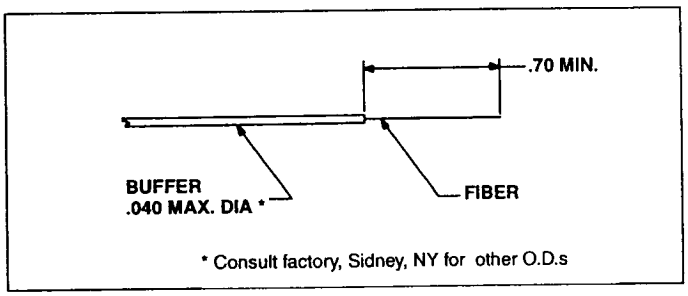
CF-198113-( )
Fiber Optic Termini
Cable Installation Instructions

WARNING NOTE:

Caution: Looking into fibers illuminated with laser light can cause eye damage. Follow safety procedures recommended by light source manufacturers.

Extreme care should be taken when handling glass fiber to avoid penetration of skin.

1. Ref. drawings CF-198113-CD for identification and orientation of parts. Visually inspect cable for optical continuity.
2. Slide right angle tube back onto cable.
3. Strip cable to indicated dimensions.



* Consult factory, Sidney, NY for other O.D.s

4. Wipe off bare fiber with MEK or equivalent. Fiber surface must be clean and dry before bonding.
5. (Optional) Push fiber into terminus and remove to ensure proper fiber hole size.
6. Prepare epoxy per manufacturer's instructions.
   Recommended Epoxy: 200°C Max Service Temp.; #353ND
   Suggested Source:
   Epoxy Technologies, Inc.
   P.O. Box 567
   Billerica, MA 01865
7. Fill syringe with epoxy.
8. Wipe bare fiber with epoxy. **Use epoxy sparingly** (should resemble dew on a spider web).
9. Add epoxy to outside of the rear end of terminus (.063 dia.) for approximately .150. This is to ensure bonding of the right angle tube to the terminus body. Add epoxy to buffer for approximately .750. This is to ensure bonding of the buffer to the right angle tube. Carefully push stripped fiber and right angle tube into/on terminus until buffer is in contact with rear of ceramic and right angle tube is fully seated on rear of terminus. Bare fiber should be sticking out of front of terminus. There should be no epoxy on front face. If there is, additional polishing time may be required. Make sure right angle tube is fully seated on end of terminus. Cure epoxy using a heat gun @ 475 minimum wattage. Heat gun to generate between 300-400°C air flow temperature. Apply heat to junction of right angle tube and terminus. Epoxy at junction of right angle tube and terminus will turn amber color at full cure. When this happens, remove heat immediately.

   Note: Small bead of epoxy at junction must be visible before starting curing.
10. Add epoxy to end of right angle tube, between tube and buffer. Cure epoxy using a heat gun @ 475 minimum wattage. Heat gun to generate between 300-400°C air flow temperature. Do not apply excessive heat to cable buffer. Epoxy will turn amber color at full cure. When this happens, remove heat immediately.
11. To cure the epoxy at the front of the terminus between fiber and ceramic, follow either of the approved procedures listed below:

    Option 1: When using a heat gun @ 475 minimum wattage
    a. heat gun to generate between 300-400°C air flow temperature
    b. insert end of ceramic and fiber into air flow for ten 1 second intervals.

    Option 2: When using an oven - step cure per the following cure schedule:

Temp. (°C)	Duration (minutes)
80	120
125	120
150	120

12. Scribe glass fiber approximately .010 above ceramic. Grasp fiber and pull slightly until fiber breaks.
13. Take a piece of 15 micron lapping film (approx. 8 X 3 inches long) and hold in hand so it has a slight concave radius to it. Complete 40 gentle strokes back and forth over termini to be polished. Use approximately a 4-inch stroke. This step will reduce the fiber length to the right amount for final polish. (Holding the lapping film on a radius ensures that the fiber length will not be polished flush with ceramic.) Repeat for other fibers.
14. Thoroughly clean termini.
15. The fully cured epoxied termini may be either hand polished or machine polished. Reference the following lists to determine which polishing fixture to use:

Hand Polishing

Termini P/N	Hand Polishing Fixture	Termini Capable of Polishing
CF-198113-( )	11-12123	1

Machine Polishing

Using the Buehler Fibrmet* Optical Fiber Polisher and the Buehler Fibrscope* Portable microscope.

Amphenol Terminus P/N	Amphenol Buehler Fibrmet* Polishing Fixture P/N	Amphenol Buehler Fibrscope* Adaptor Body P/N
CF-198113-( )	11-12103	11-12104

After selecting the appropriate polishing fixture and adaptor, reference the Buehler Fibrmet* and Fibrscope* instructions for SMA type connectors to familiarize yourself with their operation. (For hand polishing go to step 26).

* Fibrmet and Fibrscope are registered trademarks of Buehler Ltd.

Machine Polishing.

16. For machine polishing Amphenol/Bendix size 16 ceramic termini, follow these instructions.
17. Bring the lobe of the cam to the vertical position by switching the Fibrmet* on and off.
18. Install .3 micron aluminum oxide polishing disc on left platen.
19. With the arm in the lock pin position, insert the terminus to be polished into the polishing fixture and secure.
20. Loosen the lock ring and rotate the arm counter clockwise to the left platen. Turn the adjustment collar in or out until the terminus just touches the surface of the disc. The contact should make only a light mark on the disc.
21. Tighten the lock ring against the adjustment collar.
22. Make a final adjustment by moving both the lock ring and the adjustment collar so that the terminus just touches the abrasive disc.
23. Polish terminus until an optically acceptable fiber end has been produced, approximately 1 minute. (See Figure 1). If a small amount of epoxy is on the polished surface, continue polishing until no epoxy can be seen with the naked eye. Inspect end of the optical fiber for desired finish by examining it with the Fibrscope* portable microscope or equivalent. Repeat polishing if required.
24. Thoroughly clean termini and fixtures. Push on plastic protection cap, when supplied. Cap must be removed before inserting termini into connector.
25. After polishing has been done, go to step 30 of these instructions.

Hand Polishing

When hand polishing, follow these instructions:

26. Determine which termini are to be polished first. Use appropriate terminus holder (labeled pin) on bottom polishing plate.
27. Install terminus in bottom fixture, then screw on top fixture, captivating terminus.
28. Using a circular motion of approximately 2 inches in diameter, polish terminus on 1 micron lapping film backed by a smooth hard surface, approximately 40-50 seconds. If a small amount of epoxy is on the polished surface, continue polishing until no epoxy can be seen with the naked eye. Inspect end of the optical fiber for desired finish using a microscope. (See Figure 1). Repeat for other termini. (For an exceptionally fine finish, continue polishing terminus for 20-30 seconds using .3 micron lapping film. Thoroughly clean termini before proceeding with this step).
29. Thoroughly clean termini and fixture. Push on protection cap, when supplied. Cap must be removed before inserting termini into connector.
30. Push termini into connector until fully seated. Care should be taken not to exceed minimum bend radius of buffered fiber. If desired, insertion tool M81969/14-03 may be used to aid assembly.
For removal of termini, use extraction half of supplied tool.

Recommended Equipment
Hand Polishing

Razor blade and/or exacto knife
MEK
ISO Propanol
Epoxy, as required
1 syringe
Polishing fixture: 11-12123 or equivalent, as required
15 & 1 micron aluminum oxide lapping film or equivalent, as required
Optional: .3 micron aluminum oxide lapping film or equivalent, as required
Microscope, 100 power or greater
Cotton swaps
Small scissors
Cutting pliers
Wire strippers or hot tweezers, depending on cable type
.014 no nik wire strippers or equivalent
Hot air gun
Fiber scriber

Recommended Equipment:
Machine Polishing

Buehler Fibrmet* Optical Fiber Polisher or equivalent
Buehler Fibrscope* portable microscope or equivalent
4 inch dia. PSA backed .3 micron aluminum oxide polishing discs or equivalent as required
Polishing fixture: 11-12103 or equivalent
Fibrscope* adaptor: 11-12104 or equivalent
Razor blade and/or exacto knife
MEK
ISO Propanol
Epoxy, as required
1 syringe
Cotton swabs
Small scissors
Cutting pliers
Wire strippers or hot tweezers, depending on cable type
.014 no nik wire strippers
Hot air gun
Fiber scriber

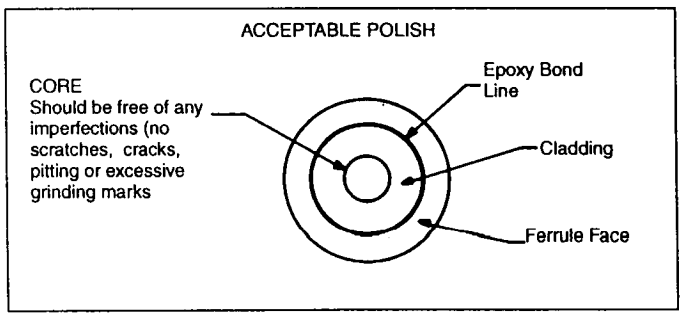


Figure 1

*Fibrmet and Fibrscope are registered trademarks of Buehler Ltd.