



May 1, 2013

**VIA EXPRESS MAIL**

Mr. Bruce York, Chief  
Medium and Heavy Duty Vehicle Division  
Office of Defects Investigation  
U.S. Department of Transportation  
National Highway Traffic Safety Administration  
1200 New Jersey SE  
Washington, D.C. 20590

Re: **PE13-002**  
**NVS- 214kmb**

Dear Mr. York:

On behalf of Volvo Trucks North America, I am responding to the questions presented in your letter dated February 28, 2013.

Information that is considered to be confidential business information has been removed and sent to NHTSA's Office of Chief Counsel. We have put a place holder where confidential business information has been removed and cited the document name for your reference.

Please feel free to give me a call if you have any questions

With Best Regards,

A handwritten signature in black ink, appearing to read "Tim LaFon", with a long horizontal line extending to the right.

Tim L. LaFon  
Director, Regulatory Affairs  
Telephone: (336) 393-2233  
Fax: (336) 393-2444  
Email: [timothy.lafon@volvo.com](mailto:timothy.lafon@volvo.com)

1. State, by model and model year, the number of subject vehicles Volvo has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Volvo, state the following:
  - a. Vehicle identification number (VIN);
  - b. Make;
  - c. Model;
  - d. Model Year;
  - e. I-Shift transmission model number, design version, electronic control module part number, software version and optional features installed as original equipment;
  - f. Engine model number and power output;
  - g. Date of manufacture;
  - h. Date warranty coverage commenced; and
  - i. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Response: The following production table shows the total number of *subject vehicles* manufactured for sale or lease in the United States.

MODEL	MODEL YEAR						Grand Total
	2007	2008	2009	2010	2011	2012	
VAH					1	6	7
VH		6	18	34	44	52	154
VN	6	655	1310	1138	2000	5261	10370
VT		12	23	1			36
Grand Total	6	673	1351	1173	2045	5319	10567

The specific details requested are provided in the enclosed disc in the file named Production Data. With regards to item e, portions are covered in other questions and therefore are not provided in the table.

2. State the number of each of the following, received by Volvo, or of which Volvo is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:
  - a. Consumer complaints, including those from fleet operators;
  - b. Field reports, including dealer field reports;
  - c. Reports involving a crash;
  - d. Property damage claims;
  - e. Third-party arbitration proceedings where Volvo is or was a party to the arbitration; and
  - f. Lawsuits, both pending and closed, in which Volvo is or was a defendant or codefendant.

Response:

Category	Total Number of Reports
a. Consumer complaints	1
b. Field Reports	155
c. Reports Involving a crash	0
d. Property Damage Claims	0
e. Third Party Arbitration	0
f. Lawsuits	0

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:
- Volvo's file number or other identifier used;
  - The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
  - Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
  - Vehicle's VIN;
  - Vehicle's make, model and model year;
  - Vehicle's mileage at time of incident;
  - Incident date;
  - Report or claim date;
  - Whether a crash is alleged;
  - Whether property damage is alleged;
  - Number of alleged injuries, if any;
  - Number of alleged fatalities, if any;
  - The assessment of a Volvo dealer of the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle (if there was no examination of the vehicle by a dealer, so state; if a dealer examined the vehicle and did not identify the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle, so state); and
  - Volvo's assessment of the cause or factors contributing to the alleged incident(s) in the subject vehicle (if Volvo has not and has never identified the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle, so state).

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Response: The specific details requested are provided in the enclosed disc in the file named Request Number Two Data.

For item c, owner names, address, and contact numbers are to be considered confidential and are not to be disclosed.

4. Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method Volvo used for organizing the documents.

Response: Volvo has included the information in the enclosed disc in the file named Question 4 and has organized the information in the same format as Volvo uses for reporting of non-dealer field reports as prescribed by 49 CFR 579 Subpart C.

5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by Volvo to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign. Separately, for each such claim, state the following information:
- Volvo's claim number;
  - Vehicle owner or fleet name (and fleet contact person) and telephone number;
  - VIN;
  - Repair date;
  - Vehicle mileage at time of repair;
  - Repairing dealers or facility's name, telephone number, city and state or ZIP code;
  - Labor operation number;
  - Problem code;
  - Replacement part number(s) and description(s);
  - Concern stated by customer;
  - Comment, if any, by dealer/technician relating to claim and/or repair;

- l. The assessment of a Volvo dealer of the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle (if there was no examination of the vehicle by a dealer, so state; if a dealer examined the vehicle and did not identify the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle, so state); and
- m. Volvo's assessment of the cause or factors contributing to the alleged incident(s) in the subject vehicle (if Volvo has not and has never identified the actual or likely cause or factors contributing to the alleged incident(s) in the subject vehicle, so state).

Provide this information in Microsoft Access 2000, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table which provides further details regarding this submission.

Response: The following table shows a count of the total number of warranty claims; extended warranty claims; claims for goodwill services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign, by model and model year on *subject vehicles* manufactured for sale or lease in the United States.

MODEL	MODEL YEAR						Grand Total
	2007	2008	2009	2010	2011	2012	
VH				2			2
VN	1	67	74	28	6	7	183
Grand Total	1	67	74	30	6	7	185

Detailed information for each such claim is provided in the enclosed disc in the file named Warranty Data.

6. Describe in detail the search criteria used by Volvo to identify the claims identified in response to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by Volvo on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that Volvo offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.

Response: For the *subject vehicles*, all warranty claims were identified for function group 4000 as a first step. Further refinement was done by looking at the function group descriptions within the 4000 group to identify function group codes that relate to the subject of the NHTSA Inquiry. After this further refinement, all remaining claims were read to determine relevance to the NHTSA Inquiry, which resulted in identification of 185 claims that may be related.

The warranty period for the clutch on the *subject vehicles* is 36 months, or 300,000 miles, or 7,500 operating hours, whichever comes first, for Standard Normal Duty; 36 months, or 250,000 miles, or 6,250 operating hours, whichever comes first, for Standard Heavy Duty; and 12 months, or 100,000 miles, or 3,250 operating hours, whichever comes first, for Standard Severe Duty.

The warranty period for the transmission on the *subject vehicles* is the same as the clutch with the exception of the Standard Normal duty where in applications where the engine torque is less than or equal to 1,750 ft/lb, the warranty period is 60 months, or 750,000 miles, or 15,000 operating hours, whichever comes first; and for applications where the engine torque is greater than 1,750 ft/lb, the warranty period is 36 months, or 500,000 miles, or 12,500 operating hours, whichever comes first.

7. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, that Volvo has issued to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that Volvo is planning to issue within the next 120 days.

Response: There are three Service Programs that may be related. These are SP432-024 and SP432-026, which both involve removing a Redundant Brake Pedal Micro Switch. The switch provided a second signal to disengage the clutch.

Also, SP413-001 Clutch Control Actuator Failure, which involved new software that enables the Transmission Electronic Control Unit to identify and respond to air leaks that may potentially affect transmission performance.

Copies of the Service Programs are included in the enclosed disc in the file named Question 7.

8. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Volvo. For each such action, provide the following information:
  - a. Action title or identifier;
  - b. The actual or planned start date;
  - c. The actual or expected end date;
  - d. Brief summary of the subject and objective of the action;
  - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and
  - f. A brief summary of the findings and/or conclusions resulting from the action.

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

Response: There was a test done by the Director of Regulatory Affairs with the support of the Group Trucks Technology Electrical Engineering department on Jan 30, 2013 to simulate loss of the signal that disengages the clutch. The primary purpose of the test was to get a better understanding of the behavior of the vehicle when the clutch does not disengage.

In late April, an assessment was done by a team assigned to evaluate the reported concern and to assist in responding to NHTSA's inquiry with a focus on the removal of the redundant brake pedal micro switch.

The information requested in items a through f and all associated documents are provided in the enclosed disc in the file folder named Question 8.

9. Describe all modifications or changes made by, or on behalf of, Volvo in the design, material composition, manufacture, quality control, supply, or installation of any I-Shift transmission components (including associated wiring, sensors, electronic control modules and software), from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:
  - a. The date or approximate date on which the modification or change was incorporated into vehicle production;
  - b. A detailed description of the modification or change;
  - c. The reason(s) for the modification or change;
  - d. The part number(s) (service and engineering) or software version number(s) of the original component or software, the part description (including acronyms), and the supplier;
  - e. The part number(s) (service and engineering) or software version numbers(s) of the modified component, and the supplier;

- f. Whether the original unmodified component or software version was withdrawn from production and/or sale, and if so, when;
- g. When the modified component or software version was made available as a service component or service software reflash/ reprogram; and
- h. Whether the modified component or software version can be interchanged or reprogrammed with earlier production components.

Also, provide the above information for any modification or change that Volvo is aware of which may be incorporated into vehicle production within the next 120 days.

Response: The information requested is included in the enclosed disc in the file named Question 9. All information on changes made is included regardless of whether they may or may not be related to the alleged defect.

10. State the number of each of the following that Volvo has sold that may be used in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (*including the cut-off date for sales, if applicable*):
  - a. Clutch Valve Unit (CVU);
  - b. Concentric Clutch Actuator (CCA);
  - c. Brake Pedal Position Signal Switch and
  - d. Any kits that have been released, or developed, by Volvo for use in service repairs to the subject components/ assemblies described above in "a" through "c."

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Volvo is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Response: The information requested is included in the enclosed disc in the file named Question 10.

11. Provide ODI with access to I-Shift transmission diagnostic and service information via the Trucks Dealer Portal ([www.trucksdealerportal.com](http://www.trucksdealerportal.com)) by producing a username and password to log in to the subject information system, or by some other comparable means.

Response: Volvo is respectfully denying NHTSA's request for access to the Truck's Dealer portal, but will provide diagnostic information in paper format to NHTSA to assist NHTSA in their investigation.

12. Describe the manner in which the wiring harness from the I-Shift transmission gear lever selector to the I-Shift transmission electronic control module is routed and secured using text and pictorial descriptions. In addition, describe all modifications or changes made by, or on behalf of, Volvo in the design, material composition, manufacture, quality control, supply, or installation of the subject wiring harness.

Response: The information requested is included in the enclosed disc in the file named Question 12.

13. Describe the potential and/or actual consequences of the wiring harness from the I-Shift transmission gear lever selector to the I-Shift transmission electronic control module chaffing and/or short circuiting. Provide Volvo's assessment of the vehicle operator's ability to mitigate the alleged defect condition as it is occurring, in the event the subject wiring harness has been compromised.

Response: The issue that prompted the service bulletin was associated with Volvo finding that the cable was incorrectly routed on certain vehicles. The bulletin was released as a proactive measure. Volvo is not aware of this causing an adverse safety-related concern.

14. Furnish Volvo's assessment of the alleged defect in the subject vehicle, including:

a. The causal or contributory factor(s);

Response: Volvo believes that the primary contributor may be associated with removal of the redundant brake pressure switch that was used to provide a second signal the clutch to disengage when the brake pedal is pressed. The switch removed was an electric switch (on/off) where the one left is a pneumatic switch.

b. The failure mechanism(s);

Response: Loss of signal to tell the clutch to disengage

c. The failure mode(s);

Response: Clutch does not disengage or abruptly disengages just before the vehicle comes to a complete stop.

d. The risk to motor vehicle safety that it poses;

Response: Volvo has received no reports of any vehicle crashes, property damage claims, or injuries. This condition does not prevent the transmission from downshifting. Therefore, Volvo believes that the risk to motor vehicle safety is limited. This condition would only exist if the brake pedal pressure switch fails to provide the signal to disengage the clutch.

e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring;

Response: Inside the vehicle, the driver would feel that the clutch is not disengaging or that it is abruptly disengaging just before the vehicle stops. This is supported by the information provided in questions 2 and 5, where many of the claims and reports state that the driver feels that the clutch is not disengaging or is abruptly disengaging.

f. What actions the vehicle operator might take to mitigate the alleged defect condition as it is occurring; and

Response: Manually shift the transmission to neutral.

g. The reports included with this inquiry.

Response: Volvo was not provided any reports with this inquiry.