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Service Information Bulletin

SUBJECT	DATE
SPN 4364 (ACM) (EPA10)	January 2015

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	EPA10 DD Platform	SPN 4364/FMI 1 - EPA10	Added a note stating to diagnose any fault codes that become active during the regeneration process. Added steps 19 through 22.
		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". Is the amount of DEF dispensed into the graduated cylinder between 102 and 138 mL?
 - a. Yes; Go to step 13.
 - b. No; flush the DEF metering unit. Verify repair.

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.

13. 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

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.

14. Start the engine.
15. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure to check the NOx sensors. Refer to section "EPA10 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and outlet NOx sensor readings within 50 ppm/15% of each other?
 - a. Yes; Go to step 17.
 - b. No; replace the outlet NOx sensor. Go to step 16.
16. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure to validate the NOx sensors are reading correctly. Refer to section "EPA10 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and outlet NOx sensor readings within 50 ppm/15% of each other?
 - a. Yes; Go to step 17.
 - b. No; replace the inlet NOx sensor. Go to step 17.
17. Reconnect the DEF dosing valve electrical connector.
18. Perform a parked regeneration while monitoring the NOx efficiency. Is the NOx efficiency above 70%?
 - a. Yes; clear codes and release the vehicle.
 - b. No; Go to step 19.
19. Review the last 7 minutes of the parked regeneration log file; was the SCR inlet temperature within 65°C (150°F) of the SCR outlet temperature?
 - a. Yes; Go to step 20.
 - b. No; replace the ATD.
20. Review the parked regeneration log file. Is the DOC inlet pressure greater than 2.9 psi throughout the parked regeneration?
 - a. Yes; replace the ATD.
 - b. No; Go to step 21.
21. Perform the DOC Face Plug Cleaning procedure to unplug the DOCs. Refer to section "EPA10 Diesel Oxidation Catalyst Face Cleaning".

The screenshot shows the DiagnosticLink Professional software interface. The 'Actions' menu is open, with 'Aftertreatment' selected, and a sub-menu showing 'DOC Face Plug Cleaning' as the active option. The main workspace displays several gauges and data fields:

- Engine Stop:** 14.42
- Engine Air Intake Pressure:** 14.2 psi
- DOC Inlet Temperature:** 112
- DOC Outlet Temperature:** 157
- DPF Outlet Temperature:** 164
- Engine Coolant Temperature:** 117
- Engine Air Intake Temperature:** 115
- *Estimated Boost Pressure:** -0.11 psi
- Smoke Control Status:** 0.00000
- Fuel Cut Off Valve:** 0.00
- Throttle Valve Commanded Value:** 0.00
- Throttle Valve Actual Position:** 0.30
- DOC Inlet Pressure:** 0.01 psi
- DPF Outlet Pressure:** 0.00 psi

At the bottom, there is a 'Perform Parked Regeneration' section with 'Start' and 'Stop All' buttons. A status message indicates: 'Perform Parked Regeneration: Procedure can start'. The Windows taskbar at the bottom shows the time as 12:59 PM on 7/21/2014.

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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.

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.

13. Disconnect the DEF dosing valve electrical connector.



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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.

14. Start the engine.
15. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure to check the NOx sensors. 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 17.
 - b. No; replace the outlet NOx sensor. Go to step 16.
16. Run the EPA10 Perform Performance Check - Low Temperature ATD procedure to validate the NOx sensors are reading correctly. Refer to section "EPA10 Perform Performance Check - Low Temperature ATD". Are the NOx inlet sensor and outlet NOx sensor readings within 50 ppm/15% of each other?
 - a. Yes; Go to step 17.
 - b. No; replace the inlet NOx sensor. Go to step 17.
17. Reconnect the DEF dosing valve electrical connector.
18. Perform a parked regeneration while monitoring the NOx efficiency. Is the NOx efficiency above 70%?
 - a. Yes; clear codes and release the vehicle.
 - b. No; Go to step 19.
19. Review the last 7 minutes off the parked regeneration log file; was the SCR inlet temperature within 65°C (150°F) of the SCR outlet temperature?
 - a. Yes; Go to step 20.
 - b. No, replace the ATD.
20. Review the parked regeneration log file. Is the DOC inlet pressure greater than 2.9 psi throughout the parked regeneration?
 - a. Yes; replace the ATD.
 - b. No; Go to step 21.
21. Perform the DOC Face Plug Cleaning procedure to unplug the DOCs. Refer to section "EPA10 Diesel Oxidation Catalyst Face Cleaning".

The screenshot shows the DiagnosticLink Professional software interface. The 'Actions' menu is open, with 'Aftertreatment' selected, and a sub-menu showing 'DOC Face Plug Cleaning' as the active option. The main display area contains several gauges and data fields:

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- DOC Inlet Pressure:** 0.01 psi
- DPF Outlet Pressure:** 0.00 psi

At the bottom, there is a 'Perform Parked Regeneration' section with 'Start' and 'Stop All' buttons. A status message indicates: 'Perform Parked Regeneration: Procedure can start'. On the right, a table lists various instrument switches:

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

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