



DEPARTMENT OF TRANSPORTATION

Federal Motor Carrier Safety Administration

[Docket No. FMCSA–2020–0122]

Parts and Accessories Necessary for Safe Operation; Application for an Exemption from Grote Industries, LLC

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

ACTION: Notice of final disposition; grant of exemption.

SUMMARY: The Federal Motor Carrier Safety Administration (FMCSA) announces its decision to grant Grote Industries, LLC's (Grote) application for a limited 5-year exemption to allow motor carriers operating trailers and van body trucks to install amber brake-activated pulsating warning lamps on the rear of trailers and van body trucks in addition to the steady-burning brake lamps required by the Federal Motor Carrier Safety Regulations (FMCSRs). The Agency has determined that granting the exemption would likely achieve a level of safety equivalent to or greater than the level of safety provided by the regulation.

DATES: This exemption is effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER] and ending December 2, 2025..

FOR FURTHER INFORMATION CONTACT: Mr. Luke Loy, Vehicle and Roadside Operations Division, Office of Carrier, Driver, and Vehicle Safety, MC-PSV, (202) 366-0676, Federal Motor Carrier Safety Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590-0001.

Docket: For access to the docket to read background documents or comments submitted to notice requesting public comments on the exemption application, go to www.regulations.gov at any time or visit Dockets Operations, Room W12-140 on the ground level of the West Building, 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., ET, Monday through Friday, except Federal holidays. To be

sure someone is there to help you, please call (202) 366-9317 or (202) 366-9826 before visiting Dockets Operations. The on-line Federal document management system is available 24 hours each day, 365 days each year. The docket number is listed at the beginning of this notice.

SUPPLEMENTARY INFORMATION:

Background

FMCSA has authority under 49 U.S.C. 31136(e) and 31315 to grant exemptions from certain parts of the 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 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 safety analyses and public comments submitted, 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). The decision of the Agency must be published in the **Federal Register** (49 CFR 381.315(b)) with the reasons for denying or granting the application and, if granted, the name of the person or class of persons receiving the exemption, and the regulatory provision from which the exemption is granted. The notice must also specify the effective period and explain the terms and conditions of the exemption. The exemption may be renewed (49 CFR 381.300(b)).

Grote's Application for Exemption

Section 393.25(e) of the FMCSRs requires all exterior lamps (both required lamps and any additional lamps) to be steady-burning, except turn signal lamps, hazard warning signal lamps, school bus warning lamps, amber warning lamps or flashing warning lamps on tow trucks and commercial motor vehicles (CMV) transporting oversized loads, and

warning lamps on emergency and service vehicles authorized by State or local authorities.

Grote applied for an exemption from 49 CFR 393.25(e) to allow motor carriers operating trailers and van body trucks to install brake-activated pulsating warning lamps on the rear of trailers and van body trucks in addition to the steady-burning brake lamps required by the FMCSRs. Specifically, Grote requested allowance to use: (1) an upper pair of brake-activated warning lamps centered about the centerline of the trailer such that the centerline of the outermost identification (ID) lamps to the centerline of the auxiliary braking lamps is between 6 – 12 inches and collinear with the three ID lamp cluster; (2) a single brake- activated warning lamp centrally located on or below the rear sill collinear with the stop/tail/turn lamps; (3) an upper pair of brake-activated warning lamps (as described in (1) above) and a single brake-activated warning lamp centrally located on or below the rear sill collinear with the stop/tail/turn lamps; (4) a lower pair of brake-activated warning lamps centered about the centerline of the trailer located on or below the rear sill; or (5) an upper pair of brake-activated warning lamps (as described in (1) above and a lower pair of brake-activated warning lamps as described in (4) above). The same brake-activated warning lamp options would also be applicable to van body straight trucks. These brake-activated warning lamps would be amber in color and act as a Class II strobe (pulsate) for up to 4 seconds with each application of the brake, then steadily burn red for the duration of the time the brake circuit is activated. The brake-activated pulsating warning lamps would be in addition to the steady-burning brake lamps required by the FMCSRs.

Grote is a manufacturer of vehicle lighting and safety equipment, and requests this relief on behalf of interstate motor carriers because previous research has demonstrated that the use of pulsating brake-activated warning lamps increases visibility of equipment and vehicles. The use of amber pulsating brake-activated warning lamps, in

addition to steady-burning red brake lamps required by the FMCSRs, would allow commercial carriers to not only maintain operational safety levels, but also implement more efficient and effective operations.

A copy of the application is included in the docket referenced at the beginning of this notice.

Grote contended that the addition of the brake-activated pulsating lamp would improve safety, and stated that research shows that pulsating brake lamps installed in addition to required steady-burning red brake lamps improve visibility and prevent accidents. Grote also noted that FMCSA has previously granted a similar, but not identical, temporary exemption to Groendyke Transport, Inc. (Groendyke), based in part on Groendyke's real-world experience demonstrating that use of amber pulsating brake-activated warning lamps in addition to steady-burning red brake lamps had decreased the frequency of rear-end accidents involving its fleet of tank trailers (84 FR 17910; April 26, 2019).

Grote included in the application several studies conducted by the National Highway Traffic Safety Administration (NHTSA), another agency in the U.S. Department of Transportation, on the issues of rear-end crashes, distracted driving, and braking signals. Grote stated that the additional amber brake-activated pulsating warning lamp(s) will not have an adverse impact on safety, and that adherence to the terms and conditions of the exemption would likely achieve a level of safety equivalent to or greater than the level of safety achieved without the exemption.

Comments

FMCSA published a notice of the application in the **Federal Register** on May 12, 2020, and asked for public comment (85 FR 28136). The Agency received comments from the Transportation Safety Equipment Institute (TSEI), and the Commercial Vehicle Safety Alliance (CVSA).

TSEI stated that ample research has demonstrated that the use of pulsating amber lamps increases visibility of equipment and vehicles and would maintain operational safety levels, but also implement more efficient and effective operations. TSEI expressed a concern that the widespread use of amber brake-activated pulsating warning lamps may reduce the overall effectiveness of amber strobe lamps frequently used by emergency and service vehicles. TSEI recommended that human factors studies be conducted to ensure that amber brake-activated warning lamps do not affect amber strobe lamp effectiveness for emergency and service vehicles.

CVSA agreed with Grote's assessment that the previous NHTSA research identifies the safety benefits of amber brake-activated pulsating lamps, and supported allowing motor carriers operating trailers and van body trucks to install amber brake-activated pulsating warning lamps on the rear of trailers and van body trucks in addition to the steady-burning brake lamps required by the FMCSRs.

FMCSA Decision

The FMCSA has evaluated the Grote exemption application and the comments received. The Agency acknowledges TSEI's concerns, but believes the technical analysis provided by the applicant and the body of research the Agency considered and discussed below adequately address those concerns.

The Agency believes that granting the temporary exemption to allow motor carriers operating trailers and van body trucks to install amber brake-activated pulsating warning lamps in addition to the steady-burning brake lamps required by the FMCSRs, will likely provide a level of safety that is equivalent to, or greater than, the level of safety achieved without the exemption.

Rear-end crashes generally account for approximately 30 percent of all crashes. These types of crashes often result from a failure to respond (or delays in responding) to a stopped or decelerating lead vehicle. Data between 2010 and 2016 show that large trucks

are consistently three times more likely than other vehicles to be struck in the rear in two-vehicle fatal crashes.^{1,2}

Both FMCSA and NHTSA have conducted research regarding alternative rear signaling systems to address rear-end crashes. FMCSA has conducted research and development of an Enhanced Rear Signaling (ERS) system for CMVs.³ The study noted that while brake lights are activated only with the service brakes, and the visual warning is provided only during conditions when the lead vehicle is decelerating using its braking system, brake lights are not activated during other conditions when rear-end collisions can occur (e.g., when the CMV is (1) stopped along the roadway or in traffic, (2) traveling slower, or (3) decelerating using an engine retarder). Because of the limitations of the existing brake system described above, along with issues relating to visual distraction, the study examined ways for CMVs to detect rear-end crash threats and to provide drivers of following vehicles a supplemental visual warning – located on the lead vehicle, and in addition to the current brake lights – so following-vehicle drivers can quickly recognize impending collision threats.

During Phase I of this effort, researchers performed crash database analyses to determine causal factors of rear-end collisions and to identify potential countermeasures. Phase II continued through prototype development based on recommendations from Phase I. During Phase II field testing, potential benefits of using such countermeasures were realized. During Phase III, a multi-phased approach was executed to design, develop, and test multiple types of countermeasures on a controlled test track and on

¹ U.S. Department of Transportation, National Highway Traffic Safety Administration (2012), Traffic Safety Facts – 2010 Data; Large Trucks, Report No. DOT HS 811 628, Washington, DC (June 2012)

² U.S. Department of Transportation, National Highway Traffic Safety Administration (2018), Traffic Safety Facts – 2016 Data; Large Trucks, Report No. DOT HS 812 497, Washington, DC (May 2018)

³ U.S. Department of Transportation, Federal Motor Carrier Safety Administration (2014), Expanded Research and Development of an Enhanced Rear Signaling System for Commercial Motor Vehicles, Report No. FMCSA-RRT-13-009, Washington, DC (April 2014)

public highways. Phase III resulted in positive results for a rear-warning prototype system comprising 12 light-emitting diode (LED) units that would flash at 5 Hz to provide a visual warning to the following-vehicle drivers indicating that, with continued closing rate and distance, a collision will occur with the lead vehicle. Finally, the prototype system was further developed and refined to include modification of the system into a unit designed for simple CMV installation, collision-warning activation refinements, and rear-lighting brightness adjustments for nighttime conditions. Formal closed test-track and real-world testing were then performed to determine the ERS system collision-warning activation performance.

While the efforts described above demonstrated a promising system for follow-on research, FMCSA ultimately decided not to pursue formal field operational testing of the prototype system because of concerns relating to (1) the cost to implement the ERS system as configured, and (2) fleets' willingness to invest in the technology given the cost of the system. Nonetheless, the preliminary research showed that the ERS system performed well at detecting and signaling rear-end crash threats and drawing the gaze of following-vehicle drivers to the forward roadway which, if implemented, could potentially reduce the number and frequency of rear-end crashes into CMVs.

Separately, NHTSA has performed a series of research studies intended to develop and evaluate rear-signaling applications designed to reduce the frequency and severity of rear-end crashes via enhancements to rear-brake lighting by redirecting drivers' visual attention to the forward roadway (for cases involving a distracted driver), and/or increasing the saliency or meaningfulness of the brake signal (for inattentive drivers).^{4,5}

⁴ U.S. Department of Transportation, National Highway Traffic Safety Administration (2009), Traffic Safety Facts – Vehicle Safety Research Notes; Assessing the Attention-Gettingness of Brake Signals: Evaluation of Optimized Candidate Enhanced Braking Signals; Report No. DOT HS 811 129, Washington, DC (May 2009)

⁵ U.S. Department of Transportation, National Highway Traffic Safety Administration (2010), Traffic Safety Facts – Vehicle Safety Research Notes; Assessing the Attention-Getting Capability of Brake

Initially, the study quantified the attention-getting capability and discomfort glare of a set of candidate rear brake lighting configurations, using driver judgments, as well as eye-drawing metrics. This study served to narrow the set of candidate lighting configurations to those that would most likely be carried forward for additional on-road study. Both look-up (eye-drawing) data and interview data supported the hypothesis that simultaneous flashing of all rear lighting combined with increased brightness would be effective in redirecting the driver's eyes to the lead vehicle when the driver is looking away with tasks that involve visual load.

Subsequently, the study quantified the attention-getting capability of a set of candidate rear brake lighting configurations, including proposed approaches from automotive companies. This study was conducted to provide data for use in a simulation model to assess the effectiveness and safety benefits of enhanced rear brake light countermeasures. Among other things, this research demonstrated that flashing all lights simultaneously or alternately flashing is a promising signal for use in enhanced brake light applications, even at levels of brightness within the current regulated limits. Specifically, the study concluded that substantial performance gains may be realized by increasing brake-lamp brightness levels under flashing configurations; however, increases beyond a certain brightness threshold will not return substantive performance gains.

Both FMCSA and NHTSA have conducted extensive research and development programs to examine alternative rear-signaling systems to reduce the incidence of rear-end crashes. However, while these efforts concluded that improvements could be realized through rear-lighting systems that flash, neither the FMCSRs nor the Federal Motor

Vehicle Safety Standards (FMVSS) currently permit the use of pulsating, brake-activated lamps on the rear of CMVs.

With respect to the use of amber lights, NHTSA has conducted research on the effectiveness of rear turn-signal color on the likelihood of being involved in a rear-end crash.⁶ FMVSS No. 108 allows rear turn signals to be either red or amber in color. The study concluded that amber signals show a 5.3 percent effectiveness in reducing involvement in two-vehicle crashes where a lead vehicle is rear-struck in the act of turning left, turning right, merging into traffic, changing lanes, or entering/leaving a parking space. The advantage of amber, compared to red, rear turn signals was shown to be statistically significant.

FMCSA acknowledges the concerns of TSEI that the widespread use of amber brake-activated pulsating warning lamps may reduce the overall effectiveness of amber strobe lamps frequently used by emergency and service vehicles. FMCSA believes that the FMCSA and NHTSA research programs demonstrating the ability of alternative rear-signaling systems to reduce the frequency and severity of rear-end crashes, are sufficient to conclude that implementation of amber brake-activated pulsating warning lamps on the rear of trailers and van body trucks, in addition to the steady-burning brake lamps required by the regulations, is likely to provide 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 December 2, 2025. During the temporary exemption period, motor carriers operating trailers and van body trucks will be allowed to install brake-activated pulsating warning

⁶ U.S. Department of Transportation, National Highway Traffic Safety Administration (2009), The Effectiveness of Amber Rear Turn Signals for Reducing Rear Impacts; Report No. DOT HS 811 115, Washington, DC (April 2009)

lamps on the rear of trailers and van body trucks, in addition to the steady-burning brake lamps required by the FMCSRs. Specifically, the exemption will allow the use of: (1) an upper pair of brake-activated warning lamps centered about the centerline of the trailer such that the centerline of the outermost identification (ID) lamps to the centerline of the auxiliary braking lamps is between 6 – 12 inches and collinear with the three ID lamp cluster; (2) a single brake activated warning lamp centrally located on or below the rear sill collinear with the stop/tail/turn lamps; (3) an upper pair of brake-activated warning lamps (as described in (1) above) and a single brake-activated warning lamp centrally located on or below the rear sill collinear with the stop/tail/turn lamps; (4) a lower pair of brake-activated warning lamps centered about the centerline of the trailer located on or below the rear sill; or (5) an upper pair of brake-activated warning lamps (as described in (1) above and a lower pair of brake-activated warning lamps as described in (4) above). The same brake-activated warning lamp options shall also be applicable to van body straight trucks. The brake-activated warning lamps shall be amber in color and act as a Class II strobe (pulsate) for up to 4 seconds with each application of the brake, then steadily burn red for the duration of the time the brake circuit is activated. The brake-activated warning lamps are in addition to the steady-burning brake lamps required by the FMCSRs.

The exemption will be valid for 5 years unless rescinded earlier by FMCSA. The exemption will be rescinded if: (1) motor carriers operating trailers and van body trucks 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 U.S.C. 31136(e) and 31315(b).

Interested parties possessing information that would demonstrate that motor carriers operating trailers and van body trucks allowed to install amber brake-activated

pulsating warning lamps on the rear of trailers and van body trucks, in addition to the steady-burning brake lamps required by the FMCSRs, 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 U.S.C. 31136(e) and 31315(b), will take immediate steps to revoke the exemption.

Preemption

In accordance with 49 U.S.C. 31313(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. States may, but are not required to, adopt the same exemption with respect to operations in intrastate commerce.

James W. Deck,
Deputy Administrator.