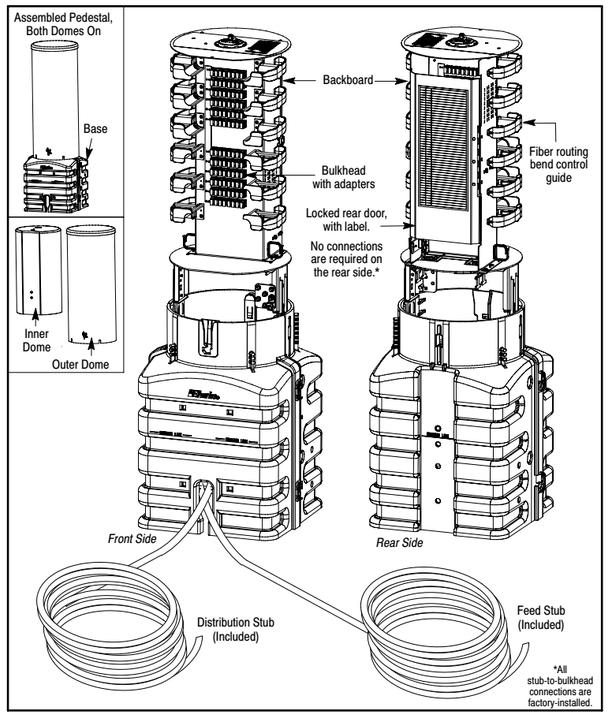


Figure 1. Front and Rear Views of CFXC Pedestal, Both Domes Off

Pedestal Preparation and Subscriber Fiber Jumper Installation Instructions

for the

CFXC Charles Fiber Cross-Connect Pedestal Series

with

Factory-Installed Cable Stubs

1. GENERAL

1.1 Document Purpose

This document provides two sets of installation instructions for the Charles CFXC Series of Fiber Flexibility Pedestals; Part 2 (and Table 1) provides instructions for the pedestal base installation (in addition to the instructions provided in the reference document attached to the base), and Part 3 (and Table 2) provides installation instructions for the jumpers to be installed at the pedestal backboard. Figure 1 shows an interior, dome-off view of a typical CFXC pedestal and Figure 2 provides a closer view of the front side of the backboard. See Table 4 for ordering and option information or call Charles Industries (see Part 4) to request more information or literature.

1.2 Document Status

Whenever this document is updated, the reason will be stated in this paragraph.

1.3 Product Purpose and Description

The Charles CFXC pedestal is a superior protective enclosure for easy access to OSP above-grade preconnectorized fiber cable connections at a distribution point between the CO feed cable and the customer distribution cables. These pedestals protect against floods, fire, dirt, weather, insects, and impact. The bottom section of the pedestal is the base: a square-shaped, expanded-capacity, 2-piece, split base designed to open and easily install around the factory-attached feed and distribution cable stubs. Stubs come in lengths of 50 or 100 feet, enough to reach a nearby splice point and allow the pedestal to be spliced into the cable distribution backbone. The top section of the pedestal is covered by inner and outer domes, which protect the interior high-capacity fiber backboard that is specially designed with a large-capacity cross-connect bulkhead containing SC adapters for 36 to 144 subscribers. Once the pedestal base and a preconnectorized customer cable is installed, the CFXC offers the field technician a quick simple way (via 1M bend-insensitive jumpers) to provision a new customer. For security and longevity, all factory connections of the provided feed and distribution/subscriber cables (on the rear side) are safely secured behind a metallic door, which opens with a can wrench or 216 tool, in the event access is required for line maintenance or adapter cleaning.

1.4 Product Manipulation, Mounting, and Placement

Additional pre-installation consideration should be given to the CFXC regarding product manipulation or transportation, and product mounting and placement, which is explained in the paragraphs below and Table 1.

1.4.1 Transporting or Manipulating the Pre-installed Pedestal

Due to the 50’ (or 100’) cable stubs factory-installed on the CFXC backboard, exercise special care when working with an unboxed pedestal and installing the pedestal at the installation site. The cautions listed below should be followed:

- Always keep the inner dome attached to the backboard until the pedestal is installed at the installation site and until ready to install the jumpers, to protect the internal components and to facilitate product transportation.
- Avoid any twisting or rotation of each bundled coiled cable stub, so that damage to its cable connection point at the bottom of the pedestal backboard does not occur.
- Do not unbundle the cable stubs until the pedestal is ready to be installed at the site.
- A two-person side-by-side lift is recommended whenever transporting, moving, or manipulating an unboxed pedestal; one to carry the cable stubs, and one to carry the backboard-inner dome combination.
- Never exceed fiber cable bend radius limits when (un)coiling or otherwise manipulating the fiber cable stubs attached to the pedestal backboard

1.4.2 Pedestal Placement in a Trench, on a Stake, or on a Pole

The CFXC pedestal is typically installed in a trench in the ground, up to the ground line indicator on the base, at the fiber flexibility or distribution point. Pole-mounting or stake-mounting of the pedestal is available via holes or knock-outs at the rear and both sides of the base. These knock-outs accept an optional, metallic, mounting stake or a pole-mount stake (explained in the documentation attached to the base). For CFXC pedestals, which have cable stubs attached, begin the cable run at the pedestal, and place any cable slack away from the pedestal, at the nearby splice point. Always follow company practices.

1.4.3 Pedestal Placement in a Trench with Conduit

The CFXC is ideal for conduit or innerduct trench applications. In addition to the suggestions in Paragraph 1.4.2, for conduit applications, uncoil the bundled length of cable stubs, insert the stub end into the proper conduit opening at the pedestal installation site, and pull the cable through the conduit to the nearby splice point. Avoid twisting the cable stubs. After placing the cable stubs through the conduit, install the 2-piece base around the stubs and conduit, then mount the pedestal backboard on the base.

1.4.4 Pedestal Placement in a Vault

The CFXC is also available with a vault-mount base for below-grade vault distribution points. Call Charles Industries (Part 4) for more information.

1.4.5 Backboard Mounting

The pedestal backboard mounts on the pedestal base at the pedestal installation site. These instructions concern the attachment of the base to the backboard after the cable is placed, to facilitate correct placement of the stubbed cables. Consult company practices for the preferred method. All preconnectorized fiber cable connections are performed (as described in this document) at the backboard.

1.4.6 Dome Mounting

After all preconnectorized fiber jumper connections at the backboard are complete, both the inner and outer domes are carefully placed over the backboard and attached to the base, to protect all cabling, connections, and equipment.

- EYE DAMAGE WARNING -
Risk of serious eye damage! Never look into a live fiber adapter or 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.

- WARNING -
Corrugated metal/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.
Risk of injury! Always point, push, or press away from your body when stripping, cutting, shaving or scoring cables and tubing.

- WARNING -
Cable/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.

- WARNING -
Never look inside any fiber cable, adapter, or connector.
The CO shutter adapters are live once the feed side jumpers are inserted, and each subscriber adapter is live as soon as the house NIU or NID is in service.

- 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.

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

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

2. INSTALLING THE CFXC PEDESTAL

Use this Part 2 section, Table 1 below, *and* parts of the base document provided in and attached to the pedestal base, to install the CFXC pedestal at the installation site. The unique design of this CFXC pedestal, with the long length of factory-attached cable stubs, requires slightly different installation steps for the pedestal base (different than exclusively following the steps in the document provided with the base). The steps in this document advise which steps in the base document are to be referenced and followed. The following presumptions and conditions apply:

- **Close proximity to fiber cable splice point.** The CFXC pedestal installation site must be within reach of a nearby splice point where fiber cable splicing is performed. The CFXC comes with either 50’ or 100’ long cable stubs.
- **Trench Setup –** The trench must be either dug and open, or cable conduit must be installed, to accommodate the pedestal’s factory-installed cable stubs. If the pedestal is vault-mounted, the vault must be ready for pedestal placement.
- **Cable Configurations, Lengths, and Splicing –** This CFXC pedestal contains two 50 (or 100’) cables; one is a CO feed cable and one is a distribution cable. One end of both cables is factory-installed to the rear side of the pedestal backboard. The other stub ends are to be spliced to the feed and distribution or subscriber cables at a nearby splice point per company practice. *No splicing is required at the pedestal.* Therefore, careful consideration should be given to determine correct pedestal placement, as cables are *not* cut or prepared at the pedestal, splicing is *not* performed at the pedestal, and cable slack storage is *not* available in or at the pedestal. The pre-installed cable stubs are to be cut to length at the nearby splice point, *not* the pedestal.
- **Pedestal Cable Stub Type and Design –** The two cable stubs attached to the pedestal are either a dielectric or armored cable type, and the fiber inside the cable stub is either loose tube or ribbon fiber. See Table 4 for details.
- **Jumpers –** Customer connections are made via 2 mm, jacketed, 1 meter long, bend-insensitive jumpers (ITU–T G.657 Class A fiber), which activates the line when one connector of the jumper is inserted in the top bulkhead and the other connector is inserted in the bottom bulkhead.

After installing the pedestal, see Part 3 and Table 2 for instructions on properly routing and installing the customer jumpers within the CFXC pedestal.

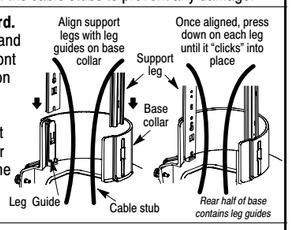
Table 1 - Installing the CFXC Pedestal with Attached Cable Stubs	
Step #	**Instruction**
1. □	**Prepare the site.** Prepare the pedestal installation site by digging the trench, laying the conduit or innerduct, or preparing the vault, all per company practice and per the installation type. Also prepare an earth ground at the pedestal site.
2. □	**Prepare the pedestal box, inspect contents, and obtain tools/materials.** Perform Steps 1-2 of Table 1 in the provided base installation document to open the shipping box, inspect the box contents, and obtain tools and materials for the base installation. Provided with the typical CFXC are the following parts: • outer dome • inner dome • assembled base (with a bag of parts inside it) • backboard inside the inner dome • 2 bundles of attached cable stubs.
3. □	**Prepare the pedestal.** Perform Steps 12-14 of Table 1 in the base installation document to open and prepare the 2-piece base of the pedestal. This includes removing any knock-outs where holes are needed and finding the kits of parts and documentation in the base. Remove (but do not discard) the red, plastic, vapor-barrier bag from around the inner dome and backboard. It will be used in Step 10.
4. □	**Place the backboard on the ground at the pedestal installation site.** Use two people to carry the backboard (with inner dome attached) and the attached cable stub bundles to the location where the pedestal will be installed. Always avoid any twisting or rotation of the stubs. Place the backboard on the ground at the site in the correct orientation (so each cable faces the proper feed/supply direction).
5. □	**Unwrap the cable stubs.** Remove the ties or wrapping that contain the coiled cable stubs and carefully unbundle and uncoil the long cable stubs. Making one large single loop or circle of the stub is suggested, to minimize cable twisting.
6. □	**Feed the cable stub ends into the conduit, trench, or vault.** Without twisting the cable, pull the cable stub end into the conduit (for conduit applications). If an open trench is used, place the entire length of cable stub into the trench. If a vault is used, place the entire length of cable stub into the vault in the slack storage position. Minimize the twisting and pulling of the cable stubs to prevent any damage.
7. □	**Attach base rear half to the backboard.** Unlock (with a can wrench or 216 tool) and open the 2-piece base. Set aside the front half of the base (with the Charles logo on it). Place the rear half on the ground, inside facing up, just below the support legs of the backboard. Align the support leg ends with the leg guides in the collar area of the base and slide the legs all the way into the base leg guides (audible clicks indicate proper leg insertion). 
8. □	**Lift, assemble, install, attach base front, and level the pedestal.** Perform Steps 23-26 of the base document to set the base at the proper depth (per application type), to attach the front half of the base to the rear half, and to level the base.
CAUTION: During cable handling, minimize pulling and twisting of the cable stubs.	
9. □	**Arrange the cable stubs in their final position.** Place the cable stubs in their final position before backfilling, and support the stubs if/as needed.
10. □	**Backfill.** Carefully backfill the trench (for open trench applications), then perform Steps 27-30 of Table 1 of the base document to perform proper base backfilling and proper vapor barrier bag placement in the pedestal base during base backfilling.
11. □	**Manage cable slack at splice point box.** Manage any cable stub slack per company practice.
12. □	**Splice cable stubs at nearby splice points**, per company practice.
13. □	**End of pedestal placement. Clean up site.** If customer jumpers will not be installed at this time, clean up the installation site, and leave this document inside the pedestal (optionally with your notes written on it) for the next crew or installer. See Steps 9-10 of Table 2 to close up and lock the pedestal.

Table 1. CFXC Pedestal and Cable Stub Installation Instructions

3. CONNECTING FIBER JUMPERS

Table 2 provides instructions to install jumpers (preconnectorized 2mm up-jacketed, 1-meter-long, bend-insensitive, fiber cables) at the front of the CFXC pedestal's backboard. The connector type of these jumpers may be either SC/APC or SC/UPC, depending on the specific model ordered and placed in service (see Table 4). Table 2 addresses the installation steps needed due to the unique backboard design of this pedestal (with dual side columns of fiber bend-radius control guides for easy fiber management, and large-capacity SC adapter bulkheads).

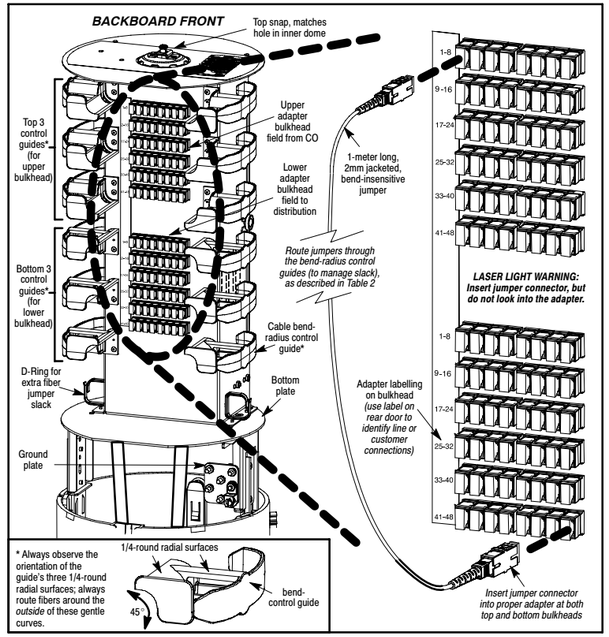


Figure 2. Front Side of Backboard, Showing Upper and Lower Bulkheads

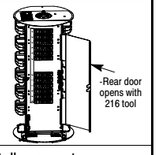
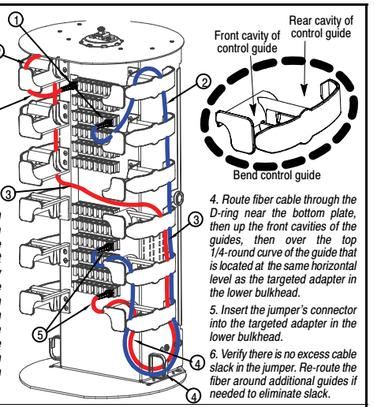
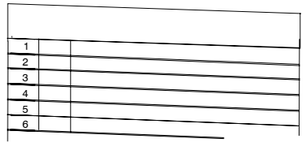
Table 2 - Installing Subscriber Fiber Jumpers	
1. □	**Verify correct pedestal installation.** Install the pedestal (including the factory-attached cable stubs as well as the expanded base and backboard) per the instructions in Table 1 above.
2. □	**Open the pedestal.** Unlock the pedestal with a can wrench, remove the outer dome from the pedestal base, then remove the inner dome from the pedestal backboard, to access the backboard where the customer jumpers will be installed.
3. □	**Understand the rear side of the CFXC backboard.** The rear side of the CFXC backboard contains a lockable door that protects the factory-installed connections of the feed and distribution cables to the *rear* bulkhead adapters. No additional connections are required on the rear side, therefore the rear door should remain locked except for any occasional, required, connector cleaning. 
4. □	**Understand the front side of the CFXC backboard.** All installer or customer connections are made on the front side of the CFXC backboard (Figure 2). The top group of adapters ("bulkhead," 6 rows of 8 adapters each) at the front of the backboard is for IN FROM CO (feed cable) connections. The bottom bulkhead adapter group is for OUT TO CPE (distribution cable) connections. Adapter #1 in each bulkhead is the left-most adapter in the top row, Adapter #8 is the right-most adapter in the top row, and Adapter #48 is the right-most adapter in the bottom row. ***Always use caution when working with bulkhead adapters and live circuits: never look directly into a live fiber adapter.*** The bulkheads allow easy tool-free line connections with the use of connectorized jumpers. To help manage and organize the lengths of fiber jumper(s), cable *bend- radius control guides* are provided on each side of the backboard, in a stack or vertical column of six guides per side. Half of the customer's jumpers should be routed up or down through the left column of bend-radius control guides (then horizontally over to the correct adapter), and the other half is routed up/down the right column of bend-radius control guides. Each bend-radius control guide has a rear cable containment area (cavity) and a front cavity (see Step 5 figure). Jumpers should be routed from the first upper/feed adapter, to the side, then down through the guides, then horizontally over toward the designated lower/distribution adapter. This design keeps surplus jumper lengths safe and neatly dressed at the sides of the bulkhead.
5. □	**Route jumper being placed in service.** *1. Insert jumper's connector into the desired adapter in the upper bulkhead.* *2. Route the jacketed fiber cable to the side to the neareast bend-radius control guide. Route fiber up through the guide's front cavity, over its top 1/4-round curve, then down through the rear cavity of the guide.* *3. Locate the targeted adapter in the lower bulkhead then determine and take the best route or path for the fiber to reach it (without excess slack). This may be a path down through all the guides on one side, or a path halfway down the backboard then crossing over (between the bulkheads) to the guides on the other side, then continuing down the rear cavities of the guides on the opposite side.*  *4. Route fiber cable through the D-ring near the bottom plate, then up the front cavities of the guides, then over the top 1/4-round curve of the guide that is located at the same horizontal level as the targeted adapter in the lower bulkhead.* *5. Insert the jumper's connector into the targeted adapter in the lower bulkhead.* *6. Verify there is no excess cable slack in the jumper. Re-route the fiber around additional guides if needed to eliminate slack.*
6. □	**Label the jumper connections.** Label each jumper per company practice. Provided on the rear door of backboard is a label to help identify each jumper's subscriber address. Fill out the label for each subscriber jumper placed in service. 
7. □	**Repeat for all jumpers.** Repeat steps 5 and 6 for all subscriber jumpers being placed in service at this time.
8. □	**Perform housekeeping.** Pedestal housekeeping consists of routing all jumpers neatly through the bend-radius control guides at the sides of the backboard. If any jumper has excess slack, simply route it further down (and up again if needed) the backboard through additional control guides. Never allow bulging or loose loops of jacketed fiber cable to flow out from cable guides; always guide and contain the jumpers.
9. □	**Install dome(s).** Verify all jumpers are neatly contained within the confines of the bend-radius control guides on both sides of the backboard so they will not be damaged when the inner dome is installed. Locate the inner dome, orient it so the flat side is toward the front of the pedestal, and gently slide the dome over the backboard assembly and press down on the top of the inner dome until it snaps in place. Locate the outer dome, orient it so the lock faces the front (the base front has the Charles logo embossed on it). Slide the outer dome down over the inner dome/back-board assembly, aligning the dome lock with the latch assembly on the base front. When correctly aligned, let the self-locking dome drop down in place until an audible "click" indicates the dome is locked.
10. □	**End of installation. Clean up site.** Clean up the installation site, and leave this document inside the pedestal for the next crew or installer.

Table 2. Installing Subscriber Fiber Jumpers

4. CUSTOMER TECHNICAL SERVICE

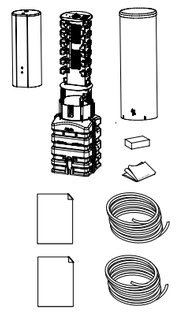
If technical assistance or customer service is required, contact Charles Industries by calling or using one of the following options:

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

Feature	Dimensions			
	8" model, 72 fibers	*10" model, 96 fibers*	*12" models, 144 & 192 fibers*	*12" model, 288 fibers*
Height, base bottom to top of outer dome	42.75 in.	45 in.	44 in.	51 in.
Height, base only, incl. collar	18.5 in.	18.5 in.	18.5 in.	18.5 in.
Height, base bottom to GL*	8.5 in.	8.5 in.	8.5 in.	8.5 in.
Height, outer dome top to GL	34.25 in.	36 in.	35 in.	42.5 in.
Height, dome only	28.50 in.	29.75 in.	28.75 in.	36 in.
Depth, base	10.8 in.	12.8 in.	15.1 in.	15.1 in.
Width, base	11.75 in.	13.9 in.	16.1 in.	16.1 in.
Diameter, dome, O.D.	8.6 in.	11.25 in.	13.25 in.	13.25 in.
Weight	21.5 lb.	32.5 lb.	40 lb.	46 lb.

** GL = Ground Line. NOTE: All dimensions and weights are approximate. Weights do not include cable stubs.*

Table 3. Physical Specifications

Model #	Description
CFXC *11 2 3 4 5 6 7 8 9* 	Product number/naming convention. All product numbers begin with CFXC. Italicized subsequent numbers represent various pedestal options, as listed below: *11* =Dome diameter (replace *11* with either 08, 10, or 12 for 8", 10", or 12") *2* = Pedestal base type (use V for Vault base, or "–" for Standard base) *3* = Bulkhead fiber adapter capacity, inputs and outputs (use 1 letter), (B = 48, C = 72, D = 96, E = 144, F = 192, G = 288 adapters) *4* = Cable 1 fiber count (0=none, T=24, A=36, B=48, C=72, D=96, E=144) *5* = Cable 2 fiber count (0=none, T=24, A=36, B=48, C=72, D=96, E=144) *6* = Cable 3 fiber count (0=none, T=24, A=36, B=48, C=72, D=96, E=144) *7* = Cable 4 fiber count (0=none, T=24, A=36, B=48, C=72, D=96, E=144) *8* = Bulkhead fiber connector type (A=SC/APC, B=SC/UPC) *9* = Fiber cable stub length and type: A = 50' armored loose tube, E = 50' dielectric loose tube B = 100' armored loose tube F = 100' dielectric loose tube C = 50' armored ribbon G = 50' dielectric ribbon D = 100' armored ribbon H = 100' dielectric ribbon Example: CFXC12–FDD00BF = CFXC fiber cross-connect in a pedestal with: 12 = 12" diameter dome; - = a standard expanded base for direct buried placement; F = a 192-fiber bulkhead; D = Cable 1 stub with 96 fibers, D = Cable 2 stub with 96 fibers, 00 = 3rd and 4th stubs absent, B = SC/UPC connectors in bulkhead; and F = cable type is 100' long dielectric loose tube cable stub (factory-installed).
Optional Equipment for Use with CFXC Pedestals	
UMS30-STD	30" universal metal mounting-stake, galvanized, with mounting hardware to attach the pedestal base to the stake.
UMS42-STD	42" universal metal mounting-stake, galvanized, with mounting hardware to attach the pedestal base to the stake.
UMB102A	24" universal metal pole-mount bracket, galvanized, with mounting hardware to attach the pedestal base to the bracket.
97-PKOR10-A	Dome cap, high visibility, orange, 10" 
97-PKOR08-A	Dome cap, high visibility, orange, 8" 
97-SCA2BI1M10J: (10)	Jumpers, SC/APC-SC/APC, 2mm, 1 Meter long, bend-insensitive (ITU-T G.657 Class A fiber)
97-SCA2BI1M25J: (25)	Jumpers, SC/APC-SC/APC, 2mm, 1 Meter long, bend-insensitive (ITU-T G.657 Class A fiber)
97-SCU2BI1M10J: (10)	Jumpers, SC/UPC-SC/UPC, 2mm, 1 Meter long, bend-insensitive (ITU-T G.657 Class A fiber)
97-SCU2BI1M25J: (25)	Jumpers, SC/UPC-SC/UPC, 2mm, 1 Meter long, bend-insensitive (ITU-T G.657 Class A fiber)

A variety of replacement/optional parts is available. Contact Charles Industries for more information.

Table 4. Model Numbers and Ordering Information