

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
SOUTHERN PACIFIC RAILROAD

YAMSAI, OREG.

AUGUST 2, 1937

INVESTIGATION NO. 2190

SUMMARY

Inv-2190

Railroad:	Southern Pacific
Date:	August 2, 1937
Location:	Yamsay, Oreg.
Kind of accident:	Derailment
Train involved:	Passenger
Train Number:	Second 24
Engine number:	4335
Consist:	11 cars
Speed:	60 miles per hour
Track:	Tangent; 0.2 percent ascending grade
Weather:	Clear
Time:	7:21 a.m.
Casualties:	47 injured
Cause:	Broken rail

September 10, 1937

To the Commission:

On August 2, 1937, there was a derailment of a passenger train on the Southern Pacific Railroad at Yamsay, Oreg., which resulted in the injury of 40 passengers and 7 dining car employees.

Location and method of operation

This accident occurred on the Kirk Sub-division of the Sacramento Division, extending between Klamath Falls and Crescent Lake, Oreg., a distance of 99.1 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block-signal system. Timetable directions are used in this report. The derailment occurred at a point approximately 2,335 feet west of the west switch of the siding at Yamsay. Approaching the point of accident from either direction, the track is tangent for several miles; the grade is 0.2 percent ascending for east-bound trains.

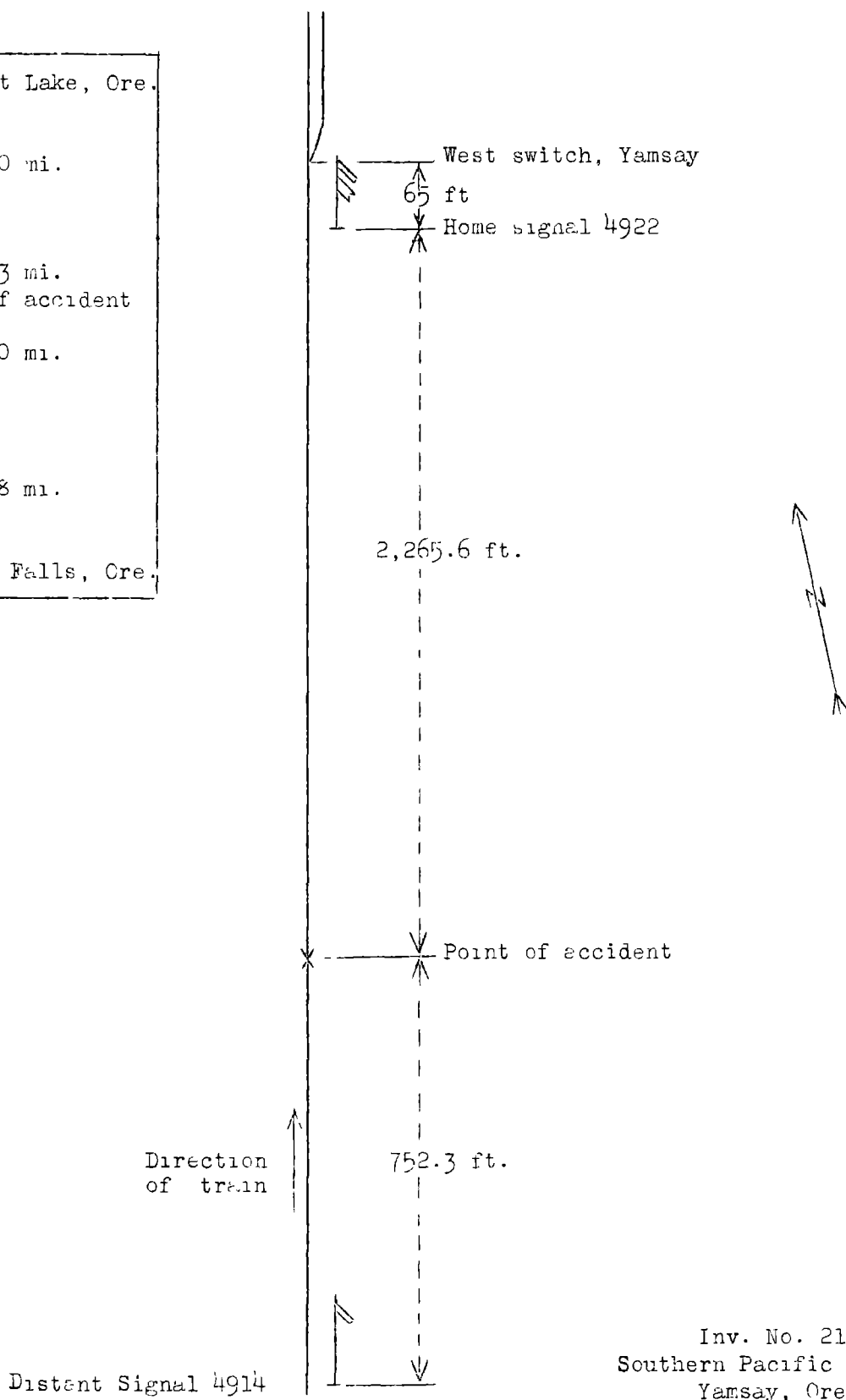
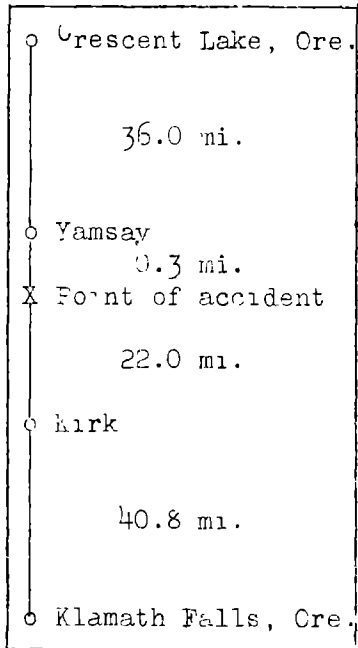
The track is laid on a 2-foot fill with 110-pound rails, 39 feet in length, with an average of 22 treated fir ties to the rail length, fully tie-plated, single spiked, with 6 rail anchors to the rail length, and ballasted with 8 inches of volcanic cinders. The track is well maintained.

East-bound distant signal 4914 is located 752 feet west of the point of accident, while east-bound home signal 4922 is located 2265 feet east of the point of accident and 65 feet west of the west switch of Yamsay siding.

The weather was clear at the time of the accident, which occurred at 7:21 a.m.

Description

Second 24, an east-bound passenger train, consisted of 1 club car, 3 tourist cars, 1 coach, 2 dining cars, 1 lounge car and 3 tourist cars, in the order named and of all-steel construction, hauled by engine 4335, a 4-8-2 Mountain type locomotive, and was in charge of Conductor Gardenhire and Engineman Chamberlain. This train left Klamath Falls at 5:27 a.m., 1 hour 22 minutes late, passed Kirk, the last open office, approximately 22 miles west of the point of accident, at 6:42 a.m., according to the train sheet, 1 hour 40 minutes late; passed distant signal 4914, which was displaying a proceed indication, and was



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Southern Pacific Company
Yamsay, Oregon
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derailed by a broken rail while traveling at an estimated speed of 60 miles per hour.

The engine and first four cars were not derailed and stopped with the pilot of the engine at a point 1,438 feet beyond the point of derailment; the fifth, sixth and seventh cars remained coupled and stopped 160 feet behind the head portion of the train with the rear truck of the fifth car and all trucks of the sixth and seventh cars derailed; the four rear cars also remained coupled and stopped derailed to the right, 187 feet behind the seventh car.

Summary of evidence

Engineman Chamberlain stated that a brake test was made at Klamath Falls and a running test was also made leaving that point and the brakes functioned properly en route. His train was approaching Yamsay at a speed of 60 miles per hour, and the automatic signals were displaying clear indications. The first intimation he had of the derailment was the reduction in the speed of the train and upon looking back he saw that the train was out of line and he immediately applied the brakes in emergency. Examination of the engine and first four cars shortly after the train stopped disclosed new marks on the leading truck, the right front step, and the right front journal-box of the third car, indicating that they had been recently struck by some object; the strap supporting the air-conditioning equipment on the fourth car was bent, indicating that this object had fallen back under the train. No observations were made of the equipment to the rear of the fourth car. The engineman said there was no sound or unusual riding quality of the engine as it passed over the point of derailment that would indicate a broken rail, and it was his opinion that if there had been any defect greater than a crack in the rail, he would have noticed it. The statements of Fireman House corroborated those of the engineman and brought out nothing additional of importance.

Conductor Gardenhire stated that approaching the point of the derailment he was sitting on the right side and about one-third back from the forward end of the first car. His first intimation of anything wrong was when he felt a brake application, which he assumed was being made in observance of signal indications. The train had stopped by the time he and the head brakeman opened the vestibule door. Approaching the point of accident no unusual sounds or riding qualities were observed. Accompanied by the engineman and head brakeman, Conductor Gardenhire later made an examination of the track and equipment

and saw the marks previously described by the engineman; it was the conductor's opinion that these marks were made by a piece of rail thrown from the track. Conductor Gardenhire then went to the rear of the train and found a broken rail immediately behind the rear car. Head Brakeman Heinbucher, who was also in the first car, heard no unusual sound or felt anything under the car.

Rear Brakeman King, who was in the last car, saw a break in the right rail about 2 or 3 feet back of the rear car. Examination of the track for a distance of one-fourth mile to the rear of the train disclosed no indication that anything had been dragging under the train.

Trainmaster Sprague, who was in the sixth car, felt that car become derailed while the train was running about 60 miles per hour. Some time after the accident he made an examination of the equipment and track and it was his opinion that a broken rail was the cause of the accident.

Signal Maintainer Kenoyer, who has charge of signals in this vicinity, stated that the east-bound distant signal at Yamsay functioned properly after the track had been repaired following the derailment and no false indications have been reported on his territory during the 18 months he has been in charge. He said that had a broken rail existed between the distant and home signals prior to the approach of 2nd 24, that train would have received a stop indication at the distant signal.

Roadmaster Parker, who arrived at the scene of the accident about 9:15 a.m., said that the first mark of derailment was a wheel mark on a tie just east of the broken end of the failed rail, which was on the right side of the track. This rail was a Bethlehem Steel, Maryland, open hearth, 39-foot, 110-pound rail, bearing heat number 64372-F-10, rolled in 1929 and laid in the track in the fall of that year. Approximately 30 feet 11 inches of the receiving end of this rail remained in the track, while the leaving end, measuring approximately 8 feet 1 inch, was broken into 11 pieces; pieces of the rail having the ball intact are listed consecutively from west to east, as follows:

Piece No.	Length
1	30' 11"
2	1' 2 3/4"
4	7 3/4"
5	2' 3 1/4"
6	10 3/4"
8	9 1/4"
9 1/2	4 1/2"
11	1' 11"

Transverse fissures between adjacent pieces, showing the percentage of the coverage of the ball of the rail and the relative locations of the fissures, were found by the roadmaster, as follows:

Fissures between	Percent	Location of fissures
Pieces 1 and 2	60	1/2" off center from gauge side
Pieces 2 and 4	30	5/8" off center from gauge side
Pieces 4 and 5	50	5/8" off center from gauge side
Pieces 5 and 6	25	1/2" off center from gauge side
Pieces 6 and 8	60	3/8" off center from gauge side.

All of the fissures were new, there being no indication that any of them had extended to the surface prior to the derailment. It was the roadmaster's opinion that a broken rail caused the derailment. He said a rail-detector car passed over this territory 16 months prior to the accident and some transverse fissures were found in the vicinity of the point of accident at that time. He thought the maintenance of the track was in keeping with the permissible speed of 60 miles and 40 miles per hour for passenger and freight trains, respectively. Section Foreman Collins had been in charge of the section on which the derailment occurred since July 14 and had not found it necessary to do any work on the track in this vicinity prior to the accident.

District Engineer Given, who arrived at the scene of the accident about 1:30 p.m., found the track destroyed for a distance of 671 feet. He saw the 30-foot 11-inch piece of the broken rail that remained in the track immediately behind the rear car and the fracture clearly showed a transverse fissure which covered about 60 percent of the ball area. There was no exterior sign to indicate that the rail was not all right. The track was inspected for a distance of one-fourth mile west of the broken rail and no indication of dragging equipment was found, and the track was regular in gauge and surface. During the time the failed rail had been in service, approximately 72,000,000 tons had passed over it. The district engineer said

that there had been six rail failures, due to transverse fissures, which had occurred in rails bearing the same heat number as the one involved in the derailment.

Subsequent to the accident, approximately one mile of the track west of the point of derailment was checked in the presence of the Commission's inspectors; the gauge was uniformly 4 feet 8 1/2 inches and the variation of the levels did not exceed one-eighth inch. The fractured rail was found to be as described by Roadmaster Parker. A check of the rail-detector recording tape disclosed that no transverse fissures were indicated in this rail at the time the rail-detector car passed over the track on April 21, 1936.

Discussion

The rear truck of the fifth car of Train Second 24 was the first to be derailed, the engine and first four cars having passed the point of derailment without any unusual sound or motion being detected by the engineman, fireman, conductor or head brakeman. When the train stopped, the rear end was a few feet east of the end of a broken rail. The fracture showed the existence of a transverse fissure covering approximately 60 percent of the area of the ball of the rail and its surface indicated the fracture to be new. The remainder of the rail, approximately 8 feet 1 1/4 inches in length, was broken in several pieces among which several transverse fissures were found. The speed of the train was 60 miles per hour at the time of the derailment; the gauge and surface of the track were good and there was no indication of anything having dragged under the train. Apparently the rail failed under the train.

A rail-detector car had tested the rail in question on April 21, 1936, and no defects were indicated at that time.

Conclusion

This accident was caused by a broken rail.

Respectfully submitted,

W. J. PATTERSON,
Director.