



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

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

DEC 15 2005

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

James Vondale, Director
Automotive Safety Office, Environmental and Safety Compliance
Ford Motor Company Fairlane Plaza South
330 Town Center Drive, Suite 500
Dearborn, MI 48126

NVS-212cag
EA05-015

Dear Mr. Vondale:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has upgraded PE05-033 to an Engineering Analysis (EA05-015) to investigate allegations that water leaks around the windshield causing failure of various electrical components on the Model Year (MY) 1999-2001 Ford Expedition sport utility vehicles manufactured by Ford Motor Company, and to request certain information.

This office has received 39 reports that electrical components failed in MY 1999-2001 Ford Expedition sport utility vehicles. The reports allege that when it rains or snows, water leaks into the vehicle around the windshield. The water seeps into the fuse box and the generic electronic module (GEM) causing various electrical components to malfunction. An electronic image of each Vehicle Owner Questionnaire report was sent to you. You will find at the end of this letter a list showing the identification number for each report.

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

Subject vehicles: all MY 1999-2001 Ford Expedition sport utility vehicles manufactured for sale or lease in the United States.

Subject component(s): the windshield assembly, including the adhesive sealant.

Ford: Ford Motor Company, 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 Ford (including all business units and persons previously



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referred to), who are on, in or after 1996, 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: Rain water and melting snow enters around the windshield into the vehicle.

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 Ford, 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 Ford 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 Ford has previously provided a document to ODI, Ford 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 Ford's response to each request, identify the source of the information and indicate the last date the information was gathered.

For each request, provide responses that were not previously provided to ODI in response to ODI's PEIR letters for PE05-033.

1. State, by model and model year, the number of subject vehicles Ford has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by Ford, state the following:
 - a. Vehicle identification number (VIN);
 - b. Make;
 - c. Model;
 - d. Model Year (MY);
 - e. Date of manufacture;
 - f. Date warranty coverage commenced; and
 - g. 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.**"

2. State the number of each of the following, received by Ford, or of which Ford 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. Property damage claims;
- e. Third-party arbitration proceedings where Ford is or was a party to the arbitration; and
- f. Lawsuits, both pending and closed, in which Ford is or was a defendant or codefendant.

For subparts "a" through "d," 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 "f," provide a summary description of the alleged problem and causal and contributing factors and Ford'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. Provide a status update of the lawsuits identified in the PEIR letter.

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. Ford'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;
 - h. Report or claim date;
 - i. Whether property damage is alleged;
 - j. Number of alleged injuries, if any; and
 - k. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2000, or a compatible format, entitled "COMPLAINT DATA."

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 Ford 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 Ford 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. Ford's claim number;
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;
- c. VIN;
- d. Repair date;
- e. Vehicle mileage at time of repair;
- 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."

6. Describe in detail the search criteria used by Ford 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 Ford 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 Ford 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. Provide this information in Microsoft Excel or compatible format.
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 Ford 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 Ford is planning to issue within the next 120 days. Organize the documents or communications chronologically by actions.
8. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions"), including but not limited to any "14-D" and/or "8-D" analysis, that relate to, or may relate to, the alleged defect, the

windshield, the GEM and the fuse box in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Ford. 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. Provide the following analysis and documentation for the GEM in the subject vehicles:

- a. Any actions related to Highly Accelerated Life Testing or any similar test or any other reliability testing that was performed;
- b. System Software Hazards Analysis (or similarly titled and/or purposed document);
- c. System Failure Modes and Effects Analysis (or similarly titled and/or purposed document);
- d. System Fault Tree Analysis (or similarly titled and/or purposed document). Indicate which top-level faults were evaluated and the results of that evaluation;
- e. System Software Test Specifications for the GEM hardware, software and system; and,
- f. Copies of any predictive statistical analysis performed, relating to the alleged defect, for the windshield, fuse box and GEM, including but not limited to Weibul analysis.

10. Provide the following information for the Fuse box in the subject vehicles:

- a. A detailed list and analysis of all potential shorts or circuit breaks both when the car is powered off and on. State the effects of these potential shorts or circuit breaks on other devices in the car, on the GEM outputs and the direct effect on the GEM operation.
- b. List the logic state and the input/output commands of the Fuse Box. Include information regarding, but not limited to: the logic state and the output commands with the low, high and variation in input to cause a change in state.

11. In a conversation with Ford Engineering, it was indicated that the quality control data and process documentation for the windshield system are no longer available. It is ODI's understanding that in order to provide traceability and evidence of completion of corrective actions, it is essential that quality control measures and process audits are recorded, documented and retained. Therefore, ODI has included the previously unanswered portion of Request No. 10 of the PBIR letter dated June 23, 2005, in an attempt to further analyze the subject defect. "Provide the process quality control data for the front and rear windshield, including the windshield molding and sealer". Additionally, provide documentation and data

of the quality control measurements of the side margins after windshield installation. If this documentation is not available, explain why it is not available.

12. ODI has conducted water tests on Expedition windshields, GEMs and fuse boxes to assess the path of the water leak, with the intention of comparing the results with Ford's findings. Unfortunately, Ford did not fully respond to Request No. 11 of the PEIR letter. Therefore, ODI has included the previously unanswered portion of Request No. 11, in an attempt to further analyze the subject defect. "Describe the path of the alleged water leakage." Additionally, describe the failure modes and effects of the components affected by the water leakage.
13. Provide a complete and detailed schematic of the GEM with component labels, including but not limited to:
 - a. All Capacitors, Resistors, and all other active and passive devices;
 - b. Computer hardware and software; and,
 - c. Input and output signals.
14. Provide details on the environmental specifications within which the GEM device is designed to operate. Provide the requirements for time at level data, the predictive life as a function of the environment and the results of tests to validate the GEM in the following environments:
 - a. The temperature environment;
 - b. The vibration environment;
 - c. The EMI environment (conductive and radiation);
 - d. The humidity environment; and,
 - e. All other environments of merit.
15. Technical Service Bulletin (TSB) Article #15773 states that there may be "various electrical conditions resulting from water intrusion into the GEM," and explains that the water intrusion is "resulting from a windshield water leak." This TSB was issued on April 5, 2002 for MY 1997-2002 Expedition vehicles. Identify the expected expiration date of this TSB. Explain in detail the rationale for issuing this TSB for these model years. Explain the effectiveness of conducting a TSB program. Identify all individuals and/or groups involved in the decision-making process. Provide a full account of the decision-making process leading to the issuance of the TSB, including but not limited to field actions.
16. In response to Request No. 2 of the PEIR letter, Ford defined the categories used to review the reports provided in the response. Category D is defined as "Reports of alleged windshield leak with no electrical issues." ODI's analysis of the CQIS, MORS and UDB reports revealed 143 reports of electrical failures that were grouped under Category D, including 19 wiper failures and 32 lighting failures. Explain in detail, Ford's rationale for including reports of wiper and lighting failures in a category labeled "no electrical issues."
17. In the second paragraph of the cover letter of the PEIR response, Ford states: "The National Glass Association has estimated that 5.1 percent of windshields are damaged and require

replacement annually.” Explain and include the related documentation and data that substantiate this statement.

18. In the second paragraph of the cover letter of the PEIR response, Ford states: “Some industry experts believe that up to 70 percent of those [windshield] repairs may be completed improperly.” Identify the source of this statement. Explain and include all related documentation and data that substantiate the statement. Explain in detail the actions Ford is taking to prevent improper installation of windshields by non-Ford facilities.
19. In the last paragraph of the Report Analysis section of the PEIR response, Ford states: “Owners typically observe indications of a leaking windshield prior to observing any type of additional electrical anomalies.” Identify the complaints in Ford’s possession indicating owner awareness of a leaking windshield prior to any electrical failure.
20. Process sheet, FGW 00090, describes a method for re-using windshields. Identify the subject vehicles that contain re-used windshields. Include VIN, Make, Model, Model Year, Date of Build.
21. Provide an accounting of wiper failures due to any cause. Answer within the scope of Request Nos. 2 through 5 of this letter. Categorize the answer by failure mode, if known.

This letter is being sent to Ford 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. Ford’s failure to respond promptly and fully to this letter could subject Ford 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 \$15 million for a related series of violations, for failing or refusing to perform an act required under 49 U.S.C. § 30166. This includes failing to respond to ODI information requests.

If Ford 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, Ford does not submit one or more requested documents or items of information in response to this information request, Ford 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.

Ford’s response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by **February 17, 2006**. Please refer to EA04-015 in Ford’s response to this letter. If Ford finds that it is unable to provide all of the information requested

within the time allotted, Ford must request an extension from me at (202) 366-5218 no later than five business days before the response due date. If Ford 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 Ford then has available, even if an extension has been granted.

If Ford 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, Ford 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 (68 Fed. Reg. 44209 et seq; July 28, 2003), to the Office of Chief Counsel (NCC-113), National Highway Traffic Safety Administration, Room 5219, 400 Seventh Street, S.W., Washington, D.C. 20590. Ford 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 Cynthia Glass of my staff at (202) 366-2920.

Sincerely,

Kathleen C. DeMeter, Director
Office of Defects Investigation
Enforcement

VOQ numbers:

<i>10066257</i>	<i>10114261</i>	<i>10108742</i>	<i>10114600</i>
<i>10114551</i>	<i>10024431</i>	<i>10104687</i>	<i>10116168</i>
<i>10103875</i>	<i>10015048</i>	<i>10106371</i>	<i>10010993</i>
<i>10111179</i>	<i>10106065</i>	<i>10091143</i>	<i>8022924</i>
<i>10018545</i>	<i>10110181</i>	<i>10105807</i>	<i>10106281</i>
<i>10125947</i>	<i>10126034</i>	<i>10126051</i>	<i>10126108</i>
<i>10126109</i>	<i>10126157</i>	<i>10126161</i>	<i>10126169</i>
<i>10126171</i>	<i>10126215</i>	<i>10126248</i>	<i>10126309</i>
<i>10126384</i>	<i>10126512</i>	<i>10126661</i>	<i>10131824</i>
<i>10135337</i>	<i>10136615</i>	<i>10137801</i>	