

Typically, the first-stage manufacturer provides the second-stage manufacturer with a body builder's guide that tells the second-stage manufacturer what additions or other modifications it can make and still either pass along the original equipment manufacturer's certification for compliance with Standard No. 301 (for chassis cabs) or otherwise be confident that the vehicle will comply (for other types of incomplete vehicles). To the extent that a second-stage manufacturer deviates from the guide, it would have to certify compliance on its own.

In the NPRM, the agency tentatively concluded that few final stage manufacturers would deviate from the body builder's guide.

The National Truck Equipment Association (NTEA)<sup>21</sup> disagreed with this tentative conclusion. The NTEA commented:

It is not inconceivable that a major upgrade of the standard could force a chassis manufacturer to forbid the completion of certain chassis with certain body types or equipment in order to reduce their liability to an acceptable level. In any event, it will be impossible for the chassis manufacturers to test or even envision all types of multi-stage vehicles and will likely allow no modifications of any sort while leaving as much liability with the final stage manufacturer as possible, even when no fuel system modifications are made by the final stage manufacturer.

The NTEA stated that the proposed upgrade of Standard No. 301 could require second-stage manufacturers to conduct compliance testing, and that since most second-stage manufacturers are small businesses, such testing would be an unreasonable burden.<sup>22</sup>

#### 10. Fuel Siphoning

Dynamic Safety, IIHS, and Advocates all raised the issue of fuel siphoning after a fuel line is breached. Dynamic Safety stated:

Any fuel system integrity standard upgrade should address the issue of fuel line siphoning. The standard should require that vehicles not siphon fuel if a fuel line is breached.

Dynamic Safety commented that anti-siphon devices are readily available. Dynamic Safety stated that Ford and DC have been using fuel return line one-way check valves (known as "duckbill valves") on many of their vehicles since the 1980s, and that GM has installed

"siphon break" holes in some of its passenger car fuel return lines since the late 1980s.

IIHS stated, "The Institute strongly supports implementation of requirements designed to stop the flow of fuel after a collision." Advocates strongly supported research into and consideration of fuel system flow interdiction through the use of various technologies, such as electric current shut-off devices that stop fuel pump delivery after a crash and manual or electrical inertia switches and check valves to block fuel delivery.

#### V. Final Rule

##### A. Summary of the Final Rule

The amendments in this final rule are essentially the same as those proposed in the NPRM, but with compliance requirements for the rear impact upgrade to be phased-in. Instead of providing that all vehicles must comply at the end of a several year period, as proposed in the NPRM, the agency is providing that compliance with the rear impact upgrade will be phased-in over an additional three-year period, without credits for early compliance. The lead time for the side impact upgrade is the same as proposed.

As proposed in the NPRM, the final rule establishes a rear impact test procedure that specifies striking the rear of the test vehicle at  $80 \pm 1$  km/h (50 mph) with a 1,368 kilogram (3,015 pound) MDB at a 70 percent overlap with the test vehicle. The MDB is located 50 millimeters (2 inches) lower than the face of the Standard No. 214 barrier to simulate pre-crash braking. This replaces the 48 km/h rear moving barrier crash test previously required under S6.2 of Standard No. 301.

Also as proposed, the final rule eliminates Standard No. 301's side crash test and replaces it with the side impact crash test currently specified in Standard No. 214. S6.3 of Standard No. 301 had required a vehicle's side to be impacted by a barrier moving at 48 km/h. This final rule incorporates into S6.3 the side impact crash test in Standard No. 214, which is also amended by the final rule to specify that a stationary vehicle be struck on either side by a 1,368 kg (3,015 pound) MDB moving at a speed of  $53 \pm 1$  km/h.

NHTSA notes that while it has conducted research to explore the desirability of revising the Standard No. 214 barrier, additional research would have to be conducted before the agency could decide whether proposing a revision might be worthwhile. Thus, even if a revision were ultimately adopted, it could not be implemented

until well beyond the implementation of this upgrade to Standard No. 301.

Instead of providing that all vehicles comply at the end of a several year period, as proposed in the NPRM, the agency is providing that compliance with the rear impact upgrade will be phased in by increasing percentages of production over an additional three-year period, without credits for early compliance or compliance above the required percentages.

At least 40 percent of vehicles manufactured on or after September 1, 2006, but before September 1, 2007, must comply with the new rear impact requirements. At least 70 percent of the vehicles manufactured on or after September 1, 2007, but before September 1, 2008, will have to comply, and starting September 1, 2008, all vehicles manufactured will have to comply with the upgraded rear impact requirements. The final rule amends 49 CFR Part 586, establishing reporting and record keeping requirements concerning the phase-in. However, vehicles manufactured in two or more stages will not be required to meet the rear impact upgrade requirements until September 1, 2008, when all vehicles must be certified as complying.

All vehicles manufactured on or after September 1, 2004, must comply with the upgraded side impact requirements.

##### B. Rear Impact Test Procedure

After reviewing real-world fire-related crash data, various vehicle offset crash tests, and the comments, NHTSA is adopting the rear impact test procedure as proposed. The final rule replaces Standard No. 301's current rear impact test procedure with one that specifies striking the rear of the test vehicle at  $80 \pm 1$  km/h (50 mph) with a 1,368 kilogram (3,015 pound) MDB at a 70 percent overlap with either side of the test vehicle. The MDB face is located 50 millimeters (2 inches) lower than the face of the Standard No. 214 barrier to simulate pre-crash braking.

The agency is not adopting DC's recommended impact speed of 56–64 km/h for the reasons stated in the NPRM. Namely, the agency believes that the upgraded test procedure will simulate a type of rear vehicle-to-vehicle collision that can result in post-crash fire in an otherwise survivable crash: a high speed offset rear strike to the vehicle that results in fuel leakage from a breach in the fuel system and, potentially, a rapidly spreading fire that results in fatalities and injuries. As NHTSA noted in the NPRM, NASS estimates show that the majority of fatal and nonfatal occupant burn injuries in rear impact crashes were in the 34 to 48

<sup>21</sup> The NTEA represents second-stage manufacturers, most of whom are small businesses.

<sup>22</sup> The NTEA submitted several conformity statements from first-stage manufacturers as evidence that the certification responsibilities of second-stage manufacturers would change as a result of this rulemaking.