



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

JUL 28 2010

1200 New Jersey Avenue SE.
Washington, DC 20590

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Adam Kopstein, Director
Regulatory and Environmental Affairs
Volvo Cars of North America, Inc.
1 Volvo Drive, Building B
Rockleigh, NJ 07647

NVS-212pco
PE10-025

Dear Mr. Kopstein:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened a Preliminary Evaluation (PE10-025) to investigate allegations of electrical malfunctions in XC90 vehicles manufactured by Volvo, and to request certain information.

This office has received 21 consumer complaint reports on model years 2004-2005 Volvo XC90 vehicles alleging intermittent malfunctions of various electrical systems such as the headlights, brake lights, turn signal lights, hazard lights, wipers and the instrumentation cluster lighting. The failures are occurring at roadway and highway speeds. Four complainants referenced the loss of engine power along with the loss of lighting functions. Some complainants specifically indicated that when the central electronic module (CEM) was replaced, it corrected the problem. Some XC90 vehicle owners on public forum/sites also referenced the sunroof drain tube leakage as a cause of the CEM failures. An electronic copy of each Vehicle Owner Questionnaire (VOQ) consumer complaint report has been emailed to your office. A list is provided at the end of this letter.

Unless otherwise stated in the text, the following definitions apply to this information request:

- **Subject vehicles:** all model years (MY) 2004-2005 Volvo XC90 vehicles and all other MY XC90 vehicles, equipped with the same subject components, manufactured for sale or lease in the United States.
- **Subject component:** the central electronic module (CEM) that powers and regulates various vehicle functions.
- **Volvo:** Volvo Cars North America, LLC., all of its past and present officers and employees, whether assigned to its principal offices or any of its field or other locations, including all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their



employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of Volvo (including all business units and persons previously referred to), who are or, in or after September 1, 2002, were involved in any way with any of the following related to the subject condition in the subject peer vehicles:

- a. Design, engineering, analysis, modification or production (e.g. quality control);
 - b. Testing, assessment or evaluation;
 - c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
 - d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers.
- **Alleged defect:** Failures of the central electronic module resulting in an intermittent external/internal lighting function, wiper inoperability and/or the loss of engine power.
 - **Document:** "Document(s)" is used in the broadest sense of the word and shall mean all original written, printed, typed, recorded, or graphic matter whatsoever, however produced or reproduced, of every kind, nature, and description, and all non-identical copies of both sides thereof, including, but not limited to, papers, letters, memoranda, correspondence, communications, electronic mail (e-mail) messages (existing in hard copy and/or in electronic storage), faxes, mailgrams, telegrams, cables, telex messages, notes, annotations, working papers, drafts, minutes, records, audio and video recordings, data, databases, other information bases, summaries, charts, tables, graphics, other visual displays, photographs, statements, interviews, opinions, reports, newspaper articles, studies, analyses, evaluations, interpretations, contracts, agreements, jottings, agendas, bulletins, notices, announcements, instructions, blueprints, drawings, as-builts, changes, manuals, publications, work schedules, journals, statistical data, desk, portable and computer calendars, appointment books, diaries, travel reports, lists, tabulations, computer printouts, data processing program libraries, data processing inputs and outputs, microfilms, microfiches, statements for services, resolutions, financial statements, governmental records, business records, personnel records, work orders, pleadings, discovery in any form, affidavits, motions, responses to discovery, all transcripts, administrative filings and all mechanical, magnetic, photographic and electronic records or recordings of any kind, including any storage media associated with computers, including, but not limited to, information on hard drives, floppy disks, backup tapes, and zip drives, electronic communications, including but not limited to, the Internet and shall include any drafts or revisions pertaining to any of the foregoing, all other things similar to any of the foregoing, however denominated by Volvo, any other data compilations from which information can be obtained, translated if necessary, into a usable form and any other documents. For purposes of this request, any document which contains any note, comment, addition, deletion, insertion, annotation, or otherwise comprises a non-identical copy of another document shall be treated as a separate document subject to production. In all cases where original and any non-identical copies are not available, "document(s)" also means any identical copies of the original and all non-identical copies

thereof. Any document, record, graph, chart, film or photograph originally produced in color must be provided in color. Furnish all documents whether verified by Volvo or not. If a document is not in the English language, provide both the original document and an English translation of the document.

- **Other Terms:** To the extent that they are used in these information requests, the terms “claim,” “consumer complaint,” “dealer field report,” “field report,” “fire,” “fleet,” “good will,” “make,” “model,” “model year,” “notice,” “property damage,” “property damage claim,” “rollover,” “type,” “warranty,” “warranty adjustment,” and “warranty claim,” whether used in singular or in plural form, have the same meaning as found in 49 CFR 579.4.

In order for my staff to evaluate the subject condition, certain information is required. Pursuant to 49 U.S.C. § 30166, please provide numbered responses to the following information requests. Insofar as Volvo has previously provided a document to ODI, Volvo may produce it again or identify the document, the document submission to ODI in which it was included and the precise location in that submission where the document is located. When documents are produced, the documents shall be produced in an identified, organized manner that corresponds with the organization of this information request letter (including all individual requests and subparts). When documents are produced and the documents would not, standing alone, be self-explanatory, the production of documents shall be supplemented and accompanied by explanation.

Please repeat the applicable request verbatim above each response. After Volvo’s response to each request, identify the source of the information and indicate the last date the information was gathered.

1. State within the body of the response letter, by model, model year and sunroof/moon roof option, the total 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. Make;
 - b. Model;
 - c. Model Year;
 - d. Vehicle identification number (VIN);
 - e. Date of manufacture (in “yyyy/mm/dd” date format);
 - f. Date warranty coverage commenced (in “yyyy/mm/dd” date format) or “Unsold” if not sold;
 - g. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease), and
 - h. Sunroof option (include moon roof and other devices requiring drain tubes).

Provide the detailed information in Microsoft Access 2007, or a compatible format, entitled “Q1_PRODATA.accdb”.

2. State the number of each of the following owner report (OR), received by Volvo, or of which Volvo is otherwise aware, which relate to, or may relate to, the alleged defect in subject vehicles and, separately, in peer vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Field reports, including dealer field reports;
 - c. Reports involving a fire, crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
 - 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.

For subparts "a" through "d" state within the body of the response letter a summary table containing the total number of each item (e.g., consumer complaints, field reports, etc.) separately and by model and model year. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary description of the alleged problem and causal and contributing factors and Volvo's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "e" and "f" identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document initiating the action was filed.

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:
 - a. Volvo's file number or other identifier used;
 - b. The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);
 - c. Vehicle owner or fleet name (and fleet contact person), address, and telephone number;
 - d. Vehicle's VIN;
 - e. Vehicle's make, model and model year;
 - f. Vehicle's mileage at time of incident;
 - g. Incident date (in "yyyy/mm/dd" date format);
 - h. Report or claim date (in "yyyy/mm/dd" date format);
 - i. Whether a crash is alleged;
 - j. Whether property damage is alleged;
 - k. Number of alleged injuries, if any; and
 - l. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2007, or a compatible format, entitled "Q3_ORDATA.accdb.

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.
5. State within the body of the response letter a summary table, by model and model year, a total count for each of the following categories of claims, that have been paid by Volvo to date that relate to, or may relate to, the alleged defect in subject vehicles and, separately in peer 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 should be identified within each claim.

Separately, for each such claim, state the following information:

- a. Volvo's claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Vehicle's model and model year;
- e. Repair date (in "yyyy/mm/dd" date format);
- f. Vehicle's mileage at time of repair;
- g. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;
- h. Labor operation number;
- i. Problem code;
- j. Replacement part number(s) and description(s);
- k. Concern stated by customer; and
- l. Comment, if any, by dealer/technician relating to claim and/or repair.

Provide the detailed information in Microsoft Access 2007, or a compatible format, entitled "Q5_WRNTDATA.accdb

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 and peer vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by Volvo on the subject and peer 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 and peer vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.
7. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles or peer 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.

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 or peer 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.

9. Describe all modifications or changes including software/algorithm revisions made by, or on behalf of, Volvo in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles or peer 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) of the original component;
 - e. The part number(s) (service and engineering) of the modified component;
 - f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
 - g. When the modified component was made available as a service component;
 - h. Whether the modified component can be interchanged with earlier production components;
 - i. The model and model year of the vehicles affected by the modification or change.

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.

10. Produce one each of the following:
 - a. Exemplar sample of each baseline subject component (and the drain tube assembly if applicable) of the subject vehicle;

- b. Exemplar sample of each updated/modification components (and the drain tube assembly if applicable);
 - c. Field return sample of the subject component (and the drain tube assembly if applicable) exhibiting the relevant failure mode or its effects; and
 - d. Any kits that have been released, or developed, by Volvo for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.
11. Provide a detailed description of the vehicle's electrical functions as it relates to the central electronic module, including:
- a. Functional block/flow diagram;
 - b. Electrical diagram,
 - c. Software and/or microprocessor logic/protocols,
 - d. Vehicle network/communication logic/protocols to other vehicle systems
 - e. Photographs/illustrations of the components and their locations in the vehicle;
 - f. Fault detection capabilities and fault retrieval capability (if any);
 - g. Owner warnings and/or notifications that a fault or failure is occurring; and
 - h. Central electronic module's susceptibility to moisture and/or liquid intrusion.
12. Furnish Volvo's assessment of the alleged defect in the subject vehicle, including:
- a. The causal or contributory factor(s);
 - b. The failure mechanism(s) including water intrusion from the sunroof drain tubes if applicable;
 - c. The failure mode(s);
 - d. The risk to motor vehicle safety that it poses;
 - 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 or subject component was malfunctioning; and
 - f. The reports included with this inquiry.

This letter is being sent to Volvo pursuant to 49 U.S.C. § 30166, which authorizes NHTSA to conduct any investigation that may be necessary to enforce Chapter 301 of Title 49 and to request reports and the production of things. It constitutes a new request for information. Volvo's failure to respond promptly and fully to this letter could subject Volvo to civil penalties pursuant to 49 U.S.C. § 30165 or lead to an action for injunctive relief pursuant to 49 U.S.C. § 30163. (Other remedies and sanctions are available as well.) Section 5(a) of the TREAD Act, codified at 49 U.S.C. § 30165(b), provides for civil penalties of up to \$6,000 per day, with a maximum of \$16,375,000 for a related series of violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. See 49 CFR 578.6 (as amended by 71 Fed. Reg. 28279 (May 16, 2007)). This includes failing to respond to ODI information requests.

If Volvo cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney-client, attorney work product, or other privilege, Volvo does not submit one or more requested documents or items of information in response to

this information request, Volvo must provide a privilege log identifying each document or item withheld, and stating the date, subject or title, the name and position of the person(s) from, and the person(s) to whom it was sent, and the name and position of any other recipient (to include all carbon copies or blind carbon copies), the nature of that information or material, and the basis for the claim of privilege and why that privilege applies.

Volvo's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by September 14, 2010. **All business confidential information must be submitted directly to the Office of Chief Counsel as described in the following paragraph and should not be sent to this office.** In addition, do not submit any business confidential information in the body of the letter submitted to this office. Please refer to PE10-025 in Volvo's response to this letter and in any confidentiality request submitted to the Office of Chief Counsel. If Volvo finds that it is unable to provide all of the information requested within the time allotted, Volvo must request an extension from me at (202) 366-6761 no later than five business days before the response due date. If Volvo is unable to provide all of the information requested by the original deadline, it must submit a partial response by the original deadline with whatever information Volvo then has available, even if an extension has been granted.

If Volvo claims that any of the information or documents provided in response to this information request constitute confidential commercial material within the meaning of 5 U.S.C. § 552(b)(4), or are protected from disclosure pursuant to 18 U.S.C. § 1905, Volvo must submit supporting information together with the materials that are the subject of the confidentiality request, in accordance with 49 CFR Part 512, as amended, to the Office of Chief Counsel (NCC-111), National Highway Traffic Safety Administration, Room W41-227, 1200 New Jersey Avenue, S.E., Washington, D.C. 20590. Volvo is required to **submit two copies of the documents containing allegedly confidential information (except only one copy of blueprints) and one copy of the documents from which information claimed to be confidential has been deleted.** Please remember that the word "CONFIDENTIAL BUSINESS INFORMATION" must appear at the top of each page containing information claimed to be confidential, and the information must be clearly identified in accordance with 5 U.S.C. § 512.6. If you submit a request for confidentiality for all or part of your response to this IR, that is in an electronic format (e.g., CD-ROM), your request and associated submission must conform to the new requirements in NHTSA's Confidential Business Information Rule regarding submissions in electronic formats (49 CFR 512.6(c)). See Federal Register, volume 72, page 59434 (October 19, 2007).

Please send email notification to Peter Ong (Peter.Ong@dot.gov) and to ODI_IRresponse@dot.gov when Volvo sends its response to this office and indicate whether there is confidential information as part of Volvo response.

