



U.S. Department  
of Transportation

**National Highway  
Traffic Safety  
Administration**

DEC 22 2005

400 Seventh Street, S.W.  
Washington, D.C. 20590

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

Mr. William Shapiro  
Volvo Cars of N.A. LLC.  
Regulatory and Environmental Affairs  
1 Volvo Drive Building B  
Rockleigh, NJ 07647

NVS-213 swmc  
EA05-021

Dear Mr. Shapiro:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened an Engineering Analysis (EA05-021) to investigate allegations of Electronic Throttle Module (ETM) failure, resulting in loss of throttle control, in model year (MY) 1999 through 2002 Volvo C70, S60, S70, S80, V70 and V70XC vehicles equipped with an ETM and manufactured by Volvo Cars of N.A., LLC. (Volvo). ODI is requesting additional information to assist us in our investigation of the safety consequences of ETM failure in the subject vehicles.

This office has received 591 reports alleging ETM failures in the subject vehicles. These reports include allegations of engine stall, vehicle surging forward without accelerator input, vehicle hesitation upon acceleration and sudden and unexpected transition into reduced performance operation (limp mode). A copy of each of the reports is enclosed for your information.

Unless otherwise stated in the text, the following definitions apply to these information requests:

- **Subject vehicles:** All MY 1999 through 2002 Volvo C70, S60, S70, S80, V70 and V70XC vehicles equipped with an ETM manufactured for sale or lease in the United States.
- **Subject component:** All ETM supplied to Volvo by Magneti Marelli for use as original equipment or replacement parts on the subject vehicles.
- **Volvo:** Volvo Cars of N.A., LLC., the Volvo Car Corporation, Sweden, Ford Motor Company, Magneti Marelli Holding S.p.A, all of their past and present officers and employees, whether assigned to their principal offices or any of their field or other locations, including all of their 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



DOT AUTO SAFETY HOTLINE  
888-DASH-2-DOT  
888-327-4236

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 1994, were involved in any way with any of the following related to the alleged defect in the subject 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:** Failure or malfunction of the ETM .
  - **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 alleged defect, 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, by model, model year and engine, 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. Model;
  - c. Model Year;
  - d. Engine;
  - e. Date of manufacture;
  - f. Date warranty coverage commenced; and
  - g. State in which the vehicle was sold.

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.

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, 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. Reports involving a fire, 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;
- e. Property damage claims; and
- f. Third-party arbitration proceedings where Volvo is or was a party to the arbitration; and
- g. Lawsuits, both pending and closed, in which Volvo is or was a defendant or codefendant and:
- h. Proceedings involving any local, state or federal government agency.

For subparts "a" through "e," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. 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 "e," 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 "f" through "h" 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. VIN;
  - e. Model and model year;
  - f. Incident mileage;
  - g. Incident date;
  - h. Report or claim date;
  - 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 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.

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, 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:

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

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.

6. Provide monthly updates of the warranty data requested in Item 5 with summaries of the status of Volvo's Special Policy Program for the subject vehicles (i.e., for each update, state the number of owner letters sent to date by model, model year and engine with requested electronic update of warranty claim information).
7. 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.
8. 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.

9. 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, Ford, or Magneti Marelli Holding S.p.A. 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.

10. Provide the following information regarding the testing of ETM's collected from warranty returns, or any other field return program, that have been conducted by, or for, Volvo or Magneti Marelli. This should include an electronic summary of all such testing in a Microsoft Access 2000, or a compatible format, entitled "TESTING DATA," containing the following information:
  - a. Claim or repair order number;
  - b. VIN;
  - c. Repair mileage;
  - d. Repair date;
  - e. All fault, concern, and/or trouble codes associated with the ETM replacement (use a separate field for each such code);
  - f. All diagnostic codes associated with the ETM condition;
  - g. Summary of the technician comments from the ETM service/replacement;
  - h. A summary of the consumer complaint, including the effect on vehicle operation (e.g., stall, surge, reduced power);
  - i. Part numbers (service and engineering) for the returned and replacement ETM's;
  - j. Name of testing facility;
  - k. Location of testing facility;
  - l. Test procedure; and
  - m. Test results.

Describe the purpose and specifications for all such testing and provide copies of all documents relating to: (1) notes from the repair technician; and (2) test reports, summaries

of test results and presentations or other internal review documents that contain information about such testing.

11. 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 components, from the start of production of the subject vehicles 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 numbers (service and engineering) of the original component;
  - e. The part number (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; and
  - h. Whether the modified component can be interchanged 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.

12. Provide a chronological summary of all communications between Volvo and Magneti Marelli regarding the alleged defect in the subject components and provide copies of all documents relating to such communications organized in chronological order.
13. Provide copies of all documents relating to Volvo's internal communications regarding the alleged defect in the subject components. Provide this information organized in chronological order.
14. Provide the following for ODI's use during EA05-021:
  - a. Two ETMs (Part Number 8644347); and
  - b. One compact throttle tester as described in the Action Plan of 00-03-022, Subject Quality Item 121150, issued by R. Axelsson. Also provide appropriate user manuals and training materials.
15. Provide the following additional information concerning the alleged defect in the subject vehicles:
  - a. All videos and attachments related to Tech Report 33062;
  - b. Volvo's analysis of Tech Report 32247;
  - c. Any and all reports generated by the ETM Focus Team or any other such group involved in the analysis and/or reporting of the ETM on subject vehicles;
  - d. A description of Project OXEN;
  - e. A complete warranty history on vehicles listed in Microsoft Excel table "HISTORY REQUESTS" included on Enclosure 1, Data Collection Disc; and

- f. Coordinate with ODI to conduct vehicle demonstrations of certain failure modes associated with ETM malfunction or failure in turbocharged and normally aspirated subject vehicles.
16. State the number of subject components that Volvo has sold for use in the subject vehicles by component name, part number (both service and engineering/production), model, model year, and engine of the vehicles in which it is used and month/year of sale (including the cut-off date for sales, if applicable).

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by model, model year and engine, all 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.
17. State the design service life for the subject components and provide copies of all documents relating to the durability/reliability of the subject components, including all engineering specifications and design verification and/or validation test reports.
18. Provide detailed descriptions of the following for each engine used in the subject vehicles:
  - a. Idle speed control strategies during normal operation (i.e., with no ETM fault), including control of fuel, air and ignition timing during cold and warm engine operating conditions;
  - b. Semi-limp mode operation, including all conditions that may result in this mode of operation and its effect(s) on vehicle operation;
  - c. Mechanical limp mode;
  - d. Any engine cut-off strategies for the engine management system in normal operation and each of the backup modes;
  - e. Volvo's assessments of the cause(s) of vehicle surge incidents and the worst case severity of the surging condition; and
  - f. Volvo's assessment of the specific cause(s) of vehicle stalling incidents associated with ETM failure or malfunction (i.e., stall incidents verified by dealer service employees that were addressed by repairing or replacing the ETM).
19. Summarize all of the failure mechanisms (e.g., throttle position sensor wiper failure, "dirty throttle" bore and/or plate condition, sensitivity to "spurious signals") that Volvo is aware of for the subject components, ranked in order from most to least frequently occurring within 100,000 miles of service, and provide the following information for each:
  - a. The approximate percentage of subject vehicles that Volvo estimates would experience the condition within each of the following service intervals: 10 years, 100,000 miles, and 200,000 miles;
  - b. The effect of the condition on ETM and vehicle operation;
  - c. The appropriate repair to correct the condition (if the repair procedures have evolved over time, so state and describe both the current procedures and any previous procedures with a brief explanation for the changes); and

- d. Volvo's assessment of the effectiveness of the repair in terms of the estimated improvement in subject component reliability/durability over time, including the expected improvement in the failure percentages given in response to Item 19.a.

Provide separate answers for each model, model year and engine if the information requested is not the same for all (e.g., state effect of various design levels and state differences between turbocharged and normally aspirated engines for "dirty throttle" condition and any other conditions where there may be differences in failure experience)

20. Furnish Volvo's assessments of each potential failure mode alleged to have resulted from ETM failure or malfunction in the subject vehicles, including stalling, vehicle lugging or surging, and/or vehicle operation in reduced power (i.e., "limp") modes. Include the following information in each assessment:
  - a. The causal or contributory factor(s);
  - b. The failure mechanism(s);
  - 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.) Please note that maximum civil penalties under 49 U.S.C. § 30165 have increased as a result of the recent enactment of the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act, Public Law No. 106-414 (signed November 1, 2000). Section 5(a) of the TREAD Act, codified at 49 U.S.C. § 30165(b), provides for civil penalties of up to \$5,000 per day, with a maximum of \$16,050,000 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 69 Fed. Reg. 57864 (Sept. 28, 2004)). 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 February 27, 2006. Please refer to EA05-021 in Volvo's response to this letter. If Volvo finds that it is unable to provide all of the information requested within the time allotted, Volvo must request an extension from Jeffrey Quandt of my staff at (202) 366-5207 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 (69 Fed. Reg. 21409 et seq; April 21, 2004), to the Office of Chief Counsel (NCC-113), National Highway Traffic Safety Administration, Room 5219, 400 Seventh Street, S.W., 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.

If you have any technical questions concerning this matter, please call Stephen McHenry of my staff at (202) 366-4883.

Sincerely,



Kathleen C. DeMeter, Director  
Office of Defects Investigation  
Enforcement

Enclosure: One CD ROM titled Data Collection Disc containing five hundred and ninety-one files