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Service Information Bulletin

SUBJECT	DATE
SPN 3464/FMI 16 - GHG14 UPDATE	October 2013

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 3464/FMI 16	Updating fault and entire troubleshooting procedure.

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2 SPN 3464/FMI 16 – GHG14

This diagnostic is typically Intake Manifold Pressure Too high (Restricted Mode)

Table 1.

SPN 3464/FMI 16			
Description	Intake Manifold Pressure Too High (Restricted Mode)		
Monitored Parameter	Intake Manifold Pressure		
Typical Enabling Conditions	General Enabling Condition: Engine is in normal mode(not regen), steady state operation(highway cruise operation)		
	Specific Enabling Conditions: See table below		
	Engine Parameter	Min	Max
	Engine Speed (RPM)	1130	1810
	Engine Torque (Nm)	1100	
	Engine Torque (lb·ft)	9736	
	Intake Air Throttle Position (%)		5
	Engine Coolant Outlet Temperature (°C)	65	
	Engine Coolant Outlet Temperature (°F)	149	
	Barometric Pressure (mbar)	755	
	Ambient Temperature (°C)	-8	
	Ambient Temperature (°F)	18	
	Engine Speed Gradient (RPM/s)	-10	10
	Fuel Mass Gradient ((mg/stroke)/s)	-10	10
Monitor Sequence	None		
Execution Frequency	Continuous when enabling conditions met		
Typical Duration	15 Seconds		
Dash Lamps	MIL, CEL		
Engine Reaction	None		
Verification	Once engine is at standard operating temperature, drive at highway speed with loaded trailer above 1130 rpm continuously for 5 minutes.		

Check as follows:

1. Turn the ignition ON (key ON, engine OFF).
2. Check for other codes. Is SPN 51/FMI (any) also present?
   a. Yes; repair those faults first.
   b. No; Go to step 3.
3. Using DDDL/DDRS 7.10 or newer, compare intake pressure to barometric pressure.
4. Is the intake pressure within 1.5 psi (10.3 kpa) of barometric pressure?
   a. Yes; Go to step 7.
   b. No; Go to step 5.
5. Disconnect the intake pressure sensor harness connector.
6. Inspect the intake pressure sensor and harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector.
   a. If any damage is found, repair as necessary. Go to step 29.
   b. If no signs of damage are present, replace the inlet manifold pressure sensor. Refer to section "Removal of the Intake Pressure/Temperature Sensor".
7. Check for turbo type.
   a. If AT Engine, Go to step 8.

   b. If TC Engine, Go to step 17.
8. Turn the ignition OFF.
9. Ensure the wastegate solenoid has a dedicated air line from the vehicle primary air tank with a minimum pressure of 6.0 bar (87 psi). Is the air line dedicated?
   a. Yes; Go to step 10.
   b. No; If the air line supplies other components, it will have to be altered. Verify repairs.
10. Inspect the wastegate actuator and the plumbing to and from the actuator. Verify wastegate opens and closes.
   a. If binding or damage is found, repair as necessary.
   b. If no damage is found, Go to step 11.
11. Inspect the air line connection to the wastegate solenoid for leaks.
   a. If there are leaks, repair or replace as necessary. Go to step 29.
   b. If there are no leaks, Go to step 12.
12. Turn the ignition ON (key ON, engine OFF).
13. Using DDDL/DDRS 7.10 or newer, activate wastegate control from Service Routines Activate Outputs Panel. Run slide control up to 95% - (Click Set). Wastegate will open with air psi available. Does wastegate open when commanded?
   a. Yes; Go to step 14.
   b. No; Go to step 15.

NOTE: No response at 50% - wastegate activates at 0% or 95%.

14. Move slide control down to 0. Does wastegate close when commanded?
   a. Yes; Go to step 17.
   b. No; Go to step 15.
15. Disconnect the Wastegate Solenoid harness connector.
16. Inspect the Wastegate Solenoid and harness connector for signs of damaged, bent, spread, corroded or unseated (pushed out) pins and signs of moisture in the connector or wire damage near the connector.
   a. If any damage is found, repair as necessary. Go to step 29.
   b. If no signs of damage are present, replace the wastegate solenoid.
      For the DD13: Refer to section "Removal of the DD13 Wastegate Solenoid".
      For the DD15: Refer to section "Removal of the GHG14 DD15 Asymmetrical Turbocharger Wastegate Solenoid".
17. Monitor Exhaust Gas Recirculation (EGR) delta p voltage (pin 109).
18. Is the EGR delta p voltage between 0.55 and 0.83 volts?
   a. Yes; Go to step 21.
   b. No; Go to step 19.
19. Remove the EGR delta p sensor from the mounting pad, leave electrical harness connected.
20. Is the EGR delta p voltage between 0.55 and 0.83 volts?
   a. Yes; Go to step 21.
   b. No; replace the EGR delta p sensor. Refer to section "Removal of the Delta P Sensor".
21. Turn the ignition OFF.
22. Inspect the EGR delivery pipe delta p pressure ports for blockage.
   a. If excessive build up or blockage is found, clean the venturi pipe and reinstall the sensor.
   b. If no damage is found, Go to step 23.
23. Remove the EGR cooler hot pipe, EGR crossover pipe and delivery pipe and inspect for excessive build up or blockage.
   Refer to section "Removal of the Exhaust Gas Recirculation Hot Pipe".
   Refer to section "Removal of the Exhaust Gas Recirculation Crossover Tube".
   a. If excessive build up or blockage is found, clean piping and replace EGR cooler.
   b. If there is no excessive build up or blockage, Go to step 24.
24. Disconnect the EGR valve actuator pull rod. Inspect the ball sockets on the pull rod for free movement.
   a. If the sockets do not rotate or move freely, replace the EGR valve actuator pull rod.
      For the DD13: Refer to section "Removal of the Exhaust Gas Recirculation Valve Actuator Pull Rod".

For the DD15 and DD16: Refer to section "Removal of the Exhaust Gas Recirculation Valve Actuator Pull Rod".

b. If the sockets move freely, Go to step 25.

NOTE: Some resistance is normal; however, the actuator should not bind in any particular spot.

25. Physically move the EGR butterfly from stop-to-stop to check for full travel (some drag is normal).Verify EGR valve closes.
    a. If the EGR butterfly does not move stop-to-stop, replace the EGR valve. For the DD13: Refer to section "Removal of the Exhaust Manifold". For the DD15 and DD16: Refer to section "Removal of the DD15 and DD16 Exhaust Gas Recirculation Valve".
    b. If no problem is found, reconnect the EGR valve actuator pull rod to the EGR valve and EGR actuator. Clear codes and retest vehicle. If fault returns, Go to step 26.
26. Disconnect the MCM2.1 120-pin connector.
27. Inspect the MCM2.1 120-pin connector and the 120-pin harness connector for signs of corrosion, spread, unseated (pushed out) or damaged pins, connector seal for damage (signs of water or oil intrusion) or signs of wire damage.
    a. If signs of damage are found, repair as necessary. Go to step 29.
    b. If no signs of damage, Go to step 28.
28. Install a test MCM2.1 and retest with verification cycle.
    a. If code does not return, replace MCM2.1. Verify repairs.
    b. If fault returns, contact Customer Support Center 1-800-445-1980 for further instruction.
29. Verify repairs by driving with a fully loaded trailer on highway and maintain a steady speed and load for ten minutes.

