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Major System:	ENGINES	Created:	8/21/2014
Current Language:	English	Last Modified:	3/30/2015
Other Languages:	NONE	Author:	Erik Wass
Viewed:	1315		

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Coding Information

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Title: SPN 3216 FMI 4 NOxIN signal Out of Range LOW

Applies To: EPA 2014 N9 and N10 SCR Engines ESN 3540000+

Dealers: Please refer to the change log text box below for recent changes to this article:

08/05/14 - Initial Article Release
 08/22/14 - Added SRT's.
 11/17/14 - Added Nox in part numbers.
 12/15/14 - Added directions to update ECM/ACM calibrations under the "DESCRIPTION"
 03/05/15 - Changed directions for failed sensor returns. See "Special Requirements" section

DESCRIPTION

The purpose of this article is to describe and provide repair direction for fault code 3216-4 "NOxIN signal out of range low."

NOTE: WHEN DTC 3216-4 IS PRESENT, NO DIAGNOSTICS ARE NECESSARY; REPLACE THE NOxIN SENSOR, CLEAR THE FAULT, UPDATE THE ECM/ACM CALIBRATIONS AND VERIFY THEY READ: 'MHR1' AND 'APR0' OR LATER. IF YOU ARE UNSURE OF THE CURRENT CALIBRATION STATUS OR HAVE ANY FURTHER QUESTIONS, PLEASE CONTACT TECHNICAL SERVICES.

Fault Code Overview

When this fault code sets an internal circuit error is detected in the Nitrogen Oxides (NOx) IN sensor module for 60 seconds. Diesel Exhaust Fluid (DEF) injection into aftertreatment system is disabled, and engine torque is severely reduced.

SYMPTOM(s)

Diagnostic Trouble Code:

SPN	FMI	Description
3216	4	NOxIN signal out of range low

Customer Complaint(s):

- MIL/Engine warning lights
- Engine de-rate

SPECIAL TOOL(s) or SOFTWARE

Tool Description
EZTech
ServiceMaxx

DIAGNOSTIC STEP(s)

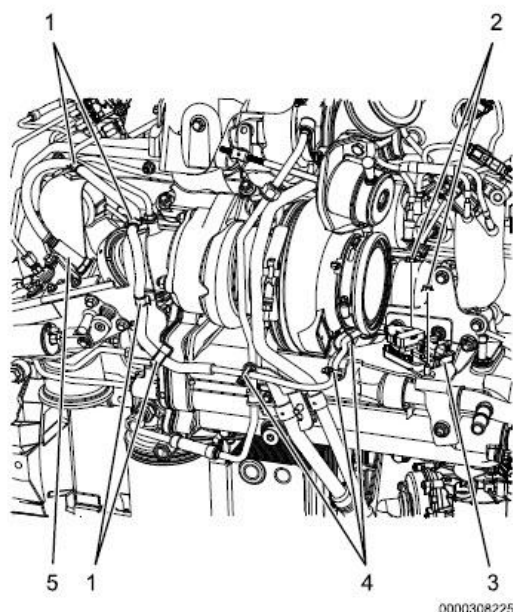
- When fault code 3216-4 is present, **DO NOT** go through the trouble-shooting in the diagnostic manual. Proceed by replacing the NOxIN sensor. If there are no other fault codes present, clear the DTC.

- **UPDATE THE ECM/ACM CALIBRATIONS AND VERIFY THEY READ: 'MHR1' AND 'APR0' OR LATER. IF YOU ARE UNSURE OF THE CURRENT CALIBRATION STATUS OR HAVE ANY FURTHER QUESTIONS, PLEASE CONTACT TECHNICAL SERVICES FOR VERIFICATION.**

Note: SPN 1569 FMI 31 SCR tamperproof warning and protection system inducement often accompanies 3216-4. The description and special procedure for resetting an SCR tamper-proof code are contained in [IK1201190](#).

SERVICE PART(s) INFORMATION

Kit Description	Navistar Part Number	Cummins Part Number (s)	Quantity Required	Ordering Instructions
Thermal Wrap (see original NOx sensor for referencing)	N/A	N/A	1	Source Locally (Pre-wrapped sensors estimated availability - Oct. 31st., per Cummins)
NOxIN Sensor	3017729C1	4326873	1	Source from Cummins

REMOVAL PROCEDURE**NOxIN Concentration Sensor and Module****Figure 53 NOxIN Concentration Sensor and Module**

1. Harness clipping (4)
2. M6 nut (2)
3. NOxIN Concentration Module
4. Tie straps (3)
5. NOxIN Concentration Sensor

1. Remove two NOxIn Concentration Sensor Module M8 nuts from NOxIn Concentration Sensor bracket.
2. Cut three NOxIn Concentration sensor harness tie straps.
3. Undo NOxIn Concentration sensor harness from four routing and clipping points.
4. Remove NOxIN Sensor and Module from exhaust brake under rail housing.

INSTALLATION PROCEDURE

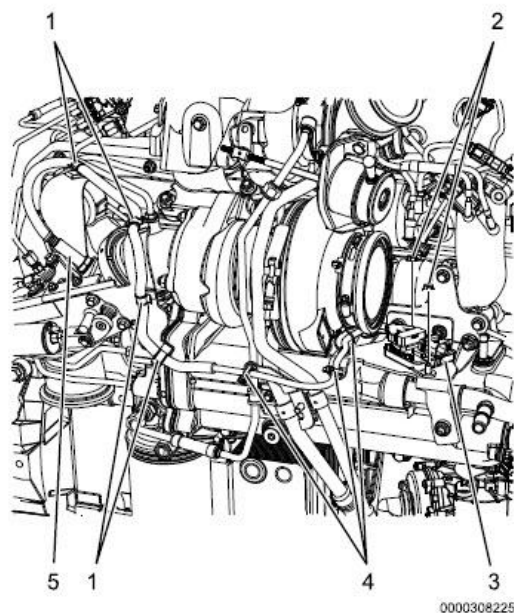
NOxIN Concentration Sensor and Module

Figure 53 NOxIN Concentration Sensor and Module

1. Harness clipping (4)
2. M6 nut (2)
3. NOxIN Concentration Module
4. Tie straps (3)
5. NOxIN Concentration Sensor

1. Install NOxIN Concentration sensor into exhaust brake under rail housing.
2. Torque NOxIN Concentration sensor to 50 N·m (37 lb·ft).
3. Route NOxIN Concentration module harness through four routing and clipping points.
4. Install three new tie straps onto NOxIN Concentration module harness.
5. Install NOxIN Concentration module onto NOxIN Concentration module support.
6. Install two NOxIN Concentration module M6 nuts onto NOxIN Concentration module support and torque nuts to 10 N·m (7 lb·ft).

WARRANTY INFORMATION**Warranty Claim Coding:**

Group:	18250 - DEF Controls/Sensors
Noun:	648 - Sensor, Engine Out (NOx)

Standard Repair Time(s):

Chassis	SRT Code	SRT Time
WorkStar	M18-1649TS	.4 hr
DuraStar	KL18-1649TS	.4 hr
CE/BE Bus	GY18-1649TS	.4 hr

Special Requirement(s):

- PLEASE RETURN ONLY FAILED NOxIN SENSORS WITH VEHICLE BUILD DATES 12/4/14 AND LATER OR THERE ARE 3216-4 FAULTS WITH THE ACM CALIBRATION ALREADY READING CURRENT (APR0).

'BLUE TAG' BACK WITH VEHICLE/CASE INFORMATION TO:

ERIK WASS
2701 NAVISTAR DR.
7-1-2-10
LISLE, IL 60532

PLEASE NOTE "POST CONTAINMENT NOxIN SENSOR" ON THE EXTERIOR OF THE BOX FOR EASE OF IDENTIFICATION

OTHER RESOURCES

Link to QuickServe Online:

<https://quickserve.cummins.com/qs3/portal/index.html>

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