



NA_MACK_Vehicle_Range

NA_MACK_Vehicle_Range
ge Cabover , Conventional

NA_VOLVO_Vehicle_Range

NA_VOLVO_Vehicle_Range
nge VNR , VNX , VNL , VNM , VHD , VAH

Engine family

Engine family 11L Engine , 13L Engine , 16L Engine , MP7 , MP8 , MP10

Emission Standard

Emission Standard 2018 , OBD2017 , US17 GHG , US16 , US15 , US13 OBD , US14 GHG

**** SOLUTION ****

Title (customer effect) Selective Catalytic Reduction (SCR) Efficiency And Diesel Exhaust Fluid (DEF) Dosing Valve Diagnostic Trouble Codes (DTC) P208E, P103C, P0422, P20EE, P207F, P225E; **Dosing Valve Diagnostic Information TO BE USED BEFORE DEF DOSING VALVE REPLACEMENT - OBD13 And Newer Emissions (Commonly Model Year 2014 And Newer)**

Cause Codes related to SCR efficiency and the DEF dosing valve may lead to replacement of a dosing valve that is functioning properly.

Solution

DO NOT REPLACE THE DEF DOSING VALVE FOR ANY OF THE ABOVE CODES PRIOR TO REVIEWING THE INFORMATION BELOW

The purpose of this article is to prevent unnecessary component replacement. ALL OTHER DIAGNOSTIC TESTS AND CHECKS MUST BE PERFORMED when diagnosing one of the codes above if the tests below do not immediately reveal an issue.

If an eService case must be submitted, ALL INFORMATION specified in Step Five MUST be included at the time the case is opened. Cases missing required information will be Refused.

Overview

During testing of the DEF dosing valve with Guided Diagnostics, certain observations and normal behaviors of the valve can be mistaken for symptoms of a malfunction. This normally results in the replacement of a dosing valve that is functioning correctly, leading to no change in the fault conditions and further diagnosis required or possible return visits in the future. The information below should be reviewed and the DEF Dosing Valve confirmed to be defective prior to replacement.

Fault Codes

A complete list of DTCs related to this Solution can be found in the Fault Codes section below.

Information

- Review the Detailed Status Information for the relevant code on the DTC Readout.

The screenshot shows a diagnostic tool interface. The top section is titled 'DTC List of Items' and contains a table with columns 'Control Unit', 'DTC', and 'Status'. The second row is highlighted in blue and shows 'Engine Control Module (ECM)' with DTC 'P229F64: NOx Sensor Gas Outlet Heated, Signal Plausibility Failure' and 'Active' status. Below this is a section for 'NOx Sensor Gas Outlet Heated' with a sub-section for 'Detailed status information'. This section contains a table with columns 'Title' and 'Value'. The first row is 'Confirmed DTC' with a value of 'True', indicated by red arrows. Other rows include 'Pending DTC' (False), 'Test failed' (True), 'Test failed since last clear' (True), 'Test failed this operation cycle' (True), 'Test not completed since last clear' (False), 'Test not completed this operation cycle' (False), and 'Warning indicator requested' (False).

Control Unit	DTC	Status
Brake ECU (MD 130)	SID 69: Axel load sensor, FM 2: Data erratic, intermittent, or incorrect	Active
Engine Control Module (ECM)	P229F64: NOx Sensor Gas Outlet Heated, Signal Plausibility Failure	Active

Title	Value
Confirmed DTC	True
Pending DTC	False
Test failed	True
Test failed since last clear	True
Test failed this operation cycle	True
Test not completed since last clear	False
Test not completed this operation cycle	False
Warning indicator requested	False

- If Confirmed DTC is **TRUE**: Proceed with diagnostics
- If Confirmed DTC is **FALSE**: Disregard and focus on other symptoms or DTCs relevant to the complaint.

1. Minor crystal accumulation at or near the tip of the Dosing Valve is normal.

2. A wet dosing valve tip is normal and does not indicate a leak.

3. When performing Operation [2589-08-03-05 Aftertreatment Selective Catalytic Reduction \(SCR\) System Test A - System pressure build up](#), it is normal to see a small amount of DEF released from the dosing valve. This occurs because air is bled from the system during pump start up, and there will be some DEF present with the air in the line as it is pushed out through the dosing valve.

- During the test, the dosing valve is only open for the bleed operation and is closed when the pump is maintaining the correct pressure. A continuous spray from the valve at this time indicates a problem with the valve.

4. When performing Operation [2589-08-03-05 Aftertreatment Selective Catalytic Reduction \(SCR\) System Test B - Dosing test](#), it is very important that the dosing volumes are measured and recorded accurately. A 250 mL graduated cylinder with 2 mL graduations is the best instrument for this test.

- Consistent dosing test failure can be justification for DEF dosing valve replacement.
- **NOTE:** It is rare for this test to fail by exceeding the expected volume.

5. If this solution is being reviewed for **P20EE, P207F, P225E or P103C**, the [NOx Sensor Diagnostic Solution](#) for the same DTCs should be reviewed for further information.

6. If diagnostic steps do not locate a root cause for the code(s), open an eService case with Dealer Technical Support

- A **complete** summary of all tests performed along with **numeric measurements**, a DTC Readout, and any information concerning previous visits and parts replaced must be included when the case is opened.

- **"Ok", "Good" and "Followed GD" are not acceptable descriptions of tests performed and test results.**

- Add the solution numbers for **all** CBR articles followed.

Solution visibility **Dealer distribution**

Function(s)/component(s) affected

Function affected DEF Dosing , SCR , 1 1 0 EMS , 2 1 0 ACM , Diagnostic tool

Function Group

Function Group 254 catalytic converter; exhaust emission control equipment , 258 emissions after-treatment

Customer effect

Main customer effect regeneration , diagnostics/methodology , efficiency/abnormal behavior , fault code /display

Fluid implicated AdBlue

Lights/Messages on information display  Driver's information warning pictogram

Fault code(s)

OBD 2013 Diagnostic Trouble Codes P103C , P0422 , P207F , P208E , P20EE , P225E

Conditions

Vehicle operating mode when driving , when stationary

Frequency of occurrence of problem random

Administration

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Last modified by RU4469V

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