



U.S. Department  
of Transportation

National Highway  
Traffic Safety  
Administration

1200 New Jersey Avenue, SE  
Washington, DC 20590

November 8, 2019

The Honorable Robert L. Sumwalt, III  
Chairman  
National Transportation Safety Board  
490 L'Enfant Plaza East, SW  
Washington, DC 20594

Dear Chairman Sumwalt:

This letter follows a meeting between staff members of the National Transportation Safety Board (NTSB) and the National Highway Traffic Safety Administration (NHTSA) on June 11, 2019. At that meeting, eleven (11) safety recommendations related to truck conspicuity and underride protection systems were discussed, including: H-10-12 and 13; H-13-13 and 14; H-13-15 to 17; H13-25; and H-14-02 to 04. We appreciate the willingness of NTSB staff to meet with NHTSA staff to have thoughtful and productive discussion of these topics.

Below are NHTSA's current actions and requested classifications for each recommendation.

**NTSB Recommendations and Requested Designations:**

**H-10-12:** To improve highway vehicle crash compatibility, develop performance standards for front underride protection systems for trucks with gross vehicle weight ratings over 10,000 pounds.

**H-10-13:** After establishing performance standards for front underride protection systems for trucks with gross vehicle weight ratings over 10,000 pounds, require that all such newly manufactured trucks be equipped with front underride protection systems meeting the performance standards.

**NHTSA Action:**

NHTSA requests that safety recommendations H-10-12 and H-10-13 be classified as "**Closed-Acceptable Alternate Action**" for the following reasons:

1. ECE R.93 front underrun guards would not change the outcome of the Miami, Oklahoma crash or other higher-speed crashes involving heavy trucks: In the report supporting these recommendations, NTSB refers to ECE R.93, "Uniform provisions concerning the approval of front underrun protection devices," as a means of reducing the aggressivity of heavy trucks. These Front Underrun Protection Systems (FUPS) are intended to mitigate vehicle

underrides at crash speeds less than 40 mph. The 2009 Volvo truck in the Miami, Oklahoma crash, that was the basis for these two recommendations, weighed 40,400 pounds and was traveling at 69 mph. Front underride guards complying with ECE R.93 would not have changed the outcome of this crash or similar higher speed crashes involving heavy trucks.

2. NHTSA’s research could not identify a practical front bumper design for trucks to mitigate light vehicle occupant fatalities: NHTSA conducted extensive research on reducing heavy truck aggressivity in collisions with passenger cars in the 1990s (DOT HS 808 476 and DOT HS 808 477 available at <https://ntrl.ntis.gov/NTRL/>). NHTSA’s research showed that 70 percent of crashes between heavy trucks and light vehicles involve the front structure of the truck and that most of the fatal crashes were at speeds greater than 60 mph. NHTSA conducted crash tests simulating 40-50 mph collisions between a light vehicle and a heavy truck with modified front end to evaluate the efficacy of improved truck front bumper designs (with lower ground clearance and energy absorbing capabilities) for mitigating injury to occupants of the light vehicle. The results of the tests indicated that while lowering the truck front bumper height reduced the likelihood of override of the light vehicle, it increased the crash loads on the light vehicle and thereby increased the risk of injury to occupants in the light vehicle. The results also showed that there was no practical solution for absorbing the crash energy without substantially increasing the length of the truck.
  
3. Current truck front bumpers already have geometric crash compatibility with light vehicles: Current trucks in the U.S. are already designed with lower front ends to improve fuel economy and for meeting certain Smartway certification requirements. Most current commercial truck fleets operate with low-profile 295/75R22.5 tires which set the trucks lower by a few inches, as compared to trucks manufactured before 2010 which operated with 11R22.5 tires. As a result of the lower front ends and low-profile tires, the average ground clearance of front bumpers of current trucks is 14 inches (see the table below for example ground clearances of truck-tractor front bumpers in more recent model years). Note that the ground clearance of FUPS per ECE R.93 is 15.75 inches, which is higher than the average ground clearance of current front bumpers of truck-tractors in the U.S. The front and rear bumpers of passenger cars per 49 CFR 581 are required to be located at least between 16 to 20 inches above ground. Therefore, geometric crash compatibility between the front-end of current trucks and passenger cars in the fleet is already achieved and requiring front guards on new trucks is no longer needed.

<b>Truck Model</b>	<b>Ground Clearance of Front End Bumper</b>
2012 International Transtar	14 inches
2012 Volvo VNL 300	14 inches
2016 Freightliner M2	17 inches
2018 Freightliner Cascadia	12 inches
2018 Kenworth 680	12 inches
2017 International Prostar	14 inches
2020 Peterbilt 579	9 inches

4. **Availability of New Technologies:** Since NTSB issued these two recommendations, crash avoidance systems such as automatic emergency braking (AEB) and forward collision warning (FCW) systems are now available technologies in light and heavy vehicles with proven effectiveness for mitigating crashes (see <https://www.iihs.org/topics/bibliography/ref/2111> and [https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/812280\\_fieldstudyheavy-vehiclecas.pdf](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/812280_fieldstudyheavy-vehiclecas.pdf)). NHTSA has ongoing field operation tests for evaluating new generation AEB on heavy vehicles. NHTSA believes AEB and FCW are more effective and practical technologies for reducing front underride/override crashes than front underrun protection guards for trucks. Therefore, NHTSA is working to address NTSB recommendation H-15-05, "Complete, as soon as possible, the development and application of performance standards and protocols for the assessment of forward collision avoidance systems in commercial vehicles."

**H-13-13:** Develop performance standards for side underride protection systems for single-unit trucks with gross vehicle weight ratings over 10,000 pounds.

**H-13-14:** Once the performance standards requested in H-13-13 have been developed, require newly manufactured single-unit trucks with gross vehicle weight ratings over 10,000 pounds to be equipped with side underride protection systems meeting the performance standards.

**H-14-02:** Require that newly manufactured trailers with gross vehicle weight ratings over 10,000 pounds be equipped with side underride protection systems that will reduce underride and injuries to passenger vehicle occupants.

**NHTSA Action:**

NHTSA requests that safety recommendations H-13-13, H-13-14, and H-14-02 be classified as "**Open-Acceptable Response**" for the following reasons:

NHTSA recently concurred on a GAO recommendation that NHTSA "should conduct additional research on side underride guards to better understand the overall effectiveness and cost associated with these guards and, if warranted, develop standards for their implementation." (GAO 19-264, March 2019). As part of that effort, NHTSA is currently conducting a hard copy review of police accident reports of light vehicle crashes into the side of trailers to estimate the number of vehicle occupant fatalities in side underride crashes and the effectiveness of side guards on trucks and trailers in preventing and mitigating the severity of underride crashes involving passenger compartment intrusion. NHTSA will follow-up with an analysis of the impacts of requiring side guards on trucks and trailers which NHTSA expects to complete by September 2020.

**H-13-15:** Develop performance standards for rear underride protection systems for single-unit trucks with gross vehicle weight ratings over 10,000 pounds

**H-13-16:** Once the performance standards requested in H-13-15 have been developed, require newly manufactured single-unit trucks with gross vehicle weight ratings over 10,000 pounds to be equipped with rear underride protection systems meeting the performance standards.

**NHTSA Action:**

NHTSA requests that safety recommendations H-13-15 and H-13-16 be classified as “**Closed - Acceptable Action**” for the following reasons:

On July 23, 2015, NHTSA published an Advance Notice of Proposed Rulemaking (ANPRM) requesting comment on NHTSA’s estimate of the costs and benefits of requirements for rear impact guards on single-unit trucks (SUTs). NHTSA’s cost-benefit analysis concluded that a requirement to equip SUTs with rear impact guards would not be cost effective. NHTSA is working to withdraw this ANPRM. (<https://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201810&RIN=2127-AL57>).

**H-13-17:** Require conspicuity treatments on the sides and rears of newly manufactured single-unit trucks with gross vehicle weight ratings over 10,000 pounds consistent with the requirements for such treatments on truck-tractor and trailers specified in 49 CFR part 571.108 (FMVSS: Lamps, Reflective Devices, and Associated Equipment).

**H-13-25:** While the National Highway Traffic Safety Administration is developing the conspicuity standards for newly manufactured single-unit trucks requested in H-13-17, direct either the National Highway Traffic Safety Administration or the Federal Motor Carrier Safety Administration, as appropriate, to determine and implement the most efficient method to require the retrofit of treatments, according to the standards, on the sides and rears of single-unit trucks with gross vehicle weight ratings over 10,000 pounds.

**NHTSA Action:**

NHTSA, for FMCSA and on behalf of the Department of Transportation, requests that safety recommendations H-13-17 and H-13-25 be classified as “**Closed**” for the following reasons:

The agency is unable to establish the safety impacts of conspicuity treatments on single unit trucks. Without effectiveness information, NHTSA cannot justify the cost associated with this recommendation.

On July 23, 2015, NHTSA requested public comment on the effectiveness of conspicuity tape. Public comment was specifically solicited on the effectiveness of conspicuity systems in reducing crashes when applied to SUTs. The public has been unable to provide data to confidently estimate the effectiveness of conspicuity treatment systems when applied to SUTs, which is required to finalize this rulemaking. NHTSA is working to withdraw this ANPRM.

**H-14-03:** Require that newly manufactured truck-tractors with gross vehicle weight ratings over 26,000 pounds be equipped with side underride protection systems that will reduce underride and injuries to passenger vehicle occupants.

**NHTSA Action:**

NHTSA requests that safety recommendation H-14-03 be classified as “**Closed-No Longer Applicable**” for the following reasons:

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Current truck-tractors in the U.S. are already designed with lower ground clearance on the sides to improve fuel economy and for meeting certain Smartway certification requirements. Therefore, underride of passenger cars in impacts into the side of modern truck-tractors is unlikely. NHTSA is not aware of any underride crashes of light vehicles into the side of current truck-tractors.

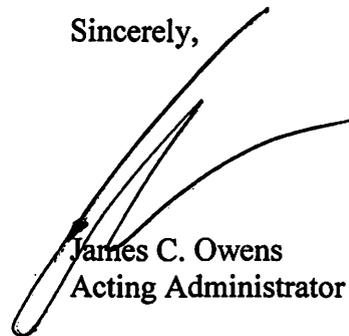
**H-14-04:** Revise requirements for rear underride protection systems for newly manufactured trailers with gross vehicle weight ratings over 10,000 pounds to ensure that they provide adequate protection of passenger vehicle occupants from fatalities and serious injuries resulting from full-width and offset trailer rear impacts.

**NHTSA Action:**

NHTSA requests that safety recommendation H-14-04 be classified as **“Open-Acceptable Action”** for the following reasons:

On December 16, 2015, NHTSA issued a Notice of Proposed Rulemaking (NPRM) for upgrading rear impact guards on trailers and semi-trailers. The proposal adopts requirements of Transport Canada’s standard for underride protection, which require rear impact guards to provide sufficient strength and energy absorption to protect occupants of passenger cars impacting the rear of trailers at 35 mph with full overlap and 50 percent overlap of the front-end of the passenger car. NHTSA is currently reviewing the NPRM comments and developing next steps for the rulemaking.

Sincerely,

A handwritten signature in black ink, appearing to read "James C. Owens", is written over a printed name and title. The signature is fluid and cursive, starting with a large "J" and ending with a long, sweeping tail that extends to the right.

James C. Owens  
Acting Administrator