Log R-205

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: June 23, 1978

Forwarded to:

Mr. Alan S. Boyd
President
National Railroad Passenger Corporation
400 North Capitol Street, N.W.
Washington, D.C. 20001

SAFETY RECOMMENDATION(S)

R-78-37 through 40

About 6:30 p.m. on June 9, 1978, northbound Conrail commuter train No. 400, consisting of 4 self-propelled cars, struck the rear of Amtrak train No. 60, the Montrealer, consisting of 1 locomotive unit and 14 cars, at Seabrook, Maryland. The impact caused eight cars of the Montrealer and three cars of train No. 400 to be derailed. Sixty-eight persons were injured and damage was estimated to be $325,000.

The Montrealer received a "stop and proceed" indication at signal 128R near the Capitol Beltway station. After stopping, the Montrealer departed from signal 128R at restricted speed as authorized by the operating rules. However, the locomotive developed operating problems and the engineer called the dispatcher by radio to advise him that he was going to stop clear of a highway grade crossing at Seabrook. As the Montrealer was slowing to a stop, it was struck in the rear by train No. 400.

Train No. 400 had received a stop signal at signal 128R. It was stopped and after standing for about 90 seconds, the signal changed to a "stop and proceed," which permitted train No. 400 to depart at restricted speed but not to exceed 15 mph. The engineer reported that his cab signal changed from a "restricting" to an "approach" aspect about 1,000 feet north of signal 128R, and that he increased the train's speed by an undetermined rate. As train No. 400 proceeded through a 1° curve to the right, the engineer saw the rear of the Montrealer ahead. He immediately applied the brakes in emergency. When he realized that his train was not going to stop before striking the train ahead, he ran back into the first car and warned the passengers there. Almost immediately thereafter, train No. 400 struck the Montrealer.

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Train No. 400 was not equipped with an automatic train control (ATC) system which will limit the speed of the train in accordance with signal indications if the engineer fails to do so. ATC systems can be used on the northeast corridor, and other trains that operate over these tracks are so equipped. The cab signal system used on train No. 400 provides an audible warning if the track condition becomes more restrictive. The warning must be acknowledged by the engineer or the brakes will be applied. However, once the audible warning is acknowledged, the train can be accelerated to maximum speed.

Tests made of the cab signal system on the first car of train No. 400 disclosed that while operating through the area immediately before the accident, the cab signal system could falsely display an "approach" aspect when it should have been displaying the most restrictive aspect. This indicated that the engineer of train No. 400 could have received an improper cab signal aspect as his train approached the rear of the Montrealer. By rule, the "approach" aspect permitted the engineer to increase the speed of the train to 30 mph. It appears that this is a design failure and could involve all cab signal equipment of this type. The engineers should be warned not to rely on this equipment until it can be corrected.

From stopping tests conducted on June 12, 1978, using equipment similar to that of train No. 400, it was concluded that if the brakes of train No. 400 had been applied at the point where the Montrealer was first sighted, train No. 400 could have stopped short of a collision at any speed less than 60 mph. If train No. 400 had been provided with an ATC system, the accident would not have happened because the train would have been limited to a speed from which it could have been stopped safely within the sight distance available.

A rear end collision of two Conrail freight trains that occurred on the northeast corridor at Stemmers Run, Baltimore, Maryland, on June 12, 1977, was caused by the failure of the engineer to operate the following train in accordance with the signal indications. Again, this train was not provided with an ATC system. The northeast corridor is being upgraded as a high-speed rail passenger-carrying line and every precaution should be taken to prevent accidents. Controlling the speeds of trains when the engineer fails to do so is imperative for safe operation.

Therefore, the National Transportation Safety Board recommends that the National Railroad Passenger Corporation (Amtrak):

Immediately arrange to have the defective cab signal systems corrected on these commuter cars and other locomotives using similar systems so that the systems will function as intended. (Class I, Urgent Action) (R-78-37)

Until the cab signals are properly repaired, issue instructions for the safe operation of these trains. (Class I, Urgent Action) (R-78-38)

Require all trains that operate on the northeast corridor to be equipped with an automatic train control system. (Class II, Priority Action) (R-78-39)

Until an automatic train control system can be implemented on all trains, require that all "stop and proceed" signals on the northeast corridor be regarded as "stop and stay" signals by all trains equipped with locomotives and by self-propelled cars not equipped with automatic train control systems. If circumstances require such a train to enter an occupied signal block, the train dispatcher should be required to authorize the movement. (Class I, Urgent Action) (R-78-40)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendations.

James B. King
Chairman