INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2538

THE PENNSYLVANIA RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR RAHWAY, N. J., ON

OCTOBER 21, 1941

SUMMARY

Railroad:	Pennsylvania	
Date:	October 21, 1941	
Location:	Rahway, N. J.	
Kind of accident:	Side collision	
Trains involved:	Passenger	: Passenger
Train numbers:	263	: 155
Engine numbers:	MU 43	: 4876
Consist:	5 cars	: 10 cars
Estimated speed:	Standing	: 20 m. p. h.
Operation:	Automatic block and cab-signal system; interlocking limits	
Track:	Five tracks; 0°30' curve to right; grade 0.3 percent descending westward	
Weather:	Clear	
Time:	About 3:59 p. m.	
Casualties:	28 injured	
Cause:	Accident caused by failure to operate No. 263 in accordance with interlocking and cab-signal indications	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2538

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE PENNSYLVANIA RAILROAD COMPANY

December 23, 1941

Accident near Rahway, N. J., on October 21, 1941, caused by failure to operate No. 283 in accordance with interlocking and cab-signal indications.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On October 21, 1941, there was a side collision between two passenger trains on the Pennsylvania Railroad near Rahway, N. J., which resulted in the injury of 28 passengers. This accident was investigated in conjunction with representatives of the New Jersey Board of Public Utility Commissioners.

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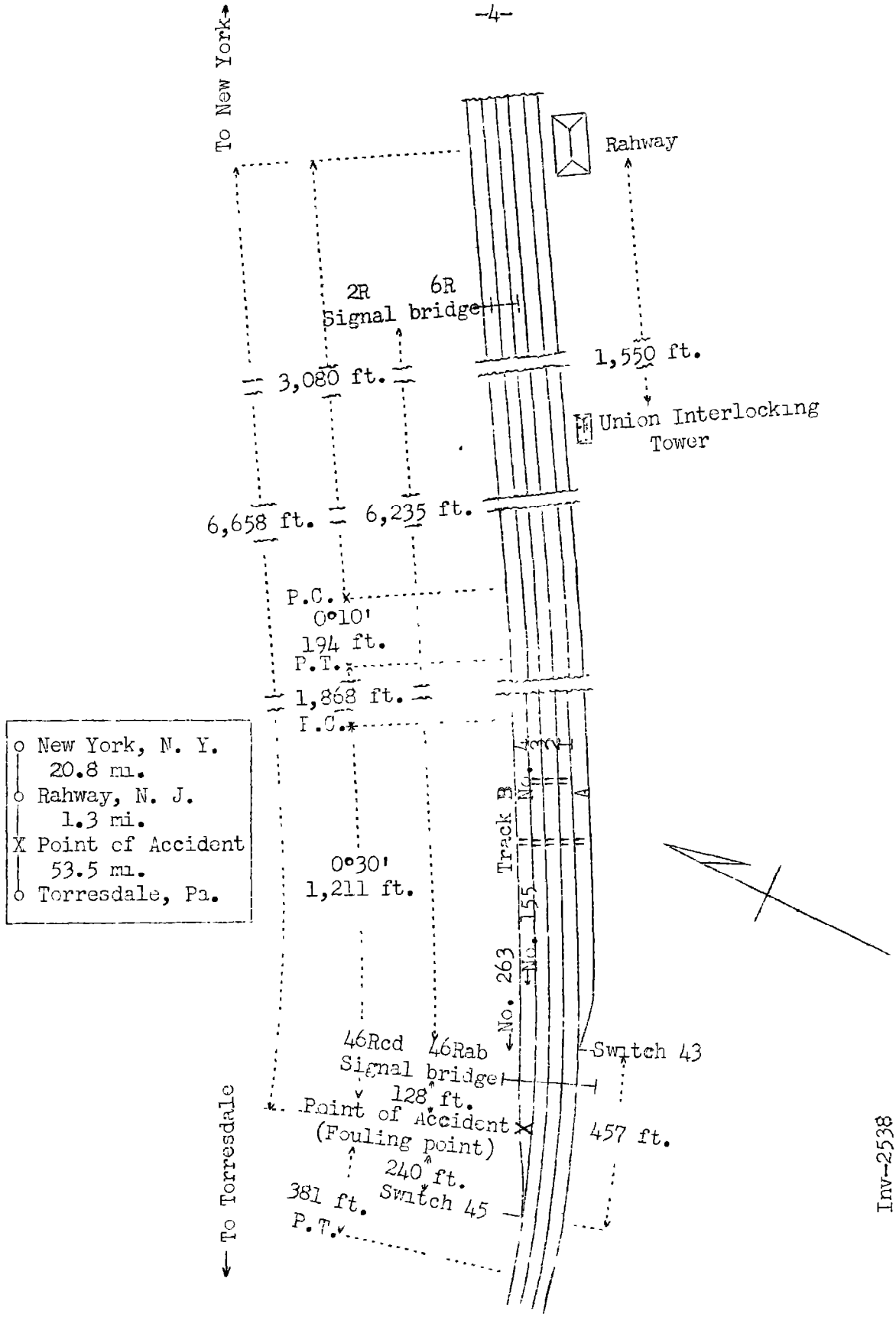
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv-2538
Pennsylvania Railroad
Rahway, N. J.
October 21, 1941

Location of Accident and Method of Operation

This accident occurred on that part of the New York Division which extends between New York, N. Y., and Torresdale, Pa., a distance of 75.6 miles. The line is equipped with an overhead catenary system for electric propulsion of trains. In the immediate vicinity of the point of accident this is a 5-track line over which trains moving with the current of traffic are operated by an automatic block and cab-signal system, the indications of which supersede time-table superiority. The main tracks from north to south are track B, westward passenger track, No. 4, westward passenger track, No. 3, westward freight track, No. 2, eastward freight track, and No. 1, eastward passenger track. At a point 6,898 feet west of the station at Rahway track B joins with track No. 4 at a switch designated as switch 45. The accident occurred within interlocking limits at the fouling point of tracks B and No. 4 at a point 240 feet east of switch 45. As the point of accident is approached from the east on track No. 4 there are, in succession, a tangent 3,080 feet in length, a 0°10' curve to the right 194 feet, a tangent 1,868 feet and a 0°30' curve to the right 1,211 feet to the point of accident and 381 feet beyond. Throughout this distance track B practically parallels track No. 4. In the immediate vicinity of the point of accident track B and track No. 4 are spaced 12 feet 6 inches center-line to center-line. At a point 300 feet east of switch 45, track B turns to the left by means of a No. 20 turnout, and the fouling point is 240 feet east of the switch. At the point of accident the grade for west-bound trains on tracks B and No. 4 is 0.3 percent descending.

Switch 45 is controlled from Union tower, located 5,448 feet east of switch 45. The interlocking machine is of the electric type and consists of 47 working levers. Of these levers 22 control 57 signals, 22 control 36 switches and 2 derails, and 3 control traffic. Approach locking is provided for all routes, and sectional route locking is provided for all switches. Time releases are of the clockwork type.

Signals 2R and 46Rcd, which govern westward movements on track B, and signals 6R and 46Rab, which govern westward movements on track No. 4, are mounted on signal bridges located 6,603 and 368 feet, respectively, east of switch 45. These signals are of the semi-automatic, 2-unit, position-light type, and are continuously lighted. The involved aspects displayed by these signals and the corresponding indications and names are as follows:

Aspect	Indication	Name
Vertical	Proceed	Clear
45 degrees	Proceed prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach
Horizontal	Stop	Stop-signal

Operating rules read in part as follows:

DEFINITIONS

Medium Speed--Not exceeding one-half the speed authorized for passenger trains but not exceeding 30 miles per hour.

295. Cab signal aspects, indications and names correspond to those shown for fixed signals * * * .

296. Cab signal indications do not supersede fixed signal indications except when cab signal changes to a more restrictive or a more favorable indication after passing a fixed signal.

298. Should cab signal and fixed signal indications conflict, the more restrictive indication will govern.

663. A train or engine must stop clear of an interlocking signal indicating "stop." A train or engine must not pass a Stop-Signal except when authorized by Clearance Card (Form C) or train order. * * *

The maximum authorized speed for passenger trains on track No. 4 is 75 miles per hour and on track B, 70 miles per hour.

Description of Accident

No. 263, a west-bound first-class passenger train, consisted of four multiple-unit coaches and one multiple-unit mail-baggage car, in the order named. All cars were of steel construction. This train was operated from the control station of MU coach 43, the front unit of the train. A terminal air-brake test was made at New York, 20.8 miles east of Rahway, and the brakes functioned properly en route. This train departed from New York at 3:22 p. m., according to the dispatcher's record of movement of trains, on time, departed from Rahway about 3:57:15 p. m., according to the conductor, 15 seconds late, passed signal 2R, which was dis-

playing approach, passed signal 46Rcd, which was displaying stop, and stopped on track B with the front end of the fourth car standing at the fouling point of the turnout leading to switch 45. Soon afterward No. 263 was struck by No. 155.

No. 155, a west-bound first-class passenger train, consisted of electric engine 4876, of the 4-6-6-4 type, one mail car, one express car, one passenger-baggage car, four coaches, one dining car and two Pullman parlor cars, in the order named; all cars were of steel construction. At New York a terminal air-brake test was made, and the brakes controlled the speed properly at all points where used en route. This train departed from New York at 3:30 p. m., according to the dispatcher's record of movement of trains, on time, passed Rahway on track No. 4, and while moving at an estimated speed of 75 miles per hour it passed signal 6R, which was displaying clear, and passed Union tower at 3:58 p. m., on time. When No. 155 was about 1/4 mile east of signal 46Rab, the indication displayed by that signal changed from clear to stop, the cab signals in engine 4876 changed from clear to approach and the cab warning whistle sounded. This train passed signal 46Rab, and while moving at a speed estimated as 20 miles per hour it collided with No. 263.

On track B the view of signal 46Rcd from the control station of a west-bound train was unrestricted throughout a distance of 2,400 feet.

The force of the impact drove the first car of No. 263 forward and the front wheels of the front truck stopped 8 inches east of the switch points, which were forced open. This car was slightly damaged. The second car was derailed to the right and leaned at an angle of 45 degrees. Throughout a distance of 15 feet the right side-sheets and the roof sheets at the rear end were torn away. The end-sills and the side-sills were broken and the rear-end vestibule was badly damaged. The third car was derailed and stopped on its right side, north of the turnout involved and parallel to it. Both trucks were badly damaged, the left side-sheets and the left side of the rear vestibule were badly bent and many windows were broken. Near the front end of the fourth car the right side-sheets were bent and the front vestibule was damaged. The front engine-truck and the front driving-wheel assembly of engine 4876, of No. 155, were derailed to the south and the front end stopped against the second car of No. 263 and fouled track No. 3. Engine 4876 remained upright. The front end and the front engine-truck were badly damaged and the main frame was cracked at the male casting location. The first and second cars were slightly damaged.

The weather was clear at the time of the accident, which occurred about 3:59 p. m.

Discussion

The switch and turnout involved are protected by an interlocking which is so arranged that when the route is lined for movement on track No. 4 the approach signal and the home signal for that track will display proceed, and the approach signal for track B will display approach and the home signal will display stop. When a train has entered the approach circuit on track No. 4 the route cannot be lined for movement from track B to track No. 4 until the time release has completed its operation.

The route was lined for No. 155 to move on track No. 4 beyond the switch involved. No. 263 passed its approach signal, which was displaying approach, passed its home signal, which was displaying stop, and stopped with the first four cars fouling track No. 4. The engineer endeavored to back the train clear of the turnout but before this movement could be started No. 155 collided with No. 263.

According to the statement of the engineer of No. 263, as his train was approaching the point where the accident occurred the speed was about 30 miles per hour, and he and an engineer who was qualifying for service were maintaining a lookout ahead from the control station in the front vestibule of the first car. Both the approach signal and the cab signal displayed approach for his train. He acknowledged the cab warning whistle. Soon afterward the student engineer called the indication displayed by the home signal as clear and the engineer opened the controller. The speed was about 35 miles per hour at a point about 500 feet east of the home signal when the student engineer called the signal indication as stop. The engineer immediately applied the brakes in emergency but the distance was not sufficient to stop short of the fouling point of the turnout. The student engineer said that he did not call the indication displayed by the home signal as clear but called a stop indication twice. The signals are so arranged that the home signal on track B cannot display clear. The engineer of No. 263 said he was not accustomed to another person being with him in the control compartment. He thought the presence of the student engineer confused him in regard to the signal indications, and that he misunderstood what the student engineer said. Under the rules, after No. 263 passed the approach signal, which was displaying approach, it was required to proceed at not exceeding 30 miles per hour and to be prepared to stop short of the home signal. The cab signal continued to display approach after the engineer became confused concerning the indication displayed by the home signal. The rules require that when there is conflict between cab-signal indications and wayside-signal indications, the more restrictive indication will govern. Had No. 263 been operated in accordance with signal indications, this accident would have been averted. After No. 263 stopped on the turnout, the baggagemaster of that train immediately proceeded to the rear and gave flagging signals to No. 155, but the distance was not sufficient for No. 155 to stop short of the fouling point of the turnout.

The engineer of No. 155 said that as his train was approaching the point where the accident occurred the speed was 75 miles per hour and the fireman-helper and he were maintaining a lookout ahead. The wayside signals and the cab signals displayed proceed for his train. When his train was about 1/4 mile east of the home signal for track No. 4 the indication of that signal changed to stop, the cab signal changed to approach and the cab warning signal whistle sounded. He immediately moved the brake valve to emergency position but the distance was insufficient to stop short of the fouling point of the turnout involved. He first observed the flagging signals of the baggagemaster of No. 263 after the brakes were applied in emergency.

Cause

It is found that this accident was caused by failure to operate No. 263 in accordance with interlocking and cab-signal indications.

Dated at Washington, D. C., this twenty-third day of December, 1941.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL) Secretary.