INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3192

THE NEW YORK CENTRAL RAILROAD COMPANY
AND
THE WABASH RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT WEST UNITY, OHIO, ON

JUNE 26, 1948

SUMMARY

Railroads:	New York Central	: Wabash
Date:	June 26, 1948	
Location:	West Unity, Ohio	
Kind of accident:	Side collision	
Trains involved:	Freight	: Freight
Train numbers:	257	: Extra 2723 East
Engine numbers:	1712	: 2723
Consists:	2 cars, caboose	: 70 cars, caboose
Estimated speeds:	10 m. p. h.	: 30 m. p. h.
Operation:	Interlocking	
Tracks:	Single; tangent; level	: Single; tangent; 0.233 percent descending grade eastward
Weather:	Clear	
Time:	12:15 p. m.	
Casualties:	1 killed; 7 injured	
Cause:	Failure to operate N.Y.C. train in accordance with interlocking signal indication	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3192

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

THE NEW YORK CENTRAL RAILROAD COMPANY
AND
THE WABASH RAILROAD COMPANY

October 12, 1948

Accident at West Unity, Ohio, on June 26, 1948, caused by failure to operate the New York Central train in accordance with an interlocking signal indication.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On June 26, 1948, there was a side collision between a freight train of the New York Central Railroad and a freight train of the Wabash Railroad at West Unity, Ohio, which resulted in the death of one train-service employee, and the injury of one track laborer and six train-service employees. This accident was investigated in conjunction with a representative of the Public Utilities Commission of Ohio.

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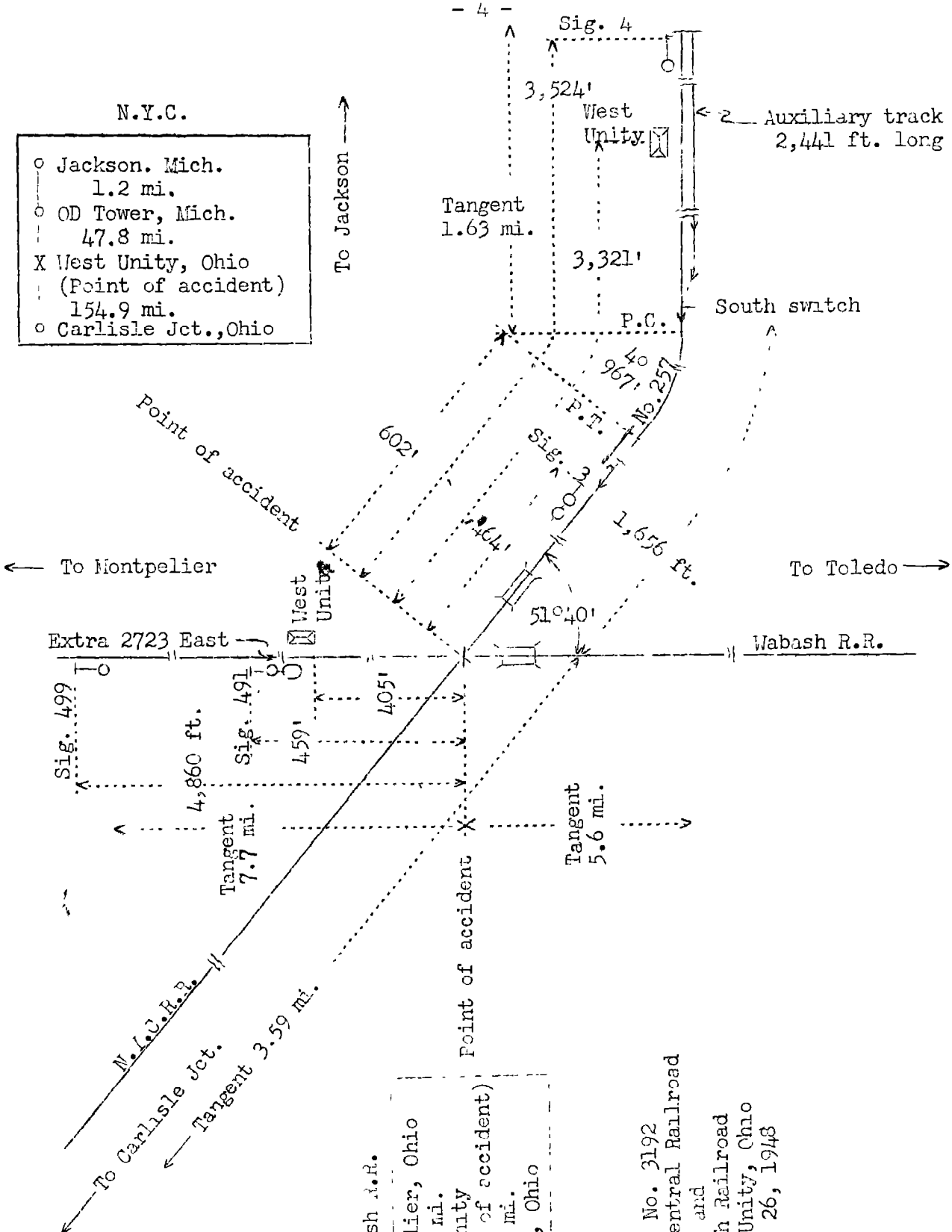
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 3192
New York Central Railroad
and
Wabash Railroad
West Unity, Ohio
June 26, 1948

Location of Accident and Method of Operation

This accident occurred at the intersection of a line of the New York Central Railroad and a line of the Wabash Railroad at West Unity, Ohio. The crossing is located on that part of the Ohio Division of the N.Y.C. extending between Carlisle Jct., Ohio, and OD Tower, Jackson, Mich., 202.7 miles, and on that part of the Montpelier Division of the Wabash extending between Toledo and Montpelier, Ohio, 58.3 miles. The tracks intersect at an angle of 51°40'. In the vicinity of the point of accident both are single-track lines, over which trains are operated by timetable, train orders and manual-block systems. Timetable directions are north and south on the N.Y.C. and east and west on the Wabash. The crossing is located 3,321 feet south of the N.Y.C. station and 405 feet east of the Wabash station. Trains are operated on Eastern Standard Time by the N.Y.C. and on Central Standard Time by the Wabash. Wherever time is specified in this report Eastern Standard Time is used. From the north on the N.Y.C. there are, in succession, a tangent 1.63 miles in length, a 4° curve to the right 964 feet and a tangent 602 feet to the point of accident and 3.59 miles southward. The grade for south-bound trains is, successively, 0.05 percent ascending 1,610 feet, 0.72 percent descending 1,020 feet, 0.004 percent descending 280 feet and level 1,821 feet to the crossing and a considerable distance southward. An auxiliary track 2,441 feet in length parallels the N.Y.C. main track on the east. The south switch of this track is 1,656 feet north of the crossing. A hand-operated derail is located on the east rail of the auxiliary track at a point 220 feet north of the south switch. The Wabash main track is tangent throughout a distance of 7.7 miles immediately west of the crossing and 5.6 miles eastward. The grade for east-bound trains varies between 0.17 percent and 0.48 percent descending throughout a distance of 7,900 feet west of the crossing, and is 0.233 percent descending at the crossing. A single-span, open-deck, through-plate girder bridge supported by concrete abutments is located 64 feet east of the crossing.

Movements over the crossing are governed by an automatic interlocking. Approach signal 4 and home signal 3, governing south-bound movements on the N.Y.C., are located, respectively, 3,524 feet and 464 feet north of the crossing. Signal 4 is of the single unit, color-light type, displaying three aspects,

and is provided with a red marker light. Signal 3 is of the two-unit, color-light type, displays two aspects, and is provided with a red marker light. These signals are approach lighted. The southward approach circuit extends 2,980 feet north of signal 4. The involved aspects and corresponding indications of these signals are as follows:

Signal	Aspect	Indication
4	Green-over-red, staggered	Proceed.
3)	Green-over-red	Proceed.
)	Red-over-red	Stop.

Approach signal 499 and home signal 491, governing east-bound movements on the Wabash, are located, respectively, 4,860 feet and 459 feet west of the crossing. Signal 499 is of the single-unit, color-light type, and displays three aspects. Signal 491 is of the two-unit, color-light type, displays two aspects, and is provided with a red marker light. These signals are approach lighted. The eastward approach circuit extends 3,009 feet west of signal 499. The involved aspects and corresponding indications of these signals are as follows:

Signal	Aspect	Indication
499	Green	Proceed.
491)	Green-over-red	Proceed.
)	Red-over-red	Stop.

Each home signal normally displays an aspect indicating stop and each approach signal normally displays an aspect indicating proceed-preparing-to-stop-at-next-signal. The controlling circuits are so arranged that the train first to enter its approach circuit actuates the governing home signal and its approach signal automatically to display an aspect indicating proceed, and prevents either home signal on the conflicting route from displaying an aspect indicating proceed until the first train either has completed its movement through the interlocking or until the expiration of a predetermined time interval. A manually-operated time release and an automatic time-element relay, housed adjacent to the crossing, are provided for each line to change the route from one line to the other. If a route has been established on one line, the operation of the manual release immediately actuates the home signal on that line to display an aspect indicating

stop and, after a predetermined time interval and provided either approach circuit on the opposing line is occupied, also actuates the home signal on the opposing line to display an aspect indicating proceed. Between the time the aspect of the home signal changes, the signal is dark during an interval of about 1 second. The automatic time-element relay operates independently of the manual release, and is so controlled that it starts the time interval immediately upon occupancy of the approach circuit, but does not actuate the home signal, when displaying an aspect indicating proceed, to display an aspect indicating stop until after the predetermined time interval. At the expiration of the time interval, if the train first to enter its approach circuit has not occupied the track circuit immediately in approach to the home signal, that signal then displays an aspect indicating stop and, without an intervening time interval, the home signal on the conflicting line displays an aspect indicating proceed, provided its approach circuit is subsequently occupied. If an approach circuit on the conflicting line is not occupied, the signal continues to display an aspect indicating stop until the train enters the track circuit immediately in approach to the home signal, at which time it will again display an aspect indicating proceed. On the N.Y.C. the time-element relay is adjusted for a time interval of 5 minutes, and the track circuit in approach to home signal 3 is 690 feet in length. On the Wabash the time-element relay is adjusted for a time interval of 6 minutes, and the track circuit in approach to home signal 491 is 291 feet in length.

Operating rules of the N.Y.C. read in part as follows:

DEFINITIONS.

* * *

Fixed Signal.--A signal of fixed location indicating a condition affecting the movement of a train.

Note to Definition of Fixed Signal.--The definition of a "Fixed Signal" covers such signals as * * * interlocking * * * or other means for displaying indications that govern the movement of a train.

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.

34. The engineman and fireman must, and when practicable the trainmen will, communicate to each other the indication of all signals affecting the movement of their train.

98. Trains must approach * * * railroad crossings at grade, * * * prepared to stop, unless * * * signals indicate proceed, and track is clear. * * *

Time-table special instructions read in part as follows:

98. RAILROAD CROSSINGS AT GRADE.

Location	Railroad	Signals
* * *	* * *	* * *
West Unity (0.6 mile south)	Wabash	Automatic Interlocking.
* * *	* * *	* * *

* * * West Unity * * *; if signal does not indicate proceed, trainman will unlock box located at crossing and be governed by instructions posted therein. A signal indicating STOP may be passed only on hand signal from trainman standing at crossing; such signal must not be given unless the route is clear and it is known that there are no trains approaching on the other road. Movements must be made at restricted speed over crossings.

Operating rules of the Wabash read in part as follows:

34. All members of train and engine crews must, when practicable, communicate to each other by its name the indication of each signal affecting the movement of their train or engine.

98. Trains must approach * * * railroad crossings at grade * * * prepared to stop, unless * * * signals indicate proceed, and track is clear. * * *

Bulletin instructions read in part as follows:

* * * Automatic Interlocking governs movements over crossing * * * at West Unity.
Normally the home signals indicate "STOP" and will change to "Proceed" automatically on the approach of a train. * * *

* * *

The maximum authorized speed for freight trains on both lines is 30 miles per hour.

Description of Accident

No. 257, a south-bound N.Y.C. freight train, consisting of engine 1712, two cars and a caboose, departed from OD Tower, 47.8 miles north of West Unity, at 8:31 a. m., 1 hour 10 minutes late, departed from the station at West Unity at 11:40 a. m., and entered the auxiliary track at the south switch. About 12:10 p. m., this train reentered the main track at the south switch, passed home signal 3, and while moving over the crossing at an estimated speed of 10 miles per hour the second car was struck by Extra 2723 East.

Extra 2723 East, an east-bound Wabash freight train, consisting of engine 2723, 70 cars and a caboose, departed from Montpelier, 9.2 miles west of West Unity, at 11:55 a. m., passed signals 499 and 491, and while moving at an estimated speed of 30 miles per hour it struck No. 257.

The engine of No. 257 was not derailed or damaged. Both cars and the caboose were derailed and badly damaged. The engine of Extra 2723 East was derailed and badly damaged. The derailed equipment dislodged the superstructure of a bridge, which spans a street immediately east of the crossing, from the abutments and the engine and the west end of the superstructure dropped to the level of the street. The front end of engine 2723 stopped 79 feet east of the crossing and 37 feet south of the Wabash track. The tender became separted from the engine but remained upright and leaned to the west at an angle of approximately 30 degrees, with the front end 104 feet east of the crossing and 17 feet north of the Wabash track, and the rear end 97 feet east of the crossing. The cistern and the trucks were badly damaged. The first five cars of Extra 2723 East were derailed east of the crossing. The first three cars were badly damaged, and the fourth and fifth cars were slightly damaged.

The front brakeman of Extra 2723 East was killed. The engineer and the fireman of Extra 2723 East and the conductor and three brakeman of No. 257 were injured.

The weather was clear at the time of the accident, which occurred at 12:15 p. m.

Discussion

N.Y.C. No. 257 entered the southward approach circuit, passed approach signal 4, which displayed an aspect indicating proceed, and stopped on the main track at the station at West Unity at 11:32 a. m. About 8 minutes later, during which time the approach circuit was occupied while station work was being performed, this train departed southward from the station and stopped with the rear end immediately south of the auxiliary-track switch, located 1,192 feet north of home signal 3, but did not enter the track circuit immediately in approach of home signal 3. Then the train was backed into the auxiliary track, where it remained during a period of about 25 minutes while the crew went to lunch. According to statements made by members of the crew, the engine did not clear the fouling section of the turnout. About 12:10 p. m., after the crew returned and after the front brakeman had lined the south auxiliary-track switch for movement to the main track, No. 257 entered the main track and proceeded southward at a speed of about 10 miles per hour. The engineer and the fireman were in their respective positions in the cab, and the other members of the crew were in the caboose. When the caboose was about 800 feet north of signal 3 the front brakeman observed from the rear platform of the caboose that signal 3 was displaying an aspect indicating stop, then he entered the caboose. The engineer said that signal 3 was displaying an aspect indicating stop when the engine entered the main track, but that it changed to display an aspect indicating proceed when the engine was about 700 feet north of the signal, and that he called the proceed indication to the fireman. No other member of the crew observed the aspect displayed by signal 3. Because of trees in the northwest angle of the crossing, the view of the Wabash track west of the crossing from the right side of an engine moving southward on the N.Y.C. is obscured until the engine on the N.Y.C. reaches a point about 75 feet north of the crossing. The members of the crew of No. 257 did not see the approaching Wabash train until immediately before the collision occurred.

Wabash Extra 2723 East entered the eastward approach circuit of the interlocking at a speed of about 30 miles per hour. The engineer, the fireman, and the front brakeman were maintaining a lookout ahead from the engine cab, and the other members of the crew were in the caboose. The brakes of this train had been tested and had functioned properly en route. Immediately after Extra 2723 East entered the approach circuit, approach signal 499 and home signal 491 each displayed an aspect indicating proceed, and each aspect was observed by the engineer and by the fireman. Both enginemen kept home signal 491 under intermittent observation until the engine cab was immediately west of the signal, when

the engineer observed that the aspect was dark. Immediately afterward, he saw the N.Y.C. engine about to enter upon the crossing, and he placed the brake valve in emergency position, but the speed was not materially reduced when the collision occurred.

The Wabash agent at West Unity said that when he first heard the exhaust of the N.Y.C. engine as it started moving from the auxiliary track he proceeded to a point where he could see the aspect displayed by signal 491, and observed that this signal was displaying an aspect indicating proceed for the Wabash train, which was closely approaching.

That portion of the interlocking apparatus which was housed adjacent to the crossing, and which included the time releases and a device for graphically recording track occupancy and the operations of the controlling signals, was destroyed in the accident. After the accident, tests of the undamaged signal equipment indicated that the interlocking was functioning properly. Tests of this interlocking were completed on June 8, 1948, by forces of the signal department of the Wabash Railroad, and these tests indicated that the interlocking at that time was functioning as intended.

Although not directly involved in this accident, the investigation disclosed that this interlocking was so arranged that unless the track circuit immediately in approach to the governing home signal is occupied it is possible under certain circumstances for the route to be changed from one line to the other without a proper interval of time intervening. Such an arrangement is unsafe, and the carriers will be expected to correct this condition immediately.

Cause

It is found that this accident was caused by failure to operate the N.Y.C. train in accordance with an interlocking signal indication.

Dated at Washington, D. C., this twelfth day of October, 1948.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.