



10/28/2024

DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

U.S Vehicle Manufacturing and Sales

Orange EV “OEV”
900 N. 69th Street, Kansas City, KS 66102

Affiliated Canadian Sales Company

Orange EV Canada
3278 South Service Rd West, Unit 4
Oakville, ON L6L 0B1, Canada

2. Identification of Involved Vehicles and Affected Components:

Based on production records, we have determined the involved vehicle population to be the vehicles listed in the table below:

<u>Make/Model</u>	<u>Model Year</u>	<u>Production Period</u>
T- Series Pure Electric Terminal Truck	2017 - 2024	2017 - 2024
<u>e-TRIEVER</u>	2023 – 2024	2023 - 2024

3. Total Number of Vehicles Potentially Involved:

T-Series Pure Electric Terminal Truck : 850
e-TRIEVER : 484
Total : 1334

4. Percentage of Vehicles Estimated to Actually Contain the Defect:

100% of all subject vehicles.

5. Description of Problem:



This problem involves certain misinformation for the maintenance and servicing of the subject vehicles. The Emergency Response Guide (“ERG”), operator, maintenance, and service manuals (the “Manuals”) for the subject vehicles contain High Voltage System disablement instructions that misdirects the reader to press the Emergency Stop button in the vehicle cab in order to shut off and lockout the high voltage system for the vehicle. In fact, when the Emergency Stop button is pushed, in the event that the main negative high voltage battery contactor welds closed, the high voltage circuit between all battery boxes remains active unbeknownst to the person pressing the Emergency Stop button if that person lacks further instruction. In order to shut off the system successfully and to confirm an absence of high voltage, a qualified technician with high voltage safety training and the appropriate high voltage personal protective equipment needs to access and disconnect live high voltage cable terminals inside of a sealed box. It is this additional maintenance and repair information that must be added to the subject manuals for them to be accurate. In the absence of this information, this incomplete High Voltage System Emergency Stop button instructions may increase the risk of shock or electrocution to any person needing to service the vehicle and emergency first responders when attempting to disable the high voltage system of the vehicle.

6. Chronology of Events:

June 2024- July 2024

In late June 2024, Orange EV received notification from a customer claiming that by applying the High Voltage System Lockout instructions published in certain of the Manuals, it was not possible to achieve per the Occupational Safety and Health Administration (OSHA) Standard 1940.147: “The control of hazardous energy (lockout/tagout).” That customer requested Orange EV to provide a means to affix a lock to the Emergency Stop button or an ignition that could be locked out. Orange EV conducted a thorough investigation of the High Voltage System Lockout instructions referenced in the Manuals against the requirements listed in the OSHA 1910.147 standard. Through this investigation, it was found that, per OSHA 1910.147, lockout is only possible with an energy isolating device and that push buttons, selector switches and other control circuit type devices are not sufficient energy isolating devices.

August 2024 – Late September 2024

Orange EV conducted an in depth engineering analysis of the low voltage and high voltage systems of the subject vehicles and all devices used to isolate energy. Through this investigation, it was found that the Emergency Stop button of the subject vehicles is a control circuit type device that commands a controller to open the main negative high voltage battery contactor. In the event of a single point failure when the main negative high voltage battery contactor welds closed, the high voltage circuit between all battery boxes remains active with no warning to the person pressing the Emergency Stop button. Thus, contrary to OSHA 1910.147, the emergency stop button on the subject vehicles cannot be used as an energy isolating lockout device.

October 2024

Orange EV conducted in depth investigations of the high voltage disablement instructions and any reference to high voltage lockout in the ERG, operators, maintenance, and service manuals. It was found that the Manuals



contain High Voltage System disablement instructions that misdirects the reader to press the Emergency Stop button in the vehicle cab in order to shut off and lockout the high voltage system for the vehicle. In fact, when the Emergency Stop button is pushed, in the event that the negative high voltage battery contactor welds closed, the high voltage circuit between all battery boxes remains active unbeknownst to the person pressing the Emergency Stop button if that person lacks further instruction.

Based on the results of the above investigations and per OSHA 1910.147, Orange EV determined that the subject vehicles are not capable of High Voltage lockout by applying the existing instructions. The Manuals contain High Voltage System disablement instructions that misdirects the reader to press the Emergency Stop button in the vehicle cab in order to shut off and lockout the high voltage system for the vehicle. In fact, when the Emergency Stop button is pushed, in the event that the negative high voltage battery contactor welds closed, the high voltage circuit between all battery boxes remains active unbeknownst to the person pressing the Emergency Stop button if that person lacks further instruction. To successfully shut off the system and confirm no presence of high voltage, a qualified technician with high voltage safety training and the appropriate high voltage personal protective equipment needs to access and disconnect live high voltage cable terminals inside of a sealed box. Most OEV customers currently service their vehicles with OEV Qualified High Voltage Technicians. While this condition poses no safety risk to the operator of the truck during use, incomplete High Voltage System Emergency Stop button instructions can increase the risk of shock or electrocution to any person needing to service the vehicle and emergency first responders when attempting to disable the high voltage system of the vehicle.

October 24, 2024

Orange EV has decided to conduct a voluntary safety recall campaign to provide all affected owners of the subject vehicles with corrected Manuals eliminating all misleading high voltage system disablement and lockout misleading information.

There have been no incidents or injuries reported.

7. Description of Corrective Repair Action:

All known owners of the subject vehicles will be provided with corrected Manuals eliminating all incomplete high voltage system disablement and lockout information. Additionally, a warning stating, "The High Voltage System on this vehicle is NOT capable of being LOCKED OUT. Always assume the high voltage system is energized. Do not touch any high voltage cables or components", will be added to each document.

8. Recall Schedule

Notifications to owners of the affected vehicles will occur by December 20th, 2024. A copy of the draft owner notification will be submitted as soon as it is available.

9. Distributor Notification Schedule:

Revision B



There will be no Distributor Notifications as Orange EV is the sole Distributor of Orange EV trucks.

10. Manufacturer's Campaign Number:

2024-SRC-01