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Service Information Bulletin

SUBJECT	DATE
SPN 1322 (MCM) (GHG17)	February 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0191	GHG17 DD Platform	SPN 1322/FMI 31 - GHG17	This is a new section.



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2 SPN 1322/FMI 31 - GHG17

Idle Smoothness Control/Multiple Cylinder Misfire At Idle

Table 1.

SPN 1322/FMI 31	
Description	This Fault Code Sets when the Motor Control Module (MCM) Detects That Multiple Cylinders Have Low rpm Speed with the Injector Commanded to Max Fueling for a Count of Two with All Conditions Met
Monitored Parameter	Engine rpm
Typical Enabling Conditions	• Engine Speed Steady between 600 and 950 rpm • Engine Coolant Temperature between 65°C (149°F) and 114°C (237° F) • Engine Fuel Temperature between 0°C (32°F) and 150°C (302° F)
Monitor Sequence	None
Execution Frequency	Once Per Drive Cycle When Enabling Conditions are Met
Typical Duration	Five Seconds
Dash Lamps	CEL, MIL
Engine Reaction	25% Derate
Verification	Ensure the ignition has been off for a minimum of five minutes prior to the last ignition on. Meet all enabling conditions. Let the Engine Idle for five minutes. (Fault code status will become pending with one detected failure and active with the second).

NOTE: DO NOT use the Idle Speed Balance (ISB) test in DiagnosticLink[®] for ANY misfire at idle testing.

Check as follows:

Possible causes:

- Valve Lash Out Of Adjustment
- Valve Train Damage/Failure
- Bent Valve
- Valve Face/Seat Damage
- Stuck Jake Brake
- Bearing Failure
- Bent Connecting Rod
- Cylinder Liner Damage
- Piston Ring Damage
- Failed Cylinder Head Gasket
- Failed Fuel Injector



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.

**CAUTION: ELECTRICAL SHOCK**

To avoid injury from electrical shock, use care when connecting battery cables. The magnetic switch studs are at battery voltage.

**WARNING: BODILY INJURY**

To avoid injury from a falling component, ensure an appropriately rated lifting device is used. Moving the component without an appropriately rated lifting device could result in the component falling, which could cause serious personal injury and component damage. Never stand beneath a suspended load.

**WARNING: PERSONAL INJURY**

To avoid injury, never remove any engine component while the engine is running.

1. Does the engine exhibit knocking noise while running?
 - a. Yes; Go to step 2.
 - b. No; Go to step 4.
2. Remove the Exhaust Gas Recirculation (EGR) hot pipe and check for raw fuel. Was raw fuel found?
 - a. Yes; perform the following:
 - Refer to section "Cleaning of the DD13 Exhaust Gas Recirculation System"
 - Refer to section "Cleaning of the DD15 Exhaust Gas Recirculation System"
 - Refer to section "Cleaning of the DD16 Exhaust Gas Recirculation System"
 - b. No; reinstall EGR hot pipe and Go to step 3.
3. Refer to section "Aerated Fuel Test – Two-Filter Fuel System". Was the fuel system found to be aerated?
 - a. Yes; make necessary repairs. Verify repairs.
 - b. No; Refer to section "Different Engine Noise".

NOTE: Faults are listed in diagnostic priority from top to bottom.

4. Are there any of the following faults present?
 - SPN 651/FMI any
 - SPN 3659/FMI any
 - SPN 7384/FMI any
 - SPN 2797/FMI any
 - SPN 4257/FMI any
 - SPN 5357/FMI any
 - SPN 190/FMI 0, 14, or 15
 - SPN 636/FMI 2, 8, 10, or 11
 - SPN 723/FMI 8, 10, or 11
 - SPN 157/FMI any
 - SPN 164/FMI any
 - SPN 520268/FMI any
 - a. Yes; repair fault with the highest priority listed above.
 - b. No; Go to step 5.

5. Check the maximum engine speed in DDEC Reports. You must view the Life-To-Date data instead of Trip Activity data. Life-To-Date data can be found by selecting the "View" drop down menu, then selecting "Life-To-Date" and then selecting "Engine." In the resulting page view, look at the Peak Engine rpm and the date it occurred. Is the maximum engine speed greater than 3000 rpm?
 - a. Yes; Go to step 6.
 - b. No; Go to step 7.
6. View past warranty and repair history to determine if both camshafts were replaced after the engine overspeed. Were the camshafts replaced?
 - a. Yes; Go to step 7.
 - b. No; replace both camshafts. Inspect the engine brake rocker arms for loose actuator piston retainers and loose or missing return springs. Verify repairs.
7. Connect a battery charger to the vehicle to maintain sufficient battery voltage while cranking. Use DiagnosticLink to perform the Relative Cylinder Compression test. Refer to section "Relative Cylinder Compression Test". Is the relative compression reading for all cylinders within 10% of the highest cylinder reading?
 - a. Yes; Go to step 17.
 - b. No; Go to step 9.
8. Turn the engine OFF.
9. Disconnect the battery charger.
10. Remove the rocker cover. Refer to section "Removal of the Rocker Cover".
11. Visually inspect the rocker arms, rollers on the rocker shafts and the lobes on the camshafts. Are the rocker arms, rollers, or camshafts damaged?
 - a. Yes; replace the damaged components. Perform verification in fault code chart header to verify repairs.
 - b. No; Go to step 13.
12. Check the valve lash clearance for all cylinders. Refer to section "Setting the Valve and Engine Brake Lash". Is the valve lash within specification?
 - a. Yes; Go to step 14.
 - b. No; adjust the valve lash to the correct clearance. Perform verification in fault code chart header to verify repairs.
13. Check the engine brake lash. Refer to section "Setting the Valve and Engine Brake Lash". Is the engine brake lash within specification?
 - a. Yes; Go to step 16.
 - b. No; Go to step 15.
14. Inspect the engine brake piston actuator. Is the engine brake piston actuator constantly engaged or stuck in the extended position?
 - a. Yes; replace the engine brake rocker arm. Perform verification in fault code chart header to verify repairs.
Refer to section "Removal of the Camshafts"
Refer to section "Removal of the Exhaust Rocker Shaft Assembly"
 - b. No; set the correct engine brake lash. Refer to section "Setting the Valve and Engine Brake Lash". Perform verification in fault code chart header to verify repairs.
15. Connect the battery charger to maintain proper cranking speed.
16. Perform the Mechanical Cylinder Compression test. Refer to section "Mechanical Cylinder Compression Test". Is the mechanical cylinder compression reading for any cylinder 344 kPa (50 psi) lower than any of the other cylinders?
 - a. Yes; disconnect the battery charger and remove the cylinder head. Refer to section "Symptom Diagnostics - Low Engine Compression" to check for the cause of the loss of compression.
 - b. No; Go to step 17.
17. Remove and inspect the engine oil filter. Refer to section "Replacement of the Oil Filter". Is there an excessive amount of metal present in the oil filter?
 - a. Yes; remove the oil pan and inspect the bearings. Repair as necessary.
 - b. No; replace the fuel injectors. Refer to section "Removal of the Fuel Injector - Two-Filter System". Perform verification in fault code chart header to verify repairs.