

1. PRECAUTIONS

1.1. General Precautions



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



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

1.2. Cable Handling Precautions



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

1.3. Laser Precautions



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

1.4. Chemical Precautions



WARNING: Fiber wipes contain hydrocarbons. Apply in rooms having normal room ventilation. For prolonged and/or repeated use, gloves are recommended. Avoid eye contact. Keep away from open flames and ignition sources. If ingested, DO NOT induce vomiting. Consult a physician. If contact with eyes, wash eyes with water for 15 minutes.

2. TOOLS AND MATERIALS

The following tools and materials are required to install a Spider Fan-Out kit:

- Scissors
- Lint-free tissues
- Tape measure
- Fiber-Clean® cleaning wipes if filling compound is present
- Buffer tube stripper
- Alcohol
- Small Phillips-head and slotted screwdrivers
- Utility knife with hook blade
- Emery cloth
- Dual-hole Miller Tool Fiber Stripper (p/n 2101502-01)
- Sheath ripper
- Adjustable wrench

3. CABLE PREPARATION

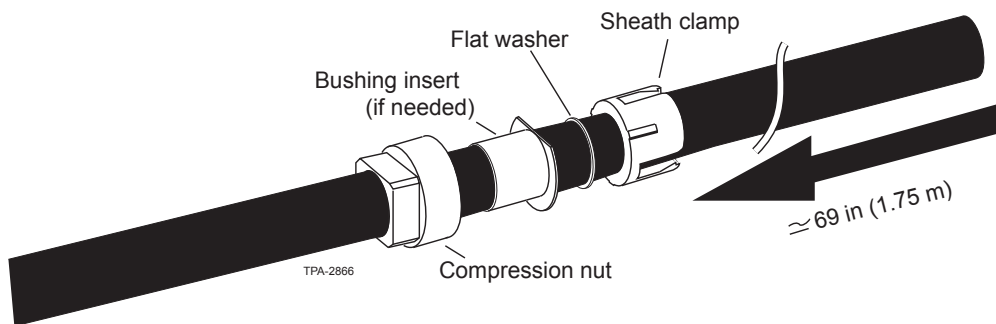
3.1. Loose Tube Cable

Step 1: Select the proper size components for the cable being terminated:

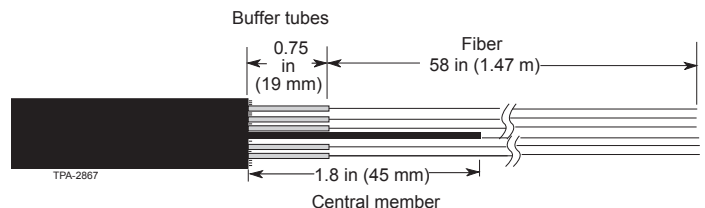
- bushing insert (for small diameter cables only)
- flat washer
- sheath clamp

Use the one which provide the closest possible fit. The kit for loose tube cables can be installed on cables ranging in OD from 0.339 in (8.6 mm) to 0.618 in (15.7 mm)

Step 2: Slide the compression nut, bushing insert (if needed), flat washer, and sheath clamp over the end of the cable and slide them 69 in (1.75 m) down the cable.



Step 3: Refer to the access guide appropriate for the loose tube cable you are using. Prepare the loose tube cable as shown.

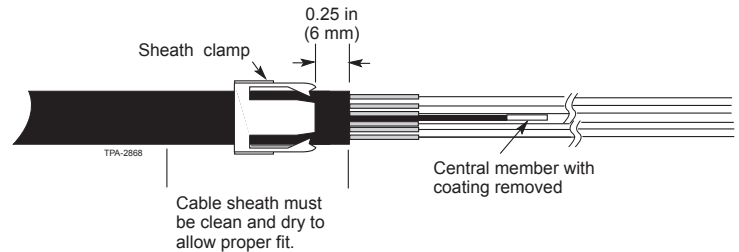


Step 4: To prepare a loose tube cable:

- a. Separate the yarn from the cable core and trim the yarn flush with the end of the cable sheath.
- b. Cut the central member to a length of 1.8 in (45 mm).
- c. Carefully separate and remove the buffer tubes with a buffer stripping tool to a length of 0.75 in (19 mm).

- Step 5:** If the buffer tube is Gel-free, carefully cut out any water blocking yarns and proceed to the next step. If not, clean the individual fibers with Fiber-Clean® wipes until the fibers are absolutely free of residue.
- Step 6:** Clean the end of the cable sheath for a length of about 2 in (5 cm) to ensure a dry, clean surface for the cable clamp.
- Step 7:** If the cable clamp is a tight fit on the cable, slide the clamp to a point 0.25 in (6 mm) from the end of the cable sheath.

NOTE: If the sheath clamp has a loose fit on the cable, it will be pushed into place inside the body by the compression nut and bushing insert in step 3 in Section 4.



- Step 8:** Remove 0.5 in (1.25 cm) of the outer coating of the central member, if present.
- Step 9:** Proceed to Fan-Out Assembly.

3.2. Tight-buffered Cable

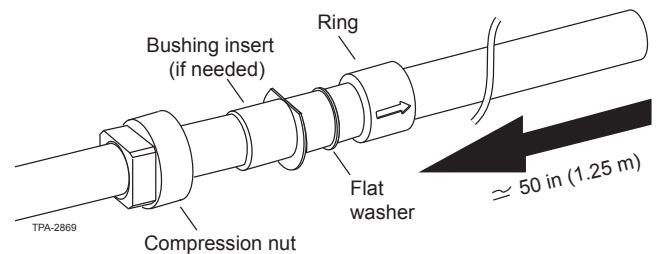
Step 1: Select the proper size components for the tight-buffered cable being terminated:

- bushing insert (for small diameter cables only)
- flat washer
- aramid yarn crimp (consisting of a ring and wedge)

Use the components which provide the closest possible fit. There are two kits for tight-buffered cables:

- for fiber counts of 4 - 12, the cable O.D. range is 0.256 in (6.5 mm) to 0.508 in (12.9 mm).
- for fiber counts of 13 - 24, the cable O.D. range is 0.453 in (11.5 mm) to 0.618 in (15.7 mm).

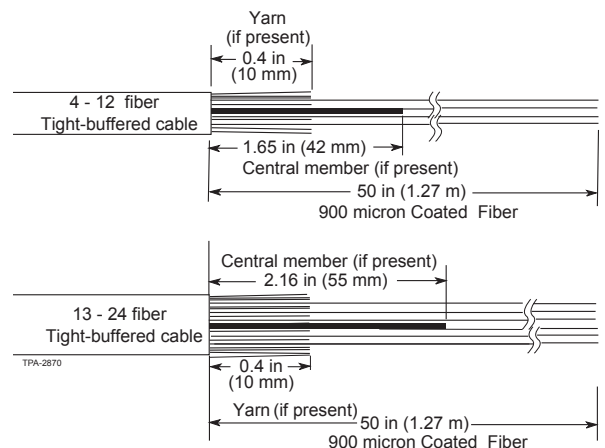
Step 2: Slide the compression nut, bushing insert (if needed), flat washer, and the ring portion of an aramid yarn crimp over the end of the cable and slide them 50 in (1.27 m) down the cable. Note that the arrow on the ring must point towards the end of the cable.



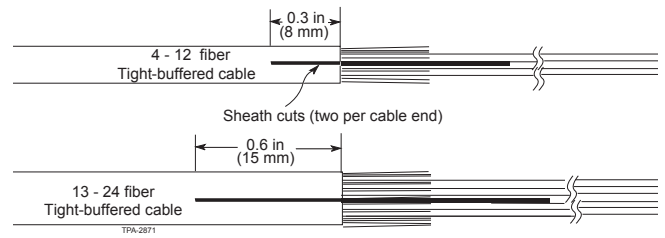
Step 3: Refer to the access guide appropriate for the tight-buffered cable you are using. Strip the cable components to the lengths shown.

To prepare the cable:

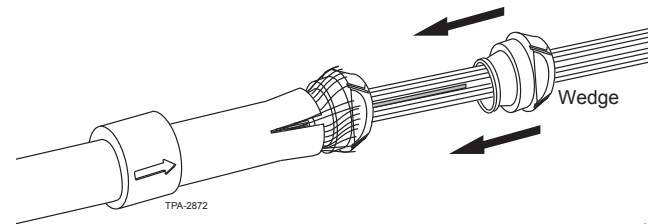
- Separate any yarn present from the 900 micron fibers and trim the yarn to 0.4 in (10 mm)
- Carefully cut the central member (if present) to the length shown.



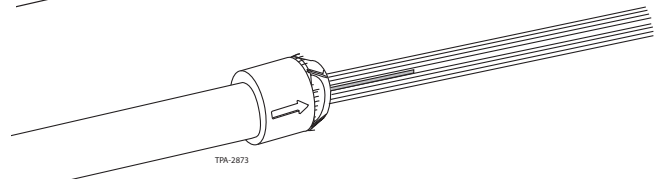
Step 4: Using the hook blade knife, carefully make two cuts on opposite sides of the cable jacket end: for 4 - 12 fiber cables the cuts should be 0.3 in (8 mm); for 13 - 24 fiber cables, make the cuts 0.6 in (15 mm) long.



Step 5: Slide the wedge portion of the aramid yarn crimp over the fibers. Slide the wedge under the the aramid yarn and cable jacket as shown.



Step 6: Slide the ring over the the end of the cable sheath so that the split end of the sheath and aramid yarn is caught between the parts.

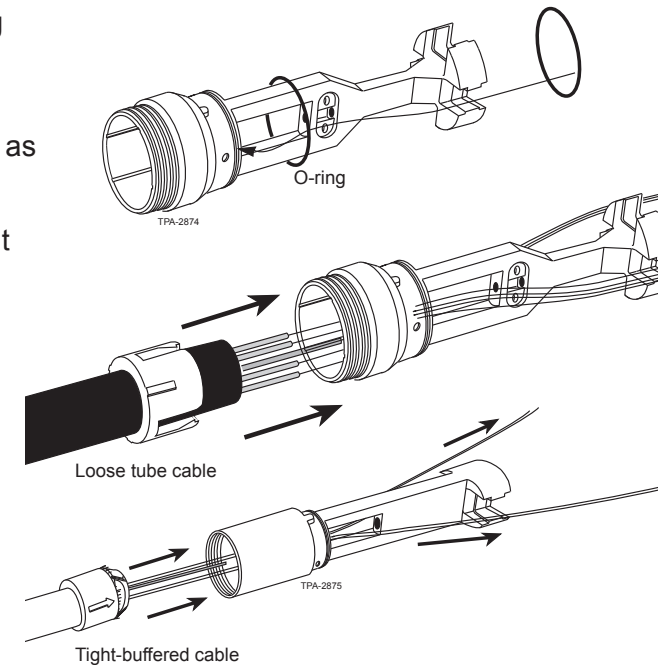


4. FAN-OUT ASSEMBLY

Prepare the body of the fan-out by slipping an O-ring into place as shown (a large fan-out body is shown)

Step 1: Route the cable through the fan-out body as follows:

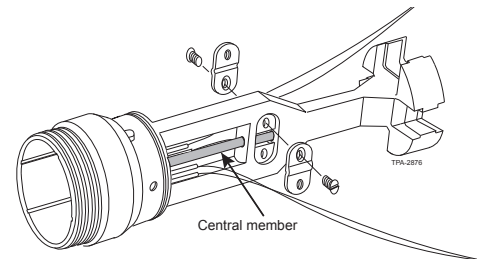
- Feed the individual fibers through the fan-out body as shown.
- Once the fibers have passed through the barrel of the fan-out body, route half of the fibers on each side of the body.
- Slide the cable into the barrel of the fan-out body until the sheath clamp or aramid yarn crimp is fully seated.



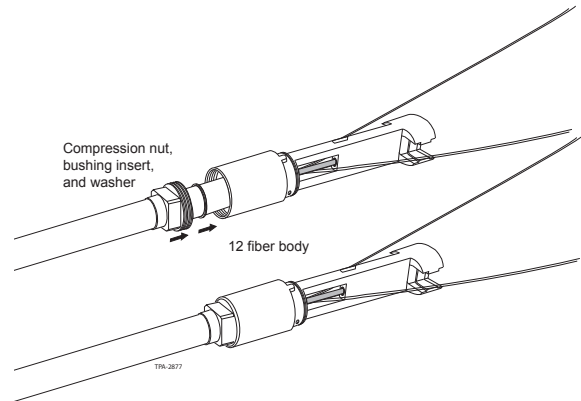
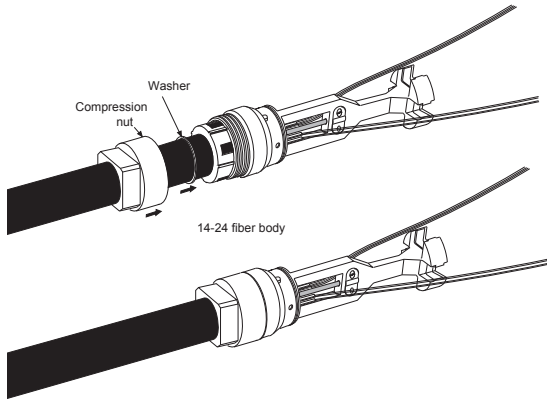
Observe the following special considerations during this step:

- Make sure that the “keys“ of the loose tube sheath clamp are aligned with the slots inside the body - rotate the clamp on the cable if necessary.
- Make sure that the central member is seated inside the hole inside the body.
- Route all of the fibers from a buffer tube on the same respective side of the fan-out body.

Step 2: If you are installing a 13 - 24 fiber fan-out body, secure the central member by placing the two clamp plates in their recesses on opposite sides of the body. Secure the plates with screws as shown.

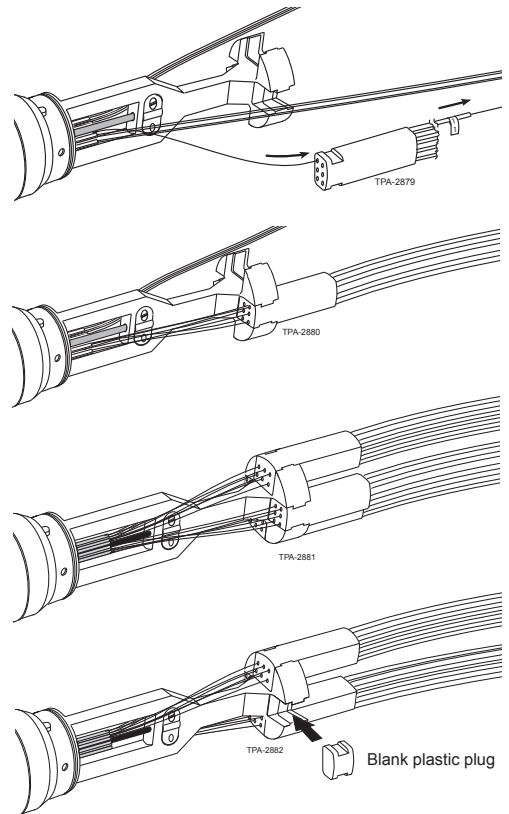


Step 3: Slide the compression nut, bushing insert (if present) and the washer against the barrel of the fan-out body. Thread the nut into or onto the barrel of the fan-out body until it is hand-tight. Use an adjustable wrench to tighten the compression nut.

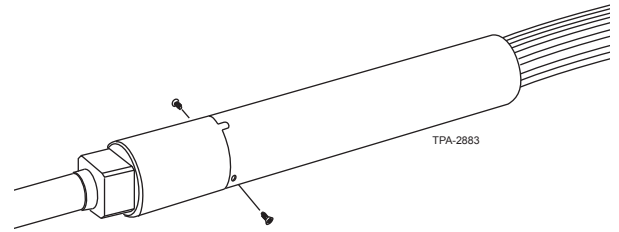


Step 4: Prepare the connector ends of the furcation tubing of each insert plug as described in the installation procedure supplied with the connector you are using. Cut the inner tubing with a sharp utility knife. Make sure the tubing is “open” and “round” at each cut.

- Step 5:** Install the fibers in the insert plugs as follows:
- Carefully feed the individual fibers into the furcation tubing openings in the first insert plug.
 - As you feed in the fibers, make sure that there are no crossovers.
 - After completing the first plug, secure it in the slot in the fan-out body.
 - Repeat steps a - c until all the fibers have been installed.
 - Insert blank plastic plugs into any fan-out body slots not occupied by fibers.



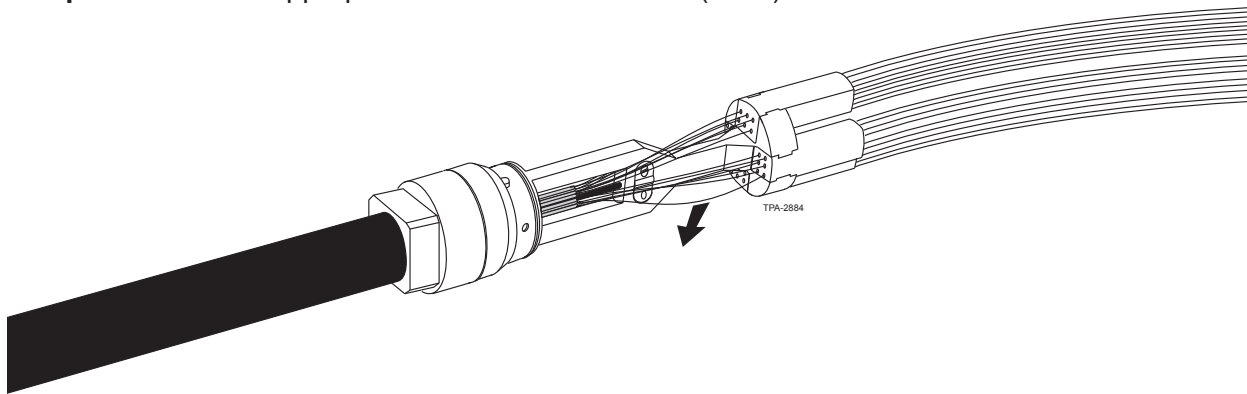
Step 6: Slide the shell into place over the body of the fan-out. Secure the shell to the fan-out body with the two screws provided. Install the connectors according to the manufacturer's instructions.



5. REENTRY

If you have an unsuccessful connectorization attempt, it may be necessary to reenter the spider fan-out. If this is the case:

- Step 1:** Trim off the bad connector.
- Step 2:** Remove the screws and shell from the furcation.
- Step 3:** Pull the appropriate fiber back about 2 in (5 cm).



- Step 4:** Trim the fan-out tube by the amount of fiber required for your connector.
- Step 5:** Push the fiber back into the fan-out tube.
- Step 6:** Reinstall the shell over the fiber body.
- Step 7:** Install the new connector according to its manufacturer's instructions.

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