



AC 100.100-24 and AC 100.100-36 Battery Replacement Procedure



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1. Introduction

1.1 Scope

These instructions are intended to support authorized personnel in replacing any of the batteries (6441-40018) inside the ZeroRPM® AC 100.100-24 (7700-00005) and AC 100.100-36 (7700-00008).

NOTICE: These instructions are designed around the AC 100.100-24. If they are used on the AC 100.100-36, part numbers, component locations, cable/wire routing, etc. will vary.

The following information is subject to change without notice.

CAUTION: Correct location of all components is essential for proper operation of the system. Failure to comply with these instructions may result in poor operation; no operation; and/or damage to the unit, the vehicle, or the vehicle's components. Non-compliance with the instructions and information contained herein will void the warranty.

1.2 Meanings of **WARNING**, **CAUTION**, and **NOTICE**

WARNING: This heading is used to highlight that non-compliance with the instructions may cause injury or death.

CAUTION: This heading is used to highlight that non-compliance with the instructions may cause damage to equipment.

NOTICE: This heading is used to draw attention to specific information.

1.3 Safety

All general safety regulations for the prevention of accidents and the relevant operating safety instructions must be followed. Safety must be the top priority at all times.

1.4 Disclaimer

Employers are required to establish a program and use proper procedures for affixing appropriate lock-out/tag-out protectors to energy-isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start-up, or release of stored energy to prevent injury to employees. Refer to your company's lock-out/tag-out program for more details.

The battery sense strings are sensitive to electrostatic discharge. Refer to your company's electrical standards for proper grounding practices.

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2. Tools Required

Tools	Notes
12V-20V battery-powered driver	
Torx bits	T20, T25
flush cutters	
ratchet(s)	
sockets	13mm, 15mm, 7/16", 9/16", 3/4"
3mm Allen bit	
7/16" wrench	
torque wrench(es)	145.0 in-lbs, 167.0 in-lbs, 180.0 in-lbs, 192.0 in-lbs
torque striping tool	
electrical tape	Used to cover power cable lugs until lock-out/tag-out protectors are installed.

3. PPE Required

Tools	Notes
safety glasses	
lock-out/tag-out protectors	Follow your company's standards for use.

4. Procedure

4.1 Replacing Battery C, Battery B, and/or Battery A

NOTICE: Section 4.1 details how to replace Battery C (left). The steps in this section must also be performed when replacing Battery B (middle) and/or Battery A (right) as they cannot be accessed unless Battery C is removed. If you are replacing only Battery C, proceed to Section 4.4 after completing the steps in this section.

WARNING: Remove any jewelry before proceeding.

- Engage the hybrid disconnect.

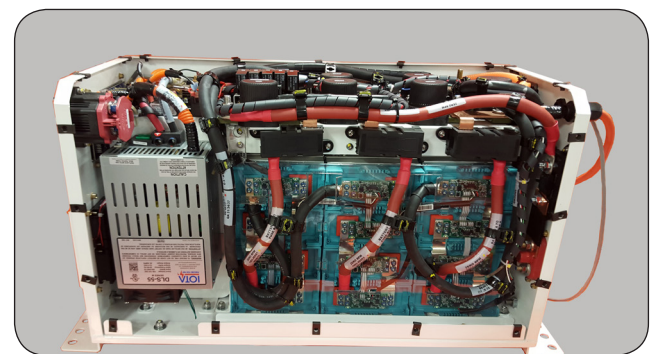


- Confirm that no external power source is plugged into the vehicle's external shore power port.
- Unplug the primary Rebling connector, the auxiliary Rebling connector, and the 12-pin and 21-pin Deutsch connectors from the unit.



- Remove the lid.

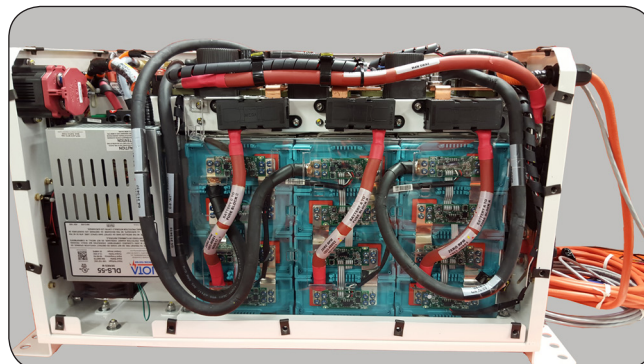
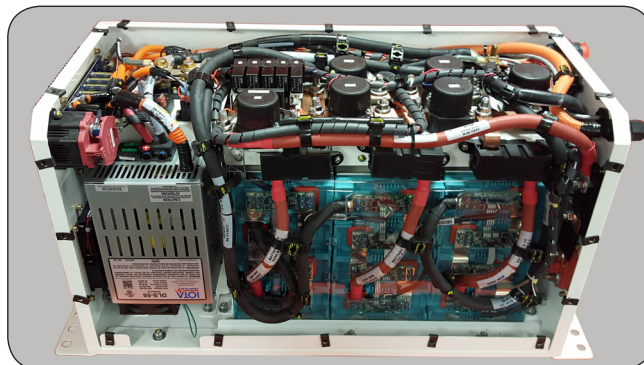
Requires: 12V-20V battery-powered driver
T25 Torx bit



- Take a photo of the locations of all cable ties to reference when replacing them later in the procedure.
- Remove all cable ties that constrain the battery power and ground cables.

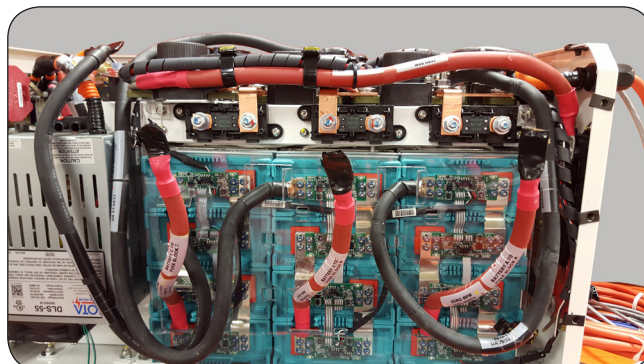
NOTICE: The quantity and locations of the cable ties may vary.

Requires: flush cutters



- Remove the fuse holder covers and set them aside.
- Remove the power cables from the fuse holders.
- Cover the power cable lugs with electrical tape.

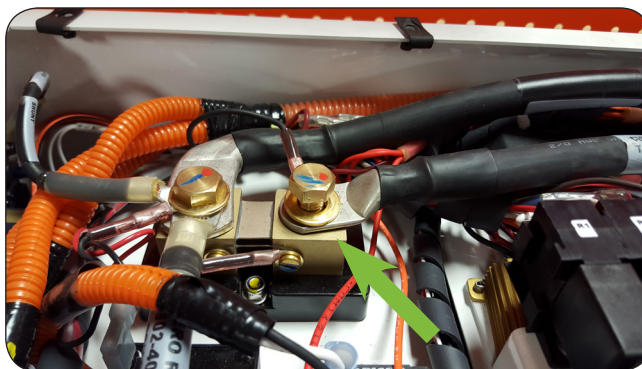
Requires: 1/4" ratchet
13mm socket
electrical tape



AC 100.100-24 and AC 100.100-36 Battery Replacement

- Remove the Battery C ground cable from the right side of the current shunt.
- Finger-tighten the bolt to secure the remaining connections.

Requires: 1/4" ratchet
9/16" socket



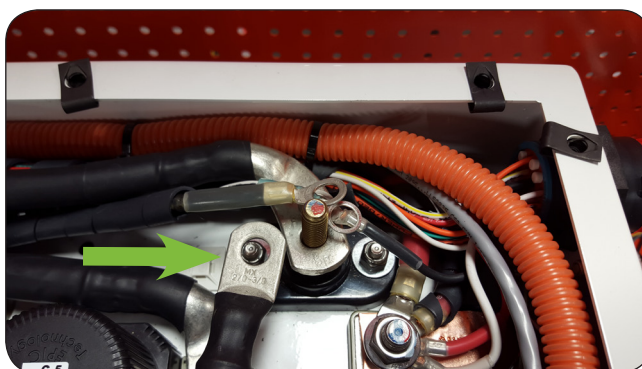
- Remove the Battery B ground cable from C3 (A1).

Requires: 1/4" ratchet
15mm socket



- Remove the Battery A ground cable from the ground stud.

Requires: 1/4" ratchet
9/16" socket



AC 100.100-24 and AC 100.100-36 Battery Replacement

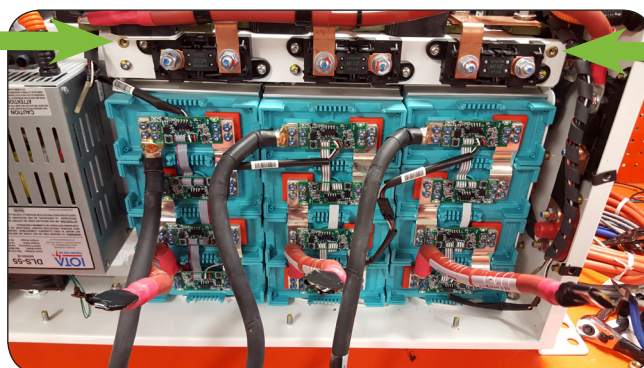
- Remove the L bracket.

Requires: 7/16" wrench [left nut]
1/4" ratchet
7/16" socket [other nuts]



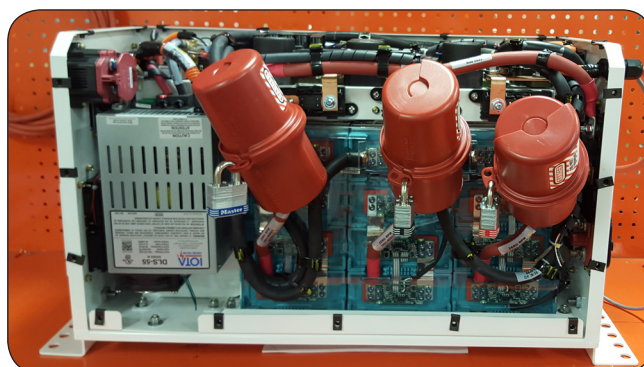
- Remove the Lexan cover.

Requires: 12V-20V battery-powered driver
3mm Allen bit

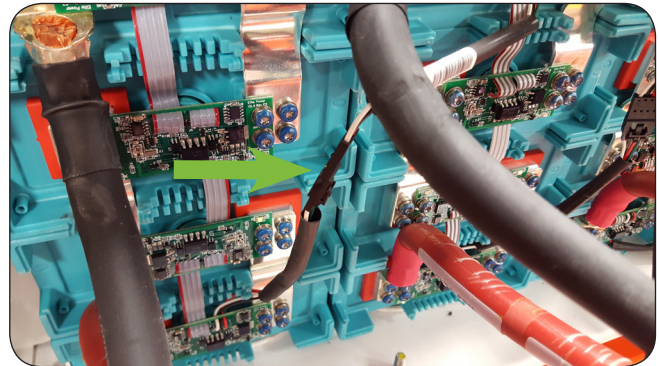
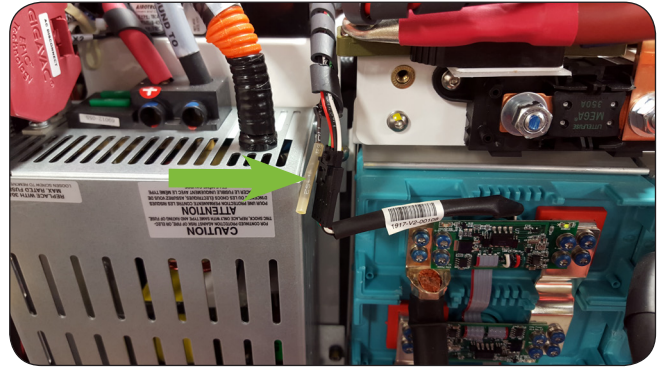


- Cover the battery power cable lugs with lock-out/tag-out protectors in accordance with your company's standards to avoid shorting.

Requires: lock-out/tag-out protectors



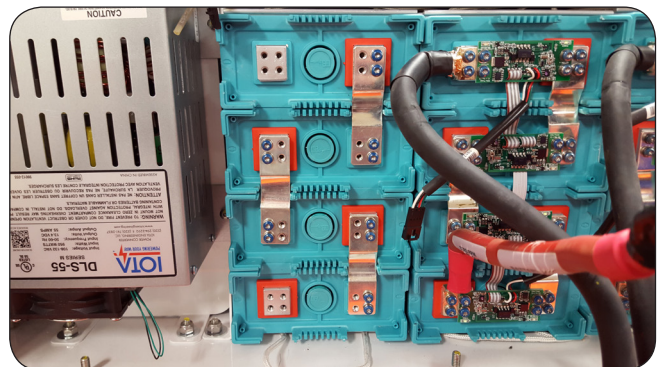
- Disconnect the left end of the sense string harness.
- Disconnect the Battery B/C sense string.



- Remove the top sense board from Battery C, then remove the Battery C ground cable.
- Remove the bottom sense board from Battery C, then remove the Battery C power cable.
- Remove the middle sense boards from Battery C.

NOTICE: Reference work instruction 4807-00120 for more information on replacing the sense boards.

Requires: 12V-20V battery-powered driver
T20 Torx bit



- Remove the top sense board from Battery B, then remove the Battery B ground cable.

Requires: 12V-20V battery-powered driver
T20 Torx bit



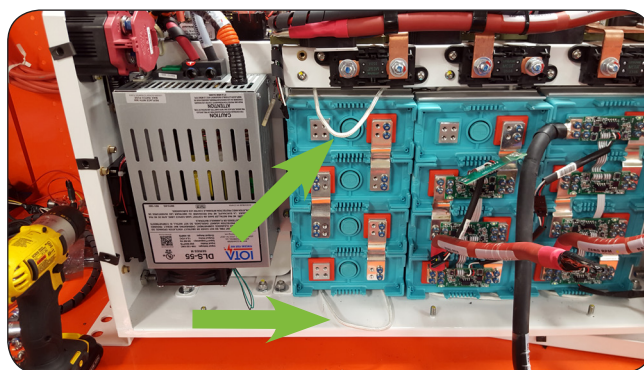
AC 100.100-24 and AC 100.100-36 Battery Replacement

- Loosen the fiberglass bolt above Battery C until it no longer makes contact with the top of the battery.

Requires: ratchet
3/4" socket



- Pull the Battery C handles out.



- Remove Battery C.

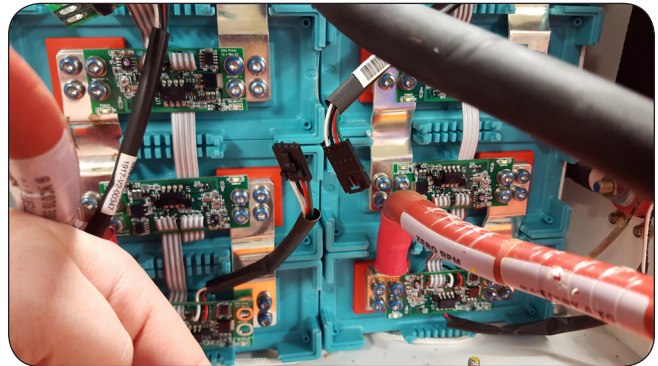


NOTICE: If you are replacing only Battery C, proceed to Section 4.4. If you are replacing Battery B and/or Battery A, proceed to Section 4.2.

4.2 Replacing Battery B and/or Battery A

NOTICE: Section 4.2 details how to replace Battery B (middle). The steps in this section must also be performed when replacing Battery A (right) as it cannot be accessed unless Battery B is removed. If you are replacing only Battery B (or Batteries C and B), proceed to Section 4.4 after completing the steps in this section.

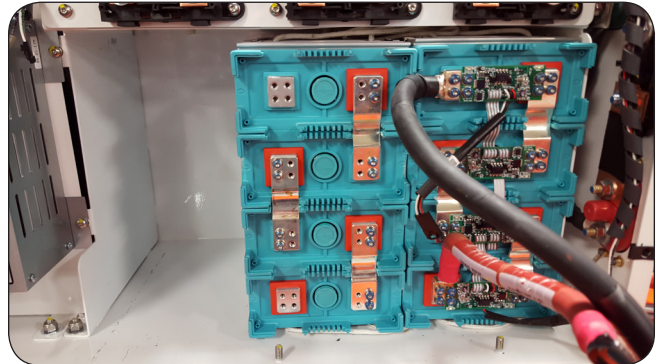
- Disconnect the Battery A/B sense string.



- Remove the bottom sense board from Battery B, then remove the Battery B power cable.
- Remove the middle sense boards from Battery B.

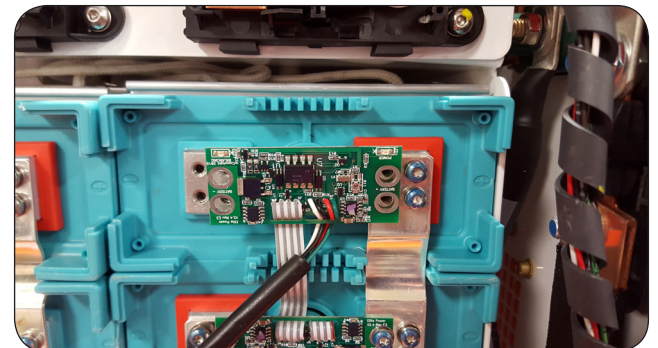
NOTICE: Reference work instruction 4807-00120 for more information on replacing the sense boards.

Requires: 12V-20V battery-powered driver
T20 Torx bit



- Remove the top sense board from Battery A, then remove the Battery A ground cable.

Requires: 12V-20V battery-powered driver
T20 Torx bit



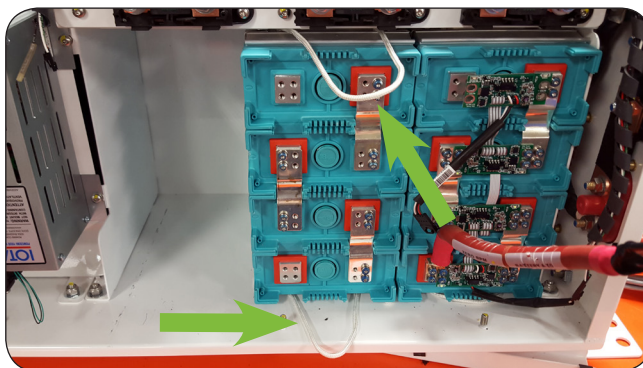
AC 100.100-24 and AC 100.100-36 Battery Replacement

- Loosen the fiberglass bolt above Battery B until it no longer makes contact with the top of the battery.

Requires: 1/4" ratchet
3/4" socket



- Pull the Battery B handles out.
- Mark the top of the battery so you know which one it is after it is removed.



- Slide Battery B to the left between the L bracket studs.



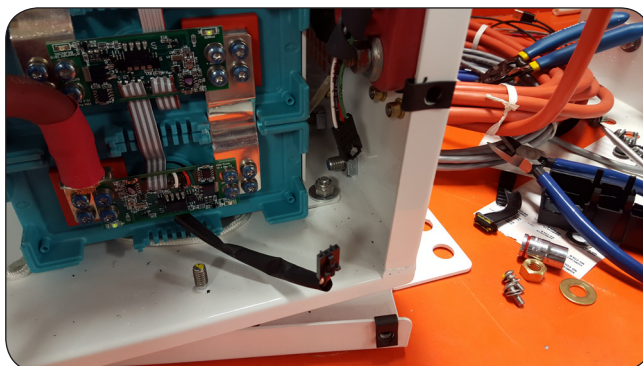
- Remove Battery B.



NOTICE: If you are replacing only Battery B (or Batteries C and B), proceed to Section 4.4. If you are replacing Battery A, proceed to Section 4.3.

4.3 Replacing Battery A

- Disconnect the right end of the sense string harness.



- Remove the bottom sense board from Battery A, then remove the Battery A power cable.
- Remove the middle sense boards from Battery A.

NOTICE: Reference work instruction 4807-00120 for more information on replacing the sense boards.

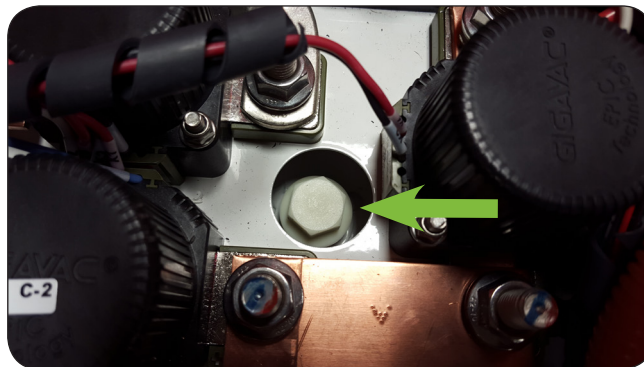
Requires: 12V-20V battery-powered driver
T20 Torx bit



AC 100.100-24 and AC 100.100-36 Battery Replacement

- Loosen the fiberglass bolt above Battery A until it no longer makes contact with the top of the battery.

Requires: 1/4" ratchet
3/4" socket



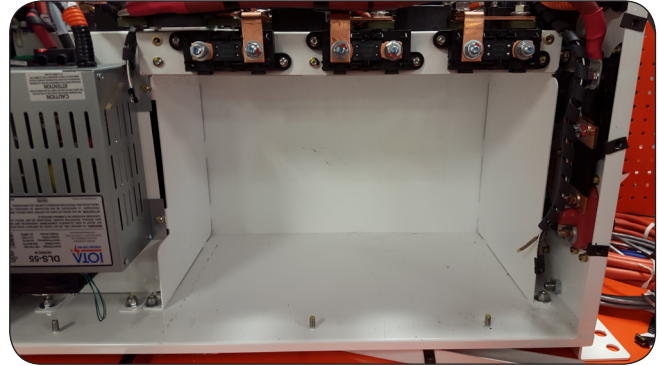
- Pull the Battery A handles out.



- Slide Battery A to the left between the L bracket studs.

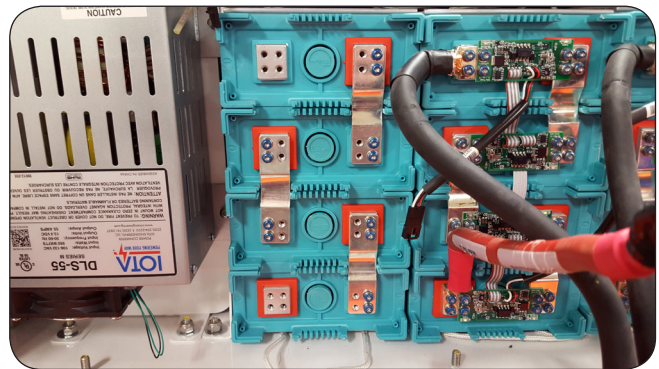


- Remove Battery A.



4.4 Installing New Batteries and Restoring the Unit

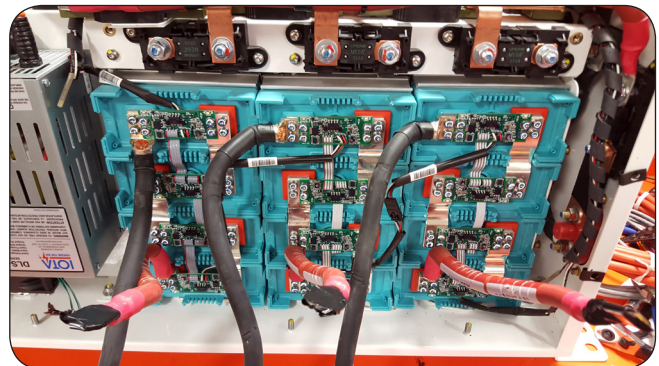
- Install the new battery/batteries in the proper position(s).
- If you removed any batteries other than the one you are replacing, reinstall them in their original positions.



- Working from right to left, install the sense boards and power/ground cables on the batteries as follows:
 - Install the sense boards and power/ground cables on the new batteries using the new factory screws. If you are provided new sense boards, use them instead of the originals.
 - Install the original sense boards and power/ground cables on any batteries that were not replaced using the original factory screws.
- Torque the screws to 30.0 in-lbs.
- Mark the screws with a torque striping tool as you go to indicate that they have been re-torqued.

NOTICE: Reference work instruction 4807-00120 for more information on replacing the sense boards.

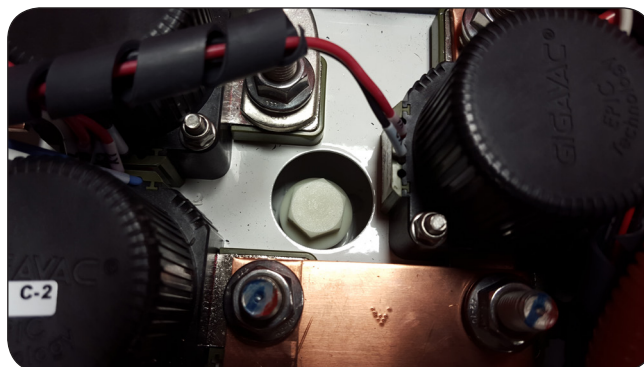
Requires: torque wrench
T20 Torx bit
torque striping tool



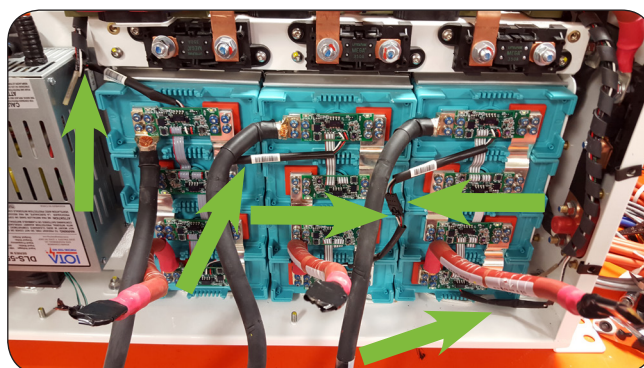
AC 100.100-24 and AC 100.100-36 Battery Replacement

- Tighten the fiberglass bolts until they make contact with the batteries. Stop tightening once contact is made.

Requires: 1/4" ratchet
3/4" socket

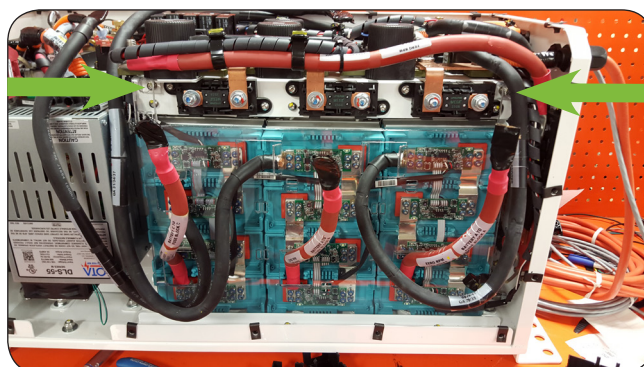


- Remove the lock-out/tag-out protectors.
- Reconnect all sense strings.



- Reinstall the Lexan cover.

Requires: 12V-20V battery-powered driver
3mm Allen bit



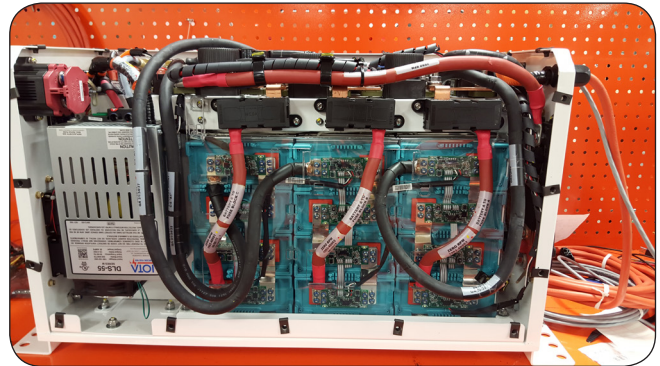
- Reinstall the Battery C ground cable on the right side of the current shunt (green circle). Torque the bolt to 192.0 in-lbs and mark it with a torque striping tool to indicate that it has been re-torqued.
- Reinstall the Battery B ground cable on C3 (A1) (blue circle). Torque the flange nut to 167.0 in-lbs and mark it with a torque striping tool to indicate that it has been re-torqued.
- Reinstall the Battery A ground cable on the ground stud (red circle). Torque the nut to 180.0 in-lbs and mark it with a torque striping tool to indicate that it has been re-torqued.

Requires: torque wrench
9/16" socket [current shunt and ground stud]
15mm socket [C3 (A1)]
torque striping tool



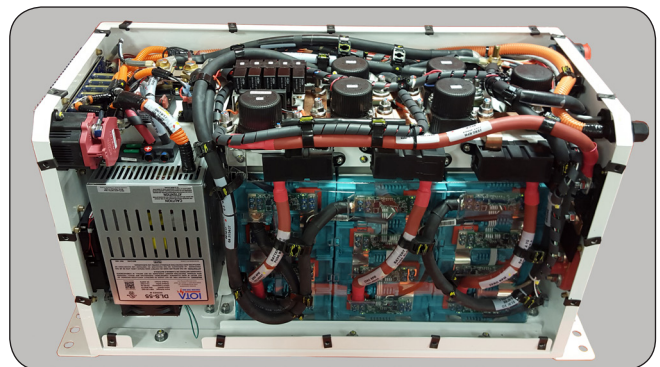
- Remove the electrical tape from the power cable lugs.
- Reinstall the power cables on their respective fuse holders. Torque the nuts to 145.0 in-lbs; mark them with a torque striping tool as you go to indicate that they have been re-torqued.
- Reinstall the fuse holder covers.

Requires: torque wrench
13mm socket
torque striping tool



- Replace the cable ties you removed by referencing the photo you took earlier in the procedure.

Requires: flush cutters



- Reinstall the lid.
- Reference the figures below for lid fastener rundown comparisons.

Requires: 12V-20V battery-powered driver
T25 Torx bit

Properly Seated



Properly Seated



Under-tightened



Under-tightened



Over-tightened



Over-tightened



- Reconnect the primary Rebling connector, the auxiliary Rebling connector, and the 12-pin and 21-pin Deutsch connectors to the unit.



- Disengage the hybrid disconnect.

