

April 16, 2003

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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

2003 APR 23 A 8:44

OFFICE OF DEFECTS
INVESTIGATION

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 2003 Chevrolet TrailBlazer, GMC Envoy, and Oldsmobile Bravada utility vehicles.

573.5(c)(1): Chevrolet, GMC and Oldsmobile Divisions of the General Motors Corporation.

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

573.5(c)(5): General Motors has decided that a defect that relates to motor vehicle safety exists in certain 2003 Chevrolet TrailBlazer, GMC Envoy, and Oldsmobile Bravada utility vehicles. The subject vehicles were manufactured with a left-front brake pipe with a circumferential score at a random location along the length of the pipe as the result of an incomplete cutting/processing operation. If the brake pipe at the scoring location corroded to the point that the brake pipe wall became very thin, and application of the brake developed enough pressure to partially or fully fracture the brake pipe, brake pedal travel would immediately increase and front brake performance would be reduced. Or, if the brake pipe wall at the scoring location partially or fully fractured due to a combination of pressure, vibration, or temperature induced fatigue, the brake pedal travel would immediately increase and front brake performance would be reduced. In these instances, braking would be limited to that available with the remaining half system (rear brakes). If this occurs when stopping distance is limited, a crash could occur.

573.5(c)(6): General Motors Moraine Assembly initially discovered the condition (two pieces) during the afternoon shift on Friday, September 06, 2002. GM Moraine Assembly immediately communicated the condition to the supplier - Fluid Motion Technologies (FMT) on this same date. Three additional pieces were found at Moraine Assembly on September 08, 2002, and all these parts were from a shipping date of August 04, 2002.

FMT Quality investigated their manufacturing process, tooling, equipment, and work in process to determine the root cause for the condition. A review of the FMT manufacturing process on Monday, September 09, 2002 discovered that end-cut tubing was allowed to re-enter the production process. This practice of using end-cuts had been in place since July 10, 2002.

Further investigation by FMT showed that incorrect set-up on the Crown machines' grip-and-pull process allowed scored parts to periodically enter the production process. The scoring could randomly occur at any point on the part. Inadequate tightening of the holding collets on the Crown machine allowed this to occur. The scored tubes were mistaken for end-cut tubes and placed into the production process for re-cutting into shorter pieces, and eventually manufactured into finished parts. All material shipped from FMT starting with July 15, 2002, until September 06, 2002, is suspect because there is no tracability between the Crown and Berger machines.

On September 20, 2002 FMT began durability testing of the suspect parts. The expected completion date was targeted for March 2003 with 10 years accelerated test simulation. On October 10, 2002 the condition was presented to the FPE Director by supplier quality.



On November 22, 2002 the initial accelerated testing results showed that parts were unlikely to fail in the first two years of vehicle life. In January 2003 accelerated testing, including 1,000 hours salt spray showing effects of weakening of the tube due to corrosion.

In February and March of 2003 meetings were held with GM SQA, Product Investigations, Engineering, and the supplier to review the results of accelerated testing and to discuss tube incidents occurring during test. The supplier's probability analysis for potential field events was also reviewed. The test results were reviewed with the FPE Director. The FPE Director's recommendation is to involve GM Design For Six Sigma (DFSS) personnel for a statistical evaluation. Background information was supplied to the GM DFSS Statistician.

A meeting was held with GM SQA, Product Investigations, the GM DFSS Statistician, and the supplier to review and discuss the statistical analysis to ensure that the results are clear and accurate. As a result of this discussion the initial statistical results were modified.

On March 26, 2003 the results of the statistical analysis were reviewed with the FPE Director. The FPE Director reviewed the accelerated testing results and statistical evaluation with Senior Management and on April 11, 2003 the decision was made to conduct a Safety Recall.

573.5(c)(8): General Motors is currently developing a service procedure to replace the left-front brake pipe on the involved vehicles. This information will be set forth in the dealer bulletin.

Pursuant to 577.11(e) GM does not believe notification about reimbursement is required for this recall. All involved vehicles are covered under the new vehicle warranty.

573.5(c)(9): General Motors will notify NHTSA when the parts necessary to begin this campaign are available. Draft copies of the dealer bulletin, owner notification and the scheduled mailing dates will be forwarded to NHTSA when available.

Sincerely,



Lyndon R. Lie
Director
Product Investigations

573.5(c)(2),(3),(4)

**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	2003	27,772	7/02	9/02	TrailBlazer	* unknown
GMC	S/T	2003	14,610	7/02	9/02	Envoy	"
Oldsmobile	S/T	2003	<u>2,271</u>	7/02	9/02	Bravada	"
Grand Total:			44,653				