

RAILROAD ACCIDENT INVESTIGATION

Report No 3918

CENTRAL OF GEORGIA RAILWAY COMPANY

MACON, GA

JUNE 18, 1961

INTERSTATE COMMERCE COMMISSION

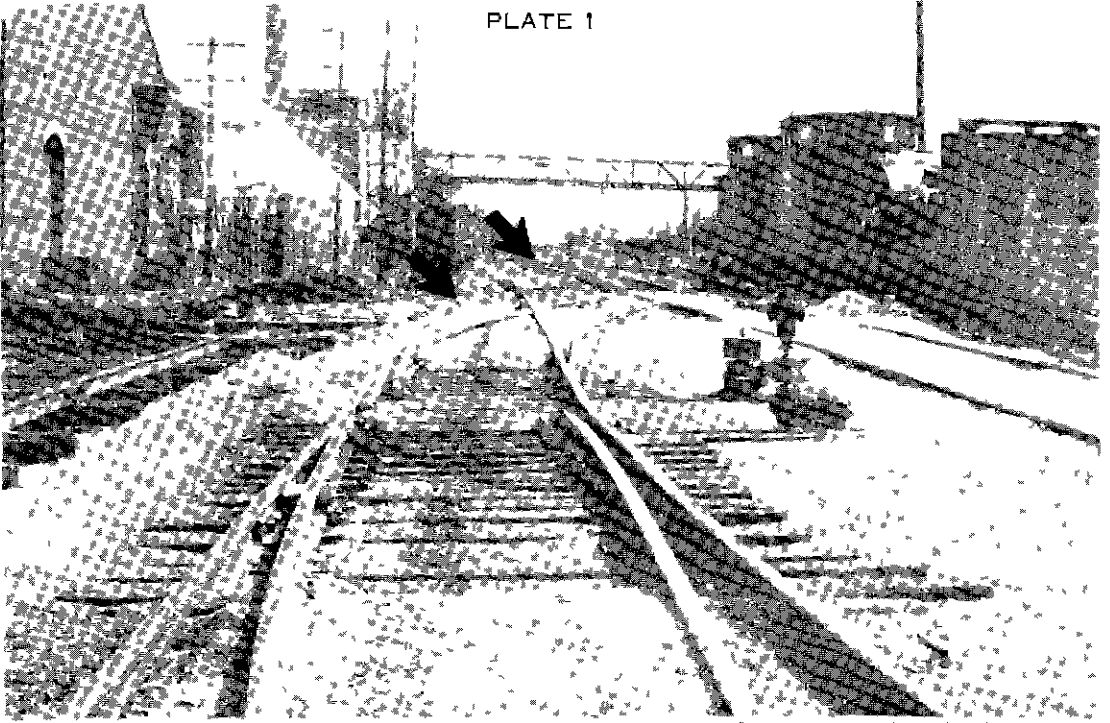
Washington

SUMMARY

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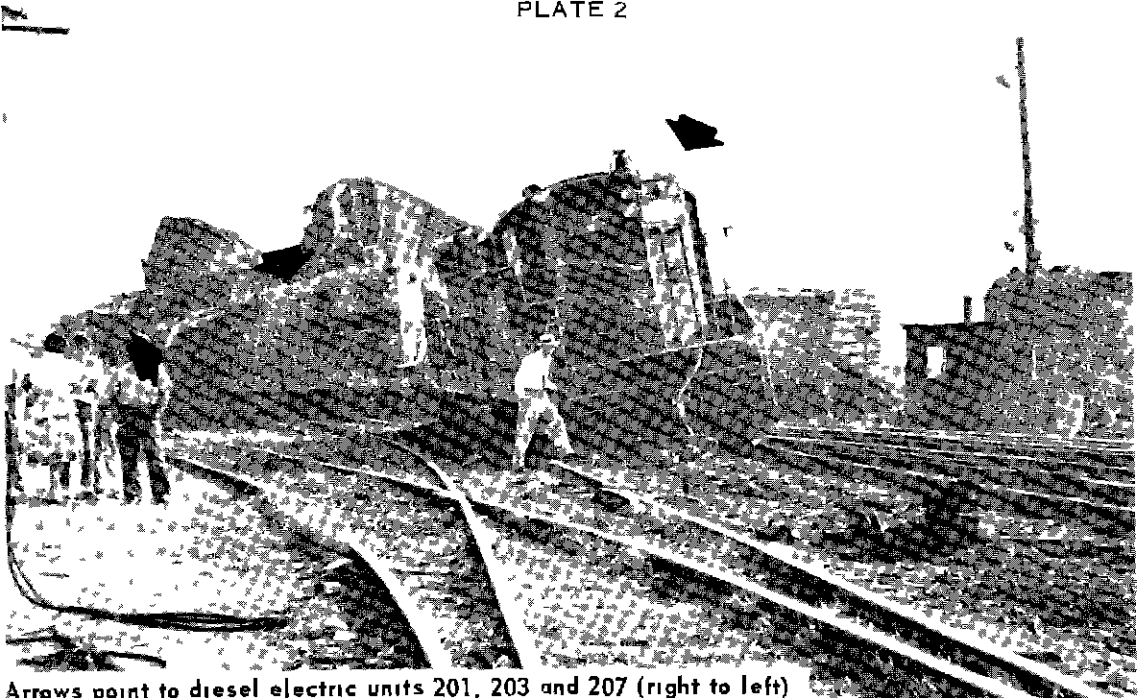
DATE	June 18, 1961
RAILROAD	Central of Georgia
LOCATION	Macon, Ga
KIND OF ACCIDENT	Deraiment
TRAIN INVOLVED	Freight
TRAIN NUMBER	88
LOCOMOTIVE NUMBERS	Diesel-electric units 133, 118, 201, 203, 207
CONSIST	131 cars, caboose
ESTIMATED SPEED	45 m p h
OPERATION	Yard limits
TRACK	Crossover, 12°25' curve; 0 60 percent descending grade eastward
WEATHER	Clear
TIME	6-45 p m
CASUALTIES	1 Injured
CAUSE	Train moving out of control and entering a crossover at an excessive rate of speed, as a result of failure to make required air brake tests
RECOMMENDATION	That the Central of Georgia Railway immediately take action to issue necessary instructions to insure compliance with all requirements of the rules, standards and instructions prescribed by the Power Brake Law of 1958, and the Orders of this Commission relating thereto

PLATE 1



Arrow at left points to lead track of "400" yard Arrow at right points to "A" lead and shows direction of No 88 approaching crossover involved (center of picture) Macon Jct interlocking is shown under bridge at top center

PLATE 2



Arrows point to diesel electric units 201, 203 and 207 (right to left)

INTERSTATE COMMERCE COMMISSION

REPORT NO 3918

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

CENTRAL OF GEORGIA RAILWAY COMPANY

October 27, 1961

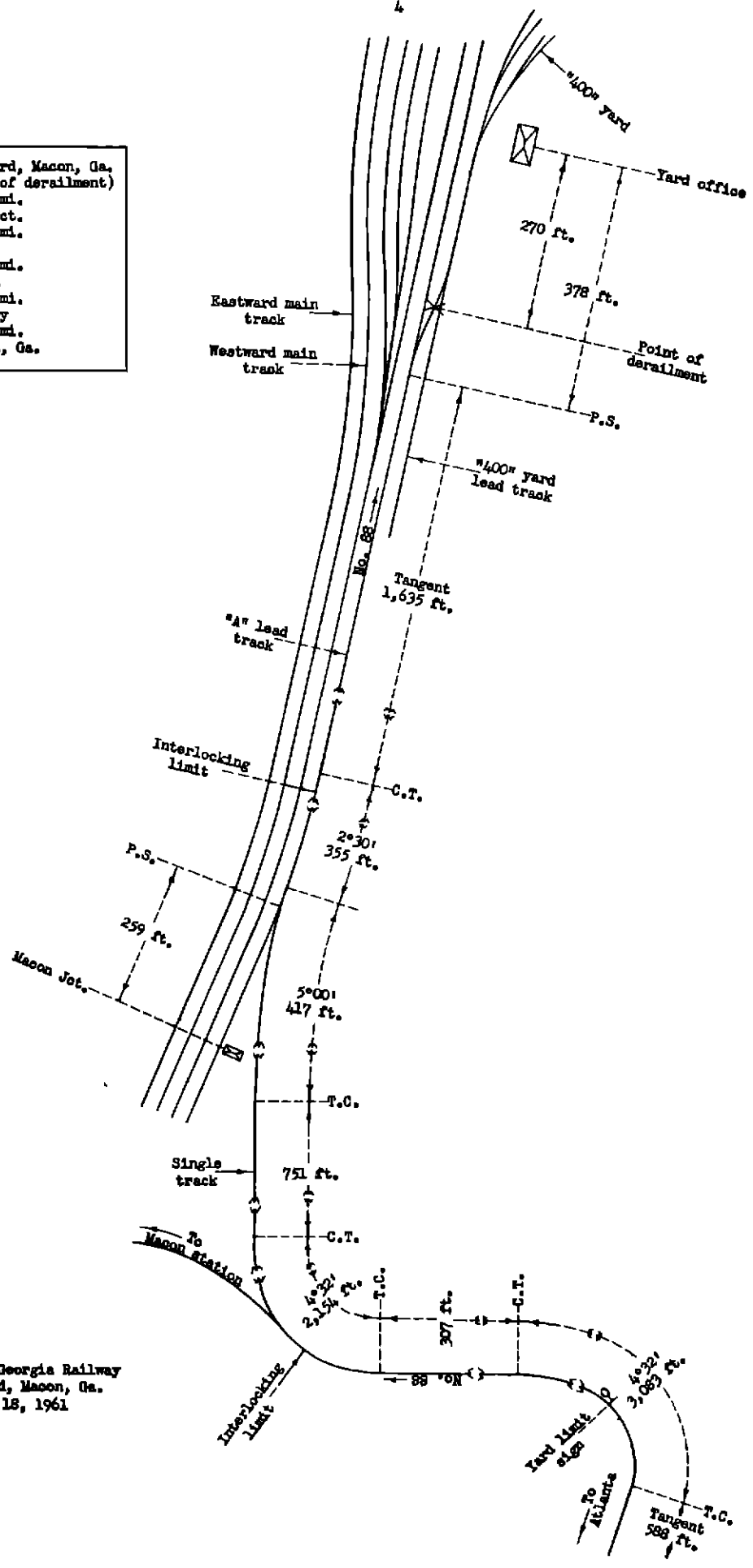
Accident at Macon, Ga , on June 18 1961, caused by a train moving out of control and entering a crossover at an excessive rate of speed, as a result of failure to make required air brake tests

REPORT OF THE COMMISSION¹***SAFETY AND SERVICE BOARD NO 1***

On June 18, 1961, at Macon, Ga , there was a derailment of a freight train on the Central of Georgia Railway, which resulted in the injury of 1 train-service employee and in property damage of approximately \$250,000

¹Under authority of section 17 (2) of the *Interstate Commerce Act* the above-entitled proceeding was referred by the Commission to Safety and Service Board No 1 for consideration and disposition

- I West Yard, Macon, Ga.
(Point of derailment)
- Macon Jct. 0.5 mi.
- Payms 3.7 mi.
- Payms 55.3 mi.
- Griffin 37.8 mi.
- Industry 4.7 mi.
- Atlanta, Ga.



Central of Georgia Railway
 West Yard, Macon, Ga.
 June 18, 1961

Location of Accident and Method of Operation

This accident occurred within yard limits on that part of the Macon Division extending between Macon Jct and the yard office at West Yard, Macon, Ga, a distance of 2,669 feet. At West Yard, a system of several yard tracks parallels a double-track line on the south, as shown in the sketch. The yard office is on the south side of these tracks at the west end. The yard tracks immediately south of the double-track line are numbered in the 500 series. A lead track, designated as "A" lead, extends westward from the west end of this series of tracks and parallels the double-track line on the south. The yard tracks farther south from the double-track line are numbered in the 400 series and comprise what is known as the "400" yard. A lead track extends westward from the west end of "400" yard and parallels "A" lead on the south at a distance of about 13 feet between centerlines. A crossover connects "A" lead to the lead track of "400" yard. The west switch of this crossover is facing-point for eastbound movements on "A" lead and is 378 feet west of the yard office. An interlocking is located at Macon Jct. "A" lead extends westward to a point within this interlocking 259 feet east of the interlocking station. A single-track line extends northwest from this point toward Atlanta, Ga, 101.6 miles. A yard-limit sign designating the west limit of the yard at Macon, on the single-track line, is located 5,034 feet west of the interlocking station at Macon Jct. The east end of this interlocking is located 554 feet east of the interlocking station, and the west end on the single-track line is 1,874 feet west of the interlocking station.

The derailment occurred on the crossover connecting "A" lead to the lead track of the "400" yard, at a point approximately 270 feet west of the yard office at West Yard, Macon. From the west on the single-track line and "A" lead, there are, in succession, a tangent 588 feet in length, a $4^{\circ}32'$ curve to the left 3,083 feet, a tangent 307 feet, a $4^{\circ}32'$ curve to the right 2,154 feet, a tangent 751 feet, a reverse curve having a $5^{\circ}00'$ curve to the right 417 feet and a $2^{\circ}30'$ curve to the left 355 feet, and a tangent 1,635 feet to the west switch of the crossover. From the west on the crossover there are, successively, a $12^{\circ}25'$ curve to the right 60 feet, a tangent 42 feet, and a $12^{\circ}25'$ curve to the left 60 feet to the east switch of the crossover. From Payne, 4.2 miles west of West Yard, the average grade for eastbound trains is 0.68 percent descending to the point of accident.

The structure of "A" lead consists of 90-pound rail, 33 feet in length, relaid on an average of 20 ties to a rail length. It is fully tieplated with single-shoulder tie plates, single-spiked, and is provided with 4-hole, 24-inch joint bars and an average of 6 rail anchors per rail. It is ballasted with cinders to an average depth of 5 inches below the bottoms of the ties.

The crossover involved is 162 feet in length and is provided with No. 8 frogs.

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

DEFINITIONS

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

Note—The definition of a "FIXED SIGNAL" covers such signals as switch, train order yard limit signs, speed limit signs, * * *, or other means for displaying indications that govern the movement of a train or engine.

* * *

Signal Aspect—The appearance of a fixed signal conveying an indication as viewed from the direction of an approaching train, * * *

Signal Indication—The information conveyed by the aspect of a signal.

Yard Speed—A speed that will permit stopping within one-half the range of vision.

When an engineman fails to control speed of train or engine in accordance with the signal indication other members of the crew will take necessary action to insure safety of train or engine

CONDUCTORS

819 At stations where * * * they are in charge of making up their trains, and where no car inspectors are employed, they must, with the assistance of the trainmen, make proper inspection of their trains, must conduct the air-brake * * * tests, and must detach any cars that cannot be made safe to run. Cars taken into trains en route must be properly inspected, the air-brake * * * tested

ENGINEMEN AND FIREMEN

887 They must know that all connections between engine and the train, also between units, if two or more are coupled, are properly and securely made

Special instructions of this carrier read as follows

Bulletin No 61-187

Macon - February 6 1961

ALL CONCERNED

* * *

Pertinent requirements, for Main Line Trains, of Paragraph 132 12 Of the Power Brake Law are

BRAKE TEST MUST BE MADE

- (1) Where a train is originally made up (initial terminal)
- (2) Where train consist is changed other than by adding or removing a solid block of cars and train brake system remains charged
- (3) Where train is received in interchange

Brake system must be charged to within 15 pounds of feed valve setting, but not less than 60 pounds as indicated by gauge at rear of train. Upon proper signal, engineman will make a 15-pound service reduction, lap the brake valve, and observe his brake pipe leakage for one minute after which reduction must be increased to full service (20 pounds). Brake Pipe Leakage MUST NOT exceed Five pounds per minute. At points where car inspectors are not employed, crew member or members must walk train to see that brakes apply on all cars. After it is known that all brakes are applied a release signal must be given. After engineman releases the brakes the complete train must be checked to insure that all brakes have released.

All brake tests, on Main Line Trains, must be made in accordance with these requirements

* * *

Applicable provisions of the Power Brake Law of 1958 read in part as follows

132 10 General rules, locomotives * * *

(b) It must be known that air brake equipment on locomotives is in a safe and suitable condition for service

132 13 Road train and intermediate terminal train air brake tests * * *

* * *

(d)(1) At a point other than a terminal where one or more cars are added to a train, and after the train brake system is charged to not less than 60 pounds as indicated by a gauge at the rear of freight train * * *, tests of air brakes must be made to determine that brake pipe leakage does not exceed five (5) pounds per minute as indicated in the brake pipe gauge after a 15 pound brake pipe reduction. After the leakage test is completed, brake pipe reduction must be increased to full service, and it must be known that the brakes on each of these cars and on the rear car of train apply and release * * *

The maximum authorized speed for all trains within the limits of the interlocking at Macon Jct is 15 miles per hour, and is further restricted to not exceeding 12 miles per hour through yard turnouts

Description of Accident

No 88, an eastbound first-class freight train, consisting of road-switcher type diesel-electric units 133 201 203 and 207, coupled in multiple-unit control, 90 cars and a caboose, departed from Industry, 4 7 miles east of Atlanta, at 3 49 p m , 49 minutes late. Before departing from this point the members of the crew received copies of a message reading as follows:

PICK UP ENGINE 118 AT GRIFFIN AND HANDLE TO MACON. THIS ENGINE SHOULD BE HANDLED IN LEAD OR BETWEEN UNITS AS CONTROLS CAN BE WORKED. DO NOT HANDLE IN TOW.

This train proceeded 37 8 miles eastward to Griffin, where road-switcher type diesel-electric unit 118 was picked up and placed immediately to the rear of diesel-electric unit 133 and in front of the remaining three units of the locomotive. A block of 41 cars was also placed in the train ahead of the original consist of 90 cars. No 88 then departed from Griffin about 5 25 p m , 1 hour 25 minutes late, without the air brakes having been tested as required by the Power Brake Law of 1958. Before departing from Griffin, the members of the crew received copies of train order No 3, which read in part as follows:

REDUCE SPEED TO 10 MPH BETWEEN 193 3 AND 193 7 MP.

The points designated in this train order are, respectively, 1 3 and 1 7 miles west of the interlocking station at Macon Jct. No 88 passed Payne, 3 7 miles west of Macon Jct , and while its speed was increasing from about 40 miles per hour to 45 miles per hour it proceeded through the territory where the speed was restricted to 10 miles per hour by train order No 3, moved through the interlocking at Macon Jct. entered "A" lead, and continued eastward. About 6 45 p m , while moving at an estimated speed of 45 miles per hour, it entered the crossover connecting "A" lead to the lead track of the "400" yard, where the speed was restricted to not exceeding 12 miles per hour and where all five units of the locomotive became derailed at a point approximately 270 feet west of the yard office at West Yard, and the 1st to the 31st cars, inclusive, also became derailed. Derailed equipment of the train struck and derailed 8 cars that were standing on an adjacent yard track.

Separations occurred at both ends of the 3rd diesel-electric unit and between the derailed cars. The 1st diesel-electric unit, with the 2nd unit attached, stopped with the front end about 485 feet east of the point of derailment. All five diesel-electric units stopped upright in various leaning positions on or near the structure of the lead track of "400" yard. The derailed cars stopped in various positions near the crossover. Two of the diesel-electric units were heavily damaged, and the other three units were somewhat damaged. Of the 31 derailed cars of the train and the 8 derailed cars that were standing on the adjacent yard track, 23 were destroyed, 5 were heavily damaged, 6 were considerably damaged and 5 were slightly damaged.

The fireman of No 88 was injured.

The estimated cost of damages resulting from the derailment was \$250,000.

The weather was clear at the time of the accident which occurred about 6 45 p m.

Each of the five diesel-electric units of No 88 was provided with 24-RL type brake equipment having a D-24 automatic brake valve, a S-40-F independent brake valve and a K-2-A rotar valve. When in trailing position in a multiple-unit locomotive, a unit with this type of brake equipment is required to have the handle of the brake pipe cut-out cock in "Out" position, the handle of the rotar valve in "Freight Lap" position, the independent brake valve in "Release" position, and the automatic brake valve in "Running" position. When so arranged, the automatic brake valve of

a trailing unit is inoperative, unless the handle is moved to "Emergency" position. Supplying or reducing brake pipe pressure is a function of the leading unit of the locomotive, from which the brakes of the train are to be controlled. On the lines of this carrier, pressure regulating devices on locomotive units in freight service are normally adjusted to maintain main reservoir pressure of 130 to 140 pounds and brake pipe pressure of 80 pounds. The diesel-electric units of No. 88 were provided with angle cocks in the brake pipe at both ends, with the exception of unit 118. This unit was provided with an angle cock in the brake pipe at the west end and a straight cock at the east end. The angle cock was in open position when the handle was parallel to the brake pipe, and the straight cock was in open position when the handle was perpendicular to the brake pipe.

All units of the locomotive, the caboose and the yard office at West Yard, were provided with radio-telephone equipment. The equipment in the caboose was of the portable type and was inoperative when the receiver was in its holder. The caboose was also provided with an A-2 type conductor's valve.

The locomotive was equipped with speed-recording devices, however, none of these devices was provided with tape on the day of the accident.

In the vicinity of Griffin the railroad is a double-track line. A system of yard tracks is located at Griffin, and yard tracks Nos. 1 to 5, inclusive, parallel the eastward main track on the south. No car inspectors were on duty during the period No. 88 was at this point on the day involved.

Discussion

About 8:20 a. m., on the day of the accident No. 44, a freight train having a locomotive comprised of six diesel-electric units, arrived at Griffin with a serious leak in the fuel oil system of the sixth unit, road-switcher type diesel-electric unit 118. The locomotive was then detached from the train, after which it proceeded to an auxiliary track designated as the house track, where disabled unit 118 was set out for later movement to repair facilities at Macon. The fireman of No. 44 said that unit 118 was left standing on the house track with the engine stopped, the handle of the rotar valve in "Freight" position, the handle of the brake pipe cut-out cock of the automatic brake valve in "In" position, the automatic brake valve in "Running" position with the handle removed, the handle of the independent brake valve in "Full Application" position, and with the hand brake applied. Soon afterward a yard locomotive was coupled to unit 118 and the brake pipe air hose were coupled. The fireman of the yard locomotive said that he released the hand brake of unit 118, and that after a yard brakeman informed him the brakes of this unit were released he returned to his position on the yard locomotive. Although the fireman of No. 44 said he had left the handle of the independent brake valve in "Full Application" position, the fireman of the yard locomotive said this handle was in "Release" position when he observed it. The yard locomotive with unit 118 then performed several switching operations, after which it placed unit 118 with one car on the east end of track No. 2 for movement to Macon. Both enginemen of the yard locomotive said they did not change the positions of any controls on unit 118. Later during the same day a block of 40 cars, with the air hose coupled, was assembled on track No. 1 for movement eastward by No. 88.

No. 88, consisting of road-switcher type diesel-electric units 133, 201, 203 and 207, coupled in multiple-unit control 90 cars and a caboose, departed from Industry at 3:49 p. m., after having received an initial terminal road train air brake test, and the brakes functioned properly when used en route to Griffin. The conductor said that while the train was proceeding to this point he noticed the brake pipe pressure was 80 pounds, as indicated by the air gauge in the caboose. At 4:49 p. m. the engineer stopped the train on the eastward main track at Griffin by use of the automatic brake, and the locomotive was immediately detached from the train. It then entered a lead track at the east end of the Griffin yard to pick up disabled diesel-electric unit 118 from track No. 2 as

instructed by the message received at Industry, and to pick up the block of 40 cars on track No 1 as well as the car attached to the west end of unit 118. Before picking up this equipment the locomotive entered the east end of track No 5, where leading unit 133 was detached from the trailing units. This unit then moved to the east end of track No 2 and was coupled to disabled unit 118, after which the engineer connected the electrical control jumper cable between the two units while the front brakeman and the fireman coupled the brake pipe air hose and four other air hose used in multiple-unit control. Although later events and tests indicated otherwise, the front brakeman and the fireman said that after coupling the brake pipe air hose, both the handle of the angle cock in the brake pipe at the rear end of unit 133 and the handle of the straight cock in the brake pipe at the forward end of unit 118 were moved to open position. When the jumper cable was connected, the engineer entered the control compartment of unit 118 and pulled the battery switch out to stop the fuel pump motor, because of the leak in the fuel system. He said that he then checked the controls in this compartment to determine whether they were in proper positions for movement of unit 118 as a trailing unit of the locomotive of No 88. He said that he found the rotair valve in "Freight Lap" position, and the independent and the automatic brake valves in "Release" and "Running" positions, respectively. Although subsequent events and tests indicated otherwise, he also said that the brake pipe cut-out cock of the automatic brake valve was in "Out" position when he observed it, and that he did not change the position of this cut-out cock. The engineer then returned to the control compartment of unit 133, after which both units proceeded to the east end of track No 1 where the car attached to the west end of unit 118 was coupled to the east end of the block of 40 cars. Both units then moved to track No 5, where unit 118 was coupled to diesel-electric unit 201, making a five-unit locomotive consisting of leading unit 133, and trailing units 118, 201, 203 and 207, in that order. The engineer said that after the jumper cable and the air hose were connected between units 118 and 201, the fireman and he tested the independent and the automatic brakes of the locomotive. The fireman said that he was on the ground during these tests, and that he observed the brakes of each unit function properly when tested.

After the locomotive of No 88 was reassembled on track No 5, it proceeded to track No 1 and was coupled to the block of 41 cars. When the brake system was charged, the locomotive with 41 cars proceeded to the eastward main track and was coupled to the rear portion of the train. The engineer said that he controlled this movement by simultaneous use of the independent and the automatic brake valves. He was uncertain, however, as to whether the automatic brake was effective, because of the slow speeds involved. When the train was assembled on the eastward main track, the conductor coupled the air hose between the 41st and the 42nd cars, and instructed the engineer by use of his portable radio-telephone that the train could depart from Griffin as soon as its brake system was charged. He then proceeded toward the caboose, which he boarded a few minutes later as the train was departing from Griffin. He said that prior to boarding the caboose at Griffin he observed that the brakes of the rear portion of the train were released, and that after boarding the caboose he observed the brake pipe pressure was increased to 85 pounds, as indicated by the air gauge. The train, consisting of diesel-electric units 133, 118, 201, 203 and 207, 131 cars and a caboose, then departed from Griffin without having had an air brake test as required by the Power Brake Law of 1958. The conductor said that because of instructions issued by the Superintendent of the Macon Division in Bulletin No 61-187, dated February 6 1961, there was a general understanding among train-service employees that a brake test was not required after setting out or picking up cars at a point other than a terminal, if the consist of the train was changed only by adding or removing a solid block of cars and the train brake system remained charged.

As No 88 was approaching the point where the accident occurred the speed was about 35 miles per hour, according to statements of members of the crew. The enginemen were in the control compartment of the first diesel-electric unit, and the front brakeman was in the control compartment of the third unit. The conductor and the flagman were in the caboose. The brakes had not been tested at Griffin as required and, according to the engineer, no attempt to use the brakes had been

made between that point and Payne, a distance of 55.3 miles. As the train was moving eastward in the immediate vicinity of Payne, the conductor used his portable radio-telephone to remind the engineer of train order No. 3, which required the speed to be reduced to not exceeding 10 miles per hour between points 1.7 and 1.3 miles west of Macon Jct., and the engineer replied that he was about to reduce the speed as required by the train order. The engineer said that when the train reached a point about 2.5 miles west of Macon Jct. the speed on the descending grade was increased to about 40 miles per hour, and that at this time he moved the handle of the automatic brake valve to initiate a 3-to-5-pound service brake-pipe reduction while he simultaneously depressed the handle of the independent brake valve to prevent application of the locomotive brake. He said that this application of the automatic brake valve did not reduce the speed, and that when the train had proceeded to a point approximately 2.1 miles west of Macon Jct. he again moved the handle of the automatic brake valve to obtain a 20-pound brake pipe reduction. Soon afterward, when the train was entering the territory where the speed was restricted by train order No. 3, the engineer observed that the speed of the train was not being reduced and realized that service applications of the automatic brake valve were ineffective. He immediately moved the handle of this valve to emergency position, and also placed the independent brake valve in "Full Application" position. He said that he heard a loud exhaust when he released the handle of the independent brake valve from its depressed position, and that he also heard a somewhat light exhaust from the automatic brake valve. He then realized that the emergency application of the automatic brake valve was also ineffective. The fireman said that about this time he operated the emergency brake valve located on his side of the control compartment but heard no air exhaust, indicating that brake pipe pressure on this unit was already depleted. The engineer said that he then made an unsuccessful attempt to call the conductor by radio-telephone for the purpose of having him apply the brake from the rear end of the train by use of the conductor's valve in the caboose. The conductor, however, did not hear this call, evidently as a result of his portable radio-telephone being inoperative because of the receiver being in its holder. The engineer then communicated by radio-telephone with the yardmaster at West Yard and after informing him that the train was approaching out of control, he requested the yardmaster to call the conductor by radio-telephone and instruct him to apply the brake by means of the conductor's valve. After the engineer completed this call, the train entered "A" lead at the Macon Jct. interlocking and continued eastward toward the yard tracks at West Yard. The engineer said the speed was increased to about 45 miles per hour, when the train entered the crossover connecting "A" lead to the lead track of "400" yard and the derailment occurred. The engineer alighted from the first diesel-electric unit after the derailment occurred and observed that separations had occurred at both ends of the third unit. He said that he then heard air escaping from separated air hose at the rear of the second unit, 118, and that he stopped this flow of air by closing the angle cock in the brake pipe at the rear of this unit and by also closing the main reservoir equalizing cock.

The front brakeman said that the radio-telephone equipment in the control compartment of the third unit was operative, and that he was unaware of anything being wrong until he overheard the engineer using the radio-telephone to inform the yardmaster about the train moving out of control. He said that he then observed a large amount of sparks being emitted from underneath the locomotive, apparently as a result of the locomotive brake becoming applied at the time the engineer placed the handle of the independent brake valve in "Full Application" position. He said that he did not attempt to stop the train by operation of the emergency brake valve located on the fireman's side of the control compartment of the third unit, and that he alighted from this unit as it was entering the crossover.

The flagman said that after the conductor reminded the engineer of the speed restriction designated in train order No. 3 he observed the air gauge in the caboose did not indicate that the brake pipe pressure had been reduced. The flagman called this to the attention of the conductor, who replied that the engineer had advised he was about to apply the brakes. Soon afterward, the flagman

observed that the train was moving at an excessive rate of speed as it entered the territory designated in train order No 3, and he advised the conductor to communicate again by radio-telephone with the engineer and instruct him to reduce the speed. The conductor said that he picked up the portable radio-telephone at this time to call the engineer, and that when he lifted the receiver from its holder he heard a faint unidentified voice, apparently that of the yardmaster at West Yard, saying "Put the brakes on". He said that he did not realize at this time that the train was moving out of control. He said, however, that because the train was moving at excessive speed in territory where it was restricted by train order No 3 to a speed not exceeding 10 miles per hour, he immediately moved the handle of the conductor's valve to a position midway between "Lap" and "Full Application" positions, initiating a service application of the automatic brake. He said that soon afterward, as he was about to increase this service application, an emergency application of the brakes occurred. Apparently this application was a result of the derailment.

Examinations of the equipment made about one hour after the accident occurred disclosed that the brake shoes on all five units of the locomotive were hot with some completely worn through, indicating that the locomotive brake had been heavily applied in approach to the point of accident. The brakes of the cars in the train were found applied. However, the wheels and the brake shoes of the cars showed no indications of heating or heavy braking action in approach to the point of accident. Angle cocks of the cars were properly positioned. All cocks and valves at both ends of the air system of each locomotive unit were found in proper positions, except the brake pipe angle cock and the main reservoir equalizing cock at the west end of unit 118, which the engineer said he had closed after the accident occurred. All brake pipe air hose of the locomotive were in good condition, except the hose at the rear of unit 118. A blister was found on the inside surface of this air hose, however, tests disclosed that it did not materially affect flow of air through the hose. Examination of the control compartment of leading diesel-electric unit 133 found the automatic brake valve in "Emergency" position, the independent brake valve in "Full Application" position, the rotar valve in "Freight" position, the throttle in "Idle" position, and the reverser handle in forward position. At the time of this examination the controls in the control compartments of each of the other units of the locomotive were found properly positioned for movement of these units in trailing position.

Examination of the track structures involved disclosed that the crossover was destroyed. The structure of "A" lead was also destroyed throughout a distance of about 350 feet east of the west crossover-switch, and the structure of the lead track of "400" yard was destroyed between points 160 feet east and 100 feet west of the east crossover-switch. It is apparent that as a result of the train entering the crossover at excessive speed, the ties and the rails of the crossover were displaced, causing the derailment to occur.

Several days after the accident occurred the five units of the locomotive were reassembled, and after piping was repaired several brake tests were conducted. During these tests the locomotive, consisting of leading unit 133 and trailing units 118, 201, 203 and 207, in the same order as on the day of the accident, was coupled to five cars and a caboose. The air hose were connected, and all angle and straight cocks in the brake pipe were placed in proper position. The air pressure regulating devices of unit 133 were adjusted to maintain 80-pound brake pipe pressure and 130 to 140 pounds pressure in the main reservoir. A test disclosed that when the controls of unit 133 were in proper positions for movement of this unit as a leading unit of a multiple-unit locomotive and the controls of units 118, 201, 203 and 207 were in proper positions for movement of these units as trailing units, the brakes of the test equipment functioned properly under service and emergency applications made from either the automatic brake valve of leading unit 133, or the conductor's valve in the caboose. The independent brake valve was also tested and functioned properly. The emergency brake valve located on the fireman's side of the control compartment of this unit also functioned as intended. When a period of five minutes had elapsed during an emergency application

from the automatic brake valve of unit 133, the brake pipe air hose and the main reservoir equalizing air hose between units 118 and 201 were uncoupled without closing the angle cocks and the straight cocks, in order to simulate the separation occurring between these units as a result of the accident. Under these conditions, there was a continuous air exhaust from the main reservoir equalizing hose, but no air exhaust from the brake pipe hose.

In another test, the straight cock in the brake pipe at the forward end of unit 118 was placed in closed position and the rotar valve in the control compartment of this unit was placed in "Freight Lap" position with the brake pipe cut-out cock of the automatic brake valve in "In" position, instead of "Out" position as required when this unit is operated as a trailing unit of a multiple-unit locomotive. With these valves and cocks of unit 118 in such positions, the handle of the independent brake valve of leading unit 133 was moved to "Full Application" position and the brakes applied on all five units of the locomotive. When the handle of the independent brake valve was depressed to prevent application of the locomotive brakes and the handle of the automatic brake valve was moved to make a service brake pipe reduction, there was a light exhaust from the automatic brake valve and none of the brakes of the test equipment became applied. When the handle of the independent brake valve was not depressed and the automatic brake valve was placed in "Emergency" position, there was a normal exhaust for a very short period, and the brakes became applied on leading unit 133 only. While these brake valves were in such positions, the emergency brake valve on the fireman's side of the control compartment was opened. No air exhausted from this valve, and the brakes on the test equipment to the rear of unit 133 did not apply. The air hose of the brake pipe and the main reservoir equalizing pipe at the rear of unit 118 were then uncoupled to simulate the separation occurring between units 118 and 201 when the accident occurred. Under these conditions air continuously exhausted from the separated hose of both pipes, as found by the engineer of No. 88 soon after the accident occurred.

In view of the results of the brake tests made after the accident occurred, the results of the engineer's manipulation of the independent and the automatic brake valves of leading unit 133 as No. 88 approached the point of derailment, and the conditions in which the brake shoes and wheels of the locomotive and cars were found after the accident occurred, it is evident that as No. 88 was approaching Macon either the straight cock in the brake pipe at the forward end of unit 118, or the angle cock in the brake pipe at the rear of unit 133, was in closed position. Under these circumstances, the automatic brakes of the four trailing diesel-electric units and the following equipment could not be applied or released from the automatic brake valve of leading unit 133. The brakes of all units of the locomotive, however, could be applied and released by operation of the independent brake valve of unit 133. It is also evident that the rotar valve of unit 118 was in "Freight Lap" position, with the brake pipe cut-out cock of the automatic brake valve of this unit in "In" position, instead of "Out" position as required, and the brake valve in running position. Under these conditions, the pressure regulating device of unit 118 maintained brake pipe pressure in the brake system of the four trailing diesel-electric units and the cars in the train. Since the conductor observed that the brake pipe pressure was 80 pounds as the train proceeded en route to Griffin, and that the brake pipe pressure was increased to 85 pounds after unit 118 and the block of 41 cars were added to the train, it is apparent that the brake pipe cut-out cock in the automatic brake valve of unit 118 was in "In" position, instead of "Out" position as required, when this unit was added to the locomotive at Griffin. With this brake pipe cut-out cock in "In" position and a closed cock in the brake pipe between leading unit 133 and unit 118, the automatic brakes of the four trailing diesel-electric units and following equipment could not be controlled from the automatic brake valve of unit 133. However, they could have been applied by the automatic brake valve of unit 118, by emergency application from the automatic brake valve or the fireman's emergency brake valve of each trailing unit, or by operation of the conductor's valve in the caboose.

If a brake test had been made as required by Section 132 13 (d)(1) of the Power Brake Law of 1958 after the train was reassembled at Griffin, the improper conditions on the locomotive could have been found and corrected, and the accident would have been averted. In addition, if the conductor's valve in the caboose had been operated sufficiently when the conductor and the flagman observed that the train was moving at excessive speed in the territory where the speed was restricted by train order No 3 to not exceeding 10 miles per hour, or if the front brakeman had operated the fireman's emergency brake valve in the control compartment of the third diesel-electric unit when he overheard the engineer advise the yardmaster that the train was moving out of control, the accident would have been avoided.

The investigation disclosed that because of the instructions in Bulletin No 61-187, the conductor of No 88 understood that an air brake test was not required when a solid block of cars was added to a train at a point other than an initial terminal. In accordance with the exception in item (2) of Bulletin No 61-187, no brake test was required when the solid block of cars was added to the train at Griffin. These instructions were not adequate. Under the provisions of the Power Brake Law, when one or more cars are added to a train at a point other than a terminal, such as Griffin, the train brake system must be charged to not less than 60 pounds, tests of air brakes must be made to determine that brake pipe leakage does not exceed 5 pounds per minute after a 15 pound brake pipe reduction, and it must be known that the brakes on each of these cars and on the rear car of the train apply and release. It is apparent that if the train brake system had been given the prescribed tests prior to departure from Griffin, the improper positioning of certain appurtenances in the brake system of the locomotive units would have been detected and corrective action taken, which would have prevented this accident. The Commission has initiated appropriate action with respect to the violation of the Power Brake Law of 1958.

Cause

This accident was caused by a train moving out of control and entering a crossover at an excessive rate of speed, as a result of failure to make required air brake tests.

Recommendation

It is recommended that the Central of Georgia Railway immediately take action to issue necessary instructions to insure compliance with all the requirements of the rules, standards and instructions prescribed by the Power Brake Law of 1958, and the Orders of this Commission relating thereto.

Dated at Washington, D C , this twenty-seventh
day of October, 1961

By the Commission, Safety and Service Board No 1

(SEAL)

HAROLD D McCOY,

Secretary

Interstate Commerce Commission

Washington 25, D. C.

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