P249E-CLOSED LOOP SCR REDUCTANT INJECTION CONTROL AT LIMIT - FLOW TOO HIGH

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

- **When Monitored:**
  
  This monitor runs when the engine is running and diesel exhaust fluid dosing is being commanded.

- **Set Condition:**

  The Powertrain Control Module (PCM) uses the NOx Sensor 1/1 feedback along with engine operating and environmental conditions to calculate the diesel exhaust fluid dosing rate. Fault sets if the DEF Dosing Control Unit detects that the NOx Sensor levels are higher than expected. The DEF Dosing Control Unit will turn on the MIL Lamp via the PCM immediately after the monitor runs and fails. The DEF Dosing Control Unit will turn off the MIL Lamp via the PCM immediately after the monitor runs and passes.

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

**Diagnostic Test**

1. **ACTIVE DTC**

   **NOTE:** The amount of idle time will depend on the exhaust temperatures in the aftertreatment system. The "Engine Warm Up" routine located in PCM Misc Functions can be used to quickly raise the exhaust temperatures.

   **NOTE:** If there any DEF Injector, NOx sensors, DEF Pump Assembly, or DEF Dosing Control Unit DTCs present, perform the diagnostics for those DTCs before continuing with this one.

1. Start the engine and allow it to idle long enough for the DEF system to become operational. The DEF system is operating when the parameter “SCR Pump State” in the PCM Data Display shows “SCR DOSER DOSING”.

2. Using the scan tool, read DTCs.

**Is this DTC active?**

**Yes**  •  Go To 2
2. **CHECK THE EXHAUST SYSTEM FOR LEAKS**
   1. Turn the ignition off.
   2. Visually inspect the entire exhaust system for signs of a leak.

   **Were any exhaust leaks found?**

   **Yes**
   1. Perform the appropriate repair.
   2. Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

   **No**
   1. Go To 3

3. **CHECK FOR DEF SUPPLY SYSTEM FOR LEAKS**
   1. Turn the ignition on.
   2. With the scan tool, navigate to Systems Tests and actuate the DEF Prime Test.

   **NOTE:** This will pressurize the system, making a leak easier to see.

   3. Inspect for signs of a Diesel Exhaust Fluid leak at:
      1. DEF Injector and Injector connectors.
      2. DEF Heater Line.
      3. DEF Supply Pump Assembly.

   **Were any leaks found?**

   **Yes**
   1. Repair or replace the faulty component in accordance with the service information.
   2. Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

   **No**
   1. Go To 4

4. **CHECK THE DIESEL EXHAUST FLUID**
   1. Turn the ignition off.
   2. Collect a sample of diesel exhaust fluid from the system.
   3. Visually inspect the fluid for signs of contamination or debris.

   **NOTE:** The Refractometer test is only done to test the general quality of the fluid. It will not identify any specific contaminants that may be present.


   **NOTE:** The DEF should register approximately 32.5 percent using the Refractometer.

   5. To test for hydrocarbons in the DEF tank use Hydroscopic test paper (223–44–863) available through MoparEssentialTools.com. Then, ENTER EQUIPMENT CATALOG. Or call (855)-298-2687. The test strip must come in contact with the DEF fluid in the tank in order to get a valid reading for hydrocarbons present in tank.

   6. Remove the test paper from the package and inspect for color consistency. If the color is not consistent replace strip.
7. Disconnect the DEF fill pipe from tank and try to get a sample or remove the DEF tank.

8. Place the test paper directly into the DEF fluid in the tank. If the light blue paper turns dark blue, that is an indication that oil or hydrocarbon contamination is present.

**Is the Diesel Exhaust Fluid (DEF) quality within specification and free of debris, hydrocarbons, or other contamination?**

- **Yes**
  - Go To 5

- **No**
  - If the DEF fails the Refractometer quality test, but passes the Hydroscopic test paper test and shows no other signs of hydrocarbons or other contaminants: Just drain the Diesel Exhaust Fluid (DEF) and replace it with fresh fluid.
  - If the DEF fails the Hydroscopic test paper test or shows signs of other contaminants: Drain the Diesel Exhaust Fluid (DEF). Replace the DEF Tank, DEF Supply Pump Assembly, DEF Injector, DEF Supply Tube, DEF Filler Tube, and DEF Filler Cap in accordance with the service information.
  - Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/ MODULE, Powertrain Control (PCM) - Standard Procedure).

5. **CHECK FOR DEPOSITS IN THE DECOMPOSITION TUBE**


2. Visually inspect the Decomposition Tube for diesel exhaust fluid deposits.

**Were any deposits found?**

- **Yes**
  - Clean the deposits from the Decomposition Tube.
  - Perform the POWERTRAIN VERIFICATION TEST – 6.7L. (Refer to 28 - DTC-Based Diagnostics/ MODULE, Powertrain Control (PCM) - Standard Procedure).

- **No**
  - Go To 6

6. **CHECK THE DEF INJECTOR**

1. Reconnect the DEF Injector harness connector.

2. Place the DEF Injector in a clean, graduated cylinder (showing milliliters or cubic centimeters) to capture the fluid sprayed.

3. Turn the ignition on.

4. With the scan tool, navigate to Systems Tests and actuate the DEF Reductant Doser PUMP Override Test. This test is not to be confused with the DEF Reductant Doser PRIME Override Test.

**NOTE:**

- This Test will run for six minutes before timing out. The amount of flow may fluctuate through out the test, therefore the test must be allowed to run completely in order for the results to be accurate. The fluid should spray out as a mist. There should be no dripping from the holes in the DEF Injector at any time during the duration of the test procedure.

- Also, an injector may have white deposits on the tip that would appear to block the holes. These deposits are dry urea, they do not impact the injector performance and will wash off as soon as the injector is actuated. DO NOT replace the injector without running the bucket test first.

- During testing some residual fluid may collect on the DEF Injector. Do not replace an Injector for that reason alone. Run the entire volume flow test to determine a course of action.

5. Measure the amount of fluid sprayed after the test times out.

5
Does the fluid sprayed measure between 85 ml and 115 ml?

Yes  •  Go To 7

No  •  If the fluid sprayed measured above 115 ml: Replace the DEF Injector in accordance with the Service Information.
  •  Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).
  •  If the fluid sprayed measured below 85 ml: Go To 8

7. SCR CATALYST SYSTEM DTCS PRESENT

Were any SCR Catalyst DTCs present (P20EE or P1C54)?

Yes  •  Replace the SCR Catalyst in accordance with the Service Information.
  •  Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

No  •  Replace the NOx Sensor 1/2 in accordance with the Service Information.
  •  Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

8. CHECK THE DEF SUPPLY LINE FOR A RESTRICTION

1. Check the DEF Supply line for a restriction. Starting at the DEF Injector, follow the line to the DEF Supply Pump Assembly looking for kinks or for objects pinching the line.

Was there a restriction in the DEF Supply Line?

Yes  •  Replace the DEF Supply Line in accordance with the Service Information.
  •  Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

No  •  Go To 9

9. DEF SUPPLY PUMP

1. Turn the ignition off.
2. Replace the DEF Injector, but do not install the DEF Injector into the decomposition tube.

NOTE: After the DEF Injector is replaced, the Diesel Exhaust Fluid Doser Pump Override Test must be performed again.
3. Connect the DEF Injector harness to the new DEF Injector.
4. Place the DEF Injector in a container to capture the fluid sprayed.
5. Turn the ignition on.

NOTE: This Test will run for six minutes before timing out. The amount of flow may fluctuate through out the test, therefore the test must be allowed to run completely in order for the results to be accurate. The fluid should spray out as a mist. There should be no dripping from the holes in the DEF Injector at any time during the duration of the test procedure.
7. Measure the amount of fluid sprayed after the test times out.

**Is the volume of fluid sprayed still below 85 ml?**

**Yes**
- Replace the DEF Supply Pump in accordance with the Service Information.
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).

**No**
- Perform the POWERTRAIN VERIFICATION TEST - 6.7L. (Refer to 28 - DTC-Based Diagnostics/MODULE, Powertrain Control (PCM) - Standard Procedure).