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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: April 13, 1984

Forwarded to:

Governors of the 50 States
and the Mayor of the
District of Columbia

SAFETY RECOMMENDATION(S)

H-84-8

On April 5, 1983, a 2-ton flatbed truck, loaded with a farm plow and towing another farm plow, was traveling southbound on a two-lane, two-way rural highway near Holmesville, New York. An adult passenger bus, with 20 persons on board, was following the flatbed truck at a distance of about 100 feet. As both vehicles entered a 3,820-foot-radius right curve, the towed plow suddenly separated from its hitch attachments and veered left into the opposing northbound traffic lane. A northbound tractor car-carrier semitrailer struck the plow, rupturing the tractor's left front tire. As a result, the driver lost control of the vehicle, and the vehicle veered left across the highway centerline and collided head-on with the bus. The busdriver and four bus passengers were killed. The truckdriver of the car carrier and 9 bus passengers were hospitalized with various degrees of injury. Six bus passengers were treated and released. 1/

The Community Work Shop (CWS) bus involved in this accident was purchased by the New York State Department of Transportation (NYSDOT) under a grant program funded by the Urban Mass Transportation Administration (UMTA). The CWS bus was one of seven similar buses funded by the UMTA grant on which bids were received and a single contractor selected by NYSDOT. The award was made to the lowest bidder, the American Transportation Corporation, and the vehicle was delivered through Country Club Chevrolet of Oneonta, New York, a dealer for the American Transportation Corporation.

The NYSDOT purchased the buses under the Office of General Services Specification 40520-404, which cites New York's regulations for buses Part 720, which applies to "motor vehicles with seating capacity of not more than 16 passengers," and Part 721, which applies to "motor vehicles with seat capacity of more than 16 passengers." The accident bus was purchased under the specifications for Part 721. To meet the regulation, buses are required

1/ For more detailed information, read: Highway Accident Report--"Valley Supply Company Truck Towing Farm Plow, Anchor Freight Inc. Car-Carrier Truck, New York State Association for Retarded Children Bus Collisions and Fire, State Route 8, near Holmesville, New York, April 5, 1983" (NTSB/HAR-84/01).

(FMVSS) applicable to buses; buses under the "schoolbus" ^{2/} specification must also meet those Federal standards applicable to schoolbuses. The buses purchased were, in the understanding of the NYSDOT and the contractor, not required to and did not meet any of the Federal standards for schoolbuses. However, the transportation director of CWS believed that CWS was purchasing a "regular schoolbus with some improved modifications" and he assumed that the bus had "the same structural value and requirements as a regular schoolbus."

FMVSS 221, School Bus Body Joint Strength, requires that both inside and outside panels of a schoolbus be fastened to other parts and to each other by joints which have at least 60 percent of the strength of the metal of the thinner panel which is joined. Most of the CWS bus structure below the window sills probably met the strength requirements of FMVSS 221 given the design similarity between this part of the bus and one manufactured to meet the requirements of FMVSS 221. However, Safety Board investigators observed several failed joints in the body structure above the windows, particularly at the front of the bus. In some cases, the rivet spacing on panel members near the driver's seat was three times wider than on buses which meet the requirements of FMVSS 221. In two of the failed joints, a large number of rivets also were placed too close to the edge of the panel to be effective and many of the rivet holes did not engage the adjoining panel as intended by the design. There were also fewer spotwelds connecting windshield members at the front columns of the bus. Failure of these columns led to the jamming of the right side door at the front of the bus and considerable intrusion of the driver's area. If the number of rivets or spotwelds used to assemble body panels or columns is reduced, then the strength of the body structure is reduced.

Because of their physical and developmental impairments, the occupants in the accident bus were not able to protect themselves from secondary impacts with interior items (e.g., seats). With some purchases, the number of model/option combinations available to the purchaser may need to be limited in order to ensure that selected options do not jeopardize the overall occupant protection provided in the vehicle. For example, the accident bus was purchased with transit type seats to accommodate adult passengers. Several passengers were injured as a result of contact with these seats. Possibly, some of these low level injuries (AIS level 1 and 2) could have been mitigated by selecting padded seats (similar to those required for post-1977 schoolbuses) in lieu of the transit type seats. The post-1977 schoolbus seats are designed to absorb energy through controlled yielding. Similarly, in cases where the bus is modified, for example, to provide for wheelchair stations, the environmental surfaces at these stations should be adequately padded.

The occupant protection and vehicle crashworthiness requirements specified by the Federal standards for schoolbuses provide a minimum level of protection and are not required for other buses. However, incorporation of these requirements into schoolbus-type vehicles being used for other passenger transportation is not prohibited and should be encouraged. Therefore, when purchasing buses, especially for transporting mentally and physically handicapped persons, any government agency should explicitly consider the safety implications of any deviation from the minimum Federal standards for schoolbuses built after April 1977.

^{2/} 49 CFR 571.3 defines "schoolbus" as a "motor vehicle. . . designed for carrying more than 10 persons. . . that is sold, or introduced into interstate commerce, for purposes that include carrying students to and from school or related events. . ."

As a result of this accident, the National Transportation Safety Board recommends to the Governors of the 50 States and the Mayor of the District of Columbia:

When purchasing buses of the types designed to meet the Federal standards for schoolbuses built after April 1977, which are intended for special-purpose uses in which the standards are not mandatory, conduct an evaluation of any proposed modifications for their possible adverse effects on the safety of the intended passengers. (Class II, Priority Action) (H-84-8)

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" (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, and BURSLEY and GROSE, Members, concurred in this recommendation. GOLDMAN, Vice Chairman, and ENGEN, Member, did not participate.

By: 
Jim Burnett
Chairman

