INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3608

SOUTHERN RAILWAY COMPANY

IN RE ACCIDENT

NEAR STROTHER, S. C., ON

JANUARY 13, 1955

SUMMARY

Date:	January 13, 1955
Railroad:	Southern
Location:	Strother, S. C.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	28
Engine number:	Diesel-electric units 6702 and 6705
Consist:	9 cars
Speed:	50 m. p. h.
Operation:	Timetable and train orders
Track:	Single, 3° curve; 0.29 percent descending grade eastward
Weather:	Cloudy
Time	3:50 p. m.
Casualties:	11 injured
Cause:	Broken rail

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3608

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

SOUTHERN RAILWAY COMPANY

February 21, 1955

Accident near Strother, S. C., on January 13, 1955, caused by a broken rail.

REPORT OF THE COMMISSION[1]

CLARKE, Commissioner:

On January 13, 1955, there was a derailment of a passenger train on the Southern Railway near Strother, S. C., which resulted in the injury of five passengers, one railway express messenger, four dining-car employees, and one person carried under contract.

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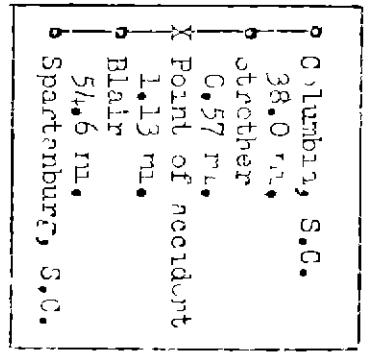
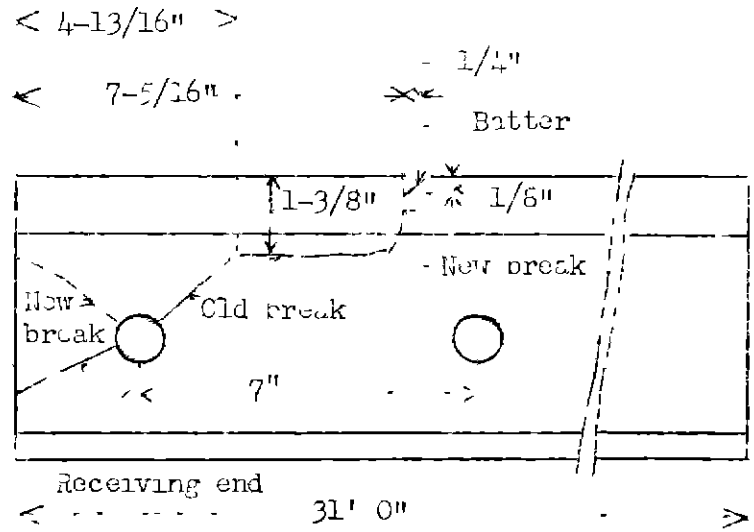
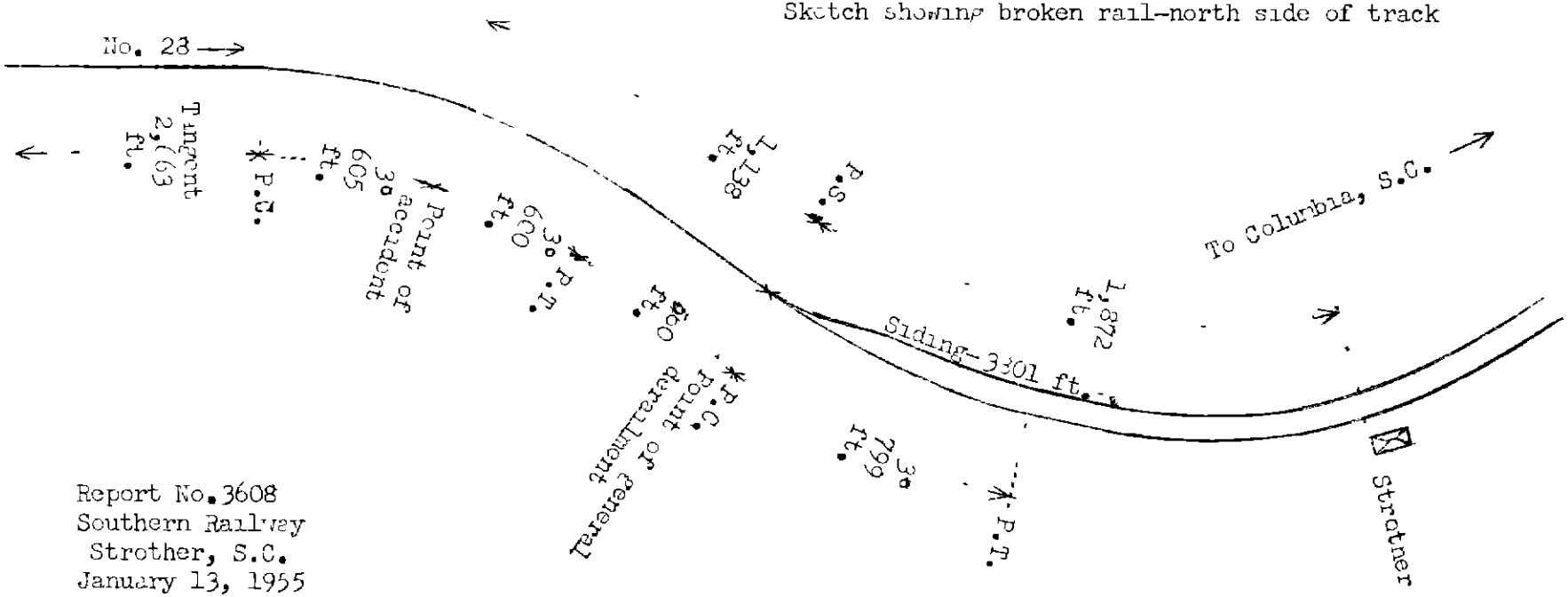
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Clarke for consideration and disposition.



← To Spartanburg, S.C.



Sketch showing broken rail-north side of track



Report No. 3608
Southern Railway
Strother, S.C.
January 13, 1955

Location of Accident and Method of Operation

This accident occurred on that part of the Columbia Division extending between Spartanburg and Columbia, S. C., 94.3 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 Strother, 56.3 miles east of Spartanburg, a siding 3,201 feet in length parallels the main track on the north. The west switch of this siding is 1,872 feet west of the station. The accident occurred on the main track at a point 55.73 miles east of Spartanburg and 1,138 feet west of the west siding-switch at Strother. From the west there are, in succession, a tangent 2,663 feet in length, a 3° curve to the right 605 feet to the point of accident and 600 feet eastward, a tangent 560 feet, and a 3° curve to the left 799 feet. The grade is 0.29 percent descending eastward at the point of accident.

In the vicinity of the point of accident the track structure consists of 100-pound rail, 31 feet in length, rolled in 1924, and cropped and relaid in its present location in July 1943 on an average of 18 treated ties to the rail length. It is fully tieplated with double-shoulder tieplates and is spiked with two spikes per tieplate. It is provided with 4-hole 24-inch joint bars and an average of 10 rail anchors per rail, and is ballasted with crushed rock to a depth of 18 inches below the bottoms of the ties.

The maximum authorized speed for passenger trains in the vicinity of the point of accident is 55 miles per hour.

Description of Accident

No. 28, an east-bound first-class passenger train, consisted of Diesel-electric units 6702 and 6705, coupled in multiple-unit control, one baggage-mail car, one baggage-express car, one express car, one combination baggage-chair car, two chair cars, one sleeping car, one dining car, and one sleeping car, in the order named. All cars were of conventional all-steel construction. This train departed from Spartanburg at 2:30 p. m., 15 minutes late, passed Blair, 54.6 miles east of Spartanburg and the last open office, at 3:48 p. m., 10 minutes late, and while moving at a speed of 50 miles per hour the middle pair of wheels of the rear truck of the third car was derailed at a point 1,138 feet west of the west siding-switch at Strother. All trucks of the second to the eighth cars, inclusive, and the front truck of the ninth car were derailed in the vicinity of the west siding-switch. None of the derailed cars overturned.

Both trucks of the third car were displaced, and separations occurred between the second and third cars and between the third and fourth cars. The forward portion of the train stopped with the front of the locomotive 2,552 feet east of the initial point of derailment. The second car stopped approximately in line with the track. The third to the ninth cars, inclusive, stopped approximately in line. The front end of the third car was 618 feet west of the rear end of the second car and 18 feet north of the center-line of the main track, and the front end of the ninth car was on the track structure. The third to the sixth cars, inclusive, were somewhat damaged, and the second, seventh, and eighth cars were slightly damaged.

The weather was cloudy at the time of the accident, which occurred about 3:50 p. m.

Discussion

As No. 28 was approaching the point where the accident occurred the speed was 50 miles per hour, as indicated by the speed indicator. The enginemen were maintaining a lookout ahead from the control compartment at the front of the locomotive, the conductor and the train baggageman were in the fourth car, and the flagman was in the rear car. The enginemen said that the locomotive was riding smoothly and there was no indication of defective track or equipment. They were not aware that anything was wrong until the brakes became applied in emergency as a result of the derailment. The conductor and the train baggageman said that the car in which they were riding became derailed and the brakes became applied at approximately the same time.

Examination of the locomotive and cars after the accident occurred disclosed no condition of the equipment which could have caused or contributed to the cause of the accident. Examination of the track west of the initial point of derailment disclosed no indication of dragging equipment nor of an obstruction having been on the track.

After the accident occurred a broken rail was found in the north side of the track. This rail was manufactured by the Maryland Steel Company in 1924 and bore heat number 73D03. An old fracture through the web extended diagonally upward from a point 4-9/16 inches below the head at the receiving end of the rail, through the first bolt hole to a point immediately under the head and 4-13/16 inches east of the end of the rail,

then parallel to the head to a point 7-5/16 inches from the end of the rail. From the latter point a new break extended upward through the head. A new break through the web extended diagonally upward from the first bolt hole to the end of the rail at a point 1-13/16 inches below the head. The 7-5/16-inch section of the head had became dislodged, and the head of the rail east of the break was battered 1/8 inch vertically and 1/4 inch horizontally. The joint bars remained in place.

Immediately east of the point at which the section of rail was dislodged there was a flange mark on the head of the north rail. This mark extended diagonally outward throughout a distance of 37 feet, and east of this mark the ties bore marks which indicated that a pair of wheels had become derailed to the north. These wheels had continued in line with the track to the west siding-switch. Rail braces on the north side of each rail at the switch were marked, and the right hand switch rail bore marks indicating that it had been struck by a wheel. The derailed wheels had been deflected toward the north at the switch, and marks on the ties indicated that a second pair of wheels had become derailed at a point 30 feet 6 inches east of the switch point. East of this point the track was torn up throughout a distance of approximately 450 feet.

The third car of No. 20 was equipped with six-wheel trucks. Marks on the treads and flanges of the middle pair of wheels of the rear truck indicated that this pair of wheels had become derailed at the initial point of derailment and had come in contact with the rail braces and the right hand switch rail at the west siding-switch. Apparently the other wheels of this truck became derailed when the middle wheels were deflected toward the north at the switch, and the front truck of this car and both trucks of the second car became derailed when the rear end of the third car was deflected to the left. The following equipment was then derailed as a result of the ensuing damage to the track.

According to the report of the engineer of tests of the carrier, the failure of the rail at the initial point of derailment was the result of a progressive fatigue type of fracture which originated in the web at the bolt hole. Examination of the rail disclosed no excessive wear or battering which would indicate looseness of the joint. The chemical composition of the rail was normal.

In February 1954 this section of track was tested by a portable device used to detect rail defects within joint-bar limits and at like locations, and on November 18, 1954, a rail-defect detector car was operated over this territory. No defective condition of the rail involved was indicated. The track in the vicinity of the point of accident was last inspected by an assistant track supervisor on the morning of the day of the accident. No defective condition was observed. An east-bound freight train passed the point of accident at a speed of about 15 miles per hour approximately 1 hour 50 minutes before the accident occurred. The members of the crew of this train noticed no unusual condition of the track.

Cause

This accident was caused by a broken rail.

Dated at Washington, D. C., this twenty-first day of February, 1955.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,

Secretary.