

R-419

# NATIONAL TRANSPORTATION SAFETY BOARD WASHINGTON, D.C.

ISSUED: July 8, 1983

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 Forwarded to:  
 Mr. Leonard Ronis  
 General Manager  
 Greater Cleveland Regional  
 Transit Authority  
 1404 East 9th Street  
 Cleveland, Ohio 44114  
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SAFETY RECOMMENDATION(S)

R-83-77 and -78

At 2:30 p.m., on May 5, 1982, Greater Cleveland Regional Transit Authority (GCRTA) train No. 6602 carrying 80 passengers struck an unoccupied 4-car train standing at the Euclid-East 120th Street station on the Red Line of the GCRTA. The operator of the 4-car train had stopped to extinguish a fire in some crossties near the center of the station platform. Twelve passengers and the operator of train No. 6602 were taken to the hospital for treatment. Property damage was estimated at \$23,000.

Train movements in the Euclid-East 120th Street station area are governed by wayside signal indications with automatic train stop (ATS). The signal indications are green (proceed within the permitted speed), yellow (proceed within a safe controlled speed and be prepared to stop at the next signal), and red (stop, remain standing for 30 seconds, and call tower supervisor for instructions). The rear of a train is protected by at least two red block signals so as to provide one full block length for stopping. The second red signal behind the train is equipped with a trip mechanism which applies the emergency brakes on a following train if the signal is passed. The distance between signals for safe operation, prescribed by the American Public Transit Association, is that it be greater than the stopping distance of the train when its brakes are applied at the train's maximum authorized speed.

The Safety Board's postaccident tests simulating the May 5, 1982, rear end collision revealed that a two-car Pullman Standard train moving at the maximum permitted speed of 55 mph (the approximate speed of the overtaking train) traveled 90 feet past the block defined by the two red signals at the accident site. The ATS system applied the train's emergency brake at the beginning of the block. From this test, the Safety Board concluded that the stopping distance is insufficient. The Safety Board is concerned that there may be other areas on the GCRTA where the distance between signals is insufficient to assure that the trains are stopped without overrun.

Currently, three types of vehicles, 1/ each requiring different stopping distances because of their different weights and braking characteristics, are operated on the GCRTA. A combination of different cars may operate in the same train or trains

1/ Light rail vehicles (LRV-trolley cars), vehicles built by St. Louis Car, and vehicles built by Pullman-Standard.

composed of one car type may follow one another on the same track. The future purchase of new and different types of cars may further complicate the stopping distance problem. Therefore, the Safety Board is concerned that the existing block signals and ATS system installations on the GCRTA may not be properly spaced to accommodate the train with the longest full service or emergency brake stopping distance. The problem may be particularly critical at short block locations protected by two red signals when the following train is operating at the maximum authorized speed as was the case in the collision on May 5, 1982.

The Safety Board's investigation also revealed that the operator of train No. 6602 may have been distracted from his duties by another GCRTA employee who was standing outside the operating compartment. Witnesses stated that there appeared to be a lengthy conversation between the operator and the employee before the collision. Such distraction apparently caused the operator to overlook both the yellow signal, which required him to reduce speed and prepare to stop, and the following signal, which displayed a red aspect. Unnecessary conversation between train operators and passengers or off-duty employees is a violation of the GCRTA operating rules.

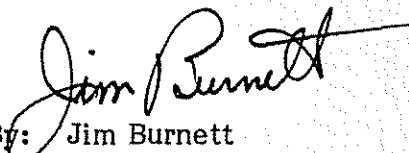
Therefore, the National Transportation Safety Board recommends that the Greater Cleveland Regional Transit Authority:

Conduct periodic comprehensive stopping distance tests with all possible combinations of equipment operated on the Greater Cleveland Regional Transit Authority (GCRTA) and adjust the minimum signal spacing and automatic train stop system installation on the GCRTA to accommodate without overrun the stopping distances developed in the testing program. (Class II, Priority Action) (R-83-77)

Take action to increase training in and enforcement of the operating rules of the Greater Cleveland Regional Transit Authority prohibiting operators from having unnecessary conversations with other employees or passengers. (Class II, Priority Action) (R-83-78)

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." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

  
By: Jim Burnett  
Chairman