

The Truck Trailer Manufacturers Association is pleased that the recent Insurance Institute for Highway Safety tests have demonstrated that rear impact guards installed on current production trailers are performing well in preventing underride and are greatly increasing the chances of occupant survival in this type of crash. TTMA members have appreciated the opportunity to observe some of the IIHS tests and look forward to analyzing the crash test data in detail when it is released. TTMA supports research initiatives that seek effective ways to reduce injuries and deaths in accidents involving motor carriers, including crashes into the rear of trailers.

This type of accident usually involves serious driver error, so TTMA notes first that the rules already in place to prevent these accidents must be followed, including regulations against speeding or driving while impaired or distracted. Proper maintenance of vehicle lighting equipment is also critical, both for passenger vehicle headlights and trailer tail lights and reflective tape. In addition, the rear impact guards that are installed on trailers must be maintained as required by DOT regulation and not ignored or poorly repaired when damaged.

Beyond these requirements, the shared goal must be to make sure that any new regulation that might result from the recent IIHS testing initiative and its 2011 petition for rulemaking is actually effective and does not cause unintended consequences.

Past studies by the National Highway Traffic Safety Administration have shown that serious injuries and deaths can occur in rear crashes due to the sudden forces of deceleration that are imposed on the occupants even without underride. These forces will necessarily increase if guards are made more rigid. As shown in the IIHS data released along with its 2011 petition for rulemaking, fatalities have continued to occur in rear collisions even without excessive underride. Ongoing research sponsored by the DOT of light vehicle crashes into the rear of trailers also indicates that a substantial number (nearly half) of reported fatalities are occurring without any underride past the windshield of the impacting vehicle.

The potential for more fatalities in crashes of this type will go up as guards are made more rigid. An unbelted front-seat occupant who strikes a dashboard and is merely injured in a rear-end collision would strike that dashboard with a greater and possibly fatal force if the trailer's rear impact guard is made rigid. An unbelted rear-seat occupant who strikes the seatback in front of him would strike that seatback with greater force if the trailer's rear impact guard is made rigid. A neck strain could become a neck fracture as a result. Even the belted occupants who are not being injured in rear-end collisions now will also face greater risks of deceleration-induced injury if guards are made rigid. These are real world scenarios, and for this reason NHTSA has previously rejected rigid guards.

The differing US and Canadian regulations are themselves evidence of the complex challenge of defining an optimum rear impact guard for the many types of crashes that can occur. These differing regulations are based on dozens of crash tests run by US and Canadian researchers that are not mentioned in the IIHS news release. The new crash tests by IIHS will add to the accumulated knowledge about the risks of underride injuries, but they have not led IIHS to propose any specific strength or energy absorption criteria for rear impact guards – only the general IIHS opinion that guards should be more rigid, particularly at outboard locations.

If more rigid guards are going to be proposed again, all of the consequences must be considered. Any suggestion that adding strength to the outboard locations or adding corner structures to rear impact guards will save lives in offset crashes may seem intuitively correct and may be validated in one crash test scenario, but the analysis must also consider the potential for deceleration-induced injuries and deaths in all types of rear crashes into those same proposed guards, whether center strikes or offset strikes, involving large or small striking vehicles, or colliding at high or low speeds. The analysis must also include a reliable determination of the actual frequency at which offset collisions are occurring, the speeds involved, and the resulting injuries. This data will be essential for evaluating the potential benefits and risks created by any proposal to strengthen guards at the outboard locations.

NHTSA already requires that guards be capable of resisting loads of at least 11,240 pounds at the defined outboard locations. That is over five tons of load-bearing capability at locations on the horizontal guard component outside of the vertical struts. So while the guards tested by IIHS did not all prevent excessive underride in the extreme offset collision scenario involving a 35mph non-braking collision, the guards did provide in excess of that federally required load resistance. This load requirement was based on DOT research that can now be re-evaluated in light of the recent IIHS test data to assess the effects of any proposed alternative for strengthening guards at those locations. TTMA looks forward to continued participation in this evaluation process.