



YMMS: 2014 Freightliner Cascadia - 125
Engine: Detroit Diesel DD15 DDEC 13 6 CYL
VIN:

Jul 20, 2020
License:
Odometer:

FAULT CODE TESTS

NOTE: *Some Fault Codes also apply to older engine years.*

FAULT CODE TESTS > SPN 2791 FMI 0: DATA VALID BUT ABOVE NORMAL OPERATIONAL RANGE MOST SEVERE LEVEL > DESCRIPTION

High load operation in high ambient temperatures cause this fault, which is a "silent" fault where fan will be turned on.

NOTE: *This fault is an issue when fan-on times are excessive and coolant temperatures are in normal operating range.*

NOTE: *For Fault Code Diagnostics, see Testing .*

FAULT CODE TESTS > SPN 2791 FMI 2: DATA ERRATIC, INTERMITTENT OR INCORRECT > DESCRIPTION

High load operation in high ambient temperatures cause this fault, which is a "silent" fault where fan will be turned on.

NOTE: *This fault is an issue when fan-on times are excessive and coolant temperatures are in normal operating range.*

NOTE: *For Fault Code Diagnostics, see Testing .*

FAULT CODE TESTS > SPN 2791 FMI 2: DATA ERRATIC, INTERMITTENT OR INCORRECT > TESTING

NOTE: For Fault Code Description, see Description .

1. Inspect for multiple codes:
 - A. Repair cooling system first if SPN 110 FMI 0 is active. Validate repairs.
 - B. Go to next step if SPN 2791 FMI 2 is active.
2. Inspect EGR valve actuator for exhaust leaks.
 - A. Exhaust leaks are present, perform necessary repair. Validate repairs.
 - B. Exhaust leaks are not present, go to next step.
3. Remove actuator cooler lines and fittings and inspect.
 - A. Observe kinked or plugged, repair or replace damaged component.
 - B. No restrictions are present, go to next step.
4. Blow through actuator and ensure coolant passage has no restriction.
 - A. Actuator is plugged, repair or replace component.
 - B. Actuator is not plugged, validate repairs.

FAULT CODE TESTS > SPN 2791 FMI 31: ENGINE EXHAUST GAS RECIRCULATION 1 (EGR) VALVE CONTROL CONDITION EXISTS > DESCRIPTION

EGR actuator (Unknown Error Code).

NOTE: For Fault Code Diagnostics, see Testing .

FAULT CODE TESTS > SPN 2791 FMI 31: ENGINE EXHAUST GAS RECIRCULATION 1 (EGR) VALVE CONTROL CONDITION EXISTS > TESTING

NOTE: For Fault Code Description, see Description .

See Connector Identification for Terminal locations.

1. Using Scan Tool with latest software inspect SPN 2791 FMI 31 Extended Data Record No. 3 "Physical Data", see following table.

RESERVED EXTREME PARAMETER WITH ACTION

Reserved Extreme Parameter	Action to take
3,4,9,10,22,23,65535	Go to next step
15,255	Go to step 5
8,11	Go to step 9
5,7,20	Replace EGR actuator DD13

2. Turn OFF ignition (key OFF, engine OFF).
3. Disconnect EGR actuator rod arm. Inspect ball sockets on arm for unrestricted movement.
 - A. If sockets movement is restricted, replace EGR actuator rod arm.
 - B. If sockets movement is unrestricted, go to next Step.
4. Shift EGR butterfly from stop to stop and inspect for full travel (some drag is common).
 - A. If butterfly fails to move stop to stop, replace EGR valve.
 - B. If it moves stop to stop, replace EGR actuator.
5. Disconnect EGR actuator harness connector.
6. Turn ON ignition (KOEO).
7. Measure Voltage between EGR actuator connector (engine harness side) Terminals 1 and 2.
 - A. If more than 11 Volts, go to Step 9.
 - B. If less than 11 Volts, go to next Step.
8. Inspect Voltage between Terminal 1 of EGR actuator connector and ground (engine harness side).
 - A. If less than 11 Volts, repair wire between EGR actuator connector harness Terminal 1 and ECM 120 Terminal connector Terminal 62.
 - B. If more than 11 Volts, repair wire between EGR actuator connector (engine harness side) Terminal 2 and ECM 120 Terminal connector Terminal 67.
9. Turn OFF ignition (key OFF, engine OFF).
10. Inspect resistance between EGR actuator connector (engine harness side) Terminals 3 and 4.
 - A. If between 55 and 65 Ohms, replace EGR actuator.
 - B. If not between 55 and 65 Ohms, go to next Step.
11. Disconnect ECM 120 Terminal connector.
12. Inspect resistance between EGR actuator connector (engine harness side) Terminals 3 and 4.
 - A. If less than 3 Ohms, repair short between Terminals 3 and 4 of EGR actuator harness connector and ECM Terminals 74/75.

- B. If more than 3 Ohms, go to next Step.
13. Inspect resistance between Terminal 3 of EGR actuator connector harness and Terminal 74 of ECM 120 Terminal connector.
 - A. If more than 3 Ohms, repair wire between Terminal 3 of connector harness and Terminal 74 of ECM 120 Terminal connector.
 - B. If less than 3 Ohms, go to next Step.
 14. Inspect resistance between Terminal 4 of EGR actuator connector harness and Terminal 75 of ECM 120 Terminal connector.
 - A. If more than 3 Ohms, repair wire between Terminal 4 of connector harness and Terminal 75 of ECM 120 Terminal connector.
 - B. If less than 3 Ohms, go to next Step.
 15. Install test ECM clear codes, cycle ignition and repeat procedure.
 - A. If fault does not get active, connect original ECM and go to next Step.
 - B. If fault is still active with test ECM, get active code log file, note measurements in all Steps and contact an authorized Detroit Diesel dealer for additional information/procedures.
 16. Verify if fault is active with original ECM.
 - A. If fault is active, replace ECM.
 - B. If fault is not active, inspect connections at ECM and EGR actuator connector harness, make necessary repair.