DIESEL FUEL SYSTEM CLEANING PROCEDURE

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Special Tools

	2065600140 - Protection Kit, Caps & Covers

NOTE:
Do not attempt to flush any of the high pressure fuel components 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.

CAUTION: Cleanliness cannot be over emphasized when handling or replacing diesel fuel system components. This especially includes the fuel injectors, high-pressure fuel lines and fuel injection pump. Very tight tolerances are used with these parts. Dirt contamination could cause rapid part wear and possible plugging of fuel injector nozzle tip holes. This in turn could lead to possible engine misfire. Always wash/clean any fuel system component thoroughly before disassembly and then air dry. Cap or cover any open part after disassembly. Before assembly, examine each part for dirt, grease or other contaminants and clean if necessary.

NOTE:
Be sure to cap or cover any part of the fuel system after disassembly using Protection Kit, Caps & Covers 2065600140 .

1. Remove the fuel tank (Refer to 14 - Fuel System/Fuel Delivery, Gas/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.
5. Reinstall the fuel tank, leaving the chassis fuel return line disconnected at the tank (Refer to 14 - Fuel System/Fuel Delivery, Gas/TANK, Fuel/Removal and Installation) .
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.
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 the proper (Torque 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 contaminates out of the supply line.
    NOTE:
    Be sure to reattach the fuel supply hose previously disconnected.
25. Replace the fuel injection pump (Refer to 14 - Fuel System/Fuel Delivery/PUMP, Fuel Injection/Removal and Installation) .
26. Reprogram the PCM with the correct calibration for the High Pressure Fuel Injection pump installed. Please refer to all published TSBs regarding Fuel Injection Pump identification, and PCM reprogramming procedures.
27. Replace the high pressure fuel rail (Refer to 14 - Fuel System/Fuel Delivery/RAIL, Fuel/Removal and Installation) .
28. Replace all 6 fuel injectors, and injector connector tubes (Refer to 09 - Engine/Fuel Injection/INJECTORS, Fuel/Removal and Installation) .
29. Install **NEW** high pressure fuel rail to fuel injector fuel tubes (Refer to 14 - Fuel System/Fuel Delivery/TUBE(S) , Fuel/Removal and Installation).
30. Install **NEW** high pressure fuel injection pump to rail supply tubes (Refer to 14 - Fuel System/Fuel Delivery/TUBE(S) , Fuel/Removal and Installation).
31. Attach a suitable hose to the fuel return line fitting left disconnected at the tank in step 5.
32. Route the hose into a suitable container.
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. Top off the fuel tank with fresh fuel if necessary, and verify the repair.