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Service Information Bulletin

SUBJECT	DATE
SPN 1322 (MCM) (GHG17)	April 2017

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0193	GHG17 Medium Duty	SPN 1322/FMI 31 - GHG17	This is a new section.

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 1322/FMI 31 - GHG17

Idle Smoothness Control/Multiple Cylinder Misfire At Idle

Table 1.

SPN 1323/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	MIL, CEL
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)

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.

WARNING: PERSONAL INJURY

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

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 Engine Brake
- Bearing Failure
- Bent Connecting Rod
- Cylinder Damage
- Piston Ring Damage
- Failed Cylinder Head Gasket
- Failed Fuel Injector

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

1. Are there any of the following faults present?
   - SPN 651 through 654/FMI any
   - SPN 7384 through 7387/FMI any
   - SPN 2797/FMI any
   - SPN 2798/FMI any
   - SPN 5357/FMI any
   - SPN 5358 through 5361/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.

CAUTION: ELECTRICAL SHOCK

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

NOTE: If at any point during cranking there is an audible knock or hydraulic sounds, stop cranking and do not attempt to restart the engine.

2. 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 12.
   b. No; Go to step 3.
3. Turn the engine OFF.
4. Disconnect the battery charger.
5. Remove the rocker cover.
   For DD5; Refer to section "Removal of the Rocker Cover"
   For DD8; Refer to section "Removal of the Rocker Cover"
6. 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 7.

7. Check the valve lash clearance for all cylinders. Is the valve lash within specification?
   For DD5; Refer to section "Setting the Valve and Engine Brake Lash"
   For DD8; Refer to section "Setting the Valve and Engine Brake Lash"
   a. Yes; Go to step 8.
   b. No; adjust the valve lash to the correct clearance. Perform verification in fault code chart header to verify repairs.
8. Check the engine brake lash. Is the engine brake lash within specification?
   For DD5; Refer to section "Setting the Valve and Engine Brake Lash"
   For DD8; Refer to section "Setting the Valve and Engine Brake Lash"
   a. Yes; Go to step 10.
   b. No; Go to step 9.
9. Inspect the hydraulic brake unit. Is the leading piston or follower piston constantly engaged or stuck in the extended position?
   a. Yes; replace the engine brake rocker arm.
      For DD5; Refer to section "Removal of the Hydraulic Brake Units"
      For DD8; Refer to section "Removal of the Hydraulic Brake Units"
      Perform verification in fault code chart header to verify repairs.
   b. No; set the correct engine brake lash. Perform verification in fault code chart header to verify repairs.
      For DD5; Refer to section "Setting the Valve and Engine Brake Lash"
      For DD8; Refer to section "Setting the Valve and Engine Brake Lash"

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10. Connect the battery charger to maintain proper cranking speed.
11. 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 12.
12. Remove and inspect the engine oil filter. Refer to section "How to Replace the Lubricating Oil and 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. Perform verification in fault code chart header to verify repairs.
       For DD5; Refer to section "Removal of the Fuel Injector"
       For DD8; Refer to section "Removal of the Fuel Injector"

