



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: RQ 14-003
Date Opened: 08/06/2014
Investigator: Peter Kivett
Approver: Frank Borris
Subject: Aerial Fire Apparatus Cable Failure

Date Closed: 12/23/2014
Reviewer: Bruce York-B

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: SUTPHEN CORP., Sutphen Corporation
Products: MY 2000-2012 Sutphen Vehicles with Aerial Fire Apparatus
Population: 155
Problem Description: Cable failures resulting in unintended aerial ladder bucket retraction

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	0	0	0
Crashes/Fires:	0	0	0
Injury Incidents:	2	0	2
Number of Injuries:	6	0	6
Fatality Incidents:	0	0	0
Other*:	3	0	3

***Description of Other:** Media Reports

ACTION / SUMMARY INFORMATION

Action: This Recall Query is closed with a safety recall 14V-718.

Summary:

On May 22, 2013 the Office of Defects Investigation (ODI) opened a Preliminary Evaluation investigation (PE13-017) on Sutphen SPH aerial ladder bucket equipped emergency vehicles for cable failures resulting in unintended bucket retraction. This investigation was closed November 19, 2013 when Sutphen submitted a safety recall 13V-565. At the time of the recall, Sutphen believed the failures were a result of poor maintenance. Sutphen conducted a remedy program where they inspected all of the subject vehicles, repaired any damaged aerial ladder components and trained the owners on the proper maintenance of the equipment. Since the closing of PE13-017, ODI has been made aware (through media reports) of three post recall failures that resulted in 6 injuries. These failures occurred following the implementation of the 13V-565 recall remedy on the subject vehicles.

On August 6th, 2014 ODI opened this Recall Query (RQ14-003) on the same Sutphen Corporation SPH aerial ladder bucket equipped emergency vehicles based on the three additional aerial ladder bucket failures. On September 4th, 2014 an ODI investigator, Sutphen engineers, a Hall County technical representative and County Commissioner conducted an inspection of a failed subject vehicle in Atlanta, Georgia. The Fire truck and aerial device were impounded and secured in the maintenance shop where all parties were able to conduct an inspection of the failed components. The Hall county representatives extended the aerial ladder bucket for the ODI and Sutphen inspectors to take measurements and pictures. Also, the failed cables were laid out on the garage floor for inspection. On October 18th 2014, Sutphen purchased the subject fire truck from Hall County for additional analysis and later decided to conduct an additional Safety Recall.

Sutphen determined the root cause of the unintended retraction of the aerial ladder bucket was a failure of the cables which extend and retract the ladder. Subsequently a field retrofit kit was developed, analyzed, and tested to ensure

that in-service aerials could be restored to a safe operating configuration. This is accomplished by increasing both the size and strength of the cables and limiting the maximum hydraulic pressure in the extension system. This new modification kit will update the field units to meet Sutphen's standards and exceed NFPA requirements.

This investigation is closed with safety recall 14V-718.