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

ODI RESUME

Investigation: EA06-006
Prompted By: PE05-057
Date Opened: 03/21/2006
Principal Investigator: Derek Rinehardt
Subject: Volvo XC90 Battery Cable Failures

Manufacturer: Volvo Cars of N.A. LLC.
Products: MY 2005 Volvo XC90
Population: 39,672 (estimated)

Problem Description: Alleged positive battery cable failures leading to engine stalls or, in so ne instances, fire.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	0	72	72
Crashes/Fires:	0	5	5
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	27	27

*Description Of Other: warranty claims

Action: An Engineering Analysis is being opened.

Engineer: *Derek Rinehardt* DR 3/22/06 Date: *03/21/2006*
Div. Chief: *Jeffrey L. Quandt* Date: *03/21/2006*
Office Dir.: *Kathleen C. DeMeter* Date: *03/21/2006*

Summary: The Office of Defects Investigation (ODI) opened a Preliminary Investigation (PE05-057) based on Early Warning Reporting data submitted to ODI by Volvo. The data contained reports of thermal failures of the battery positive cable in a number of model year (MY) 2005 Volvo XC90 vehicles. The reports described no crank conditions and, in many of the reports, severe overheating of the cable. Some of the reports also alleged that smoke was observed coming from overheated cables.

On November 17, 2005, Volvo notified ODI that it had identified a safety defect in the positive battery cables in approximately 9,000 MY 2005 XC90 vehicles with six cylinder engines that could cause it to become grounded to the starter solenoid, which could result in a fire. Volvo recalled the affected vehicles to address the potential ground condition (NHTSA Recall #05V-529).

During PE05-057, Volvo also provided ODI with information regarding three other issues related to the battery cables/terminals in MY 2005 XC90 vehicles:

1) Undertorqued positive battery cable attaching fasteners to the starter (applicable to V8 engines only). There were a total of 48 vehicles identified in complaints and field reports related to this condition, including 2 that alleged engine stall and 13 reports of melted parts in the engine compartment (many of the vehicles identified in field reports were discovered during torque checks of dealer inventory following an arcing/overheating incident). The subject population is 7,317 vehicles built with V8 engines.
2) The jack handle may be critically mispositioned against the positive battery cable/post, allegedly causing fires in some vehicles (applicable to all XC90 vehicles). Four of the five reports of fire related to this condition are due to jack handles mispositioned during the vehicle manufacturing process. The fifth report is related to a jack handle being mispositioned after a battery was reinstalled in the vehicle. Volvo has issued a bulletin warning its dealers of the condition. The affected population is 39,672 vehicles.
3) A potential chafing condition of the positive battery cable to a sharp edged sheet metal flange in the rear storage compartment was identified in 11 field reports which included 19 vehicles (applicable to all XC90 vehicles). None of the vehicles identified in the reports experienced a cable failure/short. The subject population is 39,672.

The investigation is being upgraded to an engineering analysis to further assess the scope, frequency and potential safety consequences of each of these issues.

DR 3/22/06