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Service Information Bulletin

SUBJECT	DATE
SPN 1077 (MCM)(GHG17)	January 2017

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0193	DD Platform - GHG17	SPN 1077/ FMI 14 - GHG17	New Diagnostic

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.

13400 Outer Drive, West, Detroit, Michigan 48239-4001
Telephone: 313-592-5000
www.demanddetroit.com

2 SPN 1077/FMI 14 - GHG17

Internal or External Leakage of the High Pressure Fuel System (Too High, Leak Down Test)

The Motor Control Module (MCM) monitors rail pressure during engine shut down and compares it to a stored learned value. If the bleed-down rate has changed due to leakage and it is below the learned value, this code will set.

Table 1.

SPN 1077/FMI 14	
Description	Leakage in High Pressure Fuel System Too High (Leak Down Test)
Monitored Parameter	Fuel Rail Pressure Key OFF Rail Pressure between 80 bar (1160 psi) and 900 bar (13,053 psi)
Typical Enabling Conditions	Engine Coolant Temp between 65°C (149°F) and 114°C (237°F) Fuel Temp between 0°C (32°F) and 150°C (203°F)
Monitor Sequence	None
Execution Frequency	Once When Enabling Conditions Met
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	
Verification	Fuel System Integrity Check (FSIC)

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. Check for multiple codes. Are there any additional SPN 1077 codes present?
   a. Yes; service the additional fault codes first.
   b. No; Go to step 2.

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.

2. Perform Automatic Fuel System Integrity Check (FSIC) routine using DL 8.04SP2 or higher. With the ignition ON (key ON, engine OFF) start the Automatic FSIC. The software/tool will ask to start the engine when required. Once the engine is running, the software will have the engine enter and exit several engine operating conditions. Follow on-screen instructions to Key OFF and Key ON when necessary. Disconnect DiagnosticLink and open the log file. The next steps of the troubleshooting will require reviewing the FSIC log file. Go to step 3.
3. Was the result of the FSIC "Leak Detected"?
    a. Yes; Go to step 5.
    b. No; Go to step 4.
4. Clear code and road test vehicle. Can the fault be duplicated?
    a. Yes; Go to step 5.
    b. No; obtain conditions for duplicating concern from customer.
5. Check for external high pressure fuel system leakage. Are there any leaks?
    a. Yes; repair leaks and prime the fuel system. Refer to section "Priming the Fuel System". Start engine and verify repair.
    b. No; Go to step 6.
6. Check the Idle Speed Balance (ISB) Values. Refer to section "Idle Speed Balance Test". Are there any cylinders at 100% or -100%?
    a. Yes; Go to step 7.
    b. No; Go to step 8.
7. Remove the fuel injector fuel transfer tube for the cylinder that is out of spec (100% or -100%) and cap off the rail with J-48704. Run Automatic FSIC test again. Does the High Pressure Leak Test pass?
    a. Yes; change the fuel injector that is capped off and verify repairs.
    b. No; Go to step 8.
8. Perform the PCV Flow Test. Refer to *section "PCV Flow Test." Did the PCV Flow Test pass?
    a. Yes; Go to step 9.
    b. No; replace the fuel rail. Refer to section "Removal of the Fuel Rail".
9. One cylinder at a time, remove the injector fuel transfer tube and cap the rail at each injector using J-48704. Perform Automatic FSIC test in DiagnosticLink. Repeat for each injector. Record results. Go to step 10.

Table 2.

Fuel System Integrity CheckTest Results					
#1 Cap	**#2 Cap**	**#3 Cap**	**#4 Cap**	**#5 Cap**	**#6 Cap**
_____	_____	_____	_____	_____	_____
Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail	Pass/Fail

10. With any one injector capped off, does the FSIC no longer detect a High Pressure Leak?
    a. Yes; replace that injector. Refer to section "Removal of the Fuel Injector" and then run the Automatic FSIC again to verify repair.
    b. No; Go to step 11.
11. Install rail caps on all cylinders. Crank engine for 10 seconds and then monitor rail pressure bleed down. Does rail pressure bleed down under 100 bar in less than five minutes?
    a. Yes; replace the high pressure fuel pump. Refer to section "Removal of the High Pressure Fuel Pump".
    b. No; replace all injectors. Refer to section "Removal of the Fuel Injector".

