



NetSure™ -48 VDC to -58 VDC Output Converter Upgrade Kit

Installation Manual

Kit Specification Number: 60028039, 60031300, 60031672

For Use in Spec. No. 582137100ZZ028 Power System and 548067 Distribution Cabinet

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/en-us/support/> for additional assistance.

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Admonishments Used in this Document



DANGER! Warns of a hazard the reader **will** be exposed to that will **likely** result in death or serious injury if not avoided. (ANSI, OSHA)



WARNING! Warns of a potential hazard the reader **may** be exposed to that **could** result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



CAUTION! Warns of a potential hazard the reader **may** be exposed to that **could** result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



ALERT! Alerts the reader to an action that **must be avoided** in order to protect equipment, software, data, or service. (ISO)



ALERT! Alerts the reader to an action that **must be performed** in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Important Safety Instructions

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page iv.

Safety and Regulatory Statements

Refer to Section 4154 (provided with your customer documentation) for Safety and Regulatory Statements.

Déclarations de Sécurité et de Réglementation

Reportez-vous à la Section 4154 (fourni avec les documents de votre client) pour les déclarations de sécurité et de réglementation.

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1 Vertiv™ NetSure™ -48 VDC to -58 VDC Converter Upgrade Kit Installation Instructions

1.1 Kit Description

1.1.1 General

These instructions provide step-by-step procedures to field install these kits into Vertiv™ NetSure™ 5100 Power System (Spec. No. 582137100ZZ028) and Vertiv™ NetSure™ Distribution Cabinet (Spec. No. 54-8067). Installation of these kits in other equipment should not be attempted.

1.1.2 Kit P/N 60028039

This kit provides components to change converter module mounting positions for Spec. No. 1C48241500 (-48 VDC to +24 VDC) converter modules to mounting positions for Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) converter modules. It also provides components to change the breaker positions in the distribution cabinet from +24 VDC to -58 VDC. This procedure will change the 582137100ZZ028 into a 582137100500 power system. A backout procedure is also provided.

1.1.3 Kit P/N 60031300

This kit provides components to convert the row 1 (bottom row) distribution panel to -58V positions. A DC generator breaker kit cannot be installed in the bottom row if this kit is utilized. It will need to be moved to the top row.

1.1.4 Kit P/N 60031672

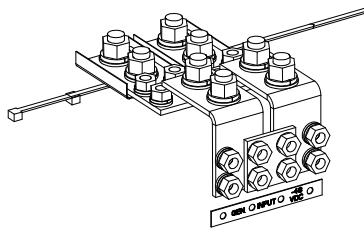
This kit provides components to revert the row 1 (bottom row) distribution panel back to -48V operation.

1.2 Restrictions

You MUST have an NCU Controller in your system to use the Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) converter modules.

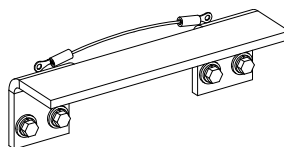
Your system may contain a DC Generator Breaker Kit (see Figure 1.1). If a DC Generator Breaker Kit is installed, DO NOT use these positions for -48 VDC or -58 VDC distribution. This kit requires that the generator kit, if installed be moved to the bottom row positions 23-26. See restriction above if kit P/N 60031300 is installed.

Figure 1.1 DC Generator Breaker Kit



Your system may contain a Generator Bridge Kit (see Figure 1.2) which bridges the -48 VDC or +24 VDC distribution around the generator breaker. If a Generator Bridge Kit is installed, you may need to modify the procedures in this document to accommodate these situations. Contact Vertiv's Technical Assistance Center (TAC) for specific modifications if this is the case.

Figure 1.2 Generator Bridge Kit



1.3 Kit Contents

Table 1.1, Table 1.2, and Table 1.3 lists the items furnished as part of the kits. Before installing the kits, check the items furnished against those listed to ensure that there are no shortages.

1.3.1 Kit P/N 60028039

Table 1.1 Kit P/N 60028039 Contents

P/N	Description	Qty.
For Spec. No. 582137100ZZ028		
60028735	Use Only -58 VDC Converters Caution Label	9
60029075	5-Position Busbar	1
555246	Distribution Load Busbar	1
10019532	Critical Load Distribution Position Label (4-Position)	4
10019867	Critical Load Distribution Position Label (5-Position)	2
534800	Plug Button	5
541231	Alarm Spring	1
60027254	Rectifier/Solar Converter/-58 VDC Converter Module Mounting Positions Label	3
60027893	Field Retrofitted for Use with -58 VDC Converters Nameplate Label	1
552423	Hook-and-Loop Fastener (factory attached to storage pouch)	2
150661	USB Memory Device with Storage Pouch (contains new NCU configuration, NCU Clean-up package, and customer documentation)	1
For Spec. No. 548067		
545677DCP	-48V Label	2
60028661	-58V Label	2

1.3.2 Kit P/N 60031300

Table 1.2 Kit P/N 60031300 Contents

P/N	Description	Qty.
228557100	1/4-20 Hex Nut	2
215111100	1/4" Lock Washer	2
214112100	3/8" Flat Washer	2
60031299	-58V LVLD Busbar Link	1
60031298	-58V Row 1 and Row 2 Busbar Link	1
60031297	-58V Row 1 and Row 2 Busbar Link	1
60031296	-58V Bus Support Bracket	1
521047	1/4 X 9/32 Round Insulator Spacer	2
520763	1/8 X 1/16 Round Insulator Spacer	2
146899	M6 Hardened Flat Washer	4
146898	M6 Belleville Lock Washer	4
78_SBA186060_0250	M6-1 X 25 Bolt	4

1.3.3 Kit P/N 60031672

Table 1.3 Kit P/N 60031672 Contents

P/N	Description	Qty.
534800	Plug Button	5
10019557	Critical Load Distribution Position Label (6-Position) (-58V / -48V)	1
10019867	Critical Load Distribution Position Label (5-Position) (-58V / -48V)	4
SNV2300110/1	LVD to Shunt Busbar	1

1.4 Tools and Material Required

Table 1.4 lists the items required to install this kit.

Table 1.4 Tools and Material Required

Description
7/16" Socket
Small Flat-Blade Screwdriver
#2 Phillips Screwdriver
Torque Wrench
Spec. No. 1C48582000P3 (-48 VDC to -58 VDC) Converter Modules (as required)

1.5 Installation Procedure

THESE INSTRUCTIONS SHOULD BE READ THROUGH COMPLETELY BEFORE INSTALLING THE KIT.

The following is a step-by-step procedure to install the kit. The procedure has been written for ease of use and to minimize the possibility of contact with potentially hazardous energy. This procedure should be performed in the sequence given, and each step should be completely read and fully understood before performing that step. Observe all "Important Safety Instructions" starting on page v and also those presented in the following procedure. As each step of the procedure is completed, the box adjacent to the respective step should be checked. This will minimize the possibility of inadvertently skipping any steps. If the step is not required to be performed for your site, also check the box to indicate that it was read.

1.5.1 Kit P/N 60028039

Procedure for Spec. No. 582137100ZZ028



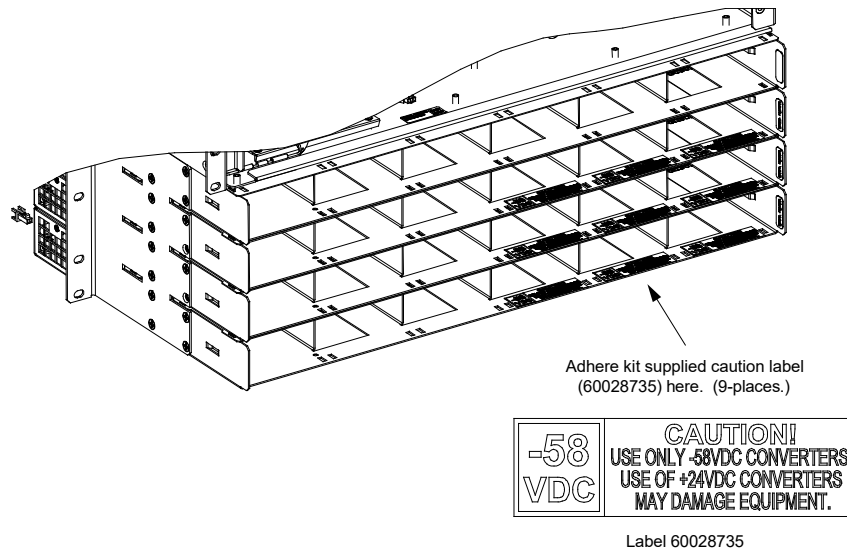
DANGER! This procedure is performed on a LIVE system. Observe the "Important Safety Instructions" starting on page v and those listed in the power system manual.

1. Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.
2. If your system has an ACU+ controller, replace it with an NCU controller.
3. If your system ORIGINALLY had an NCU controller, refer to "Backing Up the NCU Configuration" on page 36 and backup the controller configuration.
4. Open the distribution cabinet door. Ensure that there are no loads/cables connected to the +24V circuit breaker positions or positions 15 through 22. Upon completion of this upgrade, the system will no longer support +24V loads. If

there are loads tied to the +24V positions, these will need to be removed and connected to a separate +24V system. This upgrade will also convert (8) positions from 15 to 22 to -58 VDC loads.

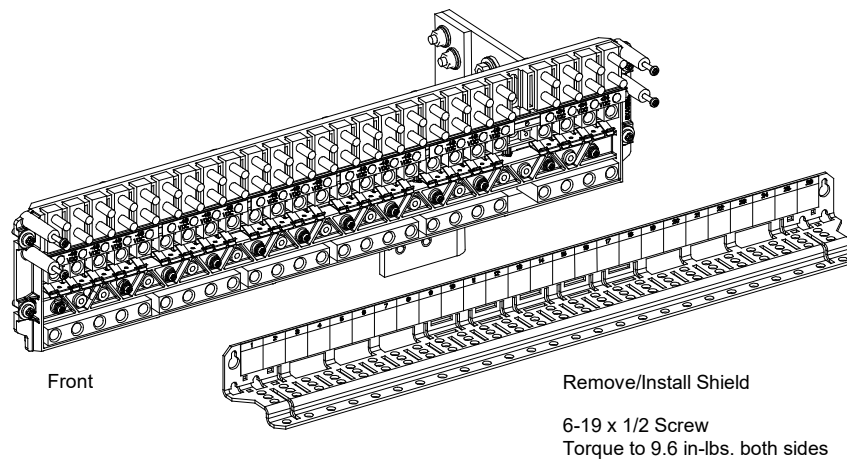
- [] 5. Remove all existing +24 VDC output converter modules from the module mounting shelves.
- [] 6. Clear the converter Communication and/or Lost alarms via the controller, if applicable. Via the controller front panel main screen, navigate to the Settings Icon in the upper left of the main screen and press the ENT key. Enter your username and password. Use the arrow keys to scroll to the Alarm Settings Menu and press the ENT key. Use the arrow keys to scroll to the ClrAllConvCommF and press the ENT key. Use the arrow keys to scroll to the ClrConvCommFail and press the ENT key. Use the arrow keys to scroll to the Clear Conv Lost and press the ENT key.
- [] 7. Adhere kit supplied “Use Only -58 VDC Converters” caution label (60028735) to each of the nine (9) module mounting slots shown in Figure 1.3. Orient the labels between the two (2) rectangular slots used for the converter module locking tabs. Align front edge of label to front edge of shelf. **Do Not** cover the converter module locking tab slots.

Figure 1.3 Adhere 60028735 Labels



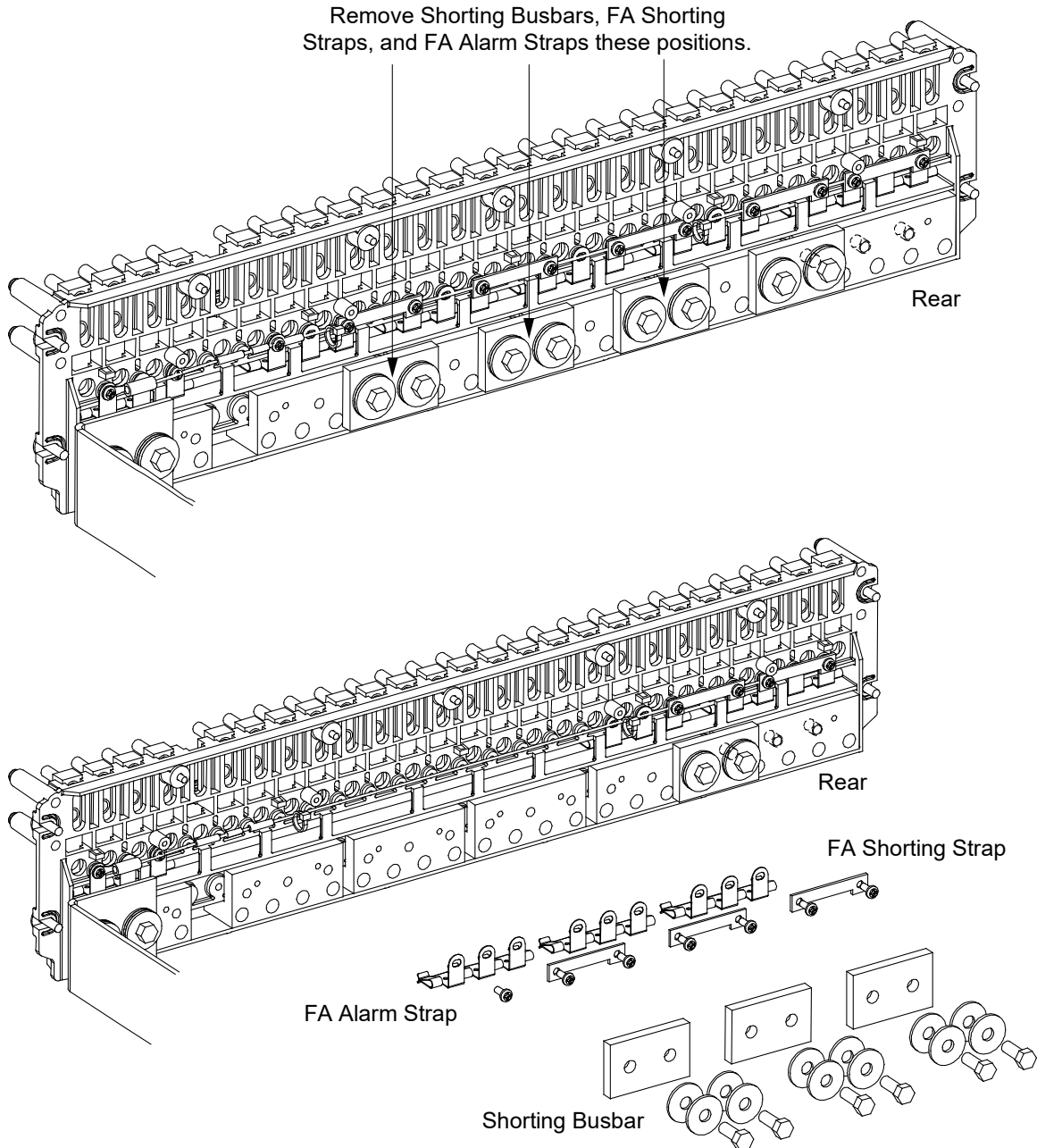
- [] 8. Remove the shield from the top distribution panel by loosening the screws securing it and lifting the shield up and out (see Figure 1.4).

Figure 1.4 Remove Shield



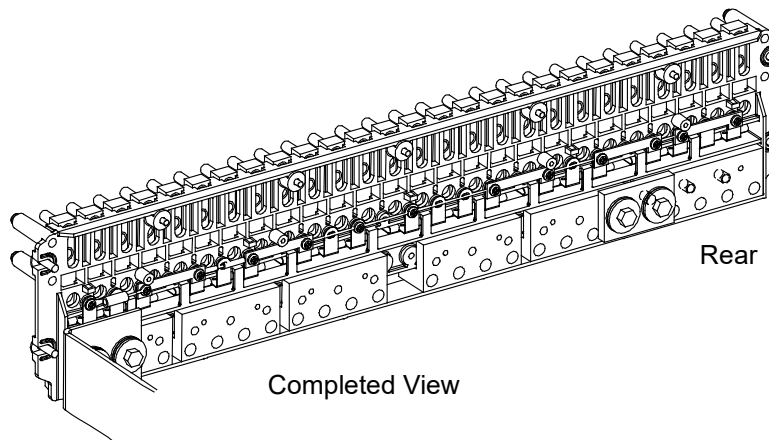
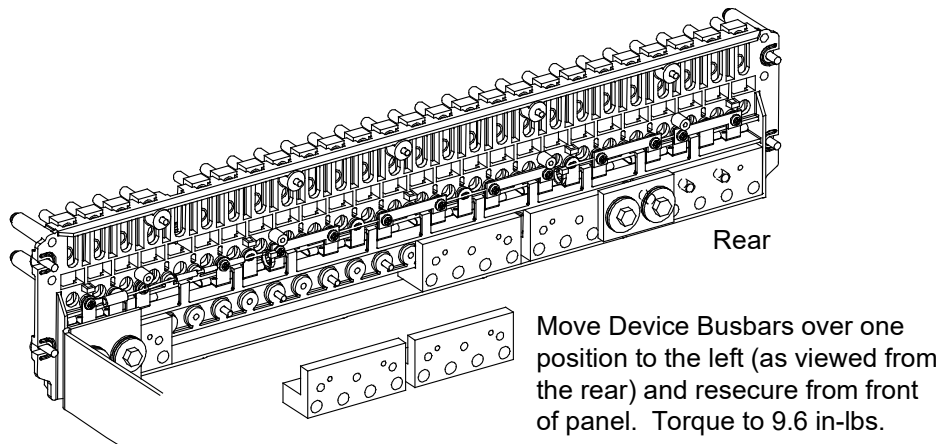
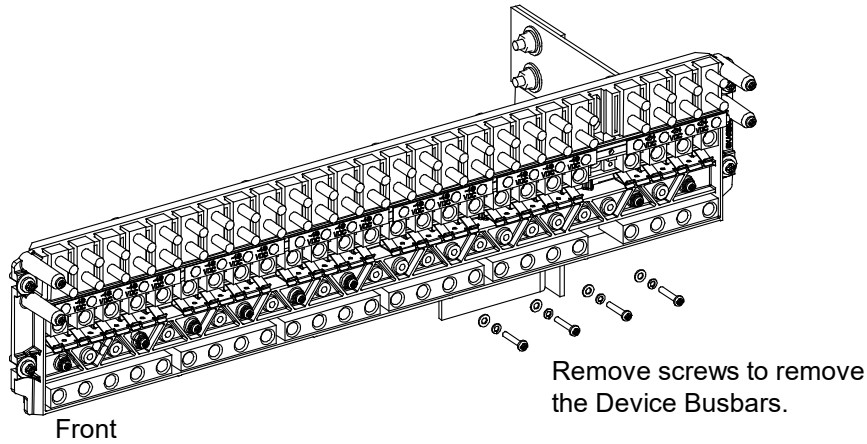
- [] 9. Remove the circuit breakers from the top distribution panel (if present) located in positions 15-26. There should not be a breaker in position 22.
- [] 10. Remove the shorting busbars, FA shorting straps, and FA alarm straps from the rear of the distribution panel for the three (3) positions shown in Figure 1.5.

Figure 1.5 Removing Shorting Busbar, FA Alarm Strap, and FA Shorting Strap



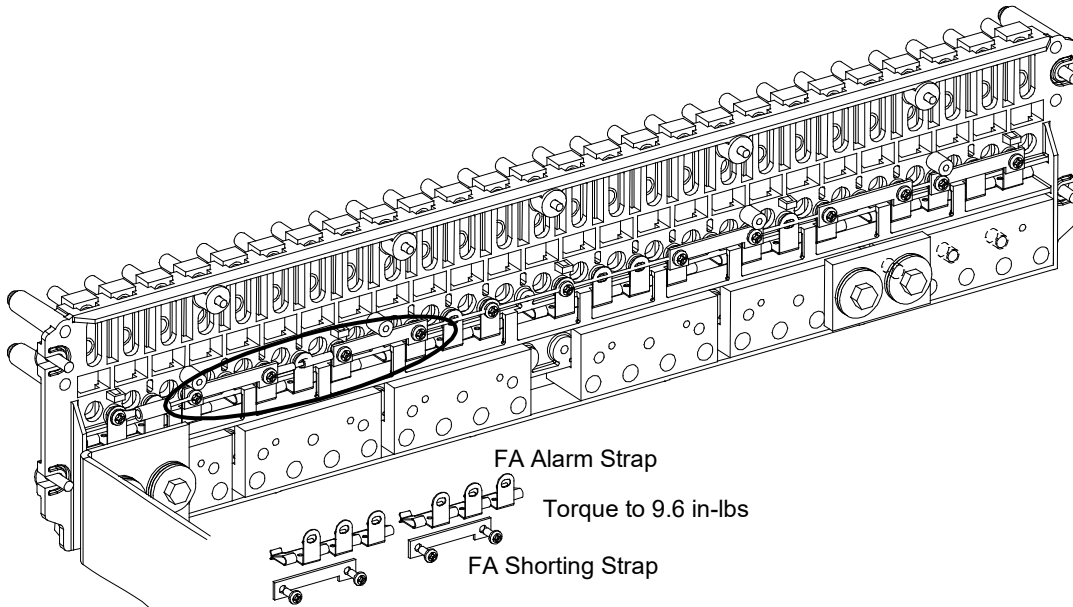
- [] 11. Remove the screws from the front plastic panel to remove the device busbars for the two (2) positions shown in Figure 1.6. Move the two (2) device busbars over one position to the left (as viewed from the rear) and re-secure with the screws just removed. Refer to Figure 1.6.

Figure 1.6 Moving Distribution Device Busbars Over One Position

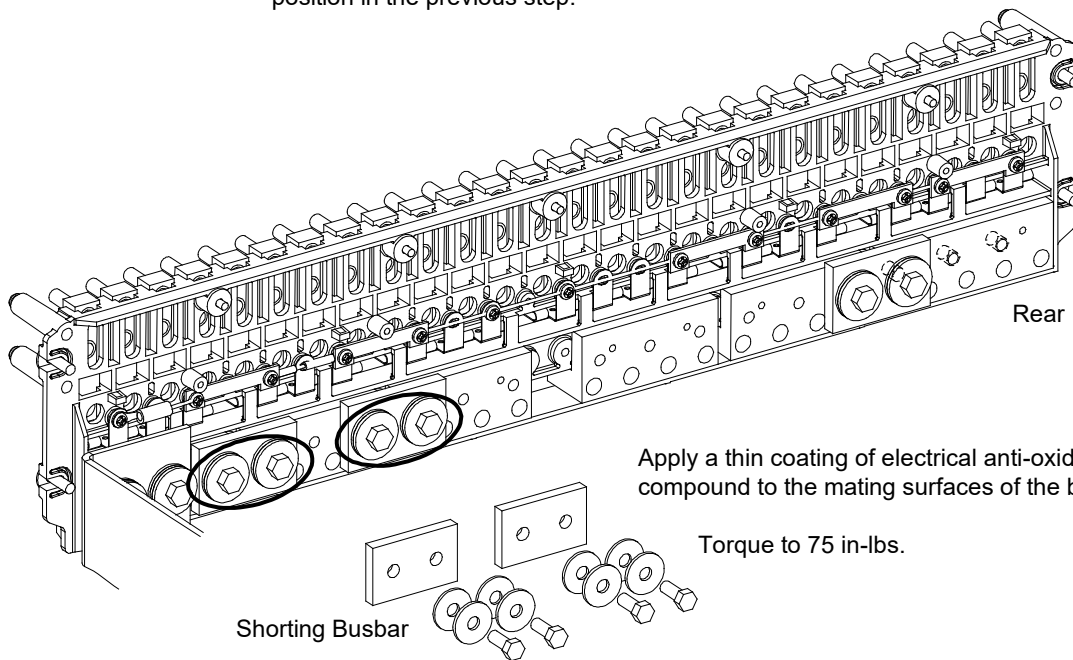


- [] 12. Replace the FA alarm straps over one position and reposition the FA shorting strap as shown in Figure 1.7. Secure these as shown in Figure 1.7.
- [] 13. Replace the shorting busbars over one position and re-secure as shown in Figure 1.7.

Figure 1.7 Replacing FA Alarm Straps, and FA Shorting Straps, and Shorting Busbars Over One Position



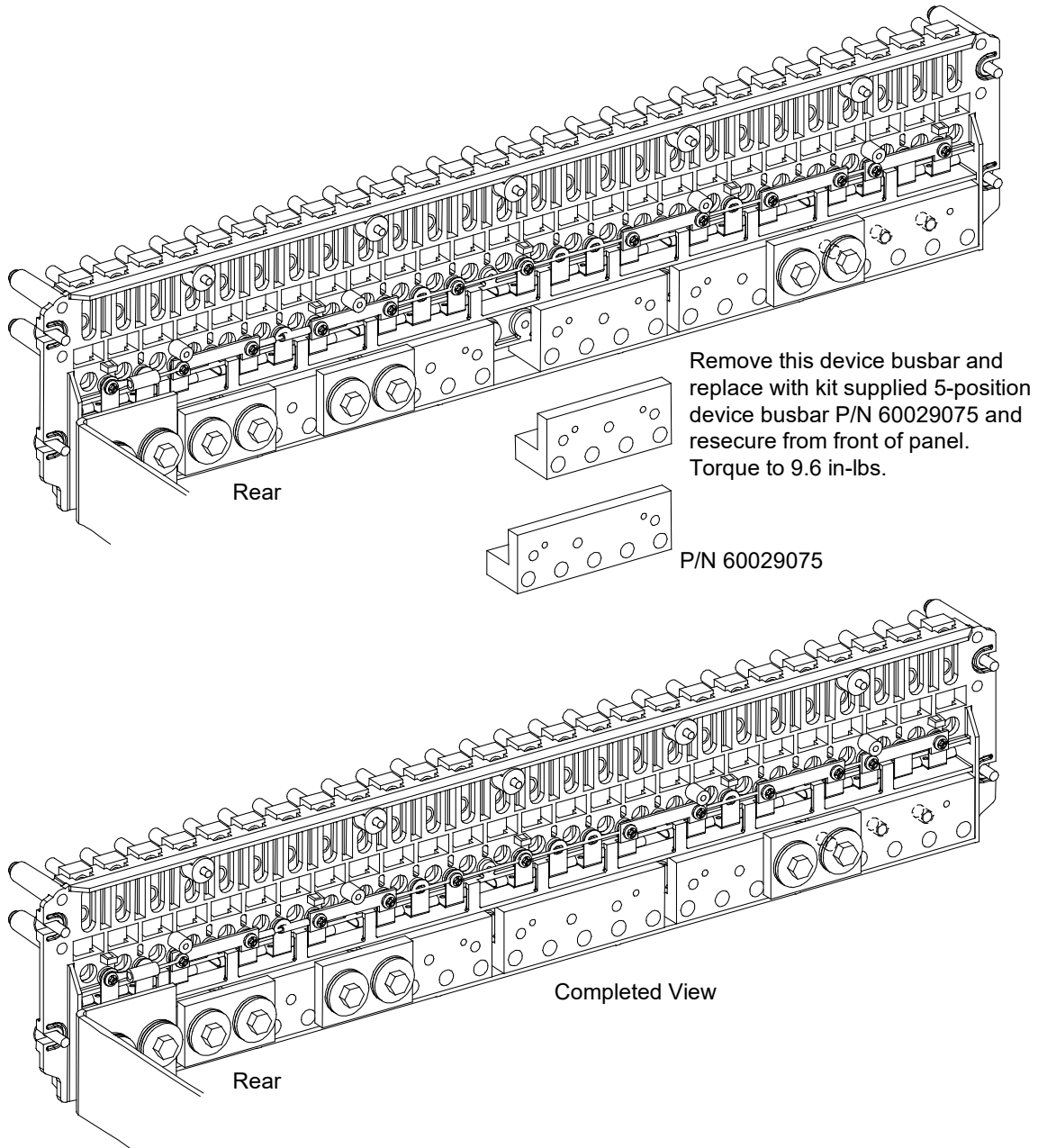
Replaced FA Shorting Straps and FA Alarm Straps for the Device Busbars moved over one position in the previous step.



Replace Shorting Busbars for the Device Busbars moved over one position in the previous step.

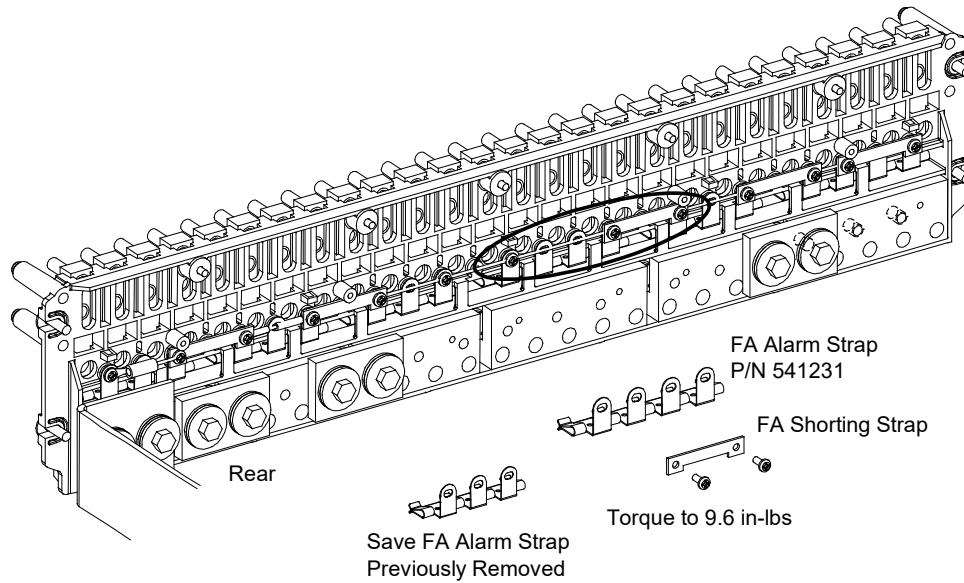
- [] 14. Remove the screws from the front plastic panel to remove the 4-position device busbar shown in Figure 1.8. (Save the 4-position device busbar removed in case the system needs to be converted back for use with +24 VDC output converters.)
- [] 15. Install the kit supplied five-position device busbar P/N 60029075 and secure with the screws just removed. Refer to Figure 1.8.

Figure 1.8 Replacing 4-Position Device Busbar with Kit Supplied 5-Position Device Busbar P/N 60029075



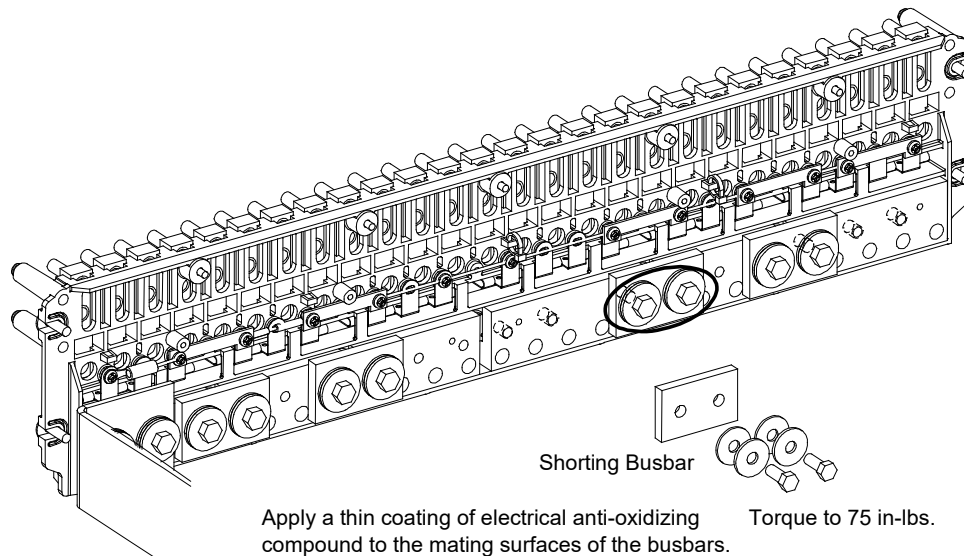
- [] 16. Install kit supplied 5-position FA alarm strap P/N 541231 as shown in Figure 1.9. Save the 4-position FA alarm strap removed in a previous step in case the system needs to be converted back for use with +24 VDC output converters.
- [] 17. Reposition and re-install the FA shorting strap removed in a previous step as shown in Figure 1.9. Ensure any fuse alarm lead present is re-installed in the same position with the hardware used to secure the FA shorting strap and FA alarm strap.

Figure 1.9 Replacing 4-Position Alarm Strap with Kit Supplied 5-Position Alarm Strap P/N 541231 and Securing with FA Shorting Strap



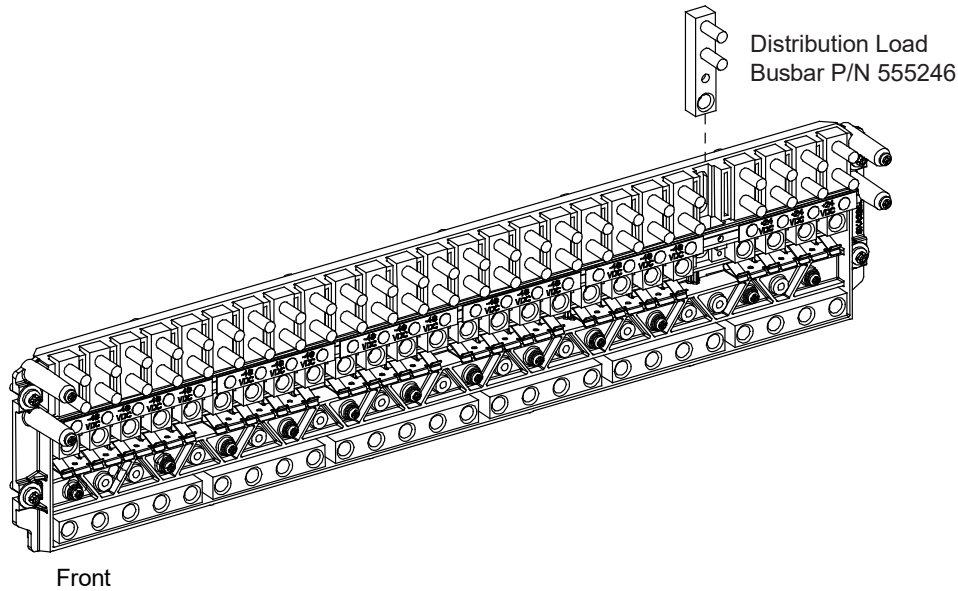
- [] 18. Replace shorting busbar remove in a previous step as shown in Figure 1.10.

Figure 1.10 Replacing Shorting Busbar



- [] 19. Install kit supplied distribution load busbar P/N 555246 as shown in Figure 1.11.

Figure 1.11 Installing Kit Supplied Distribution Load Busbar P/N 555246

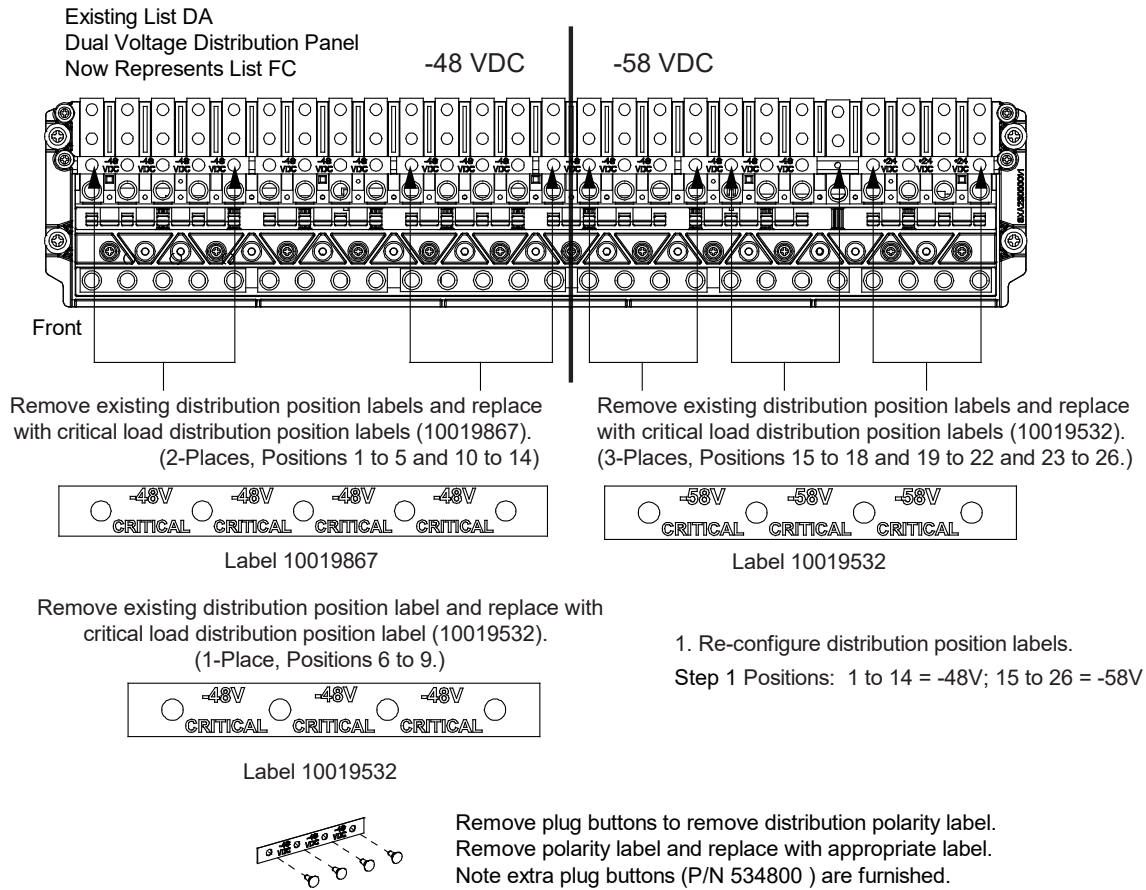


- [] 20. Install Kit Supplied labels P/Ns 10019532 and 10019867 as shown in Figure 1.12.

Remove the plug buttons securing the distribution position labels in positions 15-26 located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the label. See Figure 1.8. Save the distribution position labels in case the system needs to be converted back for use with +24 VDC output converters. Install a kit supplied "Critical" load distribution position label (10019532) in the place the +24 VDC label was removed from. Orient so the -58V side is visible. Secure the label with the plug buttons previously removed. See Figure 1.8.

Remove the plug buttons securing the remaining -48 VDC distribution position labels located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels. See Figure 1.8. Save these -48 VDC distribution position labels in case the system needs to be converted back for use with +24 VDC output converters. Install kit supplied "Critical" load distribution position labels (10019867 and 10019532) in the place the -48 VDC labels were removed from. Orient so the -48V side is visible. Secure the labels with the plug buttons previously removed. See Figure 1.8.

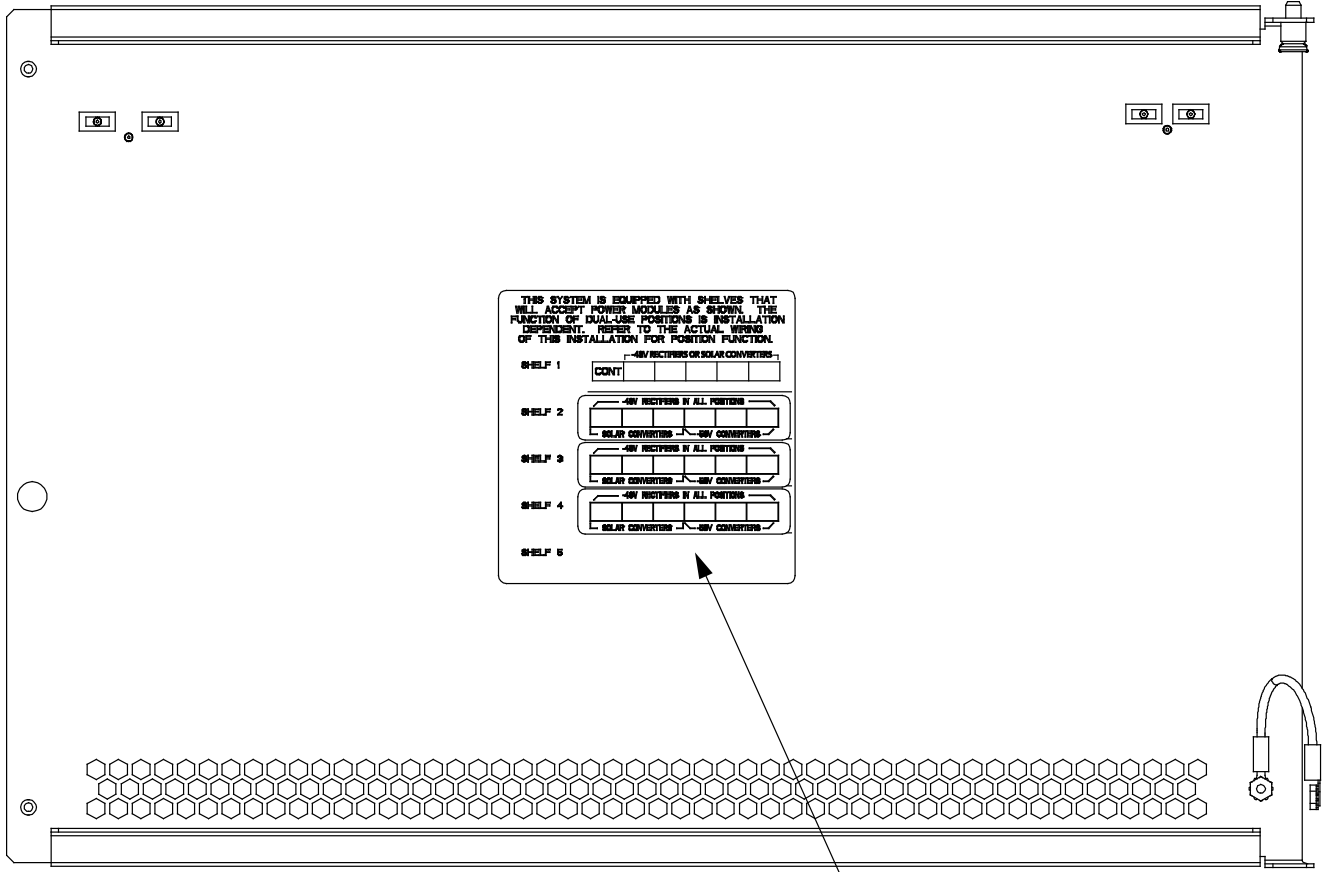
Figure 1.12 Install P/Ns 10019532 and 10019867 Labels



- [] 21. Replace the circuit breakers previously removed.
- [] 22. Replace the top distribution panel shield and secure by tightening the screws.

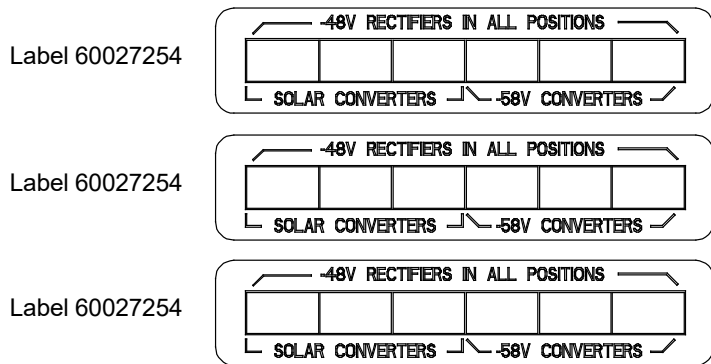
- [] 23. Adhere kit supplied module position labels (60027254) over the existing module position label as shown in Figure 1.13. Place the three (3) labels over the Shelf 2, Shelf 3, and Shelf 4 positions of the existing label.

Figure 1.13 Adhere 60027254 Label



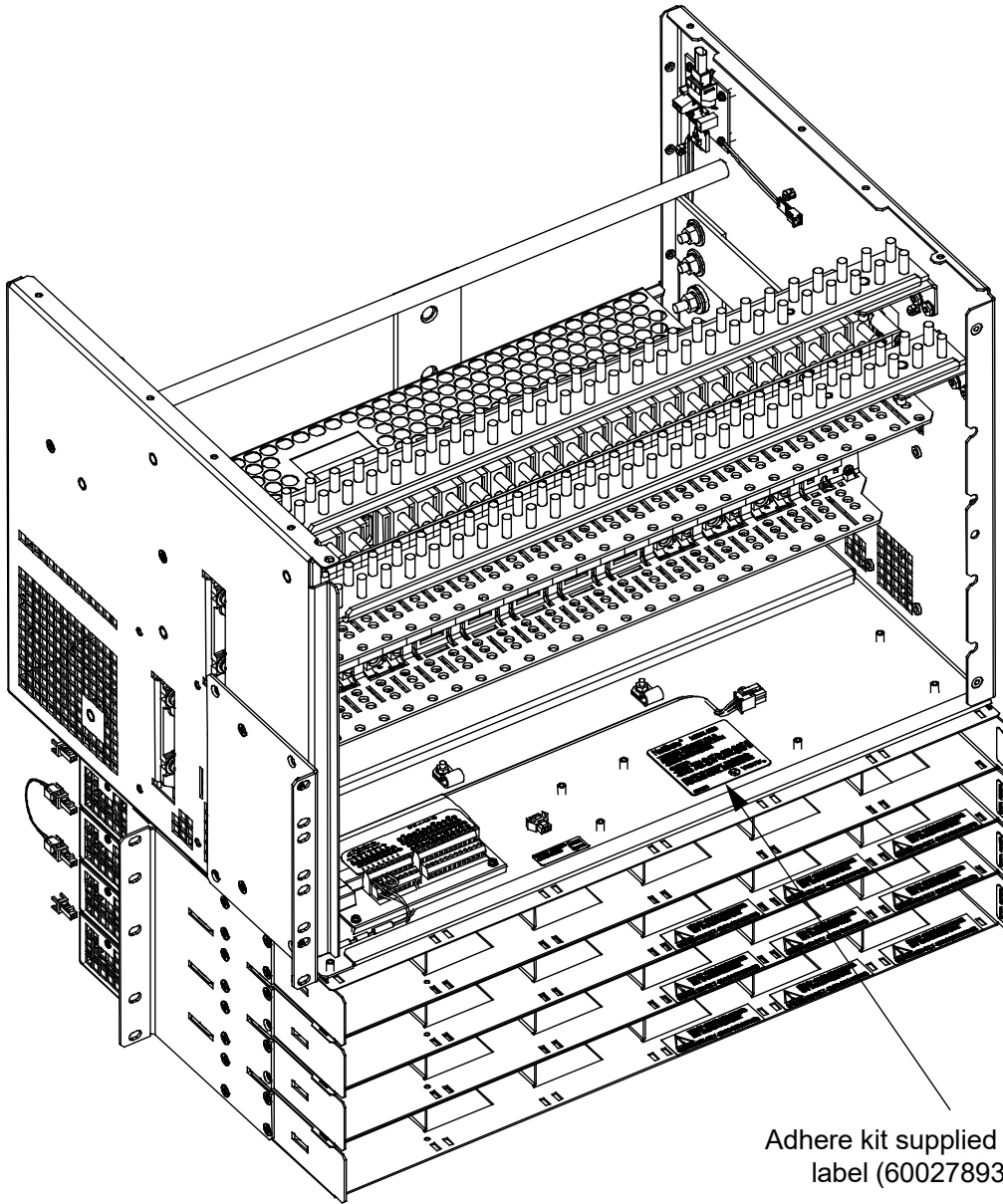
Inside View Front Door

Adhere kit supplied module position labels (60027254) here.




- [] 24. Adhere kit supplied nameplate label (60027893) above the existing nameplate label. See Figure 1.14.

Figure 1.14 Adhere 60027893 Label



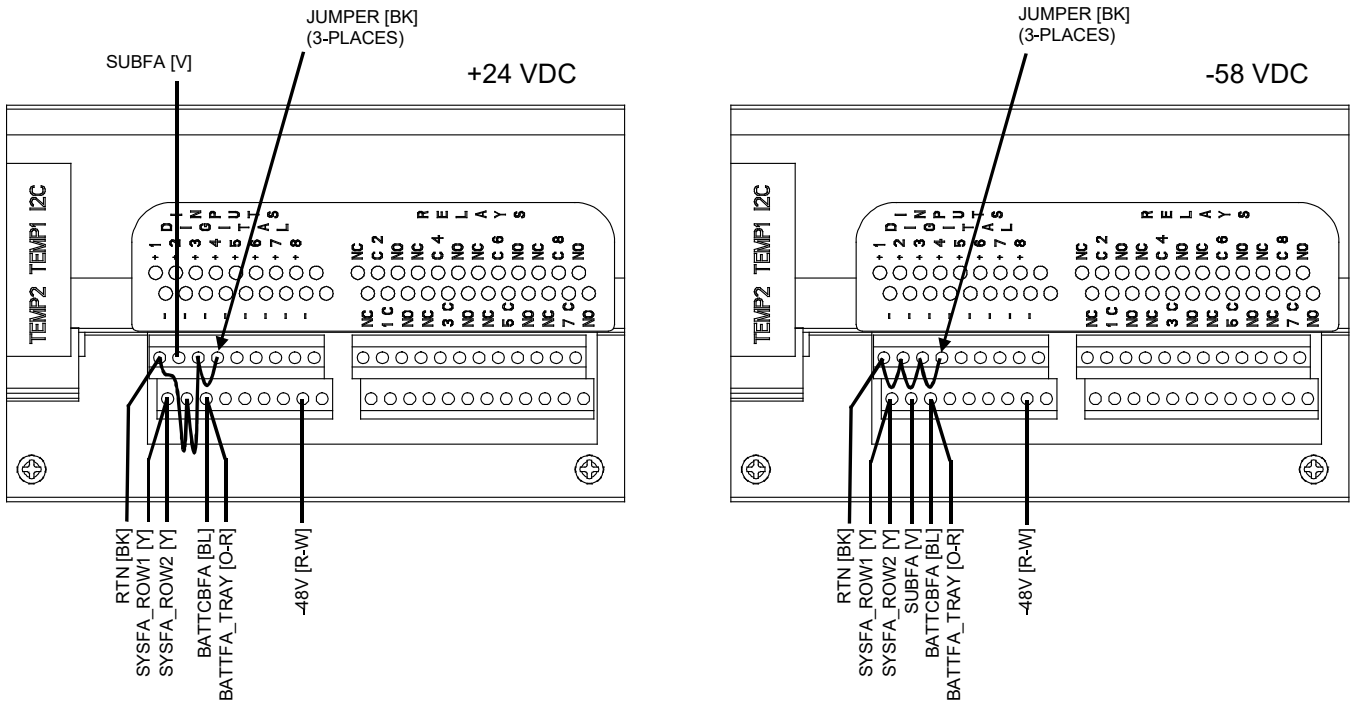
Adhere kit supplied nameplate label (60027893) here.

NetSure™ MODEL 5100
THIS UNIT HAS BEEN FIELD
RETROFITTED FOR USE WITH
-58VDC CONVERTERS
OUTPUT:
-48VDC 600A @ 40° C; 400A @ 65° C
-58VDC 400A @ 40° C; 300A @ 65° C
REFER TO MANUAL IM60028039
FOR ADDITIONAL INFORMATION
60027893  VERTIV™

Label 60027893

- [] 25. Reverse the wiring to J3-3 (DI2-) and J3-4 (DI2+) on the IB2 board (connect existing wire in J3-3 to J3-4; and connect existing wire in J3-4 to J3-3). See Figure 1.15.

Figure 1.15 IB2 Board



[] 26. Update the controller configuration file as follows.

NOTE! When using the Web interface to update an NCU containing firmware that is revision level 1.2.51B or less to version 1.2.60B or greater, the NCU requires its flash memory to be refreshed. The Clean-up Tool package frees enough flash so that the controller can be updated to 1.2.60B or greater while maintaining the Web user interface.

Starting with version 1.2.60B and later, software is loaded using a different strategy, so this clean-up process is not needed once a controller is updated to 1.2.60B. See the main page (Figure 1.16) to determine software version.

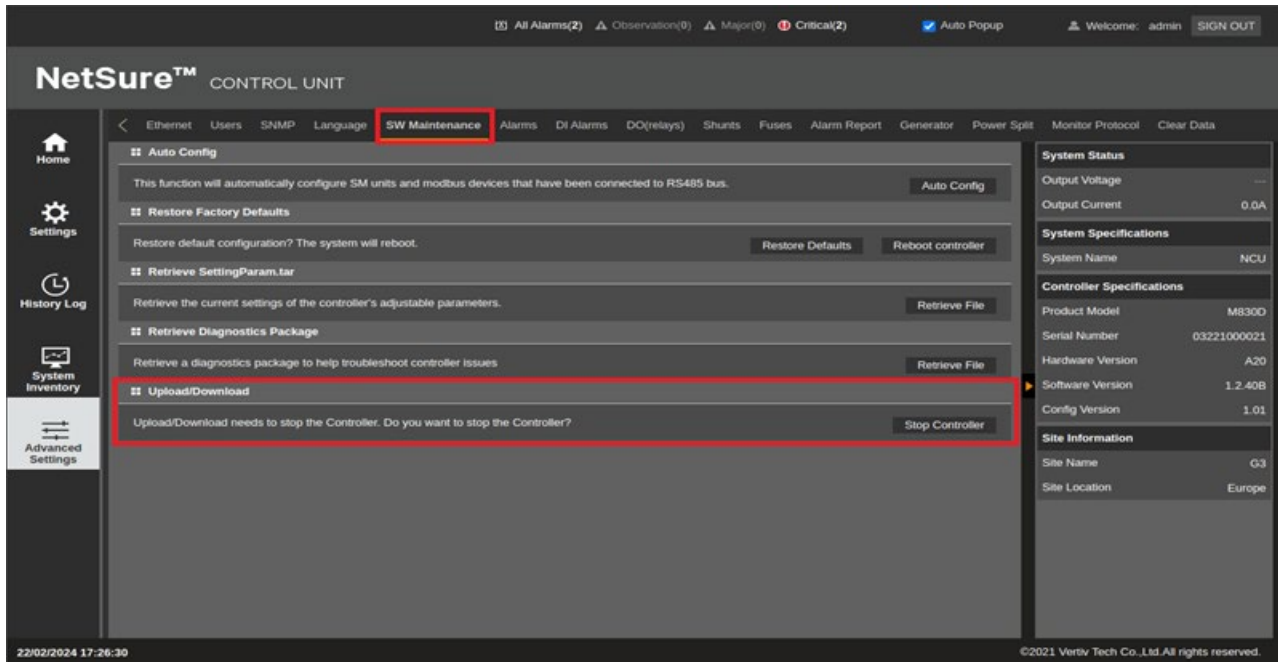
- Copy the Application “All” package file and the Clean-up Tool package (ncu_cleanup_V1.1.tar or later) located on the kit-supplied USB drive to your computer. The name of the Application “All” package file ends in either .tar or .tar.gz. The name of the Clean-up Tool package ends in .tar.
- Log in to the Web user interface page.
- Click “Advanced Settings.” See Figure 1.16.

Figure 1.16 Advanced Settings



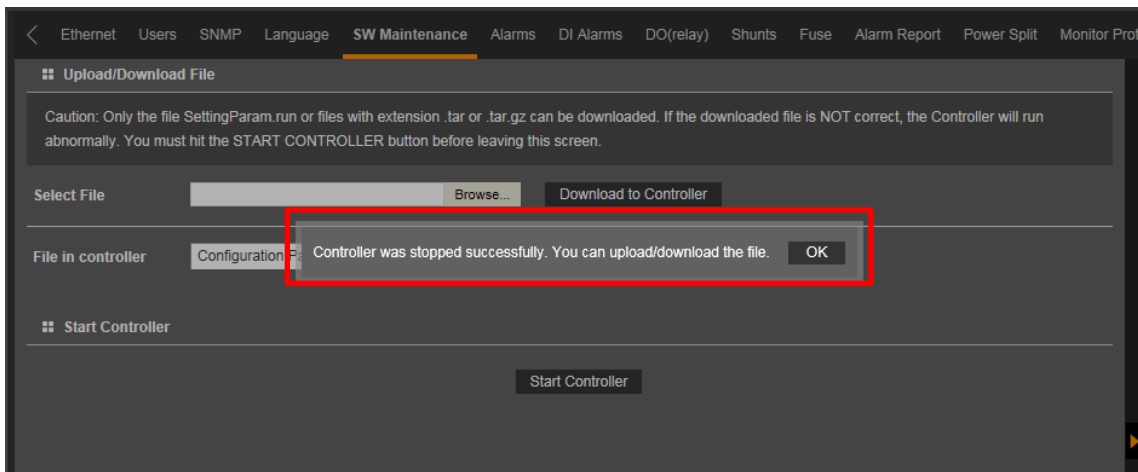
d) Go to the SW Maintenance tab. Click on “Stop Controller.” See Figure 1.17.

Figure 1.17 Stop Controller



e) After the following window opens, click “OK.” See Figure 1.18.

Figure 1.18 Upload/Download - Controller Stopped



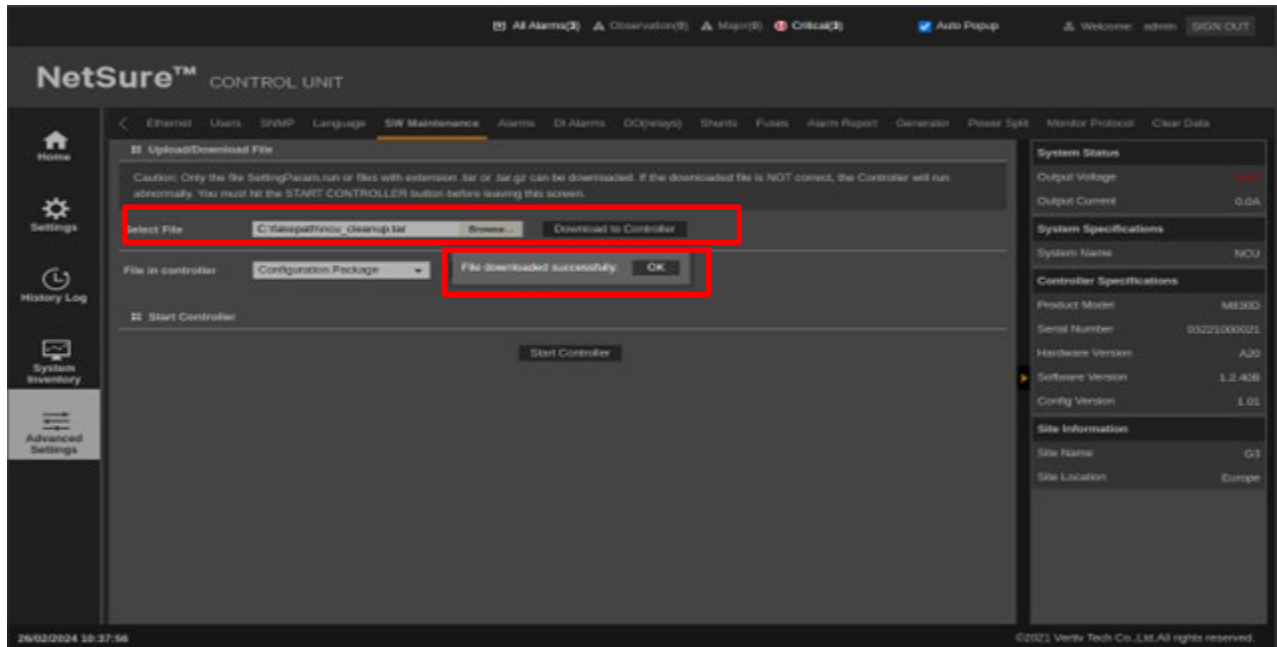
ALERT! Never navigate away from this Web page without first clicking on "Start Controller" after loading the appropriate file(s). If you do, you will not have Web access. A manual system reset is required to restore Web access.



NOTE! If the original software version is 1.2.60B or higher, go to step k.

- f) After the following window appears (Figure 1.19), browse and select the Clean-up Tool package (ncu_cleanup_V1.1.tar or later) you copied earlier to your computer. Click “Download to Controller.” This process may take several minutes. The following screen displays, indicating a successful upload. Click “OK” and then click “Start Controller” to reboot the NCU. This process could take several minutes.

Figure 1.19 Download Clean-Up Tool Package and Start Controller



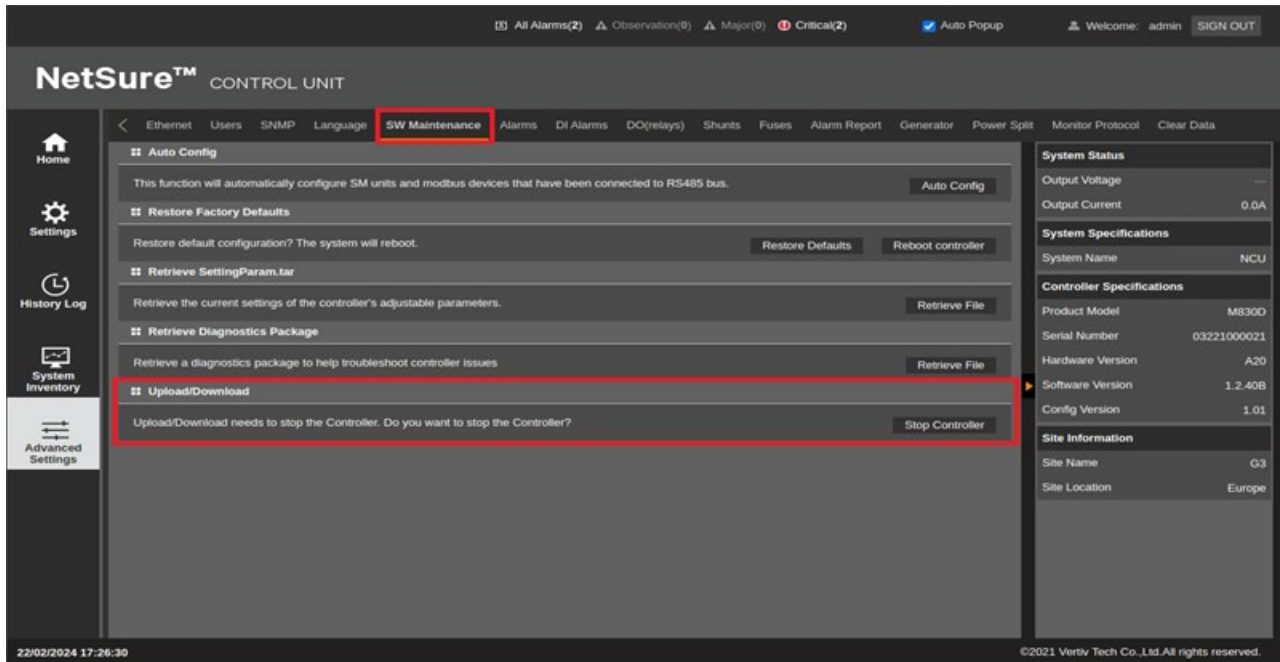
- g) Log in to the Web user interface page.
h) Click “Advanced Settings.” See Figure 1.20.

Figure 1.20 Advanced Settings



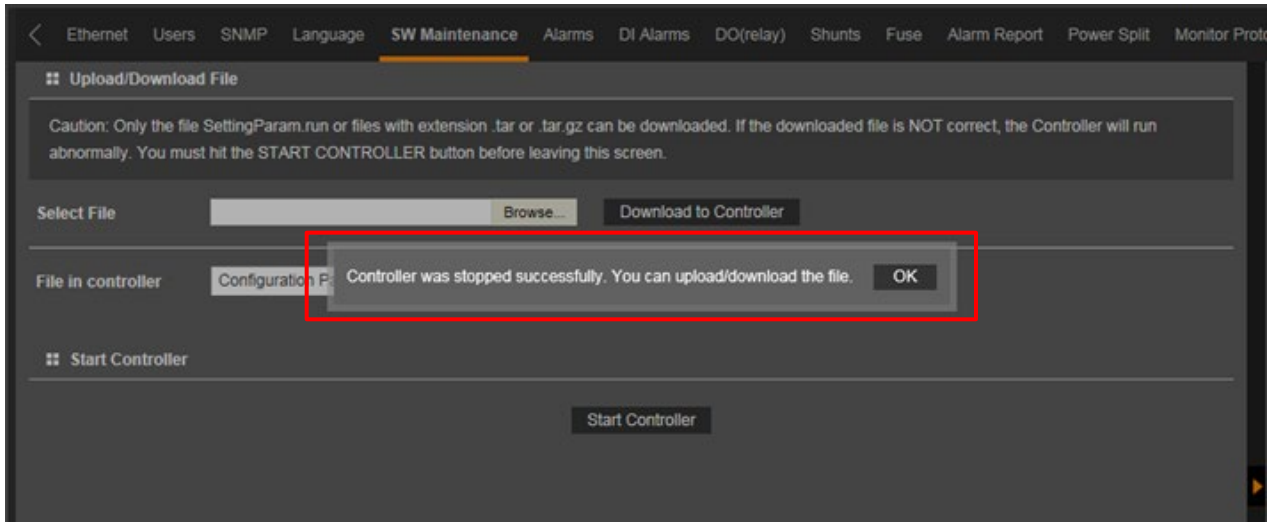
- i) Go to the SW Maintenance tab. Click on “Stop Controller.” See Figure 1.21.

Figure 1.21 Stop Controller



- j) After the following window opens, click “OK.” See Figure 1.22.

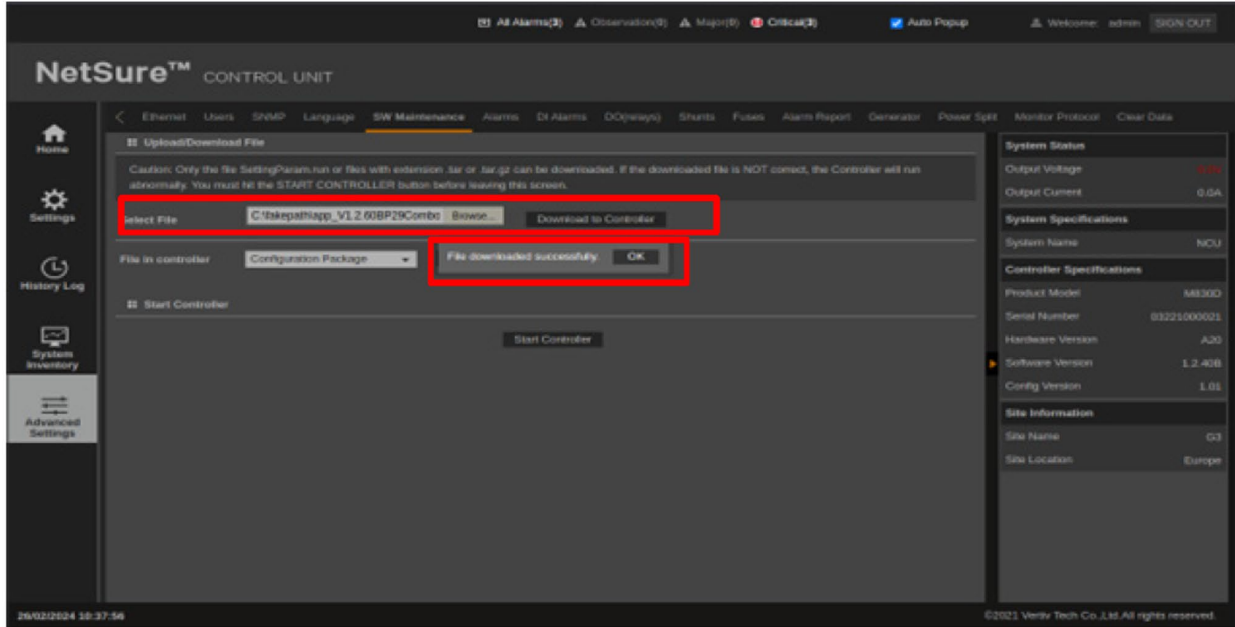
Figure 1.22 Upload/Download – Controller Stopped



ALERT! Never navigate away from this Web page without first clicking on “Start Controller” after loading the appropriate files. If you do, you will not have Web access. A manual system reset is required to restore Web access.

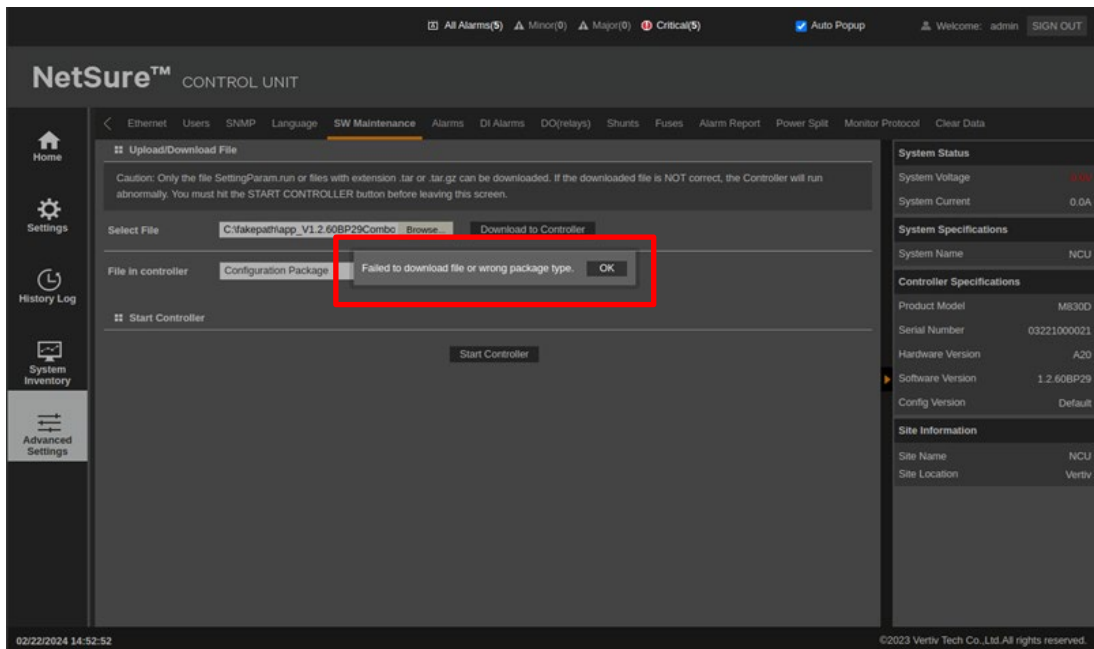
- k) After the following window appears (Figure 1.23), browse and navigate to the folder where the file to download is located. Select the application “All” package you copied earlier to your computer. Click “Download to Controller.” This process may take several minutes. The following screen displays, indicating a successful upload. Click “OK” and then click “Start Controller” to reboot the NCU with the downloaded file installed. This process could take several minutes.

Figure 1.23 Download Firmware Package and Start Controller



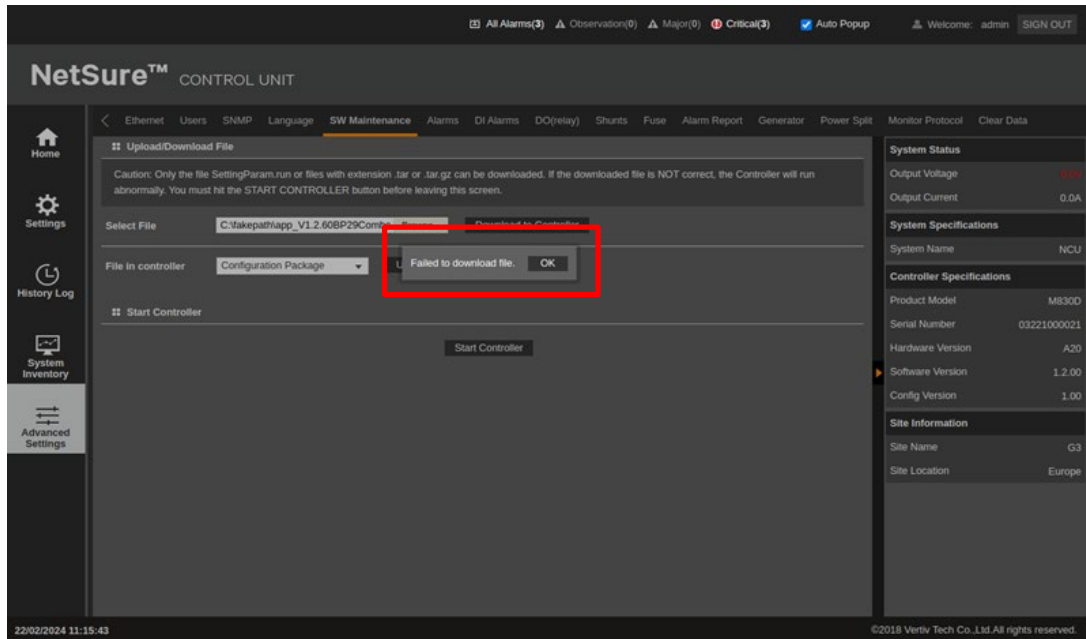
NOTE! If a V1.260B or greater package file is downloaded in the previous steps to a revision 1.2.51B or less revision controller before using the Clean-up tool, one of the following error messages will display:

Figure 1.24 Error Message 1: “Failed to download file or wrong package type.”



OR

Figure 1.25 Error Message 2: “Failed to download file.”



- [] 27. If your system ORIGINALLY had an NCU controller, refer to “Reloading a Backed-Up NCU Configuration” on page 39 and restore the backed-up controller configuration file saved in step [] 3.
- [] 28. Close the distribution cabinet front door.
- [] 29. Install separately ordered converter modules 1C48582000P3 in the far right mounting positions shown in Figure 1.3 and Figure 1.13, as required.
- [] 30. Click on the converter icon in the NCU WEB interface power system status block diagram. This brings up the converter group status page. Check the converter output voltage and the status of each converter installed to verify all converters installed are active.
- [] 31. Enable the external alarms or notify appropriate personnel that this procedure is finished.
- [] 32. Ensure that there are no local or remote alarms active on the system.
- [] 33. If your system ORIGINALLY had an ACU+ controller, refer to “Backing Up the NCU Configuration” on page 36 and backup the controller configuration. Save this configuration file in case the NCU configuration ever needs to be reloaded.
- [] 34. Save these instructions in case a backout procedure needs to be performed at a later date.

Procedure for Spec. No. 548067

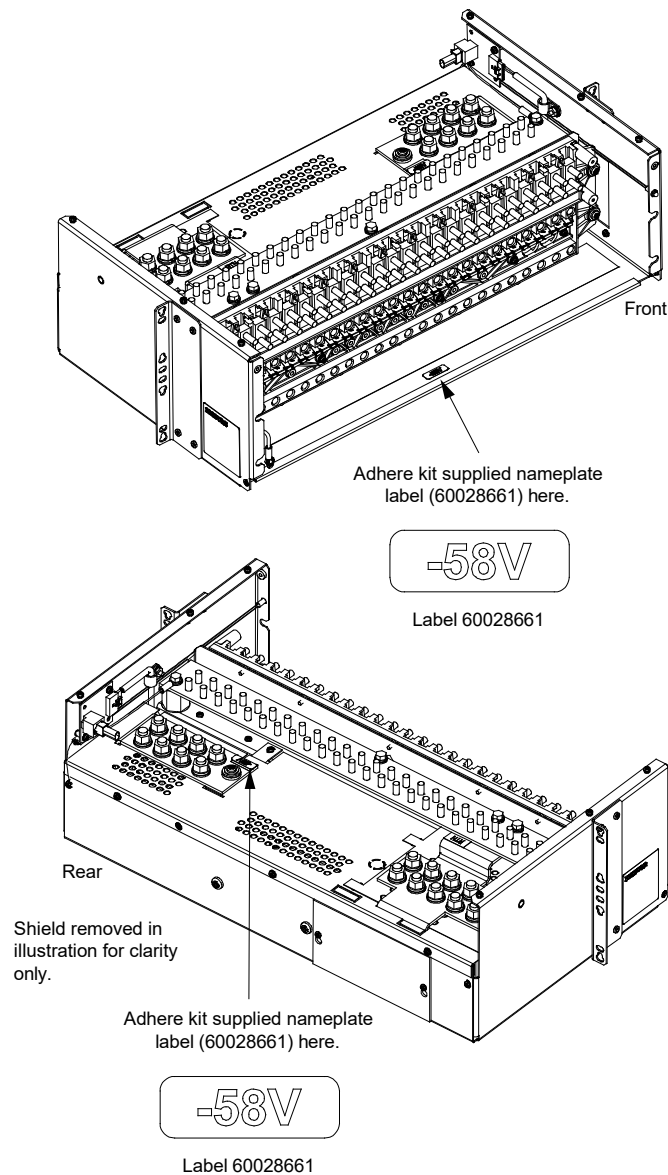
DANGER! This procedure is performed on a LIVE system. Observe the “Important Safety Instructions” starting on page v and those listed in the distribution cabinet manual.



NOTE! If this distribution panel is fed from the -58 VDC bus perform the following steps.

- [] 1. Adhere one of the kit supplied “-58V” labels (60028661) to the distribution cabinet floor as shown in Figure 1.26. Note that a -48V label (545677) is provided if the distribution cabinet is later used for -48V distribution.
- [] 2. Adhere the remainder kit supplied “-58 VDC” label (60028661) to the input busbar as shown in Figure 1.26. Note that a -48V label (545677) is provided if the distribution cabinet is later used for -48V distribution.
- [] 3. Move the yellow FA/breaker alarm wire from DI1- to DI2- on the IB2 board in the NetSure power system feeding this panel.

Figure 1.26 Adhere 60028661 Labels



1.5.2 Backout Procedure (when kit P/N 60028039 was installed)

If the power system needs to revert back to -48V/+24V operation, perform the following procedure.

Procedure for Spec. No. 582137100ZZ028

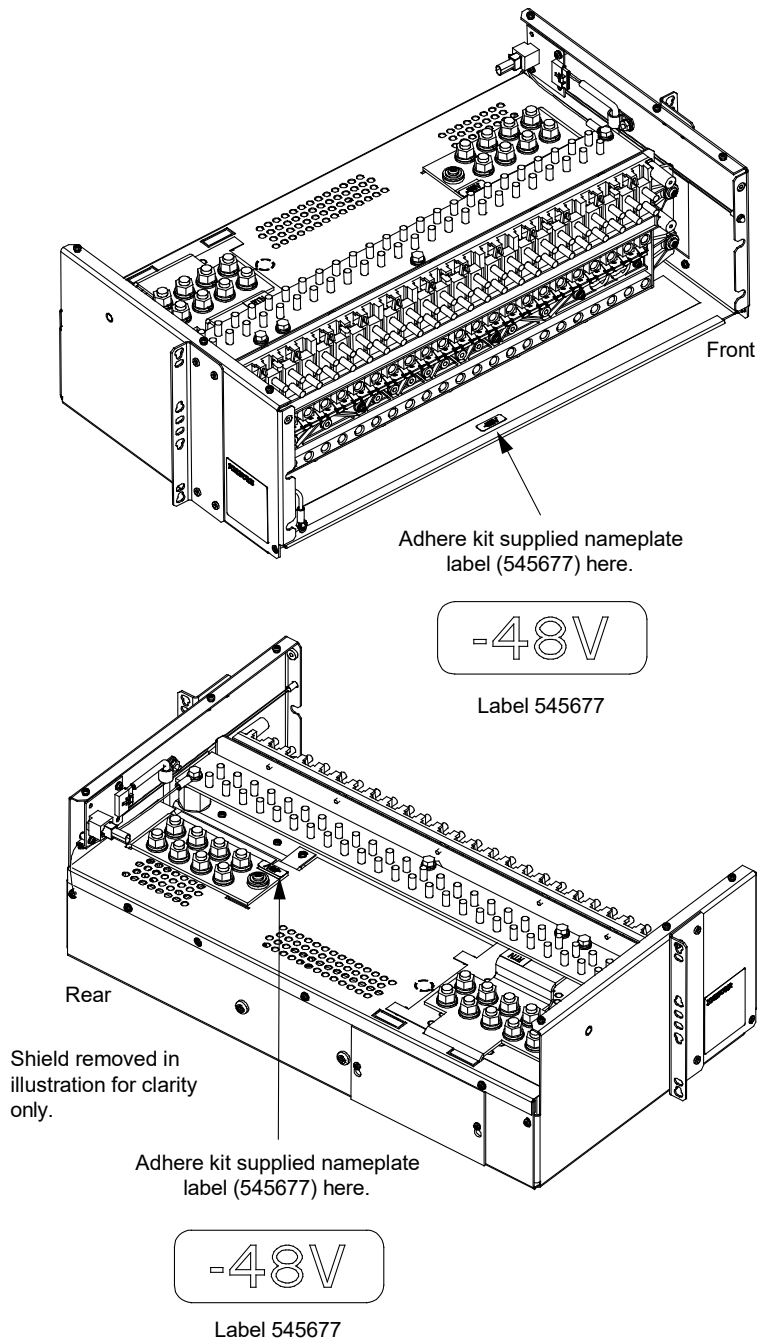
- [] 1. Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.
- [] 2. Remove all existing -58 VDC output converter modules from the module mounting shelves.
- [] 3. Remove the “Use Only -58 VDC Converters” caution labels (60028735).
- [] 4. Open the distribution cabinet front door.
- [] 5. Remove the shield from the top distribution panel.
- [] 6. Adjust the number of breaker positions by adjusting the busbars, busbar links and alarm spring links in the top row so that positions 23-26 are +24 VDC and positions 1-22 are -48 VDC positions.
- [] 7. Remove the plug buttons securing the -58 VDC distribution position labels located on the top distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels.
- [] 8. Install the saved “+24 VDC” and “-48 VDC” distribution position labels in the places the -58 VDC labels were removed from. Secure the labels with the plug buttons previously removed.
- [] 9. Replace the shield to the top distribution panel.
- [] 10. Remove the kit supplied module position labels (60027254).
- [] 11. Remove the kit supplied nameplate label (60027893).
- [] 12. Reverse the wiring to J3-3 (DI2-) and J3-4 (DI2+) on the IB2 board (connect existing wire in J3-3 to J3-4; and connect existing wire in J3-4 to J3-3).
- [] 13. Close the distribution cabinet front door.
- [] 14. Install converter modules 1C48241500 in the far-right converter module mounting positions, as required.
- [] 15. Enable the external alarms or notify appropriate personnel that this procedure is finished.
- [] 16. Ensure that there are no local or remote alarms active on the system.

Procedure for Spec. No. 548067

DANGER! This procedure is performed on a LIVE system. Observe the “Important Safety Instructions” starting on page v and those listed in the distribution cabinet manual.

- [] 1. Adhere a kit supplied “-48V” label (545677) to the distribution cabinet floor as shown in Figure 1.27.
- [] 2. Adhere a kit supplied “-48 VDC” label (545677) to the input busbar as shown in Figure 1.27.
- [] 3. Move the yellow FA/breaker alarm wire from DI2- to DI1- on the IB2 board in the NetSure power system feeding this panel.

Figure 1.27 Adhere 545677 Labels



1.5.3 Kit P/N 60031300



NOTE! Top row must be a -58 VDC panel lists FA-FF or conversion kit P/N 60028039 must be installed prior to kit P/N 60031300 installation. No DC generator input kit can be installed in the bottom row.

To convert the row 1 (bottom row) distribution panel to -58V positions, perform the following procedure to install kit P/N 60031300.

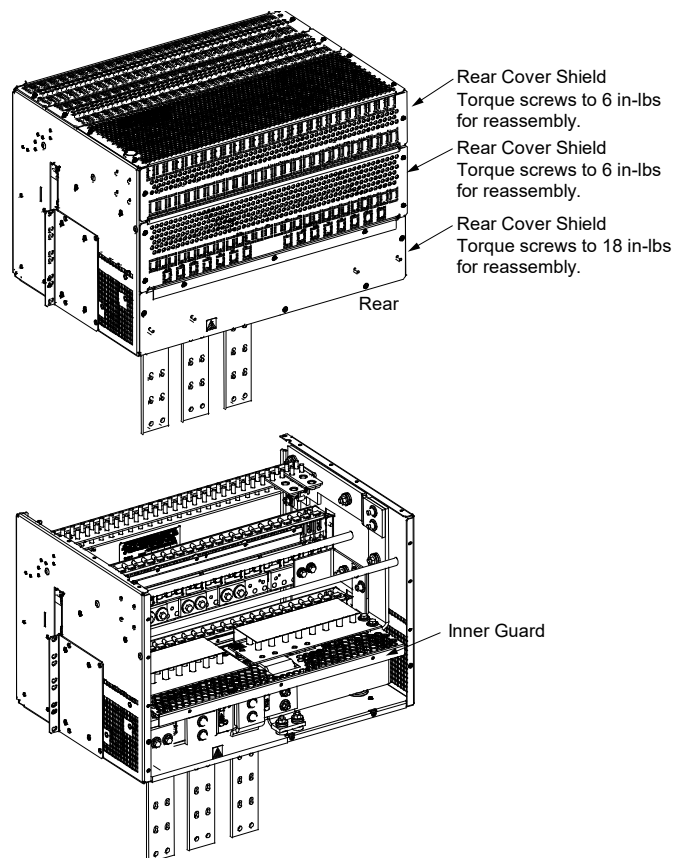
Procedure



DANGER! This system must be isolated from all AC input power and battery power. All AC input power to the system must be turned off and all AC input disconnects must be locked out / tagged out before installing this kit. All battery power to the system must be turned off or disconnected and all battery disconnects must be locked out / tagged out before installing this kit. Observe the “Important Safety Instructions” starting on page v and those listed in the power system manual.

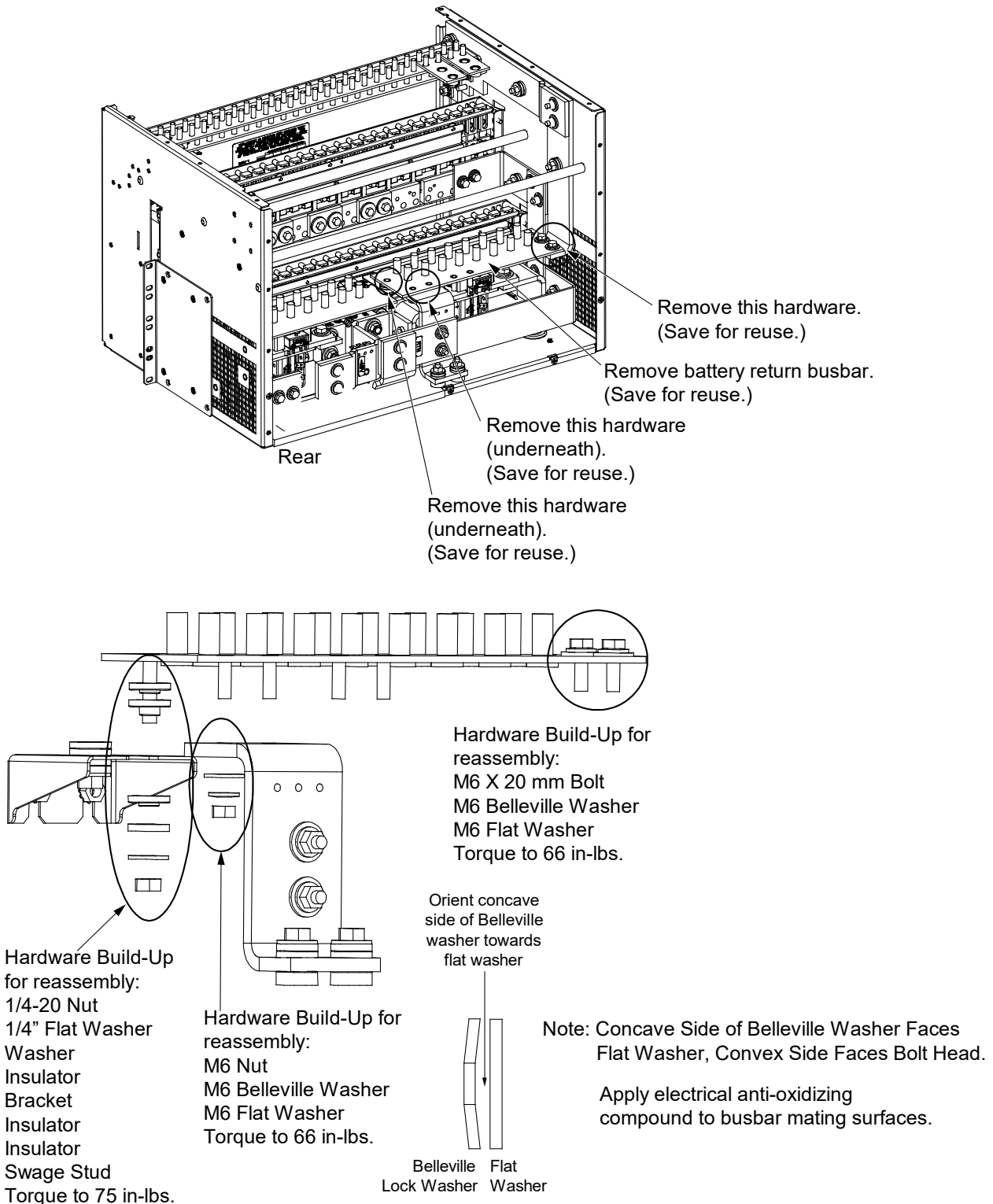
- [] 1. Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.
- [] 2. Shutdown the power system. Turn off all AC input disconnects to remove AC power from the system. Turn off all battery disconnects to remove battery power from the system or disconnect the batteries from the system. Follow local lockout/tagout procedures to ensure AC and battery disconnects remain off during installation.
- [] 3. Remove the three (3) rear cover shields (if present) from the cabinet. Save shields and hardware for reuse. See Figure 1.28.
- [] 4. Remove inner guard. Save guard and hardware for reuse. See Figure 1.28.

Figure 1.28



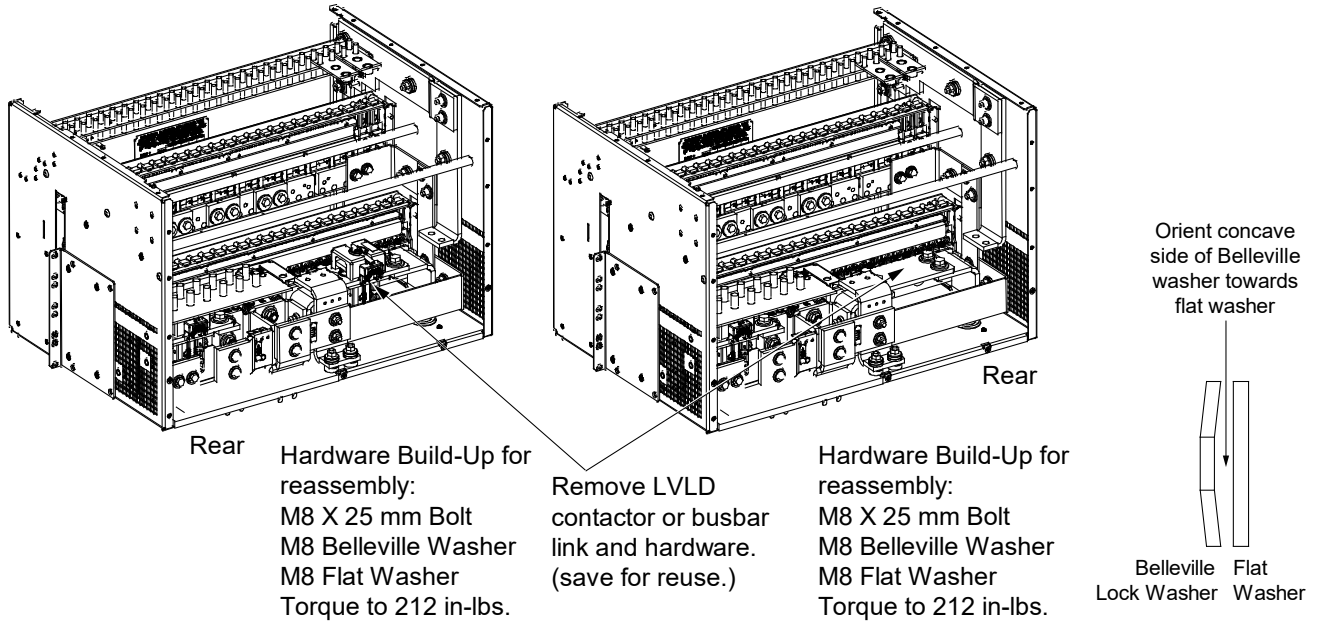
- [] 5. Remove battery return busbar. Save busbar and hardware for reuse. See Figure 1.29.

Figure 1.29



- [] 6. Remove the LVLD contactor (if present) or the busbar link (if present). Save contactor or busbar link and hardware for reuse. See Figure 1.30.

Figure 1.30

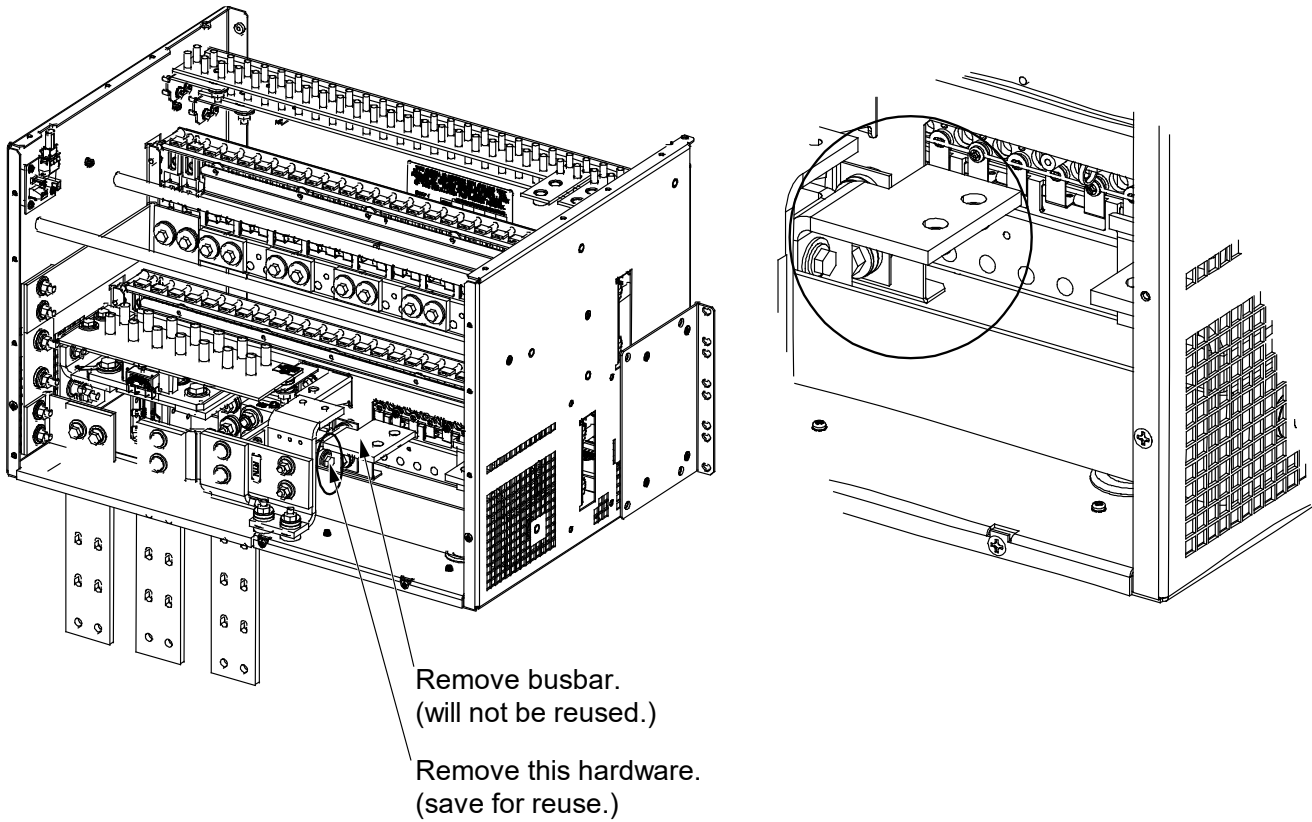


Note: Concave Side of Belleville Washer Faces Flat Washer, Convex Side Faces Bolt Head.

Apply electrical anti-oxidizing compound to busbar mating surfaces.

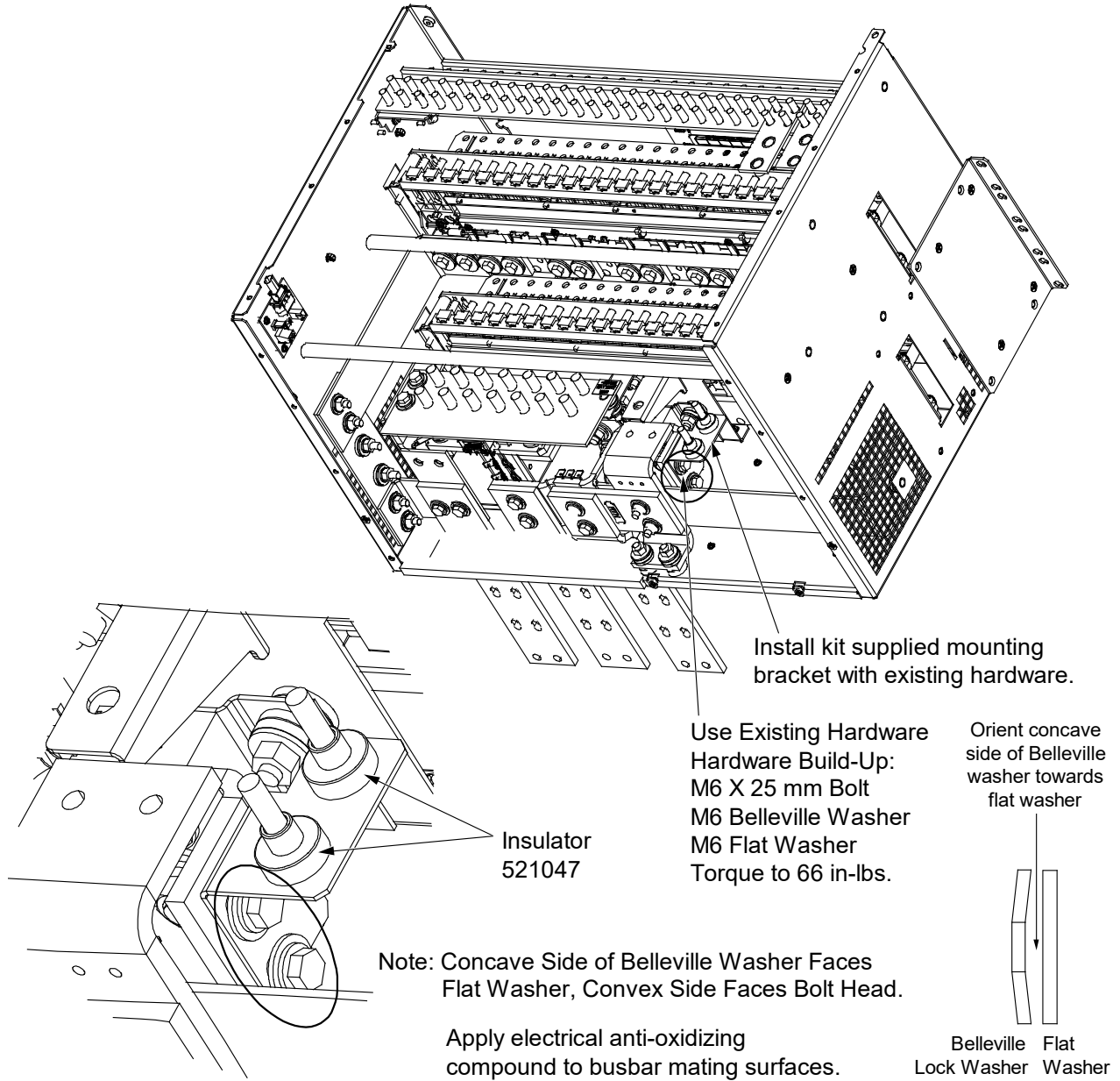
- [] 7. Remove hardware and L-shape busbar as shown in Figure 1.31. L-shape busbar will not be reused. Hardware WILL be reused.

Figure 1.31



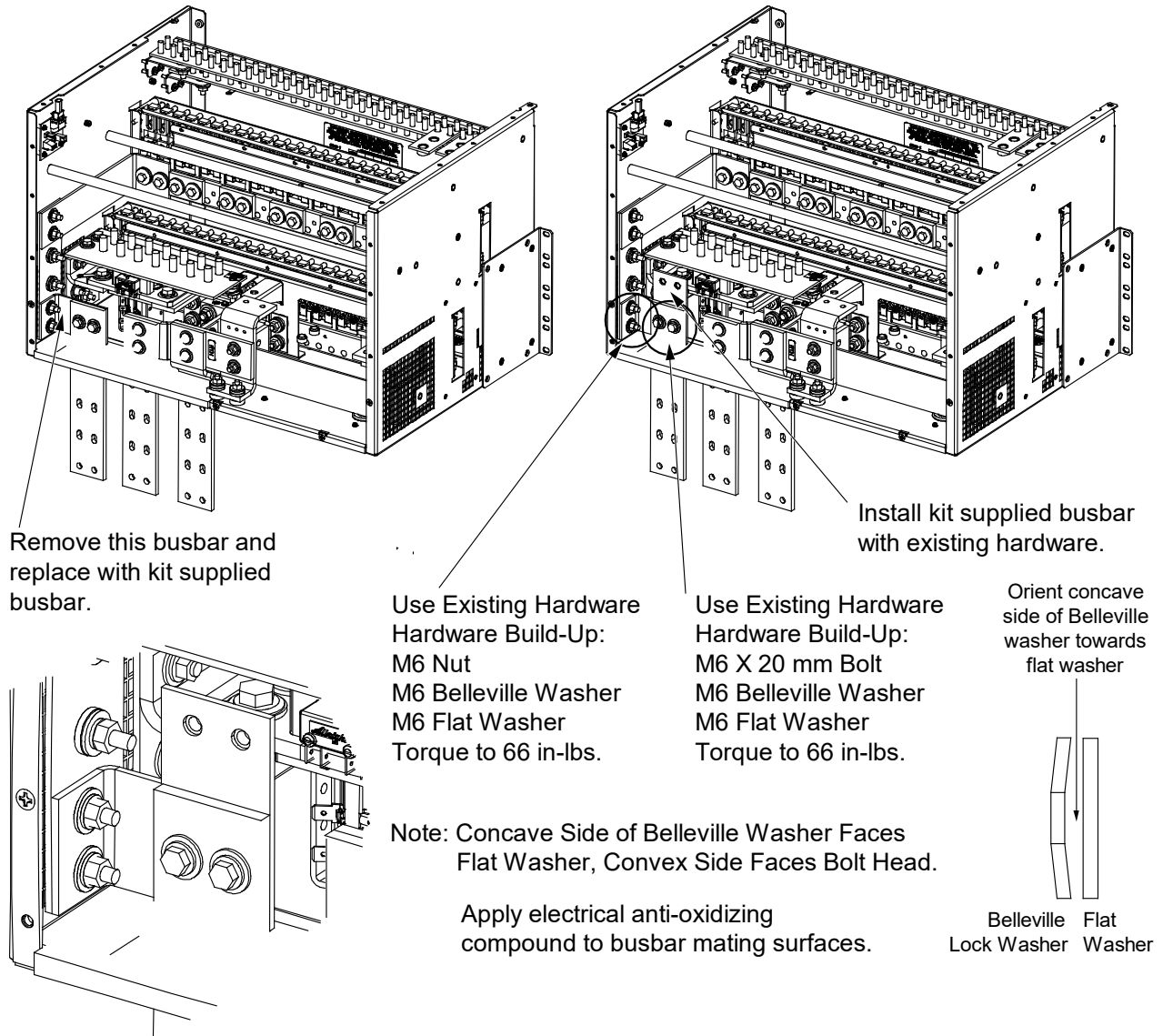
- [] 8. Install kit supplied L-shape steel mounting bracket 60031296 (using existing hardware) and insulators 521047 as shown in Figure 1.32. Torque as indicated in Figure 1.32.

Figure 1.32



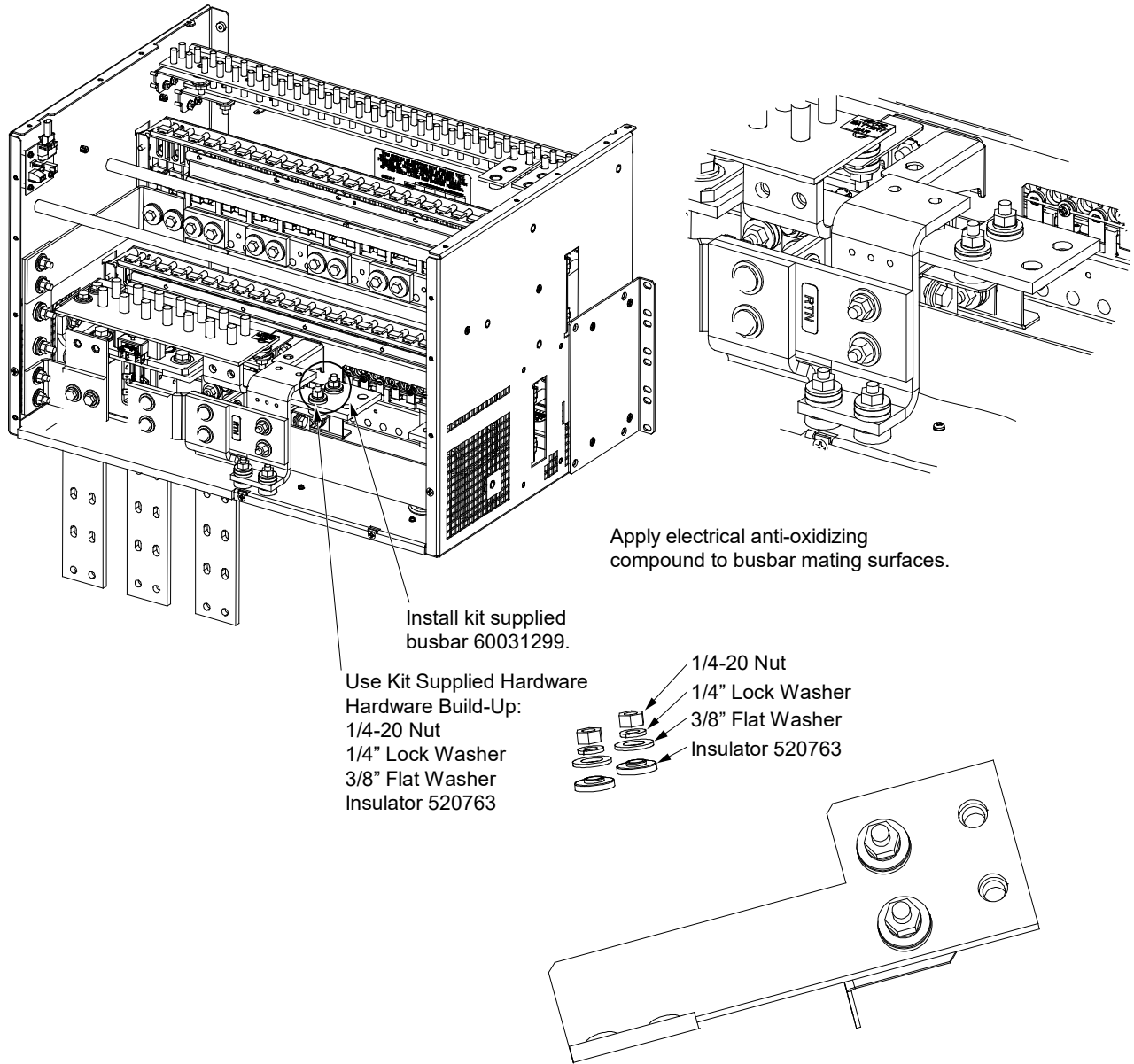
- [] 9. Remove hardware and L-shape busbar (to feed row 2) and replace with kit supplied L-shape busbar 60031297 (to feed row 1 and row 2) using existing hardware as shown in Figure 1.33.

Figure 1.33



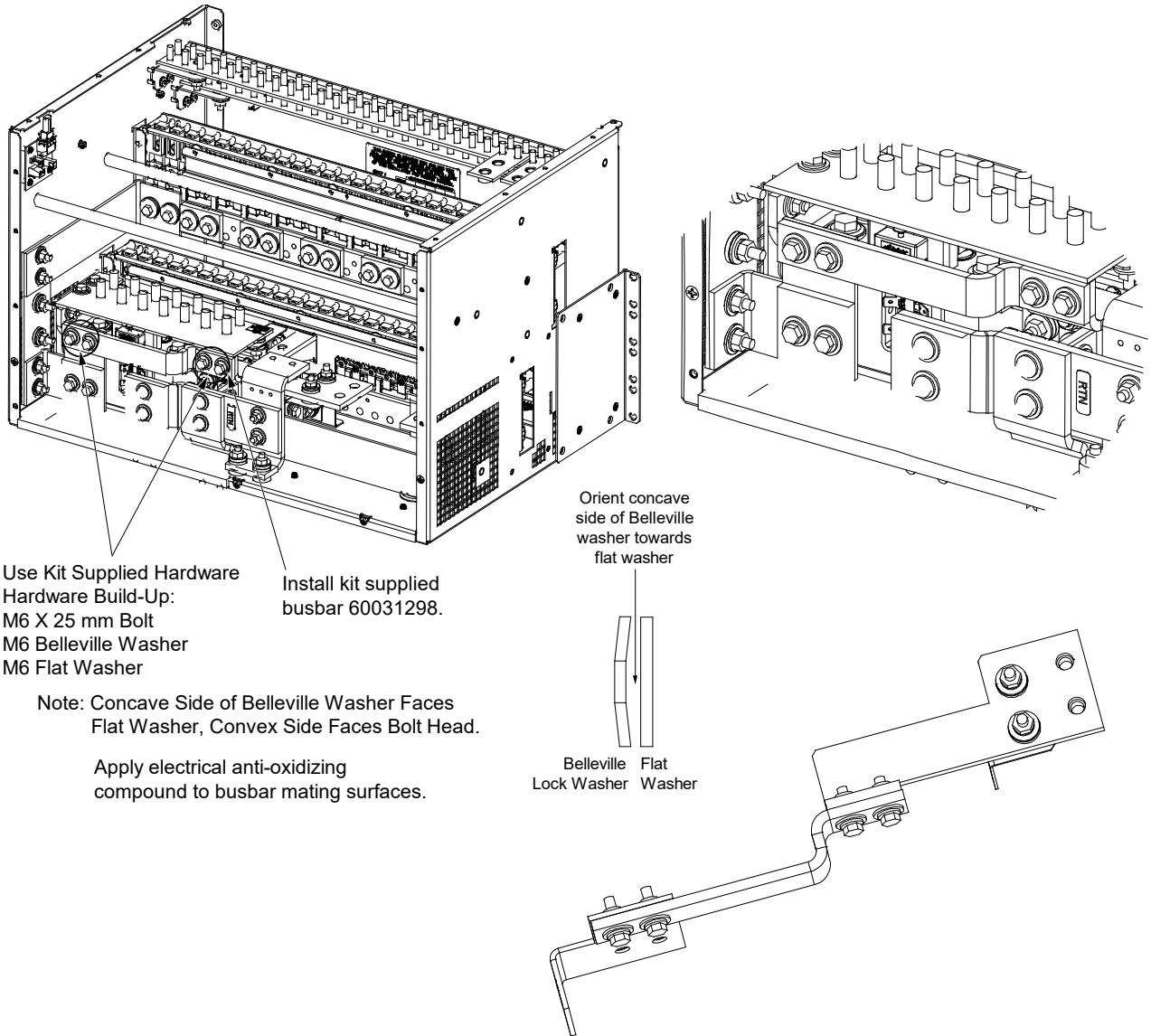
- [] 10. Install kit supplied busbar 60031299 using kit supplied hardware as shown in Figure 1.34. Hand tighten fasteners.

Figure 1.34



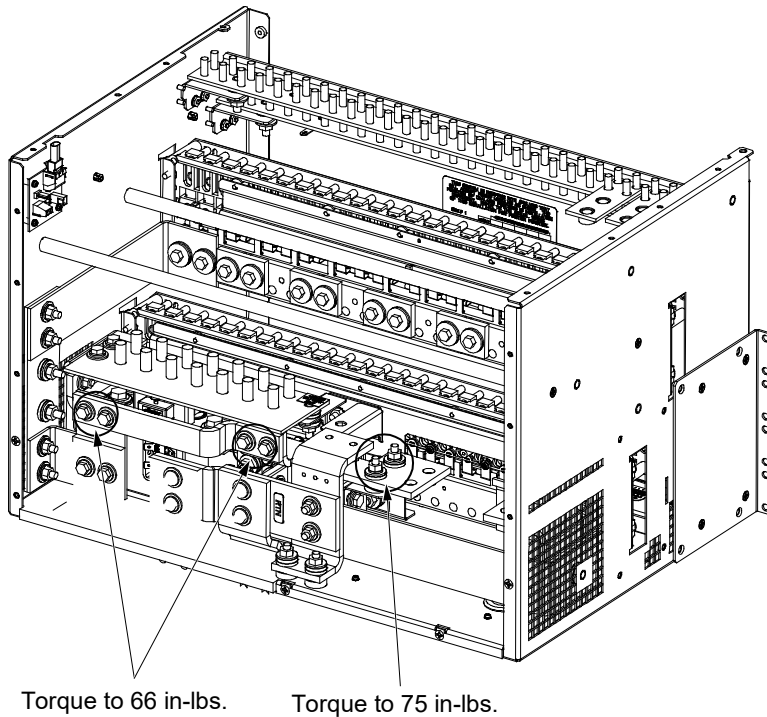
- [] 11. Install kit supplied busbar 60031298 using kit supplied hardware as shown in Figure 1.35. Hand tighten fasteners.

Figure 1.35



- [] 12. Ensure busbars 60031298 and 60031299 align correctly and lay flat against each other, then torque all hardware that was installed hand-tight in previous steps as indicated in Figure 1.36.

Figure 1.36



- [] 13. If DC Generator kit is installed in positions 23-26 make sure the busbar link is disconnected between positions 22 and 23.
- [] 14. Reinstall items from steps 3, 4, 5, and 6 in reverse order of disassembly. Refer to illustrations referenced in these steps for torque values.
- [] 15. Restore AC input power and battery to the power system. Restart the power system (refer to the power system documentation).
- [] 16. Enable the external alarms or notify appropriate personnel that this procedure is finished.
- [] 17. Ensure that there are no local or remote alarms active on the system.
- [] 18. Save these instructions in case a backout procedure needs to be performed at a later date.

1.5.4 Backout Procedure - Using Kit P/N 60031672 (when kit P/N 60031300 was previously installed)

To revert the row 1 (bottom row) distribution panel back to -48V positions, perform the following procedure to install kit P/N 60031672.

Procedure



DANGER! This system must be isolated from all AC input power and battery power. All AC input power to the system must be turned off and all AC input disconnects must be locked out / tagged out before installing this kit. All battery power to the system must be turned off or disconnected and all battery disconnects must be locked out / tagged out before installing this kit. Observe the “Important Safety Instructions” starting on page v and those listed in the power system manual.

- [] 1. Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system while the procedure is being performed.
- [] 2. Shutdown the power system. Turn off all AC input disconnects to remove AC power from the system. Turn off all battery disconnects to remove battery power from the system or disconnect the batteries from the system. Follow local lockout/tagout procedures to ensure AC and battery disconnects remain off during installation.
- [] 3. Remove the shield from the bottom distribution panel.
- [] 4. Remove the plug buttons securing the -58 VDC distribution position labels located on the bottom distribution panel. Save the plug buttons after removing them as they will be needed in later steps. Remove the labels.
- [] 5. Install the kit supplied “-48 VDC” distribution position labels in the places the -58 VDC labels were removed from. Secure the labels with the plug buttons previously removed.
- [] 6. Replace the shield to the bottom distribution panel.
- [] 7. Remove the three (3) rear cover shields (if present) from the cabinet. Save for reuse. See Figure 1.28 on page 24.
- [] 8. Remove inner guard. Save for reuse. See Figure 1.28 on page 24.
- [] 9. Remove portion of busbar assembly P/N 60032078 (installed as part of kit P/N 60031300) indicated in Figure 1.37.
- [] 10. In place of the removed portion of busbar assembly P/N 60032078, install kit furnished busbar P/N SNV2300110/1. See Figure 1.37.
- [] 11. Reinstall items from steps 7 and 8 in reverse order of disassembly.
- [] 12. Enable the external alarms or notify appropriate personnel that this procedure is finished.
- [] 13. Ensure that there are no local or remote alarms active on the system.

Figure 1.37 Reverting Back to -48V Distribution Positions (cont'd on next page)

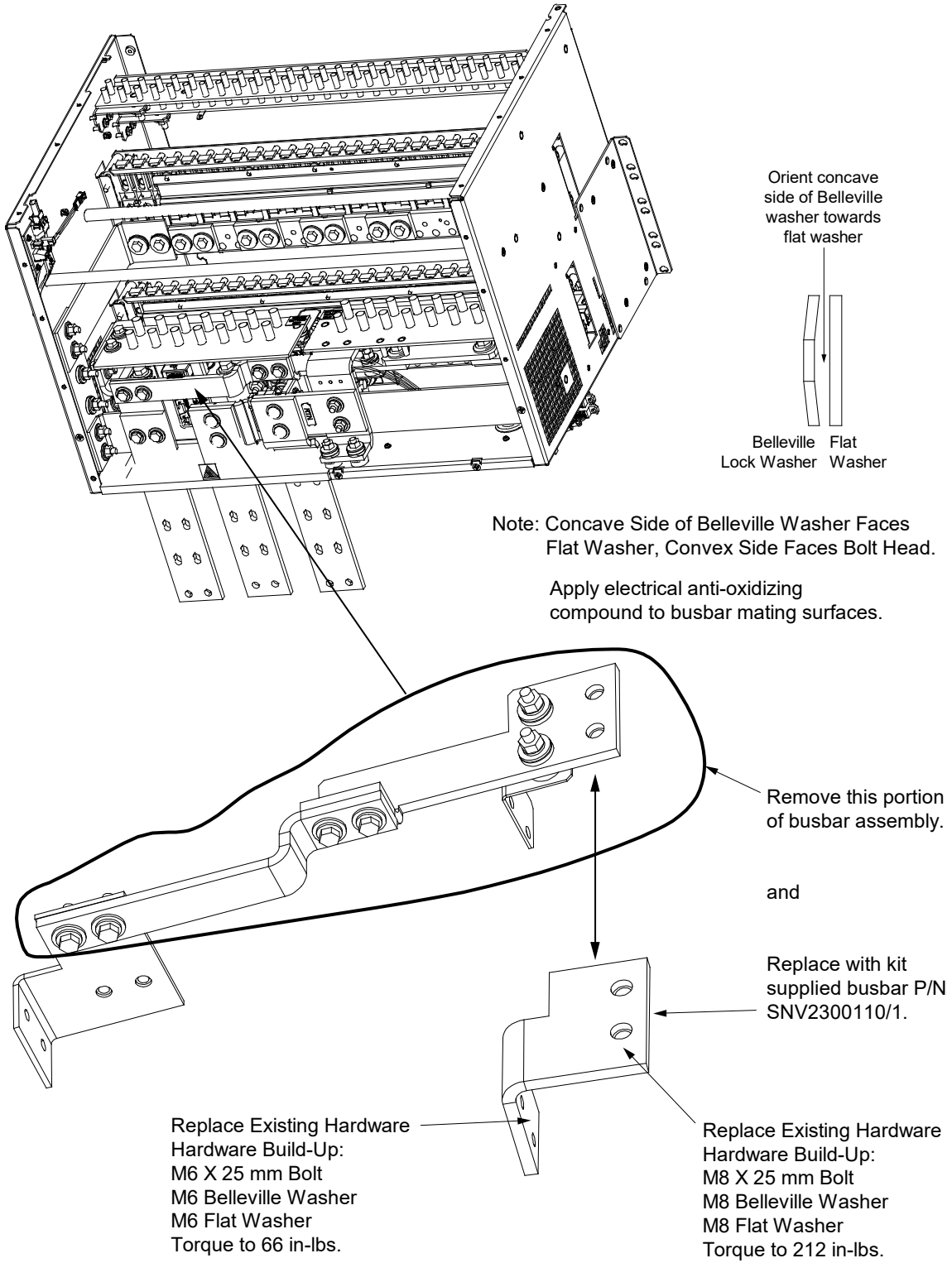
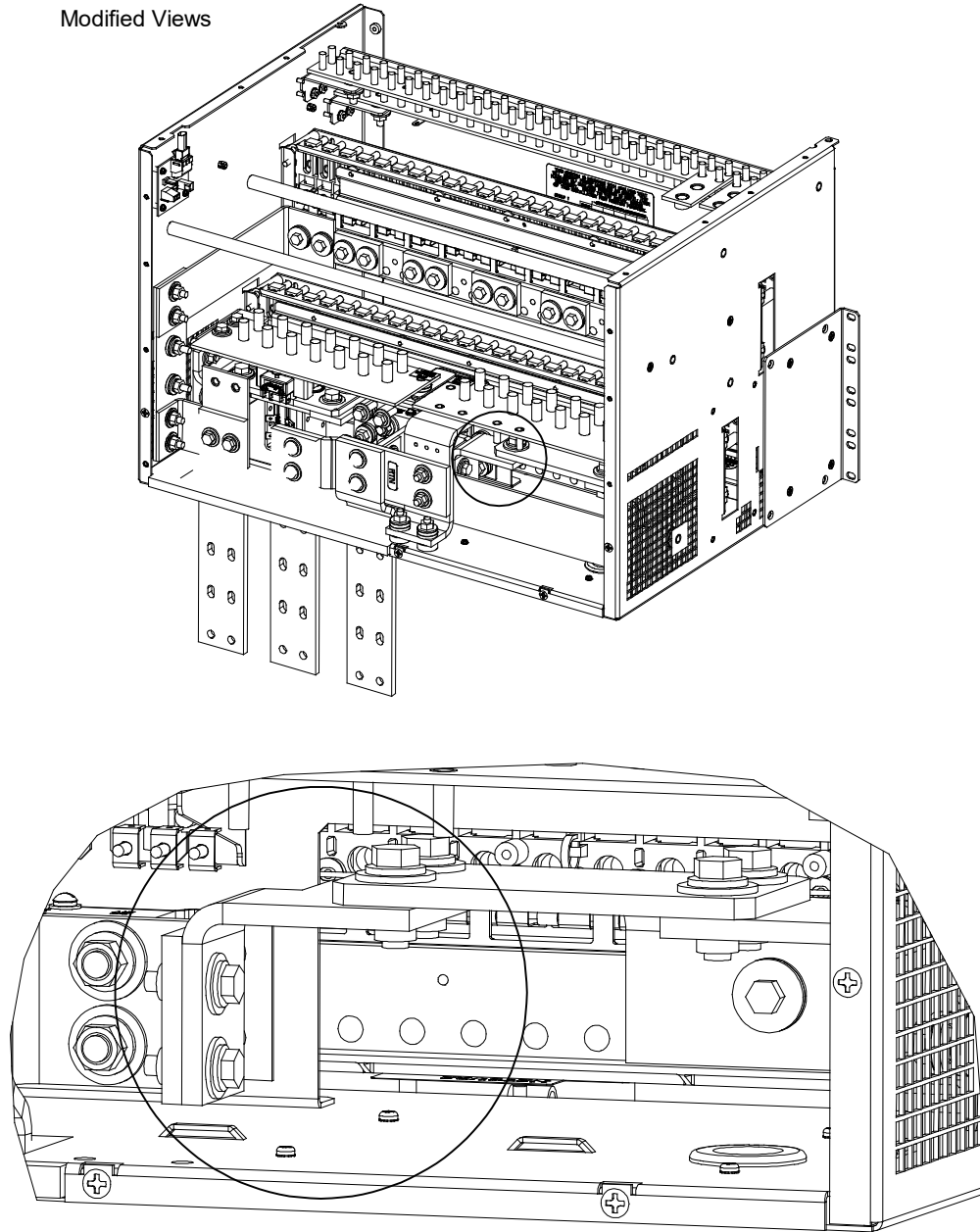


Figure 1.38 Reverting Back to -48V Distribution Positions (cont'd from previous page)

Modified Views



1.6 Backing Up the NCU Configuration

1.6.1 NCU Version 1.1.80, or Later

General

To back up the NCU configuration, simply save the file named "SettingParam.tar".

Saving the "SettingParam.tar" File

Local Menu Navigation:

None.

Web Menu Navigation:

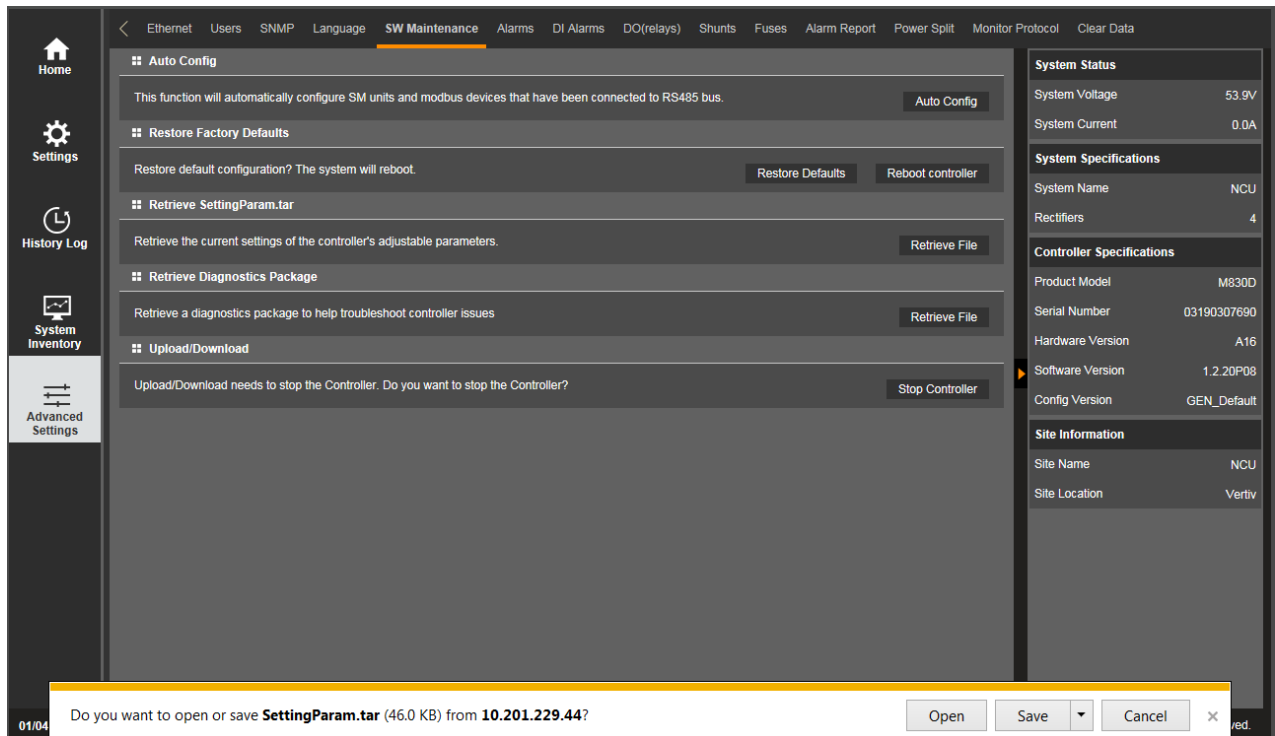
Advance Settings Menu / SW Maintenance Tab.

Procedure

1. Click on the "Retrieve File" button to save the file named "SettingParam.tar" to your computer. Select where you want the file to be copied to on your computer.

To aid in file management, you may change the name of the "SettingParam.tar" file to differentiate it from other "SettingParam.tar" files saved. The new name can use alpha and numeric characters preceding the original "SettingParam.tar" name (the end of the new file name **must** always be "SettingParam.tar"; for example, an acceptable filename would be "seville4SettingParam.tar").

Figure 1.38 Retrieve "SettingParam.tar" File



1.6.2 NCU Version 1.1.70, or Earlier

General

There are two steps in backing up the system's NCU configuration:

- Save the NCU configuration package. This package includes the base configuration and any changes made to alarm severity levels, relay assignments, signal names and site information.
- Save a file named "SettingParam.run". This file contains changes made to alarm setpoints and other settings such as float/equalize voltage, etc. A file named "SettingParam.run" is automatically created/append by the controller whenever a User (or the factory at the time of shipment) makes changes to parameter settings via the local display or Web Interface. This file can be saved to your computer so you can restore any custom settings you may have made.

Saving the Configuration Package

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

You can upload (from the controller to your computer) a configuration package.

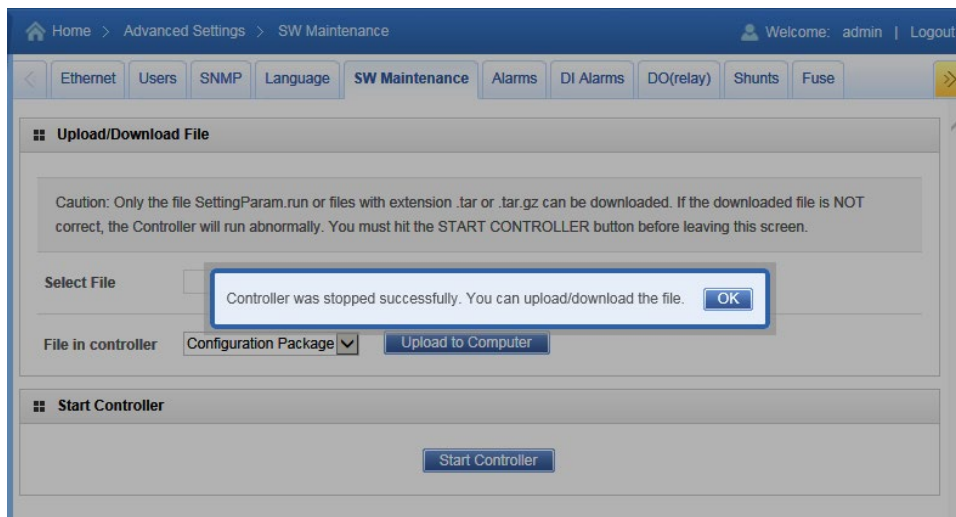
1. To upload a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.

Figure 1.39 Upload - Stop Controller



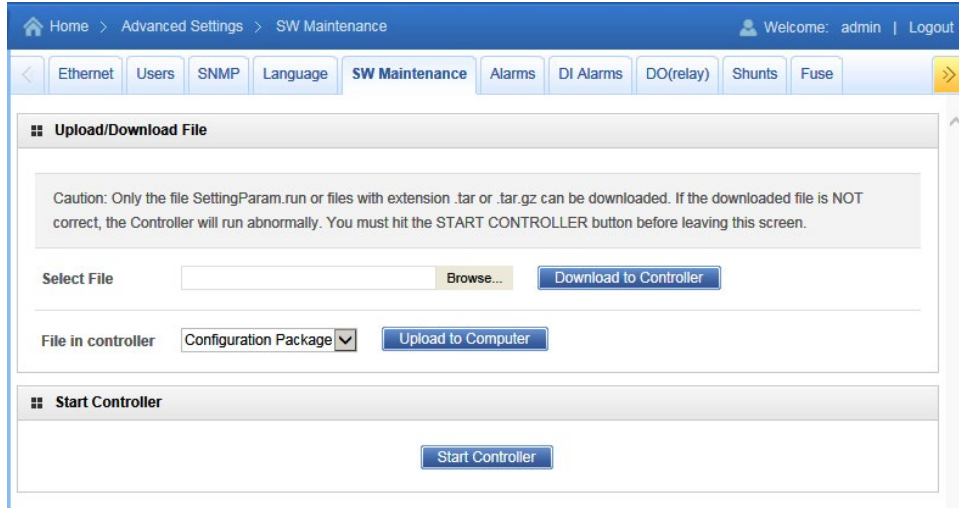
2. The following window opens.

Figure 1.40 Upload - Controller Stopped



3. Click "OK".
4. The following window opens.

Figure 1.41 Upload File



ALERT! Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **upload** a file to your computer, select "Configuration Package" from the "File in Controller" drop-down list box, and click on the "Upload to Computer" button to save the file to your computer. Select where you want the file to be copied to on your computer. Click "Start Controller" to restart the Controller.

Saving the SettingParam.Run File

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

1. Click on the "Retrieve File" button to save the file named "SettingParam.run" to your computer. Select where you want the file to be copied to on your computer.

To aid in file management, you may change the name of the "SettingParam.run" file to differentiate it from other "SettingParam.run" files saved. The new name can use alpha and numeric characters preceding the original "SettingParam.run" name (the end of the new file name **must** always be "SettingParam.run"; for example, an acceptable filename would be "seville4SettingParam.run").

Figure 1.42 Retrieve SettingParam.run



1.7 Reloading a Backed-Up NCU Configuration

1.7.1 NCU Version 1.1.80, or Later

General

To reload the NCU configuration, simply download a saved "SettingParam.tar" file into the NCU.

Reloading the "SettingParam.tar" File

Local Menu Navigation:

None.

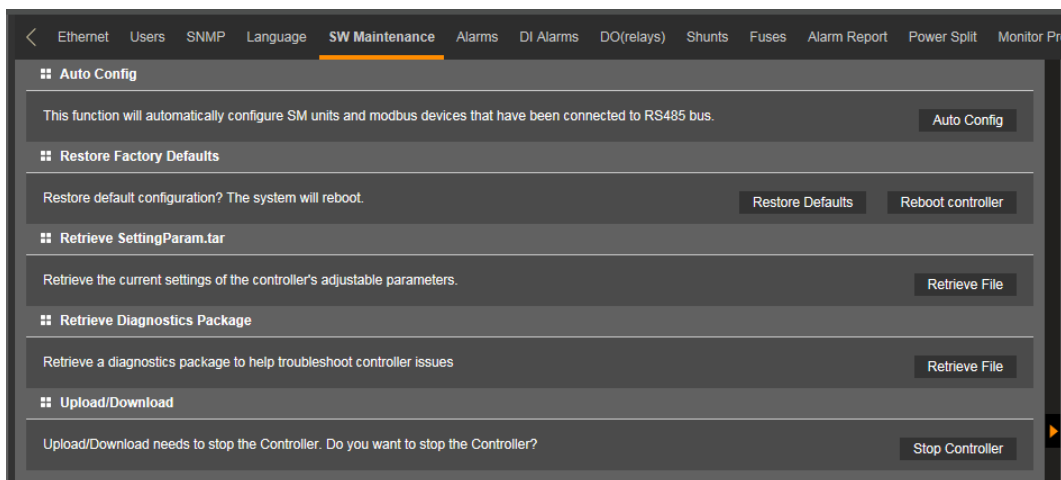
Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

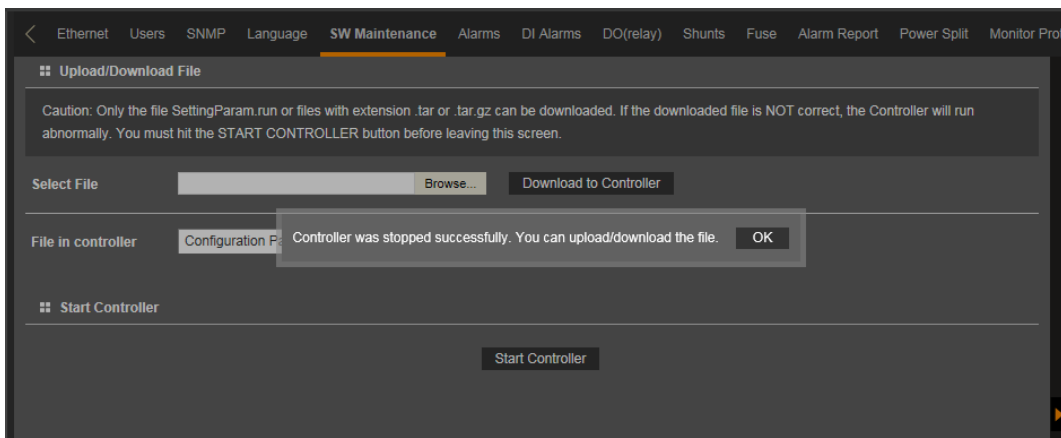
1. To download a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.

Figure 1.43 Download - Stop Controller



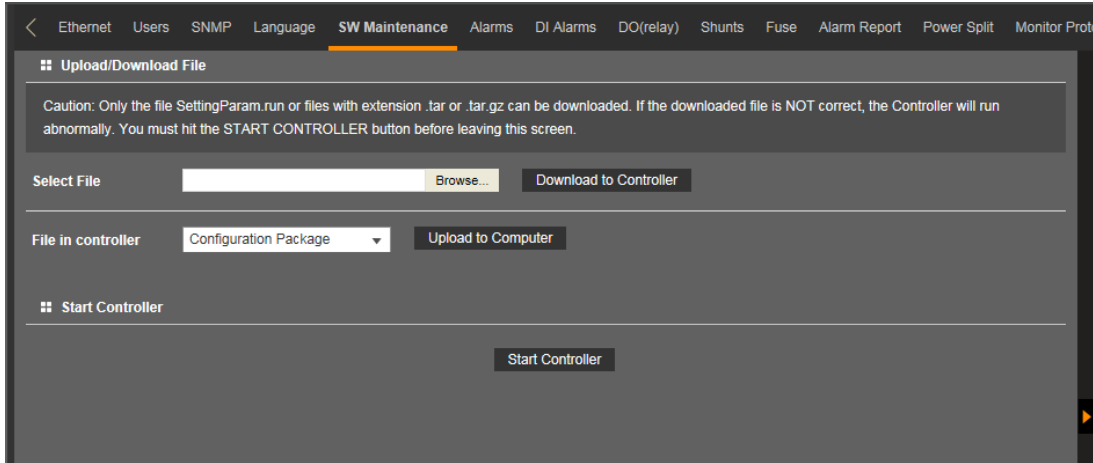
2. The following window opens.

Figure 1.44 Download - Controller Stopped



3. Click "OK".
4. The following window opens.

Figure 1.45 Download File



ALERT! Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **download** (from your computer into the controller) a "SettingParam.tar" file; click the "Browse..." button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button. Click "Start Controller" to restart the controller with the downloaded file installed.

1.7.2 NCU Version 1.1.70, or Earlier

General

There are two steps in reloading a backed-up NCU configuration:

- One step to reload the saved NCU configuration package.
- One step to reload the saved "SettingParam.run" file.

Reloading the Configuration Package and the SettingParam.Run File

Local Menu Navigation:

None.

Web Menu Navigation:

Advance Settings Menu / SW Maintenance Tab.

Procedure

You can download (from your computer into the controller) a configuration package (filename has a tar or tar.gz extension) and a SettingParam.run file".

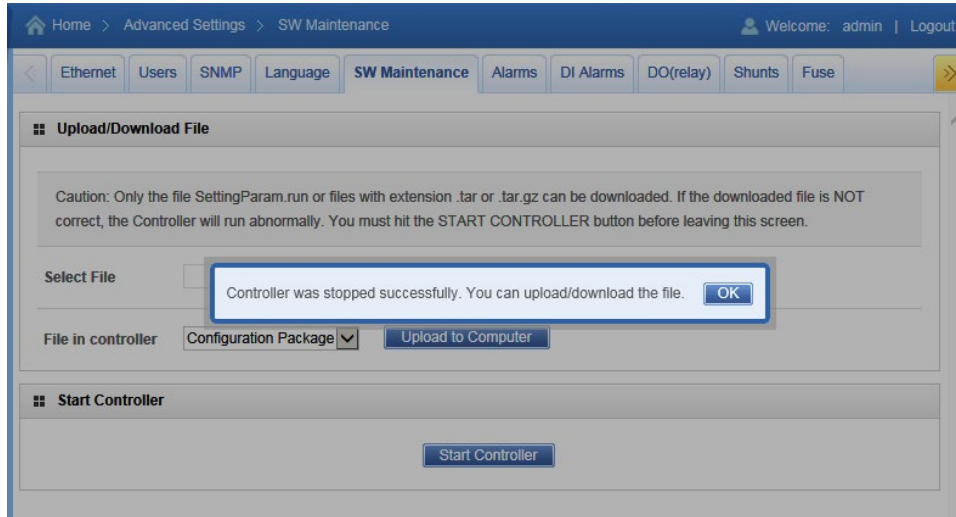
1. To download a file, you need to shut down the controller first. When you select the SW Maintenance Tab, click on the "Stop Controller" button.

Figure 1.46 Download - Stop Controller



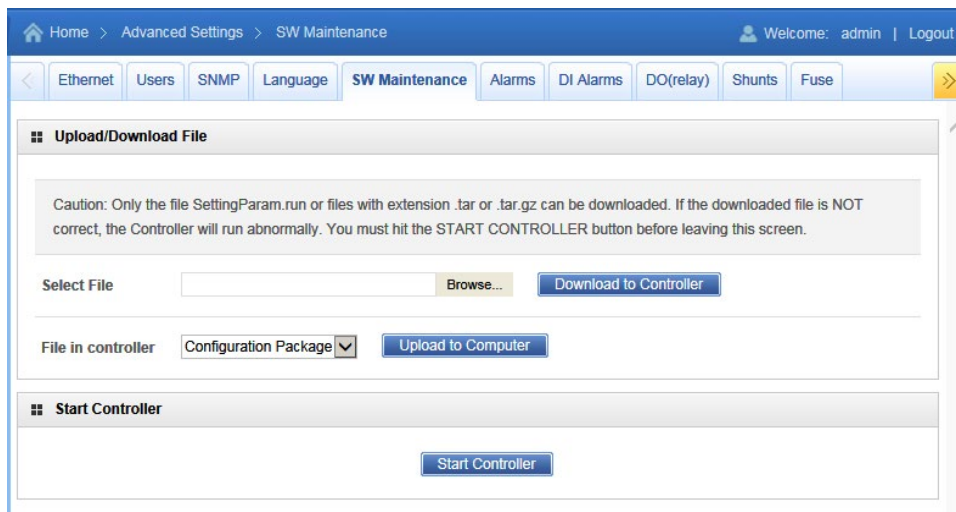
- The following window opens.

Figure 1.47 Download - Controller Stopped



- Click "OK".
- The following window opens.

Figure 1.48 Download File



ALERT! Never navigate from this Web page without first clicking on "Start Controller". If you do, you will not have Web access. A manual system reset is required to restore Web access.

5. To **download** (from your computer into the controller) a configuration package; click the "Browse..." button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button.
6. To **download** (from your computer into the controller) a "SettingParam.run" file; click the "Browse..." button and navigate to the folder where the file to download is located. Select the file to be downloaded and then click the "Download to Controller" button.
7. Click "Start Controller" to restart the controller with the downloaded files are installed.

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