ISUZU NOx SENSOR FAULT DIAGNOSIS AND REPLACEMENT

This document provides diagnostic guidance and replacement procedures for Isuzu NOx sensors. It outlines how to interpret Diagnostic Trouble Codes (DTCs), determine whether a sensor requires replacement or cleaning, and complete the post-repair procedure.

Note: ***The expected service life of the NOx sensor is 8,000 hours under normal operating conditions. When having a single NOx sensor failure with higher hours, its recommended to replace both sensors at the same time.***

DTC Diagnosis:

Before replacing a NOx sensor, verify the active DTC using IDST or IDSS engine diagnostic software.

Fault verification via SPN/FMI can also be found within the machine controller under DM1 (Active DTC's) and DM2 (History/Stored DTC's).

- SPN 10504 FMI 12 – Inlet (Ft) NOx Sensor Open or Shorted
- SPN 10540 FMI 12 – Outlet (Rr) NOx Sensor Open or Shorted

It is recommended to determine component failure and or issues via the engine interface tool.

Fault Code Interpretation:

DTC – P2210: Reading the error(open) information detected by Rr NOx sensor
DTC – P2206: Reading the error(open) information detected by Ft NOx sensor

- Indicates a sensor failure.
- Requires replacement of the NOx sensor.

DTC – P2211: Reading the error(short) information detected by Rr NOx sensor
DTC – P2207: Reading the error(short) information detected by Ft NOx sensor

- Indicates the sensor is unable to detect NOx, often due to contamination or excessive DEF buildup.

Action:

- Remove the affected sensor.
- Carefully clean DEF or soot buildup from the probe area using a soft wire brush. Avoid using harsh chemicals or abrasive materials that could damage the sensor.
- Do not allow the sensor tip to become wet.
- Reinstallation of the same sensor is acceptable.

- Note: A SHORT DTC does not require replacement.

Excessive DEF Buildup on NOx Sensor

Clean NOx Sensor

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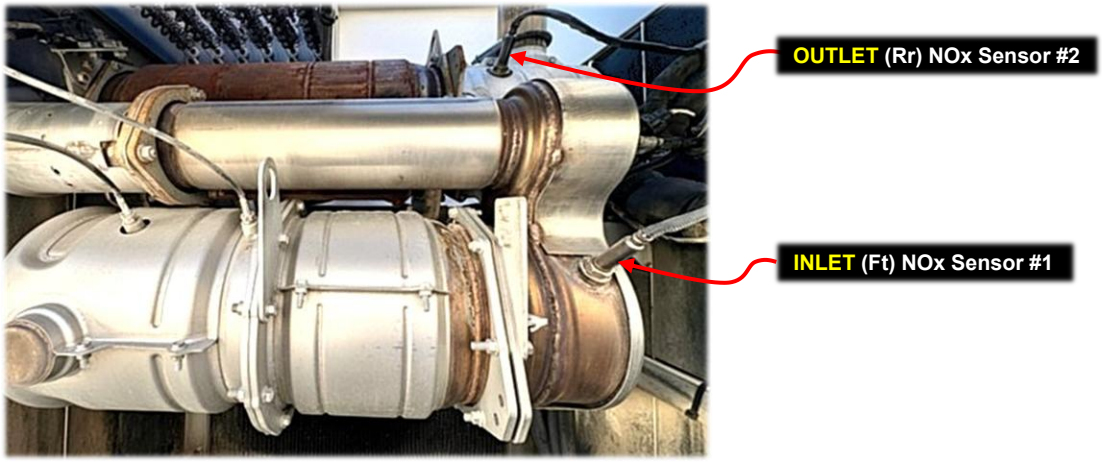
Post-Replacement / Cleaning Procedure:

Note: ***Use a special high-temperature, sensor-safe anti-seize compound on the threads of an Isuzu NOx sensor during installation.***

After replacing or cleaning NOx sensors:

- Reinstall sensor(s) within SCR
- Using 7/8” Hex Wrench – Tightening Torque: 7.4 (ft-lb) or 88.5 (in-lb)
- Clear active DTC’s
- Perform 8 forced purges (regenerations) to ensure removal of excessive DEF from the SCR system



Installation Guidelines:

Proper installation is critical for accurate PPM measurement in exhaust flow.

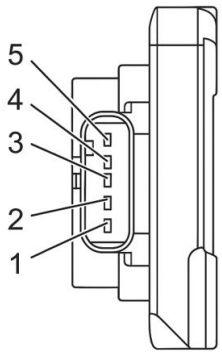
- Sensor #1 – Inlet NOx Sensor (5-wire configuration)
- Sensor #2 – Outlet NOx Sensor (4-wire configuration)

(Inlet Sensor #1)

1 B (+)
2 Ground
3 CAN (-)
4 CAN (+)
5 Address Ground

(Outlet Sensor #2)

1 B (+)
2 Ground
3 CAN (-)
4 CAN (+)
5 Empty



* Correct wiring orientation will ensure accurate data transmission and system performance.