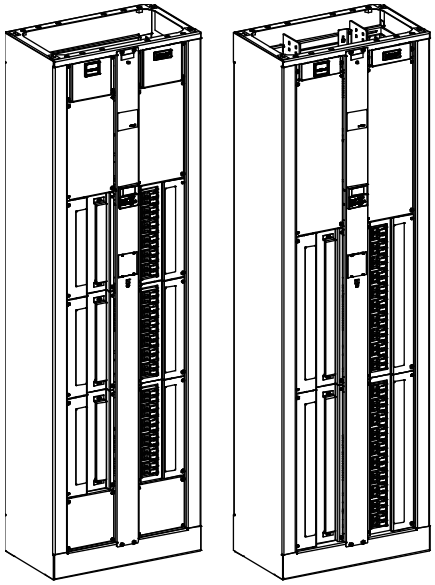
A Technical Manual from the experts in *Business-Critical Continuity™*

NetSure™ DC Power Distribution

Installation and User Instructions, Section 5674 (Issue BY, December 3, 2013)

Specification Number: 582120600
Model Number: 801DB NVGB



EMERSON™
Network Power

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Admonishments Used in this Document

	**DANGER!** Warns of a hazard the reader ***will*** be exposed to that will ***likely*** result in death or serious injury if not avoided. (ANSI, OSHA)
	**WARNING!** Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)
	**CAUTION!** Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)
	**ALERT!** Alerts the reader to an action that ***must be avoided*** in order to protect equipment, software, data, or service. (ISO)
	**ALERT!** Alerts the reader to an action that ***must be performed*** in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)
	**FIRE SAFETY!** Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)
	**SAFETY!** Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Important Safety Instructions

General Safety

DANGER!
YOU MUST FOLLOW APPROVED SAFETY PROCEDURES.

Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

a) The tasks should be performed in the order indicated.

b) Remove watches, rings, and other metal objects.

c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present.

d) Wear eye protection.

e) Use double insulated tools appropriately rated for the work to be performed.

DC Voltages

DANGER! This system has DC voltage connected to it. Although the DC voltage is not hazardously high, the associated rectifiers and/or battery can deliver large amounts of current. Exercise extreme caution not to inadvertently contact or have any tool inadvertently contact an input or output terminal or exposed wire connected to an input or output terminal. NEVER allow a metal object, such as a tool, to contact more than one termination at a time, or to simultaneously contact a termination and a grounded object. Even a momentary short circuit can cause sparking, explosion, and injury.

Handling Equipment Containing Static Sensitive Components

ALERT! Installation or removal of equipment containing static sensitive components requires careful handling. Before handling any equipment containing static sensitive components, read and follow the instructions contained on the Static Warning Page.

Static Warning

This equipment contains static sensitive components. The warnings listed below must be observed to prevent damage to these components. Disregarding any of these warnings may result in personal injury or damage to the equipment.

1. Strictly adhere to the procedures provided in this document.
2. Before touching any equipment containing static sensitive components, discharge all static electricity from yourself by wearing a wrist strap grounded through a one megohm resistor. Some wrist straps, such as Emerson Network Power Part Number 631810600, have a built-in one megohm resistor; no external resistor is necessary. Read and follow wrist strap manufacturer's instructions outlining use of a specific wrist strap.
3. Do not touch traces or components on equipment containing static sensitive components.
   Handle equipment containing static sensitive components only by the edges that do not have connector pads.
4. After removing equipment containing static sensitive components, place the equipment only on conductive or anti-static material such as conductive foam, conductive plastic, or aluminum foil. Do not use ordinary Styrofoam™ or ordinary plastic.
5. Store and ship equipment containing static sensitive components only in static shielding containers.
6. If necessary to repair equipment containing static sensitive components, wear an appropriately grounded wrist strap, work on a conductive surface, use a grounded soldering iron, and use grounded test equipment.

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Description

The NETSURE™ 801DB NVGB DC Power Distribution is a -48V Battery Distribution Fuse / Circuit Breaker Bay (BDF/CBB).

- The NETSURE™ 801DB NVGB can be ordered as an 8-distribution panel or 6-distribution panel bay (4 or 3 panels per side).
- Each distribution panel can be configured for separate inputs, providing an 8-load or 6-load bay (must use an external ground/return bar), or the panels per side can be paralleled to allow one feed per side giving you a 2-load bay (may use the optional internal ground/return bar). Other configurations include an 8-panel bay with 4-loads and two-loads, and a 6-panel bay with 4-loads (paralleling the top two panels **or** paralleling the bottom two panels per side).
- Each bay can be equipped with an optional "full bay length" internal ground/return bar (per side) (configuration restrictions apply). Another option includes replacing one (8- and 6-panel bays) or two (8-panel bay only) distribution panels per side with a "panel length" internal ground/return bar.
- Each bay can easily be configurable for top or bottom feed.
- Each bay is equipped with a digital meter assembly. The List 105 and 107 bays provide a basic digital meter, which is capable of displaying system load voltage and current on each Distribution Panel. An advanced Digital Meter/Alarm Panel is provided in the List 106 and 108 bays. In addition to the basic metering functions, this panel provides Low Voltage, Power Lost, Over-current and Fuse/Circuit Breaker alarms for each panel in the bay. Also provided are four (4) external alarm relay circuits, to which any combination of alarms can be mapped. The Meter Panel comes with a comprehensive web page capability for remote system management.

Refer to SAG582120600 (*System Application Guide*) for additional information.

Installation

Installation Acceptance Checklist

Provided below is an Installation Acceptance Checklist. This checklist helps ensure proper installation and initial operation of the system. As the procedures presented in this section are completed, check the appropriate box on this list. If the procedure is not required to be performed for your installation site, also check the box in this list to indicate that the procedure was read.

When installation is done, ensure that each block in this list has been checked.

Note: *The system is not powered up until the end of this checklist.*

Note: *Some of these procedures may have been performed at the factory for you.*

Physically Installing the Bay

- ❑ Bay Mounted to the Floor
- ❑ Distribution Panel Paralleling Bar(s) Installed (if required)
- ❑ Internal Ground/Return Busbar Paralleling Bar Installed (if required)

Making Electrical Connections

- ❑ Bay Frame Grounding Connection Made
- ❑ External Fuse/Circuit Breaker Alarm Connections Made
- ❑ Internal/External Digital Meter and Alarm Card Input Connections Made
- ❑ Optional Transient Voltage Surge Suppressor (TVSS) Device Installed and Wired
- ❑ Load Distribution Connections Made
- ❑ DC Input Connections Made

Installing Distribution Devices

- ❑ Distribution Devices Installed

Initially Starting and Checking the System

- ❑ System Started and Checked

General Requirements

- Typical industry standards recommend minimum aisle space clearance of 2'6" for the front of the relay rack and 2' for the rear of the relay rack.
- The installer should be familiar with the installation requirements and techniques to be used in securing the bay to the floor.
- This product is intended only for installation in a Restricted Access Location on or above a non-combustible surface.
- This BDF/CBB uses natural convection. Equipment designed for use in environmentally controlled space.

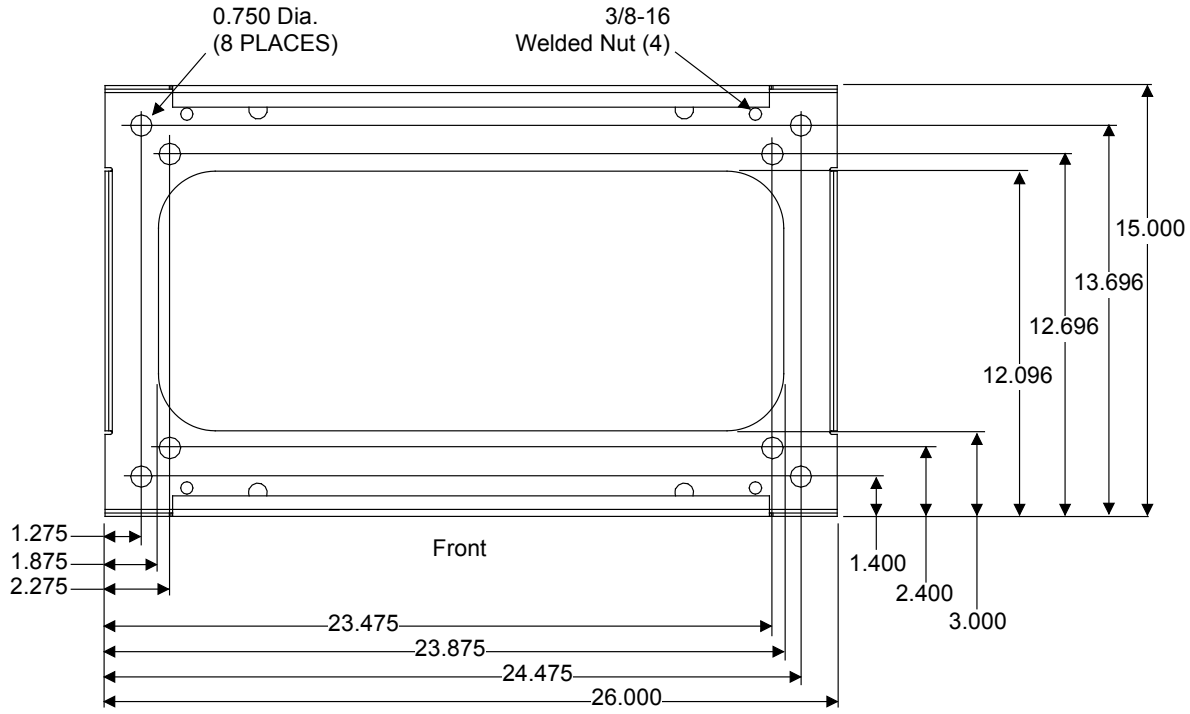
- This product is intended for installation in Network Telecommunication Facilities (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- This product is intended to be connected to the common bonding network in a Network Telecommunication Facility (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).

Physically Installing the Bay

Mounting the Bay to the Floor (All Bays)

Refer to Figure 1 for floor mounting holes drilling dimensions.

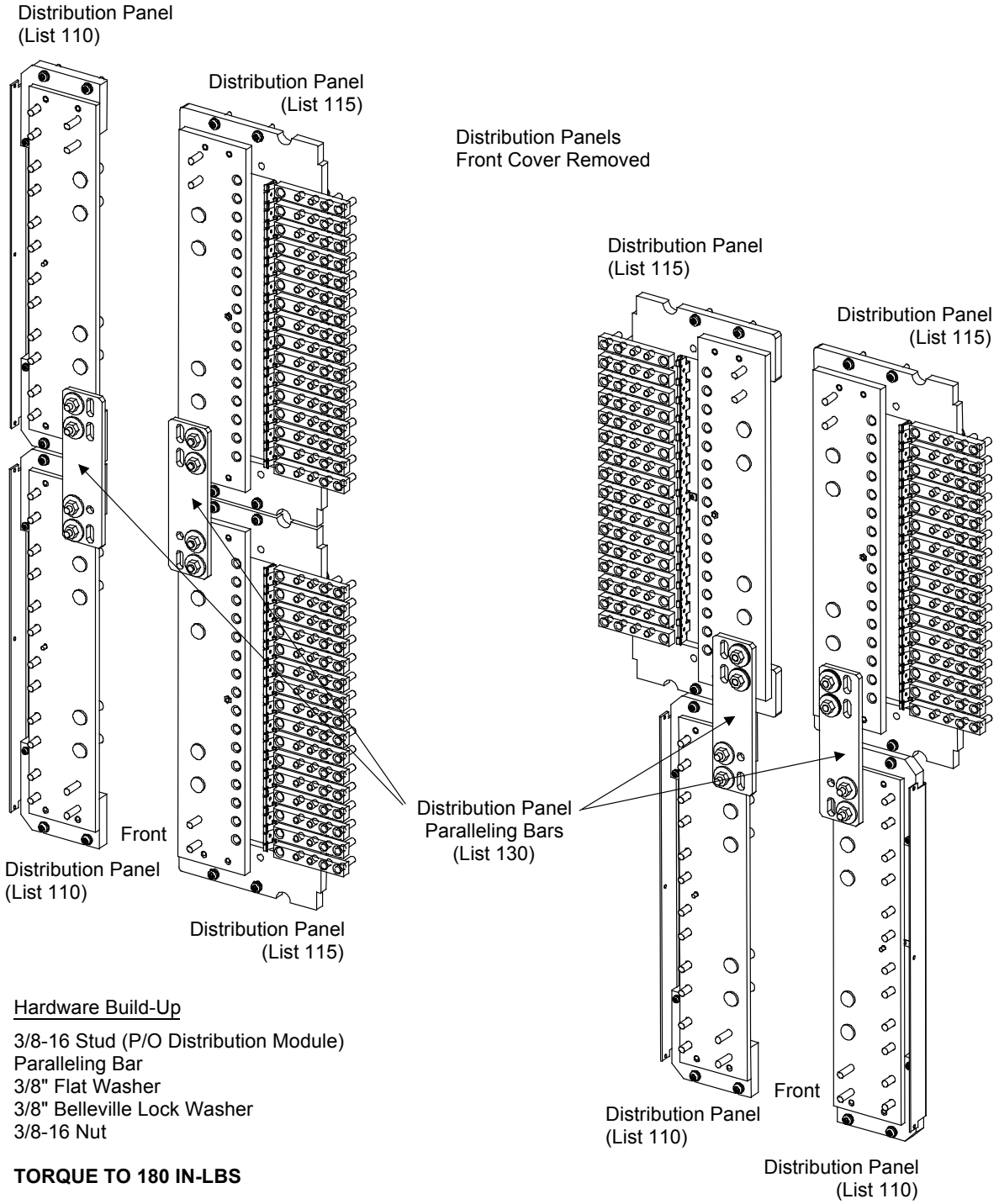
Figure 1. Floor Mounting Holes Drilling Dimensions



Installing Distribution Panel Paralleling Bars, if required (All Bays)

If Distribution Panel Paralleling Bars (List 130) are furnished, attach the Paralleling Bars per Figure 2.

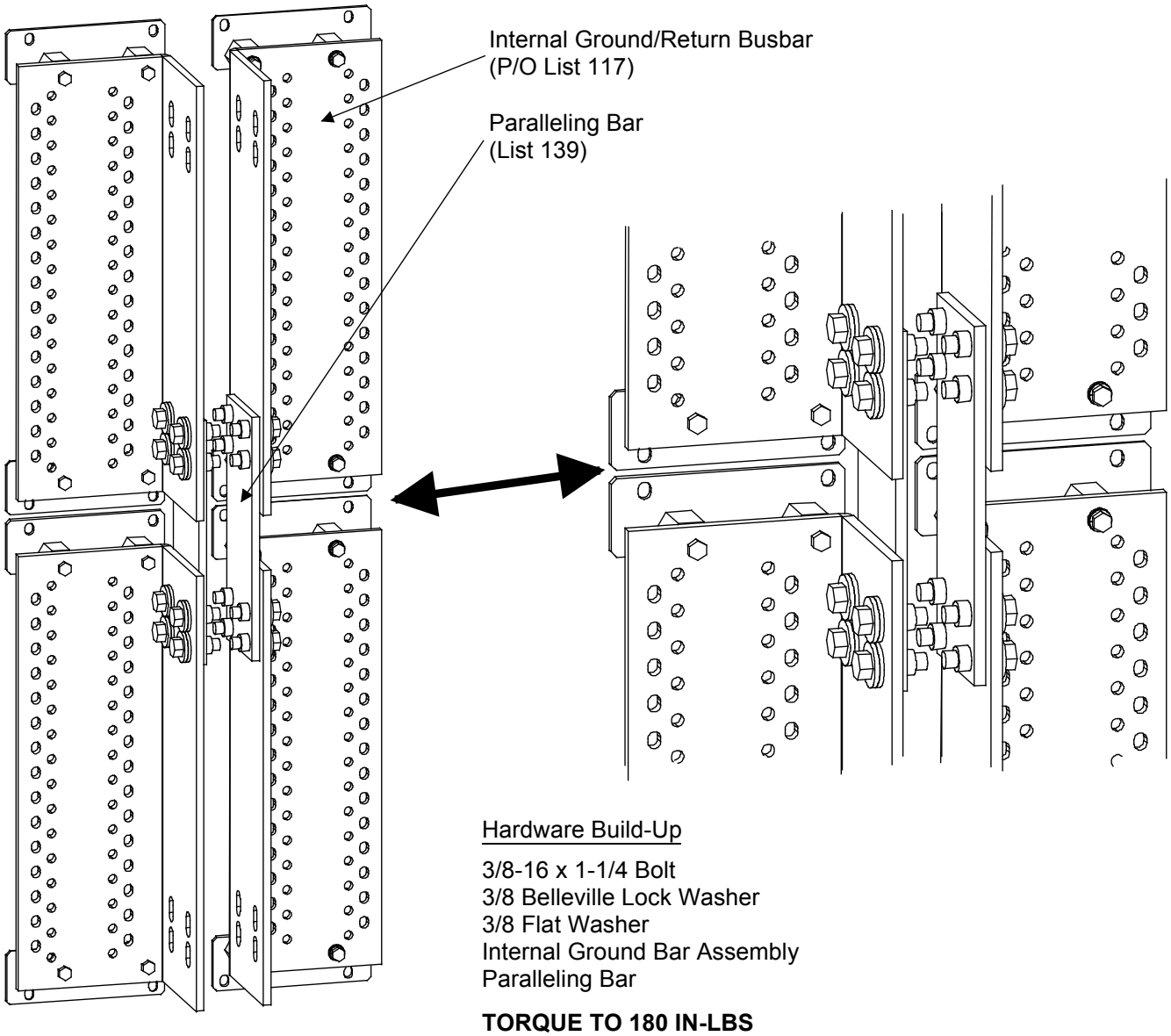
Figure 2. Installing Distribution Panel Paralleling Bars



Installing the Internal Ground/Return Busbar Paralleling Bar, List 139 (List 105 or 108 8-Panel Bay Only) (if furnished)

If Internal Ground/Return Busbars (List 117) are furnished and the Paralleling Bar (List 139) is ordered, attach the Paralleling Bars per Figure 3.

Figure 3. Installing the Internal Ground/Return Busbar Paralleling Bar (List 139) (8-Panel Bay Only)



Field Installing Bay Input Feed and Shunt Assembly, List 143, 144, 145 and 147 (All Bays)

Refer to Figure 4.

Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd on next page)

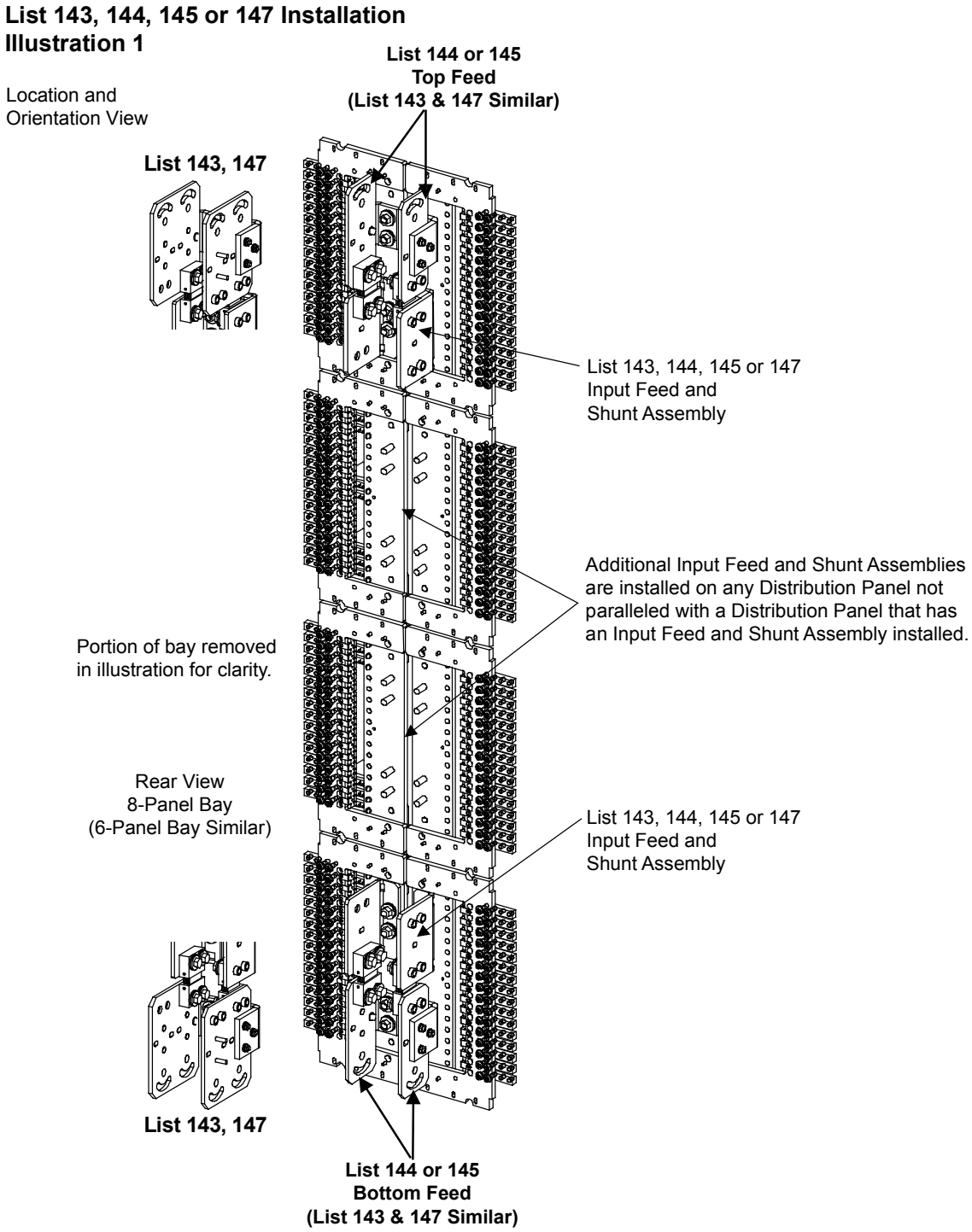


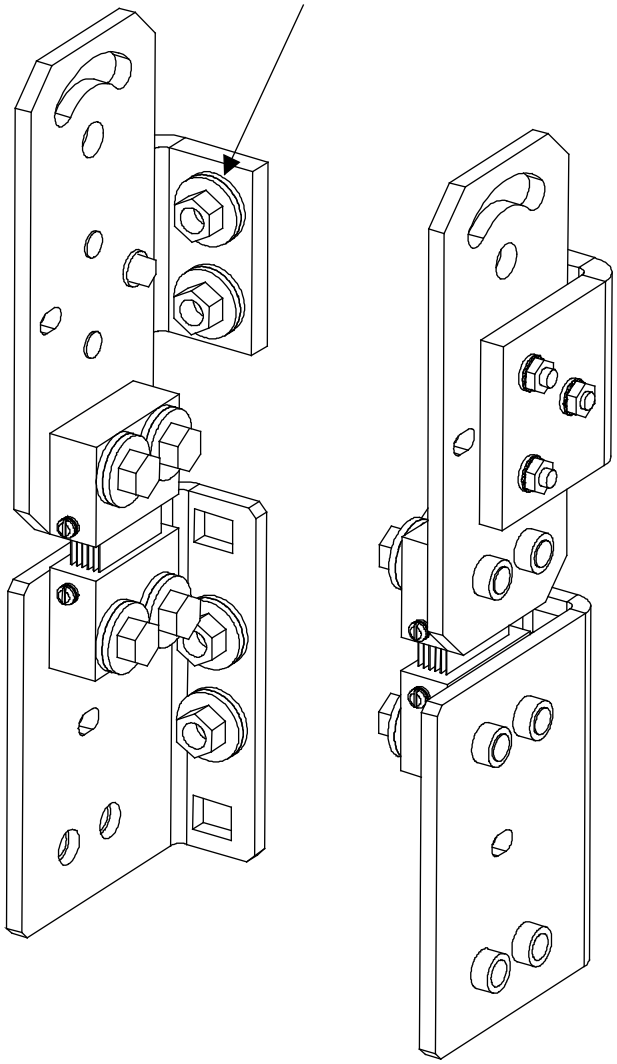
Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page, cont'd on next page)

List 143, 144, 145 or 147 Installation Illustration 2

Hardware Build-Up
and Torque Values

List 144 or 145 shown.
List 143 or 147 similar.

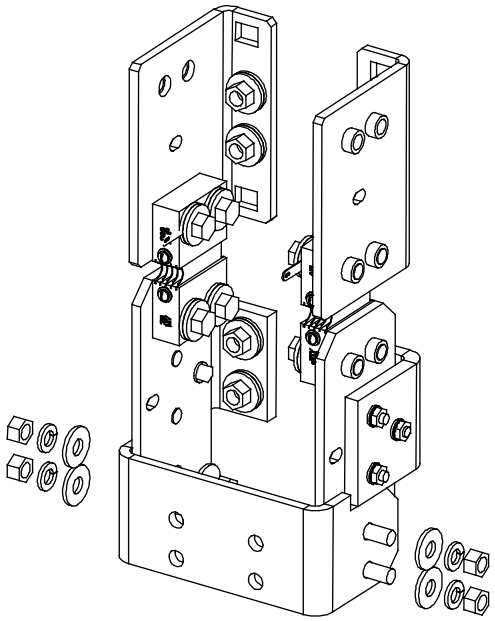
8 Places (4 per side)
3/8" Flat Washer
3/8" Belleville Lock Washer
3-8-16 Nut
TORQUE TO 180 IN-LBS.



Apply anti-oxidation compound
to busbar mating surfaces.

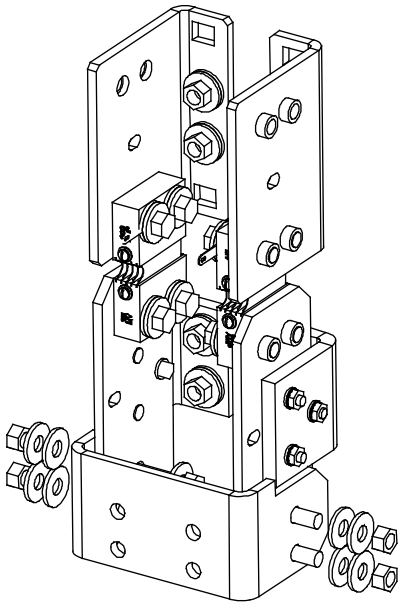
Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page, cont'd on next page), Installation for Busbar Kit 556103 and 557256

582120600 List 144
(List 143 Similar)
when used with List 110 and List 120



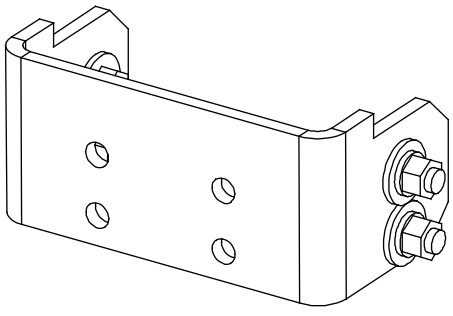
556103

582120600 List 144
(List 143 Similar)
when used with List 115 and List 125



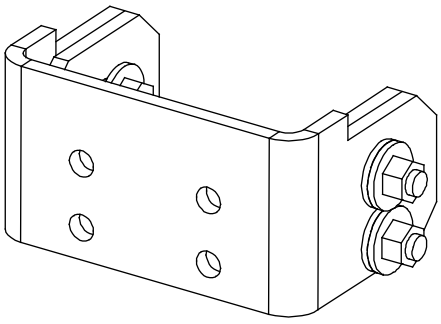
557256

556103



Hardware Build Up
3/8-16 x 1-1/4" Bolt
3/8" Flat Washer
Busbar Link
3/8" Flat Washer
3/8" Lock Washer
3/8-16 Nut

557256



Hardware Build Up
3/8-16 x 1-1/2" Bolt
3/8" Flat Washer
Busbar Link Spacer
Busbar Link
3/8" Flat Washer
3/8" Belleville Lock Washer
3/8-16 Nut

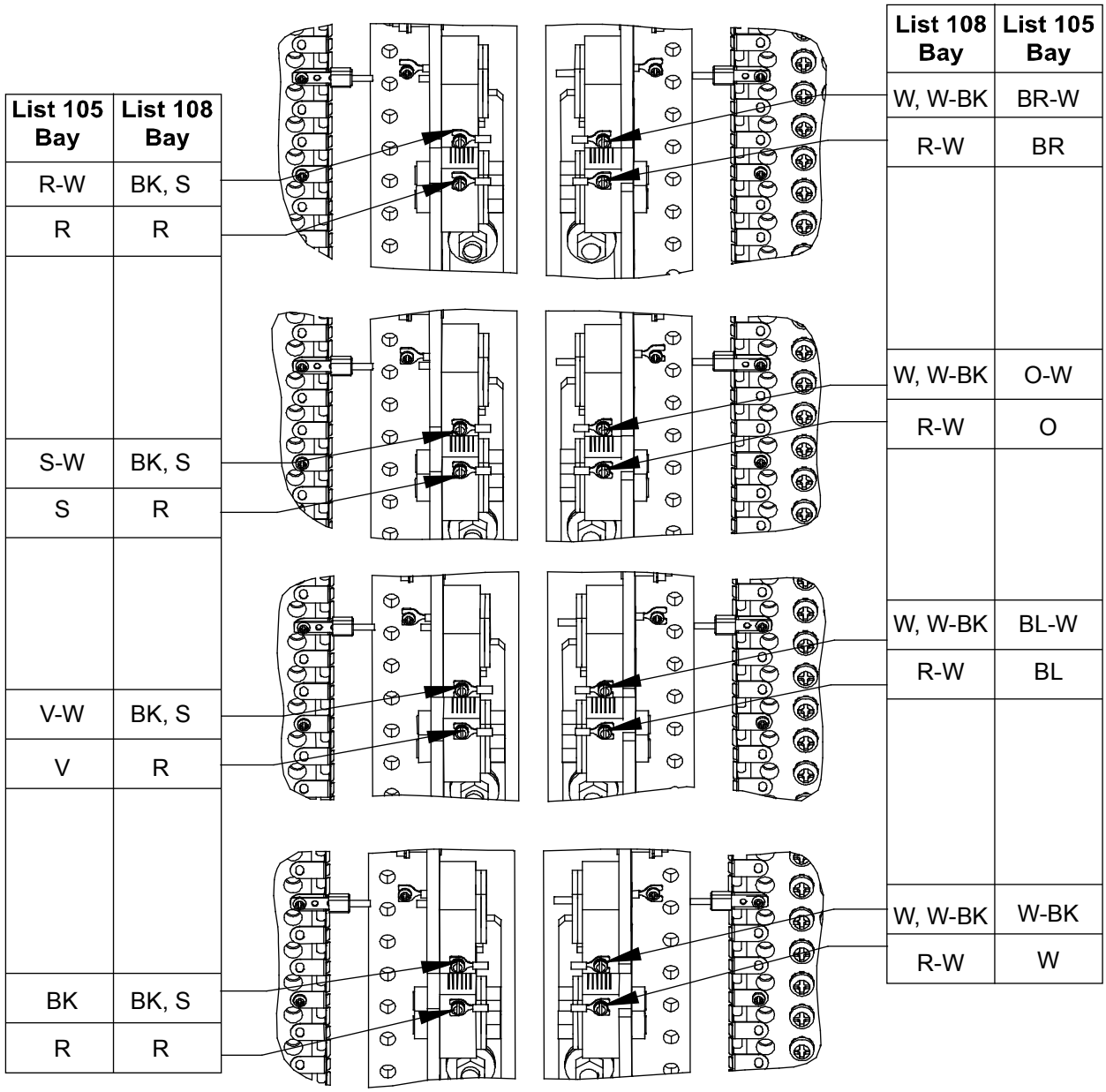
Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page, cont'd on next page)

List 143, 144, 145 or 147 Installation Illustration 3

Shunt Lead Connections
8-Panel Bay, Top Feed

Note

All shunt leads not factory connected to shunts are factory shorted together and insulated.



List 105 Bay	List 108 Bay
R-W	BK, S
R	R
S-W	BK, S
S	R
V-W	BK, S
V	R
BK	BK, S
R	R

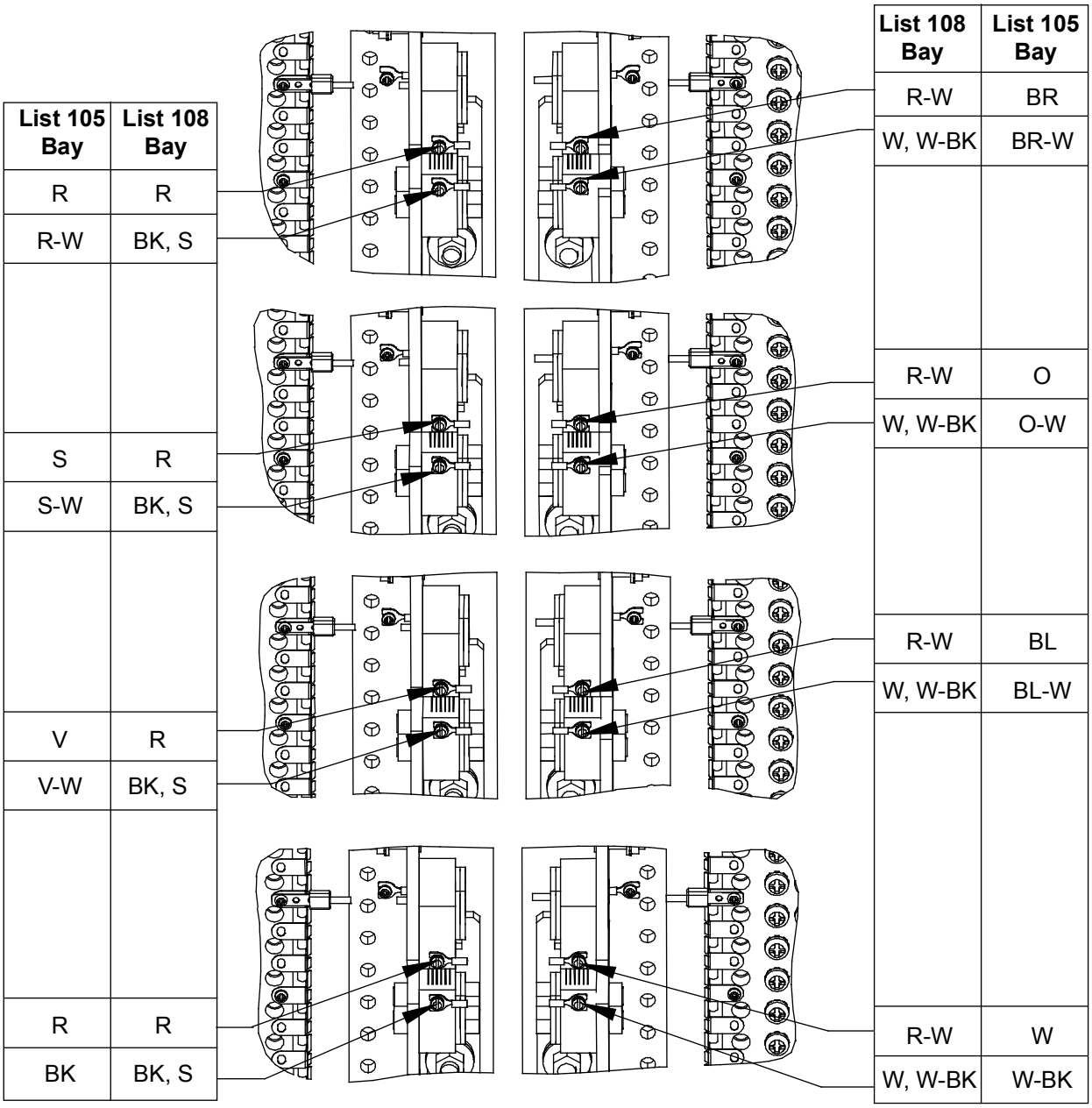
List 108 Bay	List 105 Bay
W, W-BK	BR-W
R-W	BR
W, W-BK	O-W
R-W	O
W, W-BK	BL-W
R-W	BL
W, W-BK	W-BK
R-W	W

Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page, cont'd on next page)

List 143, 144, 145 or 147 Installation Illustration 4

Shunt Lead Connections
8-Panel Bay, Bottom Feed

Note
All shunt leads not factory connected to shunts are factory shorted together and insulated.



List 105 Bay	List 108 Bay
R	R
R-W	BK, S
S	R
S-W	BK, S
V	R
V-W	BK, S
R	R
BK	BK, S

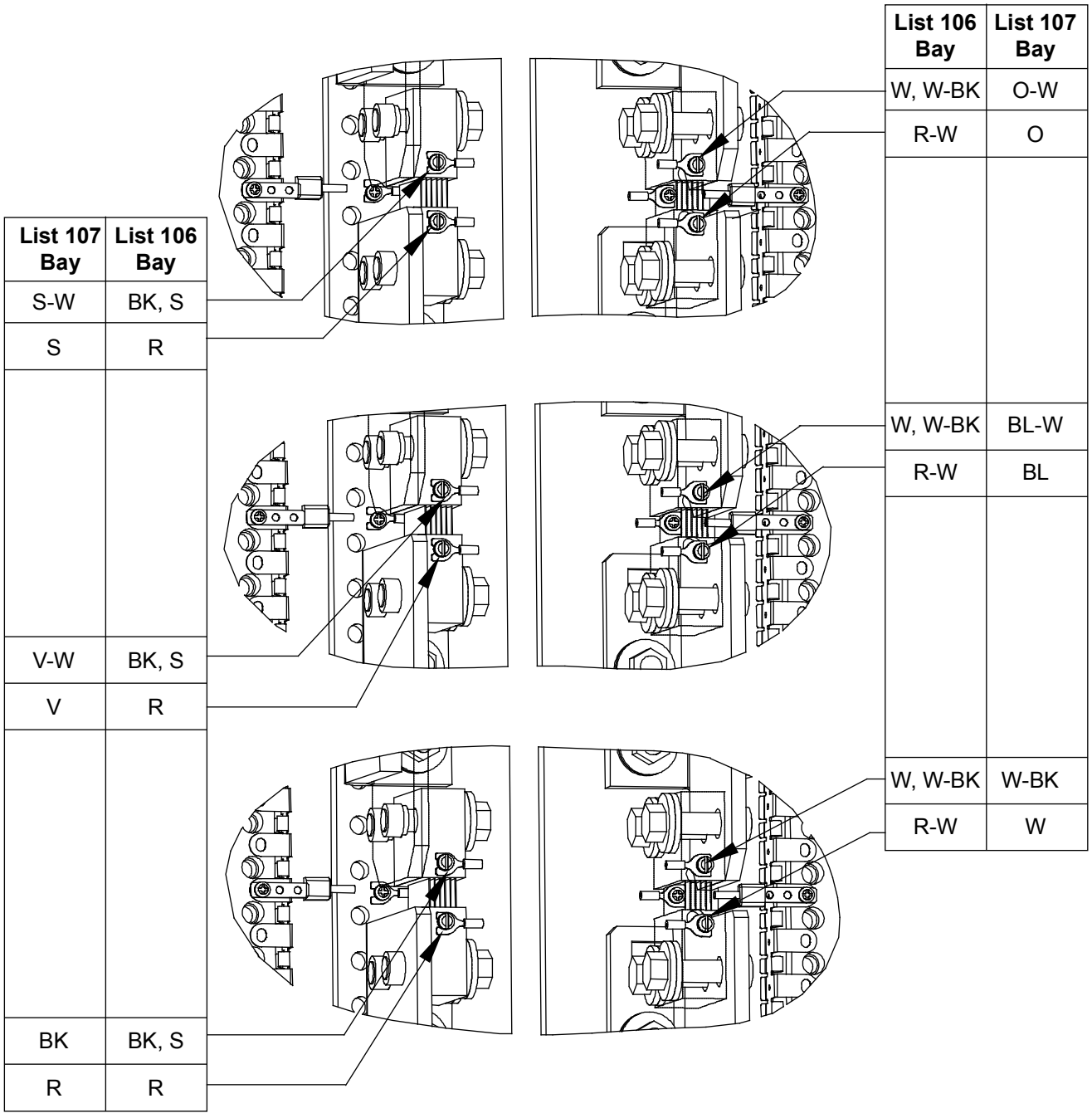
List 108 Bay	List 105 Bay
R-W	BR
W, W-BK	BR-W
R-W	O
W, W-BK	O-W
R-W	BL
W, W-BK	BL-W
R-W	W
W, W-BK	W-BK

Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page, cont'd on next page)

List 143, 144, 145 or 147 Installation Illustration 5

Shunt Lead Connections
6-Panel Bay, Top Feed

Note
All shunt leads not factory connected to shunts are factory shorted together and insulated.



List 107 Bay	List 106 Bay
S-W	BK, S
S	R
V-W	BK, S
V	R
BK	BK, S
R	R

List 106 Bay	List 107 Bay
W, W-BK	O-W
R-W	O
W, W-BK	BL-W
R-W	BL
W, W-BK	W-BK
R-W	W

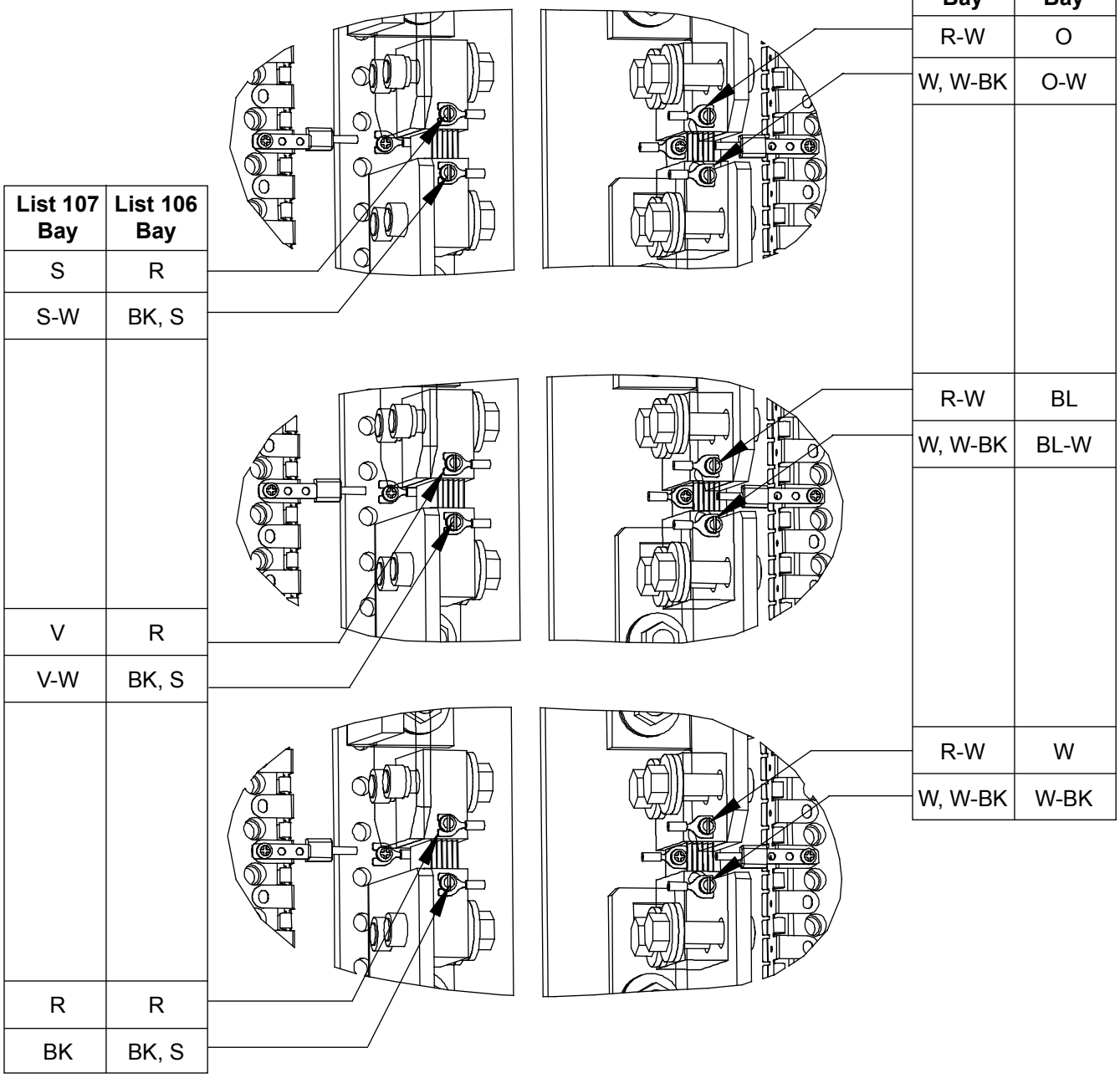
Figure 4. Field Installing Bay Input Feed and Shunt Assembly (List 143, 144, 145 or 147) (cont'd from previous page)

List 143, 144, 145 or 147 Installation Illustration 6

Shunt Lead Connections
6-Panel Bay, Bottom Feed

Note

All shunt leads not factory connected to shunts are factory shorted together and insulated.



List 107 Bay	List 106 Bay
S	R
S-W	BK, S
V	R
V-W	BK, S
R	R
BK	BK, S

List 106 Bay	List 107 Bay
R-W	O
W, W-BK	O-W
R-W	BL
W, W-BK	BL-W
R-W	W
W, W-BK	W-BK

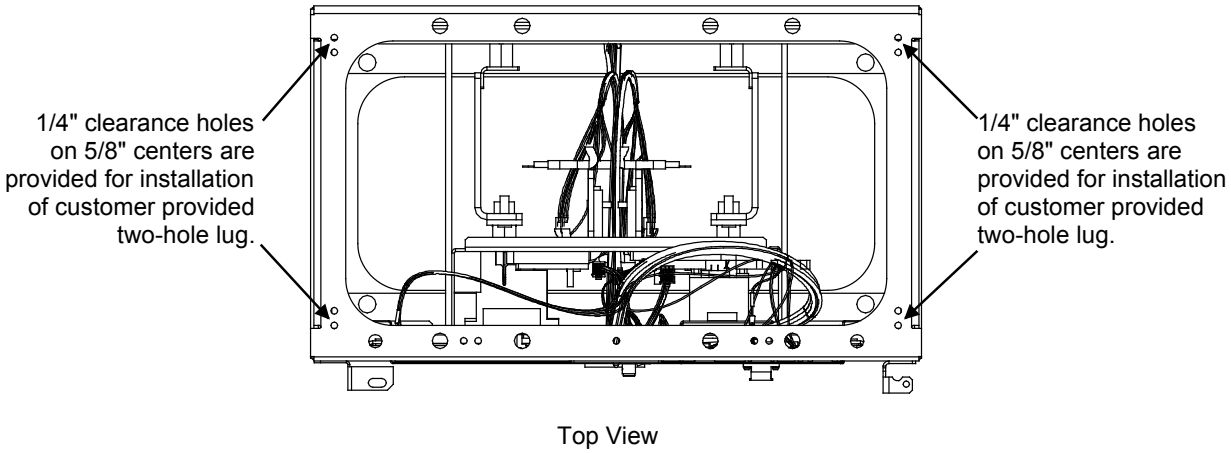
Making Electrical Connections

Bay Frame Grounding Connection (All Bays)

Note: *The DC return connection to this system can remain isolated from system frame and chassis (DC-I).*

Refer to Figure 5.

Figure 5. Bay Frame Grounding Connection Points



List 105 and 107 Customer Interface Connections

Note: *For List 106 and 108, see "List 106 and 108 Customer Interface Connections" following this section.*

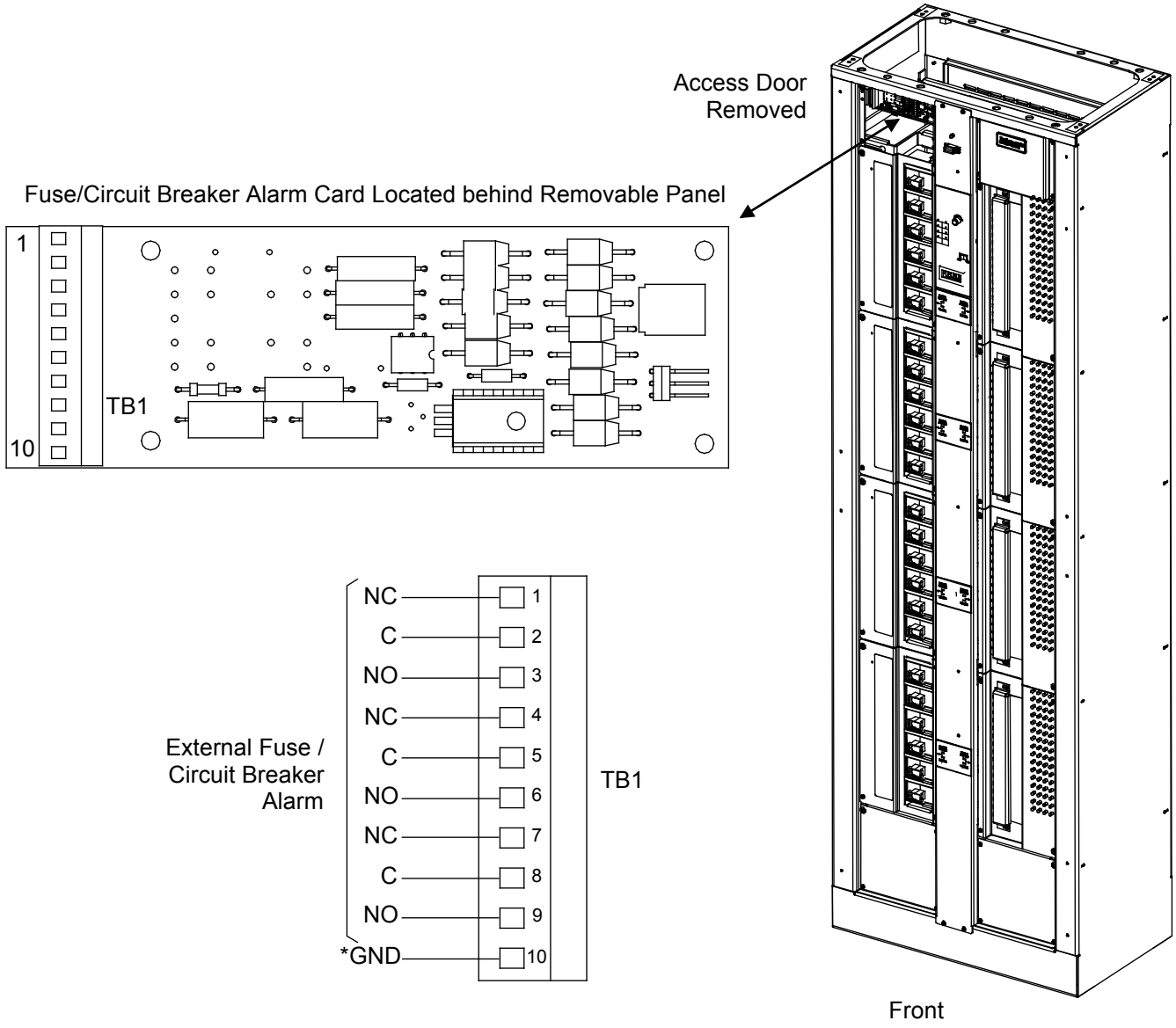
External Fuse/Circuit Breaker Alarm Connections (List 105 and 107)

There is an external alarm circuit card located behind the top left panel in each bay. This circuit card provides three sets of Form C relay contacts for external fuse/circuit breaker alarms. A terminal block is provided on the circuit card for customer external fuse/circuit breaker alarm connections. Recommended torque for these connections is 6.0 in-lbs. Refer to Table 1 and Figure 6.

Table 1. External Fuse/Circuit Breaker Alarm Relays

ALARM STATE		NON-ALARM STATE	
Relay Contacts OPEN Between	Relay Contacts CLOSE Between	Relay Contacts OPEN Between	Relay Contacts CLOSE Between
2-3	1-2	1-2	2-3
5-6	4-5	4-5	5-6
8-9	7-8	7-8	8-9

Figure 6. External Fuse/Circuit Breaker Alarm Connection Points (List 105 and 107)



* May be strapped to terminal 2, 5, or 8 to provide switched ground, if required.

All relay contacts are shown in the deenergized state. Relays are deenergized when in the alarm state.

Internal/External Digital Meter and Alarm Card Input Connections (List 105 and 107)

Note: For List 106 and 108 connections, see the next two sections.

A terminal block is located behind the top right panel in each bay. This terminal block provides connections for external inputs for the digital meter and alarm card. One or two (A and B feed) inputs can be provided. An Internal Fuse Kit is also available to internally power these circuits. For a single input feed, install one kit. For an A and B feed configuration, install two kits.

Recommended torque for these connections is 6.0 in-lbs. Refer to Figure 7 for connection details.

External Digital Meter and Alarm Card Input Connections

Refer to the following procedure and Figure 7.

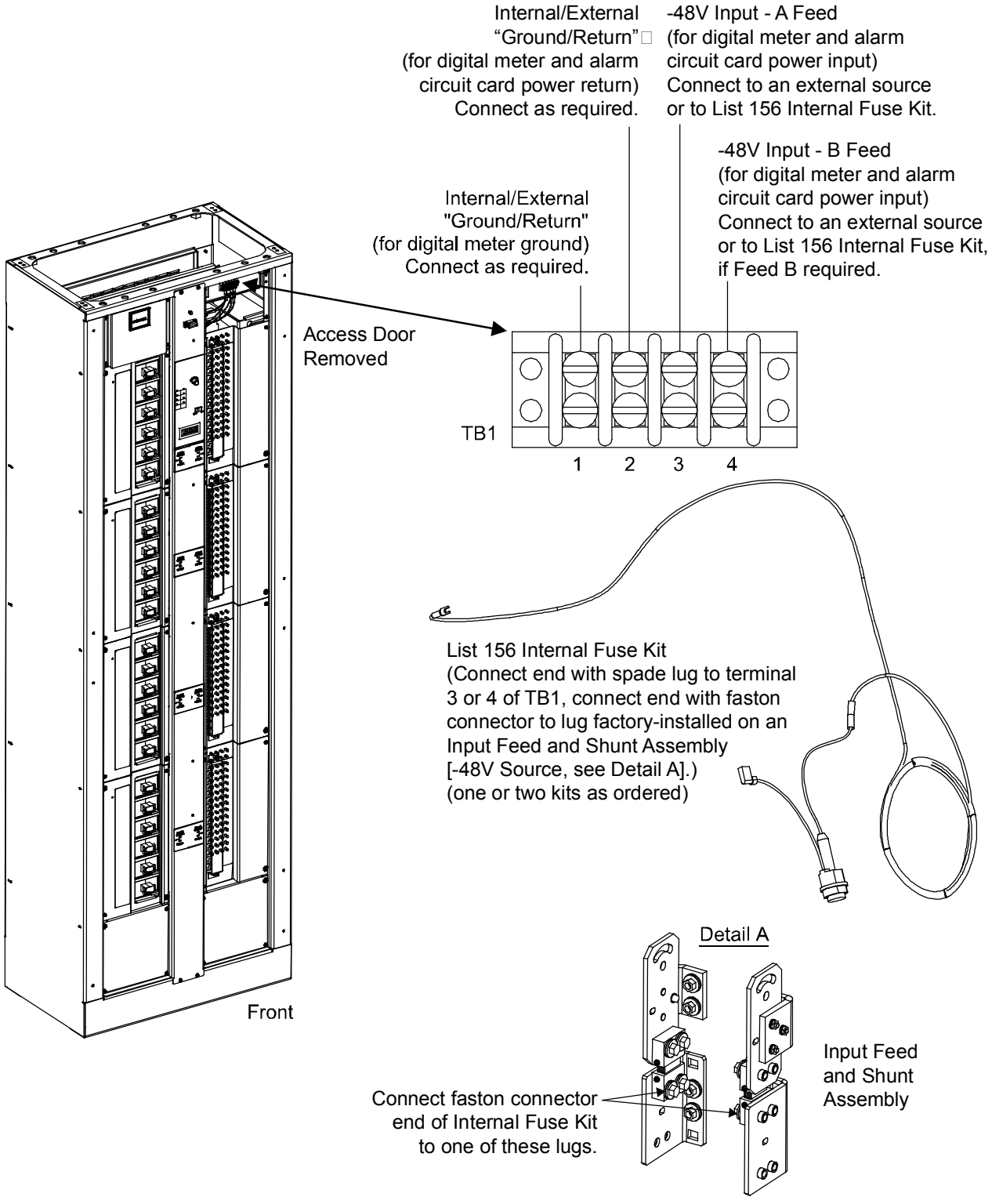
1. Connect terminals 1 and 2 of TB1 to an external "Ground/Return" point.
2. Connect an external "-48V Source" to terminal 3 of TB1. For an A and B input configuration, connect a second "-48V Source" to terminal 4 of TB1.

Internal Digital Meter and Alarm Card Input Connections

Refer to the following procedure and Figure 7 to install the Internal Fuse Kit.

1. Connect terminals 1 and 2 of TB1 to a "Ground/Return" point.
2. Connect the end of the Internal Fuse Kit Assembly with the spade lug to terminal 3 of TB1. If a second kit is to be installed, connect its spade lug to terminal 4 of TB1.
3. Connect the other end (1/4 faston connector) to the lug factory installed on an "Input Feed and Shunt Assembly" (-48V Source). If a second kit is to be installed, connect its faston connector to a second "Input Feed and Shunt Assembly" (-48V Source). One or more "Input Feed and Shunt Assemblies" are installed in the bay per side, depending on the bay configuration.
4. Route and dress the kit wiring along the existing main wire harness.

Figure 7. Internal/External Digital Meter and Alarm Card Input Connections (List 105 and 107)



List 106 and 108 Customer Interface Connections

Note: *For List 105 and 107, see "List 105 And 107 Customer Interface Connections" preceding this section.*

Input/Output Card Connections (List 106 and 108)

An input/output circuit card is located behind the top left panel in each bay. This circuit card provides four alarm relays, each with one set of Form C relay contacts, for external alarms. Terminal blocks are provided on the circuit card for customer external alarm connections. Also provided are RS485 and Ethernet connection points.

To access the connections, remove the screws that secure both access covers. Before removing, note the location of any grounding washers used with the hardware securing the panel. Remove the covers.

Refer to Figure 8 for connection details. Recommended torque for terminal block connections is shown in Figure 8.

External Alarm Connections

Refer to Table 2 and Figure 8.

Table 2. External Fuse/Circuit Breaker Alarm Relays

Relay Number	Terminal Block	ALARM STATE		NON-ALARM STATE	
		Relay Contacts OPEN Between	Relay Contacts CLOSE Between	Relay Contacts OPEN Between	Relay Contacts CLOSE Between
K1	TB7	1-2	2-3	2-3	1-2
K2	TB7	4-5	5-6	5-6	4-5
K3	TB8	1-2	2-3	2-3	1-2
K4	TB8	4-5	5-6	5-6	4-5

Ethernet Connections

Note: *If the Web Interface is not being used with this system, skip this procedure.*

The BDFB provides a Web Interface via an Ethernet connection to a TCP/IP network. J3 is an RJ-45 10BaseT jack that is provided for connection into a customer's network running TCP/IP. Refer to Figure 8 for location. This jack has a standard Ethernet pin configuration scheme, twisted pair. Refer to Table 3 for pin outs. Use shielded Ethernet cable (grounded at both ends). Note that the RJ-45 jack in BDFB is connected to chassis ground.

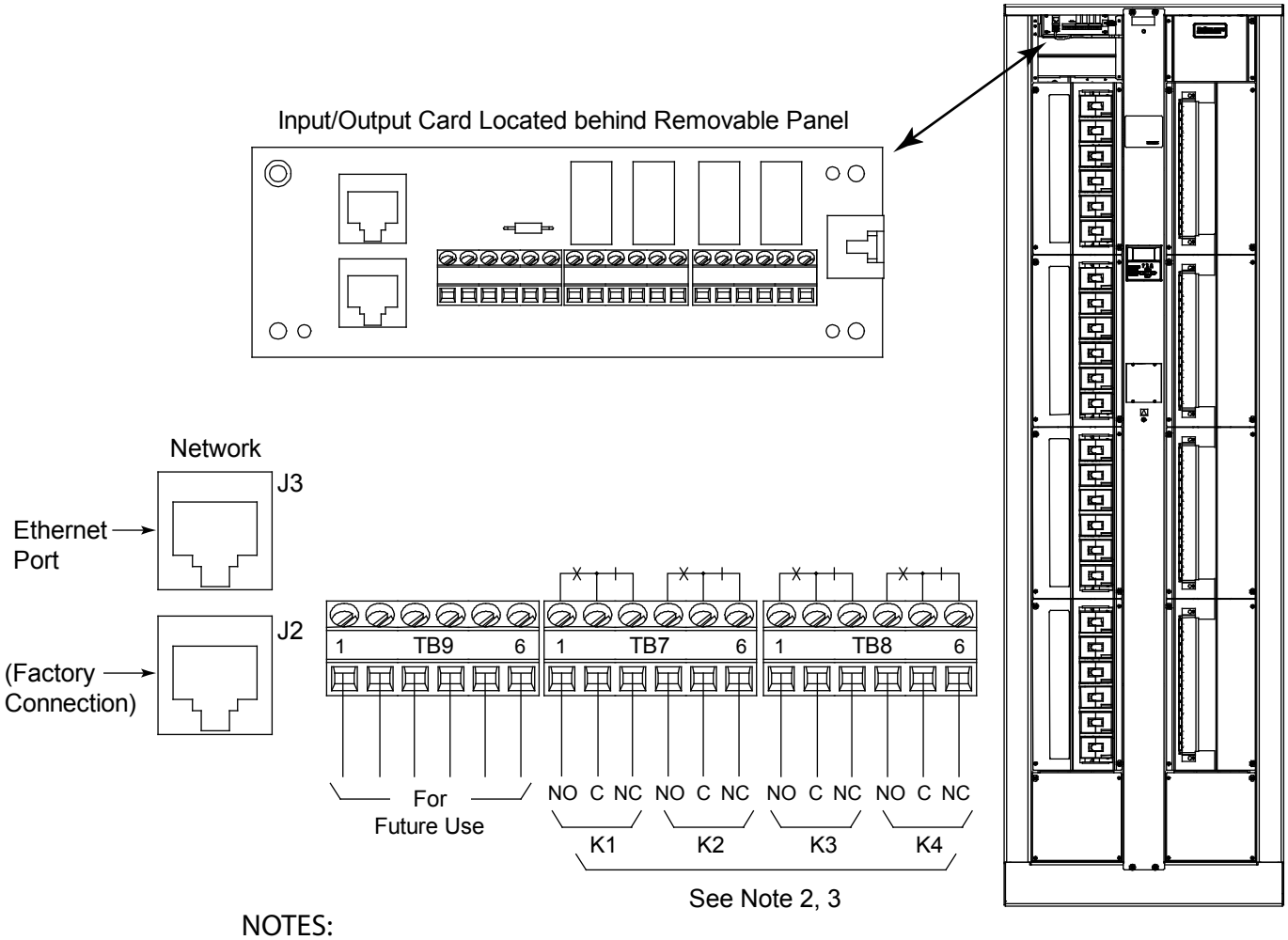
WARNING! The intra-building port(s) of the equipment or subassembly is suitable for connection to intra-building or unexposed wiring or cabling only. The intra-building port(s) of the equipment or subassembly MUST NOT be metallically connected to the interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

Table 3. RJ-45 Ethernet Port Pin Configuration

Port Pin Number	Name	Definition
1	Tx+	Write Signal +
2	Tx-	Write Signal -
3	Rx+	Read Signal +
4	--	no connection
5	--	no connection
6	Rx-	Read Signal -
7	--	no connection
8	--	no connection

Note: *You can access the Web pages of the Power System locally by using a "crossover" cable connected directly between your PC and the BDFB.*

Figure 8. Input/Output Card Connections (List 106 and 108)



NOTES:

1. Torque all terminal block connections to 6 inch-pounds.

2. NO=Normally Open. C=Common. NC=Normally Closed. All alarm relays are shown in de-energized state. All relays are de-energized for an alarm condition.

3. Default Relay Mapping: K1 - Fuse Alarm
   K2 - Low Voltage Alarm
   K3 - Power Lost Alarm
   K4 - Overcurrent 1 Alarm, Overcurrent 2 Alarm

4. Default Alarm Settings: Low Voltage Alarm - 51.8 VDC
   Power Lost - 42.0 VDC
   Overcurrent 1 - 480 amps
   Overcurrent 2 - 800 amps

Auxiliary Fuse Card Connections (List 106 and 108)

An Auxiliary Fuse Card is located behind an access panel at the top right side of the bay front panel. This circuit card provides four (4) fused auxiliary -48V power outputs (1-1/3A), optional remote (A/B) meter panel inputs and an internal/external sense option. Terminal blocks are provided on the circuit card for all connections.

Refer to Figure 9 for connection details. Recommended torque for terminal block connections is shown in Figure 9.

External Sense Connections and Option Jumper Setting

Refer to the following procedure and Figure 9.

1. For a system installation with internal ground/return bars, set the sense option jumper for Internal Sense.

Note: Connect 2 Return (+) sense leads from the System Ground/Return busbars to +RTN A and +RTN B busbars. Refer to Figure 9 for connection location.

2. For a system installation with external ground/return bars:
   a. Connect the Return (+) sense leads from the ground bars to terminals 2 (Return A) and 1 (Return B) of terminal block TB5.
   b. Set the sense option jumper for External Sense.

Digital Meter Panel External Input Connections

Refer to the following procedure and Figure 9.

1. Connect terminals 2 of TB1 and TB2 to an external "Ground/Return" point.
2. Connect an external "-48V Source" to terminal 1 of TB1. For an A and B input configuration, connect a second "-48V Source" to terminal 1 of TB2.

Auxiliary Load Connections

Four circuits, each fused at 1-1/3A, are provided for connection of auxiliary loads. Refer to SAG582120600 for recommended wire size. Refer to the following procedure and Figure 9.

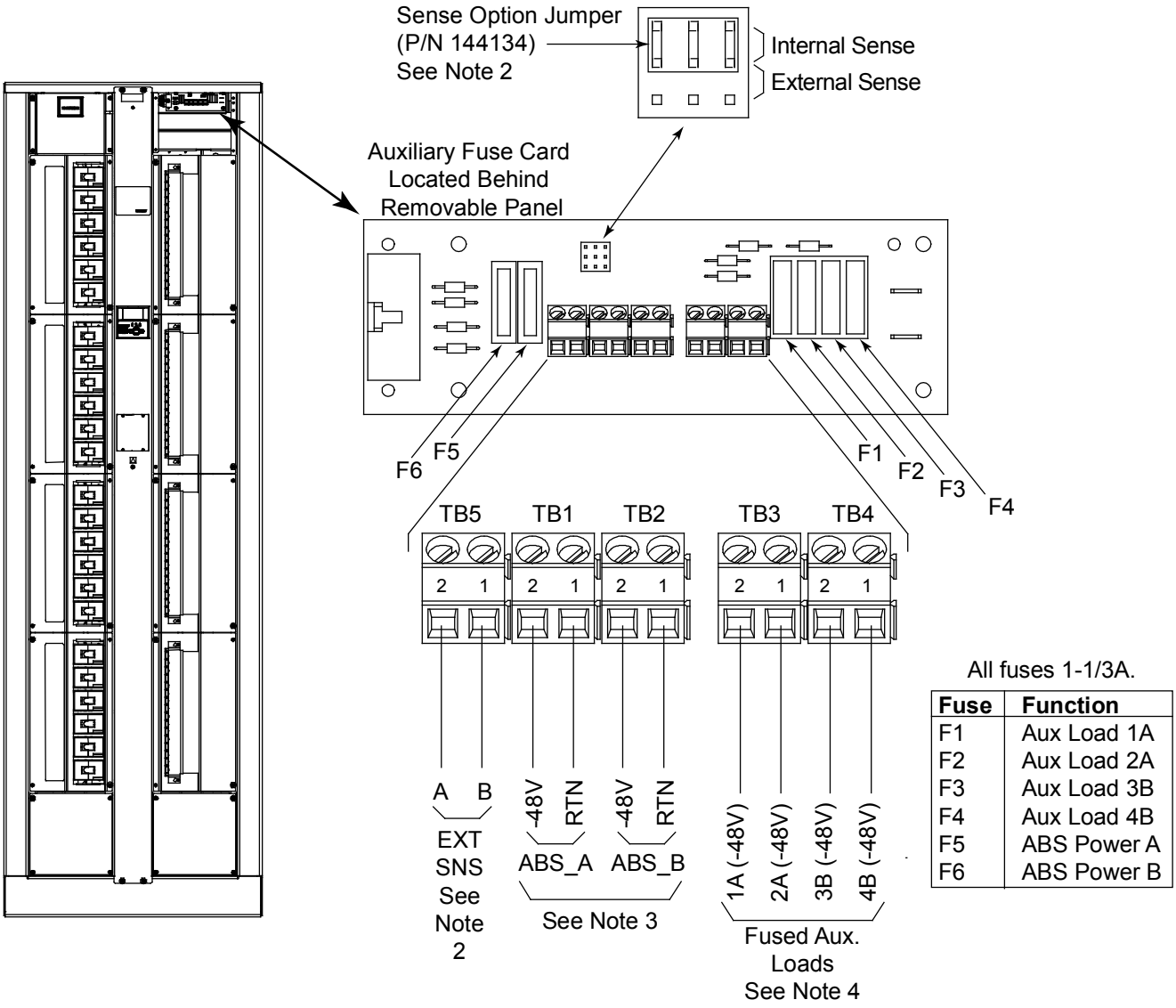
WARNING! Load should not exceed 80% of device rating.

1. Connect load -48V leads as shown in Table 4.
2. Connect load Return leads to a system ground/return bar.

Table 4. Auxiliary Load Connections

Fuse	Circuit Name	Terminal
F1	Aux Load 1A (-48V)	TB3-1
F2	Aux Load 2A (-48V)	TB3-2
F3	Aux Load 3B (-48V)	TB4-1
F4	Aux Load 4B (-48V)	TB4-2

Figure 9. Auxiliary Fuse Card Connections



All fuses 1-1/3A.

Fuse	Function
F1	Aux Load 1A
F2	Aux Load 2A
F3	Aux Load 3B
F4	Aux Load 4B
F5	ABS Power A
F6	ABS Power B

NOTES:

1. Torque all terminal block connections to 6 inch-pounds.

2. For internal voltage sensing, set Sense Option jumper to Internal Sense position.
   For system installation with external ground bar, connect Return (+) sense leads from ground bars to TB5-1 (Return B) and TB5-2 (Return A), and set Sense Option jumper to Extenal Sense position.

3. For optional external (ABS) power to the Meter/Alarm assembly, connect source A to TB1 and source B to TB2. Observe correct polarity as shown.

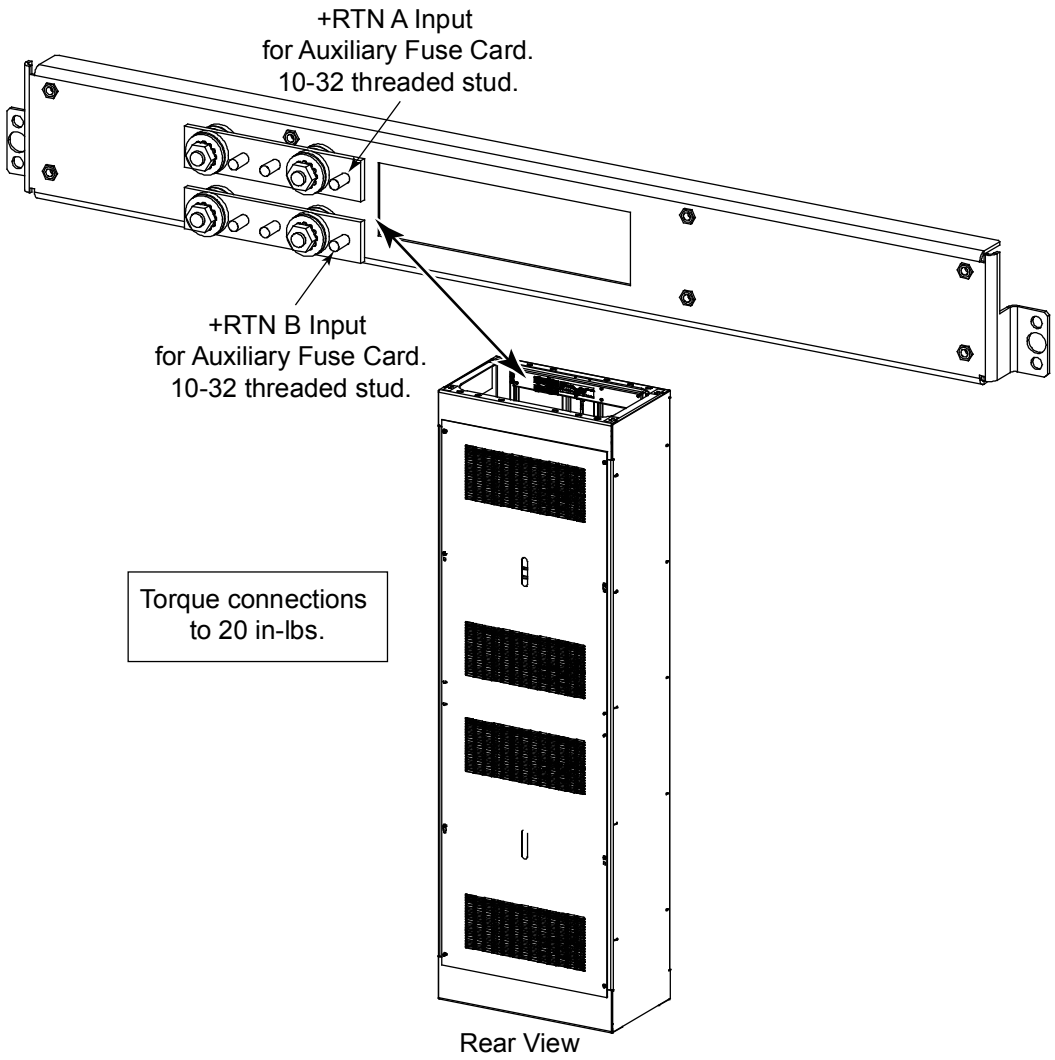
4. Connect Return (+) leads for Fused Auxiliary Loads to system ground bar.

Ground/Return Input Connections for Auxiliary Fuse Card

System Ground/Return must be supplied to the Auxiliary Fuse Card by the installer. Busbars located behind the card and accessible through the back of the bay provide connection points for A side and B side connections. Terminate each wire with a one-hole lug having a clearance hole for a 10-32 stud. Refer to Figure 10 for connection location. Recommended torque for terminal block connections is shown in Figure 10.

1. Connect the lug-terminated end of a lead to the +RTN A busbar. Connection the remaining end of the lead to the system Ground/Return busbar. If the bay is configured for A/B operation, connect lead to the A side system Ground/Return busbar.
2. If the bay is configured for A/B operation, connect the lug-terminated end of a lead to the +RTN B busbar. Connection the remaining end of the lead to the B side system Ground/Return busbar.

Figure 10. Auxiliary Fuse Card Ground/Return Input Connections



Installing and Wiring to an Optional Transient Voltage Surge Suppressor (TVSS) Device (All Bays)

Transient Voltage Surge Suppressor Devices are installed in the 'distribution device' mounting positions of a List 115 or List 125 Distribution Panel only.

When required, all unparalleled Distribution Panels require a TVSS Device. Only one (1) TVSS Device is required per paralleled groups of Distribution Panels.

Unless otherwise specified, install the TVSS Device in the mounting position closest to the Distribution Panel's input busbar.

Refer to SAG582120600 for more information.

CAUTION! The TVSS Device occupies two mounting positions. Leave an additional empty mounting position between the TVSS Device and any overcurrent protective device.

PROCEDURE

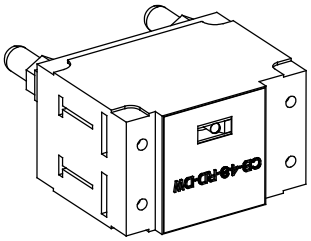
1. Install the TVSS Device(s) as required. Refer to Figure 11.
2. Connect a customer provided cable from the List 115 or List 125 Distribution Panel lug mounting busbar associated to the TVSS mounting position into a customer's grounding network. Refer to Figure 11. Wire to be sized so that the maximum wire resistance is less than 0.550 milliohms.

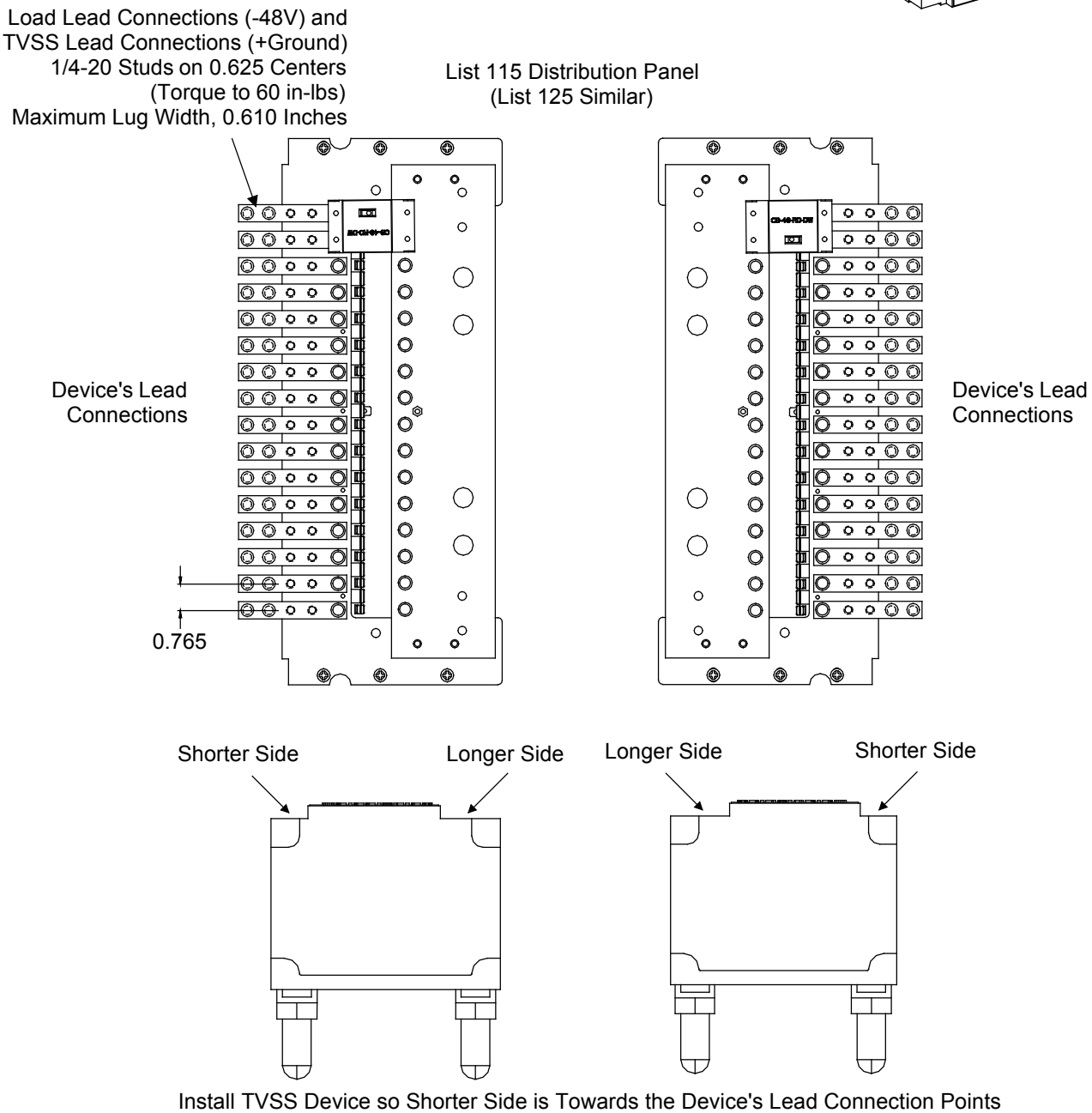
   Note: *The ground cable will be installed in a position normally used for -48V distribution. It is recommended to use a Green cable and insulate the connection with shrink tubing to avoid incidental contact.*

Figure 11. Installation and Wiring of Transient Voltage Surge Suppressor (TVSS) Devices

DANGER

Ensure leads are connected to proper polarity for the device installed, either a Distribution Device (load lead connection) or a TVSS Device (ground connection).





Input/Output Cable Routing and Cable Management (All Bays)

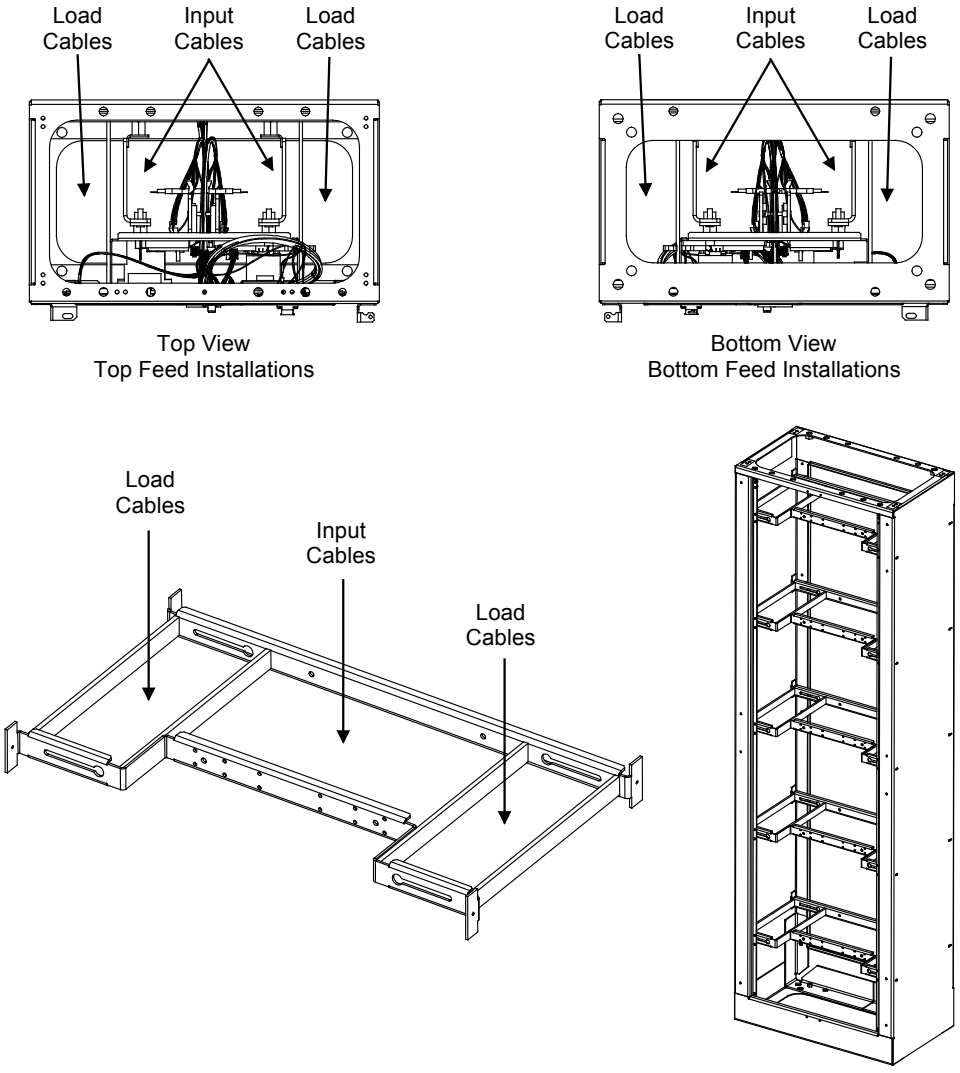
Input/Output Cable Routing Diagram

Refer to Figure 12 for an input/output cable routing diagram.

Fuseholder and circuit breaker wiring should start with positions furthest from the point that distribution cabling leaves the bay.

It is recommended to wire the loads for Top Feed Arrangements starting with the bottom most distribution position of the bottom most Distribution Panel and ending with the top most distribution position of the top most Distribution Panel, and routing the wires starting from the back of the bay and ending with the front of the bay (Bottom to Top, Rear to Front Wiring). For Bottom Feed Bay Arrangements, recommended wiring should start with the top most distribution position of the top most Distribution Panel and ending with the bottom most distribution position of the bottom most Distribution Panel, and routing the wires starting from the back of the bay and ending with the front of the bay (Top to Bottom, Rear to Front Wiring). It is also recommended as you run your wires to bundle about four wires together with cable lacing, and route each bundle up to the top (or down to the bottom) of the bay, pressing each bundle towards the rear of the bay. When each bundle is pressed as far back as it can go, secure the bundle to the cable dressing bars with cable lacing. Proceed with the next bundle of wires until all distribution positions are wired.

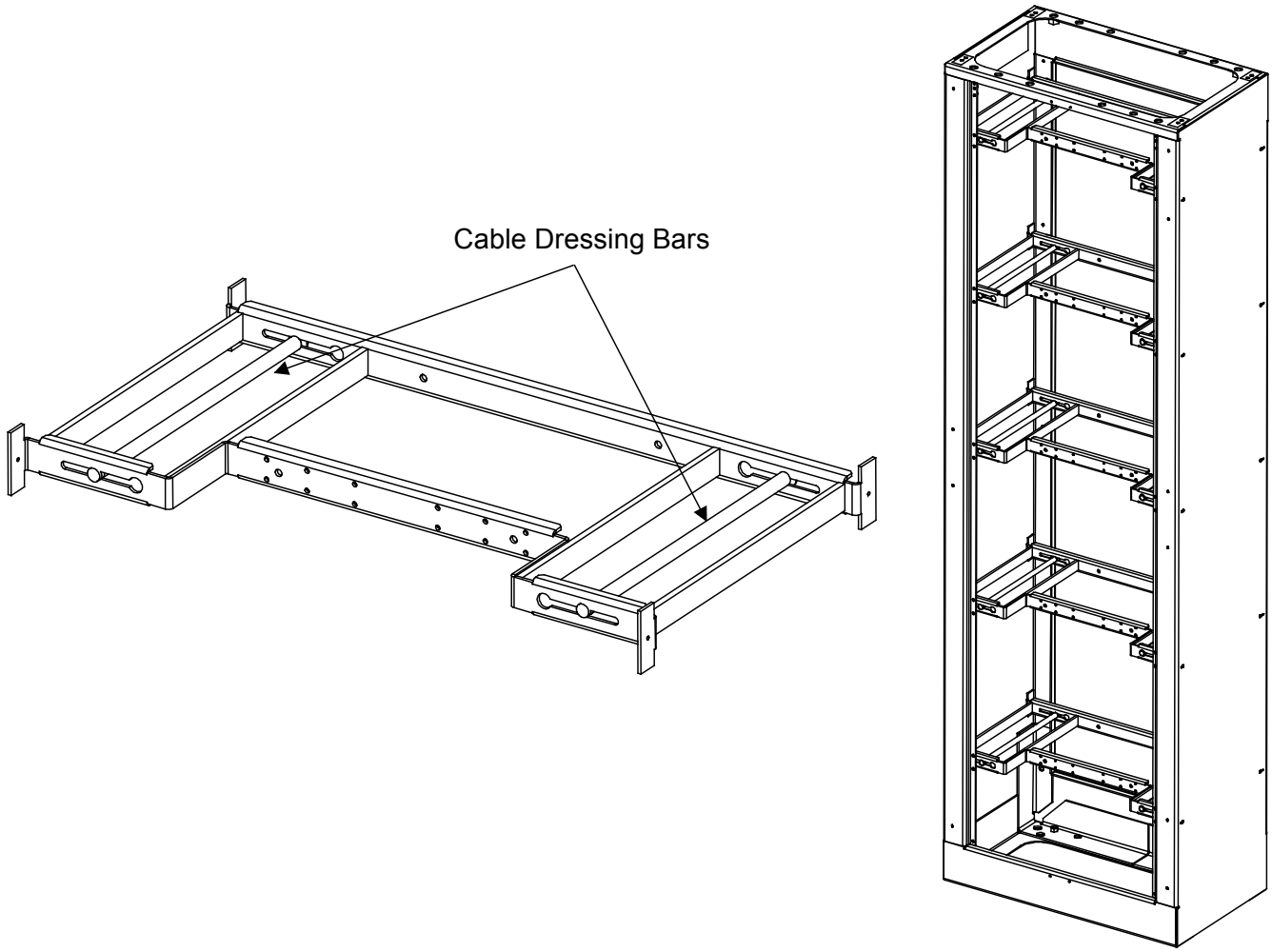
Figure 12. Input/Output Cable Routing



Optional Cable Dressing Bar

Optional Cable Dressing Bars are available. See SAG582120600. The dressing bars are adjustable and allow customer to dress output load cables along the sides of the bay. See Figure 13.

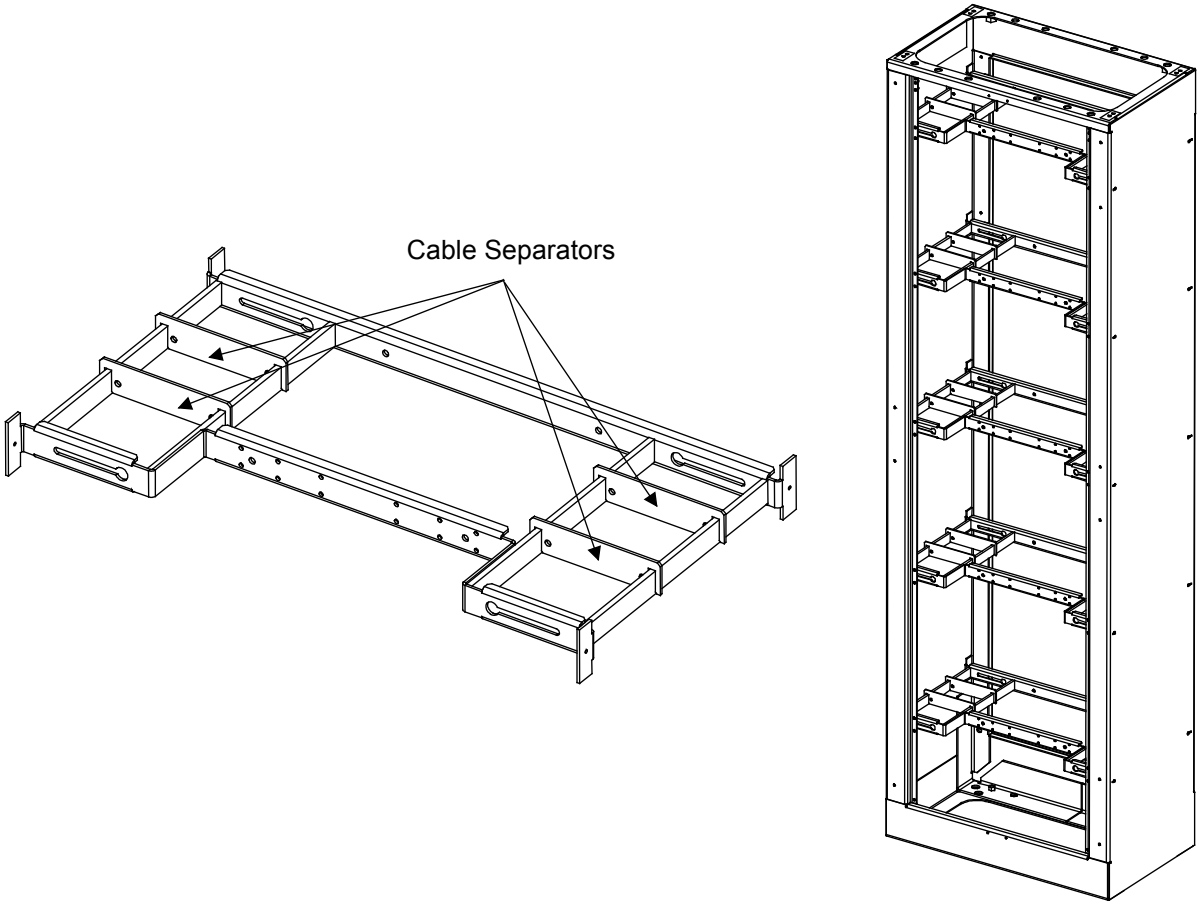
Figure 13. Optional Cable Dressing Bars



Optional Load Distribution Cable Management Kit

An optional Load Distribution Cable Management Kit is available. See SAG582120600. This kit provides twelve (12) Cable Separators plus cable ties as a method to manage wiring. This kit cannot be used with the optional Cable Dressing Bars. See Figure 14.

Figure 14. Optional Load Distribution Cable Management Kit



Load Distribution Connections (All Bays)

The rating of the distribution device determines the wire size requirements. Refer to the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC) and applicable local codes.

To Distribution Panels

Load distribution (load side) leads terminated in the appropriate lug are connected to the 'load side' terminations provided on each Distribution Panel. See Figure 15.

Load distribution (return side) leads terminated in the appropriate lug are connected to the 'load return side' terminations provided on the optional internal ground/return bars or to external ground/return bars. See Figure 15.

Figure 15. Load Distribution Connections (cont'd on next page)

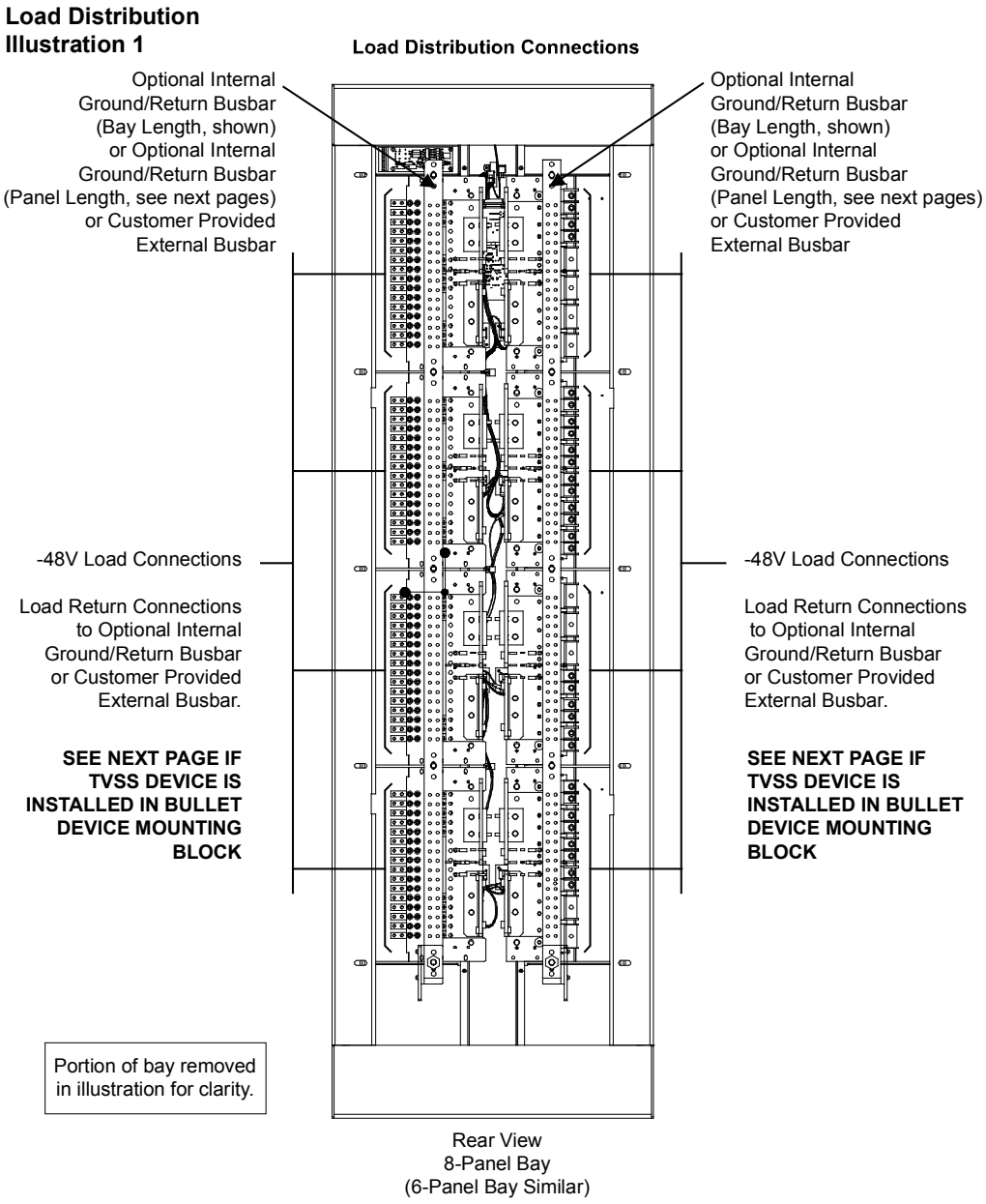
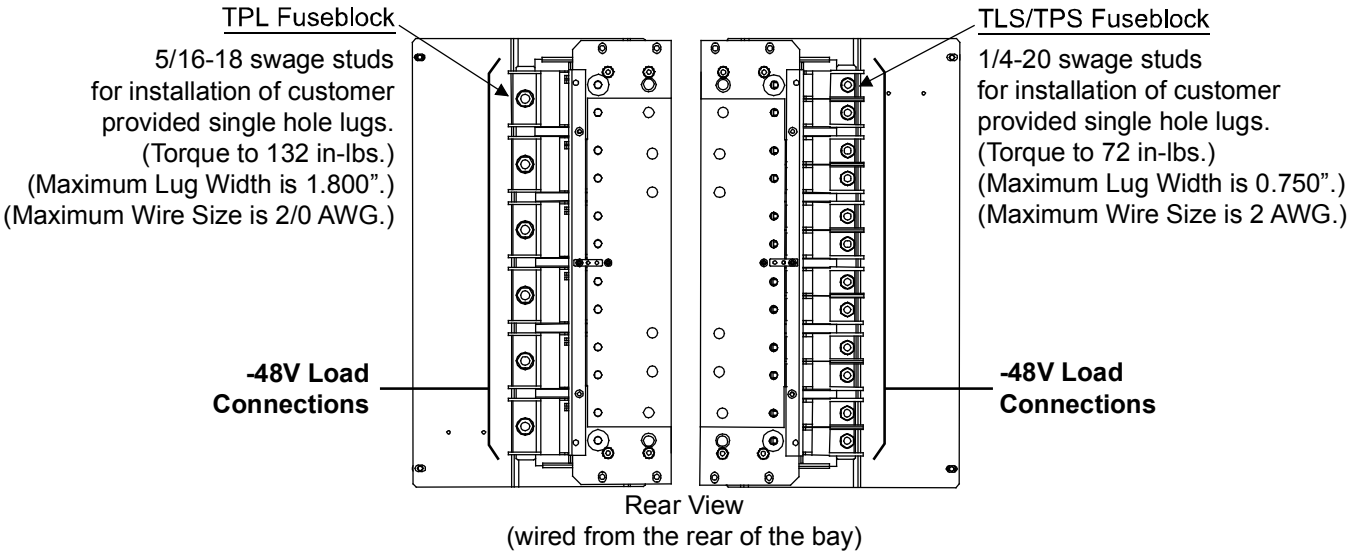


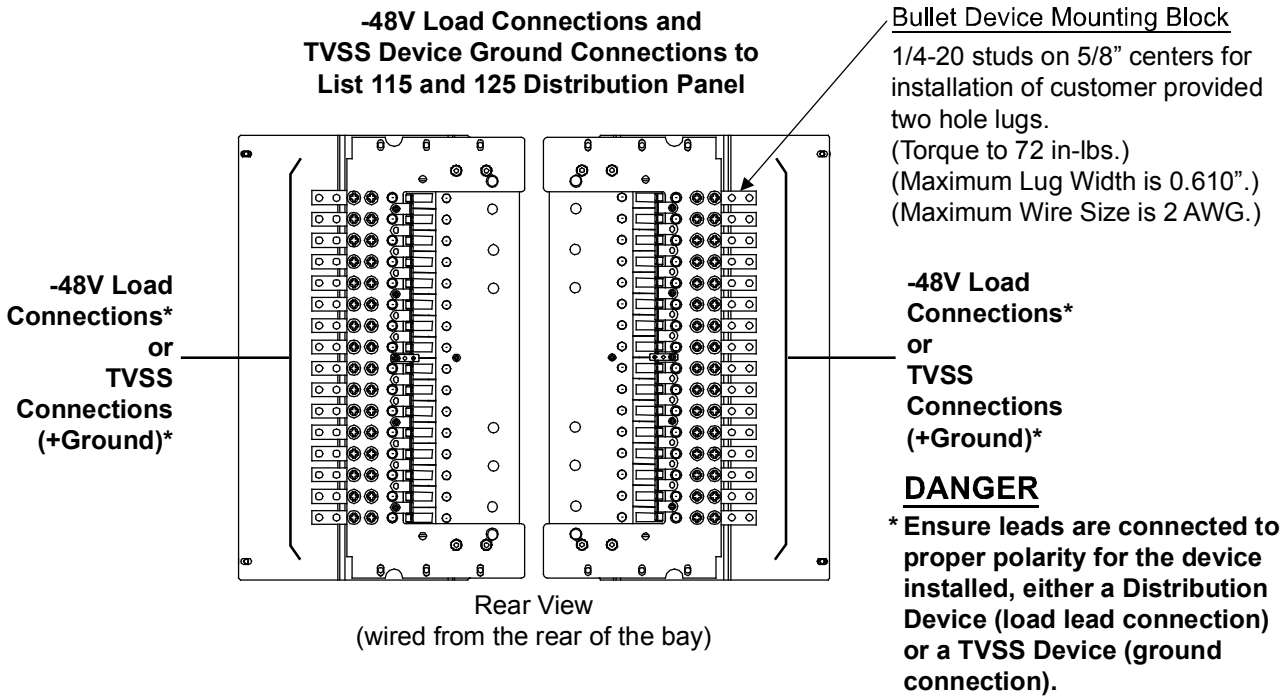
Figure 15. Load Distribution Connections (cont'd from previous page, cont'd on next page)

Load Distribution Illustration 2

-48V Load Connections to List 110 and 120 Distribution Panel



-48V Load Connections and TVSS Device Ground Connections to List 115 and 125 Distribution Panel

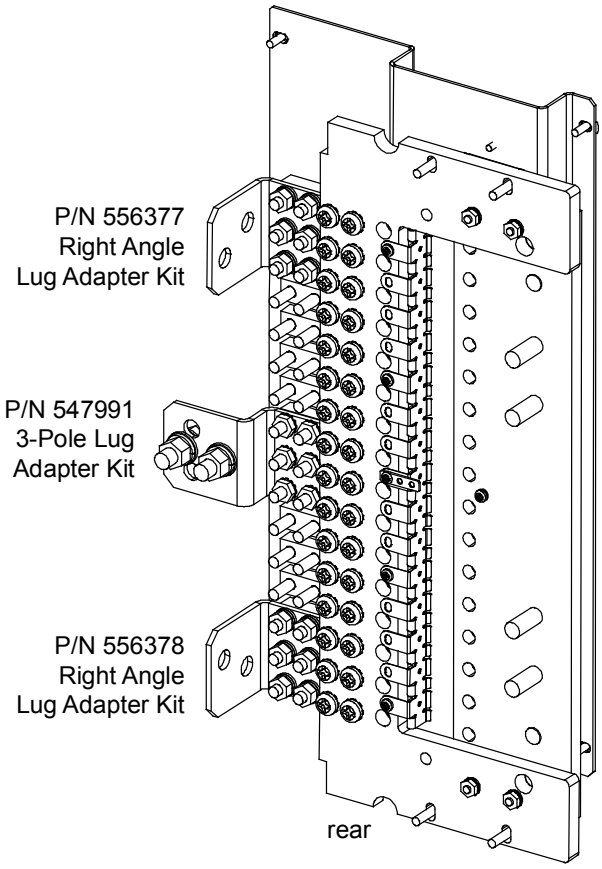


DANGER

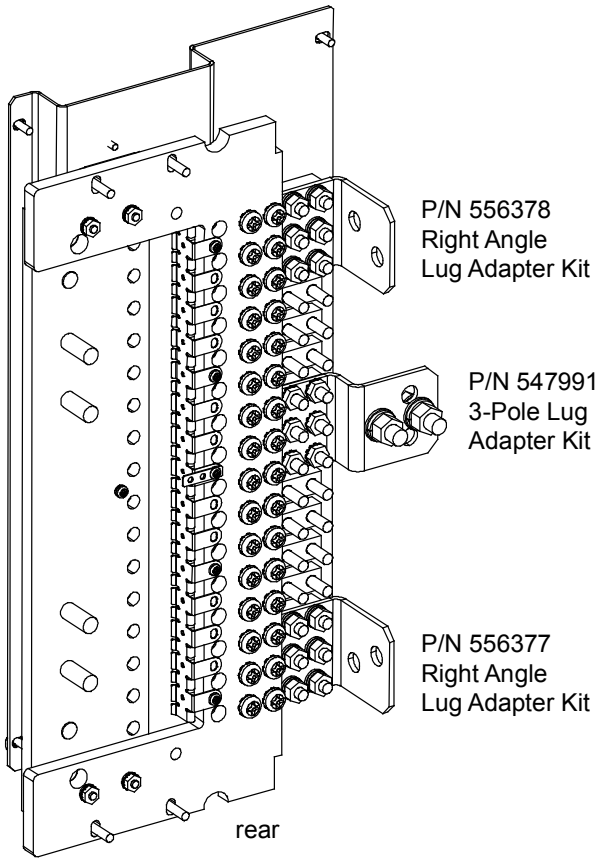
*** Ensure leads are connected to proper polarity for the device installed, either a Distribution Device (load lead connection) or a TVSS Device (ground connection).**

Figure 15. Load Distribution Connections (cont'd from previous page, cont'd on next page)

Lug Adapter Kits
P/Ns 547991, 556377, and 556378



582120600 List 115



582120600 List 115

Figure 15. Load Distribution Connections (cont'd from previous page, cont'd on next page)

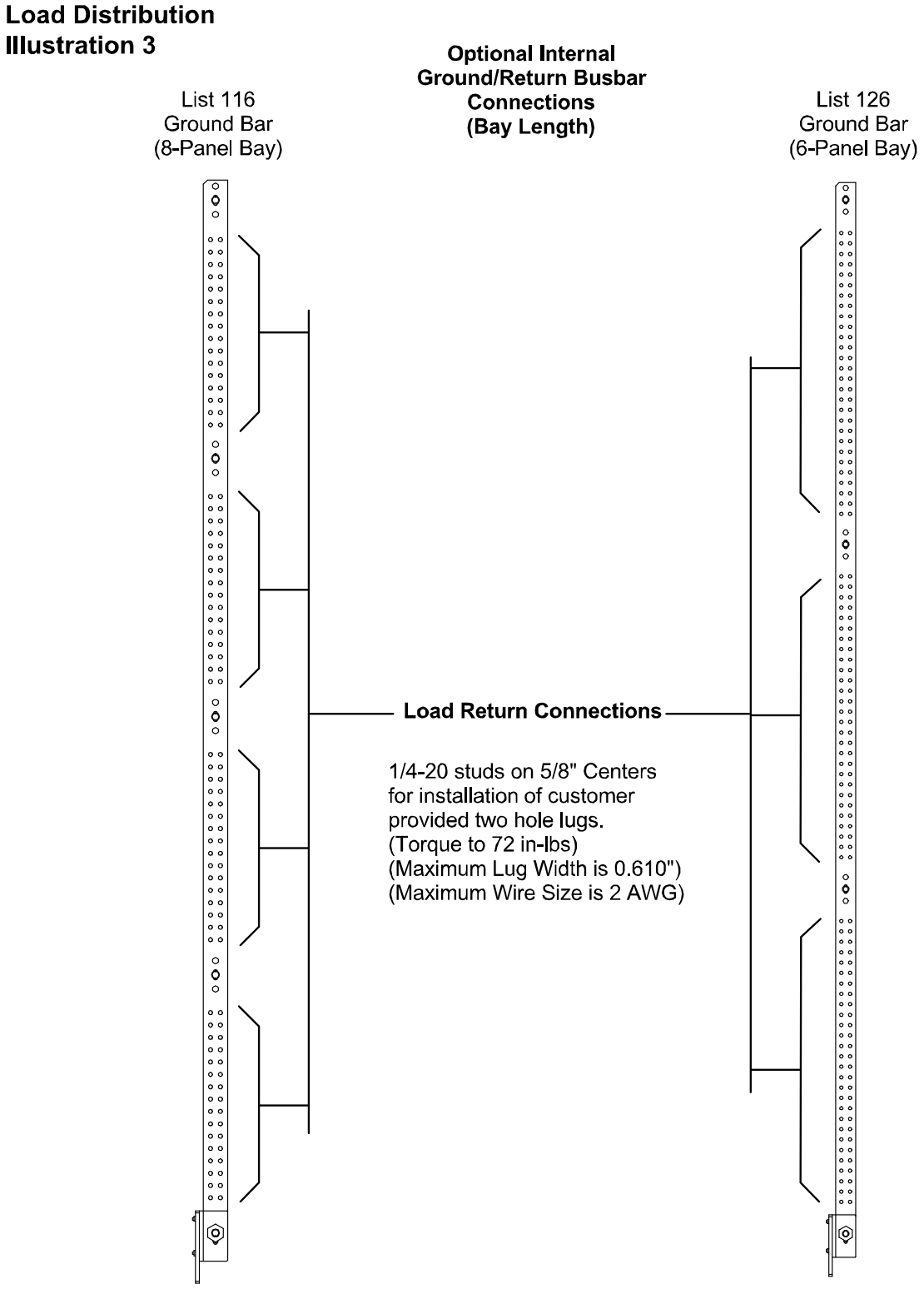


Figure 15. Load Distribution Connections (cont'd from previous page, cont'd on next page)

Load Distribution
Illustration 4

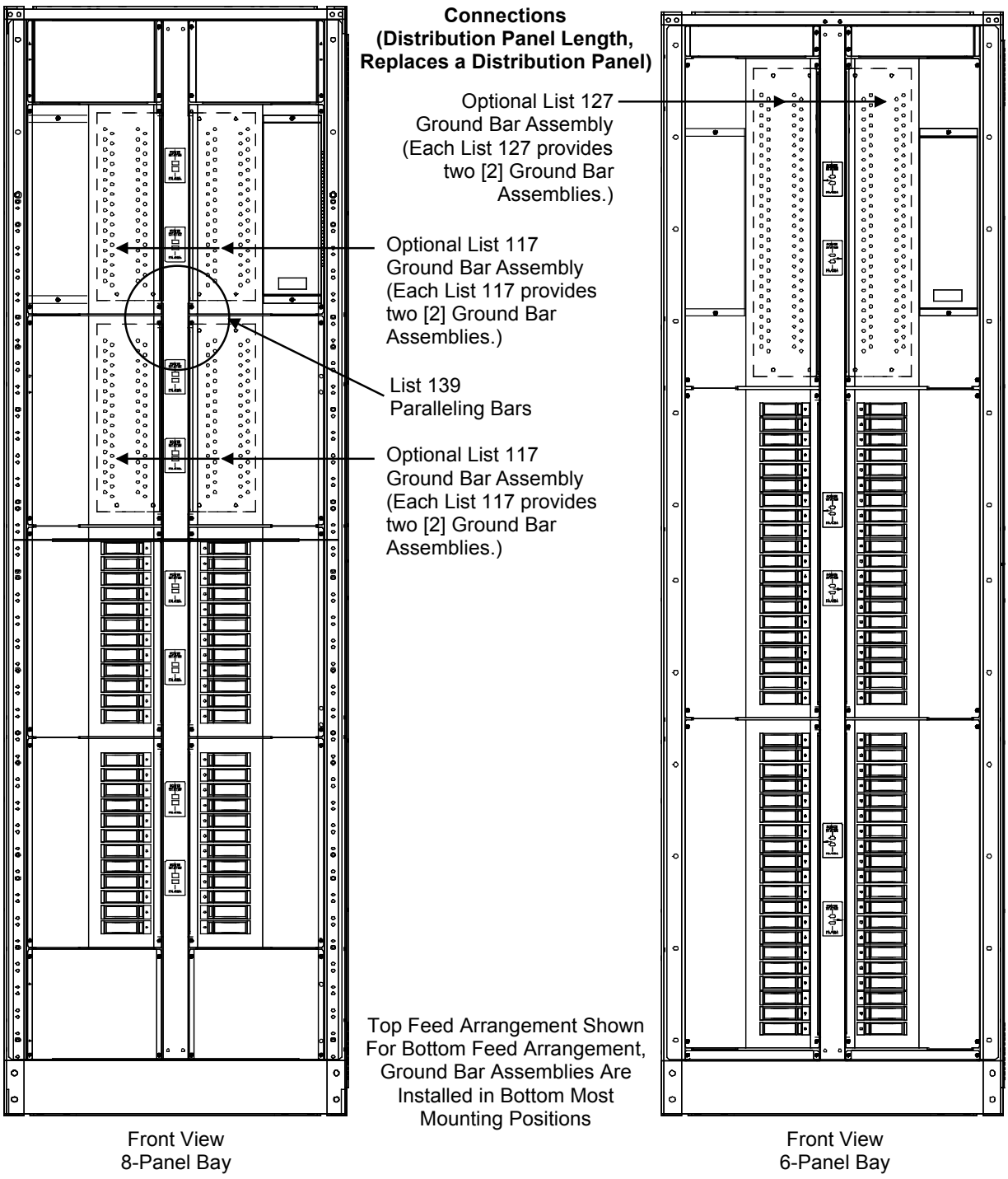
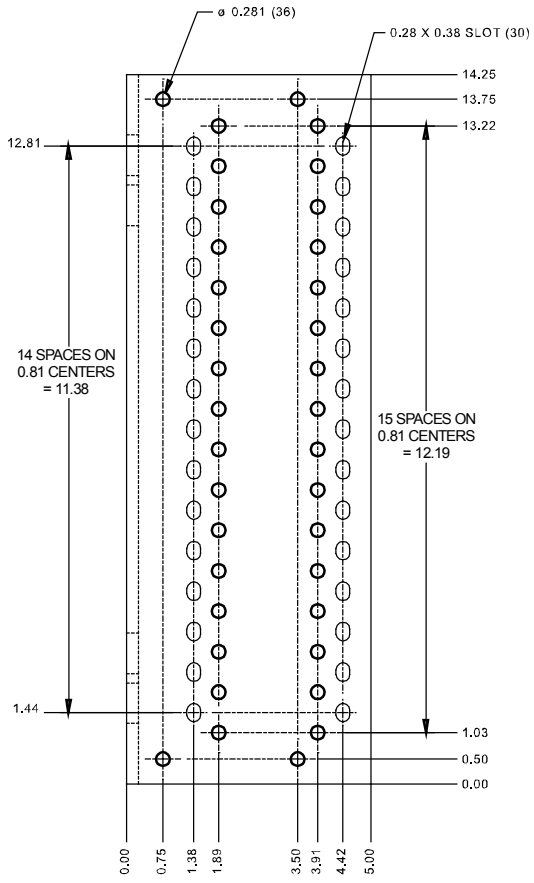


Figure 15. Load Distribution Connections (cont'd from previous page, cont'd on next page)

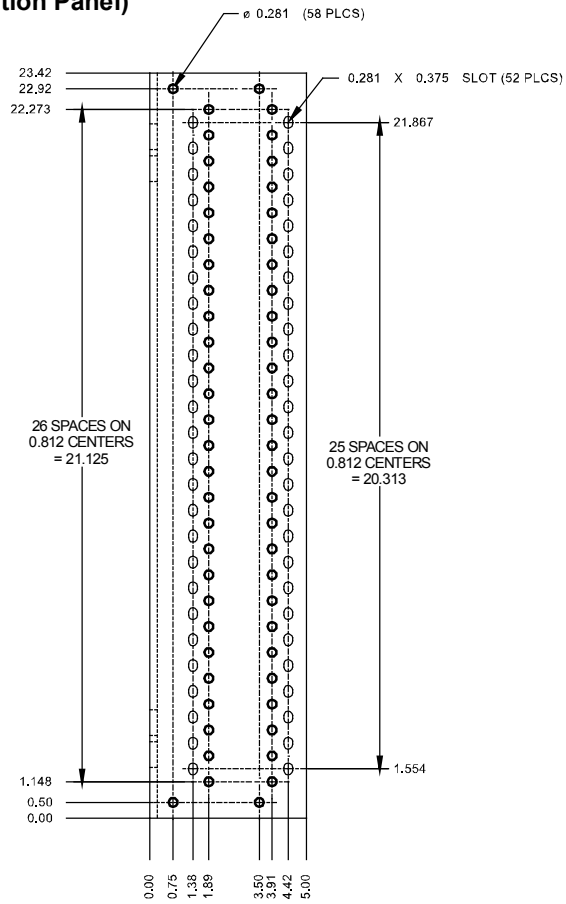
Load Distribution
Illustration 5

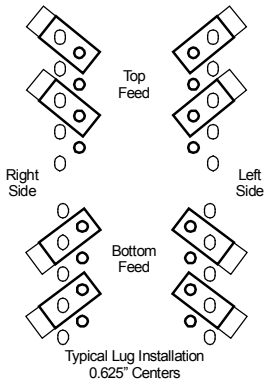
Optional Internal Ground/Return Busbar Connections (Distribution Panel Length, Replaces a Distribution Panel)

List 117 Ground Bar (8-Panel Bay)



List 127 Ground Bar (6-Panel Bay)





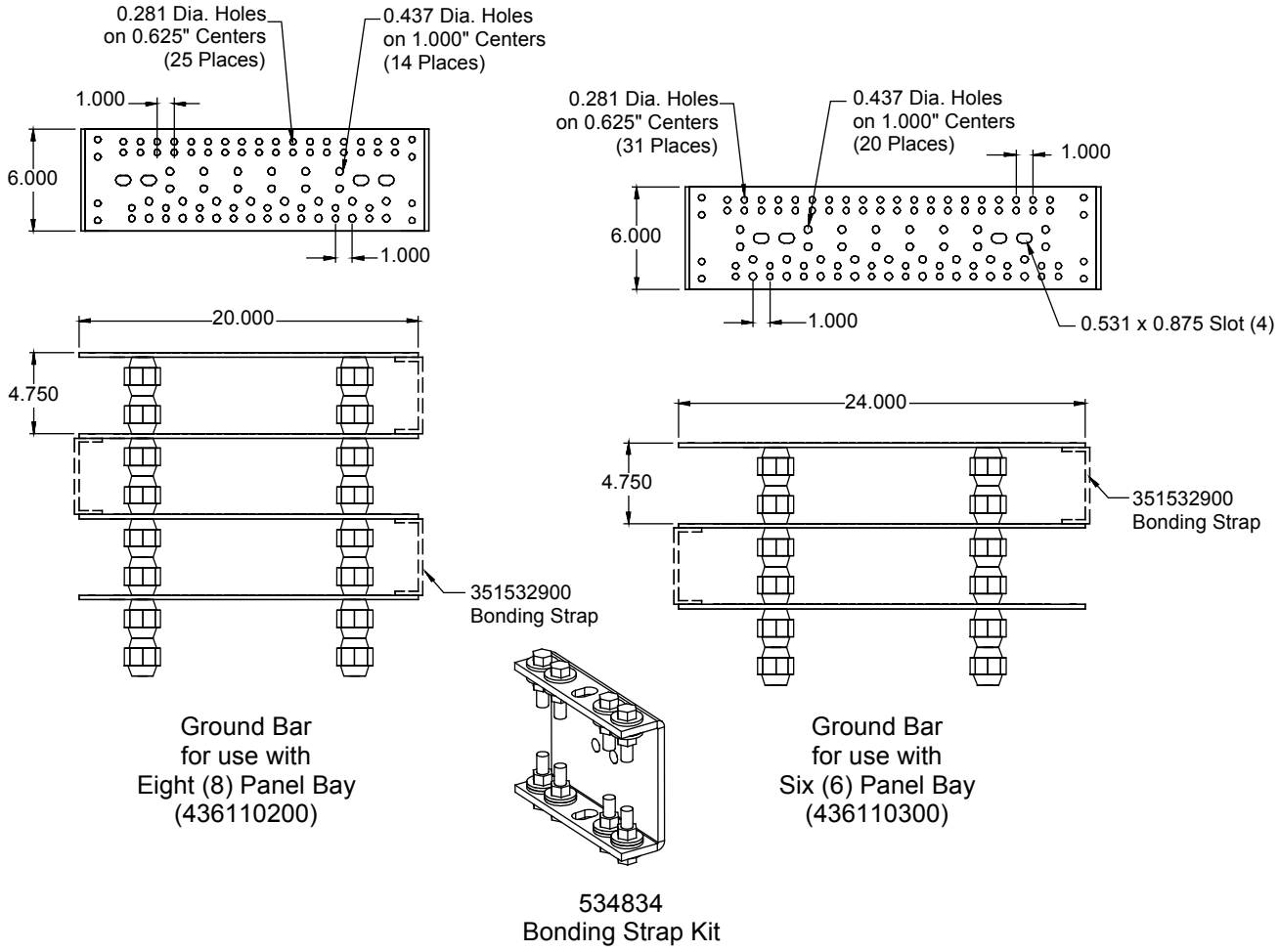
Load Return Connections

1/4" clearance holes/slots on 5/8" centers
for installation of customer
provided two hole lugs.
(Torque to 72 in-lbs.)
(Maximum Lug Width is 0.610".)
(Maximum Wire Size is 2 AWG.)

Figure 15. Load Distribution Connections (cont'd from previous page)

Load Distribution Illustration 6

Optional External Ground/Return Busbar Connections



DC Input Connections (All Bays)

DC input wire size varies depending on load. Refer to the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC) and applicable local codes.

DC input (-48V) leads terminated in the appropriate lug are connected to the List 145 Input Feed and Shunt Assembly. See Figure 16.

DC input return leads terminated in the appropriate lug are connected to the optional internal ground/return bars or to external ground/return bars. See Figure 16.

Figure 16. DC Input Connections (cont'd on next page)

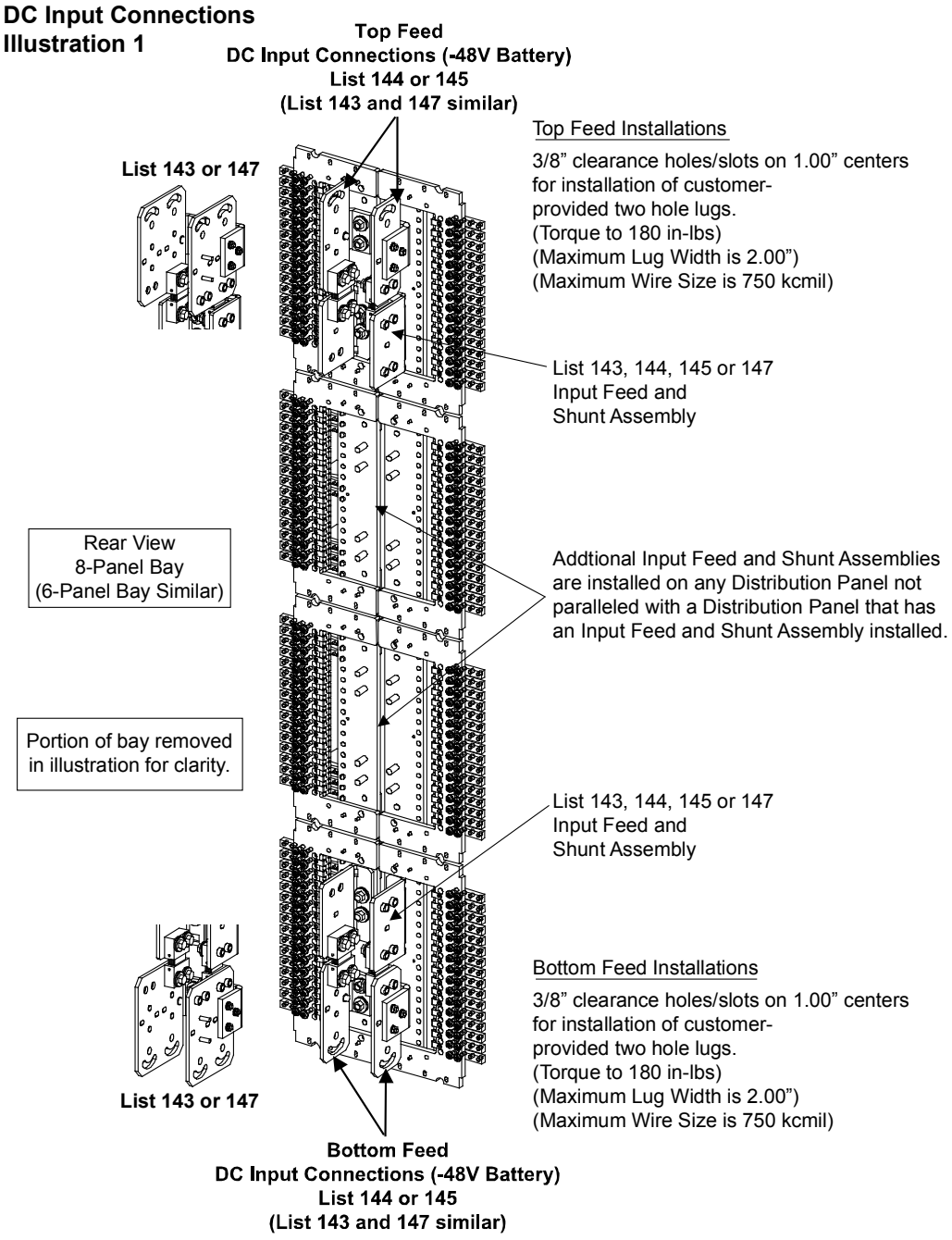
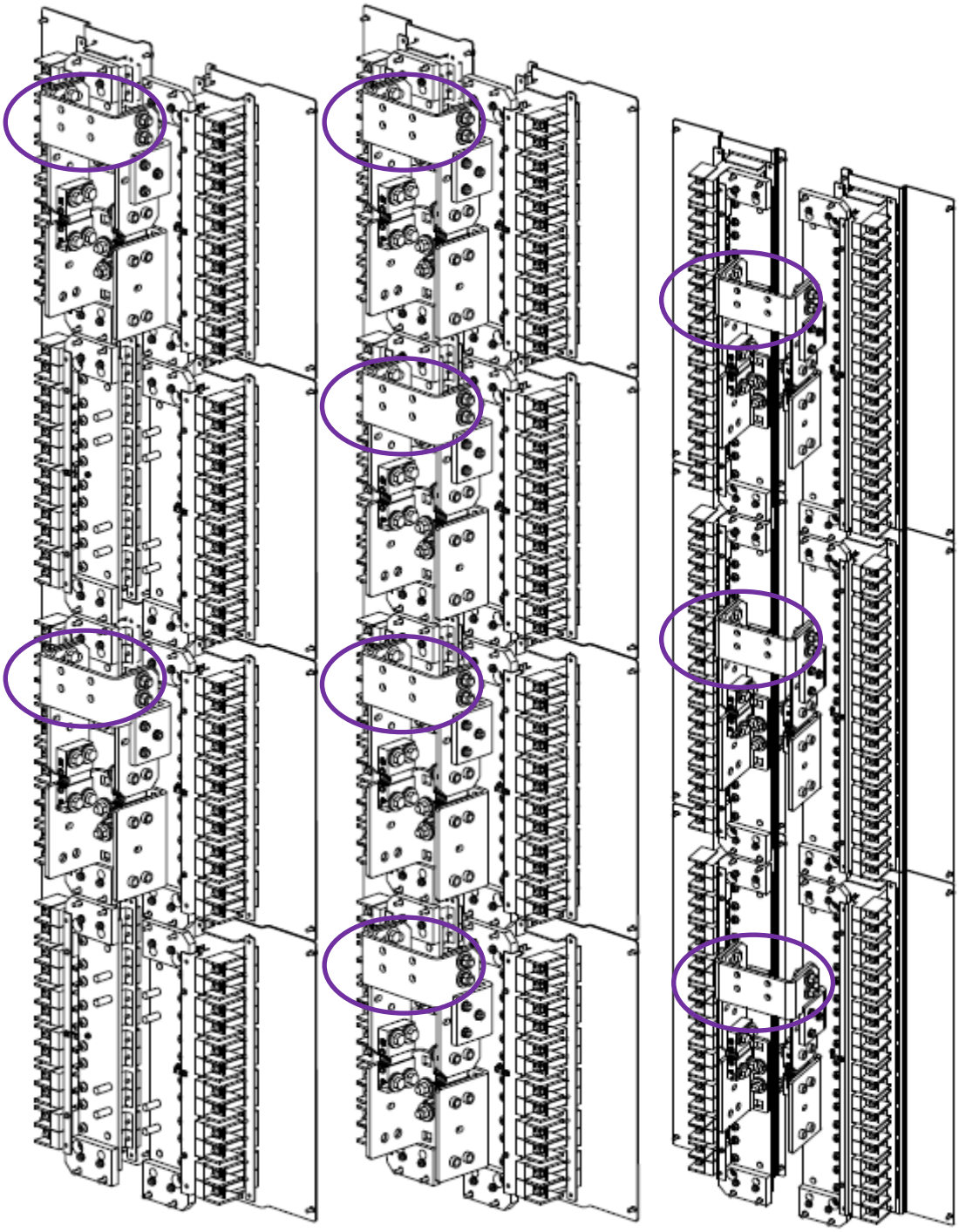


Figure 16. New DC Input Connections (cont'd from previous page, cont'd on next page)



For 8 panel
2-load applications

For 8 panel
4-load applications

For 6 panel
3-load applications

Note: *The encircles termination assemblies is P/N 556103 or 557256.*

Figure 16. DC Input Connections (cont'd from previous page, cont'd on next page)

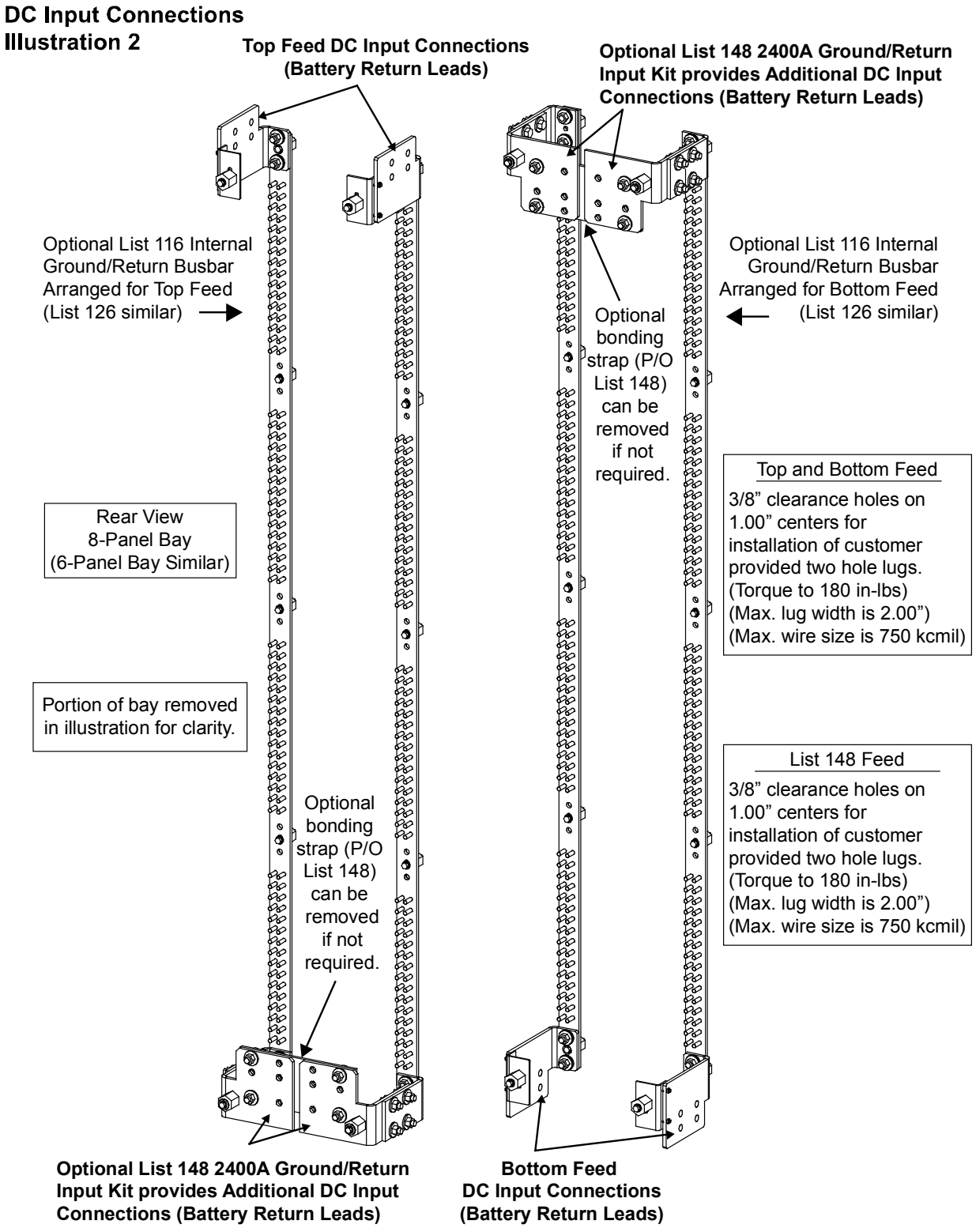
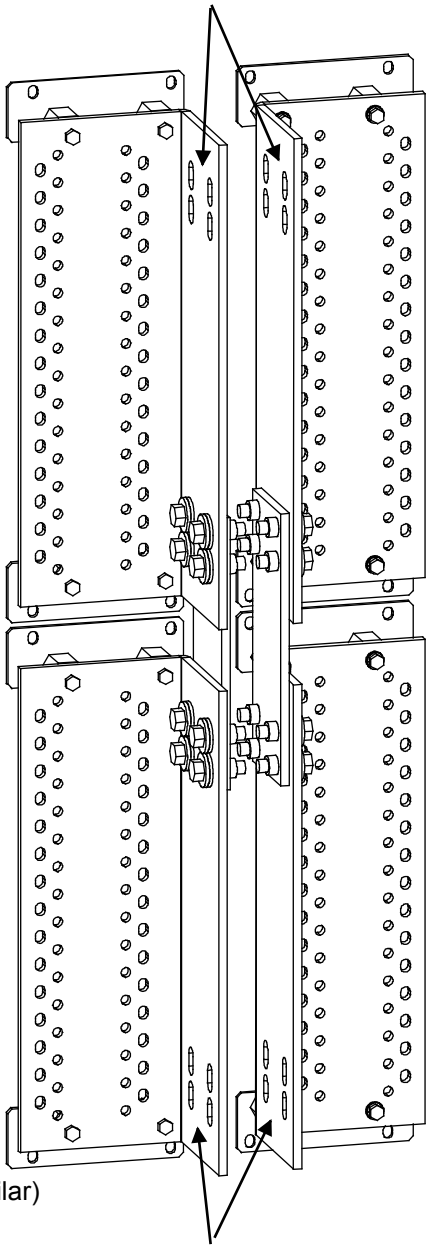


Figure 16. DC Input Connections (cont'd from previous page, cont'd on next page)

DC Input Connections
Illustration 3

Top Feed
DC Input Connections
(Battery Return Leads)



Optional List 117 Internal
Ground/Return Busbar
(List 127 similar)

Portion of bay removed
in illustration for clarity.

Rear View
8-Panel Bay
(6-Panel Bay Similar)

Bottom Feed
DC Input Connections
(Battery Return Leads)

Top Feed Installations

3/8" clearance holes on 1.00" centers
for installation of customer
provided two hole lugs.
(Torque to 180 in-lbs)
(Maximum Lug Width is 2.00")
(Maximum Wire Size is 4/0 AWG)

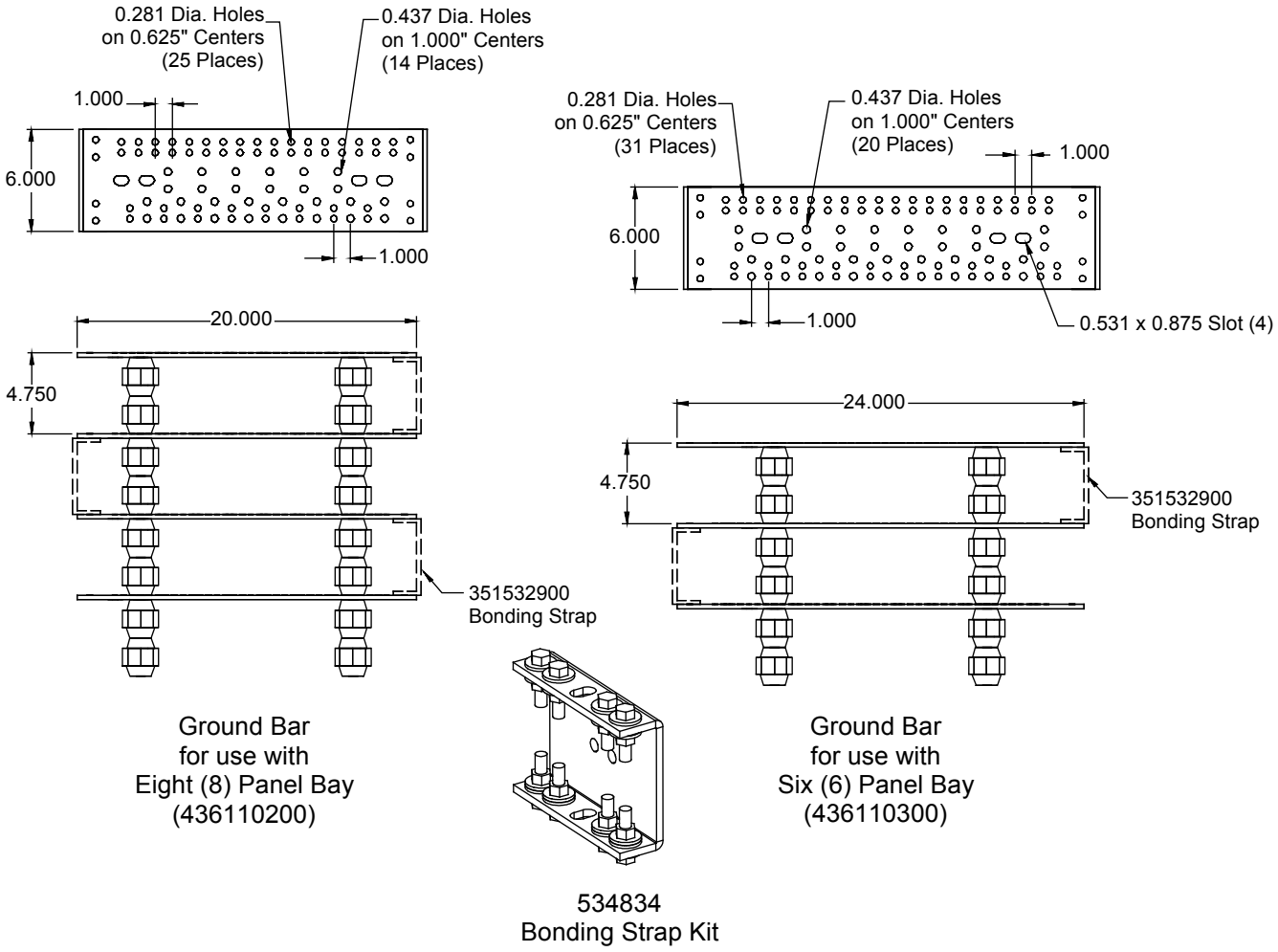
Bottom Feed Installations

3/8" clearance holes on 1.00" centers
for installation of customer
provided two hole lugs.
(Torque to 180 in-lbs)
(Maximum Lug Width is 2.00")
(Maximum Wire Size is 4/0 AWG)

Figure 16. DC Input Connections (cont'd from previous page)

DC Input Connections
Illustration 4

Optional External Ground/Return Busbar Connections



Installing Distribution Devices (All Bays)

Installing TLS/TPS and TPL Fuses into Respective Fuseholders of a List 110 and 120 Distribution Panel

Each fuse installs into a pre-mounted fuseholder. See Figure 17 and Figure 18.

Figure 17. Installing TLS/TPS Fuses

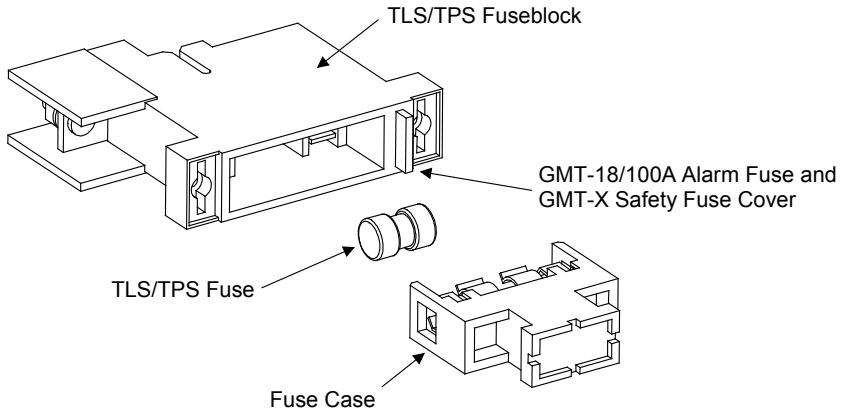
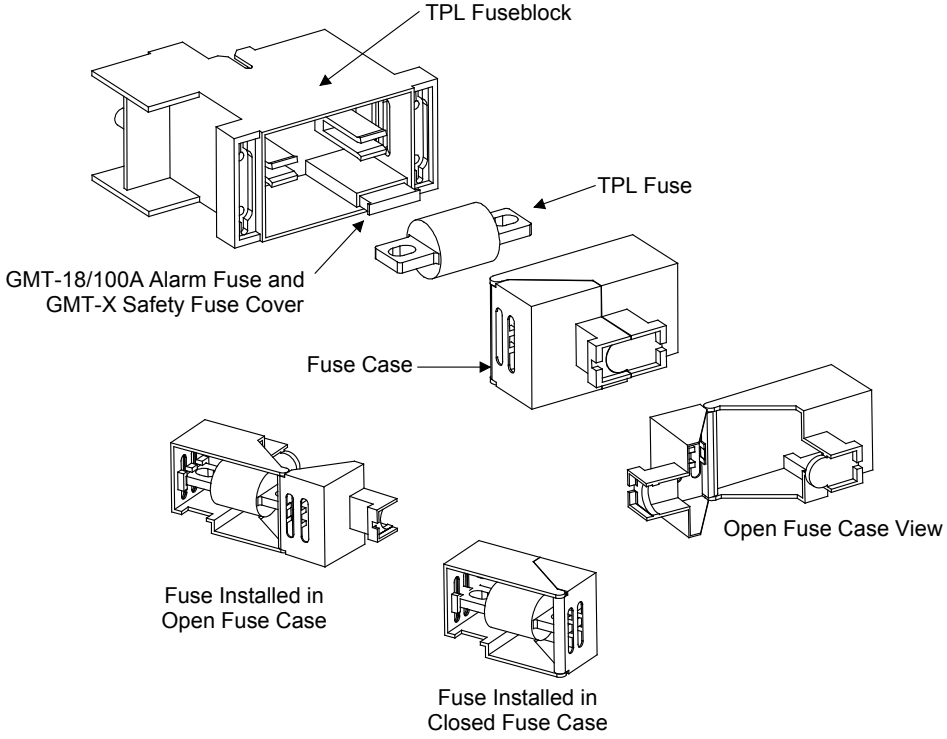


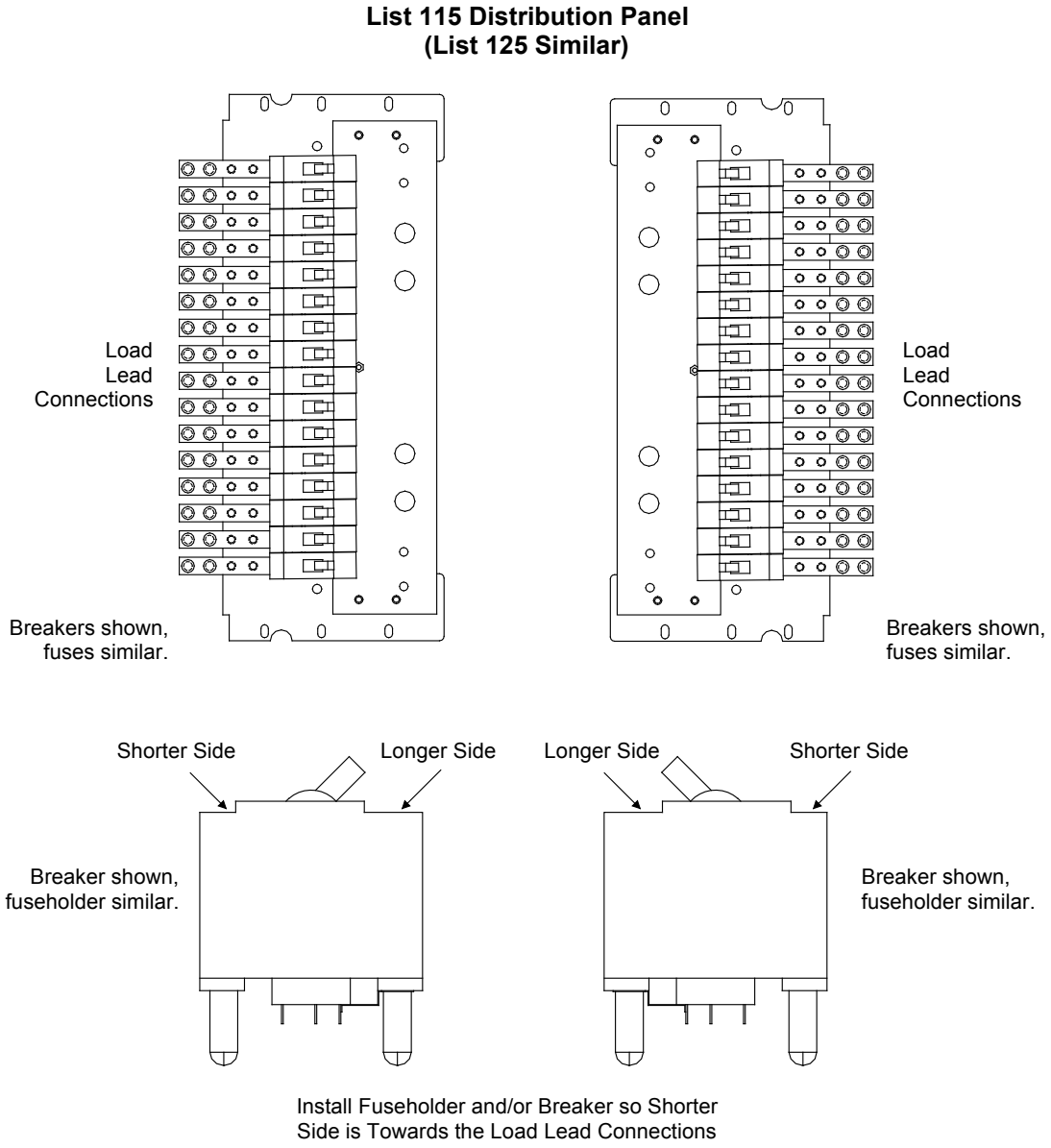
Figure 18. Installing TPL Fuses



Installing Bullet Nose-Type Circuit Breakers and Bullet Nose-Type Fuseholders e/w TLS/TPS Fuses in a List 115 and 125 Distribution Panel

Each circuit breaker plugs into one or two distribution device mounting position(s). A single fuseholder provides for installation of a 3 to 125 ampere Bussmann TPS-type or Littelfuse TLS-type fuse. The fuseholder plugs into a single distribution device mounting position. See Figure 19.

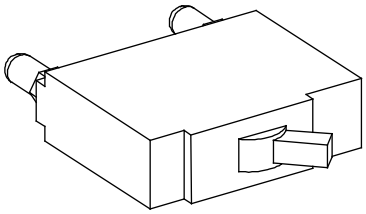
Figure 19. Installation of Bullet Nose-Type Circuit Breakers and Fuseholders (cont'd on next page)



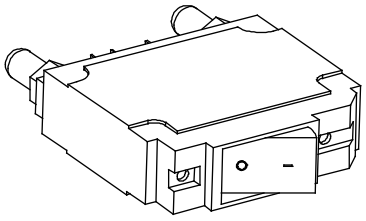
Note: *Line/Load Designations on Breaker may be Different than Shown Here. The Illustration Depicts the Correct Orientation of the Breaker for this System.*

Figure 19. Installation of Bullet Nose-Type Circuit Breakers and Fuseholders (cont'd from previous page)

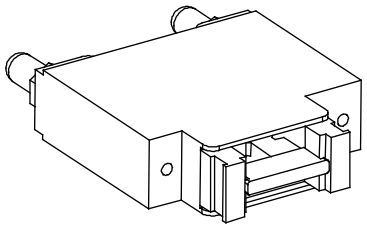
Bullet Nose-Type Distribution Devices for Lists 115 and 125



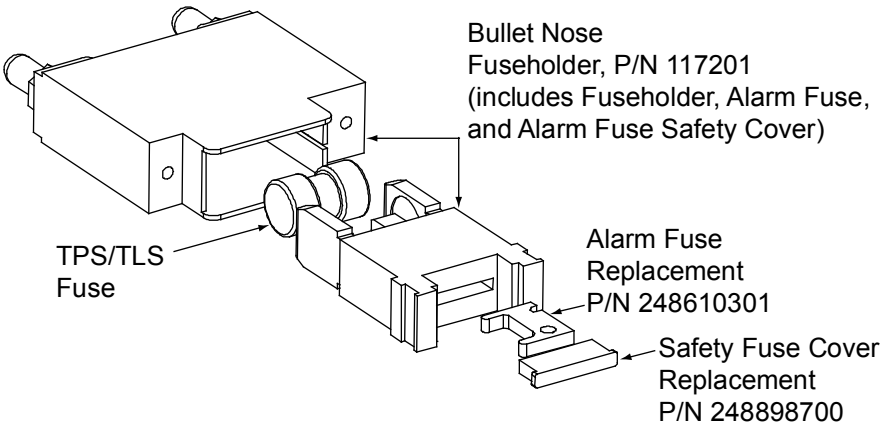
Toggle-Handle Bullet Nose Circuit Breaker



Rocker-Handle Bullet Nose Circuit Breaker



Bullet Nose Fuseholder



Initially Starting and Checking List 105 and 107 Systems

Note: *For List 106 and 108 systems, refer to* ***Initially Starting and Checking List 106 and 108 Systems*** *following this section.*

Perform the following initial start-up and checkout procedure to insure proper BDF/CBB operation.

Initial Start-up Preparation

Perform the following procedure to prepare for system startup.

1. Ensure that all initial installer's connections were performed in accordance with the Installation Acceptance Checklist located at the beginning of the INSTALLATION section.
2. Install all distribution devices per the INSTALLING DISTRIBUTION DEVICES section. Verify all circuit breakers are in the OFF (0) position. If a fuse position requires pre-charging, do not install the respective fuse at this time (ensure the fuse is not installed).

System Start-up

Perform the following procedure to start the BDF/CBB.

1. Close the external DC fuse or circuit breaker disconnect device(s) that supply DC input power to the BDF/CBB.
2. If required, precharge any load capacitor first by following the instructions in Section 5823 (List 110 and 120 Distribution Panels only), then install the respective fuse(s).
3. Place all circuit breakers to the ON position.
4. Verify that all green POWER STATUS indicators on the front center channel are illuminated for each Distribution Panel.
5. Verify that the red FA/CBA indicators on the front center channel are extinguished for each Distribution Panel, and the Bay Alarm indicator located at the top of the front center channel is extinguished. If any of these red indicators are illuminated, check for an open fuse or circuit breaker in the OFF (0) position.

FA/CBA Check

Perform the following procedure to verify the fuse alarm/circuit breaker alarm is operational.

Note: *The following procedure applies only to circuit breakers that provide an alarm indication when manually placed to the OFF (open) position. Electrical trip only circuit breakers cannot be easily tested in the field. Electrical trip only circuit breakers have white handles and electrical/mechanical circuit breakers have black handles.*

1. On a Distribution Panel, remove an alarm-type fuse and replace it with a known open fuse or place a circuit breaker to the OFF (0) position.
   a. Requirement: The corresponding red FA/CBA indicator illuminates. The red Bay Alarm indicator illuminates. Remote FA/CBA alarms activate.
2. Replace the open fuse with a known good fuse or place the circuit breaker to the ON (1) position.
   a. Requirement: The red FA/CBA indicator extinguishes. The red Bay Alarm indicator extinguishes. Remote FA/CBA alarms retire.
3. Repeat steps 1) and 2) for each alarm-type fuse or circuit breaker on the Distribution Panel.
4. Repeat steps 1) through 3) for each Distribution Panel in the system.

Digital Meter Offset Calibration

The Digital Meter is factory set (±1% accuracy) and does not normally need adjustment. If the Digital Meter does not display zero at no load with selector switch in the AMPS position, the following calibration procedure can be performed. This procedure is performed using no load.

1. Place the Digital Meter VOLTS/AMPS switch to the AMPS position.
2. Remove one shunt meter lead from any convenient meter shunt.
3. Connect a clip cord between the remaining shunt meter lead and the one removed in the previous step. This will short out the meter.
4. Place the Digital Meter Load Selector Switch to the position that corresponds to the shunt that was shorted out in the previous steps.
5. Remove the Distribution Panel cover from the top right position and locate the adjustment potentiometer access hole on the right side of the Digital Meter's metal shield. Before removing, note the location of any grounding washers used with the hardware securing the cover.
6. Using an insulated adjustment tool, adjust the potentiometer until Digital Meter displays 000.

7. Reattach shunt leads
8. Replace the Distribution Panel cover. Ensure grounding washers are replaced in locations noted above.

Digital Meter Check

Perform the following procedure to verify Digital Meter operation.

1. Place the VOLTAGE/AMPS rocker switch to the VOLTS position.
2. Slowly rotate the Load Selector Switch from A through H position for an eight panel bay (or A through F for a six panel bay).
   a. Requirement: Verify appropriate voltage reading is displayed on meter face for each Distribution Panel.
3. Place the VOLTAGE/AMPS rocker switch to the AMPS position.
4. Slowly rotate the Load Selector Switch from A through H position for an eight panel bay (or A through F for a six panel bay).
   a. Requirement: Verify appropriate current reading is displayed on meter face for each Distribution Panel.

Meter and Alarm Circuits Dual Power Source Check (if two List 156 Internal Fuse Kits installed)

1. Remove the in-line fuse from one of the installed kit's wire harness. Verify that the Digital Meter and FA/CBA circuit are functional by performing the appropriate checkout procedures above.
2. Replace the in-line fuse removed above.
3. Remove the in-line fuse from the second installed kit's wire harness. Verify that the Digital Meter and FA/CBA circuit are functional by performing the appropriate checkout procedures above.
4. Replace the in-line fuse removed above.

Initially Starting and Checking List 106 and 108 Systems

Note: *For List 105 and 107 systems, refer to* ***Initially Starting and Checking List 105 and 107 Systems*** *preceding this section.*

Perform the following initial start-up and checkout procedure to insure proper BDF/CBB operation.

Initial Start-up Preparation

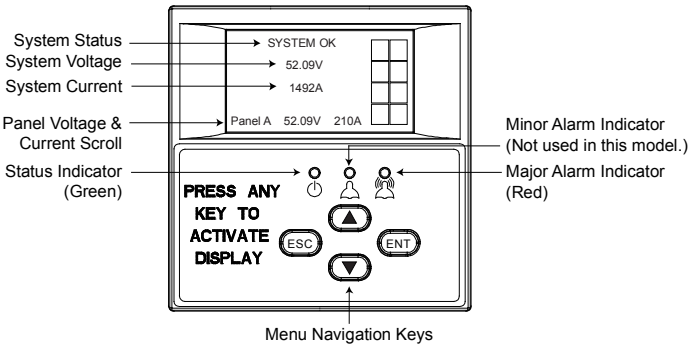
Perform the following procedure to prepare for system startup.

1. Ensure that all initial installer's connections were performed in accordance with the Installation Acceptance Checklist located at the beginning of the INSTALLATION section.
2. Install all distribution devices per the INSTALLING DISTRIBUTION DEVICES section. Verify all circuit breakers are in the OFF (0) position. If a fuse position requires pre-charging, do not install the respective fuse at this time (ensure the fuse is not installed).

System Start-up

Refer to Figure 20 for locations of the Digital Meter/Alarm Panel local indicators and navigation keys.

Figure 20. Digital Meter/Alarm Panel Keypad, Display and Indicators



Perform the following procedure to start the BDF/CBB.

1. Close the external DC fuse or circuit breaker disconnect device(s) that supply DC input power to the BDF/CBB.
2. If required, precharge any load capacitor first by following the instructions in Section 5823 (List 110 and 120 Distribution Panels only), then install the respective fuse(s).
3. Place all circuit breakers to the ON position.
4. Verify that the STATUS indicator at the top of the bay is illuminated green.
5. Verify on the Digital Meter/Alarm Panel that the Status indicator is illuminated green and that the Major and Minor alarm indicators are extinguished. If any alarm indicators are illuminated, check the Digital Meter/Alarm Panel LCD display to determine the alarm condition.

Meter Check

1. Verify the system voltage and current are displayed on the LCD screen. See Figure 20 for example.

FA/CBA Check

Perform the following procedure to verify the fuse alarm/circuit breaker alarm is operational.

Note: *The following procedure applies only to circuit breakers that provide an alarm indication when manually placed to the OFF (open) position. Electrical trip only circuit breakers cannot be easily tested in the field. Electrical trip only circuit breakers have white handles and electrical/mechanical circuit breakers have black handles.*

1. On a Distribution Panel, remove an alarm-type fuse and replace it with a known open fuse or place a circuit breaker to the OFF (0) position.
   a. Requirement: The Major Alarm indicator on the Digital Meter/Alarm Panel illuminates red. The Digital Meter/Alarm Panel displays a Fuse Alarm message with location. The STATUS indicator at the top of the bay illuminates red. If connected and configured, remote FA/CBA alarms activate.
2. Replace the open fuse with a known good fuse or place the circuit breaker to the ON (1) position.
   a. Requirement: The Major Alarm indicator on the Digital Meter/Alarm Panel extinguishes. The Digital Meter/Alarm Panel displays "System OK". STATUS indicator at the top of the bay illuminates green. If connected and configured, remote FA/CBA alarms retire.
3. Repeat steps 1) and 2) for each alarm-type fuse or circuit breaker on the Distribution Panel.
4. Repeat steps 1) through 3) for each Distribution Panel in the system.
5. If not already done, remove the access cover from the top right side of the bay front. Before removing, note the location of any grounding washers used with the hardware securing the panel. This provides access to the Auxiliary Fuse Card. See Figure 9.

6. Remove an alarm-type fuse and replace it with a known open fuse.
   a. Requirement: The Major Alarm indicator on the Digital Meter/Alarm Panel illuminates red. The Digital Meter/Alarm Panel displays a Fuse Alarm message with location. STATUS indicator at the top of the bay illuminates red. If connected and configured, remote FA/CBA alarms activate.
7. Replace the open fuse with a known good fuse.
   a. Requirement: The Major Alarm indicator on the Digital Meter/Alarm Panel extinguishes. The Digital Meter/Alarm Panel displays "System OK". STATUS indicator at the top of the bay illuminates green. If connected and configured, remote FA/CBA alarms retire.
8. Repeat steps 6 and 7 for each fuse on the circuit card.

Meter and Alarm Circuits Dual Power Source Check (if two power sources connected)

1. Remove fuse F5 from the Auxiliary Fuse Card. Figure 9 for location. Verify the Digital Meter and FA/CBA circuit are functional by performing the appropriate checkout procedures above.
2. Replace fuse F5.
3. Remove Fuse F6. Verify the Digital Meter and FA/CBA circuit are functional by performing the appropriate checkout procedures above.
4. Replace fuse F6.
5. Install and secure the access cover over the Auxiliary Fuse Card. Ensure ground washer are installed at the locations noted earlier in the checkout procedure.

This completes the initial startup and checkout.

Operation (List 105 and 107)

Note: *For List 106 and 108 Bays, see "4. Operation (List 106 and 108)" following this section.*

Controls and Indicators

Bay's Front Center Channel

The following indicators are located on the BDF/CBB's front center channel. See Figure 21.

a. POWER STATUS: This green indicator illuminates when DC power is applied to the corresponding Distribution Panel.

b. FA/CBA: This red indicator illuminates when a circuit breaker or fuse opens in the corresponding Distribution Panel.

c. Bay Alarm: This red indicator (located at the top center) illuminates when a FA/CBA is detected in any Distribution Panel within the BDF/CBB. This red indicator also illuminates if a control fuse opens.

Digital Meter

The following controls and display are located on the front of the Digital Meter. See Figure 21.

a. Distribution Panel Selector Switch (A-F, six panel bay; A-H, eight panel bay): This rotary switch selects one of six Distribution Panels (A - F) or one of eight Distribution Panels (A - H) for monitoring current or voltage. Refer to the label on the Meter Panel to locate the mounting location of each Distribution Panel with its letter designation. Note also that the customer can write a number or name for each Distribution Panel on the Meter Panel label per specific site requirements.

b. AMPS/VOLTS Selector Switch: This two position rocker switch selects whether the digital meter displays voltage or current.

c. Digital Display: This 3-1/2 digit LED meter display is 0.5 inches high and displays either voltage or current.

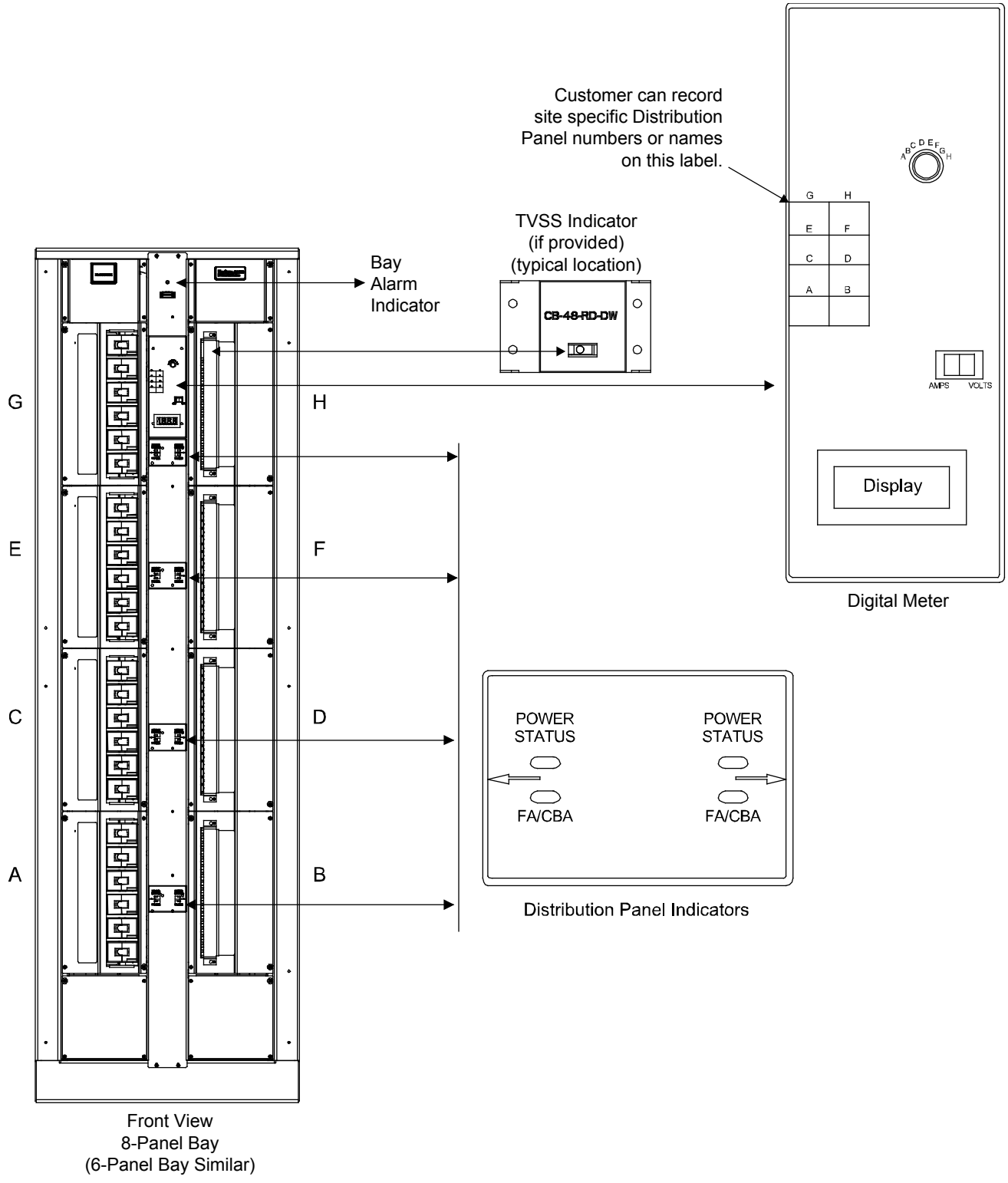
Transient Voltage Surge Suppressor Device (TVSS)

A TVSS contains an indicator which illuminates when the circuit activates to suppress voltages. See Figure 21.

Precharging Load Capacitors

When furnished, a capacitor Precharge Assembly provides a circuit for initially charging the DC load capacitors prior to installing a distribution fuse (List 110 and 120 Distribution Panels only). For operating information, refer to the Precharge Assembly instructions (Section 5823). These instructions are provided after this document in the system instruction manual. The Precharge Assembly plugs directly into a TLS/TPS type fuseholder case. For TPL type fuses, an Adapter Assembly is furnished which plugs directly into a TPL type fuseholder case.

Figure 21. Controls and Indicators (Lists 105 and 107)



Operation (List 106 and 108)

Note: *For List 105 and 107 Bays, see "3. Operation (List 105 and 107)" preceding this section.*

Local Controls and Indicators

Bay's Front Center Channel

The following indicator is located on the bay front center channel. See Figure 22.

a. Bay Status Indicator: This indicator illuminates green when power is present and no alarms are active. The indicator illuminates red for any alarm condition.

Digital Meter/Alarm Panel

The following controls and display are located on the front of the Digital Meter/Alarm Panel. See Figure 22.

a. Status Indicator: Illuminates green to indicate input power is applied to the Meter/Alarm Panel.

b. Major Alarm Indicator: Illuminates red if any condition listed below occurs:
Any fuse or circuit breaker operates open
Low Voltage alarm activates
Power Lost alarm activates
Overcurrent 1 alarm activates
Overcurrent 2 alarm activates
Digital Meter/Alarm Panel communication is lost

c. Minor Alarm Indicator: Not used in this model.

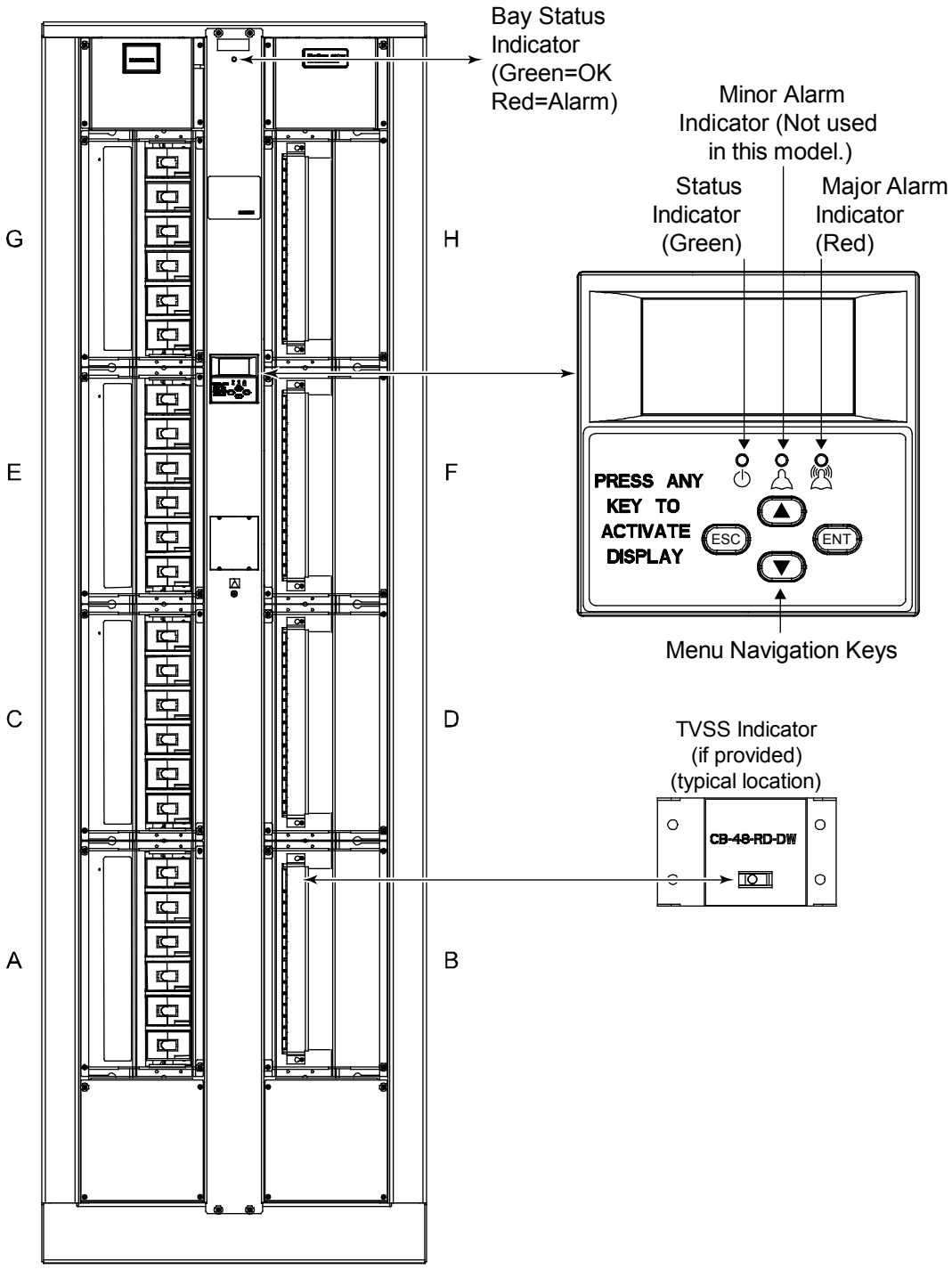
d. LCD Display: See the next section, "*Using the Meter/Alarm Panel*" for a description.

e. Navigation Keys: See the next section, "*Using the Meter/Alarm Panel*" for a description.

Transient Voltage Surge Suppressor Device (TVSS)

A TVSS contains an indicator which illuminates when the circuit activates to suppress voltages. See Figure 22.

Figure 22. Controls and Indicators (Lists 106 and 108)



Using the Meter/Alarm Panel Local Display and Keypad

Local Keypad Access

Local Menu Navigation Keys and LCD Display

For location and identification, refer to Figure 20.

Description: There are four (4) menu navigation keys and an LCD display located on the front panel. Refer to Table 5 for the function of the menu navigation keys.

Note: *When the LCD is lit, if no button is pushed for 8 minutes, the backlight of the LCD display extinguishes and the Meter/Alarm panel returns to the Main Screen. Press any key to re-activate the LCD display.*

Local Display Menus

Figure 23 provides flow diagrams of the menus accessed via the local display and keypad.

Using the Local Menus

Navigating the Menus

To Select a Sub-Menu:
Press ▲ and ▼ to move the cursor up and down the list of sub-menus in the menu screen (selects the sub-menu), then press ENT to enter the selected sub-menu.

To Change a Parameter:
Press ▲ and ▼ to move the cursor up and down the list of parameters in the menu screen (selects the parameter to change), then press ENT to change the selected parameter. The parameter field highlights. Press ▲ and ▼ to change the parameter value. Press ENT to confirm the change.

Table 5. Local Menu Navigation Keys

Key Symbol	Key Name	Function
ESC	Escape	Press this key to go back to a previous menu or to cancel setting a parameter.
ENT	Enter	Press this key to go forward to the next menu, to select a parameter to edit, or to validate a parameter setting change.
▲	Up	Press ▲ or ▼ to scroll through the menus or to change the value of a parameter.
▼	Down	

Figure 23. Local Menu Flow Diagrams (continued on next page)

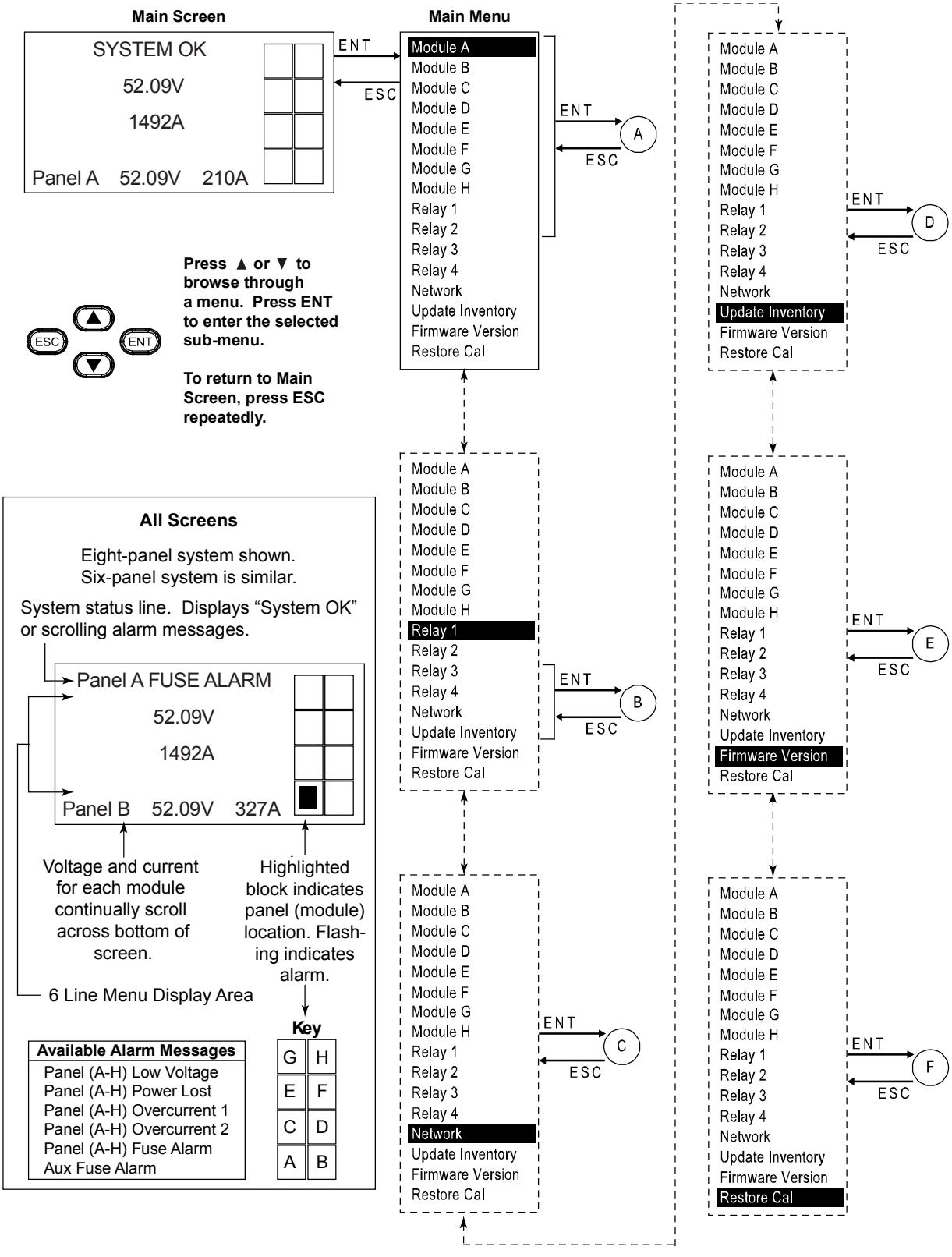
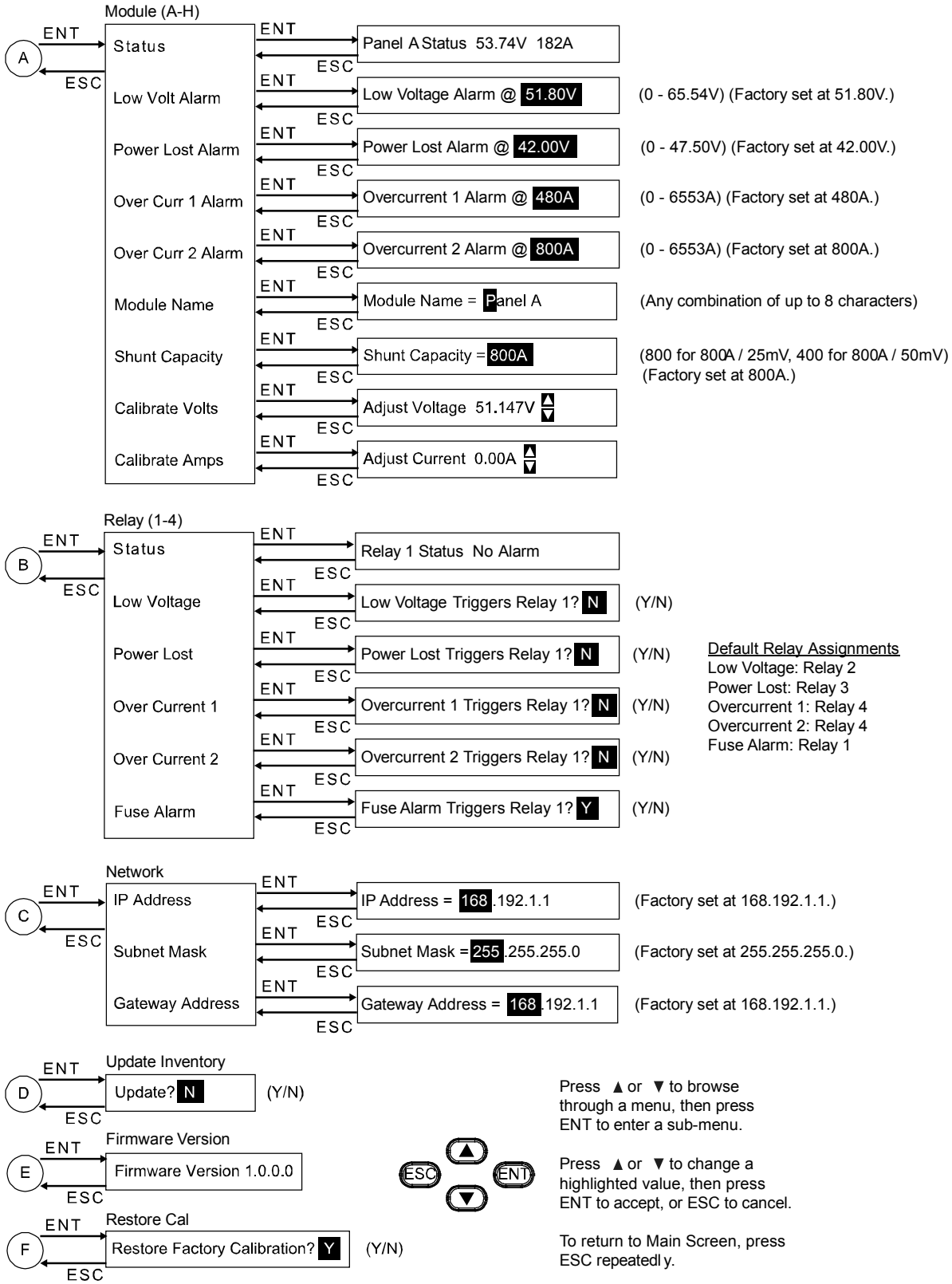


Figure 23. Local Menu Flow Diagrams (continued from previous page)



Making Local Adjustments

Note: *For adjustments from a remote location, refer to "Using the Web Interface (List 106 and 108)" on page 56.*

All local adjustments are performed through the keypad of the Digital Meter/Alarm Panel. The general procedure is, with the Main Screen displayed, press ENT to enter the Main Menu. From there, press the ▲ or ▼ keys to browse through menu items. Then press ENT to enter the selected sub-menu.

Adjusting the Low Voltage Alarm Setpoint

Menu Navigation: Main Menu / Module (A-H) / Low Volt Alarm

Each distribution panel (module) has a Low Voltage Alarm. When done locally, the alarm setpoint must be adjusted for each panel individually. The adjustment range is shown in Figure 23.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Low Volt Alarm (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Adjusting the Power Lost Alarm Setpoint

Menu Navigation: Main Menu / Module (A-H) / Power Lost Alarm

Each distribution panel (module) has a Power Lost Alarm. When done locally, the alarm setpoint must be adjusted for each panel individually. The adjustment range is shown in Figure 23.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Power Lost Alarm (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Adjusting the Overcurrent 1 Alarm Setpoint

Menu Navigation: Main Menu / Module (A-H) / Over Curr 1 Alarm

Each distribution panel (module) has an Overcurrent 1 Alarm. When done locally, the alarm setpoint must be adjusted for each panel individually. The adjustment range is shown in Figure 23.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Over Curr 1 Alarm (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Adjusting the Overcurrent 2 Alarm Setpoint

Menu Navigation: Main Menu / Module (A-H) / Over Curr 2 Alarm

Each distribution panel (module) has an Overcurrent 2 Alarm. When done locally, the alarm setpoint must be adjusted for each panel individually. The adjustment range is shown in Figure 23.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Over Curr 2 Alarm (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Changing the Name of a Distribution Panel

Menu Navigation: Main Menu / Module (A-H) / Module Name

The name of each distribution panel can be changed. Names are limited to eight characters.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Module Name (ENT). (# is the desired panel letter.) The first character in the name is highlighted.
2. Press the ▲ or ▼ keys to change the character as desired.
3. Press ENT. The next character is highlighted.
4. Repeat steps 2 and 3 until all characters have been changed as desired.
5. Press ESC repeatedly to return to the Main Menu.
6. Repeat steps 1-5 for each Distribution Panel in the bay.

7. When settings are complete, press ESC repeatedly to return to the Main Screen.

Adjusting the Shunt Capacity Setpoint

Menu Navigation: Main Menu / Module (A-H) / Shunt Capacity

The Digital Meter/Alarm Panel monitors the output of the shunt in each Distribution Panel.

Note: *All shunts provided with List 106 and 108 bays are rated for 25mV @ 800A.*

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Shunt Capacity (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as follows:
   - For a 25mV shunt, set the capacity to equal the shunt rating (set to 800 for an 800A shunt).
   - For a 50mV shunt, set the capacity to one half the shunt rating (set to 400 for an 800A shunt).
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Calibrating Volts

Menu Navigation: Main Menu / Module (A-H) /Calibrate Volts

The voltage displayed by the Digital Meter/Alarm Panel can be calibrated for each panel.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Calibrate Volts (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Calibrating Amps

Menu Navigation: Main Menu / Module (A-H) / Calibrate Amps

The current displayed by the Digital Meter/Alarm Panel can be calibrated for each panel.

1. Navigate as follows: Main Menu (ENT) Module # (ENT) Calibrate Amps (ENT). (# is the desired panel letter.)
2. Press the ▲ or ▼ keys to adjust the setpoint as desired.
3. Press ENT.
4. Press ESC repeatedly to return to the Main Menu.
5. Repeat steps 1-4 for each Distribution Panel in the bay.
6. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Relay Mapping

Menu Navigation: Main Menu / Relay (1-4) / Low Voltage or Power Lost or Over Current 1 or Over Current 2 or Fuse Alarm

The BDFB provides four programmable alarm relays. You can assign any of the alarm relays to the following alarms: Low Voltage, Power Lost, Over Current 1, Over Current 2, and/or Fuse Alarm

1. Navigate as follows: Main Menu (ENT) Relay # (ENT).
2. Press the ▲ or ▼ keys to select the alarm to assign to this relay.
3. Press ENT.
4. Select Y. Press ENT.
5. Press the ▲ or ▼ keys to select another alarm to assign to this relay, if desired, and repeat step 3 and 4.
6. Press ESC repeatedly to return to the Main Menu.
7. Repeat steps 1-6 for each relay.
8. When adjustments are complete, press ESC repeatedly to return to the Main Screen.

Configuring Network Addresses

Menu Navigation: Main Menu / Network

The BDFB Ethernet Card IP parameters must be set to match your company's network settings. This can be done via the front panel keypad/display or the Web Interface. Refer to the next section for a front panel keypad/display procedure. Refer to "Configuring the Network Address" on page 56 for a Web Interface procedure.

1. Navigate as follows: Main Menu (ENT) Network (ENT).
2. Press the ▲ or ▼ keys to select the IP parameter to change.
3. Press ENT. The first number of the IP parameter highlights.
4. Press the ▲ or ▼ keys to adjust the number as desired.

5. Press ENT. The second number of the IP parameter highlights.
6. Press the ▲ or ▼ keys to adjust the number as desired.
7. Press ENT. The third number of the IP parameter highlights.
8. Press the ▲ or ▼ keys to adjust the number as desired.
9. Press ENT. The forth number of the IP parameter highlights.
10. Press the ▲ or ▼ keys to adjust the number as desired.
11. Press ENT.
12. Repeat steps 2 through 11 for each IP parameter.
13. When settings are complete, press ESC repeatedly to return to the Main Menu.

Updating Inventory

Menu Navigation: Main Menu / Update Inventory

After removing a distribution bus from the bay, you need to update inventory.

1. Navigate as follows: Main Menu (ENT) Update Inventory (ENT).
2. Select Y. Press ENT.
3. Press ESC repeatedly to return to the Main Screen.

Viewing the Firmware Version

Menu Navigation: Main Menu / Firmware Version

You can view the Digital Meter/Alarm Panel's firmware version.

1. Navigate as follows: Main Menu (ENT) Firmware Version (ENT)
2. When done viewing the firmware version, press ESC repeatedly to return to the Main Screen.

Restoring Calibration

Menu Navigation: Main Menu / Restore Cal

You can restore the Digital Meter/Alarm Panel's factory calibrations.

1. Navigate as follows: Main Menu (ENT) Restore Cal (ENT).
2. Select Y. Press ENT.
3. Press ESC repeatedly to return to the Main Screen.

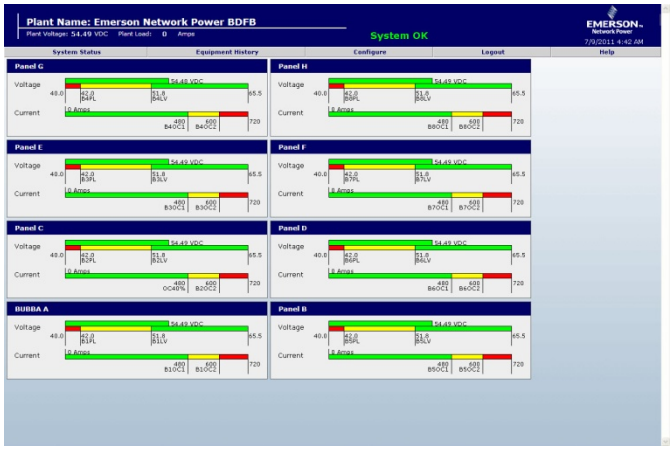
Precharging Load Capacitors

When furnished, a capacitor Precharge Assembly provides a circuit for initially charging the DC load capacitors prior to installing a distribution fuse (List 110 and 120 Distribution Panels only). For operating information, refer to the Precharge Assembly instructions (Section 5823). These instructions are provided after this document in the system instruction manual. The Precharge Assembly plugs directly into a TLS/TPS type fuseholder case. For TPL type fuses, an Adapter Assembly is furnished which plugs directly into a TPL type fuseholder case.

Using the Web Interface (List 106 and 108)

Introduction

When provided, the optional NETSURE™ BDFB Ethernet Card (BEC) provides comprehensive remote monitoring, control, and data processing functions for your NETSURE™ BDFB via an Ethernet port. In addition to access by means of an SNMP option, the BEC provides a Web Interface. With the BEC installed, a PC equipped with an Ethernet card and Internet Explorer is all you need to access the Web Interface over your company's network.



Initially Setting Up Ethernet Access

The BDFB Ethernet Card IP parameters must be set to match your company's network settings. This can be done via the front panel keypad/display or the Web Interface. Refer to the next section for a Web Interface procedure. Refer to "Configuring Network Addresses" on page 54 for a front panel keypad/display procedure.

Configuring the Network Address

The following procedure sets the BEC's Ethernet IP parameters via the Web Interface. It requires that you temporarily change the IP setup on your computer (PC). Windows 98 or later is required to set up the network connection.

This procedure requires a Permission Level of 8. The factory default user name and password provide Level 8 access. (For information about Permission Levels, see *Using the BEC Web Interface* later in this chapter).

PROCEDURE

Step 1: Record your PC's Network Settings

Record your current network settings for the computer you will be using to set the BDFB Ethernet Card's IP parameters. You will use these values in step 4.

Step 2: Change your PC's Network Settings

Change your computer's IP parameters to talk to the BDFB Ethernet Card using the card's default parameters.

a. 192.168.1.1—set your computer to 192.168.1.2 (IP Address).

b. 255.255.255.0—set your computer to the same (Subnet Mask).

c. 192.168.1.1—set your computer to the same (Gateway).

Step 3: Change the BEC's Network Settings

Connect the BDFB Ethernet Card into your company's network. Use Internet Explorer to change the BDFB Ethernet Card's default IP parameters to the parameters issued by your IT department.

If your PC cannot access the BDFB Ethernet Card, it may be necessary to bypass your company network by using a "crossover" cable connected directly between your PC and the BDFB Ethernet Card.

Step 4: Reset your PC's Network Settings

Reset your computer's IP parameters back to their original values noted in step 1. If using a crossover cable, first reconnect your computer to your company's network and connect the BDFB Ethernet Card to your company's network.

Step 1: Record your PC's Network Settings

1. Open the **Control Panel** on your computer.
2. Select **Network Connections**.
3. Select **Local Area Connection**.
4. Select **Properties**.
5. Highlight **Internet Protocol (TCP/IP)**.
6. Select **Properties**.
7. Record the current settings, these may be specific parameters **or** your computer may be set to automatically obtain these parameters from your company's network.

Obtained IP Address Automatically _____
or
Use the following...
IP Address: _____
Subnet Mask: _____
Default Gateway: _____

8. Select **Cancel**.

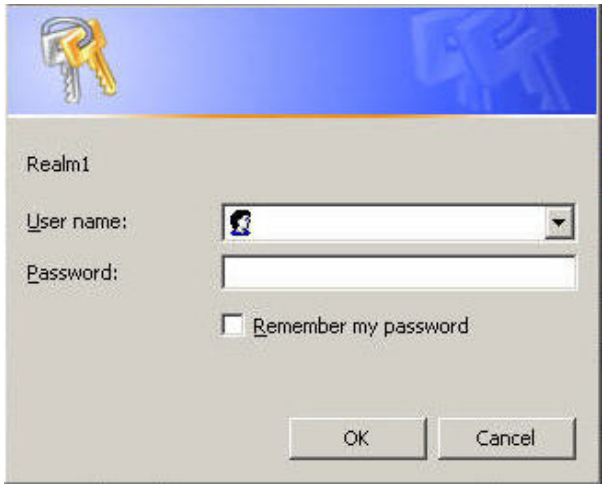
Step 2: Change your PC's Network Settings

1. Open the Control Panel on your computer.
2. Select Network Connections.
3. Select Local Area Connection.
4. Select Properties.
5. Highlight Internet Protocol (TCP/IP).
6. Select Properties.
7. Select "Use the following IP Address".
8. Enter the following.
   a. 192.168.1.2, as the IP Address.
   b. 255.255.255.0, as the Subnet Mask.
   c. 192.168.1.1, as the default Gateway.
9. Select **OK**. Note that you may have to reboot your computer for the settings to take effect. Follow any instructions you see on the screen.

Step 3: Change the Ethernet Card Network Settings

1. Connect the BDFB Ethernet port to your company's network. See Figure 8 for connection location.
2. Power up the Meter/Alarm Panel, if not already powered.
3. Open your Web Browser. Type 192.168.1.1 in the Address box. Press Enter. The logon window will open. See Figure 24.

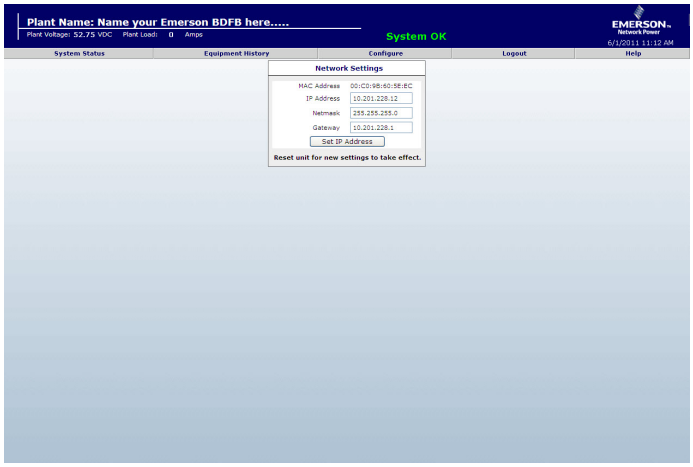
Figure 24. Logon Window



4. Type the default user name and password, then press **Enter**.
   User Name: **llp_admin**
   Password: **llp_admin**

   Note: *The user name and password are case-sensitive. For security, the password is not displayed on the computer's screen. You have three (3) attempts to enter a valid user name and password. If both are not entered correctly after three attempts, the browser is redirected to a "Protected Object" message page. A link is provided on that page that will return you to the logon window.*
5. If a valid user name and password are entered, the System Status page opens.
6. On the toolbar near the top of the web page, select **Configure→System→ Network Settings**. The **Network Settings** page opens. See Figure 25.

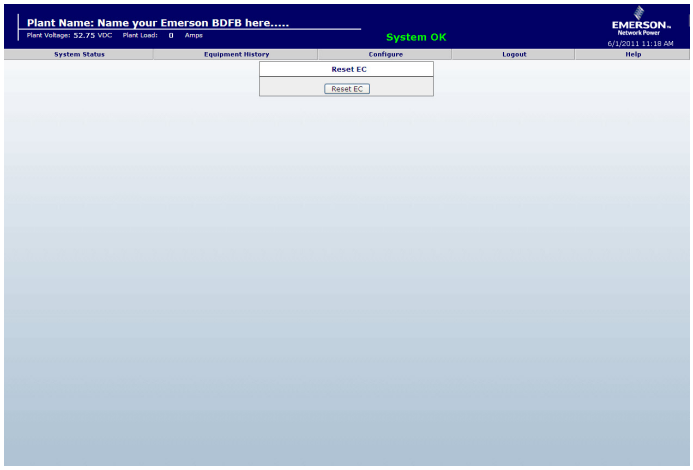
Figure 25. The Network Settings Page



7. Enter the parameters issued by your IT department. When the required IP Address, Subnet Mask, and Gateway have been entered, click the **Set IP Address** button. **VERIFY WHAT YOU HAVE TYPED—IF IT IS ENTERED INCORRECTLY, YOU MAY NOT BE ABLE TO COMMUNICATE WITH THE BEC.**

   Note: *If a new value is unacceptable, an "Invalid Entry" message is displayed.*
8. On the toolbar, select **Configure→System→Reset BDFB**. The **Reset EC** page opens. See Figure 26.
9. Click the **Reset EC** button. Close your Web Browser.

Figure 26. The Reset EC Page



Step 4: Reset your PC's Network Settings

1. If you were using a crossover cable, reconnect your computer to your company's network and connect the BDFB Ethernet Card's port to your company's network.
2. Open the Control Panel on your computer.
3. Select Network Connections.
4. Select Local Area Connection.
5. Select Properties.
6. Highlight Internet Protocol (TCP/IP).
7. Select Properties.
8. Set the IP parameters to the original settings recorded in step 1.
9. Check the new address settings by opening your Web Browser and entering the new IP address.

Final Step

You are now ready to access the power system over your company's network, as described in the next section.

Accessing the Power System

Users can access the BDFB Ethernet Card (BEC) through a PC's Web Browser via the Ethernet port. The default IP Address is 192.168.1.1.

Passwords and Permission Levels

General: Up to 64 separate users can be configured to access the system. Each user is assigned a password and an access permission level.

Passwords: The password assigned to a user must be entered for that user to log onto the system.

Permission Levels: The Permission Level (1-8) assigned to a user determines which Web pages that specific user can access. Page accessibility defines which operations a user can perform. A user with a Permission Level of 1 can execute all Level 1 operations only. A user with a Permission Level of 2 can perform all Level 2 or Level 1 operations, and so forth. A user with a Permission Level of 8 (Administrator) can perform all operations available at all levels.

Table 6 lists the access rights for each Permission Level. See Table 7 for a list of available Web pages and the minimum permission level required to access each.

Table 6. Permission Levels and Rights

Permission Level	Rights
1	View
2	View Detailed
3	View Detailed
4	Configure Alarms
5	Configure System Settings
6	Configure
7	Configure Relays
8	Administrator

Table 7. Web Pages and Minimum Required Permission Levels

Toolbar Button	Navigation from Tool Bar Button	Web Page Name	Level
System Status	→System Status	System Status	1
	→Alarm Summary	Alarm Summary	1
	→Alarm Summary→(Panel Name)	Panel Alarms	1
Equipment History	→Alarm Log	Alarm Log	1
	→User List	User List	2
Configure	→System→System Adjustments	System Adjustments	5
	→System→Clear Logs	Clear Logs	8
	→System→Network Settings	Network Settings	8
	→System→Time/Date	System Time/Date	8
	→System→Upload Application	Upload EC Application	8
	→System→Configuration File	Configuration File Operations	8
	→System→Reset BDFB	Reset EC	8
	→Bus→Bus (A-H): Panel (A-H)	Panel (A-H) Settings	4
	→Relays	Alarm Relay Configuration	7
	→SNMP→SNMP Settings	SNMP Settings	8
	→Users→Add/Remove Users	Configure Users List	8
	→Users→Add/Remove Users→Edit User	Edit User	8
	→Users→Add/Remove Users→Add New User	Add User	8
	→Users→Update Password	Change Password	1-8
Help	→About BEC	About BEC	1

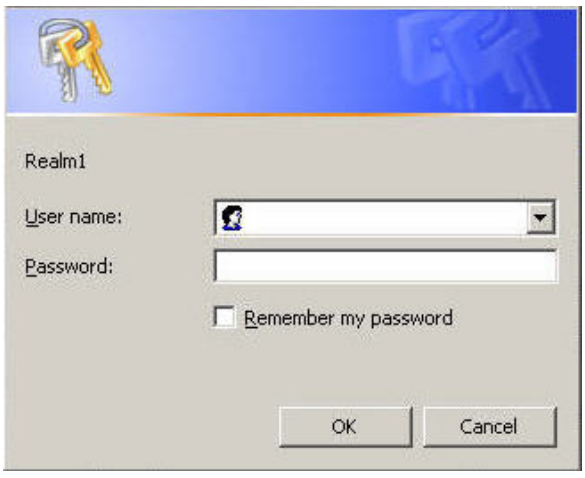
Logging onto the System

PROCEDURE

1. Open your Web Browser. If not already done, enter the network's IP Address in the browser's Address window, then press **Enter**. The logon window opens. See example in Figure 27.
2. Type the correct user name and password, then click **OK**. For security, the password is not displayed on the computer's screen while you log on. You have three (3) attempts to enter a valid user name and password. If both are not entered correctly after three attempts, the browser is redirected to a "Protected Object" message page. A link is provided on that page that will return you to the logon window.

   Note: *User names and passwords are case-sensitive, and must be 6-12 characters long, with no spaces. Both alpha and numeric characters may be used.*
3. When a valid user name and password are entered, the System Status page opens. You are now logged on to the system.
4. When you wish to log off the system, click the **Logout** button on the toolbar.

Figure 27. Logging On



Viewing the System Status Page

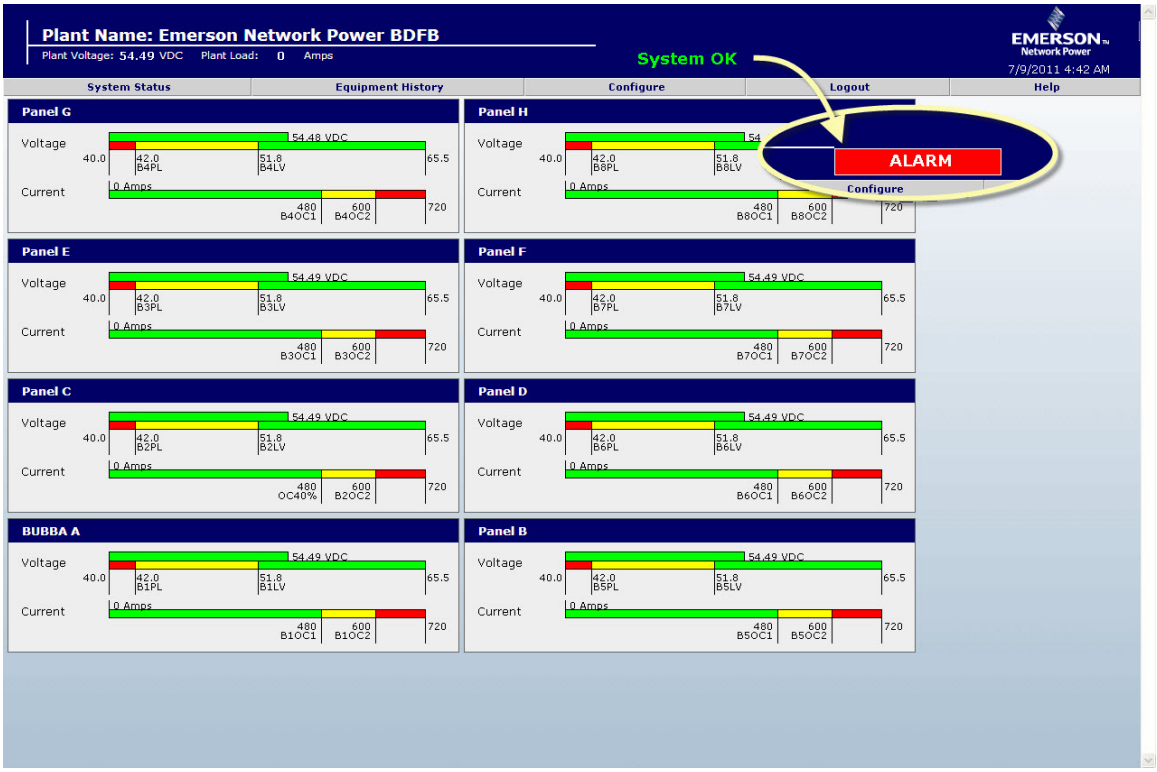
Requires a Permission Level of 1 or higher.

The System Status page is the BEC's home page. Figure 28 shows the following components of the System Status page. Many of these features are common to other pages of the BEC Web Interface.

- **Header:** The header appears on all BEC Web pages. It displays the plant name (user-configurable), plant voltage, load current, battery charge current (if the system includes a battery shunt), a "**System OK**" or "**ALARM**" indication, and the date and time. On any page, clicking on the "**ALARM**" indicator will open the **Alarm Summary** page so that system alarms can be viewed.
- **Toolbar:** The toolbar appears on all BEC Web pages. Buttons on the toolbar provide access to all System Status, Equipment History and Configuration pages described in this chapter.
- **System Measurements:** These panes display the plant voltage and plant load measurements for each distribution panel in the bay. In each case, the top bar shows the actual measurement, while the bottom bar shows alarm setpoints.

Note: *To return to the System Status page from any other page, on the toolbar select* ***System Status→System Status.***

Figure 28. System Status Page (8-Panel Bay Shown. 6-Panel Bay Similar)



Viewing System Alarms

You can view a summary of all BDFB alarms on one page. Alarm detail pages are provided for each distribution panel in the bay.

Viewing the Alarm Summary Page

Requires a Permission Level of 1 or higher.

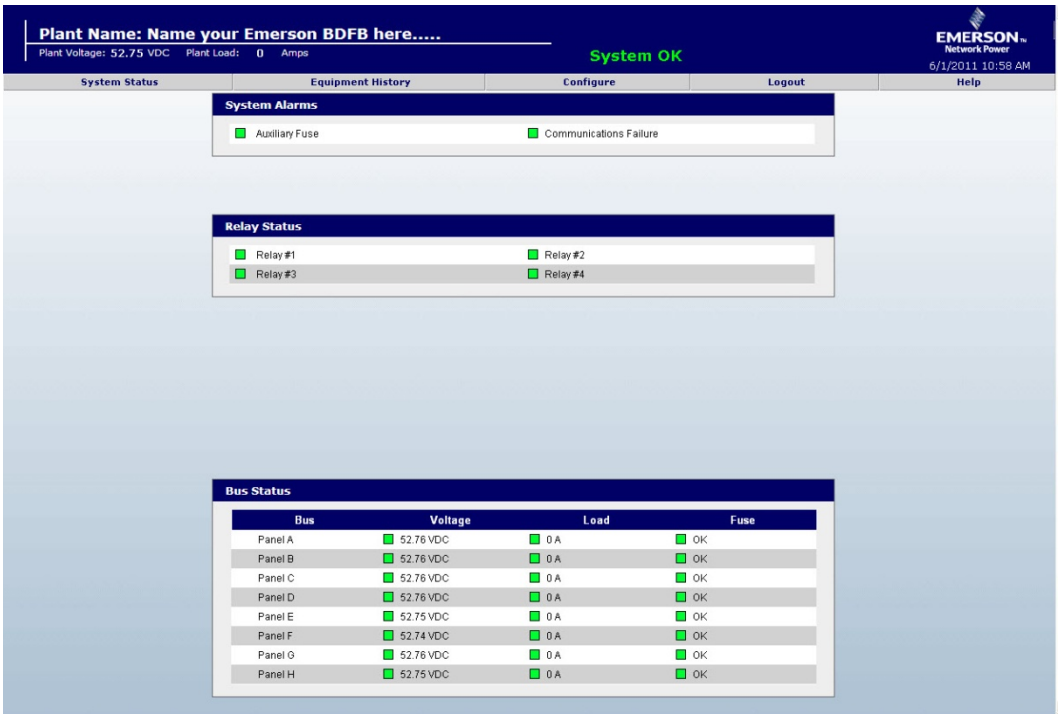
On this page, you can view the following information.

- **System Alarms:** This pane displays alarms for auxiliary fuses and Digital Meter/Alarm Panel communication failure.
- **Relay Status:** This pane displays status of the four external alarm relays.
- **Bus Status:** This pane displays the following for each distribution panel in the bay: voltage and current values, undervoltage and overcurrent alarm status, and fuse/circuit breaker alarm status.

PROCEDURE

1. On the toolbar, select **System Status→Alarm Summary**. The **Alarm Summary** page opens. See example in Figure 29.
2. Alarms are as follows: RED = Alarm, GREEN = No Alarm. The alarm label is boldfaced during an alarm condition.

Figure 29. Alarm Summary Page



Viewing the Alarm Details Pages

Requires a Permission Level of 1 or higher.

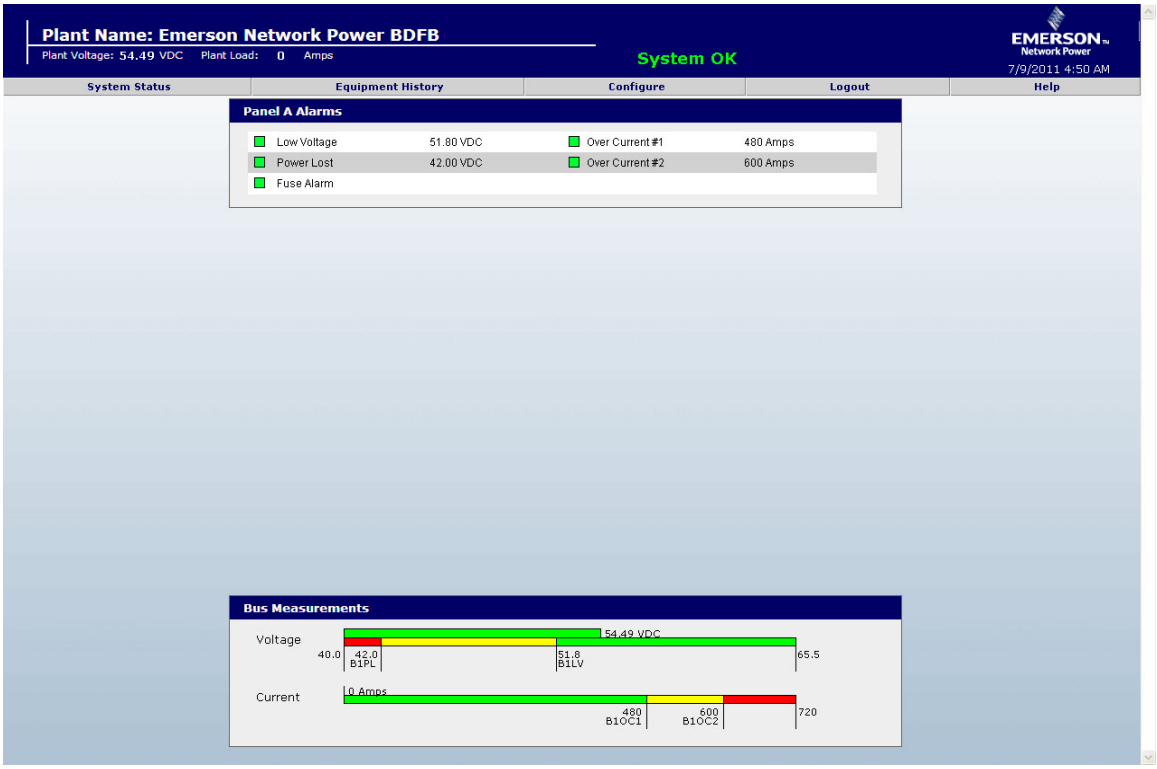
On this page, you can view the following information.

- **Panel Alarms:** This pane displays the status and setpoints of the Low Voltage, Power Lost, Over Current 1 and Over Current 2 alarms, and the status of the Fuse Alarm.
- **Bus Measurements:** This pane displays the voltage and load measurements for the panel. The top bar shows the actual measurement, while the bottom bar show alarm setpoints.

PROCEDURE

1. On the toolbar, select **System Status→Alarm Summary**. The **Alarm Summary** page opens. See example in Figure 29
2. In the "Bus" column of the Bus Status pane, click on the name of the panel you wish to view. The Panel Alarms page opens. See example in Figure 30.

Figure 30. Panel Alarms Page



Viewing Equipment History

Viewing the Alarm Log

Requires a Permission Level of 1 or higher.

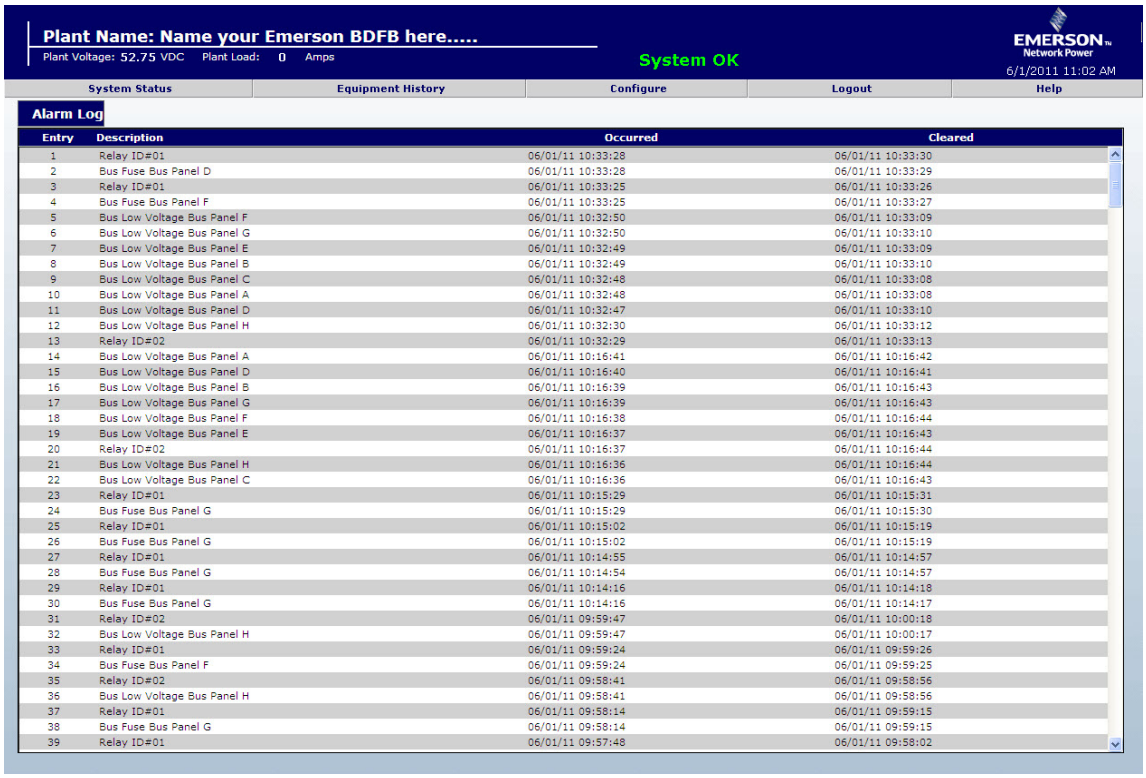
On this page, you can view the record of all alarms that have occurred since the last time the alarm log was cleared. Up to 500 alarm entries are stored for viewer display. The following information is provided.

- **Entry Number:** Sequential number automatically assigned to alarms when they are displayed. Entries are displayed in reverse chronological order, starting with the most recent as entry number 1.
- **Description:** Shows the type of alarm.
- **Occurred:** Shows the date and time at which the alarm event occurred.
- **Cleared:** Shows the date and time at which the alarm was cleared.

PROCEDURE

1. On the toolbar, select **Equipment History→Alarm Log**. The **Alarm Log** page opens. See example in Figure 31.
2. Scroll as necessary to display entire alarm log contents.

Figure 31. Alarm Log Page



Entry	Description	Occurred	Cleared
1	Relay ID#01	06/01/11 10:33:28	06/01/11 10:33:30
2	Bus Fuse Bus Panel D	06/01/11 10:33:28	06/01/11 10:33:29
3	Relay ID#01	06/01/11 10:33:25	06/01/11 10:33:26
4	Bus Fuse Bus Panel F	06/01/11 10:33:25	06/01/11 10:33:27
5	Bus Low Voltage Bus Panel F	06/01/11 10:32:50	06/01/11 10:33:09
6	Bus Low Voltage Bus Panel G	06/01/11 10:32:50	06/01/11 10:33:10
7	Bus Low Voltage Bus Panel E	06/01/11 10:32:49	06/01/11 10:33:09
8	Bus Low Voltage Bus Panel B	06/01/11 10:32:49	06/01/11 10:33:10
9	Bus Low Voltage Bus Panel C	06/01/11 10:32:48	06/01/11 10:33:08
10	Bus Low Voltage Bus Panel A	06/01/11 10:32:48	06/01/11 10:33:08
11	Bus Low Voltage Bus Panel D	06/01/11 10:32:47	06/01/11 10:33:10
12	Bus Low Voltage Bus Panel H	06/01/11 10:32:30	06/01/11 10:33:12
13	Relay ID#02	06/01/11 10:32:29	06/01/11 10:33:13
14	Bus Low Voltage Bus Panel A	06/01/11 10:16:41	06/01/11 10:16:42
15	Bus Low Voltage Bus Panel D	06/01/11 10:16:40	06/01/11 10:16:41
16	Bus Low Voltage Bus Panel B	06/01/11 10:16:39	06/01/11 10:16:43
17	Bus Low Voltage Bus Panel G	06/01/11 10:16:39	06/01/11 10:16:43
18	Bus Low Voltage Bus Panel F	06/01/11 10:16:38	06/01/11 10:16:44
19	Bus Low Voltage Bus Panel E	06/01/11 10:16:37	06/01/11 10:16:43
20	Relay ID#02	06/01/11 10:16:37	06/01/11 10:16:44
21	Bus Low Voltage Bus Panel H	06/01/11 10:16:36	06/01/11 10:16:44
22	Bus Low Voltage Bus Panel C	06/01/11 10:16:36	06/01/11 10:16:43
23	Relay ID#01	06/01/11 10:15:29	06/01/11 10:15:31
24	Bus Fuse Bus Panel G	06/01/11 10:15:29	06/01/11 10:15:30
25	Relay ID#01	06/01/11 10:15:02	06/01/11 10:15:19
26	Bus Fuse Bus Panel G	06/01/11 10:15:02	06/01/11 10:15:19
27	Relay ID#01	06/01/11 10:14:55	06/01/11 10:14:57
28	Bus Fuse Bus Panel G	06/01/11 10:14:54	06/01/11 10:14:57
29	Relay ID#01	06/01/11 10:14:16	06/01/11 10:14:18
30	Bus Fuse Bus Panel G	06/01/11 10:14:16	06/01/11 10:14:17
31	Relay ID#02	06/01/11 09:59:47	06/01/11 10:00:18
32	Bus Low Voltage Bus Panel H	06/01/11 09:59:47	06/01/11 10:00:17
33	Relay ID#01	06/01/11 09:59:24	06/01/11 09:59:26
34	Bus Fuse Bus Panel F	06/01/11 09:59:24	06/01/11 09:59:25
35	Relay ID#02	06/01/11 09:58:41	06/01/11 09:58:56
36	Bus Low Voltage Bus Panel H	06/01/11 09:58:41	06/01/11 09:58:56
37	Relay ID#01	06/01/11 09:58:14	06/01/11 09:59:15
38	Bus Fuse Bus Panel G	06/01/11 09:58:14	06/01/11 09:59:15
39	Relay ID#01	06/01/11 09:57:48	06/01/11 09:58:02

Viewing the User List

Requires a Permission Level of 2 or higher.

On this page, you can view the information entered for each user. Included is the following information.

- **Users:** User name assigned for logging onto the system
- **Name:** Name of the user
- **Phone:** User's primary telephone number
- **Alt. Phone:** User's alternate telephone number
- **E-mail:** User's primary E-mail address
- **Alt. E-mail:** User's alternate E-mail address

PROCEDURE

1. On the toolbar, select **Equipment History→User List**. The **User List** page opens. See example in Figure 32.
2. Up to 20 users will be displayed at a time. You can scroll to view any additional users (64 max.).

Figure 32. User List Page

Configuring System Settings

Changing System Adjustments

Requires a Permission Level of 5 or higher.

On this page, you can view and change the following **global** alarm setpoints.

- **Low Voltage:** Low Voltage alarm.
- **Power Lost:** Power Lost alarm.
- **Overcurrent #1:** Overcurrent 1 alarm.
- **Overcurrent #2:** Overcurrent 2 alarm.

Note: *If you wish to adjust alarm setpoints for each distribution panel individually, see Configuring Individual Distribution Panel Settings.*

On this page you can also change the **System Name:** Name appearing on each Web page & in the alarm log.

If a distribution panel is removed from the bay, and will not be replaced, the Low Voltage and Power Lost alarms will activate. To reset the alarms, you must update the inventory.

PROCEDURE TO CHANGE GLOBAL ALARM VALUES:

1. On the toolbar, select **Configure→System→System Adjustments**. The **System Adjustments** page opens. See example in Figure 33.
2. Replace the value being changed with the new value. Click on **Set Global Alarm Settings**. The screen refreshes and the new value is automatically entered in the system.

   Note: *If the new value is unacceptable, an "Invalid Entry" message is displayed.*

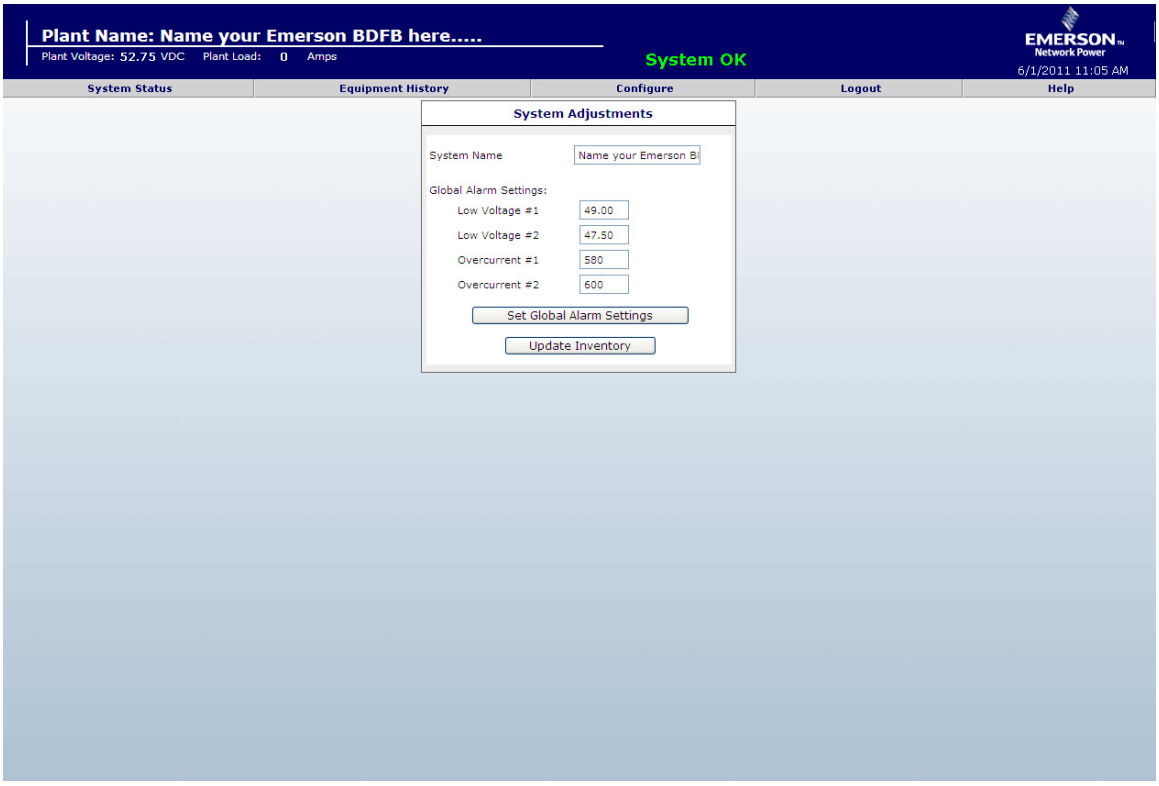
PROCEDURE TO CHANGE THE SYSTEM NAME:

1. On the toolbar, select **Configure→System→System Adjustments**. The **System Adjustments** page opens. See example in Figure 33.
2. In the System Name window, highlight the text you wish to change. Type in the new text. The name can be up to 32 characters long. Click on **Set Global Alarm Settings**. The screen refreshes and the new name is automatically entered in the system.

PROCEDURE TO UPDATE INVENTORY:

1. After removing a distribution bus from the bay, on the toolbar, select **Configure→System→System Adjustments**. The **System Adjustments** page opens. See example in Figure 33.
2. Click the **Update Inventory** button. The screen refreshes and the new name is automatically entered in the system.

Figure 33. System Adjustments Page



Clearing the Alarm Log

Requires a Permission Level of 8.

On this page, you can clear the alarm log.

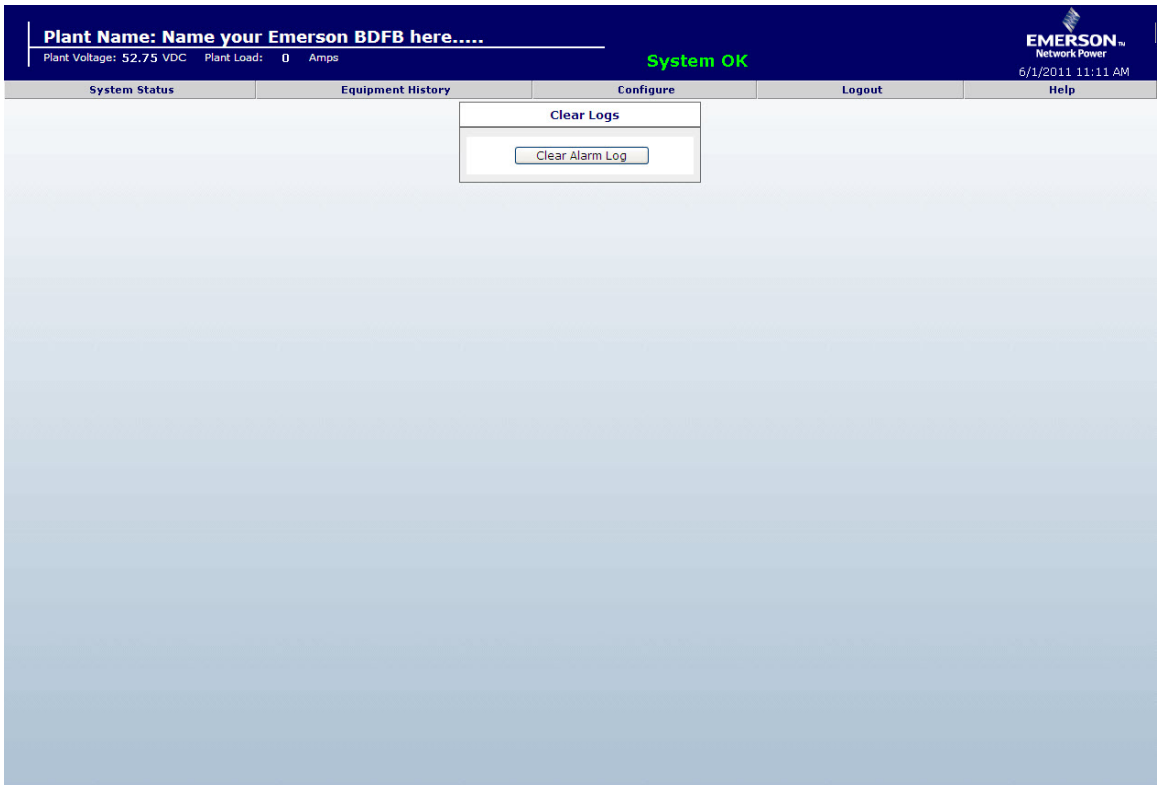
PROCEDURE

1. On the toolbar, select **Configure→System→Clear Logs**. The **Clear Logs** page opens. See example in Figure 34.
2. To clear the alarm log, click the **Clear Alarm Log** button. A window with the following message will be displayed.

   "Are you sure you wish to clear the log?"
3. To clear the log, select OK. The screen refreshes, and the alarm log is cleared.

   Note: *New alarm log entries will be generated for any alarms that are active when the alarm log is cleared.*

Figure 34. Clear Logs Page



Changing Network Settings

Requires a Permission Level of 8.

On this page, you can set the Network IP Address, Subnet Mask, and Gateway.

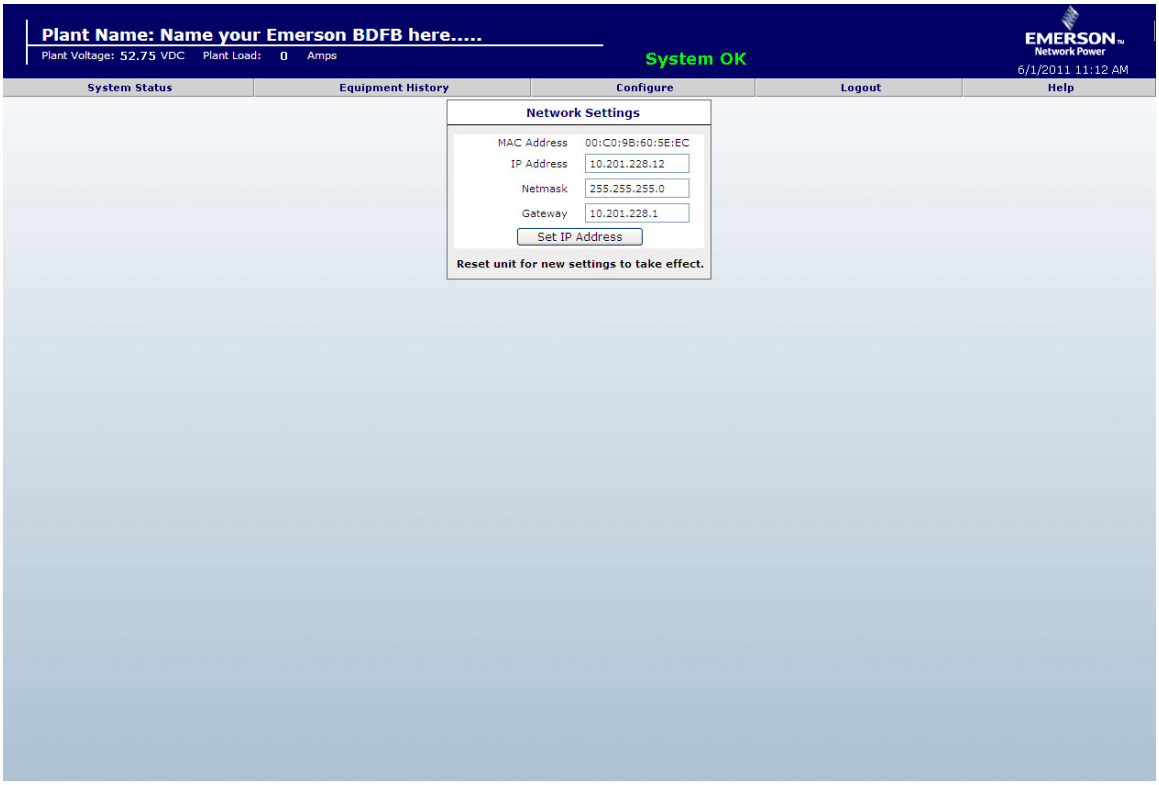
Note: *For further information, see Initially Setting Up Ethernet Access.*

PROCEDURE

1. On the toolbar, select **Configure→System→Network Settings**. The **Network Settings** page opens. See example in Figure 35.
2. Before making changes to the Network IP Address, Subnet Mask, and Gateway, carefully record the intended new settings.
3. To change a setting, highlight the text you wish to change. Type in the new characters in the format shown below. When the required IP Address, Netmask, and Gateway have been entered, click the **Set IP Address** button.

   Note: *If the new value is unacceptable, an "Invalid Entry" message is displayed.*
4. For the changes to take effect, the BEC must be reset. See *Resetting the BEC* elsewhere in this chapter for a procedure.

Figure 35. Network Settings Page



Changing the Time and Date

Requires a Permission Level of 8.

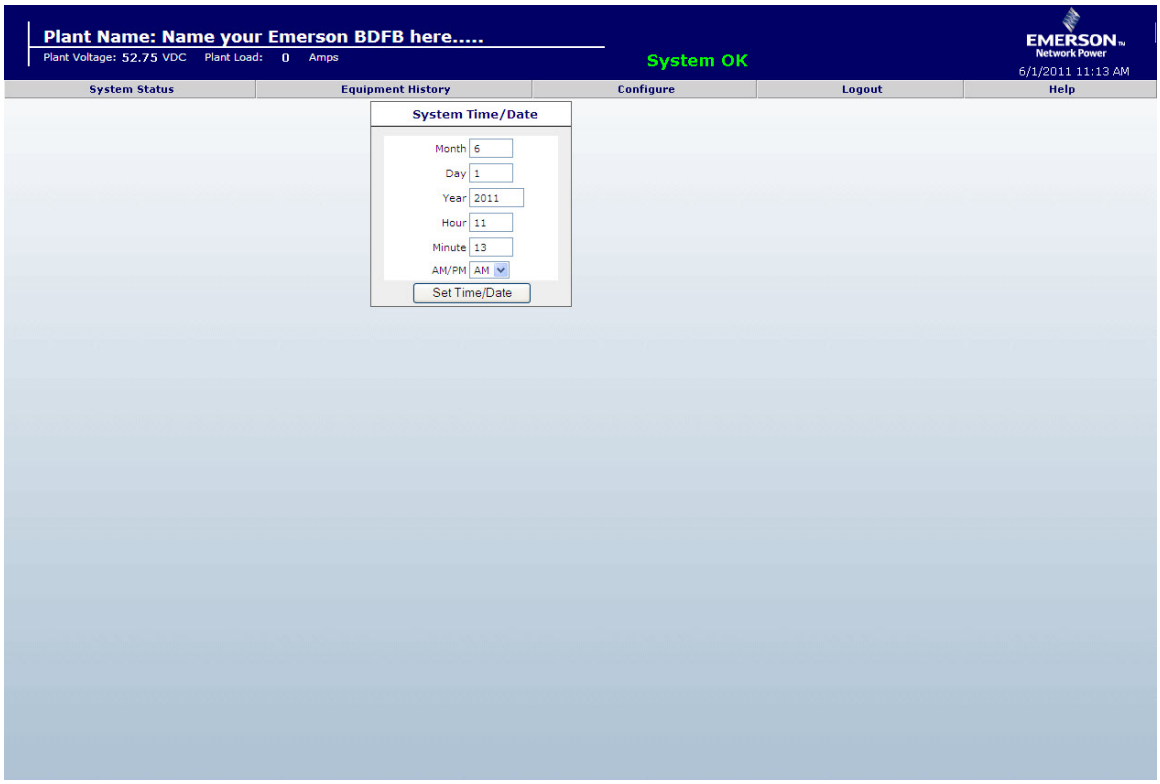
On this page, you can set the system time and date.

PROCEDURE

1. On the toolbar, select **Configure→System→Time/Date**. The **System Time/Date** page opens. See example in Figure 36.
2. To change a setting, highlight the text you wish to change. Type in the new characters. When the required time and date have been entered, click the **Set Time/Date** button. The screens refreshes, and the new date and time appear in the header.

   Note: *If a new value is unacceptable, no changes are made to that variable.*

Figure 36. System Time/Date Page



Upgrading an Application

Requires a Permission Level of 8.

On this page, the BEC has the capability of performing an application upgrade. The only requirement is that the information transfer is done using the FTP protocol via the Ethernet port.

Note: *To obtain a BEC upgrade file, contact your Emerson Network Power sales representative, or visit the Emerson Network Power website.*

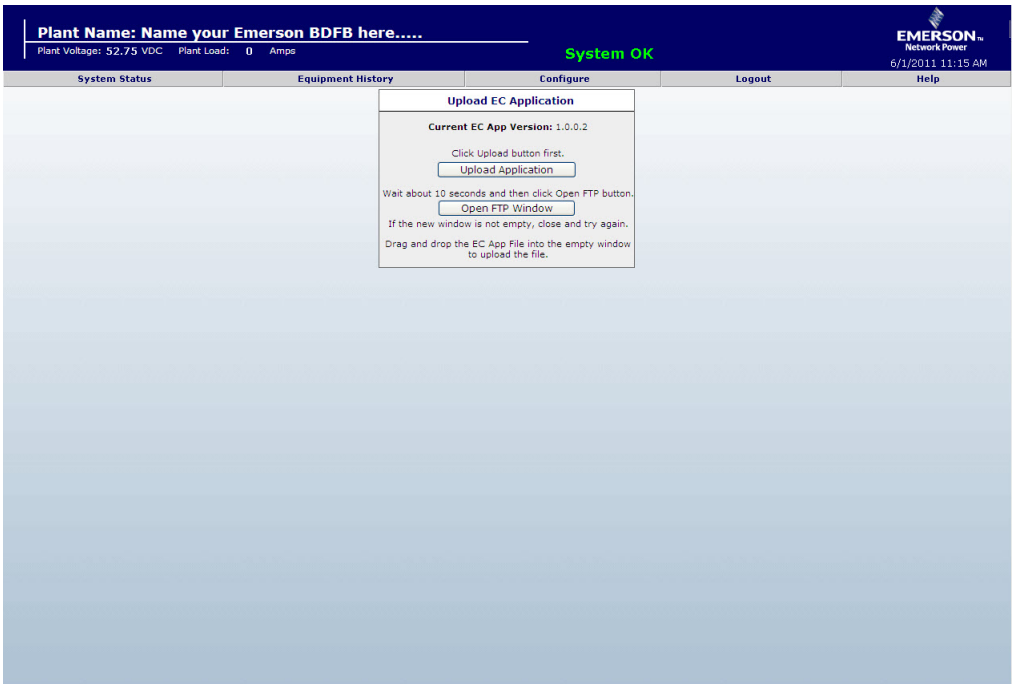
PROCEDURE:

1. On the toolbar, select **Configure→System→Upload Application**. The **Upload** BEC **Application** page opens. See example in Figure 37.
2. Click the **Upload Application** button. A window with the following message will be displayed.

   "Are you sure you wish to attempt uploading a new application (selecting yes causes the BEC to reboot)?"
3. To upload the application, select OK.
4. Click the **Open FTP Window** button. A **Login As** window opens. Enter your **User name** and **Password,** and then click the **Login** button. A second browser window opens.

   Note: *If the new browser window is not empty, close the window and repeat step 4. When an empty browser window opens, continue.*
5. Drag the provided file into the second browser window that was opened in the previous step. The file transfer will start. The BEC will automatically reboot approximately one minute after the file transfer is complete.
6. Close the FTP window.
7. Log onto the system (BEC).
8. Check all Meter/Alarm Panel system settings.

Figure 37. Upload Application Page



Configuration File Operations

Requires a Permission Level of 8.

A configuration file stores all of the BDFB's user-configurable information, including alarm and control setpoints and user information. You can create configuration files using the BDFB Ethernet Card. You can also copy the configuration files from the BDFB to a PC for storage. You can also copy a configuration file back into the BDFB and then have the Ethernet Card process the file to restore a BDFB Meter/Alarm Panel configuration or to create an identical Meter/Alarm Panel configuration. Information transfer is done using the FTP protocol via the Ethernet port.

CREATING A CONFIGURATION FILE

1. On the toolbar, select **Configure→System→Configuration File**. The **Configuration File Operations** page opens. See Figure 38.
2. Enter a name (with an extension of .cfg) in the field above the **Create Configuration File** button (or use the default name). Click the **Create Configuration File** button. A window with the following message displays.

   "Are you sure you wish to create the configuration file?"
3. To create the file, select **OK**. The screen refreshes and a file is created and stored in a directory in the BEC.

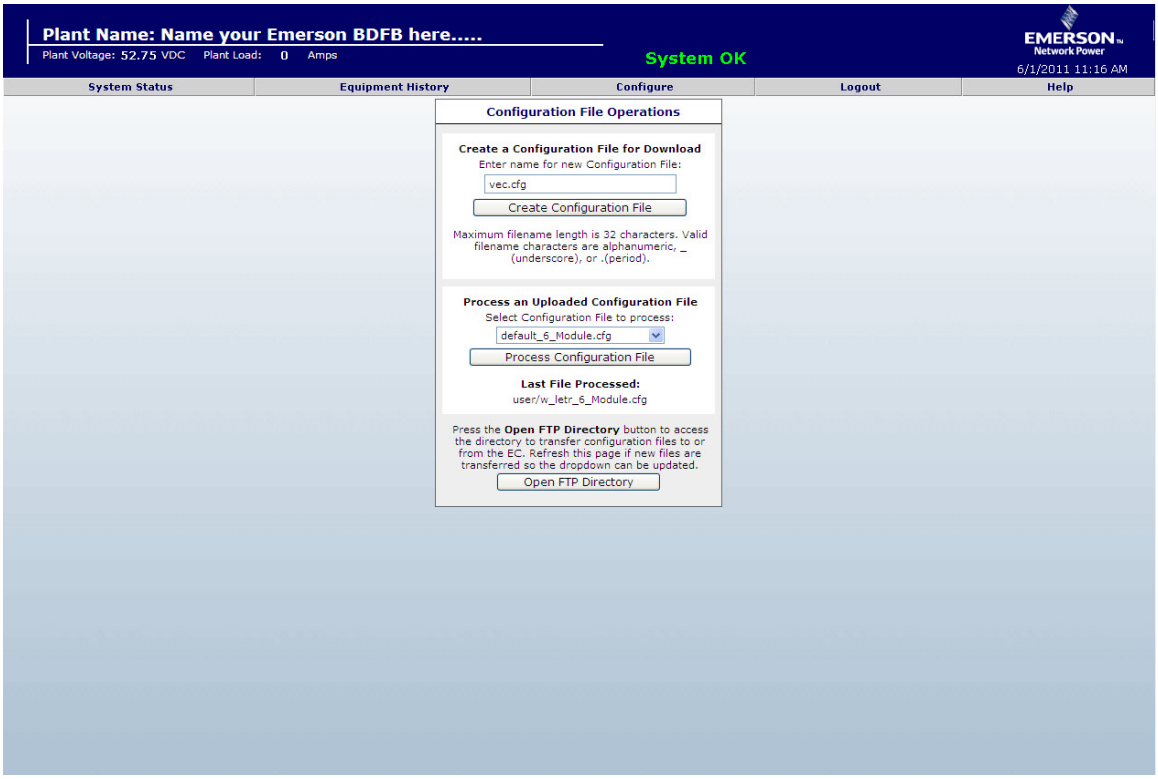
   Note: *If a file with the same name already exists in the BEC's directory, it will be overwritten by the new file.*

PROCESSING A CONFIGURATION FILE

1. On the toolbar, select **Configure→System→Configuration File**. The **Configuration File Operations** page opens. See Figure 38.
2. Select a configuration file from the drop-down list box located above the **Process Configuration File** button. Click the **Process Configuration File** button. A window with the following message displays.

   "Are you sure you wish to process the configuration file?"
3. To process the file, select **OK**. When the file has been processed, the window will refresh, and the new configuration information will take effect.

Figure 38. Configuration File Operations Page



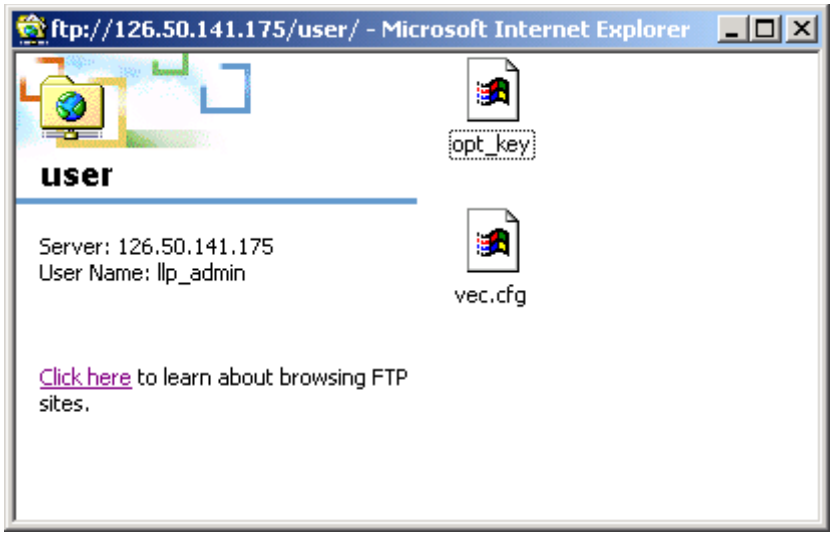
TO COPY A CONFIGURATION FILE FROM AND TO THE BEC

Via Internet Explorer version 6, or earlier:

1. On the toolbar, select **Configure→System→Configuration File**. The **Configuration File Operations** page opens. See Figure 38.
2. On the **Configuration File Operations** page, click the **Open FTP Directory** button. A **Login As** window opens. Enter your BEC **User Name** and **Password,** and then click the **Login** button. A window opens that contains all the configuration files stored in the BEC. See Figure 39.

   Note: *Other files may also be present in this window.*
3. Copy a configuration file from the BEC (files in the FTP Directory Window) to your PC for storage, or from your PC to the BEC (files in the FTP Directory Window) for processing, as required.
4. When finish, close the FTP Directory Window.

Figure 39. FTP Directory Window



Via Internet Explorer version 7:

Note: *Do not use the OPEN FTP DIRECTORY button.*

1. Open Internet Explorer.
2. In the Internet Explorer address bar type
   ftp://*BEC IP ADDRESS*/User
   (where *BEC IP ADDRESS* is the IP address of the BEC card, in the format of nnn.nnn.nnn.nnn, where 0 ≤ nnn ≤ 255).
3. A Log On As window opens. Enter your BEC User Name and Password, and then click the Log On button. All configuration files in the BEC are displayed in Internet Explorer.

   Note: *Other files may also be present in this window.*
4. Copy a configuration file from the BEC (files displayed in Internet Explorer) to your PC for storage, or from your PC to the BEC (files displayed in Internet Explorer) for processing, as required.
5. When finish, close Internet Explorer.

Resetting the BEC

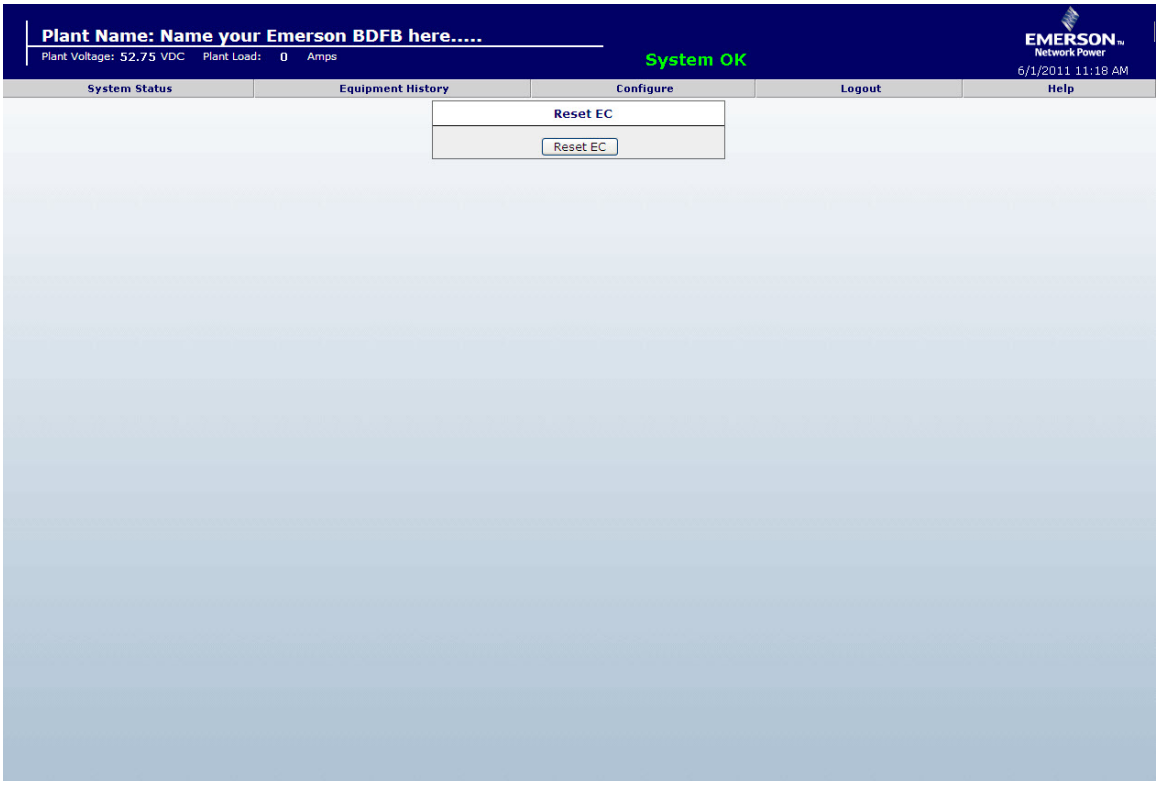
Requires a Permission Level of 8.

On this page, you can reset the BDFB Ethernet Card after making changes to the network settings. Resetting the BEC is necessary for the new network settings to take effect.

PROCEDURE

1. On the toolbar, select **Configure→System→Reset BDFB**. The **Reset EC** page opens. See Figure 40.
2. Click the **Reset** EC button.
3. Wait approximately 30 seconds for the application to restart.
4. Log onto the system.
5. To verify the new network settings, on the toolbar select **Configure→System→Network Settings**. The **Network Settings** page opens. See Figure 35. Verify the new network settings.

Figure 40. Reset BEC Page



Configuring Individual Distribution Panel Settings

Requires a Permission Level of 4 or higher.

On this page, you can view and change the following settings. You can also change the reference designation for any alarm. The reference designation appears on the alarm setpoint "gas gauge" displayed on status pages. A reference designation must be five characters or less.

- **Low Voltage (A1LV):** Voltage at which the Low Voltage alarm activates.
- **Power Lost (A1PL):** Voltage at which the Power Lost alarm activates.
- **Overcurrent #1 (A1OC1):** Voltage at which the Overcurrent 1 alarm activates.
- **Overcurrent #2 (A1OC2):** Voltage at which the Overcurrent 2 alarm activates.
- **Name:** The name of the panel can be changed.
- **Shunt Capacity:** Capacity can be changed to match the panel shunt.

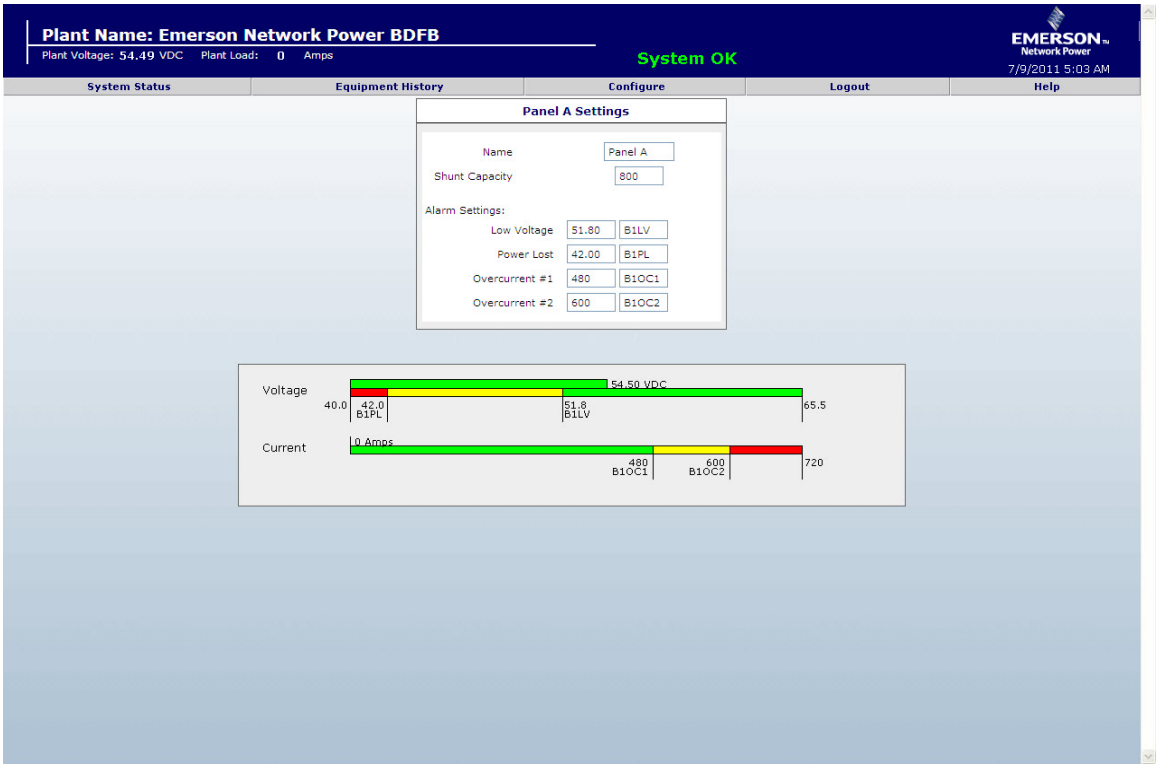
PROCEDURE

1. On the toolbar, select **Configure→Bus→Bus (A-H): Panel (A-H)**. The settings page of the selected distribution panel opens. See example in Figure 41.
2. To change an alarm setpoint, highlight the text you wish to change. Type in the new value. Click outside the text box. The screen refreshes and the new value is automatically entered into the system. The bottom bar of the bar graph displays the new settings.

   Note: *If the new value is unacceptable, an "Invalid Entry" message is displayed.*
3. To change a reference designation, highlight the text you wish to change. Type in the new characters (alpha-numeric, 5-character limit). Click outside the text box. The screen refreshes and the new reference designation is entered in the system.
4. To change the panel name, highlight the text you wish to change. Type in the new name (alpha-numeric, 8-character limit). Click outside the text box. The screen refreshes and the new reference designation is entered in the system.
5. To change the shunt capacity value, highlight the Shunt Capacity value. Type in the new value. Click outside the text box. The screen refreshes and the new value is entered in the system.

   Note: *If the new value is unacceptable, an "Invalid Entry" message is displayed.*

Figure 41. Panel Settings Page



Assigning Alarms to Relays

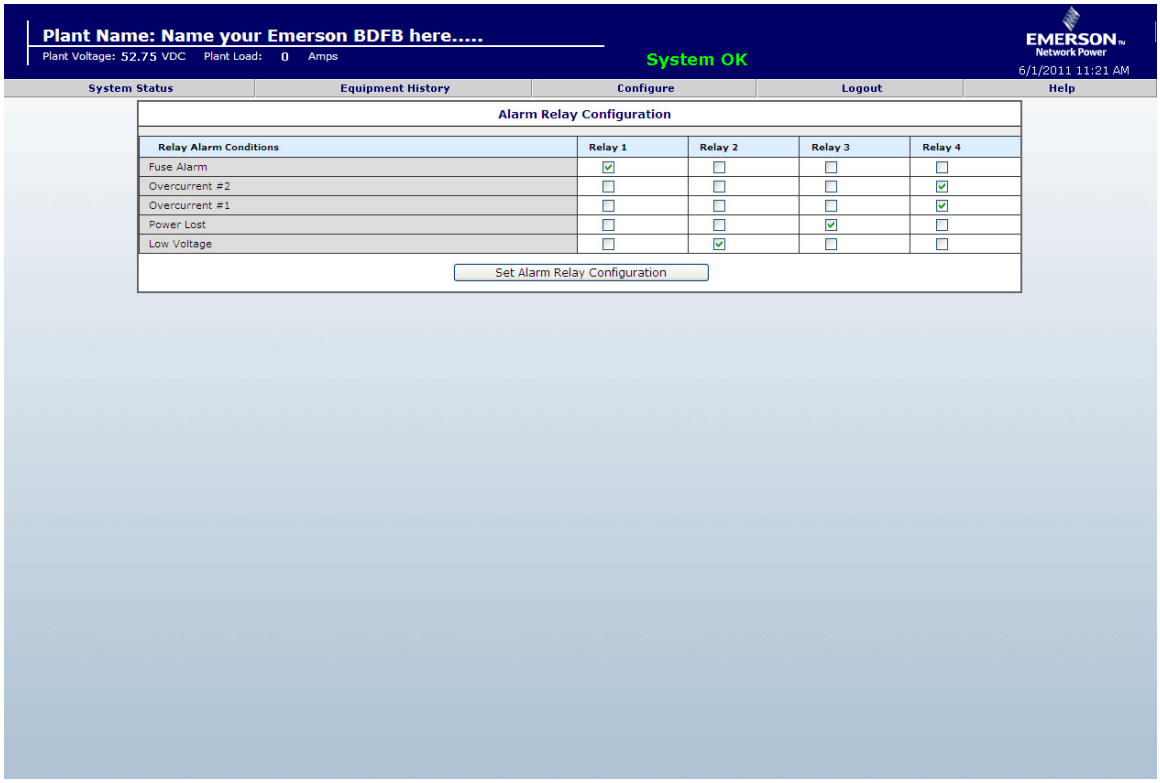
Requires a Permission Level of 7 or higher.

The BDFB provides four programmable alarm relays. On this page, you can select the alarm conditions that will activate each relay.

PROCEDURE

1. On the toolbar, select **Configure→Relays**. The **Alarm Relay Configuration** page opens. See example in Figure 42.
2. Assign alarm conditions as required to each alarm relay. Place a checkmark in the box to add a condition. Remove a checkmark to remove a condition.
3. When all changes have been made, click the **Set Alarm relay Configuration** button, located at the bottom of the pane. The screen refreshes and the new settings take effect.

Figure 42. Alarm Relay Configuration Page



Configuring SNMP Settings

Note: *The BEC must be equipped with the SNMP Option.*

Requires a Permission Level of 8.

If the SNMP option is installed, on this page you can set the SNMP parameters. The SNMP Option provides...

Support for SNMP v2 (Simple Network Management Protocol). Communications to and from the Meter/Alarm Panel is accomplished via a MIB (Management Information Browser).

SNMP Traps for alarms listed on the Meter/Alarm Panel local menu flow diagram under the "Available Alarm Messages".

Note: *Users must be familiar with their Management Information Base (MIB) browser and know how to access the information in the LXP SNMP Interface using their browser. They must also be able to obtain a TCP/IP address for the interface and obtain at least one TCP/IP address to which SNMP traps are sent.*

PROCEDURE

1. On the toolbar, select **Configure→SNMP→SNMP Settings**. The **SNMP Settings** page opens. See example in Figure 43.
2. Enter the following SNMP settings:
   - **Community string:** This text string acts as a password. It is used to authenticate messages that are sent between the SNMP manager and the Meter/Alarm Panel.
   - **System Name, System Location, System Contact:** Self-explanatory.
   - **Trap Interval:** As long as an alarm remains active, the Meter/Alarm Panel will continue to send a trap at periodic intervals. The **Trap Interval** specifies how frequently the Meter/Alarm Panel will send a persistent trap.
3. After entering all SNMP settings, press **Set SNMP Settings**. The screen refreshes and the new settings take effect.
4. Add and/or delete trap addresses as necessary. The maximum number of trap addresses the BDFB Ethernet Card will accept is 64.

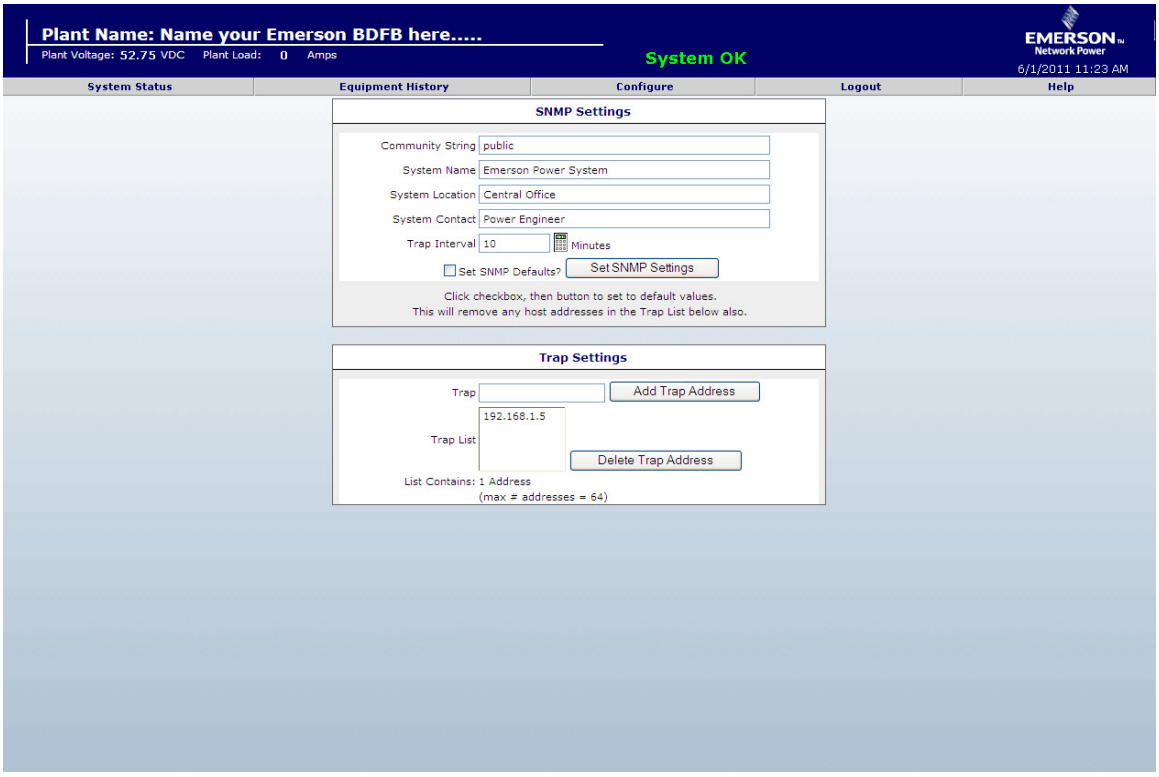
   Note: *Trap addresses are IP addresses to which SNMP Traps will be sent. Addresses are in the format of nnn.nnn.nnn.nnn, where 0 ≤ nnn ≤ 255. The machine with this IP address must have appropriate SNMP browser running. SNMP Traps V2 are sent.*

   To add, type the Trap Address in Trap box and then press Add Trap Address. The screen refreshes and the new settings take effect.

   To delete, select the Trap Address from the **Trap List** and then press **Delete Trap Address**. The screen refreshes and the new settings take effect.

   Note: *You can enter factory default values for all settings on the screen. To enter default values, click the **Set SNMP Defaults?** check box to enter a check mark, then click the **Set SNMP Settings** button. **This will also remove all trap addresses from the Trap List.***

Figure 43. SNMP Settings Page



Note: *Operation of the SNMP interface is beyond the scope of this manual. Refer to other documentation for SNMP interface information, such as the following...*

Relevant *RFC's available from The Internet Engineering Task Force (IETF):*

1901 Introduction to Community-based SNMPv2.

1902 Structure of Management Information for Version 2 of the Simple Network Management Protocol (SNMPv2).

1903 Textual Conventions for Version 2 of the Simple Network Management Protocol (SNMPv2).

1904 Conformance Statements for Version 2 of the Simple Network Management Protocol (SNMPv2).

1905 Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2).

1906 Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2).

1907 Management Information Base for Version 2 of the Simple Network Management Protocol (SNMPv2).

Books:

SNMP SNMPv2 and RMON, Practical Network Management, Second Edition, by William Stallings

SNMP, A Guide to Network Management, by Dr. Sidnie Feit

Configuring Users

Adding and Removing Users, and Editing User Information

Requires a Permission Level of 8.

From this page, you can add new users or remove existing users. You can also edit information about existing users.

PROCEDURE

1. On the toolbar, select **Configure→User→Add/Remove Users**. The **User List** page opens. See example in Figure 44.
2. To Remove a User:
3. For each name being removed, place a checkmark in the appropriate box in the column labeled Remove.
4. Click the Remove Selected User(s) button.
5. A window opens displaying the message, "Are you sure you wish to remove the selected User(s)?" To accept the change, click OK. The screen refreshes and the mode changes. To cancel the operation, click Cancel.

   Note: *The default Administrator level user cannot be removed, nor can its access level be changed.*

TO ADD A USER:

1. In the **User List** page, click the **Add New User** button. The **Add User** page opens. See example in Figure 45.
2. Enter all applicable information. Note that, for security, the password and password confirmation entries will not be displayed on the screen.

   Note: *User names and passwords are case-sensitive, and must be 6-10 characters long, with no spaces. Both alpha and numeric characters may be used.*

3. When the information is complete, click the **Add User** button. The **User List** page opens and the new user is displayed.

TO EDIT A USER'S INFORMATION:

1. In the **User List** page, click on the user name in the **Users** column. The **Edit User** page opens. See Figure 46.
2. Change the user information as required. Note that, for security, the password and password confirmation entries will not be displayed on the screen.

   Note: *User names and passwords are case-sensitive, and must be 6-10 characters long, with no spaces. Both alpha and numeric characters may be used.*

3. When the information is complete, click the **Edit User** button. The **User List** page opens, indicating the change was successful.

Figure 44. Add/Remove Users Page

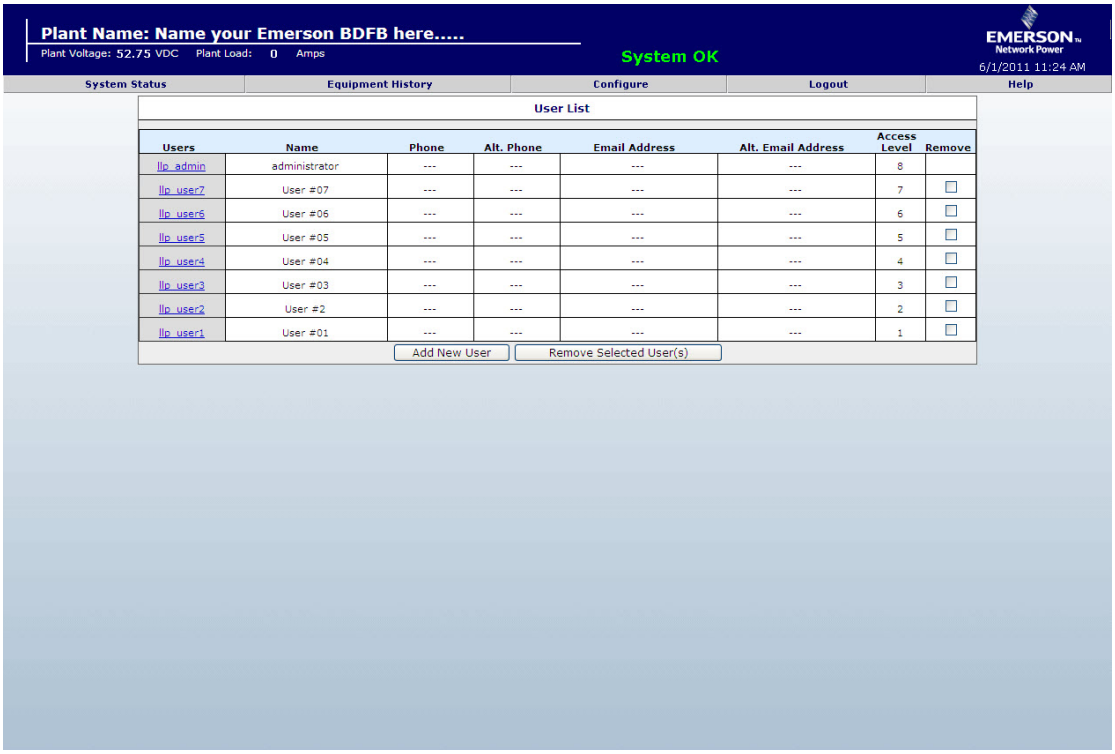


Figure 45. Add User Page

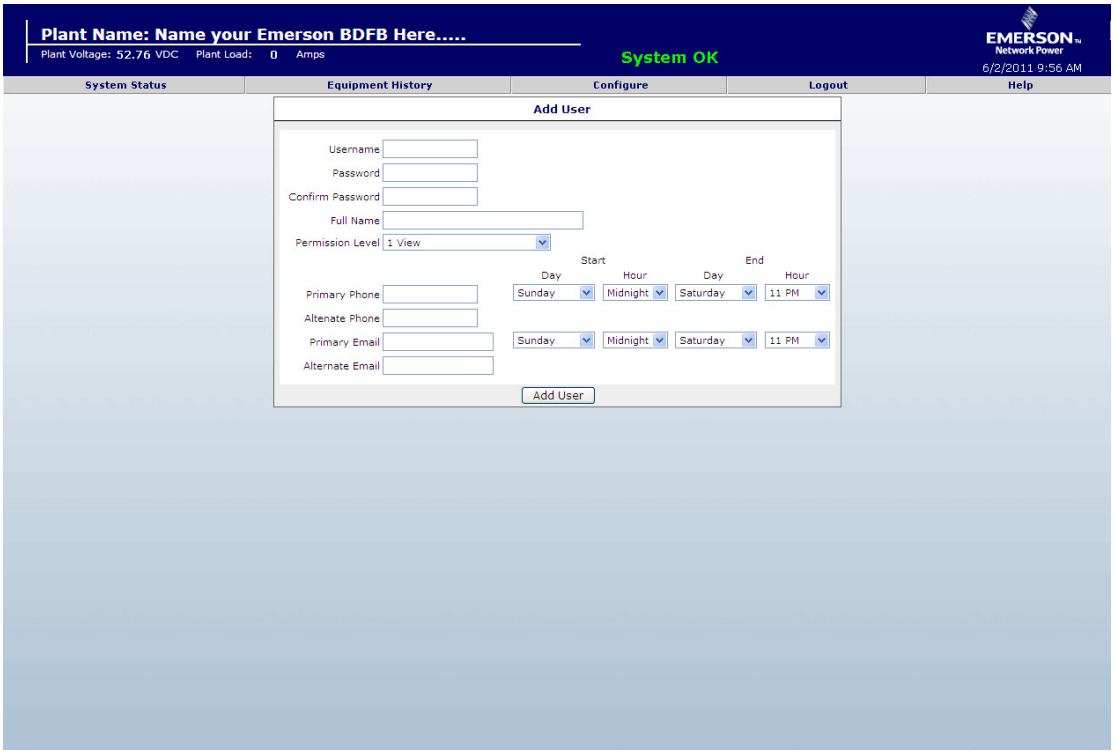
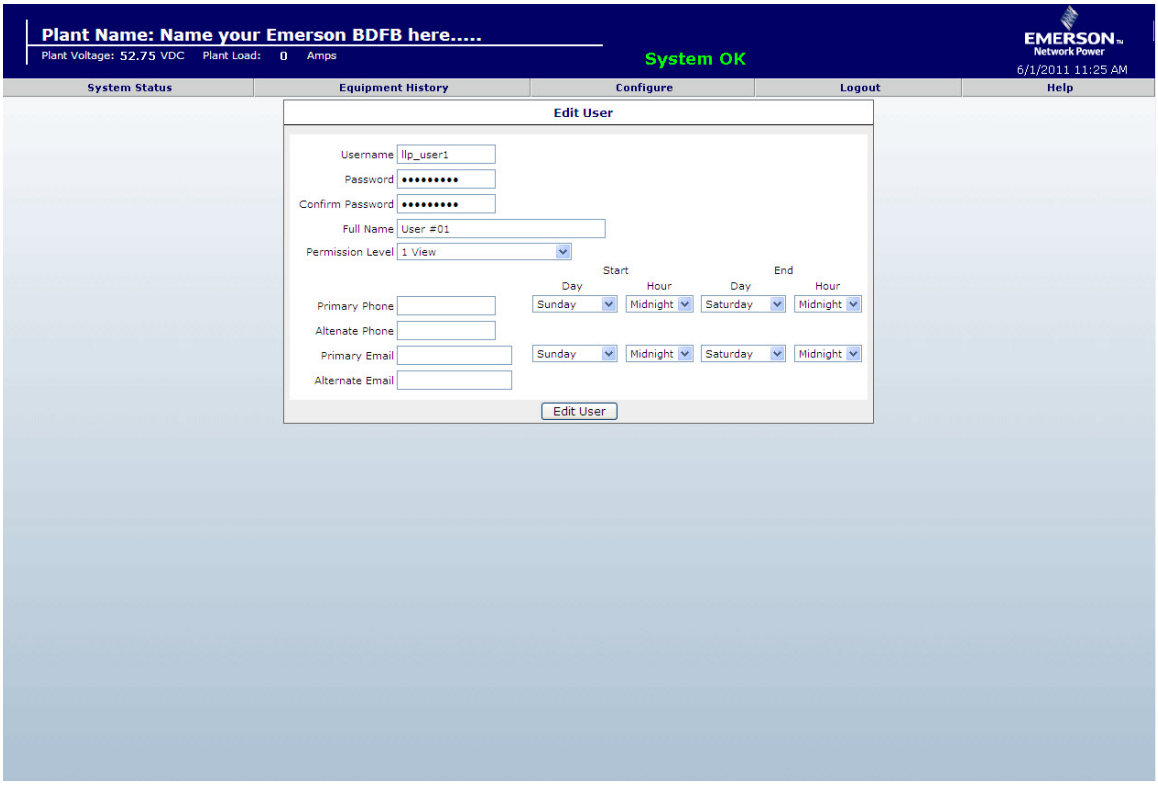


Figure 46. Edit User Page



Updating a Password

Requires a Permission Level equal to or higher than that of the User whose password is being updated.

On this page, you can update your own password. You can also edit other user information about yourself.

Note: *You cannot change your Permission Level on this page.*

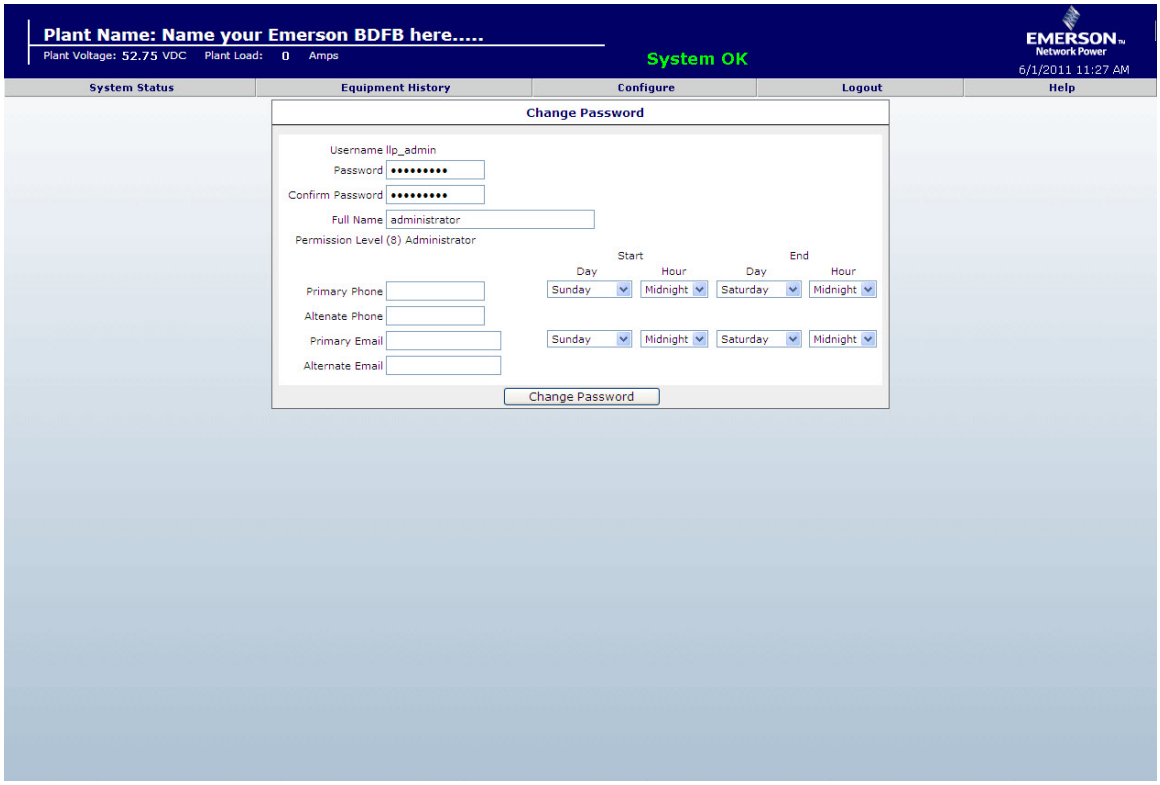
PROCEDURE

1. On the toolbar, select **Configure→User→Update Password**. The **Change Password** page opens. See example in Figure 47.
2. Change the user information as required. Note that, for security, the password and password confirmation entries will not be displayed on the screen.

   Note: *User names and passwords are case-sensitive, and must be 6-10 characters long, with no spaces. Both alpha and numeric characters may be used.*

3. When the information is complete, click the **Change Password** button. The screen refreshes and the information is updated.

Figure 47. Change Password Page



Maintenance

Routine Maintenance

The BDF/CBB requires minimal routine maintenance when installed correctly. The procedures listed in Table 8 may be performed at the recommended interval to provide a service record for the system. The table references specific sections in this instruction manual which help in performing these procedures.

Table 8. Procedures that May be Performed to Provide a Service Record for the System

Procedure	Interval	Refer to
Check Ventilation Openings for Obstructions such as Dust, Papers, Manuals, etc.	1 yr.	-
Inspect and Tighten All Installer's Connections	6 mos.	INSTALLATION Section
Check Circuit Breaker/Fuse Alarms	3 mos.	INITIALLY STARTING AND CHECKING THE SYSTEM Section

System Expansion

Field Distribution Panel Installation

Perform the following procedure to add any additional Distribution Panels to the BDF/CBB. Refer to Figure 48 and Figure 49.

DANGER! Servicing personnel must observe all safety precautions normally associated with maintenance and adjustment of electronic equipment, and must avoid direct contact with any energized electrical termination. This BDF/ CBB utilizes high DC output current; therefore, servicing personnel must remove watches, rings, or other jewelry before making test equipment connections or performing adjustments.

PROCEDURE

1. Remove blank cover panel(s) where new Distribution Panel(s) will be installed.
2. Place the new Distribution Panel into position on the front side of the BDF/CBB.
3. On the front of the BDF/CBB insert and tighten the four or six screws securing the new Distribution Panel to the bay.
4. Connect parallel bars as required to power the new panel per the appropriate section of this document.
5. Connect loads to the new panel per the appropriate section of this document.
6. Install Distribution Devices per the appropriate section of this document.
7. Locate in the Bay's wiring harness near the new panel, the unconnected insulated quick connector for the FA/CBA alarm circuits. Connect this to the tab located on the center alarm bus of the Distribution Panel. Connect from the rear of the bay.
8. Install the new BDF/CBB front cover panel that was furnished with the new Distribution Panel.
9. Perform the Initial Start-up and Checkout Procedure in the INITIALLY STARTING AND CHECKING THE SYSTEM Section.

Figure 48. Installing a List 110 or List 120 Distribution Panel

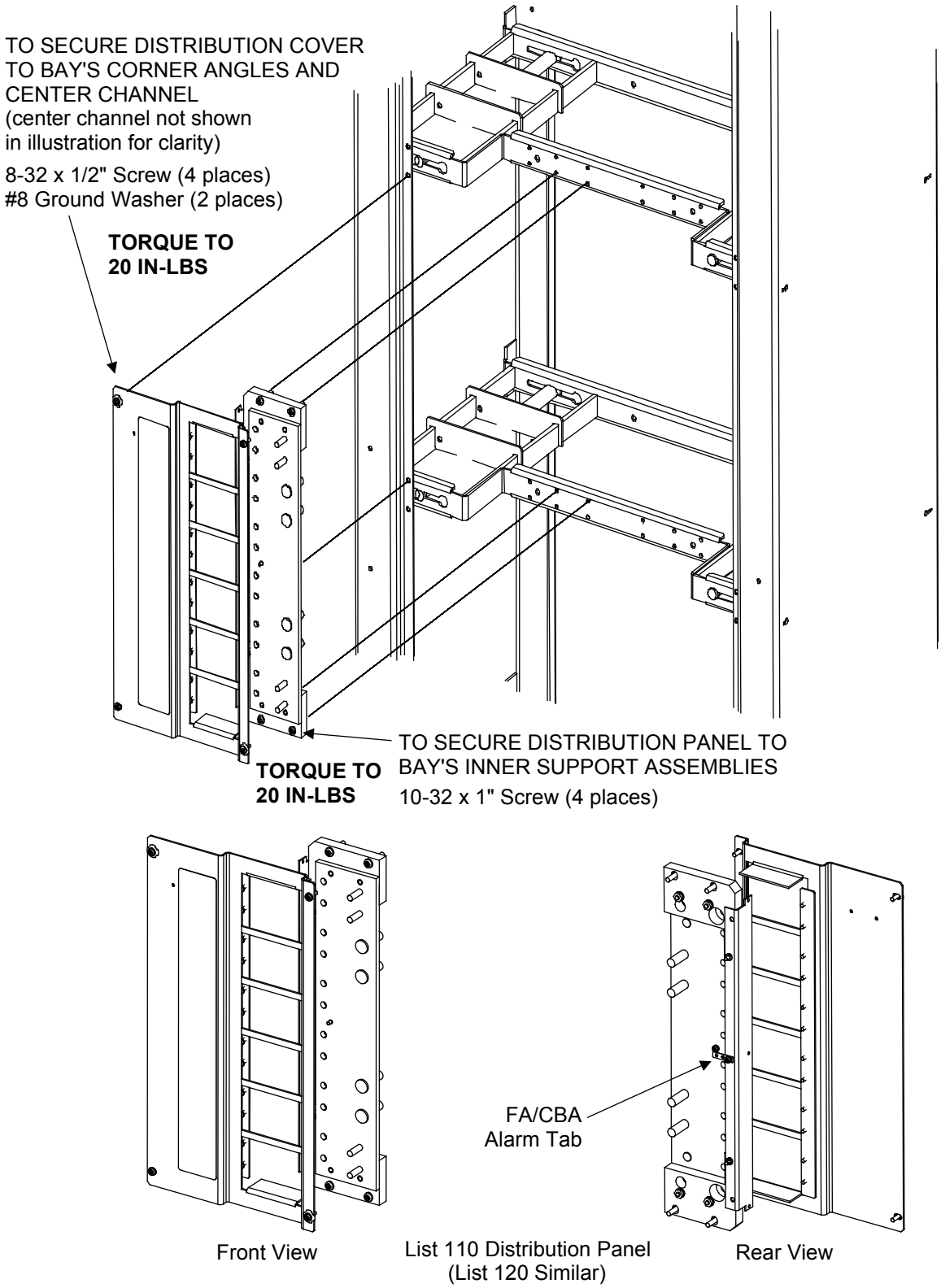
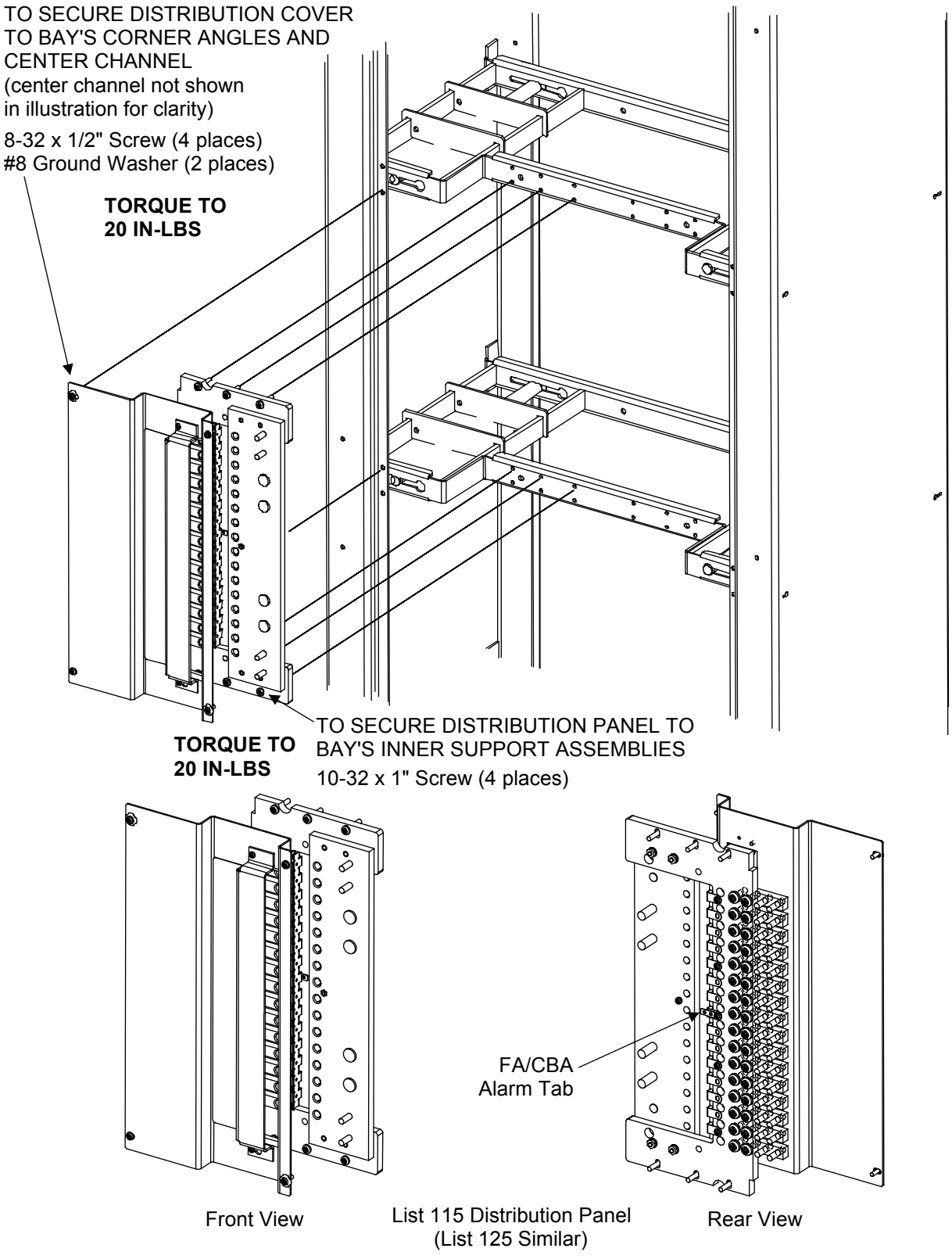


Figure 49. Installing a List 115 or List 125 Distribution Panel



Adding or Replacing List 170 (Ethernet Card P/N 547907) in a List 106 or List 108 Bay, or Bays Retrofitted with List 166 or List 168

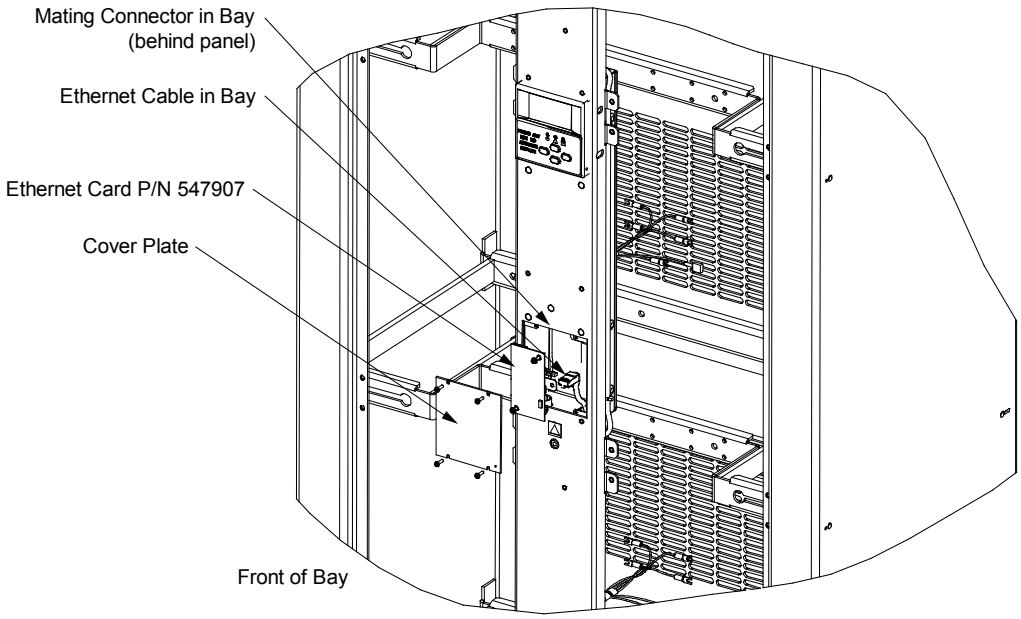
Danger! Adhere to the "Important Safety Instructions" presented at the front of this document.

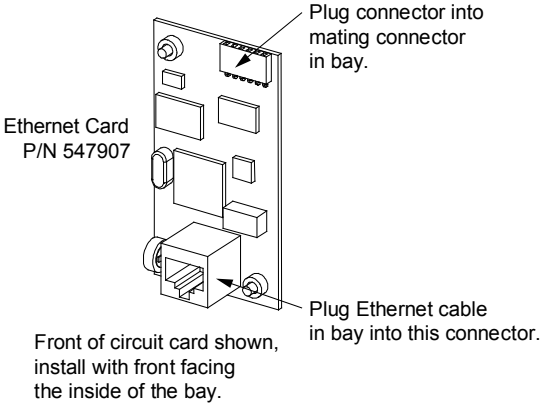
Refer to Figure 50 as this procedure is performed.

PROCEDURE

1. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground. A grounding plug is provided on the front of the bay.
2. Follow the steps in Figure 50.
3. Refer to "Ethernet Connections" on page 17 to connect the system to your network.
4. Remove the grounding strap.

Figure 50. Adding or Replacing List 170





1. Remove cover plate.
2. Install Ethernet card P/N 547907 by first connecting the Ethernet cable factory provided in the bay to the Ethernet connector located on the Ethernet card. Next slide the Ethernet card into position as you plug the connector located on the top of the circuit card into the mating connector located on the circuit card installed in the bay. Finally secure the Ethernet circuit card to the bay using the screws supplied with the Ethernet circuit card.
3. Replace the cover plate.

Troubleshooting and Repair

DANGER! Servicing personnel must observe all safety precautions normally associated with maintenance and adjustment of electronic equipment, and must avoid direct contact with any energized electrical termination. This BDF/ CBB distributes high DC output current; therefore, servicing personnel must remove watches, rings, or other jewelry before making test equipment connections or performing adjustments.

Several components of the BDF/CBB are customer replaceable. The following paragraphs provide information on how to replace a defective component on the BDF/CBB.

Repair and Replacement Information

Replacing Fuses

Follow the procedures below.

Replacing Load Fuses (All Bays)

If a fuse in the BDF/CBB opens, replace with the same type and rating, or equivalent. Refer to System Application Guide SAG582120600 for part numbers.

Distribution Fuseholder Alarm Fuses: Note also that distribution fuses also contain alarm-type fuses as detailed in the previous sections of this document.

Replacing Reference and Control Fuses (All Bays)

Fuse Safety Covers: Fuse safety covers (Emerson Network Power P/N 248898700 or 102774) are provided for all Bussmann GMT type fuses. These covers snap onto the fuses and provide protection from exposed live contacts when a fuse opens. Re-install the fuse safety cover after replacing any GMT type fuse. Refer to Figure 51 for fuse safety cover installation details.

Control Fuses:

List 105 and 107 Bays: Control fuses are located on the fuseblock mounted in the top center of each bay. See Figure 52.

List 106 and 108 Bays: An Auxiliary Fuse Card is located behind an access panel at the top right side of the bay front panel. This circuit card provides four (4) fused auxiliary -48V power outputs (1-1/3A) and dual (A/B) meter panel input fuses. See Figure 53.

PROCEDURE

1. Remove the access panel by removing the screws that secure it. Before removing, note the location of any grounding washers used with the hardware securing the panel.
2. After fuse replacement is complete, re-install the access panel. Ensure grounding washers are replaced in locations noted above.

Figure 51. Installation of Bussmann Fuse Safety Covers

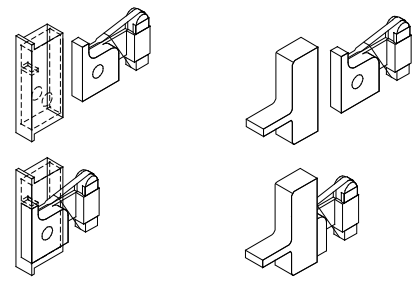


Figure 52. Control Fuse Location, Lists 105 and 107

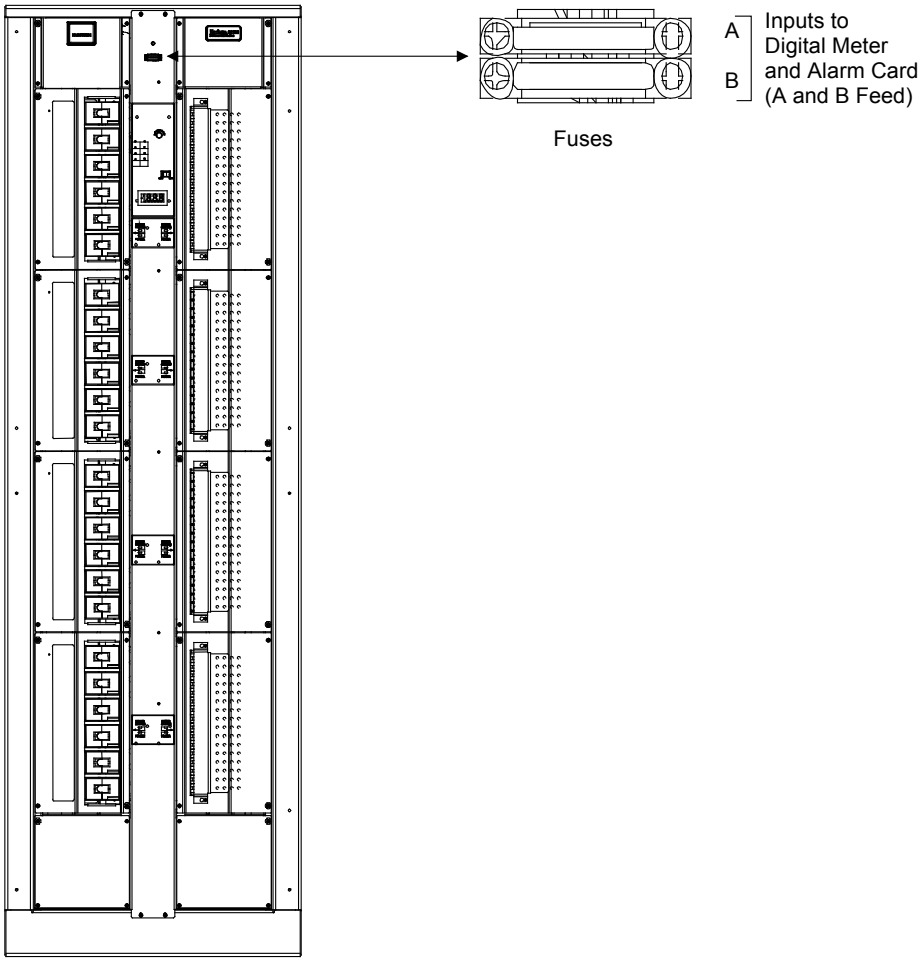
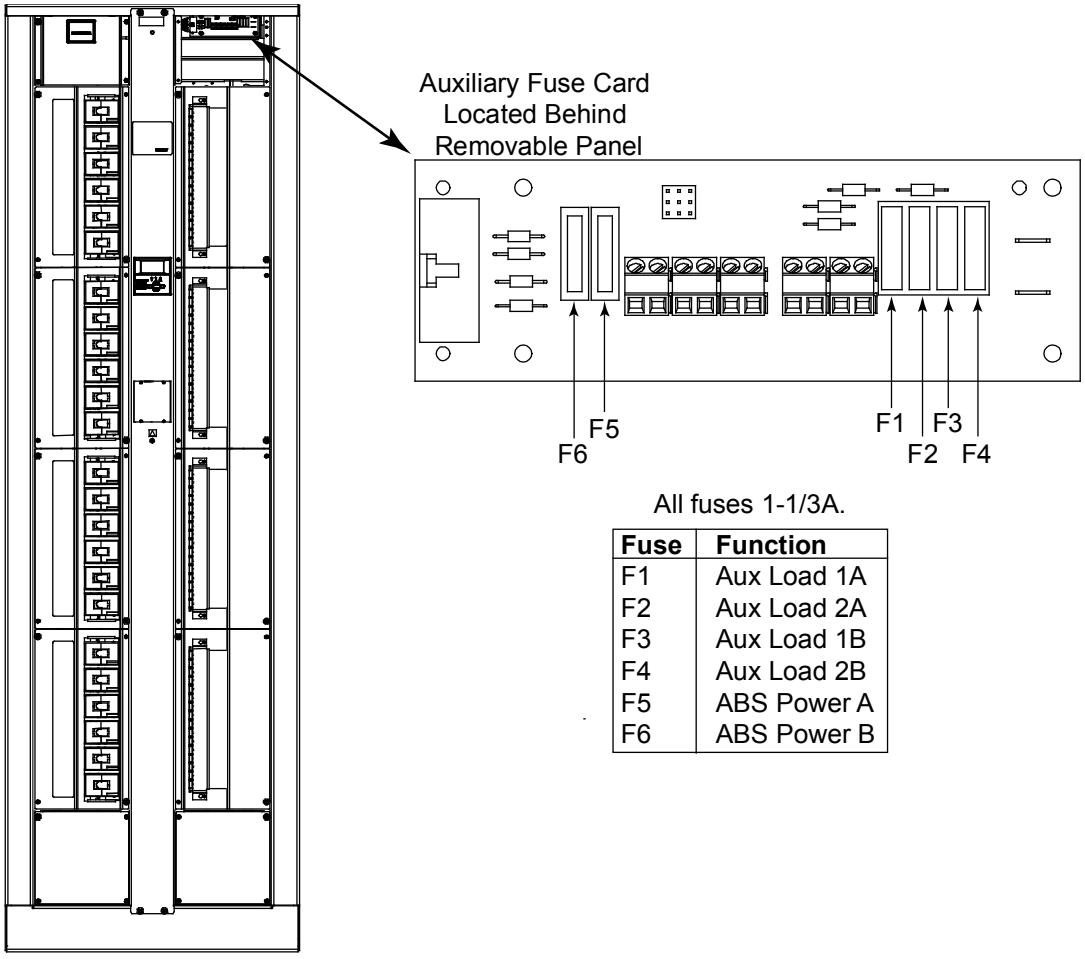


Figure 53. Control Fuse Location, Lists 106 and 108



All fuses 1-1/3A.

Fuse	Function
F1	Aux Load 1A
F2	Aux Load 2A
F3	Aux Load 1B
F4	Aux Load 2B
F5	ABS Power A
F6	ABS Power B

Replacing List 110 and 120 Distribution Panel TLS/TPS Fuses

Refer to the INSTALLATION Section and Figure 54.

Replace the alarm fuse located to the side of the fuse case with a Bussmann GMT 18/100 Amp alarm fuse. Ensure the alarm safety fuse cover is re-installed.

If required, precharge any load capacitor first by following the instructions in Section 5823 located after this document in the system instruction manual.

Replacing List 110 and 120 Distribution Panel TPL Fuses

Refer to the INSTALLATION Section and Figure 54.

Replace the alarm fuse located to the side of the fuse case with a Bussmann GMT 18/100 Amp alarm fuse. Ensure the alarm safety fuse cover is re-installed.

If required, precharge any load capacitor first by following the instructions in Section 5823 located after this document in the system instruction manual.

Replacing List 115 and 125 Distribution Panel TLS/TPS Fuses

Refer to the INSTALLATION Section and Figure 54.

Replace the alarm fuse located on the fuse case with a Bussmann GMT 18/100 Amp alarm fuse. Ensure the alarm safety fuse cover is re-installed.

Replacing Circuit Breakers

If a circuit breaker requires replacement, replace with the same type and rating, or equivalent. Refer to System Application Guide SAG582120600 for part numbers.

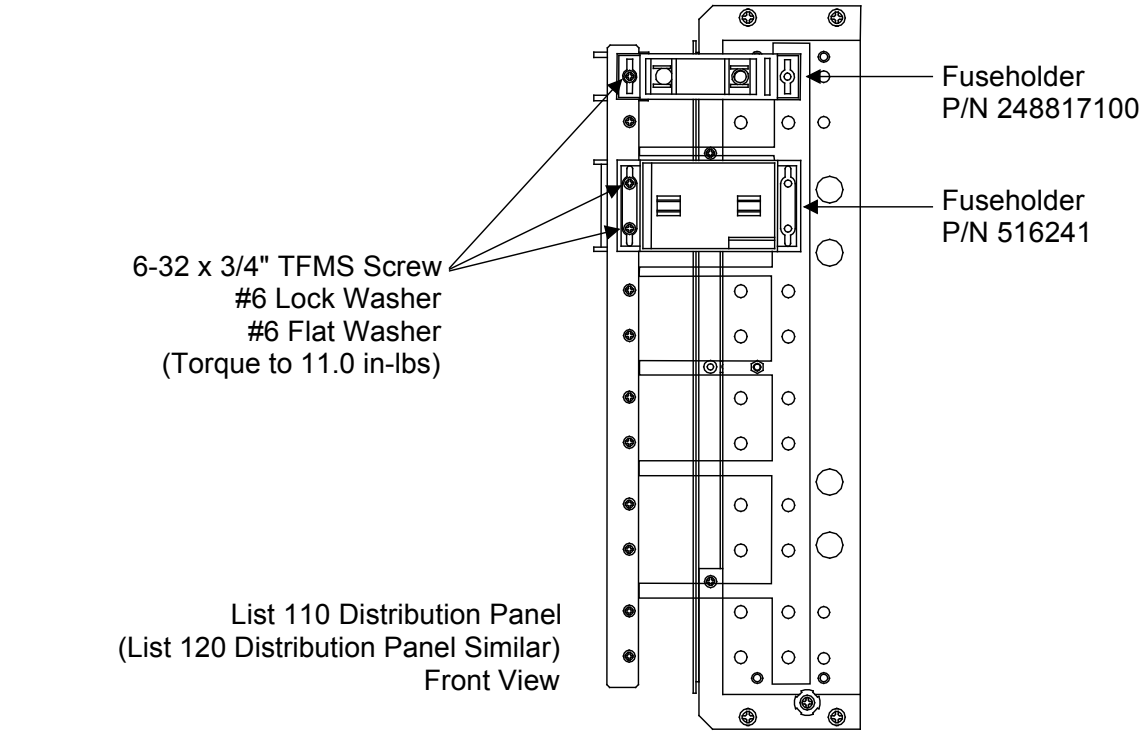
Replacing List 115 and 125 Distribution Panel Circuit Breakers

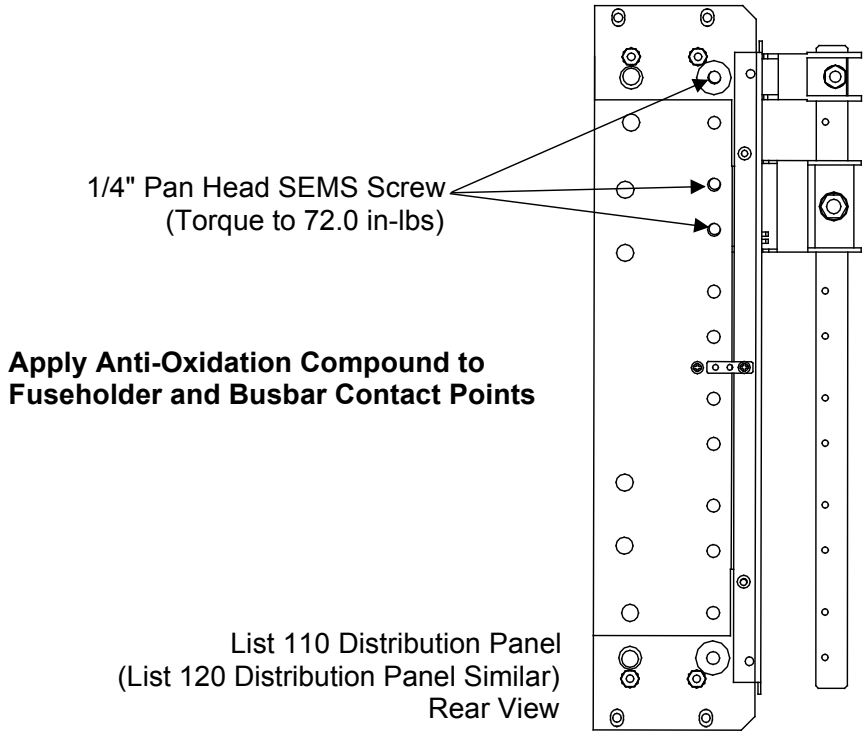
Refer to the INSTALLATION Section and Figure 54.

Replacing List 110 and 120 Distribution Panel Fuseholders

For fuseholder replacement, refer to Figure 54.

Figure 54. List 110 and 120 Distribution Panel Fuseholder Replacement





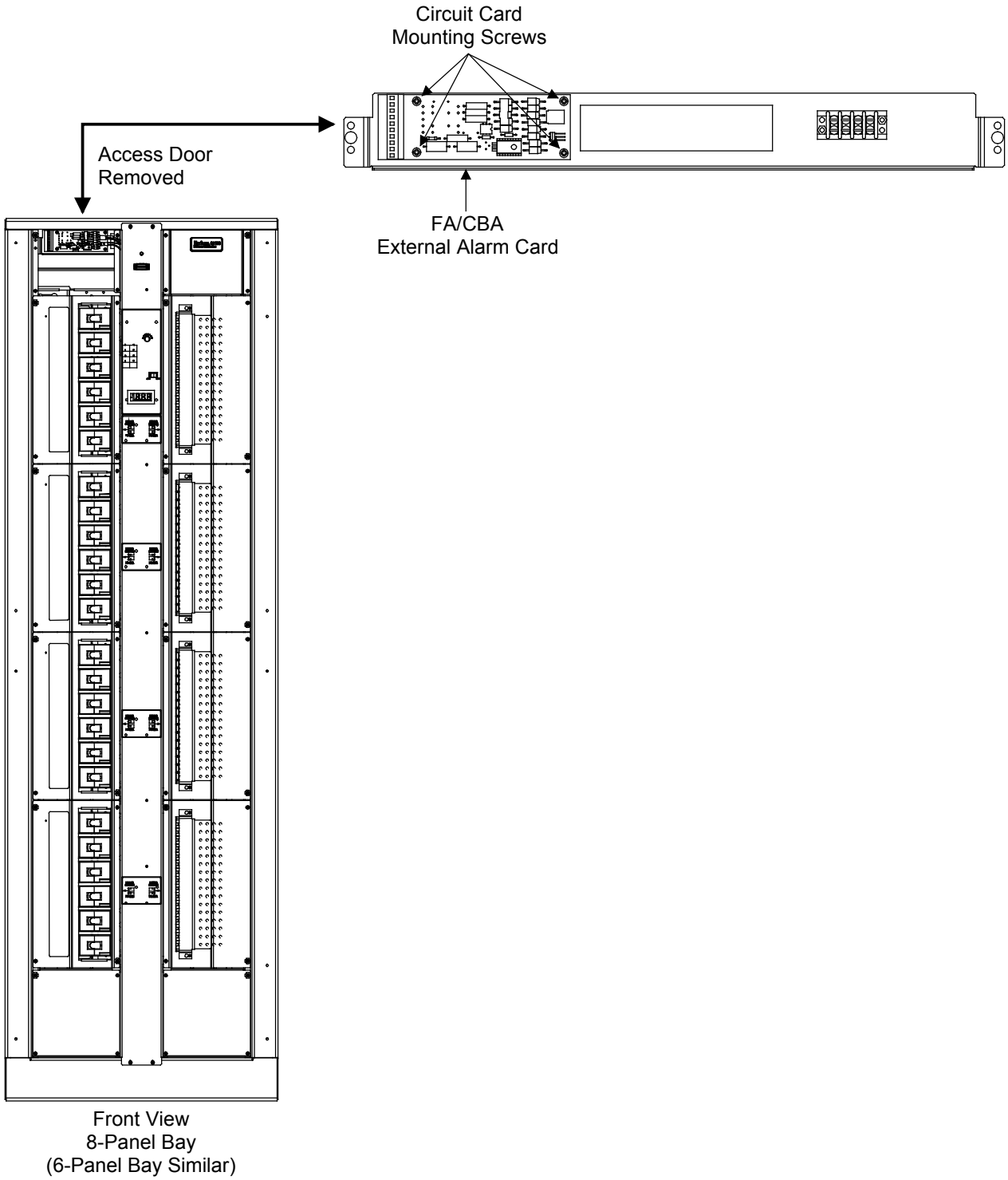
Replacing Circuit Cards (List 105 and 107)

List 105 and 107 bays have one customer replaceable circuit card, FA/CBA External Alarm Circuit Card P/N 486339800. Perform the following procedure to replace the circuit card. Refer to Figure 55.

PROCEDURE

1. The FA/CBA External Alarm Circuit Card is located behind the front top left access panel. Remove the access panel. Before removing, note the location of any grounding washers used with the hardware securing the panel.
2. Label all alarm wires on the alarm card before removal. This will provide better identification for reconnection later.
3. Using a small flat blade screwdriver loosen the small screws securing the alarm wires connected to the connector. Remove all wires.
4. Loosen and remove the four slotted screws securing the alarm card. Remove defective alarm card.
5. Replace old alarm card with new alarm card and secure with four slotted screws.
6. Reconnect alarm wires disconnected earlier. Torque specifications are 6.0 inch pounds for alarm wiring.
7. Re-install the access panel. Ensure grounding washers are replaced in locations noted above.

Figure 55. FA/CBA External Alarm Circuit Card Replacement (List 105 and 107)



Replacing Circuit Cards (List 106 and 108)

The List 106 and 108 bays each have two customer replaceable circuit cards, as shown in the following table.

Item	P/N
Auxiliary Fuse Card	547760
Input/Output Card	547761

Perform the following procedure to replace a circuit card. Refer to Figure 56.

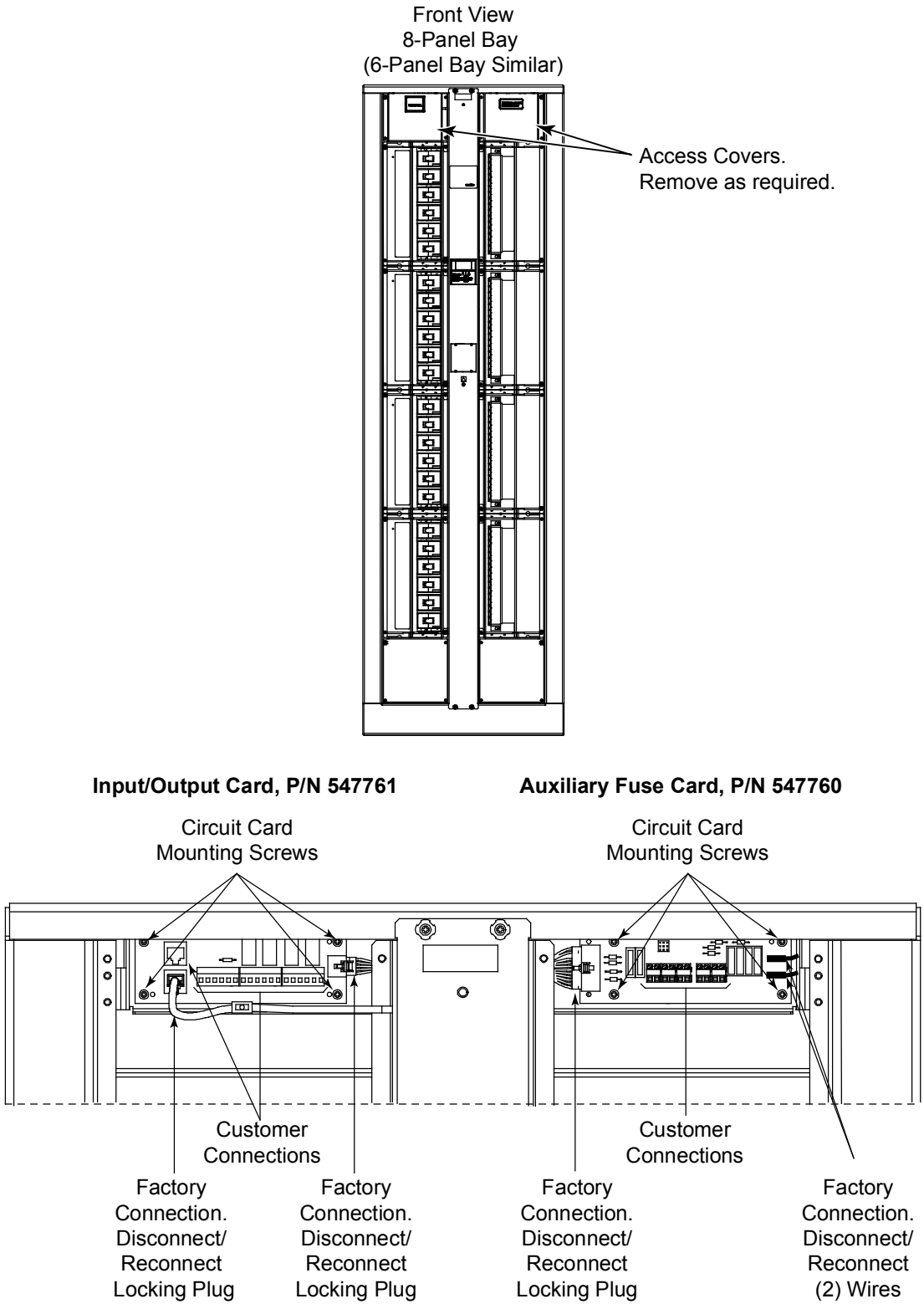
PROCEDURE

1. Each of the two circuit cards is located behind a front access panel at the top of the bay. Remove the access panel for the circuit card being replaced. Before removing, note the location of any grounding washers used with the hardware securing the panel.
2. Label all customer wires connected to the circuit card before removal in the next step. This will provide better identification for reconnection later.

DANGER! Some customer wiring may be energized. In the next step, remove wires one at a time, and isolate lead ends with tape or sleeving. Do not allow exposed lead ends to contact any other wires or conductive surfaces.

3. Using a small flat blade screwdriver loosen the small screws securing the customer wires connected to the connector. Remove all wires.
4. Unplug factory-connected wiring from the circuit card at the locations shown in the figure. Some plugs are of the locking type. Hold the lock tab depressed and pull the plug from the mating connector.
5. Loosen and remove the four slotted screws securing the circuit card. Remove the circuit card.
6. Install the new circuit card and secure with four slotted screws.
7. Reconnect the previously-removed factory wiring. For locking type plugs, ensure the plug is fully inserted and locked.
8. Reconnect customer wiring disconnected earlier. Torque specifications are 6.0 inch pounds for customer connections.
9. Re-install the access panel. Ensure grounding washers are replaced in locations noted above.

Figure 56. Circuit Card Replacement (List 106 and 108)



Updating Inventory after Removing a Distribution Panel (List 106 and 108)

Removing a distribution panel from the bay will result in Low Voltage and Power Lost alarms. If a distribution panel is removed and will not be replaced, you must update inventory in the meter/control panel.

Note: *An inventory update can also be performed via the Web Interface. See Chapter 5.*

PROCEDURE

1. On the Meter/Control Panel, navigate as follows: Main Menu (ENT) Module # (ENT) (# is the letter of the removed panel.)
2. Press the ▲ or ▼ keys until Update Inventory is highlighted.
3. Press ENT. Verify that the Low Voltage and Power Lost alarms retire.
4. Press ESC repeatedly to return to the Main Screen.

Meter Panel (All Bays)

The meter panel contains no user serviceable parts. DO NOT remove any component from the meter panel, including any sheet metal shields.

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Email	ESNACustomerSupportCenter@Emerson.com	After an order has shipped, contact our Customer Support Center with related questions, concerns or claims.
Phone	1.956.661.6867	

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Email	AccountManagement.ESNA@Emerson.com	Provides quotes and bid responses for custom configured [2] DC power systems and outside plant enclosures for customers and channel partners (Reps, VARs & Distributors).
Phone	1.800.800.1280 option 3	

Spare Parts

Email	DCpower.Spares@Emerson.com OSP.Spares@Emerson.com	Pricing and purchase orders for spare parts, including but not limited to breakers, cables, fuses, rectifier fans, misc. breaker and fuse panels, enclosure fans, doors and switches, etc.
Phone	1.800.800.1280 option 5	

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Phone	1.800.800.1280 option 6	

Technical Support

Email	DCpower.TAC@Emerson.com OSP.TAC@Emerson.com	Answers technical product and system questions; determines status of warranties and contractual agreements for repair.
Phone	1.800.800.5260	

[1] Contact Account Management for custom-configurations.
[2] Contact DC Power Spare Parts for parts and accessories.

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NetSure™ DC Power Distribution

Installation and User Instructions, Section 5674 (Issue BY, December 3, 2013)

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Model No: 801DB NVGB

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