Charles Buried Distribution Optical (BDO) Cabling Instructions for 10" Series 2 BDO-ETS Fiber Pedlock® OSP Pedestals In Sealed Fiber Terminal Block Applications

Table of Contents Page No.

1. GENERAL INTRODUCTION 1
1.1 Document Purpose 1
1.2 Product Purpose 2
2. LOOP-THRU CONFIGURATION CABLE INSTALLATION 2
2.1 Obtain tools, materials and equipment 3
2.2 Remove Dome from base 3
2.3 If required, Verify/Prepare Earth Ground 3
3. PREPARING THE LOOP-THROUGH FEED CABLE 3
3.1 Verify Sufficient Feed Cable Length 3
3.2 Mark Cable for Sheathing Removal 3
3.3 Remove any Kitted Items from the BDO 3
3.4 Remove Organizer (optional) for Cable Sheathing Removal 3
3.5 Remove Outer Sheathing 4
3.6 Label the Tubes 4
3.7 Trim Strength Members to Length 4
3.8 Attach Bond Clamp to Cable 4
3.9 Attach Organizer 4
3.10 Connect Earth Ground to Ground/bond bar 4
3.11 Secure Looped Red Cable to the Cable Attachment Units 4
3.12 Bond Cable to Ground/bond Bar 5
3.13 Separate Working Fiber Buffer Tube from Bundle and Loop/store Bundle 5
3.14 Route and secure the tube 5
3.15 Prepare a splice tray for tube attachment. 5
3.16 Mount Tray into the Tray Hinge Fixture 5
3.17 Mark, Cut and Remove Buffer Tube 5
3.18 Attach Both Ends of Loose Buffer Tube to Splice Tray 6
3.19 Label the tubes 6
3.20 Store fibers in splice tray 6
4. MOUNTING TERMINAL BLOCK & CONNECTING THE TAIL FIBERS TO SPLICE TRAY 7
4.1 OPTION: Using the HINGED Charles 4"x9" Fiber splice Tray 6
4.2 Cut the terminal block tail to length 7
4.3 Attach Terminal Block to Fiber Organizer 7
4.4 Mark and Remove Sheathing from Cable Tail 7
4.5 Trim Strength Members 7
4.6 Secure the strength members to the cable attachment's strength member clamp 7
4.7 Cut Buffer tube to Length to Expose Fibers 8
4.8 Pre-install Cable Ties into Splice Tray 8
4.9 Attach the terminal block buffer tube to the tray. 8
4.10 Wrap/Store Fibers in Splice Tray 8
4.11 Splice Fibers 8
4.12 Identify/Label Cable-Tail Buffer Tube 8
4.13 Label the Splice Tray 8
5. DROP CABLE INSTALLATION 8
5.1 Prepare Trench from Premises to Pedestal 8
5.2 Route Cable Up the Drop Cable Channel 8
5.3 Store Drop Cable Sslack 8
5.4 Attach Drop Cable to Terminal Block 8
5.5 Ground the cable 9
5.6 Label the Drop Cable 9
5.7 Reinstall Foam Drop Channel Plug 9
5.8 Recheck Cable Management 9
5.9 Close the Pedestal 9
5.10 Clean Up Site(s) 9
6. TECHNICAL ASSISTANCE AND REPAIR SERVICE 9
7. WARRANTY & CUSTOMER SERVICE 9
8. PHYSICAL SPECIFICATIONS 9
9. MODEL NUMBERS AND ORDERING INFORMATION 9
10. OPTIONAL EQUIPMENT 9

1. GENERAL INTRODUCTION

1.1 Document Purpose

This document provides Telco-to-customer fiber optic cable connection instructions for the fiber cable technician to properly perform fiber cable preparations, terminations and splicing using Charles Industries' Buried Distribution Optical (BDO™) ETS series of Pedlock® pedestals in preconnectorized terminal block applications. These instructions facilitate loop-through (express) configuration installations. Figure 1 shows an interior, dome-off view of a BDO ETS model. See Section 6 for information on all models in the series or call Charles Industries (see Section 4) to request more information or literature.

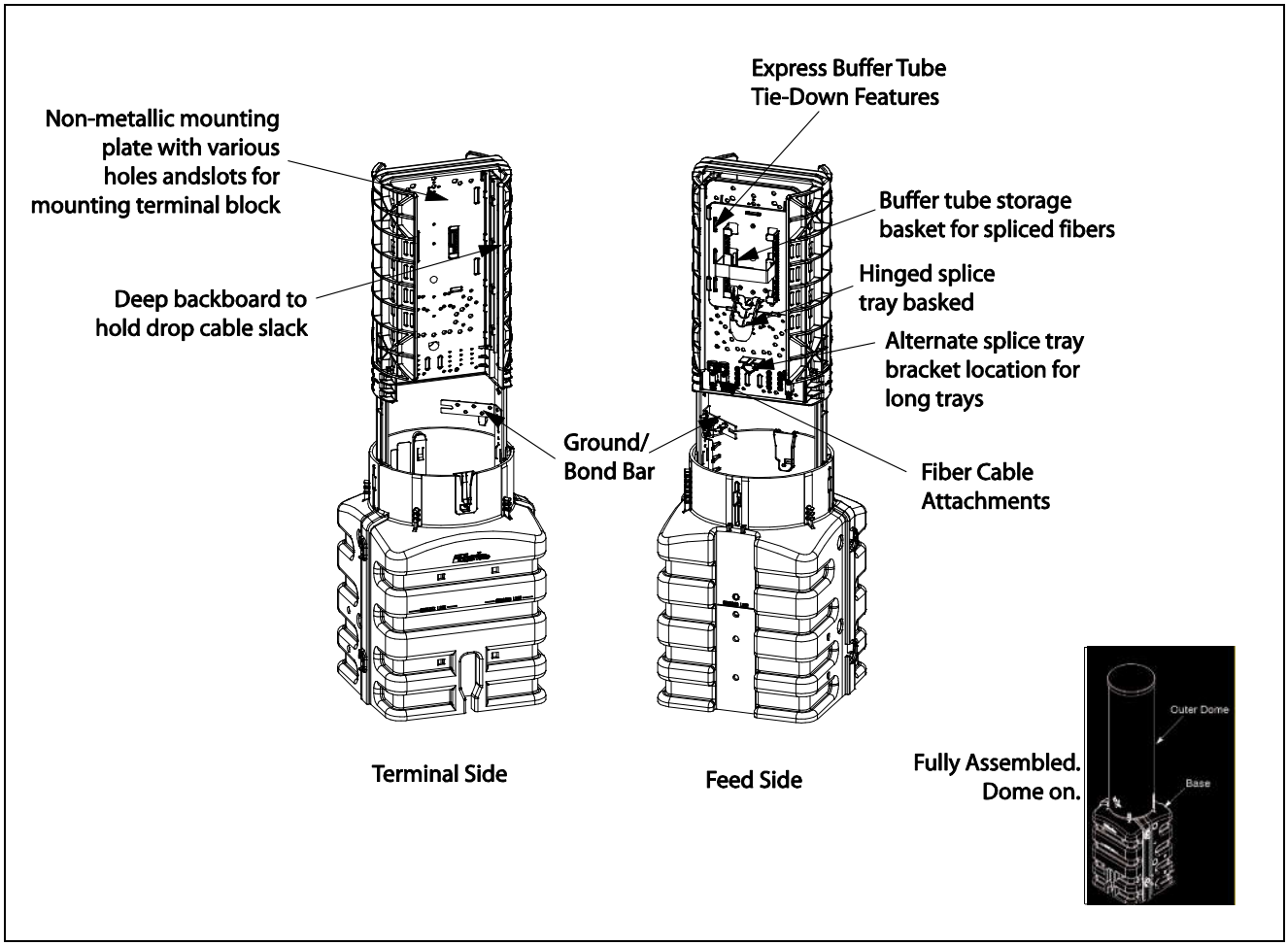

Figure 1 Dome-off Interior View of the ET/ETLP Pedlock®

-NOTE-

Hereafter the Charles' Pedlock BDO-ETS pedestal will be commonly referred to as the "BDO" or "pedestal." Specific model numbers will be specified where key differences apply.

1.2 Product Purpose

Charles' nonmetallic BDO pedestal provide for a) storage of sealed fiber terminal blocks, b) splicing of feed cable to sealed fiber terminal block, c) Storage of drop cable slack.

2. LOOP-THRU CONFIGURATION CABLE INSTALLATION

The instructions in this section help the cable technician to perform the terminal block mounting and all feed-cable preparations, routings, attachments and connections, including splicing of the working feed fibers to the terminal block, as well as the drop-off cable installation and connections. The instructions that follow presume the following conditions:

• Cable Architecture/Deployment –

The CO/feed cable architecture is a "loop-through" type configuration with fiber cables.

• Equipment Installation –

A BDO™ base is properly installed at the desired field site (for base installation information, see the pedestal base installation document that was factory-attached to the pedestal). A sealed terminal block (not provided) is typically installed on the pedestal fiber organizer, and spliced to the feed cable via the terminal block cable tail, as described herein.

• Trench Setup –

The trench is either dug and open, or backfilled but with feed cable or conduit installed and present at or within the pedestal base. The CO/feed cable is looped at the pedestal, entering and exiting the pedestal at the bottom of the base.

• Feed Cable Design and Placement –

The CO feed cable is a loose buffer tube (LBT) type (not ribbon, although the BDO does accommodate ribbon). Splicing will be required to connect feed fibers at the pedestal.

• Drop Cable Design –

The drop cables are factory-terminated at the pedestal end with a special sealed fiber connector, as described herein. No splicing is required at the pedestal for the drop cable.

2.1 Obtain tools, materials and equipment

Obtain the following tools and equipment to perform fiber feed/drop cable connections in the installed pedestal.

- Cable stripping tools
- Safety glasses & work gloves
- Splice tray & labels (available separately)
- Sealed fiber terminal block (not included, obtain from manufacturer of choice)
- Cable grounding materials and equipment

2.2 Remove Dome from base

If the dome is installed, remove it with a 216 tool/can wrench. Turn the snap lock's hex nut 1/4-turn counterclockwise and lift up on the dome. Set the dome aside until needed when the installation is complete.

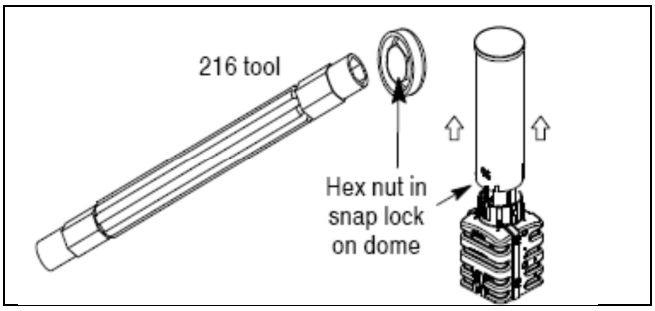

Figure 2 Remove Dome from Base

2.3 If required, Verify/Prepare Earth Ground

A***lways follow local codes and company practice when grounding cables/equipment.***

Per local company practice, determine if an earth ground is required and install as necessary.

3. PREPARING THE LOOP-THROUGH FEED CABLE

3.1 Verify Sufficient Feed Cable Length

Verify 15 feet (+/- 2 feet) of looped feed cable, ground line to ground line, is stored inside the pedestal base. Bring it up and out of the base (8.5' for cable stub configurations). Make sure the cable is behind the organizer, if installed (the Charles logo is on the front side of the base). See the base installation document for instructions on installing the base and routing cables into the base.

3.2 Mark Cable for Sheathing Removal

Remove approximately 12" of cable sheathing from the middle of the 15' cable loop (approx. 7' from an 8.5' stub) for fiber routing, storage and splicing, with sufficient sheathing length remaining to attach to the organizer. To find the exact symmetrical/sheathing cut locations, position one side of the cable loop (i.e. the CO side) at the cable attachment unit on the left side of the organizer and mark a cut line on the sheathing midway up the unit. Similarly mark the other side (i.e., field side) of the loop using the cable attachment unit at the bottom right side of the organizer

Note: If the loop had been 15 feet in length, there should be 12 feet between the first and second marks.

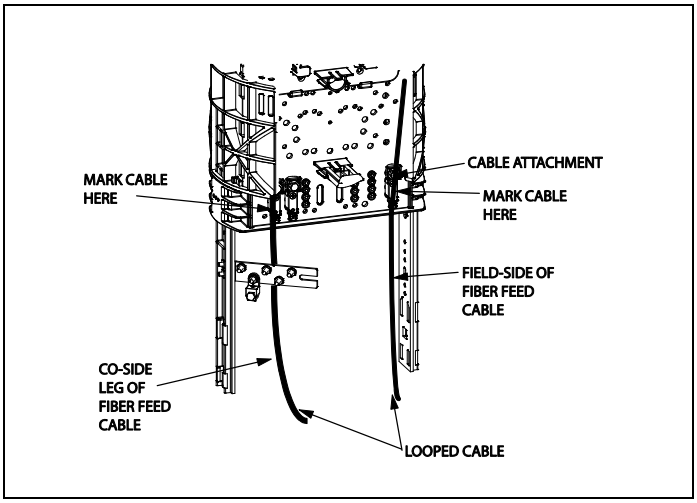

Figure 3 Fiber Organizer with Cables

3.3 Remove any Kitted Items from the BDO

Locate the clear plastic bag typically attached to the fiber organizer of the pedestal and verify the following remaining contents:

- Hardware kit including three mounting screws, washers and KEP nut
- Foam plug (may be included in the base's drop channel)
- Cable tie (used for attaching large terminal blocks without lower mounting holes.
- Hose clamps
- Bond straps

3.4 Remove Organizer (optional) for Cable Sheathing Removal

Remove the organizer, if necessary. To remove the organizer, press one-finger push tab (located in a hole in the support leg at the inside top collar of the base), pull up on the support leg, press the other leg's push tab and pull up on the other leg. Once the tabs are unlocked or released, pull the organizer out of the base and set it aside.

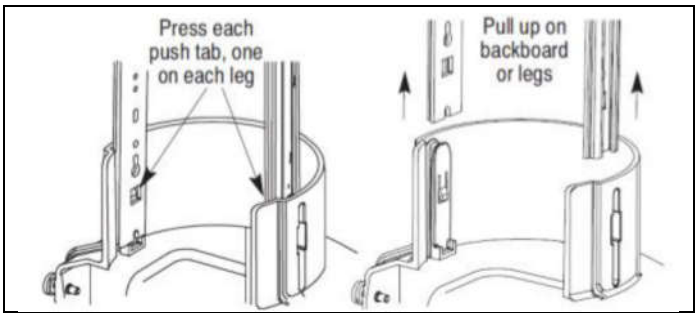

Figure 4 Remove Organizer

3.5 Remove Outer Sheathing

Per company practice, remove the outer cable sheathing between the two marked locations on the cable loop to expose the buffer tubes and strength members (for stub-end cable, remove from the mark to the cable end).

3.6 Label the Tubes

Per company practice, label both tube ends where they exit the cable bundle near the sheathing cut(s).

3.7 Trim Strength Members to Length

Per company practice, trim the cable strength member(s) so they are about 4" longer than the cable sheathing cut.

3.8 Attach Bond Clamp to Cable

For armored cables, per company practice, attach a bond clamp onto the cable at each sheath cut location, prior to attaching the organizer.

Note: Some bond clamps also serve to secure the strength members. See illustration below.

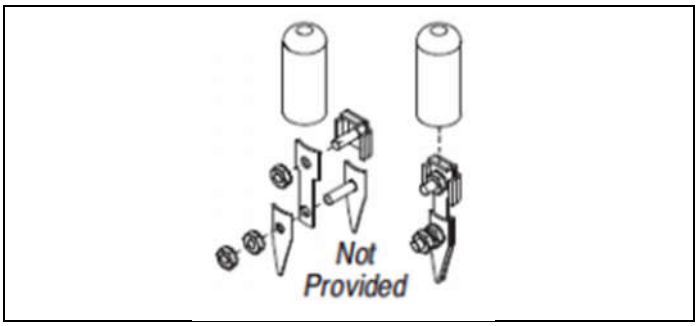

Figure 5 Bond Clamps

3.9 Attach Organizer

Install the organizer so the terminal block can be mounted on it. Install the organizer so the front of the organizer (the side the terminal block mounts to) faces the front of the base (the side with the Charles logo on it). Align the organizer support legs with their matching leg guides in the top collar of the base, and push down on the organizer (or support legs) until it stops (audible clicks indicate proper leg insertion).

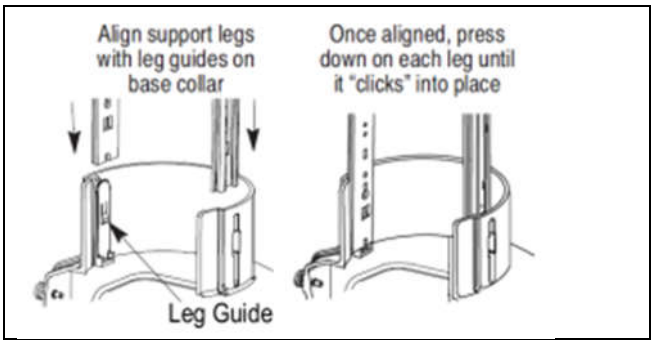

Figure 6 Attach Organizer

3.10 Connect Earth Ground to Ground/bond bar

Per local code/company practice, install an earth ground wire of proper gauge from the earth ground to the pedestal at the ground/bond bar's ground lug or approved company device. Bond bar design may vary.

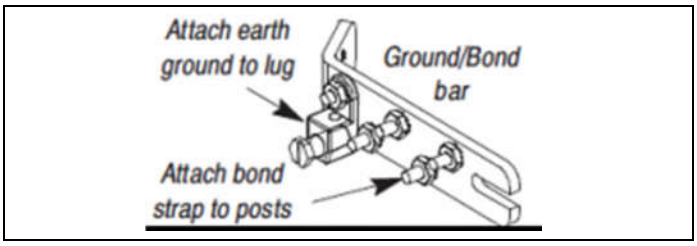

Figure 7 Ground/Bond Bar

3.11 Secure Looped Feed Cable to the Cable Attachment Units

If the cable has strength members that were not terminated in an optional cable bond clamp, loosen the bolt in the clamp at the top of the cable attachment unit. Trim the strength members to fit between the two washers under the top bolt (See illustration below). Tighten the hex bolt. Provided that the procedures shown in Step 3.2 for the sheathing removal were followed, the sheathing should be positioned at the small teeth located at the base of the cable attachment unit. Secure the cable to the cable attachment unit with the provided hose clamp. Tighten to a maximum 15 in-lbs. Repeat this procedure on the second leg of the expressed cable.

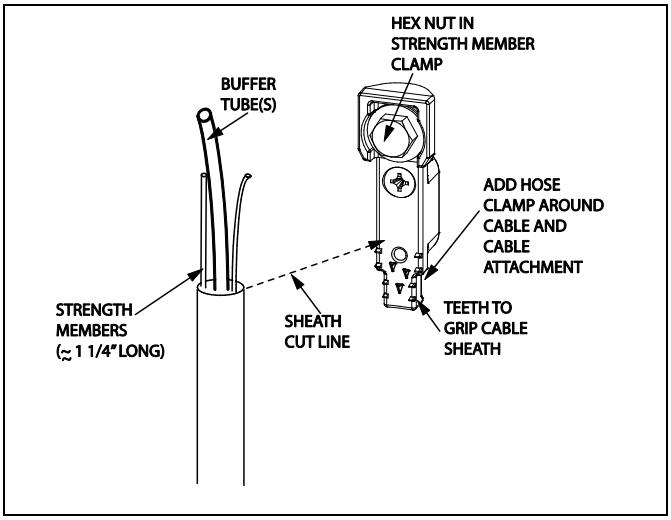

Figure 8 Securing Cable to Cable Attachment Unit

3.12 Bond Cable to Ground/bond Bar

Attach a bond strap (provided) from the cable bond clamp (Step 2.14) to one of the bonding posts on the ground/bond bar.

3.13 Separate Working Fiber Buffer Tube from Bundle and Loop/store Bundle

Note: The assigned buffer tube should be routed to the fiber slack storage basket prior to coiling and storing the expressed buffer tubes.

Separate the buffer tube with the fibers to be spliced from the fiber bundle and route to the fiber storage basket**.** Coil the remaining expressed tubes and use cable ties to secure them to the bridge lances, tie down positions, molded into the fiber storage basket.

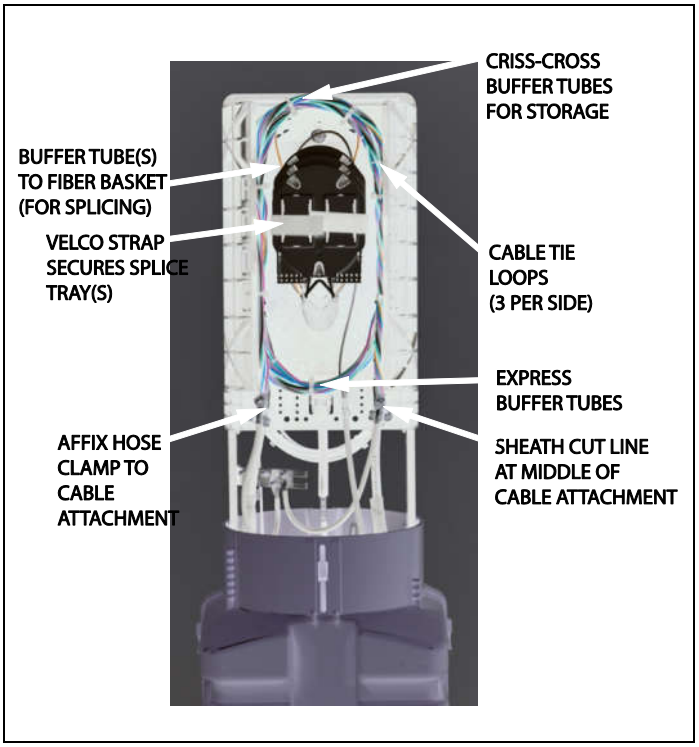

Figure 9 Buffer Tube Routing

3.14 Route and secure the tube

Buffer tubes entering the fiber storage basket should be secured to the inside of the basket with cable ties. If splicing will not be performed at this time, the buffer tube(s) should be coiled intact, and stored within the fiber storage basket. Skip to Step 3.20; otherwise proceed with Step 3.15.

3.15 Prepare a splice tray for tube attachment.

Prepare a hinged splice tray (purchased separately) by removing the cover and placing two cable ties at a tray corner, using any available tie-down slots

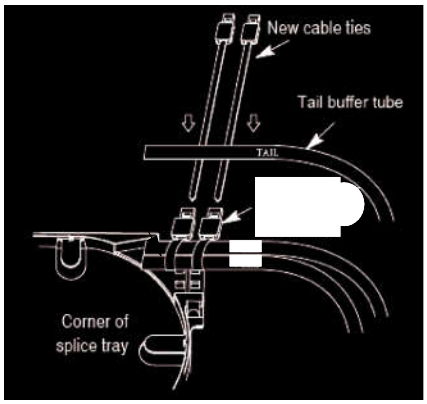

Figure 10 Tube Attachment

3.16 Mount Tray into the Tray Hinge Fixture

Loosen the Velcro strap attached to the splice storage basket flanges. The tray is mounted with the open side facing the organizer. Place one tray hinge tab into one hole of the tray hinge fixture. Press the hinge wings together to position the second hinge tab into the second hole of the hinge fixture. Coil/wrap the tubes into the fiber basket.

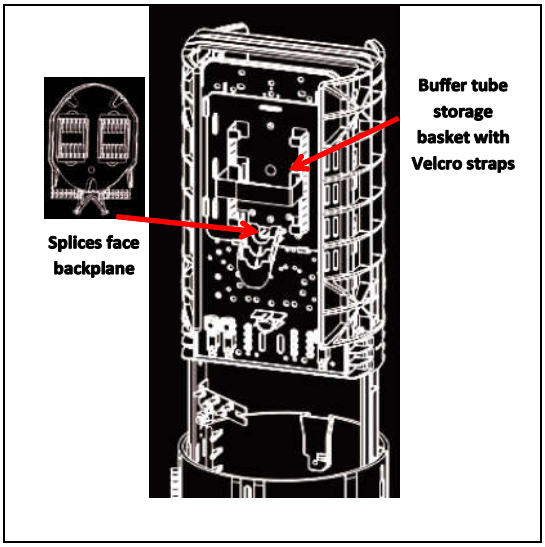

Figure 11 Tray Hinge Fixture

3.17 Mark, Cut and Remove Buffer Tube

Note: The use of the hinged splice tray requires that any buffer tubes attached to the tray are looped beneath the tray support, then routed to the opposite tray corner. This procedure is necessary to prevent kinking of the buffer tubes.

Prior to attaching the tubes to the splice tray, the buffer tubing must be marked and removed from the cable to expose the fibers for storage and/or splicing.

Position the tubes so that they overlap the tray end by 1 inch (Figure 12). Mark and ring cut the tube, and then remove it to expose the fibers.

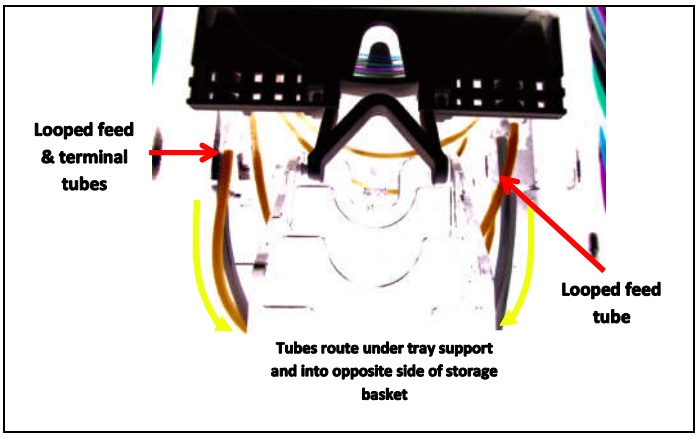

Figure 12 Routing Buffer Tubing

3.18 Attach Both Ends of Loose Buffer Tube to Splice Tray

Assuming the buffer tubes have been coiled in the fiber basket, route the buffer tube(s) out the bottom of the basket, under the hinge and then to the opposite corner of the tray. Place the cut tube ends against the splice tray, overlapping them onto the splice tray corner about one inch. Secure both tube ends to the tray with the two pre-installed cable ties (Figure 13).

Optional: Use felt tape (part number provided in Section 6) wrapped around the buffer tube(s) to provide for a more secure attachment to the tray.

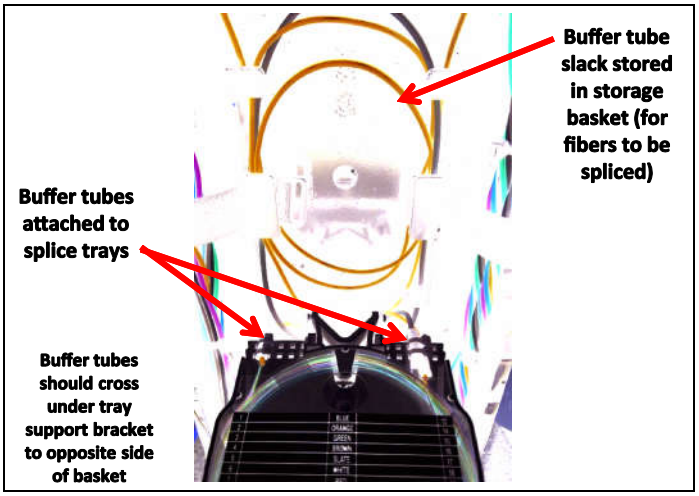

Figure 13 Attaching Buffer Tubes to Splice Tray

3.19 Label the tubes

Per company practice, label tube ends where they enter the splice tray.

3.20 Store fibers in splice tray

Per company practice, wrap and store the exposed fibers in the splice tray for later use and attach the tray cover.

3.21 OPTION: Using the HINGED Charles 4"x9" Fiber splice Tray

The BDO-ETS will accommodate the use of a Charles 4"x9" hinged fiber splice tray (97-FIBR24HTRAY). The use of this tray requires the splice tray support bracket to be relocated from the top mounting location (factory position) to the lower mounting position. To remove the support bracket, lift the retaining clip and pull the bracket from its mount. Place the support bracket into the lower mounting position and insert until retaining clip snaps into place. To avoid interference with the splice tray, break off the retaining clip on the upper bracket location (Figure 14).

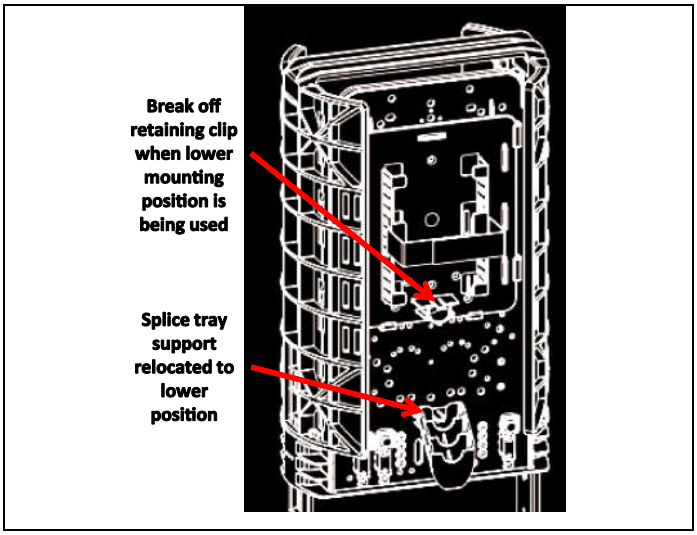

Figure 14 Using 4"x9" Fiber Splice Tray

3.22 OPTION: Using a LONG, NON-HINGED Fiber Splice Tray

The BDO-ETS will also accommodate a non-hinged Charles splice tray (97-FIBR24TRAYU) and many third party splice trays (up to 12" long. When using a non-hinged splice tray, an optional straight splice tray support bracket is required (available in BDO205-ETSB or as a separate option) and positioned in the lower splice tray bracket position. To avoid interference with the splice tray, break off the retaining clip on the upper bracket location (Figure 15).

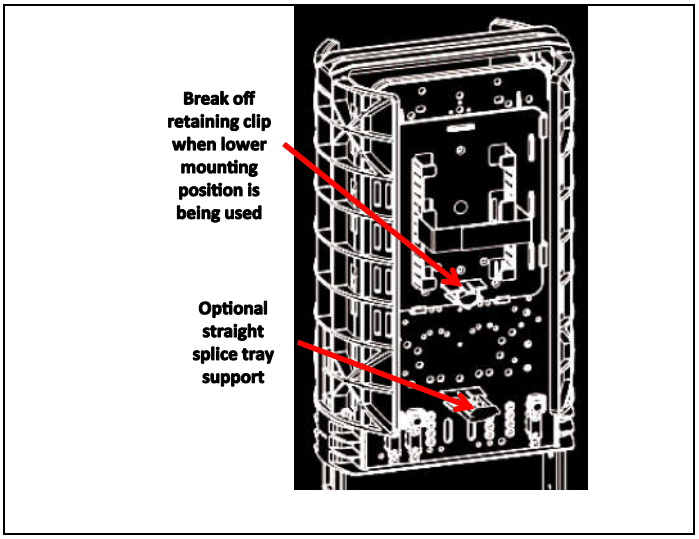

Figure 15 Using Long, Non-hinged Fiber Splice Tray

4. MOUNTING TERMINAL BLOCK & CONNECTING THE TAIL FIBERS TO SPLICE TRAY

4.1 Cut the terminal block tail to length

Measure and cut the terminal block input cable tail, leaving 9 feet of cable extending from the terminal block (Figure 16).

Figure 16 Cut Terminal Block Tail to Length

4.2 Attach Terminal Block to Fiber Organizer

Most terminal blocks are attached with mounting screws (provided). Before mounting the block, route its tail to the splice side of the fiber organizer. Route the end of the tail under the fiber organizer (but above the base's collar) and pull it to the rear of the organizer. Lift the terminal block and place it in mounting position that aligns with the provided organizer holes. Attach the block to the fiber organizer using the mounting screws provided (Figure 17).

NOTE: Some manufacturers' terminal blocks do not have lower mounting holes. For these terminal blocks, use the provided cable tie, looping the cable tie around the terminal block's feed cable and through the two large slots near the lower edge of fiber organizer.

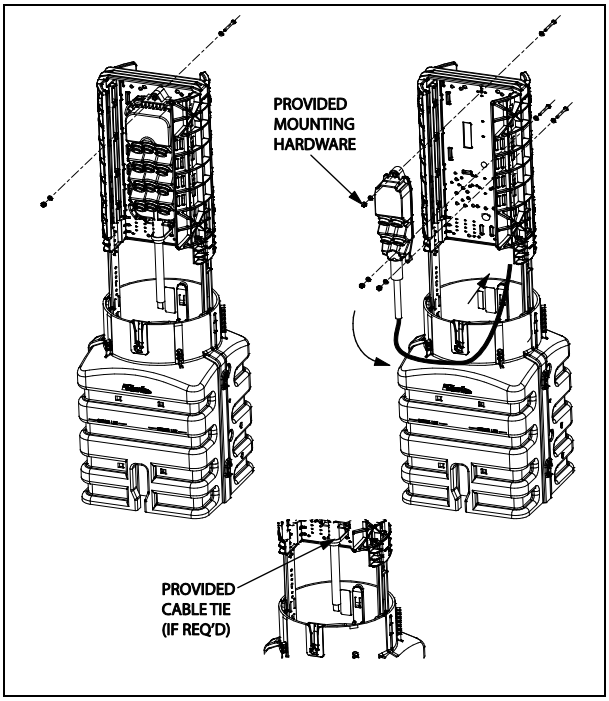

Figure 17 Attaching Terminal Block to Fiber Organizer

4.3 Mark and Remove Sheathing from Cable Tail

Place the terminal block cable tail against the cable attachment unit on the back of the fiber organizer. Make a cut mark on the cable halfway up the attachment unit. Remove the sheathing at the cut mark (see Figure 18). **Note: This mark will be approximately 3 feet from the base of the terminal block.**

Following these steps, there should be 6 feet of exposed buffer tube remaining to coil in the basket and route to the tray.

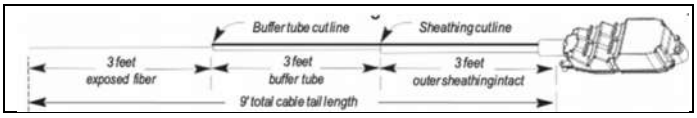

Figure 18 Mark and Remove Sheathing from Cable Tail

4.4 Trim Strength Members

Trim the strength members to length, approximately 1 1/4"" longer than the cable sheath cut.

4.5 Secure the strength members to the cable attachment's strength member clamp

Position the strength members to fit between the two washers under the top bolt of the cable attachment (Refer to Figure 8). Tighten the hex bolt. Provided that the procedures shown in step 4.4 for the sheathing removal were followed, the sheathing should be positioned at the small teeth located at the base of the cable attachment unit. Secure the cable to the cable attachment unit with a cable tie.

4.6 Cut Buffer tube to Length to Expose Fibers

Prior to attaching the tube to the splice tray, the buffer tube must be marked and removed from the cable to expose the fibers for storage and/or splicing.

Position the tubes so that they overlap the tray end by one inch. Mark and ring cut the tube, and then remove it to expose the fibers.

4.7 Pre-install Cable Ties into Splice Tray

Prepare a splice tray by placing two cable ties at a top tray corner, using any available tie-down slots.

4.8 Attach the terminal block buffer tube to the tray

Position the buffer tube so that it overlaps the tray end by one inch. Secure the tube to the tray with the pre-installed cable tie as shown in Figure 10.

4.9 Wrap/Store Fibers in Splice Tray

If splicing is NOT to be performed at this time, wrap and store the cable-tail exposed fibers in the splice tray per company practice.

4.10 Splice Fibers

Per company practice, prepare the fibers to be spliced. Complete splice as required.

4.11 Identify/Label Cable-Tail Buffer Tube

Per local company practice, label the cable-tail tube just before the buffer tube enters the splice tray (and closer to the cable sheath cut).

4.12 Label the Splice Tray

Complete a splice tray label, per company practice.

5. DROP CABLE INSTALLATION

5.1 Prepare Trench from Premises to Pedestal

Refer to Figures 19 and 20. Per local company practice, prepare a trench to route the drop cable from the customer premises or house to the pedestal base. Clear out all the soil from around the bottom front of the base where the drop cable will enter at the drop cable access port.

5.2 Route Cable Up the Drop Cable Channel

If a foam plug is installed at the top of the pedestal's drop cable channel in the inside front of the base, remove it and reinstall it after all drop cables are connected. Route the drop cable through the drop cable access port at the bottom front of the base, and bring it up through the drop cable channel, extending it upward to reach the correct terminal block port.

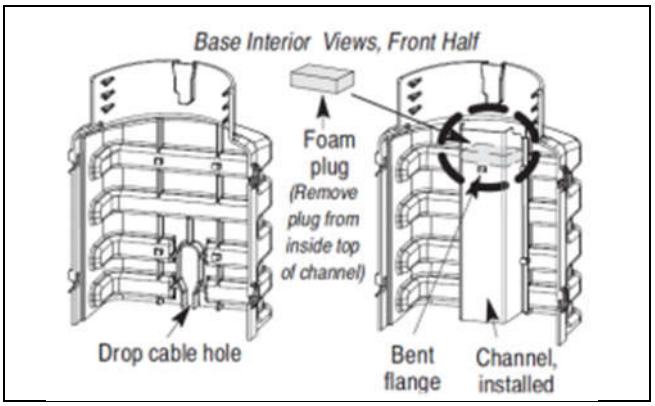

Figure 19 Drop Cable Channel

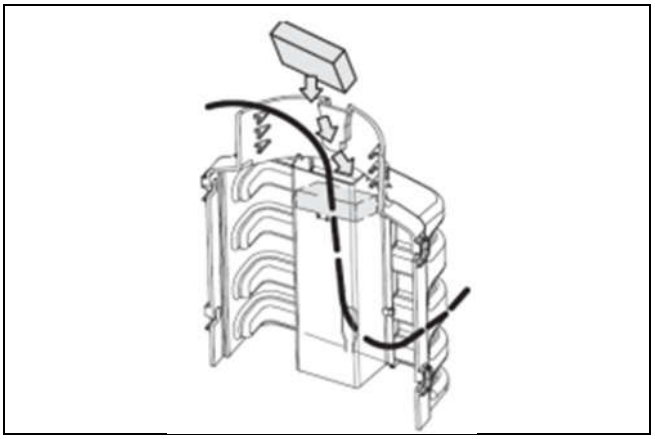

Figure 20 Routing Cable Up the Drop Cable Channel

5.3 Store Drop Cable Slack

Determine where any excess drop cable slack will be stored. If slack storage is available at the NID, route, place and secure the drop cable slack in or at the NID per company practice and NID manufacturer instructions. If drop cable slack is to be left at the pedestal, loop the cable, then store the cable bundle at the front side of the fiber organizer, using cable ties as necessary to secure and manage the cable. Do not use metallic hose clamps on fiber drop cables.

5.4 Attach Drop Cable to Terminal Block

Clean connector. Find and align the arrow on the drop cable connector with the notch on the terminal block adapter. Attach the drop cable to the terminal block adapter by turning the drop cable connector clockwise until it is tight (Figure 21). If desired, caps can be connected to each other for storage.

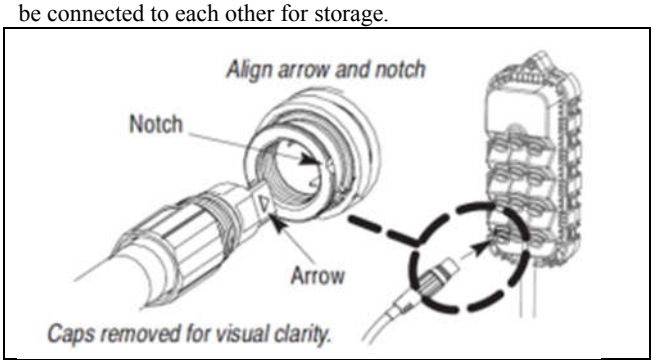

Figure 21 Attach Drop Cable to Terminal Block

5.5 Ground the cable

Per local company practice and according to the type of drop cable used, perform any drop cable grounding or tracer wire bonding at this time.

5.6 Label the Drop Cable

Per local company practice, label or otherwise identify the drop cable for quick and easy cable identification.

5.7 Reinstall Foam Drop Channel Plug

When all cables are in place, routed and connected, reinstall the foam plug in the top area of the drop cable channel by positioning it in front of the cables (cables at the back of the channel), angling the front edge of the plug down and forward toward the first rib of the base front, and sliding it down and forward until it rests on top of the first rib of the base. Press down on the back edge of the plug until it rests on the bent flange provided for it on the rear of the channel.

5.8 Recheck Cable Management

Verify all cabling is neat and not kinked. Verify no cables, wires, straps or cable ties protrude beyond the fiber organizer walls, allowing for a smooth and safe dome placement.

5.9 Close the Pedestal

Locate the dome. Align and orient it so the snap lock faces the front (the Charles logo is embossed on the front of the base). Slide the dome down over the fiber organizer, aligning the dome's snap lock with the lock latch catch mechanism on the base. When correctly aligned, gently let the self-locking dome drop down in place until an audible "click" is heard, indicating the dome is locked

5.10 Clean Up Site(s)

Fill and tamp any trenches, replace any removed sod, restore the landscape to original condition, and pick up all tools and materials.

6. TECHNICAL ASSISTANCE AND REPAIR SERVICE

For questions on product repair or if technical assistance is required, contact Charles Technical Support at:

847-806-8500 800 607 8500 847 806 8556 (FAX)
techserv@charlesindustries.com (email)
http://www.charlesindustries.com/main/tech_support.htm

7. WARRANTY & CUSTOMER SERVICE

Charles Industries, Ltd. offers a five-year warranty on the BDO product. The Charles warranty is limited to the operation of the BDO hardware as described in this documentation and does not cover equipment integrated by a third party or user. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract. For questions on warranty or other customer service assistance, contact your Charles Customer Service Representative at:

847-806-6300 847 806 6653 (FAX)
mktserv@charlesindustries.com (email)
http://www.charlesindustries.com/main/telecom_sales_support.htm

8. PHYSICAL SPECIFICATIONS

FEATURE	U.S.	METRIC
Height, overall	42.75 in.	109 cm
Height, base only, incl. collar	18.5 in.	47 cm
Height, base bottom to ground line	8.5 in.	21.5 cm
Height, dome top to ground line	34.25 in.	87 cm
Height, dome only	28.5 in.	72.4 cm.
Depth, base	12.8 in.	32.5 cm
Width, base	13.9 in.	35.3 cm
Diameter, dome, O.D.	11.2 in.	28.5 cm.
Weight	27.5 lbs	12.5 Kg

9. MODEL NUMBERS AND ORDERING INFORMATION

MODEL*	DESCRIPTION
BDO205-ETS	Buried Distribution Optical (BDO™) Pedlock® Pedestal, 10" diameter dome with self-latching lock, expanded split square base, fiber organizer for attaching a sealed fiber terminal block, splice capable with 3-position hinged tray holder (splice trays sold separately), bond bar. Provides up to 200' of drop cable slack storage
BDO205-ETSB	Same as BDO205-ETS except the hinged tray support bracket is replaced with a straight tray support bracket (97-TSBDO2ETS)

* Pedestal part number variants may be available.

10. OPTIONAL EQUIPMENT

MODEL	DESCRIPTION
97-SMHTRAY	Splice tray with hinge, 12- / 24-fiber, cable ties, address label, 4"x6"
97-FIBR24HTRAY	Splice tray with hinge, 12-/24-fiber, cable ties, address label, 4"x9"
97-FELT1W30FT	Felt, adhesive backed, for improved attachment of buffer tubes to splice tray, 30 foot roll
UMS30-STD	30" universal mounting stake with hardware
UMS42-STD	42" universal mounting stake with hardware
UMB-102A	Pole mount bracket with hardware
97-TSBDO2ETS	Tray support for use with Charles standard (97-FIBR24TRAY) or 3rd party splice trays
97-PKOR10-A	Dome cap, high visibility, orange, 10", 25 caps