LINEAGE POWER

Lineage® 2000 Secondary DC Distribution Bay (Mini-Distribution Bay) J85568E-1

Product Manual
Select Code 157-005-102
Comcode 107098840
Issue 6
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Notice:
The information, specifications, and procedures in this manual are subject to change without notice. Lineage Power assumes no responsibility for any errors that may appear in this document.

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1 Introduction

General

This product manual (Select Code 157-005-102) describes the J85568E-1 Secondary DC Distribution Mini-Bay. This unit is also known as a Mini-Battery Distribution Fuse Bay (Mini-BDFB) or Mini-Battery Distribution Circuit Breaker Bay (Mini-BDCBB). Complementing the 7-foot, 9-foot and 11.5-foot J85568C-1 series of DC Power Distribution Bays, the Mini-BDFB/BDCBB is a fully assembled rack-mountable unit that distributes -48 volt dc power in a two-load (A/B) arrangement.

The Mini-Distribution Bay is a secondary fuse distribution center for dc power delivered from a central office battery plant to the using equipment. When floor space is minimized, the Mini-Bay provides a cost-effective solution for distributing power without sacrificing reliability or features. It is ideal for a small central office or customer premise power system application. It is also well suited for power transition or modernization projects or for satisfying co-location requirements for RBOCs to provide dc power access to Inter-Exchange Carriers (IXCs).

Additional Information

Additional copies of this manual or any other Lineage Power document may be obtained by calling Lineage Power Customer Service. Specify the code number for manuals or the drawing numbers for drawings.

Customer Service Contacts

Customer Service, Technical Support, Product Repair and Return, and Warranty Service

For customers in the United States, Canada, Puerto Rico, and the US Virgin Islands, call 1-800-THE-1PWR (1-800-843-1797). This number is staffed from 7:00 am to 5:00 pm Central Time (zone 6), Monday through Friday, on normal business days. At other times this number is still available, but for emergencies only. Services provided through this contact include initiating the spare parts procurement process, ordering documents, product warranty administration, and providing other product and service information.

For other customers worldwide the 800 number may be accessed after first dialing the AT&T Direct country code for the country where the call is originating, or you may contact your local field support center or your sales representative to discuss your specific needs.

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To download the latest product information, product software and software upgrades, visit our web site at http://www.lineagepower.com/

2 Product Description

Overview

The J85568E-1 Mini-Distribution Bay (Power Distribution Bay) distributes -48Vdc power in a two-load arrangement, with a 300-ampere capacity per load. There are four fuse or circuit breaker panel positions. Load Bus A connects the top two fuse or circuit breaker panels. Load Bus B connects the bottom two fuse or circuit breaker panels. All panel positions must be equipped with either a fuse or circuit breaker panel or a blank panel. Each fuse panel is equipped with twelve fuse blocks for 0-60A fuses. Each circuit breaker panel has 12 empty positions for up to 12 circuit breakers.

This Mini-Distribution Bay is designed to mount in a 23-inch relay rack. See Figure 2-1. It can also be factory installed in an ED8C800-50
7′ framework. See Figure 2-2. If the Mini-Distribution Bay is installed in a 7′ framework that will be located in a 9′ or 11′-6″ environment, bay extenders are available. Ordering information for the extenders is given in Section 3. **Note: Do not mount Mini-Distribution Bay onto bay extenders.** Other equipment can be added to this framework, which saves valuable floor space.

The Mini-Distribution Bay offers the same fusing and alarm monitoring features as the J85568C-series distribution bay, but in a more compact design. It provides another Lineage Power alternative to secondary distribution requirements.

Features

The following is a list of features provided with this product:

- Fully assembled unit for simplified installation
- Lexan rear protective cover

- Internal 2-hole return bus
- Digital current meter
- Visual alarm indication per panel
  - Red LED - Fuse Alarm
  - Green LED - Power On
  - GMT alarm fuse per fuse block
- Remote alarm indication
  - (3) Form-C fuse or circuit breaker alarm contacts per panel
  - (1) Form-C power loss alarm contact per panel
  - Switch selectable frame alarms

Physical Specifications

Height	33 inches (838mm) 84 inches (2134mm) in framework
Width	23.3 inches (592mm)
Depth	12 inches (305mm)
Weight	112 pounds (4 fuse or circuit breaker panels) 220 pounds in framework

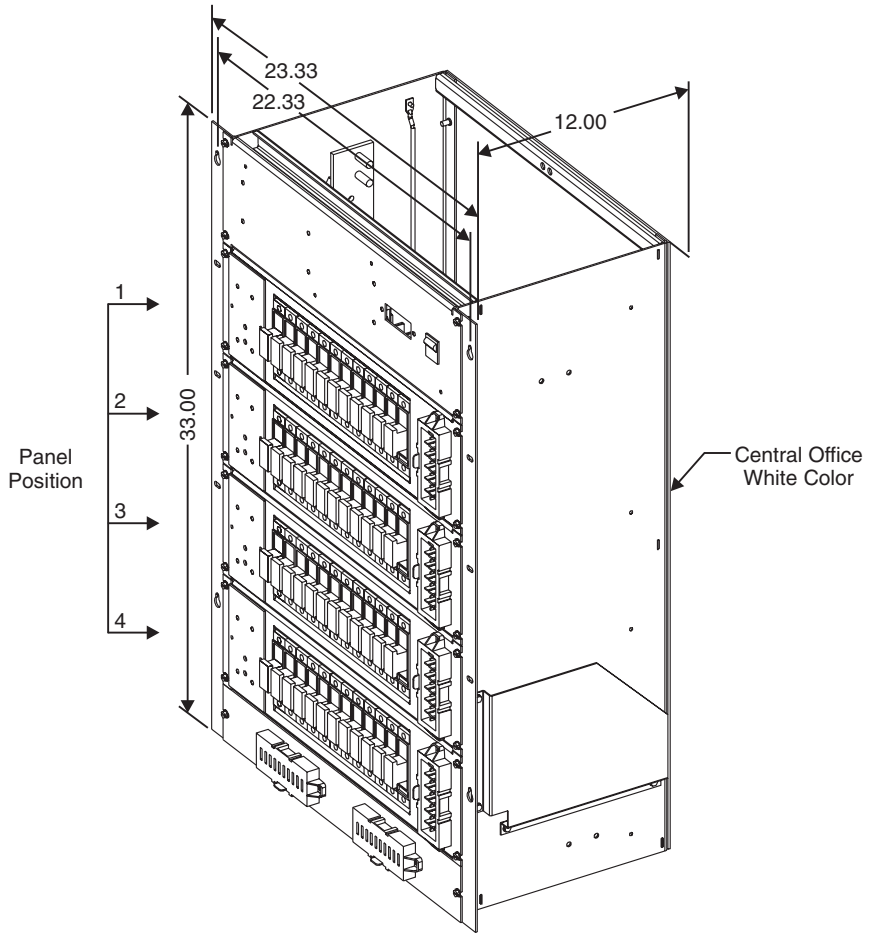


Figure 2-1: J85568E-1 Mini-Distribution Bay (four fuse panels shown)

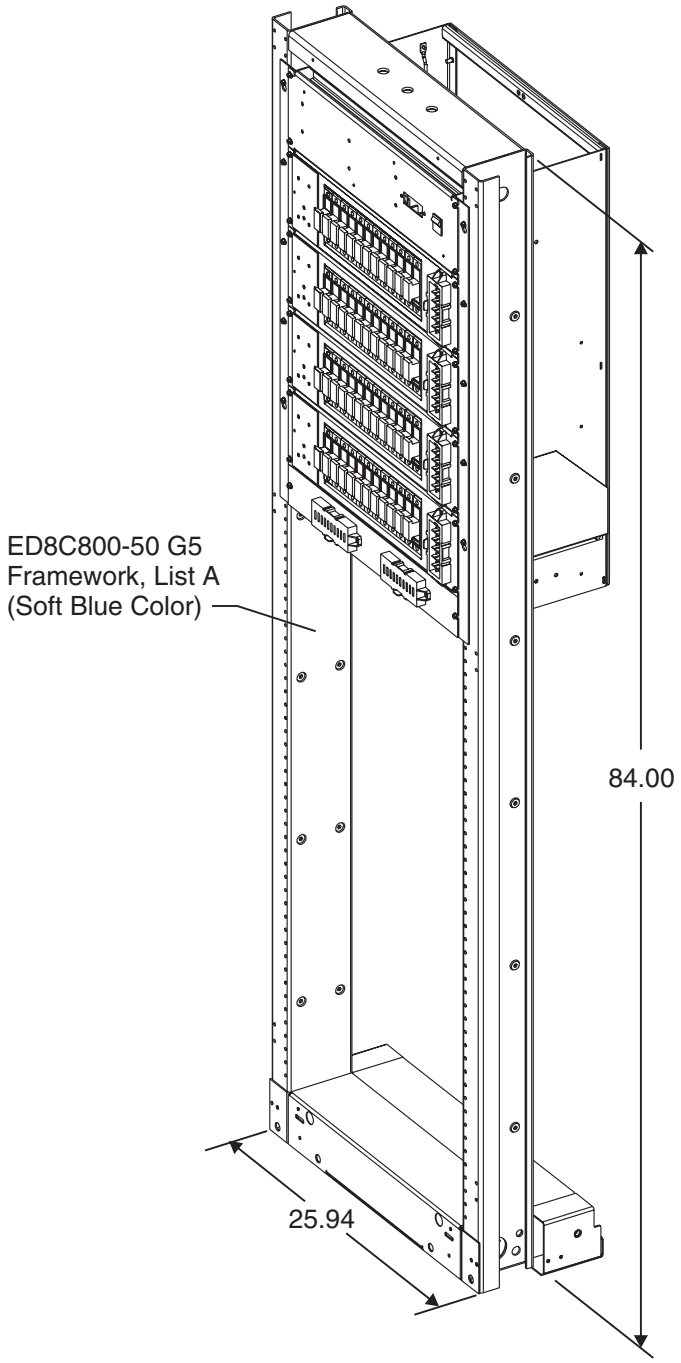


Figure 2-2: J85568E-1 Mini-Distribution Bay Factory Installed in ED8C800-50 G5 Framework (four fuse panels shown)

3 Ordering Information

List Structure

Table 3-A describes the list structure of the J85568E-1 Mini-Distribution Bay. List 2 provides the assembly with four empty panel positions. Panel positions 1 and 3 must be equipped with a fuse or circuit breaker panel to support bus bars. Panel positions 2 and 4 must be equipped with either a List C fuse panel, a List D circuit breaker panel or a List B blank panel.

If a relay rack is required, order List A and the factory will install the Mini-Distribution Bay in a ED8C800-50 framework, as shown in Figure 2-2.

Table 3-A: J85568E-1 Mini-Distribution Bay Ordering Information

Description	List
Assembly, wiring, and equipment for one 33-inch -48V battery distribution unit for mounting in a 23-inch relay rack. Provides one meter and alarm termination panel and space for four fuse or circuit breaker panels in a two-load (A/B) arrangement.	2
Optional equipment in addition to List 2 for a 23-inch relay rack mounted in a ED8C800-50 G5 framework (soft blue finish).	A
Optional equipment in addition to List 2 for a blank panel for panel positions two or four.	B
Optional equipment in addition to List 2 for a fuse panel equipped with 12 fuse blocks for 3-60A fuses.	C
Optional equipment in addition to List 2 for a circuit breaker panel to hold up to 12 circuit breakers.	D

1. The engineer must furnish all terminal lugs for load and return leads. Hardware for terminating load leads, load return leads, input battery and return cabling, and frame ground is provided with List 2.

2. This Mini-Distribution Bay is configured with two load buses. Load Bus A connects the top two fuse or circuit breaker panels. Load Bus B connects the bottom two fuse or circuit breaker panels. Battery cabling is connected to each load bus at the top of the unit. A 300A shunt and bus bar assembly connects battery cabling to each fuse or circuit breaker panel as required.

3. A digital meter and switch assembly is provided with List 2 in accordance with ED83127-30 Group 14 to monitor the 300A shunts associated with each load.

4. This Mini-Distribution Bay is recommended for top load feed applications. When bottom load feed is required, the J85568C-1 bay is recommended because it provides for cable routing to the floor.

Terminal Lugs

Table 3-B lists recommended terminal lugs for different cable sizes. Hardware for terminating the terminal lugs is provided with the Mini-Distribution Bay. Recommended torque for these connections is 260 in. lbs.

Refer to Table 3-C for recommended terminal lugs for the frame ground connection. Hardware for connecting the frame ground is furnished with the Mini-Distribution Bay.

Table 3-D provides recommended terminal lugs for terminating to the fuse block for List C.

Table 3-D provides recommended terminal lugs for terminating to the circuit breakers for List D.

The information in these tables is also given on a label on the back of the Mini-Distribution Bay. The label is replicated in Figure 5-7.

Table 3-B: Recommended Double Hole Terminal Lugs for Terminating Load Cables (750KCMIL Maximum)

KS-5482 Wire	KS-20921 Wire	WP-91412 List	Comcode	Bolt Size	Centers	Die
2/0	1/0	57	405348235	0.375	1.0	Black
-	2/0	77	406021725	0.375	1.0	Orange
4/0	-	59	405348251	0.375	1.0	Purple
-	4/0	27	405347923	0.375	1.0	Yellow
350	-	61	405348277	0.375	1.0	Red
-	350	86	40602 1915	0.375	1.0	80
500	-	63	405348293	0.375	1.0	Brown
-	500	165	406434241	0.375	1.0	Pink
750	-	135	406335141	0.375	1.0	Black
-	750	170	406434290	0.375	1.0	Yellow

Table 3-C: Recommended Double Hole Terminal Lugs for Terminating to Discharge Return Bus or Frame Ground

KS-5482 Wire	KS-20921 Wire	WP-91412 List	Comcode	Bolt Size	Centers	Die
8	8	75	406021626	0.25	0.62	Red
6	6	3	405347519	0.25	0.62	Blue
4	4	5	405347576	0.25	0.62	Grey
2	-	54	405348202	0.25	0.62	Brown
-	2	8	405347683	0.25	0.62	Green

Table 3-D: Recommended Single Hole 90° Terminal Lugs for Terminating to Fuse Block

KS-5482 Wire	KS-20921 Wire	Terminal Lug	Comcode	Die	Mounting Material
10	10	WP-91412 L97	406338186	WT-1300	Furnished
8	8	WP-91412 L104	406338350	Red	With
6	6	WP-91412 L112	406338459	Blue	Panel
4	4	54106UB (T&B)	402424030	Grey	
2	-	54107UB (T&B)	996627196	Brown	
-	2	54108UB (T&B)	99662 7253	Green	

Table 3-E: Recommended Single Hole Terminal Lugs for Terminating to Circuit Breakers

KS-5482 Wire	KS-20921 Wire	Terminal Lug	Comcode	Die	Mounting Material
10	10	WP-91412 L94	406338152	WT-1300	Furnished
8	8	WP-91412 L74	405356189	Red	With
6	6	WP-91412 L2	405347436	Blue	Panel
4	4	WP-91412 L4	405347543	Grey	
2	-	WP-91412 L53	405348186	Brown	
-	2	WP-91412 L7	405347659	Green	

Bay Extenders

Table 3-F gives the ordering information for the 2′and 4′-6″ bay extenders. These are used when the Mini-Distribution Bay is installed in a 7′ framework that is located in a 9′ or 11′-6″ environment. **(Note: Do not mount Mini-Distribution Bay onto bay extenders.)**

Table 3-F: Bay Extenders

2′ extender for 9′ environment	ED8C804-50 G3
4′-6″ extender for 11′-6″ environment	ED8C804-50 G5

Sample Order

An order for a Mini-Distribution Bay containing two fuse panels, two blank panels and mounted in a framework would look like this:

Item	Quantity	Description
1	1	J85568E-1 List 2 -48V Mini-Distribution Bay equipped with:
	2	List C Fuse Panels Pnl Pos 1, 3
	2	List B Blank Panels Pnl Pos 2, 4
	1	List A Framework

Documentation

The following documentation is associated with the Mini-Distribution Bay:

J85568E-1	Assembly Drawing
SD-83178-01	Schematic
T-83178-30	Wiring Diagram
ED-83127-30	Fuse or Circuit Breaker Panel
157-005-102	J85568E-1 Mini-Distribution Bay Product Manual

4 Safety

Please read this section carefully before installing, maintaining, or repairing the J85568E-1 Mini-Distribution Fuse Bay.

Admonishments

Always take precautions to protect personal safety as well as the equipment when working on power systems. Throughout this manual, admonishments relating to personal safety are labeled **DANGER** or **Warning**. Those relating to equipment damage are labeled **Caution**. Please read all admonishments carefully and follow safety instructions and warnings.

Safety Statements

- For use only in restricted access areas (dedicated equipment rooms, equipment closets, or the like) in accordance with articles 110-16, 110-17, and 110-18 of the U.S. National Electric Code (NEC), ANSI/NFPA No. 70, and pursuant to applicable local codes.
- This equipment must not be installed over combustible surfaces.
- This equipment is to be used in controlled environments (an area where the humidity is maintained at levels that can not cause condensation on the equipment, the contaminating dust is controlled, and the steady-state ambient temperature is within the range specified).
- This equipment has been evaluated for use in a continuous ambient temperature of up to 122° Fahrenheit (50° Celsius).
- For installations in the United States, UL-listed compression connectors should be used to terminate UL-listed field-wired conductors where required.

For all installations, the appropriate connector should be applied only to the correct size conductor as specified by the connector manufacturer, using only the connector manufacturer's recommended tooling or tooling approved for that connector.

- If the proper connector for the country of installation is not provided, obtain appropriate connectors and follow manufacturer's and all local requirements for proper connections. All national and local rules and regulations must be followed when making field connections.
- Torque electrical connections to the values specified on labels or in the product documentation.

Precautions

When working on or using this type of equipment, follow these precautions:

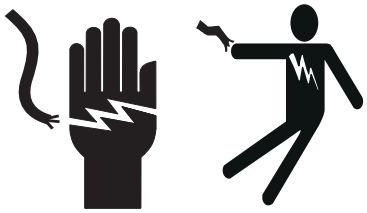
- This unit must be installed, serviced, and operated only by skilled and qualified personnel who have the necessary knowledge and practical experience with electrical equipment and who understand the hazards that can arise when working on this type of equipment.
- Because of the hazardous energy supplied to and within the equipment, make sure the equipment, all associated framework, and the cable rack are properly grounded according to local job instructions before connecting any power.
- Hazardous dc energy and voltage (from batteries and rectifier output) are present in the unit. Use a voltmeter to insure no voltage, or the expected voltage, is present before contacting any uninsulated conductor surface. Follow the procedures in the order given to minimize dangerous encounters with these voltages. Exercise extreme caution when working near the battery bus bars.
- Capacitors will stay charged for at least one minute after power is disconnected.
- Use only properly insulated tools.
- Remove all metallic objects (key chains, glasses, rings, watches, or any other jewelry).
- Wear safety glasses.
- Test circuits before touching.
- Lock out and tag any circuit breakers/fuses when possible to prevent accidental turn on.

- Be aware of potential hazards in the area you are working before entering the equipment.
- Identify exposed hazardous electrical potentials on connectors, wiring, etc. (note the condition of these circuits, especially any wiring).
- Use care when removing or replacing any covers; avoid contacting any circuits.
- Use gloves when handling thermally hot components inside the rectifier. Transformers are very hot after sustained operation.

Warning Statements and Safety Symbols

The symbols may sometimes be accompanied by some type of statement; e.g., "Hazardous voltage/energy inside. Risk of injury. This unit must be accessed only by qualified personnel."

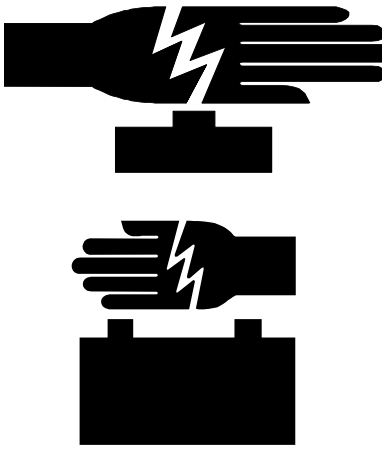
This symbol identifies the need to refer to the equipment instructions for important information.



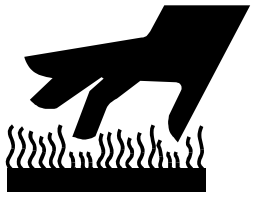
These symbols (or equivalent) are used to identify the presence of hazardous ac mains voltage.

This symbol is used to identify the presence of hazardous ac or dc voltages. It may also be used to warn of hazardous energy levels.

This symbol is used to identify the need for safety glasses and may sometimes be accompanied by some type of statement, for example: "Fuses can cause arcing and sparks. Risk of eye injury. Always wear safety glasses."

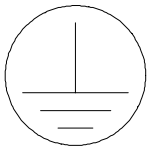


One of these two symbols (or equivalent) may be used to identify the presence of rectifier and battery voltages. The symbol may sometimes be accompanied by some type of statement, for example: “Battery voltage present. Risk of injury due to high current. Avoid contacting conductors with uninsulated metal objects. Follow safety precautions.”

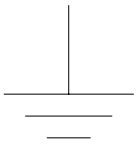


This symbol is used to identify the presence of a hot surface. It may also be accompanied by a statement explaining the hazard. A symbol like this with a lightning bolt through the hand also means that the part is or could be at hazardous voltage levels.

This symbol is used to identify the presence of a hot surface. The marked item should not be touched without taking care.



This symbol is used to identify the protective safety earth ground for the equipment.



This symbol is used to identify other bonding points within the equipment.

Electrostatic Discharge (ESD)

- Assume all circuit packs containing electronic (solid-state) components can be damaged by ESD.
- When handling circuit packs (storing, inserting, removing, etc.) or when working on the backplane, always use the appropriate grounding procedure: either a wrist strap connected to ground or, when standing, a heel strap with a grounded dissipative floor mat.
- A grounded person must never hand an unprotected circuit pack to an ungrounded person. A static discharge from the ungrounded person through the circuit pack to the grounded person could cause an electrostatic discharge failure. All persons and equipment at a work location must be at the same common ground potential to be static safe.
- Handle all circuit packs by the faceplate or latch and by the top and bottom outermost edges. Never touch the components, conductors, or connector pins.
- Do not rub or wipe circuit packs to clean them unless you and the circuit pack are at the same ground potential.
- Observe warning labels on bags and cartons. Whenever possible, do not remove circuit packs from antistatic bags or cartons until ready to insert into the equipment. Otherwise, open all circuit packs at a static-safe work position with wrist straps and dissipative table mats.
- Upon removal from the equipment, immediately put circuit packs into antistatic packages. Always store and transport circuit packs in antistatic packaging. Shielding is not required unless specified.
- Keep all static-generating materials away from all circuit packs. These materials include common plastics such as food wrappers, clear plastic bags, styrofoam containers, packing material, drinking cups, notebooks, and nonconductive plastic solder suckers. The insulation on small hand tools does not represent a static hazard.
- Keep adhesive tape (Scotch, masking, etc.) away from static-sensitive devices.
- When soldering static-sensitive semiconductor devices, the soldering iron must be grounded to the work table, which must also be earth grounded.
- Whenever possible, maintain relative humidity above the 20-percent level.
- Minimize electrostatic discharge when handling circuit modules.

5 Installation

Safety

Read Section 4, *Safety*, carefully before installing the J85568E-1 Mini-Distribution Bay.

Tools and Materials Required

The following tools are required to install the Mini-Distribution Bay:

- Equipment to handle shipping container, remove Mini-Distribution Bay unit or framework, and erect unit in final position (minimum lifting capacity of 220 pounds)
- Common electrician's hand tools, including jeweler's screwdriver, electrical tape, wire cutters, and strippers for 8 AWG to 750 MCM
- Common mechanic's hand tools, including flat blade screwdriver, socket and torque wrenches for 1/4-inch and 3/8-inch bolts, and a crowbar for uncrating unit
- Proper crimping tools and dies for connectors. The connectors specified are WP-91412, which may be installed with compression tools made by Thomas & Betts using color coded dies
- 3/4-inch drill to bore holes for floor anchors (List A only)
- Anchor bolts (List A only)
- 22-26 gauge stranded or solid wire for connecting alarms
- Terminal lugs for terminating distribution and load cables
- WP-92461 fuses and 1/2-ampere GMT alarm fuses (comcode 401231501) or circuit breakers

Unpacking, Handling, and Frame Installation

Before opening the packaging, carefully inspect the outside in the presence of shipping personnel for signs of damage. If damaged, follow the shipping carrier's procedure for filing a damage claim.

Carefully open the packaging to verify that the contents are complete and undamaged. If the equipment must be returned, it should be repacked in the original shipping crate.

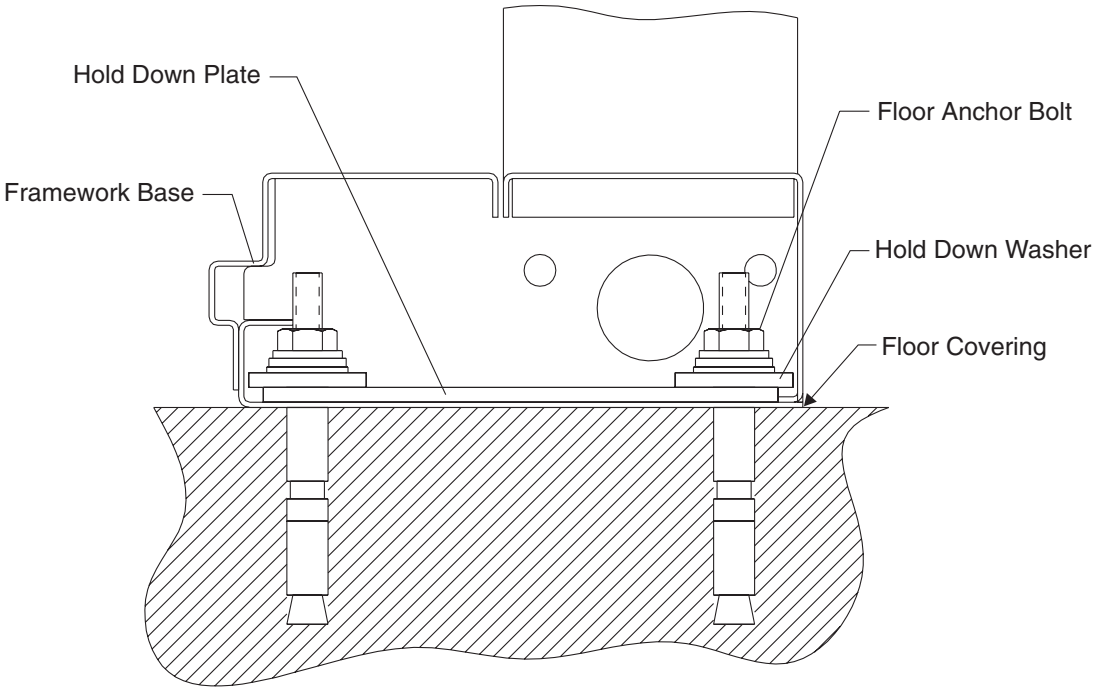
The following items are shipped loose with the Mini-Distribution Bay:

- (10) 12-24 x 5/8-inch self tapping screws (not provided with List A)
- Product manual and drawing service kit containing a copy of the J85568E-1, T83178-30, and SD83178-01 drawings
- (100) sets of 1/4-20 nuts, lockwashers, and washers for terminating distribution cabling
- (2) sets of 1/4-20 screws, lockwashers, and washers for terminating frame ground
- (2) 847257862 bus bars for connecting bottom load feeds
- Cover plates for the framework base (List A only)

If the Mini-Distribution Bay is mounted in the List A framework, the framework should be secured to the floor. Figure 5-1 shows typical floor mounting details for concrete floors. Other types of floor construction may require other mounting methods. Holes can be located using Figure 5-2.

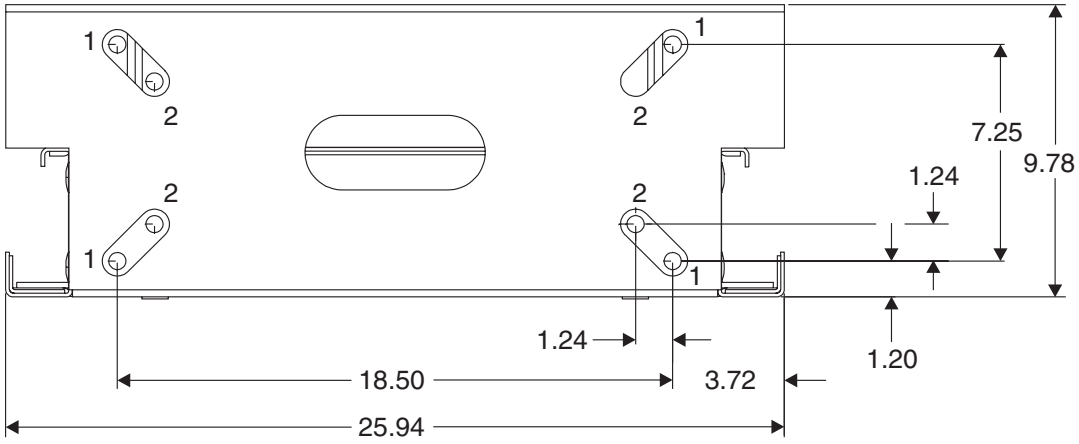
If the Mini-Distribution Bay is to be mounted in a 23-inch relay rack that is already installed in the field, use the (10) 12-24 x 5/8-inch self-tapping screws that were shipped with the unit for this purpose.

When the unit is installed, connect the load and distribution cabling. The Mini-Distribution Bay is for top load feed applications. When bottom load feed is required, the J85568C-1 BDFB/BDCBB is recommended because it provides for routing cable to the floor.



Note: Use 3/4 Inch Drill for Floor Anchor Bolts.
The Required Minimum Drill Depth is 4 Inches.

Figure 5-1: Typical Floor Mounting Detail



If interference with floor reinforcing bars occurs during installation of anchoring hardware at mounting position "1" (primary mounting positions), use position "2" alternate mounting positions.

Figure 5-2: Floor Mounting Template

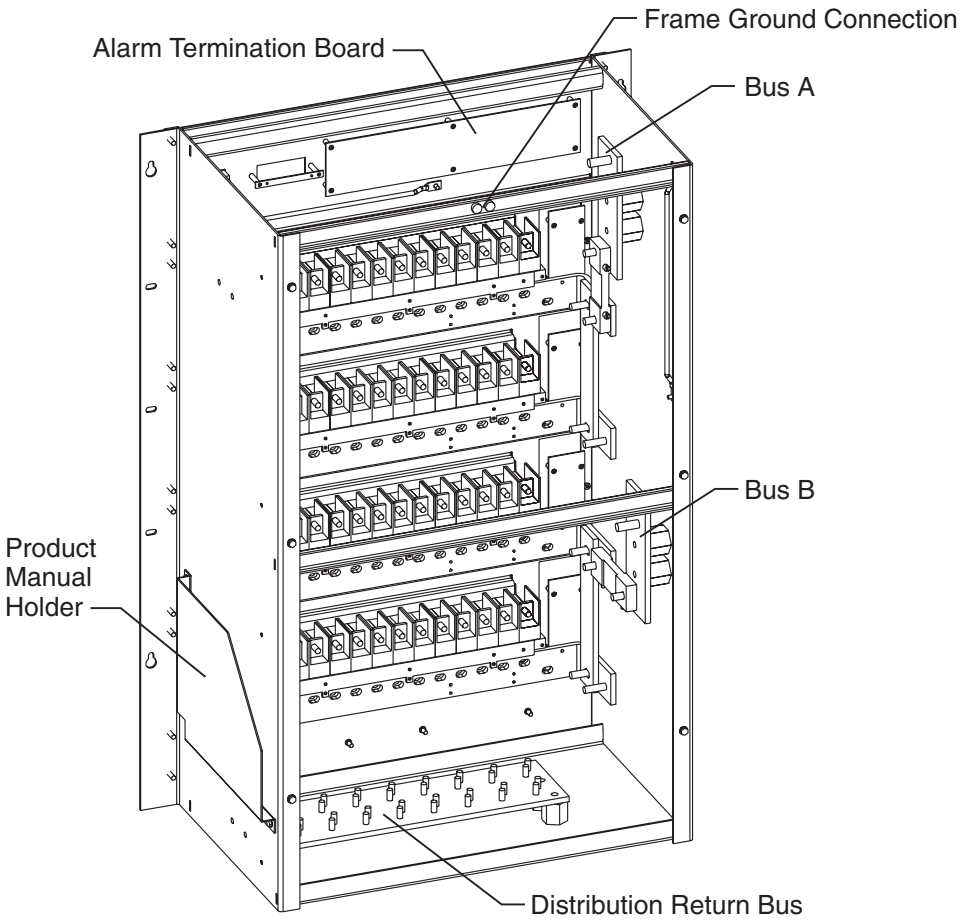


Figure 5-3: Rear View of Mini-Distribution Bay and A/B Load Connections (four fuse panels shown)

Connecting Load and Distribution Cabling

List 2 is configured with two load buses. A 300-ampere shunt and bus bar assembly connects Load Bus A to the top two fuse or circuit breaker panels and Load Bus B to the bottom two fuse panels. Panel positions 1 and 3 must be equipped with List C fuse panels or List D circuit breaker panels. Panel positions 2 and 4 may be equipped with either a List B blank panel, a List C fuse panel, or a List D circuit breaker panel.

Figure 5-3 shows a rear view of the Mini-Distribution Bay and the A/B load connections.

Cabling from the battery plant is terminated to each load on a single set of 3/8-inch studs on 1.00-inch centers that are located on the top right of the unit. If more than one cable is required due to voltage drop considerations, terminal lugs may be mounted back-to-back.

(A minimum of two 350 MCM battery input/return cables is recommended per 300 ampere load.)

The Mini-Distribution Bay is equipped with a distribution return bus located along the left and bottom sides of the unit. The bus bar has a 600-ampere current carrying capacity and is equipped with 1/4-inch studs on 0.625-inch centers for terminating the (48) distribution return leads. There is also a set of 3/8-inch studs on 1.00-inch centers located at the top of this bus bar for terminating load return cabling from the battery plant and the central office ground connection (if required). If more than two cables are required, terminal lugs may be mounted back-to-back. Hardware for connecting the terminal lugs is furnished with the Mini-Distribution Bay. Refer to Table 3-B for the list of terminal lug options for load return cabling. Table 3-C lists the terminal lug options available for the distribution return cabling. If voltage drop considerations require distribution cable sizes larger than 2 gauge, the installer must gutter tap down to 2 gauge before connection in the unit. Recommended torque values for terminating distribution cabling is 75 inch/lbs.

Note

All bus bars used in this product are copper with a solder plate finish. Bus bars do not require buffing or the application of no-ox before connection of terminal lugs or other bus bars.

Frame Ground

The frame ground connection is located on the top rear crossbar. Connection is made using a 1/4-inch double hole terminal lug on 0.625-inch centers. Refer again to Table 3-C for recommended terminal lugs for the frame ground connection. Hardware for connecting frame ground is furnished with the Mini-Distribution Bay.

Fuse or Circuit Breaker Panel

The List C fuse panel is shown in Figure 5-4A. Each panel is equipped with twelve fuse blocks for 3-60A fuses and an alarm circuit module. Fuse sizes and ordering comcodes are listed on a label on the front of the Mini-Distribution Bay. See Figure 5-5. Recommended alarm fuses are GMT .18A, comcode 402328926. The fuse block is UL listed and uses the WP-92461 List 100-110 series of fuses. These fuses offer a big advantage over other fuse types in that they are UL recognized to UL standard 198L “DC INDUSTRIAL FUSES” with a 170 Vdc, 100,000-ampere interrupt rating. These fuses also have color bands to indicate the amperage rating of the fuse.

The List D circuit breaker panel is shown in Figure 5-4B. Each circuit breaker panel has 12 circuit breaker positions and an alarm circuit module. Circuit breaker sizes and ordering comcodes are listed on a label on the front of the Mini-Distribution Bay. See Figure 5-5. The circuit breakers are sized from 3 to 100 amperes. They are UL listed. The circuit breakers are rated at 80Vdc with a 10,000A interrupt capacity.

There are labels on the front of the fuse or circuit breaker panel for stamping the type of equipment being powered and the fuse or circuit breaker size required. Distribution cabling is terminated to each fuse block or circuit breaker on a 1/4-inch stud. Table 3-D lists the recommended terminal lugs for fuse blocks. Table 3-E lists the recommended terminal lugs for circuit breakers. Hardware for connecting these lugs is furnished with the Mini-Distribution Bay. The recommended torque value is 75 inch/lbs.

The alarm circuit module, BEP1, consists of two circuits, one for monitoring power loss to the fuse or circuit breaker panel and the other monitoring for fuse or circuit breaker failures. Alarms are indicated by LEDs on the panel and by Form-C contact closures. A green LED illuminates to indicate power is present on the panel. If power is lost, the green LED extinguishes and a set of Form-C contacts operates. When a fuse or circuit breaker operates, a red LED illuminates on the panel and three sets of

Form-C contacts operate. These alarm contacts are isolated and referenced as audible, visual, and remote fuse or circuit breaker alarms. These arbitrary references are provided as a suggested standard for connecting alarm monitoring equipment.

The signals from the four sets of Form-C contacts from each alarm module are connected via ribbon cables to an alarm termination board located at the top of the Mini-Distribution Bay. This termination board provides a convenient point for installation to connect alarm monitoring systems. Each set of contacts is a Form-C or transfer type, i.e., a combination of normally open (NO) and normally closed (NC) contacts with one side of each in common (C). Either a closure on alarm or an open on alarm might be required for the alarm monitoring equipment.

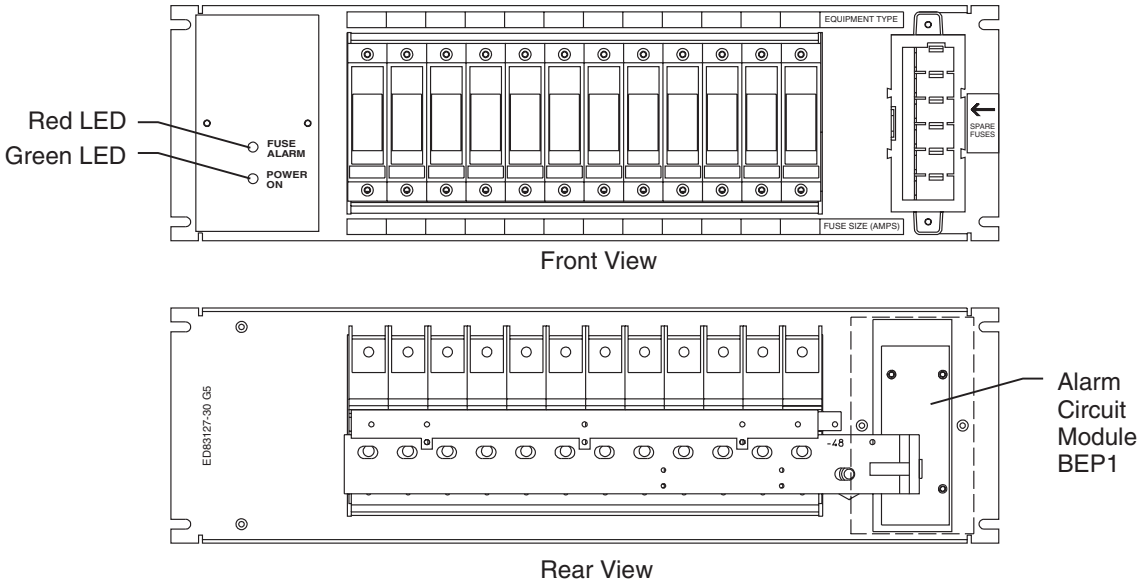


Figure 5-4A: List C Fuse Panel for J85568E-1 Mini-Distribution Bay

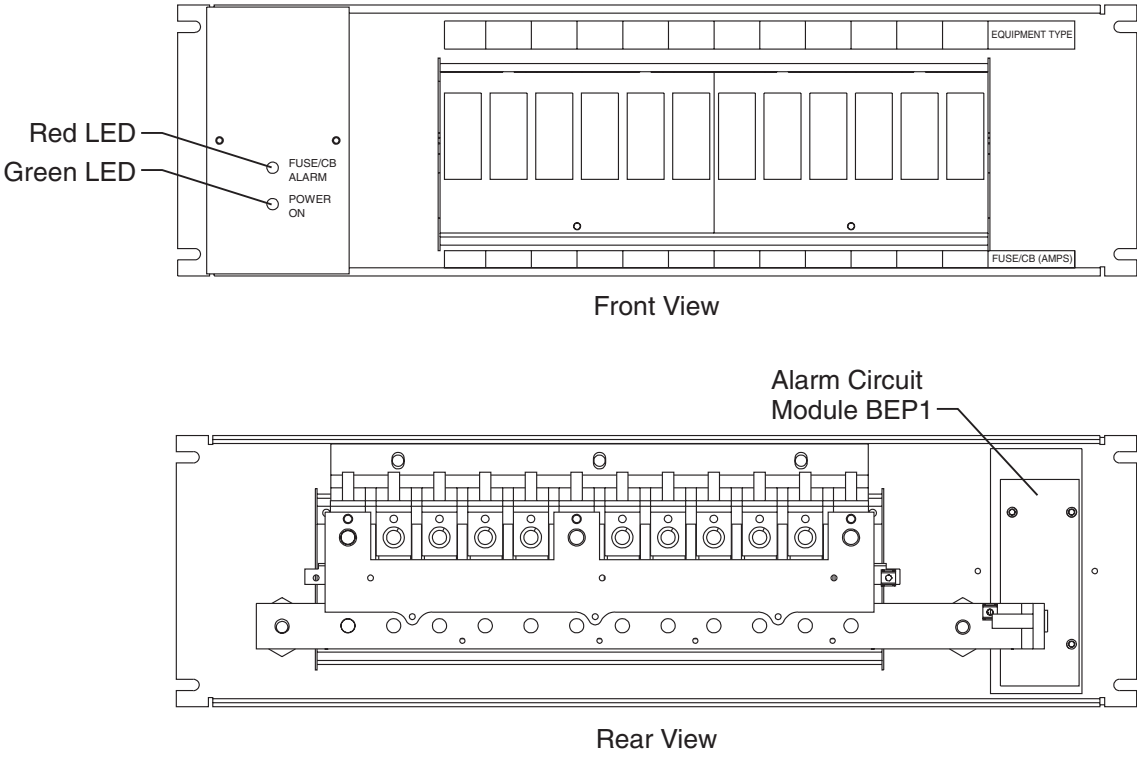


Figure 5-4B: List D Circuit Breaker Panel for J85568E-1 Mini-Distribution Bay

CAUTION

FOR CONTINUED PROTECTION AGAINST RISK OF FIRE AND SHOCK REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE OR CIRCUIT BREAKER

LOAD FUSES
(FOR FUSE PANELS ONLY)

COMCODE	WP-92461 LIST	AMP RATING	COLOR BANDS
406700567	100	3	BLUE/BROWN
406700583	101	5	BLUE/GRAY
406700591	102	6	BLUE/PURPLE
406700609	103	10	BLUE/RED
406700617	104	15	BLUE/BLACK
406700625	105	20	BLUE/WHITE
406700633	106	25	BLUE/ORANGE
406700641	107	30	BLUE/BLUE
406700658	108	40	BLUE/YELLOW
406700674	109	50	WHITE/WHITE
406700682	110	60	BLUE/PINK

RECOMMENDED ALARM FUSES ARE GMT .18 AMP 402328926

CIRCUIT BREAKERS
(FOR CIRCUIT BREAKER PANELS ONLY)

COMCODE	AMP RATING
407998137	3
407998145	5
407998152	10
407998160	15
407998178	16
407998186	20
407998194	25
407998202	30
407998210	45
407998228	50
407998236	60
407998244	70
407998251	80
407998269	90
407998277	100

Figure 5-5: Fuse Sizes and Ordering Comcodes for Mini-Distribution Bay

Meter and Alarm Termination Panel

The top panel on the Mini-Distribution Bay is a meter and alarm termination panel. It consists of a digital meter and A/B switch wired to the current monitoring shunts of each load and an alarm termination circuit board. The purpose of the alarm termination board is to provide an easy access point for the installer to connect alarm monitoring equipment to the Mini-Distribution Bay. The alarm termination board is shown in Figure 5-6. It contains four 12-position screw type terminal blocks for monitoring the four sets of Form-C contacts of each fuse or circuit breaker panel (three for fuse or circuit breaker failure and one for power loss). Each fuse or circuit breaker panel may be monitored individually by connecting alarms to each of the four terminal blocks. The left terminal block is connected to fuse or circuit breaker panel #1, the next to fuse or circuit breaker panel #2, the third to fuse or circuit breaker panel #3, and the right terminal block to fuse or circuit breaker panel #4. Alarm wiring is connected to the terminal block by simply stripping the wire, placing the wire in the terminal, and tightening the screw. The recommended wire size is 22-26 gauge.

There are twelve DIP switches between each terminal block. Each DIP switch is associated with a terminal block position and is factory set to the open position. If a frame alarm is needed, simply close the DIP switches associated with that alarm. See Table 5-A. Alarm monitoring equipment requires either a closure on alarm or an open on alarm. When a frame alarm is needed as one of the alarms, simply close the DIP switch settings according to Table 5-A. Alarm wiring is connected at P201 terminal block (C contact) and P204 terminal block (NO or NC contact). For example, if a frame fuse or circuit breaker alarm (visual) is required with closure on alarm, close positions 1 and 3 on switches SW2, SW4, and SW6. Then connect a pair of alarm wires to P201
pin 7 (C) and to P204 pin 9 (NO). It may be desirable to monitor for power loss to load A or B. Connect alarm wiring to pins 1 and either 2 or 3 (as required) of terminal block P201 or P202 to monitor load A. Connect a second pair of wires to either terminal block P203 or P204 to monitor load B. For a frame power loss alarm, set DIP switches and connect alarm wires as shown in Table 5-A.

A label depicting the equipment layout, terminal lug options, and alarm termination board designations is located on the clear cover on the back of the unit to assist installation personnel. See Figure 5-7.

If wiring for Open on Alarm (AUD, VIS, or REMOTE), strap across the common and normally closed contacts in the empty fuse panel positions of the 847206737 PWB assembly on the rear of the alarm and meter panel. For example, if fuse panels are located in positions 1 and 3 with blank panels in positions 2 and 4, then:

Fuse or circuit breaker Alarm (Audible):	Strap from P202 position 4 to P202 position 5
	Strap from P204 position 4 to P204 position 5
Fuse or circuit breaker Alarm (Visual):	Strap from P202 position 7 to P202 position 8
	Strap from P204 position 7 to P204 position 8
Fuse Alarm or circuit breaker (Remote):	Strap from P202 position 10 to P202 position 11
	Strap from P204 position 10 to P204 position 11

If wiring for Open on Alarm (POWER LOSS), strap across the common and normally open contacts in the first empty fuse or circuit breaker panel position only. From the example above:

Power Loss:	Strap from P202 position 1 to
	P202 position 3

Table 5-A: DIP Switch Settings and Alarm Connections for Generating Frame Alarms

Closure on Alarm (FAJ: C and NO Contacts; PWR Loss: C and NC Contacts)			
Alarm Type	DIP Switch Setting	Alarm Connection	
		P201	P204
Power Loss	Close Positions 1 and 2 on SW1, SW3, and SW5	pin 1	pin 2
Fuse or Circuit Breaker Alarm (Audible)	Close Positions 4 and 6 on SW1, SW3, and SW5	pin 4	pin 6
Fuse or Circuit Breaker Alarm (Visual)	Close Positions 1 and 3 on SW2, SW4, and SW6	pin 7	pin 9
Fuse or Circuit Breaker Alarm (Remote)	Close Positions 4 and 6 on SW2, SW4, and SW6	pin 10	pin 12
Open on Alarm (FAJ: C and NC Contacts; PWR Loss: C and NO Contacts)			
Alarm Type	DIP Switch Setting	Alarm Connection	
		P201	P204
Power Loss	Close Position 3 on SW1, SW3, and SW5	pin 1	pin 3
Fuse or Circuit Breaker Alarm (Audible)	Close Position 5 on SW1, SW3, and SW5	pin 4	pin 5
Fuse or Circuit Breaker Alarm (Visual)	Close Position 2 on SW2, SW4, and SW6	pin 7	pin 8
Fuse or Circuit Breaker Alarm (Remote)	Close Position 5 on SW2, SW4, and SW6	pin 10	pin 11

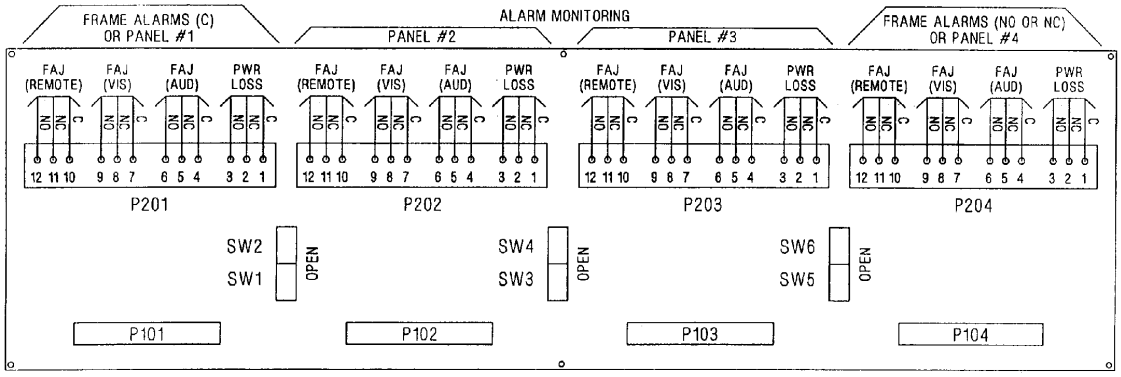
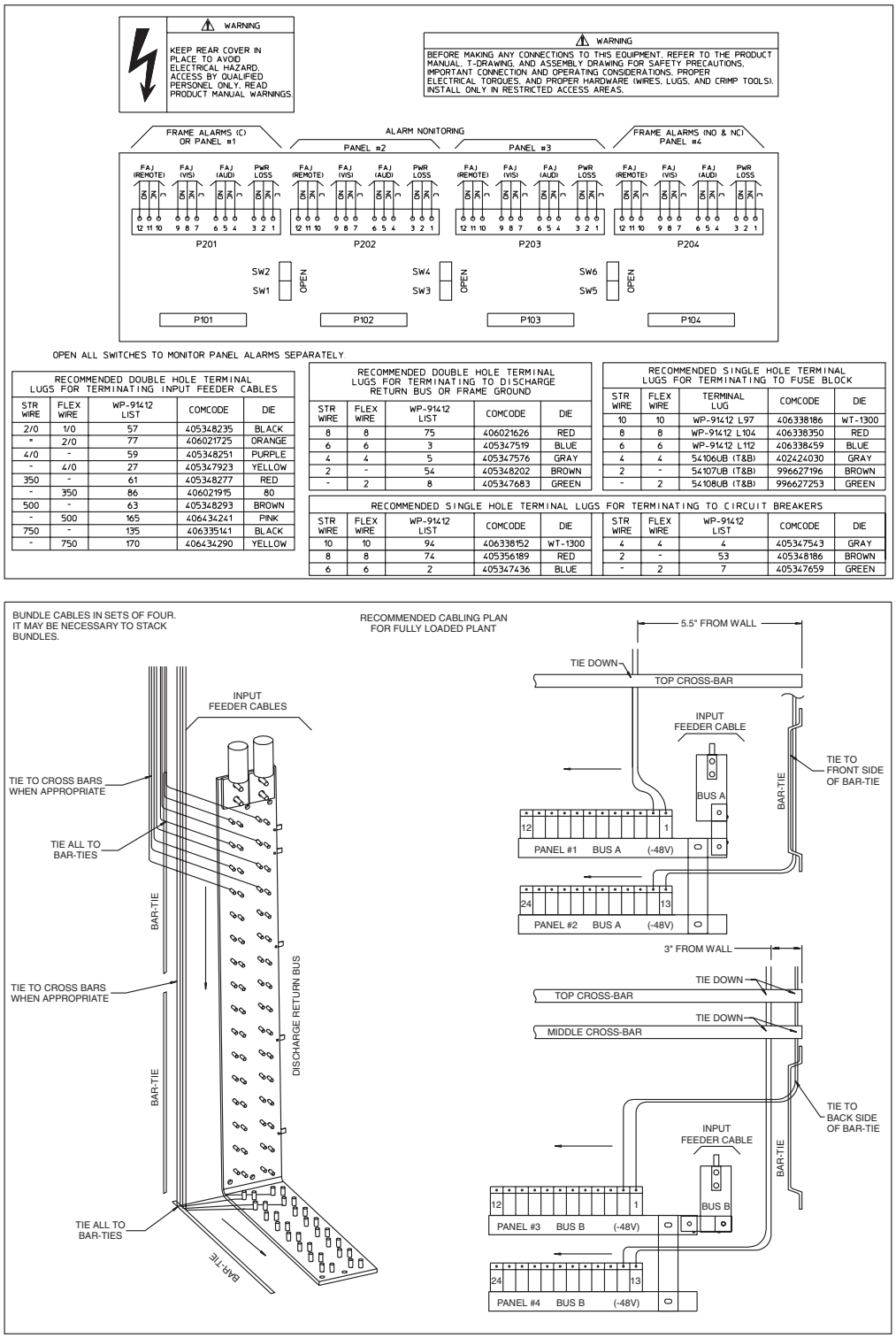


Figure 5-6: Alarm Termination Board



RECOMMENDED DOUBLE HOLE TERMINAL LUGS FOR TERMINATING INPUT FEEDER CABLES

STR WIRE	FLEX WIRE	WP-91412 LIST	COMCODE	DIE
2/0	1/0	57	405348235	BLACK
"	2/0	77	406021725	ORANGE
4/0	-	59	405348251	PURPLE
-	4/0	27	405347923	YELLOW
350	-	61	405348277	RED
-	350	86	406021915	80
500	-	63	405348293	BROWN
-	500	165	406434241	PINK
750	-	135	406335141	BLACK
-	750	170	406434290	YELLOW

RECOMMENDED DOUBLE HOLE TERMINAL LUGS FOR TERMINATING TO DISCHARGE RETURN BUS OR FRAME GROUND

STR WIRE	FLEX WIRE	WP-91412 LIST	COMCODE	DIE
8	8	75	406021626	RED
6	6	3	405347519	BLUE
4	4	5	405347576	GRAY
2	-	54	405348202	BROWN
-	2	8	405347683	GREEN

RECOMMENDED SINGLE HOLE TERMINAL LUGS FOR TERMINATING TO FUSE BLOCK

STR WIRE	FLEX WIRE	TERMINAL LUG	COMCODE	DIE
10	10	WP-91412 L97	406338186	WT-1300
8	8	WP-91412 L104	406338350	RED
6	6	WP-91412 L112	406338459	BLUE
4	4	54106UB (T&B)	402424030	GRAY
2	-	54107UB (T&B)	996627196	BROWN
-	2	54108UB (T&B)	996627253	GREEN

RECOMMENDED SINGLE HOLE TERMINAL LUGS FOR TERMINATING TO CIRCUIT BREAKERS

STR WIRE	FLEX WIRE	WP-91412 LIST	COMCODE	DIE
10	10	94	406338152	WT-1300
8	8	74	405356189	RED
6	6	2	405347436	BLUE
4	4	4	405347543	GRAY
2	-	53	405348186	BROWN
-	2	7	405347659	GREEN

Figure 5-7: Installation Information Label (Rear of Mini-Distribution Bay)

6 Product Warranty

A. Seller warrants to Customer only, that:

1. As of the date title to Products passes, Seller will have the right to sell, transfer, and assign such Products and the title conveyed by Seller shall be good;
2. During the warranty period stated in Sub-Article B below, Seller's Manufactured Products (products manufactured by Seller), which have been paid for by Customer, will conform to industry standards and Seller's specifications and shall be free from material defects;
3. With respect to Vendor items (items not manufactured by Seller), Seller warrants that such Vendor items, which have been paid for by Customer, will be free from material defects for a period of sixty (60) days commencing from the date of shipment from Seller's facility.

B. The Warranty Period listed below is applicable to Seller's Manufactured Products furnished pursuant to this Agreement, commencing from date of shipment from Seller's facility, unless otherwise agreed to in writing:

Warranty Period

Product Type	New Product	Repaired Product*
Central Office Power Equipment	24 Months	6 Months

**The Warranty Period for a repaired Product or part thereof is six (6) months or, the remainder of the unexpired term of the new Product Warranty Period, whichever is longer.*

C. If, under normal and proper use during the applicable Warranty Period, a defect or nonconformity is identified in a Product and Customer notifies Seller in writing of such defect or nonconformity promptly after Customer discovers such defect or nonconformity, and follows Seller's instructions regarding return of defective or nonconforming Products, Seller shall, at its option attempt first to repair or replace such Product without charge at its facility or, if not feasible, provide a refund or credit based on the original purchase price and installation charges if installed by Seller. Where Seller has elected to repair a Seller's Manufactured Product (other than Cable and Wire Products) which has been installed by Seller and Seller ascertains that the Product is not readily returnable for repair, Seller will repair the Product at Customer's site.
With respect to Cable and Wire Products manufactured by Seller which

Seller elects to repair but which are not readily returnable for repair, whether or not installed by Seller, Seller at its option, may repair the cable and Wire Products at Customer's site.

D. If Seller has elected to repair or replace a defective Product, Customer shall have the option of removing and reinstalling or having Seller remove and reinstall the defective or nonconforming Product. The cost of the removal and the reinstallation shall be borne by Customer. With respect to Cable and Wire Products, Customer has the further responsibility, at its expense, to make the Cable and Wire Products accessible for repair or replacement and to restore the site. Products returned for repair or replacement will be accepted by Seller only in accordance with its instructions and procedures for such returns. The transportation expense associated with returning such Product to Seller shall be borne by Customer. Seller shall pay the cost of transportation of the repaired or replacing Product to the destination designated by Customer.

E. Except for batteries, the defective or nonconforming Products or parts which are replaced shall become Seller's property. Customer shall be solely responsible for the disposition of any batteries.

F. If Seller determines that a Product for which warranty service is claimed is not defective or nonconforming, Customer shall pay Seller all costs of handling, inspecting, testing, and transportation and, if applicable, traveling and related expenses.

G. Seller makes no warranty with respect to defective conditions or nonconformities resulting from actions of anyone other than Seller or its subcontractors, caused by any of the following: modifications, misuse, neglect, accident, or abuse; improper wiring, repairing, splicing, alteration, installation, storage, or maintenance; use in a manner not in accordance with Seller's or Vendor's specifications or operating instructions, or failure of Customer to apply previously applicable Seller modifications and corrections. In addition, Seller makes no warranty with respect to Products which have had their serial numbers or month and year of manufacture removed, altered, or experimental products or prototypes or with respect to expendable items, including, without limitation, fuses, light bulbs, motor brushes, and the like. Seller's warranty does not extend to any system into which the Product is incorporated. This warranty applies to Customer only and may not be assigned or extended by Customer to any of its customers or other users of the Product.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. CUSTOMER'S SOLE AND EXCLUSIVE REMEDY SHALL BE SELLER'S OBLIGATION TO REPAIR, REPLACE, CREDIT, OR REFUND AS SET FORTH ABOVE IN THIS WARRANTY.