



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

FEB 17 2011

1200 New Jersey Avenue SE.
Washington, DC 20590

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ms. Carmen Benavides
Director - Product Investigations
General Motors Corporation
30001 Van Dyke - Mail Code 480-210-2V1
Warren, MI 48090-9010

NVS-213cml
RQ10-004

Dear Ms. Benavides:

This letter is to inform you that the Office of Defects Investigation (ODI) of the National Highway Traffic Safety Administration (NHTSA) has opened a Recall Query RQ10-004 to investigate allegations of electric power steering (EPS) system failure in model year (MY) 2004 through 2007 Saturn ION vehicles manufactured by General Motors (GM) for sale in the United States, and to request certain information about these vehicles and similarly equipped peer vehicles.

On July 20, 2010, GM announced a "Special Coverage" campaign (Bulletin No. 10187) to repair or replace a condition on the subject vehicles relating to the sudden failure of the electric power steering (EPS) assist system. The special coverage was offered to owners of vehicles up to 10 years old or 100,000 miles, whichever comes first. The failure of the EPS system described in the special coverage is substantially the same as that investigated by ODI during PE10-005 for sudden failure of the EPS assist in MY 2005 through 2010 Chevrolet Cobalt vehicles which have a substantially similar EPS system and assist electric motor and were recalled for this condition in March 2010.

This office has received 725 reports alleging incidents of failure of the EPS system in the subject vehicles, resulting in sudden and unexpected increases in steering effort. In approximately 35 percent of the complaints, the driver stated that the EPS failed with little or no warning. ODI has received 4 complaints which allege that EPS failure caused a crash; including one alleging that an injury resulted. Copies of the ODI reports are enclosed. In addition, GM identified 7 crashes, 638 owner complaints or field reports and 1,444 warranty claims related to sudden failure of EPS assist in the subject vehicles. This data was submitted to ODI on April 19, 2010, as part of the information request for Preliminary Evaluation PE10-005.

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



- **Subject vehicles:** All MY 2004 through 2007 Saturn ION vehicles manufactured for sale or lease in the United States.
- **Peer vehicles:** All MY 2004 through 2011 Chevrolet Cobalt, Chevrolet Malibu and Pontiac G5 and G6 vehicles equipped with EPS that were manufactured for sale or lease in the United States.
- **Subject system:** The EPS system and all associated subsystems and components.
- **Special Coverage Bulletin 10187:** General Motors Special Coverage Adjustment, - Power Steering Assist for MY 2004 through 2007 Saturn ION vehicles for sudden loss of power steering assist while driving for a period of 10 years or 100,00 miles.
- **GM:** General Motors Corporation, 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 GM (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 failure of the EPS system.
- **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 GM, 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 GM 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 GM has previously provided a document to ODI, GM 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 GM'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 subject and peer vehicles GM has manufactured for sale or lease in the United States. Separately, for each subject and peer vehicle manufactured to date by GM, 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 GM, or of which GM is otherwise aware, which relate to, or may relate to, the alleged defect in the subject and peer vehicles:
 - a. Consumer complaints, including those from fleet operators;
 - b. Consumer complaints, including those from operators, where a failure or malfunction of the EPS system was reported;
 - c. Field reports, including dealer field reports;
 - d. Field reports, including dealer field reports where EPS 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 GM is or was a party to the arbitration; and
 - h. Lawsuits, both pending and closed, in which GM 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 GM'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. GM'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 EPS system;
- l. If the EPS 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 GM 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 GM to date that relate to repair or replacement of the subject system in the subject and peer 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 GM related to the subject components.

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

- a. GM'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. GM's assessment of whether the claim was associated with an EPS 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 GM 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 GM 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 GM 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 GM 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 GM is planning to issue within the next 120 days.
8. Provide a description of how the EPS system functions within the subject vehicles. In addition respond to these specific questions regarding EPS motor operation:
 - a. Describe the diagnostic logic for detecting and setting diagnostic trouble code DTC 0475 symptom 00, "Electric Steering Motor Circuit;"
 - b. Describe whether and how the system detects a failure within the electric motor that would cause abnormal (too high or too low) current flow;
 - c. State whether the system measures or estimate the voltage being applied to the motor, measure the current, and then compare the calculated motor impedance to the nominal expected motor impedance as a method of fault detection; and
 - d. State whether and how the system can detect if some of the motor current is being shunted to the motor case.
9. If any of the subject vehicles comes equipped with an electronic stability control (ESC) system, if not previously answered in Question 7, please describe:
 - a. The function of the ESC;
 - b. Specifically how that system interacts with the EPS; and
 - c. Explain how the ESC system responds when an EPS 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, GM. 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 EPS system components; including motors, control modules, steering torque and position sensors, and steering column assemblies; that GM 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. In addition to the request above, is GM aware of any EPS assist component(s), specifically the electric assist motor used in the Chevrolet Cobalt, can be installed as a replacement part for the EPS assist motor installed in the subject vehicles.

13. Provide a table with the following information regarding the actual failure frequencies for the subject and peer vehicles, by model year and design level (if design changes applicable to the alleged defect have been implemented in production):

- a. Vehicle production counts;
- b. Total complaints;
- c. Total warranty claims;
- d. For each of the following service intervals state the number of each population that have reached that time-in-service and the number of complaints and warranty claims received within each service interval: 12-, 24-, 36-, 48-, and 60 months;
- e. State GM's assessment of the percentages of EPS failure complaints that involve a loss of EPS while driving for the subject and peer vehicle populations. (alternatively, if GM does not believe that the percentages for the sub-populations are significantly different, state an approximate percentage that would apply to all);

- f. For complaints that GM does not believe involve loss of EPS assist, provide a breakdown of the percentages associated with other conditions (noise associated with steering, drivability issues such as alignment, EPS malfunction indicator light on etc.);
 - g. State GM's assessment of the percentages of EPS failure warranty claims that involve loss of EPS while driving for the subject and peer vehicle populations. (alternatively, if GM does not believe that the percentages for the sub-populations are significantly different, state an approximate percentage that would apply to all); and
 - h. For warranty claims that GM does not believe involve loss of EPS while driving, provide a breakdown of the percentages associated with other conditions (e.g., steering related noise, drivability issues such as alignment, and EPS malfunction indicator light on).
14. Provide a table with the following information regarding statistically estimated/modeled EPS system failure frequencies for each vehicle population as defined in this letter:
- a. 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 the report period used for the analysis (e.g., warranty period);
 - b. Charts showing the model results for each population;
 - c. The results of the analysis (e.g., slope and characteristic life parameters if a 2-parameter Weibull model is used); and
 - d. The estimated failure rates at 12-, 24-, 36-, 48-, 60-, and 72-months-in-service.
15. Provide one sample for each of the following:
- a. One exemplar sample of each design version of the subject system for the subject vehicles;
 - b. Field return sample of the subject system, or any component of the subject system exhibiting the subject failure mode; and
 - c. Any kits that have been released, or may be relate, to the alleged defect in the subject vehicles.
16. Provide the following information regarding the effect of the alleged defect on steering effort and vehicle control in the subject and peer vehicles:
- a. Steering effort as a function of lateral acceleration for normal system operation and after EPS failure;
 - b. Copies of all system test standards associated with steering effort/feel with normal operation and after a system failure;
 - c. 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 effort capability (for the full range from 5th to 95th percentile male and female drivers); and (2) ergonomic/human factors analyses of driver reactions to sudden changes in steering effort; and
 - d. Provide a table showing GM's assessment of each of the crash complaints provided with this letter and in GM's response material, including incident speed, road conditions, traffic conditions, description of the steering maneuver attempted, the approximate lateral acceleration, the driver's description of the effect on steering performance/effort, and GM's assessment of the crash severity and all causal factors.

17. Provide GM'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 that it poses;
- e. What warnings, if any, the operator of the vehicle would have had 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 GM 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. GM's failure to respond promptly and fully to this letter could subject GM 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 \$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 GM 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, GM does not submit one or more requested documents or items of information in response to this information request, GM 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.

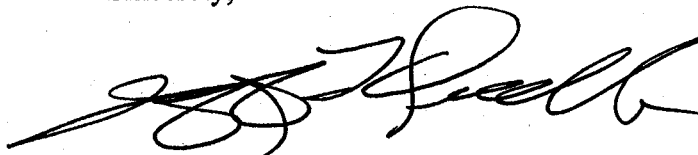
GM's response to this letter, in duplicate, together with a copy of any confidentiality request, must be submitted to this office by April 8, 2011. Please refer to RQ10-004 in GM's response to this letter. If GM finds that it is unable to provide all of the information requested within the time allotted, GM must request an extension from me at (202) 366-5207 no later than five business days before the response due date. If GM 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 GM then has available, even if an extension has been granted.

If GM 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, GM 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. GM 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,

A handwritten signature in black ink, appearing to read "J. Quandt", with a stylized flourish at the end.

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