

Part 573 Safety Recall Report

21V-827

Manufacturer Name : Orange EV
Submission Date : JAN 28, 2022
NHTSA Recall No. : 21V-827
Manufacturer Recall No. : NR

**Manufacturer Information :**

Manufacturer Name : Orange EV
Address : 5710 NW 41st St., Ste. 300
 Riverside MO 64150
Company phone : 2141072

Population :

Number of potentially involved : 252
Estimated percentage with defect : 1 %

Vehicle Information :

Vehicle 1 : 2019-2021 Orange EV T-Series Pure Electric Terminal Truck
Vehicle Type : BUSES, MEDIUM & HEAVY VEHICLES
Body Style : 2-DOOR
Power Train : NR

Descriptive Information : We have discovered that certain Pitman arm bolts may not have been tightened to the correct torque. A loose Pitman arm bolt could cause a failure in the Pitman arm attaching to the steering and result in complete loss of steering.

We believe that the issue is limited to truck produced between Oct/19 to Sept/21, which amounted to approx 200 trucks. This belief is based upon a change in the tools and procedures utilized in tightening this bolt were changed when we moved to our new facility in October 2019.

We are checking a subset of trucks that were deployed prior to the move to the new site in 2019 and if the issue exists there we will review our entire installed base of approx 300 trucks.

Production Dates : OCT 06, 2019 - SEP 08, 2021

VIN Range 1 : Begin : 1Z9TA8EA3KR530077 End : 1Z9TA8EA1MR530033 Not sequential

Description of Defect :

Description of the Defect : The pitman arm bolt may have been under-torqued at manufacture, this would result in the bolt working itself loose and due to vibration and pressure the bolt could be shorn off. Due to this sheered bolt a catastrophic failure of the steering mechanism occurs, resulting a complete loss of steering control. Fortunately, the trucks have a maximum speed of 25 MPH and in some cases are governed to only 18 MPH and operate most of the time (over 95%) on an enclosed yard.

FMVSS 1 : NR

FMVSS 2 : NR

Description of the Safety Risk : Complete loss of steering as the Pitman arm falls away from the steering box.
Description of the Cause : The Pitman arm bolt may have been under-torqued at manufacture.
Identification of Any Warning that can Occur : Little to no warning, but an inspection of the pitman arm prior to use would give a clear indication that failure is imminent

Involved Components :

Component Name 1 : Pitman arm bolt

Component Description : A bolt that holds the pitman arm flush with the steering box manufactured by Shppard

Component Part Number : 1790932K

Supplier Identification :

Component Manufacturer

Name : NR

Address : NR

NR

Country : NR

Chronology :

8/18/21 First failure of pitman arm fastener in field. Issue repaired.

8/30/21 Second Failure of pitman arm fastener in field. Issue repaired.

8/30/21 Engaged Orange EV Engineering group after second failure. Response from Engineering indicates possible root cause of low torque and Production team was not torquing pitman arm fastener. Engineering implemented production change to begin properly torquing fastener during production process.

9/8/21 Failed parts arrived back in KC for Engineering evaluation

9/8/21 – 10/8/21 Multiple meetings with team to determine actions. Orange EV Engineering believes root cause is reverse bending of fastener due to inadequate torque. Could not determine if any vehicles had been properly torqued during production process.

9/15/21 Pitman arm, fastener and gearbox supplier (Sheppard) authorized RMA and opened 8D

9/24/21 Third Failure

10/8/21 Expanded Pitman arm fastener internal discussions began.

Description of Remedy :

Description of Remedy Program : For the trucks sold between 10/2019 and 9/2021 OEV Service Technicians will go to the customer site and tighten the pitman arm bolt to the correct torque rating, according to the following steps:

- a. If the bolt reaches 350 ft. lbs of torque without rotating continue to step 9 (Step 9 is the process to put everything back that has been removed to check the bolt).
- b. If bolt rotates prior to reaching 350 ft. lbs
 - i. and truck has under 200 miles torque bolt to 350 ft. lbs and continue on step 9
 - ii. and truck has over 200 miles remove bolt and inspect Pitman arm. If pitman arm is loose on splines replace pitman arm. Replace bolt and torque to 350 ft lbs. Continue on step 9.

How Remedy Component Differs from Recalled Component : No difference, it is a tightening issue

Identify How/When Recall Condition was Corrected in Production : In September 2021, after the problem was noticed, we instituted new procedures within production to ensure the Pitman arm bolt was properly torqued. In addition, if a vehicle owner remedied this issue prior to the recall notice, then we will reimburse them for up to 4 hours for the repair upon the customer providing proof of the repair and the cost of such repair.

Recall Schedule :

Description of Recall Schedule : We do not have dealers so we have already begun directly correcting the issue on trucks that are inventory/awaiting shipment. We will notify existing customers through a phased customer notification and remedy approach, with a focus on highest concentration of trucks first. Orange EV does not have Dealers

Planned Dealer Notification Date : NR - NR

Planned Owner Notification Date : NOV 18, 2021 - JAN 31, 2022

* NR - Not Reported