

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT NO. 3459  
THE PENNSYLVANIA RAILROAD COMPANY  
IN RE ACCIDENT  
NEAR ELWOOD, IND., ON  
APRIL 7, 1952

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SUMMARY

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Date: April 7, 1952

Railroad: Pennsylvania

Location: Elwood, Ind.

Kind of accident: Derailment

Train involved: Passenger

Train number: 200

Engine number: Diesel-electric units 5845A and  
5854B

Consists: 17 cars

Speed: 66 m. p. h.

Operation: Timetable, train orders, and  
manual-block system

Track: Single; tangent; level

Weather: Clear

Time: 3:05 a. m.

Casualties: 26 injured

Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3459

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

THE PENNSYLVANIA RAILROAD COMPANY

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May 21, 1952

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Accident near Elwood, Ind., on April 7, 1952, caused by  
a broken rail.

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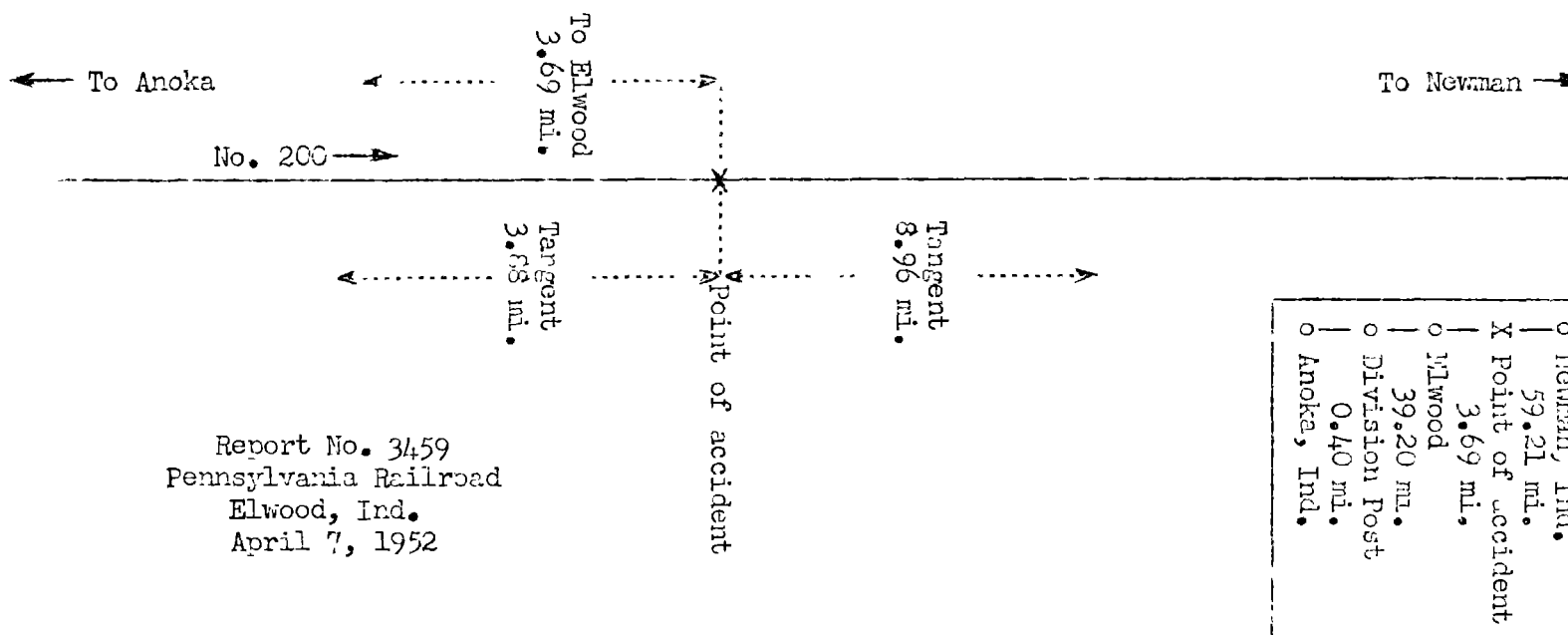
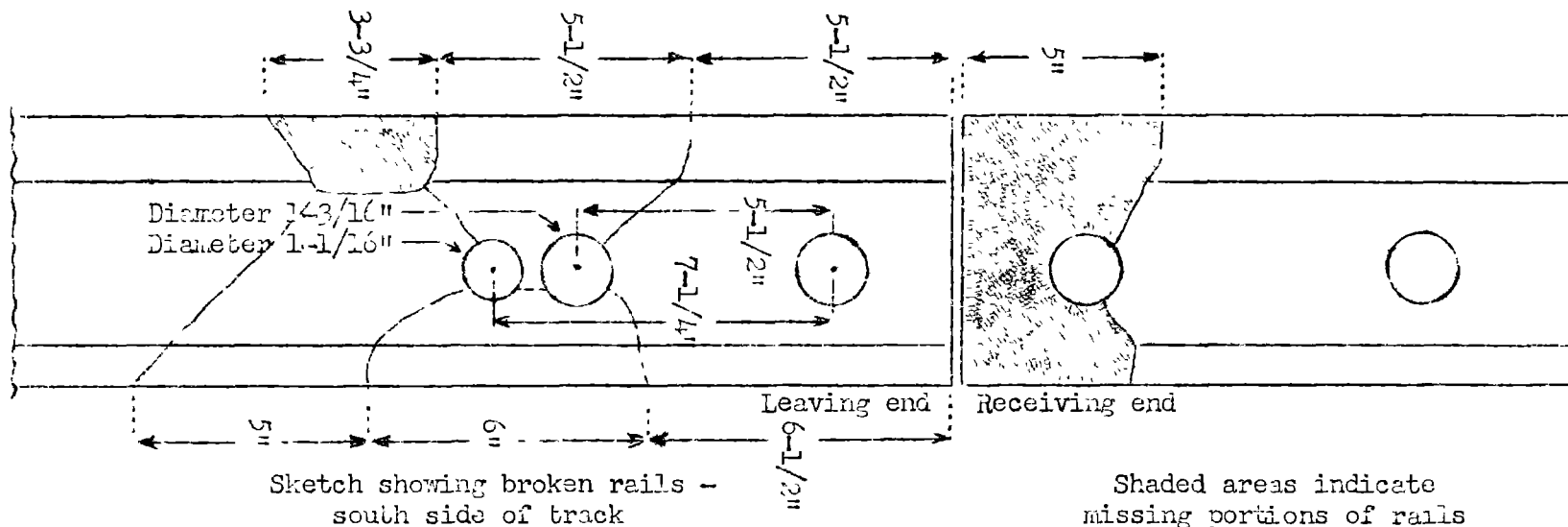
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On April 7, 1952, there was a derailment of a passenger train on the Pennsylvania Railroad near Elwood, Ind., which resulted in the injury of 20 passengers, 5 railway-mail clerks, and 1 person carried under contract.

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<sup>1</sup>  
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.



Report No. 3459  
Pennsylvania Railroad  
Elwood, Ind.  
April 7, 1952

### Location of Accident and Method of Operation

This accident occurred on that part of the Cincinnati Division extending between Division Post, near Anoka, and Newman, Ind., 102.1 miles, a single-track line, over which trains are operated by timetable, train orders and a manual-block system. The accident occurred on the main track at a point 43.29 miles east of Anoka and 3.69 miles east of Elwood. The track is tangent throughout a distance of 3.88 miles west of the point of accident and 8.96 miles eastward. The grade is level.

At the point of derailment the track is laid on a fill approximately 8 feet in height. The fill extends eastward approximately 600 feet from the point of derailment, and then the track is laid in a cut throughout a distance of approximately 1,400 feet beyond. In the vicinity of the point of accident the track structure consists of 100-pound rail, rolled in 1914, and cropped to 30-foot lengths and laid in its present location in 1928. It is laid on an average of 16 treated hardwood ties to the rail length, fully tieplated with single-shoulder tieplates, and is spiked with three spikes per tieplate. It is provided with 4-hole 24-inch joint bars and an average of 8 rail anchors per rail. It is ballasted with gravel and limestone to a depth of 24 inches below the bottoms of the ties.

The maximum authorized speed for passenger trains in the vicinity of the point of accident is 60 miles per hour.

### Description of Accident

No. 200, an east-bound first-class passenger train, consisted of Diesel-electric units 5845A and 5854B, coupled in multiple-unit control, one storage mail car, one mail car, one baggage car, one storage mail car, two express cars, one coach, three sleeping cars, two coaches, and five sleeping cars, in the order named. The fifth car was of steel underframe construction, the tenth and the thirteenth cars were of lightweight steel construction, and the other cars were of conventional all-steel construction. The sixth to the eighth cars, inclusive, and the tenth to the thirteenth cars, inclusive, were equipped with tightlock couplers. This train departed from Elwood at 2:58 a. m., 3 minutes late, and while it was moving at a speed of 66 miles per hour the eighth to the fourteenth cars, inclusive, and the front truck of the fifteenth car were derailed at a point 3.69 miles east of Elwood.

The forward portion of the train stopped with the front end of the locomotive 1,836 feet east of the point of derailment. The eighth car remained coupled to the seventh car and stopped approximately in line with the track. The ninth car was separated from the eighth car and stopped with the front end 507 feet east of the point of derailment. There was no other separation between units of the train. The ninth, tenth, and eleventh cars stopped in line, with the front end of the ninth car 11 feet south of the track. The rear end of the eleventh car and the front end of the twelfth car were 25 feet south of the track. The rear end of the twelfth car and the front end of the thirteenth car stopped 17 feet north of the track. The rear end of the thirteenth car and the front end of the fourteenth car stopped 20 feet south of the track. The rear end of the fourteenth car and the front end of the fifteenth car stopped on the track structure. None of the cars was overturned. The eighth to the fourteenth cars, inclusive, were somewhat damaged, and the fifteenth car was slightly damaged.

The weather was clear at the time of the accident, which occurred at 3:05 a. m.

### Discussion

When the accident occurred No. 200 was moving on tangent track at a speed of 66 miles per hour, as indicated by the tape of the speed-recording device. The enginemen were in the control compartment of the locomotive, and the members of the train crew were in various locations throughout the cars of the train. The brakes of the train had been tested and had functioned properly when used en route. The enginemen said that when the locomotive passed the point at which the derailment occurred there was an unusual movement of the locomotive. The engineer initiated a service application of the brakes. Immediately afterward the brakes became applied in emergency as a result of the derailment. Members of the train crew said that before the derailment occurred the cars were riding smoothly. Inspection after the derailment occurred disclosed no indication of dragging equipment nor of an obstruction having been on the track.

After the accident occurred, a broken rail was found on the south side of the track. This rail was manufactured by the Illinois Steel Company in July, 1914. The heat number was 46280B. After this rail was cropped, two bolt holes

1-3/16 inches in diameter were drilled at each end. The holes were spaced 5-1/2 inches between centers. Later a third hole, 1-1/16 inches in diameter, was drilled so that the rail would accommodate joint bars with bolt holes 7-1/4 inches between centers. At the leaving end of this rail there was a fracture through the web between the second and third bolt holes. Fractures extended from the second bolt hole downward through the case at a point 6-1/2 inches west of the end of the rail and upward through the head at a point 5-1/2 inches west of the end of the rail. Other fractures extended from the third bolt hole downward through the base at a point 10-1/2 inches west of the end of the rail, and upward through the head at a point 11 inches west of the end of the rail. Another fracture extended downward through the head of the rail from a point 14-3/4 inches from the leaving end and at an angle of about 45 degrees toward the leaving end. This fracture then extended through the web and base at an angle of about 45 degrees toward the receiving end of the rail. The head of the rail between the two westerly fractures, 3-3/4 inches, was broken out and was not recovered. The fracture between the bolt holes and the fracture extending from the second bolt hole into the base were rusted and apparently had existed for some time. When the joint bars were in place these fractures were concealed and could not be detected during ordinary inspection. The other breaks in the rail were new. Batter marks on the portions of the head which were recovered indicated that at least one west-bound train had passed over the rail after the fractures had progressed upward and the portions of the head between the first and the third break had become dislodged. The joint bars between the leaving end of this rail and the rail to the east were broken approximately 5 inches west of the east ends. The receiving end of the next rail was broken off through the first bolt hole and was not recovered. The other end at this break was heavily battered. The breaks in the joint bars and in the east rail were new. Apparently when the locomotive of No. 200 passed over the leaving end of the west rail the wheels struck the detached end of the rail with sufficient force to break the joint bars and also the web and base of the receiving end of the east rail. Then, after the detached end of the west rail was dislodged, the receiving end of the next rail was broken. East of this joint the track was torn up throughout a distance of 263 feet.

This section of track was inspected by the track supervisor from a passenger train 6 days before the accident occurred, and it was inspected by the section foreman from a track motor-car 3 days before the accident occurred. No defective condition was observed. A west-bound passenger train passed over the point of derailment about 15 minutes before the accident occurred. The crew of this train reported no unusual or defective condition of the track. A rail-defect detector car was last operated over this territory in May, 1951. At that time no defective condition of the rail involved was indicated.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this twenty-first day of May, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.