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Service Information Bulletin

SUBJECT	DATE
SPN 520243 (MCM) (GHG17)	March 2017

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0193	GHG17 Medium Duty	SPN 520243/FMI 5 - GHG17	This is a new section.

DiagnosticLink users: Please update the troubleshooting guides in DiagnosticLink with this newest version. To update the tool troubleshooting guide, open DiagnosticLink and from the Help – Troubleshooting Guides menu, select the appropriate troubleshooting manual, then click Update.

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2 SPN 520243/FMI 5 - GHG17

Oxygen Sensor Ground Circuit Failed Open

Table 1.

SPN 520243/FMI 5	
Description	This Fault Code Sets When the Motor Control Module (MCM) Detects an Open in the Oxygen (O2) Sensor Signal Circuit
Monitored Parameter	Oxygen Sensor
Typical Enabling Conditions	Engine Running For More than10 Minutes, Vehicle Speed greater than 89 kph (55 mph), Engine Coast greater than Five Seconds
Monitor Sequence	None
Execution Frequency	Always When Enabling Conditions Are Met
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	25% Derate
Verification	Run Engine at Idle for 10 Minutes, Road Test the Vehicle for 10 Minutes at a Speed greater than 89 kph (55 mph). While Road Testing the Vehicle, Increase Engine rpm to at least 800 rpm and then Let Vehicle Coast for More than Five Seconds

WARNING: PERSONAL INJURY

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

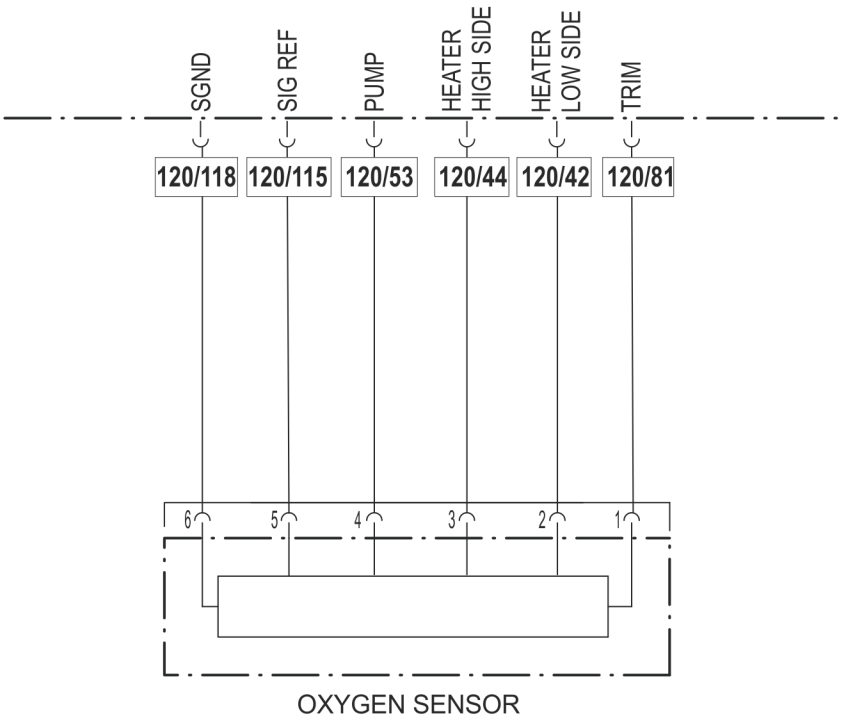
- Always start and operate an engine in a well ventilated area.
- If operating an engine in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system or emission control system.

WARNING: PERSONAL INJURY

To avoid injury before starting and running the engine, ensure the vehicle is parked on a level surface, parking brake is set, and the wheels are blocked.

WARNING: ENGINE EXHAUST

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.



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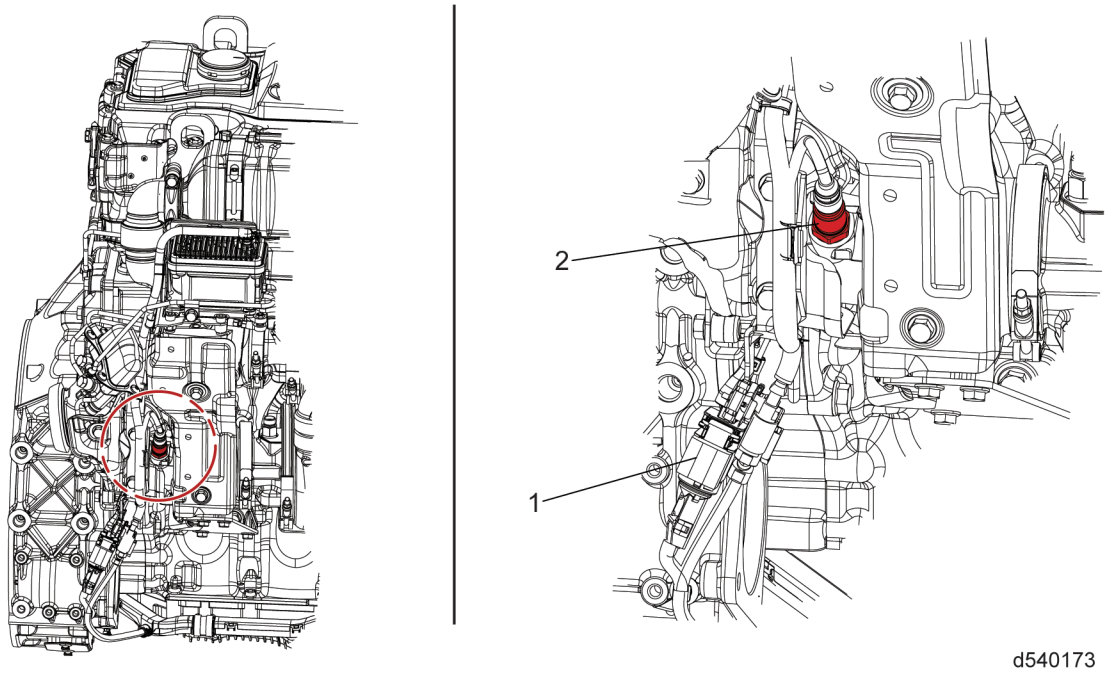
Possible causes:

- Open in the O2 sensor signal ground circuit
- Open in the O2 sensor signal reference circuit
- Open in the O2 sensor pump circuit
- Failed O2 sensor

Check as follows:

1. Turn the ignition OFF.
2. Disconnect and inspect the O2 sensor electrical connector (1) harness side. Is there corrosion present?



a. Yes; replace the O2 sensor and the electrical connector. Verify repair.
b. No; Go to step 3.

3. Are any of the pins or the connector damaged?
   a. Yes; Go to step 4.
   b. No; Go to step 5.
4. Inspect the O2 sensor electrical connector component side. Are any of the pins or the connector damaged?
   a. Yes; replace the O2 sensor and the electrical connector. Verify repair.
      For DD5; Refer to section "Removal of the Oxygen Sensor"
      For DD8; Refer to section "Removal of the Oxygen Sensor"
   b. No; replace the O2 sensor electrical connector. Verify repair.
5. Using the correct flex probe, check pin 4, pin 5 and pin 6 of the O2 sensor electrical connector harness side. Are the pins spread?
   a. Yes; replace the O2 sensor electrical connector harness side. Verify repair.
      For DD5; Refer to section "Removal of the Oxygen Sensor"
      For DD8; Refer to section "Removal of the Oxygen Sensor"
   b. No; Go to step 6.
6. Disconnect and inspect the MCM 120-pin electrical connector harness side. Is there corrosion present?
   a. Yes; replace the MCM and the engine harness.
      For DD5 and DD8; Refer to section "Removal of the Motor Control Module"
      For DD5; Refer to section "Removal of the Engine Wiring Harness"
      For DD8; Refer to section "Removal of the Engine Wiring Harness"
   b. No; Go to step 7.
7. Are any of the pins or the connector damaged?
   a. Yes; Go to step 8.
   b. No; Go to step 9.
8. Inspect the MCM 120-pin electrical connector component side. Are the connector or pins 53, 115 or 118 damaged?
   a. Yes; replace the MCM and the engine harness.
      For DD5 and DD8; Refer to section "Removal of the Motor Control Module"
      For DD5; Refer to section "Removal of the Engine Wiring Harness"
      For DD8; Refer to section "Removal of the Engine Wiring Harness"

b. No; replace the engine harness.
For DD5; Refer to section "Removal of the Engine Wiring Harness"
For DD8; Refer to section "Removal of the Engine Wiring Harness"

9. Using the correct flex probe, check pins 53, 115 and 118. Are any of the pins spread?
   a. Yes; replace the engine harness.
   For DD5; Refer to section "Removal of the Engine Wiring Harness"
   For DD8; Refer to section "Removal of the Engine Wiring Harness"
   b. No; Go to step 10.
10. Measure the resistance between pin 4 of the O2 sensor electrical connector harness side and pin 53 of the MCM 120-pin electrical connector harness side. Is the resistance greater than five ohms?
   a. Yes; repair the circuit between pin 4 of the O2 sensor electrical connector harness side and pin 53 of the MCM 120-pin electrical connector harness side.
   b. No; Go to step 11.
11. Measure the resistance between pin 5 of the O2 sensor electrical connector harness side and pin 115 of the MCM 120-pin electrical connector harness side. Is the resistance greater than five ohms?
   a. Yes; repair the circuit between pin 5 of the O2 sensor electrical connector harness side and pin 115 of the MCM 120-pin electrical connector harness side.
   b. No; Go to step 12.
12. Measure the resistance between pin 6 of the O2 sensor electrical connector harness side and pin 118 of the MCM 120-pin electrical connector harness side. Is the resistance greater than five ohms?
   a. Yes; repair the circuit between pin 6 of the O2 sensor electrical connector harness side and pin 118 of the MCM 120-pin electrical connector harness side.
   b. No; replace the O2 sensor. Verify repair.
   For DD5; Refer to section "Removal of the Oxygen Sensor"
   For DD8; Refer to section "Removal of the Oxygen Sensor"

