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Version 9

Title

Diagnostic Trouble Codes (DTC) For The Engine Pre-Heat Relay: Supplementary Instructions

Abstract

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.

Categories *

Make and Model > Mack > CXU/CHU/PI - Pinnacle

Make and Model > Mack > LEU - TerraPro Low Entry

Make and Model > Mack > LR

Make and Model > Mack > TD - Titan

Make and Model > Volvo > VNL

Make and Model > Volvo > VNR

Make and Model > Volvo > VNM

Make and Model > Volvo > VNX

Make and Model > Volvo > VAH

Make and Model > Volvo > VHD

Emission Standard > US10+OBD13

Emission Standard > US14 > US14+OBD13

Emission Standard > US14 > US14+OBD15

Emission Standard > US14 > US14+OBD16

Emission Standard > US17 > US17+OBD16

Emission Standard > US17 > US17+OBD18

Emission Standard > US17 > US17+OBD19

Make and Model > Mack > MRU/TE - TerraPro

Vehicle System > Engine

Vehicle System > Electrical

Make and Model > Mack > AN - Anthem

Make and Model > Mack > GU/GR - Granite

Content

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 - 11L](#)
- [23122112 - 13L](#)
- [23122116 - 13L](#)

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 ([P/N 23692384](#)) and the Supply Power Cable.
- For 13L models install the newly updated bracket design with 2 mounting locations ([P/N 23803412](#)). See illustration below.

