

The following procedures are in accordance with DRAFT MIL-STD-2042-2B(SH) METHOD 2F1, BOF Furcation Unit Installation

1. SCOPE

1.1 Scope. This method describes the procedure for installing the individual BOF fibers, or fibers within BOF bundles, into a furcation unit.

2. REQUIRED EQUIPMENT AND MATERIALS.

2.1 The equipment and materials in the tables located in the applicable sections of this method shall be used to perform these procedures.

3. PROCEDURES

3.1 Safety summary. The following safety procedures shall be observed:

- a. Observe warnings and cautions on equipment and materials.
- b. Safety glasses shall be worn at all times when handling bare fibers or dispensing adhesive.
- c. Do not touch the ends of the fiber as they may be razor sharp. Wash your hands after handling bare fiber.
- d. Do not stare into the end of a fiber until verifying that the fiber is not connected to a laser light source or LED.

3.2 Procedure.

3.2.1 The equipment and materials in the following Table 1 are recommended to perform this procedure and must be used to remain compliant with DRAFT MIL-STD-2042-2B(SH) METHOD 2F1.

Table 1 Equipment and materials.

Description	Quantity
Furcation Assembly	1 (provided)
Safety glasses	1
Tapered tube plug (Sumitomo FT2MFB or equal)	1 (provided)
Adhesive and sealant tape (Raychem Thermofit S1030 or equal)	As required
Ruler	1
Utility knife	1
Tube cutter	1
Bundle jacket stripper (18 gauge for 6-fiber bundles)	1
Clear jacket stripper (20 gauge for 6-fiber bundles)	1
Scissors	1
Fiber, BOF single fibers or fibers from a BOF bundle	As required
Tube coupler (JIS B 8381 I-U-8-00, SMC KQH08-00 or equal)	1
Clear BOF tubing (8.0 mm OD)	3" (provided)
Caulking compound in standard caulking tube (CID A-A-00272 or equal) *	As required
Caulking gun *	1
Wipes (NAVSEA DWG 6872811-18 or equal)	As required
Colored tubing or tape	As required

* May be required for Mil/Shipboard installation

Step 1 – For tubes containing BOF bundles only:

- a. Place the tapered tube plug around the exposed bundle jacket approximately 12 mm (0.5 inch) from the end of the BOF tube.

- b. Press the plug into the BOF tube.

NOTE: Do not pull slack fiber out of the BOF tube before assembling the plug to the fibers.

NOTE: The optical fiber bundle should now be fixed in the tapered tube plug in the BOF Tube and should not move into or out during the furcation unit installation or fiber termination process.

Step 2 - For tubes containing individual BOF fibers only:

- a. Work a small amount of sealant tape around the optical fibers approximately 12 mm (0.5 inch) from the end of the BOF tube.
- b. Place the tapered tube plug around the optical fibers and sealant tape.
- c. Press the plug into the BOF tube (see Figure 1).

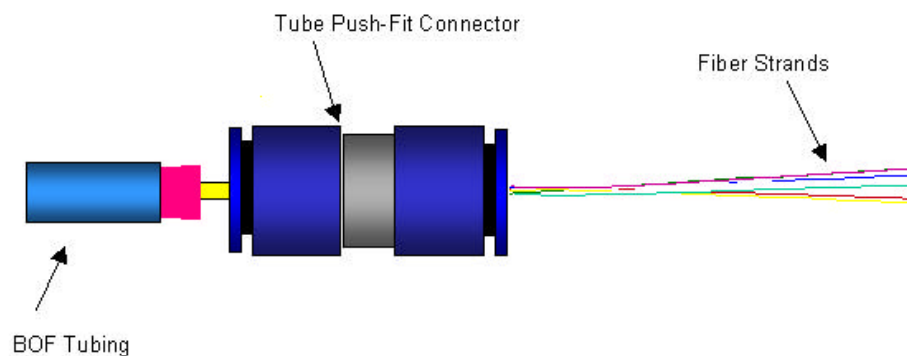


FIGURE 1. Insertion of tube plug around BOF

NOTE: Do not pull slack fiber out of the BOF tube before assembling the plug to the fibers.

NOTE: The optical fiber bundle should now be fixed in the tapered tube plug in the BOF Tube and should not move into or out during the furcation unit installation or fiber termination process.

Step 3 – Using the scissors, trim the flange on the tapered tube plug even with the outer diameter of the BOF tube.

Step 4 – Using the scissors, trim back the individual fibers or fiber bundle that exit the tube to approximately 46 cm (18.0 inches) longer than the required length.

NOTE: The exact length of the BOF fiber or fiber bundle depends upon the equipment and the fiber routing. This length may be determined by measuring the distance required to route the fiber from the end of the BOF tube to the furthestmost connection point in the equipment or connection box plus approximately 130 mm (5 inches).

Step 5 – For tubes containing BOF bundles only:

- a. Using the bundle jacket stripper, remove the exposed bundle jacket in approximately 160 mm (6 inch) lengths until all of the exposed bundle jacket is removed.
- b. Using the clear jacket stripper, remove approximately 80 mm (3.0 inches) of the clear inner jacket from the end of the bundle.

NOTE: If wire stripper does not bite into the inner jacket, position the wire stripper at a 30 to 40 degree angle to increase its bite.

Furcation Assembly Installation

11/12/00

- c. Find the ripcord from among the six fibers. Ensure that it is not crossed with any of the fibers. While holding the group of fibers in one hand, pull the ripcord along the bundle with the other hand. Pull the ripcord until it reaches the beginning of the bundle jacket.

NOTE: The ripcord and fibers spiral along the bundle length. Take care to follow the spiral when pulling the ripcord.

- d. Starting at the end of the fiber bundle, carefully pull the group of fibers from the inner jacket.
- e. Using the scissors, carefully cut away the ripcord and the inner bundle jacket.

Step 6 – For tubes containing BOF bundles only:

- a. Apply a thin layer of caulking compound around the last 6 mm (0.25 in) of the 3" clear BOF tube provided. Slide a tube coupler onto the end of the 3" BOF tube and firmly seat the tube within the tube coupler.
- b. Insert the individual fibers into the tube coupler. Slide the tube coupler and 3" piece of clear BOF tubing over the fibers to the main BOF tube. Apply a thin layer of caulking compound around the last 6 mm (0.25 in) of the main BOF tube. Slide the tube coupler onto the BOF tube and firmly seat the tube within the tube coupler (see figure 2). Apply an axial load of approximately 22 N (5 lbs) between the two BOF tubes to verify that the tube coupler is properly engaged onto the tubes.

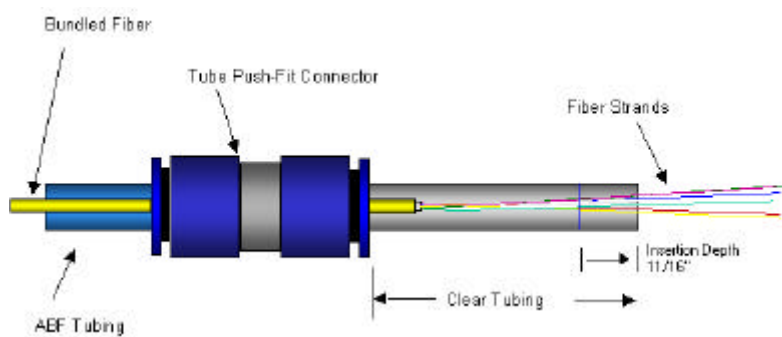


FIGURE 2. Clear BOF tube and fibers.

Step 7 – Insert the individual fibers into a tube coupler. Slide the tube coupler over the fibers to the BOF tube. Apply a thin layer of caulking compound around the last 6 mm (0.25 in) of the BOF tube. Slide the tube coupler onto the BOF tube and firmly seat the tube within the tube coupler (see figure 3).

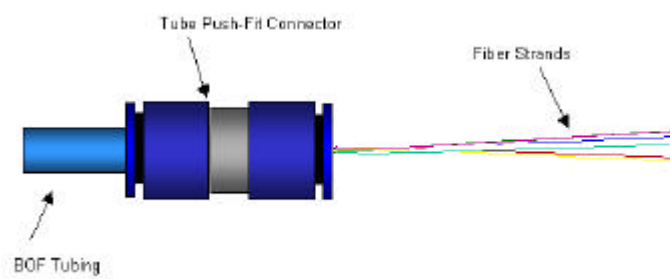


FIGURE 3. BOF tube and fibers.

Step 8 – Insert each individual fiber into one of the loose tube furcation cable buffer tubes within the furcation unit (see figure 4). Feed each fiber through the furcation unit until all of the fibers are protruding from the ends of the individual loose tube furcation cables.

NOTE: Use furcation units with slate colored loose tube furcation cables for BOF tubes containing multimode optical fiber. Use furcation units with yellow colored loose tube loose tube furcation cables for BOF tubes containing single mode optical fiber.

Furcation Assembly Installation

11/12/00

NOTE: The procedure for furcation of bundled optical fiber – i.e. incorporating the 3" length of clear BOF tube may be used for furcation of non-bundled fiber to allow observation of the fibers as they enter the loose tube furcation cable buffer tubes within the furcation unit – thus assuring a kink free installation. This is done at the expense of a slightly longer finished assembly and the additional tube coupler.

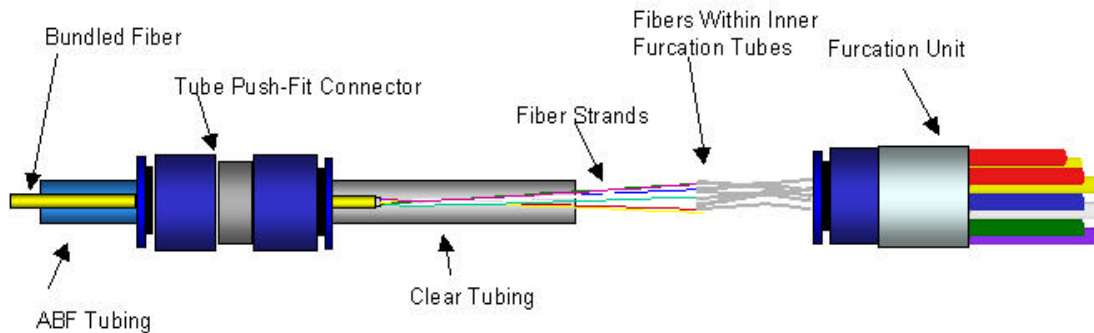


Figure 4. Feeding fibers into the furcation unit.

Step 9 - Apply a thin layer of caulking compound around the last 6 mm (0.25 in) of the BOF tube of the furcation unit. Carefully insert the furcation unit tube into the tube coupler to a maximum depth of 11/16". This depth is indicated on the Clear Tubing by a blue scribed line (see figure 5). Ensure that no fibers are kinked within the tube as it is inserted into the tube coupler. Apply an axial load of approximately 22 N (5 lbs) between the BOF tube and the furcation unit to verify that they are properly engaged into the tube coupler.

NOTE: Do not rotate the furcation unit with respect to the BOF tube cable. Rotation of the furcation unit may cause increased optical loss or fiber breakage.

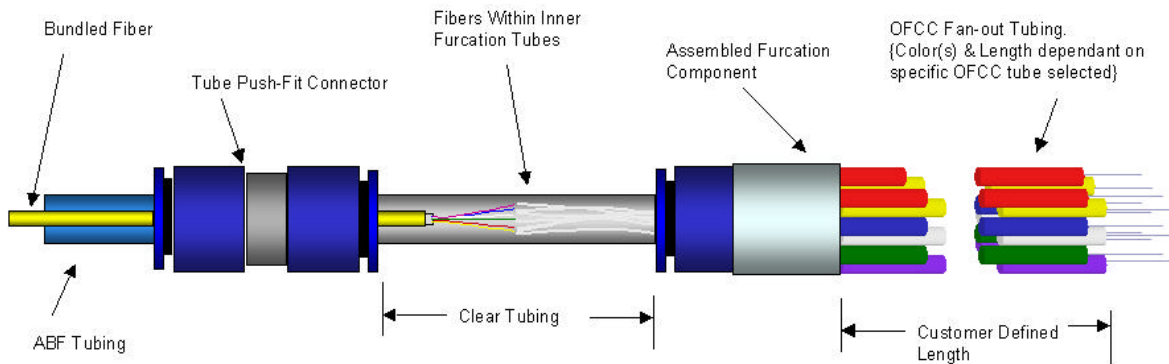


Figure 5. Assembled furcation unit.

Step 10 - Mark each loose tube furcation cable to identify the color of the fiber within that furcation cable.

NOTE: Colored heat shrink tubing or tape may be used to mark the color of the fiber within each loose tube furcation cable.

Step 11 – Slide the heat shrink tubing with the furcation unit identification over the furcation unit loose tube furcation cables onto the furcation unit body. Holding the heat gun approximately 100 mm (4 inches) away from the furcation unit, shrink the shrink tubing.