INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3441

THE NEW YORK CENTRAL RAILROAD COMPANY

IN RE ACCIDENT

AT GRAND CENTRAL TERMINAL,

NEW YORK, N. Y., ON

NOVEMBER 22, 1951

SUMMARY

Date:	November 22, 1951	
Railroad:	New York Central	
Location:	Grand Central Terminal, New York, N. Y.	
Kind of accident:	Side collision	
Trains involved:	Passenger	: Passenger
Train numbers:	Y268	: Extra N.H. 4260 West
Consists:	8 multiple-unit cars	: 9 multiple-unit cars
Estimated speeds:	8 m. p. h.	: 2 m. p. h.
Operation:	Interlocking	
Tracks:	Station tracks; tangent; 0.36 percent ascending grade westward	
Weather:	Clear	
Time:	10:29 a. m.	
Casualties:	57 injured	
Cause:	Failure to operate Extra N.H. 4260 West in accordance with signal indication	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3441

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

THE NEW YORK CENTRAL RAILROAD COMPANY

January 31, 1952

Accident at Grand Central Terminal, New York, N. Y., on November 22, 1951, caused by failure to operate Extra N.H. 4260 West in accordance with a signal indication.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On November 22, 1951, there was a side collision between two passenger trains on the New York Central Railroad at Grand Central Terminal, New York, N. Y., which resulted in the injury of 56 passengers and 1 train-service employee. This accident was investigated in conjunction with representatives of the New York Public Service Commission.

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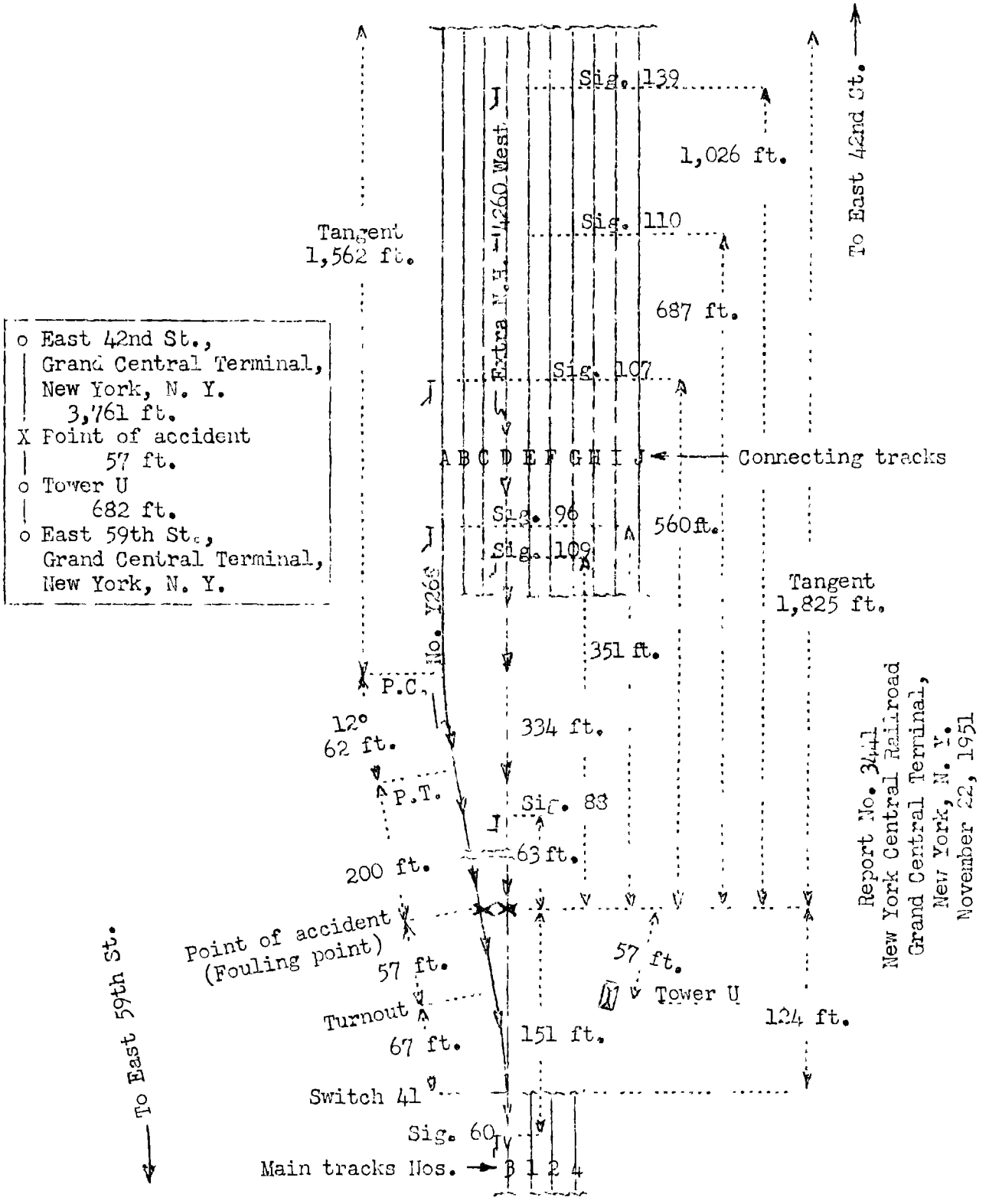
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.


o East 42nd St., Grand Central Terminal, New York, N. Y.
3,761 ft.
X Point of accident
57 ft.
o Tower U
682 ft.
o East 59th St., Grand Central Terminal, New York, N. Y.
To East 42nd St.
Sig. 139
1,026 ft.
Sig. 110
687 ft.
Sig. 107
Extra N.H. 4260 West
A B C D E F G H I J
Connecting tracks
Sig. 96
560 ft.
Sig. 109
Tangent 1,562 ft.
Tangent 1,825 ft.
No. 1263
351 ft.
P.C.
12°
62 ft.
334 ft.
P.T.
Sig. 83
63 ft.
200 ft.
Point of accident (Fouling point)
57 ft.
57 ft.
Tower U
Turnout
67 ft.
151 ft.
124 ft.
Switch 41
Sig. 60
Main tracks Nos. 3 1 2 4
To East 59th St.
Report No. 3441
New York Central Railroad
Grand Central Terminal,
New York, N. Y.
November 22, 1951

Location of Accident and Method of Operation

This accident occurred on that part of the Electric Division designated as Grand Central Terminal, extending between East 42nd Street and East 59th Street, New York, N. Y., 4,500 feet, over which trains are operated by signal indications. All terminal tracks are within interlocking limits. A power rail is provided for the electric propulsion of trains. Trains of the New York, New Haven and Hartford Railroad, hereinafter referred to as the New Haven, are regularly operated over the terminal tracks, all of which are underground. The station tracks are on two levels. The station tracks converge with 10 connecting tracks designated, from north to south, by the letters A to J, inclusive. The 10 connecting tracks converge at Tower U interlocking with the four main tracks of the Electric Division. The interlocking station is located south of the tracks and 3,818 feet west of East 42nd Street. The main tracks from north to south are designated as No. 3 and No. 1, westward, and No. 2 and No. 4, eastward. In the vicinity of the point of accident track A is adjacent to and parallels the north wall of the terminal structure. Tracks A and D converge into track No. 3 at switch 41, located 67 feet west of Tower U interlocking station. A concrete curtain wall 250 feet in length and 7 feet high is located between tracks D and E. The east end of this wall is located about 215 feet east of switch 41. Three similar curtain walls, respectively, 587 feet, 350 feet and 137 feet in length, parallel track D on the north. The west end of the 137-foot wall is located about 210 feet east of switch 41. The vertical clearance between the tops of the rails and the roof of the tunnel at this point is 16 feet 5 inches. The accident occurred at the fouling point between tracks A and D at a point 124 feet east of switch 41 and 57 feet east of Tower U interlocking station. From the east on track A there are, in succession, a tangent 1,562 feet in length, a 12° curve to the left 62 feet and a tangent 200 feet to the point of accident and about 57 feet westward to the turnout of switch 41. Track D is tangent throughout a distance of 1,825 feet to the point of accident and 124 feet westward to the junction with track No. 3. Track No. 3 is tangent a considerable distance westward from this point. The grade for west-bound trains on track A is, successively, 2.70 percent ascending a distance of 502 feet, a vertical curve

90 feet, 0.74 percent descending 463 feet, a vertical curve 100 feet and 0.36 percent ascending 383 feet to the point of accident and 274 feet westward. The grade for west-bound trains on track D is, successively, 0.80 percent descending a distance of 670 feet, 0.74 percent descending 508 feet, a vertical curve 100 feet and 0.36 percent ascending 383 feet to the point of accident.

Interlocking signals 107 and 96, governing west-bound movements on track A, are located, respectively, 560 feet and 351 feet east of the point of accident. Interlocking signals 139, 110, 109 and 88, governing west-bound movements on track D, are located, respectively, 1,026 feet, 687 feet, 334 feet and 63 feet east of the point of accident. Interlocking signal 60, governing west-bound movements on track No. 3, is located 151 feet west of the point of accident. These signals are dwarf signals of the one-arm upper quadrant semaphore type. They are continuously lighted by two 20-watt lamps connected in parallel. Signals 107, 96, 139, 110, 109 and 88 displays two aspects and signal 60 displays three aspects. Because of the restricted view, a signal of the color-light type is located on the wall directly opposite signal 60 and repeats the indication of that signal. The aspects applicable to this investigation and their corresponding indications are as follows:

Signal	Aspect	Indication
60	Vertical; green light	Proceed; Slow Speed within interlocking limits.
96 107 109 110 139	Diagonal; yellow light	Proceed at Restricted Speed.
88	Horizontal; red light	Stop.

These signals are controlled from Tower U interlocking station. The controlling circuits of signal 88 are so arranged that this signal indicates Stop when the route is lined for a west-bound movement from track A to track No. 3.

This carrier's operating rules read in part as follows:

SIGNAL DEFINITIONS

Slow Speed.--A speed not exceeding fifteen miles per hour.

Restricted Speed.--A speed not exceeding that which will enable a train to stop short of train ahead, obstruction, or switch not properly lined, look out for broken rail, and not exceeding slow speed.

Note--Speed restrictions apply to the entire train.

663. Trains or engines must not pass an interlocking signal indicating "Stop" * * *

The maximum authorized speed for the trains involved was 10 miles per hour.

Description of Accident

No. Y268, a west-bound first-class New Haven passenger train, consisted of eight multiple-unit cars of steel construction. It was being operated from the front control compartment of multiple-unit car 4232, the first unit of the train. This train departed from track No. 106 of the lower level at Grand Central Terminal, 2,954 feet east of the point of accident, at 10:26 a. m., on time. It was routed to track A, passed signals 107 and 96, which indicated Proceed at Restricted Speed, entered track No. 3 at switch 41 and while moving at an estimated speed of 8 miles per hour the third car was struck by Extra N.H. 4260 West.

Extra N.H. 4260 West, a west-bound New Haven passenger train, consisted of nine multiple-unit cars of steel construction. The second, fifth and eighth cars were power units and were equipped with third rail shoes for electric propulsion. It was being operated from the front control compartment of multiple-unit car 4260, the first unit of the train. This train departed from track No. 23 of the upper level at Grand Central Terminal, 2,654 feet east of the point of accident, at 10:26 a. m. It was routed to track D, passed signals 139, 110 and 109, each of which indicated Proceed at Restricted Speed, passed signal 88, which indicated Stop, and while moving at an estimated speed of 2 miles per hour it struck the third car of No. Y268.

No. Y268 stopped with the front end of the second car about 75 feet west of signal 60 on track No. 3. The third car was derailed and stopped about 109 feet west of the point of collision. It leaned to the north at an angle of about 60 degrees and against the north wall of the terminal structure. The front truck of the fourth car was derailed to the north. The third car was badly damaged and the fourth car was slightly damaged. The front truck of the first car of Extra N.H. 4260 West was derailed and stopped with the front end of the car about 78 feet west of the point of collision and wedged between the third car of No. Y268 and the curtain wall on the south side of the track. The front end of the first car of Extra N.H. 4260 West was badly damaged. No other equipment of either train was derailed or damaged.

The engineer of Extra N.H. 4260 West was injured.

The tracks of Grand Central Terminal are underground and are continuously illuminated. The accident occurred about 10:29 a. m.

The multiple-unit cars involved are equipped with electro-pneumatic and automatic air brakes. A safety-control feature actuated by a contact plunger on the controller handle is provided. If pressure on this plunger is released, the brakes will become applied in emergency and power to the traction motors will be shut off automatically. The electro-pneumatic and the automatic features of the train brake-system are operated by one brake valve.

Discussion

No. Y268 departed from track No. 106 on the lower level at 10:26 a. m., on time, and was routed via track A to track No. 3. As this train was approaching the point where the accident occurred the speed was about 8 miles per hour. The engineer was alone in the control compartment at the front end of the first car. The members of the train crew were at various locations in the cars of the train. The headlight was dimmed. The brakes of this train had been tested and had functioned properly when a running test was made. The engineer said that when his train was entering track No. 3 the brakes became applied in emergency and it stopped without shock. He said that he had not observed Extra N.H. 4260 West approaching and thought the emergency application had been caused by a ruptured air hose.

Extra N.H. 4260 West departed from track No. 23 on the upper level at 10:26 a. m., and was routed to track D. As this train was approaching the point where the accident occurred the speed was about 10 miles per hour. The engineer was alone in the operating compartment at the front end of the first car and the members of the train crew were at various locations in the cars of the train. The headlight was dimmed. The brakes of this train had been tested and had functioned properly when a running test was made after the train departed from the platform. The engineer said that when his train entered track D he observed three dwarf signals in succession, which indicated Proceed at Restricted Speed, and also observed signal 60, which indicated Proceed. Signal 60 governs movements on track No. 3 and he thought his train was routed to that track. However, he did not at that time see signal 88, which indicated Stop. This signal is located between signals 109 and 60 and about 22 feet west of the west end of the curtain wall on the north side of track D. He was concerned about movement over the gaps between sections of the power rail and when he heard an approaching train he looked toward the north and between the steel columns above the curtain wall and observed No. Y268 moving westward on track A. The engineer said that his train was about 3 feet east of signal 88 when he observed that it indicated Stop, and he immediately placed the brake valve in emergency position and released the plunger of the safety-control feature. He said that the speed was reduced to about 2 miles per hour before the collision occurred. However, No. Y268 continued to move westward until the units which had collided were wedged between the curtain wall on the south side of track No. 3 and the north wall of the terminal structure. Then the brakes of No. Y268 became applied in emergency.

The train director at Tower U interlocking station said that he informed the levermen that No. Y268 would precede Extra N.H. 4260 West, and he then gave instructions to line the route for the movement of No. Y268 from track A to track No. 3 and to advance Extra N.H. 4260 West to signal 88 on track D. The leverman said that the lever controlling signal 88 had been locked in position to cause signal 88 to indicate Stop for some time before instructions were received to route No. Y268 to track No. 3.

The engineer of Extra N.H. 4260 West was not qualified to operate passenger trains in local service until July 6, 1951, and was qualified to operate into Grand Central Terminal on August 1, 1951. He had operated three east-bound

trains and five west-bound trains over the upper-level tracks between August 1, 1951, and the day on which the accident occurred. The view from the control compartment of a west-bound multiple-unit train is restricted at various points by the curtain walls and the columns of the terminal structure and, on vertical curves, by the roof of the tunnel. The engineer of Extra N.H. 4260 West observed three dwarf signals, governing movements on track D, which indicated Proceed at Restricted Speed, and signal 60, governing movements on track No. 3, which indicated Proceed. His attention then was diverted to No. Y268 moving on track A and he did not see the stop aspect displayed by signal 88 until the front of his train was within a few feet of the signal.

Cause

It is found that this accident was caused by failure to operate Extra N.H. 4260 West in accordance with a signal indication.

Dated at Washington, D. C., this thirty-first day of January, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.