

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 23, 1978

Forwarded to:

Honorable Joan Claybrook
Administrator
National Highway Traffic Safety
Administration
Washington, D.C. 20590

} SAFETY RECOMMENDATION(S)

} H-78-48 through 50

The National Transportation Safety Board has investigated five accidents in which commercial vehicle drivers have not been able to maintain speed control on downgrades. In these five accidents, 24 persons were killed and 36 persons were injured.

The significant causal factor in four of these accidents was the improper adjustment of the foundation brakes of the vehicles. In the other instance, the trailer brakes were totally inoperative. Two of these accidents provided clear evidence that the owners and operators failed to insure that the vehicles were safe for operation before they were dispatched. Adequate vehicle inspection and maintenance programs would have prevented these accidents, and proper brake adjustment should be an essential part of any maintenance program. Maladjusted brakes cannot supply adequate torque to retard the rolling wheel. Even refined brake equipment, such as the FMVSS-121 antilock hardware, is worthless if the brakes cannot develop their designed torques.

Although the adjustment of air brakes is a relatively simple mechanical task, it appears that industry cannot be relied upon to implement the periodic inspections and routine maintenance necessary to detect and correct maladjusted brakes. The Safety Board is reluctant to recommend mandatory new hardware for brakes. However, repeated failures to inspect and maintain brakes properly have compelled consideration of such a solution. Automatic brake adjustment capability has the potential of insuring maximum brake performance at all times, not just in downhill speed-control situations. Improved axle by axle, and laterally, wheel by wheel, brake balance and timing will be enhanced with assured brake adjustment.

A secondary, yet important, factor in three of these accidents was the drivers' unsuccessful attempts to downshift. In each case, the probability of completing the shift was very low, and each vehicle ended up in neutral, without either foundation or engine braking capability. Without effective braking, there is nothing to retard vehicle acceleration on downgrades. This uncontrolled acceleration increased the severity of the resultant collisions.

In two of these three accidents, the drivers attempted unsuccessfully to downshift a 2-speed rear axle. The Safety Board did not investigate the Monarch Pass schoolbus accident or the recent schoolbus accident in Puerto Rico that resulted in 11 deaths. However, the NHTSA investigation of the Monarch Pass accident revealed that a 2-speed rear axle downshift was attempted. The Safety Board has learned that a transmission downshift was attempted unsuccessfully in the Puerto Rico accident.

Two-speed rear axles can be shifted by experienced operators who know which factors are important to a successful shift operation. However, the Safety Board's accident investigations indicate that many drivers are not aware of these factors. Vehicle manufacturers recognize the hazards associated with attempting to shift 2-speed axles on downgrades and convey this concern in their operator manuals. The Safety Board believes that this is not sufficient, however, and concludes that an appropriate placard warning the driver of the hazards associated with attempting to shift the 2-speed axle while descending a downgrade should be required in the cab of any vehicle equipped with a 2-speed axle.

The Safety Board also believes that a placard showing a combination shift pattern, progression, and road speed capability in each position would be useful to drivers who have lost wheel brake effectiveness in downhill operation, or those who drive several vehicles with different transmission, rear-axle, tire-size, and engine configurations. Commercial vehicles already have the FMVSS-102 required shift pattern/progression placard. The addition of the top road speed (mph) capability added to each gear shift position would provide ready reference to the information a driver needs to realize the driveshaft synchronization necessary to successfully change gear ratios. If a driver attempted unsuccessfully to make a gear change, the road speed/gear position relationship information would provide a quick, accurate basis for determining the position to which re-engagement should be attempted. Over and above the safety benefits derived from such information, it would provide an accurate basis for the proper use of the gear train that would result in a general improvement in vehicle operational performance and fuel economy.

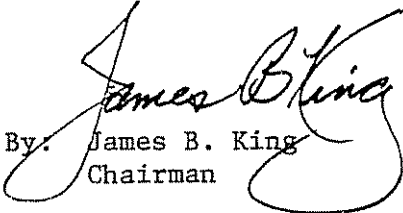
Accordingly, the National Transportation Safety Board recommends that the National Highway Traffic Safety Administration:

Develop a Federal Motor Vehicle Safety Standard stating a performance requirement for all newly manufactured commercial vehicles to have equipment that would insure brakes being in proper adjustment at all times. (Class II, Priority Action) (H-78-48)

Develop a Federal Motor Vehicle Safety Standard to require that all motor vehicles equipped with 2-speed rear axles be placarded to warn the driver of the hazards of attempting to shift the 2-speed axle while negotiating downgrades. (Class II, Priority Action) (H-78-49)

Develop a Federal Motor Vehicle Safety Standard to require that the maximum in-gear attainable road speed in each position of the vehicle's gear train be added to the FMVSS-102 required shift pattern/progression placard on all newly manufactured commercial vehicles. (Class II, Priority Action) (H-78-50)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendations.


By: James B. King
Chairman

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for ensuring the integrity of the financial statements and for providing a clear audit trail. The text notes that any discrepancies or errors in the records can lead to significant complications during an audit and may result in penalties or legal action.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps involved in identifying the nature of the transaction, determining the appropriate accounting treatment, and ensuring that all necessary supporting documents are properly filed and indexed. The text stresses the need for consistency and accuracy in the recording process to avoid any potential misunderstandings or disputes.

3. The third part of the document addresses the issue of reconciling the records with the actual bank statements and other external sources. It explains that regular reconciliations are essential for identifying any differences or errors in the records and for ensuring that the financial statements accurately reflect the company's financial position. The text provides guidance on how to conduct these reconciliations and how to resolve any discrepancies that may arise.

4. The fourth part of the document discusses the importance of maintaining proper documentation for all transactions. It highlights that this is not only a requirement for legal and regulatory compliance but also a key factor in ensuring the reliability and accuracy of the financial records. The text provides examples of the types of documents that should be maintained and offers advice on how to organize and store these documents effectively.

5. The fifth part of the document concludes by summarizing the key points discussed and reiterating the importance of maintaining accurate records and proper documentation. It emphasizes that these practices are essential for the success of any business and for ensuring the integrity of its financial statements. The text ends with a final note on the importance of staying up-to-date on any changes in accounting standards or regulations that may affect the recording process.