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Log # R-625



## National Transportation Safety Board

Washington, D.C. 20594

### Safety Recommendation

Date: December 13, 1990

In reply refer to: R-90-45 through -49

Mr. W. Graham Claytor, Jr.  
Chairman and President  
National Railroad Passengers Corporation  
60 Massachusetts Avenue, N. E.  
Washington, D.C. 20002

About 9:38 a.m., Pacific standard time, on December 19, 1989, National Railroad Passenger Corporation (Amtrak) passenger train 708, consisting of one locomotive unit and five passenger cars, struck a TAB Warehouse & Distribution Company tractor semitrailer in a dense fog at a highway grade crossing near Stockton, California. The grade crossing has flashing lights and gates that were functioning at the time of the accident. The collision derailed the locomotive and all five passenger cars. A fire followed the train impact with the truck. The engineer, fireman, and truckdriver were killed in the collision and fire. Three of the 7 train crewmembers and 49 of the 150 passengers were injured. The total estimated damage was \$2,435,000.<sup>1</sup>

The conductor stated that after the accident he could not contact the dispatcher with his portable radio. The dispatcher was notified of the accident when an ATSF freight train crew overheard the conductor's radio transmission and contacted the dispatcher about the accident. The conductor was fortunate that another train was nearby and could relay the emergency transmission. Otherwise, had this occurred in a remote area or where no other train was within the range of the conductor's portable radio, the emergency response would have been substantially delayed. The only radio on a train that had the capability to develop the 35 to 45 watts of transmission RF power and tonal capabilities to communicate with the dispatcher was located in the locomotive cab. In this accident the fire following the derailment destroyed the locomotive, and only the conductor's hand-held 5-watt RF power radio without the tonal capabilities was available. Had the conductor had a portable radio with more RF power and tonal capabilities, he would have been able to communicate directly with the dispatcher. The Safety Board believes that Amtrak should develop and implement a means for the

<sup>1</sup>For more detailed information, read Railroad Accident Report-- "Collision of Amtrak Passenger Train No. 708 on Atchison, Topeka and Santa Fe Railway with TAB Warehouse & Distribution Company Tractor Semitrailer, Stockton, California, on December 19, 1989" (NTSB/RHR-90/01).

Board believes that Amtrak should develop and implement a means for the conductor to contact the dispatcher by radio should the locomotive radio be unavailable.

The vestibule doors of the new Horizon equipment can only be opened from the inside. No method or device is provided to open the doors from the outside. A pawl latch, located at the top of the door inside the car, to open the vestibule door is not clearly marked; the latch must be manually disengaged from inside to open the door for exiting the car. Unless a passenger can determine how to operate the door latch to open the vestibule door, uninjured or ambulatory passengers must either wait for on-board service personnel to open the door to exit to ground level, or they must remove emergency windows, as was done in this accident, to exit the car and jump to the ground, risking injury. The absence of visible interior markings and operating instructions at the vestibule doors may have contributed to the decision made by some passengers to exit the cars by removing emergency windows instead of exiting directly to the ground from the cars that were derailed in the upright position. The Safety Board questions the Amtrak decision to install vestibule door locking devices without clear instructions for opening the doors in an emergency and to nullify the access from the outside to the interior of the new Horizon cars.

When a car has derailed in an upright position, nothing should prevent passengers from opening the vestibule door, providing the door is not jammed or obstructed, once they have located the pawl latch. Furthermore, when a car is in the upright position passengers encounter less risk when they can exit the car directly to the ground through the vestibule door. The Safety Board believes that Amtrak needs to provide visible interior markings and operating instructions at vestibule doors of all passenger equipment that cannot be opened from the exterior of the car.

No passengers reported being struck by luggage stowed in the overhead luggage racks. The Safety Board has previously addressed luggage retention devices and recommended to Amtrak:<sup>2</sup>

R-85-128

Develop and install effective retention devices in its overhead luggage racks to prevent the dislodging of luggage and other articles in a collision and/or derailment.

The status of this recommendation is "Open--Unacceptable Action."

The only luggage displaced during the accident apparently was from the end of car open luggage storage shelves that lacked luggage restraints. Although some passengers complained that the luggage in the aisle slowed their evacuation, they considered it a minor problem. Nevertheless, all

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<sup>2</sup>Railroad Accident Report--"Derailment of Amtrak Passenger Train No. 60, the Montrealer, on the Central Vermont Railway near Essex Junction, Vermont, July 7, 1984" (NTSB/RAR-85/14).

items of mass should be secured so they do not injure passengers and do not impede evacuations. The Safety Board believes that Amtrak should modify the luggage storage areas at the ends of Horizon cars to adequately retain luggage in a collision or derailment.

In the food service car in this accident the microwave ovens were held in place with steel brackets that prevented the ovens from coming out of their recessed mounts. However, the coffeemakers were unsecured in the food service car, and the service attendant was injured when the car derailed, the coffeemakers overturned, and hot liquids spilled on her. Although there were attachments for securing a coffeemaker, the attachments were for a different type of coffeemaker, a "Grimes" type coffeemaker, and the replacement 36-cup coffeemakers could not be secured in the existing attachments.

The food service car attendant noted that when the car was being prepared for service in Oakland no coffeemakers were in the car and the replacement coffeemakers supplied by the commissary personnel were the wrong type coffeemakers. According to Amtrak the responsibility to ensure that the proper coffeemakers are in place and secured is shared by the mechanical department personnel, on-board service personnel, and the train conductor. However, while it may be proper for Amtrak's policy to take an educational tack to ensure employee compliance, it can only confuse affected personnel when no clearly defined line of accountability exists. The Safety Board believes that such procedures would not be tolerated in the mechanical or operational aspects of preparing a train and a crew for service. These aspects are perceived as safety related and required, while passenger service items such as coffeemakers are seen as convenience items related and not necessarily associated with safety. This accident and the resulting injuries show the inadequacy of treating passenger services with any less safety related importance than is shown with the operational and mechanical aspects.

The conductor had stated that he had worked on other trains in revenue service since the accident and had observed unsecured coffeemakers. Since he was unaware of any Amtrak policy that specifically required securing coffeemakers in their appropriate restraints he had not reported the unsecured coffeemakers in the food service car in this accident nor any he observed in subsequent trips. The Safety Board believes that Amtrak should establish systemwide rules to ensure that only properly secured appliances are used in revenue service and establish procedures for enforcing those rules.

As seen in this and other railroad passenger car accidents, some passenger seats rotated, and passengers were ejected from their seats. Notwithstanding the damage sustained by the Horizon cars in this accident, no seatlocks failed although some did rotate. In past accidents seat rotation without seatlock failure has been the rule rather than the exception. This may mean that the seats were not fully locked before each accident. The Safety Board concludes that a visual examination of the position of the foot lever on the Coach and Car seatlock is not a conclusive indicator to determine that a seat is actually in the locked position.

In order for a seat that is locked before an accident to unlock and rotate with the seatlock remaining undamaged, the seatlock must encounter an upward vertical force sufficient enough to disengage the latch and subsequently sustain a lateral force that will move the seat inward. Because the probability of a sufficient upward vertical and lateral force to occur that would disengage the latch without damaging the seatlock and move the seats inward would be rather remote, it appears more likely that the seatlocks were not initially engaged. The Safety Board believes that the distribution of a memo is not sufficient and Amtrak needs to establish a systemwide procedure to ensure that all seatlocks are engaged in the locked position before placing equipment in revenue service.

Therefore, the National Transportation Safety Board recommends that the National Railroad Passenger Corporation:

Develop and implement a means for the conductor to contact a dispatcher by radio should the locomotive radio be unavailable. (Class II, Priority Action) (R-90-45)

Provide visible interior markings and operating instructions at vestibule doors of all passenger equipment that cannot be opened from the exterior of the car. (Class II, Priority Action) (R-90-46)

Modify the luggage storage areas at the ends of Horizon cars to retain luggage in a collision or derailment. (Class II, Priority Action) (R-90-47)

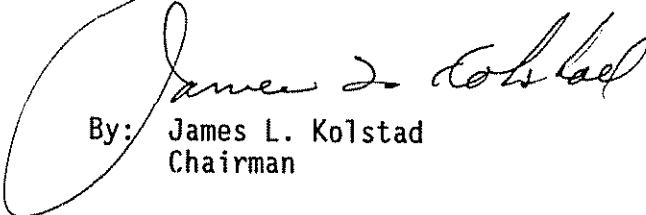
Establish systemwide rules to ensure that only properly secured appliances are used in revenue service and to establish procedures for enforcing those rules. (Class II, Priority Action) (R-90-48)

Establish systemwide procedures to ensure that all seatlocks are engaged in the locked position before offering the equipment for revenue service. (Class II, Priority Action) (R-90-49)

Also, the Safety Board issued Safety Recommendation R-90-50 to the Atchison, Topeka and Santa Fe Railway Company, H-90-92 to the Federal Highway Administration, H-90-93 to the California Department of Transportation, R-90-52 to the California Public Utilities Commission, H-90-94 and -95 to the TAB Warehouse & Distribution Company, H-90-96 and -97 to the California Trucking Association, and R-90-51 to the Federal Railroad Administration.

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" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations(s) R-90-45 through -49 in your reply.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, and LAUBER, BURNETT, and HART, Members, concurred in these recommendation(s).



By: James L. Kolstad  
Chairman