

July 15, 2022

The Honorable Steven S. Cliff, Administrator
National Highway Traffic Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue SE
Washington D.C. 20590

Dear Administrator Cliff:

Please accept this as a Petition for Reconsideration of the recently released National Highway Traffic Safety Administration, 49 CFR Part 571, Docket No. NHTSA-2022-0053, RIN 2127-AL58, Federal Motor Vehicle Safety Standards; Rear Impact Guards, Rear Impact Protection Final Rule.

As we have appealed to NHTSA numerous times in the last seven years, we again appeal to you to revise the Rear Impact Guard Rule to require a stronger level of underride protection proven technically feasible by the Insurance Institute for Highway Safety (IIHS). The IIHS, through its crash testing research identified two major problems with the guards produced by the manufacturers to meet the U.S. and Canadian standards:

1. The horizontal tube was not able to prevent underride and passenger compartment intrusion when collisions occurred when the impacting passenger vehicle was at a 30% offset position to the rear of the trailer.
2. The attachments to the trailer were too weak.

We are disturbed that these issues were not adequately addressed by NHTSA in the Final Rule.

Of great concern is the fact that NHTSA's rationale for *not* making these common sense updates is largely based on their conclusion that the 30% offset crashes at the outer edges of the trailer are less frequent than at 50% and 100% overlap -- despite the fact that they received many Public Comments disagreeing with their conclusion. NHTSA repeats this opinion in the regulatory analysis at least nine times, including here:

This finding was of key concern because full and 50 percent overlap crashes are more frequent than low overlap (30 percent or less) crashes. NHTSA seeks not to amend FMVSS No. 223 in a manner that could reduce safety in the more frequent crash conditions.

Yet, NHTSA's own data and conclusions on "corner impacts," elsewhere, are at odds with the information presented in the rear impact guard final rule:

Passenger compartment intrusion is more prevalent in corner impacts than in center impacts for any type of underride guard. For trailers with FMVSS-compliant guards that

were impacted in the corner, there were 13 cases of severe or major intrusion, out of 66 total crashes where this information was recorded (13 of 66 = 19.7%). By comparison, there were seven center impacts with severe or major intrusion, out of 115 total crashes where this information was recorded (7 of 115 = 6.1%).

The difference in the two proportions can be tested according to a binomial test. The statistical test is highly significant ($p\text{-value} < 0.01$), meaning that the result is not likely to be a chance occurrence owing to a small amount of data.

It can be said that the center portion of the underride guard resists passenger compartment intrusion better than do the edge portions of the underride guard. FMVSS 223 requires a greater amount of force to be resisted near the center of the guard (locations P3 in Figure 2), compared to the edges (locations P1 in Figure 2). (NHTSA 2010, [The Effectiveness of Underride Guards for Heavy Trailers](#). Report Number: DOT HS 811 375. Washington, DC, p. 29).

In simple layman terms, whether or not the 30% offset crashes are less *frequent* than at the other locations, they are certainly more *severe* and likely to lead to debilitating injuries and deadly tragedies. In fact, the severity of low overlap can be substantial even in low energy/low closing velocity collisions (aka, minor crashes can result in major injury when they are low overlap into a trailer's rear guard). Certainly the Department's National Roadway Safety Strategy would take these facts into account and ensure that these unacceptable deaths are appropriately addressed with available and proven technology.

As one very clear example of the life & death difference which the TOUGHGuard level of strength can make, consider the 2017 truck crash in which Terry Rivett rear-ended a Stoughton improved rear guard at 45-50 mph and walked away from the crash. Had it been one of the older Stoughton guards which met the Canadian standard, he undoubtedly would have been added to the FARS statistics for 2017 rear underride fatalities.



In fact, a NHTSA employee, who is actively involved in the underride rulemaking process, [attended](#) the Underride Roundtable on May 5, 2016, at IIHS at which a Stoughton improved

guard (at [no added weight or cost](#) to their customers) was [crash tested](#) successfully in front of 84+ attendees. Stoughton Trailers is justifiably proud of their success and were delighted to receive news of a life subsequently spared due to their engineering efforts -- as one can see by their [public announcement](#) of this to-be-celebrated occurrence.

Likewise, Great Dane, another one of the major trailer manufacturers, is proud of their commitment to safety as evidenced by this press release:

The RIG30 protects both personnel and impacting vehicle, in the event of a centered impact, but also extends safety out across the horizontal length of the guard to help mitigate vehicle under ride and other collisions.

Great Dane approached its redesign by looking at the whole guard and attachment as an entire system – developing and testing more than 60 iterations, which included both structural and material improvements. It was a lesson in energy absorption and structure strength, as an impact at a single point on the guard impacts the entire structure of the trailer.

The result was the new RIG30 that sports a fundamentally-changed horizontal member, vertical guards with deepened reinforcements and secured attachments, strengthened materials throughout, and tweaks to the guard's geometry to meet and exceed both American and Canadian trailer rear impact standards.

RIG30 will be standard on all Great Dane trailers beginning in late 2017. Taking safety even further, the traditional bolt-on design of the RIG30 will allow Great Dane to offer a retrofit option for 2007 and later model trailers. No other trailer manufacturer offers a retrofit back to 2007 models. <https://greatdane.com/impacting-safety/>

However, it should also be noted that there are [other manufacturers](#), who are not offering their stronger guard as Standard. Thus, by refusing to revise the December 2015 NPRM to the TOUGHGuard proven level of strength, NHTSA has demonstrated an unwillingness to require that all manufacturers install these stronger guards as Standard on new trailers. To state the obvious, the result is that manufacturers may continue to offer these guards as an Option, thereby allowing the ongoing production of trailers -- into the future -- with guards having a known unreasonable risk of Death By Underride.

Additionally, it should be noted that the Insurance Institute for Highway Safety has repeatedly submitted to NHTSA valid concerns about their conclusions regarding underride crash data and cost effectiveness of potential underride regulations. This includes the following documents:

- [IIHS Clarification of 1996 NHTSA Misunderstanding](#) - a comment pointing out NHTSA's error in estimating the size of the underride problem
- [A Photograph-Based Study of the Incidence of Fatal Truck Underride Crashes in Indiana, 1997](#) - a research report illustrating how FARS doesn't capture the full extent of underride in fatal crashes

- [Evaluation of US Rear Underride Guard Regulation for Large Trucks Using Real-World Crashes, 2010](#) - Matthew Brumbelow's analysis of the LTCCS data; 30% of the crashes with underride were narrow offsets
- [IIHS Comment on NHTSA Study of Effectiveness of Underride Guards Report, 2010](#)
- [IIHS Petition for Underride Rulemaking, 2011](#) - the petition for rulemaking that we submitted back in 2011 and to which the NPRM and final rule partly respond
- [IIHS 2016 Public Comment on the 2015 Rear Impact Guard NPRM](#) - IIHS comments on the NPRM that resulted in the 2022 final rule

It is truly unfortunate that these thoroughly-researched and documented analyses appear to have been summarily dismissed. Perhaps, if the Advisory Committee on Underride Protection (ACUP) had already been established prior to the publication of the Final Rule, a different outcome could have been realized. Therefore, it is our petition that the above-mentioned concerns be reconsidered by NHTSA and that the ACUP be allowed the opportunity to provide input before this rulemaking is finalized.

The undersigned hereby indicate their objections to the [Final Rule](#) as published and seek reconsideration of NHTSA's decision on this matter of life and death.

Respectfully,

Jerry and Marianne Karth

Aaron Kiefer

Eric Hein

Lois Durso-Hawkins

Andy Young

Garrett Mattos