CORNING

Angled Connector Housing (ACH) Installation

003-338, Issue 6

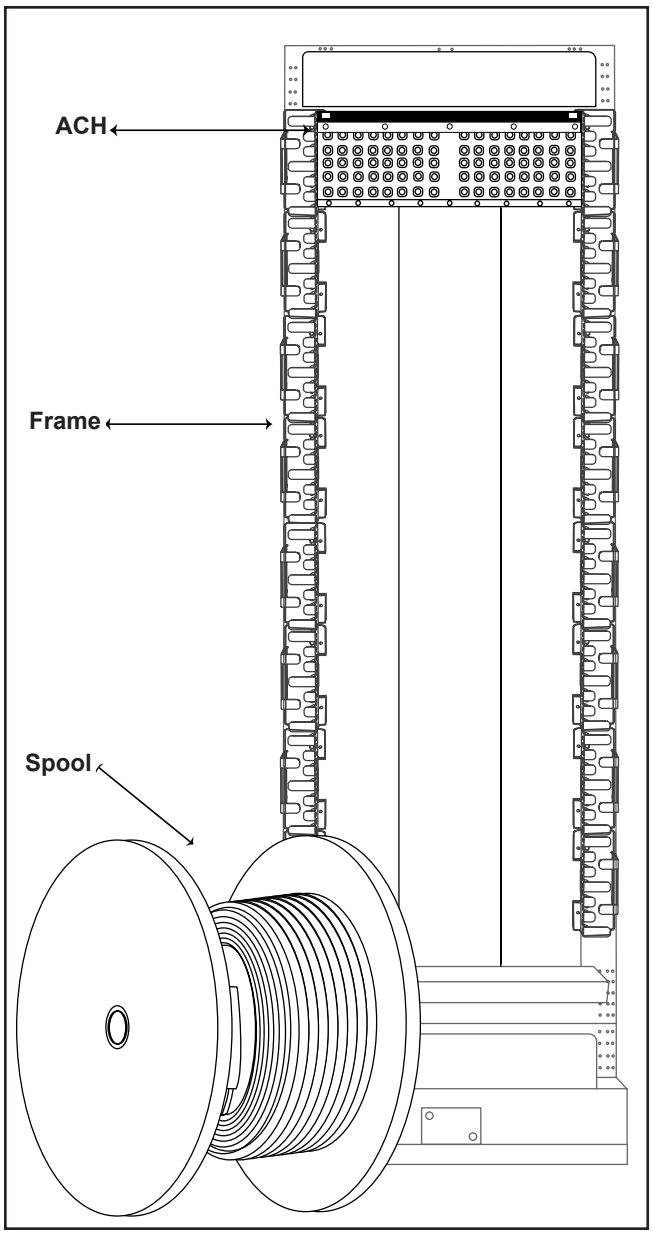


Figure 1

Table of Contents

1. General

1.1 This document describes the installation of stubbed Angled Connector Housing (ACH), manufactured by Corning Optical Communications.

1.2 This document is being reissued to include updated corporate information.

2. Description

2.1 The ACH is a modular housing designed to hold fiber optic connectors. The housing is usually part of a system that is a fiber optic cross-connection between outside cables and opto-electronic equipment in a central office, computer room, or remote terminal equipment location.

2.2 The ACH fits into 23-inch equipment racks.

2.3 The unit protects its contents with a removable hinged door. The door is secured with plastic squeeze latches.

2.4 The stubbed ACH is a connector housing with a specified length of preconnectorized cable installed and strain-relieved on the side of the unit. The installer only needs to prepare the housing for installation, mount it to the utility rack, and route the cable stub.

3. Components

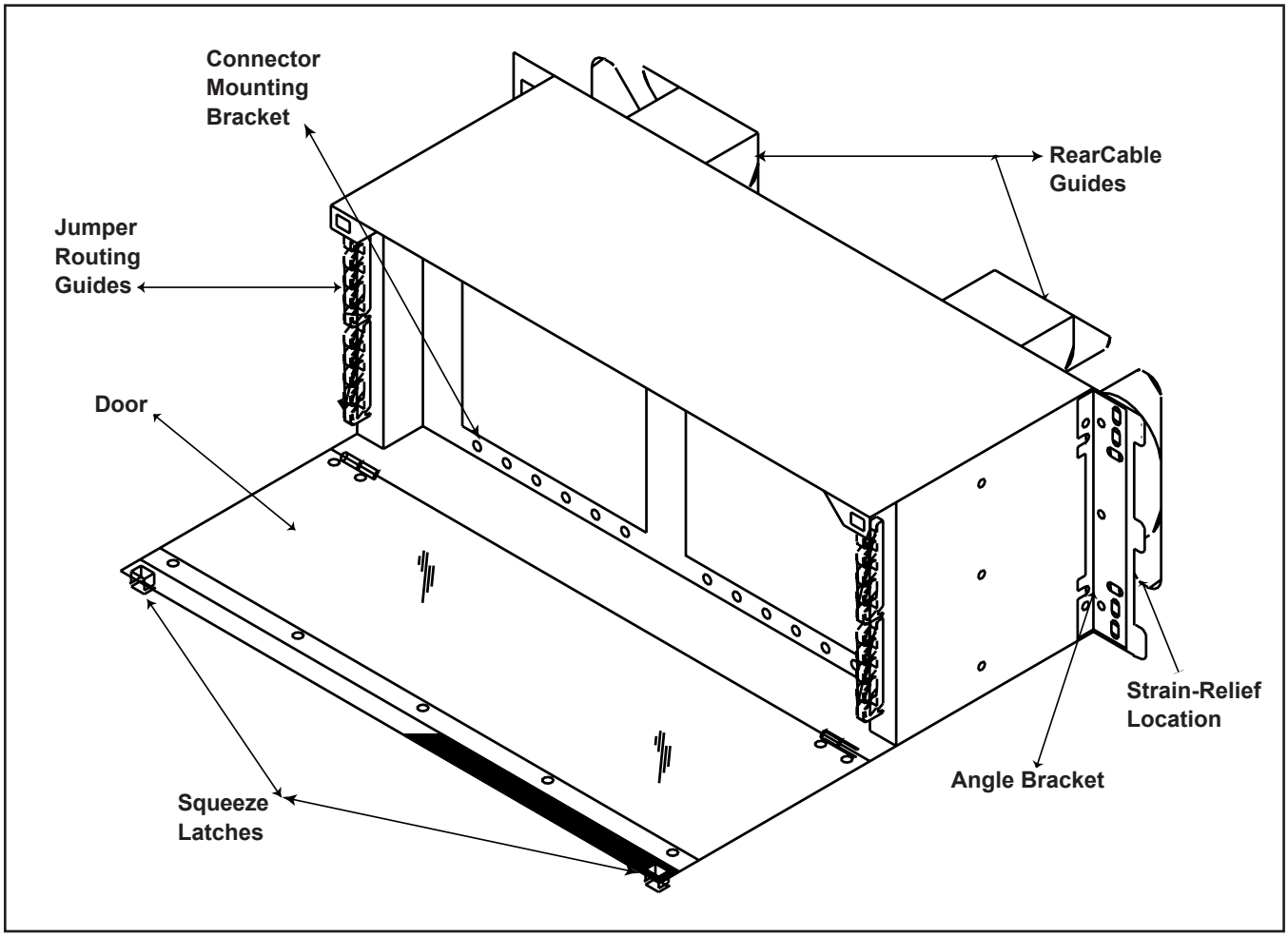


Figure 2

4. Tools and Equipment

No special tools are required to complete this installation.

CAUTION: *The wearing of safety glasses to protect the eyes from accidental injury is strongly recommended when handling chemicals and cutting fiber. Pieces of glass fiber are very sharp and can damage the cornea easily.*

CAUTION: *The wearing of safety gloves to protect hands from accidental injury is strongly recommended when using sharp instruments.*

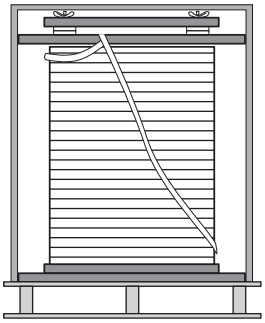
5. Planning

Before you begin your installation, make sure you understand how the unit is to be installed, where cable will enter the unit, where it will be placed on the utility rack, how jumpers will be routed, and other details of the installation plan.

6. Housing Preparation

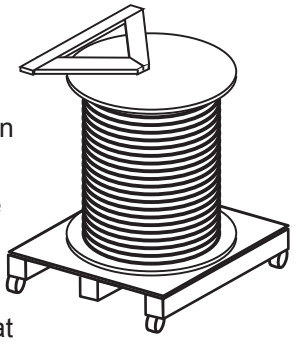
Stubbed Unit Unpacking

CTS Reel



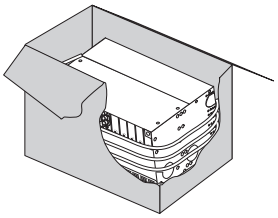
- Cut the bands and remove the cap and sides of the carton from the reel.
- Remove the cable from the reel and pull it to its destination.
- Remove the plywood cover from the reel. It is held in place by four wing nuts.
- Lift out the stubbed unit and install it as explained in instructions packaged with it.

Wheel-a-Reel



- Cut the bands and lift off the corrugated carton from the reel.
- Turn the reel on its side and attach the four casters shipped in the package. The casters fit into predrilled holes at the base of the assembly.
- Turn the reel uprights and roll it to the installation site. This is where the unit inside the reel will be installed to a utility rack.
- Turn the reel on its side so that the triangular support on the top rests on the ground.
- Pull the cable from the reel to its destination.
- Turn the reel upright and remove the top. The top is held in place with four wing nuts.
- Lift out the stubbed unit and install it as explained in instructions packaged with it.

Corrugated Carton



- Open the carton, lift out the stubbed unit and install it as explained in instructions packaged with it.
- Route the stubbed cable to its destination.

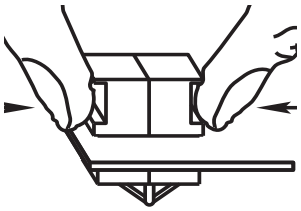
Figure 3

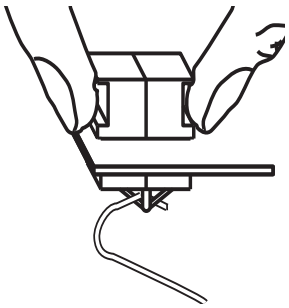
Unpack the stubbed ACH as illustrated in Figure 3.

7. Opening the Unit

Latch Removal and Replacement

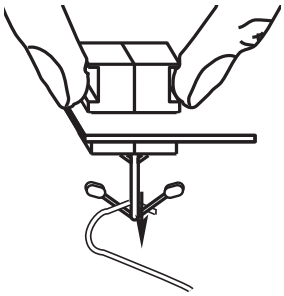
Open the latch by pressing in on both sides.

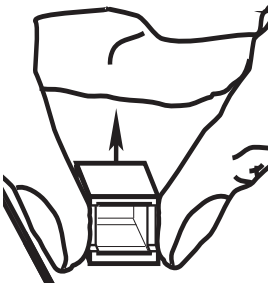




Insert paper clip into the end of the latch spring.

Pull the latch spring out of the body.





Press on sides of latch body and push it out.

To replace, press assembled latch into hole.

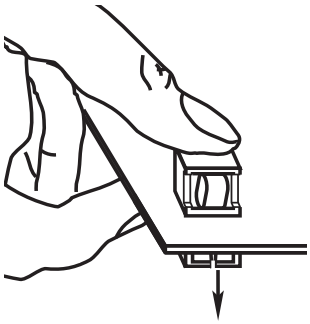


Figure 4

7.1 The ACH door is secured with plastic squeeze latches (Figure 4).

7.2 Squeeze the latches and swing the door open, then slide it to the left to remove it from the unit. Save the door.

8. Mounting

8.1 The ACH may be mounted on a standard 23- inch equipment rack. The ACH is available with or without a cable stub. Stubbed units (OSP applications) are shipped with rear doors and are typically mounted to the rack from the rear (Figure 5). Non-stubbed ACHs (FOT applications) usually have doors pre-installed to the rack. In this configuration the mounting bracket is installed in the forward position and mounted from the front (Figure 5).

8.2 Attach the unit to the equipment rack with screws provided, two screws per side of each housing (Figure 5).

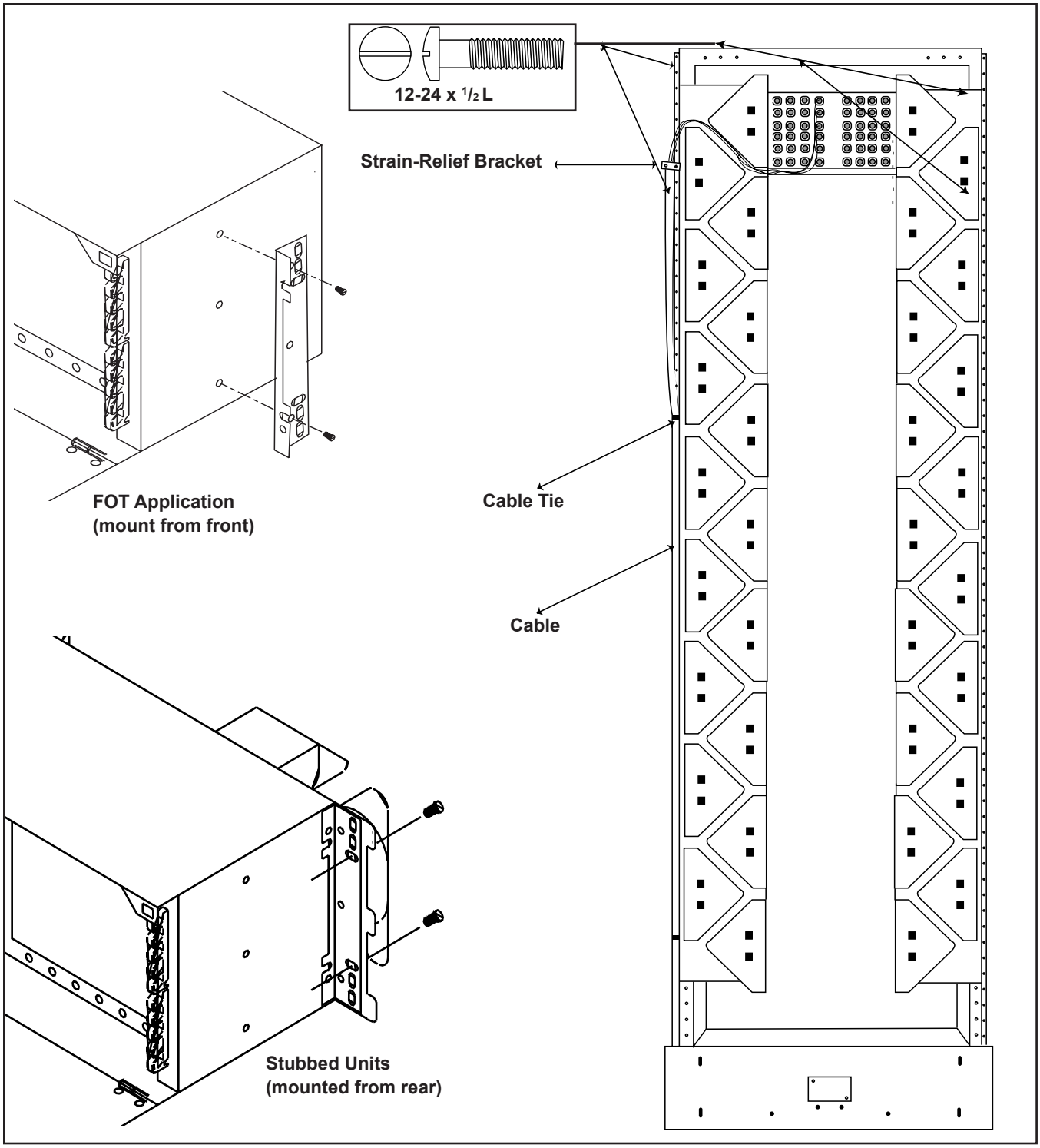


Figure 5

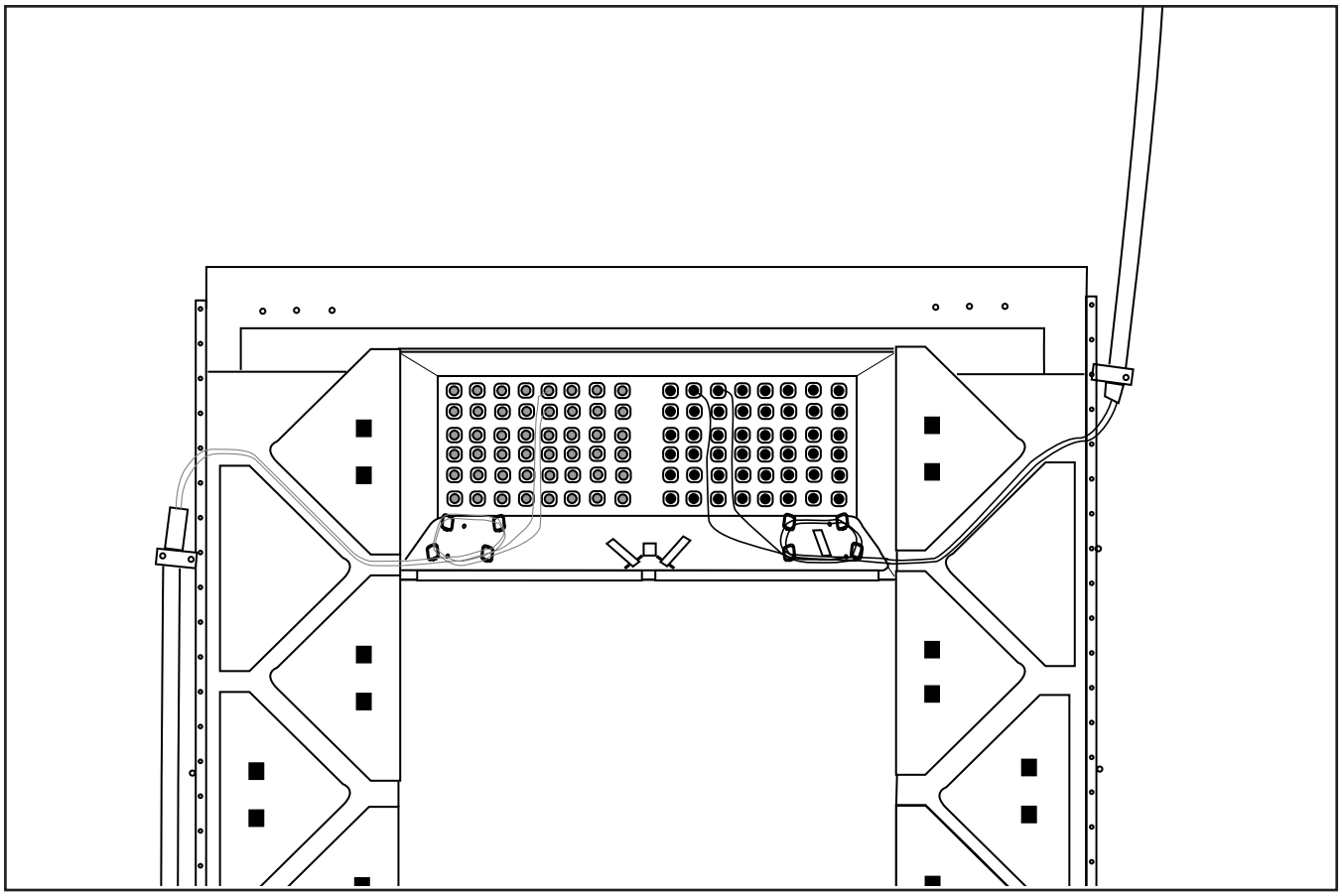


Figure 6

8.3 Route the cable along the rack uprights and secure it to the uprights with cable ties (Figure 6).

9. Connector Panels

9.1 Connector adapters are installed inside the ACH. They are mounted on twelve angled connector panels. If the ACH is a 72-fiber unit, each panel will accommodate six adapters. If the ACH is a 96-fiber unit, each panel will accommodate eight adapters. In a 144-fiber unit, each panel will accommodate 12 adapters.

9.2 The panels can be removed by pulling on the nylon fasteners at either end.

9.3 To replace the panels:

- Pull both knobs out all the way.
- Position the two nylon fasteners into the mounting holes.
- Press the knobs to fasten.

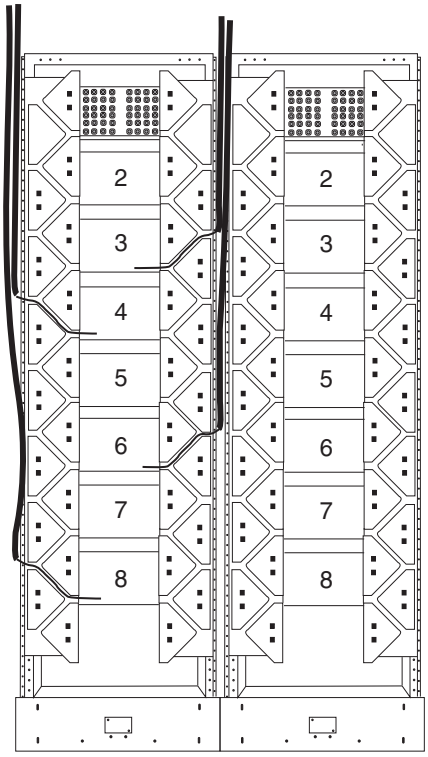


Figure 7

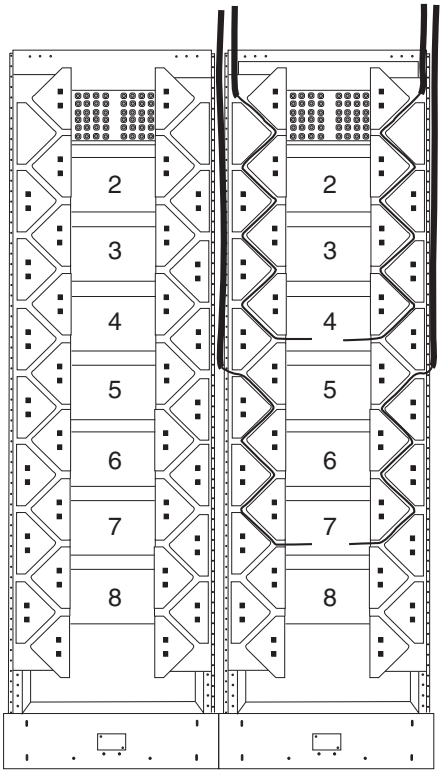


Figure 8

10.1 Route OSP/IFC cables down the outside rear of frame to the appropriate housing. Strain-relieve the cable and transition connectorized fibers through routing triangles into connector housing (Figure 7).

10.2 Route low fiber count cables to the side of the frame where fibers will be connectorized. For example, a 12-fiber cable that will be terminated on the left side of the housing should be routed down the left side of the frame.

10.3 Seventy-two-fiber cables may be routed down either side of the frame since they will populate an entire housing.

10.4 Jumpers are fiber optic cables with connectors at both ends. Jumpers should be installed as specified on planning diagrams. Route jumpers from electronics through the routing triangles. If jumpers are feeding bottom four housings, route jumpers with cables and transition to the routing triangles to strain-relief (Figure 8).

10.5 On the front of the frame, route patch cords vertically in frame using vertical routing guides. Patch cords for connectors 1-36 should be routed into the left side of the ACH while connectors 37-72 should be routed into the right side of the ACH (Figure 9).

10.6 Determine patch cord length using diagram in Figure 10.

10.7 Store additional patch cord slack in interbay storage unit.

NOTE*: Fiber optic cable is sensitive to excessive pulling, bending, and crushing forces. Consult the cable specification sheet for the cable you are installing.* ***Do not bend cable more sharply than the minimum recommended bend radius. Do not apply more pulling force to the cable than specified. Do not crush the cable or allow it to kink****. Doing so may cause damage that can alter the transmission characteristics of the cable — the cable may have to be replaced.*

NOTE*: When working with fiber optic cable, avoid overtightening the cable ties. Too much pressure on the outside of these cables can cause micro-bending.*

WARNING: ***Never look directly into the end of a fiber that may be carrying laser light****. Laser light may be invisible. Laser light can damage your eyes. Viewing it directly does not cause pain. The iris of the eye will not close involuntarily as when viewing a bright light. Consequently, serious damage to the retina of the eye is possible. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.*

WARNING: *DO NOT use magnifiers in the presence of laser radiation. Diffused laser light can cause eye damage if focused with optical instruments. Should accidental eye exposure to laser light be suspected, arrange for an eye examination immediately.*

Inter-Frame Cross-Connect
Front View with Jumper Routing

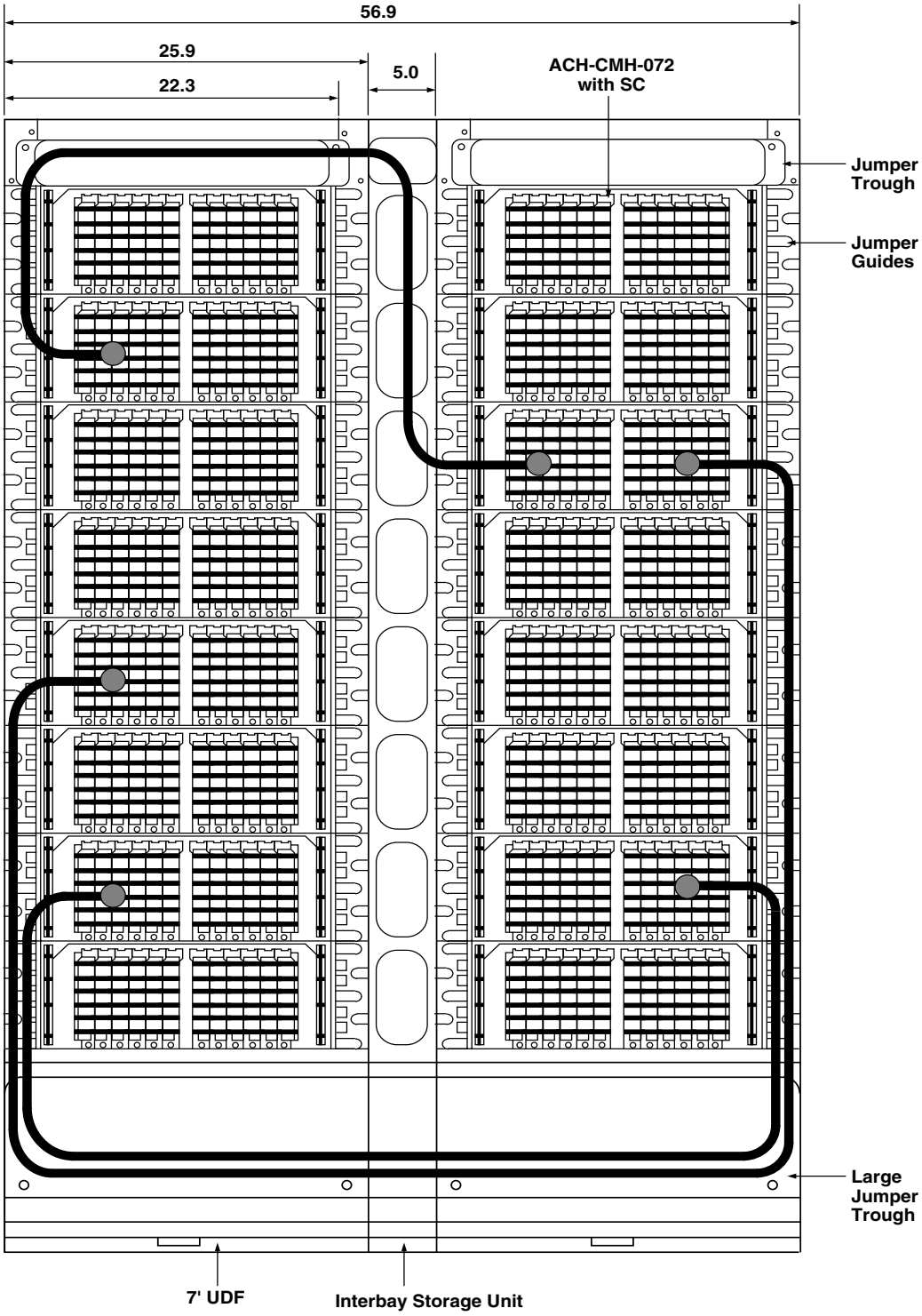
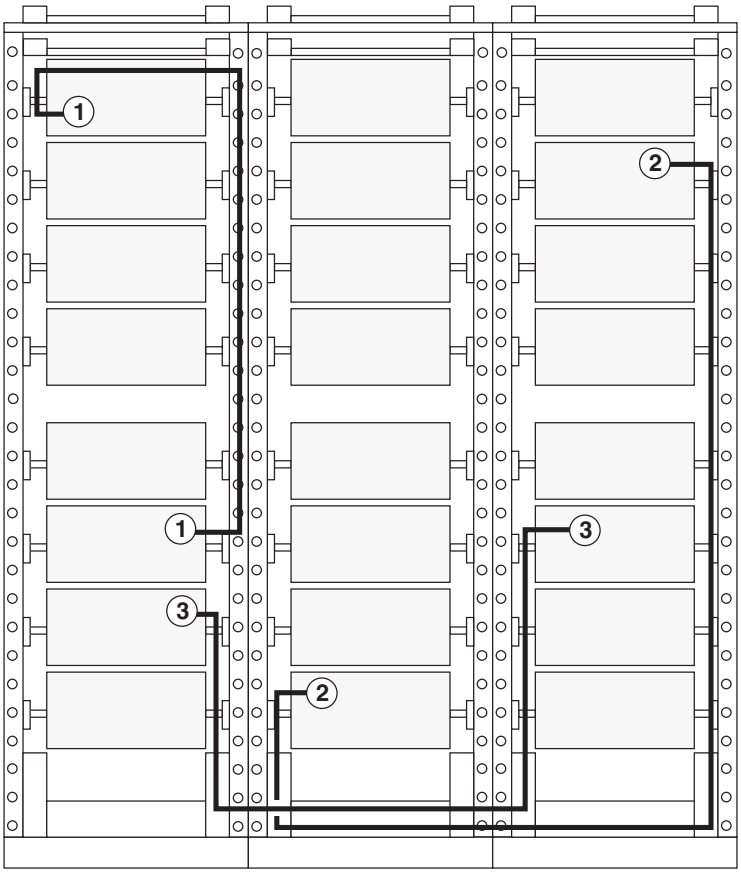


Figure 9

Cross-Connect Jumper Length Calculation



	Description	Calculation	Jumper No. 1	Jumper No. 2	Jumper No. 3
Step 1	Furcation Length on Jumper	2 X 0.25	0.5 m	0.5 m	0.5 m
Step 2	Number of Housings X Height of Housings	Hn X 0.2 m =	7 X 0.2 = 1.4m	7 X 0.2 = 1.4 m	5 X 0.2 = 1 m
Step 3	Number of Jumper Troughs X Height of Jumper Troughs		0.15 m	0.7 m	0.7 m
Step 4	Number of Bays X Width of Bays	Bn X 0.7 =	1 X 0 .7 = .7m	2 X 0.7 = .1.4 m	1 X 0.7 = 0.7 m
Step 5	Sum of the Above	1 + 2 + 3 + 4 =	2.75 m	4.0 m	2.9 m
Step 6	Additional Slack		0 m	0 m	0 m
Step 7	Distance Between Line-Ups	5a + 6 + 7 =	0 m	0 m	0 m
Step 8	Length of Cross-Connect Jumper (Round to Nearest Meter)		3.0 m	4.0 m	3.0 m

Figure 10

11. Strain-Relief

Stubbed units are factory strain-relieved. Units without a stub can use Corning Cable Systems Universal Cable Clamp (UCC), ADC's strain-relief, or AT&T's 12A2 clamp to strain-relief the stub. Use the bracket in the kit for AT&T's 12A2 clamp strain-relief.

12. Documentation

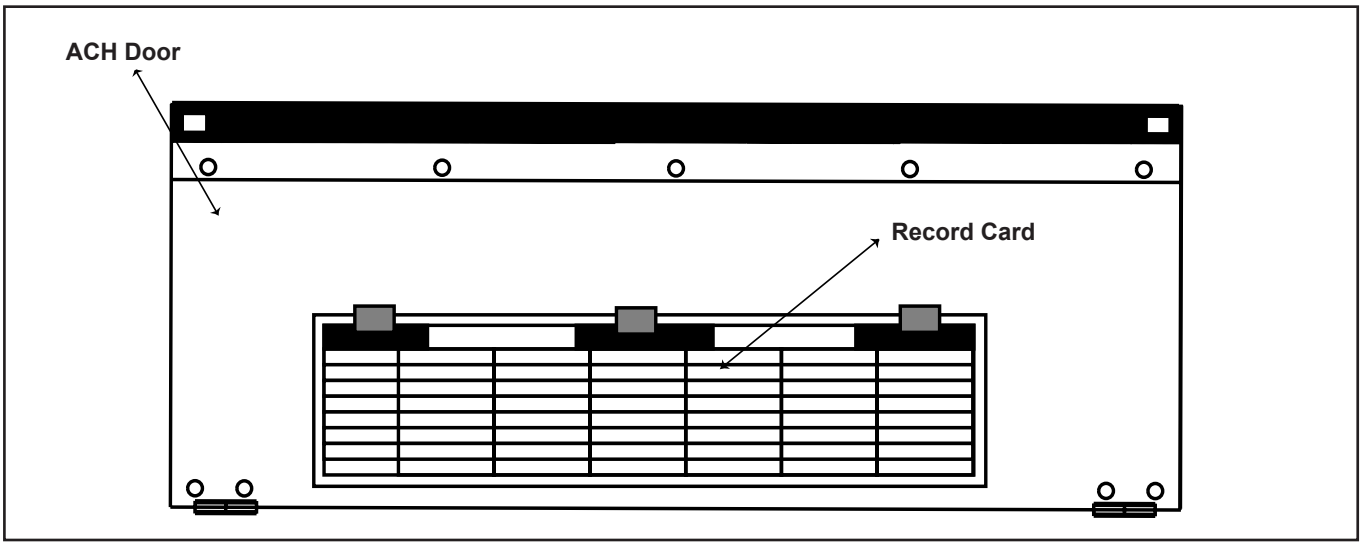


Figure 11

Jumper routing information is recorded on the card located on the door of the ACH unit (Figure 11). Once you have recorded information on the card, attach the door to the unit.

13. Maintenance

13.1 The ACH unit requires very little maintenance to make sure fibers and parts are in good condition.

13.2 External components may be cleaned occasionally with a damp, nonabrasive cloth. Internal components should be checked periodically for the following:

- **Loose Parts:** Check nuts, bolts, and screws for looseness and tighten if required.
- **Moisture:** Check the housing for accumulated moisture and place moisture absorbent packets if indicated.
- **Fiber Bends:** Check fiber optic cable to make sure bends do not exceed the minimum bend radius. Check cable for unnecessary strain. Check cable entries and exits for crimping or crushing.
- **Documentation:** Check unit record cards to make sure all are clear and accurate.
- **Connector Care:** Heed connector handling instructions described in Figure 12.

Connector Handling Precautions

- Use a clean tissue soaked in alcohol to gently clean the connector. Clean all areas that will contact the connector adapter.
- The connector is a delicate device. Do not press heavily on it as you clean. Doing so may scratch or crack the surface, making it unusable.
- Carefully press the connector into the adapter and tighten. DO NOT OVERTIGHTEN. Doing so can damage the connector surface, making it unusable.
- Do not allow the connector body (ferrule) to turn as you screw it into place. Doing so will allow surfaces to grind against each other. The resulting scratches could render the connector unusable.
- The connector should fit into the receptacle easily. If it binds, back it out. Do not force.

Figure 12

14. Dimensions

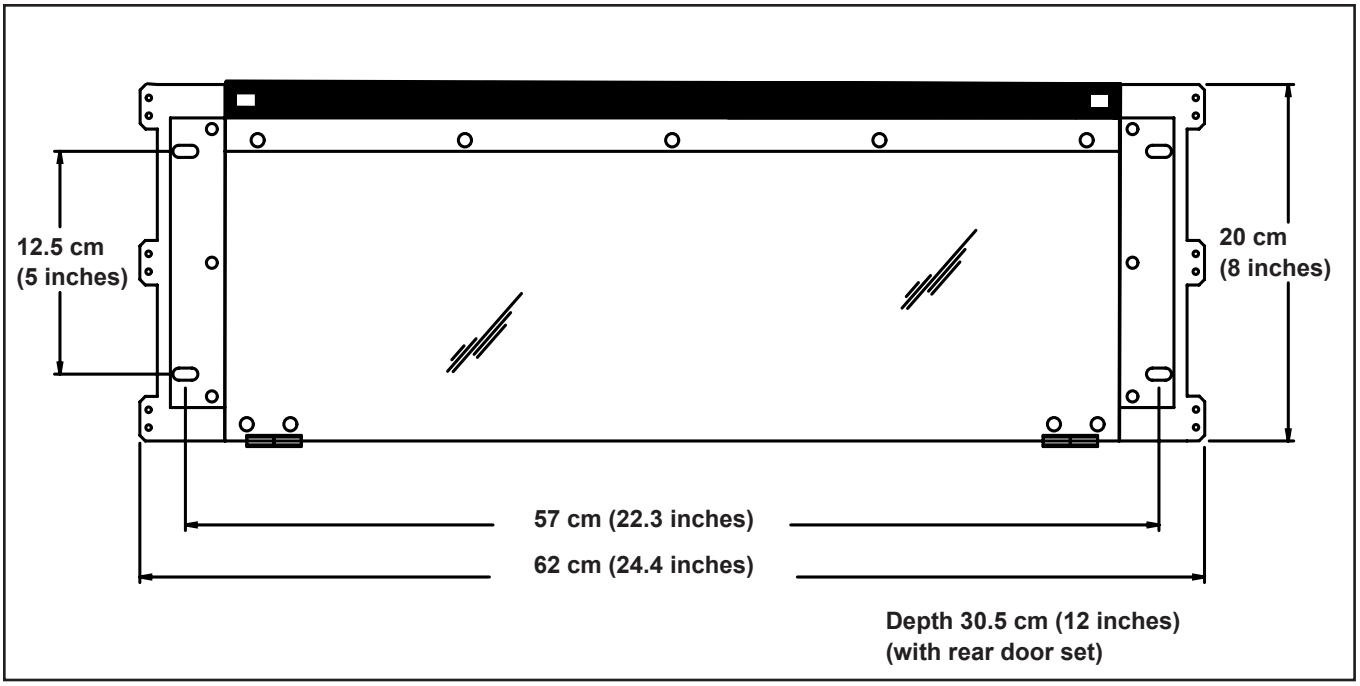


Figure 13

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