

# Runaway and derailment of a rail vehicle near Bury, Greater Manchester, 22 March 2016

## 1. Important safety messages

This accident demonstrates the importance of:

- ensuring that trains are appropriately secured for the activity being undertaken, including the use of handbrakes or an adequate number of correctly positioned wheel scotches
- assessing the risks of using trap points to protect lines and why assessments should include an examination of the potential consequences of derailing, such as the possibility of vehicles fouling running lines or encountering other hazards
- neighbouring rail networks ensuring that documented and practised arrangements are in place which will allow them to contact one another quickly in situations involving the safety of the line.

## 2. Summary of the accident

A multi-purpose vehicle (MPV) ran away down a gradient during fault-finding of the vehicle's air braking system. The MPV left the East Lancashire Railway's infrastructure and entered the off-street section of the Manchester Metrolink light rail system, where it derailed on a set of trap points. No-one was injured as a result of the accident. However, the MPV was damaged and came to rest foul of the northbound Metrolink line between Radcliffe and Bury tram stops.



The derailed MPV

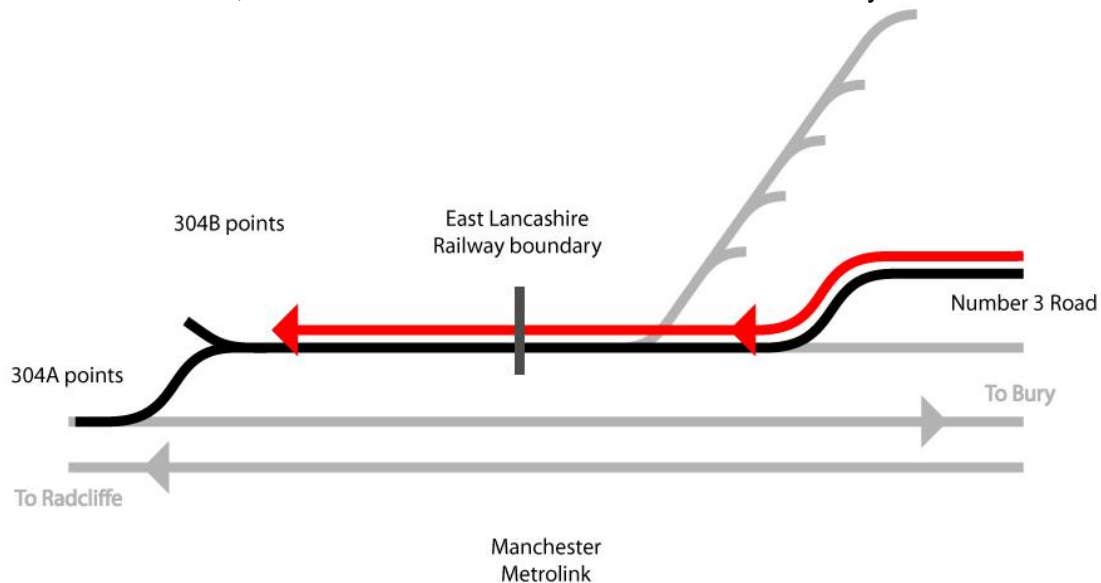
### 3. Cause of the accident

The MPV involved is owned by Network Rail and consists of two coupled rail vehicles, each with its own driving cab. These vehicles are equipped with air-operated disc brakes and also a hydraulically-operated handbrake. Each vehicle has an air-brake distributor, located on the underframe.

The East Lancashire Railway's Baron Street yard consists of a number of sidings and is on a 1 in 119 gradient, descending to the south. Number 3 Road of the sidings runs the entire length of the yard and is connected at its south end, via points, to a line which joins onto the Metrolink light rail system. The boundary between the two systems is marked by a fence and a locked gate.

Once on Metrolink infrastructure, this connecting line passes over a set of hydraulically operated points (304 points, which consist of an 'A' and a 'B' end). When set normally 304A points direct northbound trams to Bury, while 304B points act as trap points which are intended to derail movements from the yard towards the cess and away from the tramway. The cess is bordered at this location by trees and an embankment.

On the morning of Tuesday 22 March 2016, staff working for JSD Rail were undertaking training on the MPV while it was stationary within the yard. During this training a concern was raised about the brake pressure readings being shown by one of the vehicles. Having alerted JSD Rail's maintenance staff to the problem, and while waiting for the maintainer to investigate, the JSD Rail staff involved in the training arranged for the MPV to be moved onto Number 3 road, where they undertook a number of slow-speed running brake tests. These tests were undertaken by a driver and driver-assessor, who worked for JSD Rail, accompanied by a route conductor, who worked for the East Lancashire Railway.



**Simplified diagram showing the track layout (not to scale)**

During these tests, the MPV was brought to a stand on Number 3 road, towards the southern end of the yard. Because the responsiveness of the brakes remained a concern, the driver decided to check on the air-brake distributors and left the cab at the southern end of the MPV (which was the active cab). After the driver had left, the driver-assessor shut down the southern cab so that he could change ends in preparation for a further test run. Shutting the active cab down vents the automatic air brake pipe and should ensure that the MPV's air-brakes remain fully applied.

The driver-assessor and the route conductor then left the southern cab, descended to the track and walked to the northern cab. The hand-brake was not applied by either the driver or driver-assessor, because it was not standard practice for drivers to do this when changing ends.

As the driver-assessor and route conductor walked northwards, the driver, who was on the opposite side of the MPV, used the distributor release handles to drain the control reservoirs of the distributors on both vehicles. This fully released the air-brakes on both vehicles. Once drained, a distributor control reservoir can only be re-filled by air supplied from the automatic air brake pipe; this means that the brakes on the vehicle concerned would have to be commanded to release (in order to pressurise the brake pipe and recharge the control reservoirs) and then to apply, before the air-brakes would once again be effective.



The driver-assessor and route conductor boarded the northern cab and shortly afterwards realised that the vehicle was rolling away to the south. The driver-assessor activated the cab in order to try to apply the brakes and stop the MPV but, despite using a number of different controls and safety systems, was unable to do so. As the runaway gathered speed, the driver-assessor and route conductor jumped from the MPV.

On hearing a shouted warning that the MPV was running away, the driver, who had returned to the southern cab, also jumped to the track. However, as the MPV passed him, he managed to pull himself back on board the moving vehicle and to enter the northern cab, where he also unsuccessfully attempted to use the controls to stop the MPV. He remained aboard the MPV as it derailed on 304B points, but did not suffer any injuries. The MPV achieved a speed of around 13 mph (20 km/h) during the runaway. It remained upright during the derailment and did not descend the embankment located adjacent to the cess. It did, however come to a rest in a position foul of northbound tram movements.



**304B points. Shown set to 'reverse'**

The driver and driver-assessor were able to warn approaching trams of the hazard presented by the derailed MPV in sufficient time for them to stop clear of it. A tram driver subsequently reported the incident to Metrolink control. The route conductor also telephoned the East Lancashire Railway duty manager to report the incident; he was asked by the duty manager to contact a third member of East Lancashire Railway staff, who would then be able to contact Metrolink. Although in this case Metrolink control were informed of the incident by its tram driver, in other circumstances, this lack of direct notification by the East Lancashire Railway duty manager could have led to a longer delay in Metrolink control being warned of the potential danger to trams.

#### **4. Previous similar occurrences**

The need for trains to be positioned and secured in a way that minimises the risks from the activity being undertaken is discussed in RAIB's report into the runaway and subsequent collision near to [Loughborough Central station](#), Great Central Railway.

The secondary risks which can result from the use of trap points to reduce the risk of overruns are discussed in RAIB's report into the derailment of a freight train at [Carrbridge](#). This report also discusses the assessment process framework used on the mainline railway within Network Rail standard NR/L2/SIG/30009/GKRT0064 'Provision of Overlaps, Flank Protection and Trapping (Former Railway Group Standard GK/RT0064)'.