



Technical Information Bulletin

E190



Section

Exhaust System

Subject

Nitrogen Oxide/Dioxide (NOx) Sensor Diagnostics

Release Date

3/23/2018

Condition

PACCAR MX powered vehicles with Nitrogen Oxide/Dioxide (NOx) sensor related DTCs.

Chassis Affected

Model Year 2013 and newer PACCAR MX powered vehicles.

Action

Information Only

If you are diagnosing a PACCAR MX powered vehicle with NOx related DTCs, follow the improved NOx troubleshooting procedures in Rapido and use the improved NOx troubleshooting tools in DAVIE4.

The improved NOx testing in DAVIE4 includes:

- Evaluate the NOx sensor before the catalyst
- Evaluate the NOx sensor after the catalyst

The DAVIE4 NOx tests can be found as shown in the figure below:

The screenshot displays the DAVIE4 software interface. On the left is a tree view of the documentation structure, including sections like 'Power source', 'Emissions', and 'Fuel'. The 'Evaluate the NOx sensor before catalyst' test is highlighted in the tree. The main panel on the right shows the details for this test, including a title, a warning icon, a purpose description, a list of preparation steps, and a procedure section.

Evaluate the NOx sensor before catalyst

Warning: During this test, the NOx sensor is heated to approximately 800°C [1472°F]. If the installation of the NOx sensor is required after performing the test, make sure to allow the sensor to fully cool down to prevent burn wounds. At high temperatures the NOx sensor is very sensitive to shocks and vibrations. Make sure not to shock or vibrate the sensor while hot.

Purpose
This procedure is used to check the basic functionality of the NOx sensor before catalyst, while the sensor is removed from the exhaust system.

The test consists of two separate NOx sensor tests:

- A PPM measurement accuracy test of the NOx sensor.
- An O2 measurement accuracy test of the NOx sensor.

Preparation

- Remove the NOx sensor from the exhaust according to the job (replace NOx sensor before the catalytic converter)
- Hang up the NOx sensor by its wire in such way that the NOx sensor tip hangs freely.
- Make sure that the NOx sensor tip does not touch the wiring harness or other parts.

Procedure
The procedure consists of the following steps:

Background

When diagnosing NOx sensors, use the NOx Sensor diagnostics in DAVIE4. Of the NOx sensors returned, 85% have no problem found. Performing this test, introduced with DAVIE4 software version 18.06.7, will result in fewer misdiagnosis and come-backs, as well as rejected claims

Procedure

- Record all DTCs and relevant data.
- Update DAVIE4 with the latest available software version.
- The engine software requirements to allow the new tests to run are shown in the table below:

Engine Software RC	Before Catalyst NOx	After Catalyst NOx
MY15/14/13 RC11/12/17	X	X
MY15B RC12	X	X
MY16 RC6	X	X
MY17 RC3	X	
MY17 RC5		X

- Follow the updated DAVIE4 NOx testing as instructed by Rapido and DAVIE4.
 - The tests can be found under the following tab in DAVIE4: Testing | Power source | Emissions | Selective Catalyst Reduction (SCR). See 'DAVIE documentation' in Rapido for any EPA2013 or later engine for technical details about these tests.
 - Failed NOx test results are displayed as:

 **The test procedure is finished.** 

Test	Result
Test Status	FAIL
NOx Accuracy	LOW
O2 Accuracy	LOW

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