

Single Loose Tube Cable End Preparation for Splicing

This procedure details the steps to be taken in order to prepare the ends of a Superior Essex Single Loose Tube Optical Fiber Cable for splicing. The cable may be a “dry” type cable design or a gel flooded design. This procedure does not include methods to prepare and splice the fiber or splice testing. Cable end preparation and splicing must be performed by personnel trained and familiar with handling of optical fiber cable, components, and splicing accessories. Mishandling of fiber cable can cause damage to the fiber and result in cable length cuts or system degradation.

Materials Required

- Tape measure
- Yellow china marker (or equivalent) for marking cable jacket
- Rotary cable slitter
- Diagonal cutters
- Needle nose pliers (preferably with rounded side edges)
- Aramid shears
- Gel cleaner and lint-free wipes

Procedure

1. Ensure all required materials are on hand. It is recommended that the processes of cable end preparation, fiber splicing, and splice closure assembly be performed from beginning to end with minimal interruption. If for any reason actions are interrupted, ensure fiber cable end and fibers are adequately protected.
2. Determine end location of cable where the splice point is to be located.
3. Adjust the cutting depth of the rotary cable slitter to approximately 90% of the jacket thickness. If the cable is armored, adjust the blade to cut through the jacket and score the armor. Ring cut the jacket/armor approximately 1” (25 mm) from the end of the cable. Flex the cable slightly at the cut to complete the opening of the jacket. If necessary, adjust the cutting depth and repeat the process until the 1” (25 mm) piece of jacket/armor can be pulled off the end of the cable.
4. Measure and mark the length of cable to be stripped according to the manufacturer’s recommendations for the splice/termination system utilized. Using the final cutting depth determined in the previous step, Ring cut the jacket/armor at the mark and flex the cable slightly to complete the opening of the jacket.
5. Locate a ripcord below the jacket or armor at the end of the cable. There will be two ripcords that will be a different color (typically blue, orange or red, depending on cable type) than the other yellow and/or white yarns utilized in the cable. Also, the ripcords will be longitudinally applied just under the jacket or armor rather than wrapped around the cable core.

6. Using the diagonal cutters, cut a notch in the jacket/armor next to the ripcord(s).
7. Using round-edge needle nose pliers, grab the end of a ripcord and wrap the ripcord around the pliers' jaws, forming a T-handle. Pull the ripcord down the length of the cable to the ring cut created in Step 4. Note: rounded edges on pliers will prevent the pliers from cutting through the ripcord during initial pulling.
8. Locate the second ripcord (approximately 180° from the first one) and repeat steps 6 and 7 with it to split the jacket.
9. Remove the jacket material to expose the cable core. If two solid strength rods exist in the cable jacket, peel the jacket back from the inner cut location to expose approximately 18" (45 cm) of the strength rods. Cut the two strength rods so that approximately 12" (30 cm) of the rods exist out from the jacket (the rods will be cut to length during assembly of the splice closure). Peel off remaining jacket and rods to expose the buffer tube.
10. With the aramid shears, cutoff the strength yarns leaving about 12" (30 cmm) of yarns from the end of the jacket (these yarns will be cut to length during assembly of the splice closure). Be careful not to cut or kink the buffer tube.
11. Clean any residue off the buffer tube.
12. Review manufacturer's assembly instructions for the splice closure to be used. Follow the splice closure assembly instructions to build the closure unit, attach the cable ends, and fabricate the end seal around the cables to be spliced. Repeat the above steps for all cables that are planned to enter the closure so that closure end plate seal and fabrication is complete.
13. To breakout fibers from the buffer tube, ring score the tube. Gently flex the tube at the score location to complete the opening of the tube. Pull the free tubing off to expose the fibers within
14. Use the gel cleaner and lint-free wipes to completely remove the buffer tube gel from the exposed fibers. Begin near the buffer tube and work toward the fiber ends.
15. Run the tube straight into the closure and terminate it on a breakout tray. On the breakout tray, organize the fibers into preferred bundles. Use routing tube(s), a.k.a. furcation tube(s), to protect fiber slack and carry the fiber bundles to the appropriate splice tray.
16. Follow closure assembly instructions and build specifications to route the buffer tubes to the appropriate splice tray.
17. Prepare and splice fiber per the instructions of the applicable splice/equipment manufacturer. Store fiber splice and excess fiber in splice tray per closure manufacture instructions.
18. After completion of the splicing operation, assemble the splice enclosure in accordance with the manufacturer's instructions.