Section 61150090L1-5
Issue 1, April 1999
List 1: CLEI CODE # T1MJ4U0MRA
List 2: CLEI CODE # T1MJ5U0MRA
List 3: CLEI CODE # T1MJ4V0MRA
List 4: CLEI CODE # T1MJ5V0MRA

High Capacity T200/T400 Cabinet Installation and Maintenance

CONTENTS

FIGURES

TABLES

1. GENERAL

This practice provides installation and maintenance procedures for the ADTRAN High-Capacity T200/T400 Cabinet. **Figure 1** is an illustration of the unit. Four models are available.

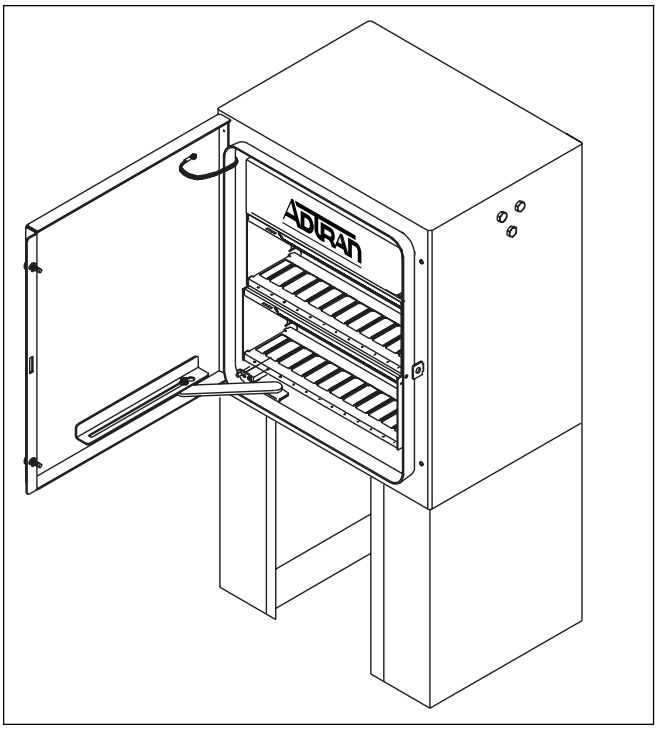

Figure 1. High-Capacity T200/T400 Cabinet (Pad Mount Model)

The part numbers and basic features of each cabinet model are provided in **Table 1**. The cabinet is a high-capacity T200/T400 enclosure which supports the demand for numerous circuits spread over small areas.

Revision History

This is the first issue of this document. Future revisions will be described in this paragraph.

Practice Review

This Practice contains important pre-installation information. Craft personnel should review Sections 1 and 2 of this Practice as part of installation planning.

Description

The ADTRAN T200/T400 High Capacity Cabinet is an outdoor, above-ground enclosure. Up to 24

ADTRAN Line Powered T200 or T400 Circuit Packs can be installed per cabinet. The cabinet system is pre-wired with surge arrestor boards to reduce installation and turn-up time. Wiring consists of either pre-wired cable stubs or pre-wired internal splice module connections depending on the model.

The cabinet body is constructed of aluminum with a powder coated gray finish. Earth ground connects to the ground lug on the bottom of the cabinet. The non-vented enclosure protects the internal electronic circuitry from the surrounding environmental conditions.

For the pad mount model, the cabinet sits on two bolt-on mounting brackets. The brackets are in-turn bolted to the craft designated pad. The front and back security access panels are then bolted to the brackets to provide a secure enclosure for the wire runs exiting the bottom of the cabinet.

All models incorporate tamper resistant access with lockable front and rear cabinet doors, replaceable surge arrestor gas tubes, and replaceable fan modules.

Features

The T200/T400 High Capacity Cabinet includes the following features and components:

- Two 19 inch T200/T400 chassis with 24 slots (2x12) for line powered T400 or T200 Circuit Packs.
- Line powered internal cooling fans.
- Pre-wired 50 foot cable stubs, or internal splice module connections, depending on the model.
- Pre-installed splicing modules on cable stub ends or wiring harness for fast, simple connections at the customer's site or splice case.
- Surge arrestors are provided for each slot with replaceable gas tubes.
- Gas tube extraction pliers.
- Moisture absorbing desiccant.
- Spare cable hole entrance with removable seal.
- Mounting template for craft planning.

Cabinet Access

The front and rear cabinet doors and support bracket access panels include tamper resistant security fasteners. The cabinet doors allow for a customer supplied lock for added security. The front door provides access to insert and remove the circuit packs and desiccant bags. The rear door provides access to the chassis backplane, cable and wire connections, fan boards, and surge arrestor boards. All cable penetrations are through the bottom panel.

When opened, the front and rear door switches provide intrusion detection at the Central Office FPU (Fan Power Unit). The door switch can then be manually positioned to disable intrusion detection. The door switch automatically resets when the door closes. Retainers hold the door open until they are manually released. Front and rear door features are identical. Refer to **Figure 2** for cabinet details, rear view.

Mounting

The Cabinet is pad or pole mountable depending on the model. The cabinet is for above ground use only.

The pad mounted model includes two interchangeable boxlike brackets that raise the cabinet 18 inches above the pad to allow easier access, provide additional clearance for manipulating cables, and protection from a high water condition. Pole mounting is recommended where water conditions could reach a pad mounted cabinet.

Mounting Template

The pad mounting footprint dimensions are provided as a full size template on the unit's packaging, and complete installation measurements are shown in **Figure 3**.

Table 1. T200/T400 Cabinet Basic Features

Pt Number	CLEI	Features
1150090L1	T1MJ4U0MRA	Houses 24 line powered T200/T400 circuit packs. Pad mounted with external cable stubs.
1150090L2	T1MJ5U0MRA	Houses 24 line powered T200/T400 circuit packs. Pole mounted with external cable stubs.
1150090L3	T1MJ4V0MRA	Houses 24 line powered T200/T400 circuit packs. Pad mounted with internal splice modules for connection to customer supplied cable.
1150090L4	T1MJ5V0MRA	Houses 24 line powered T200/T400 circuit packs. Pole mounted with internal splice modules for connection to customer supplied cable.

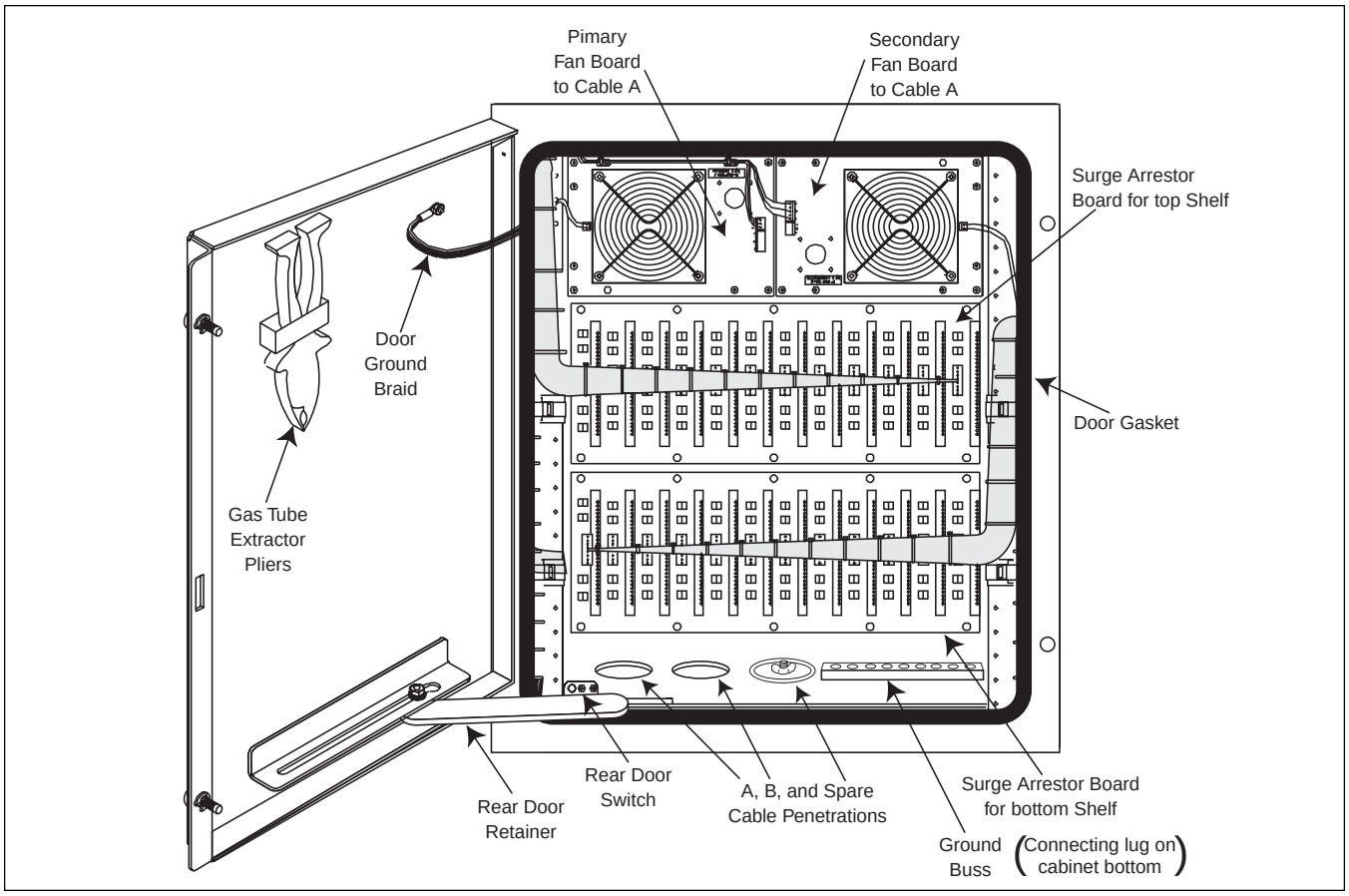

Figure 2. Cabinet Assembly, Rear View

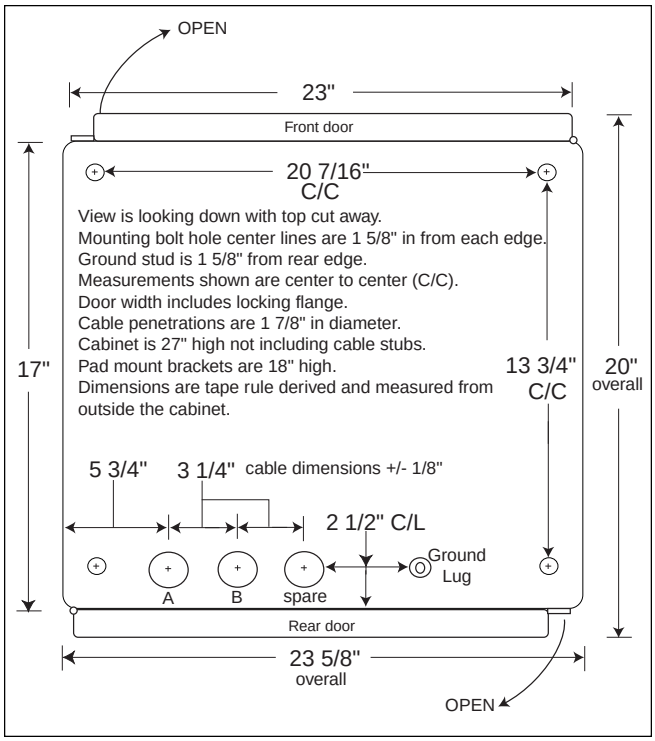

Figure 3. Top View Cutaway With Installation Measurements

Fan Operation and Indication

Two thermostatically controlled line powered cooling fans limit heat buildup. The primary fan energizes at about 110° F. The secondary fan energizes at about 150° F.

Primary and secondary fan board operation is monitored by the FPU. The following conditions cause an alarm at the FPU:

- Any fan or fan board not receiving power.
- Secondary fan turning On.
- Open cabinet door.

The single FPU at the CO has a separate power supply for each fan board. The FPU fits into one slot of the E220 HTU-C shelf (for HDSL applications).

The FPU is purchased separately. Information on fan board operation and testing is in Section 3. For additional details on the FPU refer to I&M Practice: 61150091L1-5. The FPU Practice should be on-hand at the CO for reference during cabinet testing.

NOTE

Because heat dissipates across the cabinet surfaces, the cabinet should not be installed within another enclosure or hut unless such enclosure has positive ventilation.

Status Indicator LEDs

Each fan board has two status indicator LEDs:

- DOOR LED (Red), verifies that FPU power is present on the associated fan board.
- FAN LED (Green), verifies the open or closed position of the fan's associated thermostat.

The LEDs give positive indication that power is present to operate the fans and thermostats.

DOOR (Power) LED

Power is present at the corresponding fan board if the red Door LED turns On when the door is opened as explained here:

- When the front door is opened, the secondary fan board red Door LED turns On until the front door switch is manually disabled or the front door is closed.
- When the rear door is opened, the primary fan board red Door LED turns On until the rear door switch is manually disabled or the rear door is closed.

NOTE

The door switch also controls intrusion detection on the FPU at the CO.

FAN (Thermostat) LED

The green LEDs indicate that power is present at the thermostat by being On when the fans are Off.

When the thermostat is Open, the green FAN LED should be On and the fan should be Off. When the thermostat is Closed, the FAN LED should be Off and the fan should be On. FAN LED operation is independent of door switch status.

2. INSTALLATION

The cabinet assembly weighs about 200 pounds. This Practice assumes that proper lifting devices are on hand for maneuvering and holding the cabinet in position until securely mounted.

After unpacking the T200/T400 High Capacity Cabinet inspect it for damage. If damage is noted file a claim with the carrier, then contact ADTRAN Customer Service (refer to Section 5).

WARNING

Never install telephone wiring during a lightning storm.

If equipment is to be stored for any period of time, ADTRAN recommends that the equipment be kept in the original shipping container until arriving at the installation site.

CAUTION

Although sealed from the elements the cabinet is not designed to be waterproof and must not be located where any type of immersion could occur.

Cabinet location should be selected with the following in mind:

- Personnel and equipment safety
- Personnel access
- For cable stubbed versions, the proposed cable routes should not exceed the 50-foot cable stub lengths.
- Clearances between the cabinet and adjacent structures must be adequate for access during maintenance (refer to pad and pole mount subsections).

Pad Mount Installation

Pad configuration is designated by the installing activity. The cabinet shipping box has a printed template for support bracket bolt hole location. Craft planning will ensure the pad four bolt pattern matches

the bracket pattern. Refer to **Figure 4** for pad mount access dimensions.

1. At the installation site remove all packaging material enclosing the cabinet.
2. Remove and set aside the mounting hardware kit. Verify contents per **Table 2**.
3. The cabinet is bolted to two boards running across the box frame. Remove the screws securing the two boards to the wood box frame.
4. Attach lifting details. Screwed into each side of the cabinet is a group of three bolts and washers. Remove these for reuse.
5. Following the illustration in **Figure 5**, attach the lifting details to each side of the cabinet using the bolt and washer groups. Ensure the sealing washers are placed between the cabinet and the lifting details. Tighten bolts to 110-130 in-lbs.

WARNING

When lifting the cabinet out of the shipping package and during installation, be sure to exercise caution and observe all safety measures.

6. Using appropriately sized and tested hoisting gear, attach a hoist cable between the two lifting details. Hoist the cabinet from the package and lower the cabinet onto its side.
7. Remove all hardware securing the wood shipping frame to the bottom of the cabinet.

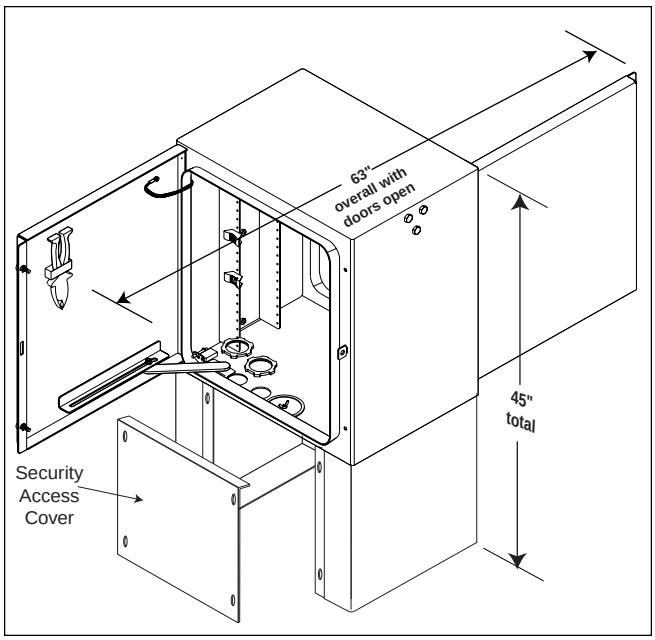

Figure 4. Pad Mount Dimensions

Table 2. Pad Mounting Hardware

Pad Mount Hardware Kit. Pt# 2150090-8	
Description	**Quantity**
*Lifting details	2
Pad mounting bracket	2
Pad mounting bracket cover	2
3/8-16 x 1" Bolts	4
3/8 Flat washer	4
3/8 Split washer	4
3/8 Sealing washer	4
Security screws	8
*Fasteners used to attach lifting details are shipped pre-inserted into their designated cabinet locations.	

CAUTION

Do not reuse shipping hardware. It is not designed for cabinet mounting.

8. Following the illustration in **Figure 6** and using the parts supplied in the pad mounting kit, fasten the two pad mounting brackets to both sides of the bottom of the cabinet. Ensure the sealing washers are placed between the cabinet and the pad mounting brackets. Tighten to 100-110 in-lbs.

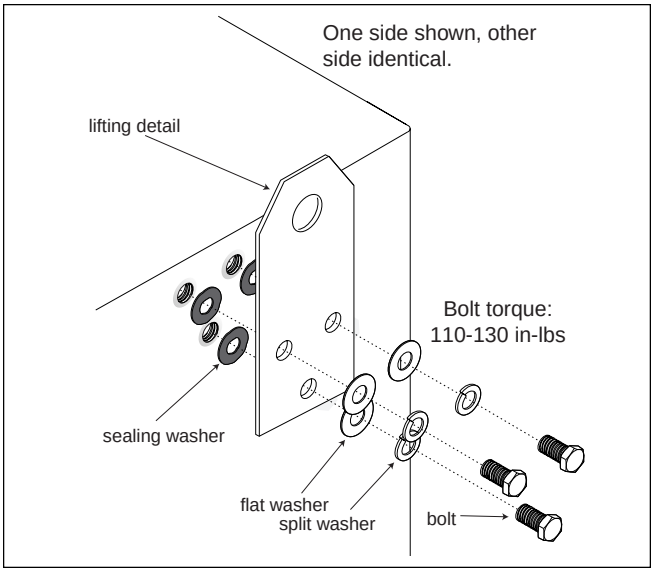

Figure 5. Lifting Detail Assembly

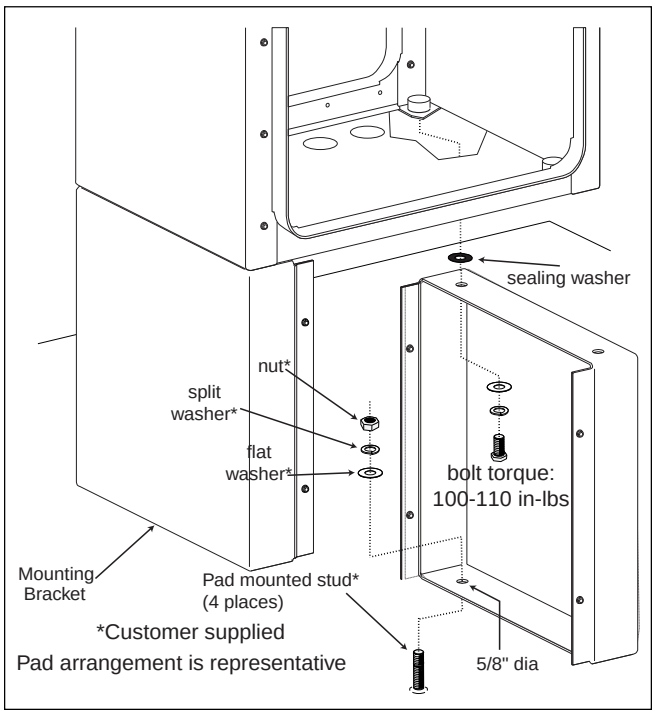

Figure 6. Pad Mounting Bracket Installation

9. Hoist the cabinet to an upright position and center it over the pad.

CAUTION

The minimum internal bend radius for cable stubs is nine inches.

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10. At this time, on the cable stub model, the cable stubs should be fed through their designated conduit or other route per craft plan.
11. Lower the cabinet with attached brackets onto the pad ensuring the four bottom bracket 5/8 inch bolt holes align with the pad fastener arrangement. Secure with customer supplied fasteners. Continue feeding the cable stubs as the cabinet is lowered.
12. On the ground lug on the cabinet bottom next to the spare cable penetration attach an appropriately sized (6 AWG) ground cable to the most direct path to ground. Ground cable and connectors are customer supplied.

CAUTION

Without positive ground surge protection is lost.

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13. After the cabinet is secured to the pad the front and back security access covers can be installed on the pad mounting brackets using the included fasteners. Tighten to 10-15 in-lbs. Install with the access cover lip facing in and against the cabinet's bottom panel. See Figure 4.
13. If lifting details are to be removed, replace the fasteners removed in step 4 ensuring the sealing washers are installed next to the cabinet side panels.

Pole Mount Installation

Pole mounting has two configurations:

- Mounted to a single pole on either the left or right side panel.
- H-frame where the cabinet is supported by a frame arrangement at either the left or right side panel.

The pole-mount or H-frame support structure must bear the weight of a fully equipped cabinet (200 Lbs). The weight and the distance the cabinet will be installed above the ground determines the type of pole configuration to be selected. Refer to **Figure 7** for pole mount access clearances.

1. At the installation site remove all packaging material enclosing the cabinet.
2. Remove and set aside the Mounting Hardware Kit. Verify kit contents per **Table 3**.
3. The cabinet is bolted to two boards running across the wood box frame. Remove the screws securing the two boards to the wood box frame.

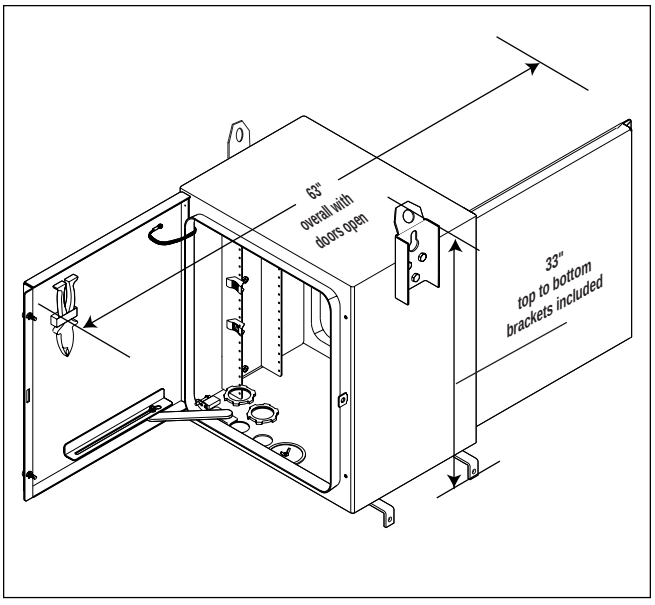

Figure 7. Pole Mount Dimensions

Table 3. Pole Mount Hardware

Pole mount kit Pt # 2150090-9	
Description	**Quantity**
*Lifting detail	1
**Pole mount bracket (lifting detail)	1
Pole mounting support bracket	2
3/8 - 16 x 1" Bolts	4
3/8 Flat washer	6
3/8 Split washer	4
3/8 Sealing washer	4
*Fasteners used to attach lifting details are shipped pre-inserted into their designated cabinet locations. **The pole mounting bracket serves as a lifting detail during installation.	

4. Attach lifting details. Screwed into each side of the cabinet is a group of three bolts and washers. Remove these for reuse.

NOTE

Observe that one of the lifting details is also the mounting bracket. Ensure the mounting bracket is attached to the side of the cabinet designated to be against the pole.

5. Following the illustration in **Figure 8**, attach the lifting details to each side of the cabinet using the bolt and washer groups. Ensure the sealing washers are placed between the cabinet and the lifting details. Tighten bolts to 110-130 in-lbs.

WARNING

Exercise caution and observe all safety measures when lifting the cabinet out of the shipping package and during installation.

WARNING

Do not disconnect lifting cable until the cabinet is fully secured and all mounting bracket and support fasteners are tightened.

6. Using appropriately sized and tested hoisting gear, attach a hoist cable between the lifting details. Hoist the cabinet from the package and lower the cabinet onto its side.

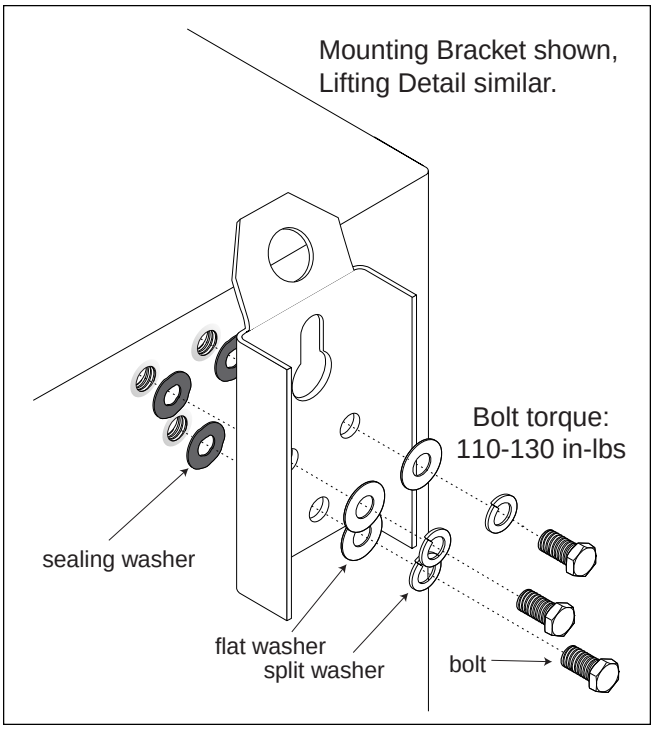

Figure 8. Mounting Bracket Assembly

7. Remove hardware securing the wooden boards to the bottom of the cabinet.

CAUTION

Do not reuse shipping hardware. It is not designed for cabinet mounting.

8. Identify which side of the cabinet will be mounted to the pole and on that side attach (finger tight) the slotted end of the two bottom support brackets. Ensure the short end will point down after the cabinet is upright and that the sealing washers are against the bottom of the cabinet. Refer to **Figure 9**. Ensure a flat washer is on both sides of the support bracket.
9. After determining the appropriate upper mounting height of the cabinet, drill a 5/8" hole through the pole for the top pole mounting bracket. The 1/2 inch diameter through-bolt, nut, and washers are customer supplied. Install the bolt through the pole and tighten to leave the bolt head approximately 1 3/4 inches from the pole to allow the upper pole mounting bracket to slide over and down, catching the bolt head. Refer to **Figure 10**.
10. Maneuver the cabinet so as to fit the through bolt head through the slot key opening on the mounting bracket. When the cabinet is hanging

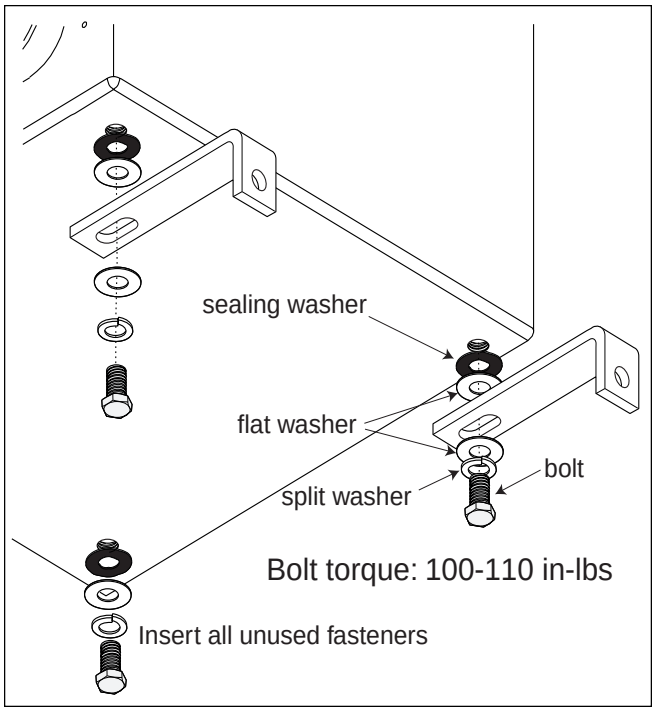

Figure 9. Bottom Support Bracket Assembly

on the through bolt, the nut on the other end can be tightened to snug the bolt head to the mounting bracket. Do not torque at this time.

11. Ensuring the cabinet is secure to the pole, relieve tension on the hoist device but do not remove. This allows positioning of the cabinet.
12. At the bottom of the cabinet insert a temporary spacer between the cabinet and the pole so the cabinet hangs plumb. The space between the pole and the cabinet should be the same from top to bottom.
13. At the bottom of the cabinet, position and angle the support brackets so the short ends are flush against the pole. Using a level, ensure the cabinet is plumb then tighten the bolts (100-110 in-lbs) securing the brackets to the cabinet.
14. Using two 3/8 inch x 2 1/2 inch lag screws attach the bottom support brackets to the pole.

CAUTION

If bottom bracket adjustment is required, loosen the bottom support bracket bolts before adjusting cabinet. Failure to loosen bolts will cause damage to the sealing washers.

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15 Tighten all fasteners to the proper torque. Remove the lifting gear from the cabinet.

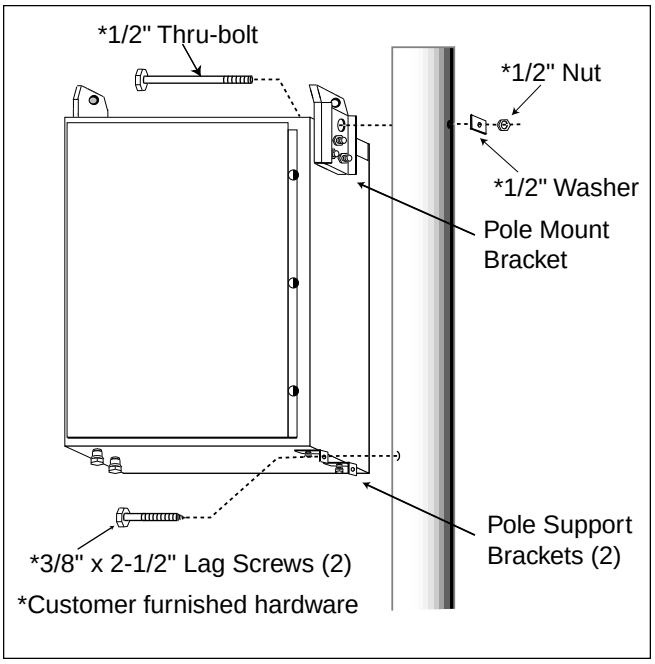

Figure 10. Guide for Pole Mounting

16. If the unused lifting detail is to be removed, replace the fasteners removed in step 4 ensuring the sealing washer is installed next to the cabinet.

NOTE

All unused threaded openings in the cabinet must have their designated fasteners inserted and tightened to ensure a proper seal.

H-Frame Mount

For mounting the cabinet to an H-Frame, follow the same procedure as for Pole Mounting except substitute acceptable 3/8 inch bolts, nuts, and washers (customer supplied) instead of lag screws for attaching the bottom pole mount support brackets to the H-frame. ADTRAN recommends the use of steel cross bars between the two poles to ensure adequate strength. The H-frame facility must be able to bear the weight of a fully-equipped cabinet (200 Lbs).

Splice Wires (Pre-Stubbed Version or Internal Splice Module Version)

A T200/T400 Test Access Card (part number 1244065L1, purchased separately) can be inserted into a slot to assist in circuit or continuity tests. Refer to ADTRAN Test Access Card Practice, Section 61244065L1-5, for more information.

CAUTION

Ensure all grounds are securely connected to the cabinet ground buss and the ground lug connected to the most direct path to ground.

The following procedures describe wiring connections for both the stubbed and module connection models:

1. Unscrew the security screws on the front and rear doors using a 7/16 inch nut driver or equivalent tool. While loosening the security screws, alternate between the top and bottom screws to allow even pressure release.
2. Open the door and allow the door retainer to engage. The door retainer can be disengaged by pulling up slightly on the door retainer arm.
3. Manually disable both door alarm switches by centering the rod and pulling outward.
4. For pre-stubbed cabinets, the top T200/T400 shelf, top surge arrestor board, and the primary and secondary fan boards are on cable A. The bottom T200/T400 shelf and bottom surge arrestor board are on cable B.

NOTE

For non-stubbed cables, complete the following three assembly procedures prior to completing Step 5.

I. CABLE STUB ENTRY

a. Verify contents of the Cable Stub Entry Kit per **Table 4**. The kit is located inside the mounting kit.

The cable sealing grommet assembly is installed in the cable opening as shown in **Figure 11.** The sealing grommet can accommodate cables with an outside diameter range from 0.86 to 1.26 inches. Use care to ensure correct sequence of assembly.

Table 4. Seal Grommet Kit

Cable Stub Entry Kit Pt# 2150090-15	
Description	**Quantity**
Sealing grommet w/compression nut	2
Grommet O-ring	2
1 1/2" NPT hex nut	2
Heat-shrink, adhesive-lined	2 @ 6" ea

b. Insert the O-ring evenly in the groove provided on the sealing grommet.
c. Insert the sealing grommet up through the designated cable opening until the O-ring is flush with the bottom of the cabinet.
d. Screw the 1 1/2 inch hex nut onto the sealing grommet until the O-ring is snug to the bottom of the cabinet.
e. Using a wrench to hold the sealing grommet steady, use a second wrench to tighten down on the hex nut.
f. Screw the compression nut onto the compression skirt threads, leave the nut loose.
g. Place the shrink-wrap over the cable, let it slide down out of the way.
h. Insert the cable up through the sealing grommet providing the correct length of cable on the inside of the cabinet for splicing.

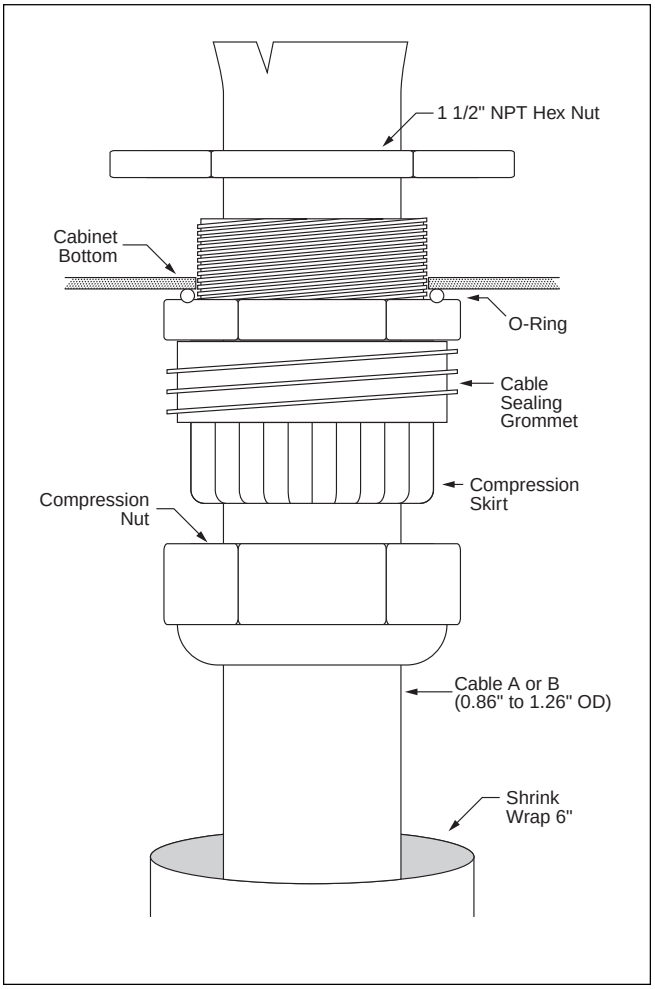

Figure 11. Sealing Grommet Assembly

NOTE

Refer to Splice Module installation instructions for the length required inside the cabinet. Ensure sufficient sheathed cable exists at the top of the sealing grommet to install shield connectors.

i. Using a wrench to hold the sealing grommet steady, use a second wrench to tighten the compression nut until the compression skirt creates a weathertight seal around the cable.

II. SHIELDING

On non-stubbed cabinet installations the shield and braid must be connected to the ground buss as described in this procedure. Refer to **Figure 12** for views of the connector components, cable, and assembly sequence. Entry cables have an outer insulator, a shield sheath, and a core wrap protecting the inner wire bundle, see View A. The shield sheath must connect to ground with the supplied connectors and ground braid.

The connectors and ground braid are temporarily attached at the factory for cabinet shipment, remove the connectors from the braid for this procedure.

CAUTION

Ensure wire insulation is not damaged during shield connection.

a. From where the wire bundle exits the cable, remove about 3/4 inch of insulation and shield but leaving the protective core wrap intact. See view B for steps a and b.
b. On the side opposite from where the shield connector will be placed, make a one inch slice through the insulator and the shield but not the core wrap. This eases the insertion of the connector.
c. Opposite the slice, insert the connector bottom into the cable between the shield and the core wrap until it reaches the small stop tabs. See view C for steps c and d.
d. Tap the cable in the area of the leading edge of the connector to set the contact teeth into the shield
e. Slide the connector top over the stud so it sandwiches the shield and insulator. Install the first nut and tighten until the connector securely grips the shield and insulator. See view D.
f. Install the ground braid over the stud followed by the second nut and tighten securely. See view E. Repeat this process for the remaining cable.
g. Ensure the trailing end of the ground braid is securely connected to the ground buss.

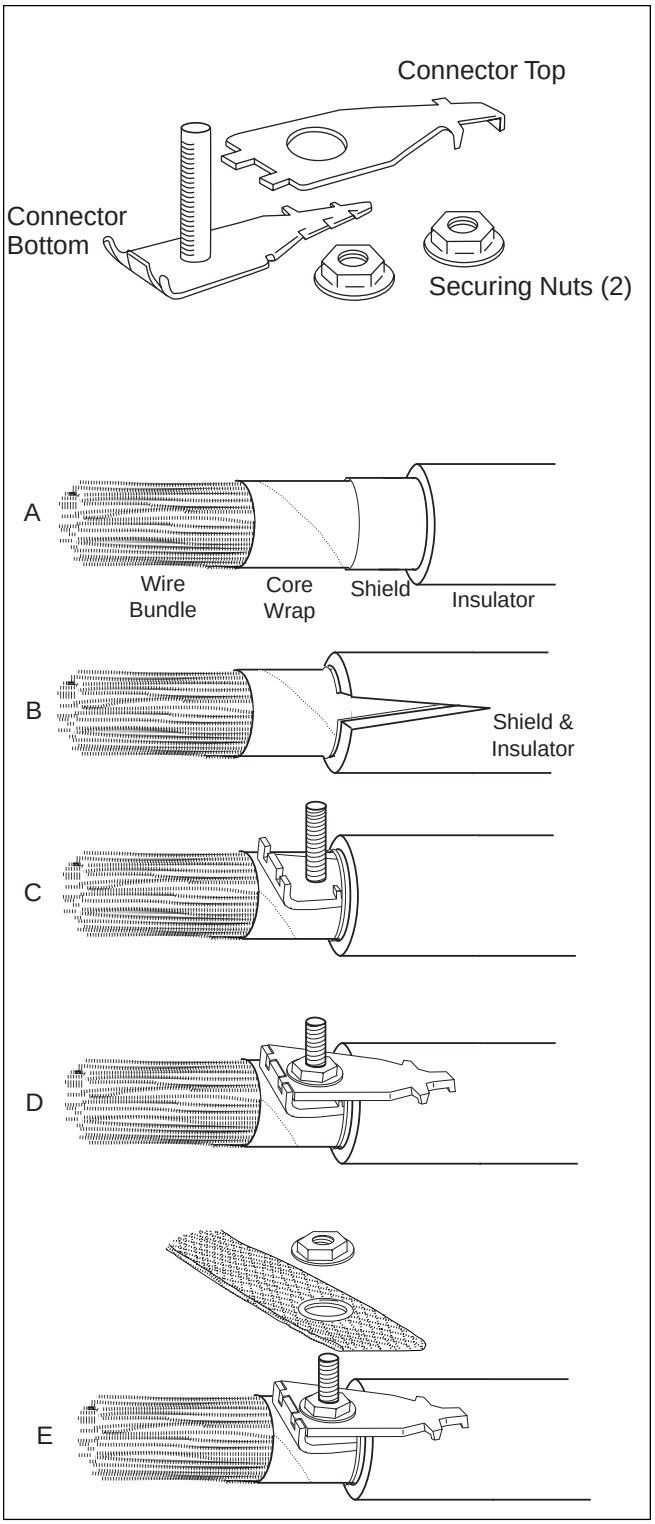

Figure 12. Shield Connector Assembly

III. SHRINK-WRAP

After all other connections are completed, or correct wire lengths verified, complete the shrink-wrap process as follows:

a. Position the shrink-wrap up against the bottom of the cabinet enclosing the entire sealing grommet assembly.
b. Heat treat the shrink-wrap until properly constricted around the assembly.

NOTE

On pole mounts, secure the cable exiting the cabinet to the pole using standard practices and customer-supplied hardware.

Proceed with Step 5 of the Splice Wires sub section.

5. Insert the circuit pack into the desired slot. The card's edge connector is offset and must be properly aligned to ensure connectivity.

CAUTION

The FPU at the CO must be online for fan operation. For the best cooling results, fully load the top shelf with circuit cards before loading the bottom shelf.

6. Connect the wiring in cable stubs based on the appropriate matching slot used.
7. Refer to **Table 5A** and **5B** for splice module connections and **Table 6A** and **6B** for Circuit Technology Configuration charts. Table 5 also provides circuit and pair identification to configure the cards listed in the table.

NOTE

Refer to the 3M MS^2 ™ Modular Splicing System Instructions Booklet for splicing and connecting to 4005-DPM Super Mate Pluggable Modules.

8. Connect the ground lug on the bottom of the cabinet to an appropriate 6 AWG ground cable and earth ground.

CAUTION

Without positive ground the cabinet does not provide surge protection.

9. Inspect and clean the door gasket and gasket sealing area prior to closing the front or rear doors. If there is visible damage, replace the door gasket.
10. Tighten the tamper resistant security screws on the front and rear doors using a 7/16 inch nut driver or an equivalent tool. While loosening or tightening the security screws, alternate between the top and bottom screws to allow even pressure. Tighten to 10-15 in-lbs. maximum.

Table 5A. Splice Module 1

Splice Module #1		Blue Binder Group		Surge Arrestor Header Connection		Ckt Bd Slot Connections	
		Tip	Ring				
X		White		P1.1		CP1-5	
	X		Blue		P1.2		CP1-15
X		White		P2.1		CP2-5	
	X		Orange		P2.2		CP2-15
X		White		P3.1		CP3-5	
	X		Green		P3.2		CP3-15
X		White		P4.1		CP4-5	
	X		Brown		P4.2		CP4-15
X		White		P5.1		CP5-5	
	X		Slate		P5.2		CP5-15
X		Red		P6.1		CP6-5	
	X		Blue		P6.2		CP6-15
X		Red		P7.1		CP7-5	
	X		Orange		P7.2		CP7-15
X		Red		P8.1		CP8-5	
	X		Green		P8.2		CP8-15
X		Red		P9.1		CP9-5	
	X		Brown		P9.2		CP9-15
X		Red		P10.1		CP10-5	
	X		Slate		P10.2		CP10-15
X		Black		P11.1		CP11-5	
	X		Blue		P11.2		CP11-15
X		Black		P12.1		CP12-5	
	X		Orange		P12.2		CP12-15
X		Black		P1.3		CP1-7	
	X		Green		P1.4		CP1-13
X		Black		P2.3		CP2-7	
	X		Brown		P2.4		CP2-13
X		Black		P3.3		CP3-7	
	X		Slate		P3.4		CP3-13
X		Yellow		P4.3		CP4-7	
	X		Blue		P4.4		CP4-13
X		Yellow		P5.3		CP5-7	
	X		Orange		P5.4		CP5-13
X		Yellow		P6.3		CP6-7	
	X		Green		P6.4		CP6-13
X		Yellow		P7.3		CP7-7	
	X		Brown		P7.4		CP7-13
X		Yellow		P8.3		CP8-7	
	X		Slate		P8.4		CP8-13
X		Violet		P9.3		CP9-7	
	X		Blue		P9.4		CP9-13
X		Violet		P10.3		CP10-7	
	X		Orange		P10.4		CP10-13
X		Violet		P11.3		CP11-7	
	X		Green		P11.4		CP11-13
X		Violet		P12.3		CP12-7	
	X		Brown		P12.4		CP12-13
X		Violet		JP1.1		PRI FAN +	Used on Cable A only
	X		Slate		JP1.3	PRI FAN –	

Table 5B. Splice Module 2

Splice Module #2		Orange Binder Group		Surge Arrestor Header Connection		Ckt Bd Slot Connections	
		Tip	Ring				
X		White		P1.5		CP1-41	
	X		Blue		P1.6		CP1-47
X		White		P2.5		CP2-41	
	X		Orange		P2.6		CP2-47
X		White		P3.5		CP3-41	
	X		Green		P3.6		CP3-47
X		White		P4.5		CP4-41	
	X		Brown		P4.6		CP4-47
X		White		P5.5		CP5-41	
	X		Slate		P5.6		CP5-47
X		Red		P6.5		CP6-41	
	X		Blue		P6.6		CP6-47
X		Red		P7.5		CP7-41	
	X		Orange		P7.6		CP7-47
X		Red		P8.5		CP8-41	
	X		Green		P8.6		CP8-47
X		Red		P9.5		CP9-41	
	X		Brown		P9.6		CP9-47
X		Red		P10.5		CP10-41	
	X		Slate		P10.6		CP10-47
X		Black		P11.5		CP11-41	
	X		Blue		P11.6		CP11-47
X		Black		P12.5		CP12-41	
	X		Orange		P12.6		CP12-47
X		Black		P1.7		CP1-55	
	X		Green		P1.8		CP1-49
X		Black		P2.7		CP2-55	
	X		Brown		P2.8		CP2-49
X		Black		P3.7		CP3-55	
	X		Slate		P3.8		CP3-49
X		Yellow		P4.7		CP4-55	
	X		Blue		P4.8		CP4-49
X		Yellow		P5.7		CP5-55	
	X		Orange		P5.8		CP5-49
X		Yellow		P6.7		CP6-55	
	X		Green		P6.8		CP6-49
X		Yellow		P7.7		CP7-55	
	X		Brown		P7.8		CP7-49
X		Yellow		P8.7		CP8-55	
	X		Slate		P8.8		CP8-49
X		Violet		P9.7		CP9-55	
	X		Blue		P9.8		CP9-49
X		Violet		P10.7		CP10-55	
	X		Orange		P10.8		CP10-49
X		Violet		P11.7		CP11-55	
	X		Green		P11.8		CP11-49
X		Violet		P12.7		CP12-55	
	X		Brown		P12.8		CP12-49
X		Violet		JP4.1		SEC FAN +	Used on Cable A only
	X		Slate		JP4.5	SEC FAN –	

Table 6A. Circuit Technology Configuration Chart (Part 1)

Ckt Pack # & Pin #	Lead	Cable Binder Color	Pair #	Tip Wire Color	Ring Wire Color	HDSL HRE	HDSL HTU-R	ISDN TR-R	DDS TRDDS-R	ISDN Bridle-R	HDSL FNID
CP1, 5-15	T1-R1	Blue	1	White	Blue	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	13	Black	Green	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	1	White	Blue	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	13	Black	Green	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP2, 5-15	T1-R1	Blue	2	White	Orange	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	14	Black	Brown	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	2	White	Orange	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	14	Black	Brown	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP3, 5-15	T1-R1	Blue	3	White	Green	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	15	Black	Slate	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	3	White	Green	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	15	Black	Slate	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP4, 5-15	T1-R1	Blue	4	White	Brown	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	16	Yellow	Blue	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	4	White	Brown	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	16	Yellow	Blue	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP5, 5-15	T1-R1	Blue	5	White	Slate	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	17	Yellow	Orange	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	5	White	Slate	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	17	Yellow	Orange	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP6, 5-15	T1-R1	Blue	6	Red	Blue	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	18	Yellow	Green	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	6	Red	Blue	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	18	Yellow	Green	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP7, 5-15	T1-R1	Blue	7	Red	Orange	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	19	Yellow	Brown	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	7	Red	Orange	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	19	Yellow	Brown	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust

Table 6B. Circuit Technology Configuration Chart (Part 2)

Pack # and Pin #	Lead	Cable Binder Color	Pair #	Tip Wire Color	Ring Wire Color	HDSL HRE	HDSL HTU-R	ISDN TR-R	DDS TRDDS-R	ISDN Bridle-R	HDSL FNID
CP8, 5-15	T1-R1	Blue	8	Red	Green	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	20	Yellow	Slate	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	8	Red	Green	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	20	Yellow	Slate	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP9, 5-15	T1-R1	Blue	9	Red	Brown	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	21	Violet	Blue	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	9	Red	Brown	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	21	Violet	Blue	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP10, 5-15	T1-R1	Blue	10	Red	Slate	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	22	Violet	Orange	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	10	Red	Slate	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	22	Violet	Orange	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP11, 5-15	T1-R1	Blue	11	Black	Blue	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	23	Violet	green	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	11	Black	Blue	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	23	Violet	Green	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust
CP12, 5-15	T1-R1	Blue	12	Black	Orange	Cust, Loop 1	To Cust	NC	To Cust (RX)	Cust	To Cust
7-13	T1-R1	Blue	24	Violet	Brown	Ntwk, Loop 1	Ntwk, Loop 1	NC	NC	Ntwk, Loop 1	Ntwk
41-47	T-R	Orange	12	Black	Orange	Ntwk, Loop 2	Ntwk, Loop 2	Ntwk	To/Fm Ntwk	Ntwk, Loop 2	NC
55-49	T-R	Orange	24	Violet	Brown	Cust, Loop 2	Fm Cust	Cust-NT1	Fm Cust (TX)	NC	Fm Cust

Function	Lead	Cable Binder Color	Pair #	Tip Wire Color	Ring Wire Color	
Primary Fan	Pos/ Neg	Blue	25	Violet	Slate	Cable "A" Only
Secondary Fan	Pos/ Neg	Orange	25	Violet	Slate	Cable "A" Only
Spare Pairs		Blue Blue Orange Orange	SP#1 SP#2 SP#1 SP#2	White White White White	Red Black Red Black	

NOTES:

1. CP# is the circuit pack number inside the shelf.
2. NC = Not Connected.
3. Pin 11 of each card edge connector is Ground.
4. Fans must be functional to prevent heat buildup.
5. The CO installed FPU is required to power and monitor fan cooling system.
6. The Fan Powering Unit is purchased separately.
7. Cable "A" connects to the top T400 shelf and both fan boards.
8. Cable "B" connects to the bottom T400 shelf.
9. The two T400 shelves have 12 slots each.
10. Each shelf has its own surge arrestor board.
11. Use Table 8 at the end of this document to record customer information.

3. TESTING

General

Each test identifies a particular malfunction. For that reason associated components used to isolate a malfunction are assumed to be functioning correctly.

Certain troubleshooting requires personnel at both the Central Office to monitor the FPU, and field personnel at the cabinet to determine if a fault condition exists. Refer to **Figure 13** to identify fan board component locations.

Fan Board Indication

Each fan board has two status indicator lights:

- DOOR (Red) LED (Power and Door Alarm indication)
- FAN (Green) LED (Thermostat position)

Door Switch

Front and rear door switches are identical. The following description applies to both. The door switch responds to three conditions:

- Door closed
- Door open
- Manual override

When the door is closed the switch contacts are closed allowing power to the fan.

When the door is opened the switch contacts open securing power to the fan. Board circuitry recognizes the condition and sends a door open “intrusion notification” alarm to the FPU at the CO, and also turns the door LED On at the corresponding fan board.

Manual override is electrically identical to the door closed condition.

During cabinet maintenance the manual override (or closing the door) resets the alarm at the FPU. Indication that the alarm has reset is by the corresponding door LED turning Off.

Verify Power at the Fan Boards

Power is present at the corresponding fan board if the red Door LED comes On when the door is opened.

Verify that the primary fan board is receiving power:

1. Push-in and release the rear door switch.
2. If the primary fan board Door LED goes On, the primary fan board has power. At the CO the FPU Door Alarm LED will turn red.
3. Disable the rear door switch by centering the rod and pulling outward. The primary fan board Door LED should go Off and the Door Alarm LED at the FPU will turn green.

Verify that the secondary fan board is receiving power:

1. Push-in and release the front door switch.
2. If the secondary fan board Door LED turns On, the secondary fan board has power. At the CO the FPU Door Alarm LED will turn red.

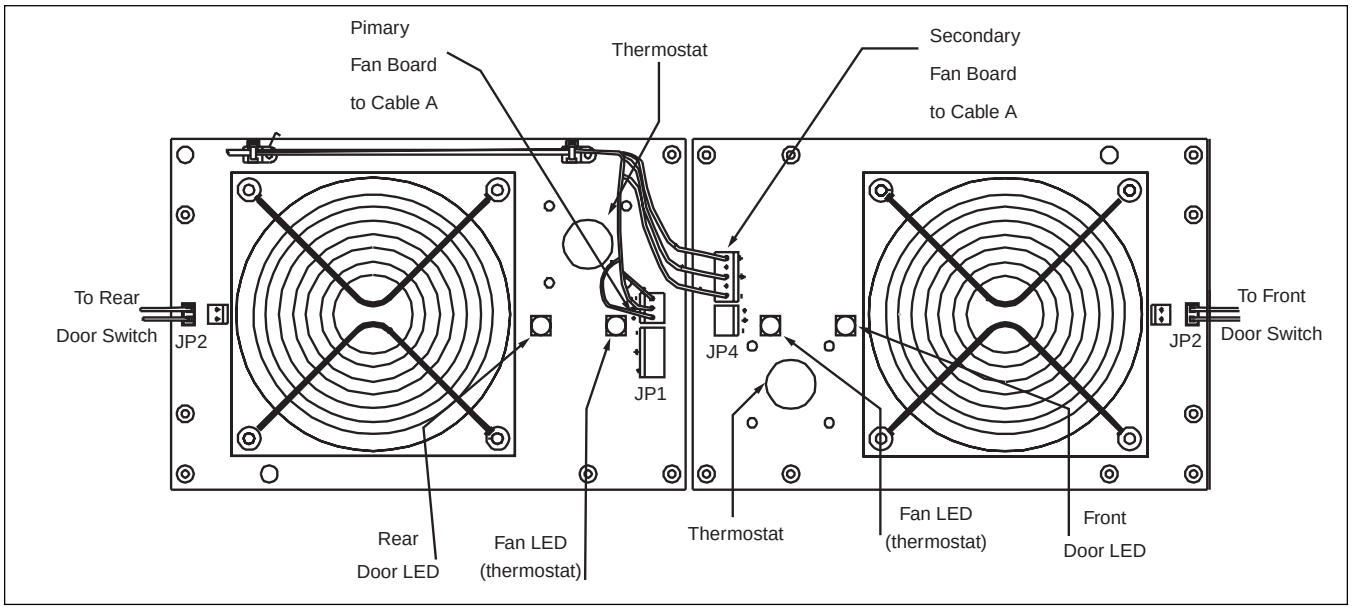

Figure 13. Primary & Secondary Fan Boards

3. Disable the front door switch by centering the rod and pulling outward. The secondary fan board Door LED should go Off and the Door Alarm LED at the FPU will turn green.

Fan Operation

When the cabinet is initially installed without heat generating circuit packs, the primary and secondary fans will not automatically turn On. Fan board thermostats control the On/Off fan cycle when the interior temperature reaches the thermostat's set points.

- The primary thermostat Closes at about 110° F increasing and Opens at about 80° F decreasing.
- The secondary thermostat Closes at about 150° F increasing and Opens at about 120° F decreasing.
- Thermostat set points may vary slightly from stated temperatures.

When the primary and secondary fan boards are initially wired and connected to the Central Office FPU, both the primary and secondary fan board thermostat (Green) LEDs should be On and the fans should be Off. This indicates that both of the fan board thermostats are Open.

If the thermostat was Closed, the thermostat LED would be Off and the fans would be On (if the temperature was within the thermostat's Closed operating range). The thermostat LED's operation is independent of the door switch status.

Verify Proper Connections

Test to ensure that changes to the primary fan board will cause changes to the associated LEDs at the Central Office FPU:

NOTE

This test specifies the rear door/primary fan board. Test the front door/secondary fan board by conducting a similar process.

1. Disable the rear door switch by centering the rod and pulling outward. The primary fan board Door LED should go Off.

WARNING

High voltages are present on exposed pins. DO NOT contact exposed surfaces.

2. On the primary fan board, disconnect the JP1 connector by pulling the connector out of the header. DO NOT PULL ON WIRES.
   - At the Central Office FPU, the PRI FAN LED will turn red (alarm condition). This verifies the primary fan board connections are correct.
   - If the PRI FAN LED at the FPU does not turn red, the connections are incorrect.
   - If the secondary FPU SEC FAN LED turns on red, the circuits are crossed between the cabinet and the FPU.
3. Align and reconnect the JP1 connector.

NOTE

If the primary and secondary fan powering cable pairs are reversed at either the Central Office or at the cabinet, the primary fan will still go On at 110° F but the Central Office FPU will indicate that the SEC FAN is running. This is an ALARM condition at the FPU.

Abnormal Condition Turning the Secondary Fan On

Any condition that causes the secondary fan to turn On is considered abnormal. The following conditions will allow heat buildup causing the secondary fan thermostat to eventually Close:

- The primary fan cannot keep up with heat load.
- The primary fan or fan board is not functioning.
- The circuitry between the FPU and the primary fan board has opened, shorted, or otherwise malfunctioned.
- The FPU at the CO is not providing power to the primary fan board.
- Additionally, the secondary fan thermostat may not be operating properly.

Fan Board Troubleshooting

If troubleshooting a fan board malfunction, fan board operation should be examined during the hottest time of the day before the outside temperature drops.

The cabinet internal temperature may stabilize slowly or quickly depending on the outside air temperature, wind conditions, exposure to the sun, shading during a particular time of day, and also the number of circuits installed inside the cabinet.

If the cabinet has been opened during the day allowing the heat to escape before proper troubleshooting tests could be conducted, close the cabinet doors and allow the cabinet internal temperature to restabilize. Recheck during the hottest time of the following day before the outside temperature has a chance to drop.

PRIMARY FAN BOARD

If the primary fan board is believed to be damaged, check the following in the listed order immediately upon opening the rear door:

- Power is present at the fan board. (Door LED turns On as soon as the rear door is opened.) If the door LED does not turn On, troubleshoot for lack of power.
- Manually disable the rear door switch and check the fan LED status:
  - If the primary fan LED is Off, the primary fan should be On.
  - If the primary fan LED is On, the primary fan should be Off.
- If either condition does not exist the primary fan board is suspect and should be replaced.

SECONDARY FAN BOARD

If the secondary fan board is believed to be damaged, check the following in the listed order immediately upon opening the rear door:

- Power is present at the fan board. (Door LED turns On as soon as the front door is opened.) If the door LED does not turn On, troubleshoot for lack of power.
- Manually disable the front door switch and check the fan LED status:
  - If the secondary fan LED is Off, the secondary fan should be On.
  - If the secondary fan LED is On, the secondary fan should be Off.
- If either condition does not exist the secondary fan board is suspect and should be replaced.

Open Loop/No Continuity

The primary or secondary Door LEDs will remain Off when the rear or front door is opened if the respective primary or secondary power loop has no continuity (Open) between the cabinet and the FPU.

1. Verify the Central Office FPU is online.
2. Check the LED indication on the FPU.
3. If the FPU is sending power but the cabinet is not receiving it, check the wiring connections at both the cabinet and the FPU.

Shorted Loop

The primary or secondary Door LEDs will remain Off when the rear or front doors are opened if the respective primary or secondary fan powering loop has a short across the tip/ring cable pair between the cabinet and the Central Office FPU.

1. Verify the Central Office FPU is online.
2. Check the LED indication on the FPU.
3. If the FPU is sending power but the cabinet is not receiving it, check the wiring connections at both the cabinet and the FPU.

Door Switch Troubleshooting

Door switches can fail in either the Closed or Open position. The next two procedures will identify the particular failure. The procedure applies to both front and rear door switches.

WARNING

High Voltages are present on exposed pins. Do not contact exposed surfaces.

Door Switch Failure-Closed

1. Verify with the CO that the FPU is online.
2. Push in and release the door switch.
3. If the Door LED is On, the door switch is not defective.
4. If the Door LED stays Off, regardless of the door switch position, proceed with Step 5.
5. Disconnect the JP2 door switch connector on the fan board by carefully pulling the connector off the header. DO NOT PULL ON WIRES.

6 If the Door LED turns On, the corresponding door switch is defective.

7. Follow the door switch replacement instructions to replace the defective door switch.

Door Switch Failure-Open

1. Verify with the CO that the FPU is online.
2. Push in and release the door switch. The Door LED should go On.
3. Manually disable the door switch by centering the rod and pulling outward.
4. The Door LED should go Off.
5. If the Door LED stays On regardless of switch position, proceed with Step 6.

6. Disconnect the door switch JP2 connector on the fan board by carefully pulling the connector off the header. DO NOT PULL ON WIRES.
7. Take an insulated ball-clip or alligator-clip and short across the two exposed door switch JP2 connector pins at the fan board.
8. If the Door LED goes Off, the door switch is defective.
9. Follow the door switch replacement Instructions to replace the defective door switch.

NOTE

Refer to the Fan Powering Unit I&M Practice: 61150091L1-5, for additional details on the FPU.

4. MAINTENANCE

Maintenance consists of replacement of surge arrester gas tubes, door gaskets, or other replaceable items. Fan board repairs should not be attempted in the field. Repair services are obtained by returning the defective unit to ADTRAN Customer Service.

Refer to **Table 7** for a list of replacement item part numbers.

Table 7. Replacement Item Part Numbers

Description	Part Number
Desiccant, 8 Oz. Bag	3168001
Gas Tubes	3186001
Gas Tube Insert/Extract Tool	3269042
Primary Fan Board	2150090-5
Secondary Fan Board	2150090-6
Pad Mount Kit	2150090-8
Pole Mount Kit	2150090-9
Cable Stub Mount Kit (0.86-1.26")	2150090-15
Door Gasket Repair Kit	2150090-16
Door Switch Repair Kit	2150090-17

Desiccant Renewal

Each cabinet is shipped with two moisture absorbing desiccant bags inside the cabinet. To ensure continued moisture absorption the desiccant must be renewed periodically, depending on the environment.

Surge Arrester Replacement

Each slot in the T200/T400 shelf has four associated surge arrestor gas tubes (**Figure 14**) for surge protection. Surge protection is provided by replaceable gas surge arrestor tubes. Perform the following procedure to replace gas tubes:

WARNING

Prevent electrical shock during maintenance by removing the appropriate slot powering modules and tagging out to prevent inadvertent insertion.

1. At the CO, remove the appropriate power module to deenergize the associated slot at the cabinet.
2. Grasp one gas tube and remove it using the gas tube pliers supplied with the cabinet, see **Figure 15**.
3. Insert a replacement gas tube in the same position.

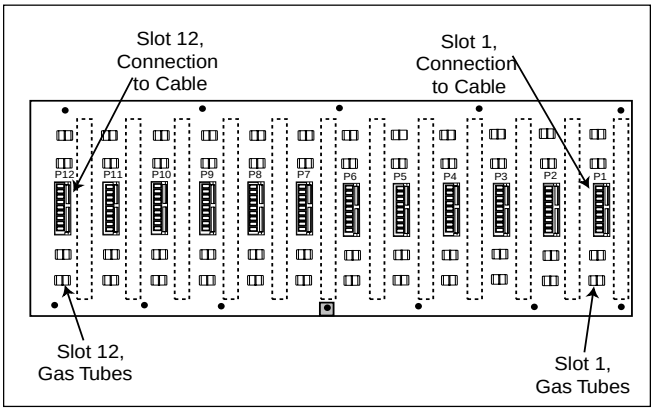

Figure 14. Surge Arrestor Board

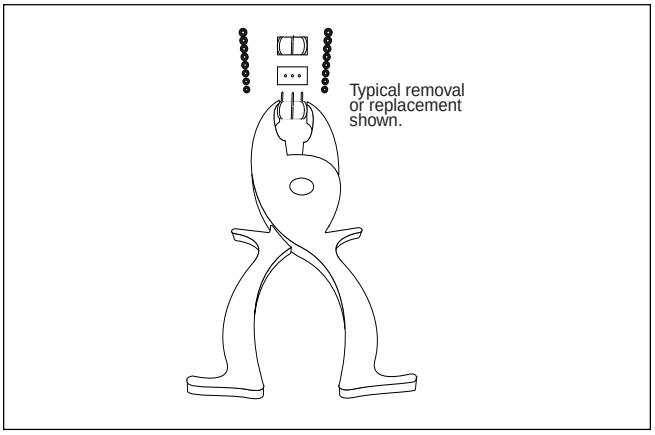

Figure 15. Surge Arrestor Gas Tube Replacement

4. Replace the remaining gas tubes in the same manner. Each slot has four gas tubes.
5. Untag and reinsert the associated slot power module at the CO.
6. Perform circuit tests to verify proper circuit operation.

NOTE

If lightning is the suspected cause of circuit pack failure, ADTRAN recommends replacing all the surge arrestor gas tubes.

Door Gasket Replacement

The door gasket provides a weathertight seal. Routine preventive maintenance includes cleaning the seal and seal area when the cabinet door is opened. A deteriorated or damaged gasket should be replaced using the following procedure:

WARNING

Follow all manufacturers safety precautions, directions, and other label warnings or information when using gasket sealing compound. Follow all application directions to ensure a proper seal.

1. Remove damaged door gasket.
2. Thoroughly clean the gasket sealing area on the door and the gasket flange using a soap solution. Rinse and dry. Do not use solvents or chemical agents that could damage the surface finish.
3. Install the replacement gasket to the gasket flange with the joining ends at the bottom center of the flange. Note that the replacement gasket has vent holes. Install the gasket such that the vent holes are on the cabinet interior side of the gasket mounting flange.
4. Totally install the gasket to determine proper circumference fit. If a small gap appears at the joining ends the gasket can be slightly stretched starting at the top and working towards the bottom. Reverse this process if an overlap exists. Continue this manipulation until the gasket ends fit flush.
5. Where the gasket joins, on each side pull about 6 inches of gasket away from the flange.
6. An insert gasket “rope” provides a bonding medium, gasket support, and end alignment.

WARNING

Provide adequate ventilation when using sealant. Do not inhale vapors. Avoid contact with the skin. Follow all sealant manufacturers instructions.

CAUTION

The alignment rope is sized to fit equally between the two ends of the gasket without blocking the vent holes. During assembly keep the rope equally positioned between the two gasket ends.

Apply a small amount of sealant around one end of the rope and slide it halfway into the gasket core (either end).

CAUTION

Excessive sealant will decrease adhesion and cause longer cure time. Inadequate sealant will cause gaps allowing moisture penetration.

7. Apply a thin bead of sealant on the gasket mating end. A proper seal requires a complete sealant bead without breaks.
8. Carefully mate the two ends allowing the alignment rope to slide into the gasket core on the adjoining end until the two gasket ends meet as seamless as possible. A small amount of sealant should extrude around the mating edges.
9. Immediately install the gasket onto the flange to maintain alignment and positive end contact. Hold the gasket in this position for 2 minutes (or manufacturer’s directions).
10. Inspect the gasket joint. If any sealant gaps are visible a thin coat of sealant can be applied to fill the gap.
11. Follow the sealant manufacture’s directions for cure time (about 6 to 8 hours or until surface is not tacky).
12. Do not close the door until the joint is totally cured. This prevents the door from sticking to the gasket on the next opening.

To ensure cabinet integrity it is important that the joined surface that contacts the door when it is shut be free of irregularities.

Door Switch Replacement

The door switch can be replaced in the field if it is damaged or becomes defective.

WARNING

High Voltages are present on exposed pins. Do not contact exposed surfaces.

The following procedure applies to either the front or rear door switch (**Figure 16**):

1. On the affected switch trace the wires to the fan board JP2 connector. Disconnect by pulling the connector out of the header. DO NOT PULL ON WIRES.
2. Remove the two slide-on terminal connectors on the switch by grasping the heat-shrink insulation and sliding away from the switch. DO NOT PULL ON WIRES.
3. Remove the two Phillips head screws that secure the switch to the cabinet flange and remove the switch.
4. On the replacement switch, identify the COM (common) and NO (normally open) terminals.
5. Position and correctly orient the replacement switch then insert and tighten the two Phillips head screws.
6. Note that one slide-on connector has notched insulation. Slide that connector onto the COM terminal such that the notched side is against the switch.
7. Slide the remaining connector onto the NO terminal.
8. At the other end insert the connector into the fan board JP2 header.
9. Conduct a functional test to verify proper door switch operation.

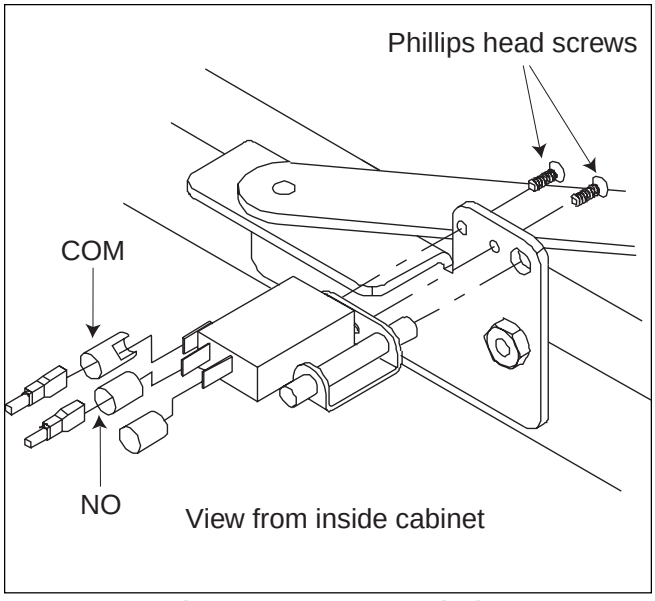

Figure 16. Door Switch

Customer Identification

To easily identify the customer and record circuit information, **Table 8** is provided for placement in the plastic holder inside the front door of the cabinet. The Table can be updated when circuits are connected or changed.

5. WARRANTY AND CUSTOMER SERVICE

ADTRAN will replace or repair this product within five years from the date of shipment if it does not meet its published specifications or fails while in service (see: *ADTRAN Carrier Network Equipment Warranty, Repair, and Return Policy and Procedure*, document: 60000087-10A).

Contact Customer And Product Service (CAPS) prior to returning equipment to ADTRAN.

For service, CAPS requests, or further information, contact one of the following numbers:

ADTRAN Technical Support
(800) 726-8663
Standard hours: Monday-Friday, 7 a.m.-7 p.m. CST
Emergency hours: 7 days/week, 24 hours/day

ADTRAN Sales
(800) 827-0807

ADTRAN Repair/CAPS
(256) 963-8722

Repair and Return Address
ADTRAN, Inc.
CAPS Department
901 Explorer Boulevard
Huntsville, Alabama 35806-2807.

Table 8. Customer & Circuit Information

Top Shelf Slot #	Customer Name	Circuit I.D.	System Route	System #	Circuit Type
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Bottom Shelf Slot #	**Customer Name**	**Circuit I.D.**	**System Route**	**System #**	**Circuit Type**
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
NOTES:					