ferrules. Push on the dust cap to force the ferrule back against the spring housed within the ferrule assembly. If the spring does not work, push harder or reterminate with a new ferrule assembly, being careful not to inject too much adhesive into the back of the ferrule assembly.

5.2 Maintain proper orientation of the fiber runs by referring to the ‘A’ and ‘B’ marks.

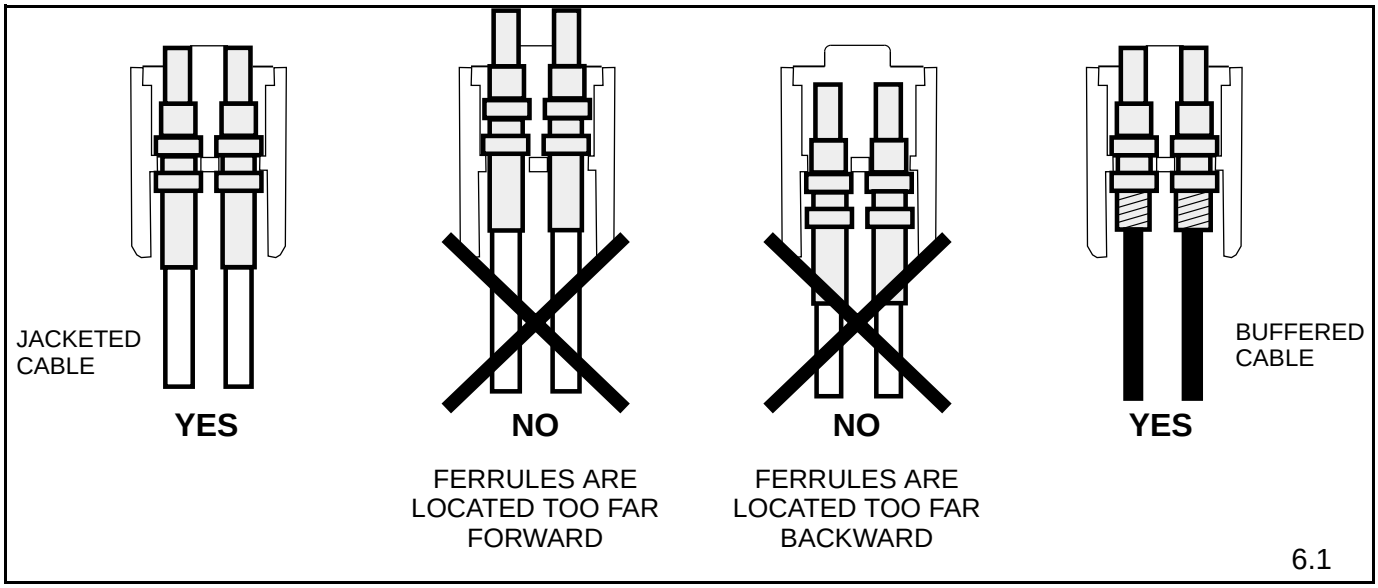
5.3 Slide the plug housing up to the ferrule assemblies and rotate the ferrule assemblies if necessary to make them fit into the plug housing. Push each plug ferrule assembly into the plug housing until the tab on the bottom of the ferrule assembly engages within the slots on the bottom of the plug housing.

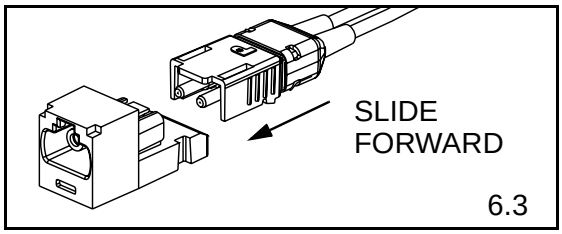
5.4 Slide the plug boot over the rear of the plug housing. The holes in the sides of the plug boot will fit snugly around the tabs on the sides of the plug housing. The crown of the boot will cover the plug latch.



6. JACK TERMINATION

6.1 Turn the snap-on jack cover over in your hand so that the 'A' and 'B' marks inside the cover are facing you and are upright. Then, place each ferrule assembly in the jack cover. Maintain proper orientation of the fiber runs by referring to the 'A' and 'B' marks.

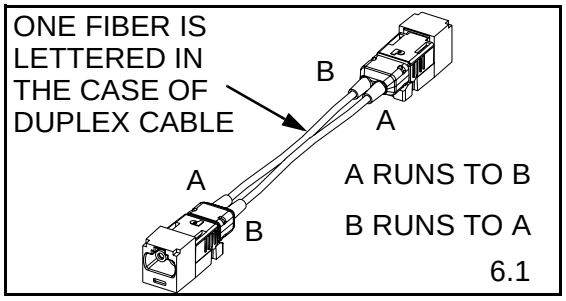




6.2 Slide the boot up to the cover until the holes of the boot lock on to the tabs of the cover.

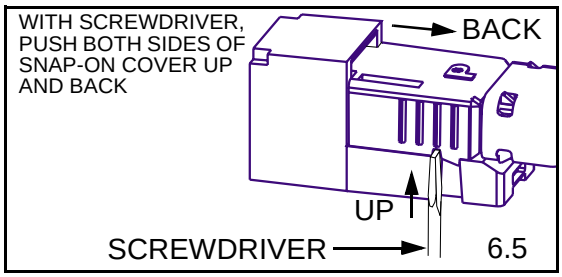
6.3 Next, position the snap-on jack cover behind the jack housing. The ferrules should start to enter the split sleeves which are held within the jack housing. Slide the cover forward, aligning the rails in the cover and jack housing.

6.4 Finally, push the snap-on cover forward until it clicks into place.



6.5 Should it be necessary to remove the ferrules, the snap-on cover can be removed by lifting and sliding with a small screwdriver.

6.6 To clean the jack ferrules once they are enclosed in the jack housing, use a lint-free swab. Gently insert a swab through the split sleeve to wipe the jack ferrule endface. Swabs can be moistened with alcohol.



6.7 The jack dust cover should be inserted to keep the jack housing clean when the jack is not in use.

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