

# APT is dead – Long live tilt



## NEWS ANALYSIS 1: A TANTALISING TILT

*Tilting trains made a welcome return to the UK mainline when, last month, the first section of high-speed track on the West Coast Main Line was handed over to Virgin. Peter Plisner was one of the invited guests on this historic trip*

THINK OF TILTING TRAINS AND MOST PEOPLE REMEMBER the ill-fated Advanced Passenger Train. The APT represented cutting-edge technology, yet the Government of the day decided that, despite the innovation and the dedicated team of engineers that worked on it, the scheme should be scrapped. Although it's still fresh in the mind, you might be surprised to discover that it's now 20 years since the APT was killed off. Most people only remember the bad things about the train. How it broke down and how it was dubbed the 'Queasy Rider' when passengers complained about feeling sick. However, recently the APT was remembered for all the right reasons, those being the contribution it has made to the development of modern train technology and, in particular, the latest incarnation of tilt technology on the West Coast Main Line. Although the track modernisation programme is years behind schedule and billions of pounds over budget, the design and construction of the new Pendolino tilting trains has remained more or less on time.

Before Christmas a series of special services were run on the first section of track to be upgraded to 125mph and full tilt capability. The outings were designed to thank staff and others who had contributed to the project so far. Oh yes, they also took a few journalists with them, including me! Having just travelled down from the Midlands, the Pendolino service, from Euston, promptly took me back there. Engineers have been working hard on a section of track between Rugby and Atherstone (Warwickshire), where trains can now run at high speed, and where the balises have been installed to give the trains tilt authority. Pendolinos have been in service since the beginning of last year. However, because of delays with the West Coast Mainline (WCML) modernisation programme, until December they hadn't been able to use the tilting mechanism.

Most of those invited were impressed with the performance of the train and despite being fed a full English breakfast on the way to the Midlands, none of the passengers I spoke to

complained of suffering any ill effects as a result of tilting round the bends in the track. Even a glass of water, which was the subject of much media attention, behaved itself. Not a drop was spilt as we negotiated one curve after another. On board the train it's not easy to detect that you're tilting, though as it's really all about passenger comfort, that's not really that surprising. Also I personally didn't get a great impression of the 125mph speed the train was going. Viewed from the window, it didn't feel any faster than the current 110mph line speed on the WCML. However, once the whole track is upgraded passengers will certainly notice the different when they arrive at their destination. Journeys between London and Manchester will be cut by up to 40 minutes and 20 minutes will be wiped off the journey to Birmingham.

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Ironically the high speed trip took place on the same day the Rail Regulator announced the final conclusions of his access charge review. In previous drafts Tom Winsor had demanded that cuts be made to the West Coast upgrade programme, something which had been hotly contested by the Strategic Rail Authority. It has been trying to protect the outputs that it stipulated in last year's West Coast Strategy. However, it's clear that compromises have been made. The review demanded cuts of £650m to the project, which it said could be achieved by delaying work on the Trent Valley section

### HOW DOES TILT WORK?

- The train leaves the depot with its tilt system initiated, but awaited a positive command to start tilting.
- The command is given automatically as the train's computer (TASS) reads a 'balise' installed in the track (much as a supermarket scanner reads a barcode)
- Intermediate balises are installed every two miles to re-affirm the train's authority to tilt. Each balise tells the train how many metres it has to the next balise: if the train computer cannot find or read a the next balise, it automatically brakes to conventional speeds and stops tilting.
- The degree of tilt is controlled by the train's leading gyroscope, which calculates how much tilt is needed on each coach and then applies this as it enters the curve.

of the WCML, which runs from Rugby to Stafford. The modernisation programme includes the provision of extra tracks to separate fast and slow traffic. The review stated that the regulator 'considers that some rephrasing of outputs after September 2004 (including rephrasing the Rugby, Nuneaton stage 2 and Trent Valley works by 18 months) is necessary to reduce to acceptable levels the risks of non-delivery and cost overruns and reduce materially the overall cost of the project.'

The SRA was clearly not amused. Richard Bowker, one of the passengers on board the special train, refused to be interviewed by the media. But Virgin Chief Executive Chris Green didn't pass up the opportunity to voice his dissatisfaction at the announcement. He made it clear that the decision would effectively create a severe bottleneck on the line to Scotland and the north-west. Up to 300 trains a day, he said, would have to slow down and then speed up again on the only section of track between London and Crewe that hadn't been widened to four tracks. He added that the decision would reduce capacity on the line and would affect the punctuality of his trains in the future. The decision also means the loss, for the time being, of plans for a new station at Rugby, which many had been hoping would kick start development between the town and the railway station.

The upgrade in the Trent Valley would also have meant more space on the line for freight traffic. Bob Goundry, Director of Strategy at Freightliner says: 'The capacity enhancement is essential if there's going to be growth on the rail freight market.' He adds that, once the gauge clearance work between Felixstowe and the Midlands is complete, the upgrade becomes even more important. Goundry says: 'Getting on the WCML becomes much more difficult as Virgin begins to run faster and more frequent trains.' Similar sentiments were expressed by the Rail Freight Group Chairman, Lord Berkeley, who also is disappointed at the news: 'To delay this work now will compromise the whole capacity of the West Coast Main Line. In order to protect freight capacity, it may be necessary to look again at the timetable and frequency of both passenger and freight trains. We urge Network Rail to keep going on this project without delay.'

Despite the delay to some parts of the West Coast project, the majority of the improvements are now expected to be delivered in line with the SRA's timetable. Concerns that Network Rail might struggle to meet the deadlines have been dismissed by those in charge of the project. We will now just have to wait and see. But while there may still be some uncertainties surrounding the upgrade of the track, one thing is clear; following last month's historic Pendolino trip, the ghost of the Advanced Passenger Train has finally been laid to rest.

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