

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

FOR RELEASE: 6:30 P.M., E.D.S.T., JUNE 9, 1975

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Forwarded to:

Honorable James B. Gregory
Administrator
National Highway Traffic Safety
Administration
400 Seventh Street, S. W.
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

H-75-12 and 13

During the investigation of four Washington Metropolitan Area Transit Authority (METRO) bus fires which occurred between December 12, 1974 and March 25, 1975, involving three 1974 A. M. General buses and one G.M.C. bus, a marked similarity of circumstances became apparent.

In all four instances, the buses were empty of passengers except on March 25, 1975, when, unknown to the driver, a 13-year-old passenger was still on the bus. He died of smoke inhalation during the fire.

The fire of December 12, 1974, appeared to have originated on the aisle seat just to the rear of the left rear longitudinal seat. The fires of February 10 and March 14, 1975, appeared to have originated at or in the vicinity of the left rear longitudinal seat over the left rear wheelwell. The March 25, 1975, fire appeared to have originated on either or both of the two right side sets of transverse seats to the rear of the right rear exit door.

In the three fires occurring in the A. M. General buses, the fires spread rapidly throughout the bus developing intense heat and dense smoke. The seat upholstery and cushioning, as well as floor and wall carpeting, were destroyed. The plastic sidewall and overhead light difuser panels melted and dropped in molten globs to the seats and floor.

In view of the intensity of the fires and the rapid spread of the fire in three of the four incidents, it is important to consider what the results of such fires might have been if they had occurred on buses occupied by passengers, especially under crowded, rush-hour conditions.

These fires are of concern to the Safety Board as a matter of oversight responsibility relating to Federal Motor Vehicle Safety Standard (FMVSS) 302, Flammability of Interior Materials - Passenger Cars, Multi-purpose Passenger Vehicles, Trucks, and Buses (49 CFR 571.302). The Safety Board is concerned not only with whether the interior materials comply with FMVSS 302, but

whether the standard is adequate to provide protection for passengers. The Board's primary concern is the time required to evacuate the vehicle before an environment which will not support life is produced within the vehicle.

FMVSS 302 requires that materials be held in a horizontal position for flame propagation test purposes, yet at least half of the interior materials in a vehicle present a vertical surface. In an accident environment those surfaces that normally would be horizontal could become vertical surfaces. Therefore, the Safety Board believes that interior materials should be tested in positions which produce the most adverse results.

FMVSS 302 provides a basis for comparing individual material burn rates which may provide some degree of occupant safety in fires which occur as a result of but not limited to match, cigarette, or short-circuit ignition. FMVSS 302 fails to provide predictable fire propagation information. Therefore, it does not provide safety information usable in predictable fuel-fed fires which follow motor vehicle accidents.

Though few in number, accidents involving fire are not only much more severe and costly than the average bus accident, but the number of fatalities is 30 times the number per accident for all bus accidents. ^{1/} Considering the exposure of intercity and transit buses to impacts with other motor vehicles which result in fuel-fed fires Baker, California ^{2/} and Fort Stockton, Texas, ^{3/} there is obviously a need to consider the relationship between the time necessary to evacuate passengers from a bus regardless of its type, design, or attitude and the burn rate of vehicle interior materials. It is one thing for vehicle occupants to evacuate a burning automobile and yet another for a bus full of panic-stricken passengers to escape from a burning bus, especially if it is lying on its side. The Safety Board believes that there must be sufficient time for occupant evacuation from all vehicles after ignition and before the creation of a non-life supporting environment regardless of the accident-induced attitude. Reference is made to recommendation 7 in the Baker, California Report in which "the Board recommends that the Federal Highway Administration change the basis of the regulatory requirements intended to insure escape from buses so that they are based upon tests of performance of occupants in escaping from buses standing or lying in all basic attitudes...."

1/ Bureau of Motor Carrier Safety 1972 Analysis of Accident Reports Involving Fire, November 1974.

2/ Interstate Bus-Automobile Collision, Interstate Route 15, Baker, California, March 7, 1968.


3/ Fort Stockton, Texas BMCS Report.

Evacuation times should be those demonstrated when the vehicle is in accident-induced attitudes. Such evacuation times should be determined by a standard test of a simulated accident in which a fuel-fed fire is induced. Once evacuation times have been determined, measures could be taken to retain a life-supporting environment inside a vehicle long enough to allow for the evacuation of the vehicle.

The National Transportation Safety Board recommends that the National Highway Traffic Safety Administration:

1. Develop a separate requirement applicable to the interior materials of all vehicle types in accident-induced attitudes which provides sufficient time for occupant evacuation before the creation of a lethal environment resulting from fire.
2. Expand Motor Vehicle Safety Standard No. 302 testing procedures to include a vertical burn test of all vehicle interior materials and to establish an acceptable vertical flame spread index similar to that prescribed by the Federal Aviation Administration in 14 CFR 25.853, as appropriate.

REED, Chairman, THAYER, BURGESS, and HALEY, Members, concurred in the above recommendations. McADAMS, Member, did not participate.


By: John H. Reed
Chairman

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