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GROUP: 18 - Vehicle Performance

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SUBJECT:

Diesel Fuel Pump Failure and System Contamination

OVERVIEW:

This bulletin involves inspecting for fuel pump failure and fuel system contamination. Also fuel system cleaning and fuel system kit replacement.

MODELS:

2019 - 2020	(DD)	RAM 3500 Cab Chassis
2019 - 2020	(DP)	RAM 4500/5500 Cab Chassis
2019 - 2020	(D2)	RAM 3500 Pickup
2019 - 2020	(DJ)	RAM 2500 Pickup

NOTE: This bulletin applies to vehicles within the following markets/countries: North America and LATAM.

NOTE: This bulletin applies to vehicles equipped with a 6.7L I6 Cummins Turbo Diesel Engine (Sales Code ETN and ETL) or 6.7L I6 Cummins HO Turbo Diesel Engine (Sales Code ETM).

SYMPTOM/CONDITION:

Customers may experience a Malfunction Indicator Lamp (MIL) illumination. Upon further investigation the technician may find that one or more of the following Diagnostic Trouble Codes (DTCs) have been set:

- P0087-00 - Fuel Rail Pressure Too Low.
- P008A-00 - Low Pressure Fuel System Pressure - Too Low.
- P0201-00 - Fuel Injector 1 Circuit/Open.
- P0202-00 - Fuel Injector 2 Circuit/Open.
- P0203-00 - Fuel Injector 3 Circuit/Open.
- P0204-00 - Fuel Injector 4 Circuit/Open.
- P0205-00 - Fuel Injector 5 Circuit/Open.
- P0206-00 - Fuel Injector 6 Circuit/Open.

The customer may also notice the following:

- Engine will not start.

DIAGNOSIS:

Using a Scan Tool (wiTECH) with the appropriate Diagnostic Procedures available in DealerCONNECT/Service Library, verify all related systems are functioning as designed. If DTCs or symptom conditions, other than the ones listed above are present, record the issues on the repair order and repair as necessary before proceeding further with this bulletin.

NOTE: Foreign contaminants are typically not covered under warranty. Please be sure to follow all published warranty repair guidelines regarding repairs to fuel systems contaminated with foreign contaminants.

If the customer describes the symptom/conditions listed above or if the technician finds the DTCs, perform the Inspection Procedure.

INSPECTION:

1. Remove the Fuel Quantity Solenoid (FQS) from the injection pump. Refer to Service Library Service Information Section: 14 - Fuel System / Fuel Delivery, Diesel / Solenoid, Fuel Quantity / Removal.
2. Inspect the FQS screen as well as the FQS bore for signs of metal contamination (Fig. 1) .
3. Was any signs of metal found?
 - YES>>> Proceed to [Step 4](#) of the Inspection Procedure.
 - NO>>> This service bulletin does not apply. Further diagnosis is required. Proceed to [Step 6](#) of the Inspection Procedure to reinstall the FQS.



Fig. 1

Metal Contamination On The FQS And In The FQS Bore

4. Take an appropriate fuel sample, and inspect for signs of foreign contaminants (e.g. DEF, gas, rust, dirt, or other foreign debris). Refer to Service Library, Service Information Section 14 - Fuel System > Fuel Delivery, Diesel > Standard Procedure > Diesel Fuel Contamination Testing Procedure.

NOTE: Foreign contaminants are typically not covered under warranty. Please be sure to follow all published warranty repair guidelines regarding repairs to fuel systems contaminated with foreign contaminants.

5. Were any foreign contaminants (e.g. DEF, gas, rust, dirt, or other foreign debris) found in the fuel sample?
 - YES>>> Please refer to all **warranty repair guidelines** before continuing with fuel system repair. Proceed to [Step 1](#) of the Repair Procedure.
 - NO>>> Proceed to [Step 1](#) of the Repair Procedure.
6. Install the Fuel Quantity Solenoid (FQS) from the injection pump. Refer to Service Library Service Information Section: 14 - Fuel System / Fuel Delivery, Diesel / Solenoid, Fuel Quantity / Installation.

PARTS REQUIRED:

NOTE: Before ordering any Fuel System Kits make sure there are no parts restrictions. If there is a parts restriction, make sure to follow the Instructions to order the kits.

Qty.	Part No.	Description
1 (A/R)	R8545067AA	Fuel System Kit (HO) (Sales Code ETM)
1 (A/R)	R8545068AA	Fuel System Kit (SO) (Sales Code ETN or ETL)

Parts Included In The Kit.

Qty.	Description
6	Injector - Fuel
1	Rail - Fuel
8	Tube - Fuel Injector Supply
1	Pump - Fuel Injector
1	Washer - None
3	O Ring - None
1	Tube Kit - Injector
2	Connector - Injector
1	Filter - Fuel (Engine Mounted)
1	Retainer - Fuel Injector

Parts NOT Included In The Kit.

Qty.	Description
1	Pump - In-Tank Module (Lift Pump) See Step 4 of the Repair Procedure for more details.
1	Filter - Fuel (Chassis Mounted) 68436631AA
1	Washer, Banjo Injector
1	Gasket CCV

REPAIR PROCEDURE:

1. Remove the fuel tank. Refer to Service Library Service Information Section 14-Fuel System > Fuel Delivery, Diesel > Tank, Fuel > Removal.
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.

NOTE: Do not attempt to flush any of the 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.

3. Thoroughly clean, and flush the fuel tank using fresh, clean, diesel fuel.

NOTE: The In-tank fuel pump (lift pump) is not part of the Fuel System Kit. If one is needed to be replaced follow normal warranty and service procedures to service the pump.

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 10 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.
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 [Step 16](#), [Step 17](#) and [Step 18](#), 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.
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. Install the fuel tank. Refer to Service Library Service Information Section 14-Fuel System > Fuel Delivery, Diesel > Tank, Fuel > Installation.

NOTE: Install a battery charger to ensure battery voltage does not drop below 13.2 volts. Do not allow the charging voltage to climb above 13.5 volts during the flash process.

NOTE: If this flash process is interrupted/aborted, the flash should be restarted.

36. Reprogram the PCM with the correct **Sym Cam injection pump** calibration for the High Pressure Fuel Injection pump installed. 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".
39. Top off the fuel tank with fresh fuel if necessary, and verify the repair.

POLICY:

Reimbursable within the provisions of the warranty.

TIME ALLOWANCE:

Labor Operation No:	Description	Skill Category	Amount
14-45-01-96	Kit - Fuel System Install and Flush Fuel System (2 - Skilled)	10 - Diesel	8.2 Hrs.

FAILURE CODE:

ZZ	Service Action
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