

SP. 20
Log R. 393

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 13, 1982

Forwarded to:

Mr. John D. Simpson
President
New York City Transit Authority
370 Jay Street
Brooklyn, New York 11201

SAFETY RECOMMENDATION(S)

R-82-105 and -106

About 7:20 a.m., on October 5, 1981, New York City Transit Authority (NYCTA) subway train FR/207 struck the rear of an NYCTA revenue collector train at a track interlocking south of 207th Street Station in Brooklyn, New York. None of the 60 passengers or the crewmembers on the two trains were injured, but the lead car of train FR/207 and the rear car of the revenue collector train sustained substantial damage estimated at a total of \$186,200.

The northbound five-car revenue collector train, en route to the 207th Street Yard, had crossed from track A4 to track A6 at the interlocking. Shortly after entering track A6, the train was stopped by the motorman 4 feet south of a signal displaying a red aspect. When the train was stopped at this location, the rear of the fifth car of the train was not clear of track A4 at the interlocking.

As the 10-car northbound train FR/207 approached the interlocking on track A4, the model board in the NYCTA tower indicated that the revenue collector train was on track A6 and clear of track A4. This indicated to the tower operator that it was safe for train FR/207 to proceed. The operator lined the switches and operated the proper signal control lever to clear the signal south of the interlocking on track A4 for train FR/207 to continue northward on track A4. The motorman of train FR/207 observed that the signal for his train was green, indicating that the track ahead was clear, and he proceeded. The motorman estimated that the speed of his train was 30 mph at the time he saw that the rear of the revenue collector train was too close to track A4 for his train to pass. The motorman immediately applied the train's brakes in emergency. Before the speed of the train was reduced significantly, however, the left front side of the lead car of train FR/207 struck the right rear side of the last car of the revenue collector train.

Postaccident inspection of the signal circuits in the accident area indicated that the circuit for the signal on track A4 south of the interlocking was improperly wired. Because of the improper wiring, the presence of a car on track A6 that was not clear of track A4 would not be detected and shunt the circuit to cause the signal to indicate stop. The investigation determined that the improper wiring had been performed by an NYCTA Signal Department employee on August 28, 1980, when he made a temporary repair to correct an open wire detected in the signal circuit. In doing so, he eliminated the capability of the signal circuit to detect a car on track A6 which was not clear of track A4. This improperly wired signal circuit went undetected for over 13 months until the accident occurred, even though the signal circuit received 11 maintenance servicings and was inspected twice. The most recent inspection was 24 days before the accident.

A good practice in signal technology is for signal employees to make a route check following equipment installation or repairs. A route check is made by simulating train movements over the route in which a change has been made and then checking from the control machine to see if conflicting routes can be aligned and a proceed signal cleared. Such checks cannot be made by one person and normally are not made during routine inspections. If the NYCTA had made a thorough route check following the temporary repairs to the signal circuit, the defect would have been detected and corrected. The Safety Board concludes that the NYCTA's inspection and testing procedures for signal circuits need to be improved. Also, since this condition existed for over 13 months, the Safety Board is concerned that other unsafe signal conditions may exist and remain undetected.

Since the accident, the NYCTA Signal Department has conducted a field check of all signal wiring installations to determine if the installations agree with the wiring circuit diagrams. Additionally, a route check has been made at all interlocking installations over the system. These prudent actions were necessary, and the Safety Board commends the NYCTA for its initiative. However, the Safety Board still believes that additional precautions and affirmative actions are appropriate in dealing with signal circuit failures and repairs on the NYCTA.

Therefore, the National Transportation Safety Board recommends that the New York City Transit Authority:

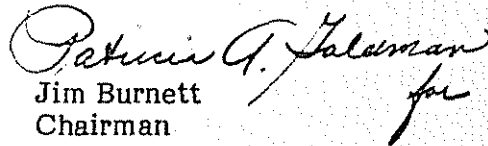
Establish a procedure for scheduling and making permanent repairs within an established minimum time after temporary repairs have been made on signal circuits. (Class II, Priority Action) (R-82-105)

Establish a training program for signal department employees performing inspections and testing signal circuits to give them a thorough understanding of proper signal circuit test procedures and principles. (Class II, Priority Action) (R-82-106)

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 recommendation. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter.

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

By: Jim Burnett
Chairman



Patricia G. Goldman
for