

the third year of the phase-in with no requirements in the first two years.

IIHS stated that the proposed three-year lead time for the rear impact test upgrade should be sufficient.

2. Side Impact Test Upgrade

Vehicle manufacturers supported the one-year lead time proposed in the NPRM for the side impact test upgrade, but recommended that the agency add a phase-in after this lead time. The Alliance and Ford recommended a four-year phase-in with an implementation schedule of 25 percent compliance the first year, 40 percent the second year, 70 percent the third year, and 100 percent the fourth year. The Alliance also recommended that the agency grant carry forward credits for early compliance.

IIHS stated that the one-year lead time proposed by the agency in the NPRM should be sufficient.

E. Costs and Benefits

Honda commented that the agency's cost estimates were insufficient. Honda stated, "The cost of managing all the accompanying issues is at least 10 times greater than NHTSA's cost estimation." Honda claimed that to meet the proposed rear impact test upgrade, "It will be necessary to change the thickness of the vehicle's rear structure, which requires the modification of existing dies and manufacturing of new dies and parts."

VW questioned the safety benefits of the proposed test upgrades. VW stated:

The accident data base of the Medical University of Hanover in Germany indicates that in the universe of crashes with at least one injured occupant, only 0.58 percent resulted in after-crash fire and only 0.4 percent of the injuries in the data base were fire related. In the same sample of crashes, the whiplash injuries were reported in 11 percent of the cases. Although the vehicle fleet population in Germany is different from that in the U.S., Volkswagen submits that the statistics support the very low incidence of post-crash fires and fire related injuries.

F. Additional Issues

1. Real World Data

The agency asked in the NPRM whether there were any real-world data, other than the data that NHTSA had already analyzed, that may better describe the relationship between the risk of occupant injury due to fire and crash severity.

The Alliance, GM, DC, and Ford stated that there were no such data. The Alliance and GM commented that both the FARS and NASS files might need to be modified to more accurately define any remaining fire risk.

2. Head and Neck Injury Criteria

In the NPRM, the agency noted that in the various crash tests that were performed during the research for this rulemaking, the values of head and neck injury criteria measured by the two front seat dummies were much higher than acceptable thresholds. The agency asked what these high injury values indicate about the real world potential for trauma injury to vehicle occupants in rear impacts.

The Alliance stated that its members would need access to more details of NHTSA's test program in order to respond to this question.¹⁹ However, the Alliance argued that the issue of occupant protection in rear impacts is outside the scope of this rulemaking. The Alliance recommended that the agency address this issue in the ongoing Standard No. 202, *Head restraints*, rulemaking or in a possible future upgrade of Standard No. 207, *Seating systems*. The Alliance also commented that more research is needed to provide an appropriate level of seating system performance dealing with the proposed rear impact test upgrade.

Syson-Hille commented that both GM and Mercedes-Benz have been using 50 mph vehicle-to-vehicle rear impact tests, with occupant survival space criteria, since the 1980s. Advocates suggested that the agency consider upgrading requirements for the entire seating system (seat, seat back, and head restraint) to provide improved occupant protection in the proposed Standard No. 301 rear impact test upgrade.

3. Seat Back Failure

In the NPRM, the agency asked how seat back failures influence injury potential in rear impacts. The agency also asked for data that would aid it in determining the need for improving seat back strength and the appropriate requirements for doing so.

The Alliance stated that without a definition of "seat back failure" it could not answer the question. However, the Alliance defined the optimal seat back strength as the balance between strength and flexibility to address both severe and minor impacts.

DC and Ford supported the Alliance's comments. DC commented that the issue of seat back strength is outside the scope of this rulemaking, and should be addressed in a possible future upgrade of Standard No. 207. Ford stated that seat back strength should be designed to

enhance occupant safety in real-world crashes.

GM agreed with an upgrade of Standard No. 207 seat back strength requirements in the future. However, GM stated that this should be done in a separate rulemaking.

VW commented that a single optimal level of seat back strength is extremely difficult to define because of the range in impact severity (a function of impact speed and the impacting vehicle structure in real-world crash situations).

Advocates stated:

Advocates thinks it would be difficult for the agency to justify instituting the proposed rear impact fuel integrity test without reforming Standard No. 207 to prevent seat back collapse while also ensuring much better head restraint protection against whiplash injuries. It is obvious that it is unacceptable to propose a new crash test in which the majority of seatbacks in the test vehicles collapse or occupants suffer severe whiplash injuries in seats which maintain their upright positions. * * * Advocates is concerned that, in the short term, manufacturers may simply increase seat back strength, especially rigidity, to prevent seat backs from collapsing in the new No. 301 rear impact test.

4. Use of 5th Percentile Female Dummies

In the NPRM, the agency asked whether it should require vehicles to meet the requirements of Standard No. 301 in tests with 5th percentile female dummies as well as with the currently-required 50th percentile male dummies.

The Alliance, DC, GM, VW, and Ford opposed requiring the use of 5th percentile female dummies in Standard No. 301 rear impact tests. The Alliance stated that different dummy sizes would only change the total impact weight of the tested vehicles and would have little or no effect on the performance of the fuel system. However, GM supported the voluntary use of instrumented test dummies for research to understand better the mechanics and magnitude of the potential for injury for various dummy sizes in different crash situations.

Advocates supported requiring the use of 5th percentile female dummies in the proposed rear impact test procedure. Advocates stated this would help prevent occupant injury due to ramp up of the seat back. In addition, Advocates suggested that the agency require use of the 95th percentile male dummy in Standard No. 301 rear impact tests to help prevent occupant injury due to seat back failure.

5. Test Vehicle Loading Conditions

In the NPRM, the agency proposed to eliminate the second sentence of

¹⁹ The agency notes that it docketed a detailed list of all the rear impact crash test results discussed in the NPRM and other related dockets. See Docket No. NHTSA-99-5825-1, June 8, 1999.