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Service Information Bulletin

SUBJECT	DATE
SPN 4364 (ACM) (EPA10)	August 2014

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	SPN 4364/FMI 1 - EPA10	The diagnostic procedure has been updated.
		SPN 4364/FMI 18 - EPA10	



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2 SPN 4364/FMI 1 - EPA10

Selective Catalyst Reduction NOx Conversion Very Low

Table 1.

SPN 4364/FMI 1	
Description	This fault code sets when the Aftertreatment Control Module (ACM) detects that the NOx conversion is lower than a calibrated threshold
Monitored Parameter	Selective Catalyst Reduction (SCR) Inlet NOx sensor, SCR outlet NOx sensor
Typical Enabling Conditions	Diesel Exhaust Fluid (DEF) dosing enabled, 1000 - 1500 rpm, 15 - 100% load, SCR inlet temperature sensor less than 650°C (1200°F), ambient temperature greater than 0°C (32°F), coolant temperature greater than 70°C (158°F), non-regeneration conditions present
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	30 Minutes
Dash Lamps	MIL
Engine Reaction	Derate 25%
Verification	Parked Regeneration

1. Connect DiagnosticLink[®].
2. Turn the ignition ON (key ON, engine OFF).
3. Was another emission component-related fault code repaired prior to this step?
 - a. Yes; perform a parked regeneration and recheck for the fault code. If the fault code returns, Go to step 4.
 - b. No; Go to step 4.
4. Check for other fault codes. Are there any air management system (ITV, IMP, IAT, turbocharger etc.) fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 5.
5. Are there any Exhaust Gas Recirculation (EGR) system fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 6.
6. Are there any other NOx sensor fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 7.
7. Are there any fault codes for the DEF doser, DEF pump, or DEF air valve present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 8.
8. Turn the ignition OFF.
9. Using a refractometer from the DEF Test Kit W060589001900, measure the DEF percentage. Refer to section "Checking Diesel Exhaust Fluid Quality". Is DEF percentage between 28% and 36%?
 - a. Yes; Go to step 10.
 - b. No; flush the DEF system. Refer to section "Flushing of the Diesel Exhaust Fluid System". Verify repair.
10. Turn the ignition ON (key ON, engine OFF).
11. Compare the DEF pressure sensor reading to the barometric pressure sensor reading. Are the readings within 4.3 psi of each other?
 - a. Yes; Go to step 12.
 - b. No; replace the DEF pressure sensor. Refer to section "Removal of the Diesel Exhaust Fluid Pressure Sensor". Verify repair.

12. Perform the DEF quantity service routine. Refer to section "Diesel Exhaust Fluid Quantity Test - EPA10". Does the DEF quantity test complete successfully?
 - a. Yes; Go to step 13.
 - b. No; flush the DEF metering unit. Verify repair.

**WARNING: ENGINE EXHAUST**

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

**WARNING: HOT EXHAUST**

During parked regeneration the exhaust gases will be extremely HOT and could cause a fire if directed at combustible materials. The vehicle must be parked outside.

**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.

13. Start the engine and perform a parked regeneration.
14. Shut the engine OFF.

NOTE: SPN 3361/FMI 5 will set when the DEF dosing valve electrical connector is disconnected. The fault code can be cleared using DiagnosticLink after the DEF dosing valve electrical connector is reconnected.

15. Disconnect the DEF dosing valve electrical connector.

**WARNING: ENGINE EXHAUST**

To avoid injury from inhaling engine exhaust, always operate the engine in a well-ventilated area. Engine exhaust is toxic.

**WARNING: HOT EXHAUST**

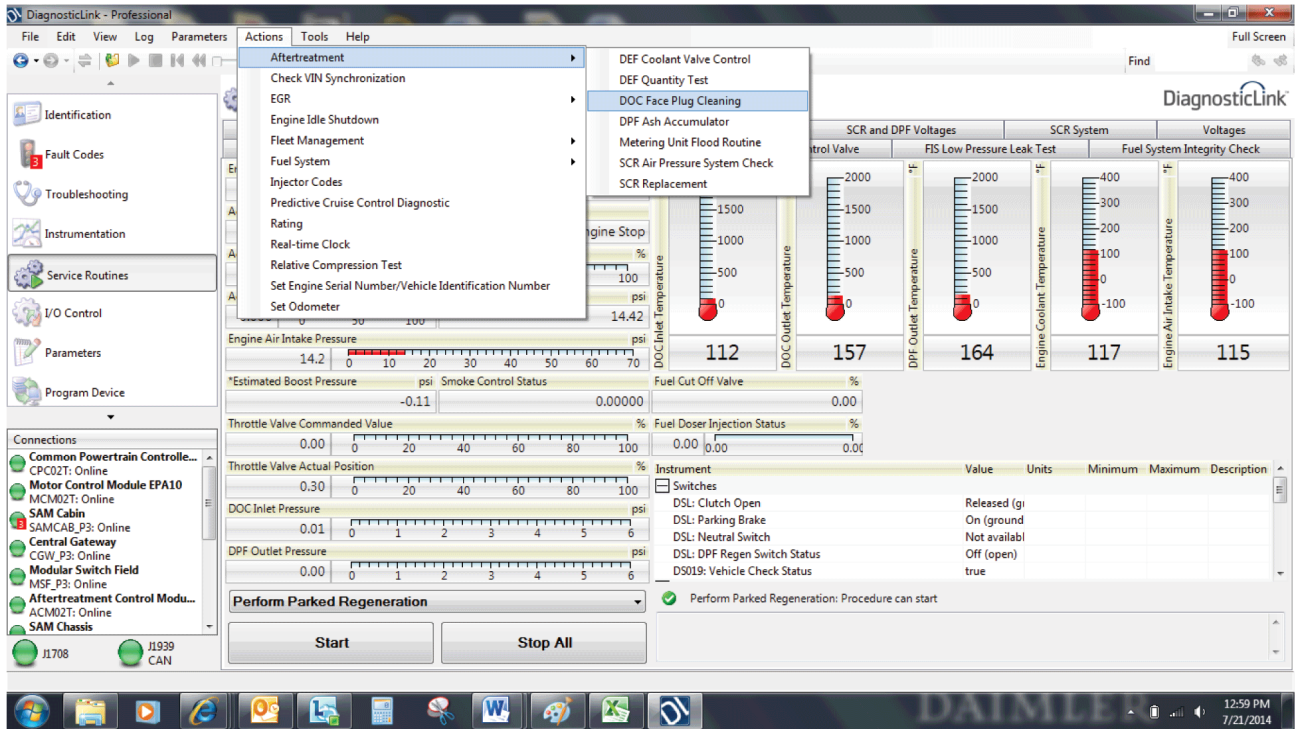
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**WARNING: PERSONAL INJURY**

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16. Start the engine.
17. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure. Refer to section "EPA10 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and the NOx outlet sensor readings within 50 ppm/15% of each other?
 - a. Yes; Go to step 18.
 - b. No; reconnect the DEF dosing valve electrical connector and replace the NOx sensor that is out of specification. Verify repair.
18. Reconnect the DEF dosing valve electrical connector.
19. Perform a parked regeneration while monitoring the NOx efficiency. Is the NOx efficiency above 70%?

- a. Yes; this fault was likely caused by the DEF build-up in the exhaust which was cleared by the parked regeneration procedures. Release the vehicle.
- b. No; Use DiagnosticLink to perform the DOC face plug routine to clear the DEF build-up in the exhaust.



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3 SPN 4364/FMI 18 - EPA10

Selective Catalyst Reduction NOx Conversion Low

Table 2.

SPN 4364/FMI 18	
Description	This fault code sets when the Aftertreatment Control Module (ACM) detects that the NOx conversion is lower than a calibrated threshold
Monitored Parameter	Selective Catalyst Reduction (SCR) Inlet NOx sensor, SCR outlet NOx sensor
Typical Enabling Conditions	Diesel Exhaust Fluid (DEF) dosing enabled, 1000 - 1500 rpm, 15 - 100% load, SCR inlet temperature sensor less than 650°C (1200°F), ambient temperature greater than 0°C (32°F), coolant temperature greater than 70°C (158°F), non-regeneration conditions present
Monitor Sequence	None
Execution Frequency	Continuous when enabling conditions met
Typical Duration	30 Minutes
Dash Lamps	MIL
Engine Reaction	Derate 25%
Verification	Parked Regeneration

1. Connect DiagnosticLink[®].
2. Turn the ignition ON (key ON, engine OFF).
3. Was another emission component-related fault code repaired prior to this step?
 - a. Yes; perform a parked regeneration and recheck for the fault code. If the fault code returns, Go to step 4.
 - b. No; Go to step 4.
4. Check for other fault codes. Are there any air management system (ITV, IMP, IAT, turbocharger etc.) fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 5.
5. Are there any Exhaust Gas Recirculation (EGR) system fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 6.
6. Are there any other NOx sensor fault codes present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 7.
7. Are there any fault codes for the DEF doser, DEF pump, or DEF air valve present?
 - a. Yes; diagnose the other fault codes first.
 - b. No; Go to step 8.
8. Turn the ignition OFF.
9. Using a refractometer from the DEF Test Kit W060589001900, measure the DEF percentage. Refer to section "Checking Diesel Exhaust Fluid Quality". Is DEF percentage between 28% and 36%?
 - a. Yes; Go to step 10.
 - b. No; flush the DEF system. Refer to section "Flushing of the Diesel Exhaust Fluid System". Verify repair.
10. Turn the ignition ON (key ON, engine OFF).
11. Compare the DEF pressure sensor reading to the barometric pressure sensor reading. Are the readings within 4.3 psi of each other?
 - a. Yes; Go to step 12.
 - b. No; replace the DEF pressure sensor. Refer to section "Removal of the Diesel Exhaust Fluid Pressure Sensor". Verify repair.

12. Perform the DEF quantity service routine. Refer to section "Diesel Exhaust Fluid Quantity Test - EPA10". Does the DEF quantity test complete successfully?
 - a. Yes; Go to step 13.
 - b. No; flush the DEF metering unit. Verify repair.

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**WARNING: HOT EXHAUST**

During parked regeneration the exhaust gases will be extremely HOT and could cause a fire if directed at combustible materials. The vehicle must be parked outside.

**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.

13. Start the engine and perform a parked regeneration.
14. Shut the engine OFF.

NOTE: SPN 3361/FMI 5 will set when the DEF dosing valve electrical connector is disconnected. The fault code can be cleared using DiagnosticLink after the DEF dosing valve electrical connector is reconnected.

15. Disconnect the DEF dosing valve electrical connector.

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16. Start the engine.
17. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure. Refer to section "EPA10 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and the NOx outlet sensor readings within 50 ppm/15% of each other?
 - a. Yes; Go to step 18.
 - b. No; reconnect the DEF dosing valve electrical connector and replace the NOx sensor that is out of specification. Verify repair.
18. Reconnect the DEF dosing valve electrical connector.
19. Perform a parked regeneration while monitoring the NOx efficiency. Is the NOx efficiency above 70%?

- Yes; this fault was likely caused by the DEF build-up in the exhaust which was cleared by the parked regeneration procedures. Release the vehicle.
- No; Use DiagnosticLink to perform the DOC face plug routine to clear the DEF build-up in the exhaust.

The screenshot displays the DiagnosticLink Professional software interface. The 'Aftertreatment' menu is open, showing the following options:

- DEF Coolant Valve Control
- DEF Quantity Test
- DOC Face Plug Cleaning**
- DPF Ash Accumulator
- Metering Unit Flood Routine
- SCR Air Pressure System Check
- SCR Replacement

The main display area shows the 'Perform Parked Regeneration' procedure. The 'Start' button is highlighted. The 'Stop All' button is also visible. The 'Instrument' table is shown below:

Instrument	Value	Units	Minimum	Maximum	Description
Switches					
DSL: Clutch Open	Released	(gi)			
DSL: Parking Brake	On	(ground)			
DSL: Neutral Switch	Not available				
DSL: DPF Regen Switch Status	Off	(open)			
DS019: Vehicle Check Status	true				

The 'Perform Parked Regeneration' procedure is ready to start, as indicated by the green checkmark and the text 'Perform Parked Regeneration: Procedure can start'.

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