

**PART 101-46—UTILIZATION AND DISPOSAL OF PERSONAL PROPERTY PURSUANT TO EXCHANGE/SALE AUTHORITY**

5. The authority citation for part 101-46 continues to read as follows:

Authority: 40 U.S.C. 1412; Sec. 205(c), 63 Stat. 390; (40 U.S.C. 486(c)).

**§ 101-46.201-2 [Amended]**

6. Section 101-46.201-2 is amended in paragraph (a) by removing the last sentence.

Dated: July 31, 1996.

David J. Barram,

*Acting Administrator of General Services.*

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**DEPARTMENT OF TRANSPORTATION**

**National Highway Traffic Safety Administration**

**49 CFR Part 571**

[Docket No. 80-9; Notice 12]

RIN 2127-AF59

**Federal Motor Vehicle Safety Standards; Lamps, Reflective Devices and Associated Equipment**

**AGENCY:** National Highway Traffic Safety Administration (NHTSA), DOT.

**ACTION:** Final rule.

**SUMMARY:** This document requires that the rear of truck tractors be equipped with retroreflective material similar to that required on the rear of the trailers they tow to increase nighttime conspicuity. Manufacturers may choose either retroreflective sheeting or reflex reflectors. In the case of truck tractors delivered with a temporary mudflap arrangement rather than permanent equipment, the requirement for retroreflective material near the top of the mudflap may be satisfied with material carried by the temporary mudflap brackets that is transferable to the permanent mudflap system. Retroreflective material is also required near the top of the cab in a pattern similar to that used on trailers. NHTSA estimates that the incidence of crashes involving truck tractors struck in the rear by other vehicles in darkness could be reduced by 15 to 25 percent by enhancing conspicuity as required by this rule.

**DATES:** The effective date for the final rule is July 1, 1997. Petitions for reconsideration of the rule must be received not later than September 23, 1996. Petitions filed after that time will

be considered petitions for rulemaking pursuant to 49 CFR part 552.

**ADDRESSES:** Petitions for reconsideration should refer to the docket number and notice number, and be submitted to: Administrator, NHTSA, 400 Seventh Street, SW, Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** For Technical Issues: Patrick Boyd, Office of Safety Performance Standards, NPS-31, telephone (202) 366-6346, FAX (202) 366-4329. For Legal Issues: Taylor Vinson, Office of Chief Counsel, NCC-20, telephone (202) 366-2992, FAX (202) 366-3820.

**SUPPLEMENTARY INFORMATION:**

**Background**

On December 10, 1992, NHTSA published a final rule amending Federal Motor Vehicle Safety Standard No. 108 *Lamps, Reflective Devices, and Associated Equipment* to add paragraph S5.7 *Conspicuity Systems*. (57 FR 58406) Effective December 1, 1993, the rule required large trailers, particularly the type hauled by truck tractors, to be equipped with reflective marking (either retroreflective tape or reflex reflectors) to enhance their detectability at night or under other conditions of reduced visibility. The preamble to the rule explained that the conspicuity requirements applied only to large trailers because most fatal accidents at night in which a truck is struck involve a truck tractor-trailer combination vehicle. But the notice also mentioned that the night accident involvement rate of truck tractors alone was much greater than that of other single-unit trucks. The agency announced that it was considering truck tractors for future conspicuity rulemaking.

As part of its petition for reconsideration of the final rule, the Insurance Institute for Highway Safety (IIHS) asked that the conspicuity requirement be extended to single unit trucks and to truck tractors, citing accident statistics in support of its request.

Aided by its fleet study of heavy trailers using a similar rear conspicuity treatment, NHTSA tentatively concluded that motor vehicle safety would be enhanced if a conspicuity marking scheme were extended to truck tractors. Under 49 CFR 571.3(b), a truck tractor "means a truck designed primarily for drawing other motor vehicles and not so constructed as to carry a load other than a part of the weight of the vehicle and the load so drawn." Far fewer crashes involve vehicles colliding with the rear of truck tractors than with the rear of trailers, presumably because of a much lower

exposure of tractors operating without trailers. However, NHTSA's data indicate that a higher proportion of rear end crashes involving truck tractors, including fatal crashes, occur at night than for either trailers or trucks.

Truck tractors are less conspicuous at night from the rear than other motor vehicles because they are subject to fewer rear lighting requirements of Standard No. 108. Unlike other vehicles over 2032 mm wide (80 inches), tractors are not required to have rear side marker lamps, rear clearance lamps, or rear identification lamps. If double sided turn signal lamps are used on the front fenders, truck tractors are not required to have rear turn signal lamps either. The only rear marking lamps required on all truck tractors are the taillamps, and the taillamps of truck tractors do not mark the full width of the vehicle as do the taillamps of other vehicles.

Since much of a truck tractor's operational life is spent in hauling trailers, it does not appear cost beneficial to require it to have the full panoply of rear lighting equipment required for other motor vehicles. Further, the configuration of truck tractors presents practicability problems for the mounting of the tail, stop, and turn signal lamps at the locations specified for other vehicles. However, the inexpensive and convenient use of retroreflective material would improve the detectability of the rear of truck tractors when they are being operated or parked without trailers. The familiarity of the public with the Federal conspicuity treatment applied to large trailers should improve the recognition of similarly treated truck tractors and make such a treatment more effective for accident prevention than it would have been in the past.

**The Notice of Proposed Rulemaking**

In view of the relatively short length of truck tractors and the fact that they are equipped with a full complement of lamps at the front, on June 12, 1995, NHTSA proposed (60 FR 30820) a conspicuity treatment for the rear only. The conspicuity treatment would use the same retroreflective sheeting or reflex reflectors certified for use on trailers under the existing regulation (the term "retroreflective material" is used in this document to include both sheeting and reflex reflectors).

As with large trailers, two strips of white material 300 mm in length were proposed for application horizontally and vertically to the right and left upper rear contours of the body (as shown in Figure 31), as close to the top of the body and as far apart as practicable. Relocation of the material would be

allowed to avoid obscuration by vehicle equipment when viewed from directly behind. If relocation is required for one side of the rear but not the other, the manufacturer would be permitted to relocate the other strips to achieve a symmetrical effect.

To indicate the overall width of the truck tractor, two strips of retroreflective material, 600 mm in length, of alternating colors of red and white, were proposed for the rear, to be mounted as horizontal as practicable and as far apart as practicable, not more than 1525 mm above the road surface. In the proposal, this material could be applied to the truck body, or, if the tractor is so equipped, to the mudflaps or mudflap support brackets. However, if the strips were located on the mudflaps, they would be placed not lower than 300 mm below the mudflap support bracket to avoid excessive movement. Since the tire diameter, and consequently the distance from the mudflap support to the road surface, is nominally 1 meter, the lowest practicable location of the strips would be about 700 mm above the road surface.

Twenty comments were received in response to the NPRM, representing the views of truck manufacturers, commercial and private fleet operators, insurance companies, public interest groups and private citizens. Details of the issues raised by the comments and NHTSA's responses are discussed below.

#### Effectiveness and Necessity of Truck Tractor Conspicuity

Comments from Parents Against Tired Truckers, the Transportation Safety Equipment Institute, McKenzie Tank Lines, Merrill Allen, and Marshall Reagle voiced agreement with the proposed regulation and the reasons for its provisions. Dr. Allen also suggested that all mudflaps used on tractors and trailers should be white to maximize visibility.

Trans Gulf, Daggett Truck Line, and the National Private Truck Council expressed reservations about the value of truck tractor conspicuity. Daggett stated that concern for the visibility of the rear of truck tractors is a misplaced priority in comparison with the lack of visibility of trains at road crossings. Trans Gulf stated that truck tractors have the same rear lighting as automobiles and reflective material is unnecessary. The National Private Truck Council believes that the expectation of accident reduction as a result of conspicuity is unproven.

The agency does not agree that the rear lighting of truck tractors is comparable to the rear lighting of cars.

Truck tractors lack the center high mounted stop lamp and the mandatory rear mounted turn signals of cars, and they have far fewer rear lamps than other trucks. However, the greatest disadvantage of the rear lighting of truck tractors is the narrow spacing of the taillamps which creates a deceptive image for distance judgment not shared by cars. (For an explanation of this phenomenon, see the beginning of the next section, which is titled "Location of Material Marking the Width of a Truck Tractor.")

The basis of the safety benefits estimated for truck tractor conspicuity is the fleet study of trailers conducted by the agency in the 1980's (*Improved Commercial Vehicle Conspicuity and Signalling Systems—Task III*, HS 806 923). The rear crash experience is similar for both trailers and truck tractors operating without trailers in that the majority of fatal crashes in which they are struck occur at night. Also, the proportion of less serious crashes occurring at night is even greater for truck tractors without trailers than for trailers. The present configuration of tractor rear lighting persuades the agency that the information available on the effectiveness of retroreflective conspicuity on trailers provides a reasonable basis upon which to predict safety benefits for conspicuity material on truck tractors.

The Insurance Institute for Highway Safety, Advocates for Highway and Auto Safety, and the National Automobile Dealers Association expressed support of the truck tractor proposal and also urged the agency to expand the requirements for truck conspicuity in future rulemakings. Specifically, they suggested a requirement for all single-unit trucks, a treatment for the side of truck tractor bodies and cooperation between NHTSA and the Federal Highway Administration (FHWA) on a retrofit rule for truck tractors.

NHTSA has initiated a study of the effectiveness in service of the conspicuity treatments that have been required on new trailers manufactured since December 1, 1993. The results of this study may improve the agency's ability to estimate or project the safety benefits of conspicuity treatments on single-unit trucks which have a lower proportion of nighttime crashes.

The agency did not propose a body side treatment for truck tractors. There does not appear to be a practicable way to mark the whole length of the tractor, and a body-only treatment may mask the true length of the vehicle because of the long untreated frame and axles behind the body. The safety need is also

less obvious for the side of tractors than for the rear because ordinary traffic situations place the rear at a much higher level of exposure.

#### Location of Material Marking the Width of a Truck Tractor

The primary elements of the proposed conspicuity treatment were the low-mounted red/white strips intended to reveal the vehicle's width as well as to increase its visibility. The proposal included the options of placing the material either on the back of the cab (a permitted location for the present rear reflex reflectors of truck tractors), on the mudflap brackets or on the top portion of the mudflaps themselves.

This proposal addressed a problem created by the location of the taillamps of truck tractors. The particularly narrow spacing of their taillamps make it difficult for following drivers approaching truck tractors to judge their size and distance correctly at night. The taillamps are usually mounted much closer together on truck tractors than on other motor vehicles. A study by the University of Michigan Transportation Research Institute, titled *Effects of the Lateral Position of Low-beam Headlamps on the Perceived Distance of Vehicles (UMTRI-95-21)*, demonstrated that a driver's ability to perceive the distance of an oncoming vehicle is affected by the transposition on that vehicle of the lower-beam headlamps from the required outer position to the inner position used for upper beams. Since the spacing ratio of ordinary truck taillamps to truck tractor taillamps is at least twice the spacing ratio of lower beam to upper beam headlamps, a far greater effect on the ability of following drivers to judge distance would be expected. In other words, truck tractor taillamps are spaced even more narrowly (relative to other taillamps) than the narrowest headlamp spacing in the study (relative to normal headlamp spacing). Therefore, truck tractor taillamps would be expected to have a greater affect on distance perception than that demonstrated for headlamp placement.

MediQuik Express incorrectly concluded that the proposal would require retroreflective material integral with the mudflaps and expressed concern that it would "give mudflap manufacturers an excuse to double if not triple the cost of mudflaps." The NPRM did not assume the existence of mudflaps with integral retroreflective material in its cost estimate. The cost estimate of applying the material at the mudflap included the cost of two mounting plates to which the retroreflective material would be

attached. In this example, each mounting plate had the same bolt hole pattern as the top of the mudflap. The mounting plate carrying the retroreflective material was secured to the mudflap bracket, sandwiching the mudflap between the bracket and the mounting plate. This arrangement would affect neither the design nor the cost of present mudflaps and mudflap brackets.

However, 3M commented that market pressures, presumably to provide truck-tractor conspicuity at less than the cost estimated in the NPRM, would drive the development of adhesives and mechanical mounting systems to attach material directly to mudflaps. Specialty Adhesive Film Co. commented that it had already developed an adhesive and a bonding process to make direct attachment possible. The agency welcomes the availability of complying alternatives in conspicuity equipment, but the solution costed in the proposal was developed independently of them.

McKenzie Tank Lines, which operates a large fleet of tractors, reported that it had equipped tractors with reflective material on the mudflap brackets out of concern that the narrowly spaced taillamps would not create an accurate size image of tractors without trailers ("bobtail") to approaching motorists at night. However, it cautioned that many types of mudflap brackets do not have enough room for reflective material and that it would be a huge expense for a fleet to retrofit suitable mudflap brackets. The agency agrees with McKenzie that the mudflap bracket is the optimum location for conspicuity material, but it wishes to clarify that the rule is not retroactive. The agency also points out that the use of retroreflective material attached to the mudflap bracket by means of the mounting plate described above achieves the effect desired by McKenzie without relying on a particular mudflap bracket design.

Mudflap brackets with integral conspicuity material, like mudflaps themselves with integral conspicuity material, are product ideas with potential economic and aesthetic benefits, but the practicability of the final rule does not depend on their availability. It should be noted that the recent commercial offering by at least two companies of arrays of conspicuity grade (DOT-C) reflex reflectors in a bar form, narrower than conspicuity tape, may make the mounting of material directly to mudflap brackets more practical. The reflex reflector arrays look like strips of sheeting about 8 or 12 inches long but need only a width of about 1 inch to attain the required photometric performance.

Many commenters criticized the proposed alternative of attaching the red/white material to the rear of the cab. McKenzie believed that having the material on the cab rather than on the mudflap brackets could give following traffic a misconception of the location of the rear of the truck. The American Trucking Associations (ATA) cited an unsatisfactory experience of the U.S. Military in Germany with reflectorized placards on truck tractors. In a docketed telephone conversation, ATA explained to NHTSA that placards were placed on the back of the cab of a test vehicle, and a panel of observers suggested that the placards could cause a misconception of the location of the rear of the tractor in adverse weather at night. As a result, the military tractors were equipped with placards on the mudflaps. Another commenter, Mr. Wes Trindal, described a contrary experience of the U.S. Military in Vietnam. Truck tractors were equipped with lamp packages on the back of the body at the full width of the vehicle. He cited satisfaction of the troops using these vehicles and recommended similar auxiliary lights for truck tractors to use while being operated without trailers.

The Truck Manufacturers Association (TMA), Navistar, Mack, Ford and ATA commented that the option of placing the red/white width-marking part of the treatment on the cab was impractical. They cited a lack of space around the engine opening at the rear of many cabs and the amount of equipment obscuring the area necessary for a full width conspicuity treatment.

The agency has heeded the comments opposing the proposed alternative, and the final rule requires that the red/white element of the truck tractor conspicuity treatment be placed on either the mudflap bracket or the mudflap, or on a fender if the tractor is so equipped.

The same commenters observed that a significant proportion of new truck tractors are not delivered with permanent mudflaps and mudflap brackets as original equipment. The manufacturer equips such vehicles with temporary mudflaps and brackets to satisfy state laws, but dealers, aftermarket suppliers, or fleet service facilities install the permanent mudflap or fender equipment. The truck manufacturers, either individually or as part of TMA, recommended that the installers of permanent mudflaps be considered as second stage vehicle manufacturers with responsibility of certifying the compliance of the "completed" truck if truck tractor conspicuity is to be a NHTSA requirement for new vehicles. Navistar also recommended that truck tractor

conspicuity requirements be established as a Federal Motor Carrier Safety Regulation (administered by FHWA) rather than a requirement of Standard No. 108 for new motor vehicles regulated by NHTSA.

The agency does not agree that regulatory solutions of greater complexity are necessary. Manufacturers may certify compliance of vehicles with temporary mudflap brackets if backing plates with retroreflective material are installed with the mudflap attaching bolts as assumed in the cost estimate. The language of the final rule clarifies that retroreflective treatment of the temporary mudflap equipment is sufficient for certification if the retroreflective material is transferable to a permanent mudflap system. Locating retroreflective material on a heavy aluminum backing plate is the most obvious universal solution, and the one used in NHTSA's cost estimate, but the likely development of mudflaps with integral retroreflective material and reflex reflectors designed for attachment with the mudflap bolts may offer manufacturers lower cost alternatives for transferable conspicuity material. The permanent application of retroreflective material to a temporary mudflap bracket (usually a piece of lumber) is not an acceptable alternative because there is no assurance that the permanent bracket will have conspicuity material.

In response to the suggestion that installers of permanent mudflaps be considered as second stage vehicle manufacturers, NHTSA notes that those installers would not satisfy the definition of either an "intermediate manufacturer" or a "final stage vehicle manufacturer" in 49 CFR part 568 *Vehicles Manufactured in Two or More Stages*. Further, the truck tractors to which the installers add permanent mudflaps are not "incomplete vehicles." Therefore, the agency could not, consistent with part 568, place overall certification responsibility on those installers.

The agency also believes that conspicuity treatment should be a new-vehicle requirement and not solely for tractors in use subject to the regulations of FHWA. FHWA's Motor Carrier Safety regulation for lighting already incorporates by reference the lighting and reflector requirements of Standard No. 108 (at 49 CFR 393.11), and applies them to vehicles under FHWA's jurisdiction. The FHWA will work with the States through its Motor Carrier Safety Assistance Program to ensure that inspection personnel are aware that a significant percentage of truck tractors

will be shipped with temporary mudflap systems and transferable material. The FHWA and the States will help to make certain that the motor carriers operating these vehicles maintain the conspicuity treatments on the truck tractors. The presence of new truck tractors with conspicuity material and the availability of convenient new products are likely to stimulate interest in voluntary retrofit of existing vehicles. The agency believes that large numbers of trailers built before December 1, 1993, the effective date of the trailer conspicuity regulation, have been retrofitted voluntarily with conspicuity treatments similar to new trailer equipment.

A particular style of mudflap used on many truck tractors is not rectangular. It has the upper outer corner removed for clearance with trailer equipment and is supported by a bracket with a 45-degree downward bend about 8 inches from the outboard end. Manufacturers may satisfy the final rule by applying conspicuity material to the bracket despite the bend because such a placement is "as horizontal as practicable" on the bracket.

Alternatively, the rule may be met by securing conspicuity material across the mudflap horizontally below the corner notch because the rule allows it to be applied as low as 300 mm below the top of the mudflap. However, the use of transferable conspicuity material on a temporary rectangular mudflap presents a problem to an owner installing permanent mudflaps which are not rectangular. The horizontal top edge of this type of mudflap is only about 16 inches long, and thus the 600 mm long segments of transferable conspicuity material must be trimmed to 400 mm to fit. NHTSA will work with FHWA's Office of Motor Carrier Safety and Technology to develop inspection procedures to permit the practical use of original-equipment transferable conspicuity material on subsequently-installed permanent mudflap equipment.

#### Upper Cab Contour Markings

The second part of the proposed conspicuity treatment was illustrated in the NPRM as a pair of inverted "L" 's of white conspicuity material to mark the upper contour of the cab. This element is identical in shape and purpose to the upper conspicuity marking of trailers. The purpose of the upper material is to create a two-dimensional image to improve the judgement of distance and closing speed on the part of drivers approaching from a distance. On truck tractors, which are not required to have rear clearance and identification lamps,

cab-mounted conspicuity material may also provide the only source of visibility when the taillamps and lower conspicuity material are temporarily obscured by hilly terrain.

The previously discussed comments of ATA, TMA and the vehicle manufacturers regarding the possibility of a false indication of the rear of the vehicle as a result of reflective material on the lower cab and the lack of space on the rear of the cab to mount material were also directed toward the upper material. Mack and ATA provided pictures of vehicles to illustrate application difficulties. Navistar and TMA commented that the addition of non-OEM headboards, sleeper compartments and tool boxes would obscure the material, and they noted that even if the material were visible viewed from directly behind, as specified in the NPRM, it could be obscured viewed from a small angle. TMA asked for clarification regarding the avoidance of discontinuous surfaces, whether the vertical and horizontal reflector strips must intersect, and whether aerodynamic roof fairings are included in the cab contour.

NHTSA does not agree that truck tractor cabs lack the space for the upper treatment. The exact location of the upper treatment is less crucial than that of the lower treatment. It is not necessary for it to mark the extreme width or the extreme height of the cab for it to add a height dimension to the night image of a truck tractor. Therefore, the upper marking may be located in spots dictated by practicability and still fulfill its intended function.

The most common obstructions at the upper cab corners are exhaust stacks. The NPRM illustrated the right upper marking moved inboard to clear an exhaust stack, and the proposed regulation permitted manufacturers to move the marking on the opposite side to achieve a symmetrical appearance, if desired. The commenters supplied photographs of various truck tractor configurations illustrating possible obstructions. The most problematic cases for upper treatment were those featuring large rear windows with limited space between the rear window frame and large dual exhaust stacks on each side of the window. However, even these designs appeared to have enough space between the window and the stack obstruction for a one-inch wide reflex reflector bar if not a 2-inch strip of sheeting material. Also, the material may be attached to the edge of the window itself if the window is so large as to occupy all the practicable space for an upper treatment. However, limited obstructions such as fairing support

rods and hoses are not important enough to dictate the placement of the upper treatment. Accordingly, the final rule permits the upper material to be obscured up to 25 percent when viewed directly from behind (the rear orthogonal view).

TMA and Navistar commented that even material on the cab visible in a rear orthogonal view would not be useful because it could be obscured by exhaust stacks or other equipment when viewed at a small angle. However, the purpose of the upper material is to improve the distance perception of a driver of a faster vehicle approaching in the same lane. In this circumstance, the usual view of the truck tractor to the approaching driver is close to orthogonal. The only instance in which a truck tractor in the same lane would have a difference in heading angle great enough to cause total obscuration would be in a curve so sharp that the tractor would not be illuminated by the approaching headlamps. Likewise, there is little potential for the upper material to create a misleading impression of the location of rear of the vehicle because it is only visible at a distance. As the approaching vehicle nears the truck tractor, the upper treatment becomes very much dimmer than the lower material at the mudflaps. This occurs because the headlamps of vehicles close to the truck tractor do not project much light as high as the upper treatment. The light entrance angle also becomes unfavorable for retroreflection as the low headlamps approach the high-mounted material.

TMA was concerned that the existence of stiffening beads, drip rails and body seams may preclude the mounting of conspicuity material depending on the agency's definition of "discontinuous surfaces". The current regulatory language for trailers provides that conspicuity material "need not be applied to discontinuous surfaces such as outside ribs, stake post pockets \* \* \* or to items of equipment such as door hinges and lamp bodies." It does not prohibit the placement of material at difficult locations that may be labor intensive; it simply allows manufacturers greater discretion in designing a practicable treatment. The manufacturer may choose to make breaks in the strips to clear rivets, body seams and shallow stiffening corrugations for ease of application, but it is not required to do so. Likewise, the horizontal and vertical strips are not required to intersect, and Figure 30-1 in the current trailer conspicuity standard illustrates a trailer treatment in which the position of a hinge would make intersecting strips impractical. Also, the

agency does not consider aerodynamic body fairings as part of the cab contour. In general, fairings would not be an acceptable location for conspicuity material except as discussed below.

If the addition of OEM equipment obscures the material (equipment such as headboards, sleeper compartments, tool boxes and aerodynamic fairings), Standard No. 108, as well as the statute under which it was issued, requires that auxiliary conspicuity material be applied to those components prior to the truck tractor's initial sale in order to restore the truck tractor to conformity. Further, statutory law prohibits a manufacturer, distributor, dealer, or motor vehicle repair business from adding, after initial sale of a vehicle, equipment having an obscuring effect unless the modifier adds compensating auxiliary conspicuity material. Thus, the consequences of obscuring the conspicuity material will be the same as the consequences currently of obscuring auxiliary high mounted stop lamps by the installation of pickup truck caps. FHWA's Motor Carrier Safety Regulations would require auxiliary material on obscuring components on all regulated vehicles in interstate commerce built after the effective date of this final rule, regardless of who installed the components.

#### Continued Requirement for Present Truck Reflex Reflectors

Under the final rule, manufacturers of truck tractors have the option of using an array of reflex reflectors on the rear instead of retroreflective sheeting, the same option that is available to trailer manufacturers. However, reflex reflectors will continue to be required by Table I of Standard No. 108, in addition to the conspicuity material, whether sheeting or reflectors, as the agency has not amended paragraphs S5.1.1.1 and S5.1.1.2 of Standard No. 108 which excuse truck tractors from the full complement of rear lighting equipment required of trucks.

Presently, mounting of required reflectors or lamps on mudflaps is prohibited by paragraph S5.3.1. This requires lighting equipment to be "securely mounted on a rigid part of the vehicle other than glazing that is not designed to be removed except for repair". In the past, NHTSA has deemed mudflaps not to be a "rigid part of the vehicle." However, the prohibition has been subject to the exceptions "in succeeding paragraphs of S5.3.1 and S7", and NHTSA has now included as exceptions retroreflective sheeting material or reflex reflectors on mudflaps added in compliance with the conspicuity requirements of S5.7.

#### Estimate of Benefits

The benefits estimated for the trailer conspicuity regulation offer a reasonable basis for estimating the benefits of a similar regulation for truck tractors. The agency concluded that the likely result of adding conspicuity treatment to trailers was the prevention of 25 percent of rear collisions, and a significant reduction in the severity of many of the remaining collisions. Although the required rear lighting for a truck tractor is less than is required for a trailer, NHTSA believes that the added degree of conspicuity of a tractor that would be provided by conspicuity treatment is not less than the relative improvement in conspicuity of a trailer provided by its treatment. Thus, it is reasonable to assume a similar rate of crash prevention.

To account for degradation in performance of the conspicuity material after years of in-use exposure, in estimating benefits, the agency assumed that the conspicuity material would be effective only for the first fifteen years of a given model year tractor fleet's life. This is consistent with the agency's prior conclusion that the material would remain effective during the nominal fourteen years of life of a trailer.

NHTSA estimated that the property damage savings of preventing a crash into the rear end of a trailer, in 1992 dollars, as \$10,869, and, for damage mitigation, as \$2,075 (in 1995 dollars, \$11,847 and \$2,262 respectively). The agency believes that, when the entire truck tractor population is equipped with conspicuity treatment, on an annual basis 260 collisions can be prevented, resulting in a savings of \$3,080,000, and that the severity of a large number of the remaining 782 collisions can be mitigated, resulting in a savings of \$1,769,000, or total property damage benefits of \$4,849,000. The present value of these future benefits of a model year fleet would range from \$4,399,000 to \$3,176,000 under discount rate assumptions of 2 percent to 10 percent.

However, the primary purposes of a tractor conspicuity regulation is to save lives and reduce the severity of injuries. If fatalities involving rear collisions of truck tractors can be reduced by 15 to 25 percent annually, there will be 4 to 7 fewer deaths attributable to this type of accident. The agency also believes that there will be 94 to 157 fewer injuries annually when full coverage of the tractor population is achieved.

#### Estimate of Costs

In estimating costs, NHTSA has used a price for retroreflective material of

\$0.675 a linear foot, although market pressures may have reduced the cost to \$0.60 for high volume users. Approximately 8 linear feet of material (7.8 feet actually) would be required to comply. NHTSA is also estimating a labor rate of \$22.50 an hour, and an installation time of 10 minutes for the material.

On this basis, NHTSA estimates a manufacturer's cost of \$9.15 when the lower conspicuity treatment is applied directly to the mudflap brackets, and a consumer cost of \$13.82, applying a consumer cost factor of \$1.51. If the manufacturer chooses to apply the treatment to temporary mudflap brackets, using two reusable mounting plates at an additional cost to the manufacturer of \$1.11 each, the total additional cost to the consumer would be \$3.35. Thus, the cost to the manufacturer would range between \$9.15 and \$11.37, and to the consumer, between \$13.82 and \$17.17. Using the latter figure, and estimating an annual production of 170,000 for truck tractors, the agency estimates that the total annual cost impact of this regulation will not exceed \$2,919,500. The present value of future property damage reduction benefits from this regulation in property damage alone are expected to be at least \$3,176,000 with a discount rate of 10 percent and more if a lower discount rate prevails. The prevention of deaths and injuries would be achieved with no additional cost.

#### Effective Date

The NPRM proposed a lead time of 120 days. TMA, Navistar and Ford commented that a one-year lead time, as was established for the trailer conspicuity requirement, was necessary. They suggested that manufacturers would change the design of OEM mudflap brackets to incorporate conspicuity material. Additional time would be required to design and procure the new types of mudflap brackets as well as the mounting plates needed for vehicles leaving the factory with temporary mudflap equipment.

NHTSA also expects that custom-molded reflex reflectors may be an effective solution to some of the practicability concerns expressed about the upper conspicuity material and that manufacturers may choose to change the location of some rear equipment to ease the installation of conspicuity material. A sufficient lead time to develop products and designs to simplify the installation of a conspicuity treatment for truck tractors is justified. Therefore, NHTSA is adopting the one-year lead time recommended by truck tractor

manufacturers. The effective date of the final rule is July 1, 1997.

**Rulemaking Analyses and Notices**  
*Executive Order 12866 and DOT Regulatory Policies and Procedures*

This action has not been reviewed under Executive Order 12866. It has been determined that the rulemaking action is not significant under Department of Transportation regulatory policies and procedures. Implementation of the rule would not have a yearly cost impact that exceeds \$2,920,000 in the aggregate. Although the cost impacts are so minimal that preparation of a full regulatory evaluation may not be warranted, the agency has prepared a regulatory evaluation which has been placed in the docket.

*National Environmental Policy Act*

NHTSA has analyzed this rulemaking action for the purposes of the National Environmental Policy Act. It is not anticipated that the final rule will have a significant effect upon the environment. Compliance would require the application of not more than 8 feet of retroreflective tape to the rear of a truck tractor (1,360,000 feet for an estimated year's production of 170,000 truck tractors). Retroreflective material is currently in use with no known negative environmental effects.

*Regulatory Flexibility Act*

The agency has also considered the impacts of this rulemaking action in relation to the Regulatory Flexibility Act. I certify that this rulemaking action will not have a significant economic impact upon a substantial number of small entities. Accordingly, no regulatory flexibility analysis has been prepared. Manufacturers of truck tractors, those affected by the rulemaking action, are generally not small businesses within the meaning of the Regulatory Flexibility Act. Further, small organizations and governmental jurisdictions will not be significantly affected because the price of new truck tractors will be only minimally increased. An increase in cost of less than \$18 per vehicle is expected to be more than offset by savings in repair over the life of the model year fleet.

*Executive Order 12612 (Federalism)*

This rulemaking action has also been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and NHTSA has determined that this rulemaking action does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

*Civil Justice*

The final rule will not have any retroactive effect. Under 49 U.S.C. 30103, whenever a Federal motor vehicle safety standard is in effect, a state may not adopt or maintain a safety standard applicable to the same aspect of performance which is not identical to the Federal standard. Section 30163 sets forth a procedure for judicial review of final rules establishing, amending or revoking Federal motor vehicle safety standards. That section does not require submission of a petition for reconsideration or other administrative proceedings before parties may file suit in court.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles.

**PART 571—FEDERAL MOTOR VEHICLE SAFETY STANDARDS**

In consideration of the foregoing, 49 CFR part 571 is amended as follows:

1. The authority citation for part 571 continues to read as follows:  
 Authority: 49 U.S.C. 322, 30111, 30115, 30162; delegation of authority at 49 CFR 1.50.
2. Section 571.108 is amended by:
  - (a) Revising paragraphs S5.3.1, S5.7, S5.7.1, S5.7.1.3(a), S5.7.1.4 (a) and (b), and the headings of S5.7.1.4.1 and S5.7.1.4.2,
  - (b) Adding new paragraph S5.7.1.4.3,
  - (c) Revising paragraphs S5.7.2 and S5.7.3, and
  - (d) Adding Figure 31, to read as follows:

**§ 571.108 Motor Vehicle Safety Standard No. 108 Lamps, Reflective Devices, and Associated Equipment.**

\* \* \* \* \*  
 S5.3.1 Except as provided in succeeding paragraphs of S5.3.1, and paragraphs S5.7 and S7, each lamp, reflective device, and item of associated equipment shall be securely mounted on a rigid part of the vehicle other than glazing that is not designed to be removed except for repair, in accordance with the requirements of Table I and Table III, as applicable, and in the location specified in Table II (multipurpose passenger vehicles, trucks, trailers, and buses 80 or more inches in overall width) or Table IV (all passenger cars, and motorcycles, and multi-purpose passenger vehicles, truck, trailers and buses less than 80 inches in overall width), as applicable.  
 \* \* \* \* \*

S5.7 *Conspicuity Systems.* Each trailer of 80 or more inches overall width, and with a GVWR over 10,000 lbs., manufactured on or after December

1, 1993, except a trailer designed exclusively for living or office use, and each truck tractor manufactured on or after July 1, 1997, shall be equipped with either retroreflective sheeting that meets the requirements of S5.7.1, reflex reflectors that meet the requirements of S5.7.2, or a combination of retroreflective sheeting and reflex reflectors that meet the requirement of S5.7.3.

S5.7.1 *Retroreflective sheeting.* Each trailer or truck tractor to which S5.7 applies that does not conform to S5.7.2 or S5.7.3 shall be equipped with retroreflective sheeting that conforms to the requirements specified in S5.7.1.1 through S5.7.1.5.  
 \* \* \* \* \*

S5.7.1.3 *Sheeting pattern, dimensions, and relative coefficients of retroreflection.*

(a) Retroreflective sheeting shall be applied in a pattern of alternating white and red color segments to the sides and rear of each trailer, and to the rear of each truck tractor, and in white to the upper rear corners of each trailer and truck tractor, in the locations specified in S5.7.1.4, and Figures 30–1 through 30–4, or Figure 31, as appropriate.  
 \* \* \* \* \*

S5.7.1.4 *Location.* (a) Retroreflective sheeting shall be applied to each trailer and truck tractor as specified below, but need not be applied to discontinuous surfaces such as outside ribs, stake post pickets on platform trailers, and external protruding beams, or to items of equipment such as door hinges and lamp bodies.

(b) The edge of white sheeting shall not be located closer than 75 mm to the edge of the luminous lens area of any red or amber lamp that is required by this standard.  
 \* \* \* \* \*

- S5.7.1.4.1 *Rear of trailers.* \* \* \*
- S5.7.1.4.2 *Side of trailers.* \* \* \*
- S5.7.1.4.3 *Rear of truck tractors.*

Retroreflective sheeting shall be applied to the rear of each truck tractor as follows:

(a) Element 1: Two strips of sheeting in alternating colors, each not less than 600 mm long, located as close as practicable to the edges of the rear fenders, mudflaps or the mudflap support brackets, to mark the width of the truck tractor. The strips shall be mounted as horizontal as practicable, in a vertical plane facing the rear, on the rear fenders, mudflap support brackets, on plates attached to the mudflap support brackets, or on the mudflaps. Strips on mudflaps shall be mounted not lower than 300 mm below the lower edge of the mudflap support bracket. If

the vehicle is certified with temporary mudflap support brackets, the strips shall be mounted on the mudflaps or on plates transferable to permanent mudflap support brackets.

(b) Element 2: Two pairs of white strips of sheeting, each pair consisting of strips 300 mm long, applied as horizontally and vertically as practicable, to the right and left upper contours of the body, as close to the top of the body and as far apart as practicable. No more than 25 percent of their cumulative area may be obscured

by vehicle equipment as determined in a rear orthogonal view. If one pair must be relocated to avoid obscuration by vehicle equipment, the other pair may be relocated in order to be mounted symmetrically.

S5.7.2 *Reflex Reflectors.* Each trailer or truck tractor to which S5.7 applies that does not conform to S5.7.1 or S5.7.3 shall be equipped with reflex reflectors in accordance with this section.

\* \* \* \* \*

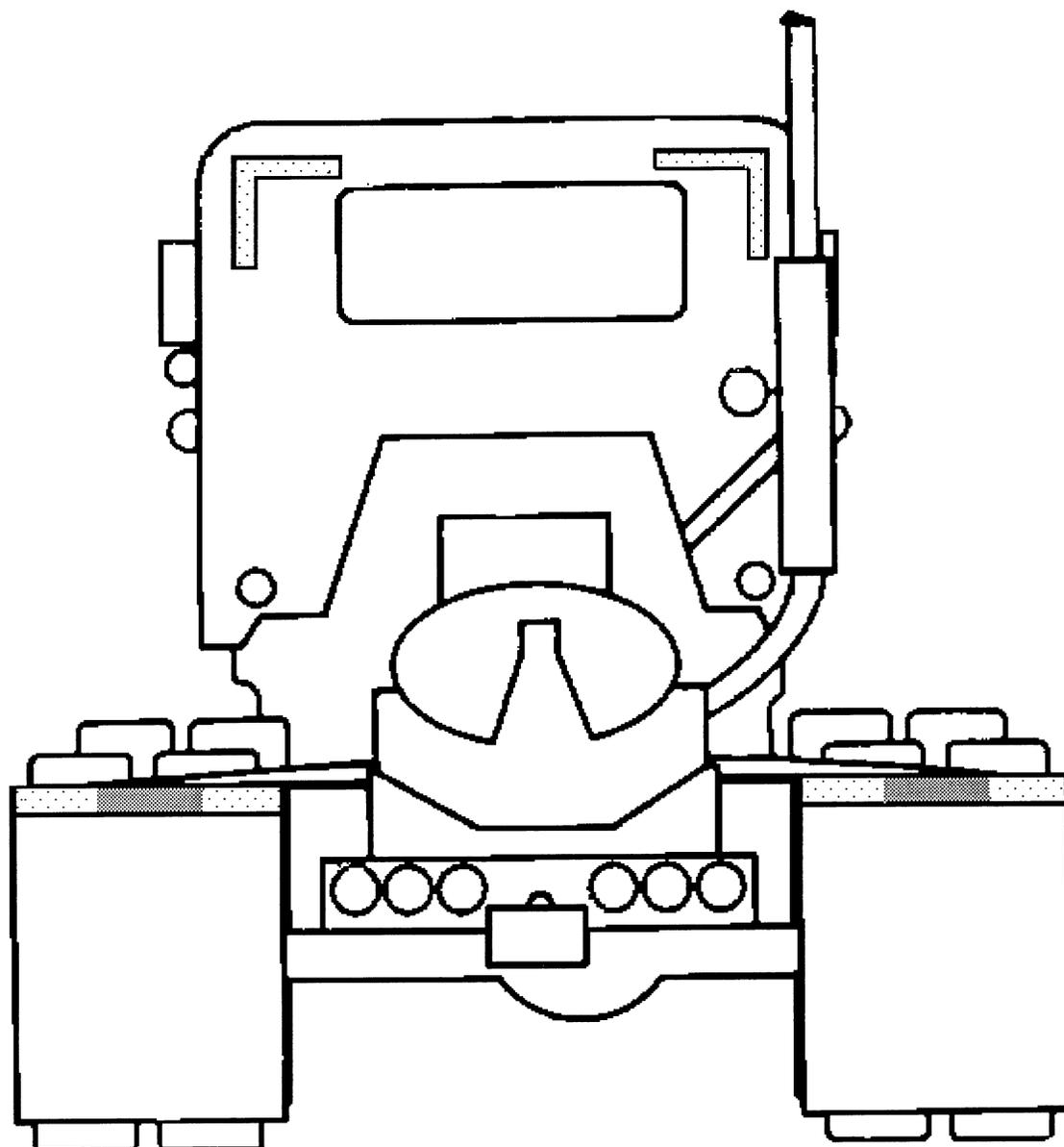
S5.7.3 *Combination of sheeting and reflectors.* Each trailer or truck tractor to

which S5.7 applies that does not conform to S5.7.1 or S5.7.2, shall be equipped with retroreflective materials that meet the requirements of S5.7.1 except that reflex reflectors that meet the requirements of S5.7.2.1, and that are installed in accordance with S5.7.2.2, may be used instead of any corresponding element of retroreflective sheeting located as required by S5.7.1.4.

\* \* \* \* \*

3. Figure 31 is added as follows:

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**FIGURE 31 - TRACTOR CONSPICUITY TREATMENT EXAMPLE**

BILLING CODE 4910-59-C

Issued on July 24, 1996.

Ricardo Martinez,  
*Administrator.*

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