

**Mack Models**

---

**Mack Model** LR , LEU , MRU , CHU , CXU , GU , TD

---

**Volvo Models**

---

**Volvo Model** VNX , VNL , VNM , VHD , VAH

---

**Engine family**

---

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

---

**Emission Standard**

---

Emission Standard US15

---

**\*\* SOLUTION \*\***

---

**Title** Fuel Injector Offset Learning Diagnostic Trouble Codes ( DTC ) / Fault Codes Logged In Engine Control Module ( EMS ); Possible Rough / Uneven Idle - **US14+OBD15 Emissions, Commonly Model Year 2016**

---

**Cause** US14+OBD15 chassis may set codes for injector offset learning minimum and maximum values. The codes may be accompanied by rough idle, with no other performance complaints or symptoms of injector failure.

**Cylinder balancing is only active at idle speeds**, between 500 and 750 RPM. The balancing monitor does not run outside of this speed range, which means the codes do not set under high idle or driving conditions. Offset codes generated with no other injector-related codes and no symptoms aside from a possible rough idle may not indicate a physical injector problem, and diagnosing the codes will in many cases lead to no fault found. It has been determined that software may contribute to the problem. Software improvements have been implemented to better control cylinder balancing logic.

**Solution****Relevant DTCs**

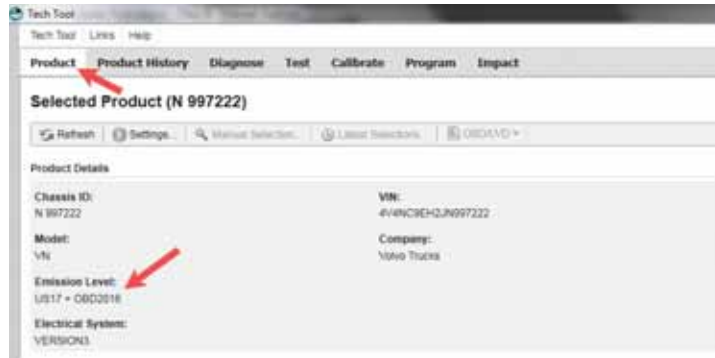
The list of all applicable DTCs for this issue is included in the Fault Codes section below.

**Repair**

- **Verify the chassis emissions level and ensure that the vehicle is within the applicable range for this solution.**

- Details can be found in the Product Details box on the Product tab in PTT as seen

below:



If any of the fault codes in the section below are logged in a US14+OBD15 chassis:

**A. Check the EMS Main Software (MSW) part number.**

- If the EMS MSW part number is lower than 23167877.P01:

1. Update the EMS software
2. Reset Cylinder Balance from Premium Tech Tool (PTT) Operation [2387-08-03-01 Cylinder Balancing](#), located in the Test tab.
3. Run a Cylinder Balance test from the same screen following the reset. Start the test at minimum temperature (140 °F, 60 °C) and monitor balancing until coolant temperature reaches approximately 177 °F (81 °C). This will allow observation of performance during multiple engine modes that are entered during warm-up.
4. If the Cylinder Balance test still shows an issue and/or there are one or more Learning Offset codes that return following the update, follow Guided Diagnostics for the applicable code or codes.

- If the EMS MSW is part number 23167877.P01 or newer, proceed with Guided Diagnostics for the applicable code or codes.

---

Solution visibility	Dealer distribution
---------------------	---------------------

---

<b>Function(s)/component(s) affected</b>	
Function affected	injectors , regulation (cruise control/engine speed) , 1 1 0 EMS

---

<b>Function Group</b>	
Function Group	23 fuel system, excluding gas propulsion , 284 control system, fuel supply

---

<b>Customer effect</b>	
Main customer effect	calibration/programming/pairing/missing operation , efficiency/abnormal behavior , fault code/display

---

Fluid implicated	fuel
------------------	------

---

<b>Fault code(s)</b>	
OBD 2013 Diagnostic	P02CC00 , P02CD00 , P02CE00 , P02CF00 , P02D000 , P02D100 , P02D200 , P02

---

Trouble Codes D300 , P02D400 , P02D500 , P02D600 , P02D700 , P101200 , P101400 , P102300  
, P102500 , P102700 , P102900

---

## Conditions

---

Vehicle operating mode when stationary

Frequency of occurrence of problem random

Engine speed 500 - 1000 rpm

---

## Administration

---

Author UT0455H

Dealer ID UT0455H

Last modified by RU4469V

Creation date 29-01-2018 19:01

Date of last update 14-05-2018 22:05

Review date 10-12-2018 00:12

Status Published

Average score 0.5

Number of scores 2

NA\_Reviewer UT0455H

NA\_Author\_Group GTT

---