

Railway accident investigation report

Railway operator	Kishu Railway Company
Accident type	Train derailment
Date and time	About 11:00, January 22, 2017
Location	At around 468 m from the origin in Gobo station, between Gobo station and Gakumon station, single track, Kishu Railway Line, Gobo City, Wakayama Prefecture

SUMMARY

On January 22, 2017, the outbound 17D train, composed of one vehicle, started from Gobo station bound for Nishi Gobo station, Kishu Railway Line of Kishu Railway Company, departed from Gobo station at about 10:58.

When the train proceeded about 500 m from Gobo station, the driver of the train noticed abnormal sounds several times from under floor, then applied the emergency brake and stopped the train.

The driver got off the train to check the situation, and found that all axles in the rear bogie of the vehicle had been derailed to right.

There were 5 passengers and the driver onboard the train, but no one was injured.

PROBABLE CAUSES

It is probable that the left wheels of the 1st and 2nd axles in the rear bogie derailed to the inside of the gauge, *i.e.*, right side of the left inner rail, because the gauge was widened largely while the train was passing through the 160 m radius left curved track, in the accident.

As for the large gauge widening, it is somewhat likely that the gauge was widened dynamically by the rail tilting and deflection of rail due to the lateral force caused by the train running, because the rail fastening forces by the spikes had been deteriorated as there had been continuous decays and cracks in the sleepers in the left curved track.

It is somewhat likely that the deterioration of the rail fastening forces, due to the existence of continuous decays and cracks in the sleepers, were related with that the company had not comprehended sufficiently the dangerousness against derailment by the dynamic gauge widening due to the continuous defects of sleepers and rail fasteners, in the inspection for composed materials of railway track etc., and had not implemented the track maintenance corresponding to the inspected results promptly.

In addition, it is somewhat likely that the following (1) to (3) also related to the occurrence of the accident.

- (1) The margin against derailment to the inside of the gauge had become small due to relatively large slack being existed in the curved track.

- (2) The repetitive generation of remarkably large lateral forces accompanied with train running had promoted gauge widening because there was large alignment due to the angular rotation in the rail joints in the section just before the accident site, for a long term.
- (3) The guard rail did not demonstrate its function to prevent derailment sufficiently because the width of the flange way was widened dynamically due to the rail tilting and the rail deflection by the lateral force acting on backside of wheel from the left wheel, as the rail fastening forces of the guard rail had deteriorated by the defects in the sleepers and the rail fastening devices, and the guard rail which had not been fastened to each sleeper.