GENERAL MOTORS CORPORATION
Vehicle Structure & Safety Integration

October 17, 2007

Thomas Z. Cooper, Chief
Vehicle Integrity Division
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Ave., S. E., Room W46-409
Washington, D.C. 20590

N070236

NVS-212mjl
PE07-044

Dear Mr. Cooper:

This letter is General Motors (GM) response to your information request (IR), dated September 4, 2007 regarding allegations of power sliding door opening while the vehicle is in motion on 2005–2007 model year (MY) General Motors minivans.

The subject vehicles for this inquiry are 2005–2007 (MY) Chevrolet Venture/Uplander, Pontiac Montana/Montana SV6, Buick Terraza, and Saturn Relay – equipped with one or more power sliding doors.

NHTSA subsequently clarified that the alleged defect for this inquiry is unintended or unexpected opening of the power sliding door while the vehicle is in motion.

Your questions and our corresponding replies are as follows:

1. **State, by model and model year, the number of the subject 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. **Date of manufacture;**
   f. **Location of power sliding door (left side, right side or both);**
   g. **Date warranty coverage commenced; and**
   h. **The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).**

   Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

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

MAKE/MODEL	2005 MY	2006 MY	2007 MY	TOTAL
Chevrolet Venture	17,887	N/A	N/A	17,887
Chevrolet Uplander	37,268	20,803	15,368	73,479
Pontiac Montana	5,999	N/A	N/A	5,999
Pontiac Montana SV6	16,728	17,101	0	33,829
Buick Terraza	19,848	10,103	7,574	37,525
Saturn Relay	12,858	3,778	2,591	19,227
TOTAL	110,579	51,835	25,523	187,937

TABLE 1 VEHICLE PRODUCTION
N/A – NOT APPLICABLE

The production information requested in 1a-1h 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 1h. 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. GM produced 2 versions of the subject vehicles for the 2005 model year, the GMT200 and GMT201, and is providing the vehicle model code for both versions. The GMT200 version has a 5 character model code and the GMT201 has a 7 character model code.

2. **State the number of each of the following, received by GM, or of which GM is otherwise aware, which relate to, or may relate to, the alleged defect in the subject 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. **Property damage claims;**
   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 "f," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

   In addition, for items "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 "e" and "f," 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.

   Table 2-1 below summarizes records that could relate to the alleged defect because the record contains information related to the door being open. Some of the records lack sufficient detail to establish that the report is related to unintended or unexpected opening of the power sliding door (PSD) while the vehicle is in motion. GM is in the process of contacting customers to clarify the details and circumstances regarding the reports.

   As part of its current investigation, GM has contacted 20 customers identified in consumer complaints. The information provided by the customers shows that the PSD did not unexpectedly open while the vehicle was in motion in at least 9 of the 20 reports. GM is continuing to survey customers identified in the records summarized in Table 2-1. GM plans to complete the survey and provide a supplemental response summarizing the number of consumer complaints and field reports related to unintended or unexpected opening of the PSD while the vehicle is in motion, by November 15, 2007.

Type of Report	GM Reports	Corresponding to NHTSA Reports	Number with Property Damage	Number with Crash	Number with Injuries*
Owner Reports	32	1	0	0	1
Field Reports	103	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)	136	1	0	0	1
Total Vehicles with Reports (Unique VIN)	131	1	0	0	1

Table 2-1: Report Breakdown
* GM has no fatality reports

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. Assessments of other incidents (from lawsuits and claims) may be attorney work product and/or privileged. Therefore, information and documents provided in this response, if any, consist only of non-attorney work product and/or non-privileged material for incidents that have been investigated and assessed.

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	8/24/2007
Technical Assistance Center	9/21/2007
Field Information Network Database (FIND)	8/24/2007
Field Product Report Database (FPRD)	8/27/2007
Company Vehicle Evaluation Program (CVEP)	8/27/2007
Captured Test Fleet (CTF)	8/27/2007
Early Quality Feedback (EQF)	8/27/2007
Legal / Employee Self Insured Services (ESIS)/Product Liability Claims/ Lawsuits	8/24/2007

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 property damage is alleged;**
k. **Number of alleged injuries, if any; and**
1. **Number of alleged fatalities, if any.**

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

The requested information is provided 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."

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 Table 2-1 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, the alleged defect in the subject 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.**

Provide this information in Microsoft Access 2000, or a compatible format, entitled "WARRANTY DATA."

Tables 5-1 and 5-2 summarize by model year the regular, goodwill and extended warranty claims for the subject vehicles that were collected by searching the labor codes, customer complaint codes and trouble codes that may be related to the alleged defect.

A list of the labor codes, customer complaint 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 provided on the Att_1_GM disk in the folder labeled "Q_05," refer to the Microsoft Access 2000 file labeled, "Q_05_WARRANTY DATA."

REGULAR WARRANTY CLAIMS FOR SLIDING DOOR RELEASE ACTUATOR REPLACEMENT

MAKE/MODEL	2005 MY	2006 MY	2007 MY	TOTAL
Chevrolet Venture	204	N/A	N/A	204
Chevrolet Uplander	367	112	32	511
Pontiac Montana	62	N/A	N/A	62
Pontiac Montana SV6	192	54	N/A	246
Buick Terraza	231	37	25	263
Saturn Relay	26	3	3	32
TOTAL	1,052	206	60	1,318

TABLE 5-1
N/A – NOT APPLICABLE

EXTENDED WARRANTY CLAIMS FOR SLIDING DOOR RELEASE ACTUATOR REPLACEMENT

MAKE/MODEL	2005 MY	2006 MY	2007 MY	TOTAL
Chevrolet Venture	10	N/A	N/A	10
Chevrolet Uplander	25	0	0	25
PONTIAC MONTANA	2	N/A	N/A	2
Pontiac Montana SV6	6	1	0	7
Buick Terraza	4	0	0	4
SATURN RELAY	24	0	0	24
TOTAL	71	1	0	72

TABLE 5-2
N/A – NOT APPLICABLE

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 CARD --regular warranty	8/27/2007
Motors Insurance Corporation (MIC) – extended warranty	9/5/2007
Universal Warranty Corporation (UWC) – extended warranty	9/13/2007

TABLE 5-3: DATA SOURCES

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. Consequently, some of these warranty claims are not related to the alleged defect.

GM's warranty database does not contain the following information: vehicle owner's name or telephone number, replacement part number description, or customer concern statement. GM is providing a field labeled "Verbatim Text" in response to request 5K (dealer/technician

comment). The verbatim text is an optional field in the GM warranty system for the dealer to enter any additional comments that may be applicable to the warranty claim. The verbatim text field is not required to be completed for every warranty claim.

The MIC extended warranty system does not contain the vehicle owner information. The 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.

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.**

To search for and collect the warranty data for this response, the GM Claim Adjustment Retrieval Database (CARD) regular warranty database and the Motors Insurance Corp (MIC) extended warranty database were searched using the labor codes listed in table 6-1. Universal Warranty Corporation (UWC) does not use labor codes or trouble codes. The labor codes listed in Table 6-1 are the labor codes that may be related to the alleged defect.

GM lists the customer complaint codes in Table 6-2 and the trouble codes in Table 6-3, within the labor codes, that may relate to unintended or unexpected opening of the PSD while the vehicle is in motion.

GM included claims that showed replacement of the actuator or actuator assembly part numbers, unless the verbatim indicated that the issue was unrelated to the door opening while driving.

LABOR CODE	DESCRIPTION
N3226	Actuator Assembly – Door Lock-Slide - RT
N4874	Actuator, Door Unlatch (Power Sliding)
N4875	Actuator, Lock (Power Sliding DR - RT
Z1241	Product Liability-Investigation RI P PR (Goodwill
Z1242	PAR – Repairs Reimbursement (Goodwill)

TABLE 6-1 LABOR CODES RELATED TO REPLACEMENT OF THE UNLATCH ACTUATOR

CUSTOMER COMPLAINT CODE	DESCRIPTION:
MJ	Misc Customer Satisfaction
O7	Operation: No Maintain Adjustment
O8	Operation Won't Turn Off
OA	Operation: Binds
OI	Operation: Engage Disengage Excessive Effort
OG	OPERATION: EXCESSIVE EFFORT (EXCESSIVE PLAY)
OJ	OPERATION: INOPERATIVE
OL	OPERATION: INTERMITTENT
VB	VISUAL: BROKEN
VP	VISUAL: MISALIGNED (ORANGE PEEL)

TABLE 6-2 CUSTOMER COMPLAINT CODES USED IN WARRANTY SEARCH

TROUBLE CODE	DESCRIPTION:
1D	BROKEN
1Y	FOREIGN MATERIAL
2F	CLEARANCE – TOO TIGHT
2W	LOOSE
3A	MISADJUSTED
3L	OUT OF CALIBRATION
5W	RUSTED/CORRODED
6C	COMPONENT - [illegible]
6D	COMPONENT - INTERMITTENT
6I	COMPONENT - OPEN
6G	COMPONENT - SHORTED
6J	CONNECTOR - CORRODED
93	[illegible]
98	[illegible]

TABLE 6-3 TROUBLE CODES USED IN WARRANTY SEARCH

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 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 number of extended warranty coverage contracts on the subject vehicles that have been sold by MIC regardless of status (in-force, expired, cancelled) as of September 21, 2007 is contained in Table 6-4.

MAKE/MODEL	2005 MY	2006MY	2007 MY	TOTAL
CHEVROLET VENTURE	4,355	N/A	N/A	4,355
CHEVROLET UPLANDER	9,708	8,261	3,051	21,020
PONTIAC MONTANA	2,125	N/A	N/A	2,125
Pontiac Montana SV6	3,884	2,571	N/A	6,455
Buick Terraza	4,350	1,300	429	6,079
SATURN RELAY	10,107	2,288	763	13,158
TOTAL	34,529	14,420	4,243	53,192

TABLE 6-4: MIC EXTENDED WARRANTY COVERAGE CONTRACTS SOLD
N/A – NOT APPLICABLE

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 has not issued any service, warranty or other documents to dealers, regional or zone offices, that relates to or may relate to unintended or unexpected opening of the power sliding door while the vehicle is in motion in the subject vehicles.

General Motors is not planning to issue in the next 120 days, any service, warranty or other technical documents or communications to its dealers, regional offices, zone offices or other entities regarding the subject condition in the subject vehicles.

The preceding information was collected from GM Service Operations. The data collection was completed on September 18, 2007.

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. If an action is not complete, provide a detailed schedule for the work to be done, tentative findings and/or conclusions, and provide an update within 10 days of completion of the action.

The information listed in Table 8-1 below 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 on the subject vehicles as of October 12, 2007. Documents and additional supporting information are included in the Attachments as noted in the table.

Action 8-A: Delphi Corporation, Power Sliding Door System; Design Failure Mode Effects Analysis (DFMEA), Manufacturing Process Failure Mode Effects Analysis (PFMEA), Design Validation Part Repeatability (DVP & R), Power Sliding Door Module Control Specification Operation Component (PSDM - CS), Diagnostic Trouble Code Verification Test Plan & Report (DTC-VTP & R), and Software Functional Test Plan & Report.

Start Date: 01/2003

End Date: 07/2004

Engineering Group: Delphi Corporation

Attachments: Documents can be found on the Att_3_Delphi Confidential disk in the folder labeled Q_08, refer to the folder labeled, "Q_08_A Delphi Documents'.
Description: DFMEA, PFMEA, DVP &R, PSDM – Control Specification, DTC-VTP & R and Software (FTP & R) regarding the PSD system in the subject vehicles.
Summary of Action: Documents used in the component design, validation plan and manufacturing process.

Action 8-B: Android Industries, Door Latch Process Flow Diagram, Process Timing and Line Balance, Control Plan, Potential Failure Mode Analysis (PFMEA).

Start Date: 01/2001

End Date: 06/2004

Engineering Group: Android Industries

Attachments: Documents can be found on the Att_4_Android Confidential disk in the folders labeled Q_08_B refer to the folder labeled, "Q_08_B Android.
Description: Unlatch Actuator attachment to actuator assembly Process Flow, Process Timing, Control Plan and PFMEA installed in the subject vehicles.
Summary of Action: Documents used in the assembly of the unlatch actuator to the actuator assembly.

Action 8-C: Harada Industries of America, Unlatch Actuator manufacturer: DRBFMA, DFMEA, DVP & R, PFMEA, Process Validation Testing & Report, Process Flow, Noise Testing and EMC testing.

Start Date: 04/2004

End Date: 10/2006

Engineering Group: Harada Industries

Attachments: Documents can be found on the Att_5_Harada Confidential disk in the folders labeled Q_08_C refer to the folder labeled, "Q_08_C Harada.
Description: Unlatch Actuator DFBFMA, DFMEA, DVP & R, PFMEA, Process Validation Testing & Report, Process Flow, Noise Testing and EMC testing design and manufacture.
Summary of Action: Design, performance and validation of the unlatch actuator defined and confirmed.

Action 8-D: KSR International Actuator assembly manufacturer, Control Plan, ADVP & R, Process Flow, PFMEA for the actuator assembly in the subject vehicles.

Start Date: 06/2004

End Date: 04/2007

Engineering Group: KSR International

Attachments: Documents can be found on the Att_6_KSR Confidential disk in the folder labeled Q_08_D, refer to the folder labeled, "Q_08_D KSR.
Description: ADVP & R, PFMEA, Control Plan and Process Flow for the design and manufacture of the actuator assembly in the subject vehicles.
Summary of Action: Design, performance and validation of the actuator assembly.

Action 8-E: GM PSD Statement of Supplier Specifications, SSTS, CTS, DRBTR, PSD Validation Test Plan & Reports, Bench Test Summary and DFMEA.
Start Date: 3/2001

End Date: 5/2006

Engineering Group: GM Engineering

Attachments: Documents can be found on the Att_2_GM Confidential disk in the folder labeled Q_08_E, refer to the folder labeled, "Q_08_E GM.
Description: GM PSD Statement of Supplier Specifications, SSTS, CTS, DRBTR, PSD Validation Test Plan & Reports, Bench Test Summary, DFMEA for the power Sliding Door System in the subject vehicles.
Summary of Action: GM Design, performance and validation certification of the PSD.

Action 8-F: Problem Resolution tracking System PRTS N165815, Left Actuator PSD

Start Date: 8/2004

End Date: 3/2005

Engineering Group: GM Closures Engineering, GMM Engineering

Attachments: Documents can be found on Att_1_GM disk in the folder labeled Q_08_F, refer to the folder labeled Q_08_F PRTS N165815.

Description: Root cause was identified as seal loads on the vehicle PSD higher than specifications increased force to unlatch actuator causing the actuator to stick after having completed 16,564 cycles cause the door to reverse to the full open position. Actuator would go back to the full extended position once outside handle was activated.

Summary of Action: Solution was dimensional adjustments made to body opening contour discrepancies at the C Pil'ar and the sleing door. Implemented in Doraville November 04

Action 8-G: Investigation of the subject condition

Start Date: 08/2007

End Date: TBD

Engineering Group: GM Engineering and Delphi Corporation

Attachments: Documents can be found on the Att_1_GM disk in the folder labeled Q_08_G, refer to the folder labeled Q_08_G.

Description: GM contacted customers and inspected vehicles to investigate the subject condition

Summary of Action: The summary of the customer contacts and the vehicle inspection indicate the condition described by customers as unintended or unexpected opening of the closed PSD while the vehicle is in motion is the result of driving away before the door is closed and latched.

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 components, 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 a summary of the product engineering information requested in 9(a-h), along with copies of the related Engineering Work Order (EWO) documents on the Att_1_GM disk in the folder labeled "Q_9," refer to the files labeled, "Q_9_A Modifications" and on the Att_2_GM_Conf disk in the folder labeled "Q_9," refer to the files labeled, "Q_9_B_CAMPZ," "Q_9_C_CAMPZA" and "Q_9_D_CAMPZB."

GM is not planning to incorporate any modifications or changes into production of the subject vehicles that relate to the alleged defect within the next 120 days.

10. Describe in detail the design and operational sequence of the power sliding doors in the subject vehicles, and furnish a fault flow diagram outlining the required steps (or faults) for the power sliding door to open (both intended and unintended) when the vehicle is in motion (including the possibility of such occurrences from misalignment of the striker and latch and misaligned or inadequate electrical sensing contacts).

The Power Sliding Door (PSD) system integrates a drive unit assembly, power sliding door module/electronic control unit, and other components to power open and close the side door(s) of the vehicle, using switches inside the vehicle or the remote keyless entry (RKE) transmitter.

The Drive Unit Assembly is an electromechanical device that provides power operation. The unit is attached to the vehicle body in the rear quarter panel area between the C-pillar and the D-pillar. The unit powers the sliding door through a cable attached to the sliding door center roller hinge.

The Power Sliding Door Module (PSDM) is an electric microprocessor based control module. The module receives information from other vehicle devices and applies programmed logic to control the drive unit, latch release actuator and chime.

The other system components are detailed in the Delphi Corporation Att_3_Delphi Confidential disk in the folder labeled "Q_10," in the file labeled "CL07-015 0147-0148." This document also contains a detailed description of the PSD, PSD system fault tree and PSDM/ECU block diagram schematic.

The opening and closing operational sequences are described on the Att_1-GM disk in the folder labeled "Q_10," in the file labeled "Q_10_operation "

11. State the number of each component/assembly of the subject components 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). Include any kits that have been released, or developed, by GM for use in service repairs to the subject component/assembly which relate, or may relate, to the alleged defect in the subject vehicles.

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.

An electronic summary table of the requested service part information for the subject components is provided on the Att_1_ CD, GM disk in the folder labeled "Q_11," refer to the Microsoft Excel file labeled, "Q_11_Part Sales." GM does not offer any kits that have been released or developed for use in service repairs specifically related to the alleged defect. GM Service Parts does offer a replacement unlatch actuator kit that includes a replacement actuator and attaching hardware in addition to offering the actuator assembly.

These sales numbers represent sales to dealers in the US and Canada. This data has limited analytical value in analyzing the field performance of a motor vehicle component because the records do not contain sufficient information to establish the reason for the part sale. It is not possible from this data to determine the number of these parts that have been installed in the subject vehicles or the number remaining in dealer or replacement part supplier inventory.

This table contains service part numbers, part description, part usage information including the GM vehicles that contain the identical component, part sales figures by month and calendar year, and the supplier's name and address, contact name and phone number.

12. Furnish GM's assessment of the alleged defect in the subject vehicles, 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 or subject component was malfunctioning; and
f. The reports included with this inquiry.

The Power Sliding Door (PSD) system will open and close the side door(s) of the vehicle using switches inside the vehicle or the remote keyless entry (RKE) transmitter. The PSD will not open if the door is closed and latched when the transaxle has been shifted out of park.

When the vehicle is driven before the sliding door has power closed and latched and the audible warning chime has been ignored, the unlatched door may reverse open due to forces created by vehicle movement. Consequently, the condition described by customers as unintended or unexpected opening of the closed PSD while the vehicle is in motion is the result of driving away before the door is closed and latched.

The PSD system contains multiple safeguards to prevent the door from unlatching when the vehicle is in motion. In addition, there are multiple warnings and indicators designed into the PSD system to notify the driver that the door is not closed and latched when the driver shifts from PARK (P) to a drive gear.

Safeguards:

- Automatic Door Locking when vehicle speed is above 3 MPH. When the door is locked there is no mechanical connection between the unlatching actuator and the door latches.
- The Power Sliding Door Module (PSDM) will not allow power to the unlatch actuator, unless the transaxle is in PARK (P) and the Body Control Module (BCM) supplies the voltage to the PSDM.
- The PSDM requires a valid PARK (P) message.
- The PSDM requires a valid Vehicle Speed Sensor (VSS) message that speed is below 2 MPH.

Warnings and Indicators:

If the driver shifts from PARK (P) to a drive gear and the door is not closed and latched, the following will occur:

- Driver Information Center (DIC) – Door Ajar Message
- Audible Warning Chime
- Overhead Courtesy Lamp Illumination.

GM has conducted extensive testing and validation of the PSD, analyzed returned parts, inspected numerous vehicles, conducted customer surveys and analyzed field reports, warranty claims and NHTSA VOQs. The results of these actions has not identified a single vehicle in which the door unlatched and opened while the vehicle was in motion, if the door was closed and latched when transaxle is shifted from PARK (P) and the vehicle is subsequently driven.

The failure mechanisms that may result in the PSD not being latched are:

1) A failure of the Unlatch Actuator or the Actuator Assembly in a manner that holds the front and rear door latches in the up/open position in conjunction with either of the following contributory factors;

   - Taking the vehicle out of PARK (P) before the sliding door is closed, may stop the door very near the closed position and the door may even appear to be closed, but it is not fully closed or latched.

     When this occurs there will be the following warnings/indicators:
     - The driver will hear audible warning chimes after taking the vehicle out of PARK (P)
     - The driver will hear a single audible warning chime,
     - The DIC – Door Ajar Message will appear if the rear of the door is not fully closed,
     - The overhead courtesy lamp will illuminate if the rear of the door is not fully closed.

2) The door is cycled through more than 20 successive unsuccessful closing cycles (opened and closed repeatedly) creating a position counter error greater than 30 counts, while the vehicle is in PARK (P). The vehicle can be in or out of PARK (P) after the last power cycle is finished and all of the following have occurred:

   i. The count does not indicate to the PSDM the true door position.
   ii. The door has not successfully completed a close-power open-power close cycle leading to a position counter reset.
   iii. PSDM misinterprets increased forces near the closed position as an obstacle and begins to open (reverse) the door.
   iv. The PSDM also misinterprets these forces when it begins to open as an obstacle and the door may stop in a position where it appears closed, however, it may not be latched.

   When this occurs there will be the following warnings/indicators:
   - The driver will hear a continuous audible warning chime as the door is continuously cycled as it is reversing
   - The driver will hear an audible warning chime when the door stops on the last cycle,
   - The DIC – Door Ajar Message will appear,
   - The overhead courtesy lamp will illuminate,

3) The PSDM receives two rapid successive signals to open, through the inside switches and/or the RKE and the following contributory factors are present;

   i. The transaxle is in PARK (P)
   ii. The door is closed and latched prior to the first signal
   iii The door only opens a fraction of an inch on the first signal when the second signal stops the door.

   When this occurs there will be the following warnings/indicators:
   - The driver will hear two audible warning chimes when the transaxle is taken out of PARK (P),
   - The DIC – Door Ajar Message will appear,
   - The overhead courtesy lamp will illuminate.

If any of the three conditions described above has occurred, and the operator does not realize the door is unlatched and ignores the warnings and indicators that the door is unlatched, road vibration, acceleration or vehicle motion may cause the door to manually slide open.

Many of the reported incidents of unintended or unexpected opening of the PSD while the vehicle is in motion are the consequence of driving away before the door is closed and latched, disregarding the audible warning chime, DIC door ajar message and illumination of the overhead courtesy lamp.

GM's analysis of the warranty data indicates that replacement of the unlatch actuator or the actuator assembly are two of many repairs made by dealers to address a wide variety of PSD complaints. The data shows that 82 percent of the 1,259 unique VINs in the 1,318 regular warranty claims have multiple PSD repairs. Because of this frequency of multiple repairs and the absence of information about the condition of the actuators that were replaced, these warranty repairs do not indicate that customers experienced PSD openings because of stuck actuators.

Failure mechanism 2 above is very unlikely because the probability that all 4 of the necessary contributors will be present after cycling the door successively more than 20 times is very low.

Failure mechanism 3 is also not likely because the door will almost always open more than a fraction of an inch before the second signal.

GM has contacted 9 of the customers identified in the VOQs. The information acquired is contained in the response to item No. 8. Seven customers reported hearing the audible warning chime very close to the time they began to drive, indicating they may have driven away before the door was latched.

GM does not believe that this condition poses an unreasonable risk to motor vehicle safety because:

- The PSD system has successfully completed extensive validation testing without incident, including verification of: (1) the safeguards to prevent inadvertent unlatching of the door, and (2) the functions of warnings/indicators that the door is not latched.
- There are multiple warnings/indicators that the PSD is not closed and latched.
- There is no defect trend related to the unlatch actuator and the unlatch actuator assembly.

* * *

General Motors requested assistance and documents from suppliers in responding to items 8, 9, 10 and 12 and this response includes those documents received from suppliers.

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 2003, were involved in any way with any of the following related to the subject condition in the subject peer 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,

FOR

Gay P. Kent
Director
Product Investigations

Attachments

N070236
PE07-044

GM CONFIDENTIALITY LETTER

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

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SUPPLIER CONFIDENTIAL LETTER

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ATTACHMENT "1"

GM NON-CONFIDENTIAL MATERIAL

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ATTACHMENT "2"

GM CONFIDENTIAL MATERIAL

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ATTACHMENT "3"

DELPHI CORPORATION

CONFIDENTIAL MATERIAL

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