Authorized Field Change

AFC 07916R3

Date: March, 2008/ Revised May, 2008

Subject File: ENGINE

Subject: Fuel Pressure Regulator and Fuel Pressure Switch on VT 275 Engines in CF 500 and CF 600 Models

Model: CF 500
Start Date: 01/01/2005 End Date: 12/01/2007

Model: CF 600
Start Date: 01/01/2005 End Date: 12/01/2007

Engine Family: VT 275

DESCRIPTION

Campaign will require the installation of a new engine fuel pressure regulator spring, fuel pressure switch, wiring harness and new ECM software. Failure of either the plunger or return spring results in low or no fuel delivery to the injector, and can ultimately result in injector failure.

PARTS INFORMATION

Fuel Pressure switch

NOTE – Units that have had the Closed Crankcase Ventilation Breather Heater installed during AFC 07913 repairs have the wiring for the electric fuel pressure switch integrated into the harness and will need kit# 2597068C91.

Units that have not had AFC 07913 repairs performed will need kit #2597067C91.

Table 1 Parts Information

Part Number	Description	Quantity
Kit # 2597067C91	Switch (With Harness)	1
Kit # 2597068C91	Switch (Without Harness)	1

INSTALLATION

WARNING – To prevent personal injury or death, read all safety instructions in the "Safety Information" section of the EGES 300 Service Manual.

INSTALLATION (CONT.)

WARNING – To prevent personal injury or death, shift transmission to park or neutral, set parking brake, and block wheels before doing diagnostic or service procedures.

WARNING – To prevent personal injury or death, make sure the engine has cooled before removing components.

WARNING – To prevent personal injury or death, do not let engine fluids stay on your skin. Clean skin and nails using hand cleaner and wash with soap and water. Wash or discard clothing and rags contaminated with engine fluids.

WARNING – To prevent personal injury or death, do not turn ignition key to ON during disassembly. This would pump fuel from the HFCM through disconnected tubing, causing a fuel spill and possible fire.

1. Tilt the cab up to access the engine. See *Engine Operation and Maintenance Manual*, “Tilting the Cab (CF 500 / 600 only)” for the correct procedure.

2. Loosen nuts securing the battery cover. Remove battery cover.

WARNING – To prevent personal injury or death, remove ground cable from negative terminal of main battery before disconnecting or connecting electrical components. Always connect ground cable last.

3. Disconnect the negative ground cable from the negative terminal of the battery.

INSTALLATION (CONT.)

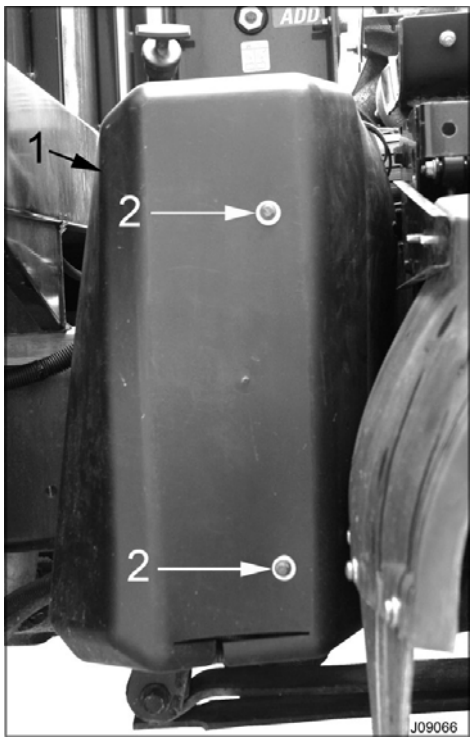


Figure 1 Distribution Center Cover

1. Cover
2. Bolt (2)

4. Remove the two bolts securing the power distribution center cover (Figure 1). Remove cover.

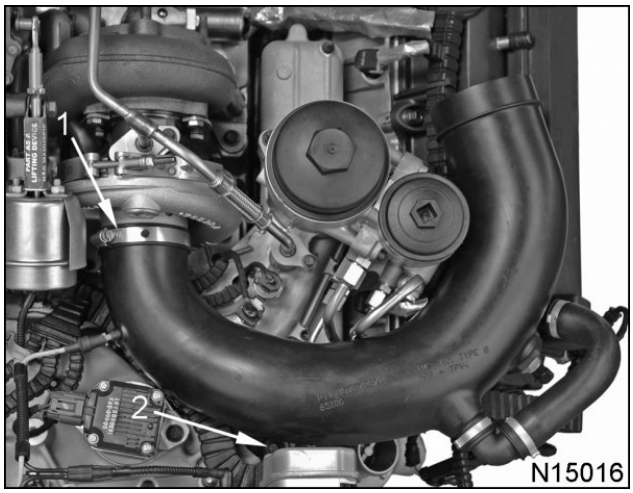


Figure 2 Air Inlet Duct Assembly

1. Hose clamp
2. M6 x 16 bolt

INSTALLATION (CONT.)

5. Remove the M6 x 16 bolt holding the air inlet duct to the intake manifold (Figure 2).

6. Loosen hose clamp at the turbocharger and air inlet duct connection.

7. Loosen hose clamp at the air inlet duct and MAF/ IAT sensor connection, and remove air inlet duct.

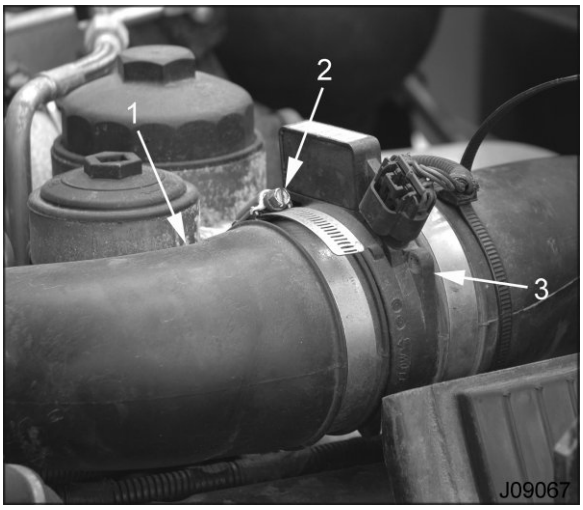


Figure 3 Air Inlet Duct and Mass Airflow / Intake Air Temperature (MAF / IAT) Sensor Connection

1. Air inlet duct
2. Hose clamp
3. MAF / IAT sensor

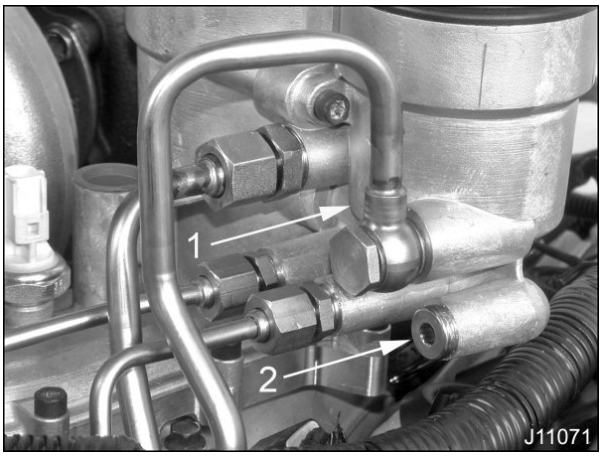


Figure 4 Secondary Fuel Filter housing and Diagnostic port Plug

1. Fuel Filter Housing
2. Diagnostic Port Plug, M12

The diagnostic port plug might be present if not previously replaced by the electric fuel pressure (EFP) switch.

INSTALLATION (CONT.)

WARNING – To prevent personal injury or death, do not smoke and keep fuel away from flames and sparks.

WARNING – To prevent personal injury or death, dispose of fuel in a container marked DIESEL FUEL, according to applicable regulations.

8. Drain the secondary fuel filter housing into a suitable container beneath the fuel diagnostic port. If present, remove and discard the port plug. If the port has the EFP switch, disconnect the electrical connection, remove switch, and set it aside.

9. Crack open the top fuel filter line to allow air into the filter housing and drain the housing into the container.

10. Disconnect all fuel supply / return tubes from fuel bowl.

Figure 5 Secondary Fuel Filter Housing and EFP Switch

1. EFP switch
2. Release tab

11. When removing the fuel filter housing, firmly hold the fuel filter housing against the oil filter housing as the three M6 x 25 Torx bolts (p/n 1831387C1) are removed. The poppet spring is under compression and will eject the poppet and spring if the fuel filter housing is not slowly and carefully removed.

INSTALLATION (CONT.)

12. Remove the following components:

    . Poppet spring (p/n 1831441C1)

    . Poppet and seal (p/n's 1838635C1 and 1831479C1)

    . O-ring (p/n 1846211C1)

    . Gasket (p/n 1838630C1)

    Confirm that the EFP switch has an O-ring in place.

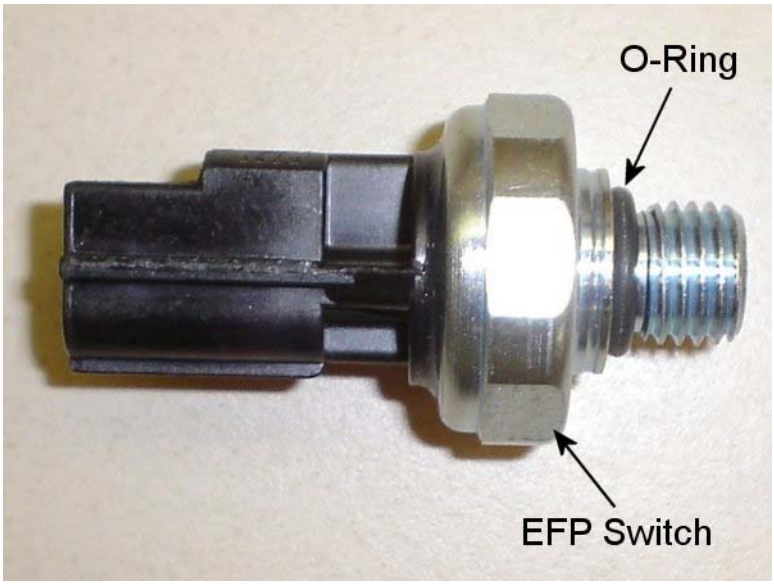


Figure 6

13. Install the EFP switch into the diagnostic port in the bottom of the secondary fuel filter housing and tighten to 14 N-m (124 lbf-in).

INSTALLATION (CONT.)

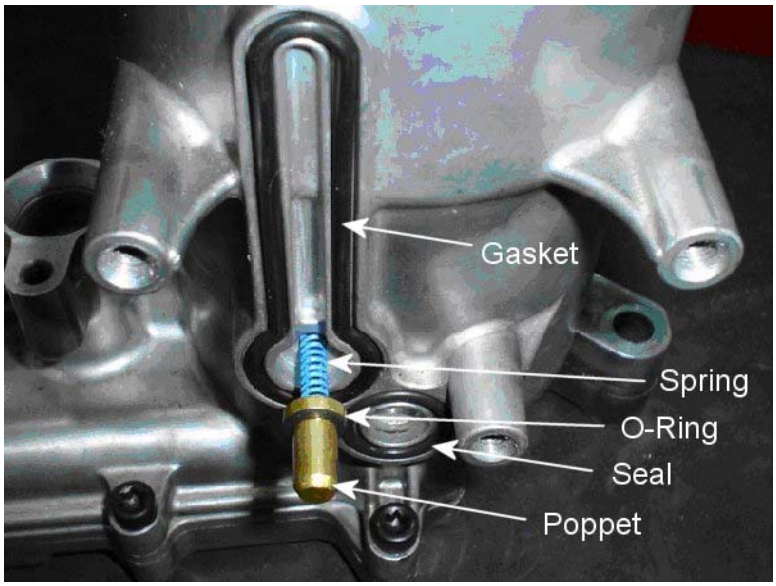


Figure 7

14. Place new components (poppet, poppet spring, o-ring, and gasket) in place of discarded components. Install the new poppet and spring in the fuel filter housing for reassembly to the oil filter housing.

    - Ensure poppet seal is fully seated in poppet gland
    - New poppet spring is blue

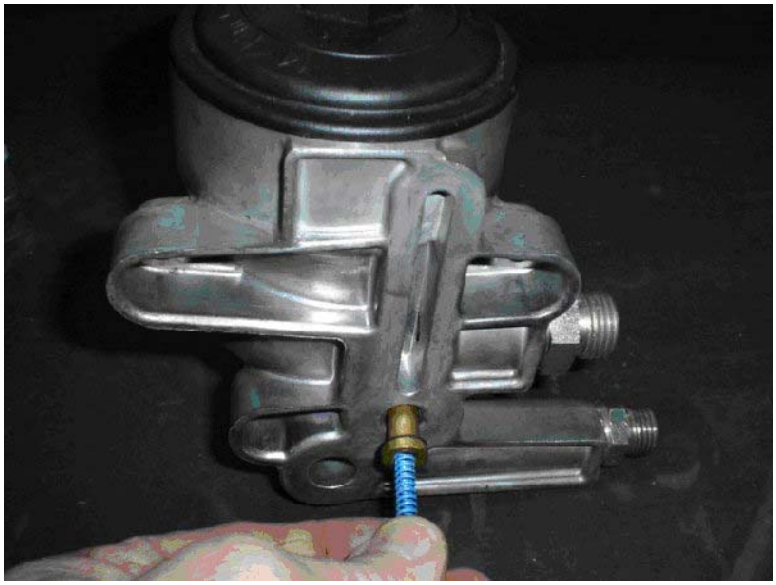


Figure 8

15. Align the poppet spring with its recess in the oil filter housing and slide the fuel filter housing over the three Torx bolt bosses on the oil filter housing. while holding the fuel filter housing firmly in place, start and tighten by hand the three Torx bolts to prevent damaging threads.

INSTALLATION (CONT.)

Figure 9

16. Tighten the three Torx bolts: 77 to 93 lbs-in. (8.7 to 10.5 Nm).

17. Install the EFP switch and connect the 1-pin connector of the EFP switch wiring harness included in kit to the EFP switch. Push the connector into the switch until a click is heard. This indicates the wiring harness is secured to the switch.

NOTE: Harness and connector will already be in place if AFC 07913 repairs have been completed.

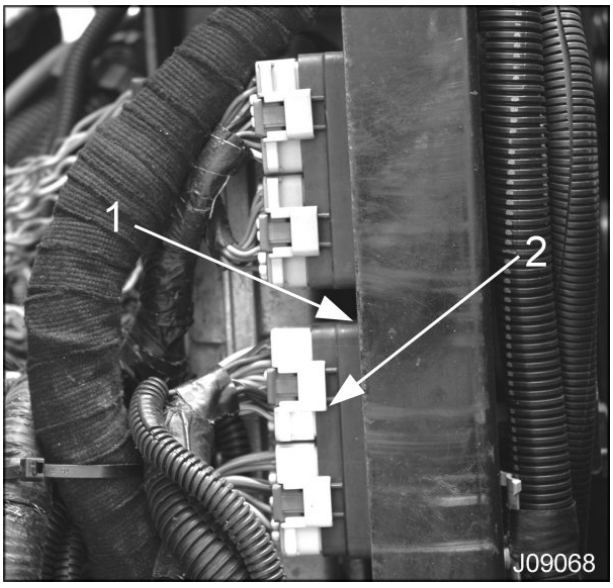


Figure 10 ECM and X-3 Connector

1. ECM
2. X-3 Connector

INSTALLATION (CONT.)

18. Route the EFP switch wiring harness to the Electronic Control Module (ECM) by following the main engine wiring harness. Secure the EFP switch wiring harness to the main engine wiring harness using tie straps (not provided). Make sure there is no rubbing or contact with other parts or engine.

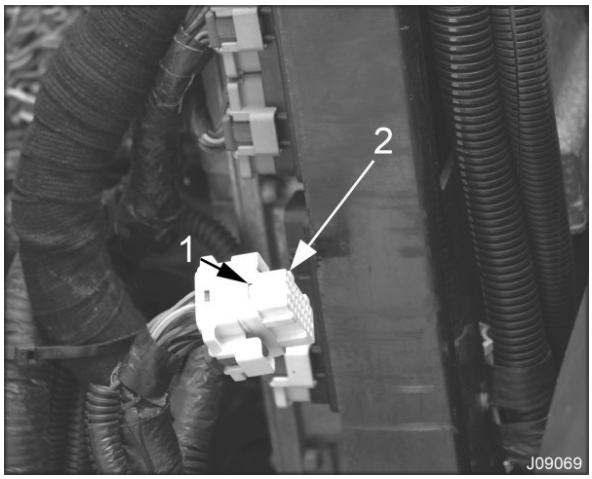


Figure 11 X-3 Connector Removed

1. Locking tab
2. X-3 connector

19. Remove the X-3 connector from the ECM (Figure 11).

20. Using the flat blade of a screwdriver, push down on the locking tab and unlock the connector.

21. Pull the plastic plug from the number 2 terminal position and discard.

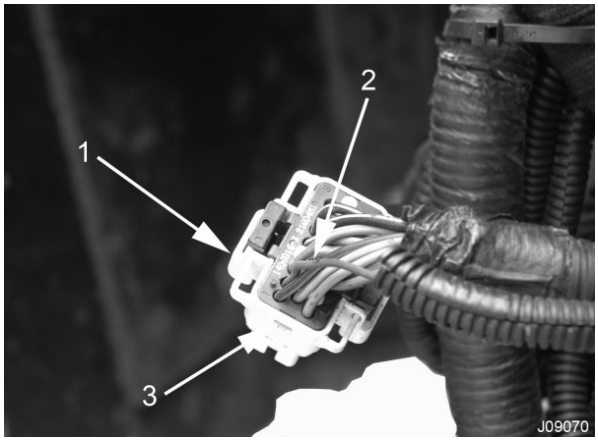


Figure 12 EFP Switch Terminal Connected

1. X-3 connector
2. EFP switch wiring harness installed
3. Tab locks

INSTALLATION (CONT.)

22. Insert the connector end of the EFP switch wiring harness into terminal 2 of the X-3 connector. Push the terminal wire into the connector until a click is heard.

23. Check if terminal wire is secure in the connector by pulling back on the wire.
    a. If the wire is secure, it will remain in the connector block while pulling on the wire.
    b. If the wire is not secure, it will pull out of the connector while pulling on the wire. Repeat step 22.

24. Using the flat blade of a screwdriver, push down on the locking tab and lock the connector.

25. Install X-3 connector into ECM.

26. Install power distribution center cover and secure with two screws.

27. Connect the fuel supply and return lines to the fuel filter housing.

28. Install air inlet duct and hose clamps. do not tighten clamps at this time.

29. Install M6 x 16 bolt holding air inlet duct to intake manifold and tighten to standard torque.

30. Tighten air inlet duct hose clamps to 4–6 N-m (38–48 lbf-in)

31. Connect the ground cable to the negative terminal of the battery and tighten terminal nut.

32. Install battery cover and tighten the two nuts.

33. Check for fuel leaks.

34. Unlock and pull down on the cab. See Engine Operation and Maintenance Manual “Lowering the Cab (CF 500 / 600 only)” for the correct procedure.

35. Update Engine calibration:

    - Use only NETS for the calibration programming - Auto Upgrade will not work for this calibration.
    - • When using NETS, Select “Install New Strategies”

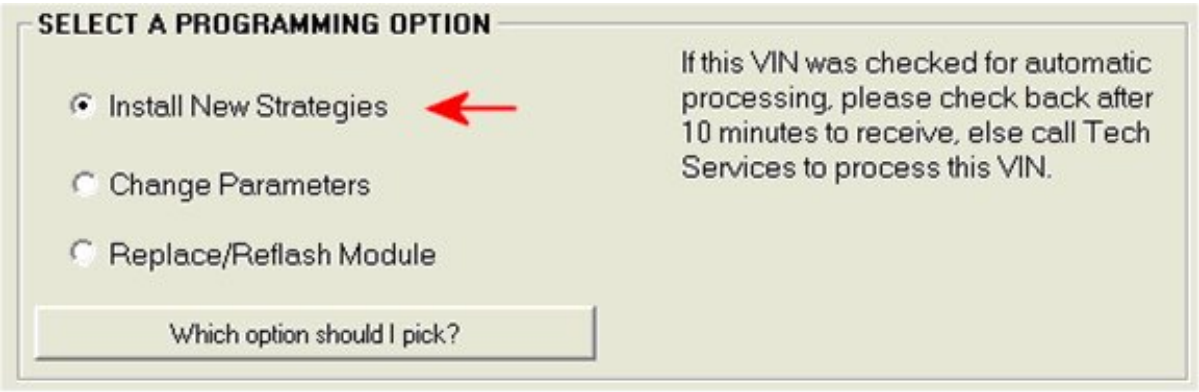


Figure 13

INSTALLATION (CONT.)

- After programming, validate using Service Assistant (SA) that the calibration is the following: CF/LCF 500/600 Applications: PVV3D403
- No programmable parameter need to be changed at this time. Fuel pressure switch parameter does not need to be set to ON for calibration to work.

36. Validate that the fuel light is working.

- With SA still connected, start the engine and let idle.
- Remove the electrical connector to the pressure switch.
- Check Engine light should illuminate and a DTC code (372) will be active in the Engine ECM.
- Reconnect the connector and the light should go out and code should go inactive after ten seconds.
- You will not be able to read fuel pressure in Master Diagnostics or Service Assistant.
- Clear all DTC codes using SA.

Operation number must appear on all claims.

Table 2 Labor Information

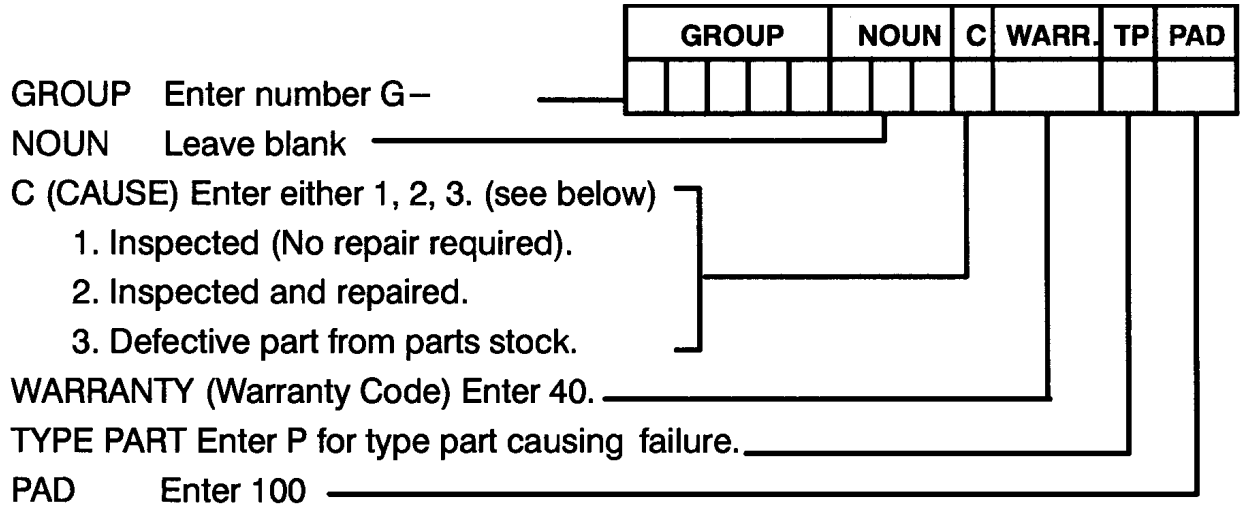
Operation No.	Description	Time
A40–07916–1	Replace parts with 2597067C91, fuel pressure kit with harness, and program ECM	1.4 Hrs.
A40–07916–2	Replace parts with 2597068C91, fuel pressure kit without harness, and program ECM	1.2 Hrs.

ADMINISTRATIVE PROCEDURE

Expense is to be charged to Warranty. Claims are to be submitted in the normal manner, making reference to Authorized Field Change Number G-07916.

It is important that the coding be completed properly to assist in processing the warranty claim. Complete instructions will be found in the Warranty Manual, Section 7–1. Special attention should be given to Items 39 through 44.

To assure this important improvement is made in a timely manner, all claims for G-07916 activity must be submitted by March 31, 2009 or within the normal warranty period for the vehicle, if after March 31, 2009.



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