

INTERSTATE COMMERCE COMMISSION
WASHINGTON
INVESTIGATION NO. 2878
THE CHESAPEAKE AND OHIO RAILWAY COMPANY
REPORT IN RE ACCIDENT NEAR H. V. JUNCTION, COLUMBUS, OHIO, ON MARCH 25,
1945
Inv-2873

SUMMARY

Railroad:	Chesapeake and Ohio
Date:	March 25, 1945
Location:	H. V. Junction, Columbus, Ohio
Kind of accident:	Derailment
Train Involved:	Freight
Train number:	Extra 3017 West
Engine number:	3017
Consist:	108 cars, caboose
Estimated speed:	20 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system
Track:	Double; 4 degree 34' curve; practically level
Weather:	Clear
Time:	12:55 p.m.
Casualties:	3 killed
Cause:	Defective engine-truck rocker device

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2878

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

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

April 30, 1945.

Accident near H. V. Junction, Columbus, Ohio, on March 25, 1945 caused by a defective engine-truck rocker device.

REPORT OF THE COMMISSION 1

PATTERSON, Commissioner:

On March 25, 1945, there was a derailment of a freight train on the Chesapeake and Ohio Railway near H. V. Junction, Columbus, Ohio, which resulted in the death of three employees. This accident was investigated in conjunction with a representative of the Public Utilities Commission of Ohio.

Diagram

Inv. No. 2878 Chesapeake and Ohio Railway Columbus, Ohio March 25, 1945

Location of Accident and Method of Operation

This accident occurred on that part of the Hocking Division designated as the Toledo Sub-Division and extending westward, according to time-table directions, from Mosel to Walbridge, Ohio, 125.1 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 timetable, train orders and an automatic block-signal system. The accident occurred on the westward main track 7.71 miles west of Mosel, at a point 0.11 mile west of the station at H. V. Junction, Columbus. From the east there is a tangent about 1,000 feet in length, which is followed by a 4 degree 34' curve to the right 902 feet to the point of accident and 250 feet westward. The grade is practically level.

On the curve the track structure consists of 131-pound rail, 39 feet in length, laid in March, 1944, on 22 ties to the rail length. It is fully tieplated, single spiked, provided with 6-hole angle bars and an average of 15 rail anchors per rail length, and is ballasted with crushed stone to a depth of about 3 feet. The superelevation at the point of derailment at the time of the accident was 1-3/4 inches and the gage was 4 feet 8-1/2 inches. At a point 5,232 feet west of the point of accident there is a spur track on the north side of the westward main track. The switch which connects the spur track and the westward main track is trailing-point for west-bound movements on the westward main track.

The maximum authorized speed for freight trains on the curve involved is 30 miles per hour.

Description of Accident

Extra 3017 West, a west-bound freight train, consisting of engine 3017, 108 cars and a caboose, departed from Parsons, 6.2 miles east, of H. V., Junction, at 12:25 p.m., passed H. V. Junction, and while it was moving at an estimated speed of 20 miles per hour the engine-truck wheels were derailed.

The engine-truck wheels were derailed to the left 902 feet west of the east end of the curve and continued in line with the track 5,147 feet to the frog of the spur-track switch where the general derailment occurred, The engine and its tender, remaining coupled, stopped on their right sides, north of the westward main track and parallel to it, with the front end of the engine about 275 feet west of the spur-track switch. The first seven cars and the twenty-third to twenty-eighth cars, inclusive, were derailed. The engine and the derailed cars were considerably damaged.

The weather was clear at the time of the accident, which occurred about 12:55 p.m.

The engineer, the fireman and the front brakeman were killed.

Engine 3017, a 2-10-4 type, is equipped with a booster engine mounted on the trailer-truck. The total weight of the engine in working order is 566,000 pounds, distributed as follows: Engine truck, 61,000 pound's; driving wheels 373,000 pounds; and trailer truck, 132,000 pounds. The

diameters of the engine-truck wheels, the driving wheels and the No. 1 and No. 2 pairs of trailer-truck wheels, are, respectively, 33, 69, 36 and 43 inches. The tender is rectangular in shape and is equipped with two 6-wheel trucks. Its capacity is 30 tons of coal and 23,500 gallons of water. The weight of the tender loaded is 415,000 pounds. The wheelbase of the driving wheels is 24 feet 4 inches long, and the total length of the engine and tender is 111 feet 5-1/8 Inches. The Nos. 1 and 5 pairs of driving wheels are equipped with lateral cushioning devices. The distance between the centers of the engine-truck wheels and the No. 1 pair of driving wheels is 9 feet 11 Inches. The engine-truck is of the two-wheel type with journal boxes outside the wheels. Coil springs are arranged over the Journals. The engine-truck frame is of one-piece cast steel with integral pedestals. The radial bar is U-shaped and cast integrally with the engine-truck frame. The center-pin connection of the radial bar and the main frame is 7 feet 6 inches to the rear of the center-line of the engine-truck wheels. The engine truck is provided with a one-piece bolster having a female center-plate cast integrally on the top surface and rocker bearings attached to the bottom surface. The lateral motion between the bolster and the truck frame is restrained by two constant-resistance rockers mounted transversely to the axle near each end of the bolster. The rockers are heart-shaped, 9-1/8 inches high and 23-1/2 inches long, and are connected by a center member 5 inches thick, which is curved for clearance over the axle. The tops of the rockers engage bearings on the bolster and the lower ends engage bearings on the cross-members of the frame. Each rocker is secured in place by two links 11-1/8 inches long, having holes 1-1/4 inches in diameter for the insertion of 1-inch pins. The links are attached at one end to an eccentric arrangement on the rocker cross-member and at the Other end to the bolster. The connecting pins are held in place by cotter keys. The rocker and bolster arrangement and the radial bar are designed to permit the engine truck to move to either side of the center-line of the engine proportionately to the curvature of the track. The last Class 3 repairs were completed on February 6, 1945, and the last monthly inspection was made on March 6.

Discussion

Extra 3017 was moving at a speed of about 20 miles per hour when the engine-truck wheels became derailed to the left on a 4 degree 34' curve to the right, having a maximum superelevation of 1-3/4 inches. The engine-truck wheels continued in line with the track about 1 mile to the frog of the spur-track switch, then the general derailment occurred. There was no indication of dragging equipment, defective track, or of any obstruction having been on the track. It could not be determined when the enginemen and the front brakeman first became aware of anything being wrong, as they were killed in the accident. The conductor and the flagman were in the caboose and they were not aware of anything being wrong until after the derailment occurred.

Examination of the track disclosed that, beginning at a point 902 feet west of the east end of the curve, a flange mark appeared on the top of the head of the high rail. This mark extended diagonally from the inner corner to the outer corner and was 3 feet long. From this point westward to the frog of the spur-track switch the ties bore flange marks inside the low rail and outside the high rail. Throughout a distance of 97 feet immediately east of the point of derailment spikes inside the high rail were raised from 1/8 inch to 3-1/8 inches above the base of the rail. West of the frog the track was torn up to the point where the engine stopped. Throughout a distance of 746 feet immediately east of the first mark on the track structure the track had been forced out of normal alinement southward from 1/8 inch to 18-1/2 inches. Also, the track on a 3 degree 21' curve to the right and on a 5 degree 38' curve to the right, located, respectively, about

5 miles and 2 miles east of the curve in question, had been forced out of normal alinement. Throughout a distance of about 1 mile immediately east of the 3 degree 21'-curve the engine moved on some sharp curves to the right, but the track was not disturbed. The track throughout a distance of about 6 miles immediately east of the point of derailment was inspected by section forces on the day preceding the accident, and no defective condition was observed. At the point where the wheels of the engine truck were derailed the tracks crossed over a bridge 46.6 feet long, having a concrete center slab which extended the entire length of the bridge. This center slab prevented the track on the bridge from being forced out of alinement. As a result, when the engine entered upon the bridge, the high rail on the east end was canted outwardly, then the left engine-truck wheel crossed over the high rail and the right wheel dropped inside the low rail.

Examination of engine 3017 disclosed that the left constant-resistance rocker was displaced from its seat and fouled the axle. The cross-member of the rocker was worn to a depth of 2-1/2 Inches. Marks on the bolster indicated that the cotter key which secured the link connecting-pin in normal position had been sheared off by having been in contact with the back rib of the holster, and the links securing the left rocker in place became disconnected. The superintendent of motive power said that after the rocker was displaced from its seat the engine truck became rigid, which condition prevented it from moving normally toward the right when the engine was moving on curves to the right.

The investigation disclosed that on five occasions between the time of the last monthly inspection and the day of the accident the rocker links of engine 3017 were reported as being disconnected. The last report bearing that information was dated March 23, and was signed and approved to indicate that necessary repairs had been made. This engine was last inspected about 4 a.m. on the date of the accident, or about 8 hours before it departed on the trip in question. The defective rocker links had been reported on several occasions. If proper repairs had been made this accident could have been averted. After the accident; the carrier prepared plans to provide greater clearance on the front and back ribs of this type of engine-truck at rocker link-pin locations, so that the pins will not foul the bolster ribs and cause the cotter keys to be sheared.

Cause

It is found that this accident was caused by a defective engine-truck rocker device.

Dated at Washington, D. C., this thirtieth day of April, 1945.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.

FOOTNOTE

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.