



Standard Work Practices

GE Transportation

DOCUMENT TYPE:

Quality System Work Instruction

SUBJECT:

Negative switch relay addition procedure -
Alternator

GE INTERNAL

UNCONTROLLED WHEN PRINTED

DOCUMENT ID:

C-ExW 15

1.0 PURPOSE:

The purpose of this document is to inform suitably qualified, competent electricians of the correct procedure for retro fitting the additional isolation relay required by GE Mining Industrea's bulletin 30435.

The PJB alternator has been found to be non-compliant due to its protection module only isolating one of the two connections to the load. Harnesses have been manufactured which, once added ensure isolation on both connections.

2.0 SCOPE:

Regions affected.

GLO / MSD	GETSA	Mining	GSO (Sites)	GSO (Plants)	ITS	Regional Offices
<input type="checkbox"/> Erie, PA, US	<input type="checkbox"/> Contagem, BR	<input type="checkbox"/> Erie, PA, US	<input type="checkbox"/> Amtrak	<input type="checkbox"/> Cleveland, OH, US	<input type="checkbox"/> Atlanta, GA, US (RMI)	<input type="checkbox"/> Astana, KZ
<input type="checkbox"/> Fort Worth, TX, US		<input type="checkbox"/> Fort Worth, TX, US	<input type="checkbox"/> BNSF	<input type="checkbox"/> Emporium, PA, US	<input type="checkbox"/> Florence, IT	<input type="checkbox"/> Chicago, IL, US
<input type="checkbox"/> Monterrey, MX		<input type="checkbox"/> Glen Lyn, VA, US (Fairchild)	<input type="checkbox"/> CN	<input type="checkbox"/> Grove City, PA, US	<input type="checkbox"/> Grain Valley, MO, US	<input type="checkbox"/> Bangalore, IN
<input type="checkbox"/> Arteaga, MX			<input type="checkbox"/> CP	<input type="checkbox"/> Grove City UX, PA, US	<input type="checkbox"/> Bangalore, IN (VHLC)	<input type="checkbox"/> Beijing, CN
		Industrea	<input type="checkbox"/> CSX	<input type="checkbox"/> Hanover Park, IL, US	<input type="checkbox"/> Jacksonville, FL, US	<input type="checkbox"/> Delhi, IN
		<input type="checkbox"/> Brisbane, AU	<input type="checkbox"/> FXE	<input type="checkbox"/> Hyderabad, IN	<input type="checkbox"/> Melbourne, FL, US	<input type="checkbox"/> Moscow, RU
		<input checked="" type="checkbox"/> Bowen Basin, AU	<input type="checkbox"/> KCS	<input type="checkbox"/> Kansas City, MO, US	<input type="checkbox"/> Paris, FR	<input type="checkbox"/> Shanghai, CN
		<input checked="" type="checkbox"/> Hunter Valley, AU	<input type="checkbox"/> KCSM	<input type="checkbox"/> Las Vegas, NV, US	<input type="checkbox"/> Perth, AU	<input type="checkbox"/> Midrand, ZA
		<input type="checkbox"/> Johannesburg, ZA	<input type="checkbox"/> NS	<input type="checkbox"/> Latham, NY, US	<input type="checkbox"/> Welwyn Garden City, UK	<input type="checkbox"/> Istanbul, TR
		<input type="checkbox"/> Mt Isa, AU	<input type="checkbox"/> UP	<input type="checkbox"/> San Luis Potosi, MX	<input type="checkbox"/> Warrensburg, MO, US	
		<input type="checkbox"/> Santiago, CL	<input type="checkbox"/> KTZ		<input type="checkbox"/> Louisville, KY, US	
		<input type="checkbox"/> Sydney, AU	<input type="checkbox"/> Africa			
		<input checked="" type="checkbox"/> Kondapalli, IND	<input type="checkbox"/> Australia			
			<input type="checkbox"/> Brazil			
			<input type="checkbox"/> China			
			<input type="checkbox"/> Other			

Additional Scope:

This standard work practice will be provided, along with a retrofit relay harness to all owners of PJB Alternators and to other interested parties.

Effective Date:

This PROCEDURE takes effect from October 7, 2014. New alternators produced after this date will be supplied with this harness already installed.

ORIGINATED/REVISED BY: Mike Kelly	ISSUE/REVISED DATE: 9th October 2014	REVIEW DATE: 9th October 2014	OWNER: GEMI Engineering dept.	PAGE OF 1 7
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3.0 DEFINITIONS AND ACRONYMS:

3.1 Definitions:

Term	Definition
Retrofit	Fitment of additional components after manufacture.
Harness	An electrical assembly including wiring, sheathing for same, connectors and sometimes components and other hardware.
Load Wiring	The wires connecting the alternator to all of the electrics of the machine.

3.2 Acronyms:

Acronym	Term
PCB	Printed Circuit Board
LED	Light Emitting Diode

4.0 RESPONSIBILITY:

This procedure must be undertaken in a non-hazardous environment that is clean and well illuminated and completed by appropriately qualified and experienced electricians.

5.0 PROCEDURE:

- This process should take place while the alternator remains fitted to the machine. Clear access to the back of the alternator is required
- Care must be taken to ensure no damage is done to the flame paths and 'O' ring.
- All accessible surfaces must be cleaned, inspected and have corrosion inhibitor replaced. Inspect the 'O' ring and replace if required.
- Do not detach the regulator/protection PCB from the alternator.

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Process Steps:

5.1 Step 1

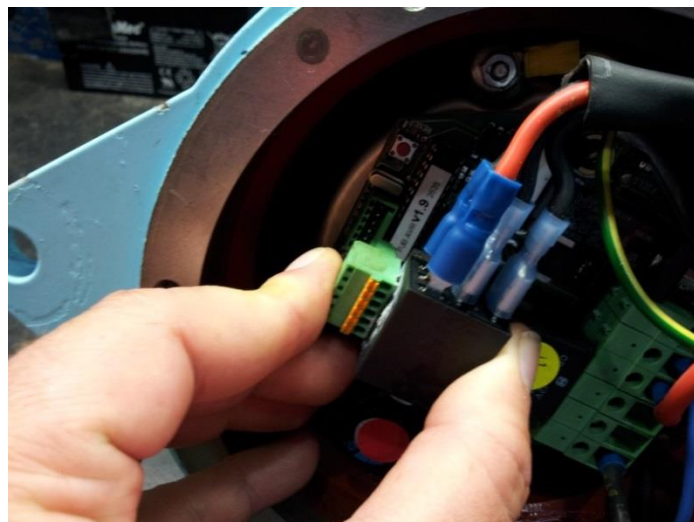
Detach the rear cover from the alternator by removing all of the M6 fixing screws and using 2 M6 x 40 cap head set screws as screw jacks in the threaded holes in the rear cover. Disconnect load wiring +ve and -ve wires from the terminal block terminals labelled "OUT+" and "OUT-" and tether the wires out of the way with tape or equivalent. The outgoing earth connection should be checked for security but may remain intact.



Alternator with rear cover removed, load wiring disconnected and tethered out of the way

5.2 Step 2

Fit the relay to the pcb by fully engaging the attached plug fully into the vacant socket on the pcb.

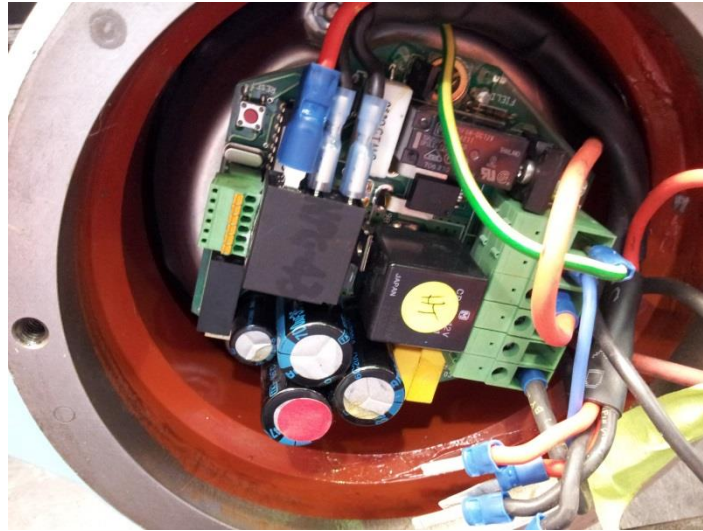


Fitting the relay assembly by engaging the attached plug into the pcb mounted socket



5.3 Step 3

Tuck the retrofit harness firmly into the recess surrounding the internal rear cover. All wiring must be kept as recessed from the rear as practical, while ensuring that the relay and the connections to it remain intact. Indication LEDs must remain visible.



Retrofit relay harness tucked into the recess surrounding the internal rear cover.

5.4 Step 4

Fully engage and secure both black retrofit harness leads into the terminal block terminal labelled "OUT-" on the PCB. Then fully engage and secure both red retrofit harness leads to the terminal labelled "OUT+" on the PCB



Retrofit kit wiring connected to the PCB



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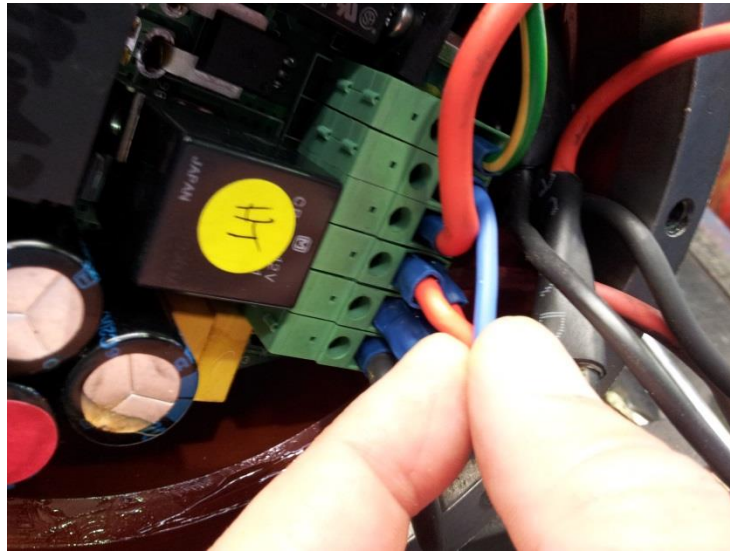
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5.5 Step 5

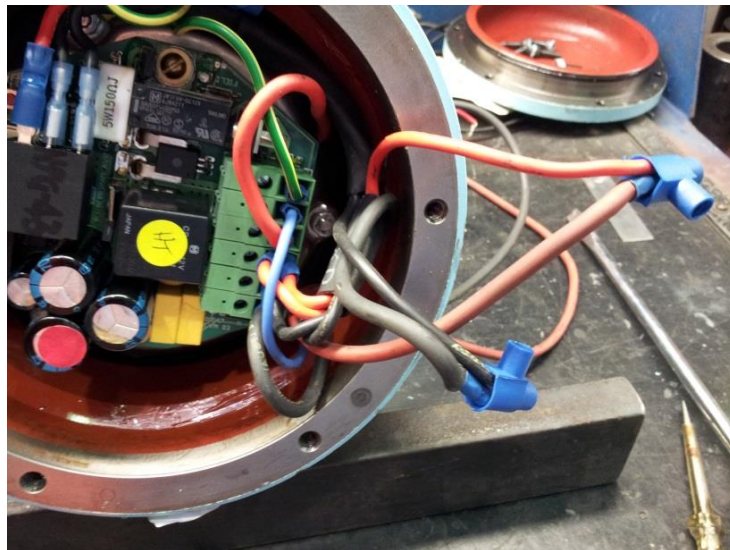
Check the security of each wire into the terminal strip.



Retrofit kit wiring connected to the PCB

5.6 Step 6

Connect the load wiring to the blue BP connectors, NOT to the PCB mounted terminal strip.



Retrofit kit wiring connected to the PCB



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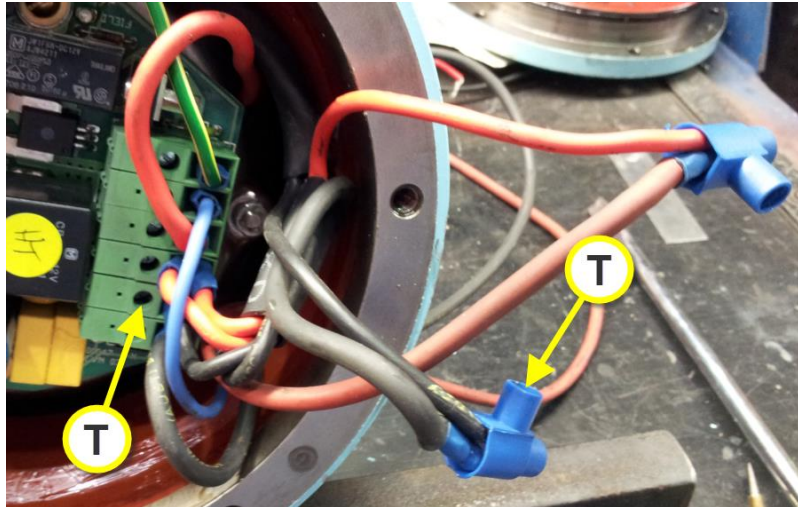
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5.7 Step 7

Perform a continuity test between the test points shown in the picture below. MUST be open circuit. Tuck the wires into the housing so that there is no risk of pinching when the rear cover is re-installed.



Continuity test points

5.8 Step 8

Start the machine and confirm that all loads are running. When done, re-fit the rear cover.

5.9 Step 9

Add this procedure, GEMI bulletin 30435 and the letter by Robert Cameron dated 8/10/14 to the machine safety file.



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6.0 QUALITY RECORDS:

The following records produced by this procedure are considered Quality Records and shall be maintained and controlled.

Record	Maintained By	Retention Time
C-ExW 15 instruction, (This document) GEMI bulletin 30435, 7/10/2014 NPG letter by Robert Cameron dated 8/10/14	GE Mining Industrea, Thornton	Not limited

7.0 PROCESS CONTROLS

PJB and GEMI alternators so fitted remain subject to all clauses of AS/NZS 3800 for maintenance.

8.0 REFERENCES:

As listed above in "Quality Records"

9.0 REVISION HISTORY:

The following table lists revisions made to this document:

Description	Date	Author
Initial release	9/10/14	Mike Kelly

10.0 APPENDICES:

None