

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: January 10, 1980

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Forwarded to:  
Mr. J. C. Kenefick  
President  
Union Pacific Railroad Company  
1416 Dodge Street  
Omaha, Nebraska 68179  
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SAFETY RECOMMENDATION(S)

R-79-78 through R-79-81

On July 31, 1979, Union Pacific Railroad Company freight train No. GRX 31 derailed at Granite, Wyoming. The train was moving on main track No. 2 at 75 mph when the second and third locomotive units derailed and overturned in a 3°05.8' curve, separated from the lead locomotive unit, destroyed the track, and caused the following 81 freight cars to derail. Two locomotive units were damaged heavily, 80 freight cars were destroyed, and 2 overpass bridges of Interstate 80 were damaged extensively. Total damage was estimated at \$5 million. 1/

After cresting Sherman Hill, the engineer was not able to control the speed of the train. An engineer working in Granite Yard observed the train passing him at an estimated speed of 65 mph with brakes applied on only the three locomotive units and first six cars. The Safety Board believes that a closed angle cock existed in the trainline which prevented the passage of air and an application of the train brakes from the lead locomotive unit beyond the sixth car.

According to UPRR timetable instructions, air brake retainer valves were required to be used on the train. However, the engineer did not request their use, and the conductor did not require them.

The removal of the brake pipe flow indicators from UPRR locomotives eliminated the only tool the engineer had to inform him about the air flow in the brake pipe. With proper monitoring of the brake pipe flow indicator during the application and release of the automatic brake, the Safety Board believes that the engineer could have detected a blockage in the air brake system and could have corrected it before descending Sherman Hill.

1/ For more detailed information, read "Railroad Accident Report—Derailment of Union Pacific Railroad Freight Train at Granite, Wyoming, July 31, 1979" (NTSB-RAR-79-12).

UPRR rules hold the conductor and engineer equally responsible for the safety of the train and for compliance with the rules. The railroad also requires that other crewmembers take immediate action to stop the train, using the emergency brake valve, if necessary, if the speed of the train must be reduced and the engineer and conductor fail to do so. As the train descended Sherman Hill, the train attained a speed of 40 mph within 6 miles and 50 mph within 8 miles. The speed continued to increase to 60 mph and then to 75 mph, 15 miles below the top of Sherman Hill. Tests conducted after the derailment indicated that if the conductor or flagman had applied the train brakes in emergency from the caboose, even when the train was traveling at 60 mph—40 mph over the authorized speed—the train would have stopped.

During the investigation, the conductor appeared to be confused on the proper allowable speed for the train. He stated that he thought the allowable speed was 30 mph instead of 20 mph. The flagman stated that he knew that the maximum speed requirements for the train was 20 mph on Sherman Hill and that he knew the train was exceeding the 20-mph speed limit when it descended Sherman Hill but he did not become concerned with the excessive speed and said nothing to the conductor. The Safety Board believes that the failure of the crewmembers to understand and apply the rules indicates a lack of monitoring by UPRR supervision of crew compliance with the train operating rules.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the Union Pacific Railroad Company:


Instruct employees who make train brake tests in the test requirements of the Federal Power Brake Regulations, CFR 49 Part 232, and establish monitoring procedures to insure that the tests are conducted properly. (Class II, Priority Action) (R-79-78)

Review the operating rules examination and retesting procedures to insure that employees properly understand the requirements of the operating rules and timetable instructions. (Class II, Priority Action) (R-79-79)

Establish a monitoring system for rule compliance of employees operating trains. (Class II, Priority Action) (R-79-80)

Equip locomotives with brake pipe flow indicators to enable engineers to measure trainline air flow. (Class II, Priority Action) (R-79-81)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSLEY, Members, concurred in the above recommendations.

  
By: James B. King  
Chairman