

INFORMED SOURCES e-Preview November 2024

While the bulk of this month's column is taken up with the two over-speed events approaching Peterborough Station, I start with some good news. There's also more on vehicle ride on the East Coast Main Line.

Passenger revenue revival stirs.

Spital Jct 2 over-speed revives legendary question.

Ride revelations raise more questions.

As I reported in the April column, passenger revenue plateaued throughout the 2023-24 financial year which ended in March. Since then the big question had been whether ending disruption to services following the settlement of the various industrial disputes would see the travelling public willing to spend more money on rail travel in these hard times.

So I awaited publication of the Office of Rail & Road's (ORR) latest Quarterly Passenger Rail Usage statistics at the start of October with more than usual interest. Adding to the expectation was the fact that the Trainline's preliminary first half results - covering the six months to the end of August - had shown year-on-year sales up 15%.

And when ORR released the data it was indeed encouraging news. Revenue, which had been stuck at just over £2.6bn a quarter throughout a turbulent 2023-24, was up by 8.2% in the first quarter of the new 2024-25 financial year.

Leading the recovery, were the Long Distance operators - Intercity in old-speak, with a 10.1% increase. However, London & South East was close behind at 9.8%.

Each quarter the Great British Railways Transition Team (GBRTT) provides a market analysis of the ORR data. And their Quarter 1 'snapshot' revealed strong growth in business travel.

It has been assumed that Teams and Zoom have replaced travel for face-to-face meetings. The recovery of business travel has been generally overlooked, in part because it brings in low three figure millions each quarter compared with a billion plus for commuting and leisure. However, in percentage terms the business has grown the most over the last two years and is now worth £1bn revenue a year.

Meanwhile, with fingers crossed, it looks as if revenue growth really has returned. Informed Sources have reported a record two weeks in September.

Now the challenge is running a boringly reliable and dependable railway to bring in new customers and keep them coming back. Even a return to the historic average 5% growth rate would knock another £500 million off the funding 'black hole' over the coming year.

RAIB Spital Jct 2 over-speed report analysis

Spital Junction, just north of Peterborough station, was the location of similar events in April 2022 and May 2023. On both occasions trains were being routed off the main line and through the up (southbound) platforms 1 and 2.

Both drivers failed to read the Junction Route Indicator (JRI) showing this divergence. When the signal protecting the junction cleared to green they assumed they were continuing on the main line.

Having been slowed by the approach-controlled interlocking, they then applied power and, with the acceleration of the Azuma and Class 180, proceeded to run through points with a speed limit of 30mile/h at over 60 mile/h.

Now, the simple analysis is driver error. But the just-published Rail Accident Investigation Branch (RAIB) report into the 2023 incident reveals a growing concern that more could have been done to protect drivers against this this type of error.

Of course, the interlocking includes provision for ensuring that drivers slow down as they approach the signal protecting the junction, which also serves the Down (north-bound) platforms.

In the case of platforms 1 and 2 the form of protection against over-speeding through the points is called 'approach release from yellow'. This provides a flashing yellow aspect sequence on preceding signals to alert the driver that the route is set into the platforms.

As RAIB explains, while the driver is still prompted to slow the train through the cautionary aspects displayed, the control is less restrictive than approach release from red, 'and hence provides some performance (time) benefits'. RAIB also notes that it has the additional advantage of 'providing the driver with information at the preceding signals that the train is signalled to take a diverging route at the junction signal.

In addition to flashing yellows, there was another line of defence ahead of the junction. This is the Permissible Speed Warning Indicator (PSWI).

In addition to displaying the 30 mile/h speed restriction through the diverging junction to platforms 1 and 2, the PSWI also provided a directional arrow to indicate that it applies to the tracks to the left of the Up Fast line.

This PSWI also has its own Automatic Warning System (AWS) magnet 180 metres before the sign. Intended to alert the driver to the PWSI, it is acknowledged by cancellation of the AWS. The AWS warning is suppressed if the straight ahead route has been set.

So if the points were set to Platforms 1 or 2, a driver would be slowed and alerted by the flashing yellow approach control, then acknowledge the PSWI AWS alert and finally, above the signal protecting the junction itself, would see an illuminated Junction Route Indicator (JRI). The JRI is illuminated to show which platform has been signalled. If the train is continuing on the main line it remains 'dark'.

In the column I run through the sequence of events leading to the over-speed, following the driver's expectation that they were continuing on the main line. This includes how the flashing yellow approach control was inhibited.

Having slowed correctly, with the train now some 750 metres from the signal protecting the junction, when the signal cleared to green the driver, assuming the route was set straight ahead, accelerated. By the time the train reached the junction, it was running at 66 mile/h. As the train lurched over the first set of points the driver applied full emergency braking and the train came to a halt within the length of Platform 1.

But rather than a straightforward case of driver error, RAIB attributes the incident 'to a combination of causal factors'. RAIB notes that the control of speed at this diverging junction depends on drivers correctly observing and responding to all signal information at up to 800 metres from the junction signal. It is also concerned that the Conspicuity of the JRI, plus its height relative to the main aspect, may have reduced the likelihood of the driver observing it.

Finally, with the high rate of acceleration of the Class 180, the distance between the point where the driver could see the JRI and the junction, was sufficient for the train to accelerate to an unsafe speed.

RAIB considers that the AWS alert at the PSWI had lost its effectiveness. This raises the question of why there was no Train Protection & Warning System (TPWS) protecting potential misreading of the JRI.

Well, in 2003, Network Rail obtained an exemption from the TPWS Regulations for certain applications. These included permissible speed restrictions at diverging junctions which were equipped with approach release signalling. Among the reasons for the exemption was the belief that approach release signalling provided effective risk control.

Network Rail's signalling review report following the first Spital Jct over-speed in 2022, 'suggested' that it might be 'beneficial to use TPWS to control over-speed at the junction, especially considering the long distance between the signal and the junction and that there is already a deviation from standards existing for this signal because of the large speed reduction involved'.

So what happened next? Well, not much. As I describe in the column, we have the curse of the privatised Railway, paralysis by analysis, plus the belief in innovation or, more crudely, that something better will turn up.

There is an aphorism in a James Bond novel. 'once is happenstance, twice is coincidence, three times is enemy action'. Back in March this year, LNER service 1S10 left York northbound. Because of a points problem the train had to cross from the Down Fast to the Down Slow at Skelton Junction where the crossover has a 50 mile/h speed limit.

According to Informed Sources, the driver failed to read the JRI and the train ran through the points at 65-70 mile/h. Surprisingly, when I raised this with RAIB and ORR, neither organisation thought it worth investigating.

Vehicle ride – bottoms and accelerometers disagree

Last month's item on Metro-Cammell's development of the British Rail Mk4 coach to meet a demanding ride specification, ended with me waiting on a Freedom of Information request to the Department for Transport. I had asked for details of ride tests under the Intercity Express Programme (IEP) contract.

I didn't have to wait that long. The answer to my query arrived on 23 September.

DfT confirmed that there were IEP ride tests but, disclosure of the details of the test results would 'compromise the commercial interests of Hitachi Rail Europe'. But had the result of ride tests been an A* triumph of suspension design, or even, just a 'pass', how could revealing the results 'compromise the commercial interests of Hitachi Rail Europe'?

Meanwhile, back to the everyday ride tests of the IEP, now better known as the LNER Azuma, where complaints about the ride have been widespread. Often this has been accompanied by unfavourable comparisons with the ride of the IC225's Mk 4 coach – the subject of last month's article.

Intrigued by these comparisons, Linda Wain, LNER's Engineering Director, decided to see whether this perceived difference could be quantified. So an engineering consultancy was commissioned to carry out new ride tests on both Azuma and IC225 vehicles. And there was a slight difference – but not as big as passengers' perceptions suggested.

Obviously, perceived ride is about much more than an accelerometer on the floor of the coach. It includes the interaction between the passenger and the seat and a combination of human senses. As Linda Wain puts it, 'for the Azumas to meet the ride spec, we wanted them to be as good as a Mk 4 to a calibrated human bottom, not just to the spec'.

In the column I describe LNER's solution to improving the worst riding vehicles in its Azuma sets. The cause was traced to the train-track interface.

Meanwhile, unlike East Midlands with its Hitachi Class 810 bi-mode contract, LNER will definitely be subjecting its new CAF trains to physical ride tests.

Roger's blog

I'm writing this the day after departing Editor Philip Sherratt's farewell party. It doesn't seem like 10 years since Philip took over the Modern Railways Editorial chair, but having worked for every editor, including the magazine's founder Geoffrey Freeman Allen, Philip maintained the tradition of moving the magazine forward. And like all his predecessors was expert in spotting embarrassing errors in my copy.

Meanwhile, it's that time of the year again. The rolling stock reliability data for Period 6 of the 2024-25 reporting year has just arrived.

Every month I use this data for the Column's new fleet reliability table, but Period 6 is also the basis for the Golden Spanners awards in November. Plus my annual fleet-by-fleet reliability review in the January magazine, which is also Modern Railways' annual rolling stock issue.

So the arrival of the Period 6 figures is a big event in the Informed Sources year. And while the Gold Spanners are awarded to the most reliable fleet in Period 6, the Silver awards go to the highest year-on-year percentage improvement. So with eight categories you can imagine that I have some serious spread-sheet work ahead.

And that's on top of writing net month's column which already has a growing queue of potential topics. So I had better send this off and get my head down!

Roger

[EZezine Company Terms of Service Privacy Policy](#)