

Part 573 Safety Recall Report

22E-049

Manufacturer Name : Roush CleanTech, LLC

Submission Date : JUN 09, 2022

NHTSA Recall No. : 22E-049

Manufacturer Recall No. : EQ-J2044



Manufacturer Information :

Manufacturer Name : Roush CleanTech, LLC

Address : 12170 Globe Street

Livonia MI 48150

Company phone : 800-597-6874

Population :

Number of potentially involved : 12,823

Estimated percentage with defect : 52 %

Equipment Information :

Brand / Trade 1 : Roush Cleantech

Model : Fuel Return Lines in GEN 4/5 LPG Conversion Systems

Part No. : Pls see Mfr Comments

Size : NR

Function : Fuel Return

Descriptive Information : The population of items of original equipment covered by this report does not include fuel return lines manufactured prior to July 2015 because that date is when Roush began to use zinc-plated fittings on those return lines.

Roush's conclusion that this report does not apply to fuel return lines that were installed in vehicles that were not operated in the Salt Belt states is based primarily on the following: (1) all of the 19 warranty claims that reported corrosion of a fuel return line fitting came from vehicles in the Salt Belt states; (2) Roush's inspection of 166 vehicles from various regions of the United States (the results of which are described in the "Describe the Cause" section of this report) demonstrated that there has been extremely little, if any, corrosion of fittings on vehicles outside of the Salt Belt states.

Production Dates : JUL 30, 2015 - JUN 01, 2022

Description of Defect :

Description of the Defect : Some zinc-plated carbon steel fuel return line fittings on Gen 4 and Gen 5 Roush Cleantech LPG fuel conversion kits installed on vehicles operated in the Salt Belt states have exhibited galvanic-reaction-caused corrosion where the stainless-steel crimp collar on the fuel return line contacts the zinc-plated carbon steel fitting, if the zinc-plating has been compromised by road debris pecking. If this occurs, there is a risk that the fuel line fitting could corrode to the point where LPG fuel will leak.

FMVSS 1 : NR

FMVSS 2 : NR

Description of the Safety Risk : If the fuel return line leaks, it could increase the risk of a fire.

Description of the Cause : Roush believes that a galvanic reaction can occur in Salt Belt state road conditions (i.e., a combination of road debris pecking on the zinc-plated carbon steel fitting, and road salt and moisture from snow/ice/water). This galvanic reaction can create the potential for compromised zinc plating to corrode the carbon steel LPG fuel return line fittings where the stainless-steel crimp collar contacts the fitting.

Roush has concluded that this problem is limited to vehicles operated in the Salt Belt states. Roush inspected (and rated for degree of corrosion on a scale of 1 (like new) to 6 (leaking)) the fittings on 166 representative vehicles (altered Ford E/F Series vehicles and Blue Bird school buses) in multiple regions of the country. Of the 70 vehicles inspected and rated in the non-Salt Belt states, 55 were rated #1 (still looking new with the zinc plating intact), and the remaining 15 were rated #2 (little to no rust showing on the fittings). Conversely, of the 96 vehicles inspected in the Salt Belt states, only 8 received a #1 rating, 45 were rated #2, and 43 rated either #3 (red rust greater than/equal to 50% of the inspected part) or higher.

Identification of Any Warning that can Occur : It may be possible to observe a significant amount of red rust on the fuel return line connector fitting prior to any fuel leak.

Involved Components :

Component Name : ¼" fuel return line

Component Description : Fuel return line assembly that includes a zinc-plated carbon steel fitting and stainless-steel crimp collar.

Component Part Number : See MFR Comments

Supplier Identification :

Component Manufacturer

Name : Detroit Flex Defense
Address : 2921 Industrial Row
Troy Michigan 48084
Country : United States

Chronology :

In Oct 2020, Roush was informed that two Blue Bird school buses in PA had experienced apparent corrosion-caused fuel return line fitting failures about 3 weeks apart. Roush started to investigate service history, engineering, and supplier quality. Several additional similar warranty claims were reported in 2021. By Spring 2022, Roush had received a total of 19 corrosion warranty claims, with no fires. These claims arose solely in Salt Belt states and involved vehicles with various mileage and manufacturing dates.

Roush began its Salt Belt and non-Salt Belt geographic field and laboratory investigation in 2021. In total, Roush inspected (and rated for degree of corrosion) the fittings on more than 166 representative vehicles as described in the “Describe the Cause” section above. The inspections identified the vehicle make, model, part number, part location, orientation, mileage, alteration date, geographic location, and route characteristics. Some non-leaking fittings observed with exterior corrosion were dissected to ascertain the extent of any internal compromised metal.

Roush also conducted two types of laboratory salt spray testing. The ASTM B117 salt spray testing varied the orientation of the fittings in the salt test chamber (parallel to ground, perpendicular, 45 degrees, reversed male tube directions). Roush’s modified salt spray testing included a road debris pecking simulation. Roush then tested fittings equipped with additional spiral wrap protection, with braided loom protection, and with a combination of the two protections.

Based on the results of its investigation, in late May 2022, Roush decided to submit this report.

Description of Remedy :

Description of Remedy Program : Roush will work with Blue Bird and alterers (and their applicable servicing dealers) to replace the fuel return lines in the recalled vehicles. Replacement fuel return lines will include a new 5” spiral wrap covered with a 9” braided loom zip tied at each end of the spiral wrap (the “Wrap & Loom protection”). All parts and material will be supplied by Roush. Applicable servicers will be reimbursed by Roush for all associated labor costs.

How Remedy Component Differs from Recalled Component : The remedy fuel return lines will all have the Wrap & Loom protection in place. The addition of the combined Wrap & Loom protects the carbon steel zinc-plating on the fitting from road debris pecking damage. Intact zinc-plating reduces the adverse potential galvanic reactions exacerbated by salt and moisture.

Identify How/When Recall Condition was Corrected in Production : Roush implemented the Wrap & Loom protection in its production of fuel return lines for alterers of Ford E/F Series commercial vehicles on November 16, 2021. Due to Blue Bird's different manufacturing, quality and assembly requirements, Blue Bird is containing all buses assembled after June 7, 2022 at Blue Bird's facility and Roush will be installing the Wrap & Loom protection at the end of the production line.

Recall Schedule :

Description of Recall Schedule : With respect to the items of original equipment covered by this report, Roush will not be conducting a recall. Rather, recalls will be conducted – with Roush's cooperation – by Blue Bird and various alterers. Roush plans to send a copy of this report to Blue Bird and the alterers promptly after it is submitted to NHTSA.

Planned Dealer Notification Date : NR - NR

Planned Owner Notification Date : NR - NR

Purchaser Information :

The following manufacturers purchased this defective/noncompliant equipment for possible use or installation in new motor vehicles or new items of motor vehicle equipment:

Name : A1 Alternate Fuels

Address : 3608 Cooper Dr.
Elkhart IN 46514

Country : US

Company Phone : 5596966340

Name : Creative Bus Sales - Chino

Address : 14740 Ramona Ave.
Chino CA 91710

Country : US

Company Phone : 9094655528

Name : Hoekstra

Address : 3701 Roger B. Chaffee Blvd.
Grand Rapids MI 49548

Country : US

Company Phone : 8004444104

Name : National Fleet Services - Detroit
Address : 10100 Grinnell Ave
Detroit MI 48213

Country : US
Company Phone : 4409375177

Name : Rush Truck Center - Dallas
Address : 4000 Irving Blvd
Dallas TX 75247

Country : US
Company Phone : 8669054466

Name : Blue Bird Body Company
Address : 402 Blue Bird Boulevard
Fort Valley GA 31030

Country : US
Company Phone : 4783026410

Name : Coach & Equipment
Address : 130 Horizon Park Dr.
Penn Yan NY 14527

Country : US
Company Phone : 3155362321

Name : Creative Bus Sales - Elkhart
Address : 57457 County Rd. 3
Elkhart IN 46517

Country : US
Company Phone : 8889260620

Name : Creative Bus Sales - Mukilteo
Address : 1161 Cyrus Way #101
Mukilteo WA 98275

Country : US
Company Phone : 4256091500

Name : Manning Equipment - Ohio
Address : 5200 Oster Rd.
Sheffield OH 44054

Country : US
Company Phone : 4409491337

Name : Microbird, Inc.

Address : 3600 Rue Girardin
Drummondville 00 J2E0A1

Country : CA

Company Phone : 8194772012

* NR - Not Reported