

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3506
FLORIDA EAST COAST RAILWAY COMPANY
IN RE ACCIDENT
NEAR OAK HILL, FLA., ON
FEBRUARY 11, 1953

SUMMARY

Date: February 11, 1953

Railroad: Florida East Coast

Location: Oak Hill, Fla.

Kind of accident: Derailment

Train involved: Passenger

Train number: 74

Engine number: Diesel-electric units 1014, 1016, and 1001

Consist: 15 cars

Speed: 72 m. p. h.

Operation: Timetable, train orders, and automatic block-signal system

Track: Single; tangent; 0.23 percent ascending grade northward

Weather: Clear

Time: 5:50 p. m.

Casualties: 25 injured

Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3506

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

FLORIDA EAST COAST RAILWAY COMPANY

April 6, 1953

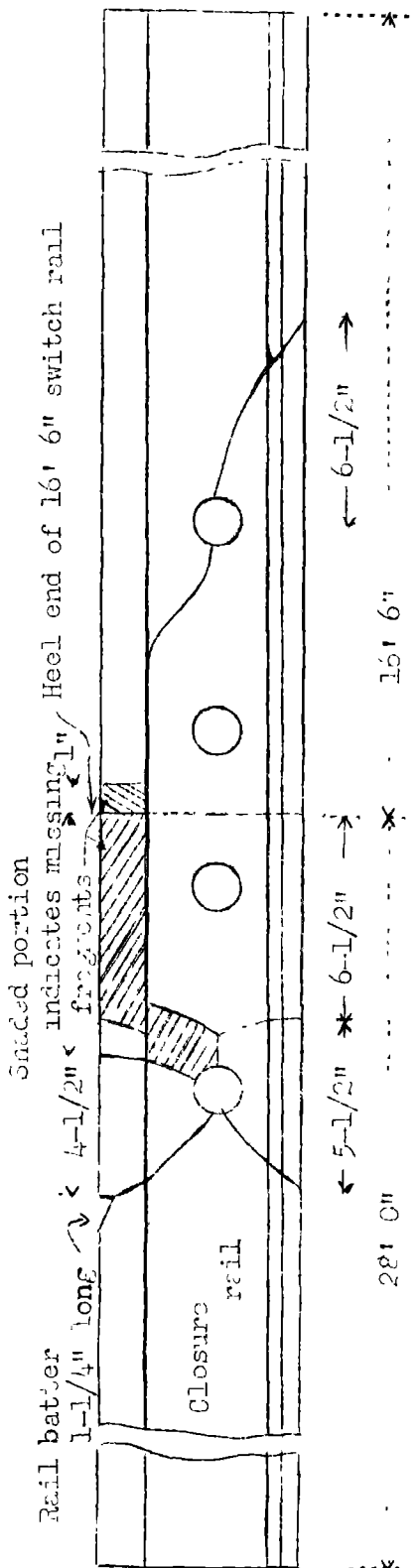
Accident near Oak Hill, Fla., on February 11, 1953, caused
by a broken rail.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

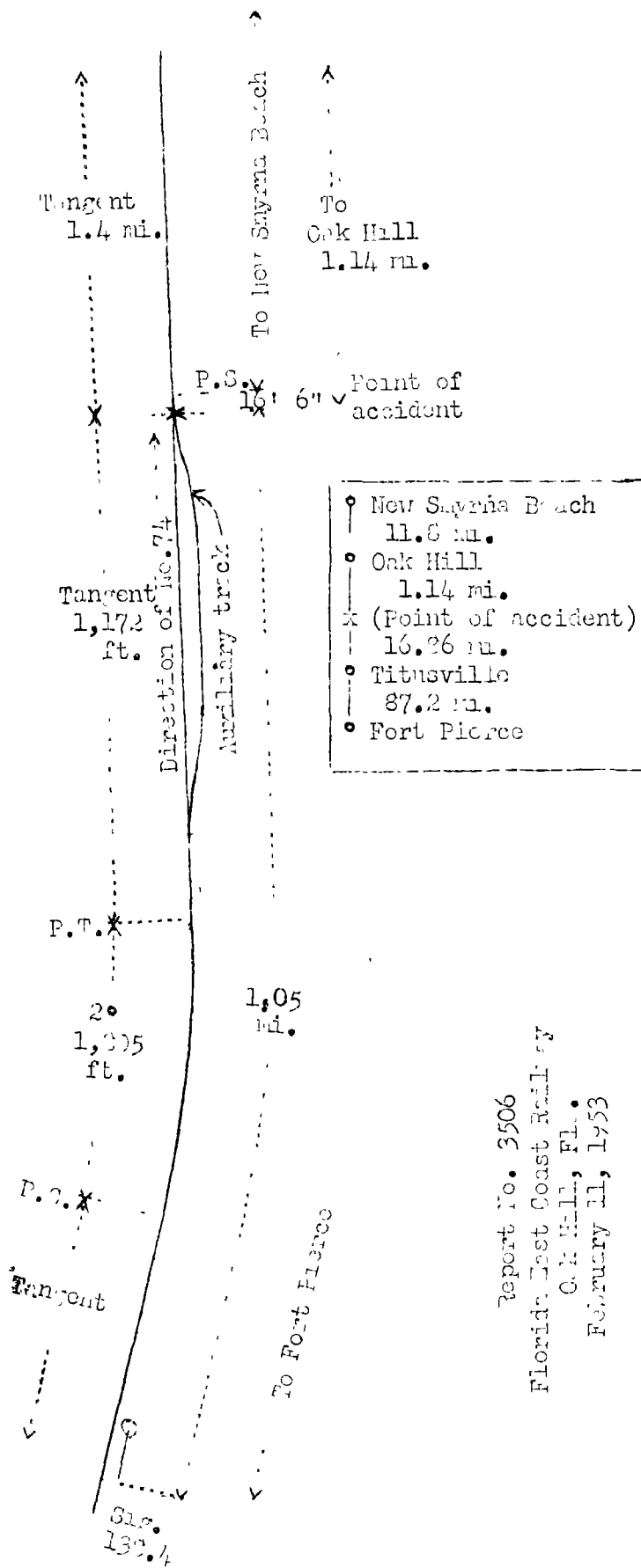
On February 11, 1953, there was a derailment of a passenger train on the Florida East Coast Railway near Oak Hill, Fla., which resulted in the injury of 11 passengers, 5 railway mail clerks, 2 Pullman Company employees, 6 dining-car employees, and 1 train-service employee.

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.



Direction of No. 74

Sketch showing broken rail- east side of track



Report No. 3506
Florida East Coast Railway
Oak Hill, Fla.
February 11, 1953

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between Fort Pierce and New Smyrna Beach, Fla., 117 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable, train orders and an automatic block-signal system. Near Oak Hill, 135.2 miles north of Fort Pierce, an auxiliary track parallels the main track on the east. The north auxiliary-track switch is 4,620 feet south of the station. The accident occurred on the main track at the north auxiliary-track switch. From the south there are, in succession, a 2° curve to the left 1,805 feet in length, and a tangent 1,172 feet to the point of accident and 1.4 miles northward. The grade for north-bound trains is, successively, 0.20 percent ascending 2,800 feet, level 500 feet, and 0.23 percent ascending 261 feet to the point of accident. At the point of accident the track is laid on a fill about 3 feet in height. Between points approximately 150 feet north and 250 feet north of the point of accident, the track is laid in a cut, the east wall of which rises to a height of about 4 feet. North of this cut the track is laid on a fill about 7 feet in height.

In the vicinity of the point of accident the track structure of the main track consists of 112-pound rail, 30 feet in length, laid now in 1942 on an average of 22 treated ties to the rail length. It is fully tieplated with single-shoulder tieplates, single-spiked, and is provided with 4-hole 24-inch headfree joint bars and an average of 16 rail anchors per rail. It is ballasted with rock to a depth of 8 inches below the bottom of the ties. The turnout at the north end of the auxiliary track consists of 112-pound reinforced switch rails 16 feet 6 inches in length, 112-pound rails, a No. 10 spring-rail frog, and one-piece guard rails 8 feet 4½ inches in length. The switch is provided with adjustable rail braces.

Automatic signal 138.4, governing north-bound movements, is located 1.05 miles south of the point of accident.

The maximum authorized speed for passenger trains is 70 miles per hour.

Description of Accident

No. 74, a north-bound first-class passenger train, consisted of Diesel-electric units 1014, 1016, and 1001, coupled in multiple-unit control, one mail car, one baggage car, one baggage-dormitory car, five sleeping cars, one dining car,

and six sleeping cars, in the order named. The tenth car was of lightweight steel construction, and the other cars were of conventional all-steel construction. The seventh, ninth, tenth, and twelfth cars were equipped with tightlock couplers. This train departed from Fort Pierce at 4:04 p. m., 3 minutes late, and departed from Titusville, 18 miles south of Oak Hill and the last open office, at 5:34 p. m., 6 minutes late. It passed signal 138.4, which indicated Proceed, and was moving at a speed of 72 miles per hour, as indicated by the tape of the speed recording device, when the rear truck of the second Diesel-electric unit, the third Diesel-electric unit, the first to the eleventh cars, inclusive, and the front truck of the twelfth car were derailed at the north auxiliary-track switch near Oak Hill.

Separations occurred between the third Diesel-electric unit and the first car and between the first and second, second and third, third and fourth, eighth and ninth, ninth and tenth, and tenth and eleventh cars. The Diesel-electric units stopped upright and in line with the track, with the front of the first unit 2,910 feet north of the point of derailment. The first and second cars stopped on their right sides, about 12 feet east of the track and parallel to it. The front end of the first car was 1,085 feet north of the point of derailment. The third car stopped on its right side, behind the second car, with the front end 22 feet and the rear end 70 feet east of the track. None of the other derailed cars overturned. The fourth car stopped with the front end against the rear end of the third car and the rear end 35 feet east of the track. The fifth to the eighth cars, inclusive, remained coupled and stopped behind the fourth car and approximately parallel to the track. The ninth car stopped with the front end against the rear end of the eighth car and the rear end 25 feet west of the track. The tenth car stopped against the rear end of the ninth car and approximately at right angles to the track. The eleventh and twelfth cars stopped approximately in line with the track. The second Diesel-electric unit was slightly damaged. The fuel tank of the third Diesel-electric unit was punctured by a broken rail. Escaping fuel became ignited, and the unit was badly damaged by fire. The first three cars and the ninth and tenth cars were badly damaged, the twelfth car was slightly damaged, and the other derailed cars were considerably damaged.

The conductor was injured.

The weather was clear at the time of the accident, which occurred at 5:50 p. m.

Discussion

As No. 74 was approaching the point where the accident occurred the engineer and a road foreman of engines were maintaining a lookout ahead from the control compartment of the first Diesel-electric unit, the fireman was in the second Diesel-electric unit, and the members of the train crew were in various locations in the cars of the train. The members of the crew said that before the derailment occurred the locomotive and the cars were riding smoothly, and that there was no indication of defective track or equipment nor of an obstruction having been on the track. The employees on the first Diesel-electric unit noticed nothing unusual when they passed the north auxiliary-track switch near Oak Hill. The brakes became applied in emergency as a result of the derailment.

Examination of the locomotive and the cars after the derailment occurred disclosed no condition which could have caused or contributed to the cause of the derailment. Examination of the track throughout a considerable distance south of the north turnout of the auxiliary track disclosed no indication of defective track, dragging equipment, or of an obstruction having been on the track. The surface, gage, and alinement were well maintained.

Examination of the turnout disclosed that the closure rail connected to the east switch rail was broken. This rail was manufactured by the Tennessee Coal, Iron & Railroad Company in June, 1942. It bore heat No. 856540B. The leaving end of this rail between the second bolt hole and the end of the rail was broken into a number of pieces, four of which were recovered. Fractures extended from the second bolt hole downward through the base at points 6-1/2 inches and 12 inches south of the end of the rail and upward through the head at points 6 inches, 7-1/2 inches, and 12 inches south of the end of the rail. The head of the rail south of two of the breaks was battered. This indicated that several wheels of a south-bound train had passed over the rail after a portion of the head became dislodged. A portion of the head of the switch rail 1 inch in length was broken out of the heel. This piece was not recovered. A fracture in the switch rail extended downward from the point where the portion of the head was broken out, through the second bolt hole, and through the base at a point 15 inches north of the end of the rail. All of the breaks in both rails appeared to be new. Both bolts at the leaving end of the closure rail and the bolt through the first bolt hole of the switch rail were broken.

First 343, a south-bound freight train consisting of three Diesel-electric units, 69 cars, and a caboose, passed Oak Hill about 45 minutes before No. 74 was derailed. The employees who were in the caboose of First 343 said they noticed no unusual condition when the caboose passed over the switch. Apparently the closure rail was broken or a break occurred when this train was moving over it, and after a portion of the head was dislodged by First 343, the wheels of the locomotive of No. 74 struck the heel of the switch rail with sufficient force to break the track bolts and the end of the rail. The switch rail then was displaced after the front truck of the second Diesel-electric unit passed over it.

The breaks in the closure rail occurred between the joint bars and over the heel plate, and did not break the track circuit. As a result, the operation of the automatic block-signal system was not affected.

This section of track was inspected by the section foreman 2 days before the accident occurred, and the switch was inspected by the signal maintainer about 4 hours prior to the time of the accident. No defective condition was observed. A rail-defect detector car was last operated over this territory on November 5, 1952. 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 sixth day of April, 1953.

By the Commission, Commissioner Patterson.

(SEAL)

GEORGE W. LAIRD,
Acting Secretary.