

Powerware Series

9x55 8–15 kVA Battery Upgrade

For use with the Eaton® 9155 and 9355 (8–15 kVA)



IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important instructions that you should follow during installation and maintenance of the UPS and batteries. Please read all instructions before operating the equipment and save this manual for future reference.

CONSIGNES DE SÉCURITÉ IMPORTANTES – CONSERVER CES INSTRUCTIONS

Ce manuel comporte des instructions importantes que vous êtes invité à suivre lors de toute procédure d'installation et de maintenance de la PDU. Veuillez consulter entièrement ces instructions avant de faire fonctionner l'équipement et conserver ce manuel afin de pouvoir vous y reporter ultérieurement.

Eaton reserves the right to change specifications without prior notice. Eaton is a registered trademark of Eaton. All other trademarks are property of their respective companies.

©Copyright 2017 Eaton, Raleigh, NC, USA. All rights reserved. No part of this document may be reproduced in any way without the express written approval of Eaton.

Table of Contents

1 Introduction	1
2 Battery Upgrade Procedure.....	3

Table of Contents

Chapter 1 Introduction

Eaton has designed a new harness (see [Figure 16](#)) for the battery trays within the 9X55 8-15KVA products as an effort to provide arc flash mitigation. Battery trays should be replaced to include the adapter on every battery shelf. This adapter is included in models starting in September 2016. Older models require this battery upgrade.

Prior to the upgrade, the two battery trays in a shelf are oriented in opposite directions. The positive terminal of the left tray is to the front of the unit while the negative terminal of the right tray is in the front. After this upgrade, all trays will be oriented with the positive terminals to the front.

Installing the new adapter requires that you cut the existing terminals off of the red and black wires on the front of the battery shelf, strip the wire back 1/4 inch, install and crimp the new adapter onto the wires, and add shrink wrap over the crimped terminal.

Chapter 2 Battery Upgrade Procedure

 **WARNING**

This procedure involves interacting with components that may be energized.

Any and all work can involve hazards when working on electrical equipment. The work must be done in accordance with all applicable local, federal, or other safety requirements and must be performed by qualified personnel.

 **IMPORTANT**

In the event of input power failure while performing this procedure, battery backup will not be available.

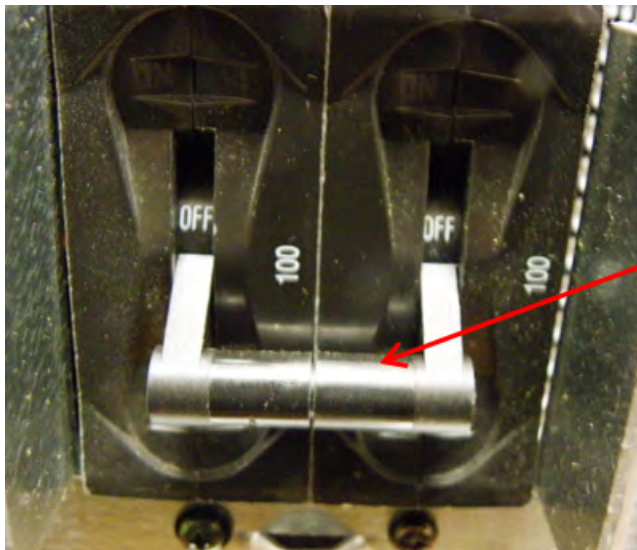
1. If possible, remove power from the system. Otherwise, follow the instructions in the UPS Maintenance section of the User's Guide to place the 9x55 8-15kVA UPS in Maintenance bypass. First, put the UPS into bypass then move the switch to maintenance bypass. However, if the UPS cannot be placed in maintenance bypass, the upgrade can still be performed by removing power from the system.

Figure 1. Bypass Mode (UPS mounted Maintenance Bypass Switch located at the rear of the unit)



2. Verify that the UPS battery circuit breaker CB1, at the rear of the unit, is open. Follow applicable lockout/tagout procedures.

Figure 2. CB1 Is Open (Located at the rear of the unit)



NOTE

If an external battery cabinet is attached, it must be disconnected from the UPS. Ensure that CB1 is open on each associated external battery cabinet.

3. Remove the front dress panel of the battery compartment.

Figure 3. Remove Front Panel



- Using a 7mm nut driver, remove the screws that secure the battery dead front and remove the dead front.

Figure 4. Remove Battery Dead Front Screws

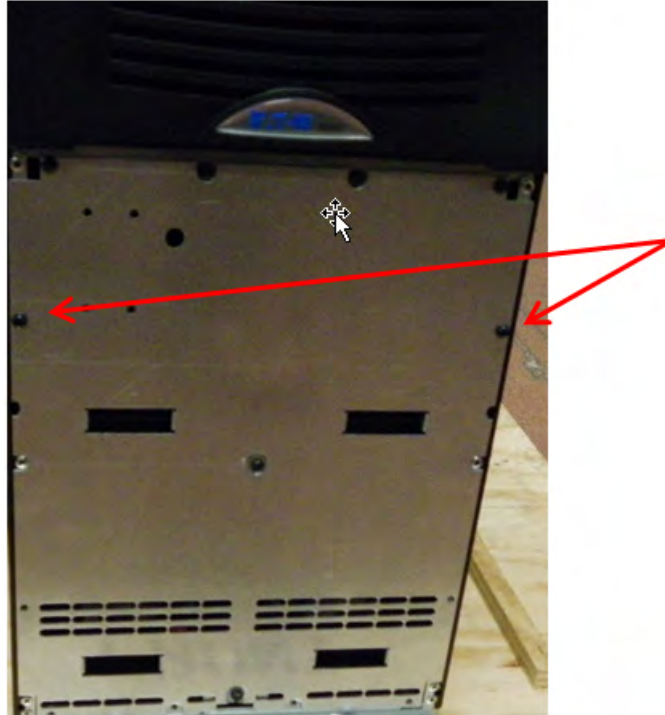


Figure 5. Battery Dead Front Removed



5. Disconnect all the cabinet harnesses from all the battery trays, starting with all the positive (red) wires then all the negative (black) wires. Ensure that the wires do not come into contact with any metal framing. It is recommended to isolate the connectors by using a non-conductive electrical tape to secure the end of each connector.

Figure 6. Disconnect the Cabinet Harnesses

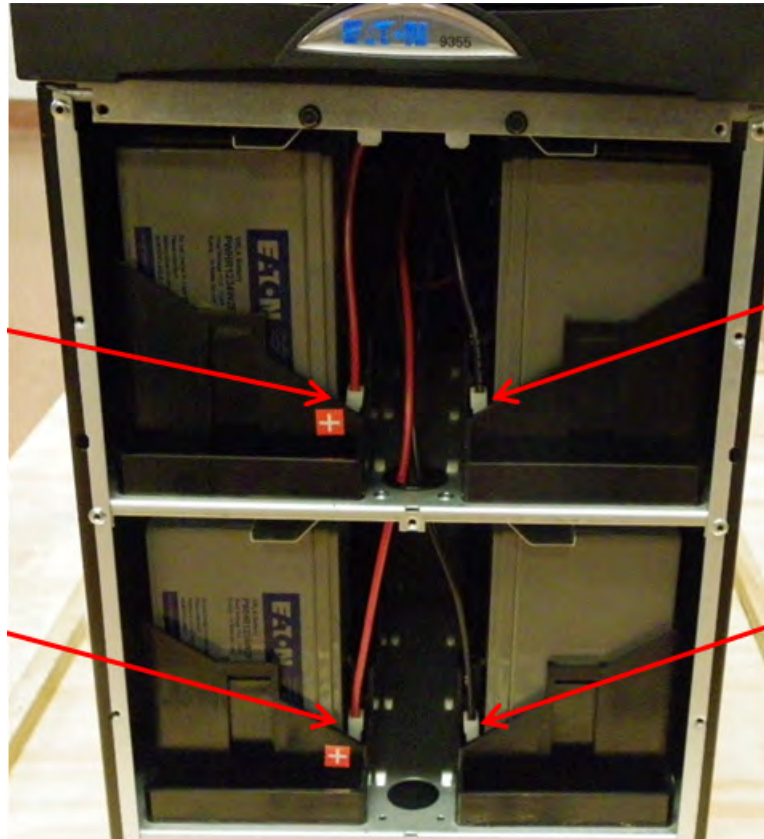


Figure 7. Disconnected Cabinet Harnesses



 **WARNING**

All battery trays must be disconnected prior to proceeding any further.

- Using a voltmeter, measure the voltage between the positive (+) and negative (-) disconnected harness from each shelf/string to verify that there is no voltage.

Figure 8. Verify Zero Voltage



WARNING

After performing Step 6, there will still be full battery string voltage between the positive (red) and negative (black) terminals of the battery trays.

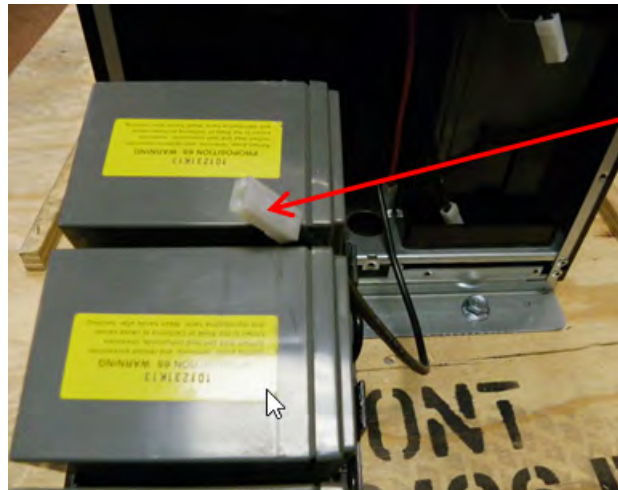
- Slide one battery tray half way out and disengage the tray to tray jumper from the tray clips.

Figure 9. Disconnect Tray to Tray Jumper From Tray Clips



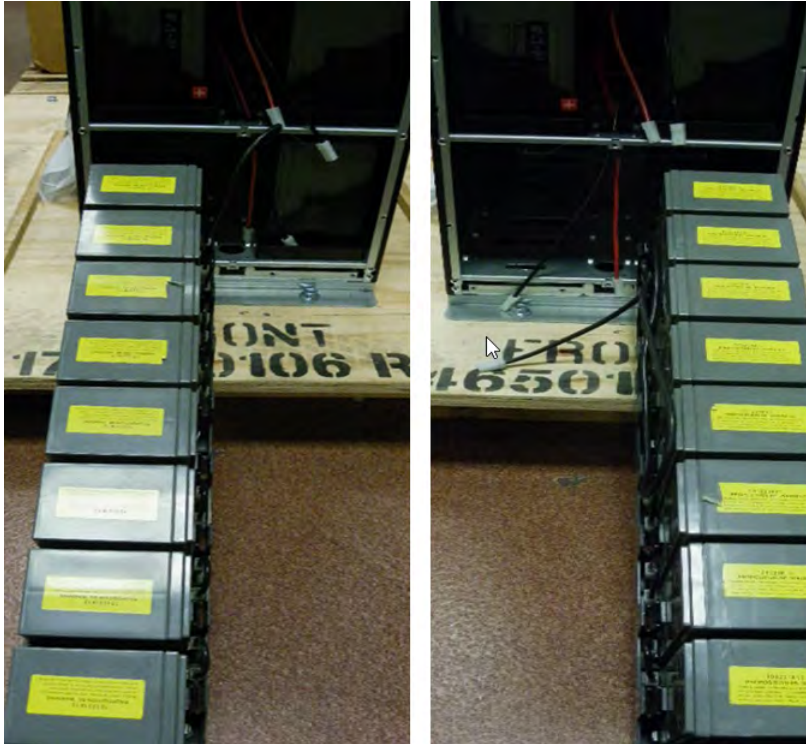
- Disconnect the tray to tray jumper (white terminal on a black wire).

Figure 10. Disconnected Tray to Tray Jumper



- Slide both battery trays completely out of the unit.

Figure 11. Both Trays Slid Completely Out



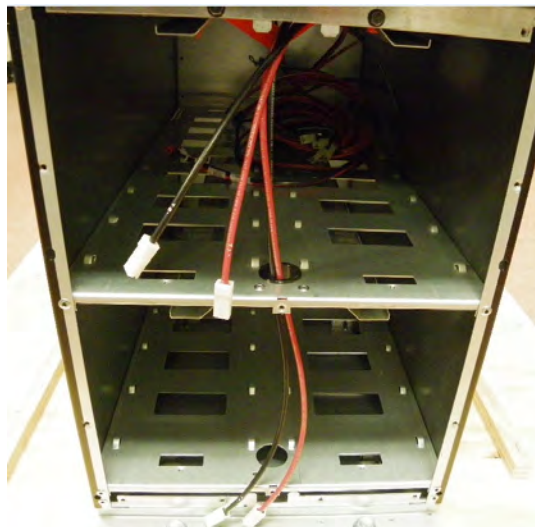
10. Remove and discard the tray to tray jumper.

Figure 12. Discard Tray to Tray Jumper



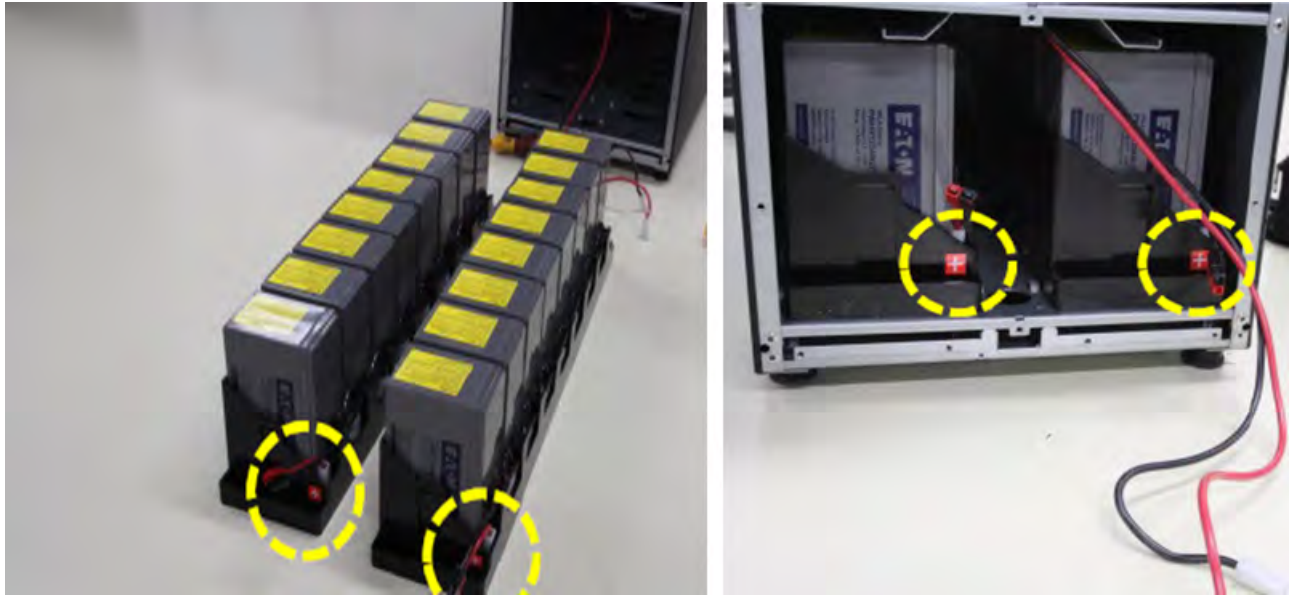
11. Repeat Steps 7–10 for the other battery shelves until all battery trays have been removed from the unit.

Figure 13. Empty Unit



- Slide the new battery trays into the unit. The positive (+) terminal of each tray should face the front of the unit and be on the right side of the tray (highlighted in yellow in [Figure 14](#)). When sliding it into position, lift the rear of each battery tray onto the shelf to get it started.

Figure 14. Insert New Battery Trays



- Locate the remaining cabinet wiring that was previously disconnected from the old trays. Use a wire cutter (preferably the scissor action type as opposed to diagonal cutters) to cut/remove the existing female Faston® terminal on the cabinet harness (spade terminal off the ends of the red and black wires). It is preferred to perform this step by doing one string/shelf at a time.

14. Use a wire stripper (preferably the no-nick type so that no wire strands are cut off or nicked/weakened) to strip 1/4 inch of insulation from each of the red and black wires.

Figure 15. Strip 1/4 Inch of Insulation



15. Connect the newly provided adapter harness (see [Figure 16](#)) to the UPS battery tray wiring, using the crimp tool (or equivalent) illustrated in [Figure 17](#). It is recommended that [crimp tool PN 59824-1](#) or equivalent is used in this step. Ensure that the two pieces of black heat shrink (highlighted in yellow in [Figure 18](#)) are on the adapter assembly. Then insert the negative (black) wire into the crimp terminal on the black wire of the retrofit adapter (see [Figure 18](#)).

Figure 16. New Adapter

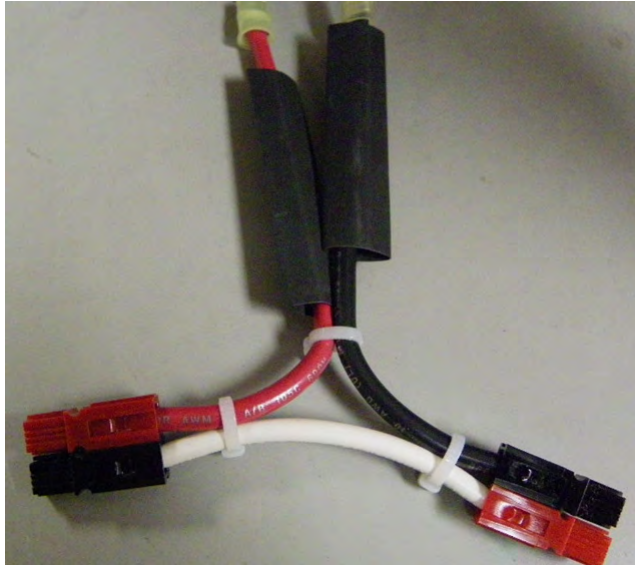


Figure 17. Recommended Crimp Tool

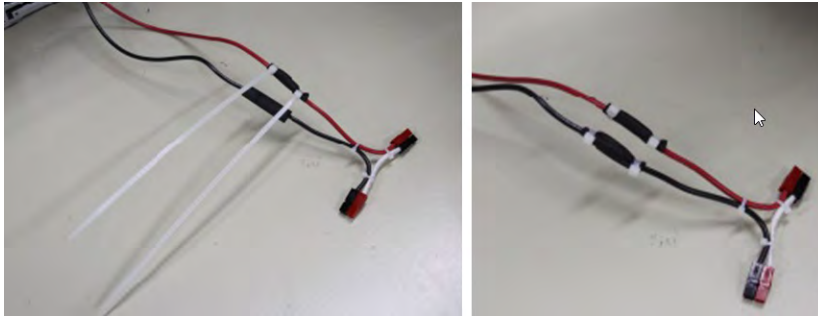


 **WARNING**

Ensure that no bare wire is exposed outside of the crimp terminal.

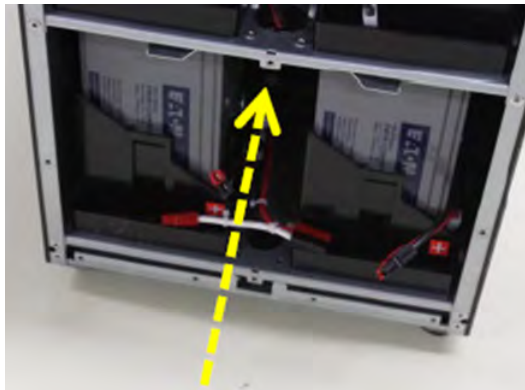
17. Slide the black heat shrink tubing over each crimp terminal, one at a time. Either heat the heat shrink to get it to contract around the connections or use tie wraps to hold it in place (pull tightly, then cut the excess length).

Figure 20. Place and Secure Heat Shrink Tubing



18. Carefully push the newly modified wiring set back into the unit between the newly installed trays.

Figure 21. Push Wires Between Newly Installed Trays

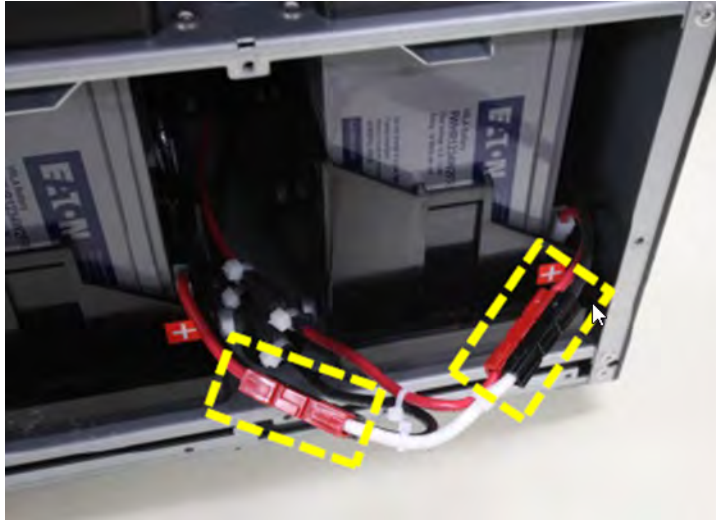


19. Repeat Steps 15–18 for all battery shelves.
20. Verify the correct polarity between the newly installed UPS harness adapter and the battery tray harness prior to making each connection.

⚠ CAUTION

All the battery shelves must be modified to incorporate the new adaptor harness (illustrated in Figure 16) prior to connecting **any** battery trays. Mating the battery connectors on one shelf would make all of the other shelf wires electrically live.

Figure 22. Connecting the Anderson Connectors (black to black and red to red)



21. Push the new harness and connections back against the battery cases. Secure the right side harness to the battery tray using a single tie-wrap to prevent the connections from coming into contact with the dead front and its screws when reinstalled.

22. Reinstall the dead front and secure with the previously removed 7 mm screws. Ensure that the tray retainer clips (on the back of the dead front) do not pinch the battery cables.

Figure 23. Reinstall the Dead Front

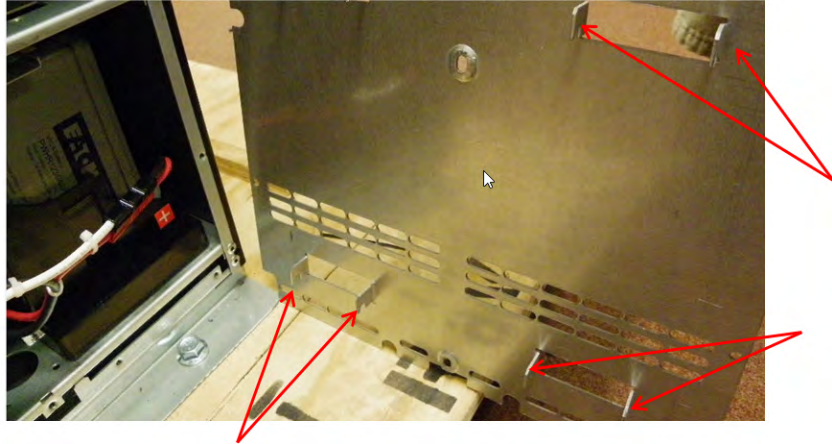


Figure 24. Reinstalled Dead Front



23. If an external battery cabinet is attached, reconnect it to the UPS.

24. Reinstall the front dress panel.

Figure 25. Battery Cabinet Front Dress Panel Reinstalled



25. Follow the instructions in the equipment's User's Guide (shown in the "Normal Mode Startup" section) to command the unit to normal mode of operation.

NOTE The figure below provides a schematic example of the end result as a reference for a two-string / two-shelf configuration:

Figure 26. Schematic Example of New Configuration

