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| **Major System:** | EXHAUST | **Created:** | 6/11/2014 |
| **Current Language:** | English | **Last Modified:** | 6/11/2014 |
| **Other Languages:** | NONE | **Author:** | Dominic Venice |
| **Viewed:** | 147 | | |

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**Title: Fault Code SPN 5848 FMI 10 Diagnostic Procedure**

**Applies To: EPA 2013 N13 Engine**

**CHANGE LOG:**

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

6/12/14 - Launch to field.

## DESCRIPTION:

This iKNow article provides the procedure to diagnose and repair fault code SPN 5848 FMI 10. There is currently limited information available for this particular fault code, the information in this article will be added to the EPA 2013 N13 Diagnostic Manual upon the next revision. Check the Service Portal frequently for updates.

## SYMPTOM(s):

**Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):**

| DTC/Light | Description |
|---|---|
| 5848-10 | Aftertreatment 1 Outlet NH3 Gas Sensor Heater - Abnormal rate of change |
| 5848-9 | Aftertreatment 1 SCR Intermediate NH3 Sensor - Abnormal update rate |
| 5848-4 | Aftertreatment 1 SCR Intermediate NH3 Sensor - Voltage below normal, or shorted to low source |

**Customer Complaint(s):**
- Check engine lamp and/or Malfunction Indicator Lamp (MIL) illuminates.

## SPECIAL TOOL(s) or SOFTWARE:

| Tool Description | Tool Number | Comments |
|---|---|---|
| Electronic Service Tool (EST) Servicemaxx software | | |

## OVERVIEW:

**Circuit Description**

The aftertreatment SCR intermediate NH3 (ammonia) sensor is a smart device that communicates with the engine control module via the J1939 data link. The aftertreatment intermediate NH3 sensor performs its own internal diagnostics and reports malfunctions back to the aftertreatment control module using the J1939 data link. The aftertreatment intermediate NH3 sensor is used to measure the ammonia in the aftertreatment system.

**Component Location**

The aftertreatment SCR intermediate NH3 sensor is located in the middle of the aftertreatment SCR catalyst.

**Conditions for Running the Diagnostics**

This diagnostic runs when the aftertreatment SCR intermediate temperature has been above 170 C [338 F] for a calibrated period of time while the engine is running.

**Conditions for Setting the Fault Codes**

The aftertreatment SCR intermediate NH3 Sensor reading was not valid.

**Action Taken When the Fault Code is Active**

The ECM illuminates the amber CHECK ENGINE lamp and/or Malfunction Indicator Lamp (MIL) after the diagnostic fails on two consecutive trips.

**Conditions for Clearing the Fault Code**

- To validate the repair, start and operate the engine to raise exhaust temperatures. This can be done by either driving the vehicle or initiating a stationary regeneration using electronic service tool.
- The aftertreatment SCR intermediate temperature must be above 170 C [338 F] for 5 seconds before the aftertreatment SCR intermediate NH3 sensor can run its internal diagnostics.
- The fault code status displayed by the electronic service tool will change to INACTIVE immediately after the diagnostic runs and passes.
- For On-Board Diagnostics (OBD) engines, the ECM will extinguish the Malfunction Indicator Lamp (MIL) after three consecutive trips where the diagnostic runs and passes.
- The Clear All Faults command in the electronic service tool can be used to clear active and inactive faults, as well as extinguish the MIL for OBD applications.

**Fault Facts**

Possible causes of this fault code include:

- A malfunctioning aftertreatment SCR intermediate NH3 sensor probe
- A malfunctioning aftertreatment SCR intermediate NH3 sensor module

## DIAGNOSTIC PROCEDURE:

| Step | Action | Decision |
|---|---|---|
| 1 | Check for active fault codes. | |

| | | |
|---|---|---|
| | **Conditions**<br>• Turn key switch ON.<br>• Connect Electronic Service Tool (EST)<br>**Action**<br>Check for active fault codes.<br>• Use electronic service tool to read the fault codes. | Yes: Go to appropriate fault code troubleshooting for other active codes. Repair complete.<br>No: Go to step 2. |

| Step | Action | Decision |
|---|---|---|
| 2 | Are fault codes active other than 5848-10?<br>Check for active fault codes.<br>**Conditions**<br>• Turn key switch ON.<br>• Connect Electronic Service Tool (EST)<br>**Action**<br>Check for active fault codes.<br>• Use electronic service tool to read the fault codes.<br>Is fault code 5848-10 active? | Yes: Replace the Aftertreatment SCR Intermediate Ammonia (NH3) Sensor Module.<br>No: Go to step 3 |

| Step | Action | Decision |
|---|---|---|
| 3 | Check if an ECM calibration update is available.<br>**Conditions**<br>• Connect all components.<br>• Connect electronic service tool.<br>**Action**<br>Compare the ECM calibration in the ECM to the calibration scorecard on the Service Portal for applicable changes related to this fault code.<br>Is ECM Calibration current? | Yes: Go to step 4<br>No: Update the ECM calibration. Then go to step 4. |

| Step | Action | Decision |
|---|---|---|
| 4 | Clear the fault code.<br>**Conditions**<br>• Connect all components.<br>• Connect electronic service tool.<br>**Action**<br>Disable and clear the fault code.<br>Did fault code 5848-10 clear out of the ECM? | Yes: Repair Complete.<br>No: Restore the aftertreatment system to normal operation and retest. |

## SERVICE PART(s) INFORMATION:

- **See Parts Catalogue for most current part numbers.**

**Supplier Part Number**

| Kit Description | Part Number | Quantity Required | Ordering Instructions |
|---|---|---|---|
| Module, Electronic Control - NH3 | 4306985 | 1 | Order from Supplier (Cummins) |

**Navistar Part Number**

| Kit Description | Part Number | Quantity Required | Ordering Instructions |
|---|---|---|---|
| Module, Electronic Control - NH3 | 2511403C1 | 1 | Order from Navistar |

## WARRANTY INFORMATION:

**Warranty Claim Coding:**

| | |
|---|---|
| **Group:** | **18250 - DEF Controls/Sensors** |
| **Noun:** | 650 - Sensor, Ammonia |

## Standard Repair Time(s):

**18 - AFTERTREATMENT COMPONENTS , REPLACE**

| Hours | Code | Model | Engine | Qualifier 1 | Qualifier 2 |
|---|---|---|---|---|---|
| 0.9 | Q18-1650US | | 8600 | \|N13\| | Ammonia (NH3) Sensor |
| 0.9 | R18-1650US | | ProStar | \|N13\| | Ammonia (NH3) Sensor |

## OTHER RESOURCES:

IK0700065 - **Ordering SCR Aftertreatment Parts for Vehicles With Navistar Engines.**

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