

Single Loose Tube Cable Mid-Span Access for Splicing

This procedure details the necessary steps to access a Superior Essex Single Loose Tube Optical Fiber Cable mid-span 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 to perform splice testing. Cable access and splicing must be performed by personnel trained and familiar with handling of optical fiber cable, 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
- Cable knife or utility razor (a hook-blade razor is helpful)
- Rotary cable slitter
- Diagonal cutters
- Needle nose pliers (preferably with rounded side edges)
- Aramid shears
- Tube Shaver or Slitter (Corning UAT II recommended for all tube sizes)
- Gel cleaner and lint-free wipes

Procedure

1. Ensure all required materials are on hand. It is recommended that the processes of mid-span access, 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 and fibers are adequately protected.
2. Determine location on cable where the splice point is to be located.
3. Measure and mark the length of cable to be stripped according to the manufacturer’s recommendations for the splice/termination system utilized.
4. 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 at one end of the marked area. 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 jacket/armor is cut completely through.
5. Ring cut the jacket/armor approximately 2” (50 mm) from the cut completed in the previous step and in the direction of the second mark. 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 jacket/armor is cut completely through.

6. Ring cut the jacket/armor at the other end of the marked area. 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 jacket/armor is cut completely through.
7. With the cable knife or utility razor, cut the jacket/armor longitudinally between the first two ring-cuts. Cut completely through the jacket/armor, but be careful not to cut the buffer tube underneath.
8. Pry the jacket/armor open at the longitudinal cut and remove it from the cable core.
9. Locate a ripcord along the cable core. The ripcords 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/armor rather than wrapped around the cable core. Using the aramid shears, cut the ripcord near the first ring-cut.
10. Using the diagonal cutters, cut a notch, next to the ripcord, in the jacket/armor that is to be removed.
11. Using round-edge needle nose pliers, grab one end of the ripcord and wrap the ripcord around the pliers' jaws. With the ripcord in the notch created in the previous step, continue rotating the pliers, winding the ripcord around the pliers' jaws. This will pull the ripcord through the jacket/armor down the length of the cable. After pulling the ripcord with this method for 3-4" (75-100 mm), it may be more efficient to grab the pliers in a T-handle fashion with the ripcord between your fingers and simply pull along the length of the cable. Pull until the ripcord reaches the third ringcut. Note: Rounded edges on pliers will prevent the pliers from cutting through the ripcord during initial pulling.
12. If two ripcords exist under the jacket, repeat the previous three steps for the second ripcord to split the jacket.
13. Remove the jacket material between the ring cuts to expose the cable core. For single-ripcord cables, gently pull the cable core through the opening created by the ripcord. Do not exceed the cable's minimum bend radius.
14. With the aramid shears, cut the strength yarns leaving about 12" (30 cm) of yarns from each end of the jacket (these yarns will be cut to length during assembly of the splice closure). Be careful not to cut the buffer tube.
15. 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.
16. If the cable is armored, bond the armor of each end of the cable to an approved ground via a suitable bond clamp or shield connector. Follow the manufacturers' instructions. It may be necessary to use the ripcords to split more of the jacket/armor in order to install the bond clamp or shield connector.
17. To breakout fibers from the buffer tubes, use the appropriate tube shaver or slitter and follow the manufacturer's instructions.
18. Use the gel cleaner and lint-free wipes to completely remove the buffer tube gel from the exposed fibers.
19. 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.
20. After completion of the splicing operation, assemble the splice enclosure in accordance with the manufacturer's instructions.