



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: June 27, 2007

In reply refer to: H-07-12 through -14

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The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations address the dissemination of information on wheel bearing maintenance and the serious consequences of lack of lubrication and subsequent wheel bearing failure. The recommendations are derived from the Safety Board's investigation of the September 23, 2005, motorcoach fire on Interstate 45 (I-45), near Wilmer, Texas, during the Hurricane Rita evacuation and are consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued 17 new safety recommendations, 3 of which are addressed to the American Bus Association and the United Motorcoach Association. Information supporting the recommendations is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

On September 23, 2005, a 1998 Motor Coach Industries, Inc. (MCI), 54-passenger motorcoach, operated by Global Limo Inc., of Pharr, Texas, was traveling northbound on I-45 near Wilmer, Texas.¹ The motorcoach, en route from Bellaire to Dallas, Texas, as part of the evacuation in anticipation of Hurricane Rita, was carrying 44 assisted living facility residents and nursing staff. The trip had begun about 3:00 p.m. on September 22. Fifteen hours later, about 6:00 a.m. on the following day, a motorist noticed that the right-rear tire hub was glowing red and alerted the motorcoach driver, who stopped in the left traffic lane and then proceeded to the right shoulder of I-45 near milepost 269.5. The driver and nursing staff exited the motorcoach and observed flames emanating from the right-rear wheel well. As they initiated an evacuation of the motorcoach, with assistance from passersby, heavy smoke and fire quickly engulfed the entire vehicle. Twenty-three passengers were fatally injured. Of the 21 passengers who escaped,

¹ For more information, see <<http://www.nts.gov/publictn/2007/HAR0701.pdf>>. National Transportation Safety Board, *Motorcoach Fire on Interstate 45 During Hurricane Rita Evacuation, Near Wilmer, Texas, September 23, 2005*, Highway Accident Report NTSB/HAR-07/01 (Washington, DC: NTSB, 2007).

2 were seriously injured and 19 received minor injuries; the motorcoach driver also received minor injuries.

The National Transportation Safety Board determined that the probable cause of the accident was insufficient lubrication in the right-side tag axle wheel bearing assembly of the motorcoach, resulting in increased temperatures and subsequent failed wheel bearings, which led to ignition of the tire and the catastrophic fire. Global Limo Inc. had failed to conduct proper vehicle maintenance, to do pretrip inspections, and to complete posttrip driver vehicle inspection reports, thereby allowing the insufficient wheel bearing lubrication to go undetected. Contributing to the accident was the Federal Motor Carrier Safety Administration's ineffective compliance review system, which resulted in inadequate safety oversight of passenger motor carriers. Contributing to the rapid propagation and severity of the fire and subsequent loss of life was the lack of motorcoach fire-retardant construction materials adjacent to the wheel well. Also contributing to the severity of the accident was the limited ability of passengers with special needs to evacuate the motorcoach.

The industry acknowledges that a motorcoach tire fire is the most difficult to extinguish; though detection systems may alert a driver to a potential fire situation, adequate suppression systems are not yet available. Therefore, fire prevention is the key objective. A comprehensive program of proper maintenance by motor carriers, pretrip inspections, posttrip vehicle inspections by drivers, State and Federal requirements, and inspections to verify motor carrier compliance with safety regulations is necessary to prevent motorcoach fires.

The maintenance manuals published by motorcoach manufacturers afford a means of fostering owner awareness of the risks associated with improper wheel bearing maintenance. MCI placed caution and warning text boxes throughout its maintenance manual to provide additional information on the potential hazards of failing to properly maintain specific vehicle components and on methods for handling heavy vehicle parts. The manual cautioned that wheel seal integrity could be affected by excessive wheel bearing end play, which could lead to bearing or seal failure; no warning was given on the potential consequences of failing to maintain adequate wheel bearing lubrication, though daily checks of hub oil levels were recommended.

Maintenance guidance on vehicle components is based on manufacturers' recommendations because they are in the best position to understand how their products work, including the consequences of not performing proper maintenance. Although the maintenance manual for the accident motorcoach included various warnings, none focused on the lubrication of wheel bearings. The Safety Board concludes that, in the absence of a specific warning in the maintenance manual, owners of vehicles with oil bath bearings may not be aware of the inherent danger of inadequate wheel bearing lubrication and the potentially serious consequences of a wheel bearing failure. As principal purveyors of vehicle safety information, the American Bus Association and the United Motorcoach Association need to inform their members of the dangers inherent in improper maintenance of wheel bearings and the consequences of catastrophic wheel well fires.

The National Transportation Safety Board therefore makes the following recommendations to the American Bus Association and the United Motorcoach Association:

Disseminate to your motorcoach and bus operator members an advisory bulletin emphasizing the importance of proper wheel bearing maintenance, particularly the importance of checking the oil level in oil-lubricated bearings (also known as oil bath bearings) and inspecting the undercarriage of the tag axle wheels to detect wheel seal leaks, and the serious consequences of lack of lubrication and subsequent wheel bearing failure. (H-07-12)

Advise your motorcoach manufacturer members to review product maintenance manuals and, if the manuals do not emphasize the importance of wheel bearing lubrication, to revise them to specifically warn that daily inspection of hub oil levels and wheel seals is vital to prevent wheel bearing failure and that bypassing this requirement is a dangerous practice that can lead to a wheel fire or other serious consequences. (H-07-13)

Advise your motorcoach manufacturer members to disseminate, for those vehicles already sold and in service, a customer advisory bulletin on the importance of proper wheel bearing maintenance, specifying the type of equipment or oil bath bearings that require an undercarriage inspection to detect wheel seal leaks and alerting customers to the serious consequences of lack of lubrication and subsequent wheel bearing failure. (H-07-14)

The Safety Board also issued safety recommendations to the Federal Motor Carrier Safety Administration, the National Highway Traffic Safety Administration, the Pipeline and Hazardous Materials Safety Administration, the Fraternal Order of Police, the International Association of Chiefs of Police, the International Association of Fire Chiefs, the International Association of Fire Fighters, the National Association of State EMS Officials, the National Sheriffs' Association, the National Volunteer Fire Council, Motor Coach Industries, Inc., and other motorcoach manufacturers. In addition, the Safety Board reiterated two recommendations to the U.S. Department of Transportation.

In your response to this letter, please refer to Safety Recommendations H-07-12 through -14. If you need additional information, you may call (202) 314-6177.

Chairman ROSENKER, Vice Chairman SUMWALT, and Members HERSMAN, HIGGINS, and CHEALANDER concurred in these recommendations. Member HERSMAN filed a concurring statement, and Member HIGGINS filed a concurring and dissenting statement, both of which are attached to the Accident Report.

[Original Signed]

By: Mark V. Rosenker
Chairman