

Fiber Cable Preparation, Splicing, and Termination Instructions

(For CFDP210-ELS & CFDP210-EPS Charles® Fiber CFDP2 Pedlock® OSP Pedestals)

1. GENERAL

1.1 Document Purpose. This document provides instructions for the fiber cable technician to properly perform fiber cable preparations, routings, splicing, terminations and connections within the Charles Industries' Fiber Distribution Point (CFDP2) ELS and EPS Pedlock® pedestals with a 10" dome. This model, shown in Figure 1, offers an interior fiber organizer for use at a fiber distribution point. Call Charles Industries (see Part 3) to request more information or literature on this or other models.

- NOTE -
Hereafter the CFDP210-ELS or CFDP210-EPS also may be referred to as the "CFDP2" or "pedestal."

1.2 Document Status. Whenever this document is updated, the update reason will be stated in this paragraph.

1.3 Product Purpose and Description. The CFDP2 is an above-grade double-protected pedestal that offers excellent OSP protection against floods, fire, dirt, weather, insects, and impact for fiber-optic cable splices and customer service drops in FTTP deployments. This protection is achieved with a weather-resistant yet free-breathing interior enclosure that is within the confines of a protective, exterior, buried-distribution-cable pedestal. The first layer of protection, the non-metallic outer dome, covers the: a) inner double-door enclosure (on the ELS Series), or the b) inner dome (on the EPS series). The dual locking doors (one on the CO/feed side and one on the drop/customer side) or the inner dome (that snaps firmly into place) provide the inner layer of protection for the heart of the pedestal: the non-metallic, interior fiber organizer. The ELS series provides a fiber basket on both sides of the fiber organizer, to keep drop cable tubes and splices separate from feed cable tubes and splices. For either series, the feed cable may be either a loop-through

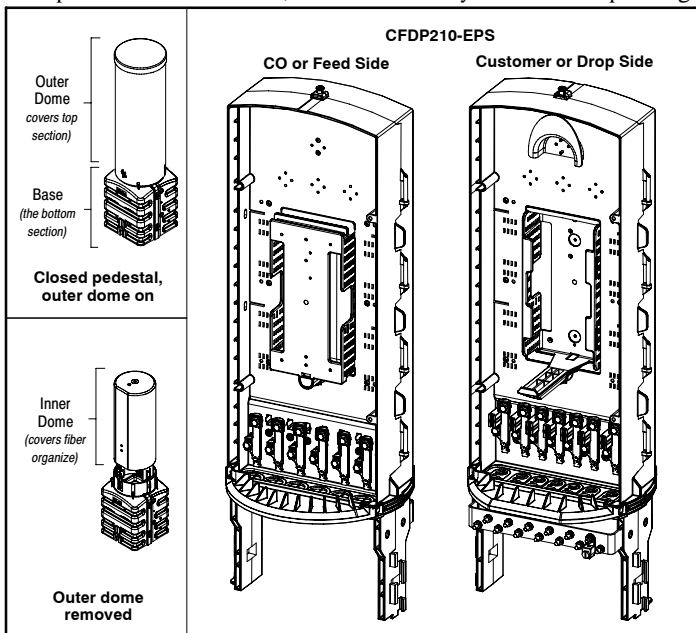


Figure 1. CFDP210-EPS Fiber Organizer

or stub-end cable requiring splicing in the provided splice tray. Customer drop cables are typically a stub-end type also requiring splicing. CFDP2-style cable attachment units with cable retention teeth and strength member clamps facilitate cable attachment on both sides of the backboard. At the bottom of the pedestal is the square-shaped, expanded-capacity, non-metallic, locking, 2-piece base designed to both support the fiber organizer and to open and install around conduit-fed or direct buried cable bundles. For easy line maintenance and testing purposes, grounding and bonding connections are made to an external bonding bar just below the fiber organizer. Charles' CFDP2 pedestals are designed for use in new or replacement installations, to accommodate various soil and mounting applications, to accommodate various cable types in loop-through, branch, and stub-in cable deployments for both drop or feed cables, to accept various splice trays, tubes, splitters or other equipment, to accommodate certain fiber slack situations, and to exceed Telcordia GR-13-CORE and GR-771-CORE specifications.

1.4 Product Mounting. The CFDP2 pedestal base is typically installed at the FTTP distribution point in a trench with the base's ground line indicator at grade level. The pedestal's fiber organizer mounts onto the base. Once all cable connections are complete, the inner doors are secured (or the inner dome is installed) to protect all cabling and connections, then the outer dome is placed over and attached to the base for further protection. The base contains holes or knockouts at the rear and both sides that accept an optional metallic mounting stake or a pole-mount stake. If desired, vault mount bases can be ordered and used in place of the standard-height expanded base. Call Charles for more information (Part 3).

2. CABLE INSTALLATION AND SPLICING

Use and follow the steps in Table 1 to perform all fiber feed and drop cable preparations, routings, attachments, splicing, and connections. The following conditions are presumed:

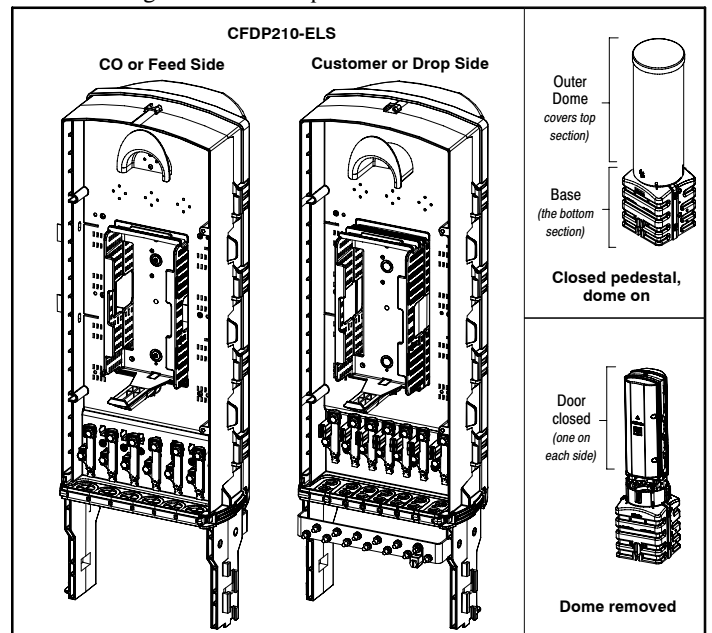


Figure 2. CFDP210-ELS Fiber Organizer

- **Cable Architecture/Deployment** - The feed (CO) cable is deployed in a stub-end configuration or a loop-through application.
- **Equipment Installation** - A CFDP2 base has been properly installed at the desired field site (base installation instructions are provided with the base).
- **Trench Setup** - The trench is either dug and open, or backfilled with the feed cable already placed and brought into the base bottom.
- **Feed Cable Type** - The CO or feed cable may be a loose tube or ribbon type cable, but these instructions mainly describe a loose tube type. A few ribbon cable instructions are given.
- **Drop Cable Type** - Customer drop cables are typically a stub-end configuration and may be a loose tube or ribbon type cable, but these instructions mainly describe a loose tube type.
- **Transportation Tubing** - Protective, flexible, transportation tubing is provided for the feed cable pigtails or ribbon fiber applications (two 3-foot long pieces).

For information regarding other pedestal installation types or applications, or cable deployment types, contact Charles Industries at the phone number provided in Part 3.

- WARNING -

Cable and fiber cleaning solvents may contain hazardous materials or harmful ingredients. Always read and follow the manufacturer's precautions, warnings, and instructions when working with cleaning solvents or products.

Shards and cleaved glass fibers are very sharp and can easily pierce the skin. Use tweezers to pick up cut glass fibers and place them on a loop of tape or in a container specifically meant for this purpose. Good housekeeping is important.

Corrugated metal or armor that may be present in feed cables is very sharp when cut or exposed. Exercise extreme caution to prevent personal injury. Use protective work gloves when handling armored cable.

- FIBER OR CABLE DAMAGE CAUTION -

Buffer tubes and fibers are sensitive to bending, pulling, and crushing forces. Avoid buffer tube kinking and fiber damage: use care when working with fiber and do not violate fiber, buffer tube, and cable minimum bend-radius requirements.

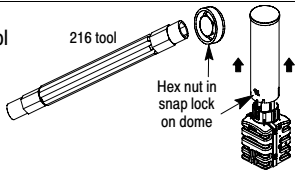
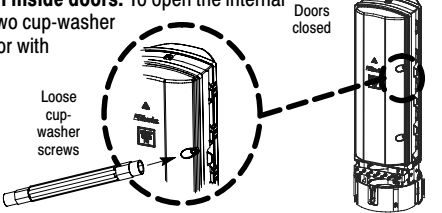
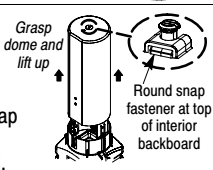
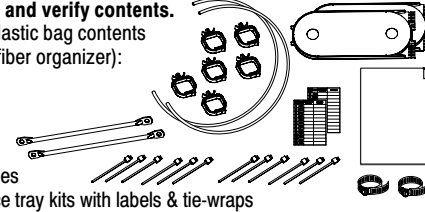
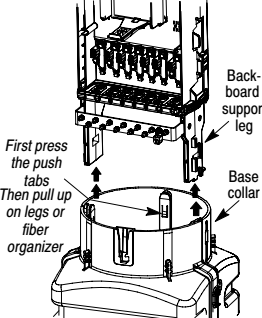
In cold environments, some loose tube cable designs may exhibit low temperature induced signal attenuation when long lengths of buffer tubes have been exposed and then stored. Contact the cable manufacturer concerning recommended exposed buffer tube lengths in your installation area.

- CAUTION -

Perform all bonding and grounding prior to making any electrical and communications connections.

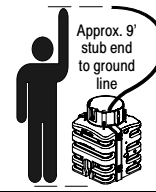
- EYE DAMAGE WARNING -

Risk of serious eye damage! Never look into the end of a fiber optic line nor use a magnifier in the presence of laser light or radiation. Always exercise caution when installing, testing, or performing maintenance on live circuits. If eye exposure to laser light or radiation has occurred or is suspected, immediately seek medical treatment by a professional eye care physician.

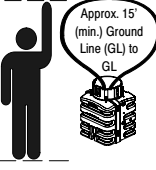
Table 1 – CO and Drop Cable Installation	
Step #	Instruction
1. □	<p>Obtain tools, materials and equipment. Assemble the following tools and equipment to perform fiber feed/drop cable connections in the installed CFDP2 pedestal.</p> <ul style="list-style-type: none"> □ 216 tool/can wrench □ Tape measure □ Grounding equipment & tools □ Labels for cables (optional) □ Cable bond clamps (optional) □ Proper length drop cables □ Wrenches or socket set □ Extra splice trays/labels (2 provided w/parts bag) □ Dome and fiber organizer (provided) □ Bag of parts (provided with the pedestal) □ Fiber splicing tools and equipment □ Cable-entry tools □ Buffer tube stripper tool □ Safety glasses & work gloves (optional)
Preparing and Opening the Pre-Installed CFDP2 Pedestal	
2. □	<p>Verify pedestal is installed and inspect. Find the CFDP2 pedestal installation site, inspect it, and verify the pedestal is properly installed in the ground. <i>New pedestals should be inspected thoroughly upon delivery. If the equipment was damaged in transit, immediately report the damage to the transportation company.</i></p>
3. □	<p>Remove outer dome from base. To remove the outer dome, use a 216 tool or can wrench to turn the snap lock's hex nut 1/4-turn counter-clockwise. Hold the can wrench in that position and lift the dome. Set the dome aside until needed.</p> 
4. □	<p>ELS models: Open inside doors. To open the internal doors, loosen the two cup-washer screws on each door with a 216 tool.</p> 
5. □	<p>EPS models: Remove inner dome. Detach the inner dome from the backboard. Grasp the dome with both hands (at the bottom edge or around the dome perimeter) and pull up on it abruptly to drive the dome top past the round snap fastener on the top of the backboard (causes an audible 'click'). Set the dome aside until needed.</p> 
6. □	<p>Remove plastic bag and verify contents. Verify the following plastic bag contents (bag attached to the fiber organizer):</p> <ul style="list-style-type: none"> □ 2 bond straps □ 2 hose clamps □ document □ 6 ribbon D-clips □ 2 transportation tubes □ optional: 1 or 2 splice tray kits with labels & tie-wraps 
7. □	<p>Remove fiber organizer (optional, to facilitate earth ground installation). Remove the fiber organizer, if needed or desired, to facilitate the earth ground installation, per local company practice. Remove the fiber organizer by first pressing one finger push tab (located inside the base collar at the support leg), pulling up on the support leg, and then secondly, pressing the other legs' push tabs and pulling up on the other support legs. When the tabs are disengaged or released, pull the fiber organizer out of the base and temporarily set it aside.</p> 
8. □	<p>Verify/prepare earth ground. Always follow local codes and company practice when grounding cables/equipment. If an earth ground is not present at the pedestal site and local practice requires an earth ground, prepare one at this time. Do not connect earth ground until the fiber organizer is re-attached to the base.</p>

Preparing the Feed Cable
(From Pedestal Base to Splice Tray on Fiber Organizer)

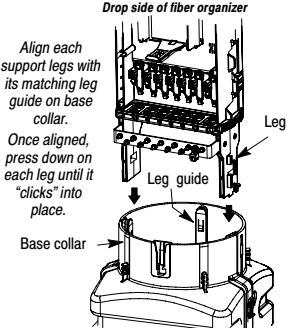
9. □ **For stubbed cable applications: Verify sufficient feed cable length.** Verify 9 feet (approx.) of cable, from the ground line to the cable's stub-end, extends up through the pedestal base. Position the cable toward the rear, or CO side, of the base (the CO side of the fiber organizer has fewer but larger grommets). See the base installation document for instructions on installing the base and routing cables into the base.



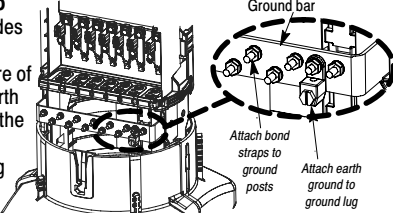
9b. □ **For looped cable applications: Verify sufficient feed cable length.** Verify approximately 15 feet (minimum, 17' max.) of looped feed cable, ground line to ground line, is available at the pedestal base, and bring it up and out of the base. Position the cable toward the rear of the base (*Charles logo is on the front side of the base*). See the base installation document for base installation instructions and routing cables into the base.



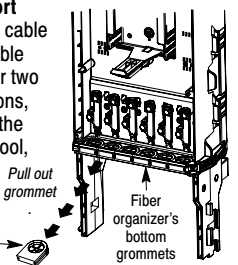
10. □ **Attach fiber organizer.** (Skip this step if the fiber organizer is already installed.) First, position the feed cable so it will be at the CO or feed side of the fiber organizer (see Figure 1). Then install the fiber organizer to facilitate marking the cable for the proper cable sheath removal length. Align the fiber organizer legs with the leg guides in the collar of the base. Once aligned, press down on the fiber organizer until the tab locks are engaged (audible clicks indicate proper leg insertion).



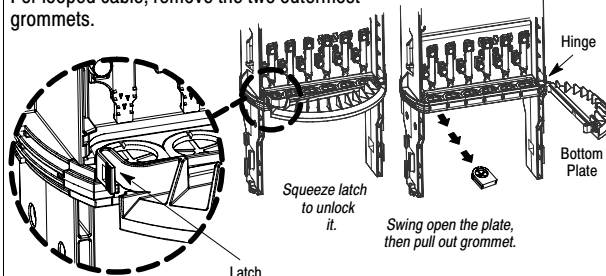
11. □ **Connect earth ground to ground lug.** Per local codes and/or company practice, install an earth ground wire of proper gauge from the earth ground to the pedestal at the ground bar's ground lug. Always perform grounding prior to cable attachment.



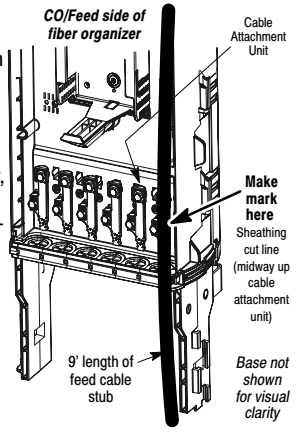
12. □ **ELS models: Locate and remove single-port feed grommet.** Grommets on the CO or feed cable side of the fiber organizer accept one feed cable each (drop cable grommets can accept one or two flat drop cables). For stubbed cable applications, remove one of the feed-side grommets from the bottom of the fiber organizer. With a pointed tool, poke a small hole in the center of the grommet. For looped cable applications, remove the two outermost grommets.



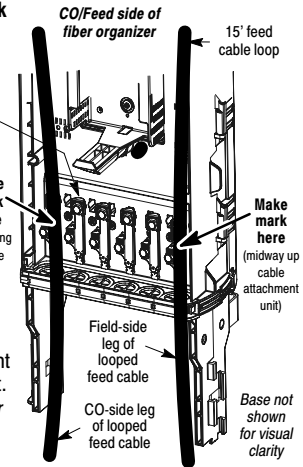
13. □ **EPS models: Locate and remove single-port feed grommet.** Grommets on the CO or feed cable side of the fiber organizer accept one feed cable each (drop cable grommets accept one or two drop cables). First open the swing-out bottom plate, as shown below. For stubbed cables, remove one of the feed-side grommets from the bottom of the fiber organizer. With a pointed tool, poke a small hole in the center of the grommet. For looped cable, remove the two outermost grommets.



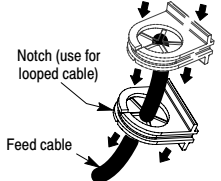
14. □ **For stubbed cable applications: Mark cable for sheathing removal.** Cable sheathing must be removed to expose the buffer tubes or fiber for splicing. Sufficient sheathing is retained to attach the cable to the fiber organizer. Before marking the location of the sheathing cut, first push or backfeed the cable into the conduit or trench (to provide slack for any additional or future sheathing cuts). On the feed side of the fiber organizer, locate the cable attachment unit located directly above the chosen grommet, press the cable up against the cable attachment unit, and mark a cut line on the cable midway up the cable attachment unit, approximately 7 inches above the top of the base collar. *If desired, see Step 7 to remove the fiber organizer to facilitate sheathing removal and bond clamp installation.*



14b. □ **For looped cable applications: Mark cable for sheathing removal.** Press and hold one cable leg against the lower part of the fiber organizer. At the outermost cable attachment unit, directly above the selected grommet, make a mark on the cable halfway up the 3" high cable attachment unit (approx. 2.5" above the grommet). Repeat for the cable loop's other leg. The outer cable sheathing will be removed between these two marks, to access the buffer tube and fiber inside the cable. The cable will be secured to the attachment unit just below the outer sheathing cut. *If desired, see Step 7 to remove the fiber organizer to facilitate sheathing removal and bond clamp installation.*

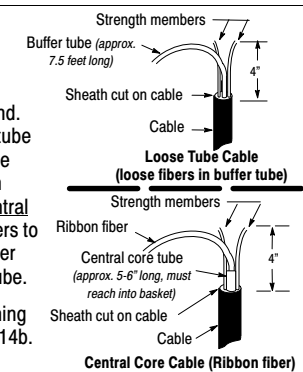


15. □ **Prepare grommet (stubbed cable).** Before opening the cable to remove the sheathing, push the cable stub end through the grommet, then slide the grommet down the cable until the grommet is below the sheathing cut line on the cable or below the grommet plate.



15b. □ **Prepare grommets (for looped cable).** As shown in Step 15a, each grommet has a notch at the rounded end (tip). Using snips, cut into the grommet at the notch to the center of the grommet's star shape. A looped cable has two "legs"; a feed-side leg from the CO, and a field-side leg to the customer. Prior to installing the hose clamp (shown in Step 21), press both cable legs into the center of the sliced grommets.

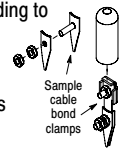
16. □ **Remove cable sheathing and cut strength members (stubbed cable).** Remove the sheathing, per manufacturer's instructions or local practice, from the mark to the cable end. (approx. 7.5 feet) to expose the buffer tube and strength members (for Loose Tube Cable) or the central core tube, ribbon fibers, and strength members (for Central Core Cable). Trim the strength members to 4" (they will be trimmed further in a later step, Step 21). Do not cut the buffer tube.



For looped cable, remove the sheathing between the two marks made in Step 14b. Trim strength members to 4".


17. □ **Expose the buffer tube(s).** Per company practice and cable type, remove all protective wrap and binder string to expose the buffer tube(s).

18. □ **Attach bond clamp to cable.** To prepare the cable for bonding to the pedestal ground bar, attach a company-approved cable bond clamp to the cable/shield at the sheath cut. Always follow clamp manufacturer instructions or company practice to attach cable bond clamps, as clamps used to bond cables may vary per location, application, and cable type and size.

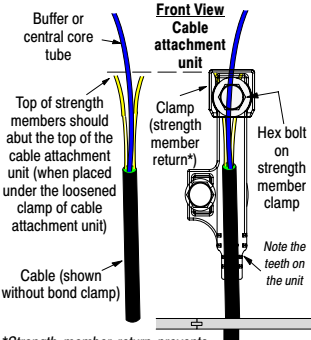
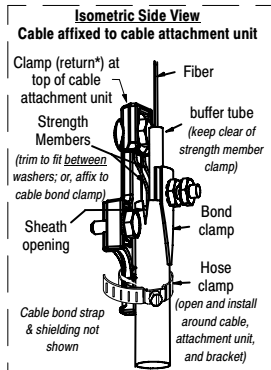


19. □ **Install fiber organizer and grommet(s).** If not yet installed, (re)attach the fiber organizer (see Step 10). Re-install the grommet (with the cable running through it). Rotate the grommet so the round end faces the center of the fiber organizer, slide it up or down as needed and press it into its slot on the grommet plate. Make sure the sheathing cut is aligned properly with the cable attachment unit. For looped cable, repeat for the other cable leg.

20. □ **Bond cable to ground bar.** Attach a bond strap (provided) from the cable bond clamp (shown in Step 18) to one of the bond posts (see Step 11 for bond post locations).



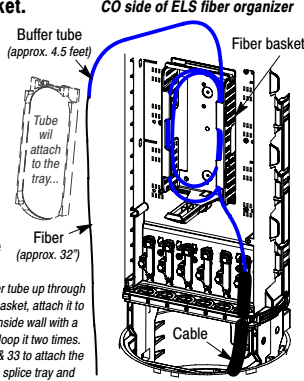
21. □ **Secure cable to the cable attachment unit.** First, if the cable has strength members (and they had not been terminated in an optional cable clamp), trim the strength members to fit under the cable attachment return. Loosen the upper-most hex head bolt of the cable attachment unit, and slide the strength members between the two washers, under the bolt. Tighten the bolt. Press the cable against the attachment unit, making sure enough cable sheath remains for good contact with the teeth at the bottom of the cable attachment unit. Firmly affix a hose clamp around both the cable and the cable attachment unit.

**Strength member return prevents pistoning of strength members in extreme temperature fluctuations.*

22. □ **For stubbed cables (loose buffer tube type): Route the tube/fiber into fiber basket.**

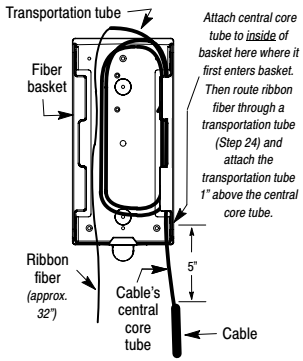
Route the buffer tube up through the bottom opening of the fiber basket (both ELS and EPS models) and wrap the length of tube inside the basket (about 2-3 loops). Secure the tube to the inside walls of the basket with cable ties, especially where it first enters the basket, but do not secure the last 3 feet (minimum) of tube. After the tube is attached to the splice tray in Step 31, this 3' length allows the technician sufficient tube slack when the splice tray is accessed for fiber splicing.



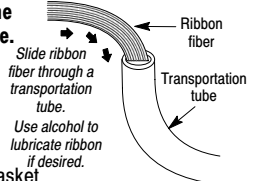
Attach buffer tube to inside of basket here where it first enters basket.

23. □ **Stub-in ribbon fiber, central core tube cable only: Measure, mark, cut, and attach central core tube to fiber basket.**

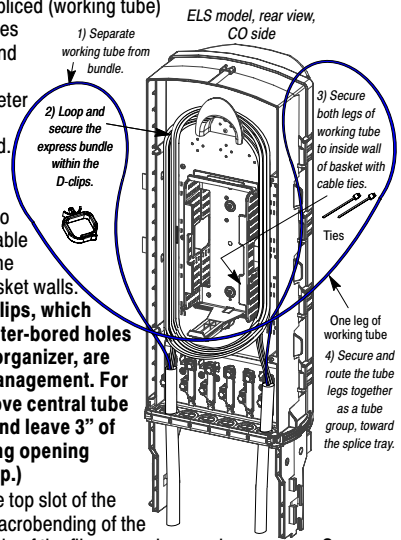
Route the cable's central core tube up into the bottom opening of the fiber basket. Mark the tube 2 inches above the bottom of the basket, then score and remove the central tube. There should be approximately 8" of central tube above the sheathing opening. The central tube can be secured with two cable ties where it enters the basket.



24. □ **Ribbon fiber, stub-in cable only: Route the ribbon fiber through a transportation tube.** 3-foot lengths of plastic transportation tubing are provided to protect the ribbon fiber as it transitions from the fiber basket to the splice tray. Slide the ribbon through the tube, then attach the bottom end of the transportation tube to the inner wall of the basket immediately above the attached central core tube, using 2-3 cable ties. Coil the transportation tube counterclockwise within the basket, as shown in Step 23.



25. □ **For ELS models, looped cable: Separate working fiber tube from the tube bundle, and secure bundle.** Find and separate the tube containing the specific fibers to be spliced (working tube) from the loop-through tubes (express bundle). Loop and wrap the express bundle around the outside perimeter of the fiber basket, on the rear side of the backboard. Create as many loops as needed (3 or 4), then secure the express bundle to the fiber organizer with cable ties secured via slots in the backplane or the fiber basket walls. **(Note: The supplied D-clips, which are inserted in the counter-bored holes on the rear of the fiber organizer, are used for ribbon fiber management. For ribbon cable loop, remove central tube per company practice and leave 3" of tube above the sheathing opening on both sides of the loop.)** Feed the fiber through the top slot of the fiber basket: avoid any macrobending of the fiber. On the front/drop side of the fiber organizer, make a reverse S-curve with the left tube leg to route it alongside the right leg. At the lower portion of the S-curve where the tubes converge, secure the tubes or ribbons to the side wall of the basket with cable ties. For ribbon fiber, use a short piece of slit-type tubing made especially for ribbon fiber, or another company-approved material and procedure.



25b. □ **EPS models, looped cable: Separate working buffer tube from express bundle, route the working tube or ribbon to the front/drop side and secure to basket.** For the EPS models that do not have an open basket on both sides of the fiber organizer, find and separate the tube containing the fibers to be spliced (working tube) from the loop-through tubes (express bundle). Loop the express cable bundle around the perimeter of the basket on the back/CO side for storage purposes, and feed the working tube to the front side of the fiber organizer (for splicing purposes) through the top slot of the fiber basket: avoid any macrobending of the fiber. On the front/drop side of the fiber organizer, make a reverse S-curve with the left tube leg to route it alongside the right leg. At the lower portion of the S-curve where the tubes converge, secure the tubes or ribbons to the side wall of the basket with cable ties. For ribbon fiber, use a short piece of slit-type tubing made especially for ribbon fiber, or another company-approved material and procedure.

1) Separate working tube from bundle.
 2) Loop and secure the express bundle with ties (or installed D-clips for ribbon fiber).
 3) Route working tube up through the bottom slot of the basket to the front/drop side. (Top slot can be used for certain cable types.)
 4) At front side, guide one leg toward the other leg and secure both legs of the working tube to one side wall of the basket with cable ties.
 5) Secure and route the tube legs together as a tube group, toward the splice tray.

Labels in diagram: Slot at top of basket, One leg of working tube, EPS model, rear view, CO side, Drop side, Both legs of working tube loop enter basket at top from CO side.

26. □ **Join tubes (looped cable).** As the working fiber loop is brought into the basket, route one leg of the loop across the basket to abut the other tube leg. The tubes then can be joined with cable ties at regular intervals (every 5-6") and routed as one tube. Do not join the last couple feet of tube. Later, this last couple feet of buffer tube will be removed for placement on the splice tray. The length of tube from the basket to the tray provides the slack needed to perform fiber splicing.

If splicing will not be performed at this time, the buffer tube(s) need not be cut/removed until the drop cables are prepared and the fibers are spliced. Proceed to the next step to continue with the installation and removal of the buffer tube, or skip to Step 77-80 to close the pedestal, according to local company practice.

27. □ **Marking and cutting the buffer or central core tube(s).** Note that 1-2 buffer tube loops can be stored in the basket as fiber slack to the tray. The excess fiber can be trimmed as the fiber is being placed in the tray.

Loose buffer tube, stubbed cable: Determine how much fiber will be placed inside the splice tray. Trim any excess buffer tube so that the desired amount can be placed into the splice tray. Using local company procedures and tools, score the tube at the mark and discard the length of surplus tube.

Central core tube, stubbed cable: Cut to length then remove excess central core tube. Measure then make a mark on the central core tube approximately 7.5-8" from the cable sheath cut line. This will insure that fiber is not exposed until it is within the basket. Using local company procedures and tools, score the tube at the mark and remove the length of surplus tube and discard it.

Loose buffer tube, looped cable working tubes: Per company practice, prior to cutting the working tube, first determine how long the tube legs should be to provide adequate looped slack storage in the fiber basket before being routed and attached to the splice tray (in its final secured position). Wrap or loop the tube 1-2 times inside the basket, route the last loop to the opposite side of the basket, and make a mark on both tube legs where they overlap the splice tray (when the tray is secured with Velcro straps). Leave or measure enough tube slack length to facilitate future splice tray access, and remove enough tube to expose the proper amount of fiber for splicing and storage purposes inside the splice tray. Hold the tubes against the splice tray overlapping the tray corner, and mark them at the desired tray entrance point. After marking the tubes, use company procedures/tools to score, slit, and remove the tube.

28. □ **Clean and/or cut fibers.** Per company practice, carefully clean the exposed fibers. In looped applications, cut only the desired working fibers midway between the tube ends. Do not cut any express fibers.

29. □ **Ribbon fiber, looped cable only:** Insert the cable's ribbon fiber end into and through one of the provided transportation tubes (as shown in Step 24 for stubbed cable) and position it at the open end of the central tube. Position the transportation tube as close to the central tube as possible for best ribbon fiber protection, then attach it to the basket using 2-3 cable ties.

30. □ **Prepare a splice tray for tube attachment.** Prepare a splice tray (provided) by removing the cover and placing two cable ties at a top tray corner, using the inner tie-down slots.

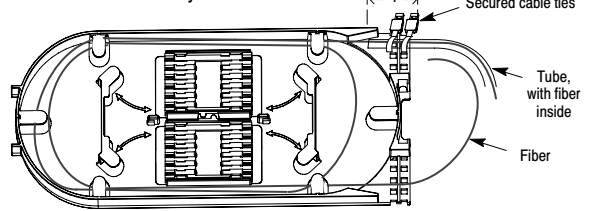
Labels in diagram: Cable ties, Inner slots, Outer cable tie-down slots, Choose a tray corner.

31. □ **Stubbed cable: Attach tube to tray.** Overlap the buffer tube onto the tray corner about 1" (see Step 33), then secure the tube to the tray with the two cable ties.

Looped cable: Attach tubes to tray, store fibers. To best manage the buffer tubes, attach both sides of the feed/express tube to the same corner of the tray. Coil all fiber in tray per Step 33. Manage/label dead fibers per company practice. Store uncut express fibers in the splice tray.

32. □ **Label the tube.** Label all tube ends, per company practice.

33. □ **Store fibers in splice tray.** Per company practice, carefully wrap and store the fibers in the splice tray for later splicing, then attach the tray cover. Use a second tray if needed.



If more than 12 pigtails will be spliced, additional trays can be used. Follow company practice.

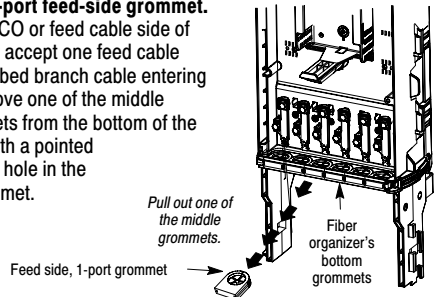
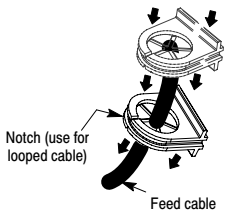
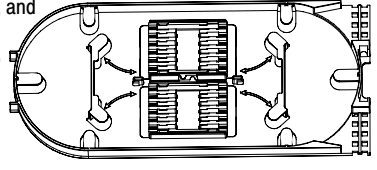
34. □ **Determine next step.** If splicing or drop cable installation will be performed at a later time, do Steps 48-49 and 77-80 now to secure the splice tray(s) and to close the pedestal. Go to Step 42 to perform splicing. Go to Step 50 to install drop cables.

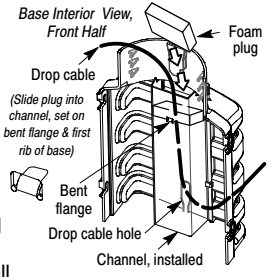
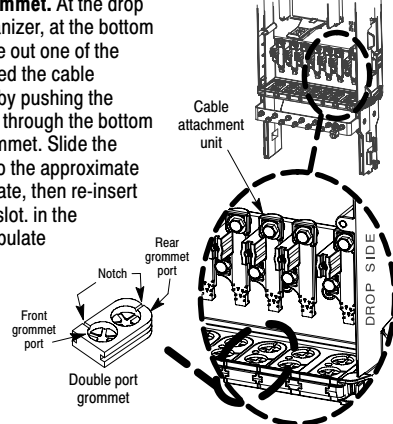
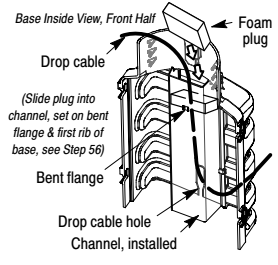
Preparing the Branch Cable

35. □ The ELS models provide a fiber basket on both sides of the fiber organizer, enabling a separate splice tray to be used for slicing CO feed and branch fibers. Use the rear/CO side of the ELS fiber organizer to prepare and house these splices.

Label in diagram: CO/rear side of ELS

36. □ **Locate and secure the feed tube for the branch.** Referring to Step 25a as a guide, locate and separate from the looped feed bundle a feed tube containing the fibers to be spliced into the branch cable.

37. □	Prepare branch feed tube and fibers. Repeat Steps 26-33 for the designated branch feed tube.
38. □	Prepare the branch distribution cable. For the branch cable preparation and installation into the base, refer to Steps 50-53.
39. □	<p>Remove a single-port feed-side grommet. Grommets on the CO or feed cable side of the fiber organizer accept one feed cable each. For the stubbed branch cable entering the pedestal, remove one of the middle feed-side grommets from the bottom of the fiber organizer. With a pointed tool, poke a small hole in the center of the grommet.</p> 
40. □	<p>Prepare grommet (stubbed branch cable). Before opening the cable to remove the sheathing, push the cable stub end through the grommet, then slide the grommet down the cable until the grommet is below the sheathing cut line on the cable or below the grommet plate.</p> 
41. □	Prepare branch distribution cable and fibers. The installation of a branch cable is similar to that of the drop cable; however, a branch cable is installed on the CO side of the fiber organizer. Follow Steps 58-77 and omit Steps 67 and 79 for installation and attachment of a branch cable. If splicing is to be performed, continue with Step 42. If splicing is not to be performed at this time, proceed to Steps 77, 78, and 80 to close the pedestal.
Splicing Fibers at the CFPD2 Pedestal	
42. □	Obtain tools. Prepare the area for splicing, and assemble and prepare any equipment and tools needed to splice fibers. Review all the cautions and warnings herein.
43. □	Open pedestal. Remove the dome and open the CO side door, per Steps 3 and 4.
44. □	Remove the splice tray(s) from the fiber organizer. Loosen the VELCRO® straps that secure the splice tray(s) and pull out the tray(s), unwinding and rotating it and the tubes attached to it. Detach the clear plastic cover from the splice tray(s) by lifting up on the two holes in the cover.
45. □	<p>Perform splicing. Unwrap the working fibers to be spliced, perform all fiber splicing at this time, and when complete, wrap the fibers into the splice tray(s), per local/company practice and product manufacturer's instructions.</p> 
46. □	Label and identify splices/tray. Per company practice, label/identify the splices.
47. □	Cover splice tray(s). Re-attach the cover(s) to the splice tray(s).
48. □	Secure tray. Secure the splice tray(s) to the fiber organizer. To do this, coil the tubes counterclockwise inside the basket, allowing the tray to rotate freely as needed. Manage the last tube loop within the basket such that the attached splice tray may easily rest on and be secured to the tabs at the front of the fiber basket using the provided VELCRO® straps.
49. □	Re-check the drop channel foam plug placement and cable management, and close the pedestal. Perform Steps 77-80 to close the pedestal.

Installing Fiber Drop Cables	
50. □	Dig trench from premises to pedestal. Per company practice, prepare a trench to run the drop cable to the pedestal. Clear the soil from the bottom front of the base, where the cable enters at the drop cable access hole.
51. □	Run the drop cable. Route the drop cable through the trench to the pedestal base.
52. □	<p>Bring cable into base through drop cable channel, innerduct, or conduit. NOTE: The channel can be removed if innerduct or conduit is used. Per company practice, route the drop cable up into the base through the innerduct, conduit, or drop cable channel via the drop cable hole. If the drop channel is used, remove the foam plug (rodent and insect deterrent) at the top of the channel and replace it after all drop cables are secured to the fiber organizer. To re-install the foam plug at the top of the channel, insert the plug so it is in front of the cables (cables at the back of the channel), rest/press the plug's front edge on top of the base's first rib, then press down on the plug's back edge until it rests on the bent flange at the rear of the channel. If the cables prevent plug installation, the plug may be cut/slit to accommodate the cables.</p> <p>BASE NOTE: If the drop channel is not used, a drop hole cover kit can be ordered.</p> 
53. □	Allow proper length of drop cable. Per company practice, verify 9' (min.) of drop cable extends up past the base's ground line mark. Mark and cut the cable at the desired length.
54. □	<p>Route cable through grommet. At the drop cable side of the fiber organizer, at the bottom grommet plate, pull or slide out one of the double-port grommets. Feed the cable through the grommet port by pushing the stub-end of the drop cable through the bottom center of the selected grommet. Slide the grommet down the cable to the approximate location of the grommet plate, then re-insert the grommet back into its slot in the grommet plate. Always populate or use the rear-most ports first, for best access.</p> 
55. □	Route all drops to pedestal. Repeat Steps 50 through 54 above for all drops ready to be routed or placed in service at this time.
56. □	<p>Install or inspect foam plug. If the channel's foam plug dislodged during any drop cable entrance (see Step 52), re-install it by placing it in front of the cables (cables at the back of the channel), angling the plug's front edge down toward the first rib of the base front, and sliding it down until it rests on top of the first rib. Press down on the plug's back edge until it rests on the bent flange at the rear of the channel.</p> 
57. □	Backfill the trench and replace the sod. For a safe and orderly work area, restore the backfill and sod around the base and at the trench, per company practice.

58. □	Mark drop cable for sheathing removal. The drop cable sheathing must be removed to expose the fiber to be spliced, but enough cable sheathing must remain to allow firm attachment to the cable attachment unit. Locate the cable attachment unit directly above the drop cable's grommet, hold the drop cable in it's proposed final position up against the unit, and mark the cable midway up the unit (approximately 2.5" above the grommet).
59. □	Separate tracer wire. If a tracer wire is attached to the drop cable, per company practice, use needle-nose pliers or the tool of choice to separate it and pull it down the cable to the marked location. Trim off all but 4 inches for later use. Optionally coil and point the 4" wire toward the pedestal center, away from the working area. <i>Note: Flat drop cable tracer wire is intended for locating, not grounding, purposes.</i>
60. □	Remove cable sheathing and open the cable. Cut and remove the drop cable sheathing from the end of the cable to the cut mark, per company practice. If none exists, score the cable sheathing at the cut mark, slice off a piece of sheathing at the cable end to find the rip-cord, pull the cord to the mark, and peel off the sheathing. Trim any KEVLAR® and the rip-cord at the sheath cut-line. Trim any cable strength members per company practice.
61. □	Label drop tube. To facilitate future cable identification during splicing, troubleshooting, or rework, label the drop tube per company practice. Charles recommends labelling the tube near the attachment bar and near the splice tray.
62. □	Trim strength members. If the cable contains strength members, trim them now but retain enough length to attach them to the fiber organizer, per company practice.
63. □	Secure strength members. Per company practice, terminate any strength members in the strength member clamp at the top of the cable attachment unit. Loosen the hex head bolt in the clamp at the top of the cable attachment unit (trim the strength members if they were cut too long), then slide the strength members between the two washers and under the clamp. Tighten the clamp's bolt. Press the cable against the attachment unit, making sure enough cable sheath remains for good cable contact with the teeth at the bottom of the cable attachment unit. Hold the cable against the teeth then secure the cable to the unit by using company-approved methods.
64. □	Bonding and grounding the cable (Always follow local codes and company practice to ground cables/equipment). If the drop cable requires bonding, follow the procedure explained in Step 18 to attach a bond clamp to the cable, then per local codes, company practice, and the type of cable used, ground the cable to the bond bar on the backboard using a bond strap or company approved methods.
65. □	Secure cable to cable attachment unit. Verify the cable sheathing makes good contact with the "teeth" at the bottom of the cable attachment unit, then secure the cable to the cable attachment unit using company-approved methods and materials. For round armored cables, place a hose clamp around both the cable and the cable attachment unit. If using cable ties, double the tie over the cable, crisscross then tighten it. <i>NOTE: Avoid using hose clamps on flat drop cable or unarmored cables.</i>
66. □	Label drop cable. Label the/all drop cable(s), per company practice.
67. □	Repeat for all drops. Repeat Steps 58 through 65 above for all available drops.
68. □	Unstrap and prepare the splice tray. Remove the Velcro strap(s) and lift the tray and fiber loop over the bend-radius control guide. Prepare the tray for drop tubes by inserting two plastic cable ties down through the middle cable tie-down slots, at the same tray corner where the feed tube is tied (see Step 33).

69. □	Secure each drop tube then bundle all tubes. After all drop cables are secured to their cable attachment units, separately tie each drop tube to a tie-down slot on the inside wall near the bottom of the fiber slack storage basket. After each tube is secured, gather all tubes just above their tie-down locations, and tie them together (as a bundle) with cable ties at short intervals. <i>If the pedestal serves more than 6 drops, and company practice allows only 6 drops per splice tray, create and use a second drop tube bundle and tray.</i> Note: For optimum buffer tube management and where local practice permits, it is recommended that both feed and drop buffer tubes be bundled with cable ties and attached to the same corner of the tray. Then all tubes can be grouped together and routed/coiled into the basket as a single group. See Step 73.
70. □	Mark, score and remove the buffer tube to expose fiber. Allow the drop tube bundle to overlap the splice tray at the same tray corner where the feed tube is tied. Mark a cut-line on each drop tube at the same length or location as the feed tube cut-line (overlap the tray corner approximately 1"), so all tubes will be the same length. Verify that a minimum of 32" of fiber will be available for splicing purposes. Cut the drop cable buffer tubes at the marked cut-lines (do not cut the fibers when cutting the tubes), and remove the surplus tube lengths, per company practice. After this tube routing/cutting procedure, the drop buffer tube should be approximately the same length as the feed cable tube(s).
71. □	Clean fibers. Per company practice, clean the exposed drop cable fibers.
72. □	Remove tray cover. If not already removed, remove the splice tray cover.
73. □	Attach drop tube bundle to the splice tray. Per company practice or per splice tray manufacturer instructions, secure the drop buffer tubes to the splice tray. It is recommended that the installer use the same tray corner as the attached feed tubes. Attach the feed tube group and drop tube group at adjacent tray tie-down slots. Using two cable ties, attach the drop tube to the tray. As more drops are added, secure the drop tubes to the tray as a group and maintain the drop group integrity or unity by replacing the existing drop group's two cable ties one at a time, so at least one tie affixes the group to the tray during this procedure.
74. □	Store fibers in splice tray. If splicing is not performed at this time, wrap the fibers in the tray, per company practice. Attach the tray cover.
75. □	Label the tubes/fibers. Label the tube/fibers, per company practice.
76. □	Determine next step. If splicing will be performed at this time, go to Step 42. If splicing is not performed now, continue with Step 77.
77. □	Perform fiber/tube/tray management. If splicing is not performed at this time, loop all feed/drop tubes that are attached to the splice tray and coil them into the fiber slack storage basket. Secure the splice tray in place against the front of the fiber basket using the Velcro strap(s) provided.
78. □	ELS models: lock inner door(s). Verify all tubing is properly stored and not kinked, and that no cables, ties, wires or tubes protrude beyond the fiber organizer walls. Close and lock the inner doors and tighten all cup-washer screws.
79. □	EPS models: install inner dome. Verify all tubing is properly stored and not kinked, and that no cables, ties, wires or tubes protrude beyond the fiber organizer walls. Orient the inner dome so the flat side faces the front of the base, then slide the inner dome down over the fiber organizer, and guide it past the splice tray tab(s) to the grommet plate. Align the dome's top hole with the fiber organizer's top snap. Push down on the dome until the snap goes through the dome hole (causes audible 'click').
80. □	Close the pedestal. Locate the outer dome and orient it so the snap lock faces the front (the Charles logo is on the base front). Slide the dome down over the fiber organizer, align the dome's snap lock with the base's latch, and allow the self-locking dome to drop down in place. An audible "click" indicates the dome is locked.

Table 1. CO and Drop Cable Installation

Feature	ELS model		EPS model	
Height, overall	41 in.	104.1 cm	42 in.	106.7 cm
Height, base only, incl. collar	18 in.	45.7 cm	18 in.	45.7 cm
Height, dome only	30 in.	76.2 cm	31 in.	78.7 cm
Height, base bottom to ground line	8.5 in.	21.6 cm	8.5 in.	21.6 cm
Height, dome top to ground line	36.5 in.	92.7 cm	37.5 in.	95.3 cm
Depth, base (front to back)	12.75 in.	32.4 cm	12.75 in.	32.4 cm
Width, base (side to side)	12.75 in.	32.4 cm	12.75 in.	32.4 cm
Diameter, base collar, O.D.	10.75 in.	27.3 cm	10.75 in.	27.3 cm
Diameter, base collar, I.D.	10.3 in.	26.2 cm	10.3 in.	26.2 cm
Diameter, dome, O.D. (not the cap)	11.25 in.	28.6 cm	11.25 in.	28.6 cm
Diameter, dome, I.D.	10.85 in.	27.6 cm	10.85 in.	27.6 cm
Weight	32 lbs.	14.5 Kg	32 lbs.	14.5 Kg

NOTE: All dimensions and weights are approximate.

3. CUSTOMER TECHNICAL SERVICE

If technical assistance or customer service is required, contact Charles Industries by calling or using one of the following options:

847-806-8500 (Tech. Serv. local)	847-806-6300 (Customer Service)
800-607-8500 (Tech. Serv. toll-free)	847-806-6653 (Customer Serv. FAX)
847-806-8556 (Tech. Serv. FAX)	mktserv@charlesindustries.com
techserv@charlesindustries.com	www.charlesindustries.com

Model #	CFDP2 Description
CFDP210-ELS	CFDP2 Interconnect Pedlock® OSP Pedestal, with a 10" diameter, locking, exterior dome, a square, 2-piece, expanded-capacity, split base, a weather-tight interior enclosure with two locking doors, a removable fiber organizer for fiber cable routing, attachment, storage, and splicing (tray capacity = 24 fiber splices per tray), a fiber basket on both sides of the organizer, 4 single-port 1" diameter feed grommets and 8 double-port 0.625" diameter drop grommets, one Charles 9" splice tray, a ground bar, and two 3' lengths of transportation tubing. Includes all equipment shown herein.
CFDP210-EPS	Same as the above model but with an inner dome instead of two locking inner doors, and a fiber basket that opens only on the organizer's drop side.
CFDP210EVLS or CFDP210EVPS	Vault mount base version
Optional Equipment for Use with this CFDP2	
97-FIBR24TRAY	Splice tray kit, with one 12/24F tray
97-001911-A	Grommets, feed-side type, one 1" port per grommet, 50-piece kit →
97-001753-A	Grommets, drop side, middle type, two 0.625" ports per grommet, 50-piece kit →
97-PKOR010A	Dome cap, high visibility, orange, 10" →

Various replacement parts are available. Contact Charles Industries for more information.