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May 16, 2003

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OFFICE OF DEFECTS  
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NVS-210

Kathleen C. DeMeter, Director  
Office of Defects Investigation  
Safety Assurance  
GM-621-A  
400 Seventh Street, S.W.  
Washington, D.C. 20590

GM-621A

2:57

NVS13bby  
EA-02-030

Dear Ms. DeMeter:

This letter is General Motors (GM) response to your information request (IR), dated April 3, 2003, regarding manifold over-pressurization (MOP) and under hood fires. The subject vehicles include model year (MY) 1996 through 2003 Buick LeSabre, Park Avenue, Riviera, and Regal; Oldsmobile Ninety-Eight, Eighty-Eight, and Intrigue; Chevrolet Impala, Monte Carlo, Lumina; and Pontiac Bonneville and Grand Prix vehicles equipped with 3.8 liter (L36) engines. The subject components are all intake manifolds and Powertrain Control Modules (PCMs) used on the subject vehicles or covered under NHTSA Recall 98V-116 (GM Product Campaign 97-C-02), initiated by GM in June 1996.

Your questions and our corresponding replies are as follows:

1. State, by model, model year, subject recall inclusion ("in-scope" or "not-in-scope"), and PCM design, the number of subject vehicles GM has manufactured for sale or lease in the United States. Separately, for each subject vehicle manufactured to date GM, state the following:
  - a. Vehicle identification number (VIN);
  - b. Make;
  - c. Model;
  - d. Model Year;
  - e. Date of manufacture;
  - f. Date warranty coverage commenced;
  - g. The plant where the vehicle was produced;
  - h. The battery make and model installed;
  - i. Whether the vehicle was included in the scope of the subject recall;
  - j. Whether the subject recall was performed on the vehicle;
  - k. If applicable, the date the subject recall was completed;
  - l. The PCM design; and,
  - m. 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." See Enclosure 1, Data Collection Disc, for a pre-formatted table designed for this submission.

**Product Investigations**

Mail Code: 480-108-304 • 30500 Mound Road • Warren, MI 48090-9055  
Phone: (810) 666-8029 • Fax: (810) 947-2318  
GM621A Response



GM is providing the number of subject vehicles produced for sale or lease in the United States by make, model, and model year on Table 1 below. The number of subject vehicles included in GM Product Campaign 97-C-02 is designated as such on Table 1.

Make	Model	1995	1997	1998	1999	2000	2001	2002	2003	Total
Pontiac	Bonneville	66,034	68,289	62,082	50,922	46,922	37,342	37,344	27,639	396,444
	Included in subject recall	64,130	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Oldsmobile	Ninety Eight/Regency	14,379	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14,379
	Included in subject recall	12,061	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Oldsmobile	Eighty Eight/Regency/LSS	52,327	56,799	55,802	35,546	N/A	N/A	N/A	N/A	220,962
	Included in subject recall	43,215	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Buick	Park Ave.	38,731	47,094	50,725	44,971	42,276	30,860	28,041	18,220	301,717
	Included in subject recall	31,177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Buick	LeSabre	82,058	211,651	143,248	100,288	180,366	140,200	137,741	107,967	1,083,419
	Included in subject recall	52,057	42,174	N/A	N/A	N/A	N/A	N/A	N/A	
Buick	Riviera	4,268	3,857	N/A	N/A	N/A	N/A	N/A	N/A	8,165
	Included in subject recall	3,041	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Buick	Regal	79,451	12,851	47,399	64,809	49,457	44,988	33,461	26,914	361,310
	Included in subject recall	43,037	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Pontiac	Grand Prix	N/A	106,002	70,163	85,700	90,340	61,826	67,115	27,782	510,918
Chevrolet	Impala	N/A	N/A	N/A	N/A	89,849	64,471	63,262	36,690	302,972
Oldsmobile	Intrigue	N/A	96,806	37,064	N/A	N/A	N/A	N/A	N/A	135,890
Chevrolet	Monte Carlo	N/A	N/A	19,719	15,362	30,067	37,659	36,970	33,250	175,064
Chevrolet	Lumina	N/A	N/A	19,815	15,593	N/A	N/A	N/A	N/A	35,708
	<b>Total</b>									<b>3,536,656</b>

TABLE 1: PRODUCTION FOR SALE OR LEASE IN THE UNITED STATES BY MAKE AND MODEL YEAR  
 NOTE: N/A = NOT APPLICABLE

The letter designators for this question were corrected for duplication. The production information requested in 1a-g, i-k, and m separately for each subject vehicle is provided on the CDs in Attachment 1; refer to the Microsoft Access 2000 file folder labeled "Response for Q1 Production Data". The information for items 1i-j can be found in the column labeled "Recall". Text in this column indicates the vehicle was in scope of the subject recall. The subject recall was performed where "done" is entered. GM is providing the state where the vehicle was shipped in response to request 1m. Some production data could not be found for some of the subject vehicles. The source of the requested information, current as of May 2, 2003, is the GM Vehicle Production System (GMVPS) and the GM North America (NA) Claim Analysis Retrieval Database (CARD).

The battery information requested in 1h is provided in the response to question 11 by vehicle model, model year, and engine type and can be found on the CDs in Attachment 1; refer to the folder labeled "Response for Qu11".

The definition for PCM design was changed to distinguish hardware and software levels. There were two types of PCM hardware, 32U and P04. The 32U hardware was used on 1995- 1997 MY PCMs. The P04 hardware was used on 1998 through 2003 MY PCMs. The software levels were 1) initial release, 2) MOP 1, 3) MOP 1 plus fuel calibration changes, and

- 4) MOP 2. The PCM information requested in 1) is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q1 PCM Design".
2. State the number of each of the following, received by GM, or of which GM are 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. Third-party arbitration proceedings where GM is or was a party to the arbitration; and,
  - e. Lawsuits, both pending and closed, in which GM is or was a defendant or codefendant.

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 GM's assessment of the problem, with a summary of the significant underlying facts and evidence. For items "d" and "e", 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 separate tabulation of the number of each item (e.g., consumer complaints, field reports, etc.) that relate to each element (conditions 1 through 5) of the alleged defect definition.

Table 2-1 below summarizes records not previously submitted that could relate to the alleged defect, which now includes all engine fires and three additional model years (2001-2003). The alleged defect in the previous IR was limited to conditions or symptoms that were associated with manifold over-pressurization (MOP) for MY 1996-2000.

GM is providing additional information on previously submitted reports included in GM's response to PE02-050 in Attachment 2F.

TYPE OF REPORT	COUNT (INCLUDING DUPLICATES)	GM REPORTS	GM REPORTS CORRESPONDING TO NHTSA REPORTS	LOCATION OF REPORTS (ATTACHMENT)	NUMBER OF PROPERTY DAMAGE REPORTS NOT INVOLVING A CRASH	NUMBER OF CRASH INCIDENT REPORTS	NUMBER OF REPORTED INJURIES*
Owner Reports	138	138	0	2A	108	0	4
Field Reports and Technical Assistance System Reports	205	204	1	2B	186	0	8
Not-In-Suit Claims	25	25	0	2C-AC	25	0	3
Subrogation Claims	53	53	0	2C-BC	53	0	0
Third Party Arbitration Proceedings	0	0	0	N/A	0	0	0
Product Liability Lawsuits	0	0	0	N/A	0	0	0
Total (Including Duplicates)	421	420	1	N/A	372	0	15
Total (Excluding Duplicates)	366	364	1	N/A	305	0	9

TABLE 2-1: REPORT BREAKDOWN

\* THERE WERE NO REPORTED FATALITIES.

The sources of the requested information and the last date the searches were conducted are tabulated in Table 2-2 below.

SOURCE SYSTEM	LAST DATE GATHERED
Corporate Central File	4/08/2003
Customer Assistance Center	4/10/2003
Technical Assistance Center	4/10/2003
Field Information Network Database (FIND)	4/09/2003
24HR Concern Detection Process (CDP)	4/08/2003
Company Vehicle Evaluation Program (CVEP)	4/09/2003
Early Quality Feedback (EQF)	4/15/2003
Legal / Employee Self Insured Services (ESIS)	5/05/2003
Field Product Report Database (FPRD)	4/09/2003
Problem Resolution Tracking System (PRTS)	4/14/2003

TABLE 2-2: DATA SOURCES

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 a crash is alleged;
  - j. Whether a fire is alleged;
  - k. Whether property damage is alleged;
  - l. Number of alleged injuries, if any;
  - m. Number of alleged fatalities, if any;
  - n. GM component and system codes (if available);
  - o. Complaint/report summary (if available electronically);
  - p. Whether symptom/condition #1 of the alleged defect definition applies (yes/no);
  - q. Whether symptom/condition #2 of the alleged defect definition applies (yes/no);
  - r. Whether symptom/condition #3 of the alleged defect definition applies (yes/no);
  - s. Whether symptom/condition #4 of the alleged defect definition applies (yes/no); and
  - t. Whether symptom/condition #5 of the alleged defect definition applies (yes/no).

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 designed for this submission.

An electronic summary of the records included in request 2 is provided on the CDs in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled "Response for Q3 New Records". Items 3n, "GM component and system codes", and 3o, "Complaint/ report summary", are not available.

Per a telephone conversation with Bruce York of NHTSA, on April 14, 2003, it was clarified that NHTSA is requesting an electronic summary of the reports submitted for PE02-050 (GM 621) with the information requested in 3a-m and 3p-t above. GM is adding seventeen VINs to the summary that were identified in GM 621 Supplement 3 dated February 27, 2003. GM is omitting 34 reports submitted in the response to PE02-050 that are out of scope (other engines/ not 1986-2000 MY vehicles). These reports, identified by case number and VIN, can be found in the folder labeled "Response for Q3 Out of Scope Vehicles". The revised electronic summary is provided on the CDs in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled "Response for Q3 Revised electronic summary".

4. Produce copies of all documents related to each item within the scope of Request No. 2 that involve allegations of fire (i.e., conditions "4" or "5" of the alleged defect definition). Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method GM used for organizing the documents.

Copies of the non-privileged records identified in Item 2 that involve allegations of fire are provided in the attachments listed in Table 2-1. GM has organized the records by the GM file number within each attachment.

5. State, by model and model year, a total count for all of the following categories of claims, collectively, that have been paid by GM to date that relate to, or may relate to, the alleged defect in the subject vehicles or subject components: 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. 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. Labor operation number;
- h. Problem code;
- i. Replacement part number(s) and description(s);
- j. Concern stated by customer; and
- k. Comment, 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 designed for this submission.

GM is providing the total number of warranty claims by model and model year for the subject vehicles. The total number includes the warranty claims submitted in GM's response to PE02-050. A summary of warranty claims that may be related to the subject condition is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q5".

6. Describe in detail the search criteria used by GM to identify the claims identified in response to Request No. 6, 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) related to the alleged defect 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.

The data sources identified in Table 6-1 were searched for warranty claims on the subject vehicles produced for sale or lease in the United States. The databases searched to collect the extended warranty information include additional databases that were added due to

corporate implementation of the TREAD reporting requirements and were not included in the response to PE02-050 (GM 621).

SOURCE SYSTEM	LAST DATE GATHERED
GM North America (NA) Claim Analysis Retrieval Database (CARD)	4/15/2003
Motors Insurance Corporation (MIC) extended warranty	4/28/2003
Universal Warranty Corporation (UWC) extended warranty	5/09/2003

TABLE B-1: DATA SOURCES

CARD and MIC used the following labor operation codes. In addition, CARD used the trouble codes listed below.

Labor Codes (6) for 3.8 L engines C, W, H. and G vehicles	Description	Engine RPO
J0200	Intake manifold, replace upper or lower	L36
J0220	Intake manifold, replace upper or lower	L36
J0260	Intake manifold, replace upper or lower	L36
J0254	Intake manifold, replace upper or lower	L36
J0248	Intake manifold, replace upper or lower	L36
J0224	Intake manifold, replace upper or lower	L36

Trouble Codes (4)	Description
1K	Ruptured
1D	Broken
1E	Burned
3Z	Cracked

UWC used the following labor codes:

Labor Codes (2) for 3.8 L engines C, W, H. and G vehicles	Description	Engine RPO
01065	Engine Gas/Diesel- Seals & Gaskets	L36
01045	Engine Gas/Diesel- Seals & Gaskets	L36

The labor operation codes and trouble codes listed above may be applicable to the alleged defect, but are also related to other issues. These trouble codes were chosen to be consistent with GM's previous response (GM 621).

The subject vehicles are covered by a bumper-to-bumper new vehicle warranty for three years or 36,000 miles whichever occurs first. Many different extended warranty options are available through GM dealerships. They are offered at different prices and for varying lengths of time, based on customer's preference, up to 7 years from the date of purchase or up to a total of 100,000 vehicle miles. The General Motor's warranty system does not contain information on the number of vehicles that have extended warranty coverage.

The warranty data provided has limited analytical value in evaluating the field performance of a motor vehicle component. The warranty records do not contain sufficient information to establish the condition of the part at the time of the warranty correction; and service personnel may not consistently use the appropriate labor and trouble codes. Warranty

numbers represent claims by our dealers for reimbursement for parts and labor costs incurred in performing warranty service for our customers.

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 manufacturer's short name is planning to issue within the next 120 days.**

GM is providing service bulletin #02-06-03-008 Info- Low Voltage Display on IP Gauge, Lights Dim at Stop Lights, Battery Discharged, No Start, Slow Cranking, Dim Lights on Idle, Low Generator Output- (8/21/2002), that may relate to the alleged defect in the subject vehicles on the CDs in Attachment 1; refer to the folder labeled "Response for Q7". GM previously submitted GM Product Campaign 97-C-02 (NHTSA 98V-116) in its response (GM 621, dated August 23, 2002) to PE02-050.

8. **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 or any of the subject components installed 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.**

GM has identified the following actions, 8A-8W, and is providing the documentation electronically. GM is requesting confidentiality for the documents contained in actions 8H, 8J, 8K, and 8V. The date this information was last gathered was April 30, 2003.

8A Airburst testing of original production L36 Intake manifolds

- a. **Air burst testing of original production L36 Intake manifolds**
- b. **December 1, 1993**
- c. **Completed November 8, 1996**
- d. **Determine the air burst pressure capability of L36 Intake Manifold as originally designed.**
- e. **Supplier, Delphi Automotive, Rochester NY**
- f. **Average air burst pressure of all manifolds tested = 83.1 psi ; Range = 77 to 92 psi. Performance specifications established at that time were met. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q6A".**



**8B Raetech testing of original production L36 intake manifolds & manifold with pressure relief bolts**

- a. Raetech testing of original production L36 Intake Manifolds.
- b. November 1997
- c. December 1997
- d. Determine burst pressure of original production L36 Intake Manifolds using a test procedure that was being developed in conjunction with this work. Pressure relief bolts were also evaluated. Per developed test procedure, propane is injected into manifold and then ignited either through an ignition source in the manifold at one of the runners, or through a cylinder pre-chamber simulating the volume of a single cylinder. This test procedure simulates a rapid rise time and temperature of an event.
- e. Test Supplier, Raetech Corporation, Ann Arbor, MI
- f. Range of burst pressures on original production manifold was 70 to 85 psi using internal igniter. Testing of production manifolds at 27 to 30 degree F resulted in burst pressures ranging from 77 to 83 psi. Burst pressures using pre-chamber were higher than internal igniter, ranging from 83 to 86 psi. Tests with pressure relief bolts resulted in lower peak pressures, however, there was inadequate loading for proper sealing, and parts ruptured during low temperature test. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8B".

**8C Develop new test procedure for intake manifold performance**

- a. Develop new test procedure for intake manifold performance
- b. November 1997
- c. January 2000
- d. Develop a test procedure for intake manifolds to determine their ability to withstand combustion of an air fuel vapor mixture.
- e. GM Powertrain and Raetech Corporation, Ann Arbor, MI
- f. Test procedure initially developed in March 1998, and then revised in March of 2000. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8C".

**8D Initial intake manifold spring fastener design**

- a. Original Design "C" Style Pressure Relief Bolt/ Spring
- b. December 11, 1997
- c. June 20, 1998
- d. Design spring loaded fasteners that would allow the manifold pressure to be relieved during a manifold over pressurization event, and still meet the sealing requirements of the joint.
- e. Initial design done by Associated Spring
- f. Initial designs were complete, but testing was required to ensure they performed properly for both sealing and venting.

**8E Raetech testing of original manifold with initial intake manifold spring fastener design**

- a. Raetech testing of original manifold with initial spring fastener design
- b. May 1998
- c. June 1998
- d. Determine peak pressure of original production L36 Intake Manifolds with initial design spring fasteners, using early version of Raetech test method.
- e. Test supplier, Raetech Corporation, Ann Arbor, MI
- f. Peak pressure No burst = 40 to 43 psi without use of pre-burn chamber igniter. 70 psi and rupture with pre-chamber igniter. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8E".

8F Component sealing tests with initial intake manifold spring fasteners

- a. Sealing tests using initial intake manifold spring fasteners
- b. Test request submitted June 15, 1999.
- c. The last test was run September 26, 2000.
- d. The goal of the lab testing was to determine the effects of the springed fasteners on sealability.
- e. GM Powertrain-Warren component test facility.
- f. Test reports are attached below. The main report is L0U6S904Revised.doc covering the sealability testing. The initial spring fastener assemblies were found to be in a higher load range than final design intent (400-500N per spring rather than the 200-360N final target). Test results were mixed with the prototype springs - 5 assemblies were tested, 2 failed early in the test (100 hr. and 300 hr., vs. a test bogey of 1000 hr). The testing described in L0U6S904Revised.doc refers to air leak testing between the upper and lower manifold. This spring design did not meet sealability requirements and was not appropriate for production use. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8F".

8G Airburst testing of 1993-1995 L27 Intake manifolds

- a. Air burst testing of 1993-1995 L27 Intake Manifolds
- b. Approximately May, 1993
- c. Completed August 2, 1993
- d. Determine the air burst pressure capability of L27 intake manifolds as designed.
- e. Supplier, Delphi Automotive, Rochester NY
- f. Average air burst pressure of all manifolds tested = 85.6 psi ; Range = 77 to 95 psi, Performance specifications established at that time were met. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8G".

8H Design a new production feasible intake manifold spring fastener system

- a. Design a new intake manifold spring fastener system that was production feasible.
- b. Fall 2000
- c. Ended with final drawings dated Jan 24, 2001
- d. Summary: finalize the design for a springed fastener including all necessary tolerances, quality control specifications, etc., per the spring load range requirements provided by the Air Delivery Hardware Release Center (HRC).
- e. Design performed by Associated Spring, Inc.
- f. The statement of requirements and the final prints for the spring, the spring/fastener assemblies, and the fasteners can be found on the CD marked Confidential in Attachment 8 which was sent to the Office of the Chief Counsel; refer to the folder labeled "Response to Q8H". Associated Spring was able to design a spring to the requested load range and within the desired package space.

8I Analyze intake manifold structure

- a. Analysis results on Intake manifold
- b. January 2001
- c. June 2001
- d. Perform structural finite element analysis of the Intake manifold geometry to determine stress and strain levels, then evaluate potential geometry changes to improve the structural performance.
- e. GM Powertrain Synthesis and Analysis Group with assistance from GM Research & Development

- i. Analysis results indicated several high stress locations in the current design and suggested design modifications that theoretically would reduce the stress and improve the structural performance. These modifications were subsequently put into production following the validation process described below for redesigned manifold. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8F".
- 8J Raetech testing of original L36 intake manifolds with production design intake manifold spring fasteners, and other pressure relief systems**
- a. Raetech testing (per test procedure GM3743, developed March 1998 revised Jan. 2000) propane burst testing of original L36 Intake Manifolds with production design 280N pressure relief fasteners, and other pressure relief systems.
  - b. February 14, 2001
  - c. March 19, 2001
  - d. Determine peak pressure of L36 Intake Manifolds with production design 280N pressure relief fasteners, using developed test procedure employing propane to simulate rapid rise time and temperature of event. Also evaluate other possible pressure relief systems.
  - e. Test supplier, Raetech Corporation, Ann Arbor, MI
  - f. Spring fastener peak pressure = 43 psi; no burst of manifold; Foam gasket peak pressure = 68 psi, manifold burst; Extruded rubber gasket peak pressure = 76 psi, manifold burst; Foam gasket with springs peak pressure = 36, no burst of manifold, but gasket blew out of location. The electronic documentation is provided on the CD marked Confidential in Attachment 8 which was sent to the Office of the Chief Counsel; refer to the folder labeled "Response for Q8J".
- 8K Deep thermal cycling test with production designed intake manifold spring fasteners**
- a. Deep thermal cycling engine test with new production designed spring loaded fasteners
  - b. April 16, 2001
  - c. January 17, 2002
  - d. Determine the durability performance of an engine on deep thermal cycling test that has spring loaded intake fasteners installed.
  - e. GM Powertrain
  - f. Engine successfully completed the test. Observations of a light milky mixture of coolant and oil was detected in the inside of intake manifold gasket after each 100 cycle inspection. The electronic documentation is provided on the CD marked Confidential in Attachment 8 which was sent to the Office of the Chief Counsel; refer to the folder labeled "Response for Q8K".
- 8L Airburst testing of redesigned L36 intake manifolds**
- a. Air burst testing of redesigned L36 Intake manifolds
  - b. April 2002
  - c. On-going
  - d. Determine the air burst pressure capability of L36 Intake Manifold as redesigned for improved strength.
  - e. Supplier, Delphi Automotive, Rochester NY
  - f. Average air burst pressures(psi) by mold cavity: Cav7= 96, Cav8=106, Cav9=113, Cav10=126, Cav11=122, Cav12=124. Performance specifications established at that time were met.
- 8M Raetech testing of redesigned L36 intake manifolds**
- a. Raetech testing (per test procedure GM3743, developed March 1998 revised Jan. 2000) propane burst testing of L36 Intake Manifolds as redesigned for improved strength.
  - b. August 2002

- c. On-going
- d. Determine burst pressure of L36 Intake Manifolds as redesigned, using developed test procedure employing propane to simulate rapid rise time and temperature of event and cylinder pre-chamber to simulate volume of a single engine cylinder.
- e. Test supplier, Raatech Corporation, Ann Arbor, MI
- f. Average burst pressures and average safety factors by mold cavity: Cav7= 95, Cav8=115, Cav9=103, Cav10=125, Cav11=132, Cav12=129 Safety Factors Avg: Cav7= 1.15, Cav8=1.22, Cav9=1.13, Cav10=1.36, Cav11=1.47, Cav12= 1.44. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8M".

8N Validation test of spring loaded fasteners on 58 vehicles

- a. Vehicle validation testing of spring loaded fasteners
- b. September 21, 2002
- c. Expected end date is December 8, 2003
- d. The purpose of the field fleet is to develop the procedure to install the MOP fasteners, and to monitor the fleet for signs of potential problems caused by the MOP fasteners, if any. This will be done by monitoring the engine for signs of coolant leakage internally and externally, as well as monitoring engine operating parameters for indications of un-metered air entering the engine.
- e. GM Powertrain 60/90 degree V6 engine group.
- f. The 58 cars of the 3800 field fleet have accumulated approximately 528,000 miles to date. Three vehicles to date have leaked coolant into the engine oil according to lab analysis of used engine oil samples and have been repaired. Based on data snapshots collected during each service procedure on the vehicles, the MOP fasteners cause a 3% shift to enrich the air/ fuel mixture after their installation. The thirty-eight vehicles that have been in the fleet for greater than 180 days have had a total fuel trim shift of approximately 5% (includes the 3% step change from installation). The fleet test program is expected to end in approximately seven months with the fleet accumulating over 1,000,000 miles.

8O Document MOP event on test vehicle at MPG

- a. Investigate MOP event on vehicle #0XT79089 (from the fleet described in 8N). Use external data recording devices to try to capture engine data during a MOP event.
- b. October 2002
- c. On going. Expected completion 5/16/03
- d. Document engine parameters on a vehicle while a MOP event is occurring. This vehicle was part of Field test fleet, when several MOP events occurred. The vehicle was sent to Milford Proving Grounds (MPG) for attempts at documenting the event. Initial evaluation included installation of fuel pressure and ignition monitoring hardware along with Modular Development System Calibration Instrumentation. Various soak and prep schedules were performed with no MOP events. On Feb 13, 2003, the vehicle was instrumented with high speed electronic strip chart equipment to monitor engine position, Manifold Absolute Pressure, fuel injectors (1-6), Cam Position, Electronic Spark Timing, Bypass, A/C Clutch, Ignition voltage, Secondary Ignition inductive pick-ups. All the above channels were recorded before, during and after any MOP event.
- e. GM Powertrain
- f. Testing was conducted with the high speed strip chart and recorded multiple MOP events. Further observations showed that the fuel pressure regulator was allowing fuel to enter the intake manifold during the testing. A new fuel pressure regulator has been installed and further testing is ongoing. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8O".

8P Powertrain GM 621 workbook

- a. Powertrain GM 621 workbook
- b. Created Oct. 10, 2002
- c. Ongoing analysis
- d. Track and analyze MOP incidents in one workbook
- e. GM Powertrain
- f. On-going analysis tracking of total MOP incidents, IPTV by model year, IPTV by car-line by model year, IPTV by plant by model year, Cumulative IPTV by days in service. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8P".

8Q Raatech testing of L27 Intake manifolds

- a. Raatech testing (per test procedure GM3743, developed March 1998 revised Jan. 2000) propane burst testing of L27 Intake Manifolds as produced.
- b. November 24, 2002
- c. December 18, 2002
- d. Determine burst pressure of L27 Intake Manifolds as produced, using developed test procedure employing propane to simulate rapid rise time and temperature of event.
- e. Test supplier, Raatech Corporation, Ann Arbor, MI
- f. Average burst pressure = 93.5 psi Safety factor avg= 1.46 . L27 manifolds have safety factors above performance criteria. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8Q".

8R MOP IPTV analysis by state

- a. MOPs by state IPTV
- b. Created January 30, 2003
- c. Completed February 4, 2003
- d. Trend analysis for where MOP incidents occurred by U.S. state.
- e. GM Powertrain
- f. No meaningful pattern was observed. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8R".

8S 1996 thru 2002 MOP IPTV over various exposure periods

- a. 1996-2002 model year IPTV at various exposure periods
- b. Created February 25, 2003
- c. Ended May 1, 2003
- d. Analysis of manifold over-pressurization (MOP) events by model year & by year of exposure.
- e. GM Powertrain
- f. The incident rates per year of exposure appear to be relatively constant. 1996 MY had higher level of first year pre-delivery incidents compared to other years.

8T Analysis of recorded Backfire events on vehicle at MPG

- a. Analysis of recorded backfire event on vehicle at MPG
- b. March 28, 2003
- c. On-going as data becomes available
- d. There is a vehicle in the test fleet that has repeatedly produced backfires that exercised the pressure relief springs. This vehicle has been instrumented to record several engine controls system parameters. This data was analyzed in an attempt to identify the source of ignition for the backfire event.
- e. GM Powertrain

- f. In the case of this particular vehicle, the documented backfires were caused by reverse rotation of the engine after the starter has been disengaged. Four files have been analyzed, the ignition module and the PCM were working as expected and designed. In each case, the reverse rotation of the engine caused a spark to be delivered to a cylinder that, based on crankshaft position, had an intake valve open enough to allow propagation of a flame front into the intake manifold. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8T".

8U Battery Warranty IPTV by model for 1998 thru 2000 vehicles

- a. Battery warranty IPTV by model for subject vehicles
- b. Created April 28, 2003
- c. Ended May 1, 2003
- d. Analysis of battery warranty data on subject vehicles
- e. GM Powertrain
- f. The 1997 thru 2000 Park Avenue has a higher battery warranty rate. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8U".

8V Potential 3800 V6 Field Corrective Actions

- a. Potential 3800 V-6 Field Corrective Actions.
- b. Summary Initiated December 2002
- c. Latest version of summary dated January 10, 2003.
- d. Estimation of tooling lead time, production time, investment, part cost and labor cost for potential changes to address MOP incidents.
- e. GM Powertrain with assistance from production suppliers.
- f. Estimates were made. The electronic documentation is provided on the CD marked Confidential in Attachment 8 which was sent to the Office of the Chief Counsel; refer to the folder labeled "Response for Q8V" (Cost information was removed).

8W MOP IPTV vs Battery IPTV

- a. MOP IPTV for each model and model year plotted vs. battery replace IPTV at 3 years.
- b. April 2003
- c. April 2003
- d. Compare incidence of MOP events and battery replacement warranty.
- e. GM Powertrain
- f. No consistent pattern was identified. The electronic documentation is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Q8W".

9. Describe all modifications or changes made by, or on behalf of, GM in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production 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 GM is aware of which may be incorporated into vehicle production within the next 120 days.

GM is providing the requested information, 9a-h, for the PCMs and the manifold on the CDs in Attachment 1; refer to the folder labeled "Response for Q9".

10. State the number of each of the following that GM has sold that may be used in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (including the cut-off date for sales, if applicable):
- a. Subject components; and
  - b. Any kits that have been released, or developed, by GM for use in service repairs to the subject component/assembly.

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, any other vehicles of which GM is aware that contain the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Per a telephone conversation with Bruce York of NHTSA on April 14, 2003, it was decided that for this question the subject components would be intake manifolds only. GM is providing parts sold information for the 3.8 and 3.1 liter engine intake manifolds. Monthly service part sales are available for the past 24 months. The sales figures reflect parts sold for any model years for which the part applies. GM is providing the requested information on the CDs in Attachment 1; refer to the folder labeled "Response for Q10".

The quantity of upper intake manifold kits sold since calendar year 2000 can be explained in part by a service bulletin issued for certain vehicles with 3.8 liter engines. In July 2001, service bulletin 01-01-01-007A was released which addressed a coolant leak and EGR valve issue at the upper intake manifold. The service bulletin was submitted in response to PE02-050 in Attachment 4. Another reason is that automotive repair technicians may order the upper intake manifold kit (which includes the gaskets) to repair leaks and replace the entire manifold instead of ordering the gaskets individually.

11. For each battery make and model installed as factory equipment on the subject vehicles, provide the part number, the make, the model, the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Provide the design lifetime in miles and time for each battery and any scheduled maintenance or inspection that should be performed on this part. Also, describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") of the factory installed batteries that relate to, or may relate to, the alleged defect or any of the subject components installed in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, GM.

GM is providing a spreadsheet for the subject vehicles with the requested battery information on the CDs in Attachment 1; refer to the folder labeled "Response for Qu11". GM and the battery supplier, Delphi Automotive (Delphi), have not located any documentation regarding design lifetime in miles or time for the batteries. The batteries are maintenance free. Delphi is not aware of any action that relates to or may relate to the alleged defect or any of the subject components installed in the subject vehicles. GM engineering actions involving the battery are included in the response to question 8.

12. Identify, and provide copies of, all technical service bulletins or customer satisfaction campaigns that have been issued that are related to ignition timing on the subject vehicles.

GM is providing the documentation referenced in response to question 7.

13. Provide the same data requested in Requests 1, 2, 3, 5, and 10 for all MY 1996 through 2003 subject models equipped with 3.1 liter engines.

Request 13-1: Vehicles Produced

GM is providing the number of vehicles produced, with 3.1 liter engines for the same make and models of the subject vehicles, for sale or lease in the United States by make, model, and model year in Table 13-1 below.

Make	Model	1996	1997	1998	1999	2000	2001	2002	2003	Total
Buick	Regal	33,596	N/A	N/A	N/A	N/A	N/A	N/A	N/A	33,596
Pontiac	Grand Prix	73,063	10,455	27,978	36,016	41,658	43,784	64,294	38,526	334,774
Chevrolet	Monte Carlo	55,088	56,847	47,464	53,148	N/A	N/A	N/A	N/A	216,545
Chevrolet	Lumina	220,559	234,821	198,734	111,325	37,483	42,802	N/A	N/A	813,551
	Total									1,400,446

TABLE 13-1 PRODUCTION FOR SALE OR LEASE IN THE UNITED STATES BY MAKE AND MODEL YEAR  
NOTE: N/A = NOT APPLICABLE

The letter designators for question 1 were corrected for duplication. The production information requested in 1a-g and m separately for each subject vehicle is provided on the CDs in Attachment 1; refer to the Microsoft Access 2000 file folder labeled "Response for Qu13-1 Production Data". The information requested in 1h-l is not applicable and is not being provided. The battery information requested in 1h is provided in the response to question 11 by vehicle model, model year, and engine type. GM is providing the state where the vehicle was shipped in response to request 1m. The source of the requested information, current as of May 2, 2009, is the GM Vehicle Production System (GMVPS) and the GM North America (NA) Claim Analysis Retrieval Database (CARD).

Request 13-2: Reports

Table 13-2 below summarizes the records that could relate to the alleged defect for the subject vehicles equipped with 3.1 liter engines. The alleged defect includes all types of engine fires and is not limited to the MOP issue.



TYPE OF REPORT	COUNT (INCLUDING DUPLICATES)	GM REPORTS	GM REPORTS CORRESPONDING TO NHTSA REPORTS	LOCATION OF REPORTS (ATTACHMENT)	NUMBER OF PROPERTY DAMAGE REPORTS NOT INVOLVING A CRASH	NUMBER OF CRASH INCIDENT REPORTS	NUMBER OF REPORTED INJURIES*
Owner Reports	38	38	0	13A	21	0	1
Field Reports and Technical Assistance System Reports	45	45	0	13B	37	0	1
Not-In-Suit Claims	4	4	0	13C-AC	4	0	1
Subrogation Claims	0	0	0	N/A	0	0	0
Third Party Arbitration Proceedings	0	0	0	N/A	0	0	0
Product Liability Lawsuits	0	0	0	N/A	0	0	0
Total (Including Duplicates)	87	87	0	N/A	62	0	3
Total (Excluding Duplicates)	75	75	0	N/A	50	0	2

TABLE 13-2: REPORT BREAKDOWN FOR 3.1 L ENGINES IN SUBJECT VEHICLES  
 \* THERE WERE NO REPORTED FATALITIES.

SOURCE SYSTEM	LAST DATE GATHERED
Corporate Central File	4/08/2003
Customer Assistance Center	4/10/2003
Technical Assistance Center	4/10/2003
Field Information Network Database (FIND)	4/09/2003
24HR Concern Detection Process (CDP)	4/08/2003
Company Vehicle Evaluation Program (CVEP)	4/08/2003
Early Quality Feedback (EQF)	4/15/2003
Legal / Employee Self Insured Services (ESIS)	5/08/2003
Field Product Report Database (FPRD)	4/08/2003
Problem Resolution Tracking System (PRTS)	4/14/2003

TABLE 13-3: DATA SOURCES

**Request 13-3: Reports Summary**

An electronic summary of the records included in request 13-2 is provided on the CDs in Attachment 1; refer to the Microsoft Access 2000 file in the folder labeled "Response for Qu13-2." GM has organized the records by the GM file number within each attachment.

**Request 13-5: Warranty**

GM is providing the total number of warranty claims by make, model, and model year for the subject vehicles equipped with 3.1 liter engines. A summary of warranty claims that may be related to the subject condition is provided on the CDs in Attachment 1; refer to the folder labeled "Response for Qu13-5 Warranty for certain 3.1 liter engines".

Refer to the information in response to question 6 which also applies here, except for the labor codes, which are listed below.

Labor Codes (6) for 3.1 L engines W vehicles	Description	Engine RPO
J0200	Manifold and/or gaskets, intake- replace	L82/LG8
J0220	Manifold Intake upper-R&R or replace	L82/LG8
J0224	Manifold Intake lower-R&R or replace	L82/LG8
J0225	Intake lower manifold	L82/LG8
J0254	Manifold Intake upper- replace	L82/LG8
J0258	Manifold Intake lower- replace	L82/LG8

**Request 13-10: Service Parts**

GM provided service part sales for manifolds used on 3.1 liter (L82, LG8) engines in response to question 10; refer to the CDs in Attachment 1, the folder labeled "Response to Qu10".

14. **Furnish a detailed comparison of the alleged defect in the subject vehicles and the condition addressed by the subject recall. Include in your comparison the following information:**
- The differences between the causal or contributory factor(s) in the two populations (e.g., design, duty cycle);**
  - Any design, manufacturing, or use conditions that may explain differences in failure frequencies between different platforms and/or models equipped with the subject engines;**
  - The differences in the failure mechanism(s) in the two populations (if any), based on returned part analysis or other data (state the basis for GM's assessment);**
  - The failure mode(s);**
  - The differences in the risk to motor vehicle safety (if any) that are posed by the alleged defect and the condition addressed in the subject recall;**
  - The design lifetime in miles and time for the subject component and any scheduled maintenance or inspection that should be performed on this part;**
  - The predicted service lifetimes of the subject components in the two populations based on GM's analysis of failure data measured against vehicle age and vehicle mileage (i.e., warranty and complaints);**
  - 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**
  - The reports included with this inquiry.**

The key difference between the condition addressed by recall No. 96V-116 and the alleged defect in the subject vehicles is the rate of MOP events in the two populations. As shown below, GM's recall decision was made at a time when the prevailing MOP rate was far higher than it has been since the recall.

In the spring of 1996, when GM made its decision to conduct recall No. 96V-116, it was aware of eighteen MOP incidents. Those incidents had occurred in a population of vehicles that had, on average, less than six months' worth of exposure (including some early introduction MY 1997's). Had there been no recall and had that rate continued for another seven years to the present, the cumulative incident rate today would be nearly 90 MOP events per 100,000 vehicles.

Of course, GM did decide to conduct a recall and that campaign has been quite successful in lowering the incidence of MOP events. Specifically, to the present time, the cumulative incident rate in the population of MY 1996-97 vehicles that received the recall calibration is about 11 MOP events per 100,000 vehicles.

As these numbers show, the incidence of MOP events in the field-modified vehicles is almost an order of magnitude lower than the rate GM was confronting at the time of its recall decision. Vehicles manufactured after the recall also had the benefit of revised engine calibrations and the rate of MOP events in that population is comparable to that of the vehicles modified in the field. The average rate for those later-produced vehicles is about 8 incidents per 100,000 vehicles. This information is being provided on the CDs in Attachment 1; refer to the folder labeled "Response to Q14".

Against this backdrop, GM continues to believe that the alleged defect does not pose an unreasonable risk to motor vehicle safety. After the changes introduced in production and in the field (per recall 96V-116), the MOP incidence is far below the level GM had seen at the time of its recall decision. The rate of MOP-related fires is also far lower. Neither the rate of MOP events nor the rate of MOP-related fires shows an increasing trend. Moreover, the fires attributable to the MOP condition nearly always occur when someone is trying to start the engine, before the vehicle starts to move, and typically are preceded by a loud backfire noise that provides an indication of unusual operation. As a result, there have been no reports of crashes resulting from the alleged defect. Only four injuries have been alleged, all of which appear to be relatively minor.

The balance of this response addresses question 14a-1.

a. The differences between the causal or contributory factor(s) in the two populations (e.g., design, duty cycle).

GM believes that the cause of the MOP events in the subject vehicles is generally the same as the cause of those events in the original recall population. However, GM's design changes appear to have substantially reduced the potential for MOP incidents to occur in the subject vehicles as explained above.

Other factors may also reduce the potential for future occurrence of MOP events in the subject vehicles. For example, nearly 10 percent of the MOP incidents to date have involved unsold vehicles. These vehicles may be especially prone to MOP occurrence as a result of extended periods in marshaling yards or dealer lots without operation. Since the vast majority of the subject vehicles have now been sold, the incidence of MOP events could decline by as much as ten percent on this basis alone.

b. Any design, manufacturing, or use conditions that may explain differences in failure frequencies between different platforms and/or models equipped with the subject engine.

The incidence of MOP events varies for different models within the population of subject vehicles and even for individual model years of a given model. Some of these differences may result from differences in vehicle design, particularly of the vehicle electrical system. Variations in electrical load may also be important and may result from differences in option content and use, but a correlation to MOP events has not been established. GM is continuing to study these factors.

c. The differences in the failure mechanism(s) in the two populations (if any), based on returned part analysis or other data (state the basis for GM's assessment)

GM has identified no systematic difference in the failure mechanisms of the two populations.

d. The failure modes.

GM has identified no difference in the failure modes for the two different populations.

e. The differences in the risk to motor vehicle safety (if any) that are posed by the alleged defect and the condition addressed in the subject recall.

As explained above, GM's recall decision came at a time when it might reasonably have expected hundreds of MOP incidents in the recall population. After the design changes implemented by the recall and in production, the vehicles have experienced a dramatically lower rate of MOP events. In GM's view, this is a quantum difference in the risk to motor vehicle safety.

f. The design lifetime in miles and time for the subject component and any scheduled maintenance or inspection that should be performed on this part.

GM has identified no difference between the two populations in this regard.

g. The predicted service lifetimes of the subject components in the two populations based on GM's analysis of failure data measured against vehicle age and mileage (i.e. warranty and complaints).

Based on our investigations to date, we see no trend with vehicle age or mileage in either population. MOP events seem to occur randomly, independently of time, mileage, wear or use.

h. 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.

In both populations, there is generally a loud noise marking a MOP event.

i. The reports included with this inquiry.

GM has reviewed the 26 reports included with this information request. GM has concluded that 9 of these reports are potentially related to the alleged defect. These reports do not alter any of GM's preceding analyses of this issue.

\* \* \*

General Motors requests that the documents stamped "GM Confidential" included in Attachments 8H, 8J, 8K, and 8V be afforded confidential treatment by the NHTSA. This information is not customarily made public by General Motors and contains trade secrets and commercial information which is privileged or confidential under 5 U.S.C. Section 552(b)(4), 49 CFR Part 512 and 49 U.S.C. Section 30167(a).

Attachments 8H, 8J, 8K, and 8V include these types of documents: engineering drawings, test procedures, test results, specifications, and analyses related to the design of a proposed, future part. Because the part has not been put into production, competitors do not have access to GM's concept or design. These documents have commercial value that can only be obtained independently, if at all, at considerable cost. This information can be used by competitors to identify quality and performance problems or differences, thereby enabling them to improve their own products, without the expenditures associated with the evaluation of products, all at the expense of General Motors. Attachments 8H, 8J, 8K, and 8V also contain commercial information the disclosure of which would likely result in substantial competitive harm.

General Motors treats these documents as confidential proprietary information available only to authorized General Motors personnel and not otherwise available to the public. The documents are maintained under a record-keeping system which is intended to control dissemination of this material within General Motors, and to assure that it is not disseminated outside the Corporation, except as described in the attached certification made pursuant to 49 CFR Part 512.4(e).

To the best of our knowledge, no prior determinations of the confidentiality of these documents have been made by the NHTSA, other Federal Agencies, or the Federal Courts. Documents such as those contained in Attachments 8H, 8J, 8K, and 8V, however, have, to the best of our knowledge, normally been granted confidential treatment by the NHTSA in the past. The drawings in Attachment 8H, 8J, 8K, and 8V are of a type for which a class determination of confidentiality has been made under 49 CFR Part 512, Appendix B.

The documents for which confidential treatment is being requested, with a copy of this letter, are being submitted to your Office of the Chief Counsel. Confidential treatment of this material is requested for an indefinite period.

The documents subject to this request for confidentiality have been clearly stamped "GM CONFIDENTIAL". If a request for disclosure of any or all of this information is received by the NHTSA, General Motors requests notification of receipt of each such request and, if necessary, an opportunity to further explain the reasons why such material is trade secret and commercial information which should not be disclosed under the applicable statutes and regulations.

GM claims that certain information, in documents that are part of 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 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.

Particularly with regard to question 8, GM's counsel and their consultants have undertaken certain actions in order to provide GM with legal advice about this investigation. This work and the documents related to it are subject to the attorney-client privilege and attorney work product doctrine.

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 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 1995, 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. Communications to, from, or intended for zone representatives, fleets, dealers, or others in 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,



Lyndon R. Lie  
Director  
Product Investigations

Attachments

CERTIFICATE IN SUPPORT OF REQUEST FOR CONFIDENTIALITY

I, Lyndon R. Lie, pursuant to the provisions of 49 CFR Part 512 state as follows:

- (1) I am Director of Product Investigations, and I am authorized by General Motors Corporation (GM) to execute documents on its behalf;
- (2) The information stamped "GM Confidential" contained in Attachments 8H, 8J, 8K, and 8V to this document is confidential and proprietary data and is being submitted with the claim that it is entitled to confidential treatment of 5 USC §552(b)(4), 49 U.S.C. Section 30167(a) and implemented in 49 CFR Part 512;
- (3) I, or members of my staff, have personally inquired of the responsible GM personnel who have authority in the normal course of business to release the information for which a claim of confidentiality has been made to ascertain whether such information has ever been released outside GM;
- (4) Based upon such inquiries to the best of my knowledge, information and belief, the information for which GM has claimed confidential treatment has never been released or become available outside GM, except as hereinafter specified: None.
- (5) I make no representations beyond those contained in this certificate and in particular, I make no representations as to whether this information may become available outside GM because of unauthorized or inadvertent disclosure except as stated in Paragraph 4; and,
- (6) I certify under penalty of perjury that the foregoing is true and correct. Executed on this the 16th day of May 2003.



Lyndon R. Lie  
Director  
Product Investigations