

Mechanical fault in NOx sensors with fault codes stored-current in engine control unit

Topic number	LI47.50-N-057830
Version	2
Design group	47.50 Sensors
Date	12-05-2013
Validity	Model 906 with engine 642
Reason for change	Changed description
Reason for block	

Complaint:

Mechanical fault in NOx sensors with fault codes stored current in engine control unit.

Cause:

Spray condensation can penetrate inside the NOx sensors and damage the sensor elements (water damage).

Remedy:

1. Complete the questionnaire together with the customer (See picture: 01.jpg).
2. Create a PTSS case.

Important: The completed questionnaire must be attached to the case.

3. Replace the affected NOx sensors (AR14.40-D-2059M and AR14.40-D-2060M).

Important: The safety information in the repair instructions must be complied with.

4. Parts must be specified by VIN and complete engine number
5. When possible prior to scheduling the vehicle repair verify the parts are available.

Attachments	
File	Designation
01.jpg	Questionnaire

Symptoms
Power generation / Engine management / Engine management indicator lamp / Engine diagnosis / lit
Power generation / Exhaust system / AdBlue / AdBlue consumption / Too high
Power generation / Exhaust system / AdBlue / AdBlue consumption / Too low

Control unit/fault code		
Control unit	Fault code	Fault text
CDI60Common Rail Diesel Injection (CR60NFZ)	177800	CAN communication with component 'A97/1 (NOx sensor control unit upstream of SCR catalytic converter)' has a malfunction.

CDI60Common Rail Diesel Injection (CR60NFZ)	18D200	Monitoring function-Fault in function 'Test of NOx sensors'
CDI6Common Rail Diesel Injection (CR6NFZ)	135300	Component NOx sensor upstream of SCR catalytic converter has an open circuit.
CDI60Common Rail Diesel Injection (CR60NFZ)	177700	CAN communication with component 'A97/2 (NOx sensor control unit downstream of SCR catalytic converter)' has a malfunction.
CDI60Common Rail Diesel Injection (CR60NFZ)	18B800	The variation between the measured signal and the calculated signal of the NOx sensor downstream of the SCR catalytic converter is too high.
CDI60Common Rail Diesel Injection (CR60NFZ)	18BC00	The upper limit value for long-term adaptation of the SCR exhaust aftertreatment system was exceeded.
CDI60Common Rail Diesel Injection (CR60NFZ)	147700	Component A97/2 (NOx sensor control unit downstream of SCR catalytic converter) has a short circuit to positive.
CDI60Common Rail Diesel Injection (CR60NFZ)	18B900	The variation between the measured signal and the calculated signal of the NOx sensor upstream of the SCR catalytic converter is too high.
CDI6Common Rail Diesel Injection (CR6NFZ)	147600	Component NOx sensor downstream of SCR catalytic converter has an open circuit.
CDI60Common Rail Diesel Injection (CR60NFZ)	135300	Component NOx sensor upstream of SCR catalytic converter has an open circuit.
CDI6Common Rail Diesel Injection (CR6NFZ)	147700	Component A97/2 (NOx sensor control unit downstream of SCR catalytic converter) has a short circuit to positive.
CDI6Common Rail Diesel Injection (CR6NFZ)	135400	Component NOx sensor upstream of SCR catalytic converter has a short circuit to positive.
CDI60Common Rail Diesel Injection (CR60NFZ)	147600	Component NOx sensor downstream of SCR catalytic converter has an open circuit.
CDI60Common Rail Diesel Injection (CR60NFZ)	135400	Component NOx sensor upstream of SCR catalytic converter has a short circuit to positive.

Work units				
Op. no.	Operation text	Time	Damage code	Note
14-8138	REPLACE NOX SENSOR DOWNSTREAM OF SCR CATALYTIC CONVERTER (AFTER CHECK)		14502 73	NOx sensor downstream of catalytic converter - Electrical fault
14-8137	REPLACE NOX SENSOR UPSTREAM OF SCR CATALYTIC CONVERTER, VEH. WITH ENGINE 642.89 (AFTER CHECK)		14501 73	NOx sensor upstream of catalytic converter - Electrical fault

WIS-References			
Document number	Title	Note	Allocation
AR14.40-D-2059M	Remove/install NOx sensor upstream of SCR catalytic converter		Remedy

XENTRY

AR14.40-D-2060M	Remove/install NOx sensor downstream of SCR catalytic converter		Remedy
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Validity		
Vehicle	Engine	Transmission
Sprinter III	642	*

Attachments

01.jpg:

Questionnaire:

1. How many stops (engine turned off) are in average being done per day?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Up to 5 stops	5-10	10-20	more than 20 stops

2. What time in average is the engine turned off during the stops?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
up to 5 min.	5-15 min.	15-30 min	30-60 min	more than 60 min.

3. Is the vehicle primarily being driven on a city route, how many miles or hours in average per day?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
up to 10 mls	10-20 mls	20-40mls	more than 40mls
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
up to 1h	1-3 hours	3-6 hours	more than 6 hours

3.1 Does the city route contain speed limits of 45mph?

<input type="checkbox"/>	<input type="checkbox"/>	or	<input type="checkbox"/>
No	Yes: majority		minority?

4. Is your vehicle idling for a longer time during operation?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No	Yes: up to 1 hour	1-3 hours	more than 3 hours

4.1 Did the engine reach the operating temperature of 185°F (85°C) when set to idle?

<input type="checkbox"/>	<input type="checkbox"/>
No	Yes

5. Would you describe the environment you operate in as a 'high humidity area'?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No	Yes: Medium humidity	high humidity

6. Is your vehicle primarily parked on even ground?

<input type="checkbox"/>
Yes

If No: Is the vehicle primarily parked on an incline/decline?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
parked facing uphill	parked facing downhill	both