

Part 573 Safety Recall Report

23V-697

Manufacturer Name : Proterra Operating Company, Inc.**Submission Date :** OCT 08, 2024**NHTSA Recall No. :** 23V-697**Manufacturer Recall No. :** SC-24-007**Manufacturer Information :**

Manufacturer Name : Proterra Operating Company, Inc.

Address : 1815 Rollins Road

Burlingame CA 94010

Company phone : 4380000

Population :

Number of potentially involved : 238

Estimated percentage with defect : 100 %

Vehicle Information :

Vehicle 1 : 2019-2022 Proterra 40' and 35' Catalyst 800V Transit Bus with ProDrive 1.0; 40' and 35' ZX5 800V Transit Bus with ProDrive 1.0

Vehicle Type : BUSES, MEDIUM & HEAVY VEHICLES

Body Style : OTHER

Power Train : HYBRID ELECTRIC

Descriptive Information : The recall population consists of 800V ProDrive 1.0 transit buses equipped with a PowerPhase 250 HD traction inverter from the supplier identified in this report (the "PP250 Inverter"). All 800V ProDrive 1.0 transit buses equipped with a PP250 Inverter are subject to this recall. The recall population was determined through a review of Proterra's production records. Approximately 238 vehicles are in the recall population.

Production Dates : SEP 13, 2019 - JAN 06, 2023

VIN Range 1 : Begin :

NR

End : NR

 Not sequential**Description of Defect :**

Description of the Defect : The PP250 Inverters at issue in this recall were manufactured with a defective thermal paste that fails to adequately transfer heat away from the insulated-gate bipolar transistor ("IGBT") contained within the inverter. Over time, the lack of adequate heat transfer may cause the IGBT to overheat and fail. Such failure of the IGBT would result in the loss vehicle propulsion and power steering.

FMVSS 1 : NR

FMVSS 2 : NR

Description of the Safety Risk : Loss of vehicle propulsion and power steering could increase the risk of a crash.

Description of the Cause : The PP250 Inverters at issue in this recall were manufactured with a defective thermal paste that may cause the IGBT to overheat and fail over time.

Identification of Any Warning that can Occur : A warning light(s) will appear in the driver's dash display when an abnormally high temperature and/or erratic rate of increased temperature is detected in or around the IGBT. The diagnostic codes associated with these warnings may be accessed by the operator using the Proterra diagnostic tool and/or telemetry systems. The available diagnostic code history on vehicles that experienced a failure indicates that the operator will receive a warning light(s) and may access the relevant diagnostic codes with adequate time to remove the vehicle from service and inspect the issue in accordance with Proterra's forthcoming fleet check instructions.

Involved Components :

Component Name 1 : PP250 Inverter

Component Description : Inverter

Component Part Number : 1000T-040; 11319418; 11323541

Supplier Identification :

Component Manufacturer

Name : Danfoss Power Solutions

Address : 2800 East 13th Street

Ames Iowa 50010

Country : United States

Chronology :

In May 2021, certain vehicles in the recall population began to experience inverter failures. Proterra investigated the issue, including the engineering analyses and extensive discussions with the supplier of the PP250 Inverter. Amongst other issues, Proterra and the supplier discussed the PP250 Inverter's sensors, which are intended to self-regulate the IGBT temperature and thermal stress.

Between May 2021 and January 2023, Proterra returned failed PP250 Inverters to the supplier to perform a physical inspection and analysis. Proterra and the supplier reviewed event logs, mileage, build dates, and fault codes. Further, the parties examined various sub-components, including, without limitation, the IGBT modules and controller coolant plate where the thermal paste was applied.

In July 2023, Proterra met with a third-party expert regarding thermal interface materials in power electronic systems.

Through its investigation, Proterra determined that the thermal paste used by the supplier to manufacture the PP250 Inverters is defective. On October 10, 2023, Proterra's Safety Committee voted to initiate this voluntary recall.

As of October 17, 2023, Proterra has received 48 field or service reports and the same number of warranty claims related to this issue. No injuries or accidents have been reported related to this issue.

Description of Remedy :

Description of Remedy Program : Remedy parts are not currently available. Proterra has worked with the supplier of the PP250 Inverter to prepare a remedy program, which will replace the inverter with one that is remanufactured with new and improved thermal paste. Proterra will notify NHTSA and the affected vehicle owners when the remanufactured inverters are available. When the parts are available, Proterra will provide this remedy free of charge to owners of vehicles within the recall population. All affected owners are covered by Proterra's General Reimbursement Plan.

How Remedy Component Differs from Recalled Component : The remedy component will not use the defective thermal paste in the PP250 Inverter. The new thermal paste will have different ingredients that will prevent overheating in the application.

Identify How/When Recall Condition was Corrected in Production : Proterra is currently manufacturing vehicles using an inverter from a different supplier than the supplier that manufactured the defective inverter.

Recall Schedule :

Description of Recall Schedule : Proterra previously provided an interim notification letter to affected owners about this recall on November 14, 2023. Proterra plans to provide the remedy owner letter on or before March 31, 2025.

Planned Dealer Notification Date : NOV 07, 2023 - MAR 31, 2025

Planned Owner Notification Date : NOV 07, 2023 - MAR 31, 2025

* NR - Not Reported