Rail Accident Investigation Branch

RAIB Bulletin 04/2009

Passenger train derailed in November 2008

Description of the accident and findings of the RAIB

1. In November 2008 a passenger train was derailed immediately outside a terminus station. It was travelling at about 10 mph (16 km/h) at the time, and none of the three passengers and four staff on board was hurt.
2. Resignalling was in progress at a junction station. Single line working over the down line, under arrangements made in accordance with module P1 of the railway Rule Book, was in operation between the junction and the terminus of the double track branch line.
3. There are four platforms and several sidings at the terminus, which is controlled from a mechanical signal box (Figure 1). During the period of single line working, which lasted for a week, trains leaving the terminus had to travel from the platforms to the down line over routes for which none of the signals at the station could be cleared. The interlocking was not disconnected, and all other moves at the station were being signalled normally. The signallers had been issued with route cards setting out the lever positions required to set the route for trains starting from each platform and travelling over the down line in the up direction (Figure 2).

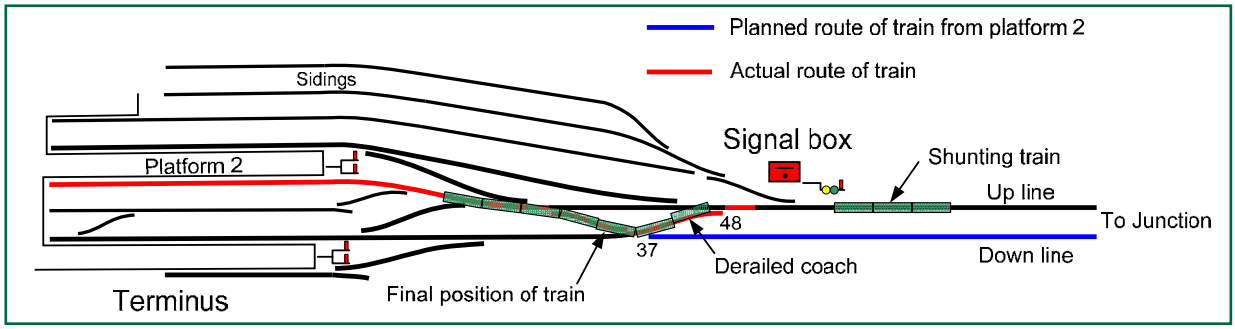

Figure 1: Route of train and position of trains after derailment

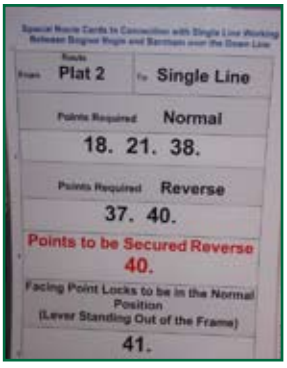

Figure 2: Route card prepared for use during single line working

4. On the day of the accident, the last day of the single line working, at about 05:25 hrs, the signaller who had been on duty overnight at the terminus was shunting a set of empty coaches out of the sidings. At the same time he was setting the route for a passenger train, a 7-coach EMU, to leave platform 2. The signaller had worked at this signal box for almost five years. He had been on duty since 21:23 hrs the previous evening, and was due to finish work at 06:45 hrs. He had worked a similar shift the previous night, following a late turn the day before, and was adequately rested.

5. The signaller set most of the route for the passenger train to depart, and arranged for number 40 points to be secured by a clip and padlock as required by the route card, but he overlooked the need to reverse the lever working number 37 points. He then gave permission for the train to leave platform 2 against the starting signal at danger and run up the down line. Because the train was to travel over the 'wrong' line, the interlocking prevented the starting signal being used, even if the route had been set correctly.

6. As the passenger train left the station, it was diverted at points 37 towards the up line, where the set of empty coaches was standing. It was dark at the time and the train driver was not able to see that the points were not correctly set, but on passing over them he quickly realised that his train was taking the wrong route and stopped with the driving cab of the train outside the signal box, about 25 m short of the standing empty train.

7. The signaller then instructed the driver to return the passenger train to the station, intending to then reset the route correctly and send the train out again. Another driver, who had been travelling as a passenger, agreed to go to the rear end of the train and drive it back to the platform. He set off, but after moving about 27 m the train stopped with all wheels of the leading bogie of the last coach derailed to the right, in the position shown in Figure 1.

8. When the surrounding tracks had been made safe, the passengers were evacuated from the last coach via a ladder and walked back to the station.

9. After the train was diverted through facing points 37, it had then run through trailing points 48 which were in the normal position. On moving back towards the station, what was now the trailing bogie of the train was diverted to the right at 48 points and dragged the leading bogie of that coach into derailment.

10. The signaller had not realised, despite the indications on his signal box diagram and the sound of points 48 being run through, that the front of the train had passed over points 48 when they were not in the correct position, and that therefore the assistance of technicians would be required to reverse and clip the points before the train could be moved clear of them.

11. Points 37 and 48 form a crossover between the up and down lines. Usually, the points at both ends of a crossover are worked by the same lever or switch. In this case they are worked by separate levers and interlocked in a way which ensures that, as far as possible, a train which leaves the terminus without authority (passing one of the starting signals at danger) will be diverted onto the up line and away from the risk of a head-on collision with an arriving train. This arrangement was introduced at several of the termini operated by the former Southern Railway following a collision at Caterham, Surrey, in 1945, and is therefore known as 'Caterham Locking'.

Learning points

12. The RAIB has decided not to conduct a full investigation as it does not believe that such an investigation would lead to the identification of any further significant lessons that would improve the safety of railways or prevent railway accidents and incidents. However, the RAIB does believe that there are some learning points to be disseminated to other signallers and their managers.

13. These learning points are:

- When degraded working arrangements are in operation, the protection normally provided by the interlocking may be wholly or partly absent. In these circumstances, signallers need to ensure that a route is correctly set before giving permission for a train to pass over it.
- When an unexpected event occurs, signallers need to stop and think before trying to recover the situation: there may be pitfalls in what seems at first to be an obvious course of action.

14. The RAIB has written to the train operator and infrastructure owner informing them of its decision and conclusions. Other operators and infrastructure owners are requested to consider the findings of this bulletin and take action to disseminate the learning points accordingly.

The events described above took place at Bognor Regis, West Sussex, on 14 November 2008.

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