P242F-DIESEL PARTICULATE FILTER RESTRICTION - ASH ACCUMULATION

For a complete wiring diagram, **refer to the Wiring Information**.

Theory of Operation

The engine aftertreatment system monitors the soot load in the Diesel Particulate Filter. Under normal operating conditions, the Diesel Particulate Filter is self-cleaning, where soot is converted to ash. Under light load operating conditions, the driver may be notified via the vehicle's EVIC message center that it may be necessary to modify the vehicles driving routine in order to allow the Diesel Particulate Filter system to self clean. If the vehicle's EVIC message center notification is ignored, the vehicle will eventually de-rate the engine and set a DTC and MIL lamp, requiring service. The soot load in the Diesel Particulate Filter is estimated using the Exhaust Differential Pressure Sensor and the calculated soot output of the engine. This fault code can be triggered if the application is not operating at a duty cycle high enough to actively regenerate the Diesel Particulate Filter. It may be necessary to increase the duty cycle of the application in order to prevent plugging of the Diesel Particulate Filter. This fault will be triggered if the Engine Control Module (ECM) detects that the soot load of the Diesel Particulate Filter has surpassed the most severe level threshold. The ECM will illuminate the MIL lamp immediately when the diagnostic runs and fails. The driver will be notified via the vehicle's EVIC Message Center. The ECM will also initiate a de-rate of engine power output in an effort to protect the vehicle aftertreatment system. The ECM will turn off the MIL lamp immediately after the soot load in the aftertreatment Diesel Particulate Filter has dropped below the severe level threshold and the DTC has been cleared.

- **When Monitored:**

  The diagnostic runs continuously when the engine is running.
- **Set Condition:**

  The Engine Control Module (ECM) detects that the soot load of the Diesel Particulate Filter has surpassed the most severe level threshold.

Possible Causes
PROGRESSIVE DAMAGE TO THE AFTERTREATMENT SYSTEM FROM AN ENGINE FAILURE, INCLUDING BUT NOT LIMITED TO EXCESSIVE FUEL, OIL OR COOLANT IN THE AFTERTREATMENT SYSTEM MAY CONTRIBUTE TO A HIGH PRESSURE RELATED FAULT.
FUEL DELIVERY SYSTEM PROBLEMS
DIESEL PARTICULATE FILTER COULD BE PLUGGED WITH ACCUMULATED ASH.
OPERATING IN LIGHT LOAD CONDITIONS THAT PREVENT EXHAUST TEMPERATURES FROM BEING HIGH ENOUGH TO ACTIVELY REGENERATE THE AFTERTREATMENT PARTICULATE FILTER.
TEMPERATURE SENSOR(S) FAILED IN-RANGE

Always perform the Pre-Diagnostic Troubleshooting procedure before proceeding. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

1. INSPECT THE AFTERTREATMENT SYSTEM

NOTE: If there are any DTCs present for the Exhaust Temperature Sensors or Exhaust Differential Pressure Sensor, diagnose those DTCs before proceeding with this test procedure.

NOTE: DTC P242F is usually the result of a driveability or fuel system failure. This DTC indicates that the Diesel Particulate Filter may either be face plugged or filled with ash. If there are any other DTCs or driveability concerns present with this DTC, diagnose and repair those concerns before continuing with this test procedure. Not repairing the cause of the excess soot being generated will cause the Diesel Particulate Filter to fill with soot too often and fail prematurely.

1. Perform the AFTERTREATMENT INSPECTION GUIDELINE - 6.7L procedure. (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing).

Was any internal damage found in the Diesel Particulate Filter?

Yes
- Replace the Diesel Particulate Filter and reset the regenerative timers with the scan tool. Remove and clean the EGR Valve. (Refer to 25 - Emissions Control/Exhaust Gas Recirculation/VALVE, Exhaust Gas Recirculation (EGR) - Cleaning). Perform the CHECKING ENGINE MISFIRE / RUNS ROUGH / PERFORMANCE test procedure. (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing).
- Perform the DIESEL AFTERTREATMENT VALIDATION - 6.7L. (Refer to 28 - DTC-Based Diagnostics/ MODULE, Engine Control (ECM) - Standard Procedure).

No
- Go To 2

2. VERIFY THE ESTIMATED SOOT LOAD

1. Ignition on, engine not running.
2. With the scan tool, navigate to Data Display and read the Estimated Soot Load.

Is the Estimated Soot Load Based on Delta Pressure above 47.0 grams (pick-up) 57.0 grams (cab chassis)?

Yes
- Go To 3

No
- Erase DTCs and reset the regenerative timers with the scan tool.
- Perform the DIESEL AFTERTREATMENT VALIDATION - 6.7L. (Refer to 28 - DTC-Based Diagnostics/ MODULE, Engine Control (ECM) - Standard Procedure).

3. CHECK FOR THE ESTIMATED SOOT LOAD ABOVE MAX SOOT LOAD

1. Ignition on, engine not running.
2. With the scan tool, navigate to Data Display and read the Estimated Soot Load.

Is the Estimated Soot Load Based on Delta Pressure above 75.0 grams (pick-up) 92.0 grams (cab chassis)?

Yes
- Replace the Diesel Particulate Filter.
- Perform the DIESEL AFTERTREATMENT VALIDATION - 6.7L. (Refer to 28 - DTC-Based Diagnostics/ MODULE, Engine Control (ECM) - Standard Procedure).

No
- Go To 4

4. STATIONERY REGENERATION

1. With the scan tool, erase DTCs, reset regenerative filter timers, and drive vehicle until P1451 resets (this will allow you to perform a stationary Desoot).

NOTE: The vehicle will not allow the Stationery Desoot to run if the P242F DTC sets. For this reason, test drive the vehicle as close to the shop as possible in order to get back to the shop before the P242F DTC can set.

2. Perform the scan tool initiated Stationary Desoot.
3. After the Stationary Desoot is completed, erase the DTCs with the scan tool.
4. Perform the DIESEL AFTERTREATMENT VALIDATION - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure).

Did a P1451, P2463, or P242F DTC set during the validation?

Yes • Perform the CHECKING ENGINE MISFIRE / RUNS ROUGH / POOR PERFORMANCE test procedure. (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing).

No • Repair complete.