

SYSTEM OVERVIEW

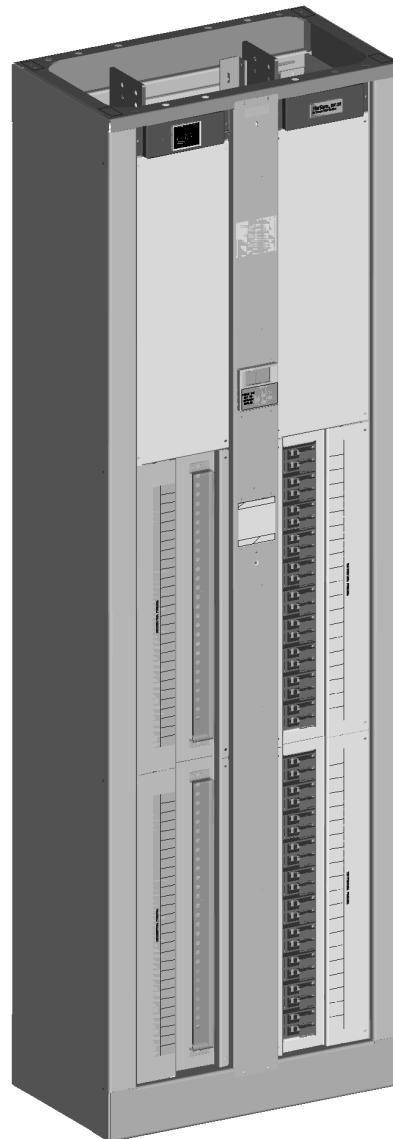
Description: The NetSure™ 801DB NVGB DC Power Distribution is a -48V Battery Distribution Fuse / Circuit Breaker Bay (BDF/CBB).

- 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 giving you 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. This Meter Panel comes with a comprehensive Web page capability for remote system management.

Family:	NetSure™
Spec. No.:	582120600
Model:	801DB NVGB
Output Voltage:	-48 Volts DC
Output Capacity:	640A continuous per Distribution Panel 8-Panel Bay; 2400A Maximum per Side, 4800A Maximum per Bay 6-Panel Bay; 1800A Maximum per Side, 3600A Maximum per Bay
Agency Approval:	UL Listed ("cULus") , NEBS
Framework Type:	Seismic Rated (Zone 4) Box Framework
Mounting Width:	26"
Mounting Depth:	15"
Mounting Height:	84"
Access:	Front and Rear for Installation, Front for Operation and Maintenance
Color:	Textured Gray (M500-147)
Environment:	0°C to +40°C (+32°F to +104°F)



8-Panel Bay



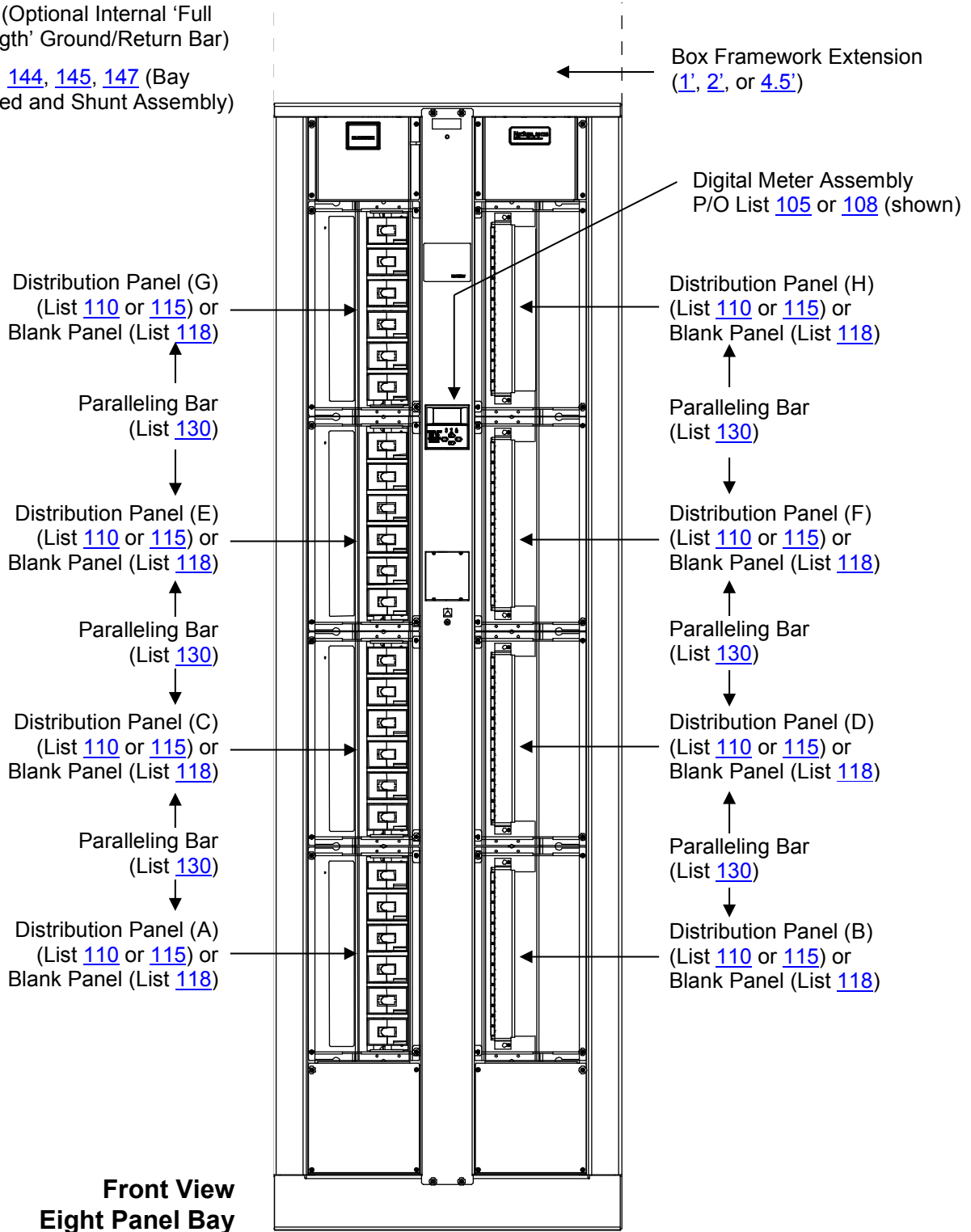
6-Panel Bay

Eight Panel Bay

[List 105](#) or [List 108](#) (Common Equipment)

[List 116](#) (Optional Internal 'Full Bay Length' Ground/Return Bar)

List [143](#), [144](#), [145](#), [147](#) (Bay Input Feed and Shunt Assembly)



Eight Panel Bay (cont'd)

OTHER OPTIONS

[List 117](#) (Optional Internal
'Panel Length' Ground/Return Bar)

[List 139](#) (Optional Internal 'Panel Length'
Ground/Return Bar Paralleling Kit)

[List 148](#) (2400A Ground/Return Input
Assembly, with Optional Bonding Strap for
List [116](#) Ground/Return Bar)

[List 150](#) (Optional Capacitor
Precharge Assembly)

[List 151](#) (Dressing Bar)

[List 153](#) (Load Distribution
Cable Management Kit)

[List 156](#) (Meter and Alarm Card
Internal Power In-Line Fuse Kit, for List 105
bay)

[List 167](#) (Pre-Installed Load Lug Hardware)

[List 168](#) (Field Installable Advanced Meter
Panel for older 8-Panel BDFBs)

See Also

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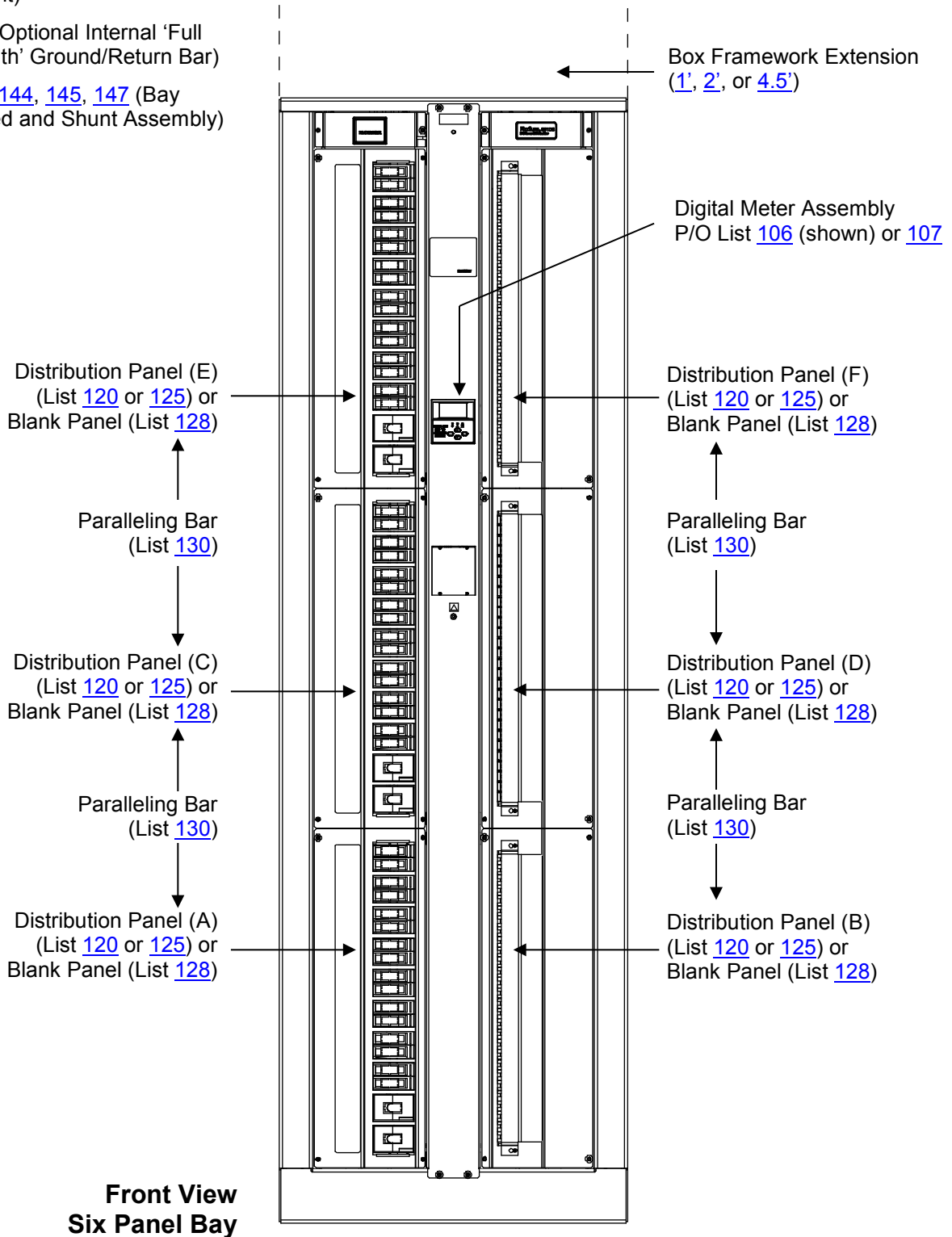
[Related Documentation](#)

Six Panel Bay

[List 106](#) or [List 107](#) (Common Equipment)

[List 126](#) (Optional Internal 'Full Bay Length' Ground/Return Bar)

List [143](#), [144](#), [145](#), [147](#) (Bay Input Feed and Shunt Assembly)



Six Panel Bay (cont'd)

OTHER OPTIONS

[List 127](#) (Optional Internal
'Panel Length' Ground/Return Bar)

[List 148](#) (2400A Ground/Return Input
Assembly, with Optional Bonding Strap for
List [126](#) Ground/Return Bar)

[List 150](#) (Optional Capacitor
Precharge Assembly)

[List 151](#) (Dressing Bar)

[List 153](#) (Load Distribution
Cable Management Kit)

[List 156](#) (Meter and Alarm Card
Internal Power In-Line Fuse Kit, for List 107
bay)

[List 167](#) (Pre-Installed Load Lug Hardware)

[List 166](#) (Field Installable Advanced Meter
Panel for older 6-Panel BDFBs)

See Also

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LIST DESCRIPTIONS

For Bays being Currently Manufactured (Model 801DB NVGB)

List 105: Common Equipment, 8-Panel Bay, w/ Basic Metering

Features

- ◆ List 105 provides the common equipment for an 8-Distribution Panel BDF/CBB (Battery Distribution Fuse/Circuit Breaker Bay) with basic metering.
- ◆ Configurable for top or bottom feed.
- ◆ Consists of a 7'H x 26"W x 15"D welded box framework (seismic, zone 4 earthquake compliant).
- ◆ Includes a basic digital meter panel for indicating voltage and current for each panel in the bay.

Restrictions

None.

Ordering Notes

- 1) Order up to eight (8) Lists [110](#) and/or List [115](#) Distribution Panels per bay.
- 2) If List [110](#) is ordered, order a List [150](#) Capacitor Precharge Assembly, if required.
- 3) For any open Distribution Panel position, order a List [118](#) Blank Panel.
- 4) Order List [145](#) or [147](#) Input Feed and Shunt Assembly as required. Each List 145 or 147 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 145 or 147 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 145 or 147 for each Side A/Side B load and specify top or bottom feed.
- 5) If Distribution Panels (per side) are to be paralleled, order a List [130](#) Distribution Panel Paralleling Bar. Each List 130 includes two (2) Paralleling Bars (one per side).
- 6) Order List [116](#) or List [117](#) Internal Ground Bars as required, or [External Ground Bars](#) (see ACCESSORY DESCRIPTIONS section) as required.
- 7) List 116 provides input lug landing points at the top or bottom (as specified) of the full bay length ground/return busbars. List 116 internal return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and add additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap.
- 8) Order List [151](#) Cable Dressing Bars as required.
- 9) Order List [156](#) Meter and Alarm Card Input Power In-Line Fuse Kit as required.
- 10) Order a [1'](#), [2'](#), or [4-1/2'](#) Box Framework Extension as required.
- 11) Order distribution fuses, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 12) For Load and Load Return lug-mounting hardware, order [Load Lug Hardware Kits](#) (ship-loose) as required, or order List [167](#) (pre-installed).
- 13) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.
- 14) Order DC input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.
- 15) Order bay frame grounding lugs as required per [Bay Frame Grounding Wire Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.

List 106: Common Equipment, 6-Panel Bay, w/ Advanced Metering

Features

- ◆ List 106 provides the common equipment for a 6-Distribution Panel BDF/CBB (Battery Distribution Fuse/Circuit Breaker Bay) with advanced metering.
- ◆ Configurable for top or bottom feed.
- ◆ Consists of a 7'H x 26"W x 15"D welded box framework (seismic, zone 4 earthquake compliant).
- ◆ Includes an Advanced Meter/Alarm Panel that provides the following functions for each panel in the bay: voltage and current metering and Low Voltage, Power Lost, Overcurrent, and Fuse/Circuit Breaker alarms. Also provided are four (4) external alarm relay circuits, to which any combination of alarms can be mapped.
- ◆ Provides four (4) fused auxiliary -48V power outputs (1-1/3A), fused remote (A/B) meter panel inputs, internal/external sense option, and an Ethernet connection (requires List 170 Ethernet option).

Restrictions

None.

Ordering Notes

- 1) Order up to six (6) Lists [120](#) and/or List [125](#) Distribution Panels per bay.
- 2) If List 120 is ordered, order a List [150](#) Capacitor Precharge Assembly, if required.
- 3) For any open Distribution Panel position, order a List [128](#) Blank Panel.
- 4) Order List [143](#) or [144](#) Input Feed and Shunt Assembly as required. Each List 143 or 144 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 143 or 144 and specify top or bottom feed.
For top and bottom feed multi-load applications, order three (3) List 143 or 144 for each Side A/Side B load and specify top or bottom feed.
List 120 Only: For 3-load side by side applications, order three (3) List 143 or 144, and order three (3) 556103.
List 125 Only: For 3-load side by side applications, order three (3) List 143 or 144, and order three (3) 557256.
- 5) If Distribution Panels (per side) are to be paralleled, order a List [130](#) Distribution Panel Paralleling Bar. Each List 130 includes two (2) Paralleling Bars (one per side).
- 6) Order List [126](#) or List [127](#) Internal Ground Bars as required, or External Ground Bars (see ACCESSORY DESCRIPTIONS section) as required.
- 7) List 126 provides input lug landing points at the top or bottom (as specified) of the full bay length ground/return busbars. List 126 internal return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap.
- 8) Order List [151](#) Cable Dressing Bars as required.
- 9) Order List [156](#) Meter and Alarm Card Input Power In-Line Fuse Kit as required.
- 10) Order a [1'](#), [2'](#), or [4-1/2'](#) Box Framework Extension as required.
- 11) Order distribution fuses, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 12) For Load and Load Return lug-mounting hardware, order [Load Lug Hardware Kits](#) (ship-loose) as required, or order List [167](#) (pre-installed).
- 13) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.
- 14) Order DC input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.

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- 15) Order bay frame grounding lugs as required per [Bay Frame Grounding Wire Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.
- 16) For remote access capability, order one (1) [List 170](#) Ethernet option.

List 107: Common Equipment, 6-Panel Bay, w/ Basic Metering

Features

- ◆ List 107 provides the common equipment for a 6-Distribution Panel BDF/CBB (Battery Distribution Fuse/Circuit Breaker Bay) with basic metering.
- ◆ Configurable for top or bottom feed.
- ◆ Consists of a 7'H x 26"W x 15"D welded box framework (seismic, zone 4 earthquake compliant).
- ◆ Includes a basic digital meter panel for indicating voltage and current for each panel in the bay.

Restrictions

None.

Ordering Notes

- 1) Order up to six (6) Lists [120](#) and/or List [125](#) Distribution Panels per bay.
- 2) If List [120](#) is ordered, order a List [150](#) Capacitor Precharge Assembly, if required.
- 3) For any open Distribution Panel position, order a List [128](#) Blank Panel.
- 4) Order List [145](#) or [147](#) Input Feed and Shunt Assembly as required. Each List 145 or 147 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 145 or 147 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 145 or 147 for each Side A/Side B load and specify top or bottom feed.
- 5) If Distribution Panels (per side) are to be paralleled, order a List [130](#) Distribution Panel Paralleling Bar. Each List 130 includes two (2) Paralleling Bars (one per side).
- 6) Order List [126](#) or List [127](#) Internal Ground Bars as required, or [External Ground Bars](#) (see ACCESSORY DESCRIPTIONS section) as required.
- 7) List 126 provides input lug landing points at the top or bottom (as specified) of the full bay length ground/return busbars. List 126 internal return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap.
- 8) Order List [151](#) Cable Dressing Bars as required.
- 9) Order List [156](#) Meter and Alarm Card Input Power In-Line Fuse Kit as required.
- 10) Order a [1'](#), [2'](#), or [4-1/2'](#) Box Framework Extension as required.
- 11) Order distribution fuses, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 12) For Load and Load Return lug-mounting hardware, order [Load Lug Hardware Kits](#) (ship-loose) as required, or order List [167](#) (pre-installed).
- 13) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.
- 14) Order DC input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.
- 15) Order bay frame grounding lugs as required per [Bay Frame Grounding Wire Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.

List 108: Common Equipment, 8-Panel Bay, w/ Advanced Metering

Features

- ◆ List 108 provides the common equipment for an 8-Distribution Panel BDF/CBB (Battery Distribution Fuse/Circuit Breaker Bay) with advanced metering.
- ◆ Configurable for top or bottom feed.
- ◆ Consists of a 7'H x 26"W x 15"D welded box framework (seismic, zone 4 earthquake compliant).
- ◆ Includes an Advanced Meter/Alarm Panel that provides the following functions for each panel in the bay: voltage and current metering and Low Voltage, Power Lost, Overcurrent, and Fuse/Circuit Breaker alarms. Also provided are four (4) external alarm relay circuits, to which any combination of alarms can be mapped.
- ◆ Provides four (4) fused auxiliary -48V power outputs (1-1/3A), fused remote (A/B) meter panel inputs, internal/external sense option, and an Ethernet connection (requires List 170 Ethernet option).

Restrictions

None.

Ordering Notes

- 1) Order up to eight (8) Lists [110](#) and/or List [115](#) Distribution Panels per bay.
- 2) If List [110](#) is ordered, order a List [150](#) Capacitor Precharge Assembly, if required.
- 3) For any open Distribution Panel position, order a List [118](#) Blank Panel.
- 4) Order List [143](#) or [144](#) Input Feed and Shunt Assembly as required. See Restrictions above. Each List 143 or 144 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 143 or 144 and specify top or bottom feed.
For top and bottom feed multi-load applications, order two (2) or four (4) List 143 or 144 for each Side A/Side B load and specify top or bottom feed. Order List 130 as required.
List 110 Only: For 4-load side by side applications, order four (4) List 143 or 144, and order four (4) 556103. For top and bottom feed 2-load side by side applications, order two (2) List 143 or 144, two (2) 556103, and two (2) List 130.
List 115 Only: For 4-load side by side applications, order four (4) List 143 or 144, and order four (4) 557256. For top and bottom feed 2-load side by side applications, order two (2) List 143 or 144, two (2) 557256, and two (2) List 130.
- 5) If Distribution Panels (per side) are to be paralleled, order a List [130](#) Distribution Panel Paralleling Bar. Each List 130 includes two (2) Paralleling Bars (one per side).
- 6) Order List [116](#) or List [117](#) Internal Ground Bars as required, or [External Ground Bars](#) (see ACCESSORY DESCRIPTIONS section) as required.
- 7) List 116 provides input lug landing points at the top or bottom (as specified) of the full bay length ground/return busbars. List 116 internal return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap.
- 8) Order List [151](#) Cable Dressing Bars as required.
- 9) Order List [156](#) Meter and Alarm Card Input Power In-Line Fuse Kit as required.
- 10) Order a [1'](#), [2'](#), or [4-1/2'](#) Box Framework Extension as required.
- 11) Order distribution fuses, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 12) For Load and Load Return lug-mounting hardware, order [Load Lug Hardware Kits](#) (ship-loose) as required, or order List [167](#) (pre-installed).
- 13) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.
- 14) Order DC input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.

- 15) Order bay frame grounding lugs as required per [Bay Frame Grounding Wire Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.
- 16) For remote access capability, order one (1) [List 170](#) Ethernet option.

List 110: Distribution Panel, 8-Panel Bay

Features

- ◆ Twelve (12) TLS/TPS fuse positions, or six (6) TPL fuse positions, or a combination of TLS/TPS and TPL fuse positions.
- ◆ Includes (12) TLS/TPS Fuseholders P/N 248817100. For panels **factory** configured in a bay, each TPL Fuseholder P/N 516241 ordered replaces (2) P/N 248817100 Fuseholders.
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.

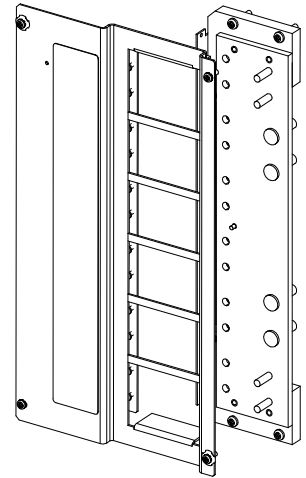
Restrictions

640A maximum continuous.

For use in [List 105](#) or [List 108](#) only.

Ordering Notes

- 1) Order as required.
- 2) Specify up to twelve (12) TLS/TPS fuseholders, or up to six (6) TPL fuseholders, or a combination per Distribution Panel (all positions **MUST** be filled). This instructs the factory how to configure the Distribution Panel. Also specify mounting location for each configured Distribution Panel per bay. This instructs the factory where to mount each configured Distribution Panel per bay.
- 3) Order distribution fuses and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 4) Replacement panels will be equipped with 12 TLS/TPS Fuseholders. TPL fuseholders (P/N 516241) may be ordered to field modify the distribution panel. One TPL fuseholder takes the space of two TLS/TPS fuseholders.



List 115: Distribution Panel, 8-Panel Bay

Features

- ◆ Sixteen (16) bullet nose circuit breaker and/or TLS/TPS Fuse (with bullet nose fuseholder) positions.
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.

Restrictions

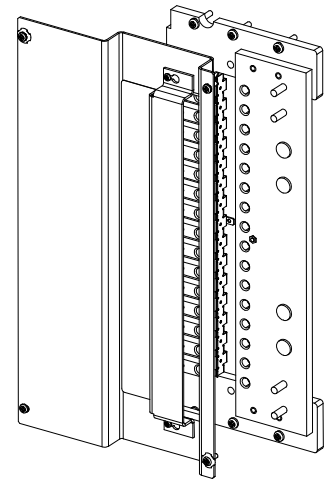
640A maximum continuous.

For use in [List 105](#) or [List 108](#) only.

Caution: *Circuit breaker with a 150 ampere or greater rating SHALL HAVE an empty mounting position between it and any other overcurrent protective device.*

Ordering Notes

- 1) Order as required.
- 2) Specify mounting location for each Distribution Panel per bay. This instructs the factory where to mount each Distribution Panel when the bay is populated with different types of Distribution Panels.
- 3) Order distribution fuses, fuseholders, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 4) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.



List 116: Optional Internal Ground/Return Bar, 8-Panel Bay (Full Bay Length)

Features

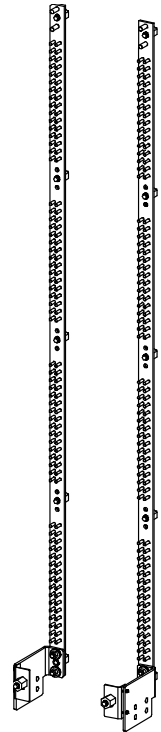
- ◆ Provides two full bay length internal ground/return bars (one per side).
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.
- ◆ Includes two (2) Input Lug Landing Plate Assemblies (one per side).
- ◆ Can be configured for top or bottom feed.

Restrictions

For use in [List 105](#) and [List 108](#) only.

Ordering Notes

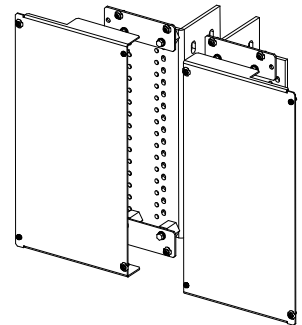
- 1) Order as required.
- 2) Specify mounting location of included Input Lug Landing Plate Assemblies: top for top-feed or bottom for bottom feed.
- 3) List 116 internal ground/return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap. Mounting location (top or bottom) of List 148 will be opposite that specified for the Input Lug Landing Plate Assemblies of List 116.
- 4) Order load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.



List 117: Optional Internal Ground/Return Bar, 8-Panel Bay (Panel Length)

Features

- ◆ Replaces a Distribution Panel on the left and right side with a panel length internal ground/return bar.
- ◆ Consists of two (2) ground/return bar assemblies and two (2) blank cover panels.
- ◆ For installation in top feed or bottom feed arrangements. When used in top feed arrangements, ground bar assemblies are installed in top most left and right Distribution Panel mounting positions (appropriate blank cover panels are also installed in these positions). When used in bottom feed arrangements, ground bar assemblies are installed in bottom most left and right Distribution Panel mounting positions (appropriate blank cover panels are also installed in these positions). When an additional List 117 is ordered, these additional ground bar assemblies are installed in the adjacent Distribution Panel mounting positions (appropriate blank cover panels are supplied and installed in these positions).
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.
- ◆ See [List 139](#) for a paralleling kit when two (2) List 117 are ordered for the same bay.



Restrictions

For use in [List 105](#) or [List 108](#) only.

Ordering Notes

- 1) Order as required. Order two (2) List 117 for a fully configured bay. Also order one (1) [List 139](#) Paralleling Kit if two (2) List 117 are ordered.
- 2) Specify top feed or bottom feed to instruct the factory to mount the Internal Ground/Return Bars at the top or bottom of the bay.
- 3) Order load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.

[Home](#)

List 118: Blank Distribution Panel Cover, 8-Panel Bay

Features

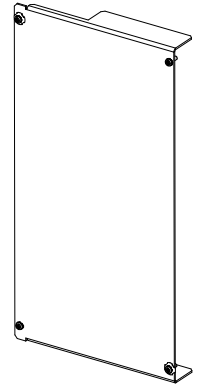
- ◆ Covers an unused Distribution Panel position.

Restrictions

For use in [List 105](#) or [List 108](#) only.

Ordering Notes

- 1) Order one (1) List 118 for each position in the bay that is NOT populated with a Distribution Panel.



List 120: Distribution Panel, 6-Panel Bay

Features

- ◆ Twenty (20) TLS/TPS fuse positions, or ten (10) TPL fuse positions, or a combination of TLS/TPS and TPL fuse positions.
- ◆ Includes (20) TLS/TPS Fuseholders P/N 248817100. For panels **factory** configured in a bay, each TPL Fuseholder P/N 516241 ordered replaces (2) P/N 248817100 Fuseholders.
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.

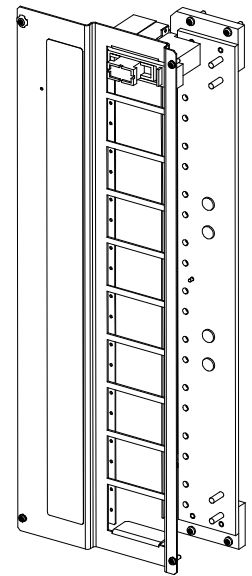
Restrictions

640A maximum continuous.

For use in [List 106](#) or [List 107](#) only.

Ordering Notes

- 1) Order as required.
- 2) Specify twenty (20) TLS/TPS fuseholders, or up to ten (10) TPL fuseholders, or a combination per distribution panel (all positions MUST be filled). This instructs the factory how to configure the Distribution Panel. Also specify mounting location for each configured Distribution Panel per bay. This instructs the factory where to mount each configured Distribution Panel per bay.
- 3) Order distribution fuses and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 4) Replacement panels will be equipped with 20 TLS/TPS Fuseholders. TPL fuseholders (P/N 516241) may be ordered to field modify the distribution panel. One TPL fuseholder takes the space of two TLS/TPS fuseholders.



List 125: Distribution Panel, 6-Panel Bay

Features

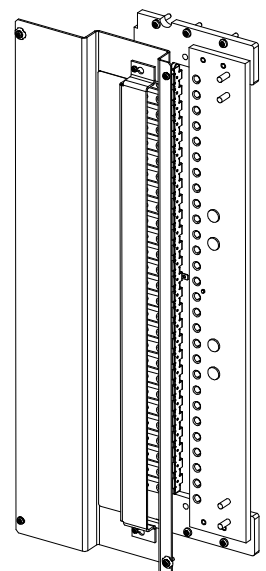
- ◆ Twenty-Eight (28) bullet nose circuit breaker and/or TLS/TPS fuse (with bullet nose fuseholder) positions.
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.

Restrictions

640A maximum continuous.

For use in [List 106](#) or [List 107](#) only.

Caution: *Circuit breaker with a 150 ampere or greater rating SHALL HAVE an empty mounting position between it and any other overcurrent protective device.*



Ordering Notes

- 1) Order as required.
- 2) Specify mounting location for each Distribution Panel per bay. This instructs the factory where to mount each Distribution Panel when the bay is populated with different types of Distribution Panels.
- 3) Order distribution fuses, fuseholders, circuit breakers, and load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.
- 4) Order TVSS Device(s) as required per [Transient Voltage Surge Suppressor \(TVSS\) Device](#) in ACCESSORY DESCRIPTIONS.

List 126: Optional Internal Ground/Return Bar, 6-Panel Bay (Full Bay Length)

Features

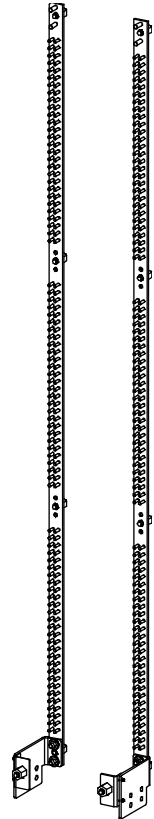
- ◆ Provides two full bay length internal ground/return bars (one per side).
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.
- ◆ Includes two (2) Input Lug Landing Plate Assemblies (one per side).
- ◆ Can be configured for top or bottom feed.

Restrictions

For use in [List 106](#) or [List 107](#) only.

Ordering Notes

- 1) Order as required.
- 2) Specify mounting location of included Input Lug Landing Plate Assemblies: top for top-feed or bottom for bottom feed.
- 3) List 126 internal ground/return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) list 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap. Mounting location (top or bottom) of List 148 will be opposite that specified for the Input Lug Landing Plate Assemblies of List 126.
- 4) Order load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.



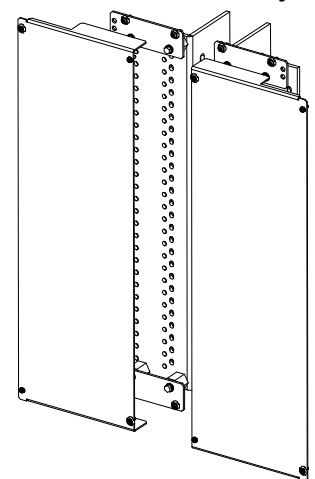
List 127: Optional Internal Ground/Return Bar, 6-Panel Bay (Panel Length)

Features

- ◆ Replaces a Distribution Panel on the left and right side with a panel length internal ground/return bar.
- ◆ Consists of two (2) ground/return bar assemblies and two (2) blank cover panels.
- ◆ For installation in top feed or bottom feed arrangements. When used in top feed arrangements, ground bar assemblies are installed in top most left and right Distribution Panel mounting positions (appropriate blank cover panels are also installed in these positions). When used in bottom feed arrangements, ground bar assemblies are installed in bottom most left and right Distribution Panel mounting positions (appropriate blank cover panels are also installed in these positions).
- ◆ See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for load termination specifications.

Restrictions

For use in [List 106](#) or [List 107](#) only.



Ordering Notes

- 1) Order as required. Order one (1) List 127 for a fully configured bay.
- 2) Specify top feed or bottom feed to instruct the factory to mount the Internal Ground/Return Bars at the top or bottom of the bay.
- 3) Order load lugs as required per [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.

List 128: Blank Distributional Panel Cover, 6-Panel Bay

Features

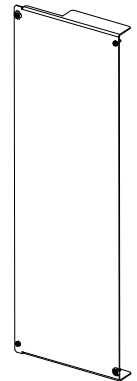
- ◆ Covers an unused Distribution Panel position.

Restrictions

For use in [List 106](#) or [List 107](#) only.

Ordering Notes

- 1) Order one (1) List 128 for each position in the bay that is NOT populated with a Distribution Panel.



List 130: Distribution Panel Paralleling Bar

Features

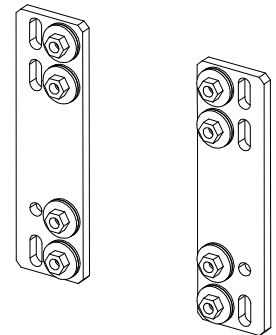
- ◆ Parallels two Distribution Panels mounted one above the other.
- ◆ Each List 130 includes two (2) Paralleling Bars (one per side).

Restrictions

For use in Lists [105](#), [106](#), [107](#) and [108](#).

Ordering Notes

- 1) Order as required.



List 139: Optional Internal Ground/Return Bar Paralleling Kit, 8-Panel Bay (Panel Length)

Features

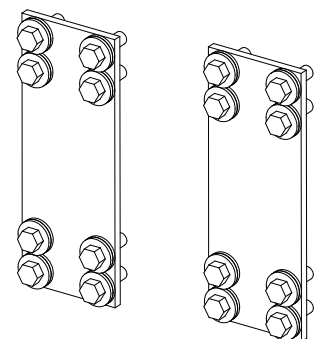
- ◆ Parallels the [List 117](#) Internal Ground/Return Bars.
- ◆ Each List 139 consists of two (2) Paralleling Bars for two sides.

Restrictions

For use with [List 117](#) only.

Ordering Notes

- 1) Order one (1) List 139 if two (2) List 117 ordered for the same bay.



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List 143: Bay Input Feed and Shunt Assembly (4 Cables, 25 mV. Shunts)

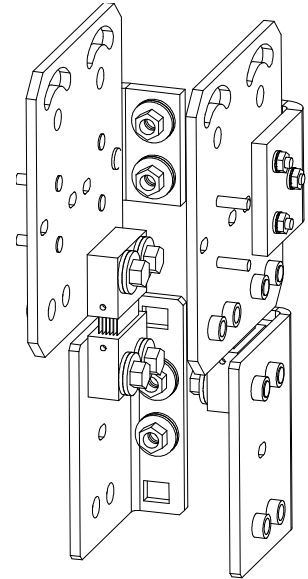
- ◆ Provides landing points for four (4) input leads (on each side).
- ◆ Provides an 800A, 25mV shunt (one per side).
- ◆ Can be rotated for top or bottom feed configurations.
- ◆ See [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for input termination specifications.

Restrictions

For use in Lists [106](#) and [108](#) only.

Ordering Notes

- 1) Order as required. Each List 143 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 143 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 143 for each Side A/Side B load and specify top or bottom feed.
- 2) Order input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.



List 144: Bay Input Feed and Shunt Assembly (2 Cables, 25 mV. Shunts)

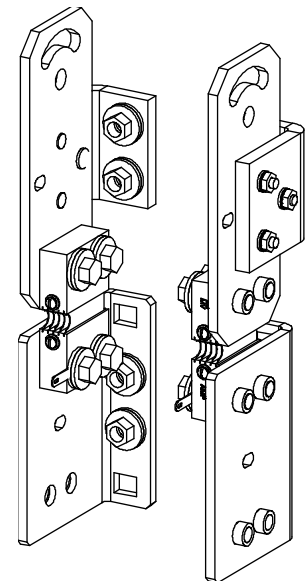
- ◆ Provides landing points for two (2) input leads (on each side).
- ◆ Provides an 800A, 25mV shunt (both sides).
- ◆ Can be rotated for top or bottom feed configurations.
- ◆ See [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for input termination specifications.

Restrictions

For use in Lists [106](#) and [108](#) only.

Ordering Notes

- 1) Order as required. Each List 144 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 144 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 144 for each Side A/Side B load and specify top or bottom feed.
- 2) Order input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.



List 145: Bay Input Feed and Shunt Assembly (2 Cables, 50 mV. Shunts)

Features

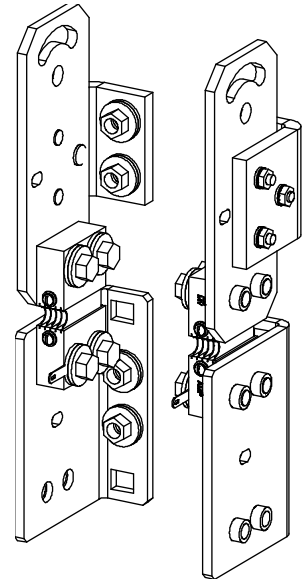
- ◆ Provides landing points for two (2) input leads (on each side).
- ◆ Provides an 800A, 50mV shunt (both sides).
- ◆ Can be rotated for top or bottom feed configurations.
- ◆ See [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for input termination specifications.

Restrictions

For use in Lists [105](#) and [107](#) only.

Ordering Notes

- 1) Order as required. Each List 145 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 145 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 145 for each Side A/Side B load and specify top or bottom feed.
- 2) Order input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.



List 147: Bay Input Feed and Shunt Assembly (4 Cables, 50 mV. Shunts)

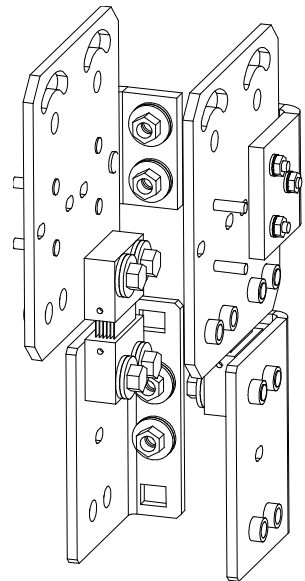
- ◆ Provides landing points for four (4) input leads (on each side).
- ◆ Provides an 800A, 50mV shunt (one per side).
- ◆ Can be rotated for top or bottom feed configurations.
- ◆ See [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS for input termination specifications.

Restrictions

For use in Lists [105](#) and [107](#) only.

Ordering Notes

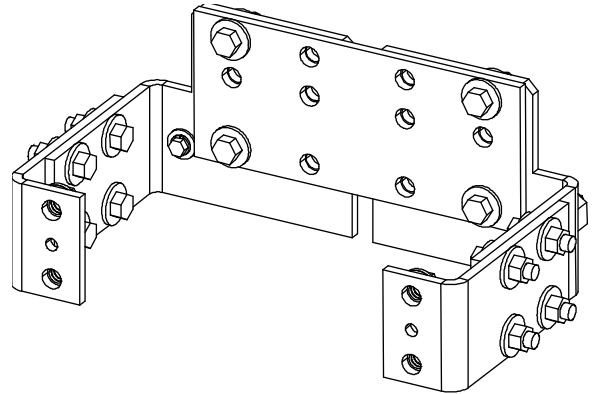
- 1) Order as required. Each List 147 provides input terminations and shunts for both sides.
For top and bottom feed 2-load applications, order one (1) List 147 and specify top or bottom feed.
For top and bottom feed multi-load applications, order one (1) List 147 for each Side A/Side B load and specify top or bottom feed.
- 2) Order input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.



List 148: 2400A Ground/Return Input Assembly, with Optional Bonding Strap

Features

- ◆ Provides additional landing points for ground/return input leads (both sides) to the optional List [116](#) or [126](#) Internal Ground/Return Bar.
- ◆ Increases Ground/Return Bar rating from 1200A to 2400A.
- ◆ Each List 148 provides two (2) Input Lug Landing Plate Assemblies (one per side).
- ◆ Included is an optional bonding strap for connecting both Ground/Return Bars together for any current requirement up to 2400A.



Restrictions

For use with List [116](#) and [126](#) Internal Ground/Return Bars only.

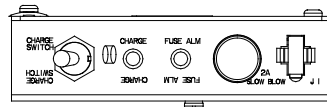
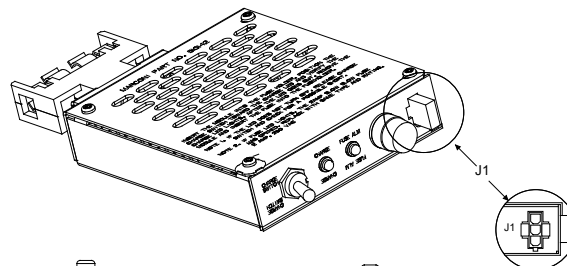
Ordering Notes

- 1) List 116 and 126 internal return bars are rated for 1200 Amps. List [148](#) is available to increase that capacity to 2400 Amps and provide additional cable landing points. Each bay can accommodate (1) List 148. List 148 offers cable termination at the rear of the bay and the option of a bonding strap. Mounting location (top or bottom) of List 148 will be opposite that specified for the Input Lug Landing Plate Assemblies of List 116 or 126.
- 2) Order input lugs as required per [DC Input Cable Sizes and Lugs Selection](#) under *Wiring Notes* in ACCESSORY DESCRIPTIONS.

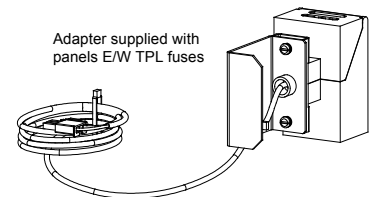
List 150: Optional Capacitor Precharge Assembly

Features

- ◆ Portable hand-held unit.
- ◆ Allows capacitors of a DC load to be initially charged before a TLS/TPS or TPL distribution fuse is inserted. This prevents the fuse from possibly blowing open as it is inserted due to high capacitor charging current.
- ◆ Designed to plug directly into a TLS/TPS type fuseholder case. An adapter is supplied which plugs directly into a TPL type fuseholder case.



Adapter supplied with panels E/W TPL fuses



Restrictions

For Use with Lists [110](#) and [120](#) only.

Ordering Notes

- 1) Order as required.

List 151: Dressing Bar

Features

- ◆ Provides adjustable grooming bar to allow customer to dress output load cables along the sides of the bay.

Restrictions

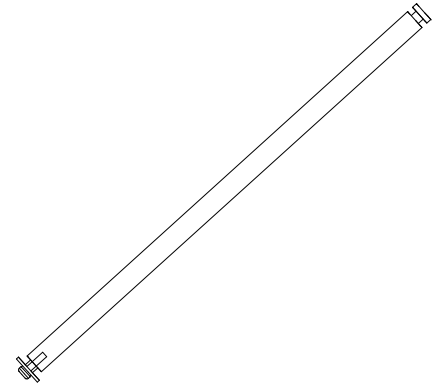
For use in Lists [105](#), [106](#), [107](#) and [108](#).

Ordering Notes

- 1) Order dressing bars as required.
- 2) Maximum of eight (8) dressing bars to be ordered for an eight (8) panel bay (List 105 or 108).
- 3) Maximum of six (6) dressing bars to be ordered for a six (6) panel bay (List 106 and 107).
- 4) Additional dressing bars may be ordered when using boxframe extensions.

Maximum of four (4) additional dressing bars to be ordered when using the two foot (2') extension.

Maximum of six (6) additional dressing bars to be ordered when using the four and one-half foot (4-1/2') extension.



List 153: Load Distribution Cable Management Kit

Features

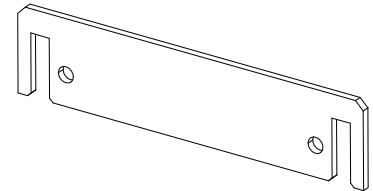
- ◆ Provides Twelve (12) Cable Separators (P/N 541543) plus cable ties as a 'Method to Manage Wiring'.

Restrictions

Not for use with [List 151](#).

Ordering Notes

- 1) Order one (1) kit per bay. Order an additional kit if Box Framework Extensions are ordered.



List 156: Meter and Alarm Card Internal Power In-Line Fuse Kit

Features

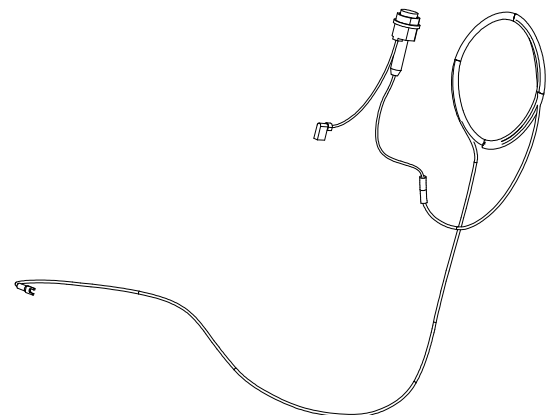
- ◆ The In-Line Fuse Kit is a field installable option that allows internally powered meter and alarm circuits vs. external powered meter and alarm circuits.

Restrictions

For use in Lists [105](#) and [107](#). Not required for List [106](#) and [108](#).

Ordering Notes

- 1) One (1) required for base installation. Order two (2) if bay is equipped with two (2) or more isolated loads.
- 2) In-Line fuse kit comes furnished with a 3 amp fuse. If additional replacement fuses required, order Part No. 101014.



List 166: Meter Panel Field Upgrade Retrofit Kit

Features

- ◆ Provides components to replace the standard meter panel in a [List 107](#) bay with the Advanced Meter/Alarm Panel.
- ◆ Includes an Advanced Meter/Alarm Panel that provides the following functions for each panel in the bay: voltage and current metering and Low Voltage, Power Lost, Overcurrent, and Fuse/Circuit Breaker alarms. Also provided are four (4) external alarm relay circuits, to which any combination of alarms can be mapped.
- ◆ Provides four (4) fused auxiliary -48V power outputs (1-1/3A), fused remote (A/B) meter panel inputs, internal/external sense option, and an Ethernet connection (requires List 170 Ethernet option).

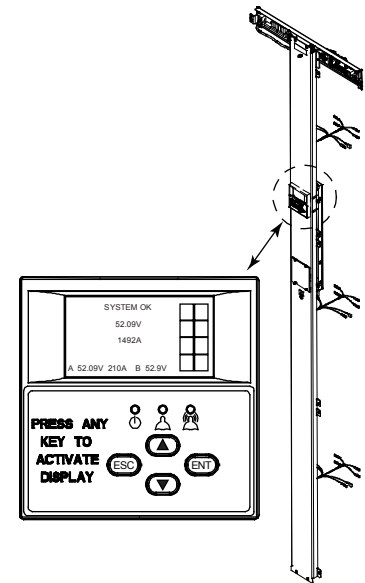
Restrictions

Upgrades List 107 only.

Original 50mV load shunts must be replaced with 25mV shunts. Six (6) 25mV shunts (P/N 545619) are included in List 166.

Ordering Notes

- 1) Order one (1) List 166 to upgrade one (1) List 107.
- 2) For remote access capability, order one (1) [List 170](#) Ethernet option.
- 3) For installation, contact Emerson Network Power Installation Services Group at 800-800-1280.



List 167: Pre-Installed Load Lug-Mounting Hardware

Features

- ◆ Provides all required 1/4" flat washers, 1/4" lock washers and 1/4-20 hex nuts for connecting customer-furnished lugs to all Load distribution positions in a bay.
- ◆ If internal full-length ground/return bars (List 116 or 126) are ordered, List 167 will also include all required 1/4" lug-mounting hardware for all Load Return positions.
- ◆ Hardware is pre-installed on lug-landing studs.

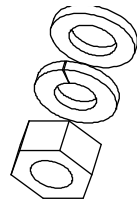
Restrictions

Does **not** provide *input* lug hardware.

Does **not** provide lug hardware for *panel length* ground/return bars (List 117, 127).

Ordering Notes

- 1) Order one (1) List 167 to provide pre-installed hardware on all load distribution lug positions and all full-length ground/return bar lug positions present in the bay you are ordering.



List 168: Meter Panel Field Upgrade Retrofit Kit

Features

- ◆ Provides components to replace the standard meter panel in a [List 105](#) bay with the Advanced Meter/Alarm Panel.
- ◆ Includes an Advanced Meter/Alarm Panel that provides the following functions for each panel in the bay: voltage and current metering and Low Voltage, Power Lost, Overcurrent, and Fuse/Circuit Breaker alarms. Also provided are four (4) external alarm relay circuits, to which any combination of alarms can be mapped.
- ◆ Provides four (4) fused auxiliary -48V power outputs (1-1/3A), fused remote (A/B) meter panel inputs, internal/external sense option, and an Ethernet connection (requires List 170 Ethernet option).

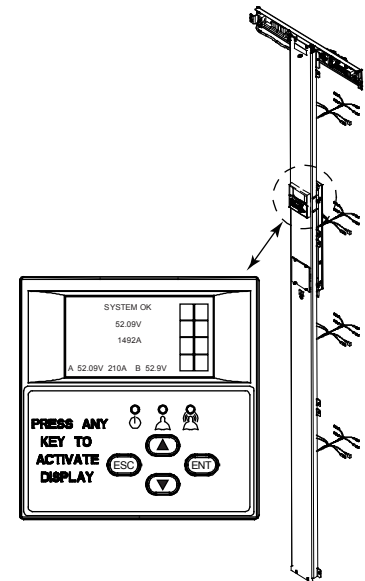
Restrictions

Upgrades List 105 only.

Original 50mV load shunts must be replaced with 25mV shunts. Eight (8) 25mV shunts (P/N 545619) are included in List 168.

Ordering Notes

- 1) Order one (1) List 168 to upgrade one (1) List 105.
- 2) For remote access capability, order one (1) [List 170](#) Ethernet option.
- 3) For installation, contact Emerson Network Power Installation Services Group at 800-800-1280.



List 170: Assembly, Ethernet

Features

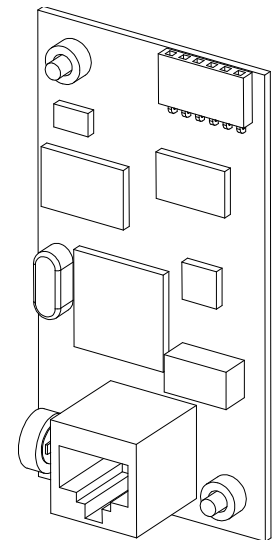
- ◆ Provides comprehensive remote monitoring, control, and data processing functions for a BDFB equipped with the Advanced Meter/Alarm Panel via an Ethernet port.
- ◆ Access is by means of a Web Interface.
- ◆ Requires a PC equipped with an Ethernet card and Internet Explorer.

Restrictions

For use only with List [106](#) or [108](#) bays, or bays retrofitted with List [166](#) or [168](#).

Ordering Notes

- 1) Order as required.



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For Manufactured Discontinued Bays (Model 1293V3)

See Issue AR SAG582120600 for List Descriptions.

**THE LIST OPTIONS REFLECTED IN SAG582120600 ISSUE AR
CANNOT BE USED IN THE CURRENT DESIGN BAY (MODEL 801DB NVGB)**

**THESE LIST OPTIONS CANNOT BE USED IN THE
CURRENT DESIGN BAY (MODEL 801DB NVGB)**

FOR MANUFACTURER DISCONTINUED BAYS (MODEL 1293V3)			
Distribution Bus Modules			
List Number	Part Number	Description	
--	--	8 Panel Bay	TLS/TPS-Type Fuseholders (3-70A) e/w Internal Grounding.
20G	58212060020G	6 Panel Bay	
15	58212060015	8 Panel Bay	Bullet Nose-Type Circuit Breakers or Bullet Nose-Type TLS/TPS Fuseholders (1-100A), or a combination of both. (Snap-In Blank Distribution Position Cover: P/N 387454200.)
25	58212060025	6 Panel Bay	
10	58212060010	8 Panel Bay	TLS/TPS-Type Fuseholders (3-70A)
20	See Notes	6 Panel Bay	
Notes:			
Remove the ground bar from a List 20G for a List 20 replacement.			
A List 150 can be used to replace a List 50.			
A List 156 can be used to replace a List 56.			

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**THESE LIST OPTIONS CANNOT BE USED IN THE
 CURRENT DESIGN BAY (MODEL 801DB NVGB)**

FOR MANUFACTURER DISCONTINUED BAYS (MODEL 1293V3)						
Distribution Bus Module Paralleling Options						
To Parallel This List			This List		Order Paralleling Option List	
Purchased Before 6/30/00	Purchased After 6/30/00		Purchased Before 6/30/00	Purchased After 6/30/00		
10, 11, 12, or 14	--	W I T H	10, 11, 12, or 14	--	30, 35	
20, 21, 22, or 24	--		20, 21, 22, or 24	--	31, 36	
15	--		15	--	35 or 37	
25	--		25	--	36 or 38	
--	10, 11, 12, 14, or 15		--	10, 11, 12, 14, or 15	35 or 37	
--	13		--	13	35 or 37	
--	20, 20G, 21, 22, 24, or 25		--	20, 20G, 21, 22, 24, or 25	36 or 38	
--	23		--	23	36 or 38	
15	--		--	10, 11, 12, 14, or 15	35 or 37	
25	--		--	20, 20G, 21, 22, 24, or 25	36 or 38	
10, 11, 12, or 14	--		--	10, 11, 12, or 14	30*, 35	
20, 21, 22, or 24	--		--	20, 20G, 21, 22, or 24	31*, 36	
10, 11, 12, or 14	--		--	15	NONE	
20, 21, 22, or 24	--		--	25	NONE	
10, 11, 12, or 14	--		--	--	15	NONE
20, 21, 22, or 24	--		--	--	25	NONE

Notes: Total load for all paralleled distribution bus modules is limited to 640 amperes, maximum.

List 35 and 36 provide multiple load shunts.

List 30, 31, 37, and 38 provide a single load shunt.

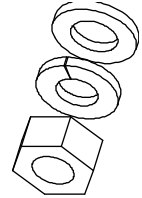
* Requires additional components, see Lists 30 and 31 Ordering Notes in Issue AR SAG582120600.

ACCESSORY DESCRIPTIONS

Load Lug Hardware Kits

Features

- ◆ These kits provide hardware for connecting customer-furnished Load and Load Return (internal full-length ground bar only) lugs.
 - Part No. 547682 kit provides (35) each of 1/4" flat washers, 1/4" lock washers and 1/4-20 hex nuts.
 - Part No. 547683 kit provides (60) each of 1/4" flat washers, 1/4" lock washers and 1/4-20 hex nuts.
- ◆ All hardware is shipped loose in bags.



Restrictions

Does **not** provide *input* lug hardware.

Does **not** provide lug hardware for *panel length* ground/return bars (List 117, 127).

Ordering Notes

- 1) Order as required. The table shows the quantity required for each assembly.

For Each of the Following List Numbers Ordered	Order This Kit Quantity	
	Kit P/N 547682	Kit P/N 547683
110	0	N/A
115	1	N/A
116	8	N/A
120	N/A	0
125	N/A	1
126	N/A	6

Side by Side Busbar Link Kit for Use with List 110 and List 120, P/N 556103

Features

- ◆ Connects each side of a List 143 or List 144 together, side by side, in a List 106 or List 108 bay using List 120 or List 110 distribution panels. Provides two positions to terminate up to four (4) 750 MCM cables.

Restrictions

For use with List 106 with List 120 and List 108 with List 110.

Ordering Notes

- 1) Order P/N 556103 for List 143 or List 144 as required (see restrictions above and illustration on next page).

Side by Side Busbar Link Kit for Use with List 115 and List 125, P/N 557256

Features

- ◆ Connects each side of a List 143 or List 144 together, side by side, in a List 106 or List 108 bay using List 125 or List 115 distribution panels. Provides two positions to terminate up to four (4) 750 MCM cables.

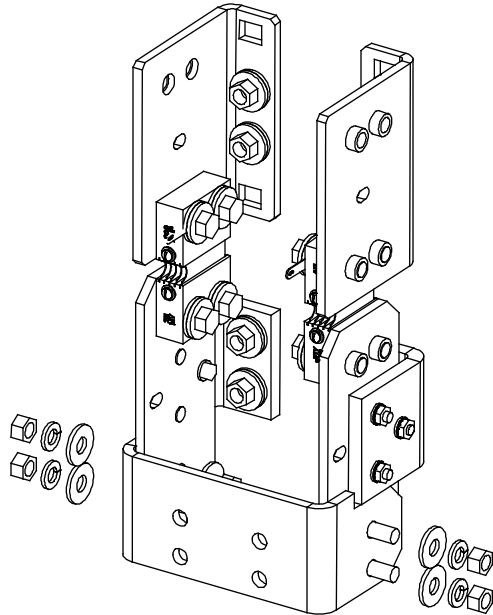
Restrictions

For use with List 106 with List 125 and List 108 with List 115.

Ordering Notes

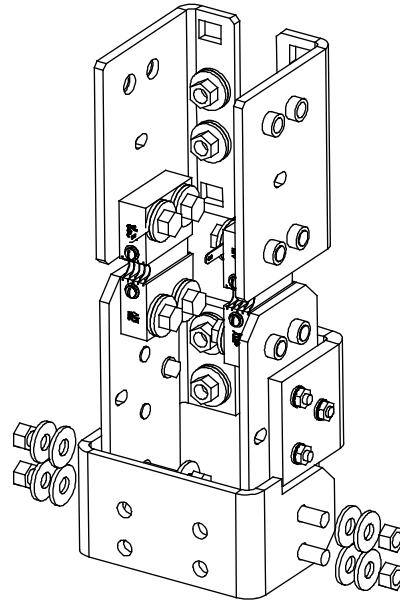
- 1) Order P/N 557256 for List 143 or List 144 as required (see restrictions above and illustration on next page).

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



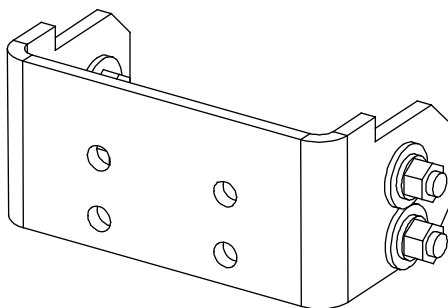
556103

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



557256

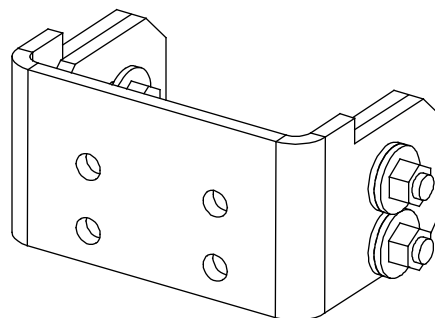
556103



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

Right Angle Lug Adaptor Kits, P/Ns 556377 and 556378

Features

- ◆ These kits allow for load connections to the List 115, 116, 125, and 126 panels at right angle to the standard connection and also allows for use of up to 4/0 AWG wire. The lug adapters are designed for use with 2-hole lugs with 3/8" clearance holes on 1" centers. The lug adapters permit installation of cables back to back.
- ◆ Part No. 556377 provides one (1) busbar P/N 555918, six (6) 1/4" flat washers P/N 214110100, six (6) 1/4" split lock washers P/N 215111100, and six (6) 1/4-20 hex nuts P/N 228557100.
- ◆ Part No. 556378 provides one (1) busbar P/N 555919, six (6) 1/4" flat washers P/N 214110100, six (6) 1/4" split lock washers P/N 215111100, and six (6) 1/4-20 hex nuts P/N 228557100.

Restrictions

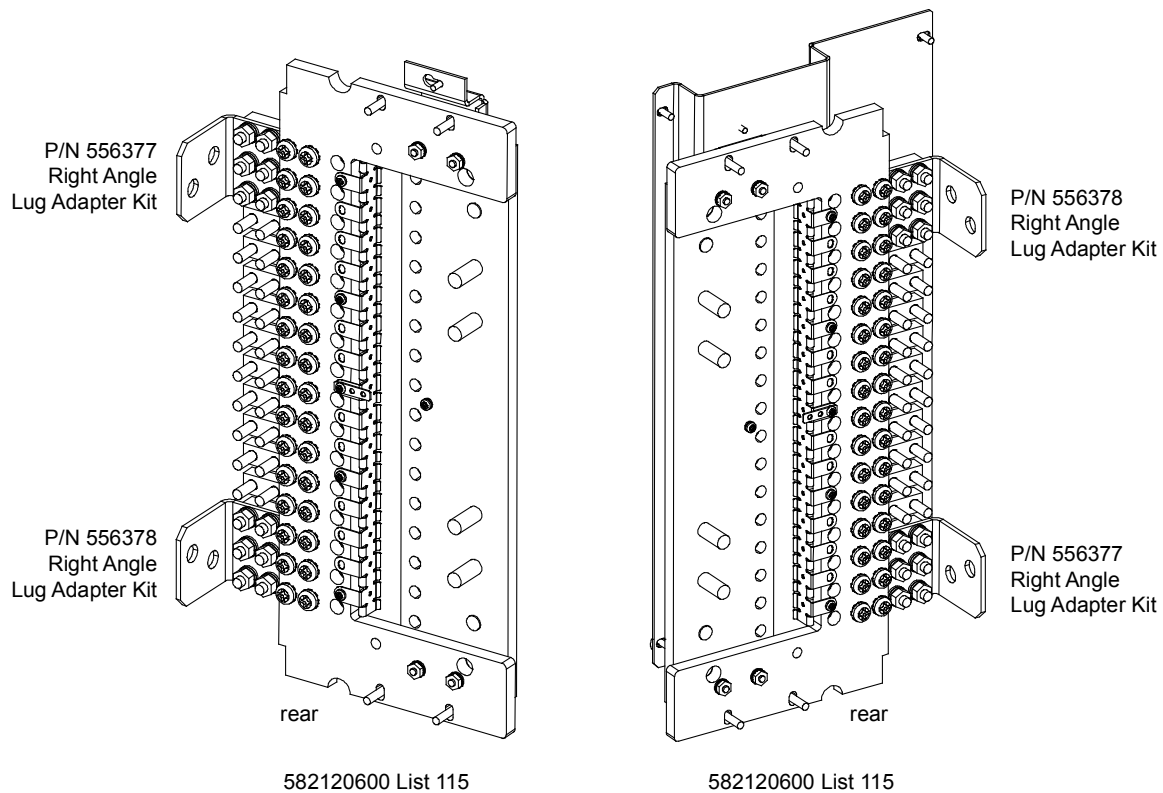
For use with lists 115, 116, 125 and 126.

For use with three-pole circuit breaker or 3-pole ground/return only.

Ordering Notes

- 1) Order as required. Refer to the following table.

Application for Right Angle Adaptors	Left Side (viewed from rear)	Right Side (viewed from rear)
Top Feed Application	P/N 556378	P/N 556377
Bottom Feed Application	P/N 556377	P/N 556378



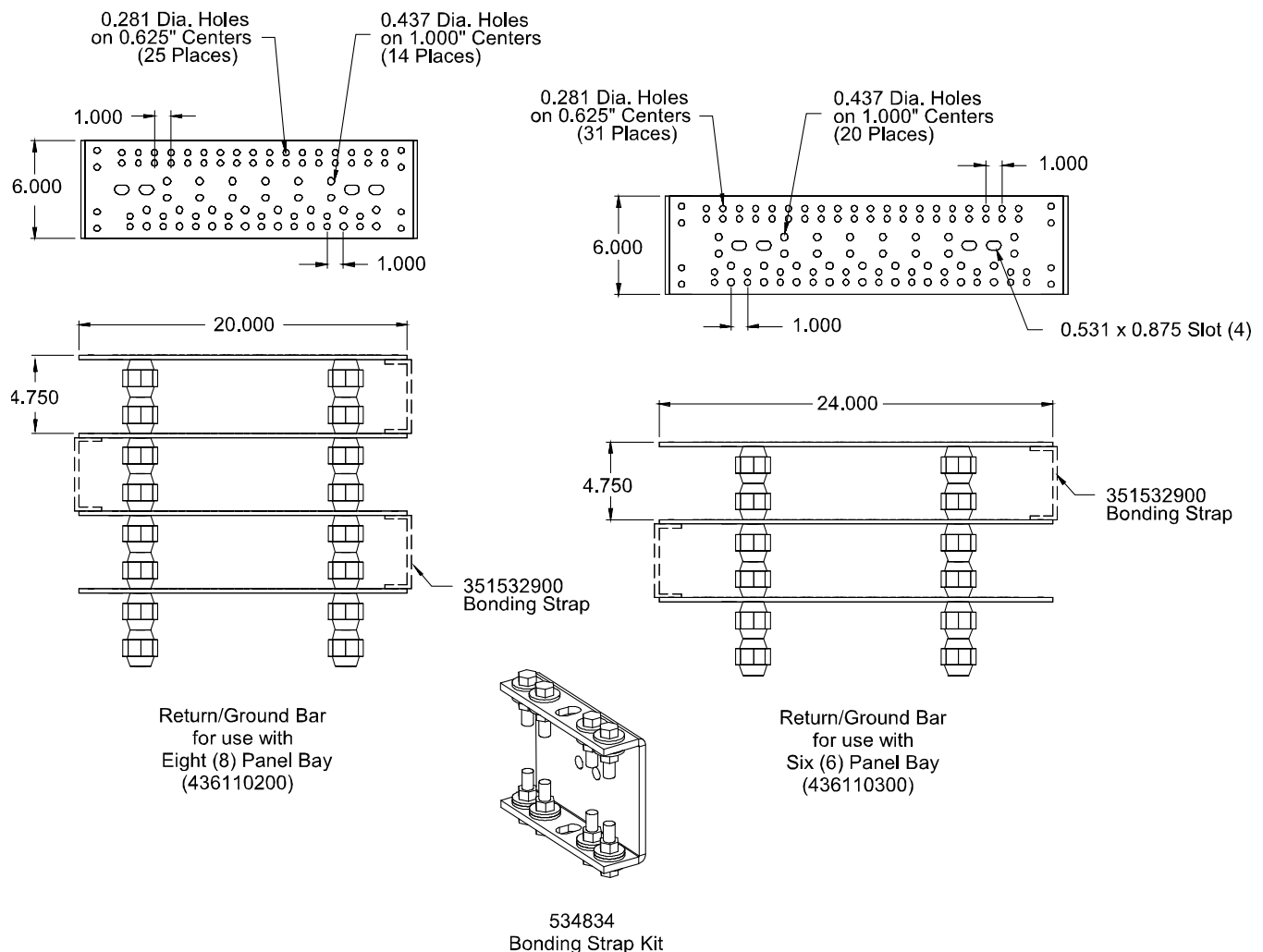
(some components not shown for clarity only)

External Return/Ground Bar Assemblies

Return/Ground Bar Assemblies	
8 Panel Bay Return/Ground Bar Assembly	436110200
6 Panel Bay Return/Ground Bar Assembly	436110300
Bonding Strap Kit	534834

Ordering Notes

- 1) Order Return/Ground Bar Assembly(s) as required. One (1) per bay provides landing positions for each fuse position in the bay assuming that cables are terminated back to back. If individual termination is required, order two (2) per bay.
- 2) Order Bonding Strap Kit as required. Bonding Strap Kit includes one strap (P/N 351532900) plus hardware.
- 3) Order input return lugs (two hole, 1/4" bolt clearance hole, 0.625" centers; or two hole, 3/8" bolt clearance hole, 1" centers) as required.



Return/Ground Bar
 for use with
 Eight (8) Panel Bay
 (436110200)

Return/Ground Bar
 for use with
 Six (6) Panel Bay
 (436110300)

534834
 Bonding Strap Kit

Seismic Anchor Kit, P/N 545387

Features

- ◆ Provides four (4) Relay Rack Seismic Mounting Anchors, P/N 216821200.

Restrictions

For use with Lists 105, 106, 107 and 108.

Ordering Notes

- 1) Order Seismic Anchor Kit P/N 545387 as required.

Transient Voltage Surge Suppressor (TVSS) Device

Features

- ◆ When properly grounded, the device(s) suppresses transient voltages that are above 60 VDC.
- ◆ Contains an indicator which lights when circuit has activated to suppress voltages.
- ◆ Plugs into distribution device mounting positions of a [List 115](#) and [List 125](#) Distribution Panel.

Restrictions

To be used with Distribution Panels List 115 and List 125 only.

All unparalleled Distribution Panels require a TVSS Device, only one (1) TVSS Device required per paralleled groups of Distribution Panels.

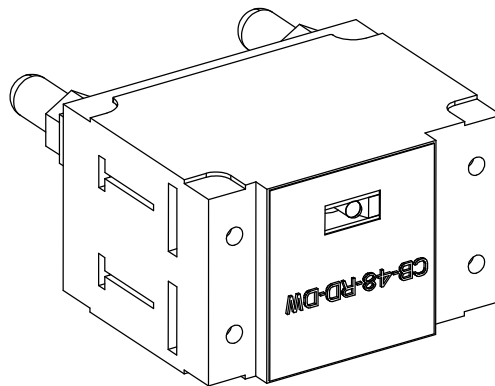
Unless otherwise specified, install the TVSS Device in the mounting position closest to the Distribution Panel's input busbar.

Wire to be sized so that the maximum wire resistance is less than 0.550 milliohms.

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

Ordering Notes

- 1) Order kit P/N 520401 (includes TVSS Device P/N 122201 plus lug mounting hardware) as required. Customer to supply grounding lead(s) with lugs to connect from TVSS Device(s) into customer's grounding network.



Distribution Devices and Lug Selection

TLS/TPS Fuses/Fuseblocks, TPL Fuses/Fuseblocks, and Lug Selection for Lists 110 and 120

Features

- ◆ Each fuse installs into the respective fuseblock.

Restrictions

The fuses and fuseblocks specified in this section are for use in Lists [110](#) and [120](#).

Load should not exceed 80% of device rating.

Distribution Panel capacity is 640A maximum continuous.

TLS/TPS Fuseblock: Maximum lug width is 0.750".
Maximum wire size is 2 AWG.

TPL Fuseblock: Maximum lug width is 1.8".
Maximum wire size is 2/0 AWG.

Ordering Notes

- 1) A List 110 has twelve (12) fuse positions and a List 120 has twenty (20) fuse positions. The fuse panel can be populated with TLS/TPS fuseblocks (requires one [1] fuse position), TPL fuseblocks (requires two [2] fuse positions), or a combination of TLS/TPS and TPL fuseblocks.

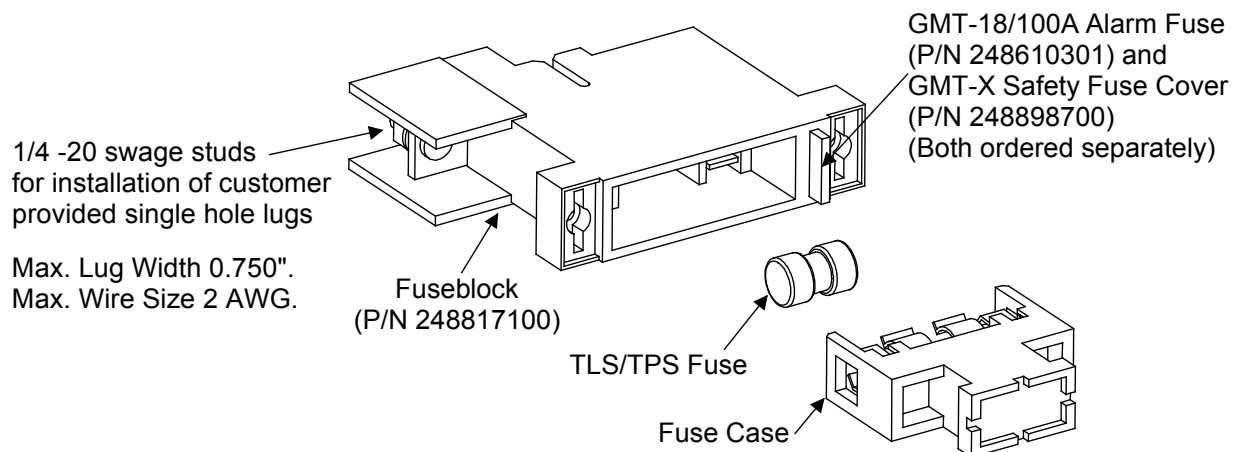
List 110 includes (12) TLS/TPS Fuseblocks P/N 248817100, and List 120 includes (20) TLS/TPS Fuseblocks P/N 248817100. For panels **factory** configured in a bay, each TPL Fuseblock P/N 516241 ordered replaces (2) P/N 248817100 Fuseblocks. For fuse panels shipped separately, the TLS/TPS fuseblocks are factory installed and if TPL fuseblocks are required they will have to be installed in the field.

Order fuses and fuseblocks as required per [Table 1](#) and [Table 3](#).

For each TLS/TPS fuseblock ordered, also order one (1) P/N 248610301 alarm fuse and one (1) P/N 248898700 safety fuse cover. The alarm fuse and safety fuse cover is provided with a TPL fuseblock.

- 2) See [Table 2](#) and [Table 4](#) for recommended load lugs. For other available lugs and hardware, refer to drawings 031110100 through 031110300.
- 3) See [Table 8](#) and [Table 9](#) for recommended load distribution wire sizes.

Lists 110 and 120 TLS/TPS Fuseblock



TLS/TPS Fuses and Fuseblocks for Use in Lists 110 and 120				
Ampere Rating	P/N	Bussmann P/N	Littelfuse P/N	Lugs for Fuseblock P/N 248817100
3	248230900	TPS-3	TLS003	See Table 2
5	248231000	TPS-5	TLS005	
6	248231200	TPS-6	TLS006	
10	248231500	TPS-10	TLS010	
15	248231800	TPS-15	TLS015	
20	248232100	TPS-20	TLS020	
25	248232400	TPS-25	TLS025	
30	248232700	TPS-30	TLS030	
40	248233300	TPS-40	TLS040	
50	248233900	TPS-50	TLS050	
60	248234200	TPS-60	TLS060	
70	248234500	TPS-70	TLS070	
Each fuse requires (1) Fuseblock P/N 248817100. See "Ordering Notes" in this section. For each fuseblock ordered, also order... (1) P/N 248610301 alarm fuse (GMT-18/100A), and (1) P/N 248898700 safety fuse cover (GMT-X). See Table 8 for recommended load distribution wire sizes.				

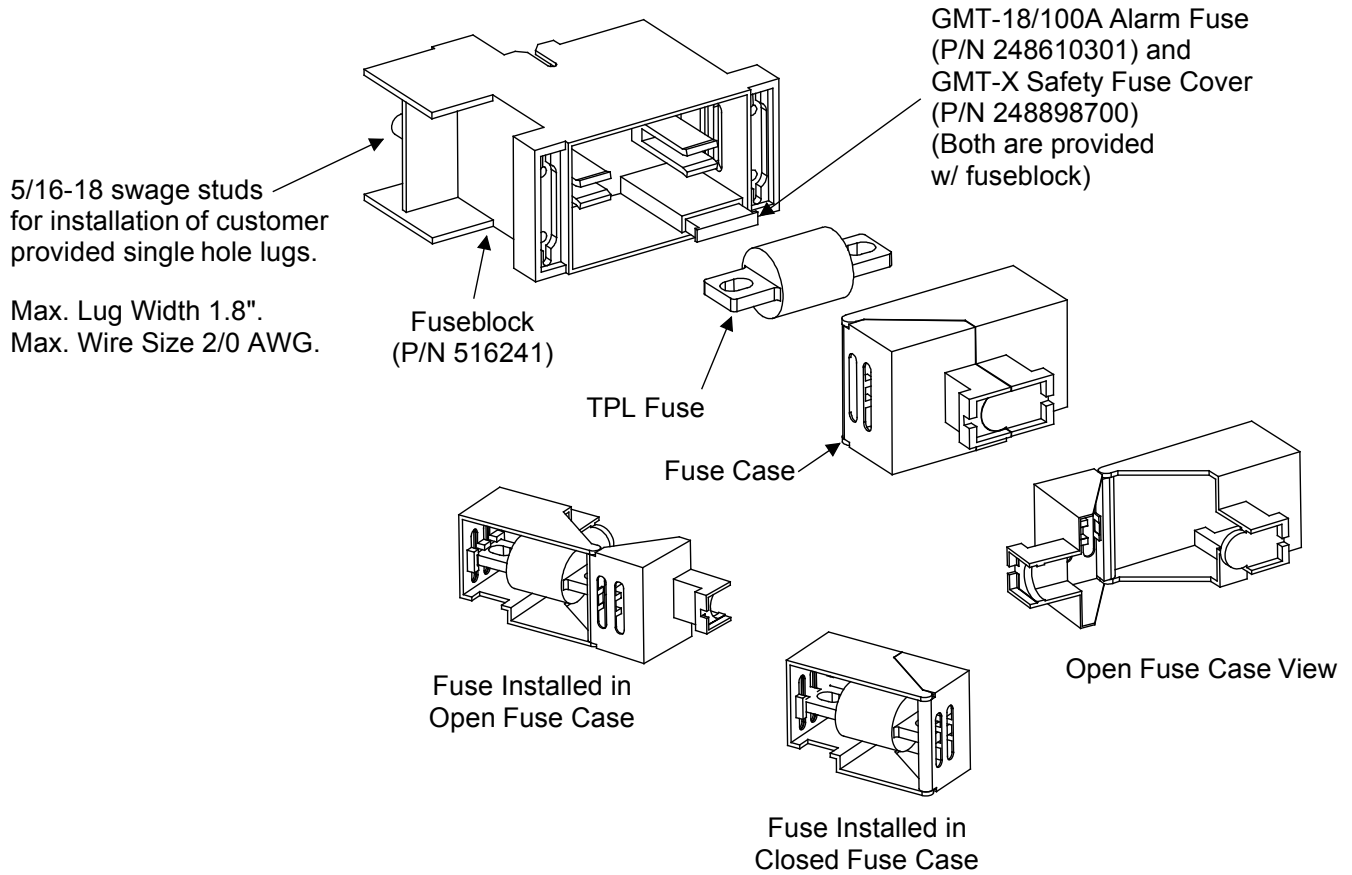
Table 1
TLS/TPS Fuses and Fuseblocks
for Use in Lists 110 and 120

Lugs for Use with Fuseblock P/N 248817100 Used in Lists 110 and 120 Distribution Panels (single hole, 1/4" bolt clearance hole)	
Lead Size (AWG)	P/N
8	245350400
6	245350600
4	245350700
2	245350800

Note: Cables larger than 2 AWG require an H-TAP connection.

Table 2
Lugs for Use with Fuseblock P/N 248817100
Used in Lists 110 and 120

Lists 110 and 120 TPL Fuseblock



TPL Fuses and Fuseblock for Use in Lists 110 and 120			
Ampere Rating	Required Distribution Bus Mounting Positions	P/N	Lugs for Fuseblock P/N 516241
70	2	248251500	See Table 4
80	2	248252000	
100	2	248252600	
150	2	248253300	
200	2	248254000	
225	2	248254500	
250	2	248255000	
Each fuse requires (1) Fuseblock P/N 516241. See "Ordering Notes" in this section. Fuseblock P/N 516241 also includes... (1) P/N 248610301 alarm fuse (GMT-18/100A), and (1) P/N 248898700 safety fuse cover (GMT-X).			
See Table 9 for recommended load distribution wire sizes.			

Table 3
TPL Fuses and Fuseblock
for Use in Lists 110 and 120 Distribution Panels

Lugs for Use with Fuseblock P/N 516241 Used in Lists 110 and 120 Distribution Panels (single hole, 5/16" bolt clearance hole)	
Lead Size (AWG)	P/N
6	245351380
4	245351390
2	245351400
1	120224

Note: Cables larger than 2/0 AWG require an H-TAP connection.

Table 4
Lugs for Use with Fuseblock P/N 516241
Used in Lists 110 and 120 Distribution Panels

Bullet Nose-Type Circuit Breakers, Bullet Nose-Type Fuseblocks e/w TLS/TPS Fuses, and Lug Selection for Lists 115 and 125

Features

- ◆ Each circuit breaker plugs into one, two or three distribution device mounting position(s).
- ◆ A single fuseblock provides for installation of a 3 to 125 ampere Bussmann TPS-type or Littelfuse TLS-type fuse. The fuseblock plugs into a single distribution device mounting position. The fuseblock provides a GMT-A alarm type fuse, which operates open to provide an alarm indication if the distribution fuse opens.

Restrictions

The circuit breakers, fuses, and fuseblocks specified in this section are for use in Lists [115](#) and [125](#).

Load should not exceed 80% of device rating.

Distribution Panel capacity is 640A maximum continuous.

Maximum lug width is 0.610".

Maximum wire size is 2 AWG.

Ordering Notes

- 1) Order circuit breakers per [Table 5](#).

Order fuses per [Table 6](#).

For each fuse ordered, also order one (1) P/N 117201 bullet nose fuseblock.

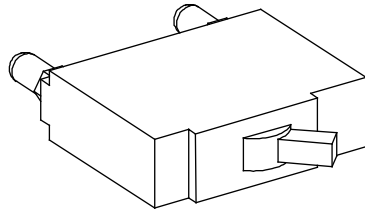
Note: Fuseblock P/N 117201 also includes...

(1) Alarm Fuse P/N 248610301 and

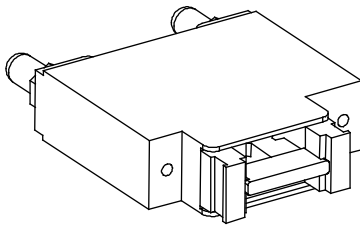
(1) Safety Fuse Cover P/N 248898700.

- 2) See [Table 7](#) for recommended load lugs. For other available lugs and hardware, refer to drawings 031110100 through 031110300.
- 3) See [Table 8](#) for recommended load distribution wire sizes.

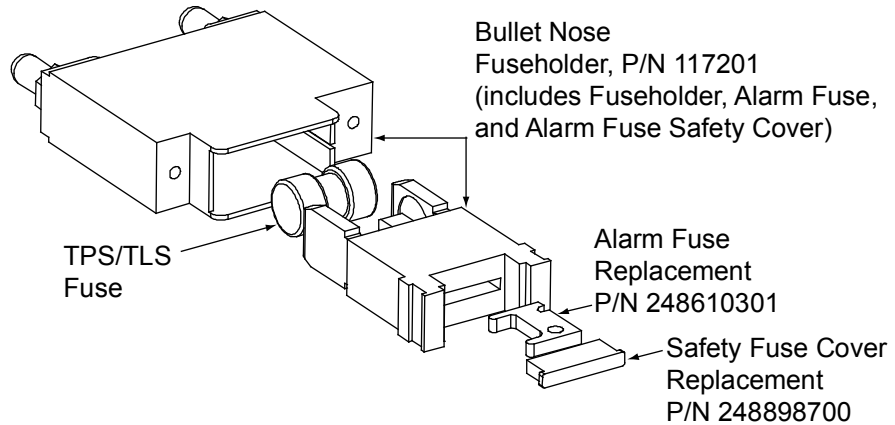
Bullet Nose-Type Distribution Devices for Lists 115 and 125



Toggle-Handle Bullet Nose Circuit Breaker



Bullet Nose Fuseholder



Toggle-Handle Bullet Nose Type Circuit Breakers for Use in Lists 115 and 125				
Ampere Rating	Number of Poles (and mounting positions required)	P/N		Lugs
		Electrical Trip ¹ (White Handle)	Electrical/ Mechanical Trip ² (Black Handle)	
1	1	102272	101596	Up to 2 AWG lead sizes, use lugs in Table 7 (1/4" clearance holes on 5/8" centers). From 1/0 to 350 kcmil lead sizes, use lugs in Table 7 (Special Crimp Lug).
3	1	102273	101597	
5	1	102274	101598	
10	1	102275	101599	
15	1	102276	101600	
20	1	102277	101601	
25	1	102278	101602	
30	1	102279	101603	
35	1	102280	101604	
40	1	102281	101605	
45	1	121998	121997	
50	1	102282	101606	
60	1	102283	101607	
70	1	102284	101608	
75	1	102285	101609	
80	1	121996	121995	
90	1	138887	138888	
100	1	102286	101610	
125	2	516991	516838	Use lugs in Table 7 (Special Crimp Lug).
150 (see Caution below)	2	516993	516839	
175 (see Caution below)	2	144883	144884	
200 (see Caution below)	2	121831	121832	
225 (see Caution below)	3	144885	144886	
250 (see Caution below)	3	121835	121836	Use lugs in Table 7 (Special Crimp Lug) plus special lug adapter P/N 545346 or lug adapters listed in Table 7 .

See [Table 8](#) for recommended load distribution wire sizes.

Circuit Breaker Alarm Operation:

- ¹ Provides an alarm during an electrical trip condition only.
- ² Provides an alarm during an electrical or manual trip condition.

Caution: An overcurrent protective device with a rating of 150 amperes or greater SHALL HAVE an empty mounting position between it and any other overcurrent protective device.

Table 5
 Toggle-Handle Bullet Nose Type Circuit Breakers
 for Use in Lists 115 and 125

[Home](#)

Bullet Nose-Type Fuseblocks and TLS/TPS Fuses for Use in Lists 115 and 125				
Ampere Rating	P/N	Bussmann P/N	Littelfuse P/N	Lugs
3	248230900	TPS-3	TLS003	Up to 2 AWG lead sizes, use lugs in Table 7 (1/4" clearance holes on 5/8" centers). From 1/0 to 350 kcmil lead sizes, use lugs in Table 7 (Special Crimp Lug).
5	248231000	TPS-5	TLS005	
6	248231200	TPS-6	TLS006	
10	248231500	TPS-10	TLS010	
15	248231800	TPS-15	TLS015	
20	248232100	TPS-20	TLS020	
25	248232400	TPS-25	TLS025	
30	248232700	TPS-30	TLS030	
40	248233300	TPS-40	TLS040	
50	248233900	TPS-50	TLS050	
60	248234200	TPS-60	TLS060	
70	248234500	TPS-70	TLS070	
80	118413	--	TLS080	
90	118414	--	TLS090	
100	118415	--	TLS100	
125	139052	--	TLS125	
For each fuse ordered, also order a Bullet Nose Fuseblock P/N 117201. Fuseblock P/N 117201 also includes... (1) P/N 248610301 alarm fuse (GMT-18/100A), and (1) P/N 248898700 safety fuse cover (GMT-X).				
See Table 8 for recommended load distribution wire sizes.				

Table 6
Bullet Nose-Type Fuseblocks and TLS/TPS Fuses
for Use in Lists 115 and 125

[Home](#)

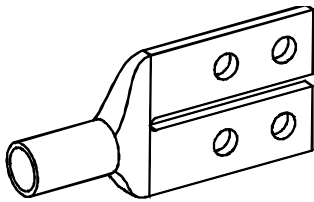
Lugs for Use with Lists 115 and 125 Distribution Panels (two hole, 1/4" bolt clearance hole on 5/8" centers)	
Lead Size (AWG)	P/N
8	245390200
6	245346700
4	245346800
2	245346900
1/0	245393500 (special lug)
2/0	245393600 (special lug)
3/0	245393700 (special lug)
4/0	245393800 (special lug)
250 kcmil	514872 (special lug)
350 kcmil	514873 (special lug)
3-Pole Device Special Adapter	545346

Lugs for Use with P/Ns 547991, 556377, and 556378 Lug Adapter Kits (two hole, 3/8" bolt clearance holes on 1" centers)	
Wire Size	Part Number
6 AWG	245349900
4 AWG	245350000
2 AWG	245348200
1/0 AWG	245347100
2/0 AWG	245347200
3/0 AWG	245347300
4/0 AWG	245347400
250 kcmil	245347500
300 kcmil	245347600
350 kcmil	245347700
400 kcmil	245347800
500 kcmil	245347900
600 kcmil	245348000
750 kcmil	245348100

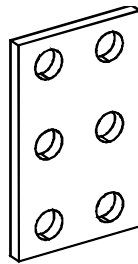
For one-pole circuit breaker, cables larger than 2 AWG require an H-TAP connection.
 For two-pole circuit breaker, use special lugs per table.
 For three-pole circuit breaker and 3-pole ground/return, use **either** special lugs per table with adapter P/N 545346, **or** adapter kit P/N 547991, 556377, or 556378 with 2-hole lugs having 3/8" clearance holes on 1" centers.
 For fuseblock (P/N 117201), cables larger than 2 AWG require H-tap. Special lugs listed above can be used but will use two positions of the distribution panel.

Table 7
 Lugs for Use with Lists 115 and 125 Distribution Panels

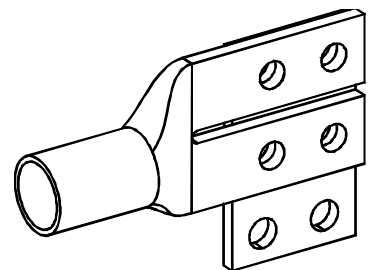
Special Lugs and Adapters Referenced in Table 7



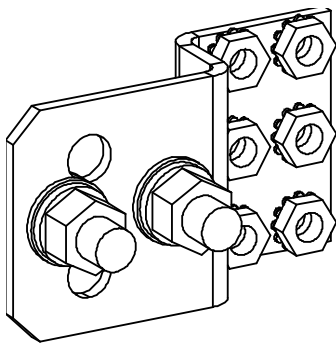
Special Lug
(See Table 7 for
Part Numbers)



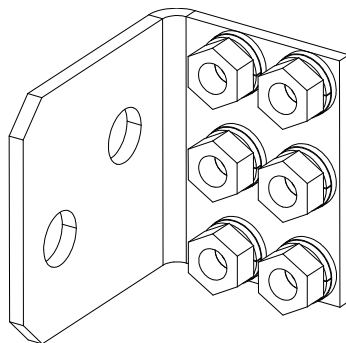
Special Adapter P/N 545346



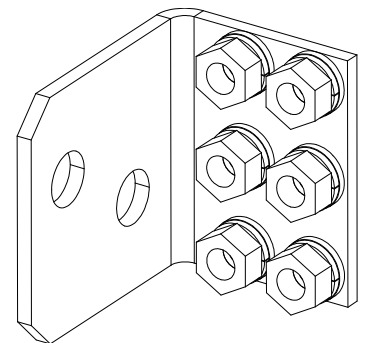
Special Lug and Adapter



3-Pole Lug Adapter Kit, P/N
547991



Right Angle
Lug Adapter Kit, P/N 556377



Right Angle
Lug Adapter Kit, P/N 556378

Box Framework Extensions

One (1) Foot Box Framework Extension

Features

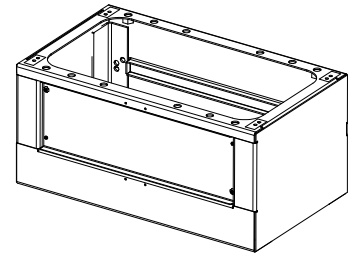
- ◆ The 1 Foot Box Framework Extension allows a standard 7 foot box framework to extend to 8 feet.

Restrictions

For use in Lists [105](#) [106](#), [107](#) and [108](#).

Ordering Notes

- 1) Order as required, P/N 544201.



Two (2) Foot Box Framework Extension

Features

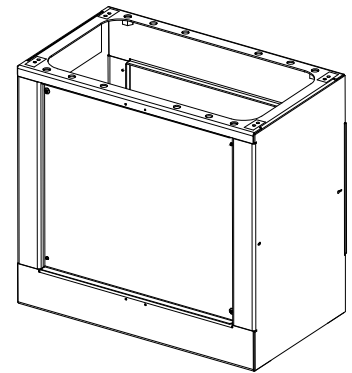
- ◆ The 2 Foot Box Framework Extension allows a standard 7 foot box framework to extend to 9 feet.

Restrictions

For use in Lists [105](#) [106](#), [107](#) and [108](#).

Ordering Notes

- 1) Order as required, P/N 544202.



Four and One-Half (4-1/2) Foot Box Framework Extension

Features

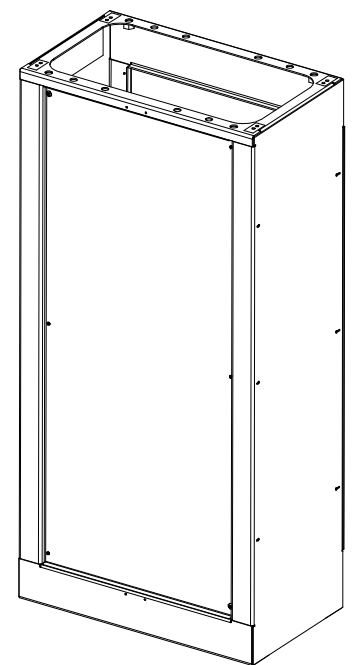
- ◆ The 4-1/2 Foot Box Framework Extension allows a standard 7 foot box framework to extend to 11-1/2 feet.

Restrictions

For use in Lists [105](#) [106](#), [107](#) and [108](#).

Ordering Notes

- 1) Order as required, P/N 544203.



Wiring Notes

Refer also to the next section, [Wiring Illustrations](#).

Bay Frame Grounding Wire Sizes and Lugs Selection

Features

- ◆ 1/4" clearance holes on 5/8" centers are provided for installation of customer provided two-hole lugs.

Restrictions

All lugs for customer connections must be ordered separately.
Customer needs to supply lug mounting bolts and hardware.

Ordering Notes

- 1) The recommended frame grounding wire size is 6 AWG. The recommended lug is P/N 245346700.

External Alarm Wiring—List 105 and 107 Bays

Features

- ◆ An external alarm circuit card is located behind the top left panel in each bay. This circuit card provides three sets of Form C relay contacts for external alarms. Terminal blocks are provided on the circuit card for customer external alarm connections and RS485 connections.

Restrictions

Relay contacts are rated for 1 amp at 60 VDC.
Terminal block wire size capacity is 14 to 26 AWG.

Ordering Notes

- 1) Recommended Wire Size: 22 AWG for Loop Lengths Up to 200 ft.
18-20 AWG for Loop Lengths Over 200 ft.

External Alarm and Control Wiring—List 106 and 108 Bays

Input/Output Circuit Card Features

- ◆ 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.

Restrictions

Relay contacts are rated for 0.6 amp at 60 VDC.
Terminal block wire size capacity is 14 AWG max.

Ordering Notes

- 1) Recommended Wire Size: 22 AWG for Loop Lengths Up to 200 ft.
18-20 AWG for Loop Lengths Over 200 ft.

Auxiliary Fuse Circuit Card Features

- ◆ An auxiliary fuse circuit card is located behind the top right panel in each bay. This circuit card provides four fuses for auxiliary equipment loads and two fuses for optional external (ABS) power to the Meter/Alarm Panel. All fuses are rated at 1-1/3A. Terminal blocks are provided on the circuit card for auxiliary load connections, external (ABS) meter input power connections, and optional external sense lead connections.

Restrictions

Terminal block wire size capacity is 14 AWG max.
Installer must make system ground/return connection(s) to side A and side B Ground/Return Input busbars located behind circuit card.

Ordering Notes

- 1) Recommended Wire Size (Auxiliary Fuse load and return): 14 AWG
- 2) Recommended Wire Size (Ground/Return Input busbars): 14 AWG

Load Distribution Wire Sizes Selection

Features

- ◆ Load distribution (load side) leads terminated in the appropriate lug are connected to the 'load side' terminations provided on each Distribution Panel. See [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS.
- ◆ 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 [Load Distribution Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS.

Restrictions

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.

All lugs for customer connections must be ordered separately.

Customer needs to supply lug mounting bolts and hardware.

Maximum size of wire to be connected to a single lug position and maximum lug width are listed under [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS.

Ordering Notes

- 1) The type of distribution device determines the load lug hole size and spacing requirements. The rating of the distribution device determines the wire size requirements. For wire size and lug selection; refer to [Distribution Devices and Lug Selection](#) in ACCESSORY DESCRIPTIONS and [Table 8](#) and [Table 9](#).

Fuse/Circuit Breaker Amperage	Recm 90°C Wire Size ⁽¹⁾						
	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG
	Loop Length (feet) ⁽²⁾						
1, 3, 5, 6, 10A	37 ^(3, 4)	58 ^(3, 4)	93 ^(3, 4)	--	--	--	--
15A	24 ^(3, 4)	39 ^(3, 4)	62 ^(3, 4)	--	--	--	--
20A	--	29 ^(3, 4)	46 ^(3, 4)	74 ^(3, 4)	--	--	--
25A	--	--	37 ^(3, 4)	59 ^(3, 4)	94 ^(3, 4)	--	--
30A	--	--	31 ^(3, 4)	49 ^(3, 4)	78 ^(3, 4)	--	--
35A	--	--	--	42 ^(3, 4)	67 ^(3, 4)	107 ^(3, 4)	--
40A	--	--	--	37 ^(3, 4)	59 ^(3, 4)	94 ^(3, 4)	--
45A	--	--	--	33 ^(3, 4)	52 ^(3, 4)	83 ^(3, 4)	--
50A	--	--	--	29 ^(3, 4)	47 ^(3, 4)	75 ^(3, 4)	--
60A	--	--	--	--	39 ^(3, 4)	62 ^(3, 4)	99 ^(3, 4)
70A	--	--	--	--	33 ⁽³⁾	53 ^(3, 4)	85 ^(3, 4)
75A	--	--	--	--	31 ⁽³⁾	50 ^(3, 4)	79 ^(3, 4)
80A	--	--	--	--	--	47 ^(3, 4)	74 ^(3, 4)
90A	--	--	--	--	--	41 ⁽³⁾	66 ^(3, 4)
100A	--	--	--	--	--	--	59 ^(3, 4)

- ¹ Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310-16 for copper wire at 90°C conductor temperature operating in ambients of 30°C and 40°C was used. For other operating ambient temperatures, refer to the NEC. For operation in countries where the NEC is not recognized, follow applicable codes.
- ² Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- ³ Wire Size / Loop Length Combination Calculated using 30°C Ambient Operating Temperature.
- ⁴ Wire Size / Loop Length Combination Calculated using 40°C Ambient Operating Temperature.

Table 8
(cont'd on next page)
Recommended Load Distribution Wire Sizes for
TLS/TPS Fuse and Bullet Nose-Type Circuit Breaker

[Home](#)

Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size ⁽¹⁾							
	4 AWG	2 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	250 kcmil	350 kcmil
	Loop Length (feet) ⁽²⁾							
90A	41 ⁽³⁾	66 ^(3, 4)	105 ^(3, 4)	133 ⁽⁴⁾	--	--	--	--
100A	--	59 ^(3, 4)	95 ^(3, 4)	119 ^(3, 4)	--	--	--	--
125A	--	47 ⁽³⁾	76 ^(3, 4)	95 ^(3, 4)	120 ⁽⁴⁾	--	--	--
150A	--	--	63 ^(3, 4)	79 ^(3, 4)	100 ^(3, 4)	--	--	--
175A	--	--	--	68 ^(3, 4)	86 ^(3, 4)	108 ^(3, 4)	--	--
200A	--	--	--	--	75 ^(3, 4)	95 ^(3, 4)	112 ^(3, 4)	--
225A	--	--	--	--	67 ⁽³⁾	84 ^(3, 4)	100 ^(3, 4)	--
250A	--	--	--	--	--	76 ^(3, 4, 7)	90 ^(3, 4, 7)	126 ^(3, 4, 7)

- ¹ Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310-16 for copper wire at **90°C** conductor temperature operating in ambients of **30°C** and **40°C** was used. For other operating ambient temperatures, refer to the NEC. For operation in countries where the NEC is not recognized, follow applicable codes.
- ² Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- ³ Wire Size / Loop Length Combination Calculated using 30°C Ambient Operating Temperature.
- ⁴ Wire Size / Loop Length Combination Calculated using 40°C Ambient Operating Temperature.

Table 8
 (cont'd from previous page)
 Recommended Load Distribution Wire Sizes for
TLS/TPS Fuse and Bullet Nose-Type Circuit Breaker

Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size ⁽¹⁾									
	6 AWG	4 AWG	2 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	250 kcmil	300 kcmil	350 kcmil
	Loop Length (feet) ⁽²⁾									
70A	33 ⁽³⁾	53 ^(3, 4)	85 ^(3, 4)	135 ^(3, 4)	--	--	--	--	--	--
80A	--	47 ^(3, 4)	74 ^(3, 4)	118 ^(3, 4)	--	--	--	--	--	--
100A	--	--	59 ^(3, 4)	95 ^(3, 4)	119 ^(3, 4)	--	--	--	--	--
150A	--	--	--	63 ^(3, 4)	79 ^(3, 4)	100 ^(3, 4)	--	--	--	--
200A	--	--	--	--	--	75 ^(3, 4)	95 ^(3, 4)	112 ^(3, 4)	--	--
225A	--	--	--	--	--	67 ⁽³⁾	84 ^(3, 4)	100 ^(3, 4)	120 ^(3, 4)	--
250A	--	--	--	--	--	--	76 ⁽³⁾	90 ^(3, 4)	108 ^(3, 4)	126 ^(3, 4)

- ¹ Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310-16 for copper wire at 90°C conductor temperature operating in ambients of 30°C and 40°C was used. For other operating ambient temperatures, refer to the National Electrical Code. For operation in countries where the NEC is not recognized, follow applicable codes.
- ² Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- ³ Wire Size / Loop Length Combination Calculated using 30°C Ambient Operating Temperature.
- ⁴ Wire Size / Loop Length Combination Calculated using 40°C Ambient Operating Temperature.
- ⁵ Single-hole lug, 5/16" bolt clearance hole. Refer to drawing 031110100 for lug crimping information.

Table 9
Recommended Load Distribution Wire Sizes for TPL Fuse

[Home](#)

DC Input Cable Sizes and Lugs Selection

Features

- ◆ DC input (-48V) leads terminated in the appropriate lug are connected to the [List 145](#) Bay Input Feed and Shunt Assembly. See [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS.
- ◆ 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 [DC Input Connections](#) under *Wiring Illustrations* in ACCESSORY DESCRIPTIONS.

Restrictions

All lugs for customer connections must be ordered separately.

Customer needs to supply lug mounting bolts and hardware.

Maximum size of wire to be connected to a single lug position and maximum lug width are as shown in the *Wiring Illustrations*.

Ordering Notes

- 1) DC input cable size varies depending on power requirements, therefore no specific information is provided for cable size. Refer to [Table 10](#) for recommended cable sizes and lugs at rated maximum bay load (640A per Distribution Panel, 1800A per Side 6-Panel Bay, 2400A per Side 8-Panel Bay). Note that loads typically should not exceed 80% of capacity; therefore, input cables have been sized for an overcurrent protection device rated at 800A. When making connections, observe correct polarity.
- 2) For other available lugs, refer to drawings 031110100 through 031110300.

External Overcurrent Protection Device Rating	Ambient Operating Temperature ⁽¹⁾	Loop Length (Ft) 1.0 Voltage Drop ⁽²⁾	Loop Length (Ft) 0.25 Voltage Drop ⁽²⁾	Recm 90°C Wire Size (AWG) ⁽¹⁾	Recommended Crimp Lug ⁽³⁾
800A	40°C	84.5	21.1	750 kcmil	245348100
		168.9	42.2	(2) 750 kcmil	

¹ Wire sizes are based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). **Table 310-17** for copper wire rated at **90°C** conductor temperature operating in ambient temperature of **40°C** was used. For other operating ambient temperatures, refer to the NEC. For operation in countries where the NEC is not recognized, follow applicable codes.

² Recommended wire sizes are sufficient to restrict voltage drop to the voltage shown in the column heading, or less, at rated full load output current of the system for the loop lengths shown in this column. Loop length is the sum of the lengths of the positive and negative leads.

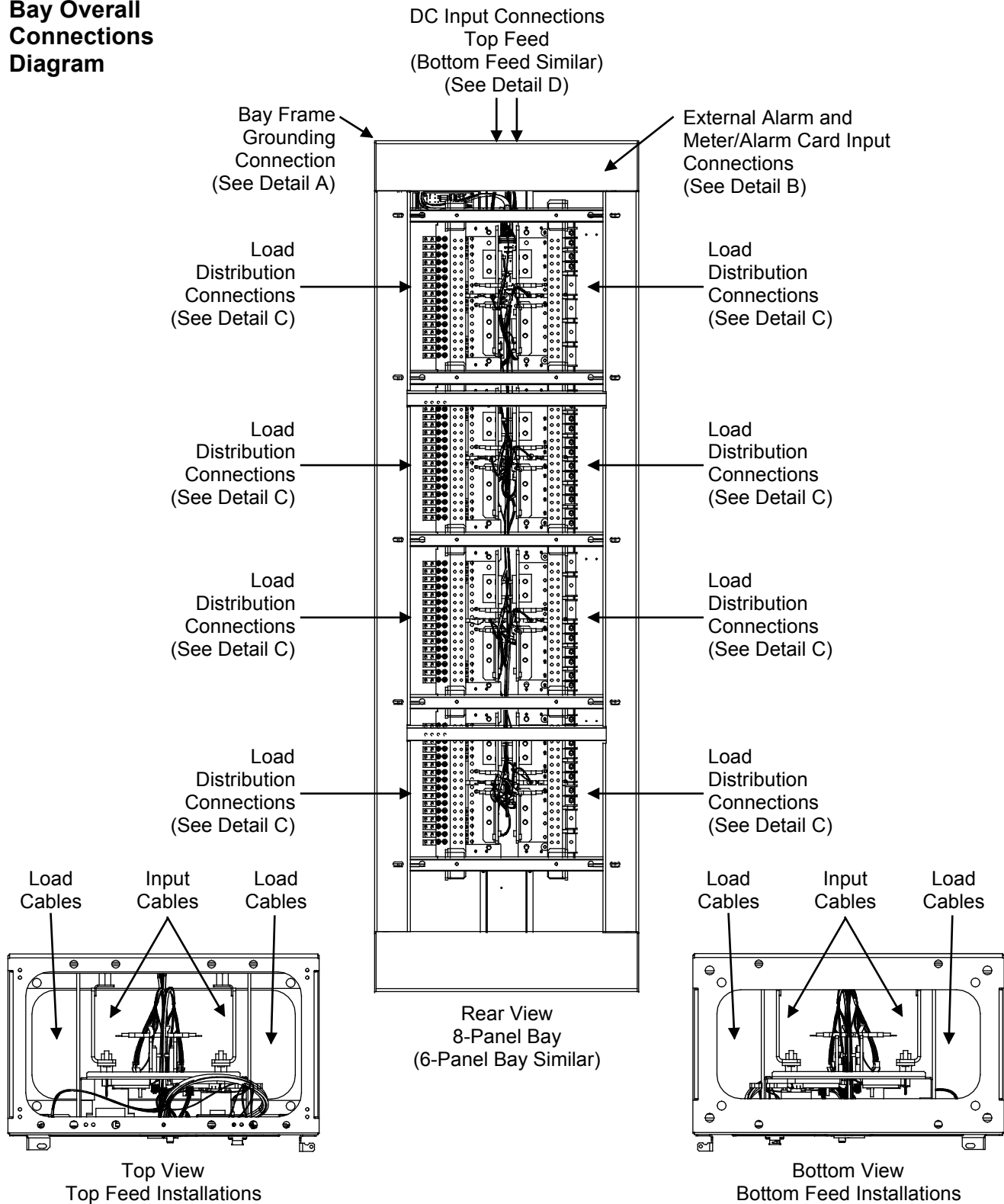
³ Two-hole lug, 3/8 bolt clearance hole, 1.00" centers. Refer to drawing 031110100 for lug crimping information.

Table 10
 Recommended DC Input
 Wire Size and Lug Selection

Wiring Illustrations

Overall Installer's Connections

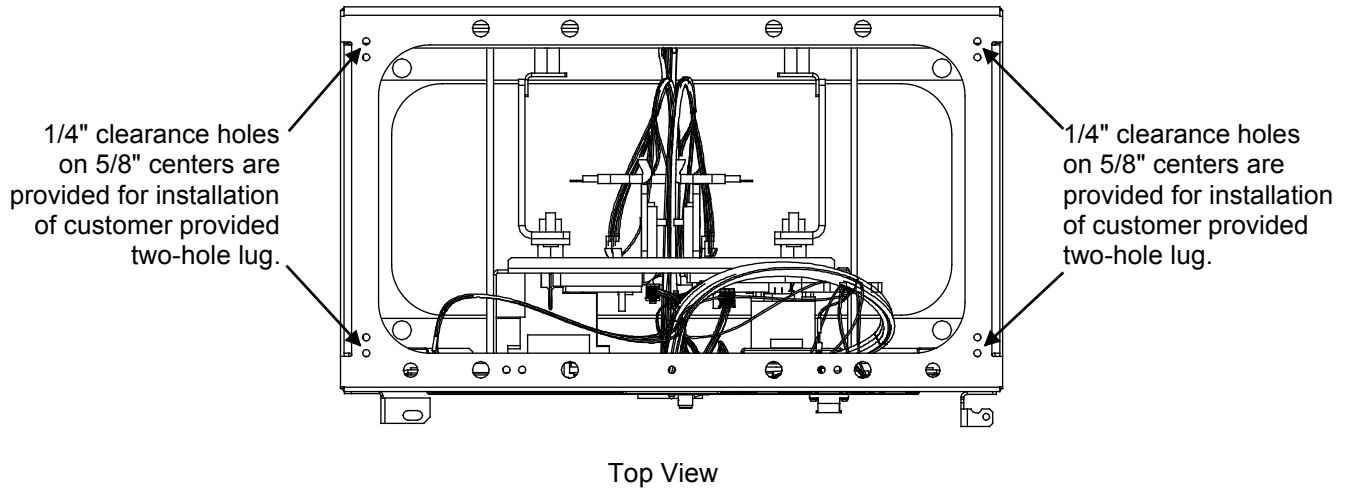
Bay Overall Connections Diagram



Bay Frame Grounding Connection

Detail A

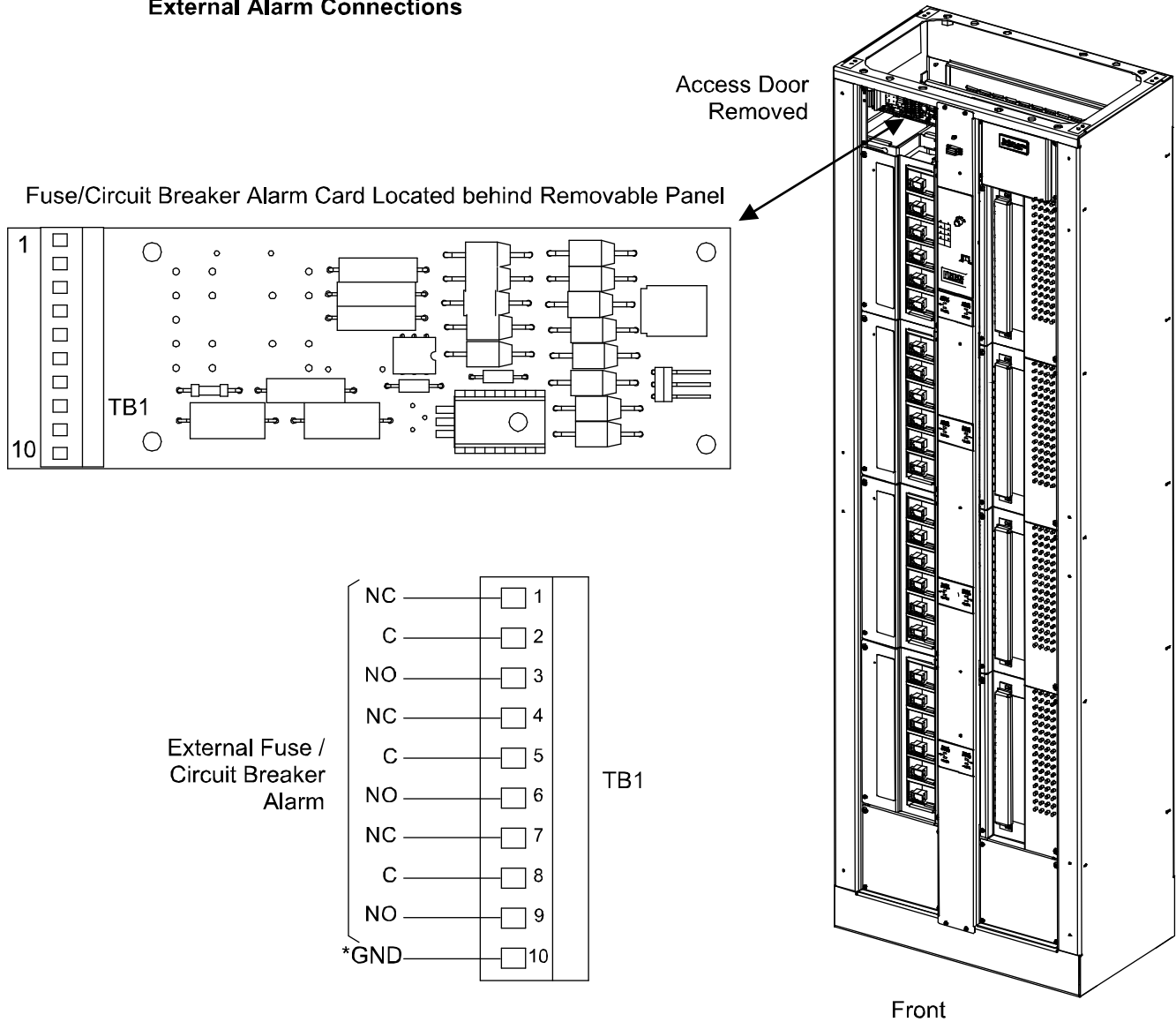
Bay Frame Grounding Connection



External Alarm and Meter/Alarm Card Input Connections

**Detail B (Page 1)
 List 105 (shown) and 107**

External Alarm Connections



* 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.

[Home](#)

**Detail B (Page 2)
 List 105 (shown) and 107**

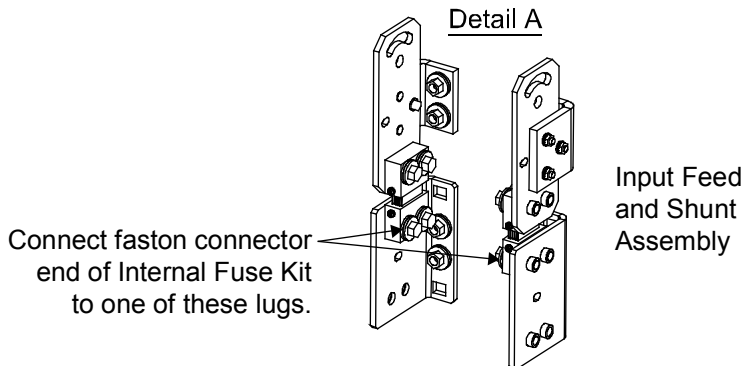
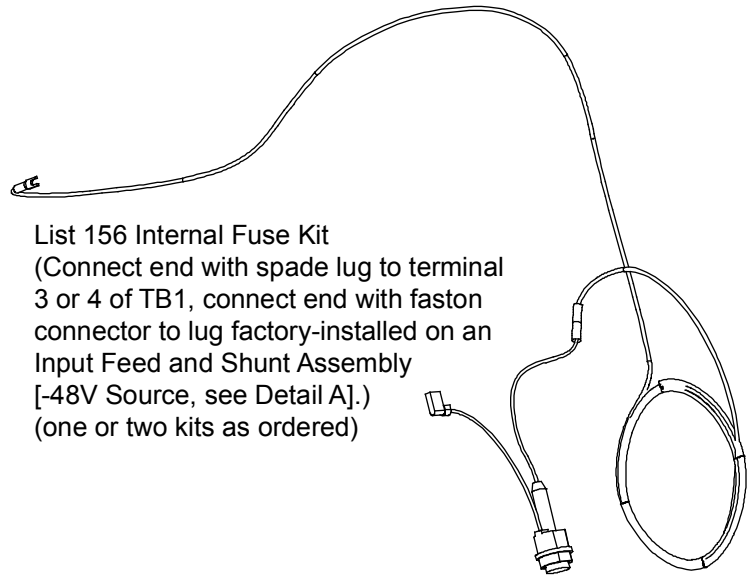
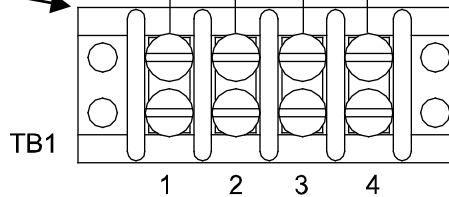
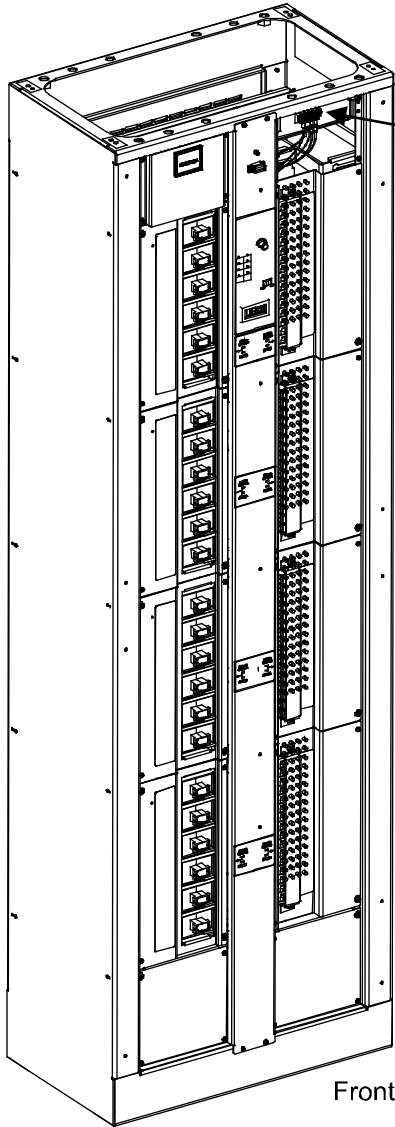
**Internal/External Digital Meter
 and Alarm Card Input Connections**

Internal/External "Ground/Return" (for digital meter and alarm circuit card power return) Connect as required.

-48V Input - A Feed (for digital meter and alarm circuit card power input) Connect to an external source or to List 156 Internal Fuse Kit.

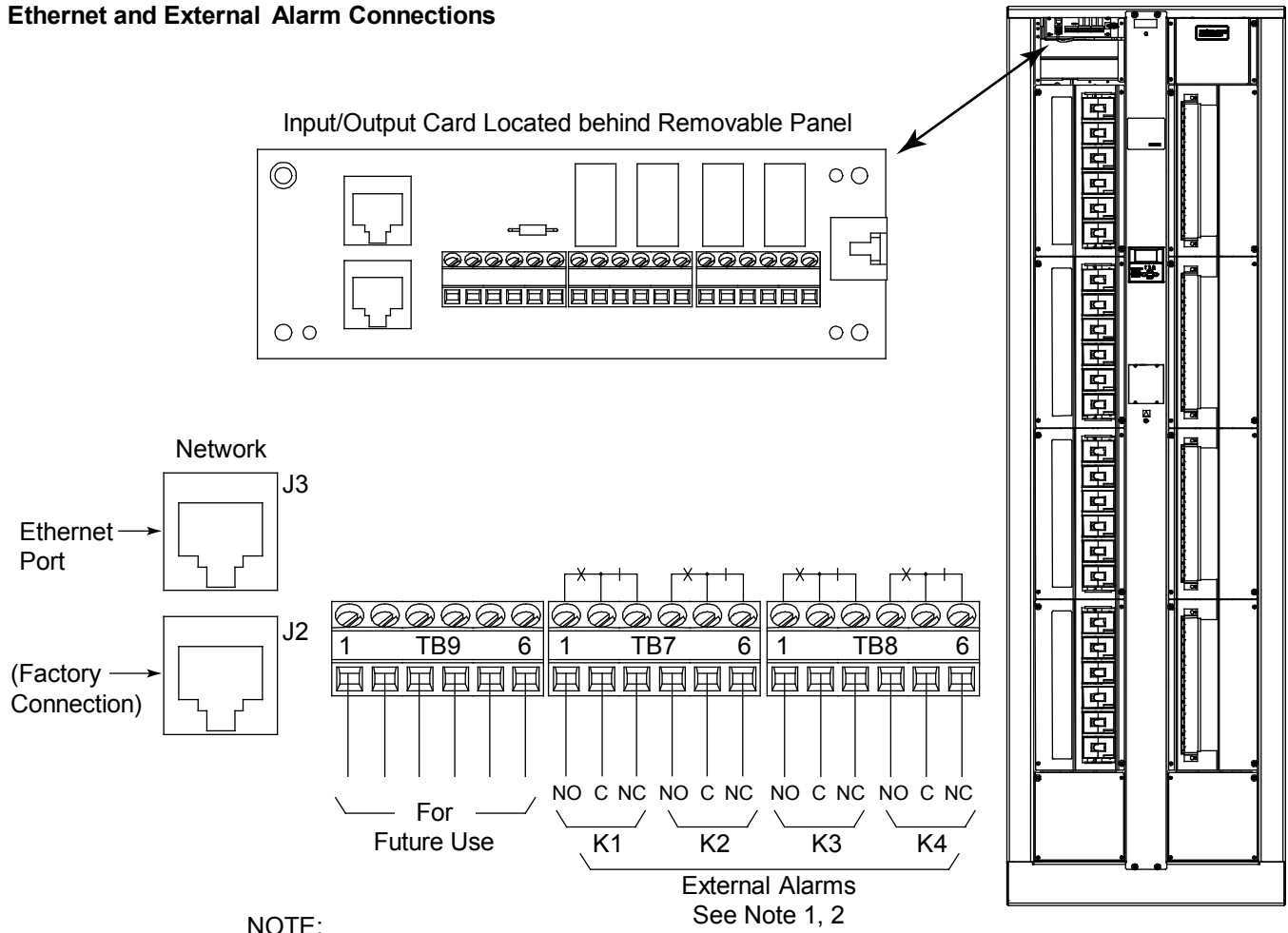
Internal/External "Ground/Return" (for digital meter ground) Connect as required.

-48V Input - B Feed (for digital meter and alarm circuit card power input) Connect to an external source or to List 156 Internal Fuse Kit, if Feed B required.



Detail B (Page 3)
List 106 and 108 (shown)

Ethernet and External Alarm Connections



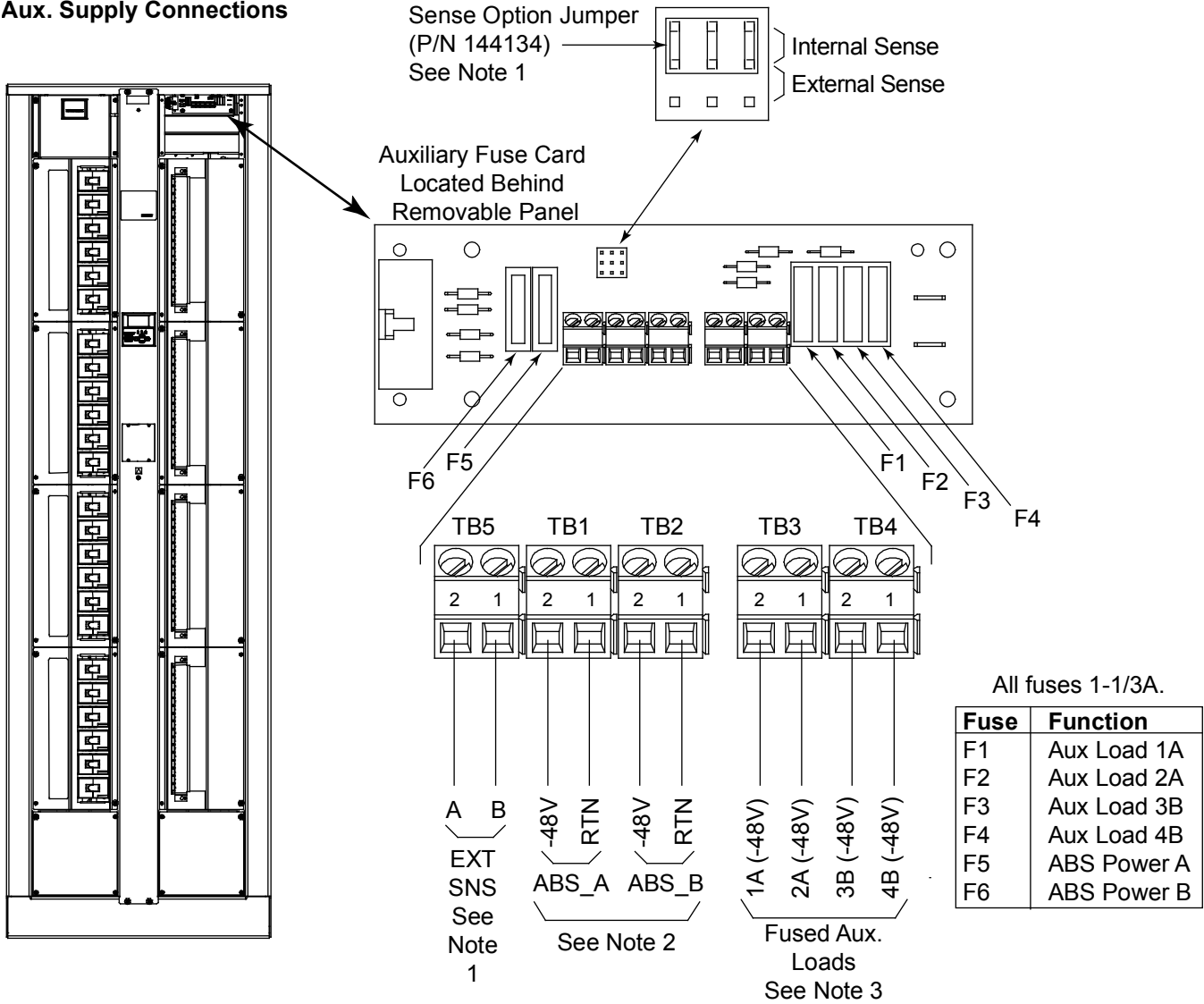
NOTE:

See Note 1, 2

1. 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.
2. Default Relay Mapping:
 - K1 - Fuse Alarm
 - K2 - Low Voltage Alarm
 - K3 - Power Lost Alarm
 - K4 - Overcurrent 1 Alarm, Overcurrent 2 Alarm
3. Default Alarm Settings:
 - Low Voltage Alarm - 51.8 VDC
 - Power Lost - 42.0 VDC
 - Overcurrent 1 - 480 amps
 - Overcurrent 2 - 800 amps

Detail B (Page 4)
List 106 and 108 (shown)

**External Sense, ABS and
 Aux. Supply Connections**

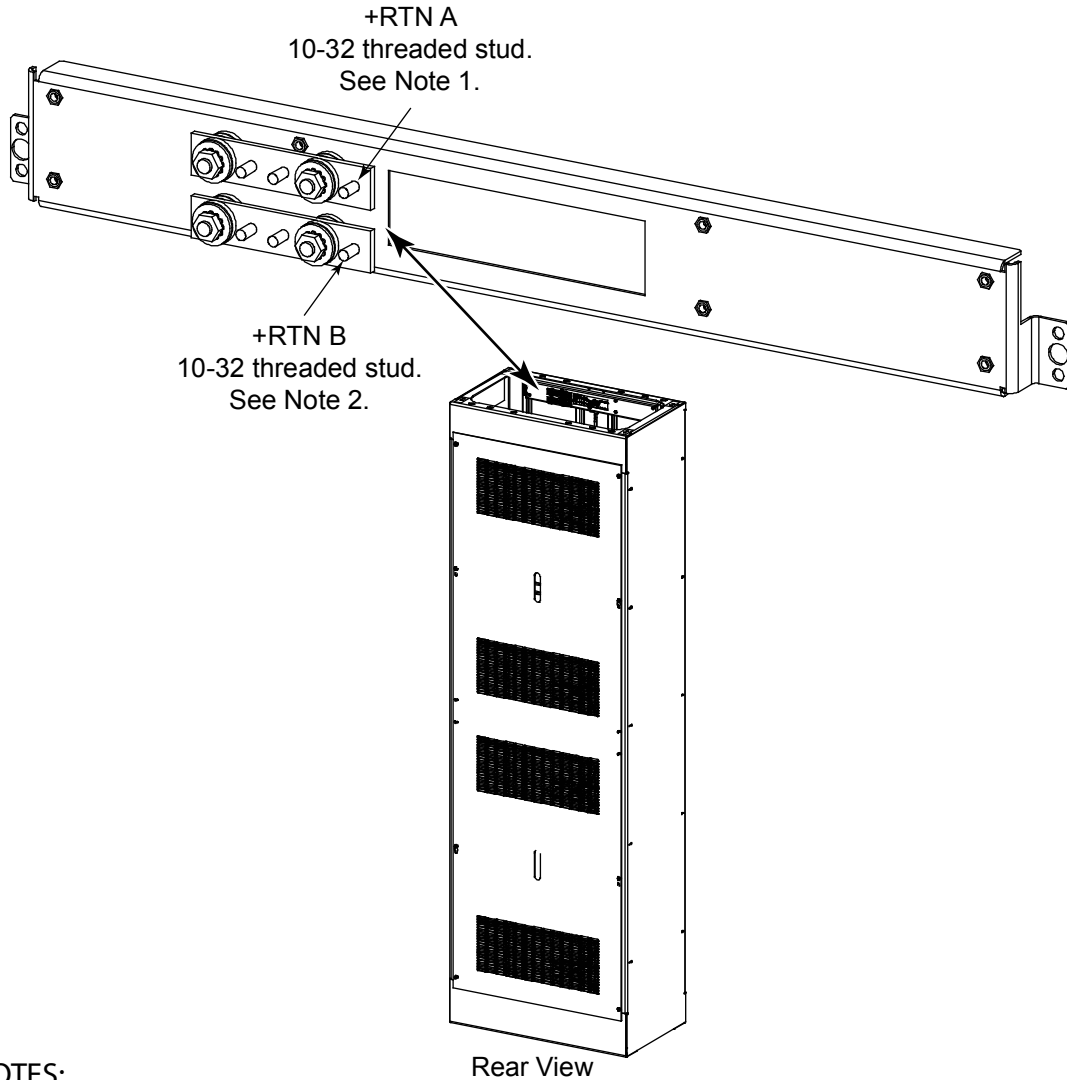


NOTES:

1. For internal voltage sensing, set Sense Option jumper to Internal Sense position.
 For system installation with external ground/return bar, connect Return (+) sense leads from ground bars to TB5-1 (Return B) and TB5-2 (Return A), and set Sense Option jumper to External Sense position.
2. 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.
3. Connect Return (+) leads for Fused Auxiliary Loads to system ground bar.

**Detail B (Page 5)
List 106 and 108 (shown)**

**Ground/Return Input Connections for
Auxiliary Fuse Card**



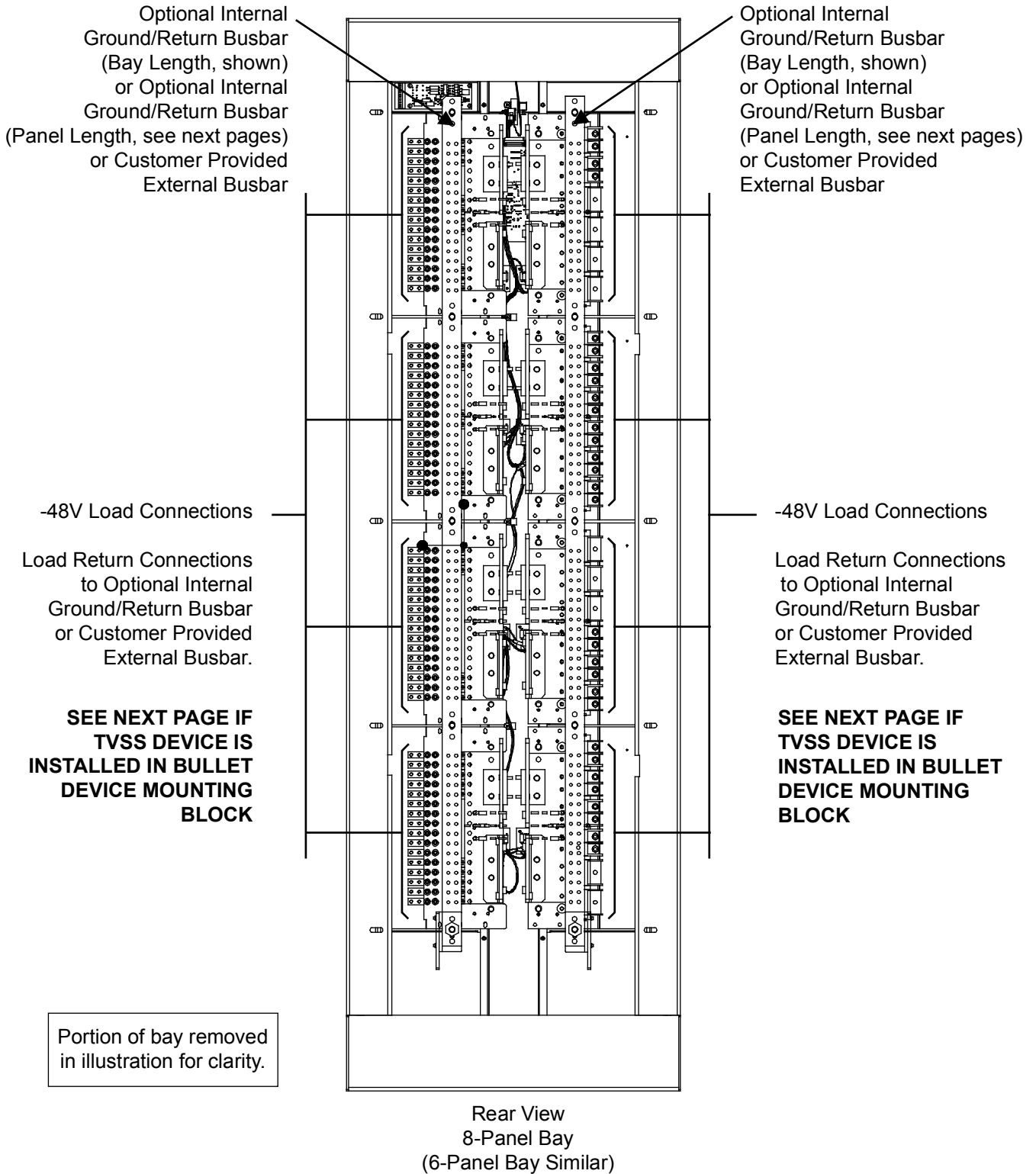
NOTES:

1. Connect "+RTN A" to the system Ground/Return busbar. If the bay is configured for A/B operation, connect to the A side system Ground/Return busbar.
2. If the bay is configured for A/B operation, connect "+RTN B" to the B side system Ground/Return busbar.

Load Distribution Connections—Lists 105, 106, 107, 108

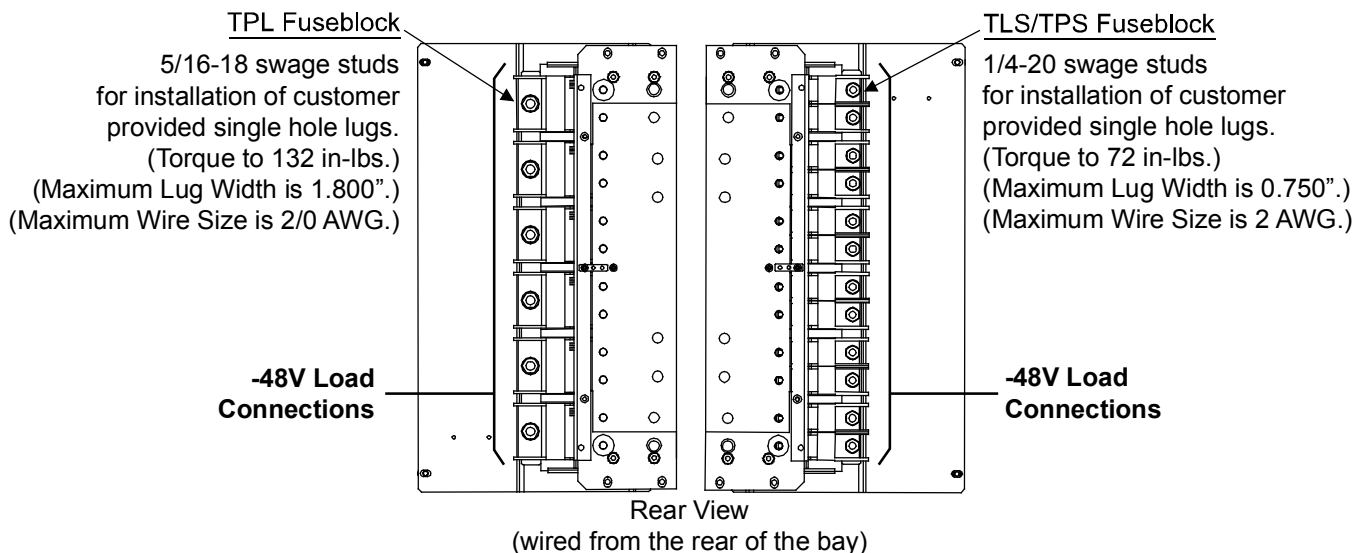
Detail C (Page 1)

Load Distribution Connections

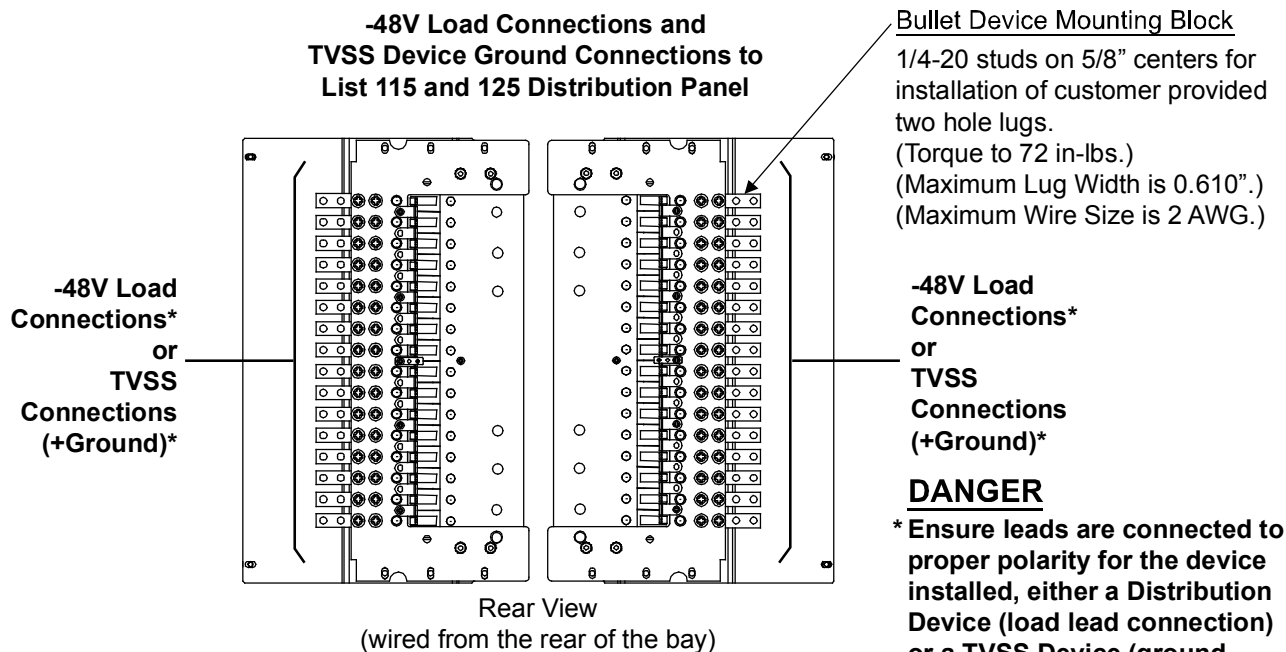


Detail C (Page 2)

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



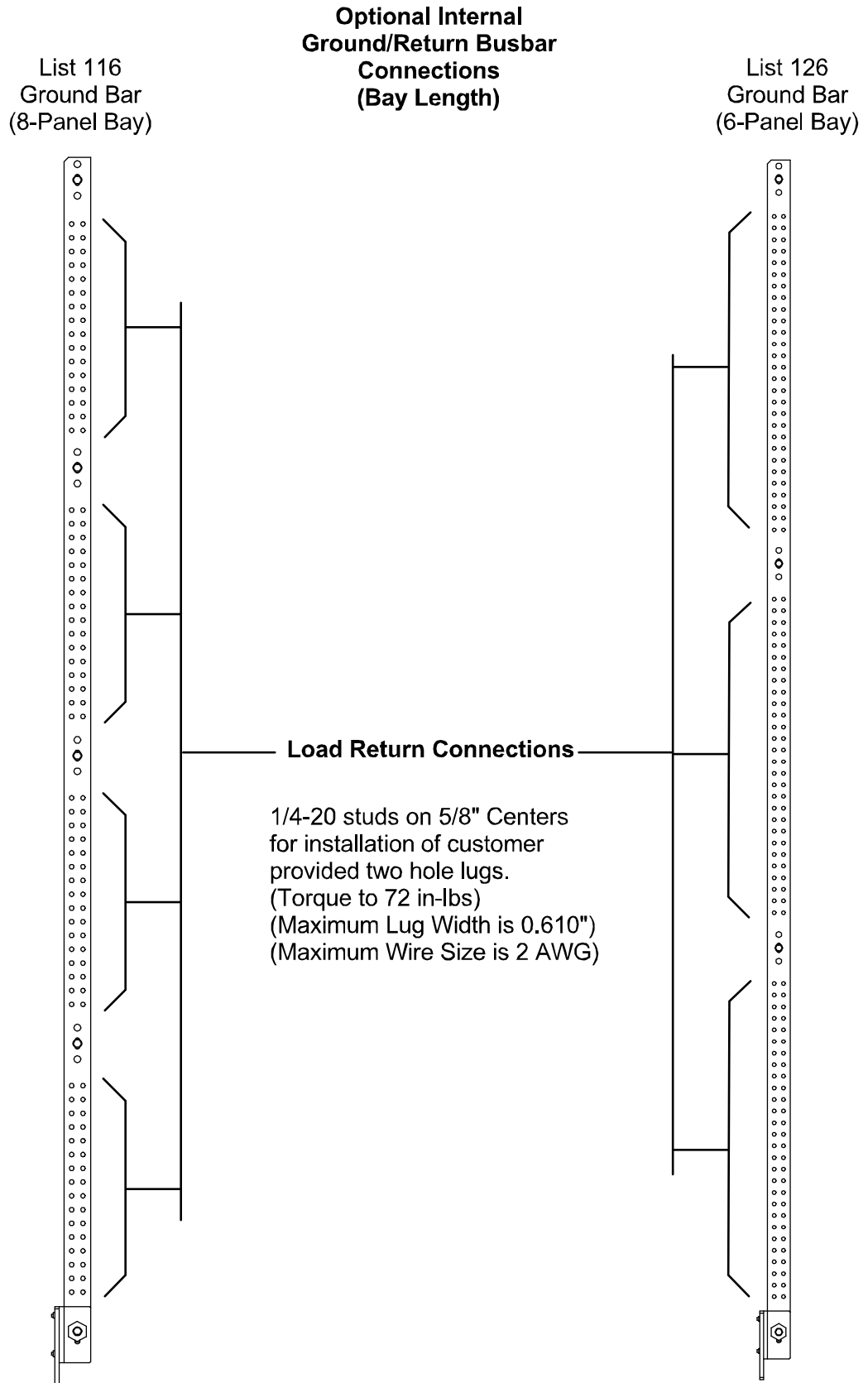
**-48V Load Connections and
TVSS Device Ground Connections to
List 115 and 125 Distribution Panel**



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).

Detail C (Page 3)



Detail C (Page 4)

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

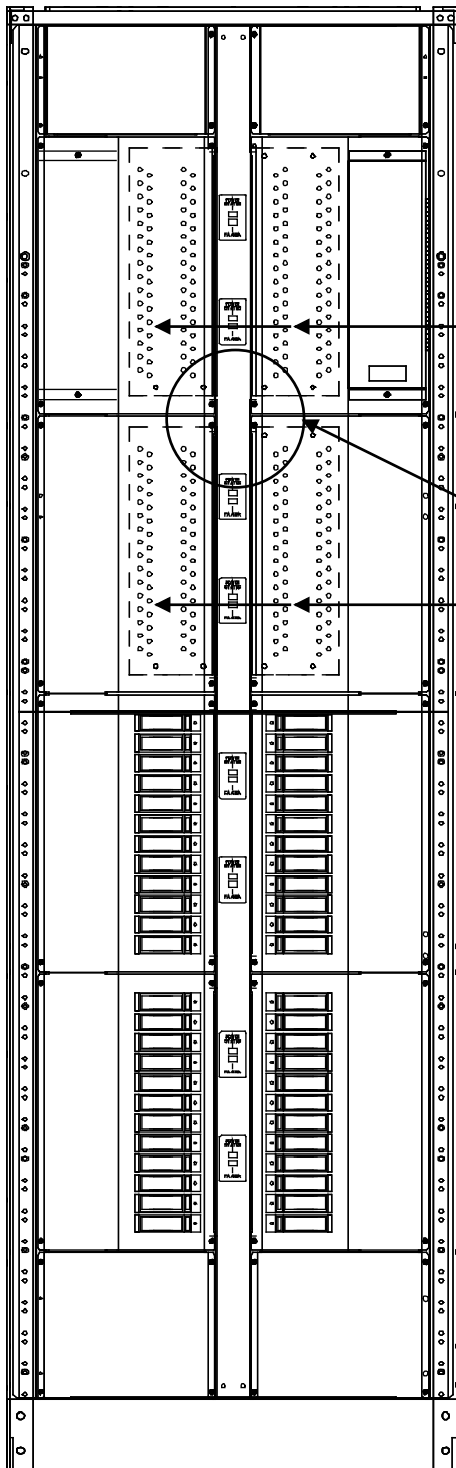
Optional List 127
Ground Bar Assembly
(Each List 127 provides
two [2] Ground Bar
Assemblies.)

Optional List 117
Ground Bar Assembly
(Each List 117 provides
two [2] Ground Bar
Assemblies.)

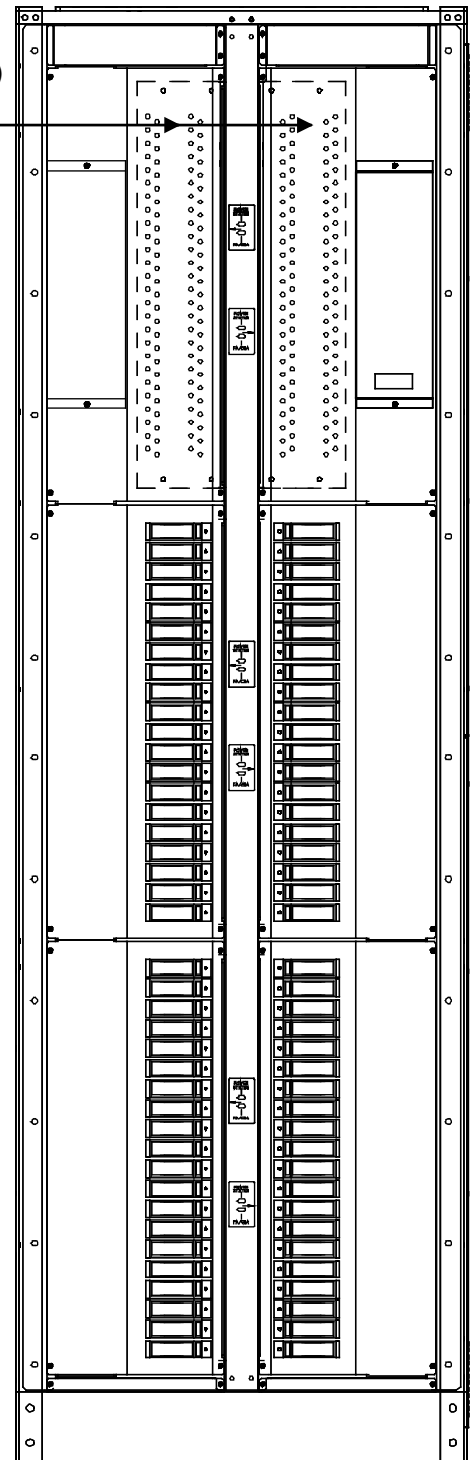
List 139
Paralleling Bars

Optional List 117
Ground Bar Assembly
(Each List 117 provides
two [2] Ground Bar
Assemblies.)

Top Feed Arrangement Shown
For Bottom Feed Arrangement,
Ground Bar Assemblies Are
Installed in Bottom Most
Mounting Positions



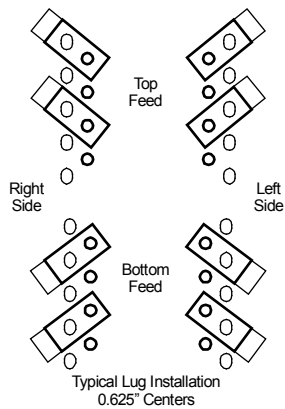
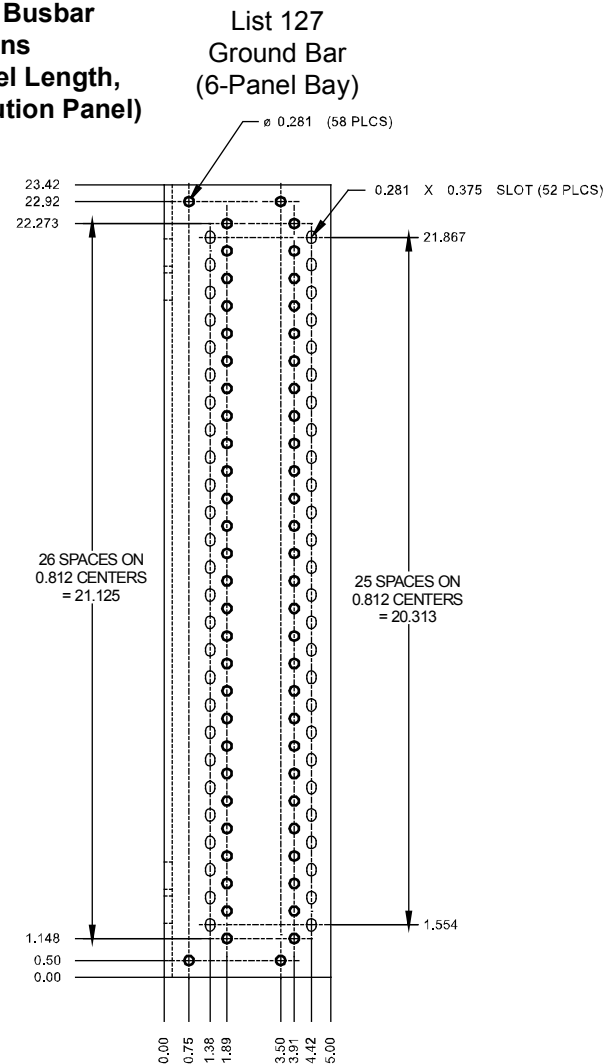
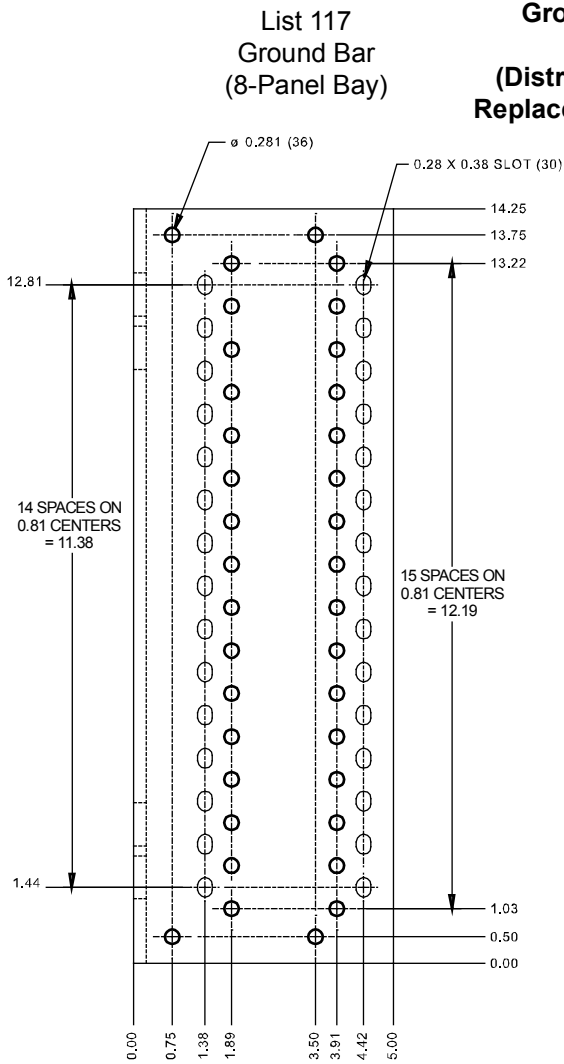
Front View
8-Panel Bay



Front View
6-Panel Bay

Detail C (Page 5)

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

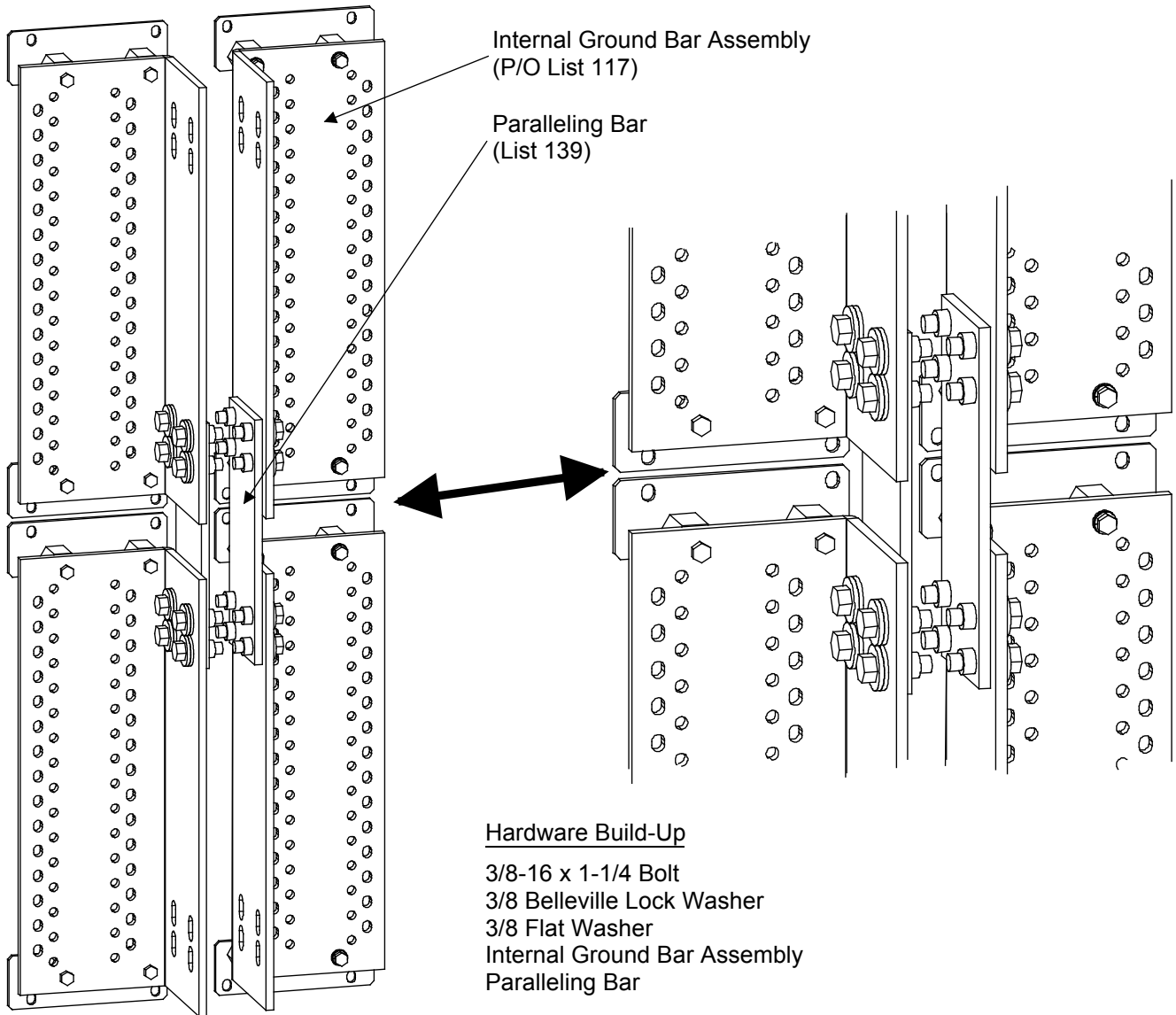


Load Return Connections

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.)

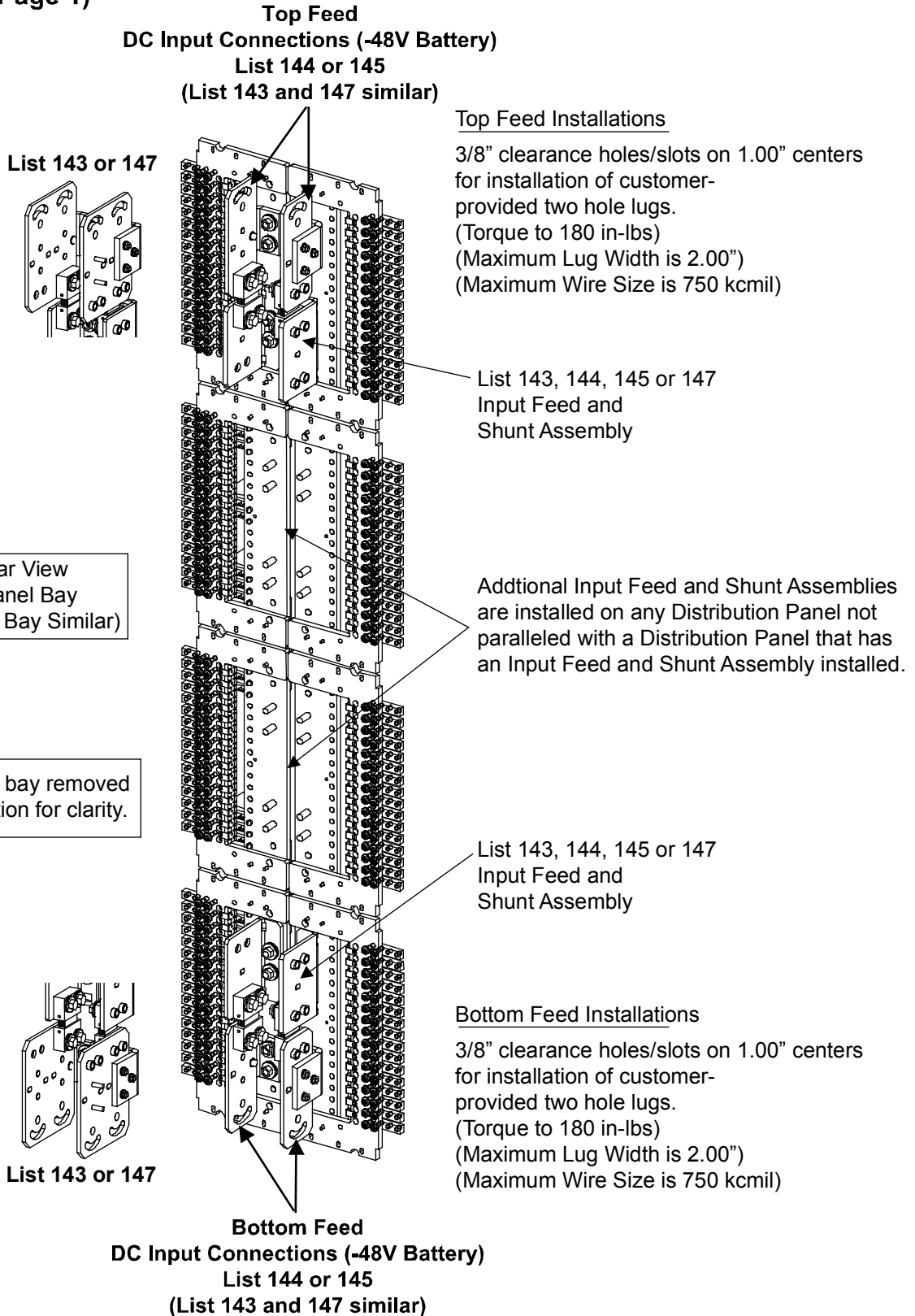
Detail C (Page 6)

**Optional Internal
Ground/Return Busbar
Paralleling Bar**

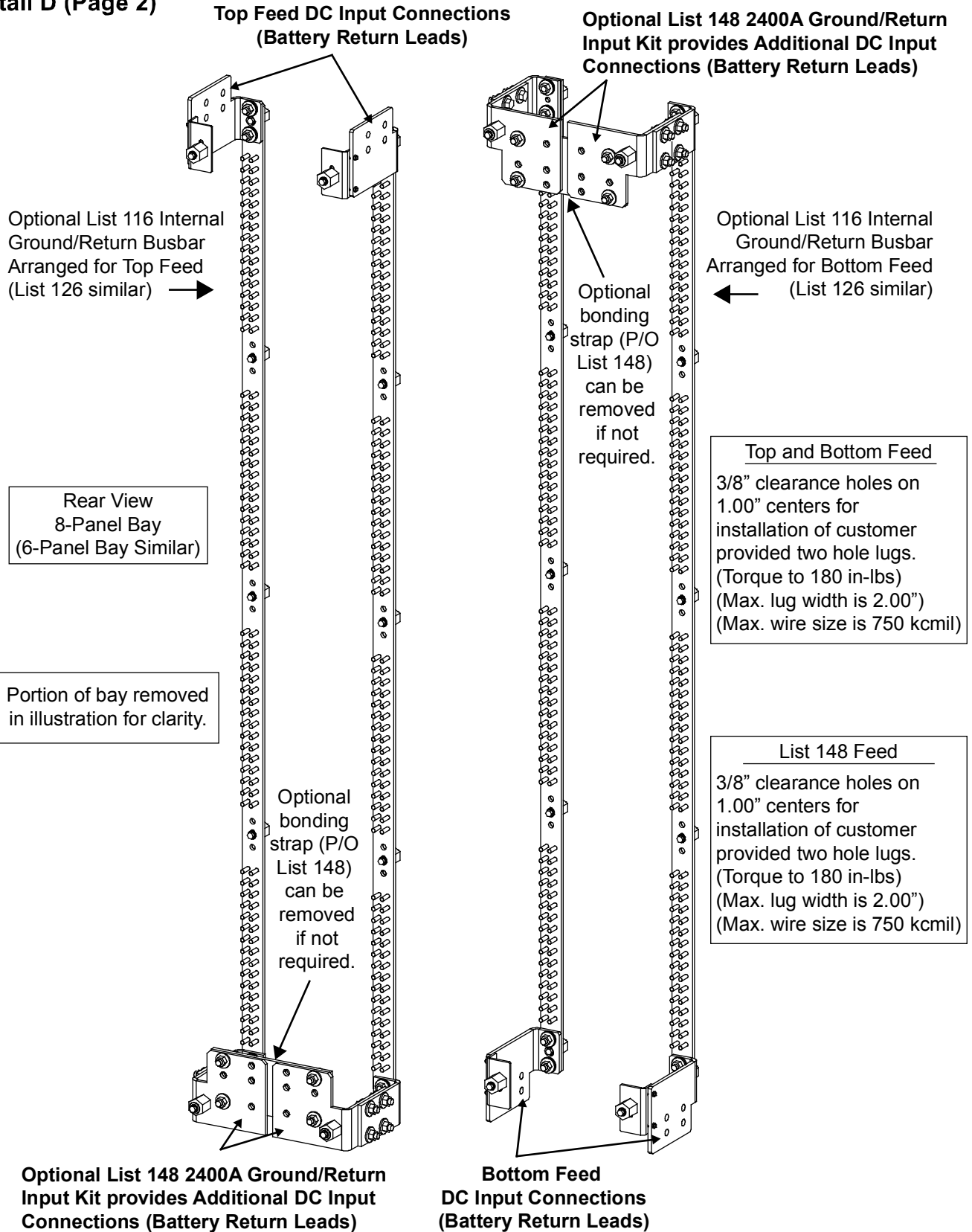


DC Input Connections

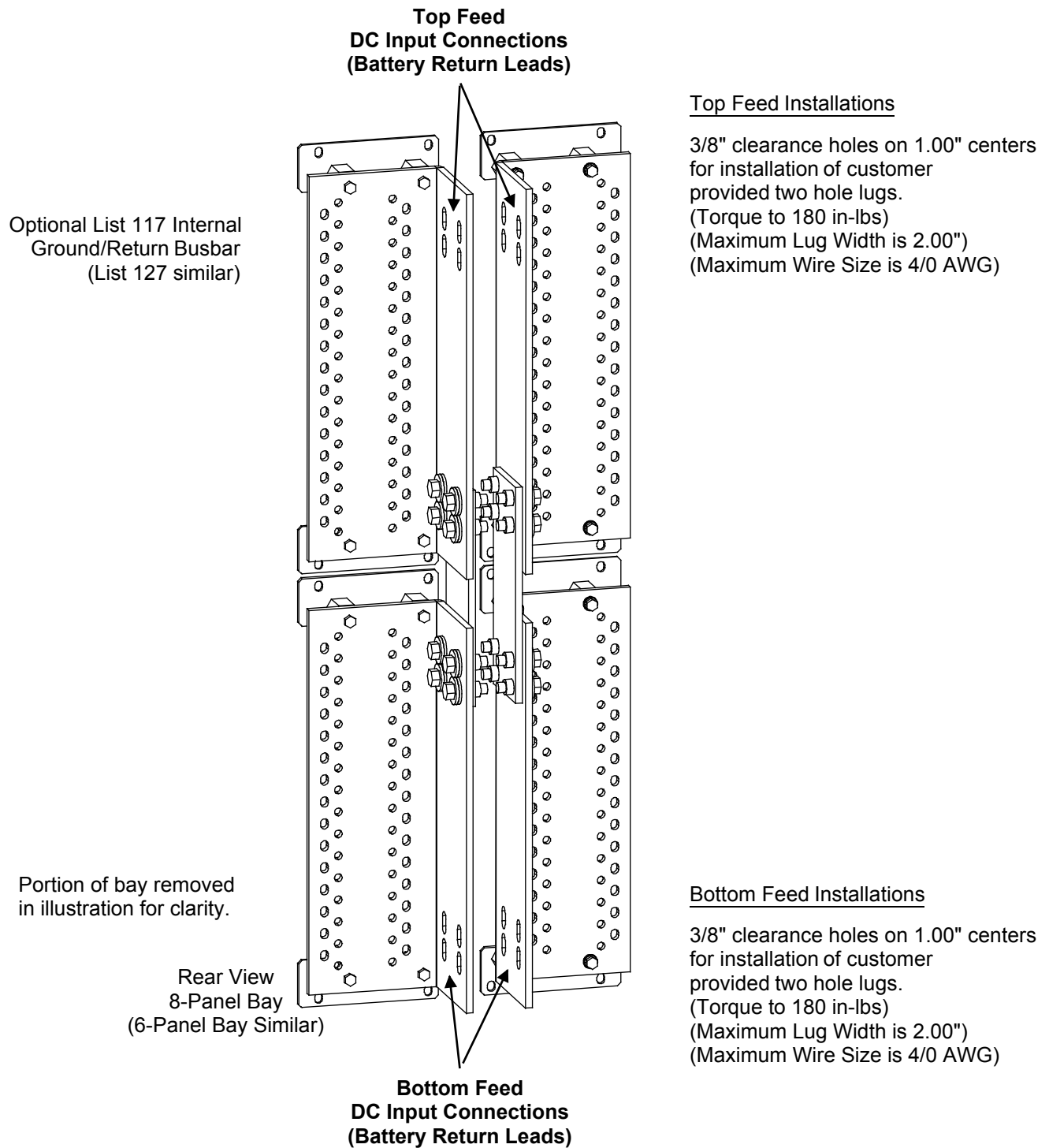
Detail D (Page 1)



Detail D (Page 2)



Detail D (Page 3)



Replacement Alarm, Reference, and Control Fuses, List 105 and 107 Bays

Fuseblock Located in Bay's Top Center

Features

- ◆ Control fuses are located on the fuseblock mounted in the top center of each bay.
Note also that distribution fuses also contain alarm-type fuses as detailed in the previous sections of this document.

Restrictions

These fuses are not available for customer connected loads.

Ordering Notes

- 1) Order replacement fuses as required per [Table 11](#).

Function	Size (Amperes)	Type	P/N
Top Fuse: Digital Meter and Alarm Circuit Card Feed A (-48V Input).	1-1/3A	Bussmann GMT-A	248610700
Bottom Fuse: Digital Meter and Alarm Circuit Card Feed B (-48V Input).			
Safety Fuse Cover		Bussmann GMT-X	248898700

Table 11
Replaceable Alarm, Reference, and Control Fuses, List 106 and 107 Bays

Replacement Alarm, Reference, and Control Fuses, List 106 and 108 Bays

Fuses Located on Auxiliary Fuse Card at Top of Bay

Features

- ◆ Control and auxiliary load fuses are located on the fuseblock mounted at the top right of each bay.
Note also that distribution fuses also contain alarm-type fuses as detailed in the previous sections of this document.

Ordering Notes

- 1) Order replacement fuses as required per [Table 12](#).

Function	Size (Amperes)	Type	P/N
F1, F2: Auxiliary loads, sourced from Feed A (-48V).	1-1/3A	Bussmann GMT-A	248610700
F3, F4: Auxiliary loads, sourced from Feed B (-48V).			
F5, F6: External ABS (A&B) input to Meter/Alarm Panel			
Safety Fuse Cover		Bussmann GMT-X	248898700

Table 12
Replaceable Alarm, Reference, and Control Fuses, List 106 and 108 Bays

[Home](#)

Replacement Circuit Cards, List 105 and 107 Bays

Ordering Notes

- 1) Refer to the following table.

Item	P/N
External Alarm Circuit Card	486339800

Replacement Circuit Cards, List 106 and 108 Bays

Ordering Notes

- 1) Refer to the following table.

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

SPECIFICATIONS

1.1 DC Operating Voltage

- 1.1.1 **Nominal:** -48Vdc.
- 1.1.2 **Range:** -42Vdc to -60Vdc.

1.2 Environmental Ratings

- 1.2.1 **Operating Ambient Temperature Range:** 0°C to +40°C (+32°F to +104°F).
- 1.2.2 **Storage Ambient Temperature Range:** -40°C to +80°C (-40°F to +176°F).
- 1.2.3 **Humidity:** This system is capable of operating in an ambient relative humidity range of 0% to 95%, non-condensing.
- 1.2.4 **Altitude:** The maximum operating ambient temperature should be de-rated by 10°C at an elevation of 10,000 feet above sea level. For elevations between 3,000 feet and 10,000 feet, derate the maximum operating ambient temperature linearly.
- 1.2.5 **Mounting:** This product is intended only for installation in a Restricted Access Location on or above a non-combustible surface.

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.

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).

1.3 Compliance Information

- 1.3.1 **Safety Compliance:** This BDF/CBB is UL Listed (and "cULus") as a DC Power Distribution Center for Communications Equipment.
- 1.3.2 **NEBS Compliance:** Compliance verified by a Nationally Recognized Testing Laboratory (NRTL) per GR-1089-CORE and GR-63-CORE. Contact Emerson Network Power for NEBS compliance reports.

1.4 Output Ratings

- 1.4.1 **Distribution Panel:** 640A maximum continuous.
- 1.4.2 **8-Panel Bay:** 2400A, maximum, per side.
4800A, maximum, per bay.
- 1.4.3 **6-Panel Bay:** 1800A, maximum, per side.
3600A, maximum, per bay.

1.5 Standard Features—Lists 105 and 107

- 1.5.1 **Fuse/Circuit Breaker Mounting Positions:** See description in Distribution Panel List Options section.
- 1.5.2 **External Alarm Circuits:** Three (3) Form-C relay contacts provided for external fuse / circuit breaker alarms.
- 1.5.3 **Local Controls and Indicators:** A digital meter is furnished for load voltage and distribution panel current monitoring. Each distribution panel has a green indicator which illuminates when power is being supplied to the panel, and a red indicator which illuminates if a fuse or circuit breaker within the panel opens.
- 1.5.4 **Meter Accuracy**
 - (A) **Current:** ±1A
 - (B) **Voltage:** ±0.5V

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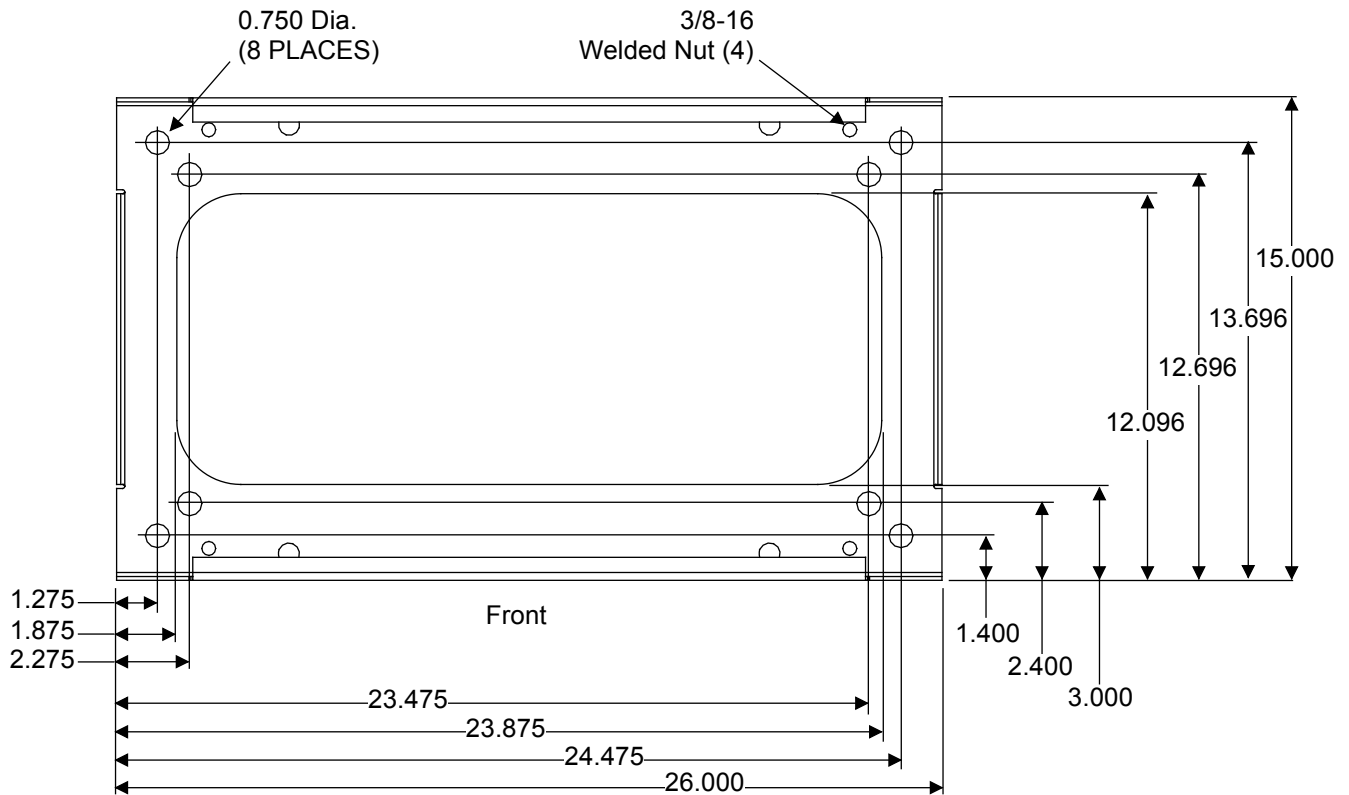
1.6 Standard Features—Lists 106 and 108

- 1.6.1 Fuse/Circuit Breaker Mounting Positions:** See description in Distribution Panel List Options section.
- 1.6.2 External Alarm Circuits:** Four (4) relays each provide three (3) sets of Form-C contacts for external alarms. Various available alarms can be mapped to each of the relays. Contact rating is 2A at 30 VDC.
- 1.6.3 Local Controls and Indicators:** A status indicator at the top of the bay front panel indicates system status. The Meter/Alarm Panel provides digital metering of load voltage and current individually for each distribution panel. Also displays system alarm messages and adjustment information.
- 1.6.4 Meter Accuracy**
- (A) Current:** $\pm 1.0\%$
 - (B) Voltage:** $\pm 0.1\%$
- 1.6.5 Remote Access: Via Web Interface**
- (A) Description:** The Web Interface provides remote access to the system monitoring and control functions that are available locally at the Meter/Control Panel.
 - (B) Connection:** Ethernet, RJ 45 10BaseT jack. This jack has a standard Ethernet pin configuration scheme, twisted pair. Use shielded Ethernet cable, grounded at both ends. (The Meter/Alarm Panel's RJ-45 jack is connected to chassis ground.) The Ethernet port is suitable for connection to intra-building or non-exposed wiring or cabling only.
 - (C) Users:** 64, maximum
 - (D) Security:**
 - (1) Password Protection:** When logging onto the system, the user is prompted to enter a "User Password".
 - (2) Page Access Levels:** User configurations provide a "Page Access Level" which can be used to limit the functions available to a particular user. Eight Page Access Levels are available.
 - (E) PC Requirements:**
 - (1) Web Browser:** Microsoft® Internet Explorer 5.0 or newer is required.
 - (2) Screen Resolution:** 1024 x 768 or greater is required.

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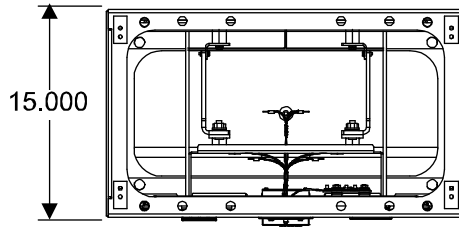
PHYSICAL SIZE INFORMATION

Floor Hole Drilling Pattern Dimensions



[Home](#)

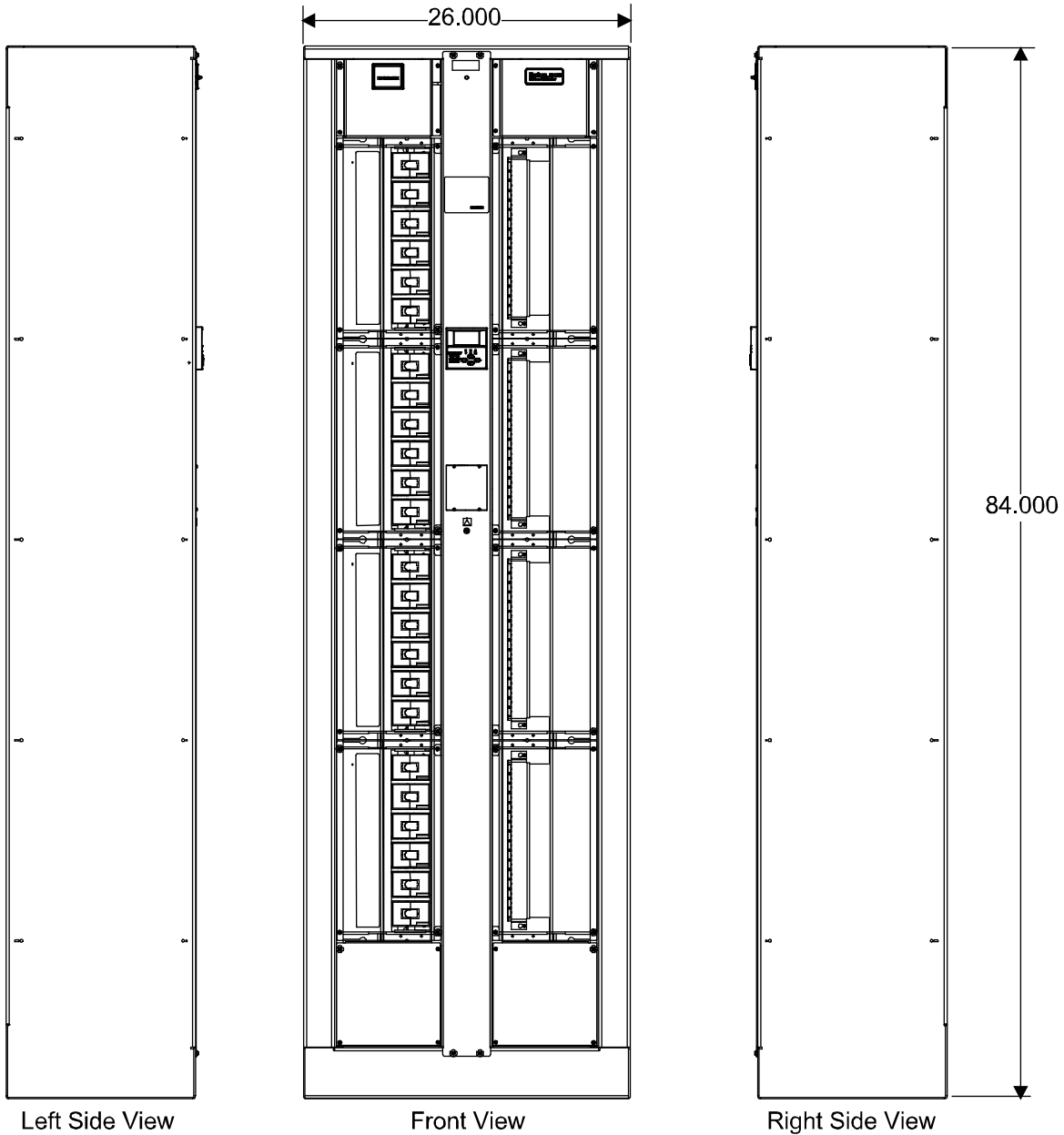
Dimensions, 8-Bus Bay



Top View

Notes:

1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.
Net:
Shipping:
3. Finish: Textured Gray.
(M500-147)



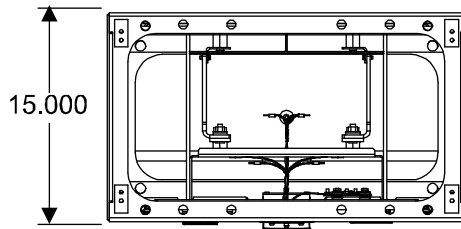
Left Side View

Front View

Right Side View

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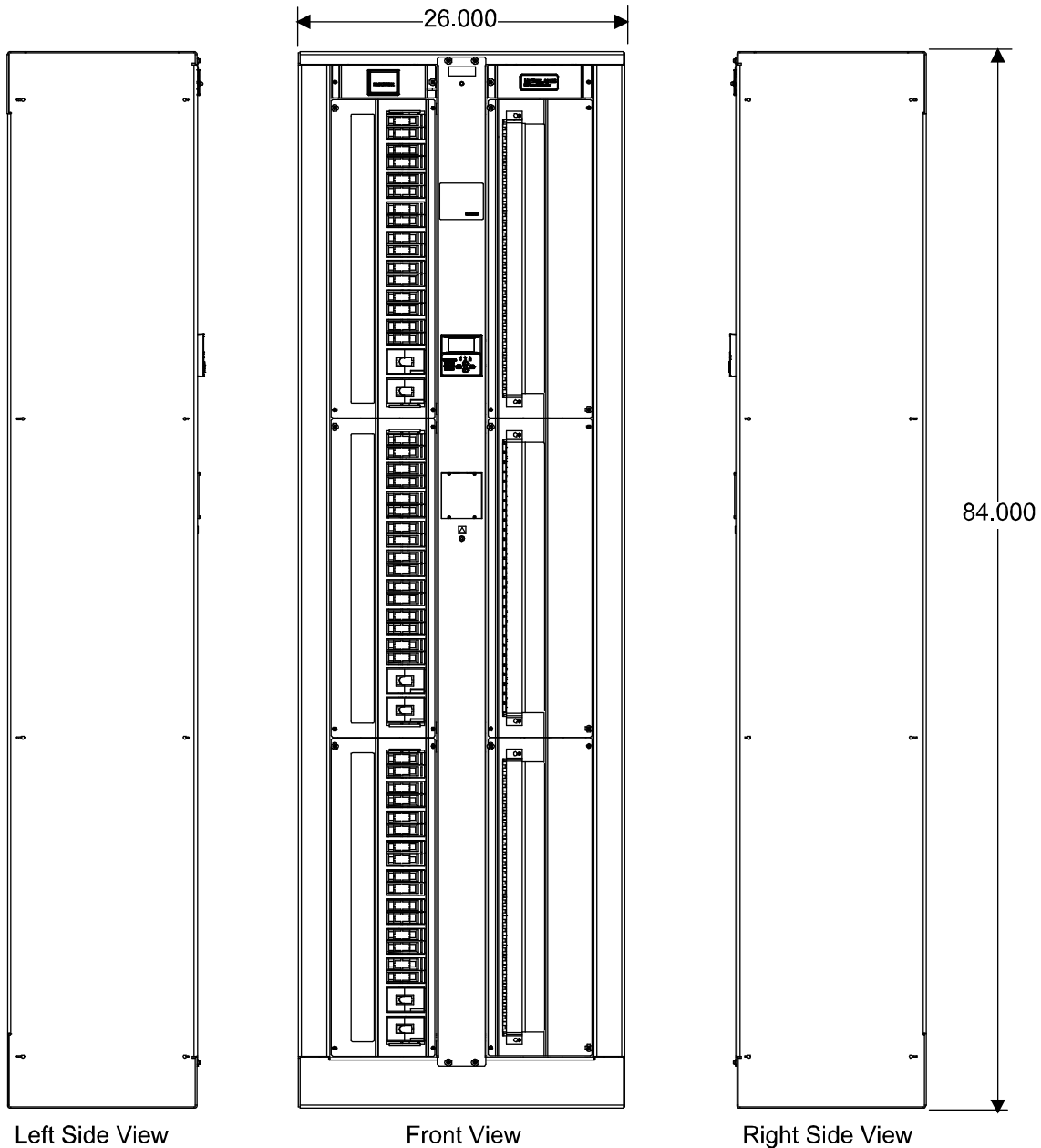
Dimensions, 6-Bus Bay



Top View

Notes:

1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.
Net:
Shipping:
3. Finish: Textured Gray.
(M500-147)



Left Side View

Front View

Right Side View

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RELATED DOCUMENTATION

- Schematic Diagram:** SD582120600 (Power System)
Wiring Diagram: T582120600 (Power System)
Instructions: Section 5674 (Power System)
Section 5823 (Pre-charge Assembly, Spec. No. 510142)
Load and Battery Lug Detail Drawings: 031110100 through 031110300

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REVISION RECORD

Issue	Change Number (ECO)	Description of Change	Date	Approved
BB	LLP218226	Add new busbar kit P/N 556103.	02/22/2013	Khristabelle Ilagan
BC	LLP218456	Add right angle lug adapter kits P/Ns 556377 and 556378.	05/01/2013	John Jasko
BD	LLP219017	Auxiliary Fuse Card Connections illustration revised. Removed rocker handle bullet-nose circuit breakers. Revised notes for 556103. Added "Side by Side Busbar Link Kit for Use with List 115 and List 125, P/N 557256".	09/03/2013	John Jasko
BE	LLP219319	Illustration for List 170 added. Relay and alarm settings defaults added to "Ethernet and External Alarm Connections" illustration, Detail B for List 106 and 108.	12/03/2013	John Jasko
BF	LLP219853	Added 90A Bullet Breaker P/Ns 138887 and 138888.	02/21/2014	John Jasko John Jasko Mar 6, 2014 Fortune Huang Mar 7, 2014

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