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April 4, 2019

Dear Altec Owner,

Altec Industries, Inc. has developed a product improvement which relates to certain AT30-G, AT37-G, AT37M, AT40-G, AT40M, AT41M, AT48M, AT48P, AT248F, AM50/55, TA50/60, L42E, LR7, DH50B, DM47B, and service bodies equipped with JEMS 4 and JEMS 6 systems.

Refer to SIL 698 for items covered under the warranty policy. Altec will supply necessary parts to correct this condition.

In order to determine if your unit is affected by SIL 698, compare the serial number of your unit with the list of affected units as described on the SIL. The product improvement can be performed by the customer or you may contact Altec at 1-877-GO-ALTEC (1-877-462-5832) for further assistance.

At any time, you may contact Altec at 1-877 GO ALTEC (1-877-462-5832) with your unit's serial number to determine if there are any other outstanding notices.

If you have sold or retired the unit please call Altec at 1-877-GO-ALTEC (1-877-462-5832) so the records may be changed.

We regret this inconvenience; however we are taking this action in the interest of your safety and continued satisfaction with Altec products.

Thank you for your immediate attention on this important matter.

Service Information Letter

April 4, 2019

Units Affected: Certain AT30-G, AT37-G, AT37M, AT40-G, AT40M, AT41M, AT48M, AT48P, AT248F, AM50/55, TA50/60, L42E, LR7, DH50B, DM47B, and Service Bodies equipped with JEMS 4 and JEMS 6 systems (see attached list)

Battery Cell Low Voltage Repair

Altec is committed to providing our customers reliable products from initial delivery throughout the useful life of the machine.

Altec has discovered that cells in the Jobsite Energy Management System (JEMS) battery pack may fail prematurely. Investigation found this is due to a wiring issue that causes unintended current drain under certain circumstances. This can prevent the battery pack from operating the unit in ePTO mode. It can also cause the engine to remain running instead of switching to idle mitigation. A failed battery cell will display the System Fault error code showing the Triangle E and Battery ! icons appearing at the same time on the JEMS display (refer to Figure 1).



Figure 1 — Failed Battery Cell Indication

The JEMS manufacturer has determined a wiring change in the JEMS battery pack stops the unintended current drain. Altec recommends that this wiring change is made to the JEMS system no later than the next scheduled periodic maintenance interval. Use the inspection and repair procedure included beginning on Page 2. This procedure refers to the ZeroRPM documents listed below. The ZeroRPM documents are available through the Altec.com web site (<https://www.altec.com/service/technical-information/>).

ZeroRPM Work Instructions:

- 4807-00133 – JEMS 4 Wire Relocation
- 4807-00139 – JEMS 6 Wire Relocation
- 4807-00135 – BMS Calibration
- 4807-00137 – Battery Recovery
- 4807-00104 – JEMS 4/6 Battery Replacement
- 4807-00120 – JEMS 4/6 Sense String Replacement

This repair is covered under the Altec Warranty Policy and can be performed by Altec, the customer, or the customer's warranty provider. Altec will perform the repair for free at an Altec facility. If the customer, or the customer's warranty provider performs the repair, a warranty claim must be submitted to be reimbursed for the cost of the parts and/or labor. Altec will allow up to \$180 for the labor to perform this repair. There is no warranty reimbursement for the inspection. Call 1-877-GO ALTEC (1-877-462-5832) to schedule the work to be done by an Altec service technician. Customers are responsible for the travel costs of an Altec Mobile Service technician if the technician performs the inspection or repair at the owner's location.

Inspection and Repair Procedure

Normal mechanic's hand tools are required for the procedure. Read and understand all steps of the instructions before beginning the procedure.

1. Position the unit on a level surface, apply the parking brake, and chock the wheels. Engage the unit's hydraulic system and properly set the outriggers (if so equipped).
2. Check to see if the unit is equipped with a JEMS 4 or JEMS 6 battery pack.
 - JEMS 4 — Altec p/n 990180697 and ZeroRPM p/n 7700-00005 (refer to Figure 2)
 - JEMS 6 — Altec P/N 990263141 and ZeroRPM p/n 7700-00008 (refer to Figure 3)

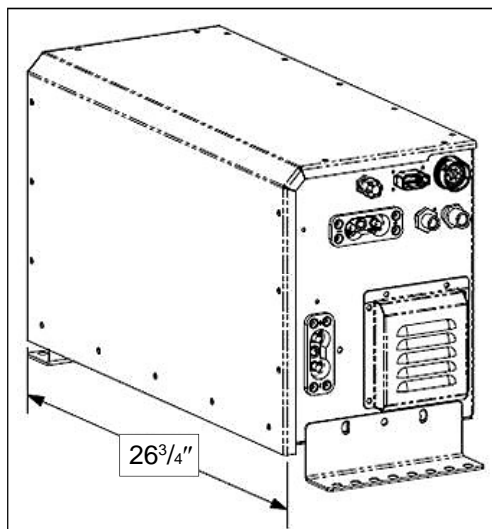


Figure 2 — JEMS 4 Unit

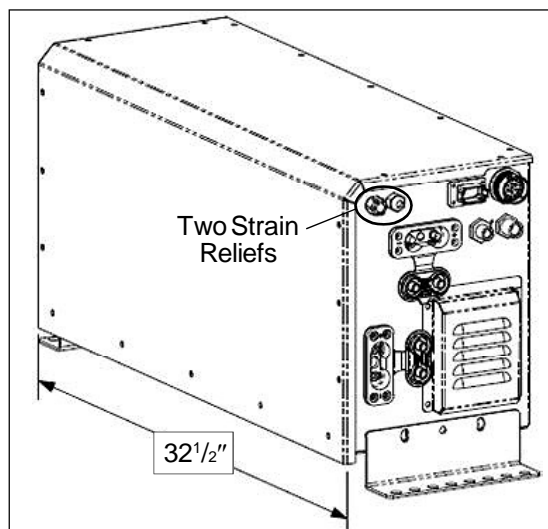


Figure 3 — JEMS 6 Unit

CAUTION

Injury can result from electric shock. Severe arcing can occur even when working with low voltage vehicle electrical systems. Use caution when working with any electrical device.

3. Remove the cover on the JEMS battery pack enclosure. Look to see to which contactor the red 8 GA 12V supply wire is connected.
 - If it is connected to the stud on contactor C2 (refer to Figure 4 or 5), proceed to Step 4 to perform the wiring modification.
 - If the wire is connected to the stud on contactor C1 may be labeled C9 on some JEMS 4 units (refer to Figure 6 or 7), the wiring has already been modified. Proceed to Step 11.

4. For the JEMS 4, move the red 8 GA 12V supply wire from C2 to C1 (or C9) according to ZeroRPM work instruction 4807-00133. For JEMS 6, move the red 8 GA 12V supply wire from C2 to C1 according to ZeroRPM work instruction 990263141.

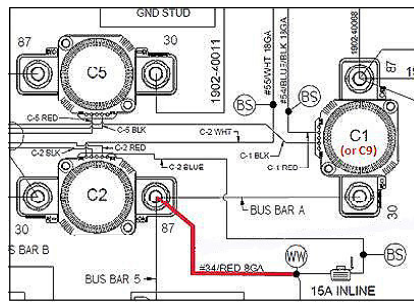


Figure 4 — JEMS 4 12V Supply Wire To C2

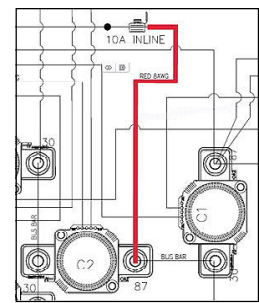


Figure 5 — JEMS 6 12V Supply Wire To C2

5. Turn the ignition to the Run position.

6. Look at the JEMS display on the vehicle dash (refer to Figure 8). Press button 3 to access the information screen.

7. Turn the ignition key to On position. Allow the JEMS display screen to turn on and show the main screen.

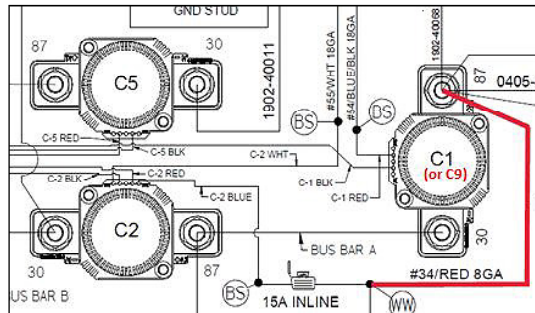


Figure 6 — JEMS 4 12V Supply Wire To C1 (or C9)

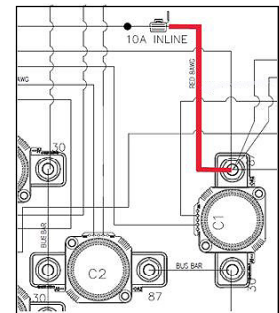


Figure 7 — JEMS 6 12V Supply Wire To C1



Figure 8 — JEMS Display



Figure 9 — JEMS Software Display



Figure 10 — Cell Voltage Display

8. Press Button 1 and the OK Button at the same time. The JEMS display should show the software version on the unit (refer to Figure 9). For software versions 4.71.05 and later, press the up arrow to access the Cell Voltage page (refer to Figure 10). For software versions prior to 4.71.05, press the right arrow until reaching Information Screen 5.

9. Depending on the model, the JEMS battery pack contains 3 or 4 battery modules. Some units are also equipped with a PM100 series power module located in the first vertical body compartment or near the inverters. The PM100 contains an auxiliary battery module (refer to Figure 11).

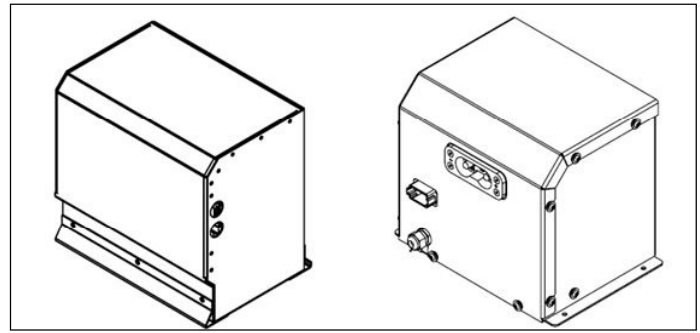


Figure 11 — PM100 Power Module

10. Each battery module contains 4 cells.

The voltage for each cell in the total system will be displayed on the display screen as described below:

- JEMS 4 contains 3 battery modules and displays voltages for cells 1-12 (refer to Figure 12).
- JEMS 6 contains 4 battery modules and displays voltages for cells 1-16 (refer to Figure 13).
- JEMS 4 with an auxiliary battery module displays the 4 additional cell voltages as cells 13-16 (refer to Figure 14).
- JEMS 6 with an auxiliary battery module displays the 4 additional cell voltages as cells 17-20 (refer to Figure 14).

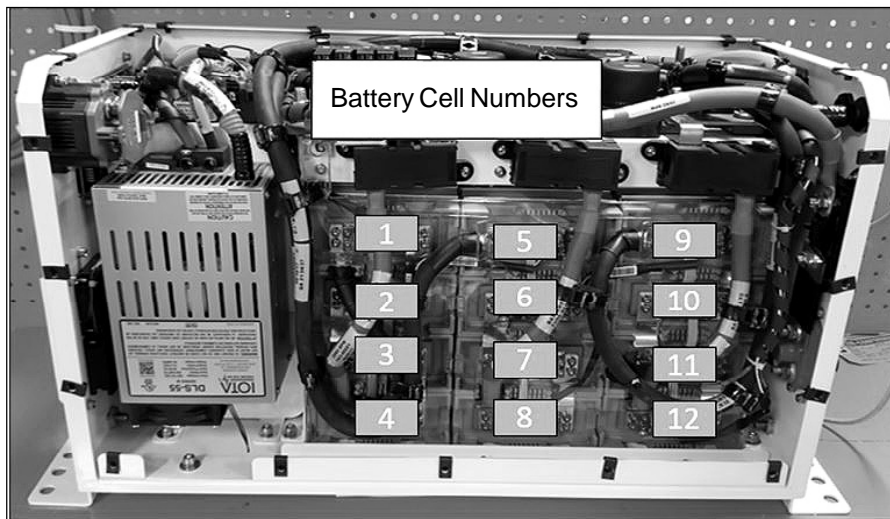


Figure 12 — JEMS 4 Batteries

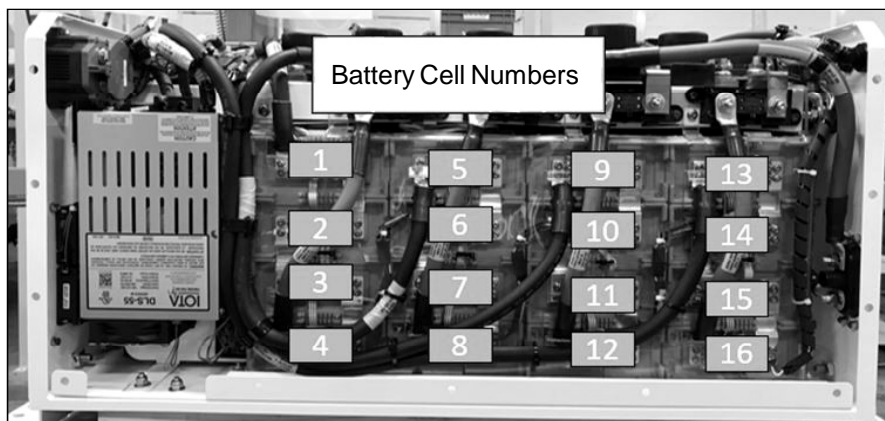


Figure 13 — JEMS 6 Batteries

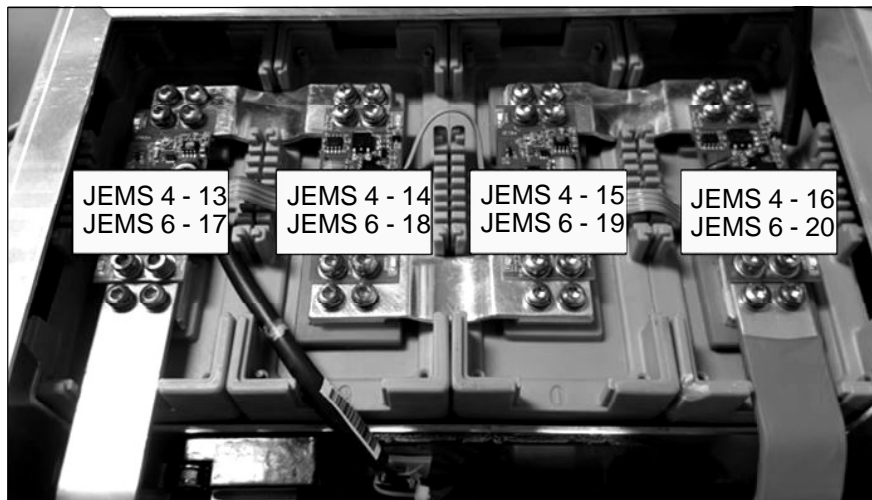


Figure 14 — PM100 Battery Cell Numbers

11. After measuring the cell voltage, choose the correct action to follow from the list below.
 - If every cell shows a voltage above 2.5V, go to Step 13.
 - If any cell shows a voltage of 1.5V to 2.5V, use ZeroRPM work instruction 4807-00137 to recover the battery module containing the affected cell.
 - If any cell shows a voltage of less than 1.5V, use ZeroRPM work instruction 4807-00104 to replace the entire battery module containing the affected cell. NOTE: if replacing the battery module, the Shore Power hours and the battery cell identification must be included on the Warranty Claim Form. To obtain the Shore Power Hours, have the key in the on position and the display on. Press the i button and Shr Pwr T will display.
 - If the voltage measured directly at a cell terminal does not match the voltage shown on the JEMS display for the corresponding cell, use ZeroRPM work instruction 4807-00120 to replace the sense string for the affected cell.
12. Recalibrate the Battery Management System (BMS) state of charge using ZeroRPM work instruction 4807-00135.
13. Reinstall the cover on the JEMS battery pack enclosure, and on the power module enclosure, if equipped.
14. Make sure the vehicle is in Park. Turn the ignition key to the Accessory position without starting the engine, and allow the JEMS display to power on.
15. Start the vehicle engine, and allow the five second countdown to appear. Turn off the engine. If the vehicle successfully completes the above steps, the modification is complete. If the JEMS did not operate as explained, make the corrections necessary.
16. Engage the unit's hydraulic system, retract the outriggers (if so equipped), and return the unit to service.