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Service Information Bulletin

SUBJECT	DATE
SPN 4364 (ACM) (GHG14)	March 2015

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	GHG14 DD Platform	SPN 4364/SPN 18 - GHG14	NOx sensor check updated. Six new steps have been added.

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2 SPN 4364/FMI 18 – GHG14

SCR NOx Conversion Efficiency Low

Table 1.

SPN 4364/FMI 18	
Description	This code sets when the Aftertreatment Control Module (ACM) detects that the Selective Catalyst Reduction (SCR) NOx Conversion efficiency is low.
Monitored Parameter	SCR inlet NOx sensor and SCR outlet NOx sensor
Typical Enabling Conditions	Diesel Exhaust Fluid (DEF) Dosing Enabled, 1000 - 2100 rpm, 15 - 100% load
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	30 Minutes
Dash Lamps	MIL
Engine Reaction	None
Verification	Parked Regeneration

Possible causes:

- Contaminated DEF
- Incorrect concentration of urea in the DEF
- Biased NOx sensor
- Excessive DEF build-up in the exhaust

Check as follows:

1. Connect DiagnosticLink ®. Go to step 2.
2. Turn the ignition ON (key ON, engine OFF). Go to step 3.
3. Check for other fault codes. Are there any air management system (ITV, IMP, IAT, turbocharger etc.) fault codes present?
   a. Yes; diagnose the air management system fault codes first.
   b. No; Go to step 4.
4. Are there any Exhaust Gas Recirculation (EGR) system fault codes present?
   a. Yes; repair the EGR system fault codes first.
   b. No; Go to step 5.
5. Are there any fuel system fault codes present?
   a. Yes; diagnose the other fault codes first.
   b. No; Go to step 6.
6. Are there any other NOx sensor fault codes present?
   a. Yes; diagnose the other NOx sensor fault codes first.
   b. No; Go to step 7.
7. Was another emission component related fault code repaired prior to this step?
   a. Yes; Perform a parked regeneration to verify repairs and clear fault codes.
   b. No; Go to step 8.
8. Turn the ignition OFF. Go to step 9.
9. Use DEF test strip A0005850202 to check for diesel fuel or oil contamination of the DEF fluid; Refer to section "Checking Diesel Exhaust Fluid Quality". Do the test strips or visual inspection indicate that the DEF is contaminated?
   a. Yes; for diesel fuel or oil contamination, refer to 13 TS-17 (http://ddcsn-ddc.freightliner.com/cps/rde/xbcr/ddcsn/13TS17.pdf) and refer to appropriate Original Equipment Manufacturer (OEM) literature for DEF tank cleaning/flushing procedures. Refill the DEF tank with new DEF. Verify repair.

b. No; Go to step 10.

10. Using the refractometer from DEF Test Kit W060589001900, measure the DEF urea percentage. Is DEF urea percentage between 31 and 34 percent?
    a. Yes; Go to step 11.
    b. No; clean/flush the DEF tank and the DEF system. Refer to section "Flushing of the Diesel Exhaust Fluid System". Refill the DEF tank with new DEF. Verify repair.
11. Turn the ignition ON (key ON, engine OFF). Go to step 12.
12. Perform a DEF quantity test service routine; Refer to section "Diesel Exhaust Fluid Quantity Test - GHG14". Go to step 13.
13. Monitor the amount of DEF fluid dispensed into the DEF-safe container included in DEF test kit W060589001900. Is the amount of DEF dispensed between 108 and 132 mL (3.7 and 4.5 oz.)?
    a. Yes; Go to step 14.
    b. No; replace the DEF Dosing Unit. Refer to section "Removal of the GHG14 Dosing System Doser". Verify repair.

WARNING: ENGINE EXHAUST

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

WARNING: HOT EXHAUST

During parked regeneration the exhaust gases will be extremely HOT and could cause a fire if directed at combustible materials. The vehicle must be parked outside.

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.

14. Start the engine and perform a whole parked regeneration. Go to step 15.

NOTE: Running the engine with DEF Doser Unit electronically disconnected will induce a DEF doser circuit fault code. This code can be erased using DiagnosticLink™ once the DEF doser electrical connector is reconnected.

15. Disconnect the DEF dosing unit electrical connector. Go to step 16.
16. Run the "Perform the GHG14 Perform Performance Check - Low Temp ATD"; Refer to section "GHG14 Perform Performance Check - Low Temperature ATD". Are the NOX sensor readings within 50 Parts Per Million (PPM) of each other?
    a. Yes; Go to step 17.
    b. No; replace the outlet NOx sensor. Refer to section "Removal of the GHG14 Selective Catalytic Reduction Outlet NOx Sensor". Go to step 18.
17. Reconnect the DEF dosing unit electrical connector. Go to step 21.
18. Run the "GHG14 Perform Performance Check - Low Temperature ATD". Refer to section "GHG14 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and outlet NOx sensor readings within 50 Parts Per Million (PPM) of each other?
    a. Yes; Go to step 19.
    b. No; replace the inlet NOx sensor. Refer to section "Removal of the GHG14 Selective Catalytic Reduction Inlet NOx Sensor". Go to step 19.
19. Reconnect the DEF dosing unit electrical connector. Go to step 20.

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20. Start the engine and perform a parked regeneration and monitor the NOx efficiency. Is the NOx efficiency above 70%?
    a. Yes; the diagnostic is completed.
    b. No; Go to step 22.

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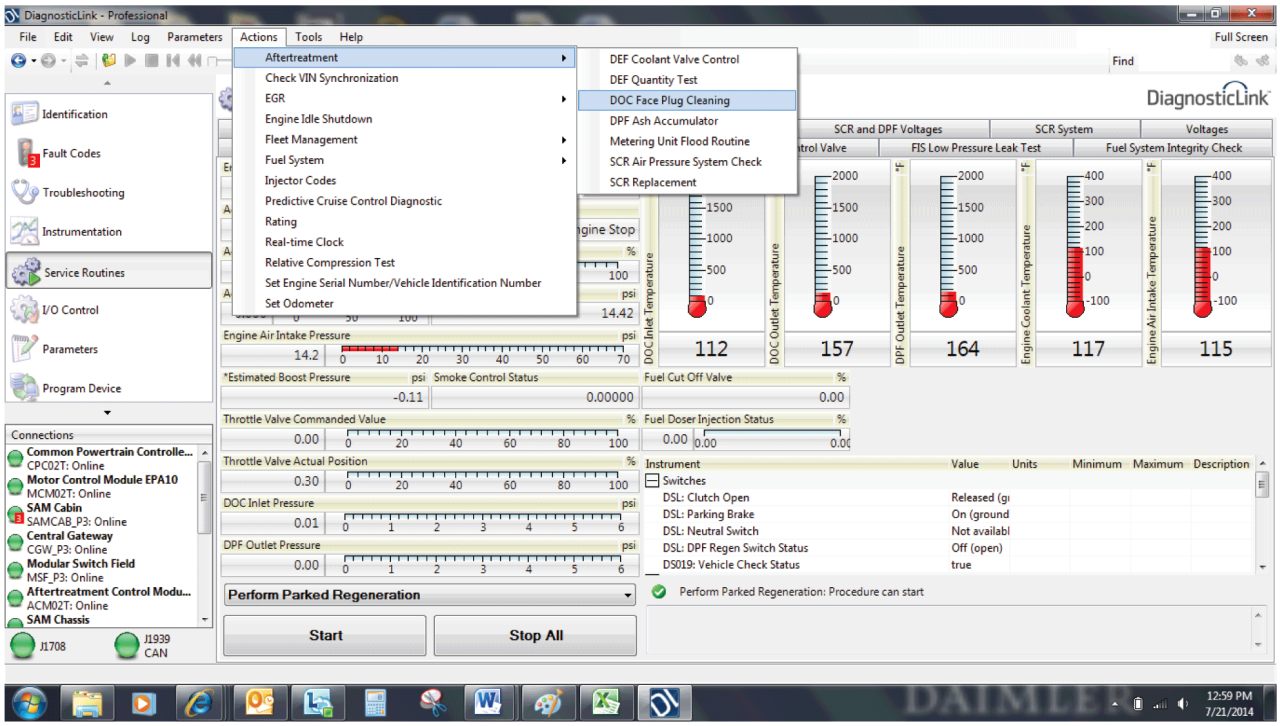
21. Start the engine and perform a parked regeneration and monitor the NOx efficiency. Is the NOx efficiency above 70%?
    a. Yes; this fault was likely caused by the DEF build-up in the exhaust which was cleared by the parked regeneration procedures. Release the vehicle.

NOTE: Excessive DEF build-up in the exhaust can be caused by a vehicle with a high idle time, low average speed, low drive load, etc.

    b. No; Go to step 22.
22. Review the last 7 minutes off the parked regeneration log file; was the SCR inlet temperature within 65°C (117°F) of the SCR outlet temperature?
    a. Yes; Go to step 23.
    b. No; replace the ATD.
23. Review the parked regeneration log file. Is the DOC inlet pressure greater than 2.9 psi throughout the parked regeneration?
    a. Yes; replace the ATD.
    b. No, Go to step 24.

24. Perform the DOC Face Plug Cleaning procedure to unplug the DOCs. Refer to section "EPA10 and GHG14 Diesel Oxidation Catalyst Face Cleaning".



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