

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4150

LONG ISLAND RAIL ROAD COMPANY

PENN CENTRAL COMPANY

ACCIDENTS

January 25, 1969
May 27, 1969
June 23, 1969 (2)
August 13, 1969

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

Washington, D. C. 20591

PENN CENTRAL ACCIDENT - May 27, 1969

No 3745, a westbound passenger train consisting of four electrically-propelled passenger cars with approximately 280 passengers aboard, left Pennsylvania Station at 6:55 p m , and entered the north tunnel of the North River Tunnels About 7:01 p m , as the train moved in the tunnel at 40 to 45 m p h , a failure occurred in an electrical equipment cabinet under the third car This caused electrical arcing in the cabinet; a short circuit; a loud hissing or sizzling sound; sparks to fly upward outside windows of the third car, and alarm to passengers in that car Approximately 45 seconds later, flames from under the car began to shoot upward alongside the windows, and heavy black smoke began to enter the car

Some passengers in the third car immediately moved to the second and fourth cars Those entering the second car informed the front brakeman of the fire and he went to the front of the third car After assessing the situation, he advised passengers in the third car that there was no immediate danger and requested them to go forward to the first two cars Apparently this was heard only by the passengers occupying the front portion of the car

Approximately one minute after the fire broke out from under the third car, smoke in that car had thickened considerably and had spread forward to the interiors of the first two cars Little or no smoke entered the fourth car, due to the flagman closing its front door Not knowing that any member of the train crew was aware of the fire, a passenger seated in the middle portion of the third car pulled the communicating whistle cord with the intention of alerting the train crew to the situation About the same time, other passengers also pulled the cord

The engineer realized the train was experiencing some kind of electrical trouble just before the communicating whistle sounded He intended to stop the train and determine the nature of the trouble after emerging from the tunnel at the New Jersey portal He said that he was unable to do this, however, due to hearing the communicating whistle sound a stop signal (two short blasts), which required him to stop the train immediately Hence, he applied the brakes, stopping the train in the tunnel with the front end 4,350 feet short of the New Jersey portal and the rear end 1,350 feet west, or beyond, a tunnel air shaft known as the Weehawken Shaft

When the train stopped, the fourth car was relatively free of smoke because of the westward flow of air in the tunnel The flagman stepped from the front vestibule of the fourth car to the elevated walkway along the north wall of the tunnel and proceeded eastward to provide flagging protection against following trains While going to the rear of the train, he advised passengers in the fourth car that they were in little danger and requested them to remain inside the car Apparently believing other crew members would do so, he made no attempt to call rescue forces by use of a tunnel telephone or fire alarm mechanism

The first three cars were engulfed in smoke when the train stopped, causing the passengers in those cars to suffer from inhalation of smoke and to become concerned about their safety. They hurriedly evacuated the first three cars by going to the elevated walkways along both walls of the tunnel, and this temporarily prevented the train crew members from communicating with one another. After three or four minutes elapsed, however, the conductor finally made his way to the front of the train and discussed the situation with the engineer. He then decided to escort and/or direct the passengers from the tunnel via the New Jersey portal, 4,350 feet ahead.

The conductor and one group of passengers walked forward, in single file, along the north walkway of the tunnel; the other group of passengers proceeded in single file along the south walkway. Both groups experienced considerable difficulty in making their way to the New Jersey portal because of dense smoke and poor lighting conditions in the tunnel, and lack of guard rails and painting for guidance along the walkways.

About 7:12 p m, No. 227, a westbound passenger train consisting of an electric locomotive and eight cars, stopped in the tunnel a short distance to the rear of No. 3745. A few minutes later, after apprising themselves of the situation, the conductor and engineer of No. 227 went to a nearby telephone, informed the power director of the fire on No. 3745, and received instructions for their train to push No. 3745 out of the tunnel. Approximately 20 minutes later, No. 227 began to push No. 3745 out of the tunnel with approximately 80 passengers still aboard the latter train, in the fourth car. The engineer of No. 3745 was in the control compartment at the front of his train during the movement to the New Jersey portal. He said that the headlight was lighted and that he sounded the horn frequently while enroute to the portal. He further said that heavy smoke conditions severely restricted his view ahead and that he saw no one on the track structure while his train was being pushed from the tunnel.

About 7:43 p m, both trains emerged from the tunnel and stopped a short distance west of the New Jersey portal. By that time, some of the passengers evacuating the tunnel via the walkways had also emerged from the New Jersey portal. Others, however, were still in the tunnel, having pressed themselves against the walls for safety when the trains passed. The North Bergen, N. J., fire department had been called at 7:27 p m and several of its companies were at the New Jersey portal when passengers began to emerge from the tunnel via the walkways. Shortly after the trains emerged, the body of a male passenger was found lying on the track structure inside the tunnel, 152 feet from the New Jersey portal.

The carrier's records indicate that at 7:34 p m, approximately 32 minutes after No. 3745 stopped in the tunnel, the power director activated a fan of the Weehawken Shaft. At 7:56 p m, he activated a fan of the 11th Avenue Shaft.

Casualties

Four crew members and 32 passengers of No 3745 were injured as a result of smoke inhalation

One passenger of No 3745 was killed. He was an off-duty train-service employee. Marks and blood found on the first car (express-refrigerator car) of No 227, indicate he was struck by the left front corner of that car while walking toward the New Jersey portal via the south elevated walkway of the tunnel.

Damages

Except for a few broken windows on the second car, the first, second and fourth cars of No 3745 were undamaged.

There was no sign of heavy smoke inside the third car. Traces of smoke, however, were found at metal seams and heating outlets near the center of the car. Electrical equipment under the car was heavily damaged by fire and electrical arcing.

Post-Accident Examination of Third Car of No. 3745

The electrical switch group within the metal cabinet was made up of seven unit switches designated as M, P, A1, A2, D2, D3 and S. Examination revealed the electrical failure was caused by a broken 1" x 4" copper stud bolt on a metallic link between the blowout coil (overload safety device) of the A2 unit switch and a stationary contact of the same switch. This evidently resulted in arcing between the broken bolt and a similar bolt at the location of the blowout coil, and a short circuiting of cables and terminals atop the A1 and D2 unit switches, causing the fire and smoke that erupted from the cabinet.

Cause

The accident was caused by failure of a bolt securing electrical equipment of the third car in the train.