PowerGuide® TTH Drop Cable – Attachment Hardware and Sheath Prep

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1. General

1.1 The following procedure describes the recommendations and practices specific to installation and sheath removal for PowerGuide® TTH self-supporting aerial drop cable.

2. Precautions

2.1 OFS PowerGuide® TTH cable is an all dielectric self-supporting (ADSS) optical fiber cable intended for short span-length aerial applications. PowerGuide® TTH cable is a loose tube cable design available with a maximum of 30 fibers. The cable's small diameter, low cost installation hardware, and self-supporting design make it an ideal solution for aerial drop applications in fiber-to-the-home (FTTH) networks.

2.2 Care should be taken during installation to ensure that the cable's minimum bend diameter is not violated and the maximum rated cable load is not exceeded. Minimum bend diameters are expressed as a multiplier of the cable outside diameter (OD) for both static and dynamic conditions. For static conditions the minimum bend diameter of PowerGuide® TTH cable is 20 × OD (7.0 in. [18.0 cm]). For dynamic conditions the minimum bend diameter is 30 × OD (10.5 in. [27.0 cm]).

2.3 Cable tensile load ratings are specified for both short-term and long-term conditions. The short-term condition represents a cable subjected to the storm load conditions (ice, wind, and temperature) specified by the National Electric Safety Code (NESC). The long-term condition represents a cable subjected to the permanent installation load of the cable. For short-term conditions, the maximum rated cable load for PowerGuide® TTH cable is 460 lb (2070 N). For long-term conditions, the maximum cable load is dependent on the storm-load region, span length, and installed sag. Please contact OFS Technical Support at 888-FIBER-HELP (888-342-2743) for the maximum long term load for your application. During cable installation, the maximum allowable pulling tension of PowerGuide® TTH cable is 600 pounds (2700N).

2.4 Breakaway pulling swivels and/or calibrated pulling winches are recommended for use during installation to assure that the maximum allowable pulling tension is not exceeded. Cable lubricants are recommended for use during underground installation to reduce the required installation loads. Contact a cable lubricant manufacturer or OFS Technical Services for guidance on the proper lubricant to be used for your application.

3. Tools

The following tools and materials are recommended for removal of the cable jacket in preparation of testing and/or splicing.

- Cable sheath knife
- Buffer tube cutter
- Scissors
- Cable shears
- Diagonal cutters
- Pliers
- Tape measure
- Electrical tape
- Approved optical fiber cleaner
- Paper towels
- Lint free wipes
- Isopropyl Alcohol
- Gloves
- Safety glasses

Caution: Gloves and safety glasses should always be worn during sheath removal and cable preparation operations.

4. PowerGuide® TTH Pulling Grip Attachment

4.1 Pulling grips for fiber optic cable are made of high strength galvanized steel strand. They feature a woven mesh with either a single or double weave. The woven mesh grip provides positive holding power while allowing the grip to remain flexible during cable installation. The pulling grip is reusable and provides easy attachment of a pulling swivel. Cable pulling grips are used during both underground and aerial installation.

4.2 The proper pulling grip can be order directly from OFS using the following ordering information.

OFS Part Number:	JL-37-TSO-SW-24
Cable OD:	0.25 to 0.50 inch

4.3 If a pulling grip is being reused, inspect the pulling grip for worn or broken wires. Discard the grip if it shows signs of damage or excessive wear.

4.4 Trim the end of the cable to ease attachment of the pulling grip (Figure 1).

Figure 1 – Trim the cable end before attaching the grip.

4.5 Open the grip by compressing the end of the grip and slide it onto the cable. Slide the end of the cable through the opposite end of the grip and slide the grip about 20 inches beyond the end of the cable (Figure 2).

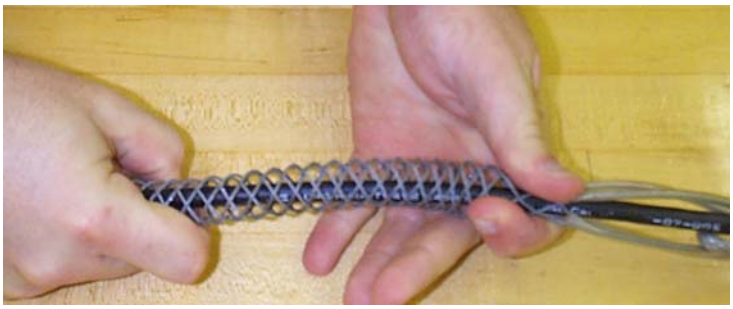

Figure 2 – Slide the grip about 20 inches beyond the cable end.

4.6 Measure 18" from the cable end and ring cut the cable jacket (Figure 3). Score the polyethylene jacket rather than cut all the way through. Make a second ring cut 5" from the end of the cable

Figure 3 - Ring cut the cable.

4.7 Carefully flex the cable at the ring cut to completely separate the jacket.

Figure 4 – Flex the cable to separate the cable jacket.

4.8 Remove the 5" section of outer jacket to expose the cable core (Figure 5).

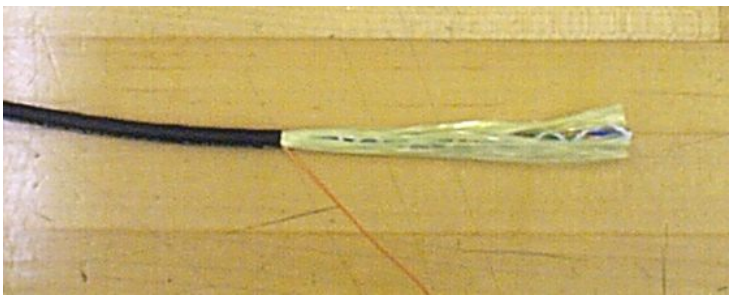

Figure 5 – Remove the 5" section of outer jacket.

4.9 Secure the aramid yarn strength elements at the end of the cable with a wrap of vinyl tape (Figure 6).

Figure 6 – Secure the strength elements with a wrap of vinyl tape.

4.10 Locate the ripcord and pull it through the outer jacket to the first ring cut (Figure 7). Remove the outer jacket from the cable.

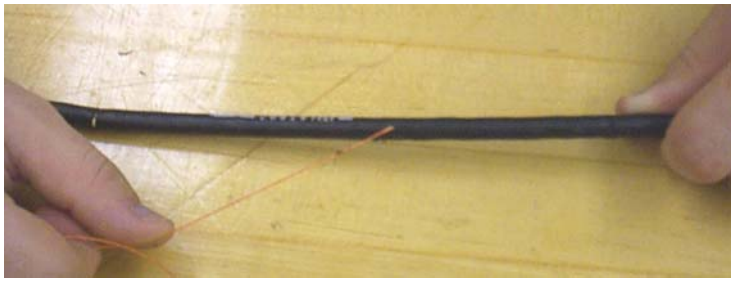

Figure 7 – Pull the ripcord through the outer jacket.

4.11 Slide the pulling grip over the exposed strength elements until that the end of the cable extends about ¼" beyond the end of the wire mesh. Pull firmly on the grip to tighten. The exposed strength elements should be completely covered by the grip and the end of the grip should extend onto the outer jacket (Figure 8).

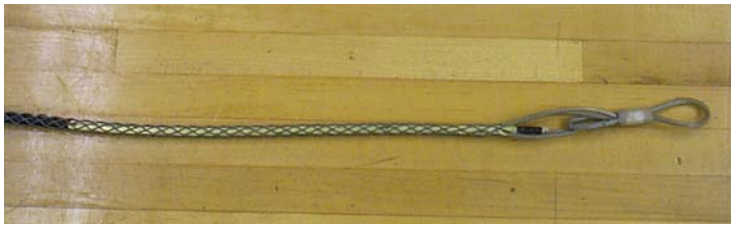

Figure 8 – Slide the pulling grip over the exposed strength elements.

4.12 Wrap the entire length of the grip with vinyl tape beginning with the top of the mesh wire (Figure 9). Overlap the tape approximately ¼ to ½ of the tape width and continuously wrap towards the end of the grip. The tape should be tightly wrapped to compress the grip onto the cable and remove all slack from the grip.

Figure 9 – Completely wrap the grip with vinyl tape.

4.13 For duct installations, the pulling grip should be attached to the pulling rope with a 600-pound rated

break-away swivel. For aerial installations the pulling grip should be attached to the pulling rope using a standard swivel (not a breakaway swivel).

5. PowerGuide® TTH Dead-End Assembly

5.1 The PowerGuide® TTH dead-end assembly is designed to terminate ADSS cable in short span, low tension aerial environments. The dead-end assembly is a formed-wire design with a neoprene coating to protect the cable (Figure 10). The dead-end assembly should not be shortened or modified in any way. Modification of the assembly may result in cable damage and poor optical performance. The dead-end assembly is available through Preformed Line Products or OFS using the following part numbers.

- OFS Part Number: 00006174
- PLP Part Number: 288811274

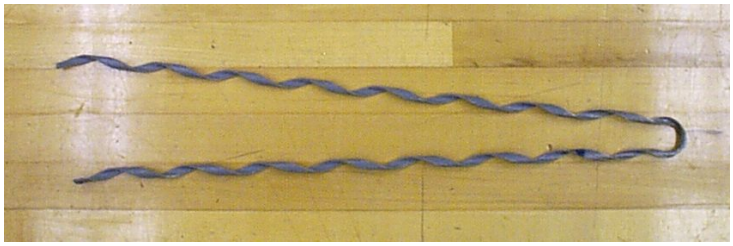

Figure 10 – PowerGuide® TTH dead-end.

5.2 The PowerGuide® TTH cable and dead-end assembly are capable of short term tensions of 460 pounds (2070 N). Contact OFS for installation recommendations specific to your application and NESC loading district.

5.3 The PowerGuide® TTH dead-end assembly should not be applied to the cable more than twice, and should not be re-applied to a cable if it has been in service for a considerable time.

6. Dead-End Installation

6.1 With the cable near its final position, place a reference mark on the cable to correspond to the location of the dead-end crossover mark. The dead-end should begin contact with the cable at the dead-end crossover mark.

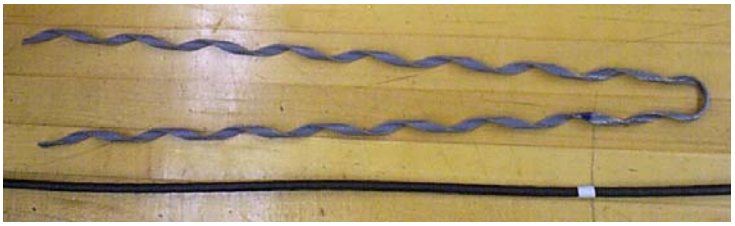

Figure 11 – Align and mark the position of the dead-end on the cable.

6.2 Carefully tension the cable to bring the reference mark on the cable in line with the crossover mark on the dead end.

6.3 Begin wrapping the dead-end onto the cable at the reference mark (Figure 12). Begin the wrap at the dead-end crossover mark and wrap both legs simultaneously to maintain even pressure on the cable.

Figure 12 – Wrap the dead-end onto the cable.

6.4 Make sure the gap between the legs is evenly spaced while installing the dead-end (Figure 13).

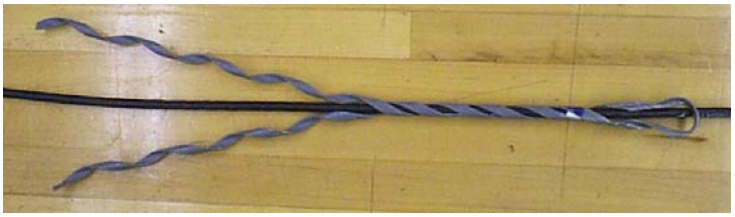

Figure 13 – Maintain even spacing between the legs of the dead-end.

6.5 Wrap the entire length of the dead-end onto the cable making sure the rods are not crossed or misaligned (Figure 14).

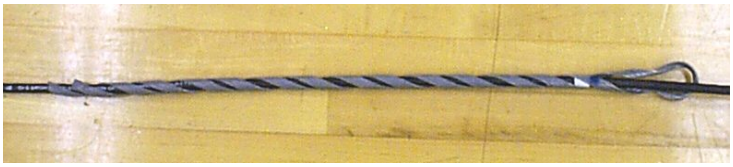

Figure 14 – Completed installation of the dead-end.

7. PowerGuide® TTH End-Prep Sheath Removal

7.1 Consult the closure instructions to determine the length of cable jacket that must be removed. Measure and mark the cable at the appropriate stripping length.

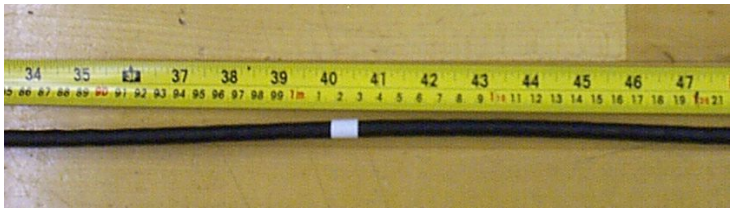

Figure 15 – Mark the length of cable jacket to be removed.

7.2 Ring cut and score the cable jacket at the measured mark (Figure 16).

Figure 16 – Ring cut the cable.

7.3 Carefully flex the cable in a circular motion to separate the jacket at the ring cut (Figure 17).

Figure 17 – Flex the cable to separate the jacket.

7.4 Make a second ring cut about 5 inches from the end of the cable. Carefully flex the cable in a circular motion to separate the jacket at the ring cut. Remove the 5" section of jacket material to expose the cable core (Figure 18).

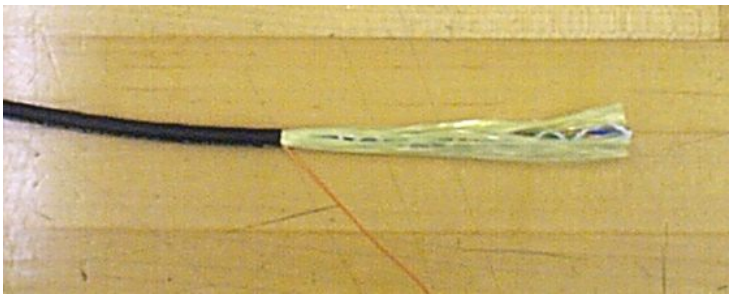

Figure 18 – Remove a 5-inch section of jacket at the end of the cable.

7.5 Locate the ripcord and pull it through the outer jacket to the first ring cut (Figure 19). Separate and remove the outer jacket from the cable.

Figure 19 – Pull the ripcord through the outer jacket.

7.6 Consult the closure instructions to determine the strength member length that is required to fasten the cable in the closure. Separate and cut the aramid yarn strength members as required (Figure 20).

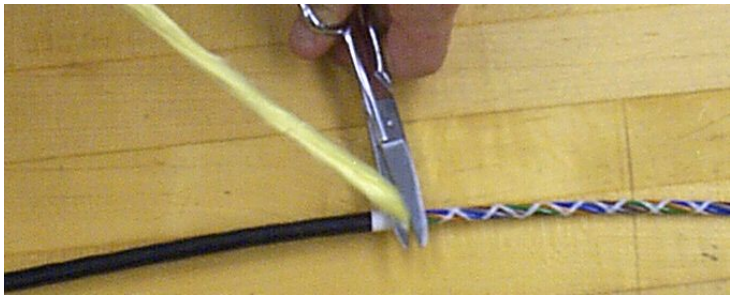

Figure 20 – Cut the strength members to length as required.

7.7 Carefully unwrap the binder threads from the buffer tubes (Figure 21) and cut them flush with the outer jacket.

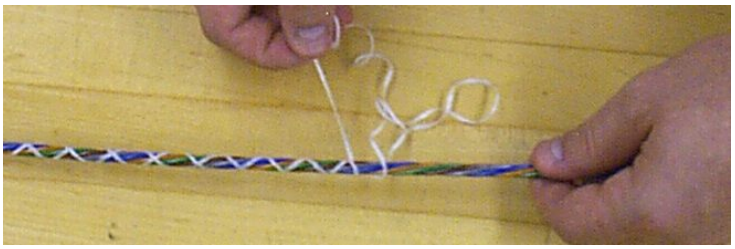

Figure 21 – Unwrap the binder threads from the buffer tubes.

7.8 Separate the buffer tubes from the central strength member taking care not to kink or damage the tubes (Figure 22). Consult the closure instructions to determine the length of central strength member that is required to fasten the cable in the closure. Cut the central member to required length.

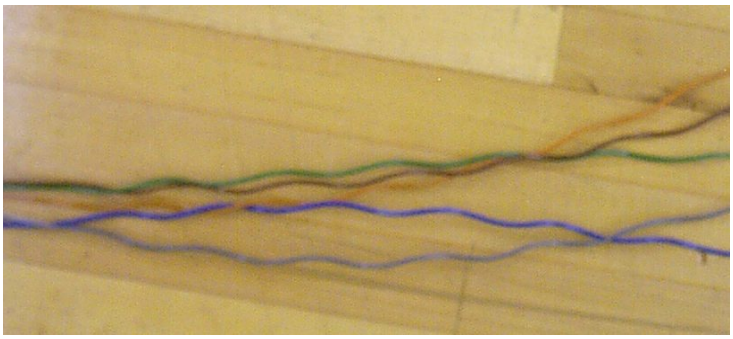

Figure 22 – Separate the buffer tubes from the central strength member.

7.9 Consult the closure instructions to determine the length of buffer tube that is required to fasten the buffer tubes to the splice trays. Use a buffer tube scoring tool to score the buffer tubes at the proper length (Figure 23).

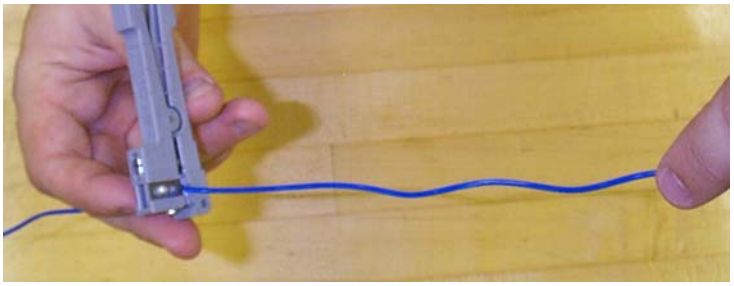

Figure 23 – Score the buffer tubes as required.

7.10 Grasp the buffer tube between your thumb and index finger on both sides of the score mark. Gently flex the tube to separate it (Figure 24).

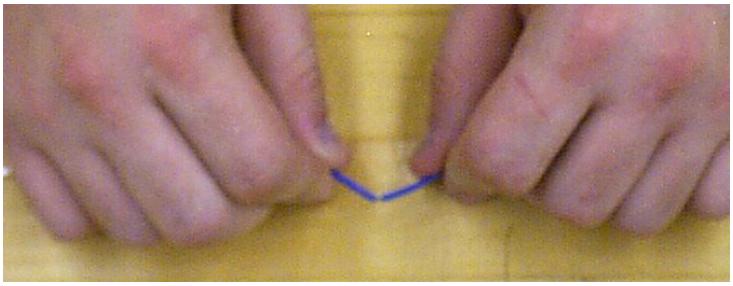

Figure 24 – Flex the tube at the score mark.

7.11 Remove the buffer tube to expose the fibers (Figure 25).

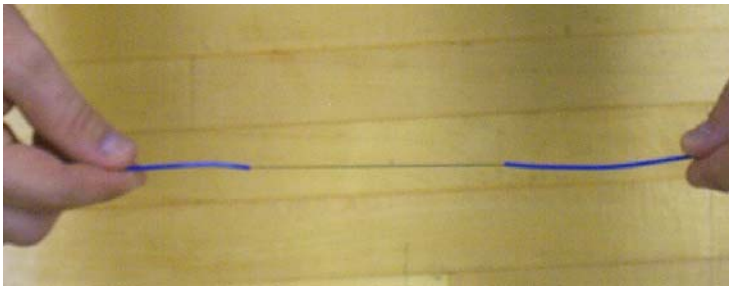

Figure 25 – Remove the buffer tube.

7.12 Clean the fibers with a lint free wipe and isopropyl alcohol taking care not to kink or damage the fibers. The cable is now ready for testing and/or splicing operations.

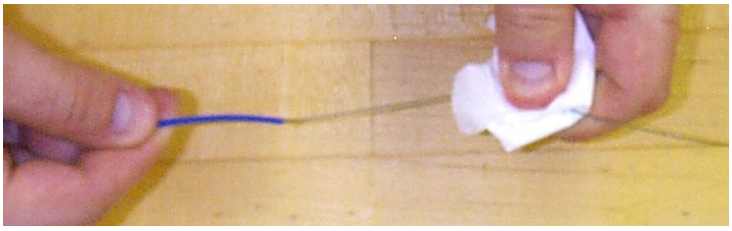

Figure 26 – Clean the optical fibers.

If you have any questions or need additional information, please contact OFS Technical Support Hotline at 888-FIBER-HELP (888-342-3473).