



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: RQ 17-001
Date Opened: 04/03/2017
Investigator: Nate Seymour
Approver: Stephen Ridella
Subject: Steering Arm Capscrew Failures

Date Closed: 12/25/2017
Reviewer: Bruce York-B

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: Daimler Trucks North America LLC
Products: 2016 - 2017 Cascadia
Population: 127,674

Problem Description: The capscrews which secure the lower steering arm and tie rod to the steering knuckle may fail without warning.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	1	0	1
Crashes/Fires:	1	2	2**
Injury Incidents:	0	0	0
Fatality Incidents:	1	1	1**
Number of Fatalities:	2	2	2**

** Total eliminates duplicates received by ODI and manufacturer.

ACTION / SUMMARY INFORMATION

Action: RQ17-001 is closed

Summary:

The Office of Defects Investigation (ODI) opened this investigation based on one (1) Vehicle Owner Questionnaire (VOQ) and associated Police Accident Report (PAR) that described a crash where the vehicle had a separated steering linkage at one wheel-end as the result of lower steering arm capscrew failures. It was unknown at the time whether the separation caused the crash or was the result of the crash. Recall 15V-613 corrected an under-torque issue in upper steering arm capscrews on these vehicles. ODI opened this Recall Query to assess the scope and remedy of the 15V-613 recall.

ODI collected the front axle from the crash vehicle for inspection and sent an Information Request Letter (IR) to Daimler Trucks North America (DTNA).

The Vehicle Research and Test Center (VRTC) analyzed the crash truck's front axle. Based on the fracture surfaces of the capscrews and numerous witness marks on the tires, wheels, and vehicle, VRTC determined that the steering linkage separated due to the crash and was not the cause of the crash. However, VRTC noted that the capscrews on the opposite wheel end were at a much lower torque value than specified by the manufacturer.

In DTNA's IR response, they reported one additional crash where a separated steering linkage was observed. DTNA determined the separation was the result of the crash and not the cause of the crash. DTNA had no complaints and all warranty reports were related to the upper steering knuckles and recall 15V-613.

During the investigation ODI received one crash report from a transportation investigator retained by a fleet which involved a similar vehicle and alleged defect. The steering linkage was observed to have separated at the lower knuckle arm capscrews on the driver's side. The passenger side capscrews were found to be at a lower torque value

than specified.

In order to prevent a future assembly defect as identified in recall 15V-613, Detroit Axle, who manufactured the axles in the subject vehicles, made several production process changes to ensure capscrews were properly torqued. On October 14, 2015, the assembly tool was modified to monitor torque and turn of each capscrew. On this date, the tool was also changed to "Lock on Reject." If a bolt was not properly torqued the tool would not release until the operator acknowledged and corrected the defect.

ODI conducted a roadside inspection study to help explain the low torque observed in the crash vehicle. With the help of the Virginia State Police Motor Carrier Enforcement Division ODI inspected thirty-nine (39) trucks and 156 capscrews over a two day period. No trucks were found to have under-torqued capscrews. ODI included some older trucks outside the scope of this investigation to offer additional time in service. One such truck was twelve (12) years old and had nearly 1 million miles. It too, was within specification.

Based on the information collected, this investigation is closed. The agency reserves the right to take further action if warranted.

The ODI reports cited above can be reviewed at:

<http://www-odi.nhtsa.dot.gov/owners/SearchNHTSAID> under the following complaint identification number:
10926527