



Technical Service Bulletin

Technical Service Bulletin: TSB190038	Released Date: 12-Mar-2019
Navistar Engine Fuel Heater Replacement	

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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.

Contents

Product Affected

Engine:

- B6.7 CM2350 B121B

Original Equipment Manufacturer (OEM):

- Navistar

Product:

- International
- IC Bus

Issue

Symptom:

- Hard to start/no start
- Fault Code 4691 or 559
- External fuel leakage
- Engine stalling

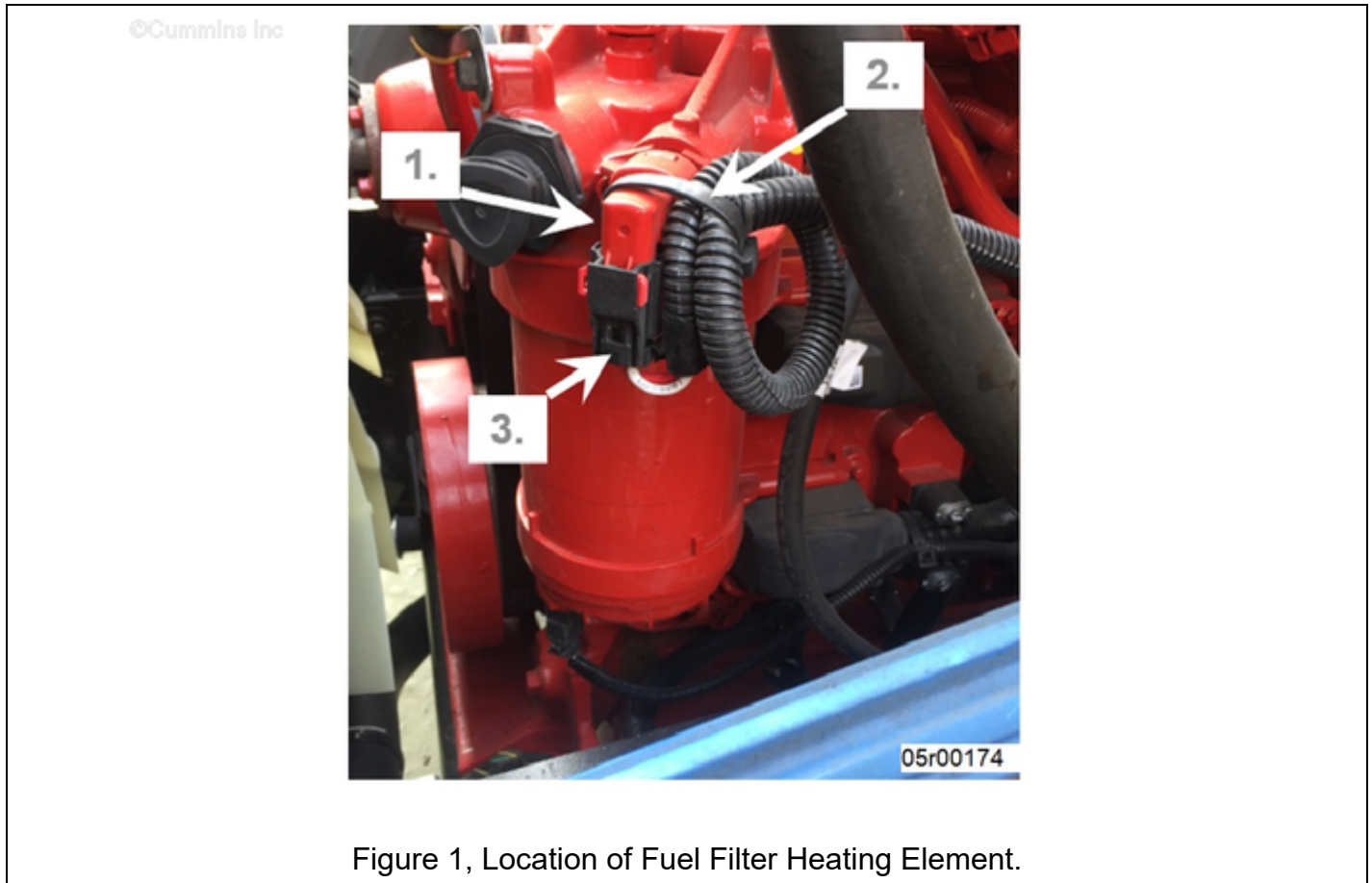
Root Cause:

- Under certain conditions, internal electrical arcing can create sufficient heat inside the fuel heater to cause plastic in the fuel heater to melt and potentially catch fire.

Verification

- Verify engine has Cummins® supplied priming pump fuel filter head installed.
 - Option FS90301
 - Option FS90453

- Locate Stage 1 fuel filter head on engine. The engine fuel heater is located on the top right side of the fuel filter head. See Figure 1 below.



1. Engine fuel heater
2. Cable tie
3. Electrical connector

Resolution

Replace existing fuel heater and associated components with engine fuel heater plug kit, Part Number 5579133, until revised engine fuel heater is available. See Service Instructions Section below.



Figure 2, Part Number 5579133 Contents: Left: Heater Plug and Allen Screws. Right: Electrical Plug.

Service Instructions

Address cold weather fuel gelling issues with chemical treatment (such as Power Service Diesel Fuel Supplement® +Cetane Boost®) to the fuel system in the interim.

Scenario 1: Engine fuel heater is **not** damaged, or is **not** leaking fuel after engine shutdown, and the fuel filter module is **not** damaged:

1. Visual inspection of engine fuel heater can show dampness/wetness on heater components without removal of engine fuel heater from fuel filter head.
2. Remove fuse supplying power to engine fuel heater. See model specific instructions in Figure 7, Figure 9, and Figure 10 below.

Scenario 2: Engine fuel heater is damaged, or leaking fuel after engine shutdown, but fuel filter module is **not** damaged:

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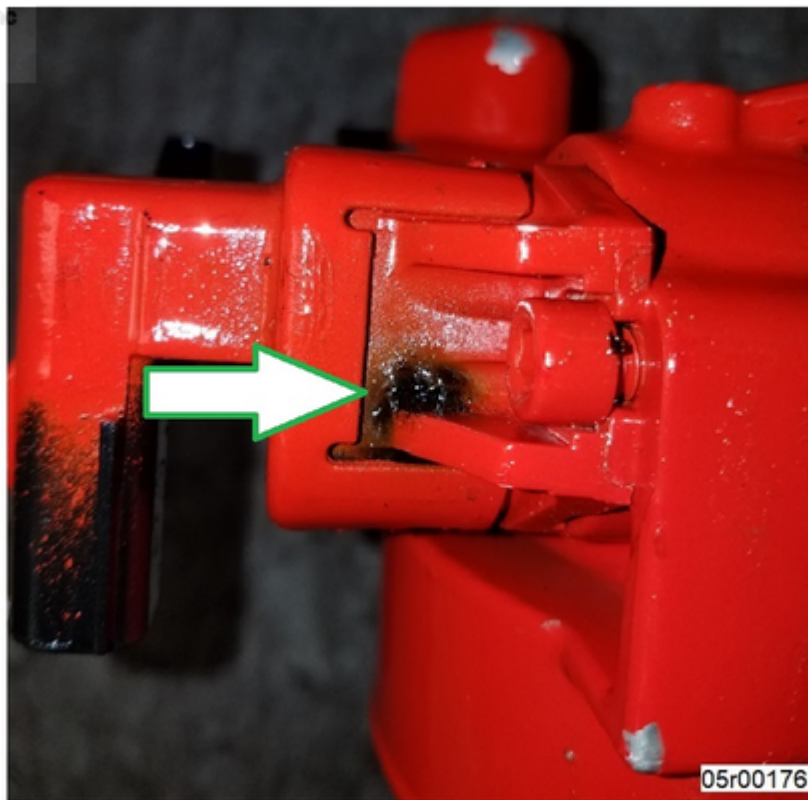


Figure 3, Damaged Engine Fuel Heater Component and Fuel Leakage.

1. Remove fuse powering engine fuel heater circuit on chassis. See model specific instructions in Figure 7, Figure 9, and Figure 10 below.
2. Remove cable tie that secures the wiring harness to engine fuel heater. See figure 4 below.
3. Unlock connector by moving red tab to the right and disconnecting from engine fuel heater. See figure 4 below.
4. Unplug electrical connector from engine fuel heater and protect the female end of the wiring harness to prevent any damage and/or contamination from occurring by using electrical plug supplied in kit, Part Number 5579133.

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Figure 4, Removing Cable Tie and Installing Electrical Plug Cap

5. Remove and discard two allen screws securing engine fuel heater to the fuel filter head with a 5mm hex driver. See Figure 5 below.
6. Pull the engine fuel heater straight out of the fuel filter head. Capture any fuel that may leak from the fuel filter. See Figure 5 below.



Figure 5, Removal of Heating Element.

7. Clean face of engine fuel heater port with a lint free cloth and inspect for any sharp edges and/or contaminants. Clean if needed.
9. Lubricate the o-ring on the plug (supplied in kit part number 5579133) with clean diesel fuel and carefully install into the engine fuel heater port, making sure to properly align before installing. See Figure 6 below.
10. Use the two allen screws supplied to secure the plug to the fuel filter head and tighten to 11 N-m [6.6 ft-lb]. See Figure 6 below.

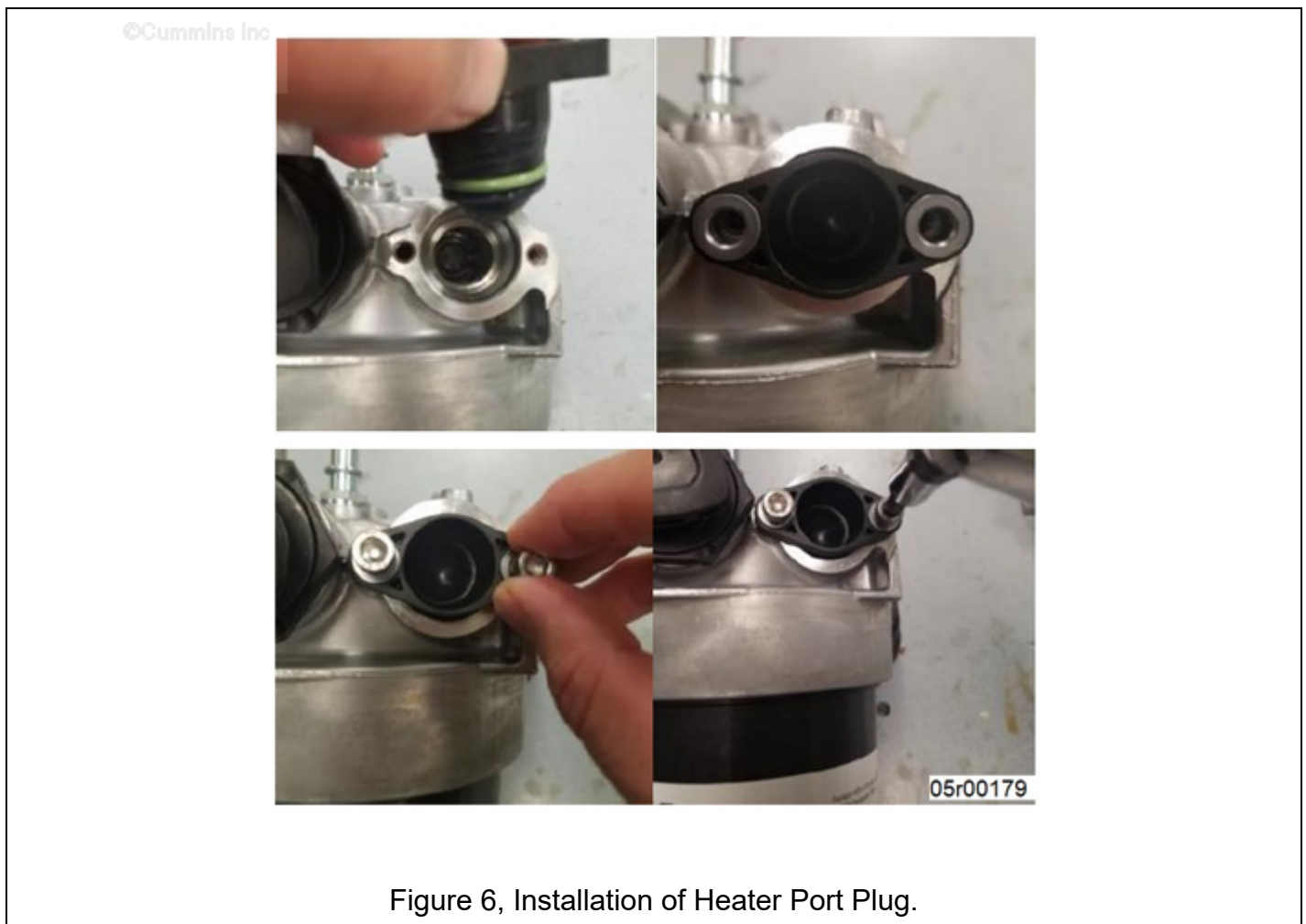


Figure 6, Installation of Heater Port Plug.

12. Secure the wiring harness to prevent any damage until a replacement heater can be provided.

Scenario 3: If the fuel filter module is damaged:

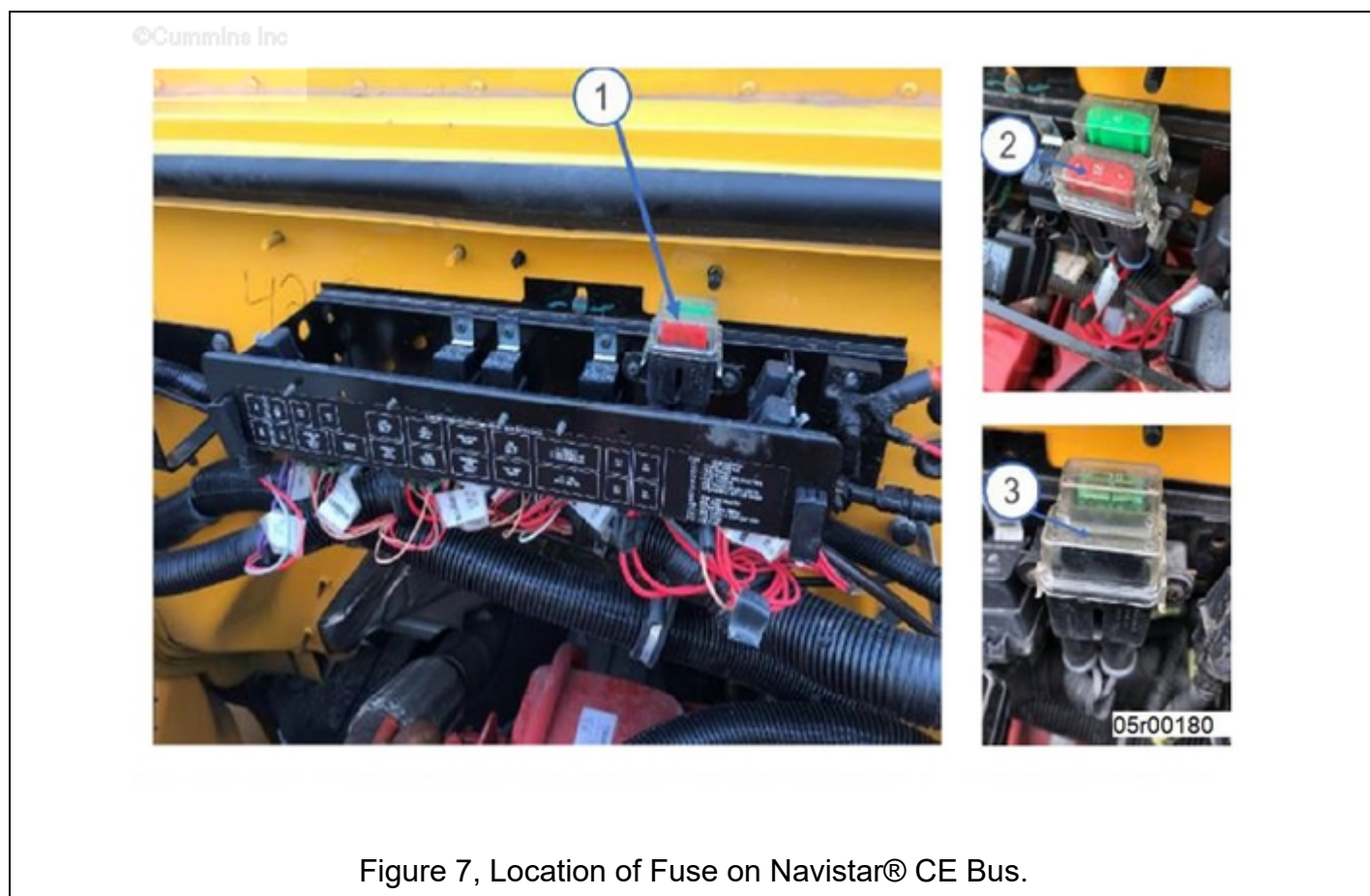
1. Remove fuse powering engine fuel heater circuit on the OEM chassis. See model specific instructions in Figure 7, Figure 9, and Figure 10 below.
2. Unplug electrical connector from the fuel heater and secure the wiring harness to prevent any damage until a replacement heater can be provided. Protect the female end of the wiring harness to prevent any damage and/or contamination from occurring by using electrical plug (supplied in kit part number 5579133).
3. Install new fuel filter module. Part Number 5361791.
 - See B6.7 CM2350 B121B Service Manual, Bulletin 5411223. Refer to Procedure 006-017 in Section 6.
4. If replacement fuel module contains a engine fuel heater port plug, use the electrical cap provided. If replacement fuel module contains a heating element, refer to plug replacement instructions. See Scenario 2 Above.

Navistar® CE Bus Fuse and Wire Harness Instructions

Remove fuse.

1. Disconnect vehicle battery.
2. Locate red Maxi Fuse on dash panel. See Figure 7 below.
3. Remove fuse cap and discard red Maxi Fuse. See Figure 7 below.

4. Reinstall fuse cap. Do **not** replace fuse. See Figure 7 below.



Secure wiring harness

1. Verify mating connector is installed. Verify wiring harness is **not** contacting pipe. See figure 8 below.
2. Bundle wiring harness branch to main wiring harness with cable tie between two yellow tapes. Trim excess cable tie. See figure 8 below.
 - o Cable tie part numbers:
 - Navistar® part number 306132C1
 - Supplier part number T120R0HSH4
3. Reconnect vehicle battery.

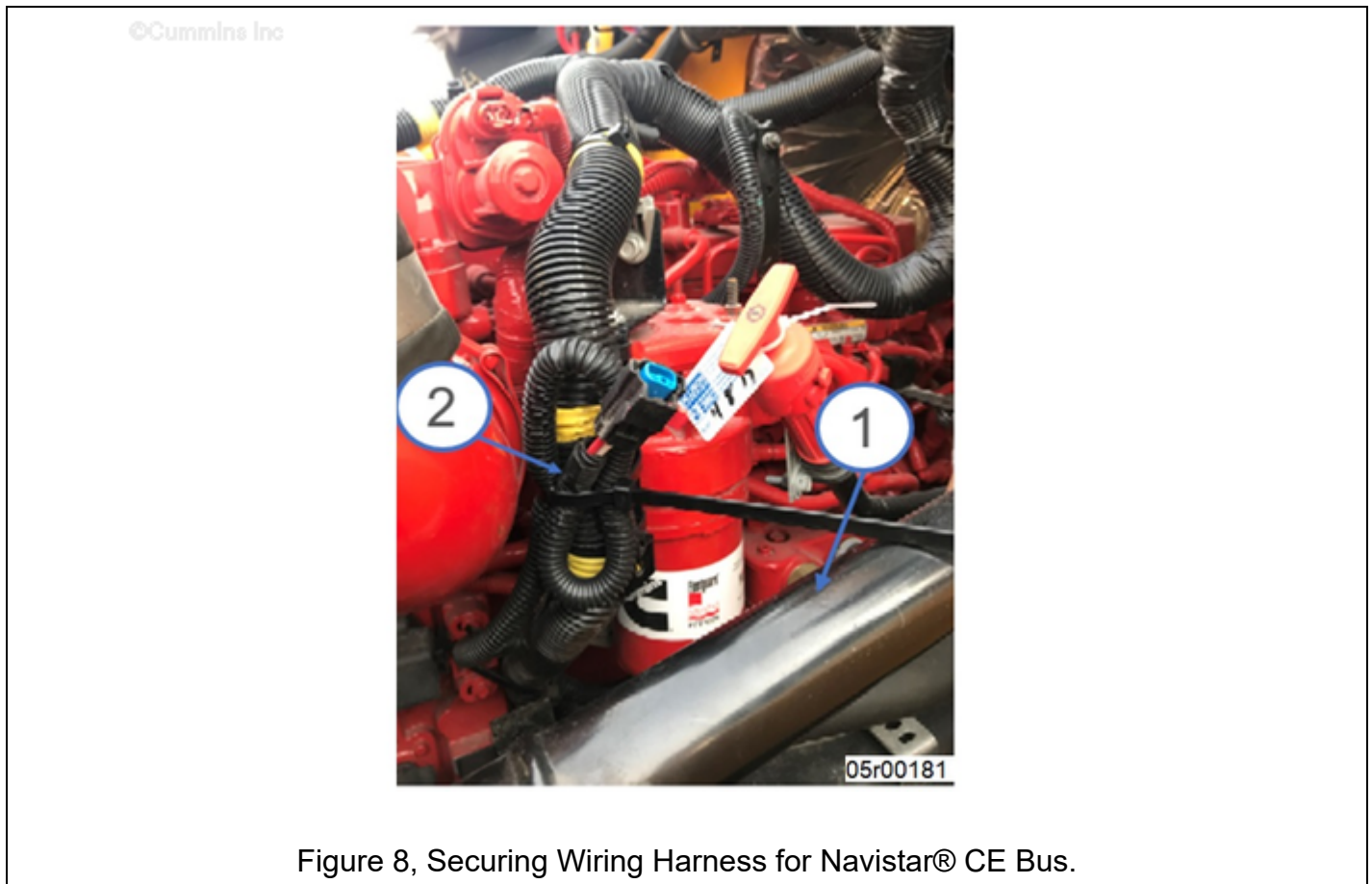


Figure 8, Securing Wiring Harness for Navistar® CE Bus.

Navistar® MV/HV Fuse and Wire Harness Instructions

Remove fuse.

1. Disconnect vehicle battery
2. Remove cover of fuse box, located on passenger side dashboard. See Figure 9 below.
3. Remove 20 amp fuse located at B8-J cavity 17-21. See Figure 9 below.
4. Remove 40 amp fuse located at 2C cavity. See Figure 10 below.

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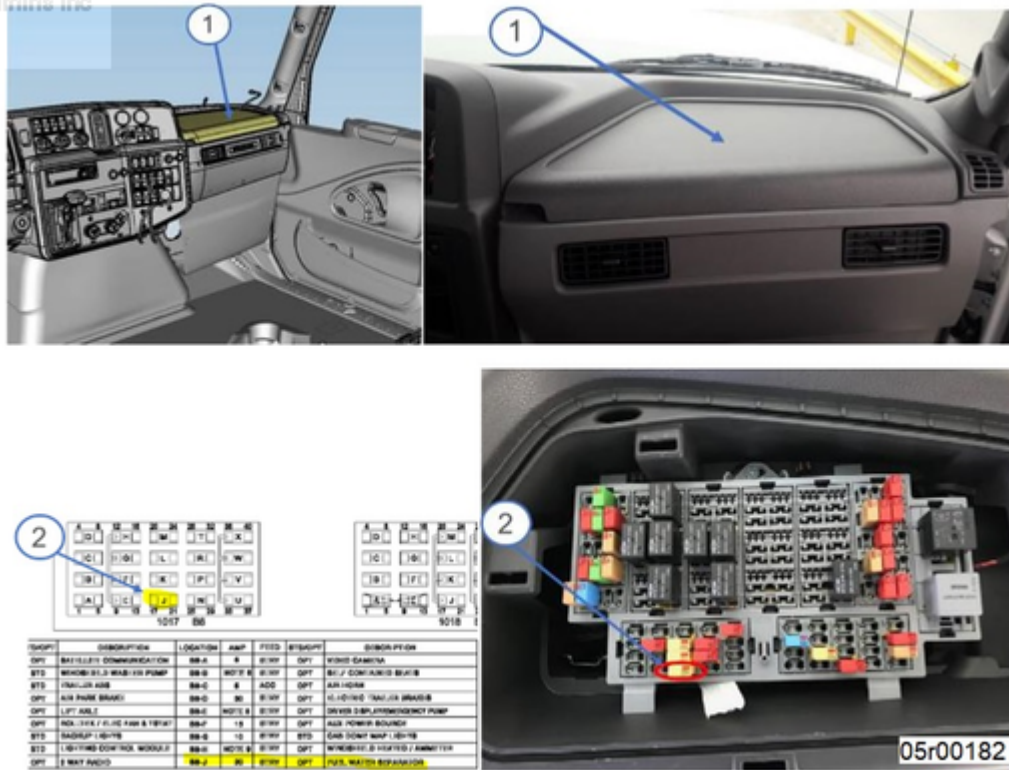


Figure 9, Location of 20A Fuse on Navistar® MV/HV.

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DESCRIPTION	QTY	FUNCTION	LOCATION
CONNECTOR, BODY UNDERHOOD POM	1	-	N/A
N/A	-	-	1A
FUSE, 100 AMP BOLT IN MID1	1	CAB FEED	1B
FUSE, 100 AMP BOLT IN MID1	1	CAB FEED	1C
N/A	-	-	2A
N/A	-	-	2B
FUSE, 40A, MAXI COMPACT, ORANGE	1	FUEL HEATER	2C
FUSE, 40A, MAXI COMPACT, ORANGE	1	HYD BRAKE	2D
FUSE, 30A, MAXI COMPACT, GREEN	1	ECM	2E
FUSE, 20 AMP MINI - YELLOW	1	DISCONNECT SWITCH	3A
FUSE, 30 AMP MINI - GREEN	1	LINE APT HEATERS	3B
FUSE, 20 AMP MINI - YELLOW	1	IGN APT RELAY	3C
FUSE, 10 AMP MINI - RED	1	ALLISON TCM	3D
N/A	-	-	3E
FUSE, 10 AMP MINI - RED	1	DEF PUMP	3F
FUSE, 40A, MAXI COMPACT, ORANGE	1	SPARE	SPARE 1
FUSE, 30A, MAXI COMPACT, GREEN	1	SPARE	SPARE 2
NUT, HEX M5 X .8 ZNI	6	MISC	N/A

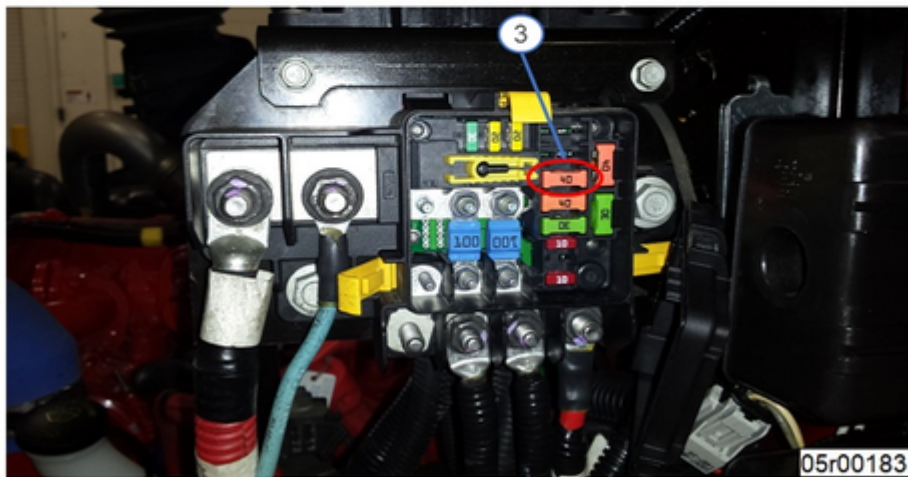
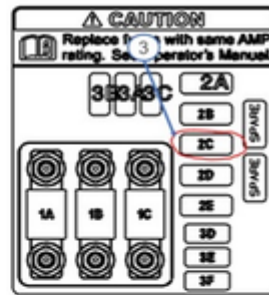


Figure 10, Location of 40A Fuse on Navistar® MV/HV.

Secure wiring harness

1. Remove cable ties. See Figure 11 below.
2. Unlock and remove fuel heater connector by moving red tab to the right. See Figure 11 below.
3. Install mating connector with plugs (supplied in kit part number 5579133) and lock into place by moving red tab to the left. See Figure 11 below.
4. Verify mating connector is installed. Verify wiring harness is **not** contacting pipe. See Figure 11 below.
5. Bundle harness branch to main harness with cable tie. Trim excess cable tie. See Figure 11 below.
 - o Cable tie Part Numbers:
 - Navistar® part number 306132C1
 - Supplier part number T120R0HSH4
6. Reconnect vehicle battery.

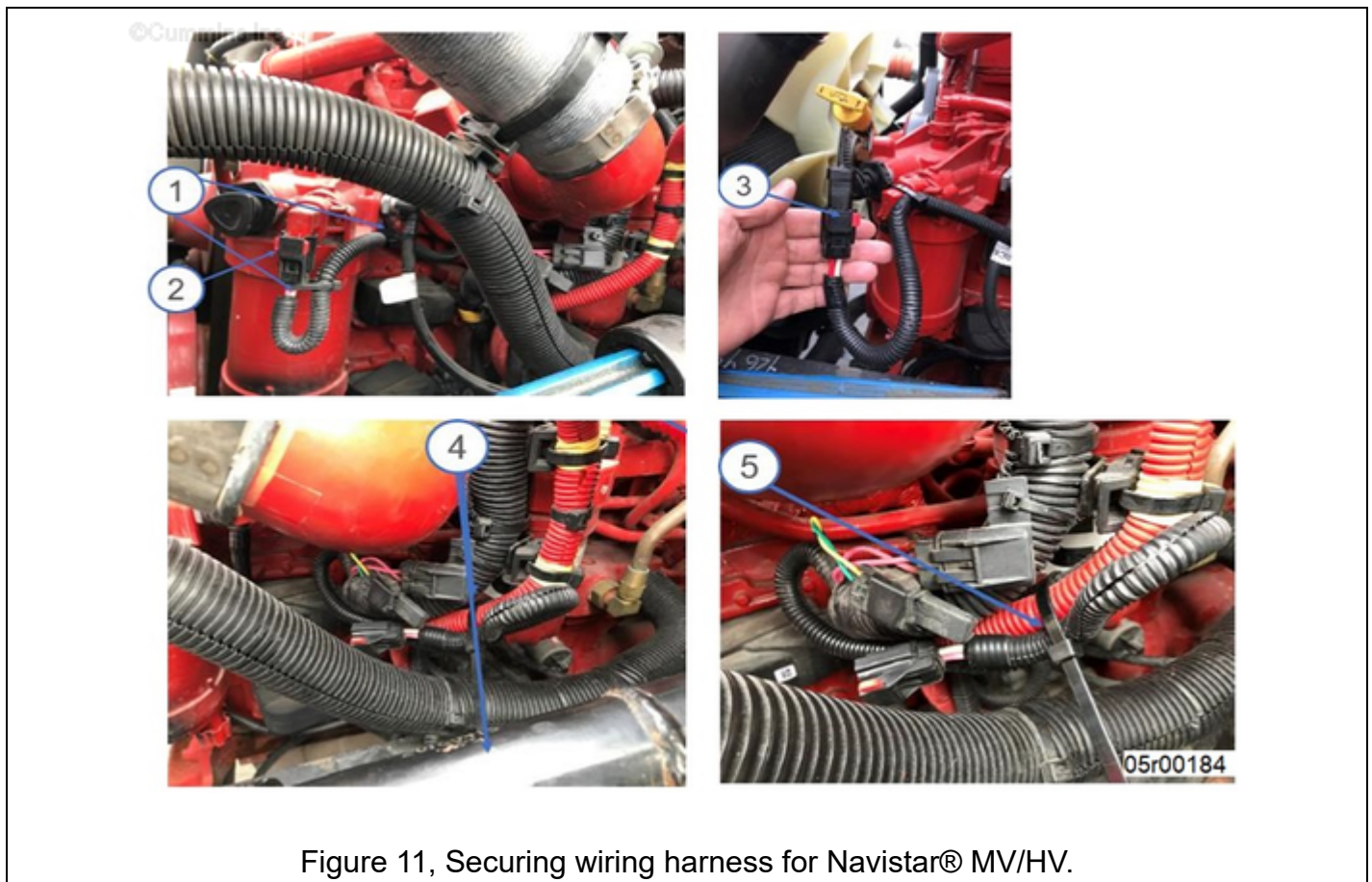


Figure 11, Securing wiring harness for Navistar® MV/HV.

Service Parts Availability

Service parts are available. See Table 1 for part numbers.

Table 1, Associated Part Numbers	
Part Description	Cummins® Part Number
Engine Fuel Heater Port Plug Kit	5579133
Fuel Filter Module	5361790

Document History

Date	Details
2019-3-8	Module Created

Last Modified: 12-Mar-2019
