



DEPARTMENT OF TRANSPORTATION

[4910-EX-P]

Federal Motor Carrier Safety Administration

[Docket No. FMCSA-2016-0167]

Parts and Accessories Necessary for Safe Operation, Lamps and Reflective Devices; Application for an Exemption from STEMCO LP.

AGENCY: Federal Motor Carrier Safety Administration (FMCSA), DOT.

ACTION: Notice of final disposition; grant of application for exemption.

SUMMARY: The Federal Motor Carrier Safety Administration (FMCSA) announces its decision to grant STEMCO LP's (STEMCO) application for a limited 5-year exemption to allow motor carriers to operate certain commercial motor vehicles (CMVs) that are equipped with STEMCO's TrailerTail® aerodynamic device with rear identification lamps and rear clearance lamps that are mounted lower than currently permitted by the Agency's regulations. The Federal Motor Carrier Safety Regulations (FMCSRs) require rear identification lamps and rear clearance lamps to be located "as close as practicable to the top of the vehicle." While the TrailerTail® aerodynamic device is currently mounted slightly below the roof of the vehicle, STEMCO states that this offset prevents the device from delivering the maximum available fuel economy benefit as opposed to mounting it flush with the top of the vehicle which may block the visibility of the rear identification lamps and rear clearance lamps. The Agency has determined that locating the rear identification lamps and rear clearance lamps lower on the trailers and semitrailers, mounted at the same level as the stop lamps, tail lamps, and turn signals will maintain a level of safety that is equivalent to, or greater than, the level of safety achieved without the exemption.

FOR FURTHER INFORMATION CONTACT: Mr. Jose Cestero, Vehicle and Roadside Operations Division, Office of Bus and Truck Standards and Operations, MC–PSV, (202) 366–5541; Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590–0001.

SUPPLEMENTARY INFORMATION:

Background

Pursuant to 49 CFR part 381, FMCSA has authority to grant exemptions from certain Federal Motor Carrier Safety Regulations (FMCSRs). FMCSA must publish a notice of each exemption request in the **Federal Register** (49 CFR 381.315(a)). The Agency must provide the public with an opportunity to inspect the information relevant to the application, including any safety analyses that have been conducted. The Agency must also provide an opportunity for public comment on the request.

The Agency reviews the safety analyses and the public comments and determines whether granting the exemption would likely achieve a level of safety equivalent to or greater than the level that would be achieved by the current regulation (49 CFR 381.305(a)).

The decision of the Agency must be published in the **Federal Register** (49 CFR 381.315(b)). If the Agency denies the request, it must state the reason for doing so. If the decision is to grant the exemption, the notice must specify the person or class of persons receiving the exemption and the regulatory provision or provisions from which an exemption is granted. The notice must specify the terms and conditions of the exemption, as well as its effective period (up to 5 years). The exemption may be renewed (49 CFR 381.315(c) and 49 CFR 381.300(b)).

STEMCO Application for Exemption

STEMCO, on behalf of motor carriers utilizing its TrailerTail® aerodynamic devices, applied for an exemption from 49 CFR 393.11 to allow rear identification lamps and rear clearance lamps to be mounted lower than currently permitted by the Agency's regulations.

Table 1 of section 393.11, "Required lamps and reflectors on commercial motor vehicles," specifies the requirements for lamps, reflective devices and associated equipment by the type of CMV. All CMVs manufactured on or after December 25, 1968, must, at a minimum, meet the applicable requirements of Federal Motor Vehicle Safety Standard (FMVSS) No. 108, "Lamps, reflective devices, and associated equipment," in effect at the time of manufacture of the vehicle. Rear identification lamps must be mounted as close as practicable to the top of the vehicle. One lamp must be as close as practicable to the vertical centerline and one on each side of the center lamp with the lamp centers spaced not less than 6 inches or more than 12 inches apart, and all on the same level. One rear clearance lamp must be located on each side of the vertical centerline of the vehicle to indicate overall width, both of which must be on the same level and as high as practicable.

In February 2015, STEMCO purchased ATDynamics and its TrailerTail® product line, a collapsible boat tail technology that improves the rear aerodynamic shape of CMV trailers. In its application, STEMCO states that motor carriers are evaluating the TrailerTail® rear aerodynamic device to help meet (1) proposed standards from the U.S. Environmental Protection Agency (EPA) and the Department of Transportation's National Highway Traffic Safety Administration (NHTSA) that would establish the next

phase of greenhouse gas (GHG) emissions and fuel efficiency standards for medium- and heavy duty vehicles^{1,2}, and (2) the California Air Resources Board (CARB) Tractor-Trailer Greenhouse Gas Regulation for dry van and refrigerated van type trailers that has been in effect since 2010.

For newly manufactured trailers, STEMCO states that the TrailerTail® top panel is mounted 1.5 – 3.5 inches below the roof of the trailer in order to comply with the FMVSS No. 108 and FMCSR mounting location requirements for rear identification and clearance lamps. However, STEMCO states:

This inset creates an unaerodynamic gap as airflow transitions from the trailer roof onto the TrailerTail panels and has prevented TrailerTails from delivering the maximum available fuel economy benefit. Wind tunnel flow visualization highlights the contrast in airflow between flush and inset panels and our own internal testing estimates an additional 0.14 delta C_{DA} (measured drag area) gain and 70 million gallons of annual diesel fuel savings can be achieved simply by installing TrailerTails flush with the trailer roof. In order to evaluate the actual performance of flush mounted TrailerTail aerodynamic systems on actual fleet based fuel economy, it is necessary to request relief from the location requirements for upper identification lamps and rear clearance lamps on commercial van trailers and box trucks. Additionally, these lower clearance and identification lamp locations will pave the way for the commercial launch of collapsible boat tails for roll door box trailers, where the rear upper header is a critical mounting location of boat tail components.

In support of its application, STEMCO states that “The relocation of the rear identification lamps and rear clearance lamps to a lower location on the trailer or box

¹ On October 25, 2016, EPA and NHTSA jointly published a final rule establishing rules for a comprehensive Phase 2 Heavy-Duty (HD) National Program that will reduce greenhouse gas (GHG) emissions and fuel consumption from new on-road medium- and heavy-duty vehicles and engines, helping to address the challenges of global climate change and energy security (81 FR 73478). NHTSA’s fuel consumption standards and EPA’s carbon dioxide (CO₂) emission standards are tailored to each of four regulatory categories of heavy-duty vehicles: combination tractors; trailers used in combination with those tractors; heavy-duty pickup trucks and vans; and vocational vehicles. The rule also includes separate standards for the engines that power combination tractors and vocational vehicles.

² In response to letters submitted by the Truck Trailer Manufacturers Association seeking reconsideration of the October 2016 final rule, both EPA and NHTSA decided on August 17, 2017 to conduct additional rulemaking on the issues of GHG emissions and fuel efficiency standards for medium- and heavy-duty vehicles.

truck are equivalent to the current required lamp location on a flatbed trailer or intermodal chassis, so no safety impact is anticipated.” In addition, according to the application:

STEMCO believes that there will be no safety impact from the relocation of both the rear identification lamps and the rear clearance lamps to a location on an approximate horizontal plane with other rear lamps. NHTSA issued legal interpretations from 1968 until approximately 1999 to trailer manufacturers to allow the lower mounting location for rear identification lamps and rear clearance lamps when there was no “practicable” means of installing the lamps “as close as practicable to the top of the vehicle.” NHTSA subsequently issued an interpretative rule on April 5, 1999, 64 FR 16358, suggesting that trailer manufacturers could no longer mount lamps at the lower location as narrow lamps were now readily available, and NHTSA would no longer defer to a manufacturer’s subjective determination of practicability for locating lamps in the rear upper header location on van trailers and box trucks. However, NHTSA noted in that same Notice that they did not intend to bring enforcement actions based on this interpretive rule immediately. Subsequently, trailer manufacturers continued to manufacture van trailers and box trucks with the rear identification lamps and rear clearance lamps mounted lower on the vehicles on an approximate horizontal plane with the other required lamps.

STEMCO states that without the exemption, it will be unable to verify fleet performance of a higher performance TrailerTail® design that is expected to provide the maximum available fuel economy benefit that may be necessary in order to meet future fuel efficiency requirements.

Comments

On June 10, 2016, FMCSA published a notice of the STEMCO application and asked for public comment (81 FR 37662). The Agency received comments from the American Trucking Associations (ATA), the Transportation Safety Equipment Institute (TSEI), and Wabash National Corporation (Wabash).

ATA supported STEMCO’s application, stating:

Efficiency-improving technologies include tractor aerodynamics, fuel-efficient tires, idle reduction equipment, speed governors, use of lighter weight equipment

and aerodynamic trailer skirts and tails. ATA supports efforts to improve fuel efficiency and actions to improve coordination between federal agencies to advance fuel efficiency in the trucking industry...

According to the U.S. Environmental Protection Agency's SmartWay program trailer tails can improve heavy truck fuel efficiency by five percent. STEMCO's wind tunnel testing suggests that an additional 0.14 percent improvement can be achieved if its trailer tail is mounted flush with the top of the trailer. In order to verify this finding, STEMCO should be allowed to test the device in an actual on-road environment with a fleet of heavy trucks.

As FMCSA is aware, there are many trailer types throughout the motor carrier industry. Some trailers, like flatbeds and intermodal chassis, are required to have lighting systems on the rear frame of the trailer to comply with FMVSS 108 and 49 CFR 393.11. And, since these trailer types have no upper frame or doors at the rear of the trailer, it is not possible for them to have marker or identification lamps similar to those required on van trailers. Unless the FMCSA has research and data showing the marker and identification lights on a van trailer improve safety over and above the light configuration on flatbed trailers and/or intermodal chassis, etc., the agency should grant the exemption for evaluation purposes.

TSEI and Wabash both expressed concerns that allowing the identification and clearance lamps to be mounted lower than currently required, on the same horizontal plane with the stop, turn, and tail lamps, may not maintain a level of safety that is equivalent to or greater than the level of safety without the exemption because other motorists might not be able to adequately distinguish large trucks and trailers from other passenger other vehicles. TSEI stated:

STEMCO's application does not appear to take into account the important role signal lighting plays in vehicle conspicuity. The signal lighting on heavy duty vehicles does more than provide "intention" (e.g., stop or turn) signals; it also provides conspicuity (e.g., conspicuity triangle created between the identification lamp cluster and the stop/tail/turn lamps. The Agency should be cautious about infringing upon the longstanding relationship between the signal and conspicuity aspects of heavy duty lighting in the absence of supporting data concerning the effects on trailer conspicuity.

TSEI acknowledges that many vehicles utilize low mounting positions due to the construction of the vehicle. Presumably, the practicability language in FMCSR and FMVSS accounts for differences in mounting positions. As NHTSA has explained, "[s]ince the various types of trailers differ from one another in their

configuration, NHTSA believes that the method of compliance that may be appropriate for one type may not be for another. For example, van-type trailers have distinct rectangular side and rear perimeters to which conspicuity enhancing materials could be easily applied, while tank-type, platform trailers, or others do not.” 56 Fed. Reg. 63475 (Dec. 4, 1991) (Notice of proposed rulemaking regarding increasing conspicuity of trailers which have an overall width of 80 inches or more to enhance the likelihood of their detection at night and conditions of reduced visibility).

But acknowledging these differences does not demonstrate that lowering the mounting position to accommodate an aerodynamic device would not adversely affect safety. Because STEMCO has not provided any data on the safety impact of lowering the height of rear identification lamps and rear clearance lamps, STEMCO has not provided a basis for evaluating their statement that the lower placement will not adversely affect safety, particularly with respect to the trailers’ conspicuity.

Similarly, Wabash stated:

The ability of motorists to distinguish large trucks and trailers from passenger vehicles is an essential component of crash avoidance because of size, maneuvering, and the speed differences between the two types of vehicles. High mounted identification lamps uniquely identify large trucks and wide trailers and do so with the longest possible sight preview of the lamps. Clearance lamps show the overall width of the vehicle to alert drivers of its large size. NHTSA has already concluded that, if rear identification lamps were lowered, the purpose of uniquely identifying large vehicles with the longest possible sight preview of the lamps would be compromised. As the mounting height of identification lamps is lowered, the time that nearby drivers have to identify the vehicle as a large truck, including drivers not located immediately behind the truck, is reduced and is contrary to the safety objective of the mounting height requirement.

NHTSA’s conclusions regarding the safety implications of unnecessarily lowering the mounting height for rear identification lamps and rear clearance lamps are supported by a recent FMCSA sponsored study which observed that, with respect to large vehicles, “[p]assive crash avoidance can be accomplished by the conspicuity of the vehicle, that is, the extent to which the vehicle is readily perceived by other road users. In terms of the physical and mechanical systems of the vehicle, conspicuity is primarily accomplished through the light system on the vehicle. The light system includes tail and top lamps, marker and identification lamps, as well as the reflective tape systems on trailers.

TSEI noted that if the exemption is granted, vehicle and trailer manufacturers would still be required to comply with the requirements of FMVSS No. 108 (install the

identification and clearance lamps as high as practicable), and repair businesses would not be permitted to move the lamps to a lower position because Title 49, U.S. Code 30122(b) of the Motor Vehicle Safety Act “prohibits a manufacturer, distributor, dealer, or motor vehicle repair business from knowingly making in-operative any part of a device or element of design installed on or in a motor vehicle in compliance with an applicable motor vehicle safety standard.” Because of the above, TSEI expressed concerns that some fleets and small-scale operators may not have the technical expertise to change the positioning of the identification and clearance lamps to a lower position.

TSEI also noted that S6.2.2 of FMVSS No. 108 states “If any required lamp or reflective device is obstructed by motor vehicle equipment (e.g., mirrors, snow plows, wrecker booms, backhoes, winches, etc.) including dealer installed equipment, and cannot meet the applicable photometry and visibility requirements, the vehicle must be equipped with an additional lamp or device of the same type which meet all applicable requirements of this standard, including photometry and visibility.” TSEI stated “STEMCO could equip vehicles with additional lamps or devices that meet FMVSS 108 to accommodate for the lamps that would be obstructed by the aerodynamic device. Such an approach would not require an exemption.”

Wabash stated that it is possible – and practicable – to attach an aerodynamic tail device to the rear top sill of a trailer without blocking rear identification lamps and rear clearance lamps while still meeting the new GHG regulations. Wabash stated:

Wabash’s innovative aerodynamic tail devices – which are known as the AeroFinTM and AeroFinTM XL – can be attached to the rear top sill of the trailer without blocking the rear identification lamps and rear clearance lamps. Further, STEMCO’s argument that the exemption is needed to meet the current requirements of the California Air Resource Board (CARB) Tractor-trailer Greenhouse Gas regulations and proposed Greenhouse Gas Phase 2 regulations is

unpersuasive. By using the AeroFin™ in combination with certain of its trailer aerodynamic technologies, Wabash has achieved improvement of 9% or greater in fuel economy. In addition, the AeroFin™ XL is CARB compliant. Again, technological advancements have made it possible for manufacturers to meet the safety objectives of FMVSS 108 without compromising other performance related considerations.

FMCSA Analysis

FMCSA agrees that it is important for motorists to be able to readily distinguish large trucks and trailers from other passenger vehicles. FMVSS No. 108 and section 393.11 of the FMCSRs ensure this by requiring large vehicles to be equipped with a combination of lights, reflectors, and conspicuity treatments that help indicate the overall height, width, and length of these vehicles. Specifically, all CMVs manufactured on or after December 25, 1968, must, at a minimum, meet the applicable requirements of FMVSS No. 108 in effect at the time of manufacture of the vehicle. The purpose of FMVSS No. 108 is to reduce crashes and deaths and injuries from crashes, by providing adequate illumination of the roadway, and by enhancing the conspicuity of motor vehicles on the public roads so that their presence is perceived and their signals understood, both in daylight and in darkness or other conditions of reduced visibility. FMVSS No. 108 specifies requirements for original and replacement lamps, reflective devices, and associated equipment. The standard applies to passenger cars, multipurpose passenger vehicles, trucks, buses, trailers, and motorcycles.

Specifically with respect to clearance lamps and identification lamps, all (1) trucks and buses 80 inches or more in width, (2) semitrailers and full trailers 80 inches or more in width (except converter dollies), and (3) pole trailers must be equipped with:

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- Two red clearance lamps, one on each side of the vertical centerline of the vehicle, mounted as high as practicable to indicate the overall width of the vehicle; and
- A group of three red identification lights on the rear of the vehicle, mounted as close as practicable to the top of the vehicle. One lamp is required to be mounted as close as practicable to the vertical centerline of the vehicle, and one on each side with lamp centers spaced not less than 6 inches or more than 12 inches apart.

The grouping of three identification lamps on the top rear of large vehicles is intended to uniquely identify large vehicles with the longest sight preview possible. On February 5, 2003, NHTSA denied a petition for rulemaking from Sierra Products, Inc. (Sierra), which – among other things – requested that NHTSA amend FMVSS No. 108 to require the identification lights to be mounted at eye height on heavy trucks (68 FR 5863). In denying Sierra’s petition, NHTSA stated “As the mounting height of identification lamps is lowered, the time that nearby drivers will have to identify the vehicle, as a heavy truck will lessen. This is contrary to the intent of the requirement. On the other hand, the mounting height of identification lamps has been long established to be ‘as high as practicable.’ This is to make nearby drivers aware of the vehicle’s size. If these lamps were lowered to eye level, approaching drivers *may not be able to distinguish large commercial vehicles from passenger vehicles.*” [Emphasis added.]

Notwithstanding the above, FMCSA notes that the three identification lamps are not the only means by which drivers are “able to distinguish large commercial vehicles from passenger vehicles,” as stated in NHTSA’s denial of the petition from Sierra. While FMCSA agrees that mounting identification lamps “as high as practicable” provides

approaching motorists maximum time to identify a CMV, and that lowering the mounting location of the identification lamps reduces that time, FMVSS No. 108 (and, by incorporation, section 393.11 of the FMCSRs) also requires the rear of all trailers and semitrailers to be equipped with conspicuity materials (a strip of alternating red and white retroreflective sheeting or reflex reflectors) installed across both:

- 1) The full width of the trailer, as close to the extreme edges as practicable, and as close to practicable to not less than 375 mm (14.77 in) and not more than 1525 mm (60.05 in) above the road surface at the centerline with the trailer at curb weight, and
- 2) The full width of the horizontal member of the rear underride protection device required by FMVSS No. 224, “Rear impact protection.” The horizontal member is required to extend to within 100 mm (4 in) of the side extremity of the vehicle, and be located not more than 560 mm (20.05 in) above the ground at any point.

The presence of these two separate conspicuity treatments on the rear of all trailers and semitrailers, consisting of alternating red and white retroreflective material or reflex reflectors, serves as a clear indication to the motoring public that the vehicle is a large commercial vehicle as opposed to a passenger car. While these conspicuity treatments are not located at or near the very top of the trailer or semitrailer, FMCSA believes that they provide a very distinctive visual pattern on the rear of trailers and semitrailers that easily enables motorists to be aware that they are approaching a large vehicle.³

³ FMCSA also notes that, per STEMCO’s product literature, each side component of its aerodynamic device has red and white conspicuity tape applied to the outward face of the device, further enhancing the visibility of the vehicle.

It is important to note that STEMCO is proposing that the required clearance and identification lights be *relocated* lower on vehicles using the aerodynamic devices, and is not simply requesting an exception to the regulation because the required lights are obscured by the device. FMCSA believes that relocating the lamps to a lower position is an acceptable approach and ensures an equivalent level of safety for two separate reasons. First, and as STEMCO notes in its application, FMVSS No. 108 and section 393.11 of the FMCSRs permit the clearance and identification lamps to be mounted lower on flatbed trailers and intermodal chassis simply because there is no other position to mount the lamps due to the vehicle designs. FMCSA does not believe that locating the clearance and identification lamps in the same manner on trailers and semitrailers using STEMCO's aerodynamic devices will pose an unreasonable risk, especially given the conspicuity requirements discussed above. Second, and as noted by TSEI in its comments, S6.2.2 of FMVSS No. 108 directly addresses vehicle designs whereby required lamps or reflective devices are obscured by motor vehicle equipment such as "mirrors, snow plows, wrecker booms, backhoes, winches," which would also include STEMCO's aerodynamic devices. In these instances, S6.2.2 of FMVSS No. 108 requires the vehicle to "be equipped with an additional lamp or device of the same type which meet all applicable requirements of this standard, including photometry and visibility." This is exactly what STEMCO is proposing to do – to install the same clearance and identification lamps, but in a lower position on the vehicle.

Regarding TSEI's concern that some fleets and small-scale operators may not have the technical expertise to change the positioning of the identification and clearance lamps to a lower position, FMCSA notes that it is the responsibility of each motor carrier to

ensure that its vehicles fully comply with the FMCSRs at all times (see 49 CFR 393.1(c)), which includes the terms and conditions of this temporary exemption. As such, if a motor carrier chooses to use STEMCO's device, it must ensure that the required lights are properly moved and are fully operational at all times.

FMCSA acknowledges Wabash's comment that it has developed a solution whereby its aerodynamic device can be fitted to a trailer without obscuring the required clearance and identification lights located at the top of the trailer. While Wabash has designed a solution that does not require relief from the current standards, STEMCO has applied for a temporary exemption in order to test an alternative design based on its contention that use of that design will provide an equivalent or greater level of safety than without the exemption. Because of reasons discussed above, FMCSA believes that an equivalent level of safety will be maintained.

While FMVSS No. 108 and section 393.11 of the FMCSRs require the two conspicuity treatments to be installed on the rear of trailers and semitrailers, FMCSA notes that neither of the conspicuity treatments is required to be installed on single unit trucks (box trucks). For this reason, FMCSA believes that it is appropriate to limit the use of STEMCO's aerodynamic device, when mounted at the top of the vehicle and obscuring the clearance and identification lights, to trailers and semitrailers only at this time.

FMCSA Decision

FMCSA has evaluated the STEMCO exemption application. For the reasons discussed above, the Agency believes that granting the temporary exemption to allow rear identification lamps and rear clearance lamps to be located lower on trailers and

semitrailers, mounted at the same level as the stop lamps, tail lamps, and turn signals, will maintain a level of safety that is equivalent to, or greater than, the level of safety achieved without the exemption.

Terms and Conditions for the Exemption

The Agency hereby grants the exemption for a 5-year period, beginning [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] and ending [INSERT DATE 5 YEARS FROM DATE OF PUBLICATION IN THE FEDERAL REGISTER].

During the temporary exemption period, motor carriers will be allowed to mount STEMCO's TrailerTail® aerodynamic device at the top of trailers and semitrailers, provided that the rear clearance and identification lights are mounted at the same level as the stop lamps, tail lamps, and turn signals. The exemption will be valid for 5 years unless rescinded earlier by FMCSA. The exemption will be rescinded if: (1) motor carriers and/or CMVs fail to comply with the terms and conditions of the exemption; (2) the exemption has resulted in a lower level of safety than was maintained before it was granted; or (3) continuation of the exemption would not be consistent with the goals and objectives of 49 CFR part 381.

Interested parties possessing information that would demonstrate that motor carriers using trailers or semitrailers with STEMCO's TrailerTail® aerodynamic device are not achieving the requisite statutory level of safety should immediately notify FMCSA. The Agency will evaluate any such information and, if safety is being compromised or if the continuation of the exemption is not consistent with 49 CFR part 381, will take immediate steps to revoke the exemption.

Preemption

In accordance with 49 U.S.C. 31315(d), as implemented by 49 CFR 381.600, during the period this exemption is in effect, no State shall enforce any law or regulation applicable to interstate commerce that conflicts with or is inconsistent with this exemption with respect to a firm or person operating under the exemption. States may, but are not required to, adopt the same exemption with respect to operations in intrastate commerce.

Issued on: February 8, 2018.

Cathy F. Gautreaux,
Deputy Administrator.