

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

NEW YORK, NEW HAVEN & HARTFORD RAILROAD

NEWINGTON, CONN.

MAY 25, 1939

INVESTIGATION NO. 2352

SUMMARY

Inv-2352

Railroad: New York, New Haven & Hartford

Date: May 25, 1939

Location: Newington, Conn.

Kind of accident: Passenger train struck by boom of ditcher on adjacent track

Trains involved: Work : passenger

Train numbers: Work Extra 466 : 169

Engine numbers: 466 : 1376

Consist: Caboose, 2 dump cars, : 2 baggage cars,
2 gondolas, 1 flat car : 1 mail car, 2
loaded with ditcher : coaches, 4 Pull-
3 coaches, 1 spreader : man sleeping cars

Speed: Standing : 50-60 m. p. h.

Operation: Timetable, train orders, automatic block-
signal and cab-signal system

Track: Double; tangent; 0.21 percent descending
for westward movements

Weather: Clear

Time: 5:55 a. m.

Casualties: 1 killed and 51 injured

Cause: Improper manipulation of the controlling
lever of the ditcher of the work train by
an inexperienced assistant, and by failure
of hand brake to be set properly to pre-
vent the rotation of the ditcher

Inv-2352

June 22, 1939.

To the Commission:

On May 25, 1939, a passenger train was struck by the boom of a ditcher of a work train on an adjacent track on the New York, New Haven & Hartford Railroad at Newington, Conn., which resulted in the death of 1 employee off duty and the injury of 45 passengers, 1 Pullman porter, 2 employees off duty, and 3 employees on duty. The investigation of this accident was made in conjunction with representatives of the Public Utilities Commission of the State of Connecticut.

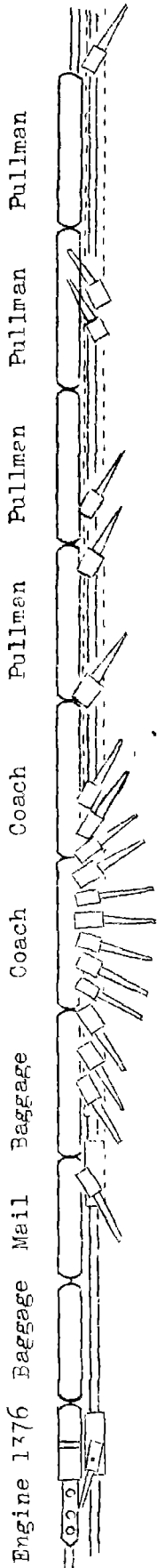
Location and Method of Operation

This accident occurred on that part of the Hartford Division which extends between New Haven, Conn., and Springfield, Mass., a distance of 61.98 miles; this is a double-track line over which trains are operated by timetable, train orders, and an automatic block-signal and cab-signal system. In the vicinity of the point of accident the two tracks of the Waterbury-Hartford line parallel these tracks on the north, and the four tracks are numbered from north to south as follows: No. 3, westward; No. 1, eastward; No. 2, westward; and No. 4, eastward. The work train was on track 4, and the passenger train was on track 2. The accident occurred at a point approximately 650 feet east of the station at Newington. Approaching from the east there is a tangent several miles in length to the point of accident and some distance beyond. The grade for west-bound trains is undulating; it is 0.21 percent descending at the point of accident.

Approximately 620 feet east of the station a trailing-point switch for eastward movements leads to two house tracks, Nos. 6 and 8, which parallel track 4 on the south.

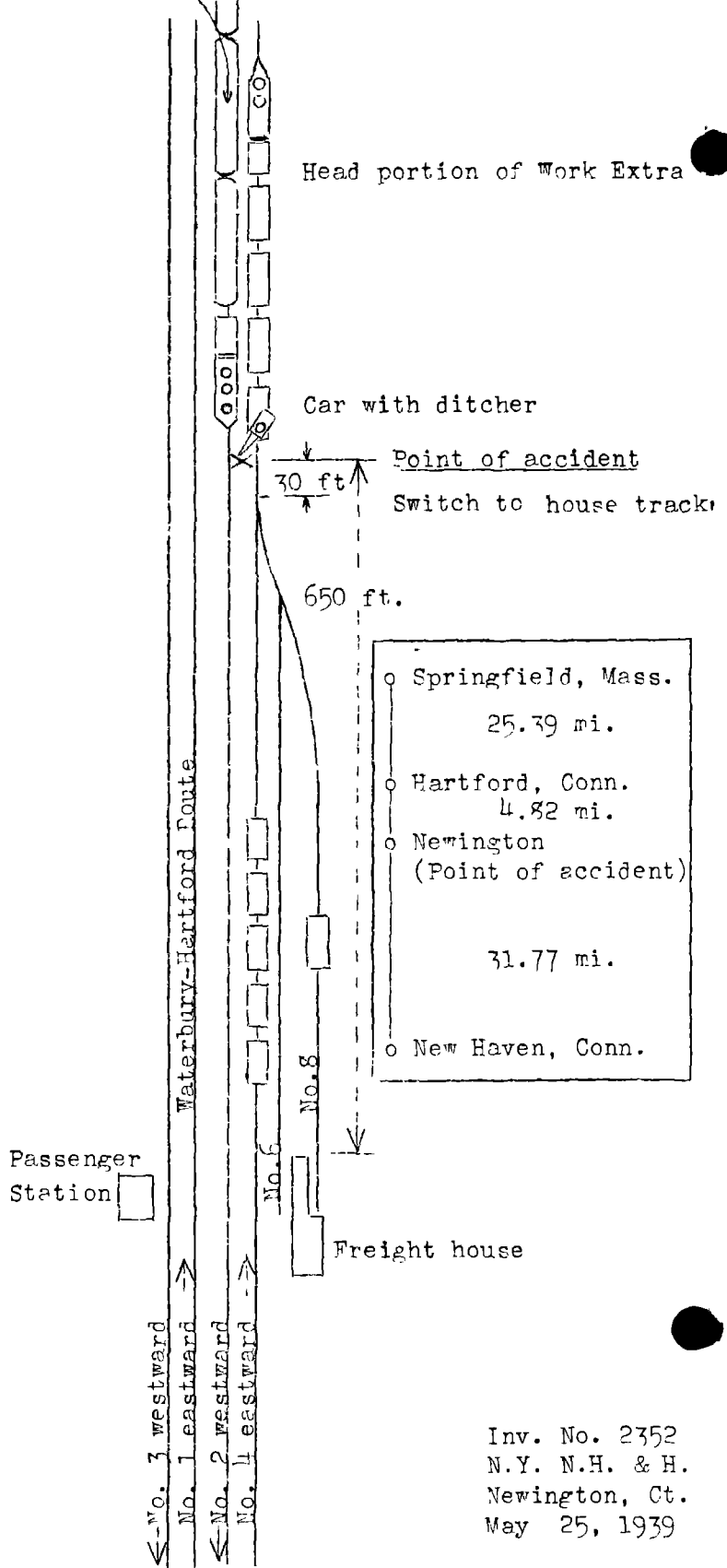
The maximum authorized speed for passenger trains is 70 miles per hour.

The weather was clear at the time of the accident, which occurred about 5:55 a. m.



Approximate movement of cab and boom of ditcher, fouling train No. 159

Direction of No. 169



Inv. No. 2352
N.Y. N.H. & H.
Newington, Ct.
May 25, 1939

Description

Work Extra 466, east-bound, consisted of a caboose, one dump car, one gondola car, one flat car loaded with a ditcher, one gondola car, one dump car, three work coaches, and one spreader, in the order named, hauled by engine 466, and was in charge of Conductor Leonard and Engineman Behringer. This train departed from Meriden, 17.12 miles west of Newington, at 4:30 a. m., according to the train sheet, and left Newington Cross-over, the last open office, at 5:20 a. m. At Newington, the five rear cars were left standing on track 4 while the fifth car was being set out on track 8; the engine with the first four cars then returned to track 4 and stopped with the ditcher, which had become the rear car, about 50 feet east of the switch, and was waiting for No. 169 to pass on track 2 when the boom of the ditcher started to swing from one side to the other. As the engine of No. 169 passed, the boom swung far enough to the right for the bucket, which was attached to the boom, to strike the side of the engine. The boom then swung back toward the left a sufficient distance for the rear end of the ditcher to scrape and dent the sides of the cars as they passed.

No. 169, a west-bound passenger train, known as the "Washingtonian," consisted of one baggage car, one railway postal car, one baggage car, two coaches, and four Pullman sleeping cars, all of all-steel construction, in the order named, hauled by engine 1376, and was in charge of Conductor Kirkman and Engineman Strehlau. This train departed from Springfield, 30.21 miles east of Newington, at 5:13 a.m., according to the train sheet, 17 minutes late, left Hartford, 4.82 miles east of Newington, at 5:48 a. m., still 17 minutes late, and was approaching Newington at a speed estimated to have been between 50 and 60 miles per hour when the ditcher of Work Extra 466 swung around and struck the engine and all except the first and the ninth cars.

No. 169 stopped with its rear end 3,290 feet south of the point of accident; it was not derailed. The bucket attached to the boom, which was in trailing position, ripped off the running board of engine 1376 at about the center of the boiler; the appurtenances including the top cylinder of the water pump were damaged. The bucket then swung back toward the left far enough so that the right rear corner of the ditcher dented the rear end of the second car. As No. 169 proceeded the ditcher continued to circle toward the left until it was turned around in reverse position; the third to eighth cars, inclusive, were

damaged during this circling movement. The fourth car was dented at the window frames from 12 to 18 inches in depth its entire length; all windows were broken. The other cars were dented and scraped at intermittent points. The rear end of the ditcher was badly damaged; the casting on the right rear corner and right side was broken and this condition permitted pieces of rail from 4 to 6 feet in length, used as ballast, to fly out and be thrown in various directions, some of which went through the broken windows into the cars.

The ditcher, D-57, is mounted on 100-pound rails, 30 feet in length, secured to the deck of a flat car. To prevent its forward or backward movement, the ditcher is chained to a lug on each side of the car, and in addition a check or trig is placed against the front wheel on one side and the rear wheel on the opposite side. It is driven by a diesel engine. The boom, 26 feet in length, is anchored by a cable on each side at the end of the car. During train movements the clam-shell bucket attached to the boom usually rests in an open-top car next to the flat car carrying the ditcher. Movements of the various parts of the ditcher are controlled by four levers, numbered consecutively from left to right, and are located on the right side of the cab. Lever No. 1 in forward position raises the boom; the boom has a ratchet type drum which is released by a hand brake in order to let the boom down. Lever No. 2, or slewing lever, in the forward position, causes the ditcher to rotate to the right; in backward position it rotates to the left; when in central or neutral position the ditcher is stationary. Lever No. 3 governs the forward or backward movement of the ditcher on the rails on the flat car; and lever No. 4 governs the opening and the closing of the bucket as well as the raising of it. In addition, there are two foot-brakes or pedals in front of the levers; the left pedal when depressed and locked keeps the bucket from opening, and the right pedal holds the load suspended. A brake wheel is located directly behind the mast and to the left side of the operator; when it is applied the boom is prevented from swinging to the left or to the right.

The employees injured were the conductor of No. 169 and the conductor and the head brakeman of Extra 466. All others injured were on the passenger train.

Summary of Evidence

Engineman Behringer, of Work Extra 466, stated that after setting out the fifth car on the siding, he returned to the main track and stopped east of the switch, and as he did not receive a signal to back to couple to the rear portion of his train he assumed they were waiting for No. 169 which was due. He then heard some shouting, looked back, and saw the rear end of the ditcher move, but did not have a clear view on account of the cars between the ditcher and the engine. He sounded a whistle to warn the men that No. 169 was approaching.

Fireman Pallm, of Work Extra 466, stated that after they had placed the car on the house track he was on his seatbox and he saw No. 169 about one-fourth mile distant. He looked back and saw the bucket of the ditcher swing back and forth, fouling track 2, and he warned the engineman, who immediately sounded a warning on the whistle. The operation of his train was normal; there was no lurching and a smooth stop was made when they returned to the main track.

Conductor Leonard, of Work Extra 466, stated that after the front portion of the train was backed in on track 8 to set out the fifth car the boom was raised high enough to lift the bucket out of the car. The cut was then made and the engine with the first four cars returned to the main track. He signaled the brakeman to hold the train as he could see the smoke of No. 169. He then went to the head car of the rear portion of the train that had been left standing on the main track, at a point about 100 feet from the ditcher, to be in position to couple the ditcher car when it was backed. He thought the head portion had stood about $1\frac{1}{2}$ or 2 minutes when he heard the brakeman shout and his engineman sound a long blast on the whistle. The boom swayed back and forth several times and he started to run toward it. No. 169 was then about four or five car lengths from the boom and he saw the ditcher strike the engine. He estimated the speed of No. 169 to have been about 50 miles per hour. He said that the boom is not allowed to be moved except under his instructions.

Head Brakeman George, of Work Extra 466, stated that he stood at the rear end of the ditcher car as they waited for the passage of No. 169, which was about 3 or 4 minutes after setting out the car. He saw the cab-end of the ditcher swing toward the track; he called to the ditcher operator and the operator tried

to straighten it, and in his attempt to straighten the ditcher the bucket swung around toward the right and struck the engine of No. 169. The bucket, controlled by a cable, was hanging approximately 5 feet below the boom; the bucket was empty.

Foreman Lazauskas, in charge of rock ballast work between Berlin and Newington, rode the train from Meriden to Newington and while the switching movements were made stood near the switch. He was standing near the west end of the ditcher car with Brakeman George after the car had been placed on the house track. He saw No. 169 approaching more than one-half mile distant and about that time he saw the bucket swing out toward track 2. He shouted to the assistant, who was on the ditcher, and the bucket came back to its normal position. He saw it swing out a second time and then come back to normal position. The bucket then swung out a third time; he saw the assistant pulling hard on one lever, but the bucket struck the engine of No. 169. The bucket was thrown up in the air; the impact caused it to open and close, and he then saw rails and other debris flying in the air as the rear end of the ditcher struck the sides of the cars.

Assistant Ditcher Engineer Wilhelm stated that after leaving Meriden a stop was made to swing the boom around to a trailing position. He started the motor, released the chains and cables holding the ditcher and boom and then fastened them after the operator in charge had swung it around, and the motor was left running. Both he and the operator rode in the caboose, and en route he overheard a conversation between the conductor and supervisor as to what was to be done at Newington, at which time the operator was sitting beside him. At Newington he left the caboose and went to the ditcher and he heard the operator say for him to go ahead; he expected the operator to follow. When the car was placed on the house track he unhooked the boom and raised it and also raised the bucket to within 3 or 4 inches of the boom. As there would be a jar when the engineman used the independent brake, he stood on the pedals to prevent the ditcher from moving when the stops were made. After they were out on the main track his foot slipped off the pedal and he lost his balance and fell against the slewing lever, causing the boom to revolve. He tried to straighten the boom but he was unable to get it clear before No. 169 arrived; the bucket struck the engine, and the ditcher turned around. In one statement Assistant Engineer Wilhelm stated that he lost his balance when the train stopped after returning to the main track; in another statement he said that after setting out the car they stood on track 4 probably two minutes; and in further statements, he

indicated that the train was backing to couple to the rear portion of the train when he lost his balance. In fact, he reiterated that they were backing to couple to the rear portion of the train when his foot slipped. He also stated that he locked the pedals, yet he said that he had to keep his feet on the pedals when the bucket was up against the boom unless they are locked, and in another statement he said that the only reason he was standing on the pedals was because he thought it would be a short switching movement and he could then drop the bucket in the car when they coupled to the rear portion of their train. He stood on the pedals during the entire switching movement. He further stated that as he boarded the ditcher he pulled on the hand brake and it was tight enough to hold the boom under ordinary conditions, yet after the accident the brake was not tight; it needed another half turn to make it tight. He did not know whether the operator had set the hand brake after they had turned the boom at Meriden, but he did not touch it at that time. He has been employed as an assistant ditcher engineer by this railroad for 6 months and had been working four days on that particular job. He said he is thoroughly familiar with the machinery and pedals and has raised the boom and bucket on several occasions on sidings and on one occasion he was allowed to perform some ditching. He is a machinist by trade and has had 10 years' experience in operating or having charge of similar types of equipment.

Ditcher Engineer Martell, in charge of ditcher D-57, stated that after the ditcher was turned with the boom in the trailing position, the assistant fastened the chains on the boom and applied the hand brake. Part of the time they rode in the caboose and part of the time on the ditcher. During the last stop west of Newington they both boarded the ditcher car, but on arrival at Newington he went to the caboose where he remained until after the accident. He did not know what work was to be done at Newington. He realized that they were moving at various times, but he did not give his assistant any instructions. The assistant had been working with him about a month; he was not a qualified operator but had raised the boom and the bucket on single track and several days previously had raised it at Newington. The duties of the assistant are to take signals, operate the motor, apply the hand brake, and operate the clutch. On only one occasion had he been allowed to operate the ditcher. The ditcher was in good operating condition; the levers and pedals worked freely. Permission is given by the conductor when to use the ditcher, and the operator then operates the ditcher under instructions from the foreman.

Engineman Strehlau, of No. 169, stated that approaching Newington the speed of his train was between 55 and 60 miles per hour. When approaching the station a cloud of steam entered the cab and he thought possibly a steam pipe had burst. He said that the fireman, who was on the deck, looked ahead but could not see anything except steam and the fireman told him to stop. The engineman immediately applied the air brakes in emergency. The weather was clear and it was daylight at the time of the accident.

Fireman Sembler, of No. 169, stated that when passing the work train he heard a noise like an explosion and steam then started to enter the cab. He estimated that the speed of his train was between 50 and 60 miles per hour.

Conductor Kirkman, of No. 169, stated that when he heard the sound of the impact caused by something striking the corner of the second coach, he rushed to the conductor's valve to apply the brakes. After the accident he found that the brake valve in one of the other cars also had been opened.

Baggagemaster Whalen, who was deadheading on No. 169, stated that he was in the fourth car at the time of the accident. As soon as he felt the jar and saw the window being crushed inward he rushed to the brake valve and opened it.

Supervisor of Work Equipment Zavacky stated that he instructs the men as to the operation of ditchers. The men must have at least one year's experience before they are made operators and allowed to operate on the main tracks. He qualified Operator Martell and has interviewed him from time to time as to the operation of the ditcher. He has interviewed Assistant Operator Wilhelm as to whether he was ready to qualify. The assistant operator was not qualified, however, as he has been working more or less off the main line. Bulletins on safety rules and operating instructions have been issued from time to time. After the accident he examined the ditcher. The pedals were somewhat stiff, but the levers were free. The corrugation on the inside or left pedal was somewhat worn, but discernible. The ditcher was last inspected in January, at which time it was found to be in good condition. He stated that an assistant should not operate the ditcher unless a qualified man is present.

Observations of Commission's Inspectors

Inspection of engine 1376 and the ditcher involved was made by the Commission's inspectors. The levers in the ditcher were found to work easily, and while the foot pedals worked slightly hard, they could be pushed down and the locking lugs would hold them down. The pedals are 5 inches long and 3 inches wide. If a man were standing on them, however, he could easily be thrown off balance by any motion of the ditcher. The hand brakes used to hold the cables and to keep the ditcher from swinging appeared to be in operating condition.

Discussion

According to the evidence, the gondola which was set out on the house track was the car that held the bucket of the ditcher. The assistant operator unhooked the cables holding the boom to the flat car and then lifted the boom and the bucket out of the car. According to his statements, while the entire switching movement was made, it appears that he stood on the pedals, which controlled the opening and the closing of the bucket as well as the holding of the load, and after the train pulled out on the main track he lost his balance and fell against the slewing lever which controlled the movement of the ditcher. Before he was able to straighten the ditcher No. 169 passed and this train was struck first by the boom and then by the rear end of the ditcher. The assistant operator was not a qualified operator, although he stated that he was familiar with the operation of the ditcher and that he had operated the boom and the bucket on previous occasions. He said he was neither authorized nor forbidden to operate the ditcher. The operator in charge of the ditcher remained in the caboose on the arrival of the train at Newington and did not leave the caboose until after the accident.

The statements of the operator and the assistant operator are very much at variance. The operator said that he did not know what work was to be done at Newington, yet the assistant operator stated that the operator was present when he heard the conversation relative to the moves to be made. The assistant operator made several conflicting statements in regard to the time he slipped from the pedals and lost his balance. He gave several reasons for standing on the pedals, which indicates that he was not thoroughly familiar with the operation of the ditcher. There was no load in the bucket, and if the pedals had been locked there was no reason for him to be standing on them at that time. According to the statements of other

members of the crew, the train stood several minutes before No. 169 arrived, which would indicate that the assistant did not lose his balance as a result of slack action when the train stopped on the main track, and there is conclusive evidence that the train was not moving either immediately before or at the time of the accident. If the hand brake holding the ditcher in neutral position had been properly applied, this accident would not have occurred. The operator stated that the assistant applied the hand brake at Meriden after the boom had been placed in trailing position, but the assistant operator stated that he did not touch it at that time. However, when the assistant boarded the ditcher at Newington he pulled the hand brake and thought that it was tight enough to hold under ordinary conditions. After the accident it was found that another half turn on the wheel was needed to make it tight.

The evidence disclosed lax practices of the employees assigned to the ditcher. It is the duty of supervisory officials to define the exact duties of the operator and the assistant operator in order that they will perform their duties in a systematic manner, but the evidence was to the effect that, beyond issuing some bulletins on safety and operating rules, this had not been done. The supervisor of work equipment said that an assistant should not operate the ditcher unless a qualified man is present. Had the operator and the assistant operator been instructed properly with respect to the extent of their duties, it is probable that the operator would have been at his post before the ditcher was operated in any manner; had the operator been at his post, no doubt this accident would have been averted. The operator was responsible for the operation of the ditcher and when he was absent from his post, it was his duty to give the assistant definite instructions with respect to the extent of the latter's duties.

Conclusion

This accident was caused by the improper manipulation by an inexperienced assistant during the temporary absence of the regular operator of the controlling lever of the ditcher at the time of a switching movement of the work train, permitting the boom to foul the adjacent track and strike the passenger train, and by failure to set the hand brake properly to prevent the lateral movement of the ditcher.

Recommendation

It is recommended that responsible officials of this railroad take immediate action to instruct thoroughly employees assigned to ditching machines.

Respectfully submitted,

W. J. PATTERSON,

Director.