



Solution K53338075

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**** SOLUTION ****

Title Diagnostic Trouble Codes (DTC) For The Engine Pre-Heat Relay:
Supplementary Instructions - **US10+OBD13 And Newer Emissions, Model Year 2014 And Newer**

Mack Models

Mack Model LEU , LR , MRU - TerraPro , TE - TerraPro , AN - Anthem , CHU - Pinnacle, Axle back , CXU - Pinnacle, Axle front , GR - Granite , GU - Granite , PI - Pinnacle , TD - Titan

Volvo Models

Volvo Model VN , VNL , VNM , VNR , VNX , VAH , VHD

Emission Standard

Emission Standard US10+OBD13 , US14+OBD13 , US14+OBD15 , US14+OBD16 , US14 CNG , US17+OBD16 , US17+OBD18 , US17+OBD19

Engine family

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

**** SOLUTION ****

Cause For vehicles with US10+OBD13 and newer emissions (model year 2014 and newer), it is possible that when diagnosing an issue involving the engine pre-heat relay, performing a standard resistance check on certain versions of the power cable with an ohm meter will not identify a cable that requires replacement, potentially leading to repeated issues.

Solution**IMPORTANT**

This solution does not apply to vehicles manufactured prior to US10+OBD13 emissions. For vehicles with previous emissions levels, **ONLY** the component found to be the cause of the issue should be replaced.

PARTS

Verify that an applicable part is currently installed. Affected Supply Power Cable part numbers (current as of June 2019) are:

- [23122110](#)
- [23122112](#)
- [23122116](#)

Impact should always be reviewed for the latest part information.

REPAIR

Prior to replacing the relay:

1. Complete diagnostic steps for the applicable code(s) in Premium Tech Tool.
2. Verify proper terminal tension of all connections at both the heating element and the relay, including the plug-style connector.
3. Check for software updates available for the EMS:
 - **If there is a software update available:** Update the software. Proceed to the next section.
 - **If the software is current:** Proceed to the next section.

If all diagnostic steps indicate that the relay is the faulty component:

- Replace **both** the Pre-heat relay and the Supply Power Cable.

Internal comments (BO)	Preheater QJ 1-9963169241
Temporary solution	Temporary solution
Solution visibility	Dealer distribution
Function(s)/component(s) affected	
Function affected	wiring harness , Intake pre-heater
Function Group	
Function Group	286 engine wires and mounting parts
Customer effect	
Main customer effect	fault code/display
Fault Codes And Error Codes	
OBDII Diagnostic Trouble Codes (P, U, B Format)	P0381-13 , P0540-7E , P0541-00 , P0543-00 , P2604-7F , P2605-13 , P2606-7F , P2608-7E , P2609-00 , P2CE1-13 , P2CE3-11 , P2CE4-12
Administration	
Author	UT5061H
Dealer ID	UT5061H
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