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Major System: ELECTRICAL SYSTEM **Created:** 8/25/2017
Current Language: English **Last Modified:** 9/4/2018
Other Languages: NONE **Author:** Jon Pierce
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Coding Information

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Title: Batt2 Load Shed Relay Failure

Applies To: LT's Without 16UZZL

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

9/4/2018 - Removed Links to old FCAPS
 8/25/2017 - Initial Article Release

DESCRIPTION

This document will guide the user through identifying a failed relay and possibly a spread terminal resulting in loss of power to the sleeper.

SYMPTOM(s)

Load shed type faults being set. No change in truck performance. The check electrical warning may be illuminated.

See if the unit is in active load shed. The standard load shed voltage is 12.1 vdc. If the voltage on the J8 (Gen 4 BMC) power stud of the Body Controller is 12.1 vdc or less, there is a good possibility the truck is in load shedding. If you find the unit is in load shedding, no troubleshooting needs to be performed for these faults.

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
SPN 3979 FMI 05	Cab Floor Light Relay Undercurrent or Open Circuit
SPN 2362 FMI 05	Tractor Rear High Mounted Work Lights
SPN 2058 FMI 14	Rear HVAC Data Link Communication Failure

Customer Observations or Concerns:

Sleeper dome lights and power outlets are not working properly. Check electrical warning message displayed.

SPECIAL TOOL(s) / SOFTWARE

Not Applicable

SERVICE PARTS INFORMATION

Part Description	Part Number	Quantity Required	Notes
BATT2 LOAD SHED RELAY CONTROL HARNESS	2518071c91	1	
5 PIN MICRO RELAY	3571998C1	1	

DIAGNOSTIC STEP(s)

WARNING! To prevent property damage, personal injury, and / or death, park vehicle on a hard, flat surface, turn the engine off, set the parking brake, and install wheel chocks to prevent the vehicle from moving in either direction.

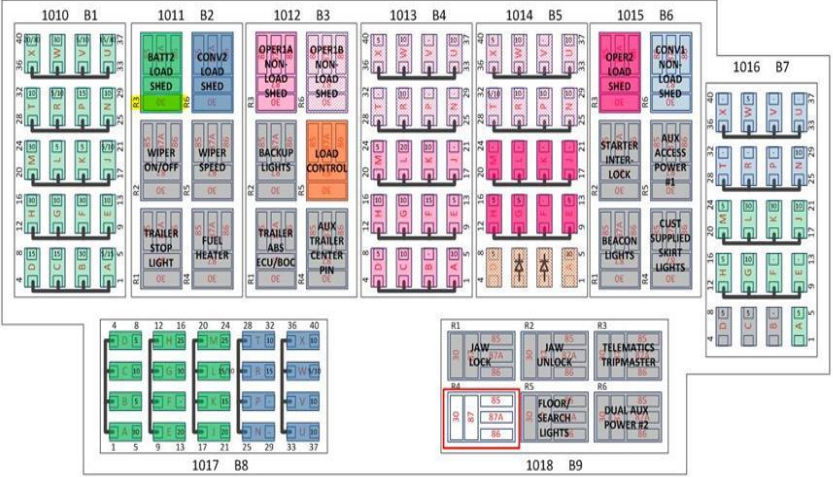
WARNING! To prevent property damage, personal injury, and / or death, if the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over.

WARNING! To prevent personal injury and / or death, always wear safe eye protection when performing vehicle maintenance.

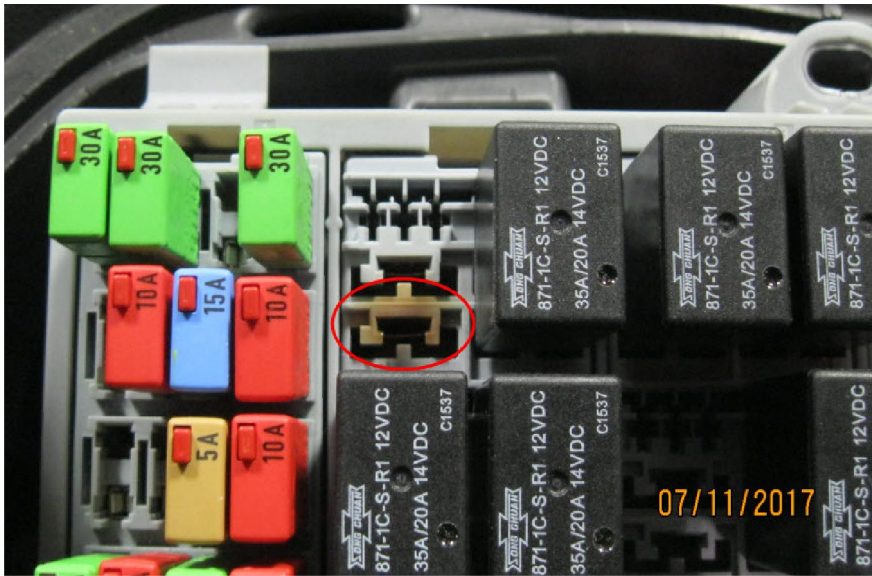
WARNING! To prevent property damage, personal injury, and / or death, keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases.

WARNING! To prevent property damage, personal injury, and / or death, remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last.

Step	Action	Decision
1	DIAGNOSTIC: Verify that there is no power to the sleeper. Follow the FCAP for load shed. Is the unit actively load shedding?	Yes: Charge batteries and repair charging circuit if necessary than retest.
		No: Go to next step

Step	Action	Decision
2	Current LT Series IP Fuse Block Layout 	1. Gain access to the PDM located on the passenger side of the unit. 2. Locate the batt2 load shed relay in the PDM. 3. Proceed to next step

Step	Action	Decision
3		1. Remove relay and inspect for signs of discoloration in the PDM like the photo. Apply power to pin 85 of the relay and ground to pin 86 and listen for a click. Replace the relay if no audible noise heard. 2. Inspect the terminal for signs of spreading or damage from heat. 3. Remove the wire at pin 87 (A14N) - proceed to next step.



Step	Action	Decision
4		1. At the PDM verify voltage on pin 30 (A14AB) via load testing. If voltage is correct proceed to next decision. If not, repair prior to continuing. 2. Jump power from pin 30 to pin 87 at the PDM and determine if your sleeper powers up and functions correctly. If after you jumper the wire and everything is operational proceed to the repair steps. If you still don't have power to your sleeper proceed to the next decision. 3. Double check your wiring following the schematics book for the LT. LT Schematics 4. Refer to the LT service manual. Service and Diganostics

REPAIR STEP(S)

REMOVAL PROCEDURE:

NOTE:

Always refer to the Technician manual for complete removal, assembly, safety warnings, cautions, and torque specifications.

[LT/RH Technician Manual \(Service and Diagnostic\)](#)

1. Disconnect and isolate the negative ground cables at the batteries.

2. Remove Driver's side kickpanels for access to the bulkehead and wiring.



3. Remove dog house outer cover.



4. If needed, remove cluster for easier access to route the new harness.

5. Loosen and set aside the PDM.



INSTALLATION PROCEDURE:

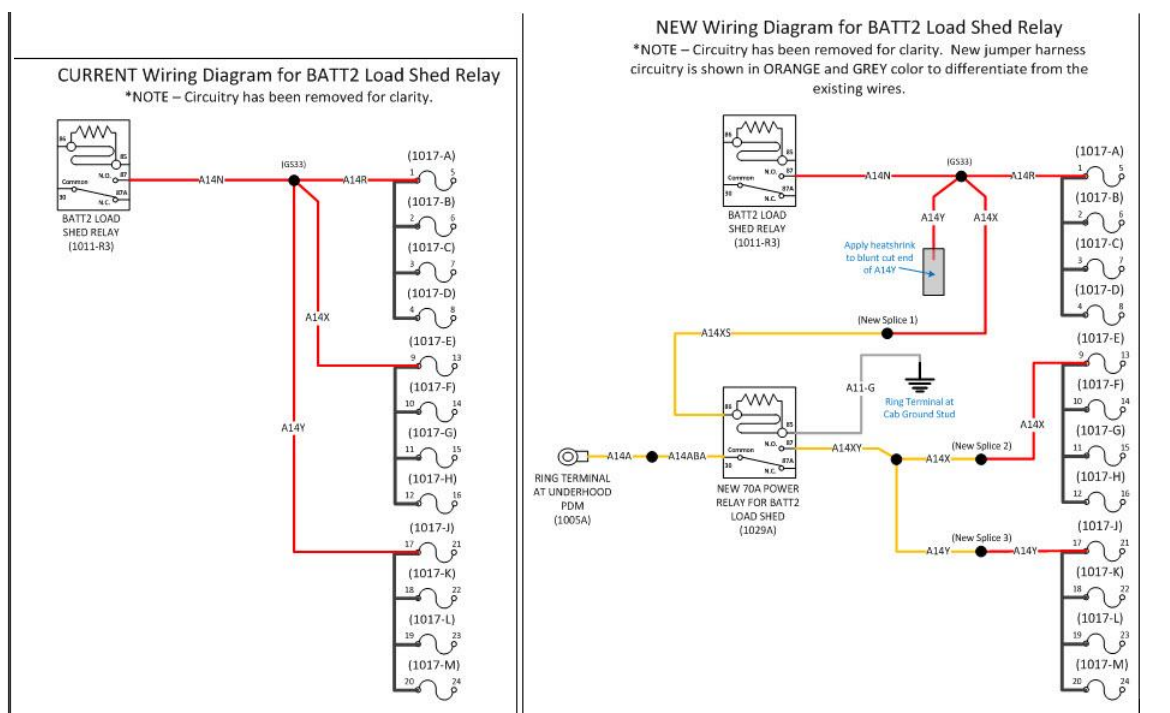


Figure 1: Current vs. Change over Wiring Schematic

Once the harness is routed properly you will need to splice into the circuit according to the schematic.

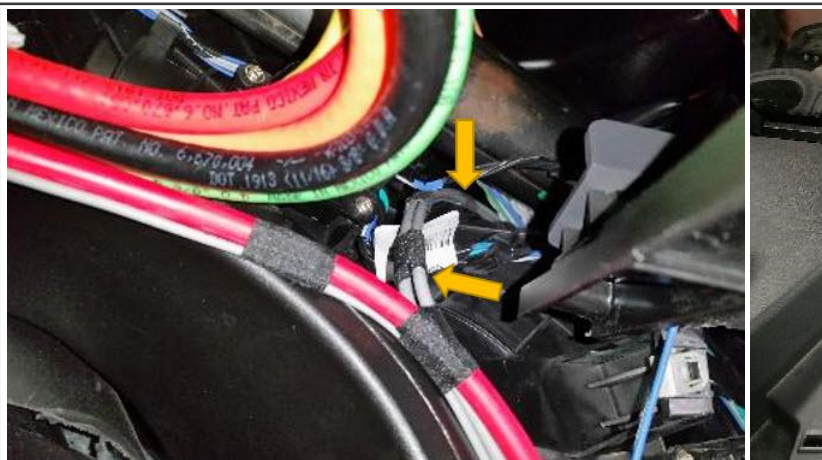
Please refer to this document for proper wire repair [IK0800269](#)

1. With the instrument panel and rear engine cover area accessible obtain the new harness. The new relay in the harness will be mounted to the engine cover

2. Feed the 3 blunt cut wires up labeled (A14XS, A14X and A14Y) up through the center console above the rear engine cover up to the fuse panel.

NOTE:

It may be helpful to insert a long screwdriver or some kind of stick from the top of the fuse panel so it would be possible to see it from underneath to help guide the routing of the wires up to the fuse block area.



3. On the left side of the dog house cover, feed the red wire (A14A) with ring terminal and the grey ground wire (A11-G) with ring terminal behind the HVAC and airline bundle over the steering column.

4. Route the red wire (A14A) and grey ground wire (A11-G) along the cab dash in front of the other harness bundles in order allow routing of these wires to cab ground stud, respectively.

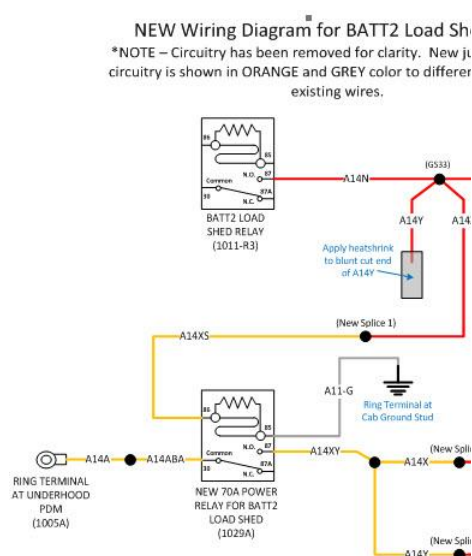
NOTE:

Care should be taken to avoid unnecessary contact of these wires to sharp edges of the steering column or the cab ground studs themselves.

5. Drill a series of slightly increasing diameter, pilot holes into the grommet above the existing BCM power feed to carefully expand a hole thru the grommet to feed the red wire (A14A). Avoid contact between the drill bit and the BCM power feed cable. Center the drill bit so it is approximately 3/8" above the closest point of the BCM power feed cable.

	
6. Feed the red wire (A14A) with ring terminal end thru the drilled hole in the grommet being careful not to tear the grommet. Pull approximately (1 to 1.5) feet of the red wire (A14A) thru the grommet. 7. Reinsert the grommet back into the cab opening. Make sure that grommet is fully seated into the opening. It may be necessary to check the seating of the grommet from inside the cab as well. 8. Connect the ring terminal to the same terminal that the body controller is currently receiving power from. Torque 15 +/- 1.5 N/M 9. Install conduit and zip ties. Make sure there is a slight drip loop made with the body controller power and new harness power feed.	 
10. On the inside of the cab, connect the ground ring terminal (A111-g) to the cab ground stud. 11. Install the plastic cap on the ground stud and ensure that the harness will not rub on the ground stud. 12. Using the double sided adhesive and zip ties mount the fuse to the bulkhead and secure in place with the zip ties provided on any convenient location near the ground stud.	
13. Locate the wires A14X and A14Y within the main instrument panel that are spliced with wires A14R and A14N. The splice # is GS33. Wires A14X and A14Y will be coming from fuse block B8 (R/D 1017) cavities 9 and 17, respectively. 14. Cut wires A14X and A14Y approximately midway between the fuse block connector (R/D 1017) and splice GS33. Apply heatshrink to the end of wire A14Y that is coming from GS33 splice. 15. Splice wire A14X coming from GS33 splice with wire A14XS that was fed from the new jumper harness that was routed. Listed as "New Splice 1" on the below circuit diagrams. Use butt splice (item # 004) and heatshrink	

18. Replace the batt2 relay in the PDM.



19. Verify proper operation of bunk electrical components
20. Re-install all previously removed components
21. Use a pen or paint marker to cover the discolored area under the relay to prevent the next tech from mistakenly thinking they need to do the repair.

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Refer to the [SRT Manual](#) for Repair Times

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