

State/location	Community No.	Effective date of eligibility	Current effective map date	Date certain Federal assistance no longer available in special flood hazard areas
Kirby, city of, Bexar County	480041	Nov. 6, 1974, Emerg; Aug. 15, 1980, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Leon Valley, city of, Bexar County	480042	June 25, 1973, Emerg; June 1, 1977, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Live Oak, city of, Bexar County	480043	Nov. 3, 1972, Emerg; May 16, 1977, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Shavano Park, city of, Bexar County	480047	Dec. 26, 1973, Emerg; Sept. 3, 1980, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Somerset, city of, Bexar County	481264	June 14, 1994, Emerg; Feb. 16, 1996, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Universal City, city of, Bexar County	480049	Feb. 14, 1974, Emerg; May 16, 1977, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.
Windcrest, city of, Bexar County	480689	Jan. 21, 1974, Emerg; Aug. 15, 1977, Reg; Feb. 16, 1996, Susp.	2-16-96	Do.

Code for reading third column: Emerg.—Emergency; Reg.—Regular; Rein.—Reinstatement; Susp.—Suspension.

(Catalog of Federal Domestic Assistance No. 83.100, "Flood Insurance.")

Issued: February 12, 1996.

Richard W. Krimm,
Acting Associate Director, Mitigation
Directorate.

[FR Doc. 96-3441 Filed 2-14-96; 8:45 am]

BILLING CODE 6718-05-P

DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 92-29; Notice 10]

RIN 2127-AF96

Federal Motor Vehicle Safety Standards; Stability and Control of Medium and Heavy Vehicles During Braking

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

ACTION: Final rule, petitions for reconsideration.

SUMMARY: This document responds to petitions for reconsideration of final rules that amended FMVSS No. 105, *Hydraulic Brake Systems*, and FMVSS No. 121, *Air Brake Systems*, to require medium and heavy vehicles to be equipped with an antilock brake system (ABS). In response to the petitions, this document requires continuous power for trailer ABS systems, in place of the dedicated power and separate ground previously required, and delays the implementation date for the in-cab trailer malfunction indicator by four years. It also extends by three years the period in which exterior ABS failure indicators are required on trailers.

DATES: Effective Dates: The amendments to 49 CFR 571.121 are effective March 1, 1997.

Compliance Dates: Compliance with the amendments to paragraphs S5.1.6.2(b) and S5.2.3.2 of 49 CFR 571.121 will be required on and after March 1, 2001. Compliance with the amendments to paragraph S5.1.6.3 for truck tractors will be required on and after March 1, 1997 and for single unit vehicles will be required on and after March 1, 1998. Compliance with the amendments to paragraph S5.2.3.2 will be required on and after March 1, 2001. Compliance with the amendments to S5.2.3.3 will be required on and after March 1, 1998.

Petitions for Reconsideration: Any petitions for reconsideration of this rule must be received by NHTSA no later than April 1, 1996.

ADDRESSES: Petitions for reconsideration of this rule should refer to the above referenced docket numbers and should be submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT:

For non-legal issues: Mr. Robert M. Clarke, Office of Crash Avoidance, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590 (202) 366-5278.

For legal issues: Mr. Marvin L. Shaw, NCC-20, Rulemaking Division, Office of Chief Counsel, National Highway Traffic Safety Administration, 400 Seventh Street, SW., Washington, DC 20590 (202) 366-2992.

SUPPLEMENTARY INFORMATION:

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I. Background

Section 4012 of the Motor Carrier Act of 1991, a part of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, P.L. 102-240, directed the Secretary of Transportation to initiate rulemaking concerning methods for improving braking performance of new commercial motor vehicles, including truck tractors, trailers, and their dollies. Congress specifically directed that such a rulemaking examine antilock systems, means of improving brake compatibility, and methods of ensuring effectiveness of brake timing. The Act required that the rulemaking be consistent with the Motor Carrier Safety Act of 1984 (49 U.S.C. § 31136) and be carried out pursuant to, and in accordance with, the National Traffic and Motor Vehicle Safety Act of 1966 (now recodified as 49 U.S.C. § 30101 *et seq.* (Safety Act)).

On March 10, 1995 (60 FR 13216, 60 FR 13297), NHTSA issued final rules that required medium and heavy vehicles¹ to be equipped with an antilock brake system (ABS) to improve their directional stability and control during braking. The March 1995 final rules also reinstated stopping distance requirements for air-braked heavy vehicles and established stopping distance requirements for hydraulic-braked heavy vehicles.

In addition to the ABS requirement, the ABS final rule required truck

¹ Hereinafter referred to as "heavy vehicles"

tractors and other towing vehicles to supply dedicated, full time electrical power to a trailer ABS and required truck tractors and other towing vehicles to be equipped with two separate in-cab lamps: one indicating malfunctions in the towing vehicle ABS and the other indicating malfunctions in the ABS on one or more towed trailers and/or dollies. The rule also required all trailers, including dollies, produced during an eight-year transition period, to be equipped with an external malfunction indicator. In response to petitions for reconsideration of these requirements, NHTSA published a final rule on December 13, 1995 (60 FR 63965) affirming its decision to require these features.

II. Petitions for Reconsideration of December 1995 Final Rule

NHTSA received petitions for reconsideration of the December 1995 amendments to the final rule from the American Trucking Associations (ATA) which represents trucking fleets, the National Private Truck Council (NPTC) which represents private trucking fleets, the Truck Manufacturers Association (TMA)², the Truck Trailer Manufacturers Association (TTMA) which represents trailer manufacturers, the Heavy Duty Brake Manufacturers Council (HDBMC)³ which represents heavy duty brake component manufacturers, Midland-Grau, Kelsey-Hayes, Rockwell WABCO, Vehicle Enhancement Systems (VES), AlliedSignal, General Motors, Ford, and the Recreational Vehicle Industry Association (RVIA).⁴

As did the petitioners for reconsideration of the March 1995 final rule, all petitioners for reconsideration of the December 1995 final rule agreed with and supported NHTSA's decision and schedule requiring all heavy vehicles to be equipped with ABS. ATA, TMA, and TTMA reference what they refer to as the ATA/TMA/TTMA Industry Consensus Position ABS Reconsideration petition,⁵ with which they have stated their concurrence. The

Industry Consensus Position states that the agency should retain the current overall requirements and timing. Similarly, TMA stated that its companies "continue to support the production, sale, and service of ABS within the specified time frames." Nevertheless, the Industry Consensus Position and each of the petitioners requested that the agency modify the requirements that address trailer ABS power and the in-cab trailer malfunction indicator. Specifically, the Industry Consensus Position is that the agency should (1) delete the requirement for continuous, dedicated power⁶ to the trailer ABS and replace it with a requirement for continuous power but no dedicated circuit (with backup power on the stoplamp circuit) and delete the separate ABS ground requirement, and (2) delay the effective date for an in-cab trailer warning light, but specify another date that will accelerate the development of the specific means for achieving the goal of having that warning light. The petitioners supporting the Industry Consensus Position explained that the heavy vehicle manufacturers and users are working together and are committed to developing and deploying a satisfactory in-cab trailer warning light within the extended time period requested.

III. NHTSA's Decision and Analysis of Issues

As explained below, NHTSA has decided to amend FMVSS No. 121 consistent with the Industry Consensus Position and to replace the requirement for dedicated power to trailer ABS with a requirement for continuous power. Stoplamp power will continue to be required to provide back-up power for the ABS. In addition, the agency has decided to delete the requirement for a separate ABS ground and to allow a common ground for ABS trailer powering. The agency has also decided to delay the implementation date for the in-cab trailer malfunction indicator until March 1, 2001.

A. Trailer Powering

1. Background and Previous NHTSA Rulings

A trailer's antilock brake system may receive its electrical power in one of the following ways: (1) intermittent power through the stoplamp circuit, (2) continuous power through a circuit that is shared and provides power to more than one electrical component or which is used to transmit one or more signals,

or (3) continuous, dedicated power through a circuit whose sole function is to provide power to the trailer ABS. With stoplamp powering, electrical power to the ABS is only supplied when the brake pedal is applied and the stop lamp switch is activated. As a result, the trailer ABS must share power with stoplamp bulbs, which decreases the voltage available for powering the trailer ABS. With continuous powering, electrical power to the trailer ABS is present at all times, but other devices could be powered off the same circuit and multiplexed⁷ communication signals could be carried on the circuit. With dedicated powering, electrical power to the trailer ABS is present at all times, but no other device can be powered off this circuit and communications signals cannot be carried on the circuit.

Trailers do not typically have their own electrical power source. Thus, an electrical connector is needed to provide electrical current between a tractor and a trailer. At present, the most common electrical connector used for this purpose in the United States is the SAE J560 plug/receptacle, which was developed in the 1950s and has been in widespread use ever since. This connector has seven pins, providing seven electrical paths: Pin one is used as a common ground for the other six positive power pins; pin two is used to power clearance and side marker lamps; pin three is used to power the left hand turn signal; pin four is used to power the stoplamp; pin five is used to power the right hand turn signal and hazard signal; pin six is used to power the taillamp, marker lamps, and license plate lamps; and pin seven is an auxiliary circuit that is not currently used in most vehicle combinations. In the past, it has been common practice to power trailer ABSs exclusively from pin 4, the stoplamp circuit. This involves sharing power with the stoplamp bulbs which are only activated when the brakes are applied.

In a fleet study⁸ that NHTSA conducted to support the current ABS rulemaking, the agency evaluated other ABS powering approaches, including a single 13-pin connector, a separate six-pin connector, and another separate connector known as the International

⁷ Multiplexing is defined by the Society of Automotive Engineers's (SAE's) Multiplex Subcommittee as "The process of combining several messages for transmission over the same signal path."

⁸ "An In-Service Evaluation of the Performance, Reliability, Maintainability, and Durability of Antilock Braking Systems for Semitrailers," U.S. Department of Transportation/ NHTSA Report No. DOT HS 808 059, October 1993

² TMA member companies include Ford, Freightliner, General Motors, Mack Trucks, Navistar International, PACCAR, and Volvo GM Heavy Truck.

³ HDBMC member companies include Abex, AlliedSignal, Eaton, Midland-Grau, Ferodo America, Haldex, Lucas, MGM Brakes, Motion Control/Carlisle, Rockwell, Rockwell WABCO, and Spicer/Dana.

⁴ General Motors, Ford, Kelsey-Hayes, and the RVIA all address amendments to FMVSS No. 105. In this notice, the agency is responding to the issues relating to FMVSS No. 121. The agency will address the petitions raising FMVSS No. 105 issues in a future notice.

⁵ Hereinafter referred to as "Industry Consensus Position."

⁶ The terms continuous power, dedicated power, and connector are discussed in the next section.

Standards Organization ("ISO") connector. These other powering approaches used dedicated electrical circuits, including separate, fully dedicated positive and ground wires, to power the trailer ABS.

In the March 1995 final rule, NHTSA decided to require dedicated powering for trailer ABSs and to require that towing vehicles have a corresponding separate circuit. (60 FR 13248-13250) The agency explained that this requirement provides the most dependable source of electrical power from the tractor to ensure the functioning of the trailer's ABS.

In petitions for reconsideration of the March 1995 final rule, American Automobile Manufacturers Association (AAMA), Midland-Grau, and TTMA requested that NHTSA interpret the requirement for dedicated power so that the ABS powering circuit need not be exclusively used for ABS. AAMA and Midland-Grau requested the agency to allow other uses for this circuit, such as powering interior van trailer lights and multiplex signaling. ATA reasserted its concern that the requirement for a separate circuit would be costly and would create operational problems, because it would result in the use of a second tractor/trailer electrical connector, which would be used only infrequently, until the number of tractors and trailers with ABS increased, to the point where a high percentage of vehicles in combination would be ABS equipped. ATA stated a strong preference for a requirement that would allow the continued use of the SAE J560 connector. In a September 6, 1995 letter, ATA requested that the agency interpret the requirement for a separate electrical circuit in such a way as to allow the continued use of the SAE J560 connector.

In the December 1995 final rule responding to petitions for reconsideration, NHTSA denied the petitioners' request to permit other uses for the separate ABS circuit. Based on information available at that time, NHTSA concluded that it was necessary for the ABS on towed vehicles to receive full-time power through a dedicated circuit to reduce the possibility of the ABS being inoperative due to lack of power. The agency found no basis in the publicly available data on which to alter its view that the dedicated circuit was necessary.

2. Petitions for Reconsideration of December 1995 Final Rule

In response to the December 1995 final rule, each petitioner supported the Industry Consensus Position to permit continuous powering to the trailer ABS.

TMA stated that new information and industry commitments support a decision to delete the dedicated powering requirement and replace it with a continuous powering requirement. TMA, Midland-Grau, ATA, AlliedSignal, HDBMC, and VES supplied data which indicated that adequate levels of electrical power could be supplied to trailer ABSs on non-dedicated circuits. Midland-Grau strongly supported the continuous powering requirement with the stoplamp circuit as a back up, provided that the ABS circuit could be used to power warning and other monitoring systems. ATA supported the Industry Consensus Position. That organization continues to believe that intermittent powering through the stoplamp circuit provides adequate electrical energy to power the trailer ABS, citing its analysis of additional data and industry commitments to upgrade tractor electrical systems. Nevertheless, ATA agreed to a requirement for continuous power instead of stoplamp power, if the trailer ABS power supply circuit could be used for other purposes.

All petitioners opposed the requirement for dedicated powering with a separate ground. TMA, ATA, Midland-Grau, AlliedSignal, and HDBMC stated that the separate ground requirement, which is an integral part of dedicated powering, requires the use of diodes in the trailer ABS's electrical control unit (ECU) which reduce the voltage available for trailer ABS. They further stated that requiring two grounds could create "ground loop circuits," which may create unexpected voltage differences between various electrical systems on vehicles. This may result in electrical shorting and the possibility of electrical fires.

In support of their petitions, the petitioners provided new information relating to the voltage requirements of the new generation of ECUs, the amperage requirements of new modulators, and the voltage losses associated with dedicated power circuits. The petitions also stated that the petitioners are committed to meeting new voluntary powering standards and to completing the development of a new generation of electronic communications systems.

3. Agency's Decision

The agency's decisions are based on the new information provided in the public record by the petitioners, as described above and discussed more fully below. Based on this information,

as well as recent studies⁹ by the agency, NHTSA has decided to amend FMVSS No. 121 consistent with the Industry Consensus Position and to replace the requirement for dedicated power to the trailer ABS with a requirement for continuous power. Stoplamp power will continue to be required to provide back-up power for the trailer ABS. In addition, the agency has decided to delete the requirement for a separate ABS ground and to allow a common ground for ABS trailer powering. The agency emphasizes that continuous power rather than intermittent power through the stoplamp circuit is needed as a primary powering source to ensure the safe operation and reliability of trailer ABS and to provide the capability to signal a continuous warning of a trailer ABS malfunction to the cabs of towing units.

With respect to the safe operation of trailer ABS, an agency report¹⁰ indicated that a problem can occur if power is interrupted to a trailer ABS while it is cycling. Specifically, under lightly loaded or empty trailer operating conditions on low coefficient of friction surfaces, if a brake application that activates the ABS is fully released and then fully applied again, the resulting interruption of electrical current through the stoplamp circuit can cause the reactivated ABS ECU to misinterpret the wheel speed signals it is receiving. The ECU could interpret the signals as meaning that the vehicle is stopped and thereupon allow the brakes to be fully applied. This would result in locked trailer wheels. Notwithstanding the fact that this type of brake application might occur infrequently in real-world operating conditions, this possibility underlines the importance of continuous powering as the primary method of powering trailer ABS, and indicates that the stoplamp circuit should not be relied on as more than a back-up to primary continuous powering. Data submitted by Midland-Grau support the agency's position.

With respect to the reliability of trailer ABS, NHTSA's decisions in earlier rulemakings focused on ensuring that the trailer ABS received adequate voltage. In the March 1995 final rule,

⁹Winkler, C.B., Bogard, S.E., Bowen, M.A., Ganduri, S.M., and Lindquist, D.J. "An Operational Field Test of Long Combination Vehicles Using ABS and C-Dollies", University of Michigan Transportation Research Institute Report No. 95-45-2, under USDOT/NHTSA Contract No. DTNH22-92-D-07003, November 1995

Flick, M. A., "NHTSA's Heavy Duty Vehicles Brake Research Program Report Number 10—Evaluation of Trailer Antilock Braking Systems Electrical Powering", USDOT Report No. HS 808 249, March 1995.

¹⁰USDOT Report No. HS 808 249, March 1995.

the agency specified a requirement for a dedicated trailer ABS power circuit as the best means to ensure adequate voltage levels (i.e., 9–10 volts) for trailer ABSs. The agency believed that a separate ground wire was also needed to ensure sufficient capacity to provide a return path for electrical current that would not be subject to excessive voltage drops because the ground wire carried too much current. This belief rested on data from the agency's fleet studies.

On the basis of this new information in the petitions for reconsideration, NHTSA has determined that a continuous, but non-dedicated, source of power and a shared ground will provide sufficient power to the trailer ABS. The HDBMC petition stated that all current versions of trailer ABSs function at levels as low as 8.5 volts, and that ABS modulators have now been designed to draw a maximum of 3 amps. The agency agrees with the HDBMC petition that the information previously available indicating that trailer ABSs require 9–10 volts to remain functional, and that ABS modulators draw 2–6 amps of current, has been superceded. This information about the lower power needs of new ABS systems indicates that a dedicated power source and a separate ground wire are not necessary for ABS power.

The agency agrees with petitioners that the addition of a separate ground wire would necessitate adding diodes to the trailer ECU powering circuitry to prevent inadvertent ground loops that may result in electrical short circuits or electrical fires. These added diodes would result in a 0.7 volt decrease to the trailer ECU, an outcome inconsistent with ensuring adequate power levels.

Based on the above considerations, NHTSA has decided to modify sections 5.1.6.3 and 5.5.2 to require continuous power to trailer ABSs, to permit the circuit to be shared with other devices and to allow trailer ABS powering circuits to share a common ground with other electrical powering circuits.

Powering electrical devices other than the trailer ABS from the ABS power circuit has the potential to compromise the circuit's ability to power the trailer ABS. A recently completed study on long combination-unit vehicles (LCVs)¹¹ highlights the need to design all the elements of tractor/trailer electrical system to ensure adequate electrical power levels. Among other things, that study considered whether sufficient

voltage could be supplied to the rear trailers and dollies of multiple trailer combinations (especially triple trailer combinations) on the same circuit. The study found that even with special wiring and well maintained connectors, it was necessary for the electrical systems of tractors to supply 13.3 volts and for the ABS on dollies and trailers to operate on no more than 9.0 volts in order to ensure that sufficient electrical power could be supplied. Some of the tractors in the test program were not able to consistently provide the 13.3 volts of electrical power through the stoplamp circuit, and some of the ABSs needed more than 9.0 volts. In some cases, trailing unit ABSs ceased functioning. Accordingly, a manufacturer can ensure adequate powering for trailer ABSs by providing adequately sized electrical wiring in both towing and towed units, by providing towing units with heavy duty electrical charging systems, and by employing low voltage demand lighting systems.

The agency agrees with Midland-Grau's position that the only other devices which should share this circuit are warning, monitoring, or other signaling/communications devices. Additional uses that would not likely pose problems are low power demand components or devices which are powered when the vehicle is stopped or in reverse, conditions in which the ABS would not be in use. However, the agency has decided not to specify the devices that may share the use of the trailer ABS power circuit. The agency is confident heavy vehicle manufacturers and users recognize the need for appropriate restrictions and notes that industry is working, through various SAE and other technical committees, to establish performance standards for electrical systems that power tractor and trailer ABS systems. These anticipated industry standards are expected to include objective performance test procedures, measurement criteria, and, in some cases, target performance levels. Several of the petitioners specifically referenced SAE J2272, Truck Tractor Power Output for Trailer ABS, and its TMC equivalent, RP137, Antilock Electrical Supply for Tractors Through the SAE J560 Connector, and indicated that they were committed to designing and using products that meet these specifications. TTMA stated that it was developing a comparable companion standard for trailer electrical systems.

NHTSA will monitor these efforts to develop consensus industry standards and the commitment made by heavy vehicle manufacturers and users to meet these voluntary standards. Efforts to

develop consensus on this topic have been under way since 1988, when WABCO submitted a petition on trailer ABS powering schemes (53 FR 39751, October 12, 1988). The agency anticipates that this powering issue can be resolved without further delays in the implementation schedule for the trailer powering and in-cab indicator requirements.

After evaluating these voluntary standards, NHTSA may consider further rulemaking to amend FMVSS No. 121 to require minimum voltage levels at the tractor or to limit the use of the ABS power circuit if such requirements appear necessary to ensure the adequacy of power to the trailer ABS. Such a rulemaking action would be consistent with the President's Regulatory Reinvention Initiative which encourages regulatory agencies, when appropriate, to adopt voluntary standards established and followed by the private sector.

B. Trailer Malfunction Indicators

FMVSS No. 101, *Controls and Displays*, sets forth requirements for the location, identification, and illumination of motor vehicle controls and displays. Table 2(a) of the standard lists various telltales that are required in a motor vehicle to advise the driver of the status of a variety of vehicle systems. For air brake equipped trucks, these include telltales for brake system air pressure and for ABS malfunction in the truck.

In the March 1995 final rule, NHTSA required lamps in the cab of truck tractors to indicate any malfunction with the ABS of any towed vehicles. (60 FR 13244, 13245) The agency also required trailers to supply trailer ABS malfunction signals to the tractor. The agency explained that it is essential that a driver be notified about an ABS malfunction in the trailer, so that the problem can be corrected. The agency cited results from the ABS fleet study which indicated that drivers are more likely to observe a tractor in-cab indication of a trailer ABS malfunction than they are a trailer-mounted lamp. The study also noted that some trailer ABS malfunctions were present for a long time, and not reported, because the drivers did not notice that the trailer-mounted malfunction lamps were activated. Based on these findings, the agency decided that it was necessary to require an in-cab trailer ABS malfunction warning light to adequately ensure that such malfunctions would be detected and corrected.

In response to the March 1995 final rule, ATA petitioned the agency to delete the requirement for in-cab indication of trailer ABS malfunctions.

¹¹ University of Michigan Transportation Research Institute Report No. 95-45-2, under USDOT/NHTSA Contract No. DTNH22-92-D-07003, November 1995

It argued that such a requirement was unnecessary and would needlessly complicate the electrical system of the tractor and the electrical connector arrangement between tractors and trailers.

In the December 1995 final rule, NHTSA denied ATA's request to delete the in-cab malfunction lamp for the trailer ABS. In explaining that the in-cab trailer malfunction lamp is necessary, the agency referenced a study that showed that an in-cab malfunction lamp is a more effective means of making the driver aware of an ABS malfunction, compared with an external malfunction lamp on the trailer.¹² NHTSA also disagreed with ATA's statement that the requirement for two malfunction indicators unreasonably complicates the electrical systems in combination vehicles, based on comments by brake and vehicle manufacturers stating that it was appropriate to have an indicator in the towing unit cab.

In response to the December 1995 final rule, the Industry Consensus Position stated that ultimately it is essential to provide drivers an in-cab indication of a trailer(s) ABS malfunction, but that requiring the in-cab indicator by 1997 would likely impede the implementation of a new high speed data transmission protocol SAE J1939 that is now being developed by the SAE. This new protocol is expected to become the recognized method for providing signaling capability between tractors and trailers for a wide variety and number of devices and systems, including trailer ABS malfunction indications. The Industry Consensus Position is that delaying the implementation date of the in-cab malfunction warning requirement for trailer ABS malfunctions to March 1, 2001, would provide sufficient time to fully develop the SAE J1939 protocol and would thus preclude the need for a two-step implementation process.

Based on information provided in the petitions, NHTSA has decided to grant the requested delay for the trailer in-cab malfunction indicator. By delaying the requirement, the agency will enable the manufacturers to move directly and promptly to in-cab failure indicators that will use the new SAE protocol, thereby saving the cost of installing indicators based on current technology. The delay will also avoid the compatibility problems between new and old tractors and trailers in the field and the associated costs and potential

maintenance problems associated with such a transition. The petitions indicate a strong commitment to develop an SAE J1939-based final solution. The agency anticipates that heavy vehicle manufacturers and users will be able to develop and implement SAE J1939 and that further delays in the implementation of this requirement will neither be requested nor necessary.

NHTSA further notes that the external trailer indicator will still advise a driver about a trailer ABS malfunction during this interim period, when an in-cab indicator is not required. Notwithstanding the need to rely on the external trailer indicator during this interim period, NHTSA continues to view the in-cab trailer ABS malfunction indicator as the best method for informing a driver of a trailer ABS malfunction, based on the data and other information referenced in the final rule.

C. External Trailer Malfunction Indicator

In previous notices, NHTSA emphasized the interrelationship between the in-cab trailer malfunction indicator and the external trailer malfunction indicator. In the September 28, 1993, notice of proposed rulemaking (60 FR 13221, September 28, 1993) which led to the March 1995 final rule, the agency stated that the eight-year period for the interim external trailer requirement was intended to represent the average lifespan of a truck tractor and that

The external lamp would not be necessary on new trailers manufactured after the end of that period because by that time, a significant majority of tractors in the heavy vehicle fleet, which would be responsible for the vast majority of miles driven by tractors, would be manufactured in compliance with the requirement for an in-cab lamp capable of receiving a malfunction signal from a trailer.

In the final rule, the agency reiterated this view, although it talked in terms of "ABS and non-ABS equipped tractors" as a shorthand for tractors equipped with ABS malfunction indicators.

NHTSA's decision to delay the in-cab malfunction indicator for trailer ABS from March 1, 1997 until March 1, 2001, will delay the entry of tractors equipped with such indicators into the fleet. To provide drivers of tractors without in-cab indicators with a warning of trailer ABS failure, the agency has decided to extend the transition period during which a trailer must be equipped with an external malfunction indicator. The external indicators will be required from March 1, 1998 until March 1, 2009, three years later than the date established in the December 1995 final

rule. Accordingly, a trailer must still be equipped with an external ABS indicator during the time period in which there is no in-cab trailer ABS malfunction indicator requirement in effect as well as for an additional eight years after the in-cab trailer malfunction indicator requirement takes effect. As explained in previous notices, the additional eight-year transition period represents the typical life cycle of tractors. Based on these considerations, NHTSA has decided to amend S5.2.3.3 to require each trailer (including a trailer converter dolly) manufactured on or after March 1, 1998 and before March 1, 2009 to be equipped with an external ABS malfunction indicator lamp.

IV. Rulemaking Analyses and Notices

A. Executive Order 12866 and DOT Regulatory Policies and Procedures

This notice has not been reviewed under Executive Order 12866. NHTSA has considered the impacts of this rulemaking action and determined that it is not "significant" within the meaning of the Department of Transportation's regulatory policies and procedures. In connection with the March 1995 final rules, the agency prepared a Final Economic Assessment (FEA) describing the economic and other effects of this rulemaking action. Summary discussions of those effects were provided in the ABS final rule. For persons wishing to examine the full analysis, a copy is in the docket.

The amendments in this final rule do not make those effects any more stringent, and in some respects make it easier for a manufacturer to comply with them. Specifically, by eliminating the requirement for the dedicated ABS circuit and delaying the trailer in-cab malfunction indicator by four years, tractor and trailer manufacturers will be able to develop new methods of communicating trailer ABS information to the tractor. Thus, for these four years, tractor manufacturers will not have to provide a trailer in-cab malfunction indicator. After this four year period, truck and trailer manufacturers will incur some additional cost associated with ABS communications. This cost will depend on the communication technique employed, i.e., multiplexing, Radio Frequency (RF) signaling, or a separate circuit.

B. Regulatory Flexibility Act

NHTSA has also considered the effects of both this final rule or the original final rule under the Regulatory Flexibility Act. I hereby certify that it will not have a significant economic impact on a substantial number of small

¹² "An In-Service Evaluation of the Performance, Reliability, Maintainability, and Durability of Antilock Braking Systems for Semitrailers," U.S. Department of Transportation/NHTSA Report No. DOT HS 808 059, October 1993.

entities. Accordingly, the agency has not prepared a final regulatory flexibility analysis.

NHTSA concluded that the March 1995 final rule had no significant impact on a substantial number of small entities. Thus, the revised final rule, which temporarily reduces costs associated with the March 1995 final rule, will not have a significant economic impact on a substantial number of small entities.

C. National Environmental Policy Act

NHTSA has analyzed this rulemaking action for the purposes of the National Environmental Policy Act. The agency has determined that implementation of this action will not have any significant impact on the quality of the human environment.

D. Executive Order 12612 (Federalism)

NHTSA has analyzed this action under the principles and criteria in Executive Order 12612. The agency has determined that this notice does not have sufficient Federalism implications to warrant the preparation of a Federalism Assessment. No State laws will be affected.

E. Civil Justice Reform

This final rule does 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, except to the extent that the State requirement imposes a higher level of performance and applies only to vehicles procured for the State's use. 49 U.S.C. 30161 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, Rubber and rubber products, Tires.

In consideration of the foregoing, the agency is amending Standard No. 121, *Air Brake Systems*, in title 49 of the Code of Federal Regulations at part 571 as follows:

PART 571—[AMENDED]

1. The authority citation for part 571 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166, delegation of authority at 49 CFR 1.50.

2. Section 571.121 is amended by revising S5.1.6.2(b), S5.1.6.3, S5.2.3.2, S5.2.3.3 and S5.5.2 to read as follows:

§ 571.121 Standard No. 121; Air brake systems.

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S5.1.6.2 *Antilock malfunction signal.*

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(b) Each truck tractor manufactured on or after March 1, 2001, and each single unit vehicle manufactured on or after March 1, 2001, that is equipped to tow another air-braked vehicle, shall be equipped with an electrical circuit that is capable of transmitting a malfunction signal from the antilock brake system(s) on one or more towed vehicle(s) (e.g., trailer(s) and dolly(ies)) to the trailer ABS malfunction lamp in the cab of the towing vehicle, and shall have the means for connection of this electrical circuit to the towed vehicle. Each such truck tractor and single unit vehicle shall also be equipped with an indicator lamp, separate from the lamp required in S5.1.6.2(a), mounted in front of and in clear view of the driver, which is activated whenever the malfunction signal circuit described above receives a signal indicating an ABS malfunction on one or more towed vehicle(s). The indicator lamp shall remain activated as long as an ABS malfunction signal from one or more towed vehicle(s) is present, whenever the ignition (start) switch is in the "on" (run) position, whether or not the engine is running. The indicator lamp shall also be activated as a check of lamp function whenever the ignition is turned to the "on" or "run" position. The indicator lamp shall be deactivated at the end of the check of lamp function unless a trailer ABS malfunction signal is present.

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S5.1.6.3 *Antilock power circuit for towed vehicles.* Each truck tractor manufactured on or after March 1, 1997, and each single unit vehicle manufactured on or after March 1, 1998, that is equipped to tow another air-braked vehicle shall be equipped with one or more electrical circuits that provide continuous power to the antilock system on the towed vehicle or vehicles whenever the ignition (start) switch is in the "on" (run) position. Such a circuit shall be adequate to enable the antilock system on each towed vehicle to be fully operable.

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S5.2.3.2 *Antilock malfunction signal.* Each trailer (including a trailer

converter dolly) manufactured on or after March 1, 2001, that is equipped with an antilock brake system shall be equipped with an electrical circuit that is capable of signaling a malfunction in the trailer's antilock brake system, and shall have the means for connection of this antilock brake system malfunction signal circuit to the towing vehicle. The electrical circuit need not be separate or dedicated exclusively to this malfunction signaling function. The signal shall be present whenever there is a malfunction that affects the generation or transmission of response or control signals in the trailer's antilock brake system. The signal shall remain present as long as the malfunction exists, whenever power is supplied to the antilock brake system. Each message about the existence of such a malfunction shall be stored in the antilock brake system whenever power is no longer supplied to the system, and the malfunction signal shall be automatically reactivated whenever power is again supplied to the trailer's antilock brake system. In addition, each trailer manufactured on or after March 1, 2001, that is designed to tow another air-brake equipped trailer shall be capable of transmitting a malfunction signal from the antilock brake system(s) of additional trailers it tows to the vehicle towing it.

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S5.2.3.3 *Antilock malfunction indicator.* In addition to the requirements of S5.2.3.2, each trailer (including a trailer converter dolly) manufactured on or after March 1, 1998, and before March 1, 2009, shall be equipped with an external indicator lamp that is activated whenever there is a malfunction that affects the generation or transmission of response or control signals in the trailer's antilock brake system. The indicator lamp shall remain activated as long as such a malfunction exists, whenever power is supplied to the antilock brake system. Each message about the existence of such a malfunction shall be stored in the antilock brake system whenever power is no longer supplied to the system, and the malfunction signal shall be automatically reactivated when power is again supplied to the trailer's antilock brake system. The indicator lamp shall also be activated as a check of lamp function whenever power is supplied to the antilock brake system and the vehicle is stationary. The indicator lamp shall be deactivated at the end of the check of lamp function unless there is a malfunction or a message about a malfunction that existed when power

was last supplied to the antilock brake system.

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S5.5.2 Antilock system power—trailers. On a trailer (including a trailer converter dolly) manufactured on or after March 1, 1998 that is equipped with an antilock system that requires electrical power for operation, the power shall be obtained from the towing vehicle through one or more electrical

circuits which provide continuous power whenever the powered vehicle's ignition (start) switch is in the "on" (run) position. The antilock system shall automatically receive power from the stoplamp circuit, if the primary circuit or circuits are not functioning. Each trailer (including a trailer converter dolly) manufactured on or after March 1, 1998 that is equipped to tow another air-braked vehicle shall be equipped with one or more circuits which provide

continuous power to the antilock system on the vehicle(s) it tows. Such circuits shall be adequate to enable the antilock system on each towed vehicle to be fully operable.

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Issued on: February 12, 1996.

Ricardo Martinez,

Administrator.

[FR Doc. 96-3382 Filed 2-13-96; 8:45 am]

BILLING CODE 4910-59-P