

Authorized Field Change



AFC 14901R1

Date: February 2014

Subject File: Engine

Subject: Fuel Filter Assembly with Integral Fuel Heater Installation

Model: CE C Bus

Model: CE S Bus

Model: DuraStar®

Model: HC C Bus

Model: RE C Bus

Model: RE S Bus

Model: WorkStar®

Start Date: 28 February 2013 End Date: 16 September 2013

Engine Family: MaxxForce® DT, 9, and 10 (EPA 10) with HD-OBd

DESCRIPTION

Some MaxxForce® DT, 9, and 10 (EPA 10) having HD-OBd engines with feature code 15LKG were built with incorrect fuel filter assembly, thereby missing the integral 12-volt, 250-watt fuel heater. This campaign requires replacement of the fuel filter assembly and applies only to certain vehicles marked in Service PortalSM with AFC 14901. This procedure shows how to replace the fuel filter assembly with a new fuel filter assembly (with heater).

REVISED SERVICE PROCEDURE

Revised AFC now includes RE bus models. A link to the RE bus access instructions is provided in this document.

DESCRIPTION (CONT.)

NOTE: If vehicle has a fuel heater (Figure 1, Item 1), then this AFC has already been completed.



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Figure 1. Fuel Filter Assembly with Fuel Heater.

- 1. Fuel heater

TOOLS REQUIRED

Table 1. Tools Required.

Tool Number	Description
ZTSE4891	Air and Fuel Cap and Plug Kit

PARTS INFORMATION

NOTE: Please be advised that this kit IS NOT in the Parts Distribution Centers (PDCs). The process is to open an iKNow Technical Service Case File with the Product Support Center (PSC) Admin (Tools / Dealer Education) team. They will supply the kit and the O-rings. Fleets who can't open an iKNow case file should contact their Fleet Service Managers regarding parts. In the description field, ensure that AFC 14901 is referenced. If your dealership is dealing with multiple VINs, those VINs are to be attached to the case file and the specific quantity of kits requested in the description field or via a note in the case file.

NOTE: Campaign repair kit P/N 8000961C91 will be supplied free of charge.

Table 2. **Parts Information**

Part Number	Description	Quantity
8000961C91	Kit, Housing Assembly, Fuel Filter w / Heater	1
1884085C1	Ring, O Pump Cover and Housing (Included in 8000961C91)	2
1894302C1	Screw, Pump Cover (Included in 8000961C91)	3

NOTE: Make sure to coordinate this repair activity to allow for shipment of parts and minimize customer downtime.

SERVICE PROCEDURES



WARNING: 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. Failure to comply may result in property damage, personal injury, and / or death.



WARNING: If the vehicle must be raised, do not work under the vehicle supported only by jacks. Jacks can slip or fall over, potentially resulting in property damage, personal injury, and / or death.



WARNING: Always wear safe eye protection when performing vehicle maintenance. Failure to comply may result in personal injury and / or death.



WARNING: Keep flames or sparks away from vehicle and do not smoke while servicing the vehicle's batteries. Batteries expel explosive gases. Failure to comply may result in property damage, personal injury, and / or death.



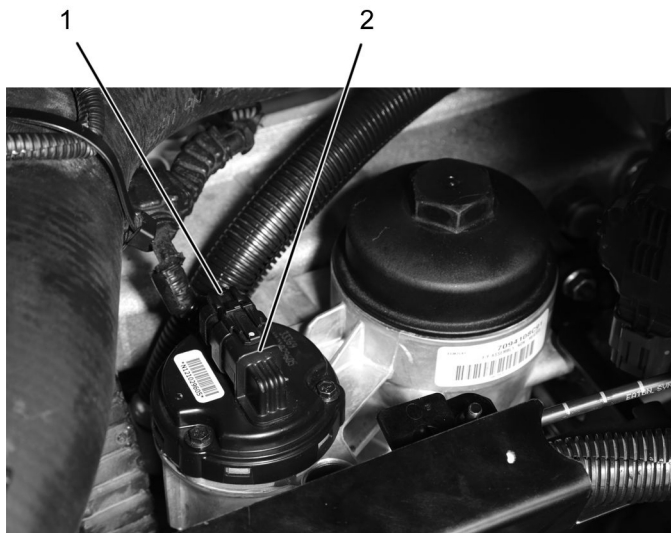
WARNING: Remove the ground cable from the negative terminal of the battery box before disconnecting any electrical components. Always connect the ground cable last. Failure to comply may result in property damage, personal injury, and / or death.

REMOVAL

1. Bring vehicle into shop and park on flat surface.
2. Shift transmission to Park or Neutral, set parking brake, and install wheel chocks.

NOTE: If vehicle is an RE Bus, refer to RE Bus Access for procedures specific to RE Bus removal and installation.

3. Unlatch and open hood.
4. Open battery box and disconnect negative battery cable.



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Figure 2. Low-Pressure Fuel Pump Connector.

1. Engine harness connector
2. Low-pressure fuel pump

5. Disconnect engine harness connector (Figure 2, Item 1) from low-pressure fuel pump (Figure 2, Item 2).

REMOVAL (CONT.)

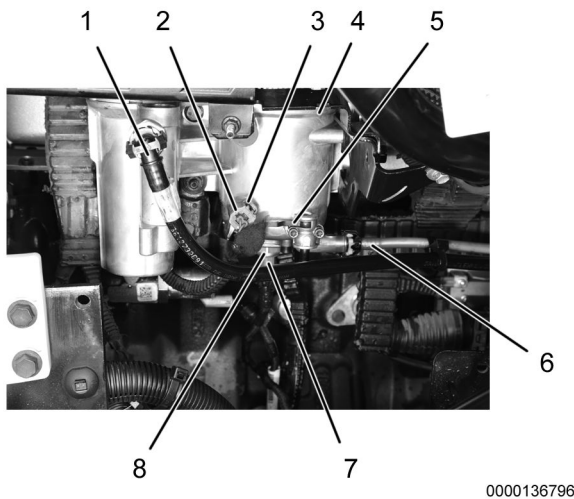


Figure 3. Fuel Filter Assembly Disconnects.

1. Fuel supply line
2. Engine harness connector
3. WIF sensor
4. Fuel filter assembly
5. Water drain valve
6. Fuel return line
7. Engine harness connector
8. FDP sensor

6. Disconnect engine harness connector (Figure 3, Item 7) from Fuel Delivery Pressure (FDP) sensor (Figure 3, Item 8).
7. Disconnect engine harness connector (Figure 3, Item 2) from Water In Fuel (WIF) sensor (Figure 3, Item 3).



WARNING: Do not smoke and keep fuel away from flames or sparks. Failure to comply may result in personal injury and / or death.

8. Open water drain valve (Figure 3, Item 5) and drain water / fuel from fuel filter assembly (Figure 3, Item 4) into container clearly marked DIESEL FUEL.
9. Close water drain valve (Figure 3, Item 5) when all water / fuel is drained. Dispose of water and diesel fuel mixture according to applicable regulations.
10. Disconnect fuel supply line (Figure 3, Item 1) from fuel filter assembly (Figure 3, Item 4) and drain fuel into container clearly marked DIESEL FUEL. Dispose of diesel fuel according to applicable regulations.
11. Disconnect fuel return line (Figure 3, Item 6) from fuel filter assembly (Figure 3, Item 4) and drain fuel into container clearly marked DIESEL FUEL. Dispose of diesel fuel according to applicable regulations.
12. Install ZTSE4891 caps into fuel return and supply lines.

REMOVAL (CONT.)

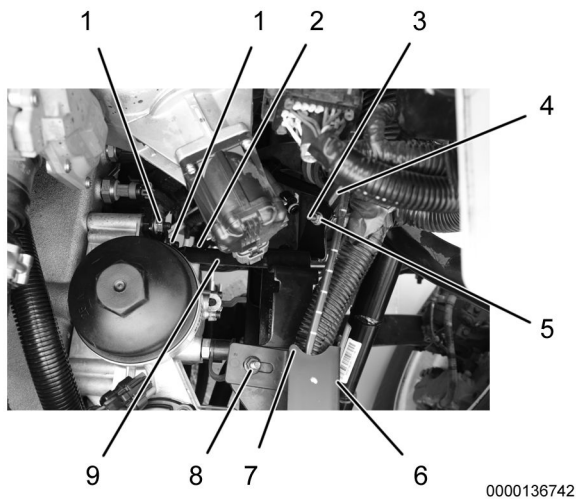


Figure 4. Oil Filler Tube Support.

- 1. M8 nut (2)
- 2. M6 x 16 bolt
- 3. Bolt
- 4. P-clamp
- 5. Nut
- 6. Nut (not shown)
- 7. Engine harness support bracket
- 8. Nut
- 9. Oil filler tube support

- 13. Remove nut (Figure 4, Item 8) from top of engine harness support bracket (Figure 4, Item 7).
- 14. Remove nut (Figure 4, Item 6) from side of engine harness support bracket.
- 15. Remove nut (Figure 4, Item 5) and bolt (Figure 4, Item 3) from P-clamp (Figure 4, Item 4).
- 16. Remove two M8 nuts (Figure 4, Item 1) from oil filler tube support (Figure 4, Item 9).
- 17. Remove M6 x 16 bolt (Figure 4, Item 2) from oil filler tube support.

REMOVAL (CONT.)

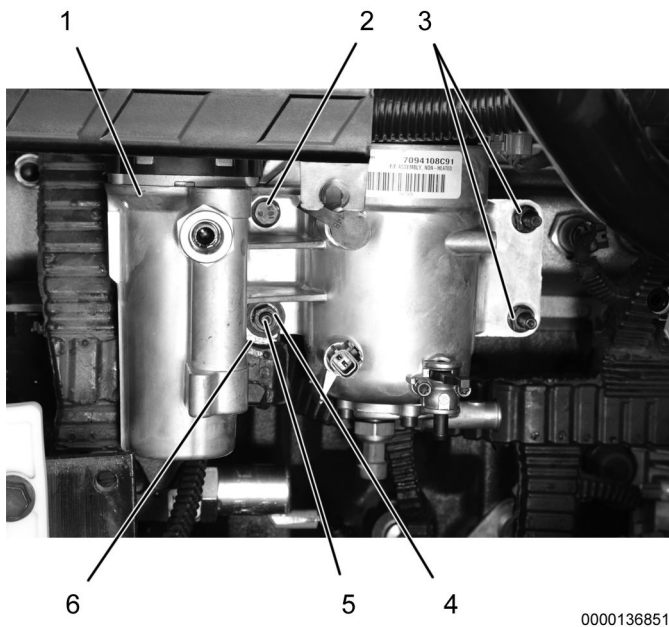


Figure 5. Fuel Filter Assembly.

1. Fuel filter assembly
 2. M8 x 75 bolt
 3. M8 x 75 stud bolt (2)
 4. M8 nut
 5. M8 x 75 stud bolt
 6. Engine harness
18. Remove M8 nut (Figure 5, Item 4) and engine harness (Figure 5, Item 6) from M8 x 75 stud bolt (Figure 5, Item 5).
19. Remove three M8 x 75 stud bolts (Figure 5, Items 3 and 5), M8 x 75 bolt (Figure 5, Item 2), and fuel filter assembly (Figure 5, Item 1) from vehicle.
20. Clean intake manifold mating surfaces.

REMOVAL (CONT.)

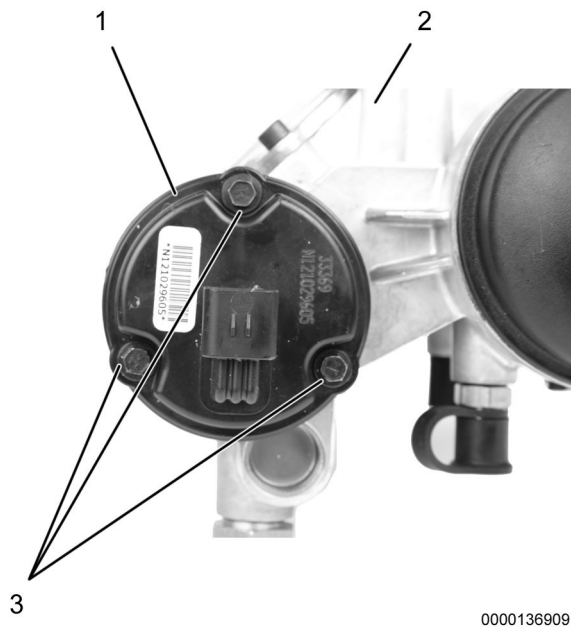


Figure 6. Pump Cover.

- 1. Pump cover
- 2. Fuel filter assembly
- 3. M5 x 25 screw (3)

CAUTION: Use only hand tools when removing pump cover screws. Failure to comply may result in damage to property.

21. Remove three M5 x 25 screws (Figure 6, Item 3) and pump cover (Figure 6, Item 1) from fuel filter assembly (Figure 6, Item 2). Discard screws.

REMOVAL (CONT.)



Figure 7. Brushless Electric Fuel Pump Assembly and Fuel Strainer.

1. Pump strainer
 2. Brushless electric fuel pump assembly
 3. Pump cover and housing O-ring (2)
 4. Pump adapter
22. Remove brushless electric fuel pump assembly (Figure 7, Item 2), with pump strainer (Figure 7, Item 1) and pump adapter (Figure 7, Item 4), from fuel filter assembly. Discard fuel filter assembly according to applicable regulations.
23. Remove two pump cover and housing O-rings (Figure 7, Item 3). Discard O-rings.
24. Remove pump strainer (Figure 7, Item 1) from pump adapter (Figure 7, Item 4).
25. If necessary, clean pump strainer element.

INSTALLATION



Figure 8. Brushless Electric Fuel Pump Assembly and Fuel Strainer.

1. Pump strainer
 2. Brushless electric fuel pump assembly
 3. Pump cover and housing O-ring (2)
 4. Pump adapter
1. Lubricate two new pump cover and housing O-rings (Figure 8, Item 3) with clean diesel fuel and install on brushless electric fuel pump assembly (Figure 8, Item 2) and outside of pump adapter (Figure 8, Item 4).
 2. Install pump strainer (Figure 8, Item 1) on pump adapter (Figure 8, Item 4).
 3. Install brushless electric fuel pump assembly (Figure 8, Item 2), with pump strainer (Figure 8, Item 1) and pump adapter (Figure 8, Item 4), into new fuel filter assembly with integral fuel heater.

INSTALLATION (CONT.)

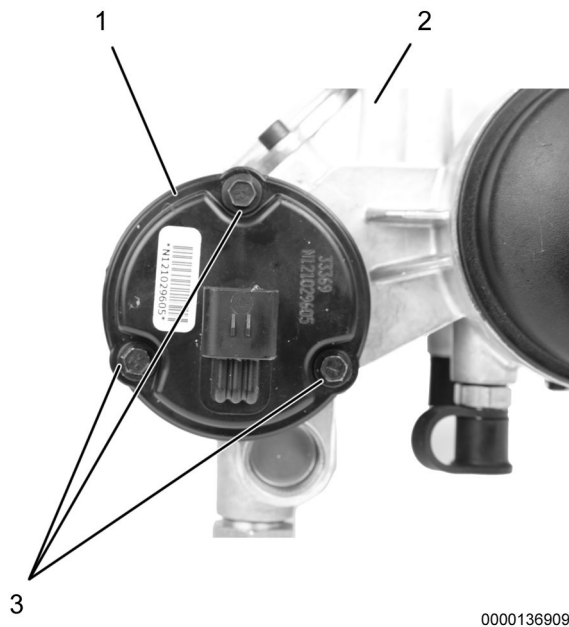


Figure 9. Pump Cover.

1. Pump cover
2. Fuel filter assembly
3. M5 x 25 screw (3)

CAUTION: Use only hand tools when installing pump cover screws. Failure to comply may result in damage to property.

4. Install pump cover (Figure 9, Item 1) onto fuel filter assembly (Figure 9, Item 2) with three new M5 x 25 screws (Figure 9, Item 3).
5. Using torque wrench, tighten three M5 x 25 screws (Figure 9, Item 3) to 44 lb-in (5 N·m). **Do not over tighten pump cover screws.**

INSTALLATION (CONT.)

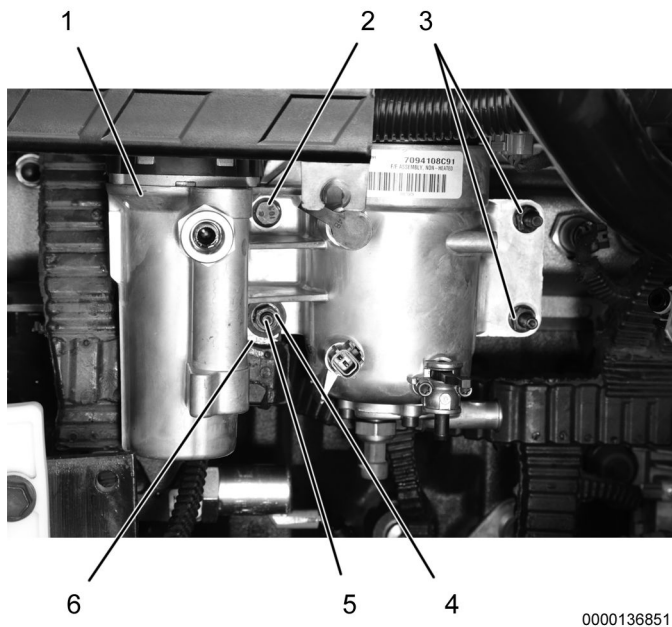


Figure 10. Fuel Filter Assembly.

1. Fuel filter assembly
 2. M8 x 75 bolt
 3. M8 x 75 stud bolt (2)
 4. M8 nut
 5. M8 x 75 stud bolt
 6. Engine harness
6. Install fuel filter assembly (Figure 10, Item 1) onto vehicle with three M8 x 75 stud bolts (Figure 10, Items 3 and 5) and M8 x 75 bolt (Figure 10, Item 2) hand tight.
 7. Using torque wrench, tighten three M8 x 75 stud bolts (Figure 10, Items 3 and 5) and M8 x 75 bolt (Figure 10, Item 2) to 20 lb-ft (27.1 N·m).
 8. Install engine harness (Figure 10, Item 6) onto M8 x 75 stud bolt (Figure 10, Item 5) with M8 nut (Figure 10, Item 4).

INSTALLATION (CONT.)

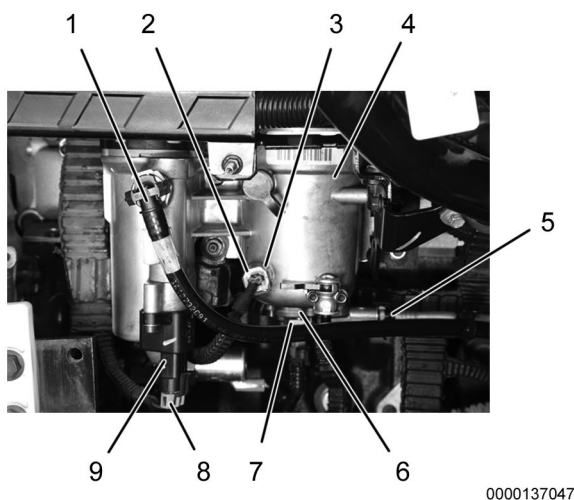


Figure 11. Fuel Filter Assembly Connections.

1. Fuel supply line
2. Engine harness connector
3. WIF sensor
4. Fuel filter assembly
5. Fuel return line
6. FDP sensor
7. Engine harness connector
8. Engine harness connector
9. 250-watt fuel heater

9. Remove ZTSE4891 caps from fuel return and supply lines.
10. Connect fuel return line (Figure 11, Item 5) to fuel filter assembly (Figure 11, Item 4).
11. Connect fuel supply line (Figure 11, Item 1) to fuel filter assembly (Figure 11, Item 4).
12. Connect engine harness connector (Figure 11, Item 8) to 250-watt fuel heater (Figure 11, Item 9).
13. Connect engine harness connector (Figure 11, Item 2) to WIF sensor (Figure 11, Item 3).
14. Connect engine harness connector (Figure 11, Item 7) to FDP sensor (Figure 11, Item 6).

INSTALLATION (CONT.)

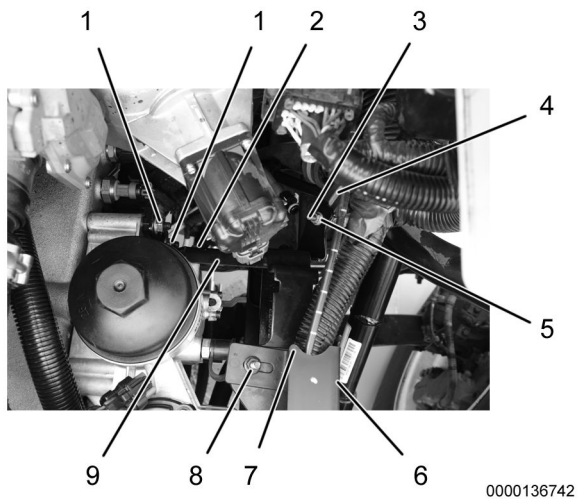
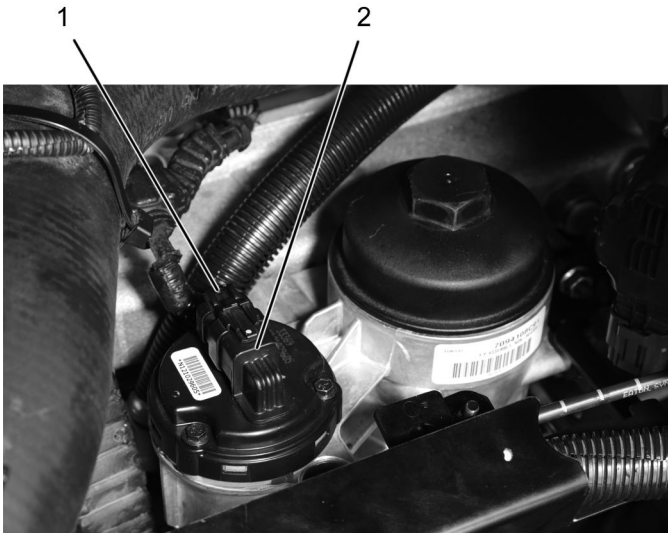


Figure 12. Oil Filler Tube Support.

1. M8 nut (2)
2. M6 x 16 bolt
3. Bolt
4. P-clamp
5. Nut
6. Nut (not shown)
7. Engine harness support bracket
8. Nut
9. Oil filler tube support

15. Install two M8 nuts (Figure 12, Item 1) onto oil filler tube support (Figure 12, Item 9).
16. Install M6 x 16 bolt (Figure 12, Item 2) into oil filler tube support.
17. Install bolt (Figure 12, Item 3) and nut (Figure 12, Item 5) onto P-clamp (Figure 12, Item 4).
18. Install nut (Figure 12, Item 6) into side of engine harness support bracket (Figure 12, Item 7).
19. Install nut (Figure 12, Item 8) into top of engine harness support bracket.

INSTALLATION (CONT.)



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Figure 13. Low-Pressure Fuel Pump Connector.

1. Engine harness connector
2. Low-pressure fuel pump

20. Connect engine harness connector (Figure 13, Item 1) to low-pressure fuel pump (Figure 13, Item 2).

21. Connect negative battery cable to battery and close battery box.

NOTE: If vehicle is an RE Bus, refer to RE_Bus_Access for procedures specific to RE Bus removal and installation.

CAUTION: If Key Cycle steps are not followed properly, damage to fuel injectors may occur.

22. Cycle key on, wait 20 seconds.

23. Cycle key off, wait 20 seconds.

24. Cycle key on, wait 20 seconds.

25. Check for leaks.

26. Start vehicle and check for proper operation and leaks. If leaks are present, locate and repair as needed.
If no leaks are found, proceed to Step 27.

27. Close and latch hood.

28. Remove wheel chocks.

LABOR INFORMATION

Operation number must appear on all claims. Submit for one labor operation only.

Table 3. Labor Information

Operation No.	Description	Time
A40-14901-1	Remove Fuel Filter Assembly and Transfer Fuel Pump	0.9 hr
A40-14901-2	RE Bus – Remove Fuel Filter Assembly and Transfer Fuel Pump	1.6 hrs

ADMINISTRATIVE PROCEDURE

NOTE: Part number 8000961C91 is supplied free of charge and should not be entered in the Parts Section, Miscellaneous Parts Section, or Other Charges in iClaim.

Expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Authorized Field Change Number 14901.

It is important that the coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Policy Manual, Section 7.1.8.

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 ensure this important improvement is made in a timely manner, all claims for 14901 activity must be submitted by 28 February 2015 or within the normal warranty period for the vehicle, if after 28 February 2015.

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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