



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME

**Investigation:** PE 18-004  
**Date Opened:** 04/23/2018  
**Investigator:** Kyle Bowker **Reviewer:** Bruce York-B  
**Approver:** Stephen Ridella  
**Subject:** PNDB Electrical Power Distribution

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** Daimler Trucks North America LLC  
**Products:** 2011-2016 Freightliner Cascadia  
**Population:** Confidential

**Problem Description:** One or more alleged defects that affect the Powernet Distribution Box (PNDB) and associated wiring, which may result in disruption or loss of electrical power to the PNDB itself and other electrical circuits, thermal event and/or vehicle fire.

## FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
<b>Complaints:</b>	1	TBD	TBD
<b>Crashes/Fires:</b>	0	TBD	TBD
<b>Injury Incidents:</b>	0	TBD	TBD
<b>Number of Injuries:</b>	0	TBD	TBD
<b>Fatality Incidents:</b>	0	TBD	TBD
<b>Number of Fatalities:</b>	0	TBD	TBD
<b>Other*:</b>	0	Confidential	Confidential

\*Description of Other: Early Warning Reporting (EWR) field report data.

## ACTION / SUMMARY INFORMATION

**Action:** A Preliminary Evaluation has been opened.

### Summary:

The Office of Defects Investigation has received 1 consumer complaint (ODI Reference No. 10838295) and multiple Early Warning Reporting (EWR) field reports on the subject vehicles that allege certain defects affecting the Powernet Distribution Box (PNDB) and associated wiring result in disruption or loss of electrical power to the PNDB itself and other electrical circuits, thermal events originating at the PNDB and/or vehicle fire. Specifically, the alleged defects include: (1) Loose electrical connection at the PNDB power (B+) input terminal; (2) Loose ATC blade-type fuses inside the PNDB; (3) PNDB power (B+) supply cable corrosion; and (4) Improper PNDB power (B+) supply cable routing and/or securement.

The PNDB is mounted in the engine compartment on the front-wall of the cab near the steering column and distributes battery power to the Signal-detection and Activation Module (SAM) Cab module, SAM Chassis module, powertrain Power Distribution Module (PDM), and other keep-alive circuits. Consequences of the alleged defects are varied and may affect many electrical components on the vehicle due to the location of the PNDB within the electrical power distribution system. Power loss or disruption to the SAM Cab and/or SAM Chassis modules may result in automatic activation of the emergency power supply system whereby the Instrumentation Control Unit (ICU) will become unresponsive, the dash panel lights, clearance lights, identification lights, front marker lights, side marker lights, rear turn-signal lights, trailer taillights and/or rear stop lights will flash or otherwise become inoperative, and the engine may not restart. The powertrain PDM contains fuses and relays that provide battery and ignition power to the engine, exhaust after-treatment devices, transmission and other related circuits. Power loss or disruption to the powertrain

PDM may result in engine power de-rate or engine stall, improper automatic transmission gear selection or improper shifting to neutral. Power loss or disruption to the Alternator Remote Sensing circuit may result in over-charging of the vehicle batteries. Power loss or disruption to the Methane Detection System equipped on Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG) vehicles may fail to alert the driver to fuel leaks.

A Preliminary Evaluation has been opened to evaluate the alleged defect conditions in the subject vehicles.