



National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Log H-525A

Date: December 12, 1988

In reply refer to: H-88-31 and -32

Mr. Thomas Moore
Vice President
National Private Truck Council
Suite 720
1320 Braddock Place
Alexandria, Virginia 22314

Mr. Thomas J. Donohue
President and Chief Executive Officer
American Trucking Associations, Inc.
2200 Mill Road
Alexandria, Virginia 22304

Truck safety on the nation's highways is a top priority at the National Transportation Safety Board. The Safety Board has had a longstanding commitment to reduce losses from all highway traffic accidents, and it is particularly concerned about accidents involving heavy trucks.

The Safety Board's most recent contribution to improving truck safety, in addition to its regular ongoing highway accident investigation program, has been a series of heavy truck safety studies dating from 1985. The first study focused on the training, licensing, and qualification standards for truck drivers.¹ Phase I of the second study focused on operational issues and was conducted from 1985 to 1987.² In this study, the Safety Board focused on 32 cases that involved heavy trucks with brake problems. One of the most prevalent vehicle-related safety issues in these 32 accidents was out-of-adjustment brakes.

The Safety Board found brakes out of adjustment in 20 of the 32 accidents. Although the adjustment problem may not have caused the accident in some of these cases, the issue is important because any truck operating with out-of-adjustment brakes has a reduced margin of safety. Whenever the margin of safety is reduced, drivers' ability to recover from either their own error or that of another driver is impaired. Out-of-adjustment brakes can create a condition which is unforgiving of mishaps or human error.

The vehicles with brake adjustment problems had from 20 to 80 percent of their brakes out of adjustment. Data from a 1984 report of the Office of Motor Carriers (OMC) of the Federal Highway Administration showed that after measuring brake adjustment on 400 airbraked vehicles, researchers found that the average truck had

¹Safety Study--*Training, Licensing, and Qualification Standards for Drivers of Heavy Trucks*, April 1986 (NTSB/SS-86/02).

²For more detailed information, read Safety Study--*Braking Deficiencies on Heavy Trucks in 32 Selected Accidents*, November 22, 1988 (NTSB/SS-88/06).

30 percent of its brakes out of adjustment.³ It seems reasonable to assume that the accident-involved vehicles in the Safety Board's cases would have more brake problems than the OMC sample, which included nonaccident-involved vehicles. Although the circumstances surrounding and the causes of these accidents varied, the Safety Board believes these vehicles with deficient brakes were accidents waiting to happen.

Although the Safety Board cannot say with any degree of certainty why the brakes on those accident-involved trucks were out of adjustment, it did find that carrier maintenance practices varied substantially, and responsibility for maintaining brake adjustment was unclear. The Federal Motor Carrier Safety Regulations (Title 49 Code of Federal Regulations 396.3(a)) state:

Every motor carrier shall systematically inspect, repair, and maintain, or cause to be systematically inspected, repaired, and maintained, all motor vehicles subject to its control.

The Safety Board found that some of the carriers involved in these accidents appear to have performed little if any maintenance, including brake adjustment; other carriers adjusted brakes on their owned vehicles only if the driver complained. The consequences of this maintenance policy could lead to loss of life because poor brake performance probably would not be detected until high-level braking was required to avoid an accident. Many of these carriers could not provide any maintenance records for the accident-involved vehicle. In contrast, other carriers performed regularly-scheduled maintenance and could provide maintenance records for the accident-involved vehicle.

The maintenance policy became less predictable if the vehicle was leased by the carrier from an owner/operator. Some carriers provided maintenance services, at cost, to owner/operators, while other carriers required owner/operators to submit repair receipts and maintenance records on their vehicles. In other instances, carriers did not fulfill any maintenance oversight responsibility for leased vehicles. While operating under a 30-day lease with one carrier, the owner/operator of one of the vehicles involved in an accident the Safety Board investigated was trip-leasing with two other carriers. At the time of the accident, the tractor had a bald tire on the steering axle, the air tank contained 1 gallon of water, the trailer's brakes on axle 4 were out of adjustment, and the brakes on axle 5 were inoperable. The trailer's tandem axle was secured by chains bolted from the carriage to the trailer frame as a repair for broken welds. The trailer frame around the king pin plate was rusted through in places, and the trailer frame metal was reduced from 1/4- to 1/16-inch thick in some areas by corrosion. At the time of the accident, this vehicle was 9,500 pounds overweight.

Among the accident-involved carriers, the responsibility for on-the-road brake adjustment varied and was often unclear. Some carriers expected their drivers to perform on-the-road adjustment, while others had strict policies against drivers tampering with brakes. (These carriers usually provided the driver with an emergency number to call for on-the-road service.) In several cases, drivers who were responsible for brake adjustment did not know how to perform the brake adjustment properly.

³Hargadine, E. and Klein, T., *Braking Performance Level of Trucks 1983*, U.S. Department of Transportation/Federal Highway Administration, Contract No. DTFH61-83-C-00082, 1984.

Checking airbrake adjustment properly is a time-consuming task. Drivers, mechanics, and carriers would benefit from any device that made the process easier. As a result, some brake component manufacturers are equipping new brake chambers with a visual indicator that will alert the driver or mechanic that the brakes are out of adjustment.

Therefore, the National Transportation Safety Board recommends that the National Private Truck Council and the American Trucking Associations, Inc.:

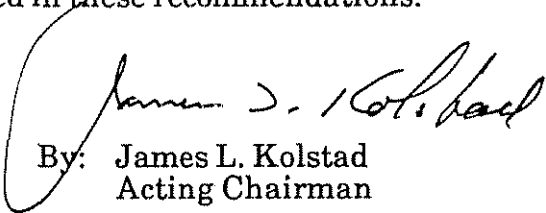
Recommend that your member carriers adopt written policies regarding on-the-road brake adjustment; if the drivers are responsible for performing such adjustments, provide them with the necessary training. (Class II, Priority Action) (H-88-31)

Recommend that your member carriers, as they replace worn brake chambers, install airbrake actuation devices that incorporate indicators to warn users when brakes must be adjusted. (Class II, Priority Action) (H-88-32)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations H-88-31 and -32 in your reply.

Also, the Safety Board issued Safety Recommendation H-88-30 to the National Highway Traffic Safety Administration.

KOLSTAD, Acting Chairman, and BURNETT, LAUBER, NALL and DICKINSON, Members, concurred in these recommendations.



By: James L. Kolstad
Acting Chairman

