



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA04-026
 Prompted By: Consumer Complaints
 Date Opened: 09/09/2004 Date Closed: 08/02/2005
 Principal Investigator: Chris Lash
 Subject: overheated fuel pump wiring

Manufacturer: General Motors Corp.
 Products: 2000-2001 Suburban, Yukon XL
 Population: 349,747

Problem Description: the fuel pump wiring may overheat, resulting in fuel leakage from the fuel pump electrical connector, engine stall or a no-start condition.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	45	577	622
Crashes/Fires:	0	0	0
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	43	564	607

*Description of Other: complaints involving recalled population, including 82 fuel leak and 265 engine stall.

Action: this Engineering Analysis is closed. Recall 05V-155.

Engineer: Christopher Lash *ChL*
 Div. Chief: Jeffrey L. Quandt
 Office Dir.: Kathleen C. DeMeo

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Summary: In a letter dated April 14, 2005, General Motors (GM) notified ODI that it had identified a defect related to motor vehicle safety in approximately 316,508 model year (MY) 2000-01 1500 series Chevrolet Suburban and GMC Yukon XL vehicles (recall 05V-155). GM determined that some of these vehicles were equipped with fuel module reservoir assemblies (MRAs) that contain fuel pump wires and/or connectors that may overheat under certain operating conditions. According to GM, fuel pump wires that overheat may result in one or more conditions that present risks to motor vehicle safety: (1) fuel leakage from the MRA pass-through connector if the overheating produces a hole in the plastic connector; (2) engine stall if wiring exposed by the overheating shorts to ground and causes the fuel pump fuse to blow; or (3) inaccurate fuel level readings if overheated wiring is shorted to the fuel level sender card. GM's analysis identified the cause of the overheated wiring as a high-resistance condition in the MRA connector contacts due to fretting corrosion that may develop over time. GM determined that the corrosion is caused by movement between the contact surfaces and that such movement is primarily influenced by chassis and fuel tank vibration characteristics. GM's testing found that the fuel tank vibration characteristics of the recalled MY 2000-01 1500-series vehicles were significantly greater than in other GM vehicles equipped with the same MRA connectors. These vehicles had the highest rate of related fuel leak and stall complaints; and a recent survey conducted by GM found evidence of MRA wiring over-heating in almost one-third of the 1500-series vehicles inspected.

Other vehicles equipped with the subject MRA connector and evaluated during this investigation include approximately 33,000 MY 2000-01 2500-series Suburban and Yukon XL vehicles, which fall within the scope of EA04-026, and peer populations of short wheelbase Yukon and Tahoe utility vehicles and full-size Silverado and Sierra pickup trucks. These vehicles are not included in recall 05V-155 for the following reasons: (1) these vehicles are equipped with fuel tanks with significantly less vibration at the MRA interface than the recalled vehicles; (2) the potential for fuel leakage is substantially lower in the pickup trucks and short-wheelbase utility vehicles due to differences in fuel tank configuration and no incidents of fuel leakage due to overheated wiring were verified in these vehicles; (3) there have been only three potentially related complaints of fuel leakage associated with the overheated wiring condition in the 2500-series long-wheelbase utility vehicles; and (4) no evidence of overheated wiring was found in the 2500-series Suburban and Yukon XL vehicles and pickup trucks inspected by GM in its vehicle survey efforts and the rate found in the short-wheelbase utilities was lower than the recalled vehicles by an order of magnitude.

ODI will continue to monitor the experience in the 2500 series MY 2000-01 long-wheelbase utility vehicles. The closing of this investigation does not constitute a finding by NHTSA that no safety-related defect exists for the 2500 series vehicles. The Agency reserves the right to take further action if warranted by a change in circumstances.

ChL
8-5-05