

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

SP-20
Rough 464

ISSUED: February 6, 1986

Forwarded to:

Honorable Diane K. Steed
Administrator
National Highway Traffic Safety
Administration
400 7th Street, S.W.
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

H-85-51

About 3:14 p.m. on April 29, 1985, a Bell Creek, Inc., tractor-semitrailer transporting 99 head of cattle and traveling about 59 mph struck the rear of a 1977 Tuba City Unified School District schoolbus on eastbound U.S. 160 about 16 miles north of Tuba City, Arizona. The schoolbus was stopped with its warning lights flashing in the eastbound lane of the two-lane highway to discharge passengers. The weather was clear, the pavement was dry, and there were no visibility obstructions for about 1.4 miles to the rear of the schoolbus. Of the 32 schoolbus passengers (ages 5 to 21 years), 2 were fatally injured, 4 sustained serious injuries, 4 received moderate injuries, 18 sustained minor injuries, and 4 were not injured. The truckdriver and the schoolbus driver received minor injuries. 1/

The two schoolbus passengers who sustained fatal injuries were occupying the left rear window seat and the right rear seat. The amount of crush damage in these areas did not provide survivable space. Three of the four schoolbus occupants who sustained serious injuries were also occupying the last four rows of the schoolbus where the crash forces were the greatest. The 21-year-old male occupant of the left window seat in the 13th row probably sustained his head laceration when he contacted the edge of the body panel joint which was exposed due to the joint separation of the adjacent maintenance access panel. The remaining passenger who sustained serious injuries was occupying the seat in the second row behind the schoolbus driver before the collision. This passenger was about to exit the schoolbus at the stop where the collision occurred and sustained his basilar skull fracture because he probably was standing up in the aisle and was thrown backward by the force of the collision, striking his head on some object inside the schoolbus when the collision occurred.

On November 27, 1981, the National Highway Traffic Safety Administration (NHTSA) issued a notice of proposed rulemaking in the Federal Register which requested public comment on a proposal to amend Federal Motor Vehicle Safety Standard (FMVSS) 221, School Bus Body Joint Strength, to require that most maintenance access panels in large schoolbuses comply with the joint strength requirements of that standard. The

1/ For more detailed information, see Highway Accident Report--"Collision of Tuba City Unified School District Schoolbus and Bell Creek, Inc., Tractor-Semitrailer, on U.S. 160, near Tuba City, Arizona, April 29, 1985" (NTSB/HAR-85/06).

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notice stated that NHTSA had become concerned that schoolbus manufacturers were circumventing FMVSS 221 to a limited extent by the excessive use of maintenance access panels, and that most manufacturers had created maintenance access panels that were located above the window area and which extended the entire length of the schoolbus. The notice further stated that these panels were usually loosely attached and could not withstand much force before they would detach from the schoolbus body, and that NHTSA had tentatively concluded that many of these panels were located in an area of the schoolbus likely to impact the heads of the passengers.

Over 200 individuals or organizations, including organizations involved in the manufacture or sale of schoolbuses, school districts, schoolbus contractors, and private individuals, submitted comments on the proposed amendment. Most of those who commented opposed the amendment, stating that there was no documentation which attributed injuries to schoolbus occupants due to contact with separated maintenance access panels, that the cost was excessive for the benefits accrued, that the proposed rule did not provide enough time for re-tooling to meet the proposed standard, and that the matter needed further study. On July 2, 1984, NHTSA terminated the rulemaking action, but urged the schoolbus manufacturing industry to minimize the number of maintenance access panels.

No separations of the exterior or interior body panel joints which were subject to the joint strength requirement of FMVSS 221 were noted during the postcrash examination of the schoolbus. The Safety Board concludes that the schoolbus body demonstrated the crashworthiness required by FMVSS 221. The Safety Board believes, however, that the separations of the rear maintenance access panels from the adjacent interior body panels created a hazard to the occupants of the schoolbus at the rear because the edges of these maintenance access panels and the other body panels to which they had been joined were exposed. As occurred in this accident, contact of schoolbus occupants with exposed metal edges of body or maintenance access panels during collisions and overturns can result in severe disfiguring and sometimes life-threatening injuries.

On December 11, 1984, a 1979 International Harvester schoolbus lost control, ran off the roadway, and overturned two miles south of Durango, Colorado. 2/ On September 11, 1985, a 1985 Blue Bird schoolbus was struck broadside by a tractor-semitrailer in Woodside, Delaware. 3/ In both these accidents, Safety Board investigators noted interior maintenance access panel separations. In these two cases, none of the injuries sustained by the schoolbus occupants were attributed to contact with the metal edges exposed due to the maintenance access panel joint separations.

Nevertheless, the Safety Board believes that these three investigations of accidents involving post-1977 schoolbuses, which disclosed maintenance access panel separations, indicate that FMVSS 221 pertaining to interior maintenance access panels of future schoolbuses should be revised. If the panels are located within defined occupant contactable zones, they should be subject to the same joint strength requirements as the other body panels.

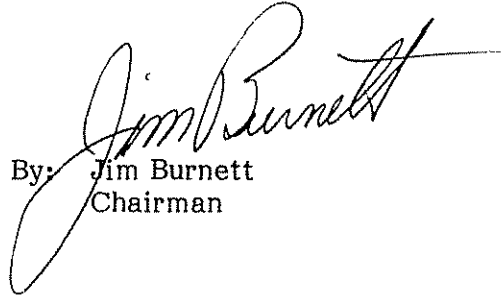
Therefore, as a result of its investigation of this accident, the National Transportation Safety Board recommends that the National Highway Traffic Safety Administration:

2/ NTSB Docket No. DEN 85-H-SB08.

3/ NTSB Docket No. HY-476-85.

Revise Federal Motor Vehicle Safety Standard 221, School Bus Body Joint Strength, to require that the joints of interior body maintenance access panels within a defined occupant contactable zone meet the joint strength performance requirement of other body panel joints. (Class II, Priority Action) (H-85-51)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and LAUBER, Member, concurred in this recommendation.


By: Jim Burnett
Chairman

