

Hy R-663B



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** July 19, 1996

**In Reply Refer To:** R-96-16 and -17

Mr. Edwin L. Harper  
President and Chief Executive Officer  
Association of American Railroads  
50 F Street, NW  
Washington, DC 20001

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On August 3, 1994, Amtrak (National Railroad Passenger Corporation) train 49, en route from New York, New York, to Chicago, Illinois, was traveling westbound about 79 mph on Conrail (Consolidated Rail Corporation) trackage. About 3:44 a.m., the train derailed near Batavia, New York. No fatal injuries were sustained; 108 passengers and 10 crewmembers were injured.<sup>1</sup> The National Transportation Safety Board determines that the probable cause of the derailment was the fact that Federal and industry guidelines do not currently address flattened rail head conditions, due to an insufficient understanding of the risk that flattened rail poses to train operations.

The flattened rail head found in this accident is not unique to Conrail. The Association of American Railroads (AAR) examined rail in 1994 from the Chicago & North Western (CNW) and from the Canadian National (CN) railroads that exhibited similar physical and chemical properties to the flattened rail head from the Batavia derailment. These rails were manufactured in the 1970s; the CNW rail was an "A" rail.<sup>2</sup> (A CNW and CN review of other rails suggested "A" rails were more likely to have this flattened head condition.) Rolling load tests on the CN rail, performed by the AAR, disclosed that after 2 million cycles of impact simulation, no internal fatigue defects developed. The AAR concluded that these flattened rail conditions tended

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<sup>1</sup> For further information, read Railroad Accident Report—*Derailed Amtrak Train 49 on Conrail Trackage near Batavia, New York, August 3, 1994* (NTSB/RAR-96/02).

<sup>2</sup> "A" rails are rolled from the top portions of ingots cast from the open hearth steel-making process. "A" rails are no longer manufactured because rails are now manufactured using a continuous casting process.

not to be structurally destructive. As a remedy for the rail condition, the CNW placed a speed restriction on its track, and the CN attempted to weld and grind the affected areas. The industry, however, has not determined the best long-term remedial action.

The Safety Board materials laboratory did not find any metallurgical defects in the flattened rail head involved in the Batavia accident. Although the reason for the flattening cannot be conclusively determined, the rail seemed to have much in common with other rail that has developed flattened rail head: it was an "A" rail manufactured in the 1970s that had been heavily used in terms of tonnage and high axle loads. Additional research is needed on flattened rail head to determine the type of rail that is likely to flatten, the conditions that will cause it to flatten, and the risk posed by the flattening. The Safety Board believes that the Federal Railroad Administration should conduct appropriate research and develop a data base that can be used to assess the risk posed by flattened rail heads. In addition, the Safety Board believes that the AAR and the American Short Line Railroad Association, in conjunction, should assist the Federal Railroad Administration in developing the data base.

Therefore, the National Transportation Safety Board issues the following recommendations to the Association of American Railroads:

Inform your membership of the circumstances of this accident. (Class II, Priority Action)(R-96-16)

Assist the Federal Railroad Administration, in conjunction with the American Short Line Railroad Association, in developing a data base that can be used to assess the risk posed by flattened rail heads. (Class II, Priority Action)(R-96-17)

The Safety Board also issues Safety Recommendations R-96-12 through -14 to the Federal Railroad Administration, R-96-15 to the National Railroad Passenger Corporation, and R-96-18 and -19 to the American Short Line Railroad Association.

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 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 R-96-16 and -17. If you need additional information, you may call (202) 382-6840.

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

By:   
Jim Hall  
Chairman