August 25, 2022

The Honorable Dr. Steven Cliff, Administrator
The Honorable Ann Carlson, Chief Counsel
National Highway Traffic Safety Administration
1200 New Jersey Avenue, SE
Washington, D.C. 20590

PETITION FOR RECONSIDERATION

Of The Final Rule On

Federal Motor Vehicle Safety Standards; Rear Impact Guards, Rear Impact Protection
Published at 87 Federal Register 42339, July 15, 2022, Docket NHTSA-2022-0053

This is a petition for reconsideration of the Final Rule promulgated by National Highway Traffic Safety Administration (NHTSA or Agency) revising Federal Motor Vehicle Safety Standards 223 and 224 to address rear underride protection in crashes of passenger vehicles into trailers and semitrailers (Final Rule).[1]

This petition is filed by Advocates for Highway and Auto Safety (Advocates), Truck Safety Coalition (TSC), Citizens for Reliable and Safe Highways (CRASH) and Parents Against Tired Truckers (P.A.T.T.), Petitioners, pursuant to 49 C.F.R. Part 389.35 (Oct. 1. 2015). Petitioners renew their concerns contained in comments submitted to the Notice of Proposed Rulemaking (NPRM) and attached to this Petition and delineate below the reasons why the Final Rule is not in the public interest.[2]

The Truck Safety Coalition is a partnership between CRASH and P.A.T.T. TSC is dedicated to reducing the number of deaths and injuries caused by truck-related crashes, providing compassionate support to truck crash survivors and families of truck crash victims, and educating the public, policymakers, and the media about truck safety issues.

Advocates for Highway and Auto Safety (Advocates) is a coalition of public health, law enforcement, safety and consumer organizations, insurers and insurance agents that promotes highway and auto safety through the adoption of federal and state laws, policies and regulations. Advocates is unique both in its board composition and its mission of advancing safe vehicles, safe motorists and road users, and safe surface infrastructure.

Recent Regulatory and Legislative History

On December 16, 2015, FMCSA issued a NPRM to revise federal motor vehicle safety standards (FMVSS) 223 and 224 to address underride crashes.[3] Section 23011 of the Infrastructure Investment and Jobs Act (IIJA) enacted into law on November 15, 2021, required NHTSA to

[1] 87 FR 42339 (Jul. 15, 2022).
[2] *See* comments from Advocates for Highway and Auto Safety and Truck Safety Coalition attached hereto as Appendix A.
[3] 80 FR 78418 (Dec. 16, 2015).

update FMVSS 223 and 224 to address underride crashes within one year of enactment of the legislation.[4] The Agency issued the Final Rule which is the subject of this Petition on July 15, 2022.[5]

Fatal Truck Crashes Continue to Occur at an Alarmingly High Rate.

In 2021, over 5,600 people were killed in crashes involving a large truck.[6] Since 2009, the number of fatalities in large truck crashes has increased by 66 percent.[7] Additionally, nearly 147,000 people were injured in crashes involving a large truck in 2020.[8] Sadly, hundreds of lives are lost each year when a passenger vehicle strikes the rear of a tractor-trailer.[9] The cost to society from crashes involving large trucks and buses was estimated to be $163 billion in 2019, the latest year for which data is available.[10] When adjusted solely for inflation, this figure amounts to over $180 billion.[11] According to the U.S. Department of Labor, truck driving is one of the most dangerous occupations in the United States.[12]

The Final Rule

The Final Rule issued by NHTSA is fatally flawed as it failed to consider relevant available data on underride crashes as well as testing performed by the Insurance Institute for Highway Safety (IIHS) demonstrating that requiring guards prevent underride during a 30 percent overlap crash meets the requirements of 49 USC 30111.

The Final Rule Failed to Consider All Available Data Involving Underride Crashes

Current federal law dictates that "when prescribing such standards, the Secretary must, among other things, consider all relevant, available motor vehicle safety information."[13] Despite this clear statutory requirement, NHTSA relied on a single 2013 research study conducted by the University of Michigan Transportation Research Institute (UMTRI) as its sole source for data involving underride crashes in promulgating the Final Rule.[14] Underride crashes are routinely

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4 Pub. L. 117-58 (2021).

5 87 FR 42339 (Jul. 15, 2022).

6 Traffic Safety Facts: Crash Stats; Early Estimates of Motor Vehicle Traffic Fatalities and Fatality Rate by Sub-Categories in 2021, NHTSA, May 2022, DOT HS 813 298.

7 *Id*. and Traffic Safety Facts 2019: A Compilations of Motor Vehicle Crash Data, NHTSA, Aug. 2021, DOT HS 813 141. Note, the 66 percent figure represents the overall change in the number of fatalities in large truck involved crashes from 2009 to 2021. However, between 2015 and 2016 there was a change in data collection at U.S. DOT that could affect this calculation. From 2009 to 2015 the number of fatalities in truck involved crashes increased by 21 percent and between 2016 to 2021, it increased by 20 percent.

8 Traffic Safety Facts, 2020 Data: Large Trucks, NHTSA, Apr. 2022, DOT HS 813 286.

9 IIHS, Fatality Facts, Large Trucks.

10 2021 Pocket Guide to Large Truck and Bus Statistics, FMCSA, Dec. 2021, RRA-21-004.

11 CPI Inflation Calculator, BLS, available at https://www.bls.gov/data/inflation_calculator.htm.

12 U.S. Department of Labor, Bureau of Labor Statistics, National Census of Fatal Occupational Injuries in 2020, USDL-21-2145 (Dec. 16, 2021).

13 49 U.S.C. 30111(b)

14 Blower and Woodroofe. 2013. Heavy-vehicle crash data collection and analysis to characterize rear and side underride and front override in fatal truck crashes. Report no. DOT HS-811-725. Washington, DC: National Highway Traffic Safety Administration.

underreported for a variety of factors.[15] In fact, IIHS recommended NHTSA improve its underride data collection efforts as far back as 1992.[16] The National Transportation Safety Board (NTSB) has also made several recommendations to NHTSA to improve the data involving underride crashes that remain open.[17] In addition, peer-reviewed, academic research has indicated that underride crashes are chronically underreported.[18] Therefore, in order to conduct an accurate analysis of costs and benefits of enhancing underride guards, NHTSA should have reviewed more than one academic study. Estimates vary, but sound methodology exists sufficient to justify underreporting consistently occurring from a factor of two to six.[19] Yet, no such range is used by NHTSA in its cost-effectiveness analysis rendering this part of the Final Rule inaccurate.

The Government Accountability Office (GAO) displayed a high level of concern regarding NHTSA's lack of underride data in its 2019 Truck Underride Guards Report:

> Stakeholders we interviewed told us that underride crash fatalities are likely underreported in FARS due to several factors, such as variability across states in defining underride crashes, inconsistencies in state crash reporting forms and documentation methods, and limited information provided to state and local police on how to consistently identify and record underride crash data. These factors could contribute to police officers incorrectly and inconsistently documenting underride crash data on the crash report form. As a result, FARS analysts may not have sufficient information to properly categorize the crash as an underride, ultimately affecting the number of underride crash fatalities identified in FARS. Standards for Internal Control in the Federal Government notes that management should use quality information to achieve the entity's objectives. **Underreporting of underride crashes would affect the quality of NHTSA's data, thereby affecting the agency's ability to accurately identify the magnitude of underride-related crashes and limiting its ability to make informed decisions on rulemaking or other efforts that would help the agency meet its mission to improve traffic safety** (emphasis added).[20]

GAO issued a 2019 recommendation to have underride crashes clearly defined and a required data element in the Model Minimum Uniform Crash Criteria (MMUCC) Guidance.[21] Currently, the MMUCC still does not require underride crash data. Despite not having reliable data, NHTSA chose to rely on a single study for its rulemaking, a study that readily acknowledges its limitations:

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[15] Fleming et al. 1992. Status Report, Vol 27, No.9: Death Count May Be Too Low. Arlington, VA 22201: Insurance Institute for Highway Safety.

[16] *Id.*

[17] NTSB Safety Recommendations H-14-005. H-14-006 and H-14-007.

[18] Braver E.R., Cammisa M.X., Lund A.K., Early N., Mitter E.L., and Powell M.R. 1997a. Incidence of Large Truck Passenger Vehicle Underride Crashes in Fatal Accident Reporting System and the National Accident Sampling System, 76th Annual Meeting of the Transportation Research Board, Washington DC, 1997a.

[19] *See*: Braver et al. 1997b, Brumbelow, ML. 2012, and Padmanaban, J. 2013.

[20] Government Accounting Office. 2019. Truck underride guards: Improved data collection, inspections, and research needed. GAO-19-264.

[21] *Id.*

> It would, of course, be most reliable to extract the data from on-scene investigation, but on-scene investigation of roughly 7,500 fatal crashes across the U.S. is not feasible. **Instead, the survey relied on police reports,** other investigations of the crashes, and interviews with involved parties (emphasis added).

The 2019 Underride GAO report points out the problem with relying on police reports to quantify underride crashes: "police officers responding to a crash do not use a standard definition of an underride crash and states' crash report forms vary, with some not including a field for collecting underride data. Further, police officers receive limited information on how to identify and record underride crashes[22]." **In fact, two state police departments told the GAO that they don't collect underride data because "underride crashes are not a traffic safety priority for them" (***emphasis added*). In 2019 the GAO recommended that NHTSA develop informational material and train state and local officials in how to identify and record underride crashes, a task NHTSA has yet to complete.

It should also be noted that UMTRI researchers utilized the Fatality Analysis Reporting System (FARS) as the foundation for their survey research. UMTRI reported that "it can be difficult or impossible to identify underride in available computerized crash data files, such as FARS."[23] NHTSA's data validation contractor cast skepticism on the accuracy of underride counts in FARS saying, "they have identified anomalous patterns in underride crash data in FARS."[24] As such, NHTSA failed to meet the requirements of 49 U.S.C. 30111(b) by basing the entirety of rear underride federal rulemaking analysis on a single study rather than the additional data noted above.

Current Industry Practices and Independent Testing Demonstrate that the Performance Standard Adopted in the Final Rule is Inadequate

In 2011, IIHS released testing results indicating that many underride guards performed poorly.[25] In 2017, IIHS instituted its TOUGHGUARD award for trailers with guards that prevent underride during three different scenarios.[26] Those include when the full width of the vehicle collides with the guard, a 50 percent overlap with the guard and a 30 percent overlap with the guard.[27] Currently, nine North American trailer manufacturers, including the eight largest, have earned the TOUGHGUARD award for some or all of their trailers.[28] This means that manufacturers representing approximately 80 percent of the market are achieving the award. In addition, Stoughton indicates that its award winning guard does not result in an added weight, negative impact on aerodynamics or additional costs.[29] As such, in 2021, after years of inaction

[22] *Ibid.*
[23] Blower, D., Woodrooffe, J., Page, O., Analysis of Rear Underride in Fatal Truck Crashes, 2008. (Ann Arbor, MI: US DOT HS 811 652, 2012).
[24] Government Accounting Office. 2019. Truck underride guards: Improved data collection, inspections, and research needed. GAO-19-264.
[25] IIHS. Truck Underride Guard Ratings.
[26] *Id.*
[27] *Id.*
[28] *Id.*
[29] *See*: https://www.stoughtontrailers.com/products/rear-impact-guard

by NHTSA, Congress required the Agency to complete the underride rulemaking in the IIJA and mandated that the final rule include performance standards matching the IIHS award.[30]

Despite this clear mandate from Congress and the ample testing and data provided by IIHS, NHTSA failed to mandate in the Final Rule that the guards prevent underride during a 30 percent overlap crash. The inadequacy of NHTSA's analysis is abundantly clear when the Agency applies the standard adopted in the Final Rule to current industry operations. NHTSA estimates in the Final Rule that 94 percent of trailers and semi-trailers already meet its proposed minimum performance standard, scarcely achieving measurable progress in underride safety.[31] The Agency also notes in the Final Rule that 28 percent of new trailers already come equipped with underride guards that meet the 30 percent overlap requirement. Setting an unreasonably low standard for underride safety will diminish market demand for strong underride guards as compliance can now be achieved with substandard guards. Yet, nowhere in the Final Regulatory Examination (FRE) does NHTSA attempt to estimate the increase in deaths and injuries that will result from an increase in market demand for weaker guards that are minimally compliant with NHTSA's proposed final rule and cannot prevent passenger compartment intrusion in 30 percent overlap crashes.

Conclusion

Petitioners request a stay of the effective date of the Final Rule until the Administrator can render a decision on this Petition for Reconsideration. In sum, the Final Rule is not in the public interest and failed to properly consider available data and testing resulting in NHTSA issuing an inadequate and dangerous performance standard for underride guards.

Catherine Chase
President
Advocates for Highway and Auto Safety

Joan Claybrook
Chair
Citizens for Reliable and Safe Highways

Russell Swift
Chair
Parents Against Tired Truckers
Russ' son, Jasen, was killed instantly, as was a fellow Marine, while they drove in the dark to work in 1993, by a 17-year-old truck driver without a permit whose truck was stuck across two lanes after trying a U-turn, causing the car to drive into and under the side of the trailer, causing a fatal underride crash.

Dawn King
President
Truck Safety Coalition
Dawn's father, Bill Badger, was killed in 2004 while slowed in traffic when he was hit from behind by a truck driver who had fallen asleep at the wheel.

[30] Pub. L. 117-58, § 23011 (2021).
[31] 87 FR 42361 (Jul. 15, 2022).

Daphne & Steve Izer
Co-Chairs
Parents Against Tired Truckers
Daphne and Steve's son, Jeff, and three of his friends were killed in 1993 when a semi-truck driver fell asleep at the wheel and ran over their parked car.

Pam Biddle
Board Member
Citizens for Reliable and Safe Highways
On May 13, 2017, Pam's 23-year-old son, Aaron Lee, was in the car with his father, Brian, and Brian's partner, Stephanie Swaim. They were stopped in traffic due to a car carrier that had a brake fire and was still partially in their lane of traffic. A semi driver failed to slow down and rear-ended the Lee's car which was pushed into and under another semi in front of them resulting in a rear underride crash. The vehicles then burst into flames killing Aaron, Brian, and Stephanie.

Jane Mathis
Board Member
Parents Against Tired Truckers
On March 25, 2004, Jane's 23-year-old son, David, and his wife Mary Kathryn were killed in a truck crash in Titusville, Florida, as they drove home from their honeymoon. They had only been married for five days. David and Mary Kathryn were stopped in traffic because of an earlier wreck on I-95 when a truck driver, who had fallen asleep behind the wheel, rear-ended their car. The impact of the crash spun them around and they became wedged under the side of the same truck in a side underride crash. Their car then exploded.

Jennifer Tierney
Board Member
Citizens for Reliable and Safe Highways
On September 20, 1983, Jennifer's father, James Mooney, was killed on a dark, rural road in North Carolina when he passed underneath and through the side of the truck blocking the roadway. The truck, which was in a jackknife position, did not have working lights, reflective tape, or underride guards.

Brandy Barlow
Volunteer
Truck Safety Coalition
On the morning of October 1, 2019, Brandy's son (Douglas), daughter (Emily), and their close friend were on their way to school, driving down the highway like any other morning. A tractor-trailer made an improper left turn directly in front of their car, causing a side underride crash. All three of the kids were seriously injured. Douglas and his friend were taken to the hospital by ambulance, and Emily was airlifted to the same hospital. Emily fought like a champion for the next two days, but sadly she could not fight anymore and died. Douglas sustained severe injuries along with head trauma and their friend also suffered great injuries.

Julie Magnan Patrissi
Volunteer
Truck Safety Coalition

Julie was severely injured and her husband, David, was killed in a crash in 2002 when a semi crossed the median and collided with their car. David shoved Julie's body down to protect her, and their car was wedged underneath the side of the truck in a horrific side underride crash. David likely died on impact and Julie was pulled out of the wreckage with the "jaws of life", as most of the vehicle was trapped under the tractor-trailer. Immediately following the crash, Julie underwent emergency surgery in both Nevada and then Denver to address injuries to her ribs, spleen, and legs. She also sustained a traumatic brain injury (TBI). Julie has had numerous surgeries over the past 19 years.

Nancy Meuleners
Volunteer
Truck Safety Coalition

On December 19, 1989, in Bloomington, Minnesota, on her way home after work, Nancy encountered a semi-trailer stopped in the lane of traffic ahead of her without its emergency flashers illuminated. Although she applied her brakes attempting to stop, she was unable to stop in time and struck the rear of the trailer. The rear underride guard, which was supposed to keep her from passing underneath completely buckled and failed. Nancy came within inches of decapitation but miraculously survived the crash. Most of her lower jaw and portions of her tongue were amputated and she has since undergone over 40 surgeries.

Katie Strader
Volunteer
Truck Safety Coalition

In 2014, Katie's father, Rod Cota was traveling in a vehicle with coworkers in New York. They were unaware a semi was jackknifed and blacked out ahead on the interstate. All three in the vehicle were killed. Their vehicle passed completely under the side of the tractor-trailer. The three of them were killed instantly. Katie says it is a daily struggle to stop my mind from imagining that horrific moment of impact and seeing the remains of the vehicle that held my Daddy.

Zach Cahalan
Executive Director
Truck Safety Coalition

Appendix A

Parents Against Tired Truckers and Citizens for Reliable and Safe Highways

February 16, 2016

Filed via www.regulations.gov.

DOT Docket No. NHTSA-2015-0118
Docket Management Facility, M-30
U.S. Department of Transportation
West Building, Ground Floor
Room W12-140
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590-0001

Rear Impact Guards, Rear Impact Protections; Notice of Proposed Rulemaking
80 Federal Register 78418, December 16, 2015

These comments are filed jointly by the Truck Safety Coalition (TSC), Citizens for Reliable and Safe Highways (CRASH), Parents Against Tired Truckers (PATT) and our volunteers, who are the family and friends of truck crash victims and survivors seeking truck safety advances, in response to the National Highway Traffic Safety Administration's (NHTSA, agency) publication of a Notice of Proposed Rulemaking (NPRM, notice) requesting comment on the proposals to upgrade the Federal Motor Vehicle Safety Standards (FMVSS) that address rear underride protections in crashes into trailers and semitrailers. 80 FR 78418 (Dec. 16, 2015). TSC, CRASH and PATT support action in response to the petition filed by our organization and Ms. Marianne Karth to reduce the fatalities and severity of injuries suffered by passenger vehicle occupants that strike the rear of trailers and semitrailers. Yet, this rulemaking is insufficient; NHTSA can and should do more. We have several concerns as well as suggestions to this rulemaking that we will outline in these comments.

TSC supports proposals to strengthen rear impact guards, but in its current form, NHTSA's proposal is too little, too late. Most trailers and semitrailers are already required to have rear impact guards, and most of those trailers and semitrailers already have protections that exceed the existing minimum U.S. standards. These bars, which hang down from the back of the trailer, are only required to remain in place and prevent Passenger Compartment Intrusion (PCI) in crashes of severities of up to 30 mph, and often do not prevent PCI in rear end truck collisions where overlap occurs. This rulemaking would make these rear impact guards more robust by changing FMVSS No. 223 (Rear impact guards) and FMVSS. No 224. (Rear impact protection) to conform to the Canadian Motor Vehicle Safety Standard (CMVSS) 223.[1] In turn, this would require new trailers to have rear impact guards to remain in place and prevent PCI in crashes of severities of up to 35 mph.

[1] 80 FR 78418 (Dec. 16, 2015)

Yet, mandating this Canadian standard will be nothing more than a hollow victory. Ninety-three percent of new trailers sold in the United States exceed the Canadian standard,[2] and the agency has denied the request to require existing trailers to be retrofitted because of high costs (discussed below). Furthermore, there are trailer manufacturers that have tested guards that far exceed the CMVSS force requirement; in particular, the Wabash guard did so by 70 percent.[3] Given that many trailers already meet or exceed CMVSS 223 requirements, more effective rear impact protections are available today, and even more promising next generation guards are on the horizon, we urge NHTSA to promulgate a rulemaking that goes beyond minimal action for the sake of good publicity for itself and the industry. Failure to do so will result in a rule that will be antiquated the first day it is enforced.

Additionally, in catastrophic crashes, rear underride collisions bypass crumple zones and prevent air bag deployment – both vital safety advances in improving protection of passenger vehicle occupants during crashes. Of the fatal collisions between large trucks and passenger vehicles during 2013, NHTSA reported that large truck rear impacts comprised 20 percent.[4] Because the requisite guards are insufficient to produce a good safety result in crashes involving certain impact speeds as well as those crashes with overlap conditions, there are numerous truck crash injuries and fatalities that this rulemaking, in its current form, will not prevent.

The agency did not address the 74 percent of crashes at speeds exceeding 35mph,[5] just one of several missed opportunities. NHTSA also failed to improve upon a past error, excluding wheels back trailers from FMVSS 224. The agency could have and should have used this rulemaking to include this type of trailer, which, according to NHTSA, account for 20 percent of fatal light vehicle impacts into the rear of trailers.[6] Additionally, the agency denied our request to mandate guards that offer sufficient protection in crashes where there was overlap, which often occur in the aforementioned catastrophic collisions. Given that the agency itself found that overlap occurs in 40 percent of all fatal collisions involving a light vehicle crashing into the rear of trailers,[7] NHTSA should reevaluate its position that enhancing protections for more than one third of light vehicle underride crashes would not benefit safety. We firmly believe that the agency's analysis of this rulemaking is incomplete and falls short of enacting meaningful safety reforms.

The data used to determine the benefit of requiring underride guards on trailers and semitrailers is seriously flawed and of great concern. The target population, identified as light vehicle impacts to the rear of trailers and semitrailers that result in PCI with impacts speed of 35 mph or less, itself contains several problems. The identification of PCI occurrences relies on data collected from police reports and the Fatality Analysis Reporting System (FARS), yet neither typically include reporting of intrusion.

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[2] *Id.*
[3] Insurance Institute for Highway Safety (IIHS), *Petition for Rulemaking, 49 CFR Part 571 Federal Motor Vehicle Safety Standards; Rear Impact Guards; Rear Impact Protection,* pg. 2 (Feb. 2011) (IIHS Petition).
[4] National Highway Traffic Safety Administration. 2015. "Traffic Safety Facts: Large Trucks, 2013." Washington, DC: US Department of Transportation. http://www-nrd.nhtsa.dot.gov/Pubs/812150.pdf
[5] 80 FR 78450
[6] 80 FR 78427
[7] 80 FR 78431

As a result of this faulty data collection process, the NHTSA undercounted the net benefits of this proposed rule ($2.8 million to $3.5 million) by undercounting the deaths and injuries that would have been prevented under the proposed standard,[8] thereby undercounting the Value of Statistical Life (VSL) savings used in calculating the net benefit. For that same reason, NHTSA overestimated the net cost of expanding this proposed rule to require older trailers be retrofitted with CMVSS No. 223 compliant guards (-$375 million to -$414 million).[9]

Unfortunately, the data collection is just one of several flaws with this NPRM; another error is the agency's reasoning for allowing guard testing on fixed structures, rather than an actual trailer under this rule. By trying to cut costs, NHTSA is actually just cutting corners at the expense of public safety. The agency argues that, if anything, testing on a rigid structure will better identify the strength of the guards since the guard would absorb the entire force upon impact as opposed to the guard and the trailer absorbing the force of the crash.[10] Yet, this logic misunderstands the point of the testing, which is to simulate a real world scenario. In a real life rear end collision with a truck, especially those where overlap occurs, a car will strike a guard attached to a trailer, which may deform, and not a fixture. NHTSA should be testing these guards in the most realistic way possible, even if the process is more costly.

In conclusion, TSC, CRASH, and PATT support efforts that will reduce large truck crash injuries and fatalities by requiring improving the rear guards and rear protections on trailers and semitrailers. In moving forward, however, NHTSA should reevaluate its cost/benefit analysis as it undercounts the instances of PCI crashes and derives the data for estimated relative velocity from inconsistent, unreliable sources, resulting in data that underestimates the net positive safety effects of stronger rear underride guards. We also urge the agency to reconsider their positions on exempting existing trailers, testing of guards, and addressing protections in overlap crashes.

The United States should be a leader on safety. Trying to address a 50 year old problem by replacing a 20 year old standard with a 10 year old one is not a logical approach.

[8] Preliminary Regulatory Evaluation of Rear Impact Guards, Rear Impact Protections Notice of Proposed Rulemaking, Cost Effectiveness and Benefit-Cost, p. 63, section 7.D, Summary, NHTSA (Sep. 2015) (NPRM PRE)
[9] 80 FR 78437
[10] 80 FR 78430

February 16, 2016

Docket NHTSA-2015-0118
Docket Management Facility (M-30)
U.S. Department of Transportation
West Building
Ground Floor, Room W12-140
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Washington, D.C. 20590-0001
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Rear Impact Guards, Rear Impact Protection
Notice of Proposed Rulemaking
80 Federal Register 78418, December 16, 2015

Advocates for Highway and Auto Safety (Advocates) files these comments in response to the National Highway Traffic Safety Administration's (NHTSA, agency) notice of proposed rulemaking (NPRM) to upgrade Federal Motor Vehicle Safety Standard (FMVSS) No. 223, *Rear Impact Guards,* and FMVSS 224, *Rear Impact Protection.*[1] Advocates supports the proposal to upgrade and improve rear underride protection in crashes of light motor vehicles into the rear of truck trailers and semitrailers taken in response to petitions for rulemaking filed by the Insurance Institute for Highway Safety (IIHS) and jointly by the Truck Safety Coalition (TSC) and Ms. Marianne Karth (Karth).[2] Advocates has a long history of involvement on this issue, having first filed comments urging NTHSA to require underride guards on large trucks over two decades ago.[3] However, while supportive of the long overdue proposal to upgrade truck rear impact protection, the NPRM is deficient in several critical aspects which will severely curtail the effectiveness of the proposed rule to save lives and prevent serious injuries.

Truck Crashes are a Serious Threat to Public Safety

Fatalities and serious injuries resulting from truck crashes continue to occur at an alarming rate. According to the latest statistics from NHTSA, 3,964 people were killed and 95,000 people were injured in crashes involving large trucks in 2013.[4] In the previous 10 years (2004-2013), more than 43,000 people were killed and nearly one million were injured in crashes involving large trucks.[5] Every year on average, over 4,000 people are killed and nearly 100,000 are injured in

[1] 80 FR 78418 (Dec. 16, 2015).
[2] *Id.*
[3] See attached comments from Advocates, dated June 8, 1992, filed in NHTSA Docket No. 01-011, Notice 9 (Advocates 1992 Comments).
[4] Traffic Safety Facts 2013: A Compilation of Motor Vehicle Crash Data from the Fatality Analysis Reporting System and the General Estimates System, NHTSA, DOT HS 812,139, Table 11, pp. 38-39, (2013 FARS Annual Report).
[5] *Id.*

large truck crashes.[6] Of those killed in 2013, 72 percent were occupants of other vehicles in crashes involving large trucks, 11 percent were non-occupants (pedestrians, pedalcyclists, etc.), and 17 percent were occupants of large trucks.[7] Large truck crash fatalities increased again from 2012 to 2013.[8] This follows a 9 percent increase in 2010, a 3 percent increase in 2011 and a 4 percent in 2012, for a combined increase in large truck involved crash fatalities of 17 percent since 2009, while the overall number of traffic fatalities for all motor vehicles declined by 3 percent over that same time.[9] Similarly, the number of people injured in large truck involved crashes increased by 28 percent since 2009 while the total number of people injured in all traffic crashes only increased by 4 percent.[10] The agency acknowledges that as many as 72 people are killed in crashes into the rear of truck trailers.[11] The NHTSA must do all it can to reduce these grim statistics. Yet, several provisions of the agency's proposal to strengthen the protections for motorists involved in underride crashes are woefully in adequate.

The NHTSA Underestimates the Safety Benefits of the NPRM

The Preliminary Regulatory Evaluation (PRE) for this NPRM excludes numerous crashes in which an upgraded underride guard would ameliorate the crash, save lives and prevent injuries, based on faulty estimation of the speed of the vehicles involved. As noted above, the PRE states that annually there are 72 light vehicle occupant fatalities in crashes into the rear of trailers with rear impact guards with passenger compartment intrusion (PCI).[12] The agency further notes that approximately 26 percent of these crashes occur at speeds of 35 miles-per-hour (MPH) or less.[13] This suspect assumption curtails the number of crashes where an upgraded rear impact guard could prevent a death or serious injury to a vehicle occupant based on a distribution of impact speed estimates from the Large Truck Crash Causation Study (LTCCS).[14] However, speed estimates in underride crashes are notoriously inaccurate. In fact, the agency notes that the LTCCS could only estimate impact speeds for 30 percent of the data that was studied.[15] The 2013 study performed by the University of Michigan Transportation Research Institute (UMTRI) included 977 total rear end crashes involving a fatality with 563 cases of light vehicles impacting the rear of the truck.[16] Only 193 of those crashes were able to be analyzed to produce a speed estimate.[17] Additionally, only a portion of these 193 crashes were used to estimate the speed of a vehicle when it impacted a truck towing a trailer.[18] The reliance on these suspect estimates

[6] *Id.*
[7] *Id.*
[8] *Id.*
[9] *Id.*
[10] *Id.*
[11] 80 FR 78435.
[12] *Id.*
[13] *Id.*
[14] *Id.*
[15] 80 FR 78450-51.
[16] Blower D, Woodrooffe J, *Heavy-Vehicle Crash Data Collection And Analysis to Characterize Rear and Side Underride and Front Override in Fatal Truck Crashes*, The University of Michigan Transportation Research Institute, Report No.: DOT HS 811 725 (Mar. 2013).
[17] *Id.*
[18] *Id.*

significantly reduced the agency's estimate of the number of crashes and occupants that could be aided by the upgrade in rear protection guards. The estimated fatality benefits in the PRE could, therefore, be viewed as a lower bound of the range of potential fatalities that could be averted based on the analysis of vehicle speed. Thus, NHTSA is underestimating the lives and injuries that can be saved by this critical agency action.

The NHTSA Should Adopt Current Optimal Standards for Underride Guards That Are Already in Use

The NHTSA's estimates of the lives saved and injures prevented by the upgrades proposed in the NPRM also show that the agency is not adopting state-of-the-art standards that are currently available and that have the potential to maximize safety benefits in terms of lives saved and injuries ameliorated. In response to the petitions for rulemakings filed by IIHS, TSC and Ms. Karth, the agency proposes to adopt the requirements of Canada Motor Vehicle Safety Standard (CMVSS) 223 that was issued in 2005 and went into effect in 2007.[19] The NPRM notes that the requirements of CMVSS 223 "are intended to provide rear impact guards with sufficient strength and energy absorption capability to protect occupants of compact and subcompact passenger cars impacting the rear of trailers at 56 km/h (35 mph)."[20] FMVSS 223 and 224 are intended to protect occupants in crashes at 48km/h (30 mph).[21] However, test results show that truck underride guards that exceed the CMVSS standard are already in use.

In order to investigate the issues involving the most common failures of underride guards, IIHS notes in its petition that it conducted a series of six crash tests to evaluate the performance of three guards. The guard manufactured by the Wabash National Corporation exceeded the requirements CMVSS 223 at one of the test locations by 70 percent.[22] The IIHS petition states that "if all underride guards were as strong as that on the Wabash trailer, it is likely that many of the underrides with large overlaps in the LTCCS (13 of 22 failures of FMVCSS 224-compliant guards) would have been prevented and the vehicle occupants protected by crashworthiness built into modern vehicles."[23] In fact, IIHS points out that "if that strength was extended to the ends of the underride guards, the protection against underride would have been enhanced for the other 9 LTCCS crashes."[24] The NPRM, however, proposes only to upgrade the FMVSS issued nearly 20 years ago,[25] with a Canadian standard issued over a decade ago, rather than adopting higher, more stringent standards that are currently available in the marketplace and that have been shown to have superior performance capabilities and the potential to significantly reduce occupant deaths and injuries in underride crashes.

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[19] 80 FR 78421.
[20] *Id*. at 78418.
[21] *Id.*
[22] Insurance Institute for Highway Safety (IIHS), *Petition for Rulemaking, 49 CFR Part 571 Federal Motor Vehicle Safety Standards; Rear Impact Guards; Rear Impact Protection*, pg. 2 (Feb. 2011)(IIHS Petition).
[23] *Id*.
[24] *Id*.
[25] 80 FR 78420.

Underride Guards Should be Required to Provide Better Protection to Vehicles Involved in Overlap Crashes

The NPRM does not address the need to provide optimal protection in overlap crashes where the striking vehicle only partially engages the rear underride guard. Both the IIHS and the TSC/Karth petitions urge the agency to move the P1 or outermost test location farther outboard of the guard to provide better protection to vehicles in certain types of overlap crashes. The IIHS petition notes that based on its testing, such an action would result in better performance of underride guards in crashes where there is a 30 percent overlap between the striking vehicle and trailer. The Wabash guard prevented underride of the vehicle tested in both the full overlap and 50 percent overlap crashes in the IIHS testing by transferring the crash loads to stronger/stiffer portions of the trailer. The same protection can be provided to a vehicle in a 30 percent overlap crash by moving the P1 test locations farther outboard on the guard. NHTSA, however, rejects these testing results stating that "moving the P1 location would not benefit safety overall" and noting that "underride crashes of 30 percent [overlap] or less appear to represent a small portion of the rear underride fatality problem."[26] Yet, the agency itself points out that 40 percent, more than one third, of all fatal light vehicle impacts into the rear of trailers are offset crashes.[27] Moreover, 38.7 percent of offset crashes result in "major damage to the guard."[28] In fact, these percentages are most likely much higher than stated because the agency derives these figures from the Trucks In Fatal Accidents (TIFA) database, a database that is known to consist of notoriously suspect crash data and analysis.[29] Nevertheless, it is appalling that NHTSA could determine that providing proper protection for 40 percent of underride crashes would not benefit safety. The IIHS testing, the existing Wabash guard design, and the families of individuals killed in such crashes and the victims living with lifelong injuries resulting from such crashes disagree with the agency's conclusion. The agency should adopt this reform to its testing to ensure that underride guards provide better protection to vehicles involved in this type of overlap crash.

Underride Guards Must Be Tested for Compliance Under Real-World Conditions

The IIHS petition also urges the agency to test underride guards while they are attached to a trailer, instead of a fixed object, in order to more accurately simulate an actual crash.[30] Advocates supports IIHS's position because there is ample evidence that performing such a test under real world conditions will more accurately measure the performance of the guard and its ability to save lives and prevent injuries in underride crashes that result in PCI. As noted in the NPRM, the testing performed by IIHS indicates that crash tests performed with a guard attached

[26] *Id.* at 78431.
[27] *Id.*
[28] *Id.*
[29] Advocates has consistently questioned the validity of TIFA data based on its method of collection. See Initial Brief for Petitioners at 50, *Public Citizen, Advocates for Highway and Auto Safety, Truck Safety Coalition, and the International Brotherhood of Teamsters v. Federal Motor Carrier Safety Administration,* (D.C. Cir.)(No. 09-1094)(2009).
[30] IIHS Petition, pg. 3.

to trailer resulted in deformations to the trailer.[31] Thus, significant issues with the performance of the guard and the attachment system would not be detected when the guard is attached a rigid test fixture as opposed to an actual trailer. As such, testing using a fixed object rather than a trailer bogey could well hide rear truck guard deficiencies that may not be detected and could result in a substandard system being approved for use on American roads. The IIHS testing data clearly shows that testing a rear truck guard while attached to trailer as opposed to a fixed object are not "essentially equivalent" despite the agency claims to the contrary.[32] The agency's justification, that using a guard attached to a trailer imposes higher cost burdens for trailer manufacturers, is an insufficient justification for adopting a testing protocol that has been proven to be substandard.[33] Use of non-real world test procedures could result in deficient products being placed in the stream of commerce with the stamp of approval of the federal regulator charged with ensuring the safety of the traveling public.

Wheels Back Trailers Should Not be Excluded from the Scope of Rear Impact Protection Standards

IIHS states in its petition that more than half the trucks studied in the LTCCS were excluded from compliance with FMVSS 224, and the majority of those vehicles are either single unit trucks (SUTs) or wheels back trailers.[34] According to NHTSA, 20 percent of fatal light vehicle impacts into the rear of trailers are wheels back trailers with 16 percent of those fatal crashes resulting in PCI.[35] Despite these grim statistics, the agency shockingly concludes that excluding wheels back trailers from the requirements of FMVSS 224 "may not have significant safety consequence."[36] The agency indicates that to further understand the circumstances of crashes involving wheels back trailers that result in PCI it reviewed all such known crashes in the TIFA database that occurred in 2009 and concluded that because of the excessive speeds supposedly involved with many of these crashes, an underride guard would not have prevented PCI and any corresponding death or injury.[37] As noted previously, speed estimates in underride crashes are notoriously inaccurate, and data generated in the TIFA database frequently relies on telephone interviews and post-crash interviews.[38] In addition, as is often the case in underride crashes resulting in PCI; the driver of the striking vehicle is killed depriving investigating authorities of a

[31] 80 FR 78429.
[32] *Id.*
[33] Sadly, this is not the first time that NHTSA has placed dubious cost concerns over safety when dealing with underride guards. Advocates noted in its 1992 comments that "the agency has chosen a guard design not because it is most effective…but because of the drive to reduce cost burdens to the least objectionable levels." (Advocates 1992 Comments, pg. 2).
[34] IIHS Petition, pg. 3. Advocates filed comments in September of 2015 urging the agency to require underride guards on SUTs in response to the agency issuing an ANPRM where it declined to take such action. See attached comments from Advocates filed on September 21, 2015 to DOT Docket No. NHTSA-2015-0070 (Advocates 2015 Comments).
[35] 80 FR 78427.
[36] *Id.*
[37] *Id.*
[38] Jarossi L, Hershberger D, Woodrooffe, *Trucks Involved in Fatal Accidents Codebook 2010*, The University of Michigan Transportation Research Institute, pg. v, Report No.: UMTRI-2012-30 (Nov. 2012).

critical source of information regarding the striking vehicle's speed at the time of the crash. Advocates is convinced that there is ample objective evidence and data to support eliminating the exclusion of wheels back trailers from the requirements of FMVSS 224. Such agency action would surely save lives and prevent injuries.

Conclusion

While Advocates supports the agency's effort to improve rear underride protection in crashes into trailers and semitrailers, the agency's long overdue action is deficient in several critical aspects. The agency must adopt state-of-the-art performance standards for underride guards that will provide optimal protection in overlap crashes instead of merely upgrading FMVSS 224 to meet the Canadian standard which is only slightly less outdated than the current FMVSS. In addition, the guards should be tested while attached to a trailer to better simulate real world crashes to ensure the devices are, in fact, meeting the proposed new federal standards. Finally, wheels back trailers should no longer be exempted from the requirements of FMVSS 224 as 20 percent of fatal light vehicle impacts into the rear of trailers involve wheels back trailers.

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