



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

ODI RESUME

Investigation: EA04-002

Prompted By: PB03-042

Date Opened: 01/06/2004

Date Closed: 02/10/2004

Principal Investigator: Kyle Bowker

Subject: Windshield Wiper Failure

Manufacturer: General Motors Corp., Isuzu Motors Limited

Products: 2002-03 GMT360 and GMT370 (Built Prior To November 2, 2002)

Population: 581,344

Problem Description: Windshield wipers fail to operate while driving.

FAILURE REPORT SUMMARY

	ODI	Manufacturer	Total
Complaints:	20	1,201	1,179
Crashes/Fires:	0	2	2
Injury Incidents:	0	0	0
# Injuries:	0	0	0
Fatality Incidents:	0	0	0
# Fatalities:	0	0	0
Other*:	0	43,219	43,219

*Description Of Other: GM warranty claims.

Action: The Engineering Analysis has been closed. The manufacturers will conduct safety recalls 04V-046 (GM) and 04V-061 (Isuzu). See copy attached.

Engineer: Kyle M. Bowker KMB

Date: 02/10/2004

Div. Chief: Jeffrey L. Quandt

Date: 02/10/2004

Office Dir.: Kathleen C. DeMeter

Date: 02/10/2004

Summary: On September 17, 2003, the Office of Defects Investigation (ODI) opened a Preliminary Evaluation (PE03-042) to investigate alleged windshield wiper failure in certain Model Year (MY) 2002 and 2003 Chevrolet Trailblazer and Trailblazer EXT, GMC Envoy and Envoy XL, and Oldsmobile Bravada vehicles. The investigation was upgraded to an Engineering Analysis on January 6, 2004, and the scope was expanded to include certain MY 2003 Isuzu Ascender vehicles. All subject vehicles are built on General Motors' GMT360 and GMT370 platforms and were originally equipped with a windshield wiper assembly referred to as the "Family" design module (p/n 15171306 base, p/n 15171307 for vehicles equipped with Rainsense automatic moisture sensitive wipers). Water enters the windshield wiper module causing the electrical components on the control circuit board to corrode and short out, thus rendering the wiper motor/module inoperative. In November 2002, GM introduced into vehicle production a redesigned windshield wiper assembly referred to as the "Global" design module (p/n 15094704 base, p/n 15094705 for vehicles equipped with Rainsense) to better control water intrusion. ODI has received a total of 1,179 non-duplicative owner and field reports alleging windshield wiper failure on vehicles originally equipped with the "Family" design module.

By letter dated February 2, 2004, GM has notified ODI that it will conduct a safety recall (NHTSA Recall No. 04V-046). Accordingly, this investigation is closed.

V105
2-11-04



GENERAL MOTORS NORTH AMERICA
Structure & Safety Integration

February 2, 2004

04V-046 ① or ③

Mr. K. N. Weinstein
Associate Administrator for Safety Assurance
National Highway Traffic Safety Administration
400 Seventh Street, S.W., Room 5321
Washington, D.C. 20590

Dear Mr. Weinstein:

The following information is submitted pursuant to the requirements of 49 CFR 573.5 as it applies to a determination by General Motors of a safety defect involving certain 2002-03 model year Chevrolet Trailblazer, GMC Envoy, Oldsmobile Bravada, and 2003 Isuzu Ascender model vehicles.

573.6(c)(1): Chevrolet, GMC, and Oldsmobile Divisions of General Motors Corporation and Isuzu Motors America, Inc.

573.8(c)(2)(3)(4): This information is shown on the attached sheet.

573.8(c)(5): General Motors has decided to recall certain 2002 and 2003 model year Chevrolet Trailblazer, GMC Envoy, Oldsmobile Bravada, and 2003 Isuzu Ascender model vehicles. Some of these vehicles have windshield wiper systems that will not turn on, cease operation while in use, fail to turn off/on by themselves (moisture sensitive wiper system), or have continuous windshield washer pump operation because the presence of water within the wiper module can either cause a short circuit or can lead to the corrosion of components within the module. Depending on the occurrence and weather situation, driver visibility could be reduced.

573.6(c)(6): In September of 2003 a Product Investigations Investigator was assigned to track alleged windshield wiper failures in 2002 and 2003 Trailblazer, Envoy and Bravada vehicles after ODI resume PE03-042 was received from NHTSA.

The investigation revealed that during the early GMT 360 builds prior to the start of saleable vehicles at Moraine assembly, the plant identified water ingestion in the windshield wiper module. GM Engineering determined the windshield wiper module cover was not sealing properly to the module housing due to voids in the butyl seal and cracks in the housing. There were also leaks in the connector due to a radius error. The windshield wiper module cover was retooled to fix the radius of the connector. The original mating electrical connector was redesigned from a single-clip to a triple-clip seal. The cracked covers were caused by an interference with the circuit board terminals that were 1 mm too long. In addition, to avoid water being pulled into the module due to a negative pressure in the module, the windshield wiper module vent hole was added.

Engineering's test simulations showed that GM's required 100% online one-minute water test and the random eight minute off-line audit water test done at the Moraine assembly plant exceeded the plenum's capability to divert water away from the wiper covered circuit board. After the noted changes were made, water test failures at the plant were eliminated.

In February 2002 the Moraine assembly plant observed a high number of windshield wiper motors being replaced. The wiper modules were inspected during the 100% warranty parts return process and evaluated by GM and the supplier (Valeo) to determine the root causes for this issue. By the end of February 2002, GM Engineering began a Red X study conducted to reduce warranty expense for front windshield wiper motors on the subject vehicles.

Product Investigations

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In November 2002 a new designed wiper module went into production for the GMT 380 Program that was initially pursued as a cost reduction project. In light of the Red X study findings, the new module was found to include a design feature that would also be directionally correct at reducing the potential for water intrusion.

On November 12, 2003 GM submitted a response to information request PE03-042 that was received by GM on September 29, 2003. In the response, GM indicated that the issue was still under investigation, and GM did not believe that the issue posed an unreasonable risk to motor vehicle safety because there were only two reported minor crashes and no injuries. On January 7, 2004 the NHTSA advised GM that PE03-042 would be upgraded to an EA.

On January 15, 2004 Product Investigations presented the issue to the FPE Director. The FPE Director reviewed the issue with the GMNA Senior Management Committee. GM continues to believe that there is no unreasonable risk to safety indicated with respect to this vehicle population. However, to acknowledge NHTSA's concern that windshield wipers are a safety system and to avoid prolonged confrontation over the issue, thereby promoting resolution of NHTSA's open investigation, on January 26, 2003 GM decided to mail owner letters containing statements required by 49 C.F.R. Part 577. The repairs will be made at no charge to the customer.

573.6(c)(8): This information will be included in the service procedure of the draft dealer bulletin.

Pursuant to 577.11(a), GM does not believe notification about reimbursement is required for this recall. Involved vehicles are covered by the new vehicle warranty.

573.6(c)(9): Draft and final copies of the dealer bulletin and owner notification will be forwarded when available. General Motors plans to begin this safety recall in the third quarter of 2004.

Sincerely,



Gay P. Kent
Director

Product Investigations

**VEHICLES POTENTIALLY AFFECTED BY MAKE, MODEL, AND MODEL YEAR
PLUS INCLUSIVE DATES OF MANUFACTURE**

<u>MAKE</u>	<u>MODEL SERIES</u>	<u>MODEL YEAR</u>	<u>NUMBER INVOLVED</u>	<u>INCLUSIVE MANUFACTURING DATES (FROM) (TO)</u>	<u>DESCRIPTIVE INFO. TO PROPERLY IDENT. VEH.</u>	<u>EST. NO. W/CONDITION</u>
Chevrolet	S/T	2002	277,126	10/00	8/02	TrailBlazer, TrailBlazer EXT
	S/T	2003	101,388	4/02	11/02	TrailBlazer, TrailBlazer EXT
GMC	S/T	2002	121,513	10/00	8/02	Envoy, Envoy XL
	S/T	2003	48,403	4/02	11/02	Envoy, Envoy XL
Oldsmobile	S/T	2002	28,709	10/00	8/02	Bravada
	S/T	2003	3,786	4/02	11/02	Bravada
Isuzu	S/T	2003	499	4/02	11/02	Ascender
Grand Total:			581,344			

* All involved vehicles will be corrected.