

P0148-HIGH PRESSURE COMMON RAIL (HPCR) CHECKSUM

For a complete wiring diagram **Refer to the Wiring Information.**

- **When Monitored:**

While the engine is running.

- **Set Condition:**

A deviation between the fuel pressure set point and the actual fuel pressure.

Possible Causes

OTHERS DTC'S PRESENT

FUEL LEAKS

FUEL CONTROL ACTUATOR

FUEL PRESSURE SENSOR

CASCADE OVERFLOW VALVE

CHECK VALVE DAMAGED OR BLOCKED

FUEL RETURN LINES OBSTRUCTION, DAMAGE, OR DEBRIS

LIFT PUMP FLOW

AIR IN FUEL SYSTEM

LEAKING FUEL INJECTORS OR HIGH PRESSURE CONNECTORS

PRESSURE LIMITING VALVE

HIGH PRESSURE FUEL PUMP

INTERMITTENT CONDITION

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

1. OTHERS DTCS PRESENT

1. With the scan tool, read DTCs.

Are any other DTC's present?

Yes

- Repair other DTC's first.
- Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

No

- Go To [2](#)

2. FUEL LEAKS

1. Ensure that the fuel level is above 15% using the scan tool.
2. Visually inspect the low and high pressure side of the fuel system for fuel leaks or damaged components.

Do you have any fuel leaks or damaged components?

- Yes**
- Repair the fuel leak.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

- No**
- Go To 3

3. FUEL CONTROL ACTUATOR

1. Check for a mechanically stuck Fuel Control Actuator (FCA). Using the scan tool, actuate the fuel control actuator.

NOTE: The fuel control actuator will only click when cycled off.

Do you hear a click from the actuator when you cycle the actuator off with the scan tool?

- Yes**
- Go To 4

- No**
- Replace the fuel Injector pump.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

4. FUEL PRESSURE SENSOR

1. Using the scan tool, monitor the fuel pressure reading from the fuel rail pressure sensor at idle and at 2000 RPM

Is the fuel rail pressure reading higher at 2000 RPM than at idle?

- Yes**
- Go To 5

- No**
- Replace the fuel pressure sensor.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

5. HIGH FUEL PRESSURE

1. Using the scan tool compare the fuel rail pressure set point with the actual fuel rail pressure.

Is the actual fuel rail pressure higher than the fuel rail pressure set point?

- Yes**
- Go To 6

- No**
- Go To 9

6. CASCADE OVERFLOW VALVE

1. Perform the no trouble code test "*fuel pump return flow test" .(Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing)

Did the fuel injection pump pass the test?

- Yes**
- Go To 7

- No**
- Replace the Fuel pump.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

7. CHECK VALVE DAMAGED OR BLOCKED

1. Check the fuel drain line check valve in the rear of the cylinder head for signs of damage, blockage, or debris.

Is the check valve damaged or blocked?

- Yes**
- Repair the cause of the damaged or blocked check valve or replace the valve.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

- No**
- Go To [8](#)

8. FUEL RETURN LINE OBSTRUCTION, DAMAGED OR DEBRIS

1. Check the fuel return lines for signs of obstruction, damage, or debris.

Are the fuel drain lines damaged or blocked?

- Yes**
- Repair cause of high fuel drain line restriction.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

- No**
- Go To [9](#)

9. LIFT PUMP FLOW

1. Perform the no trouble code "*LIFT PUMP FLOW TEST". (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing)

Did the Lift pump pass the test?

- Yes**
- Go To [10](#)

- No**
- Replace the Lift Pump.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

10. PRESSURE LIMITING VALVE

1. Perform the no trouble code test "*PRESSURE LIMITING VALVE ON THE FUEL RAIL FOR INTERNAL LEAKS".(Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing)

Did the pressure limiting valve pass the test procedure?

- Yes**
- Go To [11](#)

- No**
- Replace the Pressure Limiting Valve.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)

11. LEAKING FUEL INJECTORS OR HIGH PRESSURE CONNECTORS

1. Perform the no trouble test "***INJECTOR RETURN FLOW TEST**". (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing)

Are any Injectors leaking or high pressure connectors leaking?

- Yes**
- Replace or repair the leaking fuel injectors or high pressure connectors.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)
- No**
- Go To [12](#)

12. HIGH PRESSURE FUEL PUMP

1. Perform the no trouble code test "***HIGH PRESSURE FUEL PUMP PERFORMANCE TEST**". (Refer to 29 - Non-DTC Diagnostics/Drivability - Diesel - Diagnosis and Testing)

Did the fuel pump pass the high pressure fuel pump performance test?

- Yes**
- Refer to the INTERMITTENT CONDITION Symptom (Diagnostic Procedure). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)
- No**
- Replace the High pressure fuel pump.
 - Perform POWERTRAIN VERIFICATION TEST VER - 1 (DIESEL). (Refer to 28 - DTC-Based Diagnostics/MODULE, Engine Control (ECM) - Standard Procedure)