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Case Number: S201400002 (REV. A)

Release Date: 3/16/2021

Symptom/Vehicle Issue: Metal Or Other Debris Contamination In The High Pressure Fuel System. Parts Ordering, And Repair Process Information.

NOTE: This SOL Publication does not provide authorization to perform any repairs under warranty. Any information provided in this SOL publication must be performed following all current published warranty repair guidelines.

Discussion: There has been some confusion in the field as to which fuel system components must be replaced, and what the proper repair procedure is, if you encounter a fuel system that has been contaminated with metal or other solid debris (e.g. rust, dirt, organic material).

Once you have determined that the fuel system has been contaminated with metal or other types of solid debris, please refer to the following guidelines to help ensure a proper repair.

Parts Required:

The High Pressure Fuel Injection Components are now being released in a complete service kit. The parts included in the kit include the following:

- High pressure fuel injection pump
- Fuel injectors (x6)
- High pressure fuel rail
- Fuel injector connector tubes
- All high pressure fuel lines (pump to rail, and rail to injectors)
- Engine mounted fuel filter

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NOTE: The High Pressure Fuel Injection Service Kits may be under STAR restriction. Please refer to the Parts Restriction Information section below for all of the information required for STAR to order the kit. Once the service kit is ordered by STAR, it is the dealer's responsibility to order any remaining fuel system components needed to perform the repair.

NOTE: If the vehicle is off road, it is the dealer's responsibility to upgrade all parts orders to VOR status. Including any parts ordered by STAR.

NOTE: Part numbers may vary depending on vehicle model, and model year. Please refer to STAR Parts for all current part numbers pertaining to the VIN of the vehicle being repaired.

The following is a complete list of parts needed to repair a fuel system in the event of contamination by metal or other solid debris.

Part Qty	Part Name	Part Number
1	High Pressure Fuel System Kit (D2 High Output Only)	R8545067AA
1	High Pressure Fuel System Kit (DJ/D2/DD/DP Standard Output Only)	R8545068AA
1	Fuel Filter Element, Engine Mounted Filter	68436631AA
1	In-tank Fuel Pump Module Kit	PN# by VIN

STAR Parts Restriction Process:

The following information must be provided to STAR in order for STAR to process the order for a restricted fuel system part.

1. Using wiTECH, obtain a current Vehicle Scan, and Freeze Frame report. Attach all reports to the Star case.

NOTE: If there is a flash available for the PCM do not flash the PCM as you will lose the duty cycle information.

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2. Using wiTECH, obtain a Duty Cycle Report by performing the following steps:
 - a. Connect to the truck using WiTech 2.0 MicroPod
 - b. From the topology screen, navigate to the PCM.
 - c. Select the Misc. Functions tab
 - d. Select Cummins 6.7L Duty Cycle Monitor
 - e. Run the routine, it takes about 10 seconds.
 - f. You will then be prompted to input an email address. Input FCA_DC@cummins.com as the email address and be sure to click "Add" after doing so otherwise the email will not be sent. After selecting add click continue.
3. Inspect for signs of **external contamination** (e.g. DEF, Gas, Rust or other foreign debris), and note in the Star case if any contamination was found.
4. Remove the Fuel Quantity Solenoid (FQS), and take a detailed picture of the FQS, and bore to confirm the condition. See (Figure 1.). Attach the picture to the Star case.

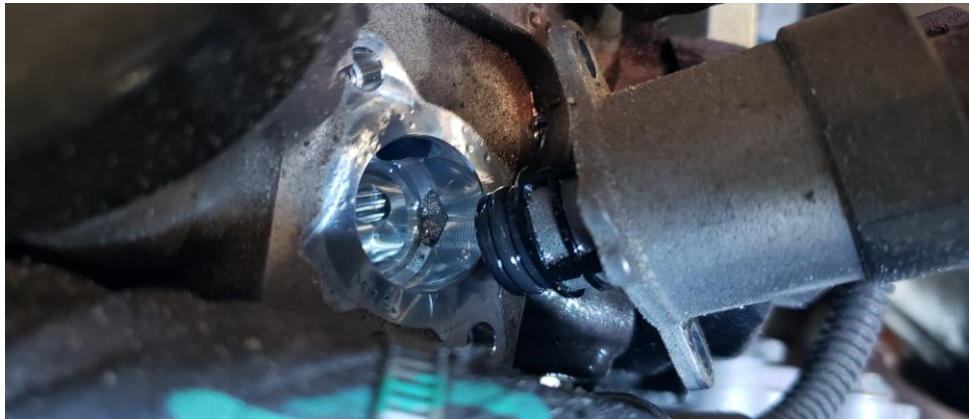


Figure 1.

5. Once all appropriate information has been submitted, STAR will then order the restricted part, and provide you with the order information.

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Repair Procedure:

NOTE: Do not attempt to flush any of the high pressure fuel components (high or low pressure) using Brakleen or similar harsh solvent cleaners. This may cause damage to any internal coatings. For an effective repair, all high pressure fuel system components should be replaced.

1. Remove the fuel tank. Refer to Service Library Service Information Section 14-Fuel System > Fuel Delivery, Diesel > Tank, Fuel > Removal and Installation.
2. Using appropriate storage and/or disposal methods, in accordance with your local regulations drain, and dispose of all of the contaminated fuel from the fuel tank.
3. Thoroughly clean, and flush the fuel tank using fresh, clean, diesel fuel.
4. Inspect the in-tank fuel pump module for signs of metal or other debris. If found, replace the in-tank fuel pump module.

NOTE: In some vehicle applications, leave the fuel tank partially installed to allow access to the fuel return line fitting.

5. Reinstall the fuel tank, leaving the chassis fuel return line disconnected at the tank.
6. Fill the tank with 5 gallons of fresh fuel.
7. Remove the chassis mounted fuel filter element.
8. Place an appropriate catch basin under the fuel filter housing to capture all fuel expelled during the next steps.
9. Turn the ignition to run, and allow the in-tank fuel pump to run a complete cycle (approx. 15 seconds). Capture all of the fuel expelled from the filter housing.
10. Using wiTECH, navigate to the PCM "Actuators" tab, and perform the Lift Pump Relay routine to activate the in-tank fuel pump. This routine will run the pump for 20 seconds. Capture all fuel expelled from the fuel filter housing.
11. Repeat step 10, 2 additional times.
12. Install a new chassis mounted fuel filter element.
13. Place an appropriate catch basin under the engine mounted fuel filter housing to capture all fuel expelled during the next steps.

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14. Open the drain valve, and drain the engine mounted fuel filter housing.
15. Remove the filter element. Leave the drain valve open at this time.
16. Thoroughly clean the filter housing bowl of all debris.
17. Using wiTECH, perform the Lift Pump Relay routine to activate the in-tank fuel pump. The fuel filter housing will begin to fill. If necessary, stop the routine before the housing begins to overflow.
18. Allow the housing to fully drain, and clean out any additional debris that is present.
19. Repeat steps 16, and 17, 2 additional times.
20. Install a new fuel filter element, and tighten the cap to specifications.
21. Close the fuel filter housing drain valve.
22. Disconnect the fuel supply hose from the high pressure fuel injection pump.
23. Connect a suitable hose to the fuel supply hose, and route it into a suitable container
24. Using wiTECH, perform the Lift Pump Relay routine to activate the in-tank fuel pump for 1 complete cycle to flush any contaminants out of the supply line.
25. Replace the High Pressure Fuel Injection Pump. Refer to Service Library, Service Information Section 14-Fuel System > Fuel Delivery, Diesel > Pump, Fuel Injection > Removal and Installation. Be sure to reattach the fuel supply hose previously disconnected.
26. Replace the High Pressure Fuel Rail. Refer to Service Library, Service Information Section 14-Fuel System > Fuel Delivery, Diesel > Rail, Fuel > Removal and Installation.
27. Replace all 6 fuel injectors, and injector connector tubes. Refer to Service Library, Service Information Section 09 – Engine, 6.7L Diesel > Fuel Injection > Injector(s), Fuel > Removal, and Installation.
28. Install new high pressure fuel rail to injector connector tube fuel lines.
29. Install new high pressure fuel injection pump to rail supply lines.
30. Attach a suitable hose to the fuel return line fitting left disconnected at the tank in step 5.
31. Route the hose into a suitable container.
32. Prime the fuel system. Refer to Service Library, Service Information Section 14 – Fuel System > Fuel Delivery, Diesel > Standard Procedure > Fuel System Priming, Diesel.

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33. Start the engine, and allow it to run until approximately 2-3 gallons of fuel has been captured from the fuel return line. This ensures that any debris in any of the remaining fuel return system components, including the cylinder head, has been fully expelled from the system.
34. Reconnect the chassis fuel return line at the tank.
35. If applicable, complete the installation of the fuel tank.
36. Reprogram the PCM with the correct Sym Cam Injection Pump calibration. Please refer to all published TSBs regarding Fuel Injection Pump identification, and PCM reprogramming procedures.
37. Clear all DTCs that may have been set in any module due to reprogramming. The wiTECH application will automatically present all DTCs after the flash and allow them to be cleared.
38. Using wiTECH, perform the “Oil Life Restore” procedure located in the ECM “Misc Functions” menu.
39. Top off the fuel tank with fresh fuel if necessary, and verify the repair.

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