

(v) The Highway Safety Act of 1966, as amended, 23 U.S.C. 402(b)(1)(D).

Issued at Washington, DC this 5th day of January 1995.

Federico Peña,

Secretary of Transportation.

[FR Doc. 95-753 Filed 1-11-95; 8:45 am]

BILLING CODE 4910-62-U

National Highway Traffic Safety Administration

49 CFR Part 571

[Docket No. 93-54, Notice 2]

RIN 2127-AE54

Federal Motor Vehicle Safety Standards; Air Brake Systems; Long-Stroke Brake Chambers

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation.

ACTION: Final rule.

SUMMARY: Consistent with a recommendation by the National Transportation Safety Board and in response to a petition for rulemaking from the American Trucking Associations (ATA), this final rule amends the reservoir requirements in Standard No. 121, *Air Brake Systems*, for trucks, buses, and trailers equipped with air brakes. The agency believes that the amendments will improve the braking efficiency of such vehicles and reduce the number of brakes found to be out of adjustment during inspections. It will do this by removing a design restriction that tends to discourage the use of long-stroke brake chambers, a technology with potentially significant safety benefits.

DATES: *Effective Date:* The amendments become effective on February 13, 1995.

Petitions for Reconsideration: Any petitions for reconsideration of this rule must be received by NHTSA no later than February 13, 1995.

ADDRESSES: Petitions for reconsideration of this rule should refer to Docket 93-54; Notice 2 and should be submitted to: Administrator, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, D.C. 20590.

FOR FURTHER INFORMATION CONTACT: Mr. Richard Carter, Office of Vehicle Safety Standards, National Highway Traffic Safety Administration, 400 Seventh Street SW., Washington, D.C. 20590 (202-366-5274).

SUPPLEMENTARY INFORMATION:

I. Background

Standard No. 121, *Air Brake Systems*, specifies performance requirements applicable to vehicles equipped with air brakes. The Standard also requires air-braked vehicles to be equipped with various types of equipment, including an air compressor, reservoirs, and a pressure gauge. (See section S5.1) Standard No. 121 does not specify the length of stroke of brake chambers, but it establishes a ratio between the volume of the service reservoirs and the volume of the brake chambers. The reservoirs store energy, in the form of air at high pressure that is used to apply the vehicle's brakes. Without such reservoirs, the vehicle's air compressor could not maintain adequate brake system pressure during successive rapid brake applications. The effect of this ratio is that if the brake chamber stroke is lengthened, thereby increasing its volume, it may be necessary to enlarge the service reservoirs.

With respect to trucks and buses, Section S5.1.2.1 currently specifies that

The combined volume of all service reservoirs and supply reservoirs shall be at least 12 times the combined volume of all service brake chambers at maximum travel of pistons or diaphragms. However, the reservoirs on the truck portion of an auto transporter need not meet this requirement.

Similarly, with respect to trailers, section S5.2.1.1 specifies

The total volume of each service reservoir shall be at least eight times the combined volume of all service brake chambers serviced by that reservoir at the maximum travel of the pistons or diaphragms of those service brake chambers. However, the reservoirs on a heavy hauler trailer and on the trailer portion of an auto transporter need not meet the requirements specified in S5.2.1.1.

These provisions were intended to ensure that a vehicle's braking system has sufficient compressed air to provide adequate brake pressure after a number of brake applications.

Brake chambers with longer strokes are commonly known as "long-stroke" chambers, in reference to the longer piston or pushrod travel that they require. Reports¹ by NHTSA and the National Transportation Safety Board (NTSB) have indicated that long stroke chambers can help improve brake adjustment on heavy vehicles. However, the reports also note that the reservoir requirements in Standard No. 121

¹ *Automatic Slack Adjusters for Heavy Vehicle Brake Systems*, February 1991, DOT HS 724, and the National Transportation Safety Board *Heavy Vehicle Airbrake Performance*, 1992, PB92-917003/NTSB/SS-92/01

would necessitate much larger reservoirs when long-stroke chambers are used. Thus, while the current requirements do not prohibit long-stroke chambers, the requirements for reservoir size significantly discourage their use.

II. Petition

On March 17, 1992, the American Trucking Associations (ATA) petitioned the agency to amend the reservoir requirements in Standard No. 121 to facilitate the installation of long-stroke chambers. With respect to trucks, buses, and trailers equipped with long-stroke chambers, ATA recommended that the combined volume of all the reservoirs be based on the "rated volume" of the service brake chambers, rather than on the volume of the chambers at the maximum travel of the piston. The "rated volume" of each brake chamber would be determined pursuant to a table of specified values according to the area of the brake diaphragm and the length of the stroke. In other words, under ATA's recommended amendment, if a "type 30" brake chamber (with a diaphragm of approximately 30 square inches) had a full stroke of at least 2.50 inches, then the rated volume of the brake chamber would have to be at least 84 cubic inches. As a practical matter, the use of long stroke chambers should have a minimal effect on reservoir capacity. For other types of brake chambers not presented on the table, the rated volume would be the volume of the brake chamber at maximum travel of the brake pistons or pushrods.

In support of its petition, ATA argued that manufacturers would have to incur unnecessary costs associated with increasing the size of the reservoirs if standard brake chambers were replaced with long-stroke chambers. Along with these additional costs, some vehicle configurations would have to be redesigned due to lack of adequate locations with sufficient space to accommodate large reservoirs. The lack of space is especially significant with short wheel base single unit trucks equipped with extensive accessories (e.g., power-take-off units (PTOs), tail gate lifts, refrigeration units, larger brakes) which compete for undercarriage space.

III. Notice of Proposed Rulemaking

On August 2, 1993, NHTSA proposed amending Standard No. 121's reservoir requirements for trucks, buses, and trailers to facilitate the introduction of long-stroke brake chambers. (58 FR 41078). Specifically, the agency proposed that the method for calculating air reservoir requirements would be based on the "rated volume"