INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3639

THE NEW YORK CENTRAL RAILROAD COMPANY

IN RE ACCIDENT

AT NORWOOD, N. Y., ON

JUNE 17, 1955

SUMMARY

Date:	June 17, 1955	
Railroad:	New York Central	
Location:	Norwood, N. Y.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Passenger
Train numbers:	Extra 1099 North	: 609
Engine numbers:	Diesel-electric units 1099, 3301, and 1051	
Consists:	29 cars, caboose	: 1 Diesel-powered passenger unit
Estimated speeds:	Standing	: 15-30 m. p. h.
Operation:	Timetable, train orders, and manual block-signal system	
Track:	Single; tangent; 0.98 percent descending grade northward	
Weather:	Clear	
Time:	5:55 p. m.	
Casualties:	16 injured	
Cause:	Train entering occupied siding at an excessive rate of speed	

INTERSTATE COMMERCE COMMISSION

REPORT No. 3639

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

THE NEW YORK CENTRAL RAILROAD COMPANY

August 29, 1955

Accident at Norwood, N. Y., on June 17, 1955, caused by a train entering an occupied siding at an excessive rate of speed.

REPORT OF THE COMMISSION[1]

CLARKE, Commissioner:

On June 17, 1955, there was a rear-end collision between a freight train and a passenger train on the New York Central Railroad at Norwood, N. Y., which resulted in the injury of 14 passengers and 2 train-service employees. This accident was investigated in conjunction with a representative of the New York Public Service Commission.

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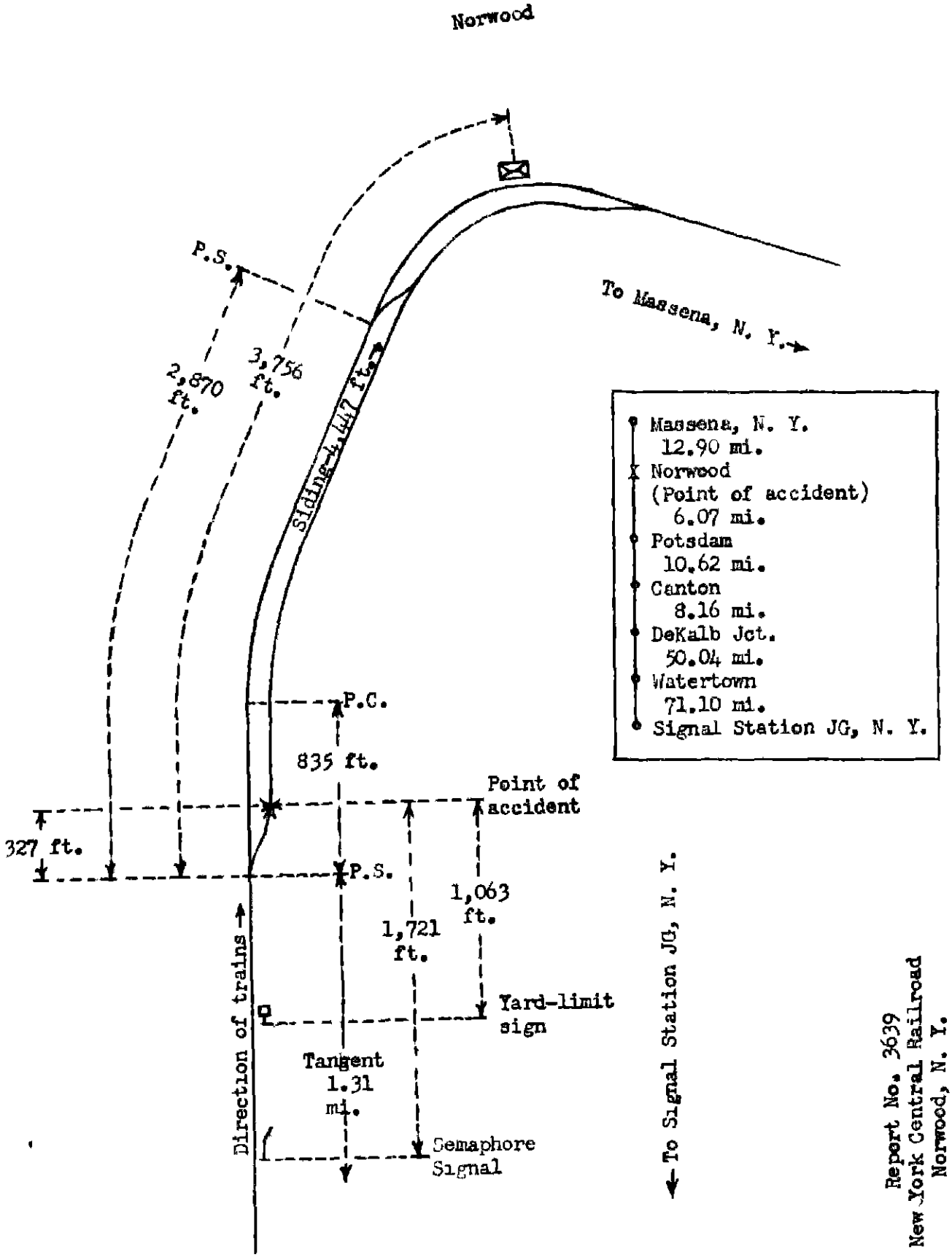
[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



Report No. 3639
New York Central Railroad
Norwood, N. Y.
June 17, 1955

Location of Accident and Method of Operation

This accident occurred on that part of the St. Lawrence Division extending between Signal Station JG., near Syracuse, and Massena, N. Y., 158.89 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable, train orders, and a manual block-signal system. Within yard limits at Norwood, 145.99 miles north of Signal Station JG., a siding 4,447 feet in length parallels the main track on the east. The south siding-switch is 3,756 feet south of the station and 736 feet north of the south yard-limit sign. A crossover, which is facing-point for north-bound movements on the main track, connects the main track and the siding. The south switch of this crossover is located 2,870 feet north of the south siding-switch. The accident occurred on the siding at a point 307 feet north of the south siding-switch. The main track is tangent throughout a distance of 1.31 miles immediately south of the south siding-switch and 835 feet northward. The grade for north-bound trains is, successively, 0.12 percent ascending a distance of 1,800 feet, 0.62 percent descending 1,900 feet, and 0.98 percent descending 723 feet to the point of accident and 325 feet northward.

An inoperative upper-quadrant semaphore signal governing north-bound movements on the main track is located 1,721 feet south of the point of accident. The semaphore blade is fixed in a diagonal position, and the indication of the signal is as follows:

> Proceed preparing to stop at switches or next signal. Train exceeding medium speed when indication is seen must at once reduce to that speed.

At the time of the accident the manual block in which the accident occurred extended between the stations at Potsdam, 6.07 miles south of Norwood, and Norwood.

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

FORMS OF TRAIN ORDERS.

S-A

Fixing Meeting Points for Opposing Trains.

(1) No 1 meet No 2 at B.

* * *

* * *

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner prescribed by the rules.

SIGNAL DEFINITIONS.

Medium Speed.--A speed not exceeding thirty miles per hour.

Timetable special instructions read in part as follows:

S-90. SIDING SWITCHES

Trains taking siding will take first switch, except:

* * *

Norwood....Northward first class trains, second switch.

* * *

* * *

Timetable special instructions provide that southbound trains are superior to trains of the same class in the opposite direction.

The maximum authorized speeds are 40 miles per hour for freight trains and 55 miles per hour for passenger trains.

Description of Accident

Extra 1099 North, a north-bound freight train, consisted of Diesel-electric units 1099, 3301, and 1051, coupled in multiple-unit control, 94 cars, and a caboose. This train passed Potsdam at 5:04 p. m. and arrived at Norwood at 5:20 p. m. After an interchange delivery of 65 cars was made to the Rutland Railroad, it entered the siding at the south siding-switch and stopped about 5.45 p. m. with the caboose 327 feet north of the switch. About 10 minutes later the rear end was struck by No. 609.

No. 609, a north-bound first-class passenger train, consisted of Diesel-powered passenger unit [illegible]-150. This train passed Signal Station JG. at [illegible]:24 p. m., 10 minutes late. At DeKalb Jct., 2.35 miles south of Norwood, members of the crew received copies of train order No. 532 reading as follows:

NO 8 MEET NO 609 AT NORWOOD

The train departed from this point at 5:18 p. m., on time. At Potsdam the crew received copies of a Clearance Form A indicating that the block between Potsdam and Norwood was clear, and copies of a message reading as follows:

> Clear up on 2nd class siding at Norwood for No. 8 and back out after No. 8 account DN-1 ahead of you.

The portion of the siding south of the crossover at Norwood is commonly designated as the second class siding. DN-1 was the symbol designation of Extra 1099 North. The operator at Potsdam informed the conductor orally that the south siding-switch at Norwood would be lined for entry to the siding. No. 609 departed from Potsdam at 5:47 p. m., 9 minutes late, passed the semaphore signal south of Norwood, which indicated Proceed-prepared-to-stop-at-switches-or-next-signal, and while moving at a speed variously estimated at from 15 to 30 miles per hour it entered the siding at Norwood and struck the rear end of Extra 1099 North.

The rear end of the caboose of Extra 1099 North was crushed inward approximately 3 feet by the front end of the passenger unit and was moved off center. It was badly damaged. The front end of the passenger unit was damaged, and the left front vestibule was crushed inward. No equipment of either train was derailed.

The engineer and the conductor of No. 609 were injured.

The weather was clear at the time of the accident, which occurred about 5:55 p. m.

Diesel-powered passenger unit M-458 is of stainless steel construction. It is 85 feet long between pulling faces of the couplers and is mounted on two 4-wheel trucks. It weighs 112,000 pounds and has seating capacity for 90 persons. Power is supplied by two 275-horsepower Diesel engines mounted under the floor. Each engine drives the inboard axle of one truck and is placed adjacent to it. A torque converter transmission is provided. An operator's station is located at the right side of the vestibule at each end of the unit. The unit is equipped with disc brakes and HSC type air-brake equipment with M23 brake valve and D-22-AR control valve. A safety-control feature actuated by a foot pedal is provided. A hand brake is mounted on a collision post in the vestibule at the B end. The unit is equipped with a push button for manual control of the sanding devices. An anti-wheel-slide device is provided. This consists of inertia devices applied to a journal box of each axle and connected in such manner that an excessive rate of deceleration of any axle closes electrical contacts which actuate an electric solenoid valve in the control box to release air from the brake cylinder and, under control of a time relay, reopen the circuit to reapply air to the brake cylinder after an interval of about 1 second. During service application of the brakes, an excessive rate of deceleration of any axle will actuate the sanding apparatus for a 6-second cycle and cause sand to be deposited on the rails in front of the front wheels of the trucks. Automatic sanding of the rails during an emergency application of the brakes is provided.

Discussion

Train order No. 532 established Norwood as the meeting point between No. 8, a south-bound first-class passenger train, and No. 609. Under the rules, No. 609, the inferior train, was required to take the siding. A message issued to the crew of that train contained instructions for the train to enter the siding at Norwood at the south siding-switch and because of a train ahead of it to re-enter the main track at the same point after No. 8 had been met.

Extra 1099 North arrived at Norwood about 5:20 p. m., and after 65 cars were delivered to the Rutland Railroad it entered the siding to meet No. 8 and to be passed by No. 609. After the rear of Extra 1099 North passed the south siding-switch, at 5:45 p. m., the conductor closed the switch and then called the operator at Norwood from a telephone near the switch and reported the train clear of the main track. The operator informed him that No. 609 would enter the siding behind his train. The conductor volunteered to operate the switch for that train to enter the siding, and he asked the operator at Potsdam, who was also on the line, to so inform the conductor of No. 609. The conductor then informed the flagman that No. 609 would enter the siding behind their train. The flagman proceeded to a point approximately 275 feet south of the south siding-switch. He gave stop signals with a red flag from the time No. 609 came into view until immediately before the train passed him. His signals were not acknowledged. He thought there was some deceleration of the train in the vicinity of the semaphore signal, and he observed sand or dust flying around the running gear. He said that as the unit passed he observed that the engineer was standing and appeared to be endeavoring to stop the train. The conductor remained at the switch until he heard a grade-crossing whistle signal sounded by the engineer of No. 609. He then lined the switch for entry to the siding. Soon afterward he proceeded toward his caboose. When he reached a point approximately 75 feet from the switch he heard an unusual sound and turned toward the approaching train. He said that he observed sand flying around the running gear and saw the engineer standing at the controls before the train entered the siding. Both the conductor and the flagman estimated that the speed

of the train was about 30 miles per hour as it approached the south siding-switch. The conductor said he observed that after the accident occurred the rails were sanded throughout a distance of about 875 feet immediately south of the point at which No. 609 stopped.

The crew of No. 609 consisted of an engineer and a conductor. As this train was approaching Norwood the engineer was maintaining a lookout ahead from the control station in the front vestibule. The conductor was in the passenger compartment of the unit. The headlight was lighted. The brakes of this train had been tested and had functioned properly when used en route. The members of the crew were aware that instructions in message form required that their train enter the siding at Norwood at the south siding-switch. The engineer sounded the meeting-point whistle signal when the train was approximately 1 mile south of the siding. He said that at Potsdam the conductor had orally informed him that the south siding-switch probably would be lined for entry to the siding at Norwood when their train arrived. As the train approached the semaphore signal, 1,394 feet south of the south siding-switch, the speed was reduced by a light brake application from about 55 miles per hour to approximately 30 miles per hour, after which the brakes were released. The engineer said that when he observed stop signals being given by the flagman of Extra 1099 North he attempted to acknowledge the signals, but because the whistle cord had become fouled on a projection in the piping he was unable to do so. When he saw the signals of the flagman he made a heavy brake-pipe reduction. At this time the throttle was in No. 1 position. He said that at first the brake application appeared to be effective, but the brakes were released by action of the anti-wheel-slide device immediately after they became applied. After the brakes were released he observed that brake-cylinder pressure was being restored. At this time he became concerned because it appeared that the train would not stop short of the switch, and he placed the brake valve in emergency position and released the pedal of the safety-control feature. He said that the train was in the vicinity of an overhead bridge 553 feet south of the switch when this action was taken. He did not notice the brake-pipe pressure or the brake-cylinder pressure after he placed the brake valve in

emergency position. He thought the train passed the siding switch at a speed of about 20 miles per hour, and he said that in the vicinity of the switch he attempted to shift into reverse. This action was not effective in stopping the train. The conductor said that after the meeting-point whistle signal was sounded he proceeded to the rear vestibule to be in a position to alight at the switch. He said he heard the brakes release and re-apply twice as the train approached the switch.

Examination of the equipment of No. 609 after the accident occurred disclosed that the throttle was in off position and the brake valve was in full application position. The brakes of the unit were applied at the time of this inspection, approximately 25 minutes after the accident occurred. The compressor and the piping around the cut-out cock adjacent to the pedal of the safety-control feature were damaged in the collision. After the unit was removed to Watertown, 74.89 miles south of Norwood, the piping was repaired and the compressor belts were alined. The brakes then were tested and functioned as intended. The sanding devices functioned properly.

A series of tests to determine stopping distances from various speeds were made in the vicinity of the point of accident on June 22, 1955. The unit involved in this accident was used in these tests. Emergency brake applications in five tests made at speeds of 18, 25, 34, 40, and 49 miles per hour stopped the unit in distances of 97 feet, 195 feet, 296 feet, 448 feet, and 575 feet, respectively. Safety-control applications made at speeds of 23, 29, 29, 34, and 53 miles per hour resulted in stops in distances of 139 feet, 209 feet, 219 feet, 322 feet, and 633 feet, respectively. The unit was stopped from a speed of 35 miles per hour by application of the hand brake in a distance of 1,675 feet. In one test the unit entered the siding at the south siding-switch at a speed of 23 miles per hour and was stopped by a service application of the brakes in a distance of 297 feet. The road foreman of engines said that there was no indication on the brake-cylinder gauge that the anti-wheel-slide device functioned during any of these tests.

For a considerable time prior to the day of the accident it had been customary for No. 609 to enter the siding at Norwood at the south siding-switch when it met No. 8 at that station. The engineer of No. 609 said that on the day of the accident he made the first brake application at the point at which he customarily applied the brakes in order to stop at the south siding-switch and that he placed the brake valve in emergency position in the vicinity of an overhead bridge 553 feet south of the switch. From the results of the tests which were made it appears that an emergency brake application made in the vicinity of the bridge should have stopped the train short of the caboose even though the speed was considerably higher than stated by the engineer. However, there were no indications that the anti-wheel-slide device functioned during any of the tests. Both the engineer and the conductor of No. 609 said that the device functioned when the brakes were applied as No. 609 approached the switch on the day of the accident. Each time this device functioned it would result in an increase in the stopping distance of the train.

Cause

This accident was caused by a train entering an occupied siding at an excessive rate of speed.

Dated at Washington, D. C., this twenty-ninth day of August, 1955.

By the Commission, Commissioner Clarke.

(SEAL)

HAROLD D. McCOY,

Secretary.