

INFORMED SOURCES e-Preview January 2022

This month's column covers three very different topics with one thing in common – the impact of external processes and policies on the working railway. There's no New Train TIN-Watch report this month, because January is traditionally our Traction and Rolling special issue. Instead, there is my annual reliability review featuring data on every train fleet on the network, plus the results of the Golden Spanners Awards.

Process delays £4 million fleet sanding pilot
IRP ECML journey times – DfT jumps the shark
Signalling - competition Review hits market reality

In 2017, the Rail Safety & Standards Board launched Research Project T1107 'Trial of sander configurations and sand laying rates'. This work included trials at Network Rail's RIDC track. These demonstrated that fitting two variable-rate sanders to a Class 387 multiple unit provided reliable Step 2 braking regardless of the available adhesion.

With Dual Variable Rate Sanders (DVRS) fitted, the stopping distance from 50 mile/h was a consistent 400 metres irrespective of adhesion. Without sanding, and on similar low adhesion, the train took 1,292m to stop.

Service trials followed, with DVRS fitted to two West Midlands Class 323 units running on the Birmingham Cross-City lines. To put this in context, under spring and summer levels of adhesion the Cross-City timetable is based on Step 1 braking. With DVRS, Step 2 braking provided a higher level of retardation under the worst adhesion conditions.

Clearly, it is one thing to have hand-picked drivers braking on test tracks or under possessions. The final stage in DVRS development would be to fit the Class 323 fleet with DVRS to allow a full-scale service trial. To start with, Northern would equip its 17 Class 323s with DVRS, pending the transfer of the rest of the Class from WMT.

On the basis of the test results, the Rail Delivery Group had developed a National Business Case justifying the fitment of DVRS. However, in today's fragmented railway, no one is going to pay out good money on a trial fleet-fitment on the basis of an RSSB research programme.

Thus, in March 2021, Porterbrook Leasing, as owners of the Class 323 fleet, put in a request to Network Rail's Performance Innovation Fund (PIF) for finance to equip its 43 Class 323 trains with DVRS. This was accepted and the contract with Network Rail, worth a reported £4 million, was ready to be signed at the beginning of August. Porterbrook would then be able to award a separate contract to AB Hoses to supply and fit the DVRS modification and provide product support.

However after four months, the details of the contract between Network Rail and Porterbrook were still being negotiated. Now, you might have thought that the Salisbury collision, where RAIB's preliminary conclusion is that it was due to rail-head contamination, might have concentrated minds at Network Rail and Porterbrook. But getting the perfect contract was apparently more important.

Adding to the need for urgency, since the installation work had been priced, inflation has hit costs in the engineering sector and the tender validity would have to expire at the end of December. Anyway, just as I was writing this, Informed Sources reported that Porterbrook and Network Rail had finally inked the contract on 15 December.

However there is more to DVRS than a delayed contract. At the Golden Spanners Awards, our Guest Speaker, Transport Scotland Director of Rail Bill Reeve, brought up the subject of DVRS in his presentation.

ScotRail had also applied to the PIF for funding to cover trial fleet fitment of DVRS. According to Bill, the application was rejected on the grounds that it was 'not innovative enough'.

Well, do you need more than one trial of DVRS? But, as you might expect, Bill took a much wider view of DVRS, including aspects which had passed my immediate reaction by.

Investment in rail safety is evaluated on reducing risk to 'As Low As Reasonably Practical' – ALARP. If the Class 323 fleet trial confirms the earlier results, ScotRail, and other operators could be running trains that don't stop as fast as they could if they were fitted with DVRS. Or, as Salisbury demonstrated, barely stop at all until they hit something.

Assuming the fleet trial is a success, if trains which could be fitted with DVRS are running without, has risk from low adhesion been reduced to ALARP?. It will be interesting to see whether in its final report on Salisbury RAIB refers to T1107. It will even more interesting to read what the Safety Regulator has to say.

Watch this space

IRP ECML journey times unrealistic

As you may recall, when High Speed 2 was launched, I decided not to cover the project on the grounds that doing the job properly would take too much time away from reporting on the current railway. However, while the Government's Integrated Rail plan (IRP) has attracted claims of 'betrayal' for its treatment of HS2 and Northern Powerhouse Rail, to compensate for these changes there are promises of dramatically reduced journey times, plus increased capacity, on the

East Coast Main Line (ECML).

This route has long been a specialist subject of this column. So, while the big picture on IRP is covered in this month's news pages, I have made a detailed analysis of the aspirations for the ECML.

Starting point is the claim in the IRP that 'unlike the West Coast Main Line, the East Coast Main Line from King's Cross has significant potential to further improve line speed increases and seat capacity'. This will, according to the IRP, 'reduce journey times from London to York and Darlington by up to 15 minutes and to other parts of the North East and Edinburgh (subject to stopping patterns) by around 25 minutes compared to today'.

Well, I have tried to reconcile the various journey time improvements scattered around the IRP. And have used the times from the 1991 record run with a shortened IC225 as a sense check.

That run was a one-off, with scheduled services pushed aside to provide a clear path, plus 140 mile/h authorised and the track fettled. Some of the IRP timings would mean replicating such a flat-out blast in an hourly timetable. This would wreck reliability and capacity.

I also list the 'significant package of upgrades' proposed in the IRP and required to provide such times. These upgrades would be delivered in three tranches, the last completed in 2037. But even then, my overall conclusion remains that the journey time aspirations are a work of fantasy.

Even more important, will it happen? Perhaps the most important lines in the IRP are these: 'In line with the Government's existing approach to rail enhancements, commitments will be made only to progress individual schemes up to the next stage of development, subject to a review of their readiness'.

Don't hold your breath.

Signalling market competition limited

in November 2020, the Office of Rail & Road launched its Signalling market study. The rationale was 'ensuring that there is a highly competitive market for signalling systems, with healthy pressure to compete on cost, quality and innovation, (which) can make a key contribution towards meeting the value for money challenge, as well as delivering better outcomes for users and funders' The Study would enable ORR 'to understand the current strength of these pressures and to identify areas where competition might be further strengthened so as to maximise the contribution it can make'.

At the time, I dismissed this as a waste of time, given the reality of the European signalling market. But in November, the final Report of the Market Study was published. And while it contains a wealth of information for signalling nerds like me, it confirms the fact that the scope for competition is limited - which we all knew anyway.

As I explain in the column, historically the UK signalling market has been dominated by a 'big two and a half'. Today, the 'two' are Alstom and Siemens. The half is Hitachi, which came into the market through acquiring Ansaldo of Italy and is now adding Thales to its portfolio.

Both Ansaldo and Thales have supplied European Train Control System (ETCS) Schemes. Ansaldo was, of course, responsible for the Cambrian ETCS Early Deployment Scheme.

Some simple statistics reveal why the UK market offends the Regulator's competitive instinct. Network Rail spends £800-900 million a year on signalling and 65% of signalling assets are projected to expire within the next 15 years.

According to ORR, this could 'potentially' result in a five to six-fold increase in the volume of renewals work as Network Rail looks to replace conventional systems with ETCS. ORR is 'keen to ensure that there are no unnecessary barriers to entering or growing in the market, such that new players and technologies are incentivised and have a fair opportunity to compete, helping Network Rail to drive value and innovation'.

In the column I recall Railtrack's attempts to bring new suppliers of interlockings into the market. To varying degrees these all crashed and burned, leaving us with the current suppliers.

ORR attributes the current situation, in part, to Network Rail's preference for Solid State Interlocking (SSI) keeping out alternative Computer Based Interlockings (CBI). This is the same error that Railtrack made when it thought that CBI and SSI were different technologies.

In fact SSI was the original CBI. And in the UK Alstom and Siemens have been supplying their latest CBIs - Smartlock and Westlock respectively. However, these interlockings still run the SSI data language, because it is ideal for accommodating the much greater complexities of UK signalling principles, compared with European railways.

In its conclusions, ORR's remedy is that Network Rail procures signalling renewals in the medium to long term, roughly after 2030, to reduce the degree of its dependence on the incumbent suppliers. To do this, says ORR, Network Rail should 'engage with the largest possible pool of suppliers for top-tier work'.

And thereby lies the rub. When it comes to ETCS, which is ORR's prime concern, there aren't all that many 'top-tier suppliers left. The 'pool' is more of a puddle.

Hitachi has scooped up Ansaldo and Thales. This leaves CAF as the only potential new entrant, with its EURIGA Level 1 and 2 ETCS products. These have been shown at recent UK industry events.

While not a totally pointless exercise, for me, the ORR study emphasises the need to support what we've got, rather than go for another ground-hog day CBI pilot experience. And, as my write-up of the Siemens Low Cost Digital Ready approach (Informed Sources October 2021) shows, away from ETCS, the incumbents can provide innovative low cost signalling solutions if they are given their head.

Roger's blog

Time to wish e-Preview subscriber a happy and peaceful Christmas. It's been a hard year for all in the railway industry and it was heart-warming to see so many of those from the 'sharp end' at the Golden Spanners Awards held live at the end of November. We handed out 25 Spanners to 22 Depots, emphasising the wide spread of excellence.

And we should also raise a glass to those of the Orange Army who will, once again, be out on the railway working on the various enhancement and renewals projects between now and the New Year.

Looking ahead, there is no shortage of topics to cover, although mostly via Zoom or Teams. And 2022 marks Modern Railways' 60th Anniversary year, with a number of celebratory events being planned.

However, our bumper Golden Anniversary issue in 2012 pretty well said all there was to say about the history of Modern Railways. So to mark the 60th Anniversary we will be running snapshots of each of our six decades. The 1960's review will appear in the February magazine and I'm having fun revisiting the decade, often remembered for Beeching and the end of steam, but one which saw major political and technical changes which still resonate in the 21st Century.

Roger

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