



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA 11-001
Prompted by:
Date Opened: 01/05/2011 **Date Closed:** 04/08/2015
Investigator: Chris Lash **Reviewer:** Jeff Quandt
Approver: Otto Matheke
Subject: Brake line corrosion failure

MANUFACTURER & PRODUCT INFORMATION

Manufacturer: General Motors LLC
Products: 1999-2003 GM C/K pickup trucks and SUVs in Salt Belt states
Population: 2,038,504
Problem Description: Brake line corrosion may result in rupture during brake application, resulting in reduced brake effectiveness.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	2,514	234	2702**
Crashes/Fires:	79	23	88**
Injury Incidents:	17	3	20
Number of Injuries:	17	3	20
Fatality Incidents:	0	0	0
Other*:	0	238	238

*Description of Other: Warranty claims related to corroded brake line leaks.

** Total eliminates duplicates received by ODI and manufacturer.

ACTION / SUMMARY INFORMATION

Action: This Engineering Analysis has been closed.

Summary:

On January 11, 2011, ODI opened EA11-001 to investigate allegations of premature brake line corrosion failure in model year (MY) 1999 through 2003 General Motors (GM) full-size pickup trucks and sport utility vehicles sold or registered in the following region of the United States that NHTSA has viewed as salt states for investigations of corrosion related issues: Connecticut, Delaware, District of Columbia, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia and Wisconsin. The subject vehicles represent the first five MY's of GM's GMT800 platform production, of which approximately 2,038,504 vehicles were sold in salt states (the subject vehicles). The GMT800 platform includes the following vehicles: 1999-2007 Chevrolet Silverado and GMC Sierra 1500, 2500 and 3500 series pick-up trucks; 2000-2006 Chevrolet Suburban, Chevrolet Tahoe and GMC Yukon sport utility vehicles; and 2002-2006 Cadillac Escalade and Chevrolet Avalanche sport-utility vehicles. General Motors produced a total of approximately 10,427,062 GMT800 vehicles for sales in the United States, including almost 5 million that were sold in salt states. Although there are over 60 different brake pipe routing configuration used in GMT800 vehicles, with the exception of the rear crossover pipes in MY 200x-2007 vehicles that changed from rear disc to drum brakes, all of the vehicles use brake pipes from the same supplier with a common double-wall, brazed steel pipe design with a combination of hot dip Zinc-Aluminum corrosion protection coating and Aluminum paint outer layer known in the industry as AIGal (ASTM-B750).

ODI analysis of field data regarding GMT800 vehicles identified a total of 3,645 complaints of brake pipe corrosion failures, including 107 alleging crashes, and 40 injuries. Though only 20% of total GMT800 production, due to age

and region the subject vehicles account for a disproportionate share of the failure experience; with 2,702 of the complaints (75%), 88 of the crashes (82%) and 20 of the injuries (50%) reported in those vehicles. Analysis of the complaints showed strong correlations to vehicle age and region. For vehicles with less than 8 years of service, the complaint rates were minimal for all regions. In the salt states the failure rates begin to climb as the vehicles advance in age, particularly in the Northeast corner of the United States. The complaint rates in the salt states go from less than 0.1 incident per thousand vehicles (IPTV) at 7 years in service to over 1.0 IPTV after the 12th year of service for the subject pickup trucks and utility vehicles. Most of the failures reported to ODI occurred in vehicles with more than 10 years in service. ODI's investigation did not identify any specific defect conditions that were causing or contributing to the brake pipe failures. Nor did the analysis isolate the problem to any subject vehicle sub-populations when analyzed by vehicle type or production range. The investigation found that vehicles experiencing brake pipe corrosion failures were likely to have general patterns of excessive corrosion on the majority of the brake pipe assembly and appear to be occurring due to expected wear out for the brake pipe coating material used in the subject vehicles and the environmental conditions in severe corrosion states.

A safety-related defect has not been identified at this time. Accordingly, this investigation is closed. The closing of this investigation does not constitute a finding by NHTSA that a safety-related defect does not exist. The agency will monitor this issue and reserves the right to take further action if warranted by the circumstances. For additional information, see the closing report in the investigation document file.

EA11-001 close VOQ list

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