



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** December 9, 1998

**In reply refer to:** R-98-69

Mr. Robert Prince  
General Manager  
Massachusetts Bay Transportation Authority  
10 Park Plaza  
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At 3:23 p.m., eastern daylight time, on May 4, 1998, Massachusetts Bay Transportation Authority (MBTA) passenger train 642-43-626-27, consisting of four passenger cars and crewed by a single train operator, derailed its two lead cars as the train proceeded within a 500-foot-radius curve between Government Center and Bowdoin Stations on the MBTA system's Blue Line. Three of the train's 10 passengers and the train operator reported minor injuries.

The National Transportation Safety Board determined that the probable cause of this accident was the failure of the MBTA to have adequate procedures in place to ensure safe operations when restraining rails are not in place.

On the afternoon of May 4, train 642-43-626-27 was in revenue service on the Blue Line, making regularly scheduled stops to pick up and discharge passengers. The train operator said she had departed Government Center Station and was proceeding toward Bowdoin Station at 10 mph in a curve when she heard a loud "bang" and the power went out. Postaccident tests conducted by the MBTA indicated that train 642-43-626-27 had been moving at 10 mph when the derailment occurred.

Investigation revealed that a wheel on the number 2 truck of the second car had climbed the rail and caused the car to derail. The derailment of the second car forced the lead car to derail. The train traveled about 40 feet after derailing and struck the side of the tunnel wall. A wayside telephone on the tunnel wall caught fire after being struck by the derailed equipment.

The train operator and an MBTA inspector evacuated the passengers, moving them along the tracks to the Bowdoin Station platform. The Boston Fire Department responded to the accident scene and extinguished the fire at the wayside telephone. Emergency medical responders at the Bowdoin Station treated the injured passengers and the train operator. The train operator and two passengers were transported by ambulance to Massachusetts General Hospital. The passengers were treated for smoke inhalation and released later that day. The train operator was

treated for smoke inhalation and dizziness and then released. The carrier's postaccident toxicological test of the train operator for the presence of drugs and alcohol was negative.

To carry out an established renewal plan, the MBTA Right-of-Way Department had been replacing 39-foot sections of the rail and track structure each night. The night before the accident, the MBTA Right-of-Way Department had been working on and had replaced a portion of the rail and track structure in the curve where the accident occurred. The running rails, restraining rail, and all the ballast, ties, plates, and spikes were removed; and new ballast, ties, running rails, plates, and spikes were installed. The new restraining rail, however, was not installed before the track was put back in service for the morning rush on the day of the accident.

A restraining rail is used both to prevent derailments and to reduce rail wear. The restraining rail is positioned next to the inside running rail. When a car negotiates a curve, centrifugal force causes the wheel set to move toward the outside rail. Contact between the inside wheel and the restraining rail prevents the wheel set from pushing against the outside rail, which prevents wheel climb and subsequent derailment.

In response to the removal of the restraining rail, the MBTA Right-of-Way Department established a 10-mph speed limit on this section of track. The speed limitation was communicated to the train operator by a flashing yellow lantern located to the right of the rail. However, this particular curved section of track already had a speed limit of 10 mph, even when the restraining rail was in place. Therefore, the speed limit imposed by the MBTA Right-of-Way Department had no effect on safe operations.

The investigation determined that the MBTA does not have a policy addressing safe train operations over track where restraining rails are required but are not in place. Consequently, the Safety Board concluded that a similar accident could occur again when restraining rails are removed for maintenance or repair.

Therefore, the National Transportation Safety Board makes the following safety recommendation to the Massachusetts Bay Transportation Authority:

Formulate and implement a policy that will provide for the safe movement of trains on tracks that require restraining rails when those track appliances are not in place.  
(R-98-69)

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 recommendation in this letter. Please refer to Safety Recommendation R-98-69 in your reply. If you need additional information, you may call (202) 314-6431.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Jim Hall  
Chairman