



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

# ODI RESUME

**Investigation:** PE 10-025  
**Date Opened:** 07/20/2010  
**Investigator:** Peter Ong  
**Approver:** Richard Boyd  
**Subject:** Central Electronic Module Failure

**Date Closed:** 11/22/2010  
**Reviewer:** Scott Yon

## MANUFACTURER & PRODUCT INFORMATION

**Manufacturer:** VOLVO CARS OF N.A. LLC.  
**Products:** MY 2004-2005 Volvo XC90  
**Population:** 92,101

**Problem Description:** Intermittent Central Electronic Module failures leading to various electrical system malfunctions, including exterior and interior lighting, wipers functions and loss of engine power.

## FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
<b>Complaints:</b>	21	964	985
<b>Crashes/Fires:</b>	0	0	0
<b>Injury Incidents:</b>	0	0	0
<b>Fatality Incidents:</b>	0	0	0
<b>Other*:</b>	0	912	912

\*Description of Other: Warranty claims related to possible CEM failures

## ACTION / SUMMARY INFORMATION

**Action:** Close this Preliminary Evaluation

### Summary:

Volvo acknowledged a problem affecting some subject vehicles involving water seepage into the plenum box area in the engine compartment. When this occurs water may enter into the interior / passenger compartment and track along the wiring harness for the Central Electronic Module (CEM), the device that controls many of the vehicle's electrical functions including wiper operation, lighting, and transmission operation. If the water reaches the CEM connector electrical faults may result. In response to such faults the CEM, a microprocessor controlled device, will attempt to reset by temporarily shutting down (for 100 milliseconds, or 0.1 seconds) and restarting; this effects various CEM functions including the instrument panel (IP) display, gauges, wipers and also the transmission gear (if it is in the overdrive range).

During the reset owners may experience temporarily loss of the IP displays and an abnormal 'jerking' in the transmission/drivetrain. If the problem persist for 6 consecutive restart attempts, the CEM will enter a 'Limp Home' mode that disables non-essential electrical functions yet maintain safety critical functions such as low-beam headlights, low-speed wiper operation, brake lights, and non-overdrive transmission operation. Warning and error messages will also be illuminated in the IP display.

Consumers reported experiencing conditions consistent with CEM resetting and the limp mode operation in their reports to both ODI and Volvo. No reports or allegations of crash or injury associated with possible CEM failures have been reported by Volvo or otherwise identified by ODI.

Volvo revised the design of the wiring grommet (sealing device) and the plenum cover starting in May 2005 and October 2005 production dates respectively, the occurrence of the condition effectively ended after these changes. A

technical service bulletin (TNN 37-35) has been published to diagnose and repair earlier production vehicles using the improved wiring grommet and/or new plenum cover.

A safety-related defect has not been identified at this time and further use of agency resources does not appear to be warranted. 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.