



GENERAL MOTORS CORPORATION

Vehicle Structure & Safety Integration

February 4, 2009

Jeffrey L. Quandt, Chief  
Vehicle Control Division  
Office of Defects Investigation  
National Highway Traffic Safety Administration  
1200 New Jersey Ave., S. E., Room W46-409  
Washington, D.C. 20590

N080215A-Complete

NVS-213cni  
PE08-061

Dear Mr. Quandt:

This letter is General Motors (GM) partial response to your information request (IR), dated November 21, 2008, to investigate allegations of timing chain breakage resulting in engine stall, with no restart, in certain model year (MY) 2000 through 2002 Saturn L-series with a 2.2L 4-cylinder (RPO - L61) engine, and similarly equipped 2002 through 2003 Saturn VUE, and ION, Chevrolet Cavalier, Pontiac Sunfire and Grand Am and Oldsmobile Alero peer vehicles manufactured by General Motors. As was agreed upon in a discussion between GM and NHTSA ODI on January 21, 2009, this letter responds to Questions 10, 11 and 15. GM's responses to Questions 1-9 and 12-14 were sent to the NHTSA January 28, 2009.

For the subject vehicles, unless otherwise stated, GM is providing an update of reports and warranty claims that may be related to timing chain repairs received after July 1, 2008 by GM since the information was last reported to the NHTSA in response to Defect Petition (DP08-002) on August 8, 2008. Also, GM previously provided the NHTSA with information related to the alleged condition in the 2000 through 2002 Saturn L-series in Preliminary Evaluation (PE06-006) response on April 12, 2006 and Engineering Analysis (EA06-009) response on April 24, 2007 that are not included in this response. GM reports, regular warranty and extended service contract claims for subject vehicles that were included in the recall have been omitted.

For the peer vehicles, GM is providing all reports, regular warranty and extended service contract claims that may be related to timing chain repairs.

The information included in this response refers to the following NHTSA defined vehicle sub-populations:

1. MY 2001 Saturn L-series vehicles recalled in 07V-519
2. Subject Saturn L-series vehicles built before the recall population
3. Subject Saturn L-series vehicles built after the recall population and before the subject design changes were implemented in vehicle production;
4. Subject Saturn L-series vehicles built after the subject design changes were implemented in vehicle production; and
5. Each model of peer vehicles built before the subject design changes were implemented in vehicle production.

Your questions and our corresponding replies are as follows:

**10) Provide a table with the following information regarding actual timing chain failure frequencies for each vehicle sub-population as defined in this letter:**

- a. Vehicle production count;
- b. Total complaints;
- c. Total warranty claims;

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- d. For each of the following service intervals state the number of each sub-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-, 60-, and 72-months;
- e. State GM's assessment of the percentages of timing chain complaints that involve stall while driving for each sub-population (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 stall while driving, provide a breakdown of the percentages associated with other conditions (e.g., no start, noise, driveability, check engine light);
- g. State GM's assessment of the percentages of timing chain warranty claims that involve stall while driving for each sub-population (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 stall while driving, provide a breakdown of the percentages associated with other conditions (e.g., no start, noise, driveability, check engine light).

GM's response to Questions 10a-h are located on the Att\_1\_GM disk; refer to the folder labeled "Q\_10."

**11) Provide a table with the following information regard statistically estimated/modeled timing chain failure frequencies for each vehicle sub-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 sub-populations, and the report period used for the analysis (e.g., warranty period);
- b. Charts showing the model results for each sub-population;
- c. The results of the analysis (e.g., slope and characteristic life parameters if a 2-parameter Weibull model is used);
- d. The estimated failure rates at 12-, 24-, 36-, 48-, 60-, and 72-months-in-service.

GM's response to Questions 11a-d are located on the Att\_2\_GM\_Conf disk; refer to the folder labeled "Q\_11."

**15) Furnish GM's assessment of how each of the following aspects of the alleged defect for the vehicles covered by the subject recall are different in the other Saturn L-series vehicles that are the subject of this Preliminary Evaluation and the peer vehicles of this information request that use the same engine:**

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The overall timing chain failure rates at the intervals identified in Requests 11 and 12;
- e. The reason(s) for differences noted in 14.d;
- f. The percentage of timing chain failures resulting in engine stall and the reason(s) for any differences noted;
- g. The ability to restart a vehicle that has stalled due to the alleged defect;
- h. The risk to motor vehicle safety that it poses;
- i. 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

**j. The reports included with this inquiry.**

In response to Question 15a-c, g and i, GM has previously responded to these questions in the Preliminary Evaluation (PE06-006), dated April 12, 2006.

In response to Question 15d-f, h and j, GM is providing the following information:

Reference the Saturn L-series and peer vehicles Weibull analysis included in response to Question 11.

In response to Question 15d, refer to Tables 10-5 and 10-6 for counts of timing chain breakage by interval.

In response to Question 15e, GM's investigation to date, has not identified the reason for the differences in the sub-populations.

In response to Question 15f, GM's assessment of the percentages of timing chain breakage that indicate stall while driving for each sub-population are shown in Tables 10-7, 10-8 included on the Att\_1\_GM disk in the folder labeled "Q\_10" and Table 11-3 located on the Att\_2\_GM\_Conf disk; in the folder labeled "Q\_11." GM's investigation to date has not identified the reason for the differences in the sub-populations.

In response to Question 15h, the projected rates included in Table 11-3, of timing chain incidents that result in stall while driving for sub-populations 2 – 5 are significantly lower than the recall sub-population 1. GM has reviewed the data gathered for this response and continues to believe there is no unreasonable risk to safety for the following reasons:

- the low Weibull rates at 3 years
- potential warning to the driver
- no reported crashes, injuries, or fatalities.

GM reviewed the VOQs included with this inquiry and is unable to make individual assessments regarding the VOQs.

GM is continuing the investigation to determine if there are any potential reasons for differences between the sub-populations.

\* \* \*

GM claims that certain information, in documents that are part of lawsuit and claims files maintained by the GM Legal Staff, is attorney work product and/or privileged. That information includes notes, memos, reports, photographs, and evaluations by attorneys (and by consultants, claims analysts, investigators, and engineers working at the request of attorneys). GM is producing responsive documents from claims files that are neither attorney work product nor privileged, and withholding those that are attorney work product and/or privileged.

This response is based on searches of General Motors Corporation (GM) locations where documents determined to be responsive to your request would ordinarily be found. As a result, the scope of this search did not include, nor could it reasonably include, "all of its past and present officers and employees, whether assigned to their principal offices or any of its 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 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 1998, 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."

This response was compiled and prepared by this office upon review of the documents produced by various GM locations, and does not include documents generated or received at those GM locations subsequent to their searches.

Please contact me if you require further information about this response or the nature or scope of our searches.

Sincerely,



Gay P. Kent  
Director  
Product Investigations

Attachments