

BREAKAWAYS

by John Hawkins

Looking through training notes from almost fifty years back, I was struck by the number of references to breakaways, a problem little heard of today. A breakaway is the unintentional splitting of a train on the running lines. This should result in an emergency brake application on both halves of the train through loss of air from the train line pipe, or on modern rolling stock through loss of power in the round-the-train proving circuit.

IN DAYS OF OLD

I think this problem was mainly related to the older rolling stock that consisted of individual cars, rather than trains that are formed of two or three units¹. Unit stock has semi-permanent bar couplers between the cars of a unit, and requires a visit to a pit road to effect uncoupling. Older stock, such as Q Stock (withdrawn 1971) and Pre-1938 Tube Stock (withdrawn 1966), was referred to as 'car stock', every car having a Ward coupler at each end. Such trains were frequently reformed to release individual cars for scheduled maintenance, the intervals for which varied between motor cars, control trailers and trailers. The Ward coupler must have proved unreliable in the past, because side chains were also used between cars in case of failure, although their use was sometimes overlooked. Engineer's trains generally continue to be formed of vehicles equivalent to car stock.

The first that a train crew would know of a breakaway would be an unexpected emergency brake application. The driver should then have commenced a routine to detect the reason, first checking possible causes at the front of the train. Had the train been front-tripped on a signal trainstop or obstruction? If resetting the trip did not cure the problem, then it was cut out to see if it was defective. The deadman device was then cut out to check if it had become defective, but when the problem continued it had to be cut back in. It was only now that the driver had to contact the train guard to ask him² to cut out the rear trip and if unsuccessful to come forward, but obtaining no response he might suspect a breakaway. Nevertheless, it could be a defective loudaphone, and each passenger emergency alarm had to be checked as the driver made his way hopefully to the middle of the train. Use of a passenger alarm handle in those days brought the train to an immediate stop but, due to the checking routine above, did not result in immediate assistance. The current practice of continuing to the next station would usually result in more prompt assistance, and definitely better quality assistance with the resources available at a station.

In the meantime, the guard would have gone back to check the train's rear lights after a delay of a minute, since these might provide the only protection if a following train's driver had 'applied the rule' and moved forward at caution speed after being held at the previous red signal. Being unable to contact his driver, the guard would also suspect a breakaway, but check all passenger emergency alarms for operation as he walked forward to the middle of the train.

A breakaway might happen between any cars, so one of the crew members might need to walk some distance before they sighted each other across a gap in the train. This distance would vary depending on the rate of braking of each half, the weight and loading of which might vary. The first solution to this problem would be to recouple the train, which would require one part of the breakaway to have its air pipe valves closed at the split to enable the brakes to be released and this part of the train to be moved up. Which half to move might depend on the circumstances: recoupling would be easier on a straight length of track where the cars and couplings would be in line. But a breakaway could happen at any point in the train, and there may not be a convenient driving position.

An interesting point from the rule book is that the lower paid guard was nominally in charge of train working, so the driver would work to his instructions. If it was necessary for the front portion to set back, then the guard was responsible for authorising a wrong direction movement. This was similar to depot shunting, where the guard shunter authorised the movement of trains by the motorman

¹ 1992 Tube Stock is an exception, with trains of four units.

² Train crew were exclusively male at this time, equal opportunity legislation not taking effect until 1978, although there were some female train guards during wartime.

shunter. Of course, if a breakaway occurred within station limits then the station supervisor would be responsible for authorising wrong direction movements, in conjunction with the signalman if controlled signals were involved rather than automatic signals. Such responsibility for guards may have been fine when they were promoted from station staff who had served some years on the railway. However, as staff recruitment became difficult guards were recruited direct from the street, even from overseas, and would usually have a matter of months experience, sometimes being promoted to drivers within a couple of years. Some staff were recruited from Caribbean islands without rail systems and could be guarding a train within six weeks, having never seen one before! So in practice it was likely that the driver advised his guard of the best plan of action.

A risk of moving in the wrong direction to recouple was a derailment if the train crossed catch-points. These were sprung points intended for this very purpose, to avoid a more serious accident when part of an unfitted goods train broke away. These trains were common until about 25 years back, being unfitted with a through brake pipe that ensured that both parts of passenger trains halted in the event of a breakaway. The only braking available on many goods trains, which visited LT goods yards, was often on the locomotive and tender, with the guard relying on a hand brake on his van (the guard's van or brake van). All train crew needed to be aware of the location of catch-points on their line to avoid unintentionally rolling back even a little in their vicinity, and to ensure that these points were secured for any wrong direction move. With the elimination of unfitted trains, catch points have long been removed from the LU system.

If recoupling could not be achieved, both parts had to be moved forward separately, the guard acting as an emergency driver for the leading section. Handlamps may have been needed to display a head light or tail light on cars not so fitted. If a problem arose on route, the driver would not be far behind with the second part of the train and could provide further assistance. Passengers would be left at the first station, where a member of station staff would be required to join each segment to act as emergency guards.

1938 TUBE STOCK TROUBLE

I can recall a breakaway with 1938 Tube Stock on the Bakerloo Line around thirty-five years back. This train had entered service southbound from Neasden Depot, but at Swiss Cottage it was found that the guard was unable to switch on the car lighting on the front unit. At this time car lighting was not used on open sections during daylight hours, so this was only noticed on departure from Finchley Road. Passengers were swiftly detrained to the platform, and the guard rode in the leading cab, a common practice on empty trains although against the rules. The train continued without further apparent problem until a welcoming crowd of staff met them at Elephant & Castle, pointing to their short train in a seemingly long platform. The crew's hearts must have sunk as they saw their problem for the first time.

Meanwhile, the signalman at Baker Street became concerned that a train had apparently stalled south of the junction. A supervisor was summonsed, and walking forward found the offending train without passengers or crew, apparently abandoned like the legendary Mary Celeste! Another train crew was required to work it away so that services could resume.

The original crew must have collected their train in a hurry, not performing the required preparation routine since the two units had been merely driven together in the depot, springs causing the coupler tongues to latch in place. However, the coupling engines had not turned to engage the Wedglock coupler wedges under air pressure. This would also have made the air connections between the units to ensure that a breakaway would bring both parts to a halt. The train had held together on the down grade, but must have torn apart on the reverse curves at the Baker Street points, the rear part rolling to a halt and the front unit continuing on its way!

AND EVEN IN THE 21ST CENTURY

Breakaways can still happen today. In August 2010 the overnight failure of a rail grinding machine on the southbound line at Archway resulted in a 1995 Tube Stock train being sent from East Finchley to pull it back northwards. The grinding machine is a three-car unit with driving cabs at each end, the grinding stones on the middle car being used to smooth rail corrugations. Whilst recovery was under way the emergency coupling adaptor, a long metal fabrication, failed just north of Highgate station at 06.41. A breakaway was bad enough, but being Friday 13th things became worse when the grinding machine became a runaway train! Since the brakes on the defective machine could not be controlled

from the assisting train, they had been isolated and released manually in accordance with recovery instructions. Thus the combined recovery train and grinding machine were effectively a partially unfitted train, and the grinding machine could no longer be braked to a halt on its own. Unfitted trains had always had a brake van at the rear to provide some control in such an event, but they had never operated in tube tunnels and there were no catch points to divert the runaway from the running lines! As the machine rolled southwards other trains were swiftly cleared from its path, and it finally settled north of Warren Street some 17 minutes later without injury.

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