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NVS-215

February 13, 2003

2003 FEB 25 P 12: 26

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

OFFICE OF
DEFECTS INVESTIGATION

33V-050 ①a②

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 Express and GMC Savana model vehicles.

573.5(c)(1): Chevrolet and GMC 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 Express and GMC Savana model vehicles. Some of these vehicles were produced with front seat belt assemblies where the seat-belt push button may not release the seat-belt latch plate after the seat-belt buckle pretensioner is deployed, or alternately the seat-belt latch plate may eject during a crash event with a pretensioner deployment. If an occupant was using the seat belt assembly and the seat-belt latch plate ejected from the seat-belt buckle assembly during pretensioner actuation, the seat belt assembly may not provide a desired level of occupant restraint. If an occupant was using the seat belt assembly and the seat-belt push button became stuck in the seat belt buckle assembly during pretensioner actuation, pressing on the seat-belt push button would not release the latch plate from the buckle to allow the belted occupant to exit the vehicle.

573.5(c)(5): On November 26, 2002, GM completed a simulation of an insurance institute for Highway Safety (IIHS) 40-mph offset barrier test on a 2004 model year GMX367 (Grand Prix). After the test collision technicians attempted to remove the driver-side ATD (Anthropomorphic Test Device) from the vehicle seat. During the attempt, the technicians discovered that the restraint latch plate could not be ejected from the seat-belt buckle assembly by pressing on the seat-belt-buckle release push button.

The seat-belt buckle assembly was shipped to Autoliv, the seat-belt system supplier, for engineering analysis. The lodged block-out mass obstructed the movement of the push button that resulted in the inability to release the latch plate from the buckle assembly. Analysis indicated that the ribs on the seat-belt-buckle release push button had been deformed and the block-out mass pins had been lodged in the slide rails for the push button.

Autoliv's material analysis of the push button, completed on December 13, 2002, indicated that the push button was molded from Delrin™ 527UV instead of Delrin™ 127UV as required by the Material Specification GMP.POM.017 as listed on the GM-approved top-level buckle assembly drawing. The impact toughness of Delrin™ 527UV is approximately half that of Delrin™ 127UV.

GM's and Autoliv's investigation showed that the Autoliv push button part print required that the push button be molded of Delrin™ 127UV; however, the material specification listed on the same print required the material to be tested and pass a series of GM tests that are used for validating Delrin™ 527UV (Material Specification GMP.POM.007).

Product Investigations

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On December 20, 2002, Autoliv completed the material analysis on two deformed push buttons from buckle assemblies Autoliv received on December 16, 2002, from the GM Safety Engineer. The material test proved that the push buttons were molded from Delrin™ 127 UV, which was the design intent material for the push button in the GMT810 pretensioning restraint assembly.

The seat-belt buckle assemblies the GM Safety Engineer provided Autoliv were salvaged from a GMX367 vehicle that on October 10, 2002, had completed an MVSS 208 compliance test (test number C14063). The push button in both the driver-side and passenger-side seat-belt buckle assemblies were stuck. The GMX367 was equipped with seat-belt buckle assemblies that are similar to the seat-belt buckle assemblies in the GMT810 vehicles. The only differences between the GMX367 and the GMT810 pretensioning seat-belt buckle assemblies are the seat attachment hardware of the seat-belt buckle assembly, the wiring harness lengths, and the wiring harness connectors. Therefore, the component performance of the GMX367 buckle assembly is the same as a GMT810 buckle assembly.

Between December 2, 2002, and January 4, 2003, 146 tests were run to evaluate a combination of components and materials in the seat belt buckle assemblies. These component-level tests included ECE sled testing with defined pretensioner deployment times, static tests, and shock tests at different ambient temperatures. The tests were conducted with push buttons created from Delrin™ 127UV and Delrin™ 527UV, and with "lower-powered" pretensioner propellant (or gas generator) and pretensioner propellant used in production of the restraint assemblies for the GMT810.

High-speed video of the tests revealed that movement that caused unpredictable interactions between the components of the buckle assembly may cause the seat-belt latch plate to eject from the seat-belt buckle assembly during pretensioner actuation. Although no unlatching events have been produced in vehicle-specific tests, seat-belt-assembly design reviews and aggressive testing analysis indicate the event mechanisms may result in the seat-belt latch plate unlatching during seat-belt pretensioner deployment.

Part evaluation revealed that the push button might become elastically and/or plastically deformed. Deformation occurs when the block-out mass is swung toward the push button or moved erratically and collides with the push button, or the energy in the event exceeds the components capability to remain stable. The deformation (plastic and/or elastic) may have been caused by forces greater than the push button could withstand, or by the use of incorrect compounds to mold the push button.

Autoliv engineers and GM engineers concluded from the tests that the cause of the stuck push buttons and disconnected latch plates was the relative movements between components in the seat-belt buckle assembly and/or elastic and/or plastic deformation of the push button. The causes of the unpredictable movements in the seat-belt buckle assembly were the accelerations and resulting forces caused by the pretensioner deployment. These resulting forces were greater than the components and assembly are capable of withstanding to operate as designed.

The propellant used in the pretensioner of the seat belt assembly caused the accelerations and resulting forces that caused the conditions. Therefore, between January 6, 2003, and January 10, 2003, 44 component tests were completed to statistically determine with 99% confidence whether a lower-powered pretensioner propellant (LWG-40) would be a functional improvement over the production pretensioner propellant (AMG1.0) for the observed conditions. The 44 tests using the ECE sleds were completed using the LWG-40 propellant. All assemblies completed the tests without exhibiting the conditions of a stuck push button or an ejected latch plate. Visual analysis of the push button rails demonstrated that incidental marking occurred on the push button rails. This marking does not impede the function of the buckle assembly.

On January 8, 2003, Autoliv completed a Design of Experiments (DOE) to determine the affect of different variables in the AMG1.0 gas generator on performance. The DOE indicates that the fuel separator position contributes significantly to gas output and energy release of the AMG1.0. The DOE indicates that the minimum performance variation tends to appear when the fuel separator height is 20.5 - 21.5 mm. Autoliv's results of the teardown inspection revealed that the fuel separator height varied from 20.25 - 24.48 mm. This larger fuel separator height results in less internal material compaction in the AMG1.0, which results in a higher gas output.

On January 10, 2003, an additional test was completed to statistically qualify the LWG-40 propellant and the AMG1.0 propellant by defining their energy performance and the stability capability of the buckle assembly. Twenty static seat tests were run. Ten tests were completed using seat belt assemblies with AMG1.0 propellant, and ten tests were completed using seat belt assemblies with LWG-40 propellant.

The test analysis was completed on January 13, 2003, and showed that the AMG1.0 propellant produced enough energy to damage the internal seat-belt buckle components that could cause the seat-belt buckle latch to eject from the seat-belt buckle assembly, or could cause the seat-belt push button to become fixed in position. In addition, the test analysis indicated with four-sigma confidence that the LWG-40 propellant did not produce a high enough energy level to deform the components in the seat-belt buckle assembly and cause either condition.

On January 13, 2003, Wentzville Assembly began producing GMT610 light duty vehicles with static seat-belt buckle assemblies. The static seat-belt buckle assembly design is the same design that is used in GMT610 heavy-duty vehicles. The paragraphs in the owner's manual that refer to the pretensioning seat belt buckle assembly were covered with a self-adhesive blank label.

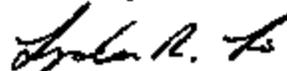
The condition was presented to the FPE Director on January 22, 2003. The GMNA Senior Management Committee reviewed the issue on January 31, 2003. The decision to conduct a safety recall was made on February 10, 2003.

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

Pursuant to 577.11(e), GM does not believe notification about reimbursement is required for this recall. Owners would not be aware of this condition without a seat-belt buckle pretensioner deployment and involved vehicles are current model and are covered by the new vehicle warranty.

573.6(c)(9): Draft copies of the dealer bulletin and the owner notification are attached. General Motors plans to begin this safety recall in April 2003 when parts become available. Final copies of the dealer bulletin and owner notification will be forwarded 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	G Van	2003	13,556	4/02	1/03	Express	100%
GMC	G Van	2003	<u>4,771</u>	4/02	1/03	Savana	.
		Grand Total:	18,327				

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Recall Bulletin

File In Section: Product Recalls
 Bulletin No.: 2003-004
 Date:
 Draft: #1



J3V-050 ⑤ of ②

PRODUCT SAFETY RECALL

SUBJECT: 020## – FRONT SAFETY BELT BUCKLES

**MODELS: 2003 CHEVROLET EXPRESS
 2003 GMC SAVANA
 WITH GVW LESS THAN 8500 LBS.**

DRAFT
**A FINAL VERSION OF THIS DRAFT WILL BE USED
 IF THERE IS A DECISION TO RECALL**

CONDITION

General Motors has decided that a defect which relates to motor vehicle safety exists in certain 2003 model year Chevrolet Express and GMC Savana vehicles with a GVW less than 8500 pounds. During a vehicle crash sufficient enough to deploy the safety belt pretensioner, the front safety belt buckles in some of these vehicles may not release after the vehicle crash, or alternately may eject the safety belt latch during the vehicle crash, resulting in increased risk of personal injury.

CORRECTION

Dealers are to replace the front driver and passenger side safety belt buckle.

VEHICLES INVOLVED

Involved are certain 2003 model year Chevrolet Express and GMC Savana vehicles with a GVW of less than 8500 pounds and built within these VIN breakpoints:

YEAR	DIVISION	MODEL	PLANT	FROM	THROUGH
19##	-----	-----	-----	#####	#####
19##	-----	-----	-----	#####	#####

IMPORTANT: Dealers should confirm vehicle eligibility through **GMVIS** (GM Vehicle Inquiry System) or **GM Access Screen** (Canada only) before beginning recall repairs. [Not all vehicles within the above breakpoints may be involved.]

Involved vehicles have been identified by Vehicle Identification Number. Computer listings containing the complete Vehicle Identification Number, customer name and address data have

been prepared, and are being furnished to involved dealers with the recall bulletin. The customer name and address data will enable dealers to follow up with customers involved in this recall. Any dealer not receiving a computer listing with the recall bulletin has no involved vehicles currently assigned.

These dealer listings may contain customer names and addresses obtained from Motor Vehicle Registration Records. The use of such motor vehicle registration data for any other purpose is a violation of law in several states/provinces/countries. Accordingly, you are urged to limit the use of this listing to the follow-up necessary to complete this recall.

PARTS INFORMATION

Parts required to complete this recall are to be obtained from General Motors Service Parts Operations (GMSPO). Please refer to your "involved vehicles listing" before ordering parts. Normal orders should be placed on a DRO = Daily Replenishment Order. In an emergency situation, parts should be ordered on a CSO = Customer Special Order.

Part Number	Description	Quantity/Vehicle
#####	-----	#

If Pre-shipping Use: (NOT FOR IPC)

Parts Pre-Ship Information – For US and Canada

Important: An initial supply of parts required to complete this program will be pre-shipped to involved dealers of record. This pre-shipment is scheduled to begin the week of ____ ##, 200#. (Include the following sentence only if using 100% pre-ship or pre-shipping VIN specific parts) Parts received for a recently transferred vehicle should be forwarded by the original dealer (with a phone call) to the dealer that received the transferred vehicle. Pre-shipped parts will be charged to dealer's open parts account.

Additional parts, if required, are to be obtained from General Motors Service Parts Operations (GMSPO). Please refer to your "involved vehicles listing" before ordering parts. Normal orders should be placed on a DRO = Daily Replenishment Order. In an emergency situation, parts should be ordered on a CSO = Customer Special Order.

Part Number	Description	Quantity/Vehicle
#####	-----	#

Common Optional Special Parts Information Statements Which May Be Needed:

Important: Due to the small number of vehicles involved and due to limited initial parts availability, dealers are encouraged not to order recall parts for use as shelf stock. Parts should only be ordered when inspection determines that it is necessary to <insert description of inspected condition that requires part>.

Important: It is estimated that only ##% of involved vehicles will require <part> replacement. Please order parts accordingly.

For Isuzu models: [Include This Section Only If Needed]

Parts required to complete this recall are to be obtained from American Isuzu Parts Distribution Network (AIPDN). Please refer to your "involved vehicles listing" prior to ordering requirements.

Part Number	Description	Quantity/Vehicle
#####	-----	#

SERVICE PROCEDURE**[Include one of the following only if applicable]****Category - Recall Service Procedure is Different Than Service Manual Information.**

IMPORTANT: The service procedure contained in this recall is different from the service procedure found in the appropriate service manual(s). In the near future the service manual(s) will be updated with this new service procedure. Please be advised that the labor time allowance listed in the labor time guide is not affected by this new service procedure.

(OR)

Category - Recall Service Procedure and Labor Time Allowance is Different Than Service Manual Information and Labor Time Guide.

IMPORTANT: The service procedure contained in this recall is different from the service procedure found in the appropriate service manual. As a result, the labor time allowance has been revised to correspond with this new service procedure. In the near future the service manual and labor time guide will be updated with this new information.

(OR)

Category - Recall Labor Time Allowance is Different Than the Labor Time Guide.

IMPORTANT: The labor time allowance listed in this recall is different than that currently published in the labor time guide for performing the same operation. In the near future, the labor time guide will be updated with this new information.

<Detail per individual recall>

##. Install the GM Recall Identification Label.

RECALL IDENTIFICATION LABEL - For US

Place a Recall Identification Label on each vehicle corrected in accordance with the instructions outlined in this Product Recall Bulletin. Each label provides a space to include the recall number and the five (5) digit dealer code of the dealer performing the recall service. This information may be inserted with a typewriter or a ball point pen.

Put the Recall Identification Label on a clean and dry surface of the radiator core support in an area that will be visible to people servicing the vehicle. When installing the Recall Identification Label, be sure to pull the tab to allow adhesion of the clear protective covering. Additional Recall Identification Labels can be obtained from Dealer Support Materials by either ordering on the web from DWD Store, gm-dealerworld.com, or calling 1-866-700-0001 (Monday-Friday, 8:00 a.m. to 5:00 p.m. EST). Request Item Number 8-1015 when ordering.



RECALL IDENTIFICATION LABEL – For CANADA

Place a Recall Identification Label on each vehicle corrected in accordance with the instructions outlined in this Product Recall Bulletin. Each label provides a space to include the recall number and the five (5) digit dealer code of the dealer performing the recall service. This information may be inserted with a typewriter or a ball point pen.

Put the Recall Identification Label on a clean and dry surface of the radiator core support in an area that will be visible to people servicing the vehicle. **Additional Recall Identification Labels for Canadian dealers can be obtained from DGN by calling 1-800-688-5539 (Monday-Friday, 8:00 a.m. to 5:00 p.m. EST). Ask for Item Number GMP 91 when ordering.**

**COURTESY TRANSPORTATION**

The General Motors Courtesy Transportation program is intended to minimize customer inconvenience when a vehicle requires a repair that is covered by the New Vehicle Limited Warranty. The availability of courtesy transportation to customers whose vehicles are within the warranty coverage period and involved in a product recall is very important in maintaining customer satisfaction. Dealers are to ensure that these customers understand that a shuttle service or some other form of courtesy transportation is available and will be provided at no charge. Dealers should refer to the General Motors Service Policies and Procedures Manual for Courtesy Transportation guidelines.

CLAIM INFORMATION

Submit a Product Recall Claim with the information indicated below:

REPAIR PERFORMED	PART COUNT	PART NO.	PARTS ALLOW	CC-FC	LABOR OP	LABOR HOURS	NET ITEM
	#	#####	**	MA-96	V—	##	***
Courtesy Transportation	N/A	N/A	N/A	MA-96	****		*****
Customer Reimbursement				MA-96	V—	0.2	*****
Floor Plan Reimbursement				MA-96	V—		*****

* For Program Administrative Allowance, add 0.1 hours to the "Labor Hours".

** The "Parts Allowance" should be the sum total of the current GMSPO Dealer net price plus applicable Mark-Up for <list parts required> needed to complete the repair.

*** [Remove this item and corresponding column above if not applicable to program] The amount identified in the "Net Item" column should represent the sum total of the current GMSPO Dealer net price plus applicable Mark-Up <list parts required> needed to perform the required repairs.

**** [Remove this line if majority of vehicles are out of warranty] Submit courtesy transportation using normal labor operations for courtesy transportation as indicated in the GM Service Policies and Procedures Manual.

***** The amount identified in the "Net Item" column should represent the actual dollar amount for courtesy transportation.

Refer to the General Motors WINS Claims Processing Manual for details on Product Recall Claim Submission.

CUSTOMER NOTIFICATION – For US and CANADA

Customers will be notified of this recall on their vehicles by General Motors (see copy of customer letter included with this bulletin).

DEALER RECALL RESPONSIBILITY – For US (US States, Territories, and Possessions)

The US National Traffic and Motor Vehicle Safety Act provides that each vehicle that is subject to a recall of this type must be adequately repaired within a reasonable time after the customer has tendered it for repair. A failure to repair within sixty days after tender of a vehicle is prima facie evidence of failure to repair within a reasonable time. If the condition is not adequately repaired within a reasonable time, the customer may be entitled to an identical or reasonably equivalent vehicle at no charge or to a refund of the purchase price less a reasonable allowance for depreciation. To avoid having to provide these burdensome remedies, every effort must be made to promptly schedule an appointment with each customer and to repair their vehicle as soon as possible. In the recall notification letters, customers are told how to contact the US National Highway Traffic Safety Administration if the recall is not completed within a reasonable time.

DEALER RECALL RESPONSIBILITY - ALL

All unsold new vehicles in dealers' possession and subject to this recall must be held and inspected/repaired per the service procedure of this recall bulletin before customers take possession of these vehicles.

Dealers are to service all vehicles subject to this recall at no charge to customers, regardless of mileage, age of vehicle, or ownership, from this time forward.

Customers who have recently purchased vehicles sold from your vehicle inventory, and for which there is no customer information indicated on the dealer listing, are to be contacted by the dealer. Arrangements are to be made to make the required correction according to the instructions contained in this bulletin. This could be done by mailing to such customers, a copy of the customer letter accompanying this bulletin. Recall follow-up cards should not be used for this purpose, since the customer may not as yet have received the notification letter.

In summary, whenever a vehicle subject to this recall enters your vehicle inventory, or is in your dealership for service in the future, you must take the steps necessary to be sure the recall correction has been made before selling or releasing the vehicle.

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the tools, equipment, safety instructions, and know-how to do a job properly and safely. If a condition is described, DO NOT assume that the bulletin applies to your vehicle, or that your vehicle will have this condition. See your dealer/retailer for information on whether your vehicle may benefit from this information.



We Support
Voluntary Technician
Certification

03V-050 (10) of (12)

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03V-050 ⑩ of ⑫

<Month Of Mailing>, 200#

Dear General Motors Customer:

This notice is sent to you in accordance with the requirements of the National Traffic and Motor Vehicle Safety Act.

Reason For This Recall: <Insert Defect paragraph(s) from bulletin - Remove RPO & VIN code references - most customers do not understand what they represent>

What Will Be Done: <Insert Remedy paragraph(s) from bulletin - Change language as needed to reflect that letter is directed to customer (i.e. "Dealers are to..." should read "Your dealer will...", etc.>. This service will be performed for you at no charge.

How Long Will The Repair Take? The length of time required to perform this <Inspection and service correction or service correction> is approximately <insert labor time rounded up to next higher 5 minutes>. Additional time may be required to schedule and process your vehicle. If your dealer has a large number of vehicles awaiting service, this additional time may be significant. Please ask your dealer if you wish to know how much additional time will be needed to schedule, process and repair your vehicle.

Contacting Your Dealer: Please contact your dealer as soon as possible to arrange a service date. Parts are available <Remove parts availability language if no parts are required> and instructions for making this correction have been sent to your dealer. Your dealer is best equipped to obtain parts and provide services to correct your vehicle as promptly as possible. Should your dealer be unable to schedule a service date within a reasonable time, you should contact the appropriate Customer Assistance Center at the listed number below:

Division	Number	Deaf, Hearing Impaired or Speech Impaired *
Buick	1-800-521-7300	1-800-832-8425
Cadillac	1-800-458-8006	1-800-833-2622
Chevrolet	1-800-222-1020	1-800-833-2438
GMC	1-800-462-8782	1-800-462-8583
Pontiac	1-800-762-2737	1-800-833-7668
Oldsmobile	1-800-442-6537	1-800-833-6537
Hummer	1-866-486-6376	
GMODC	(905) 644-4112	
Puerto Rico - English	1-800-496-9992	
Puerto Rico - Español	1-800-496-9993	
Virgin Islands	1-800-496-9994	

GMICT	1-800-862-4389	
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* Utilizes Telecommunication Devices for the Deaf/Text Telephones (TDD/TTY)

If, after contacting the appropriate Customer Assistance Center, you are still not satisfied that we have done our best to remedy this condition without charge and within a reasonable time, you may wish to write the Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590 or call 1-888-327-4236.

Customer Reply Card: The attached customer reply card identifies your vehicle. Presentation of this card to your dealer will assist in making the necessary correction in the shortest possible time. If you no longer own this vehicle, please let us know by completing the attached and mailing it in the postage paid envelope.

Reimbursement: <Use this section only when applicable> (Statement for all states except as shown below) If you have already paid for some or all of the cost to have <repair condition> and you have not received reimbursement under a Vehicle Service Contract, you should contact your dealer to seek reimbursement. Please provide your dealer with your original paid receipts or invoices verifying the repair, the amount charged, proof of payment, the date of payment of those charges, and proof of ownership of the vehicle at the time of the repair. Your request for reimbursement, including the information and documents mentioned above, must be received by your dealer by <month day, yr>.

(Statement for California, Connecticut, Virginia, and Wisconsin)

If you have already paid for some or all of the cost to have <state repair>, and you have not received reimbursement under a Vehicle Service Contract, you should write to your divisional specific address to seek reimbursement. Please provide your original paid receipts or invoices verifying the repair, the amount charged, proof of payment, the date of payment of those charges and proof of ownership of the vehicle at the time of the repair. This information must be provided within two (2) years after the date on which you paid for the repair.

Courtesy Transportation: <Use this section only when applicable> If your vehicle is within the New Vehicle Limited Warranty your dealer may provide you with shuttle service or some other form of courtesy transportation while your vehicle is at the dealership for this repair. Please refer to your Owner's Manual and your dealer for details on Courtesy Transportation.

We are sorry to cause you this inconvenience; however, we have taken this action in the interest of your safety and continued satisfaction with our products.

General Motors Corporation