



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

1200 New Jersey Avenue SE.  
Washington, DC 20590

JUL 12 2012

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

Mr. Steve Kenner, Global Director  
Automotive Safety Office  
Environmental and Safety Compliance  
Ford Motor Company  
330 Town Center Drive, Suite 400  
Dearborn, MI 48126-2738

NVS-213cml  
PE12-017

Dear Mr. Kenner:

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 PE12-017 to investigate allegations of electric power assist steering (EPAS) system failure in model year (MY) 2011 Ford Explorer vehicles manufactured by the Ford Motor Company (Ford) for sale in the United States, and to request certain information.

This office has received 37 reports alleging EPAS system failure in MY 2011 Ford Explorer vehicles. In nearly all instances, the driver stated that the EPAS failed with little or no warning. One report alleges that the failure was a factor in a crash that resulted in one injury (ODI #10462707). Copies of each of the ODI reports are enclosed.

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

- **Subject vehicles:** All MY 2011 Ford Explorer vehicles manufactured for sale or lease in the United States.
- **Subject system:** The EPAS system and all associated subsystems and components.
- **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 referred to), who are or, in or after January 1, 2002, 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:** Complete or intermittent loss of power steering assist, including all complaints alleging increased steering effort.
  - **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, stand 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.

1. State, by model and model year, the number of MY 2011 through 2012 Ford Explorer vehicles Ford has manufactured for sale or lease in the United States. Separately, for each vehicle manufactured to date by Ford, state the following:
  - a. Vehicle identification number (VIN);
  - b. Make;
  - c. Model;
  - d. Model Year;
  - e. Plant of manufacture;
  - f. Date of manufacture;
  - g. Date warranty coverage commenced; and
  - h. 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 2003, or a compatible format, entitled “PRODUCTION DATA.” See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

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 MY 2011 through 2012 Ford Explorer vehicles:
  - a. Consumer complaints, including those from fleet operators;
  - b. Consumer complaints, including those from operators, where a failure or malfunction of the EPAS system was reported;
  - c. Field reports, including dealer field reports;
  - d. Field reports, including dealer field reports where EPAS failure was claimed;

- e. 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;
- f. Property damage claims;
- g. Third-party arbitration proceedings where Ford is or was a party to the arbitration; and
- h. Lawsuits, both pending and closed, in which Ford is or was a defendant or codefendant.

For subparts "a" through "f" 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 "e" through "h," 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 g and 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. 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 any warning lights or sounds were illuminated or heard at the time the alleged defect occurred;
  - j. Whether the vehicle was towed into the dealership;
  - k. Whether the driver was able to restart the vehicle, and reset the EPAS system;
  - l. If the EPAS was reset, did the failure occur more than once;
  - m. Diagnostic Trouble Code(s) (DTCs) indicated at the time of repair;
  - n. Repair(s) dealer made to the vehicle;
  - o. Whether a crash is alleged;
  - p. Whether property damage is alleged;
  - q. Number of alleged injuries;
  - r. Number of alleged fatalities; and
  - s. A summary of the incident.

Provide this information in Microsoft Access 2003, or a compatible format, entitled "REQUEST NUMBER TWO DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that 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 Ford used for organizing the documents.
5. State, by model and model year, total counts for all of the following categories of claims, collectively, that have been paid by Ford to date that relate to repair or replacement of the subject system in MY 2011 through 2012 Ford Explorer vehicles: warranty claims; extended warranty claims; claims for good will services; and field, zone, or similar adjustments and reimbursements. This should include all claims made in accordance with procedures specified in any service bulletins issued by Ford related to the subject components.

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. Whether there was a claim for towing within three days before or after the subject claim (yes/no);
- h. Whether there is any other reference to towing in the claim (yes/no);
- i. Labor operation number;
- j. Problem code;
- k. Diagnostic Trouble Code(s) (DTCs) indicated at the time of repair;
- l. Replacement part number(s) and description(s);
- m. Concern stated by customer;
- n. Comment, if any, by dealer/technician relating to claim and/or repair; and
- o. Ford's assessment of whether the claim was associated with an EPAS failure while driving.

Provide this information in Microsoft Access 2003, or a compatible format, entitled "WARRANTY DATA." See Enclosure 1, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.

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.

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.
8. Provide a detailed description EPAS system operation in the subject vehicles, including the following information:
  - a. Provide a block diagram of the system components and communication busses;
  - b. Provide a table listing all diagnostic trouble codes (DTCs) with the following information: (1) code; (2) description; (3) conditions for setting the code; (4) system response; (5) all visual and audible warnings or other information provided to the driver; and (6) conditions for clearing the code;
  - c. Describe whether and how the system detects a failure within the EPAS that may result in abnormal (too high or too low) steering assist;
  - d. Describe the "Normal" process the diagnostic logic should use to limit or ramp down steering assist;
  - e. In the event of an EPAS shutdown resulting from a fault detection, describe the conditions necessary for power steering assistance to be restored;
  - f. Copies of all Failure Mode and Effects Analysis documents; and
  - g. Describe Under any normal circumstance would the EPAS fault detection logic turn OFF steering assist without notifying the driver with a malfunction indicator lamp illumination, chime or other warning indicator.
9. If any of the subject vehicles comes equipped with an Terrain Management System (TMS) or other electronic stability control (ESC) system, if not previously answered in Question 8, please describe:
  - a. The function of the TMS/ESC;
  - b. Specifically how that system interacts with the EPAS; and
  - c. Explain how the TMS/ESC system responds when an EPAS fault is detected.
10. 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, 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.

11. State the number of EPAS system components; including motors, control modules, sensors, and steering column assemblies; that Ford has sold that may be used in the subject vehicles by part number (both service and engineering/production) 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 make, model and model year, all vehicle applications that use the component, whether installed in production or in service, and state the applicable dates of production or service usage.

12. Provide a table with the following information regarding actual and statistically estimated failure frequencies for each EPAS design level of the subject vehicles:
- a. Identify the predominant EPAS failure cause in the subject vehicles;
  - b. Identify all design and manufacturing process changes that relate to the failure cause identified in 12.a;
  - c. Identify the scope of vehicles affected by the failure cause identified in 12.a (i.e., model, model year, production range);
  - d. State, by model and model year, Ford's assessment of the total number of failures that have occurred to date that may be associated with the cause identified in 12.a;
  - e. Ford's estimate of the failure rates associated with the failure cause identified in 12.a that would occur at 12, 24, 36 and 48 months-in-service;
  - f. A short description of the method/model used for the statistical analysis, including the bases for selecting each method, explanations for any differences in modeling methods for different populations; and
  - g. Charts showing the model results for each population and model parametric values.
13. Describe and provide copies of all documents relating to all general research, testing, and other studies or analyses related to unassisted steering effort, including human factors considerations that have been conducted by, or for, Ford, or of which Ford is otherwise aware from 1970 to date. Include the following information in response to this request:
- a. A chronological summary of all such work, including the dates of all relevant design/engineering requirement changes;
  - b. Copies of all documents related to engineering standards, specifications, guidelines or other requirements related to steering efforts with and without power steering assist;
  - c. Ford's assessment of the driving maneuvers that would be expected to require the highest unassisted steering efforts at low (10 mph or less), moderate (10 to 30 mph) and higher (greater than 30 mph) driving speeds. Include discussion of the following maneuvers in your response: (1) emergency maneuvers, such as double-lane change avoidance

- maneuver; (2) highway exit and entrance ramps; (3) secondary road curves; (5) city driving, including intersection turns (right and left turns); (6) roundabouts; (7) parking maneuvers requiring large steering inputs/angles at low speeds (less than 5 mph); and (8) static lock-to-lock steering;
- d. Ford's assessment of the primary factors affecting unassisted steering effort in each of the speed ranges identified in 13.c (e.g., lateral acceleration, speed, steering angle, steering rate);
  - e. Ford's assessment of the ranges of steering efforts that would be required for the driving maneuvers identified in 13.c. for different sizes and classes of light-duty vehicles (e.g., small passenger cars and various sizes of sport utility vehicles); and
  - f. Copies of all studies, reports or related material associated with each of the following for the subject vehicles or any other vehicles: (1) driving steering force capability (for the full range from 5<sup>th</sup> to 95<sup>th</sup> percentile male and female drivers); and (2) human factors testing/analyses of driver performance in various turning maneuvers when confronted with an unexpected loss of power steering assistance.
14. Provide the following information regarding the effect of the alleged defect on steering effort and vehicle control in the subject vehicles:
- a. A description of all testing conducted by, or for, Ford to measure steering efforts in the subject vehicles with and without power steering assistance, with detailed descriptions of the test procedures, the purpose of the testing, and a summary of the results;
  - b. Ford's assessment of the maximum steering efforts that may occur in the subject vehicles with a loss of power steering assistance in the following speed ranges: below 10 mph, between 10 and 30 mph, and above 30 mph
  - c. Provide brief descriptions of the driving maneuvers, speeds, steering inputs/angles and lateral accelerations associated with the maximum efforts for each of speed range give in 14.b;
  - d. Steering efforts with and without power assist at 0, 0.1, 0.25 and 0.4 g's of lateral acceleration for each of the following speeds: 15, 30 and 60 mph;
  - e. The front axle and vehicle curb and gross vehicle weight ratings;
  - f. The steering ratio; and
  - g. Ford's assessment of each of the crash incidents provided in Ford's response to this letter, including incident speed, driving maneuver (e.g., refer to maneuvers identified in 13.c and 13.d), Ford's assessment of the state of the EPAS system immediately before and after the crash, the driver's description of the effect on steering performance/effort, and Ford's assessment of the crash severity and all causal factors.
15. Provide Ford's assessment of the alleged defect in the subject vehicles, including:
- a. Causal or contributory factor(s);
  - b. The failure mechanism(s);
  - c. The failure mode(s);
  - d. The risk to motor vehicle safety;
  - e. What warnings, if any, the operator of the vehicle would have that the alleged defect was occurring or subject system was malfunctioning, and
  - f. The reports included with this inquiry.



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.) 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, 2006)). This includes failing to respond to ODI information requests.

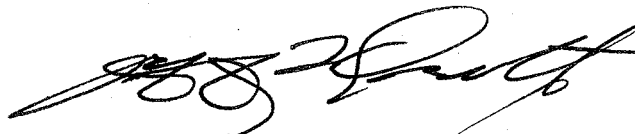
If Ford cannot respond to any specific request or subpart(s) thereof, please state the reason why it is unable to do so. If on the basis of attorney client, attorney work product, or other privilege, Ford does not submit one or more requested documents or items of information in response to this information 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 August 29, 2012. Please refer to PE12-017 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) 366-5207 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 (69 Fed. Reg. 21409 et seq; April 21, 2004), to the Office of Chief Counsel (NCC-113), National Highway Traffic Safety Administration, Room W41-227, 1200 New Jersey Avenue, S.E., 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 Chris Lash of my staff, at (202) 366-2370.

Sincerely,



Jeffrey L. Quandt, Chief  
Vehicle Control Division  
Office of Defects Investigation

Enclosure 1, One CD ROM titled Data Collection Disc and VOQs containing four files  
MY2011

10465204,10465151,10464709,10464374,10464424,10464221,10463950,10463919,10463881,10463443,10463422,10462897,10462875,10462852,10462829,10462730,10462707,10462155,10461207,10460928,10460722,10460615,10459243,10455871,10455226,10454999,10454718,10453594,10452634,10451782,10450502,10445508,10427390,10423846,10424800,10417931,10418000

MY2012

10465051,10464495,10463923,10463593,10463196,10456824,10455846,10454017,10453815,10442868