

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: March 5, 1975

Forwarded to:

Mr. D. L. Yunich
Chairman
Metropolitan Transportation Authority
1700 Broadway
New York, New York 10019

SAFETY RECOMMENDATION(S)

R-75-6 and 7

On January 2, 1975, Penn Central Commuter Train 528 collided with Penn Central Commuter Train 526 on the Harlem Line near Botanical Garden Station in New York City. The National Transportation Safety Board's continuing investigation has revealed several safety problems which the Safety Board believes warrant prompt corrective action.

Trains on the Harlem Line operate by signal indications of an automatic-block signal system. The signal system is designed so that a following train is expected to slow from a maximum authorized speed of 60 mph to 45 mph when an "advance-approach" signal is displayed two blocks behind a train ahead, slow to 30 mph when an "approach" signal is displayed one block behind the train ahead, and stop and proceed at "restricted speed" when a "stop-and-proceed" signal is displayed at the entrance to the block occupied by the train ahead. The wayside signals are not supplemented by any type of train control devices. Compliance with signal indications and speed restrictions depends entirely upon the engineer of the train.

The Safety Board has no evidence that the engineer of train 528 did not reduce speed in compliance with the "advance-approach" and "approach" signals, however, there is conclusive evidence that he did not stop at the "stop-and-proceed" signal. The frequency and severity of accidents caused by failure to obey signals varies from year to year. There are two outstanding examples of the disregard of signal indications and violation of the restricted speed rule:

On June 8, 1973, at Mount Vernon Station, a train which was standing at the station was struck by a following train. Fortunately, speed had been reduced before the collision and the casualties were limited to one fatality and five serious injuries.

At Chicago on October 30, 1972, an Illinois Central Gulf commuter train struck the rear of a train which was backing up after over-running the station platform. In that accident 45 persons were killed and 332 were injured. The fatalities accounted for virtually all the railroad passenger fatalities for 1972.

In both of these accidents and in the accident at Botanical Garden Station, a collision could have been avoided if the engineers of the following trains had complied with the signals.

The potential for catastrophe in each accident of this type is evident. The Metropolitan Transportation Authority found that on the lines of the New York City Transit Authority it was necessary to abandon the practice of "keying by" stop signals without authority of a second person. The practice of having the dispatcher authorize each train to resume after stopping has proven effective. After the system was implemented, and the trains equipped with radios, little train delay has resulted and there have been no rear end collisions. A system which relies on the engineer alone to comply with signals and which lacks a suitable backup system is subject to a major accident as a result of only one error.

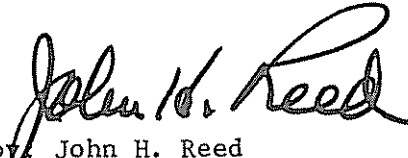
Although a train control system requires time for installation, safeguards can be added to the current method of operation. Whereas these safeguards will decrease the probability that a following train will collide with a train ahead, the method of operation still depends on the engineer and is not as safe as a train control system. Consequently, these safeguards should be considered interim precautions only.

The Safety Board agrees with the Metropolitan Transportation Authority's recommendation No. 1 in the "Report of Special Board of Inquiry, Collision Between Penn Central Trains 526 and 528 at Botanical Garden Station on January 2, 1975," which recommends the installation of a cab signal-automatic speed control system on the Harlem and Hudson Lines.

Therefore, to reduce the probability of such collisions in the future and to improve protection of the public, the National Transportation Safety Board recommends that the Metropolitan Transportation Authority:

- (1) Equip all rail lines with a system that will control the speed of the train in compliance with signals when an engineer fails to do so.
- (2) Until such a system can be installed, the Penn Central should be required to establish procedures to require each Metropolitan Transportation Authority train to stop at "stop-and-proceed" signals and to obtain permission from the operator or dispatcher before proceeding.

REED, Chairman, McADAMS, BURGESS, and HALEY, Members, concurred in the above recommendations. THAYER, Member, did not participate.


by: John H. Reed
Chairman

cc: Administrator, FRA