GENERAL MOTORS LLC
Global Vehicle Safety

December 20, 2018

Mr. Gregory Magno, Chief
Vehicle Defects Division – A
Office of Defects Investigation
National Highway Traffic Safety
Administration
1200 New Jersey Ave., SE, Room W48-334
Washington, DC 20590

[redacted]

NEF-101
RQ18-002

Re: General Motors LLC's Responses to NHTSA's November 13, 2018 Information Request relating to Recall Query No. 18-002

Dear Mr. Magno:

This letter contains General Motors LLC's ("**GM**") responses to the information requests in your November 13, 2018 letter relating to the National Highway Traffic Safety Administration's ("**NHTSA**") Recall Query 18-002 ('the **IR**"). Unless otherwise defined below, GM's responses rely on the IR's defined terms.

GM's document production relating to the responses in this letter are contained on the enclosed compact disks titled ATT_1_GM and ATT_2_GM_CONF. Certain portions of these documents are exempt from public disclosure under the Freedom of Information Act (5 U.S.C. §552(b)(4)) ("**FOIA**") and have been redacted in the copy contained on the enclosed compact disk. GM has submitted the unredacted, nonpublic copy of its document production to the NHTSA Office of Chief Counsel pursuant to the procedures in 49 C.F.R. part 512.

Some of the documents in GM's production contain personally identifiable information ("**PII**") (e.g., vehicle registration information, employee names, and customer/employee contact information). GM submits these documents today with unredacted PII with the understanding that NHTSA (or GM, if NHTSA prefers) will redact any PII before disclosing these documents to the public.

This response is based on searches of 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, after January 1, 2000, were involved in any way with" the activities identified by the ODI in subparts "a" through "d" of the "GM" definition provided in its letter.

Additionally, this response was compiled and prepared upon review of documents produced by various GM locations, and does not include documents generated or received at those

GM locations subsequent to their searches.

REQUESTS AND RESPONSES

REQUEST 1:

1. State, by model and model year, the number of 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. Subject component part number and design version installed as original equipment;

   f. Date of manufacture;

   g. Date warranty coverage commenced; and

   h. The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).

Provide the table in Microsoft Access 2010, or a compatible format, entitled "PRODUCTION DATA."

GM RESPONSE:

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

		MODEL YEAR							
MAKE	MODEL	2010	2011	2012	2013	2014	2015	2016	TOTAL
CHEVROLET	EQUINOX	139722	188507	221009	259362	214121	284547	209097	1516365
GMC	TERRAIN	48640	83569	100118	108264	91205	116285	81603	629684
	TOTAL	188362	272076	321127	367626	305326	400832	290700	2146049

TABLE 1-1: SUBJECT VEHICLES

The production information requested in 1a-1d, and 1f-1h is provided on the ATT_1_GM disk; folder labeled "Q_01". Refer to the Microsoft Access 2010 file labeled "Q_01_PRODUCTION_DATA". Traceability data is not captured for the subject component; therefore, a response cannot be provided for request 1e.

REQUEST 2:

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;

   d. Property damage claims;

   e. Third-party arbitration proceedings where GM is or was a party to the arbitration;

   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.

GM RESPONSE:

GM is aware of the following claims that may be responsive to Request 2:

		SUBCATEGORIES			
TYPE OF REPORT	GM REPORTS	CORRESPONDING TO NHTSA REPORTS	NUMBER WITH PROPERTY DAMAGE	NUMBER WITH CRASH	NUMBER WITH INJURIES/ FATALITIES
Owner Reports	2604	90	0	15	0/0
Field Reports	66	0	0	0	0/0
Not-In-Suit Claims	5	0	3	5	3/0
Subrogation Claims	0	0	0	0	0/0
Third Party Arbitration Proceedings	0	0	0	0	0/0
Product Liability Lawsuits	1	0	0	1	1/0
Total Reports (Including Duplicates)	2676	90	3	21	4/0
Total Vehicles with Reports (Unique VIN)	**2651**	**90**	**3**	**19**	**4/0**

TABLE 2-1: SUMMARY OF CLAIMS RESPONSIVE TO REQUEST 2A – 2F

In response to requests 2e-2f, GM is producing the responsive, nonprivileged litigation records relating to the litigation case listed above in Table 2-1. These records contain the requested information regarding 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.

A summary of the alleged defect, causal and contributing factors, and GM's assessment based on underlying facts and evidence is provided in response to Request 12.

REQUEST 3:

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), street address, email 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

   l. Number of alleged fatalities, if any.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

GM RESPONSE:

GM has produced the requested information on the ATT_1_GM disk in the folder labeled "Q_03". Refer to the Microsoft Access 2010 file labeled "Q_03_REQUEST NUMBER TWO DATA".

REQUEST 4:

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. Describe in detail the search methods and search criteria used by GM to identify the items in response to Request No. 2.

GM RESPONSE:

GM has produced the copies of the records summarized in Table 2-1 in the Microsoft Access file labeled "Q_03_REQUEST NUMBER TWO DATA" on the ATT_1_GM disk in the folder labeled "Q_03". GM has organized the records by the GM file number within each attachment.

REQUEST 5:

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), street address, email address 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(s);

   h. Problem code(s);

   i. Replacement part number(s) and description(s);

   j. Concern stated by customer;

   k. Cause as stated on the repair order;

l. Correction as stated on the repair order; and

m. Additional comments, if any, by dealer/technician relating to claim and/or repair.

Provide this information in Microsoft Access 2010, or a compatible format, entitled "WARRANTY DATA."

GM RESPONSE:

To collect warranty data responsive to this request, GM searched all databases containing warranty claim information which consists of the GM Global Analysis and Reporting Tool ("**GART**") for data regarding regular warranty claims.

Table 5-1 summarizes the GART claims which may relate to the alleged defect, and was populated using the search method criteria described in GM's response to Request 6.[1] A total of 5,846 claims were categorized as responsive.[2]

MODEL YEAR	MAKE	MODEL	NUMBER OF CLAIMS
2010	CHEVROLET	EQUINOX	735
	GMC	TERRAIN	249
2011	CHEVROLET	EQUINOX	691
	GMC	TERRAIN	300
2012	CHEVROLET	EQUINOX	569
	GMC	TERRAIN	216
2013	CHEVROLET	EQUINOX	1329
	GMC	TERRAIN	480
2014	CHEVROLET	EQUINOX	321
	GMC	TERRAIN	94
2015	CHEVROLET	EQUINOX	477
	GMC	TERRAIN	226
2016	CHEVROLET	EQUINOX	115
	GMC	TERRAIN	44
		TOTAL	5846

TABLE 5-1: GART WARRANTY CLAIMS

[1] GART does not contain the vehicle owner's name or telephone number. Additionally, some replacement part numbers, part descriptions and customer concern code descriptions are not included in the GM warranty database.

[2] GM identified responsive records based on the information supplied to GM by the servicing dealerships, which can contain material errors and omissions. Warranty records, for example, do not always accurately or completely describe the condition of the allegedly defective part at the time of the warranty correction, and service personnel may not consistently classify warranty repairs using the correct labor and trouble codes.

Table 5-2 summarizes claims that relate to the subject vehicles as part of recall 16V582, using the search method criteria described in GM's response to Request 6. As of November 14, 2018, a total of 273,633 vehicles received the remedy authorized by recall 16V582.

MODEL YEAR	MAKE	MODEL	NUMBER OF CLAIMS
2013	CHEVROLET	EQUINOX	193281
	GMC	TERRAIN	80352
		TOTAL	273633

TABLE 5-2: GART WARRANTY CLAIMS RELATED TO RECALL 16V582

GM has organized the records that are responsive to this request by the GM file number within each attachment. Refer to Microsoft Access 2010 database "Q_05_WARRANTY_DATA" included on the ATT_1_GM disk. In response to subparts 5j and 5m, GM has included in these records all available dealer-provided "verbatim text" in the GART database relating to the responsive claims that are currently in GM's possession.[3]

REQUEST 6:

6. Describe in detail the search methods and search criteria used by GM to identify the claims 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 whether the diagnostic trouble codes are automatically reported to the warranty database electronically or manually entered into the warranty database by a claims administrator.

   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 RESPONSE:

To populate Table 5-1, GM searched the GART warranty database for the labor codes that

[3] The verbatim text is provided to GM by the dealer that serviced the warranty claim, and reflects both dealer- and customer-provided comments relating to the claim. Before the 2010 model year, GM did not require the dealer to populate this field in the warranty system; for this reason, GM may not be in possession of this information for every responsive warranty claim.

GM identified as potentially related to the alleged defect. These labor codes are summarized in Table 6-1. Each warranty record may have up to five verbatim fields. All verbatim claim fields were read and a claim was determined to be responsive if the verbatim indicated that the claim may have been related to the alleged defect in the subject component. The records that contain all blank verbatim fields were counted as responsive. The wiper system does not communicate diagnostic trouble codes so none were reported in the response to Request 5, Microsoft Access 2010 database "Q_05_WARRANTY_DATA".

Labor Code	Labor Code Description
B1788	Windshield Wiper Transmission Replacement
2070380	Windshield Wiper Transmission Replacement

TABLE 6-1: LABOR CODES USED IN GART WARRANTY SEARCH

To populate Table 5-2, GM searched the GART regular warranty database using the labor codes related to recall 16V582. These labor codes are summarized in Table 6-2. GM coded all claims associated with these labor codes as responsive.

Labor Code	Labor Code Description
9102504	25302 - Install Windshield Wiper Module Assembly, Includes Air Inlet Panel Revision
9103046	25302 - Customer Reimbursement Approved
9103047	25302 - Customer Reimbursement Denied
9103074	25302 - Air Inlet Panel Revision Only (New Windshield Wiper Module Assembly Previously Installed)

TABLE 6-2: LABOR CODES RELATED TO RECALL 16V-582

Table 6-3 summarizes the terms of new vehicle warranty coverage offered by GM on the subject vehicles:

Model Year	Make	Model	Warranty Type	Warranty Terms
2010-2016	Chevrolet	Equinox	Limited Bumper-To-Bumper	3 year / 36,000 mile
2010-2016	GMC	Terrain	Limited Bumper-To-Bumper	3 year / 36,000 mile

TABLE 6-3: NEW VEHICLE WARRANTY COVERAGE OFFERED BY GM ON SUBJECT VEHICLES

Complete new vehicle warranty coverage details are provided on the ATT_1_GM disk in the folder labeled "Q_06"

Many different optional extended warranty plans were available for the subject vehicles through GM dealerships. These plans were offered at different prices and for varying lengths of time, based on a customer's preference, up to seven years from the date of purchase, or up to a total of 100,000 vehicle miles.

REQUEST 7:

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 RESPONSE:

All service, warranty, and other documents that may relate to the subject condition and have been issued to dealers, regional or zone offices, fleet purchasers or other entities are included in ATT_1_GM disk; folder labeled "Q_07". This information was collected from GM Service Operations and completed on November 29, 2018.

REQUEST 8:

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.

GM RESPONSE:

The information listed in Table 8-1 below is a summary of actions that GM is aware of as of November 30, 2018 that are responsive to request 8. Documents and additional supporting information are included in the attachments as noted in the table.

Action 8-A: GM Internal Investigation N15-161076	
Start/End Dates	June 1, 2015 – July 28, 2015
Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering

Description of Action	During June and July 2015, GM investigated claims of the alleged defect in 2010 GMC Terrain and 2011 Chevrolet Malibu vehicles. GM's investigation involved review and analysis of warranty data, NHTSA Vehicle Owner Questionnaires ("**VOQs**"), TREAD data, and field reports.
Outcome	On July 28, 2015, upon review of the collected data, GM's Potential Investigation Review ("**PIR**") decided to close the investigation based on a low rate of failures and the absence of a defect trend.
Associated Documents	Information and documents contained in GM's Global Vehicle Safety-Case Observation Review & Evaluation ("**GVS-CORE**") database related to investigation N15-161076. GM has produced these documents on the ATT_2_GM_CONF disk in folder Q_08_A.
Action 8-B: GM Internal Investigation N15-202006	
Start/End Dates	November 5, 2015 – March 3, 2016
Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering
Description of Action	From November 2015 to March 2016, in response to recall 15V577 (Toyota's recall of various model year RAV4 vehicles for wiper motor link joint failures), GM voluntarily conducted a read-across investigation of all GM models. GM's investigation involved review of GM's designs of wiper modules, air inlet panels, and water management. Testing was conducted per GM Worldwide Engineering Standards for plenum water flow and management and wiper module robustness in a wet environment.
Outcome	On March 3, 2016, GM's Safety and Compliance Categorization Team ("**SCCT**") decided to close the investigation. The read-across determined that the Toyota RAV4/RAV4 EV used a gutter attached to the Air Inlet Panel ("**AIP**"), a design with a tendency to leak water onto the motor crank ball, which leads to grease wash-out. GM's preferred design solution differed, and 40% of then-current and future GM products had at least one design feature to address top-down water flow into the plenum. The remainder of GM's product portfolio was / is subject to monthly warranty data review and quarterly supplier review, and GM's best practices for future vehicle designs include developing countermeasures for known water paths to the wiper module.
Associated Documents	Information and documents contained in GM's GVS-CORE database relating to investigation N15-202006. GM has produced these documents on ATT_2_GM_CONF disk in folder Q_08_B.
Action 8-C: GM Internal Investigation N15-202530	
Start/End Dates	December 15, 2015 – June 15, 2016
Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering, MITSUBA Corporation

Description of Action	From December 2015 to June 2016, GM investigated claims of the alleged defect in the Canada and U.S. vehicle population. GM's investigation involved review and analysis of warranty data, NHTSA VOQs, TREAD, and field reports.
Outcome	On July 26, 2016, GM's Safety Field Action Decision Authority ("**SFADA**") decided to recall 2010-2016 model year subject vehicles in high corrosion Canadian provinces, and 2013 model year subject vehicles in high corrosion U.S. states due to the significantly higher rate of failure for the 2013MY vehicles. This resulted in NHTSA recall 16V582 and Transport Canada recall 2016318. On August 2, 2016, SFADA decided to revise the population to include all U.S. states for the 2013 model year. On October 24, 2016, SFADA revised the Canadian population in Transport Canada recall 2016316 to add certain 2017 model year subject vehicles built prior to August 11, 2016 (the improved module breakpoint).
Associated Documents	Information and documents contained in GM's GVS-CORE database relating to investigation N15-202530. GM has produced these documents on the ATT_1_GM and ATT_2_GM_CONF disks in folder Q_08_C.
Action 8-D: GM Internal Investigation N16-205995	
Start/End Dates	August 2, 2016 – September 21, 2016
Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering, MITSUBA Corporation
Description of Action	From August 2016 to September 2016, GM and the supplier finalized the design solution for the previous announced recall populations. Testing included durability and validation of a new ball joint design, integral water deflector, and AIP drainage.
Outcome	On September 21, 2016, SFADA decided to issue a modification to the recall remedy for NHTSA recall 16V582 and Transport Canada recall 2016318 that would (1) replace the entire wiper module, which included the new ball joint design, rather than reusing the motor and replacing the transmission, (2) introduce a water deflector to the replacement part which rerouted water away from the area of the motor and transmission., and (3) modify the AIP to divert water away from the wiper module.
Associated Documents	Information and documents contained in GM's GVS-CORE database relating to investigation N16-205995. GM has produced these documents on the ATT_1_GM and ATT_2_GM_CONF disks in folder Q_08_D.
Action 8-E: GM Internal Investigation N17-214227	
Start/End Dates	December 4, 2017 – March 8, 2018

Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering
Description of Action	Transport Canada requested review of 2010-2016 Equinox and Terrain wiper failures in provinces not included in Safety Recall 2016318. From December 2017 to March 2018, GM investigated claims of the alleged defect on Canadian vehicles, including review and analysis of warranty data and field reports.
Outcome	On March 8, 2018, SFADA decided to recall 2010-2016 model year subject vehicles registered in the province of British Columbia due to comparative rates of claims of the alleged defect in the Canadian provinces with elevated corrosion rates.
Associated Documents	Information and documents contained in GM's GVS-CORE database relating to investigation N17-214227. GM has produced these documents on the ATT_1_GM and ATT_2_GM_CONF disks in folder Q_08_E.
Action 8-F: GM Internal Investigation N18-215590	
Start/End Dates	March 2, 2018 – April 12, 2018
Involved Engineering Groups	GM Global Safety and Field Investigations, GM Global Engineering
Description of Action	Following up on its investigation that resulted in expanding the Transport Canada recall 2016318, GM decided to investigate claims of the alleged defect on US vehicles outside of the 2013 model year and not previously included in NHTSA recall 16V582. This involved review and analysis of warranty data, NHTSA VOQs, and field reports.
Outcome	On April 12, 2018, SFADA decided to close the investigation with no field action due to a low rate of warranty claims and field reports, declining volumes of VOQs, and zero reports of accidents, injuries or fatalities associated with the alleged defect in warranty claims, VOQs, TREAD reports or legal claims.
Associated Documents	Information and documents contained in GM's GVS-CORE database relating to investigation N18-215590. GM has produced these documents on the ATT_1_GM and ATT_2_GM_CONF disks in folder Q_08_F.
Action 8-G: GM Engineering Studies	
Start/End Dates	June 2015 – April 2018
Involved Engineering Groups	GM Engineering (Wipers/AIP/Fixed Glass)
Description of Action	Investigation activities involved root cause analysis of the failure, remedy development, and validation testing including system-level and vehicle-level evaluations at GM test facilities in Warren, MI and Milford Proving Grounds.

Outcome	This testing demonstrated that the modified ball joint design, addition of the water deflector, and water management changes significantly improve the subject component robustness and long-term durability.
Associated Documents	Information, documents and emails related to wiper module studies and testing. GM has produced these documents on the ATT_1_GM and ATT_2_GM_CONF disks in folder Q_08_G.
Action 8-H: Mitsuba Engineering Studies	
Start/End Dates	June 2016 – May 2017
Involved Engineering Groups	MITSUBA Corporation
Description of Action	MITSUBA Corporation ("**Mitsuba**"), supplier of the subject component, conducted its own investigation, in parallel and in collaboration with GM, which involved root cause analysis of the failure, design improvements, and validation through component-level and system-level evaluation
Outcome	The results of Mitsuba's tests supplemented GM's test results and demonstrated that the subject component's robustness and long-term durability improve significantly with the new ball joint design, addition of the water deflector, and water management changes.
Associated Documents	Mitsuba documents that GM has in its possession, custody, or control presented during GM meetings and reviews. GM has produced these documents on the ATT_3_SPLR and ATT_4_SPLR_CONF disks in folder Q_08_H.

TABLE 8-1: SUMMARY OF ACTIONS

REQUEST 9:

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 number(s) (service and engineering) of the original component;

   e. The part number(s) (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.

i. Schematic/drawing of the cowl / Air Inlet Panel design

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 RESPONSE:

Documents relating to Engineering Work Order ("EWO") history are provided in the ATT_2_GM_Conf disk; folder labeled "Q_09". GM is providing the part drawing of the subject component in the ATT_2_GM_Conf disk; folder labeled "Q_09".

REQUEST 10:

10. Produce two of each of the following:

a. Exemplar samples of each design version of the subject component;

b. Field return samples of the subject component exhibiting the subject failure mode; and

c. Any subject components 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.

GM RESPONSE:

GM is providing two new samples of GM part number 84241847, the service and remedy version of the subject component. GM is also providing two field samples exhibiting the alleged defect in part number 25788746, the original design version of the subject component. This permits comparison of the original ball joint design to the new ball joint design, including the water deflector.

REQUEST 11:

11. 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 component; and

b. Any subject components 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.

GM RESPONSE:

The requested sales information for the subject component in both the production and service versions (part numbers 25788746, 84126959, 25948436, 84126961, and 84244724) and remedy version (part number 84241847) is provided on the ATT_1_GM disk; folder labeled "Q_11". The files summarize the sales volume by make, model, model year, and month of sale, for all GM vehicles including the subject vehicles, and non-GM vehicles. The files also provide all available detailed sales information of the production, service, and remedy versions of the subject component, including its use in production or service, as well as supplier name, address, and point of contact information. 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.

REQUEST 12:

12. Furnish GM's assessment of the alleged defect in the subject vehicle models, 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.

GM RESPONSE:

A. Field incidents involving loss of wiper functionality are generally attributable to water management and component robustness in the plenum area

Across GM's warranty data, customer claims and testing related to the loss of functionality in the subject component, one failure mode is predominant: When water drains through the air inlet panel onto the wiper transmission joints, it can cause grease washout and introduce contaminants to the link ball sockets. Reduced lubrication and the addition of contaminants can

result in accelerated corrosion and wear to the ball joint over time, resulting in a reduction in the joint's retention force. Without adequate retention force, the ball will separate from the socket and the wiper blade will fail to operate.

As early as 2006, during wiper system technical reviews with Mitsuba as part of the product development process for GMT-17X vehicles (the program from which the subject vehicles were built), GM identified the importance of the wiper module's robustness to water exposure both flowing over the module and accumulating in the plenum. Expectations were set with Mitsuba that the module – which includes the transmission and the motor in the subject vehicles – would need to operate under submersible conditions up to the motor output shaft, which is above the location of the ball joints. Mitsuba accepted design responsibility for the wiper module based on GM specifications and functional requirements.

The read-across conducted by GM as part of investigation N15-202006 – summarized as Action 8-B above – found that water intrusion into the plenum area was more likely to be routed directly over the wiper module ball joints in Equinox and Terrain vehicles than other GM vehicles. As a result, in February 2016, GM authorized Mitsuba to modify its ball joint design to increase joint retention performance in service parts and future production. In October 2016, GM took further steps to address water management in the plenum area (modifying drain holes in the air inlet panel to divert water away from the wiper module and adding a water deflector to the wiper module to divert water entering the plenum above the wiper module away from the ball joints), which, by limiting grease washout, prevented eventual failure better than improved joint retention alone.

GM defined the recall scope using field data

On July 26, 2016, GM's SFADA reviewed vehicle test results, warranty data, TREAD data, VOQs, and other data, and decided to conduct a safety-related recall on 2013 model year vehicles in corrosion-designated U.S. states. SFADA defined the scope of the subject recall based on the rate of failures by model years and by region, including a comparison of activity in corrosion-designated states and non-corrosion states. On August 2, 2016, SFADA expanded the original recall to include all U.S. states for the 2013 model year.

B. The scope is properly defined

GM believes that the subject recall is properly defined and that the subject vehicles not included in the subject recall do not contain a defect under the Safety Act.

Specifically, SFADA determined that a spike in warranty for the 2013 model year stood out among the relatively low rates of failure in non-2013 model years. Moreover, Mitsuba has acknowledged quality spills in 2011 (relating to curing time) and 2014 (relating to undersized socket molds), both of which were resolved by Mitsuba but correlate to the time period in which the warranty spike is present.

The warranty and owner and field report data supports the conclusion that the subject recall has adequately captured the spiked population:

Subject vehicles in the recall	Subject vehicles not in the recall
367,626 vehicles 1809 warranty claims for wiper failures **4.92 IPTV**	1,778,423 vehicles 4037 warranty claims for wiper failures **2.27 IPTV**

TABLE 13-1: WARRANTY RATES FOR THE SUBJECT COMPONENT IN RECALLED AND NONRECALLED SUBJECT VEHICLES

Subject vehicles in the recall	Subject vehicles not in the recall
1373 field and owner reports, not-in-suit matters, lawsuits for wiper failures **3.73 IPTV**	1303 field and owner reports, not-in-suit matters for wiper failures **0.73 IPTV**

TABLE 13-2: OWNER AND FIELD REPORT RATES FOR THE SUBJECT COMPONENT IN RECALLED AND NONRECALLED SUBJECT VEHICLES

The nonrecalled subject vehicle population is considerably larger than the recalled population (more than 1.7 million vehicles across six model years) and has been in the field between 3 and 9 years. Despite significant field exposure, GM is aware of only a handful of crash allegations in nonrecalled subject vehicles in which wipers were alleged to have failed, and GM believes that all of these incidents were minor in nature:

- GM is aware of only 5 crash allegations in the nonrecalled population, compared to 14 crash allegations in the recalled population.
- GM is aware of 4 alleged injuries – all were minor in nature, and all were related to vehicles in the *recalled* population.
- The 3 recorded property damage claims were limited in nature: in the nonrecalled population, the lone claim related to damage sustained by a non-subject vehicle; in the recalled population, one claim related to damage sustained by a non-subject vehicle, and the second claim related to damage to a mailbox.

Several field reports have indicated that the driver or passenger noted evidence of blade chatter, noise, erratic operation, or intermittent operation prior to failure. However, the alleged defect occurs most often while driving in conditions of heavy rain when the wiper control switch is turned to the "HI" position from "LO" or "OFF." In some instances, failure occurred while the vehicle was not being driven, such as when the wipers were actuated under after being frozen to the windshield surface, or the arms were below a significant load of snow.

GM's continued monitoring of warranty, TREAD, VOQs, and field report data has resulted in the expansion of the subject recall population in the U.S. from corrosion-designated U.S. states to all states for the 2013 model year, as well as in Canada, where GM expanded its recall there in March 2018 to include British Columbia, a province not typically designated for elevated levels of corrosion. To date, upon regular review of refreshed data for the subject vehicles, SFADA has decided that a further expansion of the recall in the U.S. is not merited due to declining volumes of VOQs, the lower rate of warranty claims and field reports outside of the 2013 model year, and only 5 minor crashes, zero reports of injury, and zero fatalities in the nonrecalled population.

CONCLUSION

GM will continue to monitor available field data and will, in consultation with NHTSA, expand the subject recall if future field data demonstrates that subject vehicles outside of the 2013 model year contain a safety-related defect. Please contact me if you require further information about this response or the nature or scope of our searches.

Sincerely,

[redacted]

Brian Latouf, Executive Director
Global Safety and Field Investigations

cc: Mr. Greg Magno
Mr. Antonio Moore

Attachments

ATT_1_GM: Production Data; Warranty Data; Bulletins; Application Chart; Part Sales

ATT_2_GM_CONF: EWO Data; Component and Subsystem Diagram

ATT_3_SPLR: Public copy of Mitsuba's document production

ATT_4_SPLR_CONF: Nonpublic copy of Mitsuba's document production