
REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
ST. LOUIS-SAN FRANCISCO RAILWAY AT PRATT CITY, ALA.,
ON FEBRUARY 26, 1923.

April 5, 1923.

To the Commission:

On February 26, 1923, a freight train on the St. Louis-San Francisco Railway broke in two at Pratt City, Ala., and the caboose was crushed by a helping engine coupled to its rear end, the accident resulting in the death of three employees and the injury of one employee.

Location and Method of Operation.

At the time of this accident the train was within the limits of the Birmingham terminals and was moving from the main line of the Southern Division to the Bessemer Branch, the rear end still being on the main line, both the main line and the branch are single-track lines; trains moving over that part of the main line on which the accident occurred are operated by the staff system. Approaching from the south on the main line the track is tangent for a considerable distance to the switch leading to the Bessemer Branch, then there is a 7-degree curve to the left 690 feet in length, followed by another tangent of considerable distance after reaching the Bessemer Branch. At the time of the accident the forward part of the train was on level track, while the rear portion was on an 0.8 per cent ascending grade. It was raining at the time of the accident, which occurred at about 1.00 p.m.

Description.

Northbound freight train extra 979, when leaving Birmingham at 10.20 a.m., en route to Bessemer, consisted only of engine 979 and a caboose, and was in charge of Conductor Andrews and Engineman Jones. At Thomas yard, 2.7 miles distant, 62 cars were picked up, and the train departed with the air brakes coupled up and under the control of the engineman on only a few cars in the head end of the train. On arrival at Pratt City, 5.5 miles from Birmingham, at 12.20 p.m., two cars were set out, and the train departed from this point with engine 979 hauling the train backing up;

engine 1411, also moving backwards and hauling seven loaded cars, was coupled to the caboose of extra 979 for the purpose of assisting that train up the grade and around the curves. After proceeding about a train length the coupling between the head end of engine 979 and the first car parted, the air hose pulled apart, and thereby caused the air brakes which were cut in on the cars in the head end of the train to be applied in emergency, at which time the speed was estimated to have been between 3 and 8 miles an hour. At this time the caboose was on the main line about 450 feet south of the switch leading to the Bessemer Branch. As the air brakes were operating only on cars at the head end of the train, and as the pushing engine behind the caboose was working steam, the slack ran in with great force, and the caboose was crushed. This caboose was 31 years old and of wooden construction, and the forward part of the superstructure as well as the underframe were destroyed. The car ahead of the caboose was a gondola car having steel frame and ends, and this car was only slightly damaged. The employees killed were the conductor and one brakeman of extra 1411, and the conductor of extra 979, all of whom were riding on the front platform of the caboose.

Summary of Evidence.

Before the arrival of extra 979 at Thomas yard, the cars that were to be picked up at this point had been inspected; they were in two cuts, 15 being on one track, and 47 on another. Engine 979 first coupled to the cut of 15 cars, and Car Inspector Bransby said the conductor told him he did not want the air brakes in operation on any more cars as the engine would not jump them up. Car Inspector Bransby then closed the angle cock on the 15th car. No test was made of the air brakes on these cars and immediately afterwards the cut of 47 cars was picked up; however, before any test or inspection could be made, a member of the train crew gave Engineman Jones a proceed signal and the train departed, with the air brakes in use on only 15 cars. The train stopped at the south end of the yard at Pratt City, then pulled slowly through the yard, and instead of making an inspection at Pratt City, Car Inspectors Womble and Friend, who have jurisdiction from Pratt City to Bessemer, decided to board extra 979 and make an inspection on arrival at Ensley, 1.2 miles from Pratt City, of the cars in this train that were to be delivered in interchange; they were riding on the train at the time the accident occurred.

Immediately after the accident, Car Inspectors Womble and Friend, together with Flagman Barnes, made an inspection of the couplers that parted, and also of the air brakes. It was found that the knuckles of both couplers were closed, and when recoupling the engine to the train Flagman Barnes opened one of the couplers by operating the uncoupling lever, he also placed a spike over the shank of the coupler in the head end of the engine to take up the vertical play. According to measurements made after the coupling was made, the coupler on engine 979 was 35 inches in height, while the adjacent coupler on the car to which the engine was coupled measured $32\frac{1}{2}$ inches. The air brakes were at that time in operation on the first 27 cars in the train, the angle cock at the rear of the 27th car being closed, between this point and the caboose the train line was coupled and the angle cocks open. Brakeman Doggett, of extra 979, said he found marks on the top of the car coupler which he thought were made by the engine coupler pulling over the top of the car coupler.

Flagman Barnes said that the caboose was an old one and that when a helping engine was coupled behind a caboose of this type it was not his practice to ride in the caboose as he did not consider it safe to do so.

Engineman Jones stated that it was decided between Conductor Andrews and himself to cut the air in on about 25 or 30 cars, however, he did not know definitely as to the number of cars cut in, and he said he did not know that engine 1211 was coupled to the rear of the train. Engineman Jones further stated that it was an established practice, and one that had existed for years, for train crews to have the air brakes cut in only on the number of cars considered sufficient by them owing to the large amount of switching that is done on the Bessemer Branch, which statement was corroborated by Car Inspector Bransby,

Engineman Jones' statement that he did not know engine 1211 was coupled to the rear of his train is contradicted by the statement of Fireman Roberts who said that Conductor Andrews told Engineman Jones that engine 1211 with six loaded cars would push them to Ensley, and that Engineman Jones himself told him he received a signal from Conductor Tanner of engine 1211 indicating that that engine would push his train.

Engineman Frash, of engine 1211, stated the first indication he had of anything wrong was when the accident occurred, while the train was moving at a speed of about 3 miles an hour. He also said the air was not coupled up at either end of his engine. Car Inspector Womble stated that no inspection was made of extra 979 at Pratt City as he considered this to be a through train, and thought it was made up and inspected at Thomas yard; he also stated that after the accident the train departed without any air-brake test having been made. Car Inspector Friend stated no inspection was made of extra 979 at Pratt City, as at the time of its arrival he and Inspector Womble were busy inspecting the cars brought in by engine 1211.

General Car Foreman Darden did not consider it a safe practice to couple a helper engine to the rear of a caboose of this type, he also said this railroad requires that at least 90 per cent of the air brakes be in operation, while Superintendent of Terminals Mohler stated this requirement applied to transfers as well as to scheduled trains.

An inspection made by Chief Car Inspector Schafnitt about two hours after the accident disclosed that the coupler on the head end of engine 979 measured $33\frac{1}{2}$ inches above the tops of the rails, and appeared to be dropped, and on lifting this coupler as high as possible it measured 35 inches above the tops of the rails, there was a shim on top of the coupler, in the drawhead casting, about 1 inch in thickness; however, this was not sufficient to take up the vertical play in the coupler. He also stated he gauged this coupler for wear and found it to be within the prescribed limits. Chief Car Inspector Schafnitt stated in his opinion it was possible for this coupler to slip over the adjoining coupler in the event of a low joint in the track.

An examination made by the Commission's inspectors disclosed that the couplers on both ends of the box car to which engine 979 was coupled were in good condition, while the coupler in the head end of engine 979, which was inspected in the presence of officials of this railroad, was found to be $34\frac{1}{2}$ inches in height, with sufficient play above the shank to permit of its being raised to a height of $36\frac{1}{2}$ inches at the king pin; there was a 1-inch shim over the shank to keep it from being raised

higher. Upon removing the knuckle there were found a number of marks on the bottom face that were apparently new. The guard arm was bent and worn near the bottom, and, upon gauging the coupler for wear, it was found that for a distance of 7 inches, measured from the bottom of the coupler upwards, the coupler was out of gauge and worn beyond the prescribed safety limits. The marks said by Brakeman Doggett to have been on the top of the car coupler were not visible at the time inspectors of the Commission examined it.

Conclusions.

This accident was caused by the train being operated with a defective coupler on the head end of engine 979, and without the required number of air brakes being used.

The maximum height of drawbars prescribed by the Commission for freight cars, and applicable also to freight engines, is $34\frac{1}{2}$ inches, measured perpendicularly from the level of the tops of the rails to the center of the drawbar. While measurements taken at different times varied, it was clearly established that there was sufficient vertical play in the coupler on the head end of engine 979 to permit of its being raised 2 inches above the maximum height prescribed at the Commission. In addition, the lower portion of the coupler was worn beyond the prescribed limits. In view of these conditions it was probably possible for this coupler either to slip over or slip out of the coupler on the adjoining car; there was some evidence that it slipped over that coupler. The operation of this engine having this defective coupler was in violation of the federal safety appliance requirements; had these requirements been observed this accident would undoubtedly have been prevented. If proper inspection had been made prior to the accident, these defects should have been discovered.

The disastrous consequences of this accident resulted directly from failure of the crews of both extra 979 and extra 1211 to make proper use of the existing air-brake equipment. The evidence is not complete concerning the number of air brakes used, on account of several of the employees involved being killed or injured, but it appears that the air brakes

were in service on 15 cars at the head end of the train leaving Thomas yard. This transfer train was operated over main line tracks which were used by both freight and passenger trains of the St. Louis-San Francisco and other railroads, and its operation without a minimum of 85 per cent of power brakes, as well as those on associated power braked cars, being used was in violation of law.

Furthermore, at the time of the accident this train consisted of engine 979, operating backward, 60 cars, caboose, engine 1211 operating backward, and 7 loaded cars, and the evidence is that power brakes were then in use only on 27 cars at the head end of the train, and were not connected through the train to the helping engine and the loaded cars behind it. The operation of a train made up and controlled in this manner is fraught with great danger. An emergency application of the brakes from any cause, either being made manually by the engineman of the leading engine, or resulting from a burst hose, or the train parting as in this case, would cause far greater shocks than would occur if the brakes were operating throughout the train. While the conductors and enginemen of extras 979 and 1211 were directly responsible for the failure in this instance to make proper use of the air brake equipment, it was, according to testimony, an established practice of long standing to move transfer trains to the Bessemer Branch without the air brakes on all of the cars being coupled and under the control of the engineman, and, for their failure to have this practice corrected, the officials of this railroad are open to censure. Had the air brakes on all of the cars of the transfer train, including engine 1211 and the cars it was hauling, been coupled and in operation, undoubtedly the results would have been of a less serious nature.

All of the employees involved were experienced men. At the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND

Director.