

INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3063

THE BALTIMORE AND OHIO RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR OAKLAND, MD., ON

JANUARY 21, 1947

SUMMARY

Railroad: Baltimore and Ohio
Date: January 21, 1947
Location: Oakland, Md.
Kind of accident: Derailment
Train involved: Baggage-mail-express
Train number: Passenger Extra 7625 West
Engine number: 7625
Consist: 19 cars
Estimated speed: 40 m. p. h.
Operation: Signal indications
Tracks: Double; 8° curve; 0.69 percent ascending grade westward
Weather: Snowing
Time: 9:57 a. m.
Casualties: 1 killed; 1 injured
Cause: Irregularities in alinement, surface and gage of track combined with slack closure

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3063

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

THE BALTIMORE AND OHIO RAILROAD COMPANY

March 4, 1947

Accident near Oakland, Md., on January 21, 1947,
caused by irregularities in alinement,
surface and gage of the track combined with
slack closure.

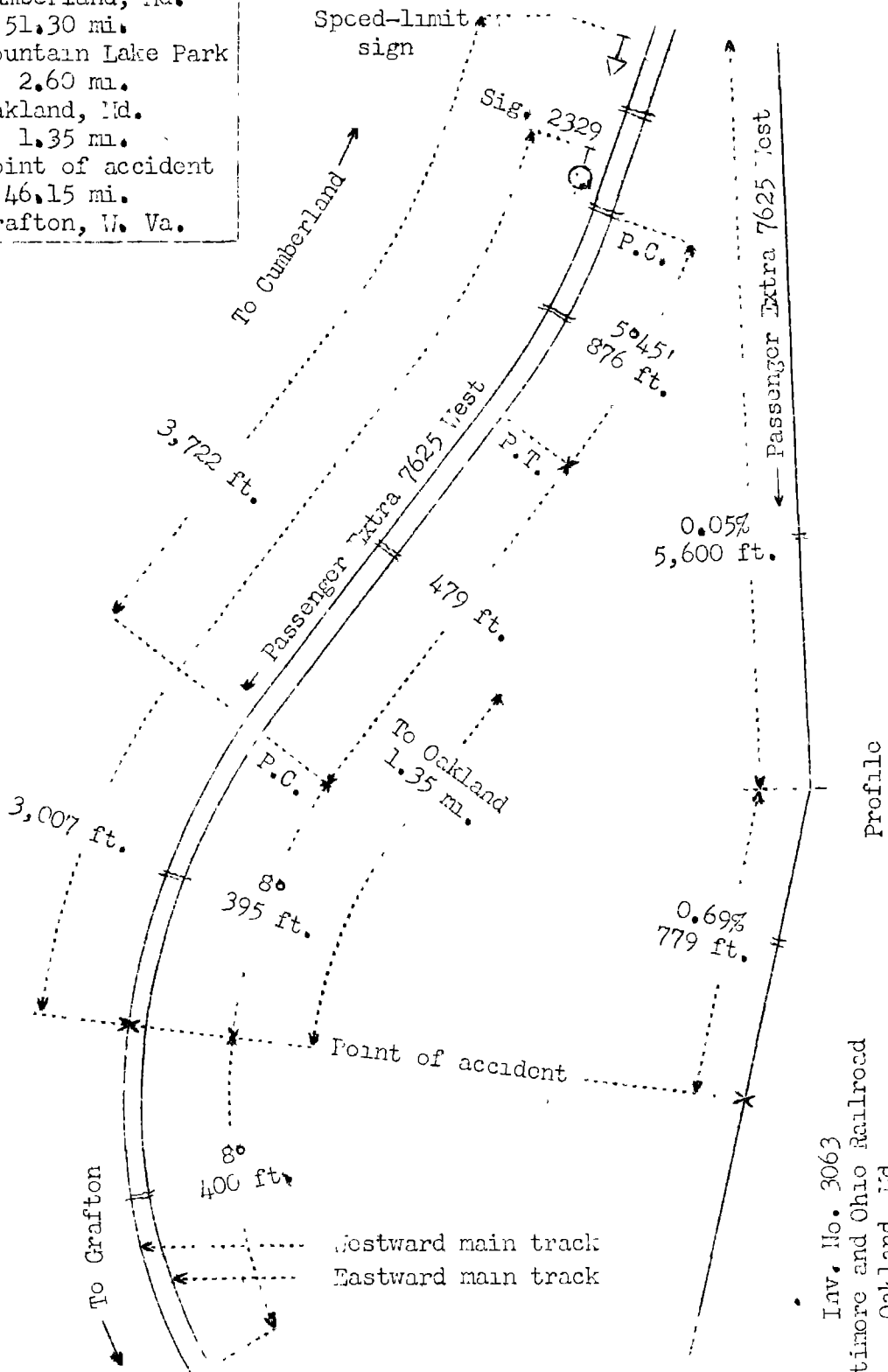
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On January 21, 1947, there was a derailment of a baggage-mail-express train on the Baltimore and Ohio Railroad near Oakland, Md., which resulted in the death of one employee and the injury of one employee.

¹Under 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 Cumberland, Md.
51.30 mi.
- o Mountain Lake Park
2.60 mi.
- o Oakland, Md.
1.35 mi.
- X Point of accident
46.15 mi.
- o Grafton, W. Va.



Inv. No. 3063
 Baltimore and Ohio Railroad
 Oakland, Md.
 January 21, 1947

Location of Accident and Method of Operation

This accident occurred on that part of the Cumberland Division extending between Cumberland, Md., and Grafton, W. Va., 101.4 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by signal indications. The accident occurred on the westward main track 55.26 miles west of Cumberland and 1.35 miles west of the station at Oakland. From the east there are, in succession, a $5^{\circ}45'$ curve to the right 876 feet in length, a tangent 479 feet and an 8° curve to the left 395 feet to the point of accident and 400 feet westward. The grade for west-bound trains is 0.05 percent descending 5,600 feet, then it is 0.69 percent ascending 779 feet to the point of derailment.

In the vicinity of the point of accident the tracks are laid in a rock cut, the north wall of which rises to a height of 25 feet and the south wall to 13 feet. On the curve involved the track structure consists of 130-pound rail, 39 feet in length, laid on an average of 21 treated hardwood ties to the rail length. It is fully tieplated, double-spiked, provided with 4-hole angle bars 25 inches in length, and 8 rail anchors per rail length. It is ballasted with crushed stone to a depth of 24 inches. The specified curvature was 8° , and the specified superelevation was $5\text{-}5/8$ inches. The accident occurred 395 feet west of the east end of the curve, where the curvature was 7° , the superelevation was $5\text{-}1/2$ inches and the gage was 4 feet $8\text{-}1/2$ inches.

Automatic signal 2329, governing west-bound movements on the westward main track, is 3,007 feet east of the point of accident. This signal is of the color-position-light type, and is approach lighted.

Time-table special instructions prescribe the maximum authorized speed for the train involved as 45 miles per hour on tangent track and 40 miles per hour on the curve involved. A speed-limit sign bearing the numerals 40 is located 3,722 feet east of the east end of the curve.

Description of Accident

Passenger Extra 7625 West, a west-bound baggage-mail-express train, consisted of engine 7625, a 2-8-8-4 type, 18 baggage, mail and express cars and 1 coach, in the order named. The tenth, eleventh and fourteenth cars were of steel-underframe construction, and the remainder were of all-steel construction. This train passed Mountain Lake Park, the last open office, 3.95 miles east of the point of accident, at 9:51 a. m., passed Oakland, passed signal 2329, which displayed

proceed, and while it was moving on the westward main track at an estimated speed of 40 miles per hour the engine, the first six cars and the front truck of the seventh car were derailed.

The engine and its tender, remaining coupled, stopped on their right sides, about 5 feet north of the westward main track and practically parallel to it, with the front end of the engine 834 feet west of the point of derailment. The right sides of the engine and the tender were badly damaged. The first five cars, remaining coupled, stopped at the rear of the tender and practically in line with the track, and against the north wall of the cut. The sixth car stopped against the fifth car, across the main tracks and at an angle of 20 degrees to them. All of these cars were badly damaged.

Engine 7625 is of the single-expansion articulated type, and the total weight in working order is 628,700 pounds, distributed as follows: Engine truck, 50,700 pounds; driving-wheels, 485,000 pounds; and trailer-truck, 93,000 pounds. The specified diameters of the engine-truck wheels, the driving-wheels, and the trailer-truck wheels are, respectively, 33, 64, and 42 inches. The driving-wheels are of the disc type, and the Nos. 3 and 7 pairs of driving-wheels are cross-counter-balanced against excessive dynamic augment. The Nos. 1 and 5 pairs of driving-wheel journal boxes are equipped with lateral-motion devices. All journals of the engine and the tender are equipped with roller-bearings. The rigid wheel base of each driving unit is 11 feet 2 inches long, and the total length of the wheel base of the engine is 65 feet 2 inches. The engine-truck assembly and front driving-wheel assembly are arranged for lateral displacement by the pivoting of the front main frame at its articulation pin, which connects both driving units. The front end of the boiler is supported upon the front driving unit by a boiler-bearing sliding plate and saddle, located transversely above the No. 2 pair of driving-wheels. The main frame of the second driving unit and the rear of the boiler and the firebox are rigidly attached to each other. The movement of the longitudinal centerline of the second driving unit is identical with the lateral movement of the horizontal centerline of the boiler. The tender is rectangular in shape, and is equipped with two 6-wheel trucks. Its capacity is 25 tons of coal and 22,000 gallons of water. The weight of the tender loaded is 382,000 pounds. The total length of the engine and tender is 125 feet 3-5/8 inches. Engine 7625 was built in 1945 and, up to the time of the accident, had not received any class repairs. The accumulated mileage was 69,503 miles.

The engineer was killed, and the fireman was injured.

Snow was falling at the time of the accident, which occurred about 9:57 a. m.

Discussion

Passenger Extra 7625 West had just traversed a 5°45' curve to the right and was moving on a curve to the left, the specified curvature of which was 8°, when the engine and the first seven cars were derailed. The engine overturned to the right and stopped 834 feet west of the point of derailment. The maximum authorized speed for this train on the curve on which the derailment occurred was 40 miles per hour.

There was no indication of any defective condition of the engine prior to the accident. There was no indication of dragging equipment, or of any obstruction having been on the track. Examination of the engine after the accident disclosed that the throttle lever was in closed position, the automatic brake valve was in emergency position and the reverse lever was in position for forward motion. There was no condition found that would prevent the proper application of the train brakes. The fireman said that when the train was approaching the curve to the right, located immediately east of the curve on which the derailment occurred, the speed was about 35 miles per hour, and the engineer moved the throttle lever to closed position. No brake application was made immediately prior to the accident. The engine had been riding smoothly. The first the fireman knew of anything being wrong was when he felt an unusual movement of the front end of the engine and observed the engineer move the brake valve to emergency position, then the engine overturned. The engineer was killed. The conductor and the flagman were in the nineteenth car, and the baggageman was in the first car. These employees were not aware of anything being wrong until the accident occurred. The brakes of this train had been tested and had functioned properly en route. The fireman and the members of the train crew thought the highest speed attained between Mountain Lake Park and the point of accident was about 45 miles per hour, and they estimated the speed at the time of the derailment as about 35 miles per hour. The investigation disclosed that this train passed Mountain Lake Park at 9:51 a. m., and had moved a distance of 3.95 miles westward when the derailment occurred at 9:57 a. m. Based on the elapsed time of 6 minutes consumed by this train in proceeding from Mountain Lake Park to the point of accident, the average speed was about 40 miles per hour. The engine was equipped with a recording speedometer, but this device was inoperative during the trip in question.

The first mark of derailment was a flange mark on top of the head of the low or south rail of the curve at a point 395 feet west of the east end of the curve on which the derailment occurred. This mark extended diagonally outward a distance of 6 inches from a point about 1-1/2 inches inward from the outer edge of the head. At a point 9 feet 8 inches westward a

wheel mark appeared on the top edge of an angle bar outside the low rail, and similar marks appeared on two succeeding angle bars westward. The outside nuts of several angle bar bolts were sheared off. The three rails on the low side of the curve immediately west of the first mark were kinked northward. At a point 11 feet 5 inches west of the first mark on the low rail a wheel mark appeared on the head of a spike inside the high rail, and at a point 15-1/2 inches westward a wheel mark appeared on top of the north clamp of a rail anchor. From this point westward a distance of about 230 feet, wheel marks appeared on the angle bars and scraping marks appeared on the gage side of the high rail, then the track structure was displaced or torn up to the point where the engine overturned. Examination of the engine disclosed that the outer edge of the tire of the right No. 1 wheel of the front driving-wheel assembly was considerably scored, and the counterbalance was gouged. There was scraping and gouge marks on the outer edges of the tires and the counterbalances of the other driving wheels on the right side.

The specified curvature for the curve on which the derailment occurred was 8° , the specified superelevation was 5-5/8 inches and the specified gage was 4 feet 8-3/4 inches. After the accident, measurements of the track on the curve disclosed that throughout a distance of 261 feet immediately east of the point of derailment the curvature varied between $6^{\circ}52'30''$ and $9^{\circ}15'$, the superelevation varied between 4-7/8 inches and 6-1/8 inches, and the gage varied between 4 feet 8-3/8 inches and 4 feet 8-5/8 inches.

The marks on the track structure and the marks on the right No. 1 wheel of the front driving-wheel assembly of the engine indicate that the No. 1 wheels of the front driving-wheel assembly were the first to become derailed. The equilibrium speed for the engine on the curve involved was approximately 40 miles per hour, and the evidence indicates that the train was moving at approximately that speed when the derailment occurred. The engine had passed from a curve to the right to a tangent 479 feet long and thence to a curve to the left, and had moved 395 feet on the latter curve when the derailment occurred. The engine evidently pivoted and rolled laterally, as a result of irregularities in the alinement, surface and gage. The train was about 1,200 feet long, and when the derailment occurred the front portion was on a curve and on an ascending grade while the rear portion was on a tangent and on a descending grade. Near the east end of the curve the engineer closed the throttle but did not make a brake application. Under these conditions slack closure would occur. Apparently slack closure reached the engine in sufficient force at the time it was rolling and pivoting, as a result of irregularities in the alinement, surface and gage of the track, to cause the flange of the left

No. 1 driving wheel to be lifted and forced suddenly to the top of the low rail. Then this wheel dropped outside the low rail and its companion wheel dropped inside the high rail.

Cause

It is found that this accident was caused by irregularities in alinement, surface and gage of the track combined with slack closure.

Dated at Washington, D. C., this fourth day of March, 1947.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

Secretary.

(SEAL)