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Service Information Bulletin

SUBJECT	DATE
SPN 1077 (MCM) (EPA10)	February 2016

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform EPA10	SPN 1077/FMI 14 - EPA10	New information to accommodate DiagnosticLink release 8.03.



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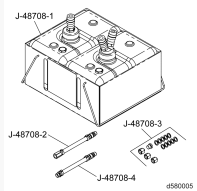
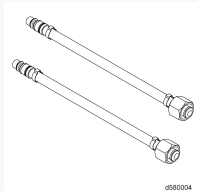
2 SPN 1077/FMI 14 - EPA10

Leakage in High Pressure Fuel System too High (Leak-down Test)

Table 1.

SPN 1077/FMI 14	
Description	The Motor Control Module (MCM) Monitors Rail Pressure After Engine Shut Down and Compares it to a Stored Learned Value. If the Leakage Rate has Increased Past the Learned Value Plus a Set Threshold with All Conditions Met for a Count of Five, this Code Will Log.
Monitored Parameter	Fuel Rail Pressure
Typical Enabling Conditions	• Ignition Must Be Off for More Than five Minutes for MCM to Reset for a New Drive Cycle. • Prior to Shutdown, Engine Must be Above Idle (Engine State = Torque Demand) For More Than Five Min. • Fuel Temperature is greater than 35°C (95°F) but less than 90°C (194°F). • Coolant Temperature is greater than 70°C (158°F) but less than 110°C (230°F). • No Active Fuel System Fault Codes. • No Electrical Fault Codes for Fuel or Coolant Temperature Sensors Active.
Monitor Sequence	None
Execution Frequency	Always When Enabling Conditions Met
Typical Duration	Five Seconds
Dash Lamps	MIL, CEL
Engine Reaction	None
Verification	High Pressure Leak Detection Service Routine Using Diagnostic Link

Table 2.

Required Service Tools		
W470589129100	HP Fuel Rail Test Caps	
J-48708	Fuel Flow Tool	
Fuel Flow Tool	FFM Inlet and Outlet Hose	

Check as follows:

1. Check for multiple codes. Are any of the following fault codes present?

NOTE: The following faults are listed in diagnostic priority from top to bottom.

- SPN 164/FMI 3, 4, 5, and 20
- SPN 110/FMI 3 and 4
- SPN 174/FMI 0, 3, and 4
- Any other fuel system faults.

- a. Yes; repair fault with the highest priority listed above.
- b. No; Go to step 2.



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.

NOTE: For cold weather conditions use fuel Flow Tool J-48708 and J48707 to minimize fuel tank size to achieve fuel temperatures more rapidly.

2. Start and run the engine until fuel temperature is greater than 35°C (95°F) and coolant temperature is greater than 70°C (158°F).
3. Shut the engine down.

NOTICE: The high pressure fuel rail feed lines, vibration dampers, P-clips, mounting bracket and hardware are one-time use components and **MUST** be replaced any time they are removed. Refer to TS letter 14 TS-19Rev for the high pressure fuel line kit numbers

4. Check for an external high pressure fuel system leak(s). Are any leaks present at the following components?
 - High Pressure Fuel Pump
 - High Pressure Fuel Rail Feed Lines
 - High Pressure Fuel Rail
 - High Pressure Fuel Injector Lines
 - Fuel Rail Pressure Sensor
 - Pressure Limiting Valve
 - a. Yes; repair leaks. Verify repairs.
 - b. No; Go to step 5.
5. Check the engine oil dipstick. Is there any fuel in the oil?
 - a. Yes; Refer to section "Fuel in Oil".
 - b. No; Go to step 6.
6. Check for leakage from the Pressure Limiting Valve (PLV). Refer to section "Pressure Limiting Valve Flow Test – Two-Filter Fuel System ". Does the PLV flow test pass?
 - a. Yes; replace the PLV and verify repairs.
 For Three-Filter systems, Refer to section "Removal of the Pressure Limiting Valve - Three-Filter System"
 For Two-Filter systems, Refer to section "Removal of the Pressure Limiting Valve - Two-Filter System"
 - b. No; Go to step 7.

NOTE: The ignition has to be off for five minutes between High Pressure Leak Detection routines.

NOTE: DiagnosticLink[®] 8.03 or higher is necessary to complete this troubleshooting.

7. One cylinder at a time, remove the injector fuel transfer tube and cap the rail at each injector using J-48704. Run High Pressure Leak Detection. Repeat for each injector. Record results.

Table 3.

Fuel Rail Pressure Bleed-Off Test 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

8. With any one injector capped off, does Leak Detection pass?
 - a. Yes; replace the injector that passes Leak Detection when capped.
 For Three-Filter System, Refer to section "Removal of the Fuel Injector - Three-Filter System" and then run the Rail Bleed-Off Pressure Test again to verify repair.
 For Two-Filter System, Refer to section "Removal of the Fuel Injector - Two-Filter System" and then run the Rail Bleed-Off Pressure Test again to verify repair.
 - b. No; Go to step 9.
9. Install all six rail caps. 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 - Three-Filter System"
 - b. No; replace all six fuel injectors.
 For Three-Filter System, Refer to section "Removal of the Fuel Injector - Three-Filter System" and then run the Rail Bleed-Off Pressure Test again to verify repair.
 For Two-Filter System, Refer to section "Removal of the Fuel Injector - Two-Filter System" and then run the Rail Bleed-Off Pressure Test again to verify repair.