



GENERAL MOTORS CORPORATION

Vehicle Structure & Safety Integration

April 25, 2008

Jeffrey L. Quandt, Chief  
Vehicle Control Division  
Office of Defects Investigation  
National Highway Traffic Safety Administration  
1200 New Jersey Ave., S. E., Room W48-307  
Washington, D.C. 20590

N080048

NVS-213dlr  
PE08-010

Dear Mr. Quandt:

This letter is General Motors' (GM) response to your information request (IR), dated March 5, 2008, regarding allegations of engine compartment fire in model year (MY) 2007 Chevrolet Tahoe and GMC Yukon sport utility vehicles manufactured by General Motors Corporation.

As discussed in a telephone conversation with a member of your staff on March 12, 2008, GM is providing information for the following subject vehicles: all MY 2007 through 2008 Chevrolet Tahoe, Avalanche, Silverado and Suburban; GMC Sierra and Yukon; and Cadillac Escalade vehicles manufactured for sale or lease in the United States

Additionally, GM is providing information for the following peer vehicles: all MY 2006 Chevrolet Tahoe, Avalanche, Silverado and Suburban; GMC Sierra and Yukon vehicles; Cadillac Escalade; and MY 2006 through MY 2008 Hummer vehicles manufactured for sale or lease in the United States.

Your questions and our corresponding replies are as follows:

1. **State, by model, engine 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 vehicle manufactured to date by GM, state the following:**
  - a. **Vehicle identification number (VIN);**
  - b. **Make;**
  - c. **Model;**
  - d. **Model Year;**
  - e. **Engine (RPO code);**
  - f. **Whether the vehicle has the heated windshield washer fluid option;**
  - g. **Date of manufacture;**
  - h. **Date warranty coverage commenced; and**
  - i. **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 "PE08-010 PRODUCTIONDATA." See Enclosure, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.**

General Motors is providing the number of subject and peer vehicles produced for sale or lease in the United States by make, model and model year in Tables 1-1 and 1-2 below:

**Product Investigations**

Mail Code: 480-210-G11 • 30001 Van Dyke • Warren, MI 48090  
PE08-010\_N080048 Response.doc

MAKE	MODEL GROUP (GMT 900)	2007	2008	TOTAL
Chevrolet	Silverado (GMT 900)	435,087	390,021	825,108
Chevrolet	Silverado (GMT 800)	273,696	N/A	273,696
Chevrolet	Tahoe	250,623	90,098	340,721
Chevrolet	Suburban	117,875	54,068	171,943
Chevrolet	Avalanche	87,279	32,203	119,482
GMC	Sierra (GMT 900)	137,961	141,633	279,594
GMC	Sierra (GMT 800)	85,618	N/A	85,618
GMC	Yukon	114,358	40,003	154,361
GMC	Yukon XL	68,404	26,092	94,496
Cadillac	Escalade	60,463	23,378	83,841
Cadillac	Escalade ESV	24,844	11,776	36,620
Cadillac	Escalade EXT	11,913	4,669	16,582
Total		1,668,121	813,941	2,482,062

TABLE 1 - 1 SUBJECT VEHICLES

MAKE	MODEL GROUP (GMT 800)	2006
Chevrolet	Silverado	624,409
Chevrolet	Tahoe	52,656
Chevrolet	Suburban	30,734
Chevrolet	Avalanche	27,346
GMC	Sierra	212,743
GMC	Yukon	24,254
GMC	Yukon XL	24,570
Cadillac	Escalade	13,558
Cadillac	Escalade ESV	6,210
Cadillac	Escalade EXT	3,023
Hummer	H2 SUT (2006-2008MY)	8,473
Hummer	H2 Utility (2006-2008MY)	31,334
Total		1,059,310

TABLE 1 - 2 PEER VEHICLES

The production information requested in 1a-1g is provided on the Att\_1\_GM disk in the folder labeled Q\_01, refer to the Microsoft Access 2000 file labeled, "Q\_01\_PRODUCTION DATA." GM is providing the state where the vehicle was shipped in response to request 1g. For some of the subject vehicles, which have incomplete warranty files, the GM warranty system does not contain a warranty start date or state where the vehicle was shipped and, therefore, these fields are blank in the Microsoft Access 2000 file.

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, (a) the alleged defect or (b) any failure of the windshield washer fluid heater in the subject and peer vehicles:

- a. Consumer complaints, including those from fleet operators;
- b. Field reports, including dealer field reports;
- c. Reports involving a fire, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;
- d. Property damage claims; and
- e. Third-party arbitration proceedings where GM is or was a party to the arbitration; and
- f. 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 "f", 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 "f" and "g" 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.

Tables 2-A1 and 2-A2 below summarize records that could relate to an engine compartment fire. GM is also providing reports that may be related to failure of the washer fluid heater system in the subject and peer vehicles in Table 2-B1 and 2-B2. GM has organized the records by the GM file number within each attachment.

TYPE OF REPORT	GM REPORTS	SUBCATEGORIES			
		CORRESPONDING TO NHTSA REPORTS	NUMBER WITH PROPERTY DAMAGE	NUMBER WITH CRASH	NUMBER* WITH INJURIES
Owner Reports	27	1	0	0	0
Field Reports	1	0	0	0	0
Not-In-Suit Claims	13	2	1	0	0
Subrogation Claims	14	0	2	0	0
Third Party Arbitration Proceedings	0	0	0	0	0
Product Liability Lawsuits	1*	1	1	0	0
Total Reports (Including Duplicates)	56	4	4	0	0
Total Vehicles with Reports (Unique VIN)	41	3	4	0	0

TABLE 2-A1: UNDER HOOD FIRE REPORTS FOR SUBJECT VEHICLES

\* ONE VOQ INDICATED INJURIES BUT THE CORRESPONDING GM REPORT CONTAINED INSUFFICIENT INFORMATION TO DETERMINE IF ANY PHYSICAL INJURIES HAVE OCCURRED.

TYPE OF REPORT	GM REPORTS	SUBCATEGORIES			
		CORRESPONDING TO NHTSA REPORTS	NUMBER WITH PROPERTY DAMAGE	NUMBER WITH CRASH	NUMBER WITH INJURIES
Owner Reports	35	0	1	0	0
Field Reports	2	0	0	0	0
Not-In-Suit Claims	13	0	1	0	0
Subrogation Claims	25	0	2	0	0
Third Party Arbitration Proceedings	0	0	0	0	0
Product Liability Lawsuits	4	0	0	0	0
Total Reports (Including Duplicates)	79	0	4	0	0
Total Vehicles with Reports (Unique VIN)	64	0	4	0	0

TABLE 2-A2: UNDERHOOD FIRE REPORTS OR PEER VEHICLES

TYPE OF REPORT	GM REPORTS	SUBCATEGORIES			
		CORRESPONDING TO NHTSA REPORTS	NUMBER WITH PROPERTY DAMAGE	NUMBER WITH CRASH	NUMBER WITH INJURIES
Owner Reports	5	1	0	0	0
Field Reports	83	1	0	0	0
Not-In-Suit Claims	0	0	0	0	0
Subrogation Claims	0	0	0	0	0
Third Party Arbitration Proceedings	0	0	0	0	0
Product Liability Lawsuits	0	0	0	0	0
Total Reports (Including Duplicates)	88	2	0	0	0
Total Vehicles with Reports (Unique VIN)	87	2	0	0	0

TABLE 2-B1: WASHER FLUID HEATER REPORTS FOR SUBJECT VEHICLES

TYPE OF REPORT	GM REPORTS	SUBCATEGORIES			
		CORRESPONDING TO NHTSA REPORTS	NUMBER WITH PROPERTY DAMAGE	NUMBER WITH CRASH	NUMBER WITH INJURIES
Owner Reports	0	0	0	0	0
Field Reports	17	0	0	0	0
Not-In-Suit Claims	0	0	0	0	0
Subrogation Claims	0	0	0	0	0
Third Party Arbitration Proceedings	0	0	0	0	0
Product Liability Lawsuits	0	0	0	0	0
Total Reports (Including Duplicates)	17	0	0	0	0
Total Vehicles with Reports (Unique VIN)	17	0	0	0	0

TABLE 2-B2: WASHER FLUID HEATER REPORTS FOR PEER VEHICLES

To date, GM's investigation of the alleged defect has not included an assessment of the cause(s) of each incident responsive to Request No. 2. Some incident reports may not contain sufficient reliable information to accurately assess cause.

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
Customer Assistance Center	3/20/2008
Technical Assistance Center	4/3/2008
Field Information Network Database (FIND)	3/12/2008
Field Product Report Database (FPRD)	3/12/2008
Company Vehicle Evaluation Program (CVEP)	3/13/2008
Captured Test Fleet (CTF)	3/13/2008
Early Quality Feedback (EQF)	3/13/2008
Legal / Employee Self Insured Services (ESIS)/Product Liability Claims/ Lawsuits	3/27/2008

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 fire is alleged;
- j. Whether property damage is alleged to surrounding vehicles and/or structures;
- k. Number of alleged injuries, if any;
- l. Number of alleged fatalities, if any;
- m. Ignition switch position;
- n. Whether the fire was investigated by any third party (e.g., reports associated with subrogation claims);
- o. The alleged cause of the fire;
- p. The alleged origin of the fire;
- q. Whether the fire was investigated by, or for, GM;
- r. GM's assessment of the cause of the fire; and
- s. GM's assessment of the origin of the fire.

Provide this information in Microsoft Access 2003, or a compatible format, entitled "PE08-010 REQUEST NUMBER TWO DATA." See Enclosure, Data Collection Disc, for a preformatted table that provides further details regarding this submission.

The requested information is provided in two databases on the Att\_1\_GM disk in the folder labeled Q\_03, refer to the Microsoft Access 2000 file labeled, "Q\_03\_REQUEST NUMBER TWO DATA." Some incident reports may not contain sufficient reliable information to accurately answer all parts of question 3.

- 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.**

Copies of the records summarized in Tables 2-A1, 2-A2, 2-B1 AND 2-B2 are on the Att\_1\_GM disk embedded in the folder labeled Q\_03; refer to the Microsoft Access 2000 file labeled, "Q\_03\_REQUEST NUMBER TWO DATA." 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, (a) the alleged defect or (b) any failure of the windshield washer fluid heater in the subject and peer vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.**

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

- a. 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, if any, by dealer/technician relating to claim and/or repair;
- l. And whether a fire is alleged.

**Provide this information in Microsoft Access 2003, or a compatible format, entitled "PE08-010 WARRANTYDATA." See Enclosure, Data Collection Disc, for a pre-formatted table that provides further details regarding this submission.**

For the subject vehicles, GM found 4 regular warranty claims for underhood electrical system failures that may relate to the subject condition. GM is also providing 2050 warranty claims for the windshield washer fluid heater system on the subject vehicles.

For the peer vehicles, GM found 5 regular warranty claims for underhood electrical system failures that may relate to the subject condition. GM is also providing 213 warranty claims for the windshield washer fluid heater system on the peer vehicles.

For the subject vehicles, GM did not identify any MIC or UWC extended warranty claims that are related to the subject condition. GM is providing eight MIC extended warranty claims for the windshield washer fluid heater system on the subject vehicles. See Table 5-C.

For the peer vehicles, GM did not identify any MIC or UWC extended warranty claims that may relate to the subject condition or the windshield washer fluid heater system.

The information is summarized in Tables 5-A1, 5-A2, 5-B1, 5-B2 and 5-C.

MAKE	MODEL GROUP (GMT 900)	2007	2008
Chevrolet	Silverado (GMT 900)	3	0
Chevrolet	Silverado (GMT 800)	0	0
Chevrolet	Tahoe	0	0
Chevrolet	Suburban	0	0
Chevrolet	Avalanche	0	0
GMC	Sierra (GMT 900)	1	0
GMC	Sierra (GMT 800)	0	0
GMC	Yukon	0	0
GMC	Yukon XL	0	0
Cadillac	Escalade	0	0
Cadillac	Escalade ESV	0	0
Cadillac	Escalade EXT	0	0
Total		4	0

TABLE 5-A1 SUBJECT VEHICLES ELECTRICAL WIRING REGULAR WARRANTY CLAIMS  
(LABOR CODE N6620 AND N6970)

MAKE	MODEL GROUP (GMT 800)	2006
Chevrolet	Silverado	4
Chevrolet	Tahoe	1
Chevrolet	Suburban	0
Chevrolet	Avalanche	0
GMC	Sierra	0
GMC	Yukon	0
GMC	Yukon XL	0
Cadillac	Escalade	0
Cadillac	Escalade ESV	0
Cadillac	Escalade EXT	0
Hummer	H2 SUT	0
Hummer	H2 Utility	0
Total		5

TABLE 5 - A2 PEER VEHICLE ELECTRICAL WIRING REGULAR WARRANTY CLAIMS  
(N6970)

MAKE	MODEL GROUP (GMT 900)	2007	2008	TOTAL
Chevrolet	Silverado (GMT 900)	276	15	291
Chevrolet	Silverado (GMT 800)	N/A	N/A	0
Chevrolet	Tahoe	325	15	340
Chevrolet	Suburban	307	8	315
Chevrolet	Avalanche	103	2	105
GMC	Sierra (GMT 900)	432	5	437
GMC	Sierra (GMT 800)	N/A	N/A	0
GMC	Yukon	184	8	192
GMC	Yukon XL	152	3	155
Cadillac	Escalade	309	3	312
Cadillac	Escalade ESV	163	5	168
Cadillac	Escalade EXT	36	0	36
Total		2287	64	2341

TABLE 5-B1 SUBJECT VEHICLES HEATED WASHER FLUID SYSTEM REGULAR WARRANTY CLAIMS (LABOR CODE N3855, N6970, AND N6620)

MAKE	MODEL GROUP (GMT 800)	2006	2007	2008
Hummer	H2 SUT	66	3	1
Hummer	H2 Utility	147	8	2
Total		213	11	3

TABLE 5 – B2 PEER VEHICLE HEATED WASHER FLUID SYSTEM REGULAR WARRANTY CLAIMS (LABOR CODE N3855)

MAKE	MODEL GROUP (GMT 900)	2007	2008
Chevrolet	Silverado (GMT 900)	0	0
Chevrolet	Silverado (GMT 800)	0	0
Chevrolet	Tahoe	3	0
Chevrolet	Suburban	1	0
Chevrolet	Avalanche	2	0
GMC	Sierra (GMT 900)	0	0
GMC	Sierra (GMT 800)	0	0
GMC	Yukon	2	0
GMC	Yukon XL	0	0
Cadillac	Escalade	0	0
Cadillac	Escalade ESV	0	0
Cadillac	Escalade EXT	0	0
Total		8	0

TABLE 5-C SUBJECT VEHICLES EXTENDED WARRANTY CLAIMS FOR HEATED WASHER FLUID SYSTEM (LABOR CODE N3855)

A list of the labor codes and trouble codes is provided in response to item No. 6. A summary of the warranty claims, including the information requested in 5(a-k), is on the Att\_1\_GM disk in



the folder labeled Q\_05; refer to the Microsoft Access 2000 file labeled, "Q\_05\_WARRANTY DATA."

The warranty data provided has limited analytical value in analyzing 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.

The Motors Insurance Corp (MIC) extended warranty system does not contain the vehicle owner information. The Universal Warranty Corporation (UWC) extended warranty system does not use the GM labor code or labor code description and it does not contain the repairing dealer code, trouble code or trouble code description.

The sources of the requested information and the last date the searches were conducted are tabulated in Table 5-3 below.

SOURCE SYSTEM	LAST DATE GATHERED
GM Regular Warranty	3/20/2008
Motors Insurance Corporation (MIC) - extended warranty	3/24/2008
Universal Warranty Corporation (UWC) - extended warranty	3/24/2008

TABLE 5-3: DATA SOURCES

- 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.**

GM searched the regular warranty and extended warranty databases for subject and peer vehicle underhood electrical wiring system claims that have labor codes listed in Table 6-1. GM then reviewed the claim verbatim and included records that may relate to underhood fires.

GM reviewed numerous claims and found that the verbatim identified miscellaneous electrical issues that included blown fuses, bent and broken wires/connectors that effected vehicle accessories including: auxiliary power outlets, power windows, locks and mirrors, trailer wiring, owner installed accessories and other electrical systems.

GM is also providing regular and extended warranty claims that are related to the windshield washer fluid heater system using the labor code listed in Table 6-1.

LABOR CODE	DESCRIPTION:
N6602	WIRING &/OR CONNECTOR-CHARGING/STAR
N6620	WIRING &/OR CONNECTOR-POWER & GROUN
N6970	HARNESS, WIRING-ENGINE COMPLETE-RPL
N3855	HEATER, W/SHIELD WASHER SOLVENT-RPL

TABLE 6-1 LABOR CODES USED IN WARRANTY SEARCH

TROUBLE CODE	DESCRIPTION:
1E	BURNED
6C	COMPONENT-INOPERATIVE
6G	COMPONENT-SHORTED
7D	WIRE - SHORTED TO GROUND
7H	WIRE BURNED-INTERNAL HEAT

TABLE 6-2 TROUBLE CODES USED IN WARRANTY SEARCH

The subject vehicles are covered by a bumper-to-bumper new vehicle warranty for four years or 50,000 miles whichever occurs first. Many different extended warranty options are available through GM/Saab 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 number of extended warranty coverage contracts on the subject and peer vehicles that have been sold by MIC regardless of status (in-force, expired, cancelled) as of March 25, 2008 is contained in Table 6-3.

MAKE/MODEL	2006 MY	2007MY	2008 MY	TOTAL
SUBJECT VEHICLES	N/A	308,899	34,855	343,754
PEER VEHICLES	186,503	N/A	N/A	186,503

TABLE 6-3: MIC EXTENDED WARRANTY COVERAGE CONTRACTS SOLD

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.

GM is providing a service bulletin that relates to the operation of the heated washer fluid system. GM has not identified any bulletins that relate to engine compartment fires.

The bulletin is included on the Att\_1\_GM disk in the folder labeled Q\_07; refer to the file labeled, "Q\_07\_Service Bulletin."

The preceding information was collected from GM Service Operations. The data collection was completed on April 2, 2008.

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 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.

For the 41 reports of underhood fire incidents GM found two fires that may be related to the heated washer fluid system. GM is providing actions related to the heated wiper system issue.

Additionally, GM is providing actions related to an engine compartment fire that may be related to electrical wiring harness chaffing.

The information listed in Table 8-1 is a summary of actions that have been conducted, are being conducted, are planned, or are being planned by or for GM regarding the subject condition. Documents and additional supporting information are included in the Attachments as noted in the table.

**Action 8-A: Validation**

**Start Date:** 3/10/2004

**End Date:** 10/2005

**Engineering Group:** GM Engineering

**Attachments:** Documents can be found on the Att\_2\_GM confidential disk and Att\_3\_Supplier confidential disk in the folder labeled Q\_08A, refer to the folder labeled, Q\_08A\_Validation.

**Description/Summary:** Heated washer fluid system validation requirements and initial release work order.

**Action 8-B: Continuous Improvement**

**Start Date:** 2/28/2007

**End Date:** Ongoing

**Engineering Group:** GM Engineering, GM Supplier

**Attachments:** Documents can be found on the Att\_2\_GM confidential disk and Att\_3\_Supplier confidential disk in the folder labeled Q\_08B, refer to the folder labeled, Q\_08B\_Continuous Improvement.

**Description:** Documents related to the continuous improvement of the Heated washer fluid module

**Summary of Action:** Improvements have been made to the heated washer fluid module to improve the field performance of the unit.

**Action 8-C: Analysis**

**Start Date:** 4/13/2007

**End Date:** Ongoing

**Engineering Group:** GM Engineering, GM Supplier

**Attachments:** Documents can be found on the Att\_2\_GM confidential disk and the Att\_3\_Supplier confidential disk in the folder labeled Q\_08C, refer to the folder labeled, Q\_08C\_Analysis

**Description:** Documents related to the analysis of heated washer fluid field returns.

**Summary of Action:** GM inspected and retested 232 heated washer fluid module warranty returns for the subject vehicles. GM found that 171 passed the end of line test and had "no trouble found". None of the warranty field return units have been linked to a vehicle engine compartment fire..

**Action 8-D: GM Investigation**

**Start Date:** 2/6/2008

**End Date:** Ongoing

**Engineering Group:** GM Engineering, GM Supplier

**Attachments:** Documents can be found on the Att\_2\_GM confidential disk and the Att\_3\_Supplier confidential disk in the folder labeled Q\_08D, refer to the folder labeled, Q\_08\_GM Investigation.

**Description:** Documents that relate to GM's continued investigation into the alleged condition

**Summary of Action:** GM has reviewed incidents that may relate to the alleged condition and also past investigations and current reports for engine compartment fires and has yet to identify a root cause. The investigation is ongoing

**9. Provide a matrix indicating what electrical components in the engine compartment are powered with the ignition switch in the "Off" position in the subject vehicles by model and engine.**

The matrix of the subject vehicles that indicates the electrical components powered with the ignition is in the "Off" position, is included on the Att\_2\_GM Confidential disk in the folder labeled Q\_09; refer to the Microsoft Access 2000 file labeled, "Q\_09\_Component Matrix."

**10. Provide diagrams showing the locations of the components identified in the response to Question 9.**

The locations of the engine compartment electrical components are included in the attached documents included on the Att\_1\_GM disk in the folder labeled Q\_10; refer to the Microsoft Access 2000 file labeled, "Q\_10\_Component Locations."

**11. Furnish GM's assessment of the alleged defect in the subject vehicle, including:**

- a. The 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 and the other persons both inside and outside the vehicle would have that the alleged defect was occurring; and
- f. The reports included with this inquiry.

GM has found 41 reports of underhood fire incidents in the nearly 2.5 million subject vehicles. These reports alleged multiple causes for underhood fires. The causes include: engine oil, transmission oil, coolant, gasoline, power steering fluid, heated washer fluid module, miscellaneous electrical systems, non-GM installed aftermarket accessories and unknown.

GM has found 64 reports of underhood fire incidents in the over one million peer vehicles. These reports also alleged multiple causes for underhood fires. The causes include: engine oil, brake systems, transmission oil, coolant, gasoline, power steering fluid, miscellaneous electrical systems, owner installed aftermarket accessories and unknown.

GM inspected three subject vehicles and found that one of the incidents was related to non-OEM trailer wiring and the other two incidents were related to an undetermined electrical system, one of which occurred at the front of the engine compartment.

GM found three incidents that are related to the heated washer fluid system in the over 788,000 subject vehicles that are equipped with the heated washer fluid system. One of these incidents (which is a subject of a VOQ) resulted in melted wires of the vehicle harness. There was no indication of an engine compartment fire. For two of the incidents (one of which is a subject of a VOQ), GM's inspection of the vehicles indicated that the heated washer fluid module was likely the origin of the engine compartment fires. GM is continuing the investigation to determine a possible root cause related to the heated washer fluid modules.

The heated washer fluid feature is enabled when the dash switch is depressed. Upon activation, the switch illuminates and the washer fluid is heated up to 68 °C (max). The module then sprays fluid up to 4 heating cycles. The system can be deactivated by again depressing the switch.

The heated washer fluid module has three over-temperature protection features: a thermal fuse (solder cup) on the base of the heater core attached to the B+ lead, a thermal fuse that monitors the heater core temperature and a fluid temperature sensor in the heater chamber.

GM has inspected 232 warranty return heated washer fluid modules from the subject vehicles. Of the 232, 171 units were inspected and retested for functionality and it was determined that the units operated properly. GM believes the units were returned because customers were unfamiliar with the heated washer fluid system operation and dealer technicians then misdiagnosed the heated washer fluid module. GM issued a dealer service bulletin to further explain the system operation. The service bulletin is included in the Response to Question 7.

The remaining 61 modules did not pass the functionality test. GM has identified issues that may cause the heated washer module to malfunction including: manifold/heater interface leaks (EPDM sleeve and pinched O-ring), printed circuit board (PCB) component soldering, dry chamber and a shorted PCB. GM identified two heated washer fluid modules that showed melting of the internal relays but no fire occurred.

GM recently investigated a subject vehicle engine compartment fire on a test vehicle. Upon investigation, GM engineers found the cause of the fire to be chafing of an electrical harness in the engine compartment. GM reviewed vehicle maintenance records and found an underhood fuse was replaced prior to the incident for the electric sunroof. Just prior to the incident, the driver noticed that the adjustable pedals and radio stopped functioning.

Reviewing the 41 incidents (including the six incidents inspected by GM) of engine compartment fires related to the subject vehicles, no pattern or trend has been identified. The incident rate for engine compartment fires in the subject vehicles is less than 0.02 IPTV.

GM is continuing the investigation.

GM reviewed the 5 unique VOQs submitted to GM by the NHTSA with this inquiry. Two of the five vehicles included in the VOQs do not have the heated washer fluid module feature (RPO - XA7). GM inspected one vehicle and believes the fire is related to non-OEM trailer wiring. GM did not inspect the other vehicle and is unable to determine if it is related to the alleged condition.

Two of the VOQs are discussed above in the context of GM's inspections. GM did not inspect the vehicle related to the fifth VOQ.



\* \* \*

General Motors requested assistance and documents from suppliers in responding to item 8 and this response includes those documents received from suppliers.

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 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, 2004, 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

**N080048**  
**PE08-010**

**GM CONFIDENTIALITY LETTER**

**GM CONFIDENTIALITY LETTER  
HAS BEEN REMOVED FROM THIS  
ATTACHMENT AND SUPPLIED TO  
THE OFFICE OF THE CHIEF COUNSEL**

**N080048  
PE08-010**

**SUPPLIER CONFIDENTIAL LETTER**

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HAS BEEN REMOVED FROM THIS  
ATTACHMENT AND SUPPLIED TO  
THE OFFICE OF THE CHIEF COUNSEL**



**N080048**  
**PE08-010**

**ATTACHMENT "1"**

**GM NON-CONFIDENTIAL MATERIAL**

**N080048  
PE08-010**

**ATTACHMENT "2"**

**GM CONFIDENTIAL MATERIAL**

**GM CONFIDENTIAL MATERIAL  
HAS BEEN REMOVED FROM THIS  
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**N080048  
PE08-010**

**ATTACHMENT "3"**  
**MICROHEAT CORPORATION**  
**CONFIDENTIAL MATERIAL**

**MICROHEAT CORPORATION  
CONFIDENTIAL MATERIAL  
HAS BEEN REMOVED FROM THIS  
ATTACHMENT AND SUPPLIED TO  
THE OFFICE OF THE CHIEF COUNSEL**