



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

## ODI RESUME

Investigation: EA 05-021  
 Prompted By: PE05-041  
 Date Opened: 12/06/2005      Date Closed: 12/12/2006  
 Principal Investigator: Stephen McHenry  
 Subject: Throttle Control Malfunction

Manufacturer: Volvo Cars Of N.A. LLC.  
 Products: MY 99-02 Volvo C70/S60/S70/S80/V70/V70XC equipped with ETM  
 Population: 331,301

Problem Description: The electronic throttle module (ETM) may fail resulting in a loss of throttle control.

### FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	992	14,639	15,631
Crashes/Fires:	12	3	12
Injury Incidents:	1	0	1
# Injuries:	1	0	1
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	82,478	82,478

\*Description of Other: Warranty claims before March 16, 2006. Mfr complaints include field reports and tech hotline reports.

Action: This Engineering Analysis has been closed. Recall 06V-441.

Engineer: Stephen McHenry *SMH*  
 Div. Chief: Jeffrey L. Quandt  
 Office Dir.: Kathleen C. DeMeter

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**SUMMARY:** On November 14, 2006 Volvo submitted a defect information report to NHTSA concerning the ETM in model year (MY) 1999 through 2001 Volvo models (not including the S40 and V40), MY 2002 S60 and V70 with naturally aspirated engines and MY 2002 C70s. According to Volvo, "a combination of throttle positioning sensor irregularities, a dirty throttle housing and/or inefficient software calibration may cause a warning lamp to light and the subsequent onset of limp home modes." Volvo further stated that, "this resulted in a high number of these vehicles going into limp home mode without need." Volvo indicated that this was the most severe consequence of an ETM fault in the subject vehicles. The recall remedy is a software upgrade introduced by Volvo on March 16, 2006 in a customer satisfaction program. At the time of the notification 161,202 vehicles of the population of 331,301 had already had the software uploaded and were therefore not included in the population count of the recall.

ODI's analysis of complaints to ODI and Volvo, Volvo field reports and warranty data found that ETM failure could result in (1) engine stall; (2) mechanical limp mode; (3) lunging forward during low-speed driving maneuvers; and (4) faltering during high speed merges or when crossing traffic. ODI identified 12 crashes related to ETM failure, with 6 caused by lunging incidents, 3 caused by stalling incidents, 2 caused by mechanical limp mode and 1 from the faltering condition. ODI's analysis of complaint data and information obtained from consumer interviews identified 1,289 incidents with safety related consequences (389.1 per 100,000 vehicles), including 479 involving engine stall (144.6 per 100,000 vehicles) and 729 involving mechanical limp mode (220.0 per 100,000 vehicles). ODI's analysis of warranty claim narrative text shows at least 14,965 warranty claims with codes indicating an ETM fault resulting in vehicle operation in mechanical limp mode (4.5% of the subject vehicles).

Volvo's recall addresses ODI's safety concerns with ETM failures. ODI will continue to monitor the subject vehicles to determine if additional action is required. This engineering analysis is closed.

FAX 12/13/06  
*SMH*