80-002665-F Ring Application Adapter Kit Installation Instructions
(For Field-Installation into CFDP210-EL24-type Pedestals)

1. GENERAL

1.1 Document Purpose. This document provides instructions for the field technician to properly retrofit and install the Charles 80-002665-F Ring Application Adapter Kit (shown in Figure 1) into an existing field-installed Charles CFDP210-EL24-type Interconnect OSP pedestal. Consult the document shipped with the pedestal for pedestal installation instructions and instructions to prepare, splice and terminate fiber cables inside the pedestals. Call Charles Industries (see Part 3) to request more information or literature on this or other products.

- NOTE -
Hereafter the 80-002665-F also may be referred to as the "kit" or "assembly."

1.2 Document Status. Whenever this document is updated, the update reason will be stated in this paragraph. The second printing updates the drawings to reflect the new CFDP210 pedestal design.

1.3 Product Purpose and Description. The Charles 80-002665-F is a bulkhead that consists of an L-shaped plate equipped with factory-installed SC/UPC adapters and mounting screws for installation on a field-installed Charles CFDP210-EL24 pedestal fiber organizer. The kit converts a field-installed Charles CFDP210-EL24 pedestal (Figure 2) to a CFDP210-EL32R pedestal, which allows the pedestal to be used in ring applications. The kit allows up to five MUXes in a ring configuration that features both a "Working" (Service) circuit and a "Protect" circuit for continuous operation, even during times of repair or maintenance. Figure 3 illustrates a cell-site ring application, and Figure 4 is a fiber routing diagram for ring and point-to-point applications.

1.4 Product Mounting Location. The kit is field-installed on the customer/drop side (Figure 2) of the CFDP210-EL24 pedestal's fiber organizer. See Figure 5 for a closer view of the mounting location. Table 1 provides detailed installation steps.

2. CABLE INSTALLATION AND SPLICING

Perform the steps in Table 1 to install the kit in the CFDP210-EL24 pedestal and to make fiber cable connections to the adapters in the kit's bulkhead.

- 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.

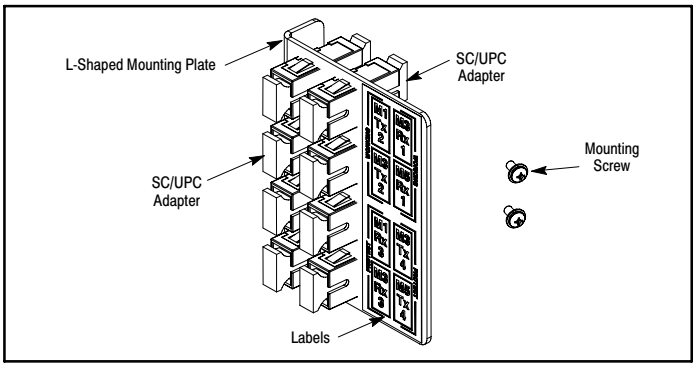


Figure 1. Ring Application Adapter Kit

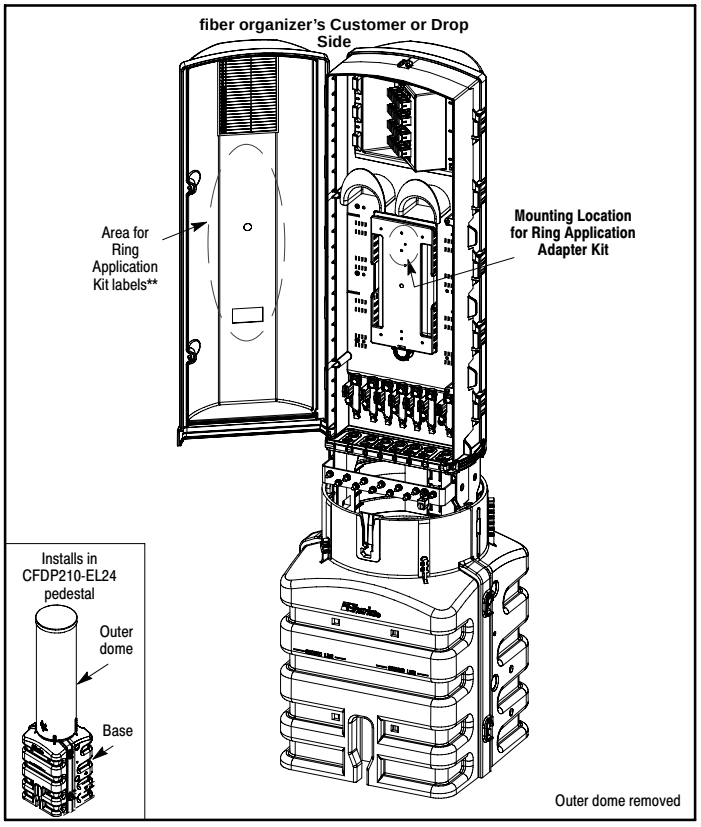


Figure 2. Customer (Drop) Side of CFDP210-EL24 Pedestal

- 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.

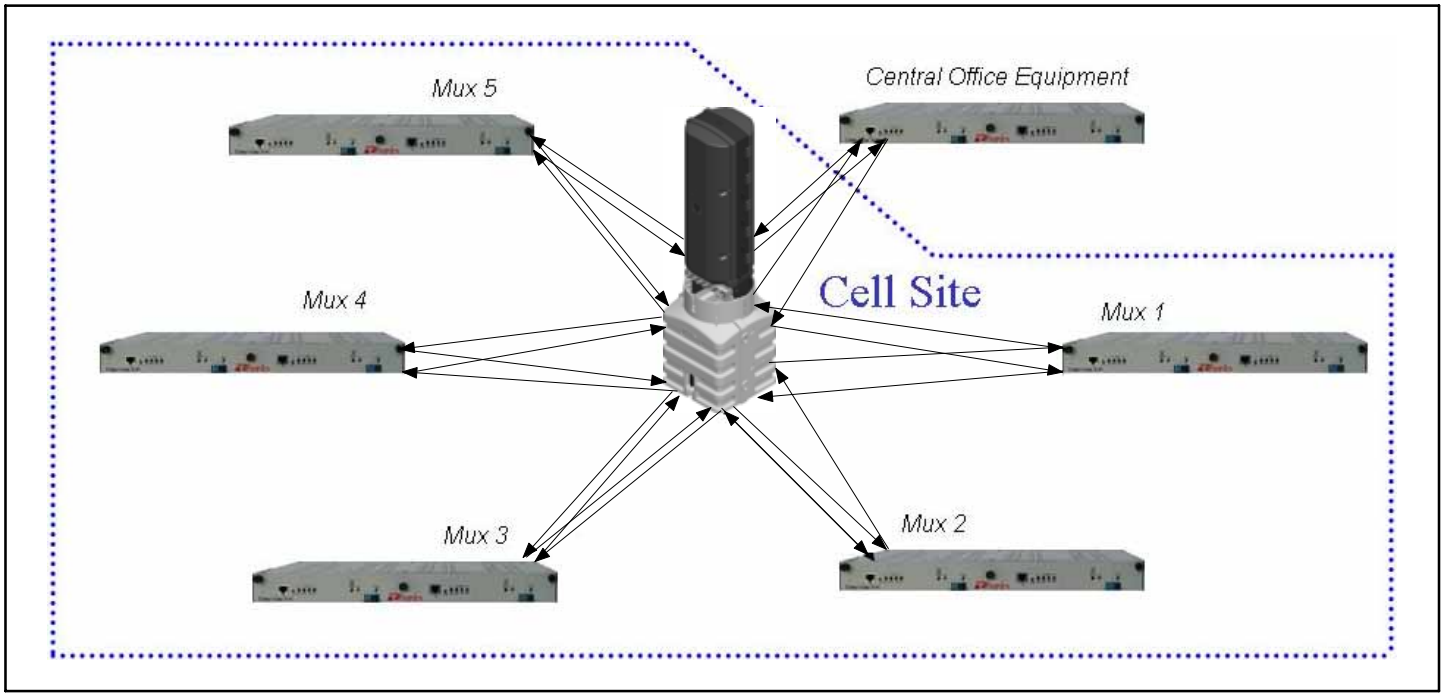


Figure 3. Pedestal Shown in a Cell-Site Ring Application (serves up to 5 MUXes, 4 Fibers per MUX)

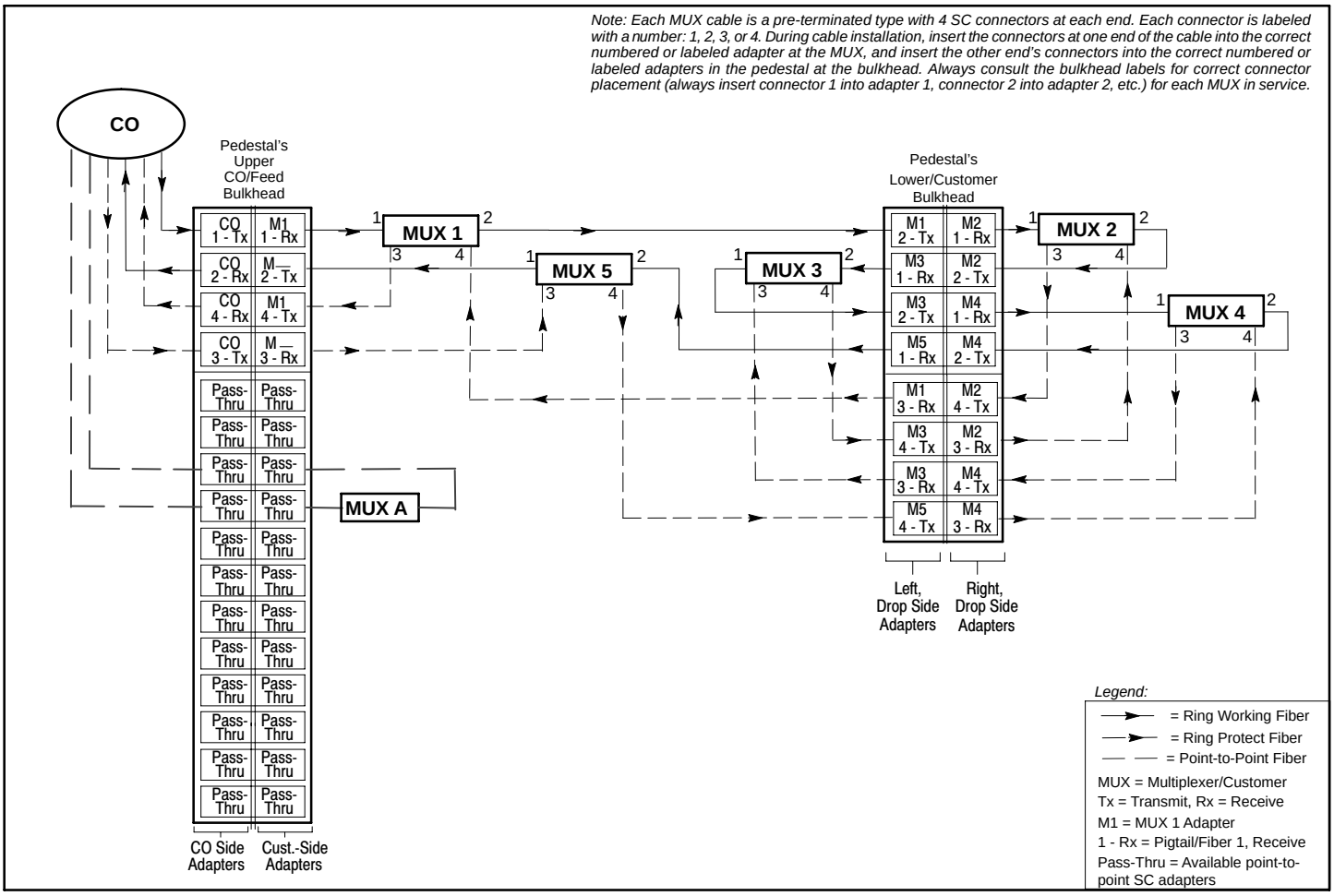
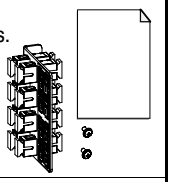
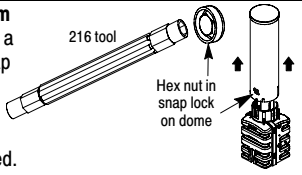
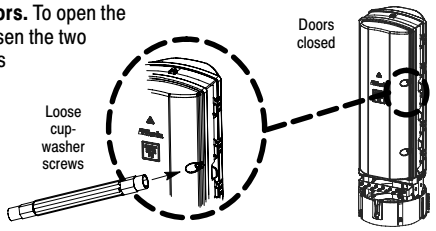
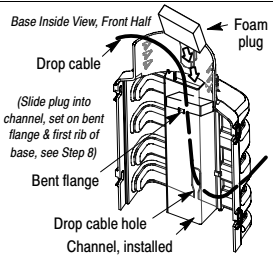
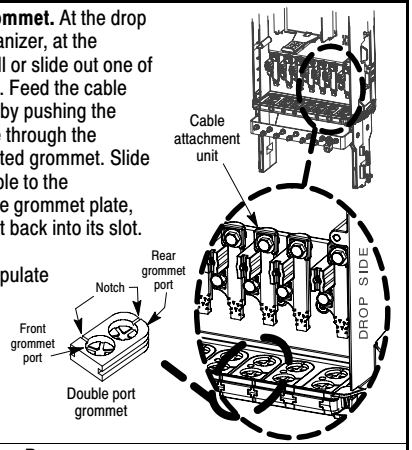
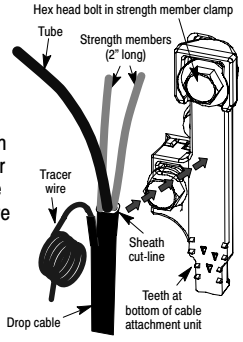


Figure 4. Pedestal Fiber Routing Diagram for Ring and Point-to-Point Applications

Table 1: Field-Installing a 80-002665-F Kit in a CFDP210-EL24 Ped

Step #	Instruction
1. □	**Open and inspect the ring kit.** Open the kit's shipping package, and verify and inspect the following kit contents. If the equipment was damaged in transit, immediately report the damage to the transportation company. □ One labeled mounting plate with 8 SC/UPC adapters □ 2 Ring address labels for door □ 2 mounting screws □ This document 
2. □	**Obtain tools, materials and equipment.** Assemble the following tools and equipment to install the kit. □ 216 tool/can wrench □ Properly installed CFDP210-EL24 pedestal □ Labels for cables □ Assorted cable ties □ Cable bond clamps *(optional)* □ Knife, snips, puncture tool *(to cut grommets)* □ Proper length drop cables □ Fiber cleaning solvent and wipes □ Phillips screwdriver □ Hose clamps (to secure cables) □ Trench digging equipment
3. □	**Verify pedestal is installed and inspect**. Find the CFDP2 pedestal installation site, inspect it, and verify the pedestal is properly installed.
4. □	**Dig trench from premises to pedestal.** Per company practice, prepare a trench to run the drop/MUX cable to the pedestal. Clear the soil from the front of the base, where the cable enters at the drop cable access port.
5. □	**Run the drop cable.** Route the preconnectorized drop cable through the trench to the pedestal base. For preconnectorized cables, verify 5 feet of cable will be available above the ground line. For stub-ended cables, verify 9 feet of cable will be available above the ground line (extra length required for splicing).
6. □	**Remove pedestal's 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. 
7. □	**Open internal doors.** To open the internal doors, loosen the two cup-washer screws on each door with a 216 tool. 
8. □	**Install or inspect foam plug.** If the channel's foam plug dislodged during any drop cable entrance, 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. 

9. □	**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. 
10. □	**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. Hose clamps should not be used on flat or unarmored drop cables. 
11. □	**Locate, align, then mount kit.** Locate the bulkhead included in the kit. Open both doors on the fiber organizer to access both sides of the basket. Align the threaded holes of the kit's bulkhead with the matching holes on the back of the basket as shown in Figure 5. Insert the screws into the two countersunk holes located inside the basket. Tighten the screws to secure the bulkhead to the basket.

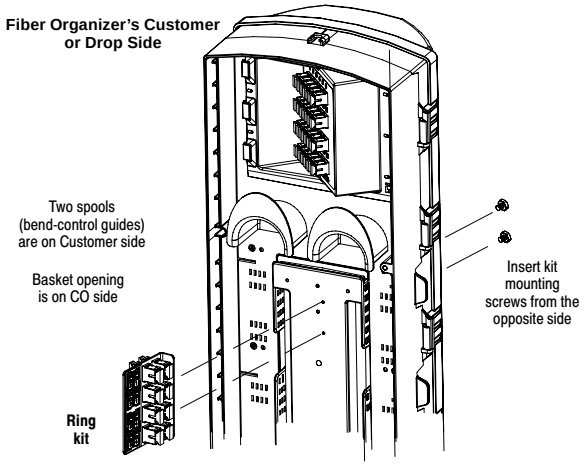
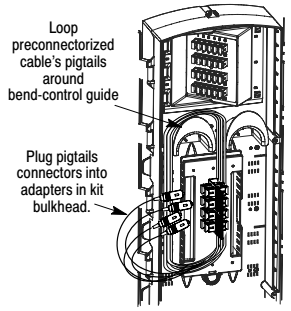


Figure 5. Kit Installation — At Top Half of Pedestal Fiber Organizer

12. □ **Route, secure, and connect drop pigtails.** Route and loop the excess pigtail lengths over the bend control on the same side as the target connector adapter. Coil the loops so that there is no stress exerted on the pigtails. Secure the pigtails to the fiber organizer's tie-down slots with cable ties or velcro at regular intervals.



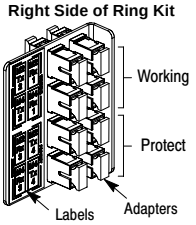
13. □ **Label drop cable**. Label all drop cable(s) with a cable marker or label. ***Use "M1" to identify the first MUX cable, "M2" for the second MUX cable, etc., to coordinate and match with the bulkhead adapter labelling provided on the inner door and near the bulkheads.*** This insures a proper ring configuation and facilitates later MUX/customer cable identification for future troubleshooting, maintenance, or rework.

14. □ **Study then affix labels on the inside of the drop side door**. Locate and read the labels provided with the kit. Affix the labels to the inside of the drop-side door (see Figure 6 on Page 4). The labels correspond with the layout of muxes in the ring application.

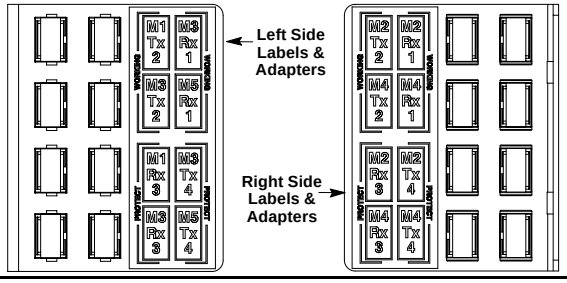
15. □ **Prepare/label the MUX and MUX cable per the door label**. Assign MUX numbers to each MUX per the configuration label on the drop-side door, so they match (e.g., the first MUX in the ring is called M1). Configure the MUX side connectors, per the label (either 1, 2, 3, or 4, per the cable function).

16. □ **Bring each MUX cable into the CFDP2 base, per the door label plan**. After each MUX cable is properly labeled, route each MUX cable up into the pedestal base and through a rubber grommet (slit the grommet). Secure the cable to a cable attachment with a cable tie, and further secure its strength members at the strength member clamp provided, per company practice.

17. □ **Understanding the bulkhead labels and adapter/ connector fiber numbers.** Before routing, looping, and securing the MUX cable's connectors to the fiber organizer, study the bulkhead labels and carefully identify and match each numbered connector (each is labeled/numbered either 1, 2, 3, or 4) with the corresponding-numbered adapter in the correct bulkhead. Each bulkhead has a label next to it, and each label has a box representing each adapter in the bulkhead. In each box is an M# (such as M4) to identify the MUX number in the ring application.



Also in each box is a connector/fiber # (either a 1, 2, 3, or 4) and a fiber signal direction (Tx for transmit, Rx for receive). The top four connector adapters of the kit's pass thru bulkhead are used to connect the working and protect rings to CO. The first and last MUXs are connected through the pass thru bulkhead and connected to the ring configuration bulkhead on the drop side. As long as the MUX connections are configured per the label on the drop side door and the connections on the drop side are connected per the label on the drop side door, the ring will be configured correctly. Note that the top adapters of each bulkhead are for the *working* fibers/fibers in service (connectors/ adapters 1 & 2) and the lower adapters are for the *protect* fibers (connectors/ adapters 3 & 4).



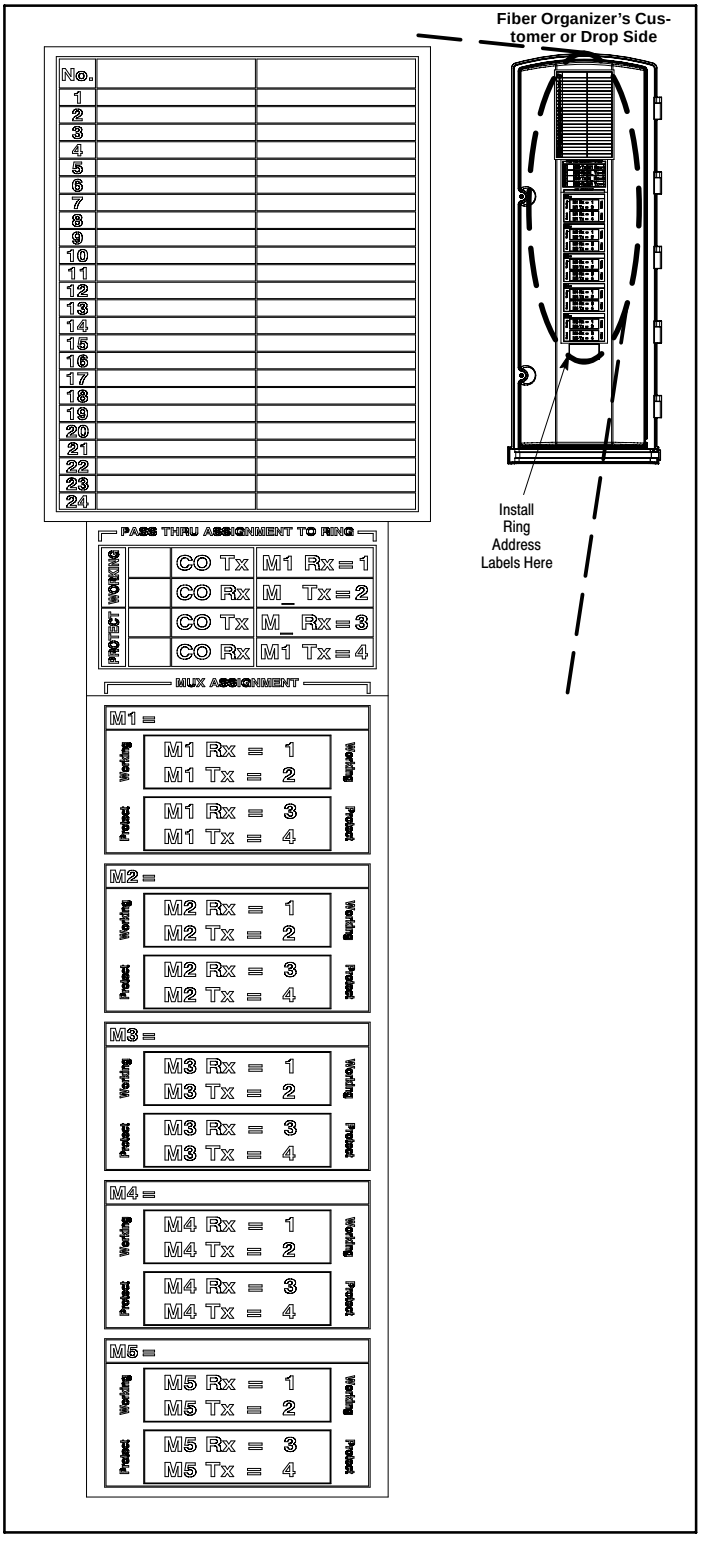


Figure 6. Customer (Drop) Side Door of CFDP210-EL24

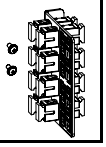
18.	□	**Route, secure, and connect drop preconnectorized cables.** After identifying the targeted adapter, route and loop MUX 1's first preconnectorized cable around the bend control on that side of the fiber organizer and hang the last slack loop from the bend-control guide, before inserting the preconnectorized cable connector into the targeted and properly-labeled adapter in the correct bulkhead. Repeat for all preconnectorized cable connectors of the MUX cable. If the targeted adapter faces left, route and loop the length of preconnectorized cable on the left bend-control guide, so the connector can be inserted into the adapter with minimal fiber cable bending. Likewise, if the adapter faces right, loop the preconnectorized cable on the right bend-control guide before inserting its connector into its correct adapter. Size the loops so that the connector will easily (without tension) reach the appropriate bulkhead adapter. Secure the cable to the fiber organizer tie-down slots with cable ties at regular intervals. Always plug a #1 preconnectorized cable connector into a #1 adapter (and a #2 connector in a #2 adapter, etc.), and always be aware of and double-check the MUX # being connected. **It is very important to use extreme care and double-check each connection to assure the proper-numbered preconnectorized cable is connected to the proper-numbered adapter *for each MUX.***
19.	□	**Double-check all connections.** Verify *both* the correct MUX # *and* the correct fiber connector # when double-checking all adapter connections. Preconnectorized cable connectors coming from MUX 1 must be inserted into an adapter labeled with an "M1", and MUX 2 preconnectorized cable connectors to adapters labeled with an "M2", etc. All #1 preconnectorized cable fiber connectors must be inserted into #1 adapters. All #2 fiber connectors must mate with #2 adapters, #3 connectors mate with #3 adapters, and #4 connectors mate with #4 adapters. Use the labels.
20.	□	**Prepare all drops/MUXes.** Repeat Steps 4-19 for all customer drop/MUX cables and their preconnectorized cables ready for installation and connection at this time.
21.	□	**(Re)Place foam plug, if drop channel is used.** After all drop cable pigtails are properly terminated, either re-install the foam plug in the drop channel of the pedestal base, or if it was not moved, verify the foam plug is still properly installed in the drop channel (see Step 8). If it was removed or dislodged, re-install it at this time.
22.	□	**Re-check cable management & lock inner door(s).** Verify all tubing is neat 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.
23.	□	**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. Field-Installing a 80-002665-F Kit in a CFDP210-EL24 Ped

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

Table 2. Model Numbers and Ordering Information	
Model #	***CFDP2 Description***
80-002665-F	Ring Application Kit, includes a labeled bulkhead mounting plate with 8 SC/UPC adapters, 2 mounting screws, and 2 door ring address labels. Field–installs in a CFDP210–EL24/EL24F to interface up to 5 MUXes in Ring applications. 

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

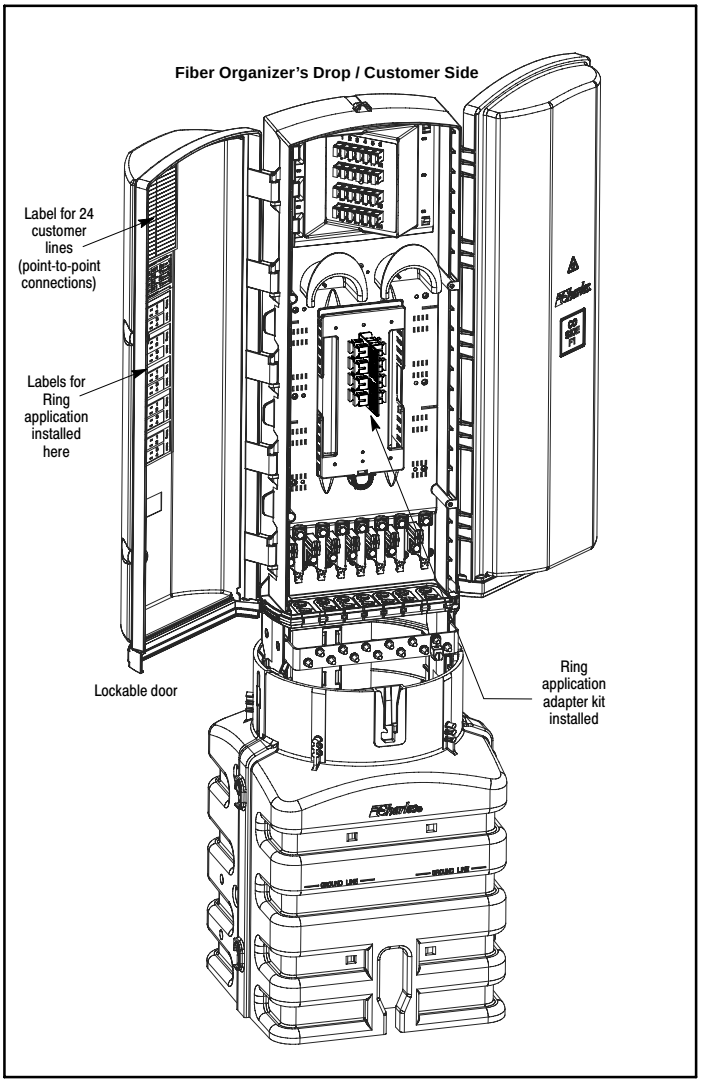


Figure 7. Interior View of the CFDP210-EL24, Ring Kit Installed