

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON
THE SEABOARD AIR LINE RAILWAY NEAR BELLWOOD,
VA., ON FEBRUARY 17, 1916

On February 17, 1916, there was a derailment of a passenger train on the Seaboard Air Line Railway near Bellwood, Va., which resulted in the injury of 11 employees and 2 passengers. After investigation of this accident the Chief of the Division of Safety reports as follows:

The Richmond District of the Seaboard Air Line Railway, upon which this accident occurred, is a single-track line, over which the movement of trains is governed by time table, train orders and a manual block signal system. The derailment occurred at a trestle about 75 feet in length and 12 to 15 feet in height, over a stream known as Kingsland Creek. Approaching this trestle from the south the track is straight for about a mile while the grade is slightly descending. At the time of the accident, the weather was clear.

In the vicinity of the accident the track is on a fill about 12 to 15 feet high and is laid with 65 pound rails, 33 feet in length. There are about 18 to 21 ties to the rail, and the ballast consists of sand and gravel. The track was in good condition.

The train involved was northbound passenger train No. 10, known as the Florida Limited, en route from Miami, Fla., to New York, N. Y. This train consisted of locomotive 91 and 9

all-steel cars and was in charge of Conductor Henn and Engineer Lowry. It left Johnson Street, Raleigh, N. C. at 5:35 a.m., 2 hours and 20 minutes late, passed Petersburg, Va. at 9:55 a.m., passed Chester, Va. at 10:11 a.m. and at 10:17 a.m. was derailed at a point about 1 mile south of Bellwood, Va., while running at a speed estimated to have been about 48 miles per hour.

The engine remained on the track and came to a stop about 165 feet north of the forward end of the first derailed car; the tender remained coupled to the engine, its forward trucks being derailed. The first 5 cars of the train were derailed and turned over to the right, all five being badly damaged. The track was torn up and completely destroyed for a distance of about 250 feet.

When the equipment was examined after the derailment occurred, it was discovered that the pedestal binder of the right forward tender truck was missing. The top of the back pedestal on the front wheel was cracked through the bolt hole and bent slightly back, while one bolt was missing from the left pedestal binder. The missing binder was later found at the foot of the embankment on the right side of the track at a point about 200 feet south of the trestle. It was bent upward into a bow shape, with all bolts missing. This binder is made of wrought iron, and measures 1½ inches by 5 inches by about 7 feet long. It was not badly scarred but was polished on the under side by contact with the ties and ballast.

At intervals beginning at a point about 2,000 feet south of the trestle, marks were found on the east end of the ties which indicated that something had been bounding along on them. At some places there were 2 or 3 consecutive ties upon which these marks appeared, while at other places there were 50 or 60 consecutive ties with no mark on them. These marks were obviously made by the pedestal binder of the forward tender truck, their width corresponding with the width of the binder. At a point about 1,000 feet north of where these marks first appeared on the ties, there is located the north switch leading to a siding, and approaching this switch from the south the marks on the ties appeared more frequently, but no trace of the passage of the pedestal binder was left on the frog, it probably having been in suspension while passing over it. The pedestal binder did, however, strike the ties just clearing the frog and it caught under the receiving end of the inside angle bar of the joint in the stock rail, freeing itself by bending the angle bar upward. It then passed between the stock rail and the main line switch point, crowding the rail outward and bending the rail braces, moving them about 1 inch. The switch point was found crowded inward and bent, as was also the bridle bars of the switch. The path of the hanging binder was changed by the stock rail from the outside to the inside of the main track rail. The stock rail held fast and the truck was crowded off the rails to the left. The first wheel marks on the ties were found about 5 feet north.

of the switch and continued to the point where the train came to a stop, a distance of nearly 1,000 feet.

Engineman Lowry stated that he took charge of locomotive 91 at Raleigh, N. C., on the morning of the accident. He made an inspection of the locomotive before leaving that point and another inspection at McKenney, where a stop was made to take water. He stated that at neither of these points did he notice anything wrong with the locomotive and that he neither saw nor heard anything unusual about his locomotive until close to the trestle. At this point he felt the tender jump off the track and he immediately applied the brakes in emergency, and upon looking back saw the cars tumbling down the embankment. He was not certain about the speed he was making at the time of the derailment as the speed recorder gauge was not in working condition, but in his opinion the train was moving at a speed of about 45 or 48 miles an hour. After the accident he found the binder brace on the right forward tender truck missing, but from his inspection could not tell what caused the binder brace to come off, whether the nuts had worked loose or whether the bolts had broken, as all the bolts and nuts were missing. He further stated that he had never had any previous trouble with loose binders on this or any other locomotive.

Fireman Thomas stated that when approaching the point of accident he was working in the tender and felt the speed of

the train being reduced, and on looking out of gangway saw the first car bounding around as if derailed and at the same time he felt the tender jump off the track. He stated that he then heard the brakes being applied in emergency.

Conductor Renn stated that he was riding in the first car of the train approaching the point of accident and when close to the trestle felt the car leave the rails and immediately rushed to the rear of the car and pulled the emergency cord, hanging on to it as long as he was able to do so. He judged the speed of the train at the time of the accident to be not in excess of 45 miles an hour. He stated further that immediately after the accident in looking for a cause for the derailment, he found scars on the ties about 4 inches wide where something had dropped from the train. He examined the right side of the front tender truck and found one bottom brace gone with the front bolt holes in pedestal in good order, while the back bolt holes in rear pedestal were broken out. The front end of the brace had fallen down and by some means had fallen under the wheels, derailing them.

An inspection was made of the work report records at the roundhouse at Raleigh, which is an inspection and repair point for locomotive 91. These records showed that the bolts in the binder on the right side of the forward tender truck had been reported loose at the conclusion of the trip made by locomotive 91 on the day prior to the day of the accident.

Night Roundhouse Foreman Blackley had given Repairman Birdsell written instructions about doing the work reported on this locomotive and Repairman Birdsell had made a written report that the repairs had been made. It was also found from the records that Inspector Mitchell had reported to General Foreman Miller that he inspected locomotive 91 after repairs had been made and found that all the work that was reported had been done.

Superintendent Marshall stated that after the accident had occurred, locomotive 91 was repaired at Hermitage and returned to Johnson Street, Raleigh, on February 19th. On inspection after arrival at Johnson Street, nuts on pedestal bolts on the right side of the forward tender truck were again found to be loose, and an investigation was made to determine the cause of these nuts becoming loose. It was found that the ends of the elliptical truck spring were coming in contact with the top surface of the bottom brace in such a way as to cause a longitudinal movement of the brace and a strain against the pedestal bolts. This was a new spring which had been applied at the Portsmouth roundhouse a few days previous to the accident. This condition was corrected by removing a block or shim about 1 inch thick that had been placed between the top of the truck spring and the frame of the truck and raising the spring up to clear the bottom brace.

This derailment was caused by the front end of the tender brace on the right side of the forward truck of the tender of the locomotive dropping down and wedging between the

stock rail and switch points at a siding, throwing the rails out of alignment and allowing the wheels of the following cars in the train to drop off the rails.

Attention is directed to the fact that the bolts fastening this pedestal binder were not secured by cotter keys and it is believed that had they been so secured, this accident would not have occurred.

The fact that train No. 10 consisted entirely of heavy steel cars, is undoubtedly responsible for the absence of any fatalities and for the fact that a far greater number of passengers were not more seriously injured.

At the time of the derailment, the crew in charge of train No. 10 had been on duty 5 hours and 47 minutes.