Inv-2026

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

VIRGINIAN RAILWAY

CIRTSVILLE, W. VA.

DECEMBER 14, 1935

INVESTIGATION NO. 2026

SUMMARY

Railroad:	Virginian
Date:	December 14, 1935
Location:	Cirtsville, W. Va.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 706 east (time freight 72-L)
Engine numbers:	703-706
Consist:	4 engines, 87 cars, 2 cabooses
Speed:	10-15 mph.
Track:	$7^{\circ}30'$ curve followed by tangent on which accident occurred; grade 1.65 percent ascending.
Weather:	Damp and cloudy
Time:	12:25 p.m.
Casualties:	5 injured
Cause:	Train parted account of low coupler, due to truck springs being compressed almost solid under loaded coal car; free slack in couplers contributory.

February 10, 1936.

To the Commission:

On December 14, 1935, a freight train on the Virginian Railway broke in two near Cirtsville, W. Va., two cars being buckled and this accident resulting in the injury of 5 employees.

Location and method of operation

This accident occurred on the Fourth Subdivision of the New River Division, extending between Charleston and Elmore, W. Va., a distance of 91.8 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time table and train orders, no block-signal system being in use. Time table directions are used in this report. This accident occurred about 1 mile east of the passing track at Cirtsville, as the train was ascending a mountain grade; approaching from the west the track is composed of a series of short curves and tangents, followed by a compound curve to the right 1,152 feet in length, with a maximum curvature of 7°30', then the track is tangent for a distance of 1,239 feet; the accident occurred on this tangent at a point 21 feet from its western end. The grade for east-bound trains is ascending for a distance of about 1 mile to the point of accident and for about 4½ miles beyond that point, being 1.65 percent where the accident occurred.

The track is laid with 100-pound rails, 33 feet in length, with an average of 19 treated hardwood ties to the rail length, single-spiked, fully tieplated and ballasted with crushed rock to a depth of about 12 inches, and well maintained. In the immediate vicinity of the point of accident the track is in a side-hill cut, the bank on the north side of the track varying from 6 to 8 feet in height, while on the south side of the track the slope drops away from 3 to 15 feet.

It had been drizzling and the weather was damp and cloudy at the time of the accident, which occurred about 12:25 p.m.

Description

On arrival at Pax, 3 miles west of Cirtsville, the entire crew of Extra 706 east was relieved from duty by the crew of Extra 703 west, and engine 703 and its caboose were coupled ahead of Extra 706. On departure from Pax, at 11:35 a.m., according to the train sheet, Extra 706 east (time freight 72-L)

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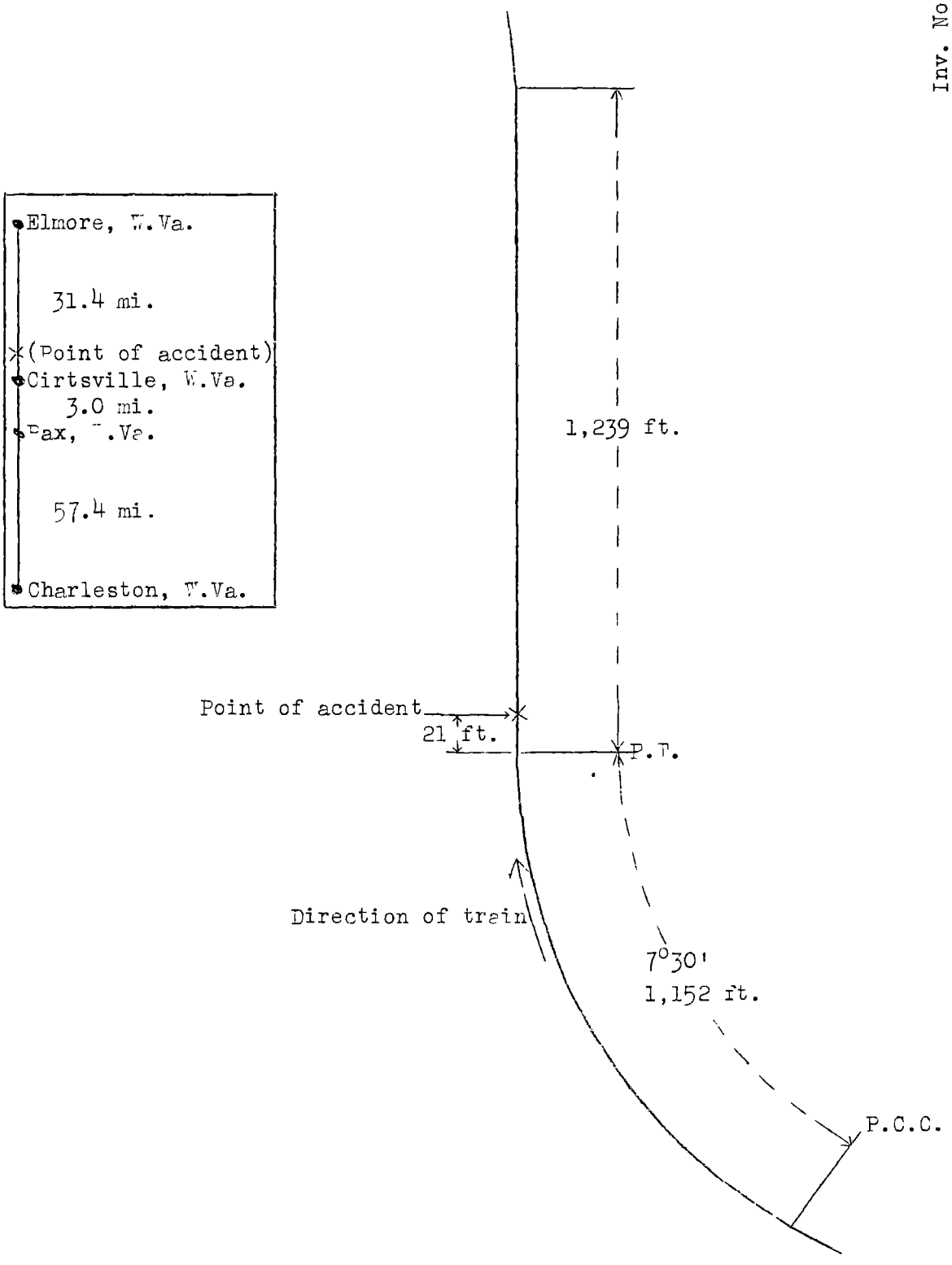

consisted of engine 703, 1 caboose, engine 706, 41 cars, helper engine 726, helper engine 728, 46 cars, and a caboose, in the order named; the train was in charge of Conductor Allen and Engineman Fuqua, with Head Brakeman Kidd as messenger on engine 706, and Enginemen Newsome and Frazier, respectively, on the helper engines. While ascending the mountain grade at a speed estimated to have been between 10 and 15 miles per hour the train parted between the second and third cars, due to a low coupler on the west end of the second car, C.& O. hopper car 62653, slipping under the coupler on the east end of the third car, N.O.R. box car 3532, causing the air brakes to apply in emergency.

Both helper engines of the Mallet type, articulated, were working steam and the first two cars ahead of them, namely the forty-first and fortieth cars in the train, were buckled and forced from the train to the south, and helper engine 726 was derailed and stopped about 40 feet beyond; the front section of engine 726 was derailed to the north and plowed into the bank of the cut, while the engine boiler and high-pressure section stopped on the roadbed, leaning toward the south at an angle of about 45° and resting on a truck of one of the derailed cars. The tender did not become uncoupled from the engine, but the couplers were twisted when the tender turned over and stopped on its right side. The employees injured were the engineman and fireman of helper engine 726, the conductor, flagman, and a brakeman who was deadheading.

Summary of evidence

Engineman Fuqua, of lead engine 703, stated that after he coupled his engine to the front end of Extra 706 at Pax he tested the air brakes by making a 15-pound reduction, then released, and the air was cut through the entire train and under his control; prior to the accident the train handled properly en route. His engine was working steam to full capacity and moving up the mountain grade at a speed of about 12 miles per hour when the train parted, the rear coupler of the second car slipping under the forward coupler of the third car. Statements of Fireman Hoge corroborated those of Engineman Fuqua; the fireman estimated the speed to have been between 12 and 15 miles per hour when the train parted.

Head Brakeman Kidd, messenger on engine 706, stated that he worked steam on the second engine going up the hill, but not to full capacity, just barely enough to lubricate the engine and help slightly to pull the train, and he estimated the speed to have been about 12 or 14 miles per hour when the break-in-two occurred. After the accident he inspected the couplers

involved and found that the coupler on the west end of the second car was low; he obtained a regular drawhead shim, a steel plate about ½ inch thick, from the caboose located between the first and second engines, and placed it under the low coupler and recoupled the train.

Engineman Newsome, of helper engine 726, coupled behind the forty-first car in the train, stated that he was working steam and assisting the train up the grade at a speed of about 12 or 14 miles per hour when the indicator on the air gauge dropped until finally it registered only 10-pounds train line pressure; thinking the train was stalling, he opened the sanders; then the air brakes applied in emergency and he closed the throttle and jumped. He said that the two cars ahead of his engine buckled as a result of the emergency air brake application and the helper engines working steam, causing his own engine to be derailed. Fireman Fanning's statement was similar to that of Engineman Newsome.

Engineman Frazier, of helper engine 728, stated that he was working steam and the train was moving up the mountain grade at a speed of about 12 or 14 miles per hour when suddenly he felt a jerk on his engine; he closed the throttle, then his fireman shouted a warning of danger, following which he saw two cars buckle ahead of the first helper engine, that engine also being derailed; he reversed his own engine, moved the brake valve to emergency position, and jumped. Statements of Fireman Arrowood developed nothing additional of importance.

Conductor Allen and Rear Brakeman Caperton were in the caboose at the rear of the train when the accident happened; they estimated the speed to have been about 10 or 12 miles per hour, and the emergency air brake application caused a severe shock on the caboose. After the accident the conductor went forward and saw the low coupler on the west end of the second car that slipped under the east coupler on the third car.

Car Foreman Forbes, at Elmore, stated that he did not see the hopper car involved, C.& O. 62653; however, the car inspectors reported that on arrival of Extra 706 east at Elmore after the accident they removed the 9-inch knuckle at the west or B-end of C.& O. 62653 and applied an 11-inch face knuckle in its place, and also installed a ½ inch shim over the top of the carrier iron, following which the car continued its movement eastward from that point. The reason why the coupler was low, however, was not reported. He said that his instructions to car inspectors are not to permit more than 1½ inches of free slack in draft gears of all cars, system and foreign.

Car Inspector Winfrey, at Elmore, stated that he received a message relative to C.& O. 62653 having a low coupler and that on arrival of Extra 706 east at that point he placed a card on the car and shopped it for a low coupler, B-end; he did not gauge the height of the coupler above the rail, as it was evident from observation that the coupler was low. He also shopped N.O.R. 3532 for a defective sill step.

Car Repairer French, at Elmore, stated that he and Car Repairer Vaught removed the 9-inch ARA type D knuckle on the B-end of C.& O. 62653 and applied a new 11-inch ARA type E knuckle in its place, and also installed a ½ inch coupler shim over the top of the carrier iron, this work being performed between 1 and 2 a.m., December 15. Before making these repairs he gauged the height of the coupler and it measured 31 inches from the top of the rail to the center of the knuckle, and after the repairs were made it measured 33 inches, at which time the coupler slack was stretched to its limit. The old knuckle was not worn beyond the requirements, being in good condition and it would not take the gauge; his only reason for changing it was to make the coupler higher. He did not inspect the opposite or A-end of the car, nor did he measure the slack in the draft rigging; he estimated that the horn of the coupler stood away from the striking casting not more than 6 or 7 inches, although he did not know whether this was more than usual and he had never gauged any for that particular distance.

According to the record, C.& O. hopper car 62653, loaded with coal, gross 145,000 pounds, tare 39,900 pounds, net 105,100 pounds, and N.O.R. automobile box car 3532 were last inspected prior to the accident at Dickinson, W. Va., which is the initial terminal for this trip and 46.7 miles west of Cirtsville; this inspection was made by car inspectors of the New York Central Railroad before departure of these cars in Extra 706, and no exceptions were taken as to the condition of these cars. Subsequent to the accident and in addition to the inspection and repairs at Elmore, the record shows that these cars arrived at Roanoke, Va., December 15, at 10:35 p.m., and no exceptions to their condition were noted by the car inspectors of the Virginian Railway. Inspection made of C.& O. 62653 at Victoria, on December 17, by Car Foreman Britt and car inspectors disclosed that at the west or B-end of car the height of coupler was 32½ inches, with a 3/8 inch metal shim under the coupler, new type E knuckle, 11-inch face, evidently having been recently applied, and new cotter key in knuckle pin. At the east or A-end of car the height of the coupler was 32½ inches; no shim was on carrier iron, and the knuckle was type D, 9-inch face. The car inspectors found a very bad

seam in the L-1 wheel and the car was shopped out for wheel renewal, and accordingly the L-1 and R-1 wheels were renewed as of this date. On N.O.R. 3532 two brake shoes were found to be worn out and these were renewed, at the A and B ends.

Joint inspection of C.& O. 62653 by the Commission's inspectors and representatives of the Virginian Railway at Norfolk, Va., on December 18, and of N.O.R. box car 3532 at Princeton, W. Va., December 19, disclosed the following:

C.& O. 62653, all-steel hopper car; B-end, height of coupler 32½ inches with 3/8 inch metal shim under coupler shank, shim evidently recently applied, height of coupler without shim 31¾ inches, new type E knuckle 11-inch face evidently recently applied, new cotter key in knuckle pin, clearance of coupler horn from striking casting with slack pulled out, 4¼ inches, and with slack pushed in, 2¾ inches, free slack in coupler unresisted by draft gear compression 1½ inches; A-end, height of coupler 32 3/8 inches, no shim on carrier iron, 9-inch face type D knuckle, clearance of coupler horn from striking casting with slack pulled out, 4 3/8 inches, and with slack pushed in, 2½ inches, free slack in coupler unresisted by draft gear compression 1 7/8 inches. No defects or excessive wear noted on couplers or parts thereof. The car was loaded at the time of this inspection and the actual cause for the low coupler was noted as being due to weak helical truck springs which were compressed almost solid at the B-end, permitting the truck bolster to ride too low in the side frames. Inspection of the 9-inch type D knuckle which had been removed from the B-end of this car after the accident, disclosed a well defined scrape mark on top, plainly indicating that it had slipped under another knuckle.

N.O.R. 3532, steel-underframe automobile car; draft attachments, ARA type D couplers, 5 x 7 inch shank, cast steel coupler yoke, Miner tandem draft gear, 1 class G spring and 1 Harvey friction spring at B-end and 2 class G springs at A-end, 9-inch face knuckles; B-end, cast steel detachable carrier iron with 3/8 inch plate shim under coupler shank, height of coupler from rail, empty car, 33½ inches; bottom of knuckle had well defined scrape mark indicating it had slipped over another knuckle, mark evidently made recently; free slack in coupler unresisted by draft gear compression, 1 1/8 inches, cast steel striking casting broken, old break, showed that coupler horn had been striking badly. A-end, height of coupler from rail, 33¼ inches, free slack in coupler unresisted by draft gear compression 1 1/8 inches, striking casting broken,

old break, showed that coupler horn had been striking badly.

Discussion

The recommended practice of the Association of American Railroads, Mechanical Division, Circular No. D.V.-826, dated at Chicago, January 7, 1935, relative to inspection and maintenance of draft gears and attachments by car owners is as follows:

> 1. When cars are on repair tracks for periodic air brake attention, examine and renew defective parts of draft gears, couplers and their attachments and supports. This will not require removal of draft gear for this examination, except where found defective or where total slack from coupler horn to striking casting exceeds 1½ in.; slack to be the difference in distance between coupler striking horn and striking casting when coupler is pulled out with a bar and sledged back solid.
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> 2. When cars are undergoing general repairs, draft gears will be dropped for examination, and couplers, their attachments and supports will be inspected and necessary repairs and replacements made.
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> 3. In renewing defective draft gears, certified gears should be applied if spacing permits, or serviceable second-hand gears of other types, not considered inefficient or obsolete as per list shown in A.A.R. Interchange Rule 101, may be applied. Certified gears must be renewed with certified gears.
>
> Car owners are requested to see that these rules are strictly enforced on their own cars, in order to improve the condition of the couplers and draft gears by the elimination of the slack in the gears as far as possible.

Under the Federal Safety Appliance Acts, the maximum prescribed standard height of drawbars for freight cars of standard-gauge railroads is 34½ inches, and the minimum is 31½ inches.

The investigation disclosed the C.& O. all-steel hopper car 62653 was last inspected before the accident at Dickinson, W. Va., where it was received from the New York Central Railroad and it was passed by car inspectors of that road at that point. It was loaded with 105,100 pounds of coal; its stenciled load

limit was 129,100 pounds; therefcre, the car was not overloaded. This car departed from Dickinson on the Virginian Railway in Extra 706 east and on reaching a point about 48 miles beyond, while ascending the mountain grade just east of Cirtsville at a speed estimated to have been between 10 and 15 miles per hour, the train parted on account of a low coupler on the west or B-end of C.& O. 62653, the second car in the train, slipping under the coupler on the east or B-end of the third car, N.O.R. box 3582, due to weak helical truck springs being compressed almost solid, aggravated by free slack in the couplers of C.& O. 62653, the break-in-two causing the air brakes to apply in emergency, and with the two helper engines working steam in the middle of the train when the accident occurred the run-in caused the two cars ahead of them, namely, the forty-first and fortieth cars, to buckle and derail, and helper engine 726 in turn was also derailed. After the accident a shim was placed under the low coupler by the head brakeman and the cars were recoupled, following which the train proceeded to Elmore, where both cars were shopped out. On C.& O. 62653 the 9-inch ARA type D knuckle was removed from the B-end and an 11-inch ARA type E knuckle applied in its place, a metal shim also being installed over the carrier iron, while on N.O.R. 3532 a defective sill step was repaired, following which the cars were permitted to continue on their journey.

Subsequent investigation disclosed that the knuckle involved in the accident, which was removed from C.& C. 62653, B-end, at Elmore on the arrival of the train at that point after the accident, was not defective or worn materially and that the carrier iron was in good condition, tight and in proper place. The investigation developed that the actual cause of the coupler being low was on account of truck springs being compressed almost solid under the B-end of the loaded coal car; also, in addition to this condition, there was $1\frac{1}{2}$ inches of free slack in the coupler at the B-end, and 1 7/8 inches at the A-end. This amount of free slack permitted the coupler to stretch out an abnormal distance during the hard pull as the train ascended the mountain grade, which contributed in permitting the coupler to slip under the adjacent coupler, with the resultant break-in-two of the train. Undoubtedly the conditions which resulted in the coupler being low existed when the car was received at Dickinson.

Elmore is a regular repair point, where facilities are provided for making running repairs to cars. The evidence

indicates that the car inspection force was not properly familiar with the instructions relative to inspection and maintenance of draft gears and attachments, and the investigation indicated considerable question as to whether adequate supervision is provided over repair and inspection work at Elmore. In this particular case necessary repairs to defects which were known to exist upon a car that had caused an accident, defects which were in violation of the Federal Safety Appliance Acts as well as the prescribed standards of the Association of American Railroads, were left to the judgment of a car repairer, following which the car was permitted to continue on its journey without the actual cause of the trouble having been corrected or reported and without any check having been made of the amount of slack in the couplers.

Conclusions

This accident was caused by Extra 706 east parting between the second and third cars in the train on account of a low coupler, this condition being due to truck springs being compressed almost solid, and a contributing cause being the amount of free slack in the couplers.

Recommendations

1. That increased supervision be exercised over car inspection and repair work.

2. That the car inspection and repair forces be properly instructed in regard to the matter of free slack in couplers and the recommended practice relative to inspection and maintenance of draft gears and attachments.

Respectfully submitted,

W. J. PATTERSON,

Director.