

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3280
SOUTHERN RAILWAY COMPANY
IN RE ACCIDENT
AT NEWTON, N. C., ON
SEPTEMBER 19, 1949

SUMMARY

Date:	September 19, 1949
Railroad:	Southern
Location:	Newton, N. C.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	15
Engine number:	Diesel-electric units 4134A and 4352B
Consist:	10 cars
Speed:	Overturning
Operation:	Timetable, train orders and automatic block-signal and train-stop systems
Track:	Single; 9°30' curve; 0.71 percent ascending grade westward
Weather:	Foggy
Time:	5:15 a. m.
Casualties:	3 killed; 29 injured
Cause:	Excessive speed on curve

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3280

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

SOUTHERN RAILWAY COMPANY

November 15, 1949

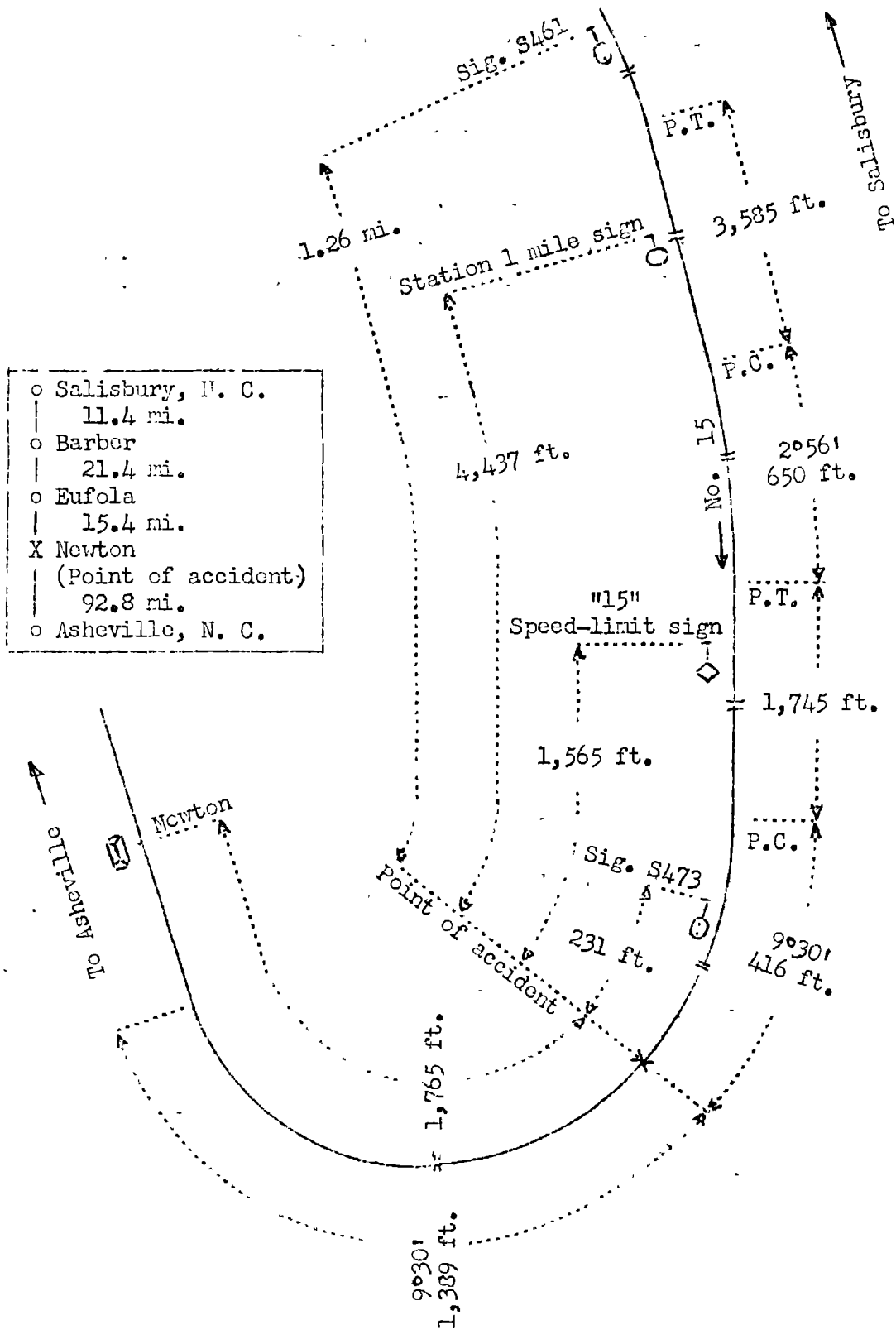
Accident at Newton, N. C., on September 19, 1949, caused
by excessive speed on a curve.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On September 19, 1949, there was a derailment of a passenger train on the Southern Railway at Newton, N. C., which resulted in the death of 2 dining-car employees and 1 train-service employee, and the injury of 20 passengers, 1 railway-mail clerk, 5 dining-car employees, 1 train porter and 2 train-service employees.

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.



Report No. 3280
Southern Railway
Newton, N. C.
September 19, 1949

Location of Accident and Method of Operation

This accident occurred on that part of the Asheville Division extending between Salisbury and Asheville, N. C., 141 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 supplemented by an automatic train-stop system. The accident occurred on the main track 47.87 miles west of Salisbury, at a point 1,765 feet east of the station at Newton. From the east there are, in succession, a tangent 3,585 feet in length, a 2°56' curve to the right 650 feet, a tangent 1,745 feet, and a 9°30' curve to the right 416 feet to the point of accident and 1,329 feet westward. The grade for west-bound trains varies between 0.21 percent and 1.41 percent ascending 6,003 feet to the point of accident, where it is 0.71 percent ascending.

On the curve on which the accident occurred, the track is laid on a fill having a maximum height of 15 feet. The track structure consists of 130-pound cropped rail, 37 feet in length, relaid in its present location in 1948 on an average of 23 treated hardwood ties to the rail length. It is fully tieplated with double-shoulder tieplates, double-spiked, and is provided with 6-hole, 36-inch, 100-percent joint bars. There are 5 gage rods and an average of 12 rail anchors per rail length. It is ballasted with crushed limestone to a depth of 14 inches below the ties. The specified superelevation on the 9°30' curve was 2-3/4 inches. At the point of derailment the superelevation was 2-3/4 inches, the gage was 4 feet 8-3/4 inches and the curvature was 9°30'.

Automatic signals S461 and S473, governing west-bound movements, are located, respectively, 1.26 miles and 231 feet east of the point of accident. These signals are of the three-aspect, color-light type and are continuously lighted.

This carrier's operating rules read in part as follows:

DEFINITIONS

Fixed Signal--A signal of fixed location indicating a condition affecting the movement of a train or engine.

NOTE--The definition of a "Fixed Signal" covers such signals as * * * slow signs or other means for displaying indications that govern the movement of a train or engine.

108. A train or engine must not be run at a speed faster than the maximum speed authorized in current time-table on each division or subdivision.

Speed restrictions shown on time-table * * * by speed limit signs, or by any other method must be observed.

* * *

Due consideration must always be given by the conductor and enginemen to * * * weather * * * and speed must be reduced on curves and at other points, where conditions require, to insure safe and comfortable movement.

* * *

Timetable special instructions prescribe the maximum authorized speed for the train involved as 60 miles per hour, but it was restricted to 15 miles per hour on the curve on which the accident occurred.

A station-1-mile sign and a speed-limit sign are located on the north side of the main track at points, respectively, 4,437 feet and 1,565 feet east of the point of accident. The speed-limit sign is a diamond-shape sign, 23-1/4 inches in width and 16-3/4 inches in height, and bears the numerals "15" in black on a white background. The top of the mast is 6 feet 9 inches above the level of the tops of the rails, and the mast is located 11 feet north of the center-line of the main track.

Description of Accident

No. 15, a west-bound first-class passenger train, consisted of Diesel-electric units 4134A and 4352B, coupled in multiple-unit control, one mail car, two express cars, one passenger-baggage car, one coach, one dining car and four sleeping cars, in the order named. All cars were of all-steel construction. This train passed Barber, the last open office, 36.8 miles east of Newton, at 4:25 a. m., 25 minutes late, and while it was moving on a 9°30' curve the Diesel-electric units and the first six cars were derailed at a point 1,765 feet east of the station at Newton.

The Diesel-electric units and the first six cars were derailed to the left. Separations occurred between the Diesel-electric units and between the first and the second car,

the second and the third car, the fifth and the sixth car, and the sixth and the seventh car. The first Diesel-electric unit stopped on its left side 46 feet south of the center-line of the track, with the west end 324 feet west of the point of derailment. The second unit stopped on its left side, with the west end 21.3 feet east of the east end of the first unit and 53 feet south of the center-line of the track, and the east end 83 feet south of the center-line of the track. The first car stopped with the west end immediately east of the east end of the second Diesel-electric unit. It leaned at an angle of 45 degrees to the left. The second car stopped about 42 feet south of the track and against the east end of the first car, and leaned at an angle of 70 degrees to the left. The third, fourth and fifth cars stopped in line with the track. The west end of the third car was opposite the west end of the first car, and the east end leaned against the second car. The fourth and fifth cars overturned to the left. The sixth car stopped 30 feet south of the center-line of the track, and it leaned to the left at an angle of 60 degrees. Its west end leaned against the east end of the third car. The seventh to the tenth cars, inclusive, were not derailed, and they stopped with the west end of the seventh car 865 feet west of the point of derailment. The two Diesel-electric units and the second to sixth cars, inclusive, were badly damaged. The first and seventh cars were considerably damaged. There were slid-flat spots varying from 1 to 3 inches in length on each wheel of the eighth to tenth cars, inclusive.

The fireman was killed, and the engineer and the baggageman were injured.

It was foggy at the time of the accident, which occurred at 5:15 a. m.

The Diesel-electric units involved are of the O-4-4-0 type. The first unit is 50 feet 8 inches in length, and is provided with a control compartment. The second unit is 50 feet in length, but it is not provided with a control compartment. The trucks are of the swing-motion type. The wheelbase of each truck is 9 feet long. The centers of the trucks of each unit are spaced 30 feet apart. The total weight of the two units in working order is 460,000 pounds. The specified diameter of the driving wheels is 40 inches. All driving-wheel journals are equipped with roller bearings. The first Diesel unit was equipped with a speed indicator and speed recording device, but it was not provided with a recording tape. The center of gravity of each unit is 63 inches above the top of the rails. The theoretical equilibrium, safe and overturning speeds of these units moving on a 9°30' curve having a 2-3/4 inch superelevation are, respectively, 20.9, 39.4 and 65.7 miles per hour.

The Diesel units are provided with 24-RL brake equipment. The automatic brake valve and the independent brake valve are arranged on the right side of the control compartment of the first unit. A conductor's valve is provided in the second unit. The brake system is arranged with over-speed control and a safety-control feature. The regulating devices were adjusted for 100-pound brake-pipe pressure, and 130-pound main-reservoir pressure. When an emergency application of the air brakes occurs power is automatically shut off. Each truck is equipped with four brake cylinders, and each wheel is equipped with clasp brakes. None of the units of the train were equipped with tight-lock couplers.

The last repairs made on the first unit, which consisted of renewing the No. 1, No. 2 and No. 4 driving wheels, were completed September 9, 1949. The accumulated mileage was 443,452. The last repairs on the second unit, which consisted of renewing the No. 1 pair of driving wheels, were completed on September 19, 1949. The accumulated mileage was 328,910. The last inspection of the units was made on the day of the accident.

Discussion

As No. 15 was approaching the curve on which the accident occurred the headlight was lighted brightly and the enginemen were maintaining a lookout ahead from their respective positions in the control compartment of the first Diesel-electric unit. The conductor was in the fourth car, the baggageman was in the third car and the flagman was in the rear car. Prior to the time the accident occurred the units of the train had been riding smoothly. The engineer said that he moved the throttle to number one position when the train was about 1.75 miles east of the point where the accident occurred. At a point about 4,500 feet east of the point of derailment, he moved the automatic brake valve to the first-service position. As a result the brake-pipe pressure was reduced about 8 pounds. He said that soon thereafter, when the Diesel-electric units were approximately 1,730 feet east of the point where the derailment occurred, the fireman crossed to the right side of the control compartment and told him he thought that the train was moving too fast. The engineer said he then further reduced the brake-pipe pressure to a total of 20 pounds. He thought that the speed of the train had been reduced from 50 miles per hour to about 30 miles per hour when it entered the curve on which the derailment occurred. When the engine entered the curve the first Diesel-electric unit thrust to the left, then to the right and then overturned to the left. Because of a dense fog he did not

see the station-1-mile sign, the whistle posts or the 15-mile-per-hour speed-limit sign. The conductor said he thought that the train was moving about the maximum authorized speed before it entered the curve, and that the speed was not reduced thereafter. He said he did not hear the engine-whistle signal sounded or feel an application of the brakes prior to the accident. The baggageman and the flagman were unable to estimate the speed of the train, but each stated that he was not aware that the brakes were applied or that the speed of the train was reduced immediately before the accident occurred. The brakes of this train had been tested and had functioned properly when used en route.

Examination of the track throughout a considerable distance east of the point of derailment disclosed no indication of dragging equipment or of any obstruction having been on the track. There were only minor irregularities in the alinement, surface and gage of the track. The track structure was well maintained. Examination of the equipment of No. 15 disclosed no condition which would have caused or have contributed to the cause of the accident.

The first mark of derailment was an angular peening of the metal on the outside edge of the top of the head of the south, or high, rail. This mark started at a point 141 feet east of the point of derailment and continued to the point of derailment. It was about 1/4 inch wide and was caused by the treads of wheels rolling on the outside edge of the rail as the equipment was overturning. In the immediate vicinity of the point of derailment, the tops of the ties outside the high rail were broomed, and the ballast was disturbed. The brooming of the ties apparently was caused when some part of the equipment struck them as the units of the train overturned. There were no flange marks on the rails, between the rails or on the ties outside the rails. The absence of such marks, the angular peening of the metal of the high rail and the manner in which the equipment became derailed indicate that the train was moving at overturning speed when the derailment occurred.

Cause

It is found that this accident was caused by excessive speed on a curve.

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

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.