competitive bidding in the WCS auction, the Wireless Telecommunications Bureau is establishing an expedited pleading cycle. See 47 CFR 1.429 and 47 CFR 1.3 (providing that Commission rules may be suspended, revoked, amended or waived for good cause shown).

Parties should file oppositions to the petitions by Friday, March 21, 1997, and replies to oppositions by Tuesday, March 25, 1997, with the Secretary, Federal Communications Commission, 1919 M Street, N.W., Room 222, Washington, D.C. 20554. In addition, two copies should be hand delivered to: (1) Auctions Division, Wireless Telecommunications Bureau, Room 5322, 2025 M Street, N.W., Washington, D.C. 20554, attention: Josh Roland; and (2) Office of Engineering and Technology, Suite 480, 2000 M Street, N.W., Washington, D.C. 20554, attention: Tom Mooring. In addition, parties filing oppositions to the petitions must hand deliver copies to the relevant petitioner, and replies must be hand delivered to the opponents. Copies of the petitions, comments and reply comments may be obtained from the Commission's duplicating contractor, International Transcription Service, Inc. (ITS), 2100 M Street, N.W., Suite 140, Washington, D.C., 20037, (202) 857–3800. Copies are also available for public inspection during regular business hours in Room 5608, 2025 M Street, N.W., Washington, D.C. 20554. When requesting copies, please refer to DA 97–548.

The Commission will treat this proceeding as non-restricted for purposes of the Commission's ex parte rules. See generally 47 CFR 1.1200–1.1216. For further information contact Josh Roland or Matthew Moses, Auctions Division, Wireless Telecommunications Bureau, at (202) 418–0660, or Tom Mooring, Office of Engineering and Technology, at (202) 418–2450.

Federal Communications Commission.

William F. Caton,

Acting Secretary.

[FR Doc. 97–7015 Filed 3–18–97; 8:45 am]

BILLING CODE 6712–01–P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 74–14; Notice 114]

RIN 2127—AG59

Federal Motor Vehicle Safety Standards; Occupant Crash Protection

AGENCY: National Highway Traffic Safety Administration (NHTSA), DOT.

ACTION: Final rule.

SUMMARY: NHTSA is temporarily amending the agency's occupant crash protection standard to ensure that vehicle manufacturers can quickly depower all air bags so that they inflate less aggressively. The agency is taking this action to provide an immediate, but interim, solution to the problem of the fatalities and injuries that current air bag designs are causing in relatively low speed crashes to small, but growing numbers of children, and occasionally to adult occupants.

DATES: *Effective Date:* The amendments made in this rule are effective March 19, 1997.

Incorporation by reference. The incorporation by reference of a publication listed in the regulation is approved by the Director of the Federal Register as of March 19, 1997.

Petitions: Petitions for reconsideration must be received by May 5, 1997.

ADDRESSES: Petitions for reconsideration should refer to the docket and notice number of this notice and be submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: For information about air bags and related rulemakings: Visit the NHTSA web site at http://www.nhtsa.dot.gov and select ''AIR BAGS: Information about air bags.''

For non-legal issues: Mr. Clarke Harper, Chief, Light Duty Vehicle Division, NPS–11, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590. Telephone: (202) 366–2264. Fax: (202) 366–4329.

For legal issues: J. Edward Glancy, Office of Chief Counsel, NCC–20, National Highway Traffic Safety Administration, 400 Seventh Street, SW, Washington, DC 20590. Telephone: (202) 366–2992. Fax: (202) 366–3820.

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I. Background

A. Air Bags: Safety Issues

Air bags have proven to be highly effective in reducing fatalities from frontal crashes, the most prevalent fatality and injury-causing type of crash. Those crashes result in 64 percent of all driver and right-front passenger fatalities.

NHTSA estimates that, between 1986 and February 15, 1997, air bags have saved 1,828 drivers and passengers (1,639 drivers and 189 passengers). Based on current levels of effectiveness, air bags will save more than 3,000 lives each year in passenger cars and light trucks when all light vehicles on the road are equipped with dual air bags. This is based on current safety belt use rates (about 68 percent, according to State-reported surveys).[1] Using this assumption, more than two-thirds of the persons saved would be persons not using any type of safety belt.

At the same time, air bags are causing fatalities in some situations, especially to children. As of February 15, 1997, NHTSA's Special Crash Investigation program had identified 38 crashes in this country in which the deployment of the passenger air bag resulted in fatal injuries to a child. Two adult passengers have also been fatally injured. On the

[1] Some State surveys are limited to passenger cars. The agency's latest National Occupant Protection Use Survey, a probability-based study of safety belt use in all vehicles types, indicates a current use rate of 58 percent. Another survey will be conducted in 1997.

driver side, 21 drivers are known to have been fatally injured.[2]

The fatalities involving children have a number of fairly consistent characteristics. First, as to restraint usage, the infants are in rear-facing infant restraints. The older children are generally not using any type of restraint. Second, the crashes in which the infants and older children were fatally injured occurred at relatively low speeds. Third, the fatally injured infants and older children were very close to the dashboard when the air bag deployed. Rear-facing child seats are very close to the dashboard in a crash, even in the absence of pre-impact braking. As to almost all of the older children, the non-use or improper use of safety belts in conjunction with pre-impact braking resulted in the forward movement of the children such that they were very close to the air bag when it deployed. Because of this proximity, the children appear to have sustained fatal head or neck injuries from the deploying passenger air bag.

NHTSA notes that driver fatalities are very rare in comparison to the number of vehicles equipped with driver air bags (more than 56 million vehicles, through model year 1996), and to the number of drivers saved by air bags. The data for drivers suggest that two groups of drivers are more at risk than other drivers from a driver air bag. One group is older drivers. However, the agency notes that, primarily due to their relative frailty, older drivers are more at risk than younger drivers under a wide range of crash circumstances, regardless of whether the older drivers use safety belts and regardless of whether they drive vehicles equipped with air bags.

The other group of drivers is short-statured adults. Drivers five feet two inches or shorter comprise 10 of the 21 driver fatalities the agency is aware of to date. However, NHTSA is not aware of any inflation-induced fatality in the United States of a female driver 5 feet 2 inches or shorter in an air bag deployment since November 1995, 16 months ago.[3]

As in the case of the children fatally injured by air bags, the key factor regarding the fatally injured adults has been their proximity to the air bag when it deployed. The most common reason for their proximity was failure to use safety belts. Only six of the 21 drivers were known to be restrained by lap and shoulder belts at the time of the crash. Moreover, of those six, two appeared to be out of position (slumped over the wheel due to medical conditions).

B. Current Requirements for Air Bags

Under Chapter 301 of Title 49, U.S. Code (''Motor Vehicle Safety''), NHTSA is authorized to set Federal motor vehicle safety standards applicable to the manufacture and sale of new motor vehicles and new motor vehicle equipment. Standard No. 208, *Occupant Crash Protection*, one of the original Federal motor vehicle safety standards issued under this statute, has long required motor vehicle manufacturers to install safety belts to protect occupants during a crash. Beginning in the late 1980's, the standard has required manufacturers to provide automatic protection for frontal crashes, i.e., protection that requires no action by the occupant.

In establishing Standard No. 208's current automatic protection requirements for passenger cars in 1984, and later extending those requirements to light trucks, NHTSA expressly permitted a variety of methods of providing automatic protection, including automatic belts and air bags. However, the agency included a number of provisions to encourage manufacturers to install air bags. These included extra credit during the standard's phase-in period for vehicles using air bags and allowing vehicles with a driver air bag system to count, for a limited period of time, as a vehicle meeting the standard's automatic protection requirements for both driver and right-front passenger positions.

Ultimately, however, consumer demand led to the installation of air bags throughout the new car fleet. By the beginning of this decade, manufacturers were rapidly moving to install air bags in all of their passenger cars and light trucks.

Congress included a provision in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) directing NHTSA to amend Standard No. 208 to require that all passenger cars and light trucks provide automatic protection by means of air bags. The Act required at least 95 percent of each manufacturer's passenger cars manufactured on or after September 1, 1996 and before September 1, 1997 to be equipped with an air bag and a manual lap/shoulder belt at both the driver and right front passenger seating positions. Every passenger car manufactured on or after September 1, 1997 must be so equipped. The same basic requirements are phased-in for light trucks one year later.[4] The final rule implementing this provision of ISTEA was published in the Federal Register (58 FR 46551) on September 2, 1993.

Standard No. 208's automatic protection requirements, whether for air bags or (until the provisions of ISTEA fully take effect) for automatic belts, are performance requirements. The standard does not specify the design of an air bag. Instead, vehicles must meet specified injury criteria, including criteria for the head and chest, measured on test dummies, during a barrier crash test, at speeds up to 30 mph. These criteria must be met for air bag-equipped vehicles both when the dummies are belted and when they are unbelted. The latter test condition ensures that a vehicle provides ''automatic protection,'' i.e., protection by means that require no action by vehicle occupants.

These requirements apply to the performance of the vehicle as a whole, and not to the air bag as a separate item of motor vehicle equipment. This approach permits vehicle manufacturers to ''tune'' the performance of the air bag to the crash pulse[5] and other specific attributes of each of their vehicles. Further, it leaves them free to select specific attributes for their air bags, such as dimensions and actuation time.

II. Overview and Summary

NHTSA is implementing a comprehensive plan of rulemaking and other actions (e.g., consumer education and encouragement of primary enforcement of State safety belt use laws) addressing the adverse effects of air bags. The rulemaking actions which have been taken, or are being taken, include the following:

Interim Rulemaking Solutions

- In this notice, NHTSA is temporarily amending Standard No. 208, to ensure that vehicle manufacturers can depower all air bags

[2] The agency has examined air bag cases with children in its Fatal Analysis Reporting System (FARS) and identified no new cases. The agency believes these 38 cases are a census of all cases that have occurred and reported in FARS to February 15, 1997 involving fatalities. However, the information for adult fatalities does not represent a census. NHTSA updates air bag fatality information on a continuing basis. The information presented in this notice and accompanying Final Regulatory Evaluation generally reflects information available through February 15, 1997.

[3] A fatality involving a 5 feet 4 inch female driver did occur in October 1996.

[4] At least 80 percent of each manufacturer's light trucks manufactured on or after September 1, 1997 and before September 1, 1998 must be equipped with an air bag and a manual lap/shoulder belt. Every light truck manufactured on or after September 1, 1998 must be so equipped.

[5] ''Crash pulse'' means the acceleration-time history of the occupant compartment of a vehicle during a crash. This is represented typically in terms of g's of acceleration plotted against time in milliseconds (1/1000 second). The crash pulse determines the test's stringency: an occupant will undergo greater forces if the crash pulse g's are higher at the peak, or if the duration of the crash pulse is shorter.

so that they inflate less aggressively. This change, coupled with the considerable flexibility already provided by the standard's existing performance requirements, will provide the vehicle manufacturers maximum flexibility to quickly address the adverse effects of current air bags.

• On November 27, 1996, the agency published in the Federal Register (61 FR 60206) a final rule amending Standards No. 208 and No. 213 to require improved labeling on new vehicles and child restraints to better ensure that drivers and other occupants are aware of the dangers posed by passenger air bags to children, particularly to children in rear-facing infant restraints in vehicles with operational passenger air bags. The new labels were required on vehicles beginning February 25, 1997, and are required on child restraints, beginning May 27, 1997.

• On January 6, 1997, the agency published in the Federal Register (62 FR 798) a final rule extending until September 1, 2000, a provision in Standard No. 208 permitting vehicle manufacturers to offer manual cutoff switches for the passenger air bag for new vehicles without rear seats or with rear seats that are too small to accommodate rear-facing infant restraints.

• On January 6, 1997, the agency published in the Federal Register (62 FR 831) an NPRM to permit motor vehicle dealers and repair businesses to deactivate, upon the request of consumers, driver and passenger air bags. The agency expects to announce a final decision on this issue shortly.

Longer Term Rulemaking Solution

• NHTSA plans to issue an NPRM to require a phasing-in of smart air bags and to establish performance requirements for those air bags. On February 11 and 12, 1997, the agency held a public technical workshop to discuss appropriate test procedures and other issues related to that forthcoming proposal. Among other things, the agency may propose using a 5th percentile female dummy and specifying appropriate injury criteria for that dummy, including neck injury.

In addition to these actions, the agency is participating with automobile manufacturers, air bag suppliers, insurance companies and safety organizations in a coalition effort to address the adverse effects of air bags by increasing the use of safety belts and child seats. Substantial benefits could be obtained from achieving higher safety belt use rates. For example, if observed belt use increased from 68 percent to 80 percent, an additional 2,900 lives would be saved annually over the 9,529 lives currently being saved by safety belts.

The coalition has a three-point program that seeks to educate the public about safety belt and child seat use, work with state and local officials to improve enforcement of safety belt and child seat use laws, and seek the enactment of ''primary'' safety belt use laws.[6]

A 1995 NHTSA analysis of Fatal Analysis Reporting System (FARS) data on restraint use among fatally injured motor vehicle occupants from 1983 to 1994 indicates that primary enforcement is the most important aspect of a safety belt use law affecting the rate of safety belt use. For virtually all states with a primary enforcement law, statistically significant increases associated with the presence of such a law were detected using several different methods. The analysis suggests that the increase in use rates attributable to the enactment of a primary enforcement law is at least 15 percentage points. This increase in safety belt use translates into a 5.9 percent decline in fatalities in a state that authorizes primary enforcement of the law. In California and Louisiana, states which recently upgraded their laws to allow for primary enforcement, safety belt usage increased by 13 and 17 percentage points, respectively.

III. January 1997 Depowering Proposal

On January 6, 1997, NHTSA published an NPRM (62 FR 807) to temporarily amend Standard No. 208 to help reduce the fatalities and injuries that current air bags are causing in relatively low speed crashes to small, but growing numbers of children, and occasionally to adults.

The agency believed that the proposed amendments would ensure that vehicle manufacturers can quickly depower all air bags so that they inflate less quickly and less aggressively. Based on agency research and analysis regarding the optimal range of air bag depowering, the agency tentatively concluded that an average depowering of 20 to 35 percent would reduce the risk of air bag fatalities in low speed crashes, while substantially preserving the life-saving capabilities of air bags in higher speed crashes.

NHTSA proposed adopting either, or both, of two different approaches that would permit or facilitate an approximate 20 to 35 percent average depowering of current air bags. One approach was to temporarily make it easier to meet the chest acceleration requirement that an unbelted dummy must meet in a crash test at speeds up to 30 mph, by raising the limit from 60 g's to 80 g's. The other approach, which appeared to allow higher levels of depowering, was to temporarily replace vehicle crash testing using an unbelted dummy with the American Automobile Manufacturers Association's (AAMA's) modified ''sled test'' protocol incorporating a 125 millisecond (msec) standardized crash pulse and also using an unbelted dummy.

NHTSA recognized that while depowered air bags would provide immediate benefits in a number of situations, they would not fully solve the problem of adverse effects from air bags and could also reduce protection to unbelted occupants in higher speed crashes. NHTSA indicated that it believes the ultimate solution to the problem of adverse effects from air bags is implementation of more advanced air bags that adjust the deployment decision/inflation rate based on such factors as size and position of vehicle occupants, severity of crash, and whether safety belts are being used. The agency therefore stated in the NPRM that it viewed depowering as an interim measure to be used until better solutions can be implemented.

In its Preliminary Regulatory Evaluation (PRE), the agency presented several methodologies to analyze the potential benefits and net effects on safety associated with depowering. Two methodologies utilized research testing and mathematical modeling results to examine the effect of depowering on chest g's and then to estimate the effect of chest g changes on fatalities. A third methodology examined the experience in Australia of a General Motors-designed Holden car, which has less aggressive air bags.

NHTSA requested commenters to provide additional information in a number of areas, including the following:

• Information and data to help the agency refine its estimates (presented in the PRE) of the potential benefits and net effects on safety that would be likely to result from depowering.

• Information and supporting data for the specific sled pulse recommended by AAMA.

• Analysis comparing the potential benefits and net effects on safety of the two proposed alternatives.

• Information concerning the extent of the existing problem of driver fatalities and injuries from air bags and

[6] In States with ''secondary'' safety belt use laws, a motorist may be ticketed for such failure only if there is a separate basis for stopping the motorist, such as the violation of a separate traffic law. This hampers enforcement of the law. In States with primary laws, a citation can be issued solely because of failure to wear safety belts.

the extent to which manufacturers have already addressed the problem by design changes to driver air bags.

- Whether the same or different requirements should apply to the passenger and driver positions, including the advisability of limiting the proposed temporary amendment to passenger air bags only.
- The appropriate duration of the temporary amendment.

IV. Summary of Comments

NHTSA received over 160 comments in response to the NPRM. Commenters included vehicle manufacturers, air bag and component manufacturers, safety advocacy groups, insurance groups, trade associations, State entities, and individuals.

Most commenters agreed that the agency should issue requirements to facilitate air bag depowering, thereby reducing injury risks related to air bag deployment in low speed crashes. Support for depowering came from commenters such as Advocates for Highway and Auto Safety (Advocates), the American Automobile Manufacturers Association (AAMA), the Association of International Automobile Manufacturers (AIAM), the National Transportation Safety Board (NTSB), the Insurance Institute for Highway Safety (IIHS), specific vehicle manufacturers, and the Automotive Occupant Restraints Council (AORC). These commenters stated that depowered air bags will improve vehicle safety by reducing the risk posed to vehicle occupants. While the vehicle manufacturers favored allowing depowering indefinitely, Public Citizen, Advocates, and air bag manufacturers conditioned their support on the placing of a time limit on depowering.

The Center for Auto Safety (CFAS), the Parents Coalition for Air Bag Warnings, and some individuals opposed depowering. These commenters argued that switching from a crash test to sled test with a generic, large car crash pulse would result in an unreasonably lenient standard that would result in a substantial increase in adult deaths.

Commenters addressed specific issues raised in the NPRM, including whether to adopt the 80g's alternative, the sled test alternative, or both; whether to depower both driver side and passenger side air bags; whether to make the amendment temporary or permanent; and the appropriateness of the agency's estimates of potential benefits and tradeoffs in the PRE. Commenters also addressed specific issues involving the sled test requirements and test conditions, including the neck injury criteria, testing a portion of the vehicle or the entire vehicle, the ''corridor'' for the crash pulse, the activation time for the air bag during the sled test, and the vehicle test attitude. Commenters, especially the safety groups, addressed various issues that are not directly related to depowering, such as adopting minimum deployment speed thresholds and undertaking a comprehensive upgrade of Standard No. 208. A more specific discussion of the comments, and the agency's responses, are set forth below.

V. Agency Decision

After carefully considering the comments, NHTSA has decided to adopt AAMA's modified unbelted sled test protocol as a temporary alternative to Standard No. 208's current unbelted crash test requirement. This change, coupled with the considerable flexibility already provided by the standard's performance requirements, will provide the vehicle manufacturers with maximum flexibility to quickly address and mitigate the adverse effects of current air bags.

A. Should NHTSA Amend Standard No. 208 To Permit/Facilitate Depowering?

As discussed above, NHTSA proposed to amend Standard No. 208 to ensure that vehicle manufacturers can depower all air bags so that they inflate less aggressively. The vast majority of commenters supported depowering as a quick way of addressing the problem of adverse effects of air bags. Commenters supporting depowering were diverse and included AAMA and AIAM, representing essentially all domestic and import vehicle manufacturers, AORC, representing suppliers, IIHS, Advocates, and Public Citizen.

A few commenters, however, opposed depowering or otherwise raised concerns about the basic approach of the agency's proposal. The issues raised by those commenters are addressed in this section. Comments concerning how depowering should be accomplished, e.g., what alternative amendment should be adopted, whether the driver side should be included, and the appropriate duration for the amendment, will be discussed in later sections.

The Parent's Coalition recommended that NHTSA consider issuing a final rule mandating on-off switches for air bags and a higher minimum deployment threshold (for single level inflator air bags) in lieu of amending Standard No. 208 to permit depowering. That organization stated that information from NHTSA's Special Crash Investigation Program shows that low deployment thresholds are the central cause of air bag deaths and injuries, and that the agency erred in not including an increased deployment threshold as part of its proposal. The Parent's Coalition expressed concern that the contemplated level of depowering will not save all children, and will result in an increase, perhaps a substantial one, in adult deaths and injuries. The Parent's Coalition stated that the increase in adult deaths from depowering appears to be an unacceptable cost in exchange for the relatively modest reduction in child deaths, especially since the child deaths could be prevented, without such adverse tradeoffs, by an on-off switch and by an increase in deployment threshold.

CFAS also urged NHTSA to look at whether a moderate increase in deployment threshold would perform a better job of increasing vehicle safety, before adopting the depowering proposal. CFAS also stated that the issue before NHTSA is not whether depowered inflators should be permitted under Standard No. 208, but whether manufacturers should be permitted to escape responsibility for meeting the current injury criteria of the standard. CFAS stated that Standard No. 208 does not prohibit manufacturers from using depowered inflators.

While it did not oppose depowering as an interim measure, Consumers Union stated that the most important step that the agency can take in the near term to address the situation is to establish a higher deployment threshold, on an expedited basis, a requirement for a low-end limit to the vehicle impact level barrier equivalent velocity, below which air bags will not be triggered to inflate.

NHTSA notes that, in its January 1997 proposal, it discussed a variety of alternative approaches for addressing the adverse effects of air bags, including higher deployment thresholds, dual level inflators, smart air bags, and various other changes to air bags. In issuing its proposal, the agency recognized that, for many vehicles, depowering has a shorter leadtime than any of the other alternatives. The agency also explained that a change in Standard No. 208 is not needed to permit manufacturers to implement these other alternatives.[7] The agency explained further:

[7] NHTSA explained that the existing provisions of Standard No. 208 already provide considerable design flexibility for manufacturers. The Standard's automatic protection requirements are performance requirements and do not specify the design of an air bag. Instead, vehicles must meet specified injury

Continued

The agency expects to ultimately require smart air bags through rulemaking. In the meantime, the agency is not endorsing depowering over other solutions. Instead, the agency is proposing a regulatory change to add depowering to the alternatives available to the vehicle manufacturers to address this problem on a short-term basis. To the extent that manufacturers can implement superior alternatives for some vehicles, the agency would encourage them to do so.

NHTSA shares the concern of the Parent's Coalition that depowering will not likely save all children and will likely result in trade-offs for adults. That is why the agency is limiting the duration of its depowering amendments and plans to conduct rulemaking to require smart air bags. In the meantime, however, NHTSA wants to be sure that the vehicle manufacturers have the necessary tools to address immediately the problem of adverse effects of air bags. Standard No. 208's existing performance requirements do restrict the use of depowering, since substantially depowering the air bags of many vehicles would make those vehicles incapable of complying with the standard's injury criteria in a 30 mph barrier crash test. Accordingly, to permit use of this alternative, it is necessary to amend Standard No. 208.

The issuance of any rule narrowing the discretion that vehicle manufacturers have had since the 1984 decision, whether by requiring depowering, higher thresholds, other changes to air bags, or smart air bags, would involve considerably more complex issues than a rulemaking simply adding greater flexibility. The agency would need to assess safety effects, practicability, and leadtime for the entire vehicle fleet. NHTSA will assess those types of issues in its rulemaking for smart air bags. The agency notes that there may not be any reason to have higher deployment thresholds with some types of smart air bags, since a low-power inflation may be automatically selected for low severity crashes.

Until the agency conducts its rulemaking regarding smart air bags, it believes it is best to focus on ensuring that manufacturers have appropriate flexibility to address the problem of adverse effects of air bags. This will enable the manufacturers to select the solutions which can be accomplished most quickly for their individual models. NHTSA encourages the vehicle manufacturers to use the best available alternative solutions that can be quickly implemented for their vehicles, whether depowering, higher thresholds, other changes to air bags, smart air bags, or a combination of the above. The agency notes again that the vehicle manufacturers need not wait for further rulemaking to begin installing smart air bags, and encourages them to move in that direction expeditiously.

NHTSA notes that, as discussed in the January 1997 NPRM, CFAS and Public Citizen petitioned the agency in November 1996 to commence a rulemaking proceeding to consider requiring dual inflation air bags and to specify deployment thresholds. The agency stated in that notice that it considered the petitions to have been granted to the extent that the NPRM analyzed and discussed issues raised by the petitioners and subjected that material to public comment. NHTSA will continue to consider the issues raised by those petitioners in its planned rulemaking on smart air bags.

Consumers Union urged the agency to evaluate whether the incidence of fatalities caused by air bags in low speed collisions may be disproportionately high in certain specific makes and models of passenger vehicles. That organization stated that it would be a great disservice to the public to reduce the protection of air bags in all cars because certain specific models are improperly designed. NHTSA notes that while the level of risks from air bags undoubtedly varies between different makes and models, a review of air bag fatalities indicates that the problem is a general one, not limited to a few makes/models.

A few commenters argued against the agency's depowering proposal on the grounds that the proposed amendments would result in a greater number of lives being lost than saved, both for passengers and drivers.

While the agency recognizes the possibility that there is a potential for net disbenefits from depowering, it believes it must consider both the short-run and long-run implications of this rulemaking on safety. Ultimately, the continued availability of any safety device as standard equipment, whether provided voluntarily by manufacturers or pursuant to a regulation, is dependent on consumer acceptability. The agency believes that air bags which fatally injure occupants, particularly children in low speed crashes, place the concept of air bags at risk, despite their overall net safety benefits. Accordingly, to help ensure that air bags remain acceptable to consumers and ultimately achieve their full potential in the future, the agency believes it is reasonable to accept some short-term safety tradeoffs associated with depowering, while better solutions are being developed.

NHTSA also notes that, as discussed in the NPRM, it believes that even if the net effect were negative, the opportunity to avoid the deaths of a significant number of children who would otherwise be fatally injured by air bags justifies foregoing the opportunity to save some unbelted teenage and adult passengers. There are several reasons for this policy choice.

First, it is not acceptable that a safety device cause a significant number of fatalities in circumstances in which fatal or serious injuries would not otherwise occur. In making this statement, the agency draws a distinction between air bags which are fatally injuring young children in low speed crashes in which the other vehicle occupants are uninjured, and other safety devices which may on occasion unavoidably substitute one type of injury for another type that would occur in their absence (safety belts are a good example).[8] Those fatalities are particularly unacceptable in light of the agency's analysis showing that depowering air bags can significantly reduce the number of children being fatally injured by air bags.

Second, it is also particularly unacceptable that the vehicle occupants being fatally injured are young children, and that the number of those deaths is steadily growing. In confronting the possibility of inevitable short-term safety tradeoffs between young children and unbelted occupants over 12 years of age, the agency believes that greater weight must be placed on protecting

criteria, including criteria for the head and chest, measured on properly positioned test dummies, during a barrier crash test, at speeds up to 30 mph.

As the AAMA correctly noted in its comments on the NPRM, the Standard requires air bags to provide protection for properly positioned occupants (belted and unbelted) in a 30 mph crash, and very fast air bags may be necessary to provide such protection. However, the standard does not require the same speed of deployment in slower speed crashes or in the presence of out-of-position occupants. Vehicle manufacturers have the flexibility under the Standard to use dual or multiple level inflator systems and automatic cut-off devices for out-of-position occupants and rear-facing infant restraints. Concepts such as dual level inflator systems and devices that sense occupant position and measure occupant size or weight are not new, and were cited by the agency in its 1984 rulemaking requiring automatic protection. Also, Standard No. 208 does not specify a minimum vehicle speed at which air bags must deploy. Thresholds could be raised substantially for most current vehicles without creating a Standard No. 208 compliance problem. In addition, installation of smart air bags and replacement of mechanical air bag sensors with electronic ones are permitted. Therefore, regulatory changes are not needed to permit manufacturers to implement these solutions.

[8] In severe collisions, safety belts can seriously bruise the chest of an occupant or even cause rib fractures. However, the restraining force of the belt would also likely prevent even more serious chest or head injury from the occupant's striking the interior components of the vehicle.

young children. NHTSA has always given a high priority to protecting children and accordingly has applied these different cost-benefit considerations to its rulemaking affecting children. The agency's activities related to school bus safety standards are an example of this policy.

A major reason for giving priority to protecting young children is that they are less mature than teenagers and adults and thus less able to exercise independent judgment, assess the risks and take action to improve their safety. Young children are more dependent on the judgment and actions of other persons. The oldest of the 38 children who have been fatally injured by an air bag was nine years old, and most of the children have been much younger. The agency is concerned about the safety of the unbelted teenagers and adults who might be affected by depowering, but is increasing its efforts to persuade them to protect themselves by buckling their safety belts as required by the laws of 49 States and the District of Columbia. NHTSA is also increasing its efforts to persuade parents to ensure that all children are properly restrained.

B. 80 g's Chest Injury Criterion vs. Sled Test

As discussed above, Standard No. 208 currently specifies that occupant protection is measured in a full scale crash test in which a vehicle equipped with test dummies at the outside front seating positions is crashed into a barrier. Specific injury criteria measured on the test dummies, including those evaluating chest acceleration and head injuries, must be met in barrier crashes at speeds up to 30 mph, and at a range of angles up to 30 degrees off-center.

In August 1996, AAMA submitted a petition requesting that the unbelted crash test requirement be replaced with a generic sled test protocol. Under that protocol, all of a vehicle, or a portion of the vehicle representing the interior, would be mounted on a sled. The sled would be decelerated from 30 mph over a time period of 143 milliseconds according to a specific deceleration-time curve which approximates a vehicle's crash pulse. There would not be an angle test, only a direct frontal test. AAMA requested that the same crash pulse be used for all vehicles. That organization asserted that its recommended test protocol would allow for lower powered inflators to be introduced into the market as quickly as possible, while maintaining air bag protection for all occupants.

After NHTSA conducted a vehicle test and discovered that AAMA's initially recommended crash pulse could allow a vehicle to meet Standard No. 208's existing injury criteria without an air bag, in November 1996 that organization suggested using a more severe crash pulse: 125 msec., which corresponds to 17.2 g's.[9] AAMA also recommended at that time that the agency include neck injury criteria to evaluate air bag performance as it relates to the recommended crash pulse, in addition to the current injury criteria which, among other things, limit chest acceleration to 60 g's. The neck injury criteria are likely to be the limiting factor in determining the maximum allowable depowering level for a particular vehicle.

After reviewing the available information, NHTSA proposed two alternative temporary amendments to Standard No. 208: (1) Increase the current chest acceleration limit from 60 g's to 80 g's, or (2) replace the unbelted crash test requirement with a sled test protocol incorporating the 125 millisecond crash pulse. The agency noted that if both of these changes were adopted, a manufacturer could select either alternative at its option, but could not mix the two options.

AAMA, AIAM, Advocates, Autoliv, Public Citizen, and all vehicle manufacturers addressing the issue, stated that only the sled test alternative should be adopted. AAMA stated that using the sled test will allow further optimization of air bag performance and will save many additional lives each year as well as substantially reduce the risk of air bag-related injuries. That organization stated that the sled test allows depowering for all vehicles in the quickest possible manner.

NHTSA notes that AAMA estimated that only 31 percent of the fleet could be depowered under the 80 g's alternative. That organization did not provide specific data or analysis to support that figure. However, Ford commented that neither it nor the agency has conducted angular barrier modeling or tests that could be the basis for judging performance of depowered air bags in angular barrier tests. Ford stated that computer modeling by it and the agency, as well as sled tests, indicate that HICs and femur loads increase with depowered air bags, and Ford would have no basis for judging that vehicles equipped with substantially depowered air bags would meet compliance criteria in angular tests.

AIAM stated that the sled test would result in the fastest way to achieve depowering. Nissan stated that the sled test provides the fastest and most efficient approach to allow for depowering. Autoliv stated that the sled test was consistent with international harmonization. Several safety groups, including Advocates and IIHS, favored the sled test, because they believed that it provides the quickest way to reduce risk.

In contrast, other safety groups (CFAS, Consumers Union, and the Parents Coalition) and some component manufacturers (AirBelt Systems, AVS Technologies, and Precision Fabrics Group (PFG)) criticized the sled test. CFAS stated that sled testing fails to account for many aspects of interior vehicle safety that contribute to occupant injuries. Consumers Union stated that the sled test is a ''wholly inadequate substitute for whole-car crash tests in determining specific vehicle performance.'' PFG was concerned that the generic pulse does not consider such things as automobile crush and steering wheel response.

IIHS was the only commenter to support use of either approach.

After reviewing the comments, NHTSA has decided to adopt the sled test as an alternative to the current unbelted barrier test for a limited time. The agency believes that this approach provides manufacturers with the maximum flexibility to provide the fastest depowering on the widest portion of the vehicle fleet. As the agency stated in the NPRM, the sled test reduces the time and cost of doing certification testing, since many more sled tests can be conducted in the same time period than can crash tests. The agency also believes that the standardized crash pulse and air bag initiation time for all vehicles will allow commonality in air bag systems, requiring less development time and thus eliminating the need for greater variations of air bag system components to accommodate differences in actual car crash pulses. Such rapid implementation is necessary to address the potential risk posed to vehicle occupants in low speed crashes. The agency has decided not to provide an option of complying with the 80 g's alternative, since no manufacturer indicated it planned to pursue that approach.

As discussed in the NPRM, NHTSA continues to believe that a full scale vehicle crash is a better means of measuring crashworthiness than a sled test, since it evaluates many more factors about a motor vehicle's crashworthiness than a generic sled test. The NPRM stated that

[9] See pages III–45 and 46 of the PRE which show that the 143 millisecond pulse was significantly longer in duration and lower in amplitude when compared to the 125 msec pulse.

The primary disadvantage of the generic sled test is that the test measures only air bag performance and not total vehicle performance. The approach also eliminates the effect of angle test requirements which ensure protection in frontal impacts that occur at a range of angles rather than purely head-on.

There are other disadvantages with the sled test, including that a sled test does not simulate the triaxial acceleration characteristics of an actual vehicle crash. In other words, a sled test involves acceleration from only a single preset direction, while pulses for actual vehicle crashes can have significant vertical and lateral components of acceleration that can affect occupant kinematics and restraint performance. Nor does a sled test evaluate dynamic intrusion into and deformation of the passenger compartment; structural crush; the steering column's energy absorbing characteristics and load bearing capability; and movement of the passenger compartment due to localized buckling.

Nevertheless, NHTSA has decided to allow the sled test as a temporary [10] measure given the need to provide manufacturers with maximum flexibility to respond rapidly to the risk posed by air bag activation in low speed crashes.

NHTSA notes that, as discussed in the NPRM, it conducted a series of tests using the revised AAMA crash pulse. One vehicle passed all of Standard No. 208's current injury criteria without an air bag, but had a very small margin of compliance for passenger chest g's. Another vehicle met the standard's current injury criteria without an air bag for the passenger side, but slightly exceeded the driver chest g's limit. The agency's testing also showed that air bag deployment is necessary for a vehicle to comply with the new neck injury criteria, discussed later in this notice. Given that manufacturers must design their vehicles with sufficient margin of compliance to ensure that all vehicles will pass a standard's requirements, and given the addition of the new neck injury criteria, the agency believes that the sled test adopted in this rule will ensure an appropriate level of depowering without diminishing the benefits of unbelted testing. While the agency recognizes that the sled test is not an ideal means for ensuring that chest and head protection are provided in specific vehicles, and that the 30 mph generic pulse represents a barrier crash test at a speed lower than 30 mph, NHTSA believes it is an appropriate interim approach to help facilitate depowering.

C. Application of the Amendment to Driver Air Bags

In the NPRM, the agency noted a number of differences between the passenger and driver air bag problems. The agency explained that while the annual number of child fatalities is small but growing steadily, the annual number of driver fatalities does not appear to be growing. At the time of the NPRM, while the agency was aware of 18 children who had been fatally injured by air bags during 1996, it was aware of only one driver who had been fatally injured by an air bag in the United States during that year. (As of now, the agency is aware of 22 children, and three drivers, who were killed by air bags during 1996.)

NHTSA noted in the NPRM that most child fatalities had occurred in model year 1994 and 1995 vehicles. In contrast, only 4 of the driver fatalities had occurred in a vehicle manufactured after model year 1992. The absence of fatalities in recent model year vehicles appeared even more pronounced in the case of female drivers 5 feet 2 inches or shorter. Only one female driver 5 feet 2 inches or shorter had died in a post model year 1992 vehicle. Most fatalities of short-statured female drivers had occurred in model year 1990–1992 vehicles. (The figures and fatality patterns in this paragraph remain unchanged, as of the date of issuance of this final rule, except that the number of driver fatalities in post model year 1992 vehicles is now 5.)

The agency noted in the NPRM that because driver air bags have been produced in large numbers for several years longer than passenger air bags, the vehicle manufacturers have had time in a number of instances to redesign driver air bags to incorporate a number of countermeasures to reduce the risk to out-of-position occupants. NHTSA requested information on the potential that current driver air bags have for creating adverse effects, including relevant design changes that have already been made to driver air bags.

NHTSA requested information on the number of driver air bag fatalities that have occurred to date, and on whether there is a need to change Standard No. 208 to permit varying levels of depowering. The agency noted that, based on limited testing and modeling, 20 to 35 percent depowering of driver air bags appeared to result in only slight increases in the injury levels ''experienced'' by a test dummy. NHTSA stated that it believes that the presence of energy absorbing steering columns explain why the driver air bag can depowered without significantly affecting chest g's.

The vehicle manufacturers urged the agency to amend Standard No. 208 to allow depowering for the driver side as well as the passenger side. AAMA stated that its design goal for depowering is to reduce to as close to zero the possibility of a fifth percentile female being injured by the air bag. That organization stated that not allowing depowering for the driver position would continue to place these occupants at unnecessary risk.

IIHS stated that although most public attention has focused on the problem of air bag injuries to children, it is clear that drivers also are being injured by inflating air bags. That organization stated that much of its analysis has focused on the potential benefits to drivers of depowering air bags. IIHS therefore argued that the alternative compliance procedures proposed by NHTSA should apply to both driver and passenger protection.

NTSB stated that given the awareness that air bags at the current energy level can be highly injurious to both drivers and passengers, it recommends that depowering be extended to both passenger and driver positions.

AVS Technologies, by contrast, stated that the amendment should apply only to the passenger side. According to that company, the disbenefits of increased fatalities in comparison to the relatively small number of serious deployment injuries does not justify amending the regulation to accommodate depowered driver air bags. AVS Technologies also argued that the problem of small statured drivers can be mitigated by implementation of available technologies such as adjustable steering columns that allow the small statured adult to position the steering wheel further away from the head and chest.

In response to the NPRM, NHTSA received relatively little information on whether there was a need to change Standard No. 208 to permit depowering. Ford, however, stated that as air bag technology and dummy testing technology has advanced, air bags have been gradually depowered. That company stated that with today's technology, some early air bags could be redesigned to meet Standard No. 208's injury criteria with lower inflation speeds. Ford noted that tests by the agency have demonstrated that limited depowering is being incorporated into newer vehicle designs. Ford added, however, that most current air bag designs (some of which are not yet in production) have already been depowered to some degree and cannot

[10] The issue of whether to make this amendment temporary or permanent is discussed in detail below.

be further depowered without unduly increasing the risk of failing to meet some of the dummy injury criteria in the present Standard No. 208 barrier crash test with unbelted dummies.

After considering the comments, NHTSA has decided to amend Standard No. 208 to allow depowering for the driver side as well as the passenger side. While relevant supporting data are considerably more limited for the driver side than the passenger side, the agency wishes to ensure that manufacturers have the flexibility to quickly address driver side risks to small females and the elderly. NHTSA notes, however, that fatalities involving small females and the elderly are rare. Depowering driver air bags will also help reduce arm injuries.

D. Duration of Amendment

As indicated above, in developing the January 1997 proposal, NHTSA considered an array of approaches that would address the air bag safety problem. Among other things, the agency considered higher deployment thresholds, dual stage inflators, smart air bags, and various other air-bag related changes.

After reviewing these alternatives, NHTSA tentatively concluded that there are various alternatives already allowed by Standard No. 208 that may be superior to depowering, i.e., alternatives that result in equal or greater benefits without raising the possibility of adverse safety tradeoffs, but whose leadtime is longer than that of depowering. The agency therefore tentatively concluded that while depowering appears to be an appropriate interim solution, there is no need for permanently changing the Standard to enable manufacturers to fully address the adverse side effects of air bags.

NHTSA noted that some commenters on earlier notices, including Takata, had expressed concern that a reduction in Standard No. 208's performance requirements may delay the introduction of superior alternatives. The agency stated that it did not believe a short-term temporary amendment would result in such a delay, but would instead provide maximum flexibility to the vehicle manufacturers to quickly address the problem, while they work on better solutions. The agency also explained that its forthcoming proposal for smart air bags would seek to ensure that air bags reach their full fatality and injury reducing potential.

NHTSA recognized, however, that the proposal to permit or facilitate depowering of air bags was on a faster track than the rulemaking to require smart air bags. The agency noted that if it permitted depowering until smart bags are introduced, the question would arise of how the agency should limit the duration of the temporary amendment for depowering. The agency noted that one approach would be to specify a several year duration and revisit the issue in the context of the rulemaking on smart air bags.

The agency received numerous comments concerning the appropriate duration for the depowering amendment. The vehicle manufacturers, IIHS, and CVC argued against including a ''sunset'' clause; a number of safety groups and suppliers argued that a sunset for the amendment is critical, and specifically conditioned their support for depowering upon a sunset provision.

AAMA stated that there is no reason at this time to limit the duration of depowering. That organization stated that reducing the energy output of air bag inflators should be viewed as an important step toward development of advanced technology air bags. According to AAMA, there is no reason to assume that the current energy level of air bags provides optimum occupant protection, especially for belted occupants, and it would be a mistake to assume that it must be reinstated after some interim period. AAMA argued that its analyses show that depowering alone can save many additional lives per year compared to today's air bag energy levels.

AAMA also argued that even if it did make sense to couple depowering to more advanced technology, that technology is currently unknown. That organization stated that it should be apparent that defining what a ''smart air bag'' is, is not a simple, straightforward endeavor. According to AAMA, it is premature and highly inappropriate to consider a sunset date for depowering technologies that are known to be at least partial solutions to the concerns regarding inflation related injuries.

AAMA also argued that as manufacturers consider application of depowered air bag systems, a sunset provision would become a significant factor in assessing the practicability of design changes. That organization argued that this will especially be the case for models with product lives scheduled to end in the period shortly after the sunset date. According to AAMA, the benefits expected from changes to depowering for a short period of time, followed by further changes to meet advanced technology air bag requirements, may not justify the design/development/certification costs.

AIAM stated that whatever change is made to Standard No. 208, the basic concept of the revised regulation needs to be permanent. That organization argued that investments to optimize safety belt/air bag system designs can only be made if manufacturers know that the barrier crash test using unbelted dummies will not be reimposed in a short time. AIAM also argued that the action in this rulemaking should not be linked to the ''smart'' air bag system rulemaking that NHTSA contemplates.

IIHS stated that because of uncertainty about the availability and efficacy of future technology, and because it does not agree that the proposed regulatory changes will lead to the tradeoffs NHTSA anticipates—it does not support the inclusion of a sunset provision for the proposed rule changes. IIHS stated that limiting the duration of the depowering amendment would be superfluous and counterproductive, considering the agency anticipates further rulemaking on smart air bags.

CVC stated that it is concerned by the time frame allowed for depowered air bags under NHTSA's proposal. That organization stated that even if NHTSA promptly adopts the sled test, automakers would still probably not be able to complete the changeover of their fleets until sometime in model year 1999—and then could be faced with the prospect of changing their entire fleets back to full-scale crash-testing soon thereafter. CVC stated that it agrees that smart air-bag technology holds promise for the future, but there is little reason to assume that this technology will be sufficiently developed and tested to permit mass installation just three years from now. CVC argued that forcing the rapid implementation of new untested technology could produce a whole new wave of safety concerns (inadvertent, failed or improper deployment), leading to new occupant injuries and additional adverse publicity for air bags.

Morton stated that it firmly believes that the depowering amendment should be temporary. That company stated that the question of duration cannot be easily answered at this point. It stated its belief that the suggested approach in the NPRM to specify a several year duration and to revisit the issue in the context of the rulemaking on smart air bags is the appropriate option at this point.

General Dynamics stated that it supports the current NHTSA proposed solutions, but that support is based on NHTSA's statement that implementation of proposed solutions will be recognized as temporary measures until ''smart'' solutions

become available. General Dynamics stated that it disagrees that the proposed temporary measures will be required for the next several model years as smart systems are phased in. That company stated that it believes that the disbenefits of the NHTSA temporary measures will grow in those years and argues that a near-term mandate for smart air bags is required.

AirBelt Systems stated that ''either one of the proposed approaches, due to the adverse safety tradeoffs which it argues will take place, must be viewed only as an extremely temporary step at possibly helping to solve the current dilemma of severe injury and deaths to children from air bags.''

TRW stated that it is concerned that the proposed interim action could potentially stifle the urgent need for more elegant and comprehensive solutions that potentially accommodate a much better balance in protecting children, belted and unbelted occupants, varying size occupants and varying positioned occupants. TRW stated that, accordingly, the depowering amendment should be allowed during the period where an aggressive phase-in schedule exists to develop and introduce varying degrees of advanced restraint system technologies.

AVS Technologies stated that, if adopted, the sled alternative should remain in effect for a limited period of time. According to that company, it should be replaced within two years by a temporary modified vehicle barrier test.

CFAS stated that if NHTSA accepts manufacturer arguments that depowered inflators are effective in solving current problems, the agency must recognize that depowered inflators will involve a substantial amount of manufacturer resources to design, develop, test and install on a widespread basis. That organization stated that given the investment in depowered inflators, manufacturers will be reluctant to develop new and better technological solutions to improve their air bag systems. CFAS expressed concern that, consequently, proposals to alter Standard No. 208 will become permanent, not temporary, and will work against implementation of smart air bags. CFAS stated that if NHTSA adopts depowering, it suggests that the agency require manufacturers to use a dual or multi-staged system, using a ''depowered'' inflator for low speed crashes and a higher-powered inflator for higher speed crashes.

Public Citizen stated that implementation of a revised Standard No. 208 should supersede this depowering rulemaking as rapidly as possible, and no later than model year 1999 vehicles. That organization stated that there should be requirements for dual-or multi-stage inflation air bags by model year 1999. It stated that, according to comments already submitted to the agency by air bag suppliers, dual-stage inflation systems could be installed in model year 1999 vehicles.

After considering the comments, NHTSA has determined that there is no need to permanently reduce Standard No. 208's performance requirements to enable manufacturers to fully address the adverse effects of air bags. This is because there are various alternatives, albeit with longer technological development and implementation leadtimes than depowering, that are already allowed by the standard and that appear likely to result in equal or greater benefits than depowering without creating adverse safety tradeoffs. Thus, the agency views depowering as an interim approach, while the vehicle manufacturers develop and implement better solutions.

One technological alternative is a dual or multiple level inflator, which has the effect of causing an air bag to perform as a ''depowered'' air bag in low to moderate speed crashes (and possibly in all crashes in which occupants are belted or the seat is in a forward position), and as a fully powered air bag to provide protection to unbelted occupants in higher speed crashes. Thus, dual or multiple level inflators appear to offer all of the benefits associated with depowering without the tradeoffs, and may either enable an air bag to qualify as a smart air bag or be one of the major building blocks of a smart air bag. The agency observes that several suppliers have commented that this and/or other technologies are available for introduction as early as model year 1999. NHTSA believes it is reasonable to expect the vehicle manufacturers to move rapidly to adopt such technologies, rather than to continue with single-inflation-level, depowered air bags.[11] The agency also notes that adoption of dual or multi-level inflators is not inherently dependent on the use of advanced occupant position sensing devices.

Contrary to AAMA's suggestion, the agency is not assuming that the current energy level of air bags provides optimum occupant protection, especially for belted occupants. Instead, the agency recognizes that more advanced air bag designs can provide appropriate inflation rates for different levels of crash severity, occupant size/position, and belted/unbelted conditions. The agency observes that one of the primary criticisms of current air bags, that they inflate in the same one-size-fits-all manner regardless of occupant size and position and crash severity, will also be true for depowered air bags, albeit at a different level. However, this limitation of current air bag designs, and the contemplated depowered air bags, can be addressed by the use of dual or multiple level inflators.

NHTSA also disagrees with IIHS's suggestion that it would be superfluous to limit the duration of the depowering amendment, since the agency anticipates further rulemaking on smart air bags and would likely review all requirements of the standard. While the agency expects that a variety of test conditions may be added as part of a rulemaking to require smart air bags, and while the agency has recently sought public comment on the issue, 62 FR 8917 (February 27, 1997), based on current belt use rates, there is no reason to assume that the basic concept of a simple 30 mph barrier test for the unbelted condition would be dropped. As noted earlier in this notice, about half of all occupants in potentially fatal crashes still do not wear their safety belts.[12] Moreover, barrier testing is the most prevalent and accepted means of measuring real world protection.

NHTSA recognizes that there is substantial uncertainty as to how quickly smart air bags can be

[11] NHTSA notes that concepts such as dual stage inflators are not new and were considered by the agency in deciding to require automatic protection. For example, in the early and mid-1970's, various vehicle manufacturers reported favorable results in testing the ability of various dual level or variable inflation systems for air bags to address the problem of out-of-position children. In 1980, NHTSA informed the industry about its analysis of a number of possible technological solutions, including dual-inflation air bags, chambering air bags and top-mounted air bags. The July 11, 1984 Final Regulatory Impact Analysis (FRIA) for the 1984 final rule requiring the installation of automatic occupant restraints in passenger cars (49 Fed. Reg. 28962; July 17, 1984) listed a variety of potential technological means for addressing the problem of injuries associated with air bag deployments (FRIA, pp. III–8 to 10): a dual level inflation system whose operation is based on impact speed; a dual level inflation system whose operation is based on a switch in the vehicle seat or elsewhere that measures occupant size or weight and senses whether an occupant is out of position; a dual level inflation system whose operation is based on an electronic proximity detector in the dashboard; and other technological measures such as bag shape and size, instrument panel contour, aspiration, and inflation technique.

[12] Even if the use rates were significantly higher, and an analysis showed that dropping the unbelted test would have net safety benefits for motor vehicle occupants, the agency could not drop the test on its own initiative. As the agency noted in its February 27, 1997 notice, legislation would be necessary to authorize the agency to take that step.

incorporated into the entire fleet. Accordingly, the agency is adopting the approach suggested in the NPRM of specifying a several-year duration for the depowering amendment, and will revisit the issue, to the extent appropriate, in the context of a future rulemaking on smart air bags.

The agency is specifying a termination date of September 1, 2001, which roughly corresponds to the beginning of model year 2002. Based on information provided at NHTSA's February 11–12, 1997 public workshop on smart air bags, this appears to be a realistic date as to when the vehicle manufacturers can install some kind of smart air bags throughout their fleets, or at least more advanced air bags that provide the benefits associated with depowering without the tradeoffs. This expiration date assumes that the vehicle manufacturers will use the discretion they have to rapidly introduce the new air bag technologies that they and the suppliers have been developing, and will begin implementation of advanced air bag technologies in many of their vehicles before that date. For example, several suppliers have stated that dual or multiple stage inflators are available for introduction beginning as early as model year 1999, i.e., September 1, 1998, and that various other advanced air bag technologies will become available by that time or soon thereafter. NHTSA also believes that allowing depowering for more than four calendar years should provide manufacturers a reasonable amount of time to optimize depowered systems (i.e., tailor venting strategies, etc.), rather than simply depowering current systems without change. Manufacturers should not, however, read the September 1, 2001 date as any indication that the agency, in its smart air bag rulemaking, will not consider a requirement for a phase-in for smart air bags that begins before that time.

F. Benefits and Trade-Offs

AAMA and IIHS submitted critiques of the analyses of benefits and trade-offs presented in the PRE, arguing that the agency substantially overstated the potential disbenefits of depowering. Among other things, these commenters argued that the agency incorrectly assumed that 30 mph barrier crash tests represent all fatal highway crashes.

Considerable comment was received on the real world results of the GM Holden depowered air bag in Australia. AAMA argued that the agency should have placed greater weight on that information. Several other commenters suggested that less weight be placed on it. AVS Technologies stated that if the greater effectiveness of Holden air bags is primarily attributable to their effectiveness in preventing less severe injuries (AIS 2), then it is unreasonable to assume that optimizing U.S. air bags for the belted case will result in the same increased levels of effectiveness for reducing fatalities. That commenter also stated that while the PRE states the Holden system is more effective for serious (MAIS 3+) chest injuries than U.S. air bags, the data show that the Holden system is considerably less effective than its U.S. counterpart in reducing MAIS 3+ head injuries. AVS Technologies argued that, in any event, the figure for Holden effectiveness with respect to MAIS 3+ injuries is of doubtful validity, given the small number of cases. Richard Strombotne argued that the number of cases used in the Holden analysis is so small that the uncertainty in the analysis renders the results useless. Several commenters noted that Holden air bags deploy at a higher threshold, and stated that the higher threshold may account for a large part of the greater effectiveness of Holden air bags.

The FRE responds to the various comments on benefits and trade-offs, and presents revised estimates. The estimates presented in the PRE and FRE for the sled test alternative can be summarized as follows.

The PRE estimated that if current rates of child fatalities were experienced in an all-air-bag fleet, 128 children would be killed over the life of a single model year's fleet. The figure of 128 included 38 infants in rear-facing infant seats and 90 older children. Based on three-and-one-half more months of data showing no new cases of infant fatalities, but increasing numbers of older child fatalities, the FRE revises the total number of child fatalities up from 128 to 140. The new total includes a reduced number (33) of infant fatalities and increased number (107) of older child fatalities.

NHTSA emphasizes, as it did in the NPRM, that this and the agency's other rulemaking proceedings and related efforts are intended to ensure that risks of adverse effects of air bags are reduced so that these theoretically projected air bag fatalities do not materialize, while the potential benefits of air bags are retained to the maximum extent possible.

One area of uncertainty that significantly affects both potential benefits and tradeoffs is how much the vehicle manufacturers will depower air bags. AAMA commented that the average level of depowering will be 20 to 35 percent.

Based on test results and modeling, the FRE estimates that, if 35 percent is the upper end manufacturers adopt for depowering, 47 children would be saved. Using the same assumptions, the FRE estimates that 34 to 280 fewer teenage and adult passengers may be saved. The FRE recognizes that, if some air bags are depowered by more than 35 percent, more children would be saved, although there would also be higher disbenefits. The agency notes that the PRE provided higher estimates for both potential benefits and disbenefits, primarily because it assumed greater levels of depowering.[13]

Also based on test results and modeling, the FRE estimates that depowering could save a large portion of the 25 out-of-position drivers who may be killed by air bags, and four to 22 adult belted passengers. The first of these figures is unchanged from the PRE; the range for adult belted passengers is slightly revised. The FRE also estimates that depowering could save almost all of the seven out-of-position adult passengers who may be killed by air bags; the PRE did not address this category. The FRE estimates that 16 to 151 fewer drivers may be saved.

NHTSA notes that AAMA believes that depowering will result in higher benefits for unbelted drivers than estimated by the agency. That organization estimated that depowering could save 215 to 330 small, out-of-position, unbelted adult drivers. This estimate was based on estimates of the number of small drivers that would be unbelted, estimates of the number of crashes in which braking or other factors would cause those unbelted drivers to be close to the air bag, and test data by Transport Canada on fifth

[13] Another difference accounting for the revised estimate of potential disbenefits relates to how the agency used barrier crash test results for baseline and depowered air bags. In the PRE, the agency applied the barrier crash test results to all potentially fatal frontal crashes. AAMA argued that barrier testing only represents about 10 percent of all fatal crashes, and that depowering will not have any effect in offset frontal crashes. AAMA argued that 10 percent of NHTSA's PRE disbenefit estimates would provide reasonable estimates. AAMA provided no data to show that there would be no effect of depowering on fatalities in offset frontal impacts. The agency's analysis indicates that barrier crashes are closely representative of about 34 percent of all fatal frontal crashes. The agency agrees that depowering may not have as much of an effect in offset frontal crashes, but the effect is unknown. For example, there is still a concern about a greater chance of an occupant's head hitting the A-pillar in an offset crash with a depowered air bag. The agency used a range in the FRE, applying the barrier test results to 34 to 100 percent of all frontal fatalities, to account for the fact that the agency does not know if depowering will have a smaller impact in those crashes for which barrier crashes are less representative.

percentile female dummies showing a significant chance of potentially fatal neck injuries for drivers which are close to the air bag.

The agency observes, however, that AAMA's analysis implies the occurrence of a much larger number of air bag fatalities than can be supported by available fatality reports. NHTSA has examined as many low speed air bag fatality cases as it can find. Based on the cases it found, NHTSA cannot corroborate the hundreds of air bag fatalities in low speed crashes implied by AAMA's analysis. Since there are many more low speed crashes than high speed crashes, and since current air bags deploy at the same speed in low and high speed impacts, an examination of high speed crashes would not be likely to reveal a significant number of additional air-bag-induced fatalities.

As to Holden air bags, the PRE stated that if the relationship in overall effectiveness of the Holden air bag to U.S. air bags for AIS 2+ injuries is the same for fatalities, an estimated 643 lives of belted occupants could be saved annually by having depowered air bags like the Holden air bag. With respect to the comments received concerning this analysis, the agency recognizes that there are insufficient Holden data with respect to fatalities to draw conclusions confidently about the number of lives of belted occupants that would be saved by Holden-type air bags. Moreover, the agency cannot separate the benefits related to depowering from the benefits related to the higher deployment threshold. For these reasons, it would not be appropriate to place greater weight on the Holden analysis. Nevertheless, the agency still believes the Holden experience for reducing AIS 2+ injuries indicates at least the possibility that depowered air bags could significantly reduce fatalities for belted occupants.

NHTSA notes that, as discussed in the FRE, the agency has assessed the merits of the comments and accepted some, while rejecting others, in revising its estimates of the benefits and disbenefits of depowering. It has rejected comments that chest g's are not the appropriate way to measure chest injury potential and that chest deflection or V*C are more appropriate, that the agency based its chest g's versus risk of injury curve on a minimal number of cadaver experiments, and that the agency's methodology for estimating benefits is in error. As mentioned above, the agency partially accepted the comment that the barrier test might not represent the type of crash that produces all frontal fatalities. The agency used a range in the FRE, applying the barrier test results to 34 to 100 percent of all frontal fatalities, to account for the fact that the agency does not know if depowering will have a smaller impact in those crashes for which barrier crashes are less representative. The agency has not changed its analysis or the presentation of its analysis of the Holden bag or of the number of adults killed by air bags per year.

Recognizing that there is a great deal of uncertainty concerning benefits and tradeoffs, NHTSA emphasizes that, in any event, its decision to permit or facilitate depowering as an interim measure is driven less by calculations comparing potential benefits and potential disbenefits than by the need to quickly address the fatalities being caused by air bags. Further, as discussed above, NHTSA believes that addressing those fatalities is essential to maintain the public acceptability of air bags, and thereby ensure that air bags achieve their full long-term potential in reducing deaths and injuries from frontal impacts.

Moreover, in the longer run, the use of smart air bag technologies will enable manufacturers to optimize air bags for a variety of different conditions, including different crash severities, occupant sizes and positions, and belted/unbelted conditions. Thus, with the use of smart air bags, it is possible to both achieve the potential benefits from using Holden-type air bags and avoid the tradeoffs that can occur from depowering.

F. Specific Sled Test Requirements/ Procedures

1. Neck Injury Criteria

In its January 1997 NPRM, NHTSA proposed to add neck injury criteria for the 50th percentile male dummy as part of the sled test alternative. This proposal is consistent with AAMA's request for the agency to consider injury measurements for the neck in evaluating how air bags respond to the crash pulse. Specifically, in S13.2, the agency proposed the following neck injury criteria:

(a) Flexion Bending Moment—190 Nm. SAE Class 600.

(b) Extension Bending Moment—57 Nm. SAE Class 600.

C) Axial Tension—3300 peak N. SAE Class 1000.

(d) Axial Compression—4000 peak N. SAE Class 1000.

(e) Fore-and-Aft Shear—3100 peak N. SAE Class 1000.

The source of the proposed neck injury criteria is ''Anthropomorphic Dummies for Crash and Escape Systems,'' AGARD Conference Proceedings of NATO, July 1996, AGARD–AR–330. The agency noted that GM uses the same neck criteria for its injury assessment reference values (IARV's). Data provided by AAMA indicated that, in general, these neck criteria could not be met without an air bag. The agency requested comments on this subject.

Advocates, the American Academy of Pediatrics (AAP), the AORC, AVS, IIHS, and TRW supported including neck injury criteria. Advocates stated that such criteria provide valuable minimum criteria for sled tests and that the criteria especially help evaluate the potential danger faced by young children who are more susceptible to neck and spinal injury than adults. AAP stated that such injury criteria will improve the evaluation and development of occupant protection. IIHS stated that such criteria are generally desirable in evaluating occupant protection, but are not critical to maintaining benefits for unbelted occupants. BMW stated that although it anticipated no problem with the criteria, it needed time to review them.

Ford, Mitsubishi, and Nissan were concerned about potential problems with the neck injury criteria. Ford stated that there may be high variability in the testing for compliance with the criteria, especially the neck extension criterion. Ford was concerned that there was insufficient experience with the neck extension criterion to estimate the repeatability and reproducibility of the neck readings. Ford and Nissan stated that further data could indicate that adoption of the injury criteria could unnecessarily limit or delay depowering. Nevertheless, Ford concluded that it ''does not object to the proposed neck injury criteria at this time.'' Nissan stated that there was not sufficient evidence to warrant the adoption of such criteria. Mitsubishi requested that the agency clarify the technical basis for the proposed neck injury criteria.

Based on the available information, NHTSA has decided to adopt the neck injury criteria, as proposed. As AAMA stated in its November 1996 submission, such criteria are necessary to ensure that a vehicle is equipped with air bags that have protective value, since absent these criteria, some vehicles could comply with the 125 ms pulse sled test without air bags. Moreover, compression loads, bending moments, and tension and shear forces can be significant sources of potential injuries in crashes. Accordingly, the inclusion of neck injury criteria should aid in measuring air bag effectiveness and may ultimately improve crash protection. Though the

injury criteria are specified for use in testing with the 50th percentile male dummy, adopting neck injury criteria is consistent with the agency's goal of protecting children, who are especially susceptible to neck and spinal injury. NHTSA has developed Nij neck criteria for children that could be extended to adults. A report describing this criteria and its development has been docketed. (74–14–N97)

In the NPRM, NHTSA did not make it clear how the neck injury measurements would be performed. The agency wishes to clarify that the neck injury measurement is performed by the six-axis load cell mounted between the head and upper end of the neck, as specified in 49 CFR 572.33.

In response to Mitsubishi's comment requesting that the agency clarify the technical basis for the neck injury criteria, the agency notes that the proposal was based on a request by AAMA to include this criteria. In the NPRM, the agency explained that the source of the proposed neck criteria is ''Anthropomorphic Dummies for Crash and Escape Systems,'' AGARD Conference Proceedings of NATO, July 1996, AGARD-AR–330. The agency further noted that GM uses the same neck criteria for its IARVs.

In addition, since the NPRM was issued, NHTSA has docketed two reports describing a series of agency tests with two vehicle platforms to evaluate the 125 ms sled pulse recommended by AAMA.

These tests evaluated driver and passenger air bags using a 50th percentile male dummy and a 5th percentile female dummy. These tests indicate that an air bag is necessary for a vehicle to comply with the neck injury criteria. In other words, a vehicle equipped with no air bag did not comply with the proposed neck injury criteria.

2. Testing Full Vehicles or Partial Vehicles

In the January 1997 NPRM, NHTSA proposed a test procedure similar to the one presented in AAMA's petition. NHTSA noted that the proposed procedure specifies that the vehicle, or ''a sufficient portion of the vehicle to be representative of the vehicle structure,'' is mounted on the sled. The agency requested comments on the practicality of conducting sled tests with a whole vehicle, and on whether the quoted language could be made more objective.

In a letter dated January 24, 1997, NHTSA's Associate Administrator for Safety Assurance asked several vehicle manufacturers to provide specific information concerning their experience in conducting sled tests. Among other things, the agency asked whether there are any considerations that need to be addressed for using either a full or partial vehicle on the sled. The agency also asked whether any manufacturer has ever performed a sled test with a complete or almost complete vehicle.

AAMA, Subaru, and Volvo stated that manufacturers typically conduct partial vehicle tests. Nevertheless, AAMA stated that such sled tests could be conducted on either the full vehicle or partial vehicle. Similarly, Ford stated that ''audit testing with an entire vehicle on a sled would be acceptable, even though vehicle manufacturers typically test with only the passenger compartment or the front portion of the passenger compartment.'' AVS and Morton stated that it is impracticable and infeasible to test the entire vehicle on the sled given a vehicle's weight and size.

Based on its analysis of the available information, NHTSA has decided to specify testing the entire vehicle. The agency is aware that sled tests are typically conducted with partial vehicles. However, sled tests historically have been utilized as pre-manufacture development tests, rather than as tests for compliance with a Federal safety standard. The sled tests with partial vehicles could be quickly and economically set up and repeated. However, the purpose of this standard is to ascertain the crashworthiness of the final product: the production vehicle.

The agency's Vehicle Research Test Center (VRTC) has analyzed the size and power of the equipment used to conduct sled tests. Based on the available information, the agency believes that the current-design sled at Transportation Research Center (TRC) can be used to evaluate a full vehicle's response to a 125 ms pulse. Memoranda in the docket summarize discussions between agency and General Motors personnel indicating that the readily available 12 inch diameter cylinder sled is capable of producing the required acceleration pulse for any complete vehicle subject to Standard No. 208.

NHTSA believes that a full vehicle test is superior to a partial vehicle test for the following reasons. A full vehicle test reduces variability, since a partial vehicle test's outcome could depend on how a vehicle was cut. In addition, it would be difficult to determine precisely what a partial vehicle is. Another problem with partial vehicle testing is how to reinforce it. The agency further notes that a full vehicle test is more representative of actual crash situations than a partial vehicle test.

Further, by requiring full vehicle testing, the agency eliminates the need to define what is meant by a partial vehicle. Accordingly, the agency's request in the NPRM to define the phrase ''sufficient portion of vehicle to be representative of the vehicle structure'' is moot.

Ford was concerned that body frame vehicles should not be tested on a sled test because such vehicles would experience unrealistic deflection of elastomeric body mounts and local elastic and permanent deformation of body mounting areas during a sled test if only the frame were mounted to the sled platform.

NHTSA notes that, if necessary, the frame of a vehicle will be rigidly attached to the vehicle body during testing such that the specified acceleration pulse is registered on the vehicle body.

3. Crash Pulse ''Corridor''

In the January 1997 NPRM, NHTSA stated that while AAMA provided corridors for the original crash pulse in its initial petition, that organization had not provided corridors for its revised crash pulse. The agency explained that it contacted AAMA, requesting a figure showing the mathematical equation for the revised pulse, a graph of the pulse and corridors for the pulse. The agency stated that it is necessary to specify corridors in addition to a specific pulse, because it is generally not possible to duplicate exact pulses. Manufacturers would be required to assure that their vehicles comply with the standard's performance requirements for all tests within the specified corridors. The agency announced that while the proposed regulatory text specified only a specific crash pulse and not the corridors for that test, the agency expected to include such corridors in the final rule.

In a January 8, 1997 letter, AAMA provided the agency with a mathematical equation for the pulse, a nominal pulse curve, and the allowable upper and lower corridors from which the pulse must not deviate.

Of the commenters addressing the issue of a crash pulse corridor pulse, all supported its need. Subaru, Volkswagen, and Volvo stated that pulse crash corridors should be included. Volkswagen stated that including corridors is appropriate, since it is impossible to duplicate a sled pulse trace in a particular test.

NHTSA has decided to include the crash pulse corridors submitted by AAMA. After reviewing the corridors, VRTC has determined that the corridors are reasonable and appropriate. The

agency concludes that corridors, which serve the same purpose as tolerances, are necessary since it would be difficult to repeat the exact crash pulse every time a sled test was conducted. Nevertheless, NHTSA wishes to reiterate that vehicles must be able to comply with the performance requirements of the Standard in all tests, where the pulse is within the specified corridors.

4. Air Bag Activation

Two factors must be specified with respect to air bag deployment during the sled test: when should the timing of the test start, and when should the air bag be activated? In S13.1 of the proposed regulatory text, NHTSA stated that ''An inflatable restraint is to be activated at 25 +/− 2 ms after initiation of the acceleration shown in Figure 6.'' In NHTSA's supplemental letter to vehicle manufacturers, NHTSA stated that ''The proposed regulatory language in the NPRM states the air bag will be activated at 25 ± 2 ms after initiation of the acceleration. Not all manufacturers determine acceleration initiation the same way. What time zero determinations are used and of those which one do you recommend?''

AAMA stated that the activation time should be changed to 20 ± 2 ms after the time at which sled acceleration crosses 0.5 g, claiming that this change would provide a more definite test criterion. Subaru stated that in determining time zero, it uses the time when the sled acceleration exceeded 1 g as its acceleration initiation. It believes that this method represents a real crash pulse considering the proposed air bag firing time of 25 ± 2 ms. Toyota stated that the agency should define the starting point of the crash pulse in the sled test. Toyota believed that either t=0 at the 0.5 g level during crash onset or 5 ms before 1 g is reached would be acceptable. Volvo stated that since not all manufacturers determine acceleration the same way, the agency should provide a ''methodology to determine trigger time for the air bag.''

Only Volkswagen commented that the agency should not specify the activation time. That company stated that specifying the activation time is design restrictive and could limit ability to depower certain systems.

NHTSA believes that it is appropriate to specify the activation time. Except for Volkswagen, all manufacturers submitting comments on this issue supported such a provision. The agency believes that such a provision adds precision and objectivity to the test procedure.

NHTSA has decided to adopt the activation time requested by AAMA in its February 7, 1997 comment; i.e., 20 ± 2 ms after the time at which the sled acceleration crosses 0.5 g. The agency notes that this activation time modifies the proposed time only slightly and will ensure that the air bag activates slightly earlier in the test than the proposed time. Although the agency does not have specific data to correlate the difference in performance between a 20 ms activation and a 25 ms activation, NHTSA believes that the 20 ms activation is more representative of a typical rigid crash.

5. Test Attitude

In S13.1, NHTSA proposed that the whole or partial vehicle be mounted on a dynamic test platform ''at the manufacturer's design attitude, so that the longitudinal center line of the vehicle is parallel to the direction of the test platform travel and so that movement between the base of the vehicle and the test platform is prevented.''

In the supplemental letter to the manufacturers, NHTSA asked how a manufacturer's test attitude and the vehicle's longitudinal centerline are measured and what tolerances should be applied to these measurements.

AAMA stated that the pitch and yaw angles are not particularly critical and that +/− .5 degrees is sufficient, consistent with SAE J826 July 95. Ford stated that the test procedure should specify the manufacturer's nominal vehicle attitude (pitch) for mounting of the vehicle on the sled, to attain result reproducibility. It stated that head injury criteria (HIC), neck extension (and possibly other proposed neck loads) are sensitive to pitch angle of vehicle mounting, because pitch angle affects the trajectory of the unbelted dummies. Ford favored the proposal for the tests to be at the ''manufacturer's design attitude.'' Ford opposed setting the vehicle's pitch on the sled to match that of the particular vehicle that is purchased when loaded to test weight. It believed that approach would reduce the test's reproducibility. Subaru stated that it mounts the partial vehicle parallel to the direction of the test platform travel for its testing. It stated although it had no problems related to improper alignment, clear regulatory tolerances would be helpful.

Based on previous test experience and on the available information, NHTSA has decided to incorporate the same test conditions already set forth in S8[14] into the sled test specified in S13. With respect to the vehicle test attitude, the agency has decided to add a provision in S13.3 that is patterned after S8.1.1(d). The agency believes that this provision addresses the concerns of the commenters without unnecessarily complicating the test conditions. The agency believes that requiring the attitude of the vehicle on the sled to be at any alignment between the attitude in the ''as delivered'' condition and the attitude in the ''fully loaded condition'' will eliminate difficulties that have been caused by differences between the theoretical fiduciary marks on blue prints and the actual assembly of the vehicle. The agency further notes that the loading represents a real world range of attitudes that the restraint system should be able to handle.

6. Completion of Sled Test

Ford stated that the sled test should be considered completed as soon as the sled brakes are applied. It claimed that dummy rebound kinematics and instrumentation readings are not representative of a highway collision during the braking deceleration phase of sled test.

Ford is correct that dummy measurement recorded during the rebound phase will not be considered by this provision because sled braking is not regulated by the standard. The agency notes that it would be inappropriate to reference a brake application point because sled braking varies depending on the type of sled.

G. Miscellaneous Issues.

1. Multistage Manufacturer Certification

The Recreational Vehicle Industry Association (RVIA) and Atwood Mobile Products (a seat manufacturer that supplies seats for conversion vehicles) requested a delay in the effective date for conversion vehicle manufacturers. RVIA requested a one-year delay in the compliance date for certification of vehicles manufactured in more than one stage. That organization stated that any changes to air bag power may mean that recertification will be necessary.

NHTSA has decided not to differentiate the effective date of today's final rule based on whether the vehicle is manufactured in multiple stages. The agency notes that today's amendment imposes no new requirements or costs, but instead permits or facilitates depowering of current air bags.

[14] S8 specifies test conditions for vehicle loading, fuel system capacity, vehicle test attitude, seat location, and the status of doors and windows. The provision for vehicle test attitude references the ''as delivered condition.''

2. Effective Date

In the NPRM, NHTSA requested comments on whether the amendment should take effect immediately upon publication based on the fact that it addresses an urgent safety problem, the death of young children. The agency stated that the proposed amendment would permit or facilitate the immediate depowering of air bags, thereby helping to reduce child fatalities caused by air bags. The agency also noted that the proposed amendment would not impose any new requirements, but instead would provide additional flexibility to manufacturers in addressing this problem.

AAMA, Ford, Advocates, and IIHS favored adopting the amendments immediately. AAMA strongly advocated having the amendment take effect immediately. That organization stated that ''Depowering is the most immediate and effective technical means of addressing the issues that have been raised. The amendment allowing depowering should be effective upon the date of publication of the final rule.'' Ford stated that the agency should quickly issue the final rule so that depowered bags can be available on model year 1998 cars. Advocates stated that it is in the public interest to dispense with the 30-day waiting period that is customarily required prior to a rule taking effect.

Based on the available information, NHTSA has decided to make the amendment effective on the date of publication. The agency believes that there is good cause to have an immediate effective date, given that an immediate effective date is necessary to enable vehicle manufacturers to begin depowering air bags, and thus begin saving lives, as soon as possible. As the agency noted in the NPRM, the amendment will not impose any new requirements, but instead provides additional flexibility to manufacturers in addressing this problem.

VI. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

NHTSA has considered the impact of this rulemaking action under Executive Order 12866 and the Department of Transportation's regulatory policies and procedures. This rulemaking document was reviewed by the Office of Management and Budget under E.O. 12866, ''Regulatory Planning and Review.'' This action has been determined to be ''significant'' under the Department of Transportation's regulatory policies and procedures. The action is considered significant because of the degree of public interest in this subject.

This rule has been designated by OMB as a major rule under Chapter 8 of Title 5, U.S. Code. NHTSA has determined, however, that there is good cause for making this rule effective less than 60 days after submission of the rule to each House of Congress and to the Comptroller General because a delay in implementing this rule would be contrary to the public interest. In response to the agency's specific request for comments on an immediate effective date, representatives of the automobile and insurance industries as well as a leading public interest group expressed support. No opposing comments were received. Making this rule effective immediately is necessary to enable the manufacturers to begin depowering efforts, and thus begin saving lives, as soon as possible.

The final rule does not impose any new requirements or costs, but instead permits or facilitates approximately 20 to 35 percent depowering of current air bags. Any cost difference between baseline and depowered air bags is negligible.

A full discussion of costs and benefits can be found in the agency's regulatory evaluation for this rulemaking action, which is being placed in the docket.

B. Regulatory Flexibility Act

In the NPRM, NHTSA stated that after considering the effects of this rulemaking action under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), it certified that the proposed amendment would not have a significant economic impact on a substantial number of small entities. NHTSA noted that the cost of new passenger cars or light trucks would not be affected by the proposed amendment. Under 5 U.S.C. 605(b), NHTSA stated that the proposed amendment would primarily affect passenger car and light truck manufacturers and manufacturers of air bags which are not small entities. The agency referenced the Small Business Administration's regulations at 13 CFR Part 121 which define a small business, in part, as a business entity ''which operates primarily within the United States.'' (13 CFR 121.105(a)).

In the NPRM, the agency estimated that there are at most five small manufacturers of passenger cars in the U.S., producing a combined total of at most 500 cars each year. The agency stated that it does not believe small businesses manufacture even 0.1 percent of total U.S. passenger car and light truck production each year. The Coalition of Small Volume Automobile Manufacturers (COSVAM) stated that ''the five U.S.-based small manufacturers acknowledged by NHTSA'' are significantly affected by NHTSA's rules, and that it would be improper to fail to consider the effects on these five companies. In addition, COSVAM stated that NHTSA's regulations affect an even greater number of small foreign auto manufacturers that import into the U.S. That organization stated that it would be inappropriate to disregard the rulemaking's effect on such entities.

NHTSA again notes that today's final rule will not impose any new requirements or costs on vehicle manufacturers, but instead will permit or facilitate approximately 20 to 35 percent depowering of current air bags. Therefore, no vehicle manufacturer, regardless of its size, will be required to take any action as a result of the rule. Accordingly, the agency believes that the rule will have no significant impact on small vehicle manufacturers.

C. National Environmental Policy Act

NHTSA has analyzed this final rule for the purposes of the National Environmental Policy Act and determined that it will not have any significant impact on the quality of the human environment.

D. Executive Order 12612 (Federalism) and Unfunded Mandates Act.

The agency has analyzed this final rule in accordance with the principles and criteria set forth in Executive Order 12612. NHTSA has determined that the amendment does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

In issuing this amendment to permit or facilitate depowering, the agency notes, for the purposes of the Unfunded Mandates Act, that is pursuing the least cost alternative. As noted above, any cost difference between current and depowered air bags is negligible. This alternative was selected by NHTSA because depowering would prevent many of the air bag-related fatalities that have been occurring and can be implemented more quickly than the other alternatives. Further, depowering is the measure that industry itself has been recommending as a means for preventing those fatalities.

E. Civil Justice Reform

This proposed amendment does not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a State may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard, except to the

extent that the state requirement imposes a higher level of performance and applies only to vehicles procured for the State's use. 49 U.S.C. 30161 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

List of Subjects in 49 CFR Part 571

Imports, Incorporation by reference, Motor vehicle safety, Motor vehicles, Rubber and rubber products, Tires.

In consideration of the foregoing, 49 CFR Part 571 is amended as follows:

PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for Part 571 of Title 49 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166; delegation of authority at 49 CFR 1.50.

2. Section 571.208 is amended by revising S3 and S8.1, and by adding S13 through S13.4, to read as follows:

§ 571.208 Standard No. 208, Occupant crash protection.

* * * * *

S3. *Application.* This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses. In addition, S9, *Pressure vessels and explosive devices,* applies to vessels designed to contain a pressurized fluid or gas, and to explosive devices, for use in the above types of motor vehicles as part of a system designed to provide protection to occupants in the event of a crash. Notwithstanding any language to the contrary, any vehicle manufactured after March 19, 1997 and before September 1, 2001 that is subject to a dynamic crash test requirement conducted with unbelted dummies may meet the requirements specified in S13 instead of the applicable unbelted requirement.

* * * * *

S8.1 *General conditions.* The following conditions apply to the frontal, lateral, and rollover tests. Except for S8.1.1(d), the following conditions apply to the alternative unbelted sled test set forth in S13 from March 19, 1997 until September 1, 2001.

* * * * *

S13 *Alternative unbelted test for vehicles manufactured before September 1, 2001.*

S13.1 *Instrumentation Impact Test—Part 1—Electronic Instrumentation.* Under the applicable conditions of S8, mount the vehicle on a dynamic test platform at the vehicle attitude set forth in S13.3, so that the longitudinal center line of the vehicle is parallel to the direction of the test platform travel and so that movement between the base of the vehicle and the test platform is prevented. The test platform is instrumented with an accelerometer and data processing system having a frequency response of 60 channel class as specified in Society of Automotive Engineers (SAE) Recommended Practice J211/1 MAR 95, *Instrumentation for Impact Test—Part 1—Electronic Instrumentation.* SAE J211/1 MAR 95 is incorporated by reference and thereby is made part of this standard. The Director of the Federal Register approved the material incorporated by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. A copy may be obtained from SAE at Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096. A copy of the material may be inspected at NHTSA's Docket Section, 400 Seventh Street, S.W., room 5109, Washington, DC, or at the Office of the Federal Register, 800 North Capitol Street, N.W., Suite 700, Washington, DC. The accelerometer sensitive axis is parallel to the direction of test platform travel. The test is conducted at a velocity change approximating 30 mph with acceleration of the test platform such that all points on the crash pulse curve within the corridor identified in Figure 6 are covered. An inflatable restraint is to be activated at 20 ms +/-2 ms from the time that 0.5 g is measured on the dynamic test platform. The test dummy specified in S8.1.8.2, placed in each front outboard designated seating position as specified in S11, shall meet the injury criteria of S6.1, S6.2, S6.3, S6.4, S6.5, and S13.2 of this standard.

13.2 *Neck injury criteria.* A vehicle certified to this alternative test requirement shall, in addition to meeting the criteria specified in S13.1, meet the following injury criteria for the neck, measured with the six axis load cell (ref. Denton drawing C–1709) that is mounted between the bottom of the skull and the top of the neck as shown in drawing 78051–218, in the unbelted sled test:

(a) Flexion Bending Moment—190 Nm. SAE Class 600.

(b) Extension Bending Moment—57 Nm. SAE Class 600.

(c) Axial Tension—3300 peak N. SAE Class 1000.

(d) Axial Compression—4000 peak N. SAE Class 1000.

(e) Fore-and-Aft Shear—3100 peak N. SAE Class 1000.

13.3 *Vehicle test attitude.* When the vehicle is in its ''as delivered'' condition, measure the angle between the driver's door sill and the horizontal. Mark where the angle is taken on the door sill. The ''as delivered'' condition is the vehicle as received at the test site, with 100 percent of all fluid capacities and all tires inflated to the manufacturer's specifications as listed on the vehicle's tire placard. When the vehicle is in its ''fully loaded'' condition, measure the angle between the driver's door sill and the horizontal, at the same place the ''as delivered'' angle was measured. The ''fully loaded'' condition is the test vehicle loaded in accordance with S8.1.1(a) or (b) of Standard No. 208, as applicable. The load placed in the cargo area shall be centered over the longitudinal centerline of the vehicle. The pretest door sill angle, when the vehicle is on the sled, (measured at the same location as the as delivered and fully loaded condition) shall be equal to or between the as delivered and fully loaded door sill angle measurements.

13.4 *Tires and wheels.* Remove the tires and wheels.

3. Section 571.208 is amended by adding Figure 6 at the end of the section to read as follows:

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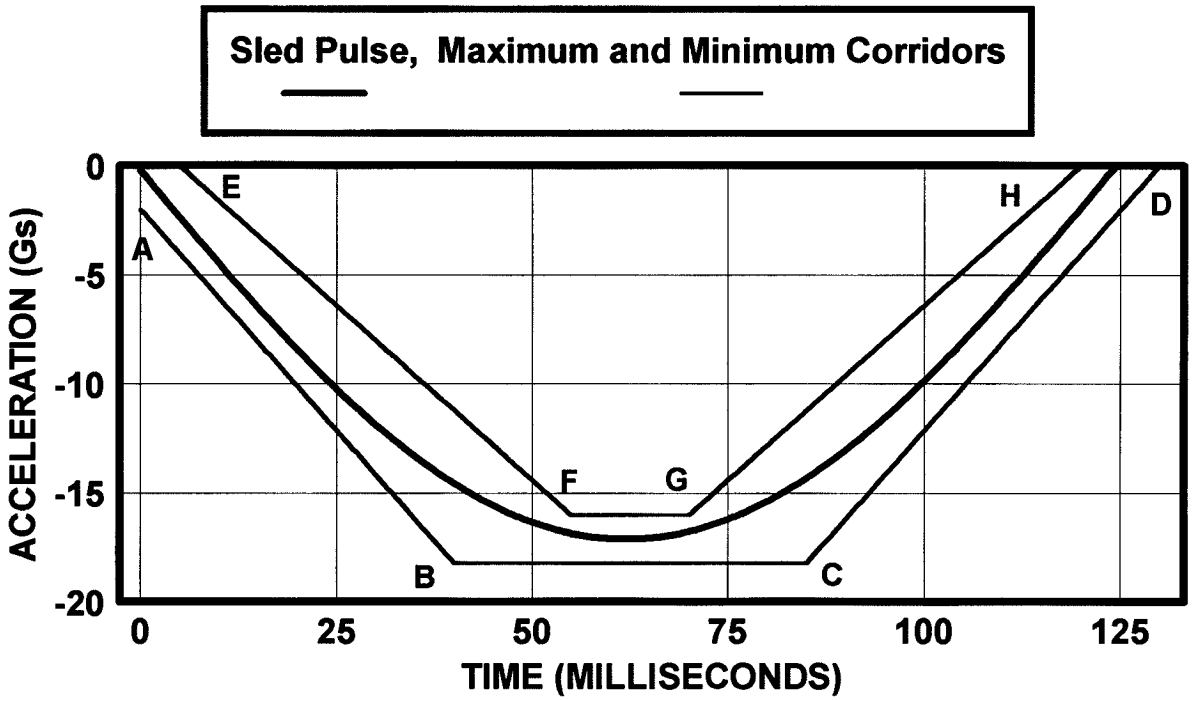

Sled pulse acceleration, expressed in G's = 17.2 Sin(Πt/125)

for delta V = 30(+0,-2) mph

Reference point	t (ms)	Acceleration (G)
A	0	-2
B	40	-18.2
C	85	-18.2
D	130	0
E	5	0
F	55	-16
G	70	-16
H	120	0.00

Figure 6 - Sled Pulse and Coordinates

Issued on: March 14, 1997.

Ricardo Martinez,

Administrator.

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