

20. The interior of the railroad chair car does not conform with modern concepts of crashworthiness design, in that the window allowed ejection of passengers, protruding appurtenances injured persons thrown against them, window shade guide became flails, seats rotated and some became detached, and unrestrained luggage was thrown about during upset.
21. The fatalities occurred as a result of the passengers being ejected from the chair car through the window. The injuries to the passengers were more severe because of the design of the window structure and the window shade.
22. The locomotive withstood the forces of the impact with the motortruck and was not derailed.
23. The methods by which the injuries and fatalities in this accident were experienced provides valuable data that can be applied to the operation of present systems as well as to the design and manufacture of new passenger train equipment.

V. PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of this accident was the failure of the driver to stop his truck prior to impact with the passenger train, while crossing warning signals were indicating the approach of the train. The driver misperceived the hazard presented by the approaching train. The causes of the fatalities and the injuries are attributed to the speed of the vehicles at impact, separation and excursion from the right-of-way of the train,

overturn of the rail passenger car and inadequate crashworthiness of the rail passenger coach and the motortruck.

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VI. RECOMMENDATIONS

The National Transportation Safety Board recommends that:

1. The Federal Railroad Administration review fatal passenger train accidents to determine the relationship between fatalities and window design and, to the extent practicable, promulgate regulations that will require correction of the window design and other injury-causing features in passenger cars built or rebuilt in the future.
2. Amtrak, in the meantime, correct those injury-causing features pointed out in this report as passenger cars are reconditioned, and in the future, apply system safety principles to the acquisition, design, construction, and renovation of passenger cars.
3. The DOT include in its railroad-highway grade crossing program the development of methods, and a system for their implementation, to improve driver understanding of hazards involved, and the crucial precautions needed for safe passage across railroad-highway intersections.
4. The State of Oklahoma, in its present efforts to develop more comprehensive procedures for the licensing of drivers of commercial vehicles, include a pre-licensing medical examination.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD:

/s/ JOHN H. REED
Chairman

/s/ OSCAR M. LAUREL
Member

/s/ FRANCIS H. McADAMS
Member

/s/ LOUIS M. THAYER
Member

/s/ ISABEL A. BURGESS
Member

May 24, 1972