INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3040

GULF, MOBILE AND OHIO RAILROAD COMPANY

REPORT IN RE ACCIDENT

AT TUSCOLA, MISS., ON

NOVEMBER 23, 1946

SUMMARY

Railroad:	Gulf, Mobile and Ohio
Date:	November 23, 1946
Location:	Tuscola, Miss.
Kind of accident:	Collision
Equipment involved:	Front and rear portions of passenger train
Train number:	1
Power unit:	Diesel-electric motor-car 354
Consist:	Front portion- motor-car and 1 car : Rear portion- 2 cars
Estimated speeds:	Standing : 25 m. p. h.
Operation:	Timetable and train orders
Track:	Single; tangent; 0.46 percent ascending grade southward
Weather:	Clear
Time:	5:24 a. m.
Casualties:	8 injured
Cause:	Power brakes of the rear portion of a passenger train being disconnected from the train air-brake system

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3040

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

GULF, MOBILE AND OHIO RAILROAD COMPANY

January 17, 1947.

Accident at Tuscola, Miss., on November 23, 1946, caused by the power brakes of the rear portion of a passenger train being disconnected from the train air-brake system.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On November 23, 1946, there was a collision between the front and rear portions of a passenger train on the Gulf, Mobile and Ohio Railroad at Tuscola, Miss., which resulted in the injury of three passengers, one person carried under contract, three train-service employees and one train porter.

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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 Patterson for consideration and disposition.

Inv. No. 3040
Gulf, Mobile and Ohio Railroad
Tuscola, Miss.
November 2[illegible] 1946

Location of Accident and Method of Operation

This accident occurred on that part of the Alabama Division extending between Louisville and Jackson, Miss., 113.8 miles, a single track line, over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred 66.8 miles south of Louisville, at a point 107 feet north of the station at Tuscola. From the north there are, in succession, a tangent about 2 miles in length, a 2° curve to the left 1,642 feet and a tangent 510 feet to the point of accident and a considerable distance southward. The grade for south-bound trains is, successively, 0.38 percent ascending 900 feet, 0.09 percent descending 1,000 feet, 0.40 percent descending 700 feet, level 1,000 feet, 0.20 percent descending 900 feet, 0.11 percent ascending 800 feet and 0.46 percent ascending 1,205 feet to the point of accident and 195 feet southward.

Operating rules read in part as follows:

> 724(a). * * *
>
> Cars taken into passenger trains at intermediate points must be properly inspected, and the air brake, steam heat and air signal appliances tested.
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> * * *

Bulletin instructions provide that after passenger-train cars have been coupled the slack must be stretched to insure that the knuckles are in locked position, and when stream-line equipment is being coupled at least two competent employees must observe that the cars are coupled properly.

The maximum authorized speed for the train involved was 60 miles per hour.

Description of Accident

No. 1, a south-bound first-class passenger train, consisted of Diesel-electric motor-car 354, a three-compartment type unit, one coach, one coach-sleeping car and one observation-sleeping car, in the order named. The train was being operated from the control compartment located at the front of the motor-car. This train departed from Union, the last open office, 20.9 miles north of Tuscola, at 4:08 a. m., 40 minutes late, and while it was moving at an estimated speed of 25 miles per hour the train became separated between the second and third cars. The separation occurred about 1 mile north of the station at Tuscola. The front portion of the train, which consisted of the motor-car and one car, stopped about 5:24 a. m. in the vicinity of the station at Tuscola.

Immediately afterward the rear portion, consisting of two cars and moving at an estimated speed of 25 miles per hour, struck the north end of the front portion.

The force of the impact moved the front portion of the train forward about 40 feet. The rear wheels of the front truck of the third car were derailed. The rear coupler of the second car and the front coupler of the third car were broken, and the center sills of both cars were buckled. The abutting ends of these two cars were crushed inward about 30 inches, and the side sheets were spread to a width of about 14 feet. The roof sheets were torn and bent at the ends, and the interior fixtures of the cars were considerably damaged. The fourth car was slightly damaged.

The weather was clear at the time of the accident, which occurred about 5:24 a. m.

The engineer, the conductor and the flagman were injured.

The equipment involved in this accident is of streamline lightweight-steel construction, designed for operation only in trains consisting of equipment of similar design. Each unit was constructed in accordance with specifications which provide for withstanding of end-to-end buffing stress of 200,000 pounds for passenger cars used in trains weighing between 300,000 pounds and 600,000 pounds lightweight. The weight of the equipment was 494,280 pounds. Each unit is provided with 4-wheel trucks having roller-bearings. The couplers are of tight-lock design, having tight contours in the coupler heads and knuckles, wings on each side of the coupler head, and interlocking pins and funnels on the wings. When connected the couplers form a solid beam, horizontally and vertically, to prevent lateral or vertical movement between coupler faces. When the knuckles close during coupling action, a tapered-wedge lock, located in the body of the coupler, slides horizontally forward as a result of spring action and engages the tapered surface of the tail of the knuckle and a safety latch drops to engage a 1/2-inch shoulder on the lower part of the shank to prevent the lock from moving backward. The knuckle cannot be opened until the safety latch has been raised and the wedge lock has been retracted and disengaged by means of a lever and a chain actuated from the corner of the car by a detachable crank. This action lifts the safety latch sufficiently to clear the right-angle offset so that the wedge lock can move backward to clear the knuckle tail. The shank of the coupler is connected to the draft gear by a ball-and-socket joint. Spring carriers and centering devices are provided for moving the coupler to central position upon being uncoupled. This arrangement limits the coupling function under impact proportionate to the gathering range of the coupler. In addition, the couplers involved are equipped with automatic connectors which are rigidly attached below the coupler

heads and which contain the air, electric and steam connections. These connections couple under impact and, if proper coupling has been made, no leakage of air or steam occurs.

Each unit is provided with HSC brake equipment with Decelakron control. The motor-unit is provided with an M-40 brake valve and a safety-control feature. The train-brake system is arranged for electro-pneumatic operation, automatic air-brake operation and straight-air operation. Two brake pipes are required for the varied operations, one for electro-pneumatic and automatic operations and the other for straight-air operation. In electro-pneumatic operation the control valves are actuated in response to electrical energy transmitted through the circuits in the couplers and the units to the control valves simultaneously as a result of placing the brake valve in actuating position. The brake-pipes on each unit can be closed at each end by cut-out cocks. Self-venting cut-out cocks are located in the supply pipes to each brake cylinder. The train-brake system on each unit can be cut out by closing the branch-pipe cut-out cock and releasing air pressure from the auxiliary reservoir and the supply reservoir.

Discussion

No. 1 was moving at an estimated speed of 25 miles per hour, in territory where the maximum authorized speed was 60 miles per hour, when a separation occurred between the second and third cars at a point about 1 mile north of the station at Tuscola. The front portion of the train stopped at the station at Tuscola, and immediately afterward the front portion was struck by the rear portion.

The investigation disclosed that the last terminal air-brake test of the equipment of No. 1 prior to the time the accident occurred was made before this train departed from Jackson, Tenn., 256.9 miles north of Tuscola. At that time the train consisted of units Nos. 354, 373 and 395. At Union, Miss., 26.9 miles north of Tuscola, unit No. 381 was placed in the train between units No. 373 and No. 395. No air-brake test of the equipment was made at this point before No. 1 departed. The train had proceeded about 12 miles southward from Union and was preparing to stop at the station at Sebastopol 14.2 miles north of Tuscola, when an undesired emergency brake application occurred. After the brake-pipe pressure was restored, the brakes were released and the train proceeded to the station where work was performed. Then No. 1 proceeded and had reached a point about 900 feet south of the station at Sebastopol when another undesired emergency brake application occurred. The conductor and the train porter inspected the train and found excessive leakage of air at the automatic train-line connectors between the second and third cars. These employees examined the couplers at this location and thought the couplers were closed tightly and that the safety latches were properly engaged. In

order to avert further delay, the conductor closed the cut-out cock at the rear of the second unit, then air pressure was released from the brake-cylinders of the rear two units and, after the conductor had informed the engineer that the train-brake system was operative only on 50 percent of the train, No. 1 proceeded to Walnut Grove, 5 miles north of Tuscola. At Walnut Grove the conductor notified the dispatcher of the condition of the train-brake system and informed him that No. 1 would proceed at a speed not in excess of 25 miles per hour to Jackson, Miss., 52 miles southward. The conductor did not ask for instructions from the dispatcher, and none were given him. No. 1 was approaching Tuscola at a speed of about 25 miles per hour when a separation occurred between the second and third units. The engineer was in the control compartment at the front end of the first unit, the train porter and the flagman were in the second unit, and the conductor was in the third unit. These employees were not aware that the train had parted until after the collision occurred. The engineer said that when the train was a short distance north of Tuscola, he made a light application of the brakes and the speed was reduced to about 10 miles per hour. Then the brakes were released and the front portion of the train drifted to a stop in the immediate vicinity of the station, without further action being taken by the engineer. Immediately afterward the collision occurred.

Examination after the collision occurred disclosed that the heads of the couplers between the second and the third units were broken, as a result of the collision, but the knuckles were closed and engaged. The contours of the coupler heads and knuckles were within required limits. The sliding wedge-locks and safety latches were in good condition and the internal mechanism of the couplers was well lubricated. The gaskets of the train-line connectors were in good condition and no condition was found that would permit leakage of air between the second and third units if the couplers were properly engaged and locked. Tests of couplers and train-line connectors similar to those involved disclosed that air leakage would not occur at the train-line connectors unless the tight-lock wings of opposing couplers were separated at least 3/4-inch. If couplers of this type are properly engaged and locked, the tail of the knuckle presses firmly against the tapered wedge-lock and the lock cannot move during the pulling of draft. Therefore, if the lock is not seated during coupling impact, it cannot seat after the train is in motion. Apparently, when the third unit was added to the train at Union the wedge-lock on one of the couplers between the second and third units failed to seat and to lock properly.

Instructions governing the handling of this type of equipment provide that at least two competent employees must observe the couplings between the units and must know that the couplers are securely engaged and that the safety latch has dropped to proper position. When the unit was placed in the train at Union, the

flagman and the train porter observed the coupling between the second and third units, and the conductor and the porter observed the coupling between the third and fourth units. After the train was twice stopped by undesired brake applications in the vicinity of Sebastopol, the conductor and the porter examined the couplers involved. During each observation these employees thought the couplers and the safety latches were properly engaged. These observations were made by using electric hand lanterns. Because of the stream-line skirting on the equipment, observation of the position of the safety latches is restricted so that it is necessary for a person examining the lock to look upward under the couplers from a position below the skirting.

At the time the separation occurred between the second and third units of No. 1 the brake systems of the third and fourth units had been cut out. Under the Safety Appliance law all trains are required to be equipped with power brakes and controlled by them, and not less than 85 percent of the cars of such trains are required to have their brakes used and operated by the engineer of the locomotive drawing such train. When the separation occurred No. 1 was being operated with only 50 percent of the brakes in use. Therefore, the movement of this train between the points involved was in violation of the Safety Appliance law. If the air brakes of the third and fourth cars had been in use, both the front and rear portions of the train would have been stopped by an emergency application of the brakes at the time the train became separated, and the accident would not have occurred.

Cause

It is found that this accident was caused by the power brakes of the rear portion of a passenger train being disconnected from the train air-brake system.

Dated at Washington, D. C., this seventeenth day of January, 1947.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.