



FIELD SERVICE CAMPAIGN – 21112

21 September 2021

SUBJECT:

Grid Heater Relay

MODELS INVOLVED:

Certain International® MV™ Series and DuraStar® models with Cummins® ISB engines only.

DEFECT DESCRIPTION:

The grid heater relay may stick closed resulting in battery draw.

ELIGIBILITY:

This procedure applies ONLY to vehicles marked in the International® Service PortalSM with FSC 21112. Also complete any other open campaigns listed on the Service Portal at this time.

TOOLS REQUIRED:

No special tools required.

PARTS REQUIRED:

Part Number	Description	Quantity
4123243C91	Relay, Grid Heater	1
4940345	Intake Manifold Cover Gasket	1 (If Necessary)
3978072	Intake Air Horn Gasket	1 (If Necessary)
476074C1	Nut, Battery Terminal, 3/8-inch UNC	1
See Cummins Parts Catalog	Grid Heater	1 (If Necessary)

Table 1 Parts Information

WORK INSTRUCTIONS

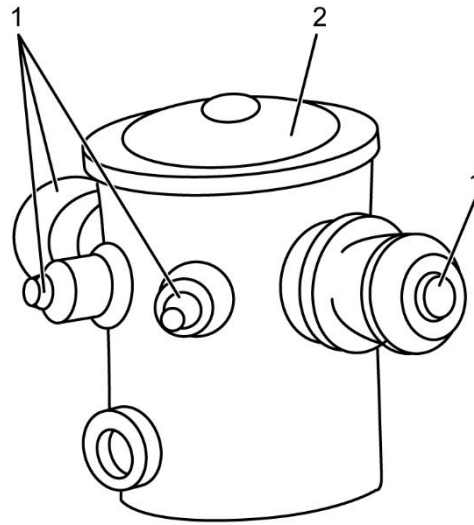
GOVERNMENT REGULATION: Engine fluid (oil, fuel, and coolant) may be a hazard to human health and the environment. Handle all fluid and other contaminated materials (such as filters and rags) in accordance with applicable regulations. Recycle or dispose of engine fluids, filters, and other contaminated materials according to applicable regulations.

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

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

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

1. Park vehicle on a level surface.
2. Shift transmission into Park or Neutral and set parking brake.
3. Turn ignition to Key OFF position.
4. Install wheel chocks.
5. Disconnect and isolate negative battery cable on main vehicle battery. Remove battery terminal nut from negative cable and discard.
6. Unlatch and open hood.



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Figure 1. Grid Heater Relay

- 1. Grid heater relay terminal (4)
- 2. Grid heater relay

7. Remove grid heater relay terminals (Figure 1, Item 1).

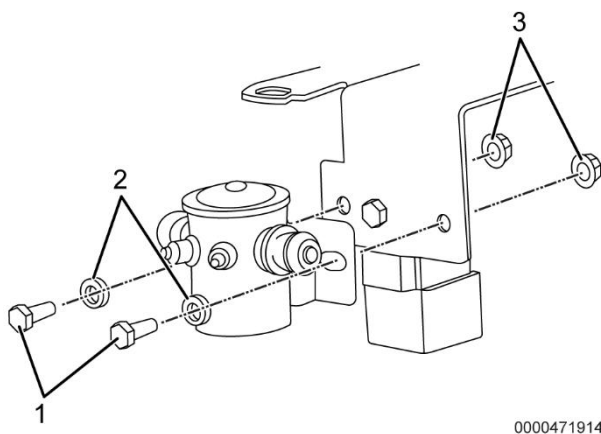


Figure 2. Grid Heater Relay

1. Grid heater relay mounting bolt (2)
 2. Grid heater relay mounting washer (2)
 3. Grid heater mounting nut (2)
8. Remove grid heater mounting bolts (Figure 2, item 1), nuts (Figure 2, Item 3), and washers (Figure 2, Item 2). Save bolts, nuts, and washers for reuse.

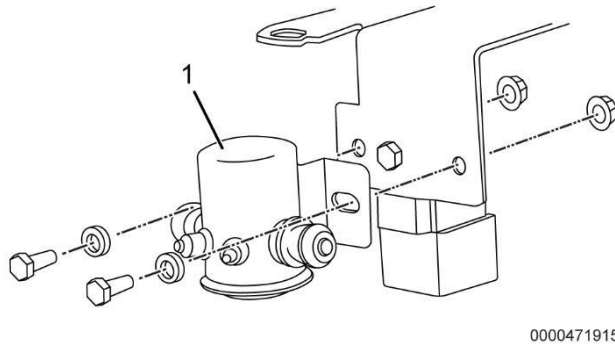
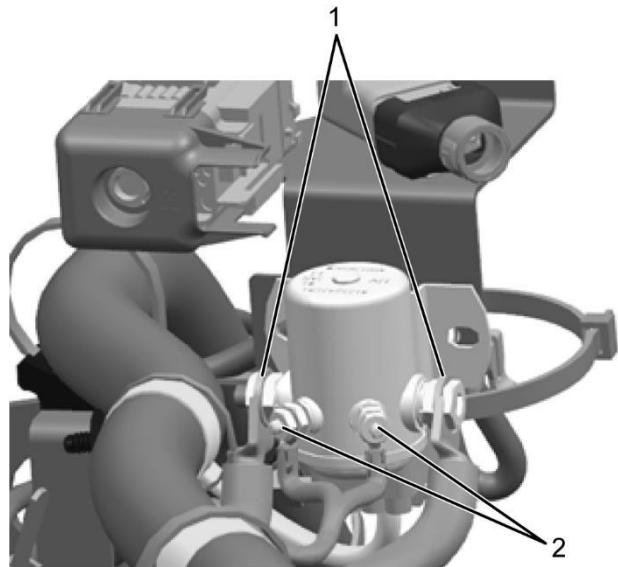


Figure 3. Grid Heater Relay New Orientation

1. Grid heater relay
9. Rotate new grid heater relay 180 degrees (Figure 3, Item 1) from original orientation and install. Install bolts (Figure 2, Item 1), washers (Figure 2, Item 2), and nuts (Figure 2, Item 3). Using torque wrench, tighten nuts and bolts to 115 lb-in (13 N•m).



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Figure 4. Grid Heater Relay

1. Terminal and nut (2)
2. Terminal and nut (2)

10. Install grid heater relay terminals and nuts (Figure 4, Items 1 and 2). Using torque wrench, tighten terminals and nuts (Figure 4, Item 1) to 59 lb-in (7 N•m). Using torque wrench, tighten terminals and nuts (Figure 4, Item 2) to 20 lb-in (2 N•m).

NOTE: For International® MV™ and DuraStar® models, apply RED enamel to grid heater relay terminals.

11. Apply RED enamel to grid heater relay terminals.

NOTE: Refer to the most recent version of Cummins TSB210032, available by clicking the link in Step 12. A version of TSB210032 is included at the end of this document.

12. Inspect grid heater and grid heater stud. Refer to [Cummins TSB210032](#).

13. If grid heater and / or stud did not pass inspection, replace grid heater. Refer to [Cummins® QuickServe](#) for removal and installation instructions.

14. Close and latch hood.

15. Using wire brush, electronic contact cleaner, and compressed shop air, clean negative battery terminal components.
16. Apply BLUE dielectric grease to battery terminal stud, negative battery cable ring terminal, and threads of new battery stud nut.
17. Using new battery stud nut, reconnect negative battery cable to negative terminal on main vehicle battery.
18. Using torque wrench, tighten battery stud nut to 12-15 lb-ft (16 - 20 N•m).
19. Remove wheel chocks.

LABOR INFORMATION

Operation number must appear on all claims.

Operation Number	Description	Time
A40-21112-1	Replace Grid Heater Relay and Inspect Grid Heater	1.4 hrs
A40-21112-2	Replace Grid Heater; If Necessary	3.2 hrs

Table 2 Labor Information

WARRANTY CLAIMS

Warranty claim expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Field Service Campaign 21112.

Section 7 of the Warranty Policy and Procedures Manual contains further information related to the submission and processing of AFC / Recall claims.

As with all claim submissions, items acquired locally must be submitted in the “Other Charges” tab. The cost of any bulk items (such as a bag of cable tie straps, roll of wire, barrel of oil, or tube of silicone) should be prorated for the cost of the individual pieces / amount used during each repair.

To make sure this important improvement is made in a timely manner, all claims for 21112 activity must be submitted by 21 September 2022 or within the normal warranty period for the component repaired, if after 21 September 2022.

GROUP	NOUN	C	WARR.	TP	PAD

GROUP — Enter number ←

NOUN — Leave blank ←

C (CAUSE) — Enter either 1, 2, 3. (See below)

- 1. Inspected (No repair required).
- 2. Inspected and repaired.
- 3. Defective part from parts stock.

WARRANTY — (Warranty Code) Enter 40. ←

TYPE PART — Enter P for type part causing failure. ←

PAD — Enter 100 ←

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Technical Service Bulletin

Technical Service Bulletin: TSB210032	Released Date: 20-May-2021
Intake Air Heater Stuck Relay and Intake Air Heater Damage: Fault Code 383	

Intake Air Heater Stuck Relay and Intake Air Heater Damage: Fault Code 383

Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Information Only - OEM Related Matter Not Covered By Cummins® - Contact Appropriate OEM Dealer or OEM Representative For Additional Information

Contents

Product Affected

- ISB6.7 CM2350 B101
- B6.7 CM2350 B121B
- B6.7 CM2450 B155B

Issue

Symptom:

- Fault code 383 is active
- Intake air heater malfunctions and engine has trouble starting

Root Cause:

- Intake air heater relay stuck closed leading to extended on-time of the heater. Units experiencing Fault Code 383 may have experienced extended on-time of the intake air heater with no air flow entering the system caused by a stuck relay, causing the air heater to overheat. The isolated power connection bar may expand and lift from the top surface of the intake manifold cover due to extended on-time (Figure 1). The isolated power connection bar may also become loose. The issue may progress and exhibit electrical arcing damage to the intake air heater internal joints (Figure 2), with potential for arcing to cause debris to drop into the intake system.

Verification

- Inspect the insulated power connection bar for deformation. See Figure 1 below. Removal of the intake manifold cover is **not** necessary to inspect the insulated power connection bar.
- Check if the intake air heater power terminal can be moved by hand. See Figure 3 below.



Figure 1, Example View of Power Bar Deformation from Top Surface of Intake Manifold Cover.



Figure 2, Example of Arcing Damage on Internal Joints of Intake Air Heater.

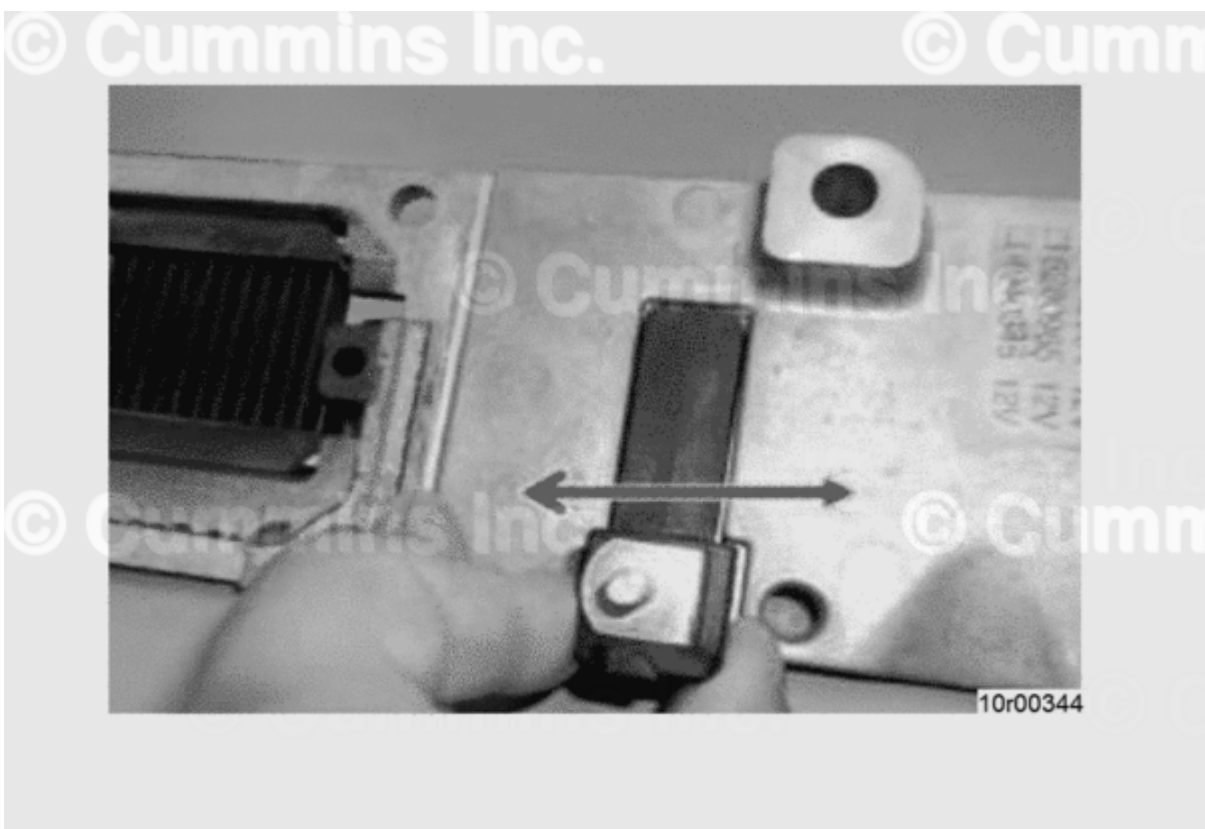


Figure 3, Any Movement of The Terminal Back and Forth As Shown is Unacceptable.

Resolution

- Intake air heater damage that exhibits power connection bar deformation or movement of the terminal back and forth is due to intake air heater relay failure and is **not** covered under Cummins ® warranty. Repair locations are to contact the OEM for further repair direction.
- For Navistar® and IC Bus applications reference iKnow article IK1201457.

Document History

Date	Details
2021-2-11	Module Created
2021-2-17	Corrected Product Affected.
2021-4-5	Updated Verification and Resolution sections. Updated Figure 2.
2021-5-20	Added reference to iKnow article IK1201457.

Last Modified: 20-May-2021
