

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT NO. 3397  
GREAT NORTHERN RAILWAY COMPANY  
IN RE ACCIDENT  
NEAR WILLOW LAKE, S. DAK., ON  
MARCH 22, 1951

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SUMMARY

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Date: March 22, 1951  
Railroad: Great Northern  
Location: Willow Lake, S. Dak.  
Kind of accident: Derailment  
Train involved: Passenger  
Train number: 186  
Engine number: 1477  
Consist: 2 cars  
Estimated speed: 25 m. p. h.  
Operation: Timetable and train orders  
Track: Single; tangent; 0.59 percent  
ascending grade eastward  
Weather: Clear  
Time: 3:43 p. m.  
Casualties: 2 killed  
Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3397

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

GREAT NORTHERN RAILWAY COMPANY

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June 6, 1951

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Accident near Willow Lake, S. Dak., on March 22, 1951,  
caused by a broken rail.

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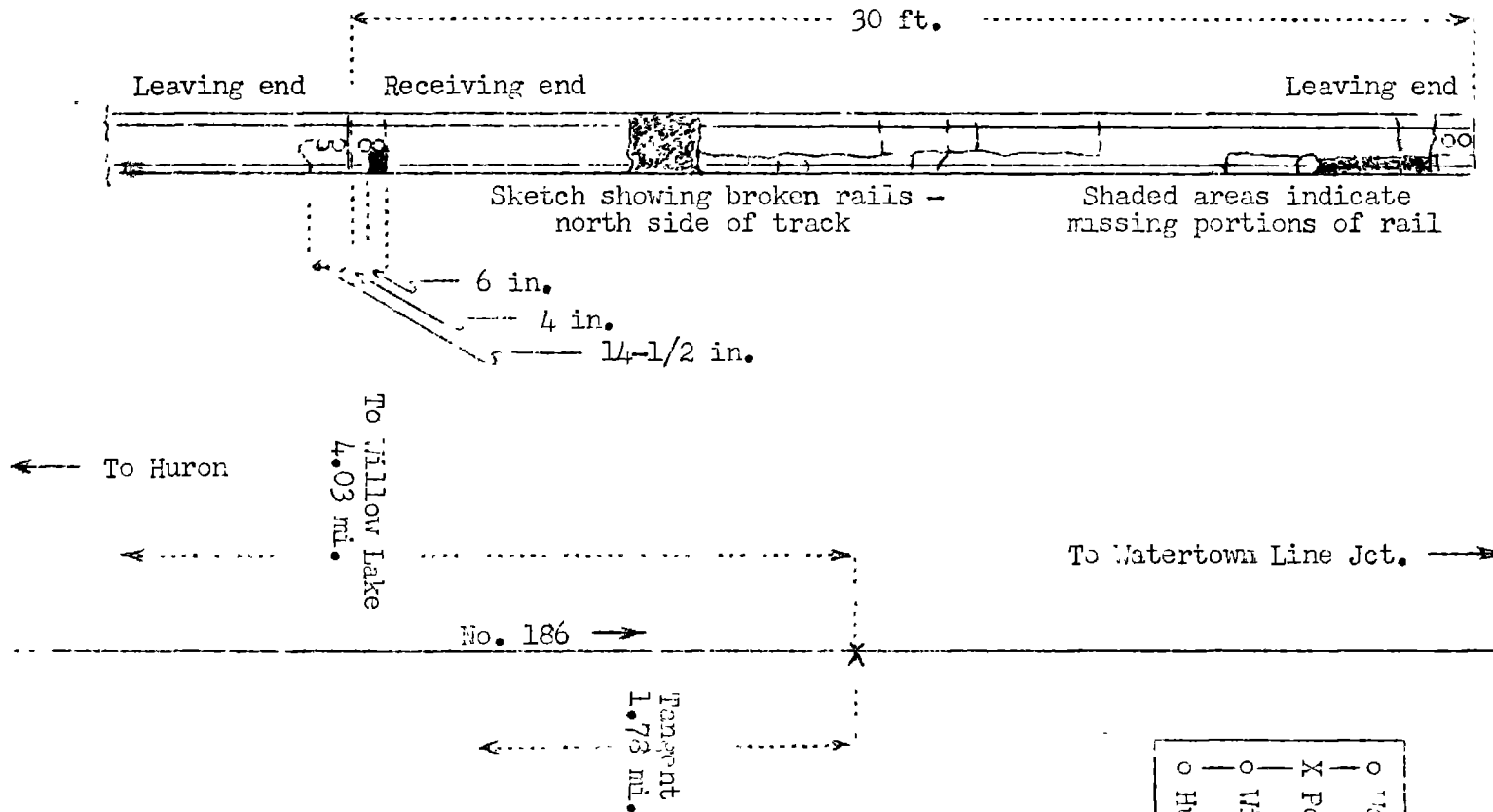
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On March 22, 1951, there was a derailment of a passenger train on the Great Northern Railway near Willow Lake, S. Dak., which resulted in the death of two train-service employees.

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<sup>1</sup>  
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.



Report No. 3397  
 Great Northern Railway  
 Willow Lake, S. Dak.  
 March 22, 1951

o	Watertown Line Jct., Minn.
	119.24 mi.
	X Point of accident
	4.03 mi.
o	Willow Lake, S. Dak.
	37.78 mi.
o	Huron, S. Dak.

### Location of Accident and Method of Operation

This accident occurred on that part of the Willmar Division extending between Huron, S. Dak., and Watertown Line Jct., Minn., 161.05 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred on the main track at a point 41.81 miles east of Huron and 4.03 miles east of the station at Willow Lake. The track is tangent throughout a distance of 1.78 miles immediately west of the point of accident and a considerable distance eastward. The grade is 0.59 percent ascending eastward.

In the immediate vicinity of the point of accident the track is laid on a fill about 5 feet in height. The track structure consists of 56-pound rail, 30 feet in length, laid new in 1888, on an average of 18 treated ties to the rail length. It is provided with 4-hole 24-inch joint bars. Rail anchors and tie plates are not used. It is ballasted with gravel to a depth of about 7 inches below the ties.

The maximum authorized speed for passenger trains handled by steam engines was 25 miles per hour.

### Description of Accident

No. 186, an east-bound first-class passenger train, consisted of engine 1477, one coach and one baggage-mail car, in the order named. The first car was of all-steel construction, and the second car was of steel-underframe construction. This train departed from Huron at 2:15 p. m., 1 hour 30 minutes late, departed from Willow Lake, the last open office, at 3:34 p. m., 1 hour 31 minutes late, and while moving at an estimated speed of 25 miles per hour the entire train was derailed at a point 4.03 miles east of the station at Willow Lake.

There were no separations between the units of the train. The engine and the tender stopped on their left sides, approximately parallel to the track, with the front end of the engine 405 feet east of the point of derailment and 9.8 feet north of the center-line of the track. They were considerably damaged. The cars stopped approximately parallel to the track, with the rear end of the second car on the track structure. The first car leaned to the north at an angle of about 15 degrees, and the second car leaned to the north at an angle of about 10 degrees. Both cars were slightly damaged.

The engineer and the fireman were killed.

The weather was clear at the time of the accident, which occurred at 3:43 p. m.

Engine 1477 is of the 4-6-2 type. The total weight in working order is 273,760 pounds, distributed as follows: engine-truck wheels, 46,340 pounds; driving wheels, 176,500 pounds; and trailing-truck wheels, 50,920 pounds. The specified diameters of the engine-truck wheels, the driving wheels, and the trailing-truck wheels are, respectively, 36-1/2 inches, 73 inches, and 49 inches. The driving wheelbase is 13 feet long, the total wheelbase is 33 feet 9 inches long, and the total length of the engine and tender, coupled, is 77 feet 1 inch.

#### Discussion

When the accident occurred, No. 186 was moving on tangent track at an estimated speed of 25 miles per hour in territory where the maximum authorized speed for this class of equipment was 25 miles per hour. The enginemen were on the engine, and the members of the train crew were in various locations throughout the cars of the train. The brakes of the train had been tested and had functioned properly when used en route. Members of the train crew said that before the derailment occurred the cars were riding smoothly. Inspection after the derailment occurred disclosed no indication of defective equipment nor of an obstruction having been on the track.

After the accident occurred, two broken rails were found on the north side of the track. At the leaving end of the westerly rail the web was split through the bolt holes. The fracture extended downward through the base at a point 14-1/2 inches west of the end of the rail. The easterly rail was broken into many pieces, 20 of which were recovered. At the receiving end of this rail the web was split through the bolt holes. Fractures extended downward through the base at points 4 inches and 10 inches east of the end of the rail, and upward through the head at a point 10 inches east of the end of the rail. The joint bars between the rails were bent vertically, and the bolts were bent and battered. Apparently the initial break occurred in the web of the east rail, then the fracture progressed upward through the head. A portion of the head was dislodged, either by a preceding train or by the engine-truck wheels of the engine of No. 186, and the wheels of the engine dropped to the joint bars with sufficient force to break the web and base of the leaving end of the westerly rail and to dislodge the joint bars.

The track in this vicinity was last inspected by the section foreman from a track motor-car about 2 hours 10 minutes before the accident occurred, and it was inspected by a track inspector from a track motor-car about 4 hours 15 minutes before the accident occurred. No defective condition was observed. A rail-defect detector car had not been operated over this line.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this sixth day of June, 1961.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.