INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3268

ATLANTIC COAST LINE RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT ALMA, FLA., ON

JULY 27, 1949

SUMMARY

Date:	July 27, 1949
Railroad:	Atlantic Coast Line
Location:	Alma, Fla.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	32
Engine numbers:	Diesel-electric units 334-A and 334-B
Consist:	11 cars
Estimated speed:	50 m. p. h.
Operation:	Timetable and train orders
Track:	Single; tangent; 0.3 percent descending grade northward
Weather:	Clear
Time:	1:20 a. m.
Casualties:	9 injured
Cause:	Defective switch

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3268

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

ATLANTIC COAST LINE RAILROAD COMPANY

September 15, 1949

Accident at Alma, Fla., on July 27, 1949, caused by a defective switch.

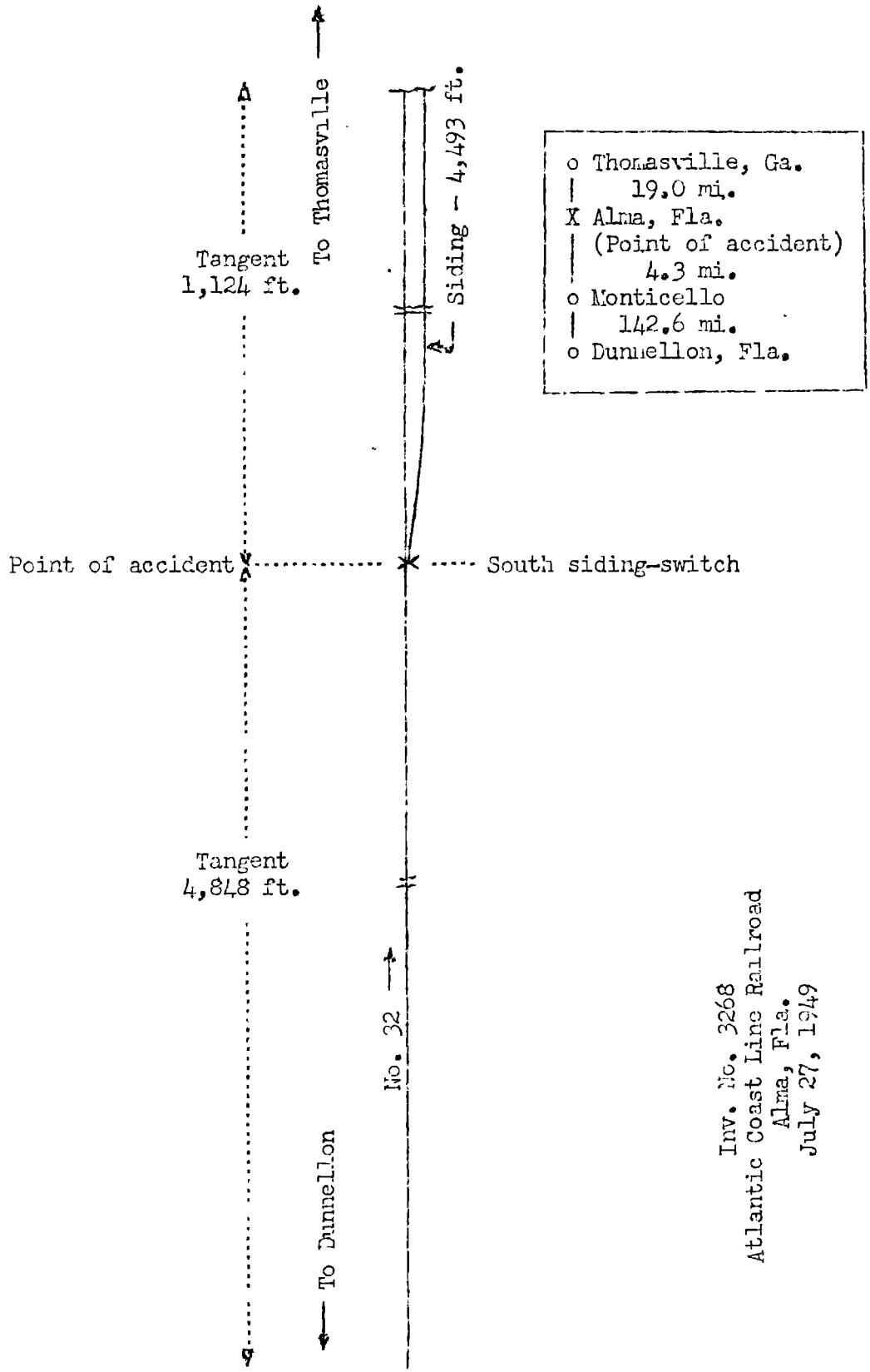
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On July 27, 1949, there was a derailment of a passenger train on the Atlantic Coast Line Railroad at Alma, Fla., which resulted in the injury of four passengers, three Pullman employees and two dining-car employees. This accident was investigated in conjunction with a representative of the Florida Railroad and Public Utilities Commission.

---

[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.



Inv. No. 3268
Atlantic Coast Line Railroad
Alma, Fla.
July 27, 1949

Location of Accident and Method of Operation

This accident occurred on that part of the Southern Division extending between Dunnellon, Fla., and Thomasville, Ga., 165.9 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. At Alma, 146.9 miles north of Dunnellon, a siding 4,493 feet in length parallels the main track on the east. Entry to the south end of this siding is made through a No. 10 turnout. The accident occurred at the point-of-switch of this turnout. From the south there is a tangent 4,848 feet to the point of accident and 1,124 feet northward. The grade is 0.3 percent descending northward.

The structure of the main track consists of 85-pound rail, 33 feet in length, laid on an average of 21 ties to the rail length. It is fully tieplated, single-spiked and is provided with 4-hole 24-inch 100-percent joint bars and 2 rail anchors per rail length. It is ballasted with cinders to a depth of 16 inches. The south turnout consists of 85-pound switch rails 15 feet in length, 85-pound rails and an 85-pound No. 10 spring-rail-type frog, laid on 69 7-inch by 9-inch treated switch ties. It was laid new in 1927.

The switch stand is of the intermediate, vertical, hand-throw type, and is located 8 feet 6 inches east of the center-line of the main track. It is equipped with a green disc target and a red arrow-shape target. The centers of the targets are 5 feet above the tops of the ties. Each target is provided with a reflector lens, 5 inches in diameter, of the same color as the target. When the switch is lined for movement on the main track, the green target is displayed at right angles to the main track. When the switch is lined for entry to the siding, the red target is displayed at right angles to the track. The switch points are arranged for a throw of 4-1/2 inches, and are maintained in relation to each other by two switch rods. A throw rod 1-3/8 inches in diameter and 5 feet 1-1/2 inches in length, located between the head-block ties, connects the switch points to the crank of the switch stand. The switch-point end of this rod is a solid jaw bolted to the head switch-rod of the switch. The switch-stand end is threaded and it screws into the threaded end of a screw jaw, which is connected to the crank of the switch stand.

This carrier's rules read in part as follows:

SECTION FOREMEN

1057. They will report to and receive their instructions from the Road Master. * * *

1059. They must pass over the whole of their section at least every other day, and see that their section is in good and safe condition, being especially careful to see that all switches and frogs are in perfect condition and adjustment.

Special instruction dated July 9, 1949, reads in part as follows:

P E R S O N A L

ALL ROADMASTERS:

* * *

Effective this date, the part of Rule 1059 in book of operating rules dated December 1926 reading as follows "they must pass over the whole of their section at least every other day" is amended to conform with instructions given to the section foremen for each weeks work by you.

Effective this date, each Roadmaster will arrange to make personal detail inspection of all switches at least once each month. This inspection will include you having your crank hand throw the switch in each direction so you may observe all bolts, cotter keys, tie bars, clips, throw rods and all other parts of the switches. * * *

Detail inspections of these switches will not relieve the section foremen of their responsibility of inspecting turnouts when their regular work permits them to do so. In other words, any time that a man is at or near a switch during the week, he should make his inspection and see that it is in proper condition. Also in going to and from work they should slow the motor car down over all turnouts sufficient that they can make a running inspection of all bolts, tie bars, clamps, and wedges and if they observe any parts out of place or adjustments, they should stop and make the necessary repairs at once * * *

* * *

The maximum authorized speed of the train involved was 59 miles per hour.

Description of Accident

No. 32, a north-bound first-class passenger train, consisted of Diesel-electric units 334-A and 334-B, coupled in multiple-unit control, one mail-baggage car, two express cars, one baggage car, three coaches, one sleeping car, one dining car, one sleeping car and one lounge-sleeping car, in the order named. All cars were of all-steel construction. The Diesel-electric units and the eighth and ninth cars were equipped with tight-lock couplers. This train departed from Monticello, the last open office, 4.3 miles south of Alma, at 1:15 a. m., 5 minutes late, and while it was moving at a speed of 50 miles per hour, the rear truck of the seventh car and the eighth to the eleventh cars, inclusive, were derailed at the south switch of the siding at Alma.

The Diesel-electric units and the first six cars remained coupled and stopped on the main track, with the rear-end of the sixth car 1,133 feet north of the south siding-switch. The seventh to the eleventh cars stopped upright, between the main track and the siding, and in line with these tracks. The rear end of the eleventh car stopped 169 feet north of the switch. The eighth car was considerably damaged and the seventh, ninth, tenth and eleventh cars were slightly damaged.

The weather was clear at the time of the accident, which occurred at 1:20 a. m.

Discussion

No. 32 was moving on tangent track at a speed of 50 miles per hour, in territory where the maximum authorized speed was 59 miles per hour, when the derailment occurred. Prior to the time of the accident the Diesel-electric units and the cars of the train had been riding smoothly. As No. 32 was approaching Alma the headlight was lighted brightly, the enginemen were in the control compartment at the front of the first Diesel-electric unit, and the members of the train crew were in various locations throughout the cars of the train. The enginemen said that as the train approached the south switch at Alma they observed the green reflector lens on the switch target. Soon after the Diesel-electric units passed over the switch the brakes became applied in emergency as a result of the derailment.

Examination of the track throughout a considerable distance southward from the south siding-switch disclosed no indication of defective track, dragging equipment, or of any obstruction having been on the track. The surface, gage and alinement were well maintained. The first mark of derailment was a flange mark on the east stock rail at a point 11 feet north of the point of switch. Two bolts in the joint connecting the east switch-rail to the rail beyond were sheared off, and flange marks then appeared on the tie plates and on the ties between the switch-rail and the frog. Corresponding flange marks appeared near the heel of the west switch-rail and on the ties on the west side of the lead-rail to a point north of the frog. There was a mark on the point of the west switch-rail. The west lead-rail was canted toward the west, and was bent. The frog was damaged, and the siding was badly damaged throughout a distance of 320 feet north of the frog. An examination of the equipment of No. 32 disclosed no condition which would have caused or contributed to the cause of the accident.

An examination of the switch disclosed that the threads of the throw rod and of the screw jaw were excessively rusted. The threads were stripped throughout the distance that the throw rod was inserted into the screw jaw. Throughout a distance of about 3/4 inch near the center of the threaded portion of the throw rod, the threads were practically rusted away. When the threaded end of the throw rod was inserted in the screw jaw the threads were not sufficient under normal tension to hold the switch in proper position.

The investigation disclosed that immediately after the derailment occurred the conductor, the fireman and the baggageman examined the turnout and found the switch points open about 2 inches. The switch-stand lever was locked in position for movement on the main track. The throw rod was pulled out of the screw jaw, and the loose end was lying on the ground about two inches from the end of the screw jaw. The fireman and the baggageman examined the threads on the throw rod and in the end of the screw jaw, and found them rusty and worn. They did not move either the throw rod or the screw jaw. The section foreman in charge of the section on which the accident occurred arrived at the scene of the accident at 4:10 a. m. He said that he found the east switch-point closed against the east stock-rail, the threaded end of the throw rod connected to the screw jaw and the jam nut against the screw jaw. He could not explain how the throw rod became reconnected to the screw jaw between 1:35 a. m., when the members of the crew of No. 32 last observed it, and 4:10 a. m., when he first arrived at the scene of

the accident. He said that nine days before the accident occurred he had renewed the slide plates and rail braces at the south siding-switch. After these repairs were made, he properly adjusted the switch by making a one-half turn of the throw rod into the screw jaw. He said that he inspected the switch five days before the accident occurred, and he did not observe any defective condition of the switch at that time. Two members of the carrier's police force arrived at the scene of the accident about 5:15 a. m. They found the east switch-point against the siding stock-rail, the throw rod inserted in the screw jaw and the jam nut backed away about 5/16 inch. Some time later one of them had the switch unlocked and operated to its reversed position. When the lever was operated to its normal position the east switch-point stopped about 3/4 inch from the stock rail. The general roadmaster and the roadmaster arrived at the scene of the accident about 6:45 a. m. At that time the east switch-point was open about 7/8 inch and the throw rod was screwed into the screw jaw to within about 5/16 inch of the jam nut.

Apparently, when the section foreman adjusted the switch on July 18 the bond between the excessively rusted threads of the throw rod and of the screw jaw was broken. The force exerted on the throw rod by the thrust of the wheels of No. 32 against the heel of the normally closed switch-point caused the rusted threads to strip, and the switch opened after the front truck of the seventh car passed over it, and the rear truck was derailed.

Cause

It is found that this accident was caused by a defective switch.

Dated at Washington, D. C., this fifteenth day of September, 1949.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.