

Figure 1



**NOTE**

Dimensions in this instruction sheet are in metric units [with U.S. customary units in brackets]. Figures are not drawn to scale.

Components of each terminus kit is shown in Figure 1.

Reasons for re-issue of this instruction sheet are provided in Section 3, REVISION SUMMARY.

## 1. REQUIRED TOOLS AND MATERIALS

- ruler having metric and US customary units
- aramid shears 1278637-1
- fiber jacket stripper 1278531-1
- stripping tool 1754708-1
- alcohol fiber wipe packet 501857-2 or lint-free cloth
- isopropyl alcohol
- EPO-TEK 353ND-T epoxy
- 3-cc syringe
- dedicated table-top centrifuge
- 20-gauge (.023 by 1.0-in.) needle
- PRO-CRIMPER\* III hand tool frame assembly 58532-1 and ARINC 801-compliant die set 1828889-1
- heat cure oven 502130-1 and curing oven block 1918510-1
- fiber optic sapphire scribe tool 504064-1
- terminus polishing puck 2828087-1
- 200X (minimum) microscope
- Loctite 222 low-strength threadlocker adhesive
- equal to or less than 1.25-mm [.05-in.] diameter cleaning stick



**NOTE**

Aerospace fiber optic kits 2828750-[ ] contain the materials to clean fiber and a tablet to inspect the fiber end face. Kit 2828750-2 also includes testing capability. Refer to 408-32234.

## 2. ASSEMBLY PROCEDURE



Always wear approved eye protection when working with optical fiber.



**CAUTION**

Never eat, drink, or smoke when working with fibers. This could lead to ingestion of glass particles.

Loctite is a trademark of Henkel Corporation.  
EPO-TEK is a trademark of Epoxy Technology Inc. Corporation

## 2.1. Cable Preparation

Each terminus kit is designed to be terminated to a loose tube or semi-tight multimode 1.6 to 2-mm diameter fiber optic cable having the structure shown in Figure 2. These terminus kits are not suited for termination to cables having ultra-tight structure (where no movement is possible between the buffer and the jacket).

1. Slide the crimp sleeve (small diameter end first) onto the cable.
2. Using the ruler, aramid shears, fiber jacket stripper, and stripping tool, strip the cable to the dimensions given in Figure 2.

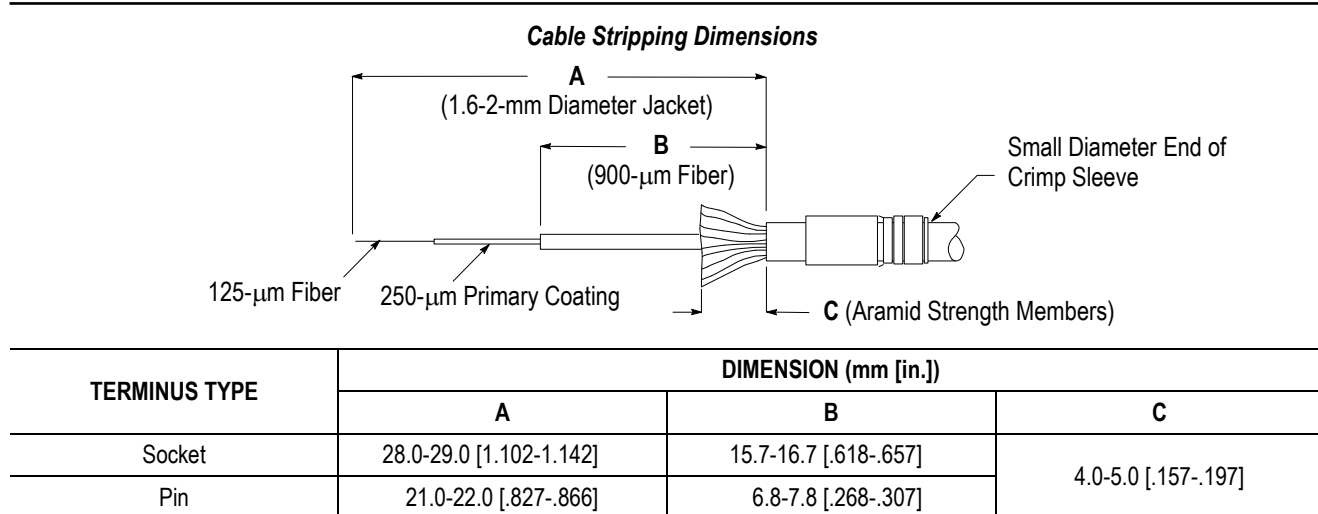


Figure 2

3. Using the alcohol pad or a lint-free cloth dampened with isopropyl alcohol, clean the glass cladding to remove any coating residue.

## 2.2. Epoxy Application

1. Using the epoxy kit, remove the separating clip from the bag of epoxy. Mix the epoxy inside the bag thoroughly for a minimum of 3 minutes.
2. Cut the epoxy bag diagonally at one corner, and squeeze the mixed epoxy into the syringe.
3. Using the dedicated table-top centrifuge, centrifuge the syringe (with the open reservoir end up) for a minimum of 10 minutes.
4. Install the needle onto the syringe.
5. Insert the needle into the back of the base subassembly until it butts against the internal stop. While pressing the base subassembly against the needle, inject the epoxy until it comes out of the ferrule end face.
6. With the base subassembly balanced on only the needle, inject one short burst of epoxy; then remove the syringe.

## 2.3. Termination

1. While rotating the stripped fiber, insert the fiber into the back of the base subassembly until the base subassembly reaches the cable jacket. Then, *carefully* push the fiber until the back end of the base subassembly is under the cable jacket and the cable jacket is against the shoulder of the base subassembly.
2. Arrange the strength members evenly over the shoulder of the base subassembly, then apply a drop of epoxy to the strength members. See Figure 3, Detail A.
3. Slide the crimp sleeve over the strength members until it bottoms against the shoulder of the base subassembly. See Figure 3, Detail B.

4. Using hand tool frame assembly and die set, terminate the crimp sleeve. When placing the crimp sleeve into the nest of the die, make sure to align the back of the base subassembly with the edge of the die. See Figure 3, Detail C. For detailed instructions on using the hand tool, refer to [408-4020](#).

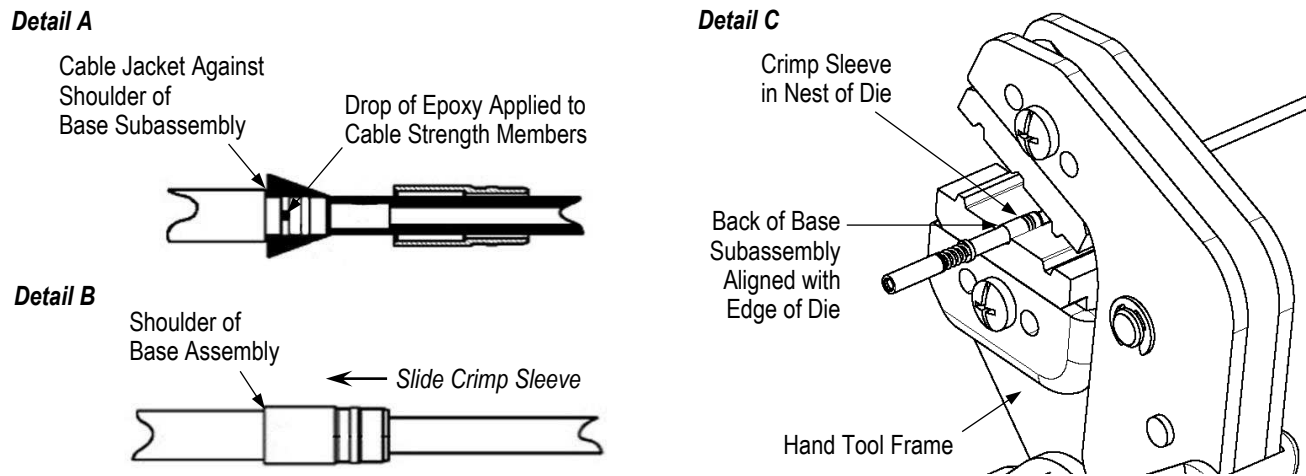


Figure 3

5. Check that the crimp is straight and even, and remove any excessive epoxy residue from the base subassembly.
6. Using the heat cure oven and curing oven block, cure the assembly at 125°C [257°F] for a minimum of 20 minutes. Make sure to protect the protruding glass fiber from breakage during the process.


**NOTE**

For the best curing result, apply a slow cooling process.

## 2.4. Fiber Cleaving and Polishing

1. Place the blade of the fiber optic sapphire scribe tool just above the epoxy on endface of the ferrule, and score the fiber with a light transverse motion. See Figure 4. For detailed instructions on using the scribe tool, refer to [408-4293](#).
2. Pull the fiber straight away from the ferrule. Safely dispose of the fiber stub.
3. Polish the fiber using a polishing machine according to the procedure for singlemode products provided by the manufacturer. Even for this multimode product, a standard singlemode polishing process will give optimum performance.
4. To manually polish the ferrule (socket or pin), use the terminus polishing puck according to a standard singlemode polishing process. For the socket, because of the short ferrule, use a polishing fixture that accommodates a reduced height.

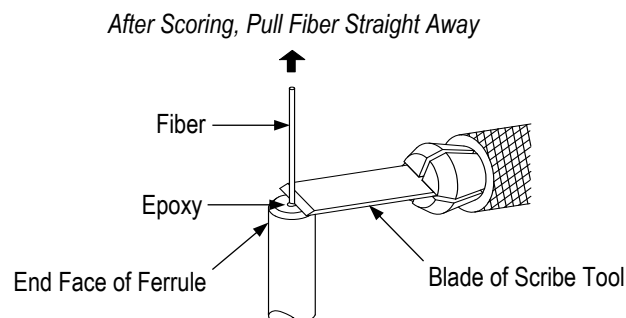


Figure 4

## 2.5. Ferrule Cleaning

1. Using the alcohol pad or lint-free cloth dampened with isopropyl alcohol, clean the entire ferrule surface and endface.
2. Using the microscope, inspect the ferrule endface for cleanliness. If necessary, repeat. It is extremely important that the fiber and the endface are pristinely clean.

## 2.6. Lens Subassembly Installation

### A. Socket Terminus

1. Slide the lens subassembly over the ferrule, taking care not to touch or contaminate the ferrule endface, until it is against the ferrule endface.
2. Slide the split sleeve onto the lens subassembly until it is approximately 1.0 to 1.5 mm [.040 to .060 in.] from the start of the threads of the base subassembly.
3. Apply a drop of the threadlocker adhesive to the threads of the base subassembly.
4. Slide the shroud over the split sleeve and thread it onto the threads of the base subassembly until it reaches the stop. During this process, the shoulder inside the shroud will push the split sleeve to final position.



#### CAUTION

*If the shroud has to be removed, avoid pulling on the crimp sleeve; otherwise, it may unseat the lens subassembly from the ferrule endface. Unseating the lens subassembly can cause higher loss. If this occurs, repeat the installation starting with step 1.*

5. Before use, allow the threadlocker adhesive to cure for half an hour at room temperature.
6. To disassemble the terminus, follow the reverse of installation. It may be necessary to break the adhesion of the threadlocker using a pair of soft-jaw pliers. To re-use the split sleeve and lens subassembly, separate the components by pushing the lens subassembly out of the split sleeve using a straight pin. Care must be taken not to damage the lens or lens coating.

### B. Pin Terminus

1. Slide the lens subassembly (with threaded shroud end first) over the ferrule, taking care not to touch or contaminate the ferrule endface.
2. Apply a drop of the threadlocker adhesive to the threads of the base subassembly.
3. Continue to slide the lens subassembly over the ferrule until it reaches the threads of the base subassembly, then thread it onto the base subassembly until it is firmly pressed against the stop. Do not use excessive force; otherwise, the optics may be damaged.
4. Before use, allow the threadlocker adhesive to cure for half an hour at room temperature.
5. To remove the lens subassembly, follow the reverse of installation. If necessary, use a pair of soft-jaw pliers to break the adhesion of the threadlocker.

## 2.7. Lens Inspection and Cleaning

The lens subassembly is cleaned before shipping; however, to ensure that there was no contamination during assembly, inspect the external and internal surfaces of the lens using the microscope.

Using a blast of clean compressed nitrogen or air is usually sufficient to clean the internal surface of the lens. The external surface of the lens can be cleaned using the cleaning stick (either dry or moistened with isopropyl alcohol). If this is insufficient, perform ultrasonic cleaning in an acetone or isopropyl alcohol fluid followed by a blast of clean compressed nitrogen or air.

## 3. REVISION SUMMARY

Revisions to this instruction sheet include:

- Changed epoxy requirement callout to specific brand and type in Section 1.