

Appendix D

Industry Falsehoods and Obstruction Have Delayed Development of Meaningful Rollover Crash Protections for Thirty Years

GM Lied to NHTSA About the Need To Test Both Sides of Car Roofs

On January 6, 1971, NHTSA proposed a roof intrusion protection rule that would test both front corners of the roof on passenger vehicles. General Motors Corporation (GM) and the Automobile Manufacturers Association (which later became the Alliance of Automobile Manufacturers) argued in comments to the docket that testing both sides of the roof was unnecessary because it “in most cases roof structure damage is distributed to only one side of the roof in an actual rollover and that, because the roof is symmetrical it makes no difference which side of the roof is selected for testing.” NHTSA subsequently published a roof crush requirement, which remains in effect today that tests only a single side of the vehicle roof.

Litigation in Lambert v. GM subsequently revealed documents showing that in testing following NHTSA’s proposal, in March of 1971, GM tested six production car bodies on both sides of the roof and five of the six failed to meet the test. NHTSA should at a minimum, do as it had initially proposed and require manufacturers to meet a test that applies a more real-world scenario by testing both the leading and following sides of the roof in a rollover crash.

Industry Claims Passengers “Dive” Into Roofs, Yet Roof Strength Is Still Key

The auto industry has tried to obscure the engineering principles which would have emphasized maintaining survival space by arguing in court and to NHTSA that occupants “dive” into the roof. This ignores the obvious fact that if the seat structures and safety belts held occupants in place during a roll, and if the roof was strong enough to withstand the weight of the car, and the roofs were well padded, the head and spine of occupants would be far safer. In addition, safety engineer and attorney Don Slavik has shown through accident investigations that injuries among occupants directly correlates with the location of roof intrusion in the vehicle. Where there is roof crush, occupants are injured, and where someone remains uninjured, there is little or no roof crush.



GM Blames Belt Use Rates for Rollover Ejection Deaths and Ignores Safety Belt Design Flaws

General Motors, in its press release following Dr. Runge's recent statement, faulted occupant ejections and the lack of safety belt use for the high death rate in rollover crashes, claiming that, "according to NHTSA, of the 9,882 people killed in rollovers in the year 2000, 75 percent perished not because of the vehicle, but because they were unbelted and ejected from the vehicle."¹ Because decent crash protection could save many lives, this argument sidesteps the industry's responsibility to better protect the 28 percent of belted occupants who perish needlessly in rollover crashes each year.

Of course, better crash protection, including roofs, doors, door latches and side windows and windshields, along with window curtain airbags, could keep ejection portals from opening in a rollover crash, helping to retain occupants inside the vehicle. GM also confuses causation with correlation: NHTSA never has concluded that those ejected *were killed by the ejection*. On the contrary, safety experts have argued that as many as half of those ejected may have been first injured or killed by roof intrusion within the vehicle prior to being ejected.²

Moreover, SUV and passenger car belt-use rates are virtually identical in fatal rollover crashes, proving nothing about the safety of either type of vehicle. Sixty-eight percent of passenger car occupants and 69 percent of SUV occupants killed in fatal rollover crashes presumably were not using restraints.³ Far from proving that SUVs are safe and fatalities are the occupants' fault, GM's assertion shows the continuing failure to install safety design features that could save many lives. According to a major 2002 NHTSA study, 78 percent of SUV and van occupants use safety belts, while 77 percent of passenger car occupants did.⁴ Yet, in 2000, a whopping 61.7 percent of SUV occupant fatalities were attributable to rollovers, while 36.5 percent of van fatalities and only 22.0 percent of passenger car fatalities were.⁵ Obviously, seat belt use rates do little to explain the high death rates in SUV rollovers.

This statistical discrepancy also raises a question about the effectiveness of current safety belts in rollover crashes. Because most are not constructed to stay tight, or "pretension," during a rollover crash, safety belts do not offer the same degree of protection to occupants in these type of crashes. Research has shown that passengers may be ejected in a rollover despite the use of safety belts due to "inertial unlatching" during the roll.⁶ Despite the possibility of design flaws in most belts, crash investigators often assume that someone ejected in a rollover crash was unbelted, leading to under-reporting in the extent to which inertial-unlatching may occur.

Even occupants who are able to remain belted may slide free from their safety belt during a rollover and be injured or killed. In one 1986 NHTSA simulation of a four-roll event at 60 miles per hour using typical safety belt designs, in seven out of seven tests, the test "occupant" slid out of the shoulder belt, permitting extreme torso flailing to



occur.⁷ Other research has confirmed that current safety belt design allows far too much movement by occupants to adequately protect them in rollover crashes.⁸ Congress should ask NHTSA to conduct further tests to measure the performance of safety belts in rollover crashes, and should require safety belts that will keep occupants in place during a rollover crash.

Of course, GM's decision to blame belt use rates by consumers is far easier—and far less effective—than fixing SUVs through engineering changes available today. The real solution is to impose a meaningful roof crush standard, require rollover crash protection measures in all passenger vehicles, and establish a minimum standard for rollover propensity. Given the survivability of these crashes and the availability of lifesaving and limb-saving technology, NHTSA should have a goal of bringing the fatalities from rollover and roof crush to virtually zero, with the ultimate aim of achieving the same level of protection from injury and death for the public as is now enjoyed by professional race car drivers.

¹ See press release by General Motors, by Jay Cooney, GM Safety Communications. Jan. 15, 2003 (GM notes, “72 percent of those killed in fatal rollover crashes were not using safety belts.”).

² See Comments of Public Citizen Regarding 49 CFR Part 571, Federal Motor Vehicle Safety Standards: Roof Crush Resistance at 9-11.

³ National Center for Statistics and Analysis, *Characteristics of Rollover Crashes*, April 2002, at 47.

⁴ National Center Statistics and Analysis, *Safety Belt and Helmet Use in 2002 – Overall Results*, September 2002, at 8.

⁵ National Center for Statistics and Analysis, *Characteristics of Rollover Crashes*, April 2002, at 14.

⁶ See Blick, *et al.*, “Theoretical and Experimental Analysis of Inertial Release of Seat Belt Buckles,” AAAM (1996).

⁷ See NHTSA Research Paper, SAE 861876 (1986).

⁸ Rains, Elias, Mowrey; “Evaluation of Restraints Effectiveness in Simulated Rollover Conditions,” 98-S8-W-34 (1998).

