## Service Information Bulletin

**NUMBER:** 4 7–09  **S.M. REF.:** Listed in Table  **ENGINE:** EPA07 Series 60  **DATE:** April 2009

**SUBJECT:** SPN 27

### ADDITIONS, REVISIONS, OR UPDATES

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**NOTE:** Page numbers are based on the most recent version of the individual publication and may be adjusted throughout the annual print cycle.
**SPN 27/FMI 4**

This diagnostic condition is typically a Circuit Failed High.

**NOTE:**

If the EGR valve is commanded via the service tool to any position more than three times per ignition cycle, SPN 2791 FMI 7 (EGR Valve Position Incorrect) will set. This is normal and no diagnostics should be performed on a tool-induced fault.

1. Check for multiple codes.
   [a] If 27/4, 2791/5 and 1073/4 are present, repair open between pin 62 of the MCM 120–pin connector and the EGR valve or pin 62 of the MCM 120–pin connector and the front Jake Brake® solenoid.
   [b] If 27/4 only, go to next step.
   [c] If 27/4 and 1073/4 are present go to step 6.
   [d] If 27/4 and 3482/4 are present go to step 11.
   [e] If 27/4 and 3471/4 are present go to step 14.
   [f] If 27/4 and 3598/4 are present go to step 17.

2. Disconnect the EGR Valve harness connector.

3. Disconnect the MCM 120–pin connector.

4. Measure the resistance between pin 4 of the EGR Valve harness connector and ground.
   [a] If the resistance is less than 3 ohms, repair the wire between pin 4 of the EGR Valve harness connector and pin 60 of the MCM 120–pin connector.
   [b] If the resistance is greater than 3 ohms, go to next step.

5. Measure the resistance between pin 4 of the EGR Valve harness connector and pin 60 of the MCM 120–pin connector.
   [a] If the resistance is less than 3 ohms, replace the EGR Valve.
   [b] If the resistance is greater than 3 ohms, repair the wire between pin 4 of the EGR Valve harness connector and pin 60 of the MCM 120–pin connector.

6. Disconnect the front valve cover injector harness.

7. Inspect the front injector harness 12–pin connector for signs of oil intrusion.
If contamination is found, replace the under valve cover injector harness.  
If no contamination is found, go to next step.

8. Remove the valve cover.

9. Disconnect the front Jake Brake solenoid.

10. Measure the resistance between either Jake Brake solenoid terminal and ground.

   [a] If the resistance is less than 3 ohms, replace the front Jake Brake solenoid.
   
   [b] If the resistance is greater than 3 ohms, replace the front injector harness.

11. Disconnect the MCM 120–pin connector.

12. Disconnect the Fuel Cutoff Valve harness connector.

13. Measure the resistance between pin 1 of the Fuel Cutoff Valve harness connector and ground.

   [a] If the resistance is less than 3 ohms, repair wire between pin 1 of the Fuel Cutoff Valve harness connector and pin 69 of the MCM 120–pin connector.
   
   [b] If the resistance is greater than 3 ohms, replace the Doser Block Assembly.

14. Disconnect the MCM 120–pin connector.

15. Disconnect the Electronic Dosing Valve harness connector.

16. Measure the resistance between pin 1 of the Electronic Dosing Valve harness connector and ground.

   [a] If the resistance is less than 3 ohms, repair wire between pin 1 of the Electronic Dosing Valve harness connector and pin 65 of the MCM 120–pin connector.
   
   [b] If the resistance is greater than 3 ohms, replace the Doser Block Assembly.

17. Disconnect the MCM 120–pin connector.

18. Measure the resistance between pin 62 of the MCM 120–pin connector and ground.

   [a] If the resistance is less than 3 ohms, go to next step.
   
   [b] If the resistance is greater than 3 ohms, go to step 21.

19. Disconnect the EGR Valve harness connector.

20. Measure the resistance between pin 62 of the MCM 120–pin connector and ground.
[a] If the resistance is less than 3 ohms, repair wire between pin 2 of the EGR Valve harness connector and pin 62 of the MCM 120–pin connector.

[b] If the resistance is greater than 3 ohms, replace the EGR Valve.

21. Measure the resistance between pin 64 of the MCM 120–pin connector and ground.
   [a] If the resistance is less than 3 ohms, go to next step.
   [b] If the resistance is greater than 3 ohms, note resistance measurements taken during procedure and contact the Detroit Diesel Customer Support Center at 313–592–5800 for further instruction.

22. Disconnect the Electronic Dosing Valve.

23. Measure the resistance between pin 64 of the MCM 120–pin connector and ground.
   [a] If the resistance is less than 3 ohms, repair the wire between pin 2 of the Electronic Dosing Valve harness connector and pin 64 of the MCM 120–pin connector.
   [b] If the resistance is greater than 3 ohms, replace the Doser Block Assembly.
**SPN 27/FMI 7**

This diagnostic condition is typically the EGR Valve Stuck Open.

**NOTE:**
If the EGR valve is commanded via the service tool to any position more than three times per ignition cycle, SPN 2791/FMI 7 (EGR Valve Position Incorrect) will set. This is normal and no diagnostics should be performed on a tool-induced fault.

1. Turn Ignition switch ON (key ON, engine OFF).
2. Using DDDL monitor EGR Actual Position while activating PWM1 to 50%.
3. Is EGR Actual Position reading between 42 and 58 percent?
   - [a] Yes; go to next step.
   - [b] No; go to step 5.
4. Command PWM1 to 90% and while monitoring EGR Actual Position, does EGR Actual Position read between 85-99%?
   - [a] Yes; repeat steps 2 through 4 if results are repeated; clear fault and release vehicle. If results are not repeated, go to next step.
   - [b] No; go to next step.
5. Disconnect EGR Valve harness connector.
6. Inspect harness connector for bent, spread or corroded pins.
   - [a] If connector damage is found, repair as necessary.
   - [b] If no damage is found, go to next step.
7. Remove the EGR Valve.
8. Inspect the EGR Valve butterfly for signs of excessive soot or white residue.
   - [a] If white residue is found, repair cause of coolant contamination or a possible EGR cooler failure. Repair source of coolant contamination and replace the EGR Valve.
   - [b] If excessive soot residue is found, correct cause of soot contamination or a possible CAC system leak(s). Repair source of soot contamination and replace the EGR Valve.
   - [c] If no contamination is found, replace the EGR Valve.
Additional service information is available in *Power Service Literature.*