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Service Information Bulletin

| SUBJECT | DATE |
|------------------------|------------|
| SPN 3227 (ACM) (GHG17) | March 2017 |

Additions, Revisions, or Updates

| Publication Number / Title | Platform | Section Title | Change |
|----------------------------|-------------------------|---------------------------|--|
| DDC-SVC-MAN-0193 | GHG17 Medium Duty | SPN 3227/FMI 2 - GHG17 | Two new substeps that clarify NOx sensor activity. |

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 3227/FMI 2 - GHG17

Outlet NOx Sensor Circuit Range/Performance Bank 1 Sensor 2

Table 1.

| SPN 3227/FMI 2 | |
|-----------------------------|--|
| Description | Goal of this Diagnostic is to Detect the Tailpipe Out Lambda Signal Lower Than Expected In Engine No Fueling Mode |
| Monitored Parameter | Outlet NOx Sensor |
| Typical Enabling Conditions | <ul style="list-style-type: none"> • Engine at 1200 to 1800 rpm • Above 40% Load • In Diesel Exhaust Fluid (DEF) Dosing Mode • Coolant Temp Above 65°C (149°F) • Ambient Air Temp Above 18°C (64°F) • Ambient Pressure Above 752 mbar (10.9 psi) • Not In EGR Mode • Not In Regen Mode |
| Monitor Sequence | Outlet NOx Sensor vs. Inlet NOx Sensor |
| Execution Frequency | Continuous When Enabling Conditions Met |
| Typical Duration | 1.2 Seconds |
| Dash Lamps | MIL |
| Engine Reaction | None |
| Verification | Road Test at Operating Temperature with Engine Above 1200 rpm, Above 40% Load, In DEF Dosing Mode; Not In Regen or EGR Mode |



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.

Check as follows:

1. Connect DiagnosticLink[®]. Are there any other fault codes?
 - a. Yes; repair other fault codes first.
 - b. No; Go to step 2.

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**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.

2. 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 3.
3. Check Aftertreatment System (ATS) for visible exhaust leaks/damage. Is there any damage found?
 - a. Yes; repair as necessary.
 - b. No; Go to step 4.
4. Disconnect the DEF doser electrical connector.

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5. Start the engine and perform a parked regeneration.
6. Let the regen run for 40 to 45 minutes, then start monitoring the SCR inlet NOx sensor and SCR outlet NOx sensor ppm values.
7. Are the SCR inlet NOx sensor and SCR outlet NOx sensor readings within 50 ppm of each other?
 - a. Yes; Go to step 8.
 - b. No; replace the SCR outlet NOx sensor. Verify repair.
8. Reconnect the DEF dosing unit electrical connector.
9. Remove the DEF doser but leave the DEF lines and electrical connector attached.
10. Use the graduated cylinder provided in DEF test kit W060589001900.
11. Turn the ignition ON (key ON, engine OFF).
12. Perform a DEF quantity test service routine; Refer to section "Diesel Exhaust Fluid Quantity Test - GHG17".
13. Monitor the amount of DEF dispensed. Is the amount of DEF dispensed between 108 and 132 mL (3.7 and 4.5 oz.)?

- a. Yes; reinstall the dosing unit. Refer to section "Installation of the Diesel Exhaust Fluid Dosing Unit". Go to step 14.
- b. No; replace the DEF Dosing Unit. Refer to section "Installation of the Diesel Exhaust Fluid Dosing Unit". Go to step 14.



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14. Start the engine, perform a parked regeneration and monitor the NOx efficiency. Is the NOx efficiency 85% or greater?
 - a. Yes; release the vehicle.
 - b. No; replace the outlet NOx sensor. Verify repair.