14 December 2005

Leigham Junction: report and recommendations

Rail Safety and Standards Board (RSSB) has issued its formal inquiry report into the circumstances that led to the derailment of a passenger train at Leigham Junction in Streatham, London, on 27 May 2005.

The formal inquiry was convened under independent chairmanship and included representatives on the panel from the involved parties. As with all such inquiries the panel's task was to establish the immediate and underlying causes of the accident and make recommendations to prevent or reduce the risk of recurrence.

Sequence of events

The 1550 hrs Streatham Hill to London Bridge train via Tulse Hill and South Bermondsey departed Streatham Hill Station some 17 minutes late. It passed through Leigham Court Tunnel and approached Leigham Junction en route to Tulse Hill via the Down Leigham Spur. At 1609 hrs whilst travelling at around 13mph it derailed at the junction facing points. The first coach was completely derailed as was the leading bogie of the second vehicle.

Conclusions

Immediate cause

Train 2N80 derailed on 354 points as a result of both switch blades standing open with detection made up.

Underlying causes

1. The *normal* detection contacts in the circuit controller of the points machine were made up with the machine mid stroke because:
    - The gaps between the fixed and moving contacts were far less than specified.
    - The gap was negligible at one point in the machine’s throw.
    - The fixed contacts were incorrectly seated allowing them to follow to a certain extent the moving contacts.
    - There was a degree of eccentricity in the cams and followers which exacerbated the situation.
    - The temperature on the day was high enough to close the already inadequate gap.
2. These deficiencies arose through inadequate servicing. The technician undertaking the servicing:
    - Regularly used an incorrect gauge for checking the detection gap.
    - Omitted the specified pressure test on the closed contacts.

There is no specified requirement to check the lower fixed contacts and the technician did not notice that they were incorrectly seated and moveable.

The present system of competence assessment is inadequate in identifying incorrect working practices.

There were no adequate monitoring systems in place, which revealed that:

- The technician was not rigorously applying the relevant specification.
- The technician did not have the correct tools to undertake the work correctly.
- This and other Style 63 point machines were in a potentially dangerous condition.

Recommendations

The report makes recommendations for improvements in a number of key areas and these are summarised as follows.

- Consider the development of a strategy for the gradual replacement of Style 63 machines. In the interim explore the possibility of modifying the design of the circuit controller. Network Rail
- Review the requirements of the specification again to ensure that the specified tasks can readily be performed by a competent technician. Consider adding a check on the seating and security of the lower fixed contacts. Network Rail
- With respect to Style 63 machines, include any revisions to the design or maintenance tasks in training programmes. Network Rail
- Review manufacturing and workshop servicing. Incorporate in a new signalling equipment workshop engineering notice. Take steps to enforce the requirements. Network Rail
- Review the design of the 'L' gauge used for checking the detection contact gaps to see if a more robust design would be better. Network Rail
- Review all documents relating to the supply and use of tools and equipment for Style 63 machines to ensure that there is one consistent numbering system. Network Rail
- Review the need for continuing competence assessment of signal technicians using a work based system. Any system developed should be simple, practical and effective. Network Rail
- Review the type and frequency of monitoring carried out by supervisors and managers to expose incorrect working practices and the incorrect use of tools and equipment and identify signalling equipment whose condition does not comply with specified standards. Network Rail
- Review systems for obtaining motive power units to assist in emergency situations. Network Rail

- Review the guidance given in the Network Rail standard and operations procedure for consistency. Network Rail

RSSB has issued a full copy of the report to each member of the Railway Group and the other organisations involved in the accident. All recipients of the report need to review the findings and recommendations and take actions where appropriate to address identified deficiencies within their own systems. RSSB will track the industry's response to this report.