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13V-592  
(5 pages) - Revised

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Adam Kopstein

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Manager, Product Safety & Compliance

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December 03, 2013

Ms. Nancy Lewis  
Associate Administrator for Enforcement  
National Highway Traffic Safety Administration  
1200 New Jersey Avenue SE, Room W45-306  
Washington, DC 20590

Subject: Defect Information Report

Dear Ms. Lewis,

Pursuant to Part 573 of Title 49 of the Code of Federal Regulations, Volvo Cars of North America, LLC (Volvo) submits the attached supplemental information to our November 22, 2013 defect information report for Volvo Recall R29436 Oil Pressure Sensor Software Upgrade.

If you have any questions related to this matter, please feel free to contact me at my above mentioned phone number, or Larry Mihok of my staff at 201-768-7300, extension 7336.

Sincerely yours,

Adam Kopstein  
Manager, Product Safety & Compliance Office  
VOLVO CARS OF NORTH AMERICA, LLC.

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49 CFR PART 573 – DEFECT INFORMATION REPORT

Pursuant to Part 573 of Title 49 of the Code of Federal Regulations, Volvo Cars of North America, LLC (Volvo) submits the following information concerning a non - compliance recall program that Volvo Car Corporation (Volvo Cars) is voluntarily initiating:

573.6 (c) 1: Manufacturers Name

Vehicle Manufacturer:	Designated Agent:
Volvo Car Corporation	Volvo Cars of North America
Gothenburg, Sweden	Rockleigh, N.J. 07647

573.6 (c) 2: Identification of Vehicles Involved

Certain Model Year 2011-2012 S60 vehicles with 5 cylinder engines listed below are involved in this non-compliance recall.

The inclusive dates of manufacture and VIN ranges are listed in the chart below.

MODEL	MODEL YEAR	PRODUCTION DATES	CHASSIS RANGE
S60	2011 – 2012	06/22/2010 – 05/14/2012	001148 - 146365

573.6 (c) 2: (iv) Manufacture's name of Affected Component and Country of Origin

Volvo software

573.6 (c) 3: Total number of Vehicles Potentially Containing the Defect

A total of 30,929 model year 2011 – 2012 S60 vehicles equipped with 5 cylinder engines in the U.S. and its territories are potentially affected.

573.6 (c) 4: Percentage of affected vehicles that contain the defect:

100%

573.6 (c) 5: Description of the deviation

On certain Model Year 2011 - 2012 S60 vehicles equipped with 5 cylinder (VIN Code 62) B5254T5 engines, the engine oil pressure sensor is not activated in the vehicles software. If the engine oil pressure is too low, there will be no warning displayed in the Driver Information Module (DIM).

573.6 (c) 6: Chronology of Events

02/06/13:

Volvo Cars Sweden received the following technical report: US 357248.



After a vehicle service, the driver drove the vehicle 35 miles when she started to hear engine noise. The car was towed to the dealer and the technician realized that he had forgotten to refill oil in the engine. The vehicle gave no warning that there was a lack of oil pressure in the engine. Vehicle analysis showed that there was no communication between the oil pressure sensor and the DIM (Driver Information Module). After refilling oil and starting the engine, an engine noise was still present. The engine was replaced.

06/28/13:

Volvo Cars Sweden received the following technical report: US 368483. Customer drove 400 miles after a vehicle service when the engine began to make noise. Customer indicated that no warning messages were visible. Vehicle analysis showed a lack of oil in the engine and no communication between the oil pressure sensor and DIM. The engine was replaced.

07/23/13:

Volvo Cars Sweden received the following technical report: US 371149. Customer drove the vehicle when she first heard engine noise and then noticed that the vehicle started to stall. No low oil pressure message was displayed for the customer. The car was towed to the dealer where the engine was replaced. The dealer stated that this issue was due to the fact that the technician had forgotten to refill oil during the most recent vehicle service repair. The customer had driven the car for approximately 2 hours when the engine started to make noise.

09/17/2013:

Volvo Cars Sweden contacted Volvo Cars of North America to gather information in order to further understand the potential deviation. The three above reports were confirmed to be a deviation of missing warning signs of low oil pressure in the DIM.

10/01/13:

Based on Volvo Cars internal software analysis, Volvo Cars requested the ECM (Engine Control Module) supplier to investigate if there was an issue with their ECM software.

10/08/13:

The supplier analysis showed that the reason behind this deviation was an error in the vehicle's Car-Configuration file located in the CEM (Central Electronic Module), not the ECM software. The indication pointed to this file not being configured for the engine oil pressure sensor mounted in the engine.

10/10/13:

A prototype CEM software is tested and used to further establish that the reason behind this deviation is the incorrect Car-Configuration file. Proper CEM Software development is started.



10/17/13:

Volvo Cars centrally received the following valid technical report: US 378157. The car came in to the dealer with engine noise. Vehicle was confirmed with low oil level in the engine without giving any warning to the driver. The engine was replaced.

10/31/13:

A meeting was held according to the Volvo Car Critical Concern Action Process at the Current Model Quality department. A first preliminary evaluation of this deviation is performed and directed to the Current Model Quality Pre-Meeting as a potentially customer critical issue.

11/05/13:

Current Model Quality Pre-Meeting reviews the deviation and decides to elevate the issue to the Critical Concern Management Team as a potential customer critical issue based on the fact that the deviations most likely occurred after human errors from service technicians in the four cases reported to Volvo Cars centrally.

11/08/13:

A risk assessment analysis of this deviation is performed by responsible design department and concludes that this pertains to customer satisfaction.

11/12/13:

Critical Concern Management Team (CCMT) decided to start preparations for a Quality Service action.

11/15/13:

During the preparations of the Quality Service action it was discovered that the affected vehicle population was in non-compliance. 15:00 CET an extra CCMT was summoned for Monday 11/18/13 at 12:00 pm.

11/18/13:

CCMT considers this deviation to be a non-compliance issue and decides to start preparations for a Recall action and a Part 573 submission.

11/18/13:

A Service Product software is released. This software contains an updated Car Configuration file with correct setting, i.e. ensuring correct communication between oil pressure sensor and Driver Information Module.

11/19/13:

Volvo Cars centrally received the following valid technical report: US 380836. Customer came in to the dealer and stated that the engine was making a knocking noise and that the check engine light had come on the day before. The engine was confirmed to be low on oil. No warning related to low oil pressure had been displayed to the customer. The engine was replaced.



573.6(c) (7): Information Used in Determination of a Noncompliance

Failure to comply with the following requirements:

FMVSS 101 Controls and displays sections S5 and S5.2.1.

Activities and Testing

The following steps and testing were performed to determine the conditions above described:

10/08/13: Test plan established. Software development and vehicle testing is planned.

10/10/13: A prototype CEM software is tested and used to further establish that the reason behind this deviation is the incorrect Car-Configuration file.

Proper CEM Software development is started.

11/14/13: In-car testing completed.

11/18/13: Test of CEM SW completed.

573.6 (c) 8 (i): Program for Remedy of Defect

The vehicles concerned will have a software upgrade.

573.6 (c) 8 (ii): Estimated Dates of Notifications to Dealers and Owners

A retailer Information package will be sent to Volvo retailers on 12/03/13. The estimated date to complete sending owner notification letters is December 31, 2013.

573.6 (c) 10: Copies of Notices, Bulletins, etc.

The complete Retailer Information package will be sent to RMD on 12/03/13 when it is estimated to be sent to dealers. We are currently working on a draft copy of the owner notification letter and it will be sent to the agency shortly.

573.6 (c) 11: The Manufacturer's Campaign Number

Volvo Cars has assigned recall campaign number R29436 to this recall.