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DEPARTMENT OF TRANSPORTATION

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Docket Management  
Room PL-401  
400 Seventh St., S. W.  
Washington, DC 20590

DOCKET SECTION

*NHTSA-98-4405-54*

Dear Administrator,

The proposed air bag upgrading rules are flawed in several ways, and fail to account for many significant risks and the improper forced allocation of scarce resources by car buyers.

In general, the new rules fail to adequately account for the following problems.

A. Existing simple air bag systems have a high inadvertent deployment failure rate, with several hundred documented injuries, and at least one probable death. It is likely that there are more undocumented deaths. With the addition of many additional sensitive and safety-critical components, it is reasonable to assume that the reliability rate of these much-more-complicated systems will markedly decrease from today's unacceptably-high failure rate. To introduce these complications on an already-imperfect and dangerous technology, with no option for buyers to avoid the purchase altogether, is not a proper government mandate.

As just one example, consider the incorrect NHTSA belief that a small child will be at no risk from an air bag deployment in the right front seat, because a weight sensor (or another equivalent suppression device) will turn the air bag off when that occupant is present. The failure of the sensor may well be the actual cause of death, when it allows the bag to deploy with the force for an adult occupant. This is an unacceptable risk to force unwilling buyers to accept, with no relief to reject the air bag purchase altogether, or to have a manual switch to turn the bag off with certainty -- when children or other vulnerable occupants are present.

In every single permutation and combination where it is possible to foresee some small failure rate for the components of the more-complicated systems that would permit an inappropriate or inappropriately-higher-force deployment in the presence of smaller, lighter, older and closer occupants it is improper for NHTSA to force unwilling people to accept those risks - with no legal or practical avenue of safety relief for their families.

B. The new technology bags can be expected to cost considerably more than today's simple systems, likely by added cost margins far exceeding the estimates in the proposal. NHTSA said that air bag on-off switches would cost \$38 to \$63 each installed and the marketplace reality is that they cost \$200 to \$300 each installed. This reflected an error factor of three to eight times too low an estimate for the actual real world costs people must pay for switches.

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Let us assume that a mid-range NHTSA estimate for compliance to the new rules in 1997 dollars is \$100 per vehicle. Using the switch cost error factor of about three to eight times too low, this means the actual cost of compliance will be in the range of \$300 to \$800 per vehicle. Most current air bag systems cost between \$500 and \$1,000 per car, so this will move to \$800 to \$1,800 per vehicle for the complete new systems, with perhaps an average increase of \$500 per new vehicle for the increased complexity and all the new components.

Even a cursory view of the sales and marketing incentives that are required most of the time to keep ordinary new vehicle sales moving should convince even the least-cost-concerned NHTSA official that an addition of \$500 per vehicle of car cost will seriously damage the new vehicle market. This will amount to about a 2.5% price increase on the average car and about a 5% price increase on the least expensive vehicles. NHTSA should assume that these increases will force people to continue to use older and generally-less-safe cars for longer, thus decreasing the overall safety for the groups of people that will be unable to move up to newer safer cars. NHTSA's cost-benefit estimates generally fail to account for the changes that occur in the fleet mix, when regulations drive costs upwards. Forcing older vehicles with fewer safety features and with aging systems to stay in the fleet is counterproductive to overall safety, both for their drivers and for other drivers that must share the road with them. These new rules have totally failed to account for this significant safety-negative effect.

C. The intended sunseting of the sled test and a return to unbelted 30 mph barrier crash testing for 50th percentile males is fundamentally flawed in principle. This regression of safety standards will require a return to higher levels of deployment force as the upper limits. Whenever these upper levels of force actually occur with occupants that are smaller, lighter, older and closer to the bag than the no-pre-braking/30 mph barrier crash /50th percentile/ unbelted male occupant that the bag will be primarily calibrated for, then NHTSA will have been responsible for unwarranted and unnecessary risks of death and injury to the smaller, lighter, older and closer occupants.

Given that about 70% of occupants today are belted, it is fundamentally flawed and wrong of NHTSA to even allow calibration of air bags for the minority of unbelted occupants. Any air bags sold in the United States should be exclusively calibrated for belted occupants only. If only a tiny number of smaller, lighter, older and closer occupants are injured or killed because of this wrongful requirement of calibrating for unbelted large males, then those preventable deaths and injuries are morally unacceptable - in any quantity whatsoever.

It is morally wrong for NHTSA rules to require the death of even one belted, 75 year old, 100 pound, five foot tall woman in an attempt to save thirty young unbelted males that refuse to even fasten their seat belts to help protect themselves. If an adult occupant refuses to fasten their belts, it is then morally wrong of NHTSA to raise the risks - even by very tiny percentages - for the vulnerable smaller, lighter, older and closer occupants that are belted.

The new rules suggest that the upper force limits for deployment may move even further upward, with the introduction of higher speed 95th percentile unbelted male crash tests. This is a completely reckless and dangerous proposal that needs to be immediately dropped.

D. As air bag costs move ever-upwards in an attempt to avoid killing and maiming more innocent people with these explosive devices, the basic NHTSA assumption that air bags should be mandatory purchases on new vehicles become less and less valid. NHTSA is supposed to stick to a **\$2.7-million-dollar-per-life-saved** limit for mandatory safety devices. Current simple bags cost about \$4 million per life saved, so the new ones will likely be in the range of \$6 million per life saved. This high cost is unacceptable and counterproductive for a mandatory device, and vehicle buyers should be allowed to spend those dollars on other features and options that would bring more added safety to them and their families.

Forcing air bags to remain standard equipment, and forcing their costs upwards, will mean that many families will be forced to accept significantly-less-safe vehicles than they could otherwise purchase -- if they had the legal right to spend the \$800 to \$1,800 that the new air bags will cost on other more-effective features and options for their own safety.

Most families with average incomes have quite limited new vehicle purchase dollars. This reality seems to be lost on well-educated regulators and researchers who are paid according to appropriate salary scales for a high-cost-of-living major Eastern urban area. Many of the vehicles in question will have to be purchased by low to moderate income people who earn salaries commensurate with relatively low-cost-of-living rural areas of the South and West.

Forcing people to buy costly new technology air bags, instead of: better tires, better brakes, 300-500 pounds more car, snow tires, ABS brakes, better steering systems, traction control, yaw control, better suspensions, various heavy duty components that last longer, and many other individual choices that apply to some vehicles will actually decrease the overall safety for many of those families. This is an improper trend for NHTSA to require -- by force.

E. NHTSA seems to be totally ignoring the opposition to sunsetting the sled test being offered by virtually all major car makers and the insurance industry. The people who must live with the adverse consequences of over-powerful air bags, and must pay the damage claims, and must endure the public relations disasters, and must suffer the lawsuits for the wrongful deaths caused by those over-powerful air bags have begged NHTSA to reconsider.

Since NHTSA and all of its executives enjoy governmental immunity from these damages, the agency should give greater credence to those entities who must suffer the financial consequences and other serious damages when the over-powerful air bags maim and kill their customers. The absolute maximum deployment power for any air bags sold in the USA from the 2000 model year onwards should be that of today's Second Generation bags. NHTSA should be moving in the direction of reducing deployment power to that required for a genuine Supplemental Restraint System for only belted people, rather than insisting that air bags remain calibrated as the primary restraint system for the small minority of vehicle occupants that still refuse to do anything to contribute to their own safety. The move to sunset the sled test is a move in 180 degrees the wrong, and less-safe, direction.

Answers to the agency's questions, using agency numbers.

1. No.
  - a. Permitting upper level deployment forces consistent with unbelted 50th percentile male occupants in a 30 mph barrier crash test presents wrongfully-high risks for smaller, lighter, older and closer occupants, when some bags will inevitably deploy at the upper force limits due to sensor failures. This objection applies to both sides, and will wrongfully endanger innocent drivers and passengers with bags that deploy with the power to maim and kill them.
  - b. All air bags should be calibrated for belted occupants only, under the premise that adding any additional danger to smaller, lighter, older and closer occupants to attempt to assist primarily adult males that refuse to take the simplest step of using belts is morally wrong. It is categorically and morally wrong of NHTSA to knowingly endanger even one belted grandmother to help save any number of young males that refuse to use safety belts.
2. These options need to be entirely rewritten with only belted requirements used.
3. NHTSA has no business specifying particular technologies and all requirements should be only performance based, not specific-technology based. In addition, these options need to be entirely rewritten with only belted requirements used.
4. Unintended consequences were earlier discussed in detail in items A, B, C, D, and E. This will be particularly true if NHTSA succeeds in returning to the unbelted 30 mph barrier crash test for 50th percentile males, where the upper level deployment forces will be similar to the 50+ million most-deadly-style first generation bags in the marketplace now.
5. Only manufacturers could answer this question.
6. Only manufacturers could answer this question.
7. Only manufacturers could answer this question.
8. The injury criteria need to be entirely rewritten for only belted occupants.
9. Only manufacturers could answer this question.
10. Only manufacturers could answer this question.
11. Only manufacturers could answer the technical parts of this question. However, this was one area of danger that was completely ignored in the original rulemaking for air bags. Deployments from rough roads, stones bouncing off the floor pan or similar forces have injured or killed many people. The new rules must reduce this risk to essentially zero. It is morally wrong for NHTSA to present this risk to any unwilling occupant or vehicle buyer.

**12.** Telltales are mandatory, along with automatic testing sequences for those telltales at each vehicle startup. It is mandatory for the driver to know when the bags are or are not live and ready to explode upon the occupants. This applies to all seating positions, all bags and all suppression sensor systems. It would be the height of idiocy to have to pay for the sophisticated and expensive suppression equipment, and then not have mandatory full-time monitors for the driver to know if the suppressions are working, or not. The February 1998 recall of an early Porsche system for child seats and the warnings about that time from Mercedes Benz about their Baby Smart system being interfered with by wireless telephones should be all the evidence required to make telltales mandatory and 100% inclusive.

13. Only manufacturers could answer this question. Please note that this test must be 100% reliable and definitive. A result of 99.9% reliable and definitive will be insufficient. It will be categorically unacceptable to find out in five years that the test was inadequate, if the body count starts to accumulate for risk situations that the test sequence did not foresee or did not adequately measure.

14. Only manufacturers could answer this question. Please note that these tests must also be 100% reliable and definitive. A result of 99.9% reliable and definitive will be insufficient. It will be categorically unacceptable to find out in five years that the test was inadequate, if the body count starts to accumulate for risk situations that the test sequences did not foresee or did not adequately measure.

15. No thoughtful or responsible parent would ever trust any automatic suppression system with the life of an infant. All air bag seating positions that could ever contain a rear facing infant seat should be equipped with a standard manual on-off switch, in addition to any automatic suppression sensors. In this way, parents that genuinely care about the life of their infant could take the pro-active step to manually turn the bag completely off to help insure that their infant would not be killed by a government-mandated explosive device.

If parents are forced to subject their infant to air bag risks, relying only on the automatic sensors to suppress the air bags and save the infant's life, with no opportunity to use safer and more certain manual on-off switches, then government should exempt itself from immunity for lawsuits in this area -- when sensors fail and the infants are maimed or killed. It should be possible for parents to collect damages from government for the required purchase and usage of explosive devices that injure or kill their infant, if they had no legal opportunity to have and use more certain manual on-off switches to protect their infant.

Only manufacturers could answer the questions on the technical specs of the sensors.

16. No thoughtful or responsible parent would ever trust any automatic suppression system with the life of an older child. All air bag seating positions that could ever contain an older child should be equipped with a standard manual on-off switch, in addition to any automatic suppression sensors. In this way, parents that genuinely care about the life of their older child could take the pro-active step to manually turn the bag completely off to help insure that their child would not be killed by a government-mandated explosive device.

If parents are forced to subject their child to air bag risks, relying only on the automatic sensors to suppress the air bags and save the child's life, with no opportunity to use safer and more certain manual on-off switches, then government should exempt itself from immunity for lawsuits in this area -- when sensors fail and the children are maimed or killed. It should be possible for parents to collect damages from government for the required purchase and usage of dangerous explosive devices that injure or kill their child, if they had no legal opportunity to have and use more certain manual on-off switches to protect their child.

Only manufacturers could answer the questions on the technical specs of the sensors.

17. Consumers should be supplied with both a plain-language description of the systems in the vehicles, and a highly-technical detailed analysis of the engineering parameters for the particular systems in that vehicle. Such information should contain the projected failure rates for all components, and the projected tolerance stack-up data, along with a projection of the combined expected mis-fire rate. This will help consumers evaluate the risks involved and will allow them to better evaluate whether to buy that particular vehicle, or not.

I agree that the vehicle should have a statement on what alternatives are available, such as manual on-off switches. If none are available, then a clear statement should be included that the consumer is required to buy and use the vehicle in that format, with no safer alternatives available to them to help protect themselves or their families.

18. Temperature is a recently-made-public factor in how dangerous air bags can be. It would be best if NHTSA required essentially the same performance from all air bags throughout the normal range of operating temperatures found in the USA -- perhaps from about minus 30° F to about plus 120° F. It is not acceptable to have air bags be more dangerous in very cold or very hot conditions, compared to temperate ones.

Only manufacturers could answer the questions of how to address this.

19. Turning off the cruise control when air bags deploy is a common-sense requirement. It will help remove the application of forces for forward motion and reduce the potential to make the accident worse. This is particularly important when a complex accident is involved -- where the air bags deploy at a first hit, but the vehicle continues on to a second or third hit in the same accident. It is probable that the bag deployment has caused the driver to lose any control of the vehicle, and having the cruise then turned off is appropriate.

This regulation would also help give victims of inadvertent deployments while driving along a smooth road some small amount of assistance in avoiding that tragedy turning into an even more serious accident to complicate the existing one of the inadvertent deployment.

20. To aid rescue workers, air bag deactivation times should be required to be no more than 10 seconds from the deactivation of the vehicle's electrical system. This was a serious safety oversight in the original air bag regulations, one that should be corrected immediately.

21. Safety belt regulations should be separated from the air bag regulations.

The best result would be for all air bag regulations to relate to optional, not mandatory, equipment.

Further, it is a significant failing of NHTSA to not be pursuing the technology of seat belt pre-tensioners --- as a substitute for air bags. It is well known that if occupants are belted and are seated in their proper positions in a crash, that the chances for serious or fatal injuries are drastically reduced - likely by 90+%. Seat belt pre-tensioners can accomplish most of the safety goals NHTSA is trying to achieve with air bags, but many fewer maimed and dead innocent people. The downside risks of pre-tensioner belts are only a fraction of those of air bags, and NHTSA is remiss in not changing focus to this technology.

Now that about 70% of occupants are belted, it is time to focus upon the people that wish to live through accidents, and not on those with an unspoken death wish that refuse to belt up.

22. The only appropriate unbelted test requirement is none at all.

We are the only country in the world to my knowledge that insists on raising dangers to the majority of properly belted occupants in an attempt to provide some help for the minority of occupants that refuse to take even the simplest of steps to assist their own safety. This entire emphasis and insistence by NHTSA is categorically and morally wrong.

Crash severities above a 30 mph barrier crash represent such a small proportion of crashes that they should not be included in the testing program. Virtually anything done to perform well in a 35 mph barrier crash or offset crash is likely to make the vehicle perform less well in the far-more-common 20 and under (barrier-equivalent) mph crashes.

23. Education is the key answer here.

In addition, NHTSA could help assure fewer child deaths by air bags by mandating standard equipment manual on-off switches in any seating position that could contain a child and has an air bag. This would give parents the option to manually turn off the explosive air bags, and to not trust the delicate suppression systems that may fail and kill their child.

Further, NHTSA could insist that all air bags be calibrated only for belted people, thus further reducing the explosive forces that fall upon an unrestrained child.

In summation, the current proposal fails to properly address the needs and the safety requirements of the vast majority of vehicle occupants, those that do use safety belts.

In addition, NHTSA repeatedly says that its regulations are supposed to reflect real-world conditions, and not just laboratory-optimum conditions. By asking for upper deployment forces to return to those found in first generation bags calibrated for unbelted 50th percentile males in 30 mph barrier crashes, NHTSA will expose some smaller, lighter, older and closer occupants to forces that are known to maim and kill these more-vulnerable occupants.

The failure rates of current simple air bag systems make NHTSA's reliance of reliability from these much more complicated systems unfounded. It is essentially certain that advanced technology air bags built to the new proposal will maim and kill some number of occupants, just as the first generation and second generation bags are currently doing.

The Special Crash Investigation Reports for those maimed and killed by first and second generation air bags were clearly and accurately predicted in the 1970's and 1980's, by many safety engineers. These predictions came true and many families now must visit gravesites, instead of enjoying the company of their family members.

The same predictions of disaster can be made for advanced technology air bags.

This proposal is in the wrong direction.

All future air bags should be:

- optional equipment,
- calibrated for only belted occupants,
- equipped with standard manual on-off switches, and
- legal to disconnect, on request.

All existing air bags should be:

- legal to disconnect, on request, and
- legal to have manual on-off switches installed, on request.

Respectfully submitted,



James C. Walker,  
President