INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2644

THE PENNSYLVANIA RAILROAD COMPANY

REPORT IN RE ACCIDENT

NEAR LANDOVER, MD., ON

OCTOBER 31, 1942

SUMMARY

Railroad:	Pennsylvania	
Date:	October 31, 1942	
Location:	Landover, Md.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 4759 South	: Extra 4786 South
Engine numbers:	4759	: 4786
Consist:	55 cars, caboose	: 70 cars, caboose
Speed:	Standing	: 8-20 m. p. h.
Operation:	Automatic block and cab-signal system	
Track:	Double; tangent; 0.44 percent descending grade southward	
Weather:	Clear	
Time:	9:25 a. m.	
Casualties:	1 killed	
Cause:	Accident caused by failure to provide flag protection for preceding train, and by failure properly to control speed of following train in accordance with signal indications	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2644

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

THE PENNSYLVANIA RAILROAD COMPANY

December 16, 1942.

Accident near Landover, Md., on October 31, 1942, caused by failure to provide flag protection for preceding train, and by failure properly to control speed of following train in accordance with signal indications.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On October 31, 1942, there was a rear-end collision between two freight trains on the Pennsylvania Railroad near Landover, Md., which resulted in the death of one employee.

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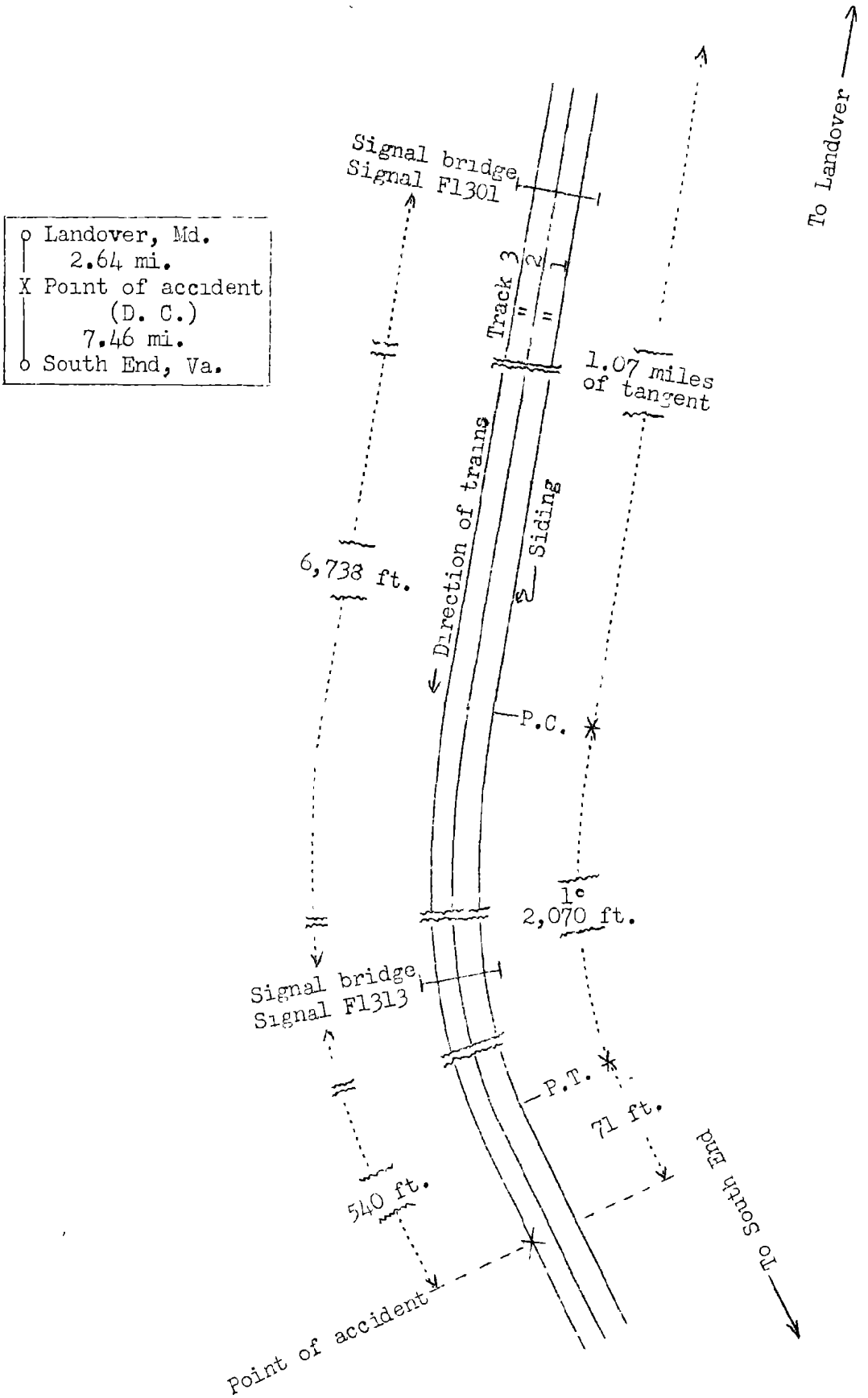
[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv-2644
Pennsylvania Railroad
Landover, Md.
October 31, 1942

Location of Accident and Method of Operation

This accident occurred on that part of the Maryland Division which extends between Landover, Md., and South End, Va., a distance of 10.1 miles. The line is equipped with an overhead catenary system for the electric propulsion of trains. In the vicinity of the point of accident this is a double-track line over which trains are operated with the current of traffic by an automatic block-signal and cab-signal system, the indications of which supersede time-table superiority. The main tracks from east to west are No. 2, northward main, and No. 3, southward main. The accident occurred in the District of Columbia on track No. 3, at a point 2.64 miles south of the tower at Landover. Approaching from the north there are, in succession, a tangent 1.07 miles in length, a 1-degree curve to the left 2,070 feet, and a tangent 71 feet to the point of accident and a considerable distance beyond. The grade for south-bound trains is, successively, 0.49 percent descending 3,190 feet, 0.46 percent ascending 3,750 feet, and 0.44 percent descending 550 feet to the point of accident and 295 feet beyond.

Signals F1301 and F1313, which govern south-bound movements on track No. 3, are located, respectively, 7,278 and 540 feet north of the point of accident. These signals are of the automatic, three-indication, position-light type, and are continuously lighted. The involved aspect and corresponding indication and name of these signals are as follows:

Aspect	Indication	Name
Horizontal	Stop; then proceed at restricted speed.	Stop-and-proceed

Operating rules read in part as follows:

SPEEDS

* * *

RESTRICTED SPEED--Not exceeding 15 miles per hour prepared to stop short of train, obstruction or switch not properly lined and to look out for broken rail.

35. The following signals will be used by flagmen:

Day signals--A red flag, torpedoes and fusees.

* * *

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees.

When recalled and safety to the train will permit, he may return.

* * *

103. When cars are pushed by an engine and the conditions require, a trainman must take a conspicuous position on the leading car; under such circumstances if signals from the trainmen cannot be received by the engine crew, the movement must be stopped immediately unless a brake valve and an alarm whistle on the leading car are being used.

CAB SIGNALS

* * *

297. Cab signals will not indicate conditions ahead when engine is:

* * *

(b) Pushing cars.

* * *

The ENGINEMAN'S INSTRUCTION BOOK reads in part as follows:

Hauling Dead Engine

On a "dead" engine in a train, the dead engine cap should be changed to dead engine position in which the word "DEAD" on the cap is over the word "ENG" on the distributing valve body. The double heading cock should be closed, and the handles of independent and automatic brake valves carried and keyed in running position.

The maximum authorized speed for freight trains moving on track No. 3 is 40 miles per hour.

Description of Accident

Extra 4759 South, a south-bound freight train, consisted of electric engine 4759, 49 loaded and 6 empty cars and a caboose. This train departed from Landover, 2.64 miles north of the point of accident and the last open office, at 4:27 a. m., according to the dispatcher's record of movement of trains. Because of congestion, this train was held out of the yards and stopped about 4:30 a. m. with its rear end standing about 3,000 feet north of the point where the accident occurred. The crew was relieved at 6:59 a. m. About 8:10 a. m. this train, with another crew, proceeded and, after traversing a distance of about 3,550 feet, stopped at 8:20 a. m. with its rear end

standing 540 feet south of signal F1313. At 9:25 a. m. the rear end was struck by Extra 4786 South.

Extra 4786 South, a south-bound freight train, consisted of electric engine 4786, 64 loaded and 6 empty cars and a caboose. This train departed from Landover at 5:07 a. m., according to the dispatcher's record of movement of trains, stopped at signal F1301, which displayed stop-and-proceed, proceeded and stopped at the rear of Extra 4759 about 5:20 a. m. At this time the engine of Extra 4786 was standing at a point about 4,000 feet north of the point where the accident occurred. After Extra 4759 departed at 8:20 a. m., the air compressor of engine 4786 failed and two engines of Extra 4731 South were coupled to the rear of Extra 4786 South to provide assistance. About 9:15 a. m. Extra 4786 proceeded, passed signal F1313, which displayed stop-and-proceed, and while moving at an estimated speed of 8 to 20 miles per hour collided with the rear end of Extra 4759. The brakes of Extra 4786 had been tested and had functioned properly at all points where used en route.

Extra 4731 South, a south-bound freight train, departed from Landover at 5:51 a. m. and stopped at the rear of Extra 4786 about 6:05 a. m. This train was hauled by two electric engines, coupled, and in the charge of one engineer, who was in the control compartment of the first engine. These engines were coupled to the rear of Extra 4786 and were pushing that train at the time of the collision.

Because of track curvature and of cars standing on a siding east of the main tracks, from the control compartment of a south-bound engine the view of signal F1313 was restricted to about 1,000 feet, and of the point of accident, to about 1,600 feet.

The caboose of Extra 4759 was demolished. The rear six cars were derailed and badly damaged. Engine 4786 was derailed and stopped upright and in line with the track, with the front end of the engine 245 feet south of the point of accident. The front end was demolished a distance of 19 feet, the main transformer and switch group were demolished, and the front-end frame casting was broken.

It was clear at the time of the accident, which occurred at 9:25 a. m.

The employee killed was the flagman of Extra 4759.

Data

Electric engine 4786 is provided with a motor-driven cross-compound air compressor. The brake equipment is No. 8A-EL having a K-6-KPD brake valve mounted on a pedestal and having a No. 8 distributing valve. An emergency relay vent valve, mounted on the pedestal, is connected with the brake

pipe and functions when the double-heading cock is closed. The double-heading cock is so located that an emergency application can be made when the cock is in closed position. A brake-pipe vent valve is located on the brake pipe at a distance not less than 20 feet from the brake valve. When the automatic brake-valve is moved to emergency position, the relay vent valve and the brake-pipe vent valve insure rapid propagation of quick action to adjacent brake units. The distributing valve is provided with a dead-engine feature. When the cap is turned for dead-engine operation, brake-pipe air flows through a check valve, which has a 20-pound resistance spring, and charges the main reservoirs to a pressure 20 pounds less than the pressure that is maintained in the brake pipe. If an air compressor fails, and the train brake system is charged from another compressor, located at any point in a train, by closing the double-heading cock on the disabled engine and by turning the dead-engine cap to dead-engine position, the main reservoirs are charged, which permits of the application of the engine brakes by means of the independent brake valve. If an automatic brake-pipe reduction is desired, it can be obtained by placing the automatic brake valve in service position and by opening the double-heading cock. An emergency application of the brakes can be had by moving the brake valve to emergency position.

At the time of the accident the air compressor of engine 4786 was disabled, the dead-engine cap was turned to dead-engine operation, the double-heading cock was closed and the brake-pipe pressure was being maintained from engine 4731, which was coupled to the rear of the caboose of Extra 4786.

After the accident, inspection of engine 4786 disclosed that the rear angle cock was open, the double-heading cock was closed, the brake valve was in emergency position and the dead-engine cap was turned for dead-engine operation.

Discussion

The rules governing operation on the line involved provide that when a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately a sufficient distance to insure full protection. In automatic block-signal territory, a train which has stopped for a stop-and-proceed indication may proceed at a speed not exceeding 15 miles per hour and be prepared to stop short of train, obstruction, switch not properly lined, or a broken rail. All surviving employees of the trains involved understood these requirements.

About 4:30 a. m. Extra 4759 stopped on track No. 3 with its rear end about 3,000 feet north of signal F1313. About 5:20 a. m., the flagman of this train stopped Extra 4786. At 6:59 a. m. the assigned crew of Extra 4759 was relieved from duty by another crew. At 8:10 a. m. this train proceeded southward about 3,550 feet and stopped with its rear end 540 feet south of signal F1313. At 9:25 a. m. the rear end was struck by Extra 4786 South.

Extra 4786 South, consisting of engine 4786, 72 cars and a caboose, stopped at signal F1301 in compliance with a stop-and-proceed indication which was displayed, and then proceeded. This train was flagged by the flagman of Extra 4759 and stopped to the rear of the preceding train. According to the statement of the engineer of Extra 4786, after Extra 4759 had again proceeded, he discovered that the air compressor had failed as a result of a defective bearing. He instructed his conductor to inform the dispatcher that assistance was necessary. The engineer and the conductor were instructed that the two electric engines of Extra 4731 would couple to the rear of their train and push it into clear at a crossover about 1.7 miles farther south. The front brakeman was instructed to proceed to the rear to couple engines 4731 and 4721 to the rear of the train and to inform the engineer of those engines that the latter would be in the control of the train air brakes. The engineer of Extra 4786 then placed the master control switch in "off" position, closed the double-heading cock, and changed the dead-engine cap for dead-engine operation. Soon afterward the train brake system was charged from engine 4731, a road train-brake test was made, and Extra 4786 proceeded southward. The engineer and the conductor said that as their train was approaching the point where the accident occurred the speed was about 20 miles per hour and they were maintaining a lookout ahead. Because of track curvature and cars on the siding the view ahead was restricted to about 1,600 feet. The engineer said that when the engine was about 400 feet north of signal F1313 he asked the fireman what indication was displayed by that signal. The fireman called its indication as being stop-and-proceed. At that time the conductor alighted and gave stop signals to the crew of engines 4731 and 4721 at the rear of the train. The engineer of Extra 4786 said that he was startled by receiving a stop-and-proceed indication and became confused. Soon afterward he observed the rear of Extra 4759, and after the engine passed signal F1313 he placed the brake valve in emergency position, but the distance was then insufficient to stop his train short of Extra 4759. The enginemen said that the speed was about 15 or 20 miles per hour at the time of the collision.

Under the rules, the crew of Extra 4759 was required to provide flag protection. The conductor, who was on engine 4759, had instructed his flagman to relieve the regular flagman and to protect the train. No member of the crew of the following train heard any torpedo exploded, or saw either the flagman or a lighted fusee. The engineer of Extra 4786 said that if proper flag protection had been provided the accident would have been prevented. Since the flagman was killed in the accident, it could not be determined why he failed to provide flag protection.

After the dead-engine cap of engine 4786 was changed for dead-engine operation, the double-heading cock was closed, and the train-brake system was charged from engine 4731. The engineer of engine 4786 could apply the engine brakes by means of the independent brake valve and the automatic brake valve could be used to make an emergency application of the train

brakes. If it was desired to make a service application of the train brakes from the first engine it would be necessary to place the automatic brake valve in service position and to open the double-heading cock; however, under this arrangement, the brake application would be retarded because of air being supplied from engine 4731. The conductor stated that the engineer said the brakes could not be controlled from engine 4786. The engineer said he understood that he could control the train brake system, but because of the speed at which engines 4731 and 4721 were pushing the train, he became confused and did not make an emergency application in time to avert the accident. The engineer of engines 4731 and 4721 understood that the brakes could be controlled from engine 4786. He said that his controller was in the fourth notch and, if the independent brake on engine 4786 had been applied, the increased train resistance would have been indicated on the ammeters and he would have reduced the power.

Under the rules, after Extra 4786 passed signal F1301, which was displaying stop-and-proceed, this train was required to move prepared to stop short of train or obstruction until a more favorable signal indication was received. Because the master control switch of the first engine was in "off" position, the cab signals were inoperative. If this train had been operated prepared to stop at signal F1313, the accident would have been prevented. The front brakeman and the flagman of Extra 4786 were in the caboose at the time of the accident. Because of the overhead catenary system, train-service employees are prohibited from stationing themselves on the tops of cars. Under the rules, when a brake valve and whistle are provided on the first car, the enginemen of an engine pushing cars are not required to stop such movement if trainmen are not in view.

Cause

It is found that this accident was caused by failure to provide flag protection for the preceding train, and by failure properly to control speed of following train in accordance with signal indications.

Dated at Washington, D. C., this sixteenth day of December, 1942.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.