

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2559  
THE FLORIDA EAST COAST RAILWAY COMPANY  
REPORT IN RE ACCIDENT  
NEAR SAMPSON, FLA., ON  
JANUARY 11, 1942

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SUMMARY

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Railroad: Florida East Coast  
Date: January 11, 1942  
Location: Sampson, Fla.  
Kind of accident: Derailment  
Train involved: Passenger  
Train number: 87  
Engine numbers: Diesel-electric 504, 751 and 501  
Consist: 16 cars  
Speed: 30 m. p. h.  
Operation: Timetable, train orders and  
automatic block-signal system  
Track: Double; 1°04' right curve; level  
Weather: Clear  
Time: About 8:15 a. m.  
Casualties: 29 injured  
Cause: Accident caused by broken rail

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2559

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

THE FLORIDA EAST COAST RAILWAY COMPANY

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February 24, 1942

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Accident near Sampson, Fla., on January 11, 1942, caused  
by broken rail.

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

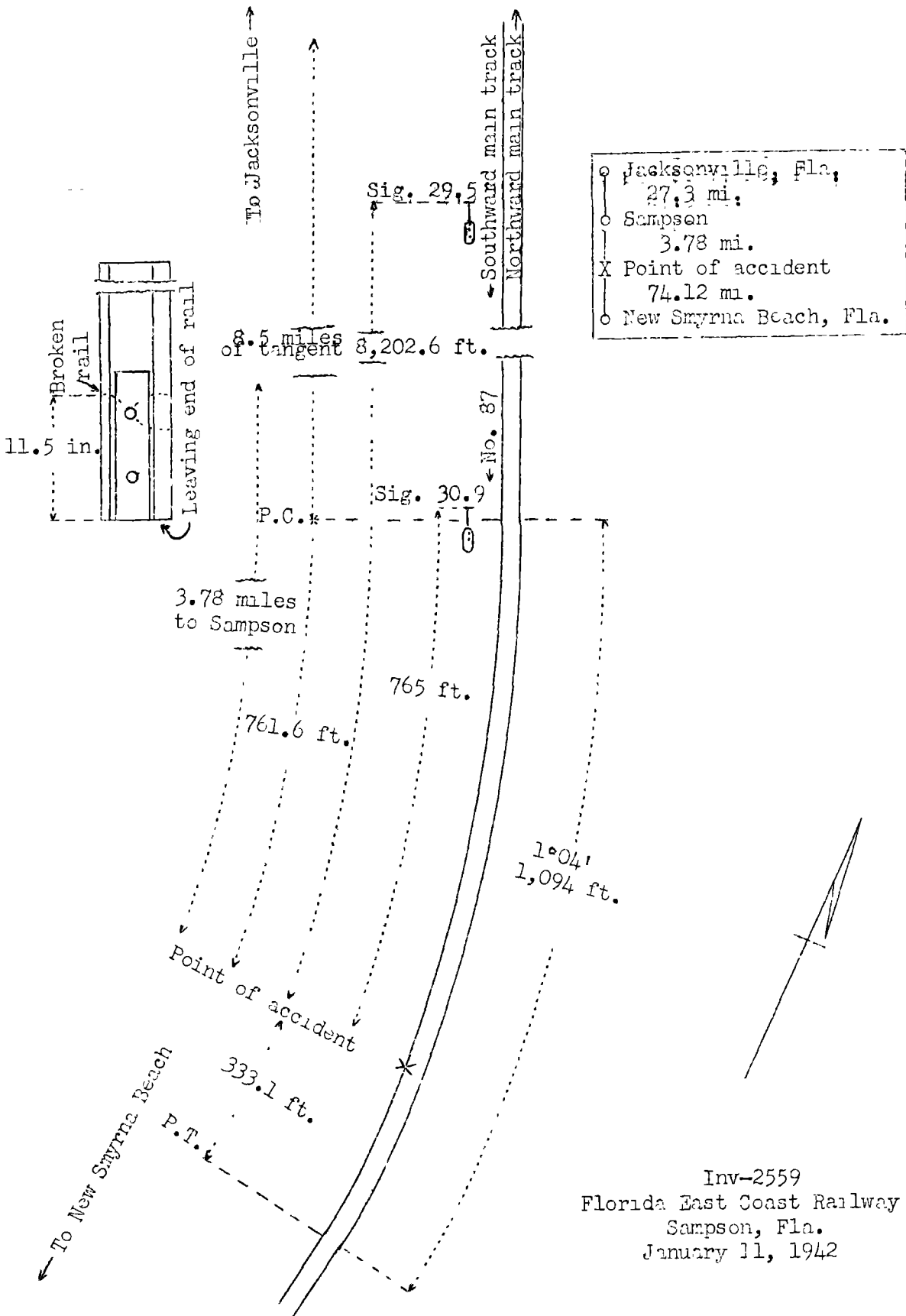
PATTERSON, Commissioner:

On January 11, 1942, there was a derailment of a passenger train on the Florida East Coast Railway near Sampson, Fla., which resulted in the injury of 18 passengers, 5 Pullman employees, 5 dining-car employees and 1 train-service employee.

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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.



Inv-2559  
 Florida East Coast Railway  
 Sampson, Fla.  
 January 11, 1942

### Location of Accident and Method of Operation

This accident occurred on the First District, which extends between Jacksonville and New Smyrna Beach, Fla., a distance of 105.2 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the southward main track at a point 3.78 miles south of Sampson. As the point of accident is approached from the north there is a tangent 8.5 miles in length, which is followed by a 1°04' curve to the right 761.6 feet to the point of accident and 333.1 feet beyond. The grade is level at the point of accident.

On the curve involved the track structure consists of 90-pound rail, 39 feet in length, rolled in March, 1925, and laid during the same year on 22 ties to the rail length; it is fully tieplated, single-spiked, equipped with 24-inch, 4-hole, 100-percent angle bars and 8 rail anchors to each rail. The track is ballasted with slag and rock to a depth of 13 inches. The superelevation on the curve involved is 2-1/4 inches. The rail joints are bonded for signal circuits. Two bond wires are secured to terminal pins driven into the web of the rail about 2 inches outside the ends of angle bars.

Automatic signals 29.5 and 30.9, which govern south-bound movements on the southward main track, are located, respectively, 8,203 and 765 feet north of the point of accident.

On the curve involved the maximum authorized speed for the train involved is 80 miles per hour.

### Description of Accident

No. 87, a south-bound first-class passenger train, consisted of Diesel-electric engines 504, 751 and 501, one baggage car, five Pullman sleeping cars, one Pullman lounge car, two dining cars, one Pullman recreation car, five Pullman sleeping cars and one Pullman observation car, in the order named. All cars were of steel construction. After a terminal air-brake test was made this train departed from Jacksonville, 27.3 miles north of Sampson and the last open office, at 7:31 a. m., according to the dispatcher's record of movement of trains, 1 hour 16 minutes late, passed signals 29.5 and 30.9, which displayed proceed, and while moving at a speed of 80 miles per hour, as indicated by the tape of the speed recorder with which engine 504 is equipped, it was derailed at a point 3.78 miles south of Sampson.

Engines 504, 751 and 501, remaining coupled, stopped with the rear of engine 501 standing at a point 1,985 feet south of the point where the accident occurred. The rear truck of engine 501 and eleven cars were derailed. The first car, slightly damaged, stopped upright on the roadbed and in line with the track at a point 1,401 feet south of the point of derailment. The second car, slightly damaged, stopped upright and across both main tracks 658 feet to the rear of the first car. The third car, badly damaged, stopped at a point 136 feet to the rear of the second car and across both main tracks. The fourth car, badly damaged, stopped on its left side east of the northward main track and parallel to it. Its rear end was 545 feet south of the point of accident. The fifth car, badly damaged, stopped on its left side across both main tracks and at right angles to them, with its front end 497 feet south of the point of accident. The sixth to the eleventh cars, inclusive, were derailed to the east, but remained coupled and upright and stopped with the front end of the sixth car about 40 feet east of the northward main track. The eleventh car stopped on the southward main track, with its rear end standing 5.4 feet south of the point of derailment. The southward main track was destroyed throughout a distance of 681 feet immediately south of the point of derailment. Starting at a point 88 feet south of the point of derailment the northward main track was destroyed throughout a distance of 530 feet.

The engines were in good mechanical condition, and after the accident there was no indication of dragging equipment or of any obstruction having been on the track. At the point of derailment there was a broken rail on the east or high rail of the curve.

The fracture occurred 11-1/2 inches north of the leaving end of the rail. This fracture was diagonal and at a 45-degree angle to the surface of the head. It extended from the second bolt hole upward and northward through the head and downward and southward through the base. A second piece, which apparently was broken during the derailment, was triangular in shape and was broken from the second bolt hole northward and downward through the base. A progressive fracture extended from the second bolt hole upward to the bottom of the head of the rail. Oxidation had darkened this part of the fracture. This indicated that the fracture had existed some time prior to the accident. Considerable metal of that part of the web touching the angle bars had been lost by corrosion. The fractures through the base and the head of the rail were new. One angle bar was newly broken.

The weather was clear at the time of the accident, which occurred about 8:15 a. m.

The train-service employee injured was the conductor.

### Data

In tests made after the accident signals 29.5 and 30.9 functioned as intended.

The rail involved was a 39-foot, 90 pound ARA-A, open hearth rail, manufactured by the Tennessee Coal, Iron and Railroad Company in March, 1925. The heat number was 863899, Letter G.

A detector car was last operated over the track involved on December 22, 1941.

During the 30-day period preceding the day of the accident, the average daily movement over the southward main track was 13.8 trains.

### Discussion

No. 87 was moving at a speed of 80 miles per hour on a 1°04' curve to the right when it became derailed. The maximum authorized speed was 60 miles per hour. Prior to the time of the accident the engines and cars had been riding smoothly, and there was no indication of defective equipment or of any obstruction on the track. The last automatic signal that No. 87 passed displayed proceed. As the train was approaching the point where the accident occurred the engineer was alone in the control compartment and was maintaining a lookout ahead. At a distance of about 200 feet he observed that one of the east rails was broken and a piece of it extended about 1 inch above the surface of the remainder of the rail. He immediately closed the throttle and placed the brake valve in emergency position, but the distance was not sufficient to stop, or to reduce speed materially, short of the broken rail. The fireman and the Diesel-engine maintainer were in the engine room of the first engine and were not aware of anything being wrong until after the brakes were applied. The other members of the crew were not aware of anything being wrong before the cars were derailed.

After the accident occurred, inspection of the rail involved disclosed that a piece of rail about 11-1/2 inches in length was broken from the leaving end. This break disclosed a progressive fracture extending from the second bolt hole upward and northward to the bottom of the head of the rail. Along this portion of the fracture the metal was darkened by oxidation, which condition indicated that the fracture had existed for some time prior to the accident. The remainder of the fracture through the head and downward from the bolt hole through the base was new. The web was reduced in thickness by corrosion. One angle bar was newly broken.

The track involved was last inspected by the section foreman, who walked over the track on the curve involved on the day preceding the day of the accident. At that time there was no indication of defective track. The fracture started in the web of the rail and it was concealed by the angle bars. A detector car was last operated over this territory on December 22, 1941. The engineer of maintenance of way thought the rail broke under a north-bound passenger train which was operated over this track about 2 hours prior to the time of the accident; however, no member of the crew of that train felt any unusual condition of the track at the point involved.

As the break in the rail occurred between the end of the rail and the bond-wire connection, the automatic block signals gave no indication of the defective condition of the rail. Had rail-head bonds been in use it is possible that this rail fracture might have been detected and warning given by the display of restrictive automatic block-signal indications.

Cause

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

Dated at Washington, D. C., this twenty-fourth day of February, 1942.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

Secretary.

(SEAL)