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## Service Information Bulletin

SUBJECT	DATE
SPN 2659 (MCM) (EPA10;GHG14)	September 2014

### Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	EPA10/ GHG14 DD Platform	SPN 2659/FMI 0 - EPA10 - GHG14	This is an updated section for software and further hardware checks.



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## 2 SPN 2659/FMI 0 - EPA10 - GHG14

Exhaust Gas Recirculation Flow Target Error Diagnostic - High Flow

**Table 1.**

SPN 2659/FMI 0	
Description	Exhaust Gas Recirculation (EGR) Flow Target Error - Actual Flow Above The Threshold of Desired Flow
Monitored Parameter	EGR Mass Flow
Typical Enabling Conditions	Desired EGR Mass Flow Greater Than .08, EGR In Closed-Loop Control, CAC Outlet Temperature Greater Than 0°C (32°F), Engine Speed 1080 to 2500 rpm, Engine Torque 200 to 2500 N·M (148 to 1894 lb·ft), Coolant Temperature Greater Than 65°C (149°F), Ambient Temperature Greater Than -8°C (17.6°F) Ambient, Barometric Pressure Greater Than 755 Mbar (11 psi).
Monitor Sequence	none
Execution Frequency	Always Enabled
Typical Duration	20
Dash Lamps	MIL, CEL
Engine Reaction	Derate 25%
Verification	Start engine, warm up such that coolant temperature greater than 65°C (149°F) insure ambient temperature greater than -8°C (17.6°F) ambient and ambient barometric pressure greater than 755 mbar (11 psi). Desired EGR mass flow greater than .08, EGR in closed-loop control, CAC outlet temperature greater than 0°C (32°F), engine speed 1080 to 2500 rpm, engine torque 200 to 2500 N·m (148 to 1894 lb·ft)

Check as follows:

1. Check the Motor Control Module (MCM) software level. Compare the current MCM software level to the server. Is the MCM software at the latest level?
  - a. Yes; Go to step 2.
  - b. No; update the MCM software level and perform the verification procedure in the table above. If the fault code does not return, release the vehicle. If the fault code returns or if unable to duplicate verification cycle, Go to step 2.
2. Turn the ignition ON (key ON, engine OFF).
3. Using DiagnosticLink<sup>®</sup> monitor EGR delta P voltage (pin 109).
4. Is the EGR delta P voltage between 0.55 and 0.83 volts?
  - a. Yes; Go to step 9.
  - b. No; Go to step 5.
5. Remove the EGR delta P sensor from the mounting pad, leaving the electrical harness connected.
6. Is the EGR delta P voltage between 0.55 and 0.83 volts?
  - a. Yes; Go to step 9.
  - b. No; Go to step 7.
7. Disconnect the EGR delta P sensor harness connector.
8. Inspect the EGR delta P sensor and harness connector for loose, bent, spread or corroded pins. Is any damage found?
  - a. Yes; repair as necessary.
  - b. No; replace EGR delta P sensor. Refer to section "Removal of the Delta P Sensor". After sensor replacement, perform an EGR delta P re-calibration service routine; release vehicle.
9. Turn the ignition OFF.
10. Remove the EGR delta P sensor and inspect the EGR delivery pipe delta P pressure ports for blockage. Is any blockage found?
  - a. Yes; repair (clean) as necessary.

- b. No; Go to step 11.
- 11. Disconnect the EGR valve actuator pull rod. Inspect the ball sockets on the pull rod for free movement. Refer to Service Letter 13 TS 30 (<http://ddcsn-ddc.freightliner.com/cps/rde/xbc/ddcsn/14TS18.pdf>) for EGR linkage hardware update. Do the sockets rotate or move freely and are part numbers correct?
  - a. Yes; Go to step 12.
  - b. No; replace the EGR valve actuator pull rod or lever as needed.  
For the DD13: Refer to section "Removal of the Exhaust Gas Recirculation Valve Actuator Pull Rod".  
For the DD15 and DD16: Refer to section "Removal of the Exhaust Gas Recirculation Valve Actuator Pull Rod".  
Verify repairs.

**NOTE:** Some resistance is normal; however, the actuator should not bind in any particular spot.

- 12. Inspect the EGR valve for physical damage (broken butterfly). Is any damage found?
  - a. Yes; replace the EGR valve. Verify repairs.  
For the DD13: Refer to section "Removal of the DD13 Exhaust Flanged Manifold".  
For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Exhaust Gas Recirculation Valve".
  - b. No; Go to step 13.
- 13. Physically move the EGR butterfly from stop-to-stop to check for full travel (some drag is normal). Does the EGR butterfly move stop-to-stop?
  - a. Yes; Go to step 14.
  - b. No; replace the EGR valve.  
For the DD13: Refer to section "Removal of the Exhaust Manifold".  
For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Exhaust Gas Recirculation Valve".  
Verify repairs.
- 14. Remove the EGR cooler hot pipe, EGR crossover pipe and delivery pipe and inspect for excessive build up or blockage. Is any excessive build up or blockage found?
  - a. Yes; clean piping and replace EGR cooler. Verify repairs.  
Refer to section "Removal of the Exhaust Gas Recirculation Hot Pipe".  
Refer to section "Removal of the Exhaust Gas Recirculation Crossover Tube".
  - b. No; replace the EGR valve actuator. Verify repairs.  
For the DD13: Refer to section "Removal of the DD13 Exhaust Gas Recirculation Valve Actuator".  
For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Exhaust Gas Recirculation Valve".