



**GENERAL MOTORS NORTH AMERICA**  
Structure & Safety Integration

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SAFETY DIVISION

January 26, 2004

Mr. K. N. Weinstein  
Associate Administrator for Safety Assurance  
National Highway Traffic Safety Administration  
400 Seventh Street, S.W., Room 6321  
Washington, D.C. 20590

04V-045 ① of ③

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 noncompliance involving certain 2003-04 model year Cadillac Escalade, Escalade EXT/ESV; Chevrolet Avalanche, Silverado, Suburban, Tahoe, Express; GMC Yukon/Yukon XL, Sierra, Savana; and Hummer H2 model vehicles.

573.6(a)(1): Cadillac, Chevrolet and GMC Divisions of the General Motors Corporation and Hummer

573.6(a)(2)(3)(4): This information is shown on the attached sheet.

573.6(c)(5): General Motors has decided that certain 2003-04 model year Cadillac Escalade, Escalade EXT/ESV; Chevrolet Avalanche, Silverado, Suburban, Tahoe, Express; GMC Yukon/Yukon XL, Sierra, Savana; and Hummer H2 model vehicles fail to conform to Federal Motor Vehicle Safety Standards 135/105. Some of the subject vehicles were produced with an out-of-specification brake hydro-boost housing relief valve bore; consequently, the relief valve o-ring seal may fracture. GM's analysis of the suppliers test results concluded that these vehicles might not meet the requirements of Motor Vehicle Safety Standard (MVSS) 135/105 certification testing (Hydraulic Service Brake (Normal, Emergency) and Parking Brake Performance). MVSS 135/105 requires that all mechanical components of the braking system shall be intact and functional at the end of certification testing. MVSS 135 is the applicable standard for vehicles less than 3,500 kg (7,710 lb) and MVSS 105 is the standard for vehicles over this weight.

The operator of an involved vehicle may notice a distinct noise associated with hydraulic fluid passing through the broken seal during braking applications if this condition occurs. This engine compartment noise, which is similar to the sound that occurs when the steering wheel is turned to a full stop position, may be audible to the vehicle operator. Steering efforts may be slightly increased while braking or parking. Under certain driving conditions a fractured seal may require a slight increase in the applied brake pedal effort to achieve the same vehicle deceleration rate as prior to the seal fracture. The amount of increase will depend on vehicle configuration. Testing by Bosch at the Bosch Proving Grounds indicated that vehicles equipped with a fractured seal would meet stopping distance targets at GVWR.

573.6(c)(7): In June 2003 Bosch personnel were performing a validation durability test for additional 2004 Model Year production capacity equipment. One out of three hydro-boost units under test sustained an inner relief valve seal fracture. This incident occurred after completing 65% of the test cycle schedule. The other two units completed full durability testing without incident. Subsequent analysis and dimensional inspection of all the units detected a machining error in the relief bore cavity for modules produced from a machine identified as Fadal #1, one of five automated boring machines used for this bore housing. Hydro-boost modules for the 2004 validation durability tests had been selected at random. Units produced from Fadal machines #0, #2, #3, and #4 were verified to be within specification. GM was notified of this test incident on June 23, 2003.



Boech performed durability testing on hydro-boost assemblies during July and August of 2003. Boech provided the test data to GM in September of 2003. During September and October of 2003 GM conducted statistical analysis of the test data. On November 10, 2003 GM Product Investigations, FPE, Supplier Quality, Brake Systems Engineering, and Safety Standards group personnel met to clarify test report data and field incident probability calculations. Several more meetings were conducted during November and December of 2003 to discuss differences in the interpretation of Product Validation test results and the correlation with MVSS testing.

On December 18, 2003 the issue was presented to the FPE Director. The FPE Director requested additional information. The GMNA Senior Management Committee reviewed the issue on January 9, 2004. The decision to conduct a noncompliance recall was made on January 21, 2003.

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

Pursuant to 577.11(e), 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 the owner notification will be forwarded when available. General Motors plans to begin this safety recall in the second quarter of 2004.

Sincerely,



Gay P. Kent  
Director  
Product Investigations

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

MAKE	MODEL SERIES	MODEL YEAR	NUMBER INVOLVED	INCLUSIVE MANUFACTURING DATES		DESCRIPTIVE INFO. TO PROPERLY IDENT. VEH.	EST. NO. W/CONDITION
				(FROM)	(TO)		
Cadillac	C/K	2003	4,937	5/03	7/03	Escalade/ EXT, ESV	*
Cadillac	C/K	2004	827	5/03	6/03	Escalade/ EXT, ESV	*
Chevrolet	C/K	2003	26,207	5/03	7/03	Tahoe/Suburban/Silverado/Avalanche	*
Chevrolet	C/K	2004	3,478	5/03	6/03	Tahoe/Suburban/Silverado/Avalanche	*
Chevrolet	G/H	2003	6,889	5/03	6/03	Express	"
Chevrolet	G/H	2004	2,828	6/03	6/03	Express	*
GMC	C/K	2003	15,239	5/03	7/03	Sierra/Yukon/Yukon XL	*
GMC	C/K	2004	1,067	6/03	6/03	Sierra/Yukon/Yukon XL	*
GMC	G/H	2003	3,230	5/03	6/03	Savana	*
GMC	G/H	2004	408	6/03	6/03	Savana	"
Hummer	H2	2003	3,743	5/03	6/03	Hummer H2	*
Hummer	H2	2004	21	6/03	6/03	Hummer H2	*
Grand Total:			66,875				

\* All involved vehicles will be corrected.